

KPNLRDDH85015

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH85015

DATE - 01/09/86

- HISTORY -

START DATE - 04/08/85
END DATE - 04/10/85

CONTRACTOR - J.T. THOMAS
GEOLOGIST - M. BARKER

OPERATOR - GCRI
SURVEYOR - MWG & ASS.

REMARKS - SITE C1

- LOCATION -

PROVINCE - BC
ELEVATION - 1669.40

ZONE - 9
NORTHING - 6344509.00
EASTING - 505423.00

LICENCE/LEASE NUMBER - 7152

LATITUDE - 571444
LONGITUDE - 1285437

- ORIENTATION -

LENGTH - 197.80

INCLINATION - 65.0
AZIMUTH - 45.0

CORE SIZE - 0.0

CEMENT -
PLUG -
PIEZ -

CASING DEPTH (M) - 15.80
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 RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH35015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	15.80	15.80			OVERBURDEN	CASING TO 15.80 METRES
	15.80	19.87	4.07			ROCK LOSS	
	19.87	20.42	0.55			SANDSTONE	FG,HEL,LT,GY,MAS,VBRKN SOME CLAY OVERBURDEN
	20.42	20.76	0.34			SANDSTONE	FG,HEL,LT,GY,MAS,VBRKN SOME SILTSTONE LAYERS 4MM WIDE
* 43	20.76	22.56	1.80			SANDSTONE	SLTY,FG,PR,LT,GY,LAM,SSD,VBRKN TOPS DOWN, CROSS-BEDDING, HORN BURROWS, FINE MUDSTONE LAMINAE THROUGHOUT
	22.56	22.67	0.11			ROCK LOSS	
* 53	22.67	24.42	1.75			SANDSTONE	SLTY,FG,PR,LT,GY,LAM,VBRKN LITHOLOGY AS ABOVE
	24.42	24.82	0.40			SANDSTONE	SLTY,FG,PR,LT,GY,LAM,HRMBU,VBRKN LITHOLOGY AS ABOVE, TOPS DOWN
* 50	24.82	25.99	1.17			SANDSTONE	SLTY,FG,PR,LT,GY,LAM,VBRKN AS ABOVE, FEWER SILTSTONE BANDS, MUCH C LEANER SAND, MODERATE QUARTZ VEINING AT VARIED ANGLES

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH35015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 53	25.99	27.30	1.31			SANDSTONE	FG,PR,LT,GY,MAS,BRKN OCCASSIONAL SILTSTONE LAMINAE
	27.30	27.84	0.54			SANDSTONE	FG,PR,LT,GY,MAS,VBRKN AS ABOVE, MODERATELY FINE QUARTZ VEINS THROUGHOUT
	27.84	29.47	1.63			MUDSTONE	CARB,PR,DK,GY,MAS,VBRKN MINOR SILTSTONE LAMINAE, OCCASSIONAL C CAL STRINGERS 1.0 TO 3.0 MM WIDE, ONE 3 0.0 MM COAL BAND
	29.47	29.87	0.40			MUDSTONE	CARB,PR,DK,GY,MAS,VBRKN AS ABOVE, 2.0 TO 30.0 MM COAL LAYERS TH ROUGHOUT
	29.87	31.04	1.17			MUDSTONE	CARB,PR,DK,GY,MAS,VBRKN AS ABOVE, MORE COALY DOWNHOLE
	31.04	31.47	0.43			MUDSTONE	M,GY,MAS,BRKN
* 40	31.47	32.54	1.07	07524		MUDSTONE	DK,GY,BRKN DARKER AND SLIGHTLY SILTY
	32.54	32.57	0.03	07525 E		COAL	C-1,SLD BRIGHT BANDED

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	32.57	32.66	0.09	07525	E	MUDSTONE	CARB. BLK. BRKN ANKERITE VEINING
	32.66	32.97	0.31	07525	E	COAL	C-1, BRKN
	32.97	33.09	0.12	07525	E	COAL	C-3, SLD
	33.09	33.26	0.17	07525	E	COAL	C-1, BRKN
*	33.26	33.43	0.17	07525	E	COAL	C-3, SLD SOMEWHAT PULVERIZED
	33.43	33.49	0.06	07525	E	COAL	C-1, BRKN
	33.49	33.54	0.05	07525	E	COAL LOSS	
	33.54	33.70	0.16	07525	E	COAL LOSS	
	33.70	34.30	0.60	07525	E	COAL	C-3, SLD PULVERIZED
	34.30	34.42	0.12	07525	E	MUDSTONE	CARB. BLK. BRKN SOFT

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	34.42	34.48	0.06	07525	E	MUDSTONE	CARB. BLK. YBRKN
	34.48	34.61	0.13	07525	E	ROCK LOSS	
	34.61	34.66	0.05	07525	E	ROCK LOSS	
*	34.66	34.78	0.12	07525	E	COAL	C-2, BRKN ANKERITE IN BEDDING
*	34.78	34.89	0.11	07525	E	COAL	C-2, YBRKN ANKERITE VEIN AT BOTTOM
	34.89	36.40	1.51	07526		MUDSTONE	CARB. DK. GY. SLD LIGHTER COLOUR DOWNWARD
	36.40	37.32	0.92			MUDSTONE	DK. GY. MAS. YBRKN MASSIVE, UNIFORM
	37.32	37.47	0.15			ROCK LOSS	
*	37.47	38.32	0.85			MUDSTONE	DK. GY. MAS. YBRKN SOME SILTSTONE LAMINAE DOWNHOLE
	38.32	39.10	0.78			MUDSTONE	SLTY. DK. GY. LAM. YBRKN FINE SILTY LAMINAE THROUGHOUT
	39.10	39.91	0.81			ROCK LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DCH85015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
55	39.91	40.71	0.80			MUDSTONE	SLTY. DK. GY. LAM. YBRKN AS ABOVE
* 60	40.71	41.42	0.71			MUDSTONE	SLTY. DK. GY. LAM. HRMBU. YBRKN AS ABOVE, TOPS DOWN
56	41.42	42.56	1.14			MUDSTONE	SLTY. DK. GY. LAM. HRMBU. YBRKN AS ABOVE, TOPS DOWN
52	42.56	42.90	0.34			ROCK LOSS	
48	42.90	44.31	1.41			MUDSTONE	SLTY. DK. GY. LAM. YBRKN AS ABOVE, QUARTZ VEIN (10.0 MM) PERPEND. ICULAR TO BEDDING
* 40	44.31	46.25	1.94			MUDSTONE	DK. GY. LAM. BRKN FAINT SILTY LAMINAE
43	46.25	46.39	0.14			SILTSTONE	MOD. M. GY. YBRKN MINOR TALC ON FRACTURE SURFACES
43	46.39	46.41	0.02			QUARTZITE	MM. YBRKN
44	46.41	46.66	0.25			ROCK LOSS	
44	46.66	46.77	0.11			MUDSTONE	HEL. LT. GY. YBRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DCH85015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 45	46.77	47.23	0.46			SILTSTONE	MOD. M. GY. LAM. HRMBU. SLD TOPS DOWN ON WORM BURROWS
45	47.23	47.35	0.12			SILTSTONE	MOD. LT. GY. LAM. BRKN CALCAREOUS
45	47.35	48.19	0.84			SILTSTONE	MOD. M. GY. LAM. BRKN AS ABOVE
* 46	48.19	49.74	1.55			SILTSTONE	MOD. M. GY. LAM. BRKN AS ABOVE
49	49.74	49.83	0.09			SANDSTONE	HEL. LT. GY. SLD CALCAREOUS
50	49.83	50.07	0.24			SILTSTONE	MOD. M. GY. LAM. BRKN POLISHED FRACTURE SURFACES CONTAINING T ALC, LITHOLOGY AS ABOVE
* 35	50.07	52.20	2.13			SILTSTONE	MOD. M. GY. LAM. HRMBU. SLD AS ABOVE, TOPS DOWN
47	52.20	52.67	0.47			SILTSTONE	MOD. M. GY. LAM. BRKN AS ABOVE, INCREASING MUDSTONE CONTENT, TALC ON FRACTURE SURFACES
45	52.67	52.78	0.11			SILTSTONE	MOD. M. GY. LAM. SLD AS ABOVE, LESSER MUDSTONE CONTENT

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
44	52.78	53.06	0.28			SILTSTONE	MOD. M. GY. LAM. BRKN SLIGHTLY CALCAREOUS
* 40	53.06	53.96	0.90			SILTSTONE	MOD. M. GY. LAM. BRKN AS ABOVE, LAMINATED, CALCITE AND QUARTZ VEINING PARALLEL TO BEDDING, MINOR POL ISHED FRACTURE SURFACES
42	53.96	54.12	0.16			ROCK LOSS	
* 44	54.12	55.72	1.60			SILTSTONE	MOD. M. GY. LAM. BRKN AS ABOVE, MINOR CALCITE ALONG FRACTURE SURFACES
41	55.72	55.90	0.18			SILTSTONE	MOD. M. GY. LAM. BRKN AS ABOVE
* 38	55.90	57.82	1.92			SILTSTONE	MOD. M. GY. LAM. HRMBU. BRKN AS ABOVE, TOPS DOWN, MINOR TALC ON FRAC TURE SURFACES, CALCITE VEIN 1.0 MM. AT A NGLE TO BEDDING
41	57.82	58.27	0.45			SILTSTONE	MOD. M. GY. LAM. BRKN AS ABOVE, TALC ON FRACTURE SURFACES
42	58.27	58.77	0.50			ROCK LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
43	58.77	59.45	0.68			SILTSTONE	MOD. M. GY. LAM. BRKN AS ABOVE
44	59.45	59.66	0.21			SILTSTONE	MOD. M. GY. LAM. SLD SLIGHTLY CALCAREOUS
* 45	59.66	60.08	0.42			SILTSTONE	MOD. M. GY. LAM. SLD AS ABOVE
45	60.08	60.13	0.05			SILTSTONE	MOD. M. GY. LAM. BRKN AS ABOVE
45	60.13	60.19	0.06			QUARTZITE	MM PARALLEL TO BEDDING
* 44	60.19	61.77	1.58			SILTSTONE	MOD. M. GY. LAM. SLD LITHOLOGY AS SILTSTONE ABOVE, 80 MM CAL CAREOUS SILTSTONE UNIT
42	61.77	61.88	0.11			SILTSTONE	MOD. M. GY. LAM. VBRKN AS ABOVE, UNIFORM
42	61.88	62.03	0.15			ROCK LOSS	
* 40	62.03	63.76	1.73			SILTSTONE	MOD. M. GY. LAM. VBRKN AS ABOVE
35	63.76	64.65	0.89			SILTSTONE	MOD. M. GY. LAM. VBRKN AS ABOVE, TALC ON FRACTURE SURFACES

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	33	64.65	64.98	0.33		ROCK LOSS	
* 31	64.98	65.89	0.91			SILTSTONE	MOD. H. GY. LAM. BRKN AS ABOVE, TALC ON FRACTURE SURFACES, HIGHLY FRACTURED INTERVAL (40.0 MM)
* 42	65.89	67.71	1.82			SILTSTONE	MOD. H. GY. LAM. YBRKN AS ABOVE, TALC ON FRACTURE SURFACES, ABUNDANT FRACTURING CAUSING SOME UNCONSOLIDATION
	46	67.71	68.06	0.35		ROCK LOSS	
* 49	68.06	69.84	1.78			SILTSTONE	MOD. H. GY. LAM. YBRKN AS ABOVE, TALC ON FRACTURE SURFACES, FRACTURE ZONES HAVE HIGHER MUD CONTENT, CALC AND ANKERITE INCLUSIONS
* 45	69.84	70.91	1.07			SILTSTONE	MOD. H. GY. LAM. BRKN AS ABOVE, TALC ON FRACTURE SURFACES, CALCITE VEINING PARALLEL TO BEDDING (2 MM)
	45	70.91	71.11	0.20		ROCK LOSS	
	45	71.11	71.96	0.85		SILTSTONE	MOD. H. GY. LAM. SLD AS ABOVE, TALC ON FRACTURE SURFACES

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	45	71.96	72.22	0.26		SILTSTONE	MOD. H. GY. LAM. SLD AS ABOVE
* 45	72.22	73.98	1.76			MUDSTONE	SLTY. MED. DK. GY. YBRKN HIGHLY FRACTURED, COALY INCLUSIONS UP TO 10.0MM, TALC ON FRACTURE SURFACES
	42	73.98	74.06	0.08		MUDSTONE	SLTY. MOD. DK. GY. LAM. BRKN AS ABOVE, COAL BAND 10.0MM
	41	74.06	74.47	0.41		ROCK LOSS	
	36	74.47	76.37	1.90		MUDSTONE	CARB MODERATE QUARTZ VEINING PARALLEL TO BEDDING UP TO 5.0 MM, TALC ON FRACTURE SURFACES, COAL BANDS PARALLEL TO BEDDING UP TO 50.0MM THICK THROUGHOUT SEPARATED BY 50 TO 100 MM OF MUDSTONE
	32	76.37	76.78	0.41		MUDSTONE	CARB. DK. GY. BRKN
* 30	76.78	77.40	0.62			MUDSTONE	CARB. BLK. BRKN COAL LENSES

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	27	77.40	77.52	0.12		ROCK LOSS	
*	25	77.52	78.00	0.48	07527	MUDSTONE	CARB. BLK. SLD VERY COALY
	30	78.00	78.04	0.04	07528 F	COAL	C-2. BRKN
	32	78.04	78.14	0.10	07528 F	MUDSTONE	CARB. BLK. SLD VERY COALY
	36	78.14	78.48	0.34	07528 F	COAL	C-5. BRKN
*	40	78.48	78.55	0.07	07528 F	COAL	C-3. BRKN
	60	78.55	78.70	0.15	07528 F	MUDSTONE	CARB. BLK. BRKN VERY COALY
*	80	78.70	78.76	0.06	07528 F	COAL	C-3. SLD
	60	78.76	78.86	0.10	07528 F	COAL	C-6. BRKN ANKERITE IN CLEATS
	36	78.86	78.95	0.09	07528 F	MUDSTONE	CARB. DK. GY. BRKN

* DENOTES MEASURED. BCA.

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	01	78.95	79.14	0.19	07528 F	COAL	C-6. SHRD VERY LISTRIC, ONE THICKNESS OF CORE REP RESENTED
	49	79.14	79.35	0.21	07528 F	COAL LOSS	
*	80	79.35	79.40	0.05	07528 F	CLAYSTONE	CARB. BLK. SHRD
*	80	79.40	79.71	0.31	07528 F	COAL	C-3. SHRD LISTRIC
	77	79.71	79.77	0.06	07528 F	MUDSTONE	CARB. BLK. SLD
	75	79.77	79.95	0.18	07528 F	COAL	C-3. PNRD
	72	79.95	80.01	0.06	07528 F	CLAYSTONE	CARB. BLK. SLD
	71	80.01	80.13	0.12	07528 F	COAL	C-3. BRKN COMPRESSED POWDER
	69	80.13	80.17	0.04	07529 F	MUDSTONE	CARB. DK. GY. SLD

* DENOTES MEASURED. BCA.

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PROJECT: KPH BLOCK: LR DATA SOURCE: DDH85015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	80.17	80.25	0.08	07529	F	MUDSTONE	CARB. BLK. BRKN. VERY COALY
	80.25	80.29	0.04	07529	F	MUDSTONE	M. GY. SLD
* 65	80.29	80.49	0.20	07529	F	MUDSTONE	M. GY.
	80.49	80.58	0.09	07529	F	MUDSTONE	DK. GY. SLD
* 45	80.58	81.17	0.59	07529	F	COAL	C-6. SHRD. VERY LITRIC. POWDERED AND COMPRESSED
	81.17	81.44	0.27	07529	F	COAL LOSS	
* 15	81.44	81.79	0.35	07529	F	COAL	C-6. SHRD. AS ABOVE
* 15	81.79	82.28	0.49	07529	F	COAL	C-6. BRKN. LITRIC SURFACES
* 30	82.28	83.00	0.72	07530		MUDSTONE	CARB. BLK. SLD. ABUNDANT DEFORMED ANKERITE VEINS AND DISSEMINATED PYRITE BANDS, COAL LENSES.

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPH BLOCK: LR DATA SOURCE: DDH85015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 45	83.00	83.56	0.56			MUDSTONE	DK. GY. LAM. SLD
	83.56	83.72	0.16			MUDSTONE	SLD
* 36	83.72	85.71	1.99			SILTSTONE	CLYY. MOD. M. GY. LAM. SLD. INCREASED MUDSTONE AT STRATIGRAPHIC BOT. THIN, UNIFORM
	85.71	86.50	0.79			SILTSTONE	CLYY. MOD. DK. GY. LAM. BRKN. AS ABOVE. MUDSTONE CONTENT THE SAME THROUGHOUT, MINOR TALC ON POLISHED SURFACE
* 23	86.50	87.77	1.27			SILTSTONE	CLYY. MOD. DK. GY. LAM. BRKN. AS ABOVE. SILTIER AT STRATIGRAPHIC TOP. CALCITE VEINING 1.0MM AT ANGLES TO BEDDING
	87.77	87.86	0.09			ROCK LOSS	
* 45	87.86	89.43	1.57			SILTSTONE	MOD. M. GY. VTHMB. BRKN. AS ABOVE. TALC ON FRACTURE SURFACES

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	45 89.43	89.63	0.20			ROCK LOSS	
	45 89.63	90.03	0.40			SILTSTONE	MOD. M. GY. YTHNB. SLD AS ABOVE
	45 90.03	92.00	1.97			SILTSTONE	MOD. M. GY. YTHNB. XBDG. BRKN AS ABOVE. TOPS DOWN ON CROSS-BEDDING. T. ALC ALONG FRACTURE SURFACES
	45 92.00	92.07	0.07			MUDSTONE	MEL. M. GY. SLD SOFT, MINDR TALC ON FRACTURE SURFACES
	45 92.07	92.37	0.30			SILTSTONE	MOD. M. GY. LAM. BRKN ABUNDANT FRACTURING AND POLISHED LISTRIC SURFACES, CRUMBLES EASILY
	45 92.37	92.57	0.20		F/G	MUDSTONE	MEL. DK. GY. SLD SOFT, POLISHED LISTRIC SURFACES CONTAIN TALC. COAL BLEBS. 40.0MMX5.0MM
	45 92.57	92.67	0.10			SILTSTONE	MOD. M. GY. LAM. SLD TALC ON POLISHED FRACTURE SURFACES
*	45 92.67	93.98	1.31			SILTSTONE	MOD. M. GY. LAM. VBRKN ABUNDANT FRACTURE SURFACES CONTAINING TALC. 180.0MM UNIT IN MID-SECTION CONTAINS A HIGHER PERCENTAGE OF MUDSTONE AND IS MORE EASILY BROKEN

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	45 93.98	95.53	1.55			MUDSTONE	SLTY. DK. GY. LAM. BRKN FINELY LAMINATED CARBONACEOUS LAYERS IN PLACE
	45 95.53	95.72	0.19			ROCK LOSS	
	45 95.72	96.02	0.30			MUDSTONE	CARB. DK. GY. LAM. VBRKN POLISHED FRACTURE SURFACES
	45 96.02	96.32	0.30			ROCK LOSS	
*	45 96.32	98.44	2.12			SILTSTONE	CLYY. M. GY. LAM. HRMBU. BRKN FINELY LAMINATED LAYERS, GRADING FROM MUDSTONE TO FINE GRAINED SANDSTONE, TOPS DOWN
	45 98.44	99.04	0.60			SILTSTONE	CLYY. YPR. DK. GY. THNB. BRKN TOPS DOWN, AS ABOVE, LAMINAE GRADE UP TO VERY COARSE GRAINED SANDSTONE
	45 99.04	100.58	1.54			MUDSTONE	CLYY. DK. GY. MAS. SLD BIVALVES, CARBONACEOUS IN PLACES, CONCHOIDAL FRACTURES, GRADATIONAL CONTACT
	46 100.58	101.98	1.40			MUDSTONE	CLYY. DK. GY. MAS. SLD AS ABOVE, BIVALVES

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 46	101.98	102.70	0.72			MUDSTONE	SLTY. DK. GY. LAM. SLD FINE SILTY LAMINAE THROUGHOUT
* 50	102.70	104.77	2.07			SILTSTONE	CLYY. DK. GY. LAM. WRMBU. SLD AS ABOVE BUT SILTIER, QUARTZ VEIN 3.0MM WIDE PARALLEL TO BEDDING, TOPS DOWN
51	104.77	106.77	2.00			SILTSTONE	CLYY. DK. GY. LAM. WRMBU. SLD AS ABOVE, NUMEROUS HORIZONTAL WORM BURR OWS, TOPS DOWN
52	106.77	107.81	1.04			SILTSTONE	CLYY. DK. GY. THNB. WRMBU. SLD ALTERNATING BANDS OF DARK MUDSTONE AND FINE GRAINED SANDSTONE, TOPS DOWN
* 52	107.81	108.70	0.89			SILTSTONE	SSY. DK. GY. LAM. WRMBU. SLD AS ABOVE, QUARTZ VEIN ASSOCIATED WITH C ARBONACEOUS MATERIAL 15.0MM WIDE
47	108.70	109.39	0.69			SILTSTONE	VPR. M. GY. LAM. SLD FINELY LAMINATED, NO SAND LAYERS
* 41	109.39	110.69	1.30			SANDSTONE	VFG. VPR. LT. GY. VTHNB. BRKN FAINT BEDDING, GRADATIONAL BANDS FROM V ERY FINE TO FINE GRAINED SANDSTONE
43	110.69	110.86	0.17			ROCK LOSS	

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 45	110.86	112.92	2.06			SANDSTONE	SLTY. VFG. VPR. LT. GY. VTHNB. WRMBU. BRKN OCCASIONAL SILT BANDS, GRADED BEDDING, TOPS DOWN
46	112.92	114.03	1.11			SANDSTONE	SLTY. FG. VPR. M. GY. VTHNB. SLD OCCASIONAL SILT LAYERS
46	114.03	114.86	0.83			SILTSTONE	VPR. M. GY. LAM. BRKN LAYERS GRADING FROM MUDDY SILTS TO FINE GRAINED SANDSTONES, 40.0 MM QUARTZ VEI N PARALLEL TO BEDDING, BIOTURBATED AT E ND OF BOX
46	114.86	116.92	2.06			SANDSTONE	SLTY. FG. VPR. M. GY. THNB. WRMBU. BRKN LAYERED MUDDY SILTS AND FINE TO MEDIUM GRAINED SANDSTONES, TALC ON SOME FRACTU RE SURFACES, WORMBURROWS IN SILTSTONE B ANDS
47	116.92	117.07	0.15			ROCK LOSS	
* 47	117.07	119.11	2.04			SANDSTONE	SLTY. FG. VPR. M. GY. THNB. BRKN AS ABOVE, QUARTZ VEINING 1-4MM THICK AT VARIED ANGLES, 3.0 MM BAND OF SILTSTON E RIP-UP CLASTS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. TO	SEAM TO	LITHOLOGY	DESCRIPTION
	119.11	119.30	0.19			ROCK LOSS	
* 45	119.30	119.84	0.54			SANDSTONE	FG. WEL. LT. GY. MB. SLD SHARP CONTACT WITH UNDERLYING UNIT, TALC ON FRACTURE SURFACES, 3X1.0 MM CALCITE VEINS AT ANGLE TO BEDDING
	119.84	120.13	0.29			SILTSTONE	MOD. H. GY. VTHNB. SLD AS ABOVE, UNIFORM
	120.13	121.06	0.93			SILTSTONE	MOD. H. GY. VTHNB. SLD
	121.06	121.23	0.17			MUDSTONE	HEL. H. GY. SLD UNIFORM
	121.23	122.36	1.13			MUDSTONE	HEL. H. GY. SLD UNIFORM
* 22	122.36	123.08	0.72			SILTSTONE	MOD. H. GY. VTHNB. BRKN INTER-LAMINATED SILTS AND MUDSTONES
	123.08	123.13	0.05			SILTSTONE	MOD. H. GY. VTHNB. SLD AS ABOVE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. TO	SEAM TO	LITHOLOGY	DESCRIPTION
* 40	123.13	124.96	1.83			SILTSTONE	MOD. H. GY. VTHNB. BRKN QUARTZ AND CALCITE VEINING PARALLEL TO BEDDING, TALC ON FRACTURE SURFACES, LIT MOLOGY AS ABOVE
	124.96	125.88	0.92			SANDSTONE	SLTY. VFG. MOD. H. GY. VTHNB. HRMBU. BRKN TOPS DOWN ON NORM. BURROWS, LITHOLOGY AS ABOVE
* 28	125.88	126.82	0.94			SANDSTONE	VFG. MOD. H. GY. THNB. BRKN INCREASING SANDSTONE TOWARDS THE STRATI GRAPHIC BASE, 30.0MM QUARTZ AND CALCITE VEINS PARALLEL TO BEDDING
	126.82	127.12	0.30			ROCK LOSS	
	127.12	127.33	0.21			SANDSTONE	VFG. MOD. H. GY. THNB. BRKN TALC ON FRACTURE SURFACES, CALCITE VEIN 2.0MM PARALLEL TO BEDDING
* 30	127.33	128.78	1.45			SANDSTONE	MG. PR. LT. GY. THKB. VBRKN QUARTZ AND CALCITE VEINING PARALLEL TO BEDDING UP TO 80.0MM, MUDSTONE INTERBED S CONTAINING POLISHED SURFACES AND TALC , SHARP CONTACT WITH UNDERLYING UNIT

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	128.78	128.86	0.08			SILTSTONE	MOD. H. GY. LAM. SLD
	128.86	128.94	0.08			SILTSTONE	MOD. H. GY. LAM. SLD LITHOLOGY AS ABOVE
*	128.94	130.80	1.86			SILTSTONE	MOD. H. GY. LAM. BRKN LITHOLOGY AS ABOVE. SS INCREASING AT TH E STRATIGRAPHIC TOP. COAL BAND 2.0 MM P ARALLEL TO BEDDING AT STRATIGRAPHIC TOP.
	130.80	131.74	0.94			SANDSTONE	FG. WEL. H. GY. MAS. YBRKN MINOR CALCITE VEINING (1.0MM)
	131.74	131.99	0.25			ROCK LOSS	
*	131.99	132.41	0.42			SANDSTONE	FG. PR. H. GY. THMB. BRKN INTERBEDS OF SILTSTONE AND SPECKLED SIL TSTONE UP TO 40.0MM. SHARP CONTACTS
	132.41	132.78	0.37			SILTSTONE	SSY. PR. H. GY. THMB. BRKN CALCITE AND QUARTZ VEIN (10.0MM) PARALL EL TO BEDDING. SANDSTONE INTERBEDS WITH SHARP CONTACTS (40.0MM)

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	132.78	134.51	1.73			SILTSTONE	MOD. H. GY. LAM. YBRKN INTERLAMINATED SILT AND SANDSTONES. SOF T DARK GREY CLAY UNITS UP TO 70.0MM, MI NOR TALC. ON FRACTURED SURFACES.
	134.51	134.73	0.22			SILTSTONE	SSY. MOD. H. GY. LAM. YBRKN LITHOLOGY AS ABOVE
	134.73	135.04	0.31			ROCK LOSS	
*	135.04	136.76	1.72			SILTSTONE	SSY. MOD. H. GY. LAM. WRRBD. BRKN TOPS DOWN ON HORN BURROWS. LITHOLOGY AS ABOVE. QUARTZ, PYRITE AND COAL INCLUSI ONS (30 X 100 MM), MINOR TALC ON FRACTU RE SURFACES
*	136.76	137.96	1.20			SILTSTONE	SSY. MOD. H. GY. LAM. BRKN LITHOLOGY AS ABOVE. QUARTZ INCLUSIONS, TALC ON FRACTURE SURFACES. COAL INCLUSI ONS
	137.96	138.03	0.07			ROCK LOSS	
	138.03	138.76	0.73			SILTSTONE	SSY. MOD. H. GY. LAM. SLD LITHOLOGY AS ABOVE

* DENOTES MEASURED BCA

LORZ 4001

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 32	138.76	140.11	1.35			SILTSTONE	SSY.MOD.M.GY.LAM.SSD.BRKN LITHOLOGY AS ABOVE
32	140.11	140.29	0.18			ROCK LOSS	
32	140.29	140.94	0.65			MUDSTONE	SLTY.MEL.DK.GY.SLD UNIFORM
32	140.94	141.07	0.13			SILTSTONE	MOD.M.GY.LAM.SLD LITHOLOGY AS ABOVE
32	141.07	142.90	1.83			SILTSTONE	MOD.M.GY.LAM.SLD LITHOLOGY AS ABOVE. TALC ON POLISHED SUR FACES. MINOR COALY INCLUSIONS. VERY GOOD D LEAF FOSSILS. BECOMING MUDSTONE TOWAR DS THE BASE
32	142.90	143.77	0.87			MUDSTONE	MEL.DK.GY.SLD UNIFORM. MINOR COAL INCLUSIONS SURROUND ED BY ANKERITE
* 32	143.77	144.09	0.32			MUDSTONE	CARB.MEL.DK.GY.BRKN LITHOLOGY AS ABOVE WITH INCREASING COAL CONTENT TO STRATIGRAPHIC TOP. COAL BAN DS 30.0MM. SOME SMALLER COAL LAMINATION

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
40	144.09	144.80	0.71			MUDSTONE	CARB.MEL.DK.GY.SLD LITHOLOGY AS ABOVE. COAL INTERBEDS AND ASSOCIATED ANKERITE FROM 2.0 MM TO 20.0 MM WITH MUDSTONE INTERBEDS (20.0 MM). POLISHED FRACTURE SURFACES
47	144.80	145.05	0.25			ROCK LOSS	
61	145.05	146.65	1.60			MUDSTONE	CARB.BLK.LAM.VBRKN QUARTZ VEINS THROUGHOUT AT VARIED ANGLE S. NUMEROUS COAL STRINGERS (1 TO 7 MM) THROUGHOUT, VERY CARBONACEOUS
* 85	146.65	148.30	1.65			MUDSTONE	CARB.BLK.LAM.VBRKN LITHOLOGY AS ABOVE. QUARTZ VEINS AS ABO VE. COAL BANQS 2.0 TO 40.0 MM HIDE
73	148.30	149.35	1.05			MUDSTONE	CARB.BLK.MAS.VBRKN UNIFORM, INTENSE QUARTZ VEINING
63	149.35	150.43	1.08			ROCK LOSS	
56	150.43	150.81	0.38			MUDSTONE	CARB.BLK.MAS.VBRKN LITHOLOGY AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 45	150.81	152.84	2.03			MUDSTONE	CARB. BLK. MAS. BRKN QUARTZ AND COAL BANDS 40.0MM WIDE, NUME ROUS SMALL COAL STRINGERS 2.0 MM WIDE T HROUGHOUT, VERY CARBONACEOUS
20	152.84	153.00	0.16			MUDSTONE	CARB. M. GY. SLD
16	153.00	153.15	0.15			MUDSTONE	CARB. BLK. PHRD VERY COALY
10	153.15	153.82	0.37			ROCK LOSS	
* 01	153.82	153.92	0.40			MUDSTONE	CARB. BLK. BRKN
* 30	153.92	154.30	0.38			MUDSTONE	CARB. BLK. BRKN
* 30	154.30	154.37	0.07			MUDSTONE	CARB. DK. GY. SLD SOFT
52	154.37	154.45	0.08			MUDSTONE	CARB. BLK. BRKN
* 70	154.45	154.49	0.04			MUDSTONE	M. GY. SLD

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
68	154.49	154.64	0.15			MUDSTONE	CARB. BLK. YBRKN QUARTZ VEINING
66	154.64	154.81	0.17			MUDSTONE	CARB. DK. GY. SLD
63	154.81	154.91	0.10			COAL	C-3. YBRKN
61	154.91	155.12	0.21			CLAYSTONE	M. GY. YBRKN
55	155.12	155.61	0.49			ROCK LOSS	
* 42	155.61	156.60	0.99			MUDSTONE	SLTY. M. GY. MAS. BRKN
56	156.60	156.73	0.13			MUDSTONE	SLTY. M. GY. BRKN AS ABOVE, DARKENING DOWN
* 65	156.73	157.37	0.64	07531		MUDSTONE	CARB. BLK. YBRKN VERY COALY, ANKERITE INTERBEDDING WITH DEFORMATION
* 30	157.37	157.52	0.15	07531		MUDSTONE	CARB. BLK. BRKN NO ANKERITE
* 01	157.52	157.96	0.44	07532 G		COAL	C-2. YBRKN

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	13 157.96	158.16	0.20	07532	G	COAL LOSS	
	18 158.16	158.25	0.09	07532	G	MUDSTONE	CARB. DK. GY. BRKN
	24 158.25	158.46	0.21	07532	G	ROCK LOSS	
	30 158.46	158.58	0.12	07532	G	MUDSTONE	CARB. DK. GY. BRKN
*	35 158.58	158.72	0.14	07532	G	MUDSTONE	CARB. DK. GY. BRKN AS ABOVE
*	36 158.72	158.93	0.21	07532	G	COAL	C-3. BRKN
*	01 158.93	159.43	0.50	07532	G	MUDSTONE	CARB. BLK. BRKN COAL LAMINAE
*	01 159.43	160.16	0.73	07532	G	COAL	C-3. SLD
*	01 160.16	160.62	0.46	07532	G	COAL	C-3. BRKN
*	20 160.62	160.92	0.30	07532	G	COAL	C-3. BRKN

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	25 160.92	161.35	0.43	07533	G	MUDSTONE	CARB. BLK. BRKN VERY COALY
	31 161.35	161.75	0.40	07533	G	ROCK LOSS	
	38 161.75	162.22	0.47	07533	G	COAL LOSS	
	43 162.22	162.42	0.20	07533	G	COAL	C-2. PWRD
	45 162.42	162.49	0.07	07533	G	MUDSTONE	CARB. VBRKN
*	50 162.49	163.14	0.65	07533	G	MUDSTONE	CARB. BLK. BRKN COALY, DEFORMED, ANKERITE IN BEDDING
	43 163.14	163.26	0.12	07533	G	MUDSTONE	M. GY. SLD SOFT
	41 163.26	163.34	0.08	07533	G	MUDSTONE	CARB. BLK. PWRD LITRICK
	40 163.34	163.47	0.13	07533	G	COAL LOSS	
	37 163.47	163.59	0.12	07533	G	COAL	C-2. SHRD

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	30	163.59	164.29	0.70	07533 G	MUDSTONE	GY BRKN COALY LAMINAE PYRITE BANDS ABOVE AND BELOW, ANKERITE IN BEDDING
*	40	164.29	164.49	0.20	07534 G	COAL	C-2.SLD PYRITE BANDS
*	40	164.49	164.89	0.40	07534 G	COAL	C-2.VBRKN ANKERITE IN BEDDING
*	25	164.89	165.19	0.30	07534 G	COAL	C-2.BRKN
	25	165.19	165.55	0.36	07534 G	COAL LOSS	
*	25	165.55	166.01	0.46	07534 G	COAL	C-6.BRKN
	31	166.01	166.22	0.21	07535	ROCK LOSS	
	36	166.22	166.56	0.34	07535	MUDSTONE	CARB.SLK.SLD VERY COALY, DEFORMED, ANKERITE VEINS
	43	166.56	166.90	0.34		MUDSTONE	CARB.PR.DK.GY.BRKN COAL STRINGERS 2.0 MM THROUGHOUT WITH ASSOCIATED QUARTZ AND ANKERITE, 3 SMALL FOLDS WITHIN THIS UNIT

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	48	166.90	167.17	0.27		MUDSTONE	DK.GY.VTHNB.BRKN HIGHLY FRACTURED, EASILY CRUMBLED, TWO COAL INCLUSIONS 10.0 MM EACH
*	63	167.17	168.49	1.32		SILTSTONE	MOD.H.GY.VTHNB.BRKN MINOR POLISHED FRACTURE SURFACES CONTAINING TALC
	66	168.49	168.95	0.46		MUDSTONE	CARB.MOD.DK.GY.BRKN TWO COAL INTERBEDS 20.0MM EACH, POLISHED FRACTURE SURFACES, MINOR QUARTZ AND ANKERITE VEINING
	68	168.95	169.28	0.33		MUDSTONE	PR.H.GY.VTHNB.BRKN COALY STRINGERS WITH ASSOCIATED QUARTZ AND ANKERITE, THREE FOLDS INTERSECTED
	70	169.28	170.38	1.10		MUDSTONE	SLTY.MOD.H.GY.BRKN MINOR COAL STRINGERS WITH ASSOCIATED ANKERITE, POLISHED FRACTURE SURFACES CONTAINING TALC, MODERATELY CALCAREOUS 100.0MM FROM BASE OF UNIT
	74	170.38	171.36	0.98		MUDSTONE	SLTY.MOD.H.GY.SLD LITHOLOGY AS ABOVE, COAL AND QUARTZ INCLUSIONS 20.0 MM
	76	171.36	171.63	0.07		MUDSTONE	CARB.MED.DK.GY.BRKN COAL LAMINAE (1.0MM)

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
78	171.63	172.15	0.72			MUDSTONE	SLTY. WEL. M. GY. BRKN MORE SILTY THAN ABOVE. MINOR COAL INCLUSIONS, TALC ON POLISHED FRACTURE SURFACES.
79	172.15	172.18	0.03			COAL	C-3.BLK.SLD
79	172.18	172.22	0.04			MUDSTONE	CARB. M. GY. SLD ABUNDANT ANKERITE LAMINAE, PYRITE BAND 5.0 MM
79	172.22	172.32	0.10			COAL	C-2.BLK.VBRKN
80	172.32	172.47	0.15			COAL	CORE ? LOSS
80	172.47	172.60	0.13			COAL	C-3.BLK.VBRKN SOME MUDSTONE LAMINAE WITH POLISHED FRACTURE SURFACES
* 81	172.60	172.86	0.26			MUDSTONE	DK. GY. SLD COAL STRINGERS WITH ASSOCIATED QUARTZ

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
81	172.86	172.88	0.02			COAL	C-2.BLK.SLD
81	172.88	173.68	0.80			MUDSTONE	SLTY. M. GY. SLD MINOR COALY STRINGERS 1.0 MM, CALCITE VEINING 20.0MM FORMING BRECCIA
81	173.68	173.74	0.06			COAL	C-3.BLK.SLD ANKERITE VEINS ALONG CLEAT SURFACES
81	173.74	173.75	0.01			MUDSTONE	SLTY. M. GY. SLD
81	173.75	173.77	0.02			COAL	C-3.BLK.SLD ASSOCIATED ANKERITE
81	173.77	173.78	0.01			MUDSTONE	SLTY. M. GY. SLD
81	173.78	173.81	0.03			COAL	C-3.BLK.SLD ASSOCIATED ANKERITE
81	173.81	174.72	0.91			MUDSTONE	SLTY. WEL. M. GY. SLD COALIFIED PLANT FOSSILS, MINOR COALY LAMINAE
80	174.72	174.78	0.06			MUDSTONE	DK. GY. MAS. SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	80 174.74	175.18	0.40			MUDSTONE	DK.GY.SLD AS ABOVE
	80 175.18	175.28	0.10			COAL	C-3.BRKN PYRITE BANDS
	80 175.28	175.95	0.67			MUDSTONE	M.GY.SLD ANKERITE IN FRACTURES
*	80 175.95	176.01	0.06			COAL	C-1.SLD ANKERITE IN CLEATS AND BEDDING
	80 176.01	176.39	0.38	07536		MUDSTONE	CARB.DK.GY.SLD FEW COALY LAMINAE
	80 176.39	176.64	0.25	07537 G		COAL	C-2.BRKN PYRITE BANDS
	80 176.64	176.69	0.05	07537 G		COAL	C-2.BRKN
	80 176.69	176.77	0.08	07537 G		COAL	C-1.SLD
	80 176.77	176.86	0.09	07537 G		COAL	C-2.SLD
	80 176.86	176.95	0.09	07537 G		COAL	C-4.SLD HEAVY ANKERITE VEINING

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	80 175.95	177.28	0.33	07537 G		COAL	C-1.VBRKN
	80 177.28	177.35	0.07	07537 G		COAL	C-2.SLD
	80 177.35	177.38	0.03	07537 G		COAL	C-3.SLD
	80 177.38	177.50	0.12	07538 G		MUDSTONE	CARB.BLK.SLD ANKERITE IN FRACTURES
	80 177.50	177.71	0.21	07538 G		COAL	C-6.BRKN
	80 177.71	177.98	0.27	07539		ROCK LOSS	
	80 177.98	178.02	0.04	07539		MUDSTONE	CARB.BLK.BRKN
	80 178.02	178.76	0.74	07539		MUDSTONE	M.GY.BRKN
	80 178.76	180.18	1.42			SILTSTONE	HEL.M.GY.BRKN MINOR COAL LAMINAE WITH ASSOCIATED ANKERITE TALC ON FRACTURE SURFACES, UNCONSOLIDATED TOWARDS END OF MEASUREMENT

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	80	180.18	180.43	0.25		MUDSTONE	MEL. DK. GY. BRKN MINOR COAL LAMINAE (1.0 MM)
	80	180.43	180.47	0.04		MUDSTONE	PYR. MOD. DK. GY. BRKN SYNSEDIMENTARY PYRITE THROUGHOUT. THO C OAL LAMINAE, QUARTZ VEINING PARALLEL TO BEDDING (1.0 MM)
	80	180.47	182.57	2.10		ROCK LOSS	
	80	182.57	183.05	0.48		SILTSTONE	MOD. M. GY. VTHNB. BRKN QUARTZ VEIN 1.0 MM
	80	183.05	183.21	0.16		MUDSTONE	CARB. PR. DK. GY. VTHNB. BRKN ABUNDANT POLISHED FRACTURE SURFACES SON E CONTAINING TALC, COAL STRINGERS AND A SSOCIATED ANKERITE
	80	183.21	183.44	0.23		SILTSTONE	PR. M. GY. XBDG. SLD ABUNDANT CALCITE AND QUARTZ VEINING FOR MING BRECCIA WITH ANGULAR SILTSTONE FRA GMENTS
	80	183.44	183.78	0.34		SILTSTONE	MOD. M. GY. BRKN COAL LAMINAE WITH ASSOCIATED ANKERITE, GREATER MUDSTONE CONTENT THAN ABOVE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	80	183.78	184.47	0.69		SILTSTONE	MOD. M. GY. SLD LITHOLOGY AS ABOVE, MINOR POLISHED FRAC TURE SURFACES CONTAINING TALC, SLIGHTLY CALCAREOUS TOWARDS BASE
*	80	184.47	185.47	1.00		MUDSTONE	DK. GY. BRKN COALY LAMINAE
	79	185.47	185.62	0.15	07469	COAL	C-3. VBRKN VERY PYRITIC
	78	185.62	186.01	0.39		MUDSTONE	CARB. BLK. BRKN VERY COALY, PYRITE AT TOP
	77	186.01	186.25	0.24		MUDSTONE	M. GY. MAS. BRKN
	77	186.25	186.54	0.29		ROCK LOSS	
*	76	186.54	186.82	0.28		SILTSTONE	MOD. M. GY. VTHNB. SLD UNIFORM
*	75	186.82	187.28	0.46		SILTSTONE	MOD. M. GY. VTHNB. SLD LITHOLGY AS ABOVE, GRADUAL CONTACT WITH UNDERLYING UNIT
	75	187.28	187.63	0.35		MUDSTONE	MEL. DK. GY. BRKN TALC ON FRACTURE SURFACES, MINOR COAL B ANDS

* DENOTES MEASURED BCA

JUR 4003

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 37

PROJECT: KPN BLOCK: LR DATA SOURCE: D0485015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	75	187.63	187.75	0.12		COAL	CORE ? LOSS
	75	187.75	187.78	0.03		COAL	C-6. BLK. BRKN
	75	187.78	187.80	0.02		MUDSTONE	DK. GY. SLD
	75	187.80	187.83	0.03		COAL	C-6. BLK. SLD
	75	187.83	187.95	0.12		MUDSTONE	CARB. BLK. BRKN POLISHED FRACTURE SURFACES CONTAINING ALC, MINOR QUARTZ VEINING
	75	187.95	187.97	0.02		COAL	C-5. BLK. SLD ANKERITE ALONG CLEAT SURFACES
	75	187.97	188.30	0.33		MUDSTONE	DK. GY. SLD MINOR COALY BANDS, GRADATIONAL INTO UND ERLYING UNIT
	75	188.30	188.47	0.17		SILTSTONE	MOD. H. GY. SLD 2.0 MM COAL BAND, TALC ON FRACTURE SURF ACC

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 38

PROJECT: KPN BLOCK: LR DATA SOURCE: D0485015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	75	188.47	189.43	0.96		SILTSTONE	MOD. H. GY. THNB. BRKN TALC ON FRACTURE SURFACES. INCREASE IN MUDSTONE CONTENT TO BOTTOM OF MEASUREME NT.
	66	189.43	189.46	0.03		MUDSTONE	MEL. DK. GY. LAM. SLD
	65	189.46	189.58	0.12		COAL	C-4. BLK. SLD QUARTZ VEINING
	62	189.58	189.69	0.11		MUDSTONE	MEL. DK. GY. SLD
	58	189.69	190.07	0.38		MUDSTONE	MEL. DK. GY. SLD HIGHLY FRACTURED, EASILY CRUMBLD, QUAR TZ VEINING NEAR BOTTOM OF UNIT. MORE CA RBONACEOUS NEAR BASE OF UNIT
	53	190.07	190.26	0.19		SILTSTONE	MEL. H. GY. SLD
*	45	190.26	190.90	0.64		SILTSTONE	MEL. H. GY. BRKN 2.0MM CALCITE VEINS AT ANGLE TO BEDDING

* DENOTES MEASURED BCA

400

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85015

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK	SAMP. TO	SEAM TO	LITHOLOGY	DESCRIPTION
46	190.90	191.50	0.60			MUDSTONE	MEL. DK. GY. VBRKH POLISHED FRACTURE SURFACES, QUARTZ VEINING (4.0 MM)
46	191.50	191.57	0.07			COAL	C-2.BLK.VBRKH
46	191.57	191.62	0.05			MUDSTONE	DK.GY.SLD
47	191.62	192.63	2.01			SILTSTONE	MEL. M. GY. BRKH COALY INCLUSIONS THROUGHOUT SURROUNDED BY ANKERITE, GRADATION FROM MUDSTONE AT TOP OF UNIT TO SILTSTONE AT BOTTOM
49	193.63	194.78	1.15			SILTSTONE	MOD. M. GY. VTHNB.SLD UNIFORM. AS ABOVE
50	194.78	195.60	0.82			SILTSTONE	MOD. M. GY. VTHNB.SLD AS ABOVE, UNIFORM
* 51	195.60	197.65	2.05			SILTSTONE	MOD. M. GY. VTHNB.SLD AS ABOVE, UNIFORM
51	197.65	197.80	0.15			SILTSTONE	MOD. M. GY. VTHNB.SLD AS ABOVE, UNIFORM. END OF HOLE TD. 198.85

* DENOTES MEASURED BCA
NEWPAGE

MOUNT KLAPPAN COAL PROJECT
LOST - FOX AREA
GEOLOGICAL REPORT
1985

APPENDIX III

DIAMOND DRILL HOLE DATA
VOLUME III

KPNLRDDH 85016
TO
KPNLRDDH 85023



707

GULF CANADA LIMITED
COAL DIVISION

KPNLRDDH85016

- DATA SOURCE SUMMARY -

DATA SOURCE - KPnlRDDH85016

DATE - 01/09/86

- HISTORY -

START DATE - 07/15/85
END DATE - 07/20/85

CONTRACTOR - J T THOMAS
GEOLOGIST - VANDENBUSSCH

OPERATOR - GCRI
SURVEYOR - MWG & ASS

REMARKS -

- LOCATION -

PROVINCE - BC
ELEVATION - 1633.75
LICENCE/LEASE NUMBER - 7152

ZONE - 9
NORTHING - 6344868.00
EASTING - 505928.44

LATITUDE - 571456
LONGITUDE - 1285406

- ORIENTATION -

LENGTH - 324.22
CORE SIZE - 0.0

INCLINATION - 75.0
AZIMUTH - 10.0

CEMENT -
PLUG -
PIEZ -

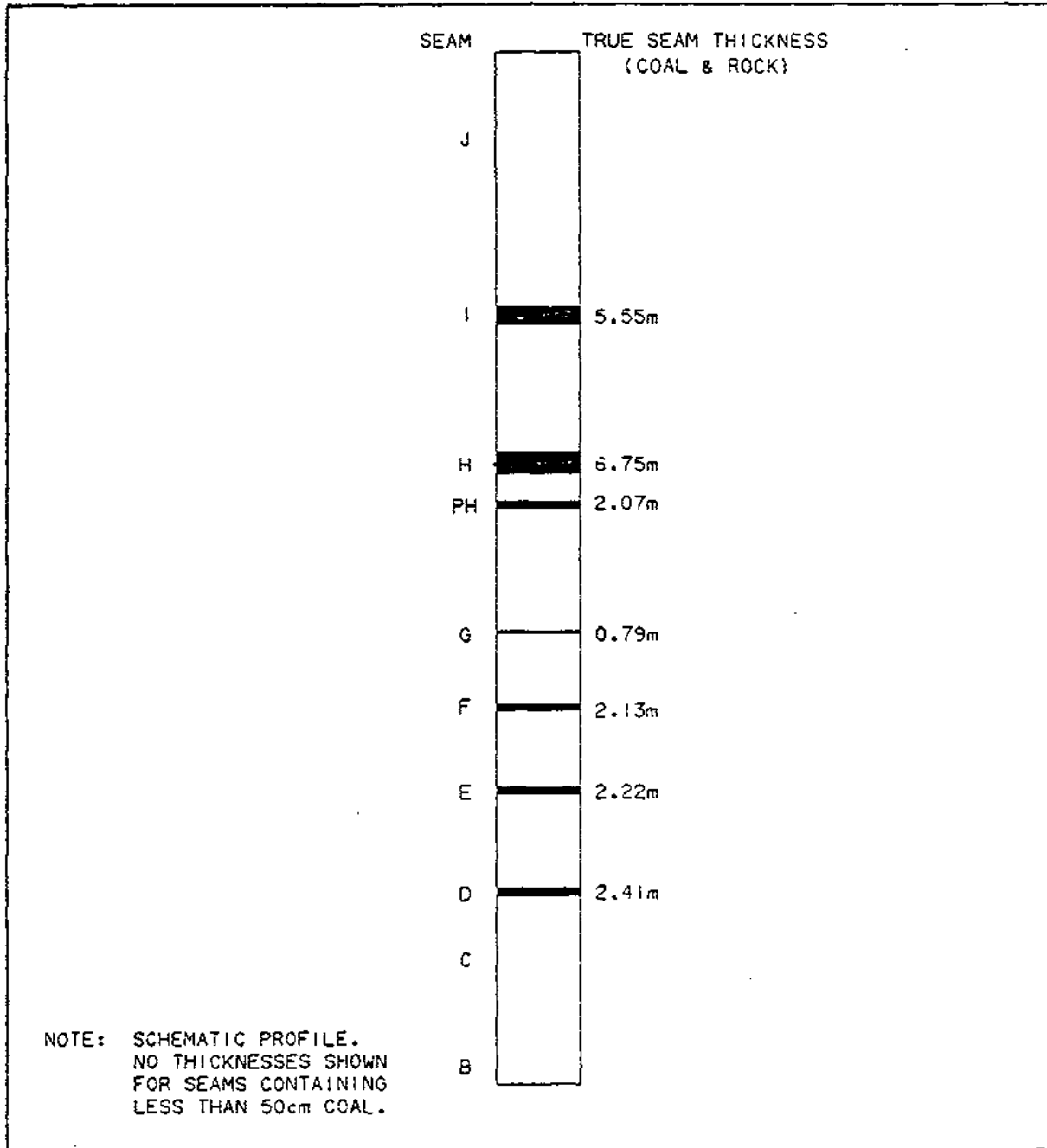
CASING DEPTH (M) - 5.18
AQUIFER DEPTHS (M) - 0.00
0.00
LOST CIRC. DEPTHS (M) - 0.00
0.00

*** NOTE *** 0 INDICATES NO VALUE



MT. KLAPPAN COAL PROPERTY

1985 DIAMOND DRILL HOLES
DDH85016



SCALE: 1:2000

GULF CANADA RESOURCES INC.
15/01/86



86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	90	0.00	5.18	5.18		CASING	
	90	5.18	6.20	1.02		SANDSTONE	FG. MOD. LT. GY. BRKN SANDSTONE CONTAINS FINE LAMINAE OF SILTY MUDSTONE THROUGHOUT; MEDIUM GRAINED WEATHERED ORANGE SAND SIZED GRAINS OCCUR WITHIN THE SANDSTONE; MINOR FRACTURES APPROX. PERPENDICULAR TO BEDDING (QTZ & NO. SIDERITE FILLED)
	90	6.20	6.48	0.28		SANDSTONE	FG. MEL. LT. GY. MAS. SLD MEDIUM GRAINED BLACK GRAINS OCCUR WITHIN SANDSTONE (PROBABLY SAME MINERAL AS ABOVE ONLY NOT WEATHERED) HEMATITE?
*	90	6.48	7.01	0.53		SANDSTONE	FG. MEL. LT. GY. MAS. SLD AS ABOVE
*	80	7.01	8.87	1.86		SANDSTONE	FG. MEL. LT. GY. MAS. BRKN AS ABOVE; CONTAINS MINOR FRACTURING APPROX. PERPENDICULAR TO BEDDING. QTZ AND SIDERITE FRACTURE FILL; SMALL AMOUNT OF NORMAL MOVEMENT ALONG FRACTURES; MC BLACK GRAINS OCCUR (SOME WEATHERED ORANGE BROWN)
*	79	8.87	9.16	0.29		SANDSTONE	FG. MEL. LT. GY. MAS. SLD AS ABOVE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 2

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	80	9.16	9.80	0.64		SANDSTONE	FG. MOD. LT. GY. LAM. BRKN FINE LAMINAE OF SILTY MUD THROUGHOUT; DOMINANTLY SANDSTONE; MINOR FRACTURING OCCURS AS ABOVE
	80	9.80	10.51	0.71		SILTSTONE	M. GY. LAM. BRKN CONTAINS FINE LAMINAE OF YEG. SANDSTONE AND MUDSTONE
*	82	10.51	12.09	1.58		SILTSTONE	M. GY. LAM. LAMINAE VARY FROM FG. SANDSTONE TO MUDSTONE; MUCH OF UNIT IS COMPRISED OF CM SCALE GRADED BEDS OF A RHYMIC NATURE; GRADED BEDS INDICATE TOPS UP
	81	12.09	12.53	0.44		SILTSTONE	M. GY. LAM. BRKN AS ABOVE
*	80	12.53	13.81	1.28		SILTSTONE	M. GY. LAM. BRKN AS ABOVE; LOAD STRUCTURE INDICATES TOPS UP
	80	13.81	14.31	0.50		SANDSTONE	FG. MEL. LT. GY. SLD THIN WISPY LAMINAE OF SILTY MUD OCCUR THROUGHOUT; FRACTURING SIMILAR TO BOX 1 AND 2 OCCURS; SANDS THEMSELVES ARE FAIRLY UNIFORM

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 3

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
80	14.31	14.54	0.23			SANDSTONE	FG.HEL.LT.GY.SLD SAME AS ABOVE; SOME MUDDS APPROACHING THIN BEDS
* 80	14.54	15.89	1.35			SANDSTONE	FG.HEL.LT.GY.SLD AS ABOVE; LAMINATED TO THIN BEDS OF MUDSTONE THROUGHOUT; LOAD STRUCTURES INDICATE TOPS UP
80	15.89	16.23	0.44			SILTSTONE	CLY.M.GY.THMB.SLD DOMINANTLY MUDDY SILTSTONE WITH THE ODD THIN BED OF FG SANDSTONE
80	16.23	16.63	0.30			SANDSTONE	HEL.LT.GY DOMINANTLY SANDSTONE; MINOR SILTY MUDSTONE LAMINAE; SANDSTONES THEMSELVES APPEAR UNIFORM (MASSIVE)
80	16.63	16.90	0.27			MUDSTONE	SLTY.M.GY.LAM.VBRKN INTERBEDDED SILTSTONE AND MUDSTONE; MUDSTONE DOMINANT
* 80	16.90	18.38	1.48			MUDSTONE	SLTY.M.GY.LAM.BRKN AS ABOVE; BECOMES SANDIER TOWARDS CENTER OF UNIT
* 78	18.38	18.79	0.41			MUDSTONE	SLTY.M.GY.LAM.BRKN AS ABOVE; SILTY MUDSTONE INTERBEDDED WITH FG SANDSTONE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 4

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
78	18.79	20.32	1.53			MUDSTONE	SLTY.M.GY.LAM.BRKN AS ABOVE; INTERBEDDED SILTY MUDSTONE AND SANDSTONE; SLIGHTLY COARSER OVERALL (INCREASING AMOUNT OF SILTSTONE AND FG SANDSTONE)
79	20.32	21.72	1.40			MUDSTONE	M.GY.LAM.VBRKN AS ABOVE; BECOMING LESS SILTY; LESS SANDSTONE THAN IMMEDIATELY ABOVE
79	21.72	22.02	0.30			MUDSTONE	M.GY.LAM.VBRKN AS ABOVE
* 80	22.02	23.93	1.91			MUDSTONE	M.GY.LAM.VBRKN AS ABOVE; NO SANDSTONE LAMINAE PRESENT
* 82	23.93	24.64	0.71			MUDSTONE	SLTY.M.GY.LAM.BRKN BECOMING MORE SILTY THAN BEFORE; RHYMITES APPARENT (COARSER LITHOLOGY BUT COASERS ACTUALLY DEVELOPE RARELY)
81	24.64	25.81	1.17			MUDSTONE	SLTY.M.GY.LAM.VBRKN AS ABOVE
81	25.81	26.19	0.38			MUDSTONE	SLTY.M.GY.LAM.VBRKN AS ABOVE

* DENOTES MEASURED BCA

FORM 4001

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 5

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH89016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. TO	SEAM TO	LITHOLOGY	DESCRIPTION
	26.19	26.54	0.35			MUDSTONE	SILTY M. GY. LAM. BRKN AS ABOVE; BECOMING LESS SILTY AND MORE CARBONACEOUS TOWARDS BASE
	26.54	27.09	0.55		J	MUDSTONE	CARB. DK. GY. LAM. BRKN CARBONACEOUS MUDSTONE CONTAINING COALIFIED LENSES OF POSSIBLY PLANT FRAGMENTS
	27.09	27.49	0.40		J	MUDSTONE	M. GY. LAM. BRKN BECOMES LESS CARBONACEOUS TOWARDS BASE; CONTAINS COALIFIED PLANT FRAGMENT LENSES (STRINGERS); CONTAINS PLANT FOSSIL TRACES
*	27.49	28.24	0.75			MUDSTONE	SILTY M. GY. LAM. BRKN AS ABOVE; BECOMES MORE SILTY TOWARDS BASE
	28.24	29.54	1.30			SANDSTONE	SILTY FG. MOD. LT. GY. THNB. SSD. BRKN GRADUATIONAL CONTACT OF SANDSTONE THROUGH SILTSTONE INTO OVERLYING MUDSTONE UNIT; SANDSTONE STILL CONTAINS SOME MUDSTONE LAMINAE
	29.54	29.72	0.18			SANDSTONE	FG. MEL. LT. GY. THNB. SSD. BRKN AS ABOVE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH89016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. TO	SEAM TO	LITHOLOGY	DESCRIPTION
*	29.72	30.18	0.46			SILTSTONE	M. GY. LAM. BRKN THIN INTERBEDS OF FG SANDSTONE; BECOMES MORE MUDDY TOWARDS BASE
	30.18	31.63	1.45			SILTSTONE	CLY. M. GY. LAM. BRKN AS ABOVE; BECOMES MORE MUDDY TOWARDS BASE (INTERBEDDED SILTSTONE AND MUDSTONE RATHER THAN SANDSTONE AND SILTSTONE); A BUNDANT PLANT FRAGMENTS AS WELL AS COME VERY FINE LENSES OF COALIFIED MATERIAL
*	31.63	33.30	1.67			SILTSTONE	M. GY. LAM. SSD. BRKN BECOMES LESS MUDDY AND MORE SANDY TOWARDS BASE; PLANT FRAGMENTS WITHIN (SOME COALIFIED)
	33.30	33.77	0.47			SILTSTONE	M. GY. LAM. SLD AS ABOVE; BECOMING SLIGHTLY SANDIER
	33.77	34.23	0.46			SILTSTONE	SSY. M. GY. THNB. BRKN AS ABOVE; GRADUATIONAL INCREASE IN SAND TOWARDS BASE
*	34.23	35.87	1.64			SANDSTONE	FG. MOD. LT-M. GY. THNB. BRKN GRADUATIONAL FROM SILTSTONE ABOVE; CONTAINS LAMINAE AND THIN BEDS OF SILTY MUD; LOAD STRUCTURES INDICATE TOPS UP

* DENOTES MEASURED BCA

LURE 7 1001

PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 86	35.87	36.39	0.52			SANDSTONE	FG.MOD.LT-M.GY.THNB.BRKN AS ABOVE; LOCALIZED AREAS OF CONCENTRATED MUDDY SILTSTONE LAMINAE; HORIZONTAL NORM BURRONS (2MM DIAMETER CIRCULAR)
83	36.39	37.10	0.71			SANDSTONE	FG.MOD.LT-M.GY.THNB.BRKN AS ABOVE
80	37.10	37.82	0.72			SANDSTONE	FG.MEL.LT.GY.MAS.SLD DOMINANTLY MASSIVE SANDSTONE; MINOR CONCENTRATIONS OF MUDDY SILTSTONE LAMINAE; MINOR FRACTURES PERPENDICULAR TO BEDDING (QTZ FILLED)
* 75	37.82	39.36	1.54			SANDSTONE	FG.MEL.LT.GY.MAS.SLD AS ABOVE; NO MUDSTONE LAMINAE AFTER TOP 10CM
73	39.36	39.83	0.47			SANDSTONE	FG.MEL.LT.GY.MAS.SLD AS ABOVE
71	39.83	41.93	2.10			SANDSTONE	FG.MEL.LT.GY.MAS.SLD AS ABOVE
* 68	41.93	42.45	0.52			SANDSTONE	FG.MEL.LT.GY.MAS.BRKN LITHOLOGY AS ABOVE; MAJOR QTZ VEINING THROUGHOUT. LOWER 40CM

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
67	42.45	42.58	0.13			MUD	SSY.M.GY.THNB DISSEMINATED SANDY MUD; POSSIBLY SCUMPED INTO HOLE FROM SURFACE
64	42.58	44.19	1.61			SILTSTONE	CLYY.M.GY.BRKN BEDDING DIFFICULT TO SEE; NON DESCRIPT MUDDY SILTS; MINOR QTZ AND SIDERITE VEINS AT VARIABLE ANGLES
60	44.19	44.89	0.70			SILTSTONE	CLYY.M.GY AS ABOVE; LOCALIZED AREAS OF MUDSTONE THROUGHOUT (SOME CARBONACEOUS)
57	44.89	46.09	1.20			SILTSTONE	CLYY.M-DK.GY.BRKN AS ABOVE; INCREASING AMOUNT OF FRACTURES (QTZ AND SIDERITE FILLED); INCREASE IN CARBONACEOUS MUDSTONE NEAR BASE
55	46.09	46.44	0.35			MUDSTONE	SLTY.M-DK.GY.YBRKN SIMILAR TO ABOVE WITH MORE MUDSTONE THAN SILTSTONE; FILLED FRACTURES THROUGHOUT
* 52	46.44	47.84	1.40			MUDSTONE	SLTY.M-DK.GY.THNB.YBRKN AS ABOVE; INTERBEDDED SILTSTONE AND CARBONACEOUS MUDSTONE; OCCASIONAL PLANT FRAGMENTS

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. TO	SEAM TO	LITHOLOGY	DESCRIPTION
	61	47.84	48.76	0.92		MUDSTONE	SILTY M-DK. GY. THNB. VBRKN AS ABOVE
	67	48.76	49.65	0.89		SILTSTONE	CLY. M-DK. GY. LAM. BRKN GRADATIONALLY MORE SILTY THAN ABOVE; AB UNDANT PLANT FRAGMENTS THROUGHOUT SOME COALIFIED
•	72	49.65	50.07	0.42		SILTSTONE	M. GY. LAM. SLD AS ABOVE; DECREASING IN MUDSTONE AND IN CREASING IN SANDSTONE TOWARDS BASE
	74	50.07	51.83	1.76		SANDSTONE	FG. MOD. LT-M. GY. THNB. SSD. SLD INTERBEDDED WITH LAMINAE OF MUDDY SILTY ONE; VERTICAL WORM BURROWS (5CM DIAMETE R) INDICATES TOPS UP
*	76	51.83	52.04	0.21		SANDSTONE	FG. MOD. LT-M. GY. MAS. SSD. BRKN AS ABOVE; BURROW INNER STRUCTURE INDICA TES TOPS UP (BURROW 5MM DIAMETER)
	78	52.04	53.80	1.76		SANDSTONE	FG. MOD. LT-M. GY. MAS. SSD. BRKN AS ABOVE; LOCALIZED CONCENTRATIONS OF S ILTY MUDSTONE LAMINAE
	75	53.80	54.00	0.20		SANDSTONE	FG. MOD. LT-M. GY. MAS. SSD. SLD AS ABOVE; MUD DRAPES SHOW TOPS UP

• DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. TO	SEAM TO	LITHOLOGY	DESCRIPTION
	75	54.00	54.50	0.50		SANDSTONE	FG. MEL. LT. GY. MAS. SLD VERY OCCASIONAL MUD LAMINAE WITHIN
	75	54.50	54.63	0.13		SILTSTONE	M. GY. MAS. SLD LAMINATED AT TOP GOING INTO MASSIVE NEAR R BASE
*	75	54.63	55.07	0.44		SANDSTONE	FG. MEL. LT. GY. MAS. SLD SPARSE MUDSTONE LAMINAE
	73	55.07	55.97	0.90		SANDSTONE	FG. MEL. LT. GY. MAS. SLD FINE SILTY MUDSTONE LAMINAE TOWARDS TOP OF UNIT; ... QSM. QTZ. AT VERY TOP OF UNIT
	69	55.97	58.04	2.07		SANDSTONE	FG. MEL. LT. GY. MAS. SLD AS ABOVE (NO SILTY MUDSTONE LAMINAE); M INOR QTZ AND SIDERITE FILLED FRACTURES
*	64	58.04	60.12	2.08		SANDSTONE	FG. MEL. LT. GY. MAS. SLD AS ABOVE
	67	60.12	61.22	1.10		SANDSTONE	FG. MEL. LT. GY. MAS. BRKN AS ABOVE
	68	61.22	61.48	0.26		SANDSTONE	FG. MEL. LT. GY. MAS. BRKN AS ABOVE

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	61.48	62.12	0.64			SANDSTONE	FG. MOD. LT-M. GY. MAS. WRMBU. SLD INTERBEDDED SANDSTONE AND SILTY MUOOSTON E; VERTICAL WORM BURROWS (.5MM DIAMETER) AND FLAME STRUCTURES INDICATE TOPS UP; BIOTURBATED
	62.12	63.12	1.00			SANDSTONE	FG. LT-M. GY. MAS. WRMBU. BRKN AS ABOVE
	63.12	64.26	1.14			SANDSTONE	FG. LT-M. GY. MAS. WRMBU. SLD AS ABOVE; TOPS UP AS INDICATED BY BURRO MS
*	64.26	66.30	2.04			SANDSTONE	FG. LT-M. GY. MAS. WRMBU. BRKN AS ABOVE; 10CM GRADED BED FINING UPWARD
	66.30	67.41	1.11			SANDSTONE	FG. LT-M. GY. MAS. WRMBU. SLD AS ABOVE
	67.41	67.68	0.27			SANDSTONE	FG. LT-M. GY. MAS. WRMBU. SLD AS ABOVE; BECOMING LIGHTER COLOUR TOWAR DS. BASE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	67.68	68.26	0.58			SANDSTONE	FG. WEL. LT. GY. XBDG. SLD SANDSTONE LAMINAE TO THINLY BEDDED X-BEDS OF APPROX. 1-2CM IN HEIGHT; DARKER MATERIAL DEFINES X-BEDS; LIGHT COLOUR AP PEAR TO BE CORRELATABLE WITH THE MATERIAL FOUND ABOVE BENTONITES IN OTHER HOLE
*	68.26	68.98	0.72			SANDSTONE	FG. WEL. LT. GY. XBDG. BRKN AS ABOVE; GRADES INTO UNDERLYING SILTSTONE
	68.98	70.43	1.45			SILTSTONE	LT. GY. XBDG. BRKN SILTSTONE CONTAINS LAMINAE OF FINER MUDSTONE MATERIAL; SLIGHT FAINT X-BEDDING
	70.43	70.50	0.07			SILTSTONE	LT. GY. XBDG. SLD AS ABOVE
	70.50	71.47	0.97			SILTSTONE	LT. GY. BRKN
	71.47	71.52	0.05			BENTONITE	LT. GY. SOFT HOMOGENEOUS WHITE CLAYEY MATERIAL
	71.52	71.68	0.16			SILTSTONE	M. GY. BRKN GRADES INTO FINER DARKER MUDSTONE UNIT BELOW

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	76	72.68	72.39	0.71		MUDSTONE	SLTY. DK. GY. LAM. WRNBU. BRKN INTERBEDDED LAMINAE OF SANDSTONE SILTST ONE AND MUDSTONE; MINOR WORM BURROWS (H ORIZONTAL - 2-5CM DIAMETER - ELLIPTICAL
	75	72.39	73.44	1.05		MUDSTONE	SLTY. DK. GY. LAM. BRKN AS ABOVE
*	74	73.44	74.45	1.01		MUDSTONE	SLTY. DK. GY. LAM. SLD AS ABOVE
	77	74.45	76.52	2.07		MUDSTONE	SLTY. DK. GY. LAM. SLD AS ABOVE
*	80	76.52	78.60	2.08		MUDSTONE	M-DK. GY. LAM. SLD AS ABOVE; INTERBEDDED LAMINAE VFG SNADS TONE SILTSTONE AND MUDSTONE; VERY FEW I F ANY SEDIMENTARY STRUCTURES. FOR THIS T YPE OF INTERBEDDED LITHOLOGY
	80	78.60	79.01	0.41		MUDSTONE	M-DK. GY. LAM. SLD AS ABOVE
	80	79.01	80.75	1.74	06485	MUDSTONE	CARB. DK. GY. LAM. SLD AS ABOVE; BECOMES QUITE CARBONACEOUS TO WARDS BASE; ABUNDANT PLANT FRAGMENTS IN LOWER 50CM AS WELL AS THE ODD COALIFIE D LENSES

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	81	80.75	80.80	0.05	06485	MUDSTONE	CARB. DK. GY. SLD
	81	80.80	81.16	0.36	06486 I	COAL	LOSS
	81	81.16	81.18	0.02	06486 I	COAL	C-2.SLD
	81	81.18	81.28	0.10	06486 I	COAL	C-3. BRKN
	81	81.28	82.04	0.76	06486 I	COAL	C-2. BRKN MINOR 2MM MUDSTONE BANDS; LOCALLY APPRO ACHES C-3

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
81	82.04	82.06	0.02	06486	I	MUDSTONE	CARB. DK. GY. SLD
81	82.06	82.14	0.08	06486	I	COAL	C-2. BRKN
81	82.14	82.15	0.01	06486	I	MUDSTONE	CARB. DK. GY. SLD
81	82.15	82.50	0.35	06486	I	COAL	C-2. BRKN SURFACES SOMEWHAT LISTRIC
81	82.50	82.64	0.14	06486	I	COAL	C-3. BRKN
81	82.64	82.75	0.11	06487	I	MUDSTONE	M-DK. GY. BRKN LISTRIC SURFACES
81	82.75	82.98	0.23	06487	I	COAL	C-2. BRKN APPROACHING C-1 IN PLACES; 2MM MUDSTONE BAND IN CENTER
81	82.98	83.11	0.13	06487	I	MUDSTONE	CARB. DK. GY. BRKN

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
81	83.11	83.14	0.03	06487	I	COAL	C-2. SLD MINOR QTZ VEINLETS THROUGHOUT
81	83.14	83.15	0.01	06487	I	MUDSTONE	CARB. DK. GY. BRKN
81	83.15	83.32	0.17	06487	I	COAL	C-2. BRKN MINOR MUDSTONE BANDS TOWARDS BASE
81	83.32	83.42	0.10	06487	I	MUDSTONE	CARB. DK. GY. BRKN
81	83.42	83.59	0.17	06487	I	COAL	C-2. BRKN
81	83.59	83.61	0.02	06487	I	MUDSTONE	CARB. DK. GY. BRKN
81	83.61	84.53	0.92	06488	I	COAL	C-2. BRKN MINOR 2-3MM BANDS OF MUDSTONE AT .25 .5 0 AND .60M
81	84.53	84.64	0.11	06488	I	COAL	C-1. BRKN
81	84.64	84.65	0.01	06488	I	MUDSTONE	CARB. DK. GY. BRKN

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
82	84.65	85.12	0.47	06488	I	COAL	C-1. BRKN APPROX. 5' TO 6' 2"-5MM CLAY BANDS WITHIN UNIT
82	85.12	85.61	0.49	06488	I	COAL	C-1. BRKN VERY HARD WITH GOOD CLEAT
82	85.61	86.08	0.47	06488	I	COAL	C-1. VBRKN VERY CRUMBLED BUT NEARLY ALL PIECES APP EAR TO BE GOOD VITRINITE
82	86.08	86.38	0.30	06488	I	COAL	C-2. VBRKN CRUSHES BUT RETAINS MANY BRIGHT PARTICLES; POSSIBLY C-3; LITRIFIC SURFACES
82	86.38	86.41	0.03	06488	I	MUDSTONE	CARB. M-DK. GY. SLD
82	86.41	86.42	0.01	06489		COAL	C-2. SLD
82	86.42	87.02	0.60	06489		MUDSTONE	M-DK. GY. BRKN ABUNDANT PLANT FRAGMENTS

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 82	87.02	87.40	0.38			SILTSTONE	CLY. DK. GY. LAM. BIOTR. SLD MOSTLY MUDSTONE NEAR TOP BECOMING MORE SANDY NEAR BASE; THINLY LAMINATED SANDS TONE AND MUDDY SILTSTONE INTERBEDS
83	87.40	88.77	1.37			SANDSTONE	FG. M. GY. BIOTR. SLD SANDSTONE WITH THIN MUDSTONE INTERBEDS; GRADUALLY MORE SANDSTONE THAN ABOVE UN IT; ABUNDANT BIOTR AND BURROW ACTIVITY ; HORIZONTAL AND VERTICAL BURROWS .3 TO 1CM; BURROWS AND FLARE STRUCTURES INDI CATE TOPS UP
84	88.77	89.21	0.44			SANDSTONE	FG. M. GY. BIOTR. SLD AS ABOVE
* 85	89.21	91.19	1.98			SANDSTONE	FG. M. GY. BIOTR AS ABOVE; RIP UPS IN TOP .2CM OF UNIT; FRACTURES APPROX 75 DEGREES OFF BEDDING DISPLACED 1CM LEAVING A SLICKENSIDE SU RFACE
85	91.19	92.09	0.90			SANDSTONE	FG. M. GY. BRKN AS ABOVE; NO RIP UPS; LOCAL CONCENTRATI ONS OF MUDSTONE NEAR TOP OF UNIT
85	92.09	92.60	0.51			SANDSTONE	FG. LT. GY. MAS. SLD MASSIVE NON DESCRIPT SANDSTONE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 85	92.60	93.13	0.53			SANDSTONE	FG. M. GY. BIOTR. BRKN SANDSTONE AND SILTY MUDSTONE INTERBEDS; ABUNDANT WORM BURROWS INDICATING TOPS UP
* 75	93.13	95.06	1.93			SANDSTONE	FG. M. GY. SLD AS ABOVE; INTERBEDDED FG SANDSTONE AND SILTY MUDSTONE; RATIO OF SANDSTONE TO MUDSTONE DECREASES TOWARDS BASE; FRACTURES APPROX 45 DEG BEDDING WITH SLICKENSLIDE SURFACES
78	95.06	97.09	2.03			MUDSTONE	SLTY. M-DK. GY. LAM. NRMBU. SLD INTERBEDDED SILTY MUDSTONE AND SANDSTONE; GRADATIONAL CHANGE FROM DOMINANTLY SANDSTONE ABOVE; ABUNDANT WORM BURROWS VERTICAL AND HORIZONTAL 5 TO 1CM DIAMETER; COMPLETELY MUDSTONE TOWARDS BASE; HELMENTHOIDA IN LOWER 10CM
80	97.09	97.47	0.38			MUDSTONE	SLTY. M-DK. GY. LAM. NRMBU. SLD AS ABOVE; SLIGHTLY MUDDIER; HELMENTHOIDAL PRESENT; MUDSTONE CONTAINS PEBBLES TOWARDS BASE
* 80	97.47	97.73	0.26			SANDSTONE	PBLY. CG. LT. GY. MAS. SLD APPEARS TO BE STORM UNIT; SHARP CONTACT AT BASE; PEBBLY SAND AT BASE WITH PEBBLES GRADED INTO OVERLYING MUDSTONE UNIT

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
79	97.73	97.96	0.23			SANDSTONE	FG. M. GY. LAM. SLD INTERBEDDED SANDSTONE AND SILTY MUDSTONE; LAMINATED TO THINLY BEDDED
76	97.96	99.12	1.16			SANDSTONE	FG. M. GY. THNB. BRKN AS ABOVE; BEDS THICKER THAN ABOVE; SOME SANDSTONE BEDS UP TO 10CM
* 72	99.12	100.01	0.89			MUDSTONE	SLTY. M-DK. GY. THNB. SLD INTERBEDDED SANDSTONE AND SILTY MUDSTONE BECOMING MUDDIER TOWARDS BASE; PEBBLES OCCUR WITHIN MUDSTONE NEAR BASE
73	100.01	100.17	0.16			SANDSTONE	MG. M-DK. GY. THNB. SLD INTERBEDDED SANDSTONE AND SILTSTONE; POSSIBLE SCH. STORM UNIT AT BASE
73	100.17	100.71	0.54			SANDSTONE	SLTY. VFG. M. GY. LAM. NRMBU. SLD MUDSTONE LAMINAE TOWARDS BASE; BIOTURRATED AND APPEARANCE OF PEBBLES TOWARDS A BASE; VERTICAL WORM BURROWS 10CM IN DIAMETER INDICATE TOPS UP
73	100.71	100.77	0.06			SANDSTONE	PBLY. CG. LT. GY. MAS. SLD STORM UNIT; TRACES OF PEBBLES FOUND IN OVERLYING UNIT

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
74	100.77	101.12	0.35			SANDSTONE	SLTY. VFG. M. GY. THNB. WRMBU. BRKN MAINLY SANDSTONE WITH MUDSTONE LAMINAE; 1 TO 2MM HORIZONTAL WORM BURROWS; POLI SHED FRACTURE SURFACES. AS TO BEDDING.
74	101.12	102.08	0.96			SANDSTONE	SLTY. VFG. M. GY. THNB. WRMBU. BRKN AS ABOVE; HELMETHOIDA NEAR TOP OF UNIT ; COAL FRAGMENTS AT BASE
76	102.08	103.23	1.15			SANDSTONE	FG. PR. LT-M. GY. MB. SSD. SLD THINLY BEDDED MUDSTONE BEDS OCCUR PERIO DICALLY THROUGHOUT; BURROWS 1CM IN DIAM ETER 1.5CM LONG; BURROWS POSSIBLY BIVALV E ESCAPE STRUCTURES; BURROW FILL INDICA TES TOPS UP; SANDSTONE BECOMES DIRTIER NEAR BASE
77	103.23	104.20	0.97			SANDSTONE	FG. VPR. LT-M. GY. MB. SSD. BRKN INTERBEDDED SANDSTONE AND MUDSTONE AS A BOVE BUT DIRTIER; BIVALVE ESCAPE STRUCT URES PRESENT
78	104.20	105.22	1.02			SANDSTONE	FG. VPR. LT-M. GY. MB. SSD. BRKN AS ABOVE
* 79	105.22	105.88	0.66			SANDSTONE	FG. PR. H. GY. THNB. BRKN AS ABOVE WITH 5MM HORIZONTAL WORM BURRO MS IN MUDSTONE BEDS

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
76	105.88	107.25	1.37			SANDSTONE	FG. MOD. LT-M. GY. MB. BRKN MINOR THIN BEDS OF SILTY MUDSTONE OFTEN LOCALLY CONCENTRATED; MUDSTONE RIP UP CLASTS PRESENT; MINOR HORIZONTAL BURROW S 2 TO 10MM IN DIAMETER; MG SANDSTONE T OWARDS TOP
74	107.25	107.81	0.56			SANDSTONE	FG. MOD. LT. GY. MB. SLD AS ABOVE; BECOMES DIRTIER TOWARDS BASE
72	107.81	108.67	0.86			SANDSTONE	SLTY. VFG. PR. H. GY. LAM. BRKN INTERBEDDED FG SANDSTONE AND SILTY MUDD STONE; INCREASINGLY MUDDY TOWARDS BASE
* 70	108.67	109.42	0.75			SANDSTONE	FG. MOD. LT. GY. MB. WRMBU. SLD DOMINANTLY SANDSTONE; IN PLACES THIN BE DS OF SILTY MUDSTONE ARE CONCENTRATED; VERTICAL ESCAPE BURROWS APPROX 1CM IN D IAMETER
* 75	109.42	110.25	0.83			SANDSTONE	FG. MOD. LT. GY. MB. WRMBU. SLD AS ABOVE
74	110.25	110.42	0.17			SANDSTONE	SLTY. VFG. PR. H. GY. THNB. SLD INTERBEDDED FG SANDSTONE SILTSTONE AND MUDSTONE; LARGE SAND FILLED ESCAPE BURR OWMS 1.5CM IN DIAMETER AND 5CM LONG SHOW S. TOPS UP

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	74	110.42	111.50	1.08		SANDSTONE	SLTY. VFG. PR. M. GY. THNB. SLD AS ABOVE; HELMETHOIDA CONCENTRATIONS WITHIN COALIFIED LENSES AND LAMINAE PARALLEL TO BEDDING.
*	72	111.50	113.56	2.06		SANDSTONE	SLTY. VFG. PR. M. GY. THNB. SLD AS ABOVE; HELMETHOIDA CONCENTRATIONS?
	73	113.56	113.63	0.07		SANDSTONE	SLTY. VFG. PR. M. GY. THNB. SLD AS ABOVE.
*	75	113.63	115.69	2.06		SANDSTONE	SLTY. VFG. PR. M. GY. THNB. SLD AS ABOVE; HELMETHOIDA CONCENTRATIONS? COALIFIED LENSES AND LAMINAE; BECOMING MORE OF A CARBONACEOUS MUDSTONE OR SILTSTONE TOWARDS BASE.
	73	115.69	116.53	0.84		SILTSTONE	M-DK. GY. LAM. SSD. SLD GRADATIONALLY FINER GRAINED AND MORE CARBONACEOUS THAN ABOVE UNIT; MINOR PYRITE BLEBS THROUGHOUT; COALIFIED LENSES AND PLANT MATERIAL; FG. SANDSTONE BEDS MAINLY AT TOP OF UNIT.
	73	116.53	116.83	0.30		SILTSTONE	M-DK. GY. LAM. SSD. SLD AS ABOVE.

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	72	116.83	117.81	0.98		MUDSTONE	CARB. DK. GY. LAM. SLD GRADATIONALLY LOSING SANDSTONE FROM ABOVE UNIT AND ARE LEFT WITH DOMINANTLY MUDSTONE WITH MINOR SILTSTONE LAMINAE PYRITE BLEBS (MINOR); COALIFIED PLANT FRAGMENTS.
	73	117.81	119.50	1.69		MUDSTONE	CARB. DK. GY. LAM. BRKN AS ABOVE; BECOMING MORE SILTY THAN ABOVE.
*	74	119.50	119.90	0.40		SILTSTONE	SSY. M-DK. GY. THNB. SLD INTERBEDDED FG. SANDSTONE SILTSTONE AND MUDSTONE; WORM BURROWS 3MM IN DIAMETER HORIZONTAL AND VERTICAL; ABUNDANT PLANT FOSSILS SOME COALIFIED.
*	73	119.90	121.90	2.00		SILTSTONE	SSY. M-DK. GY. THNB. BRKN AS ABOVE; BECOMING MORE COARSE NEAR BASE (INTERBEDDED FG. SANDSTONE AND SILTY MUDSTONE); HORIZONTAL WORM BURROWS APPROX. 5MM IN DIAMETER.
*	70	121.90	122.48	0.58		SANDSTONE	FG. MOD. LT-M. GY. THNB. BRKN GRADATIONAL CHANGE OF MAJOR GRAIN SIZE TO FG. SANDSTONE; INTERBEDDED SANDSTONE AND SILTY MUDSTONE; 5MM HORIZONTAL AND VERTICAL WORM BURROWS; TOPS UP.

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
70	122.48	123.55	1.07			SANDSTONE	FG. MOD. LT-M. GY. THNB. BRKN AS ABOVE; FLAME STRUCTURES; 5MM OFFSET ON MINOR EN-ECHELON FRACTURES
70	123.55	124.41	0.86			SANDSTONE	FG. MOD. M. GY. THNB. VBRKN AS ABOVE; MAJOR FRACTURING AND BCA'S APPEAR TO FLATTEN LOCALLY IN FRACTURED AREA; POLISHED SURFACES ON FRACTURES; BECOMING CARBONACEOUS TOWARDS BASE
70	124.41	125.38	0.97			MUDSTONE	CARB. DK. GY. MAS. SLD SILTY MUDSTONE; MASSIVE WITH COALIFIED LENSES
70	125.38	126.55	1.17			MUDSTONE	M-DK. GY. MAS. SLD CONTAINS THIN LENSES AND LAMINAE OF COAL
70	126.55	126.79	0.24			MUDSTONE	CARB. DK. GY. MAS. BRKN VERY LISTRIC AND SOFT
70	126.79	127.12	0.33	06490		MUDSTONE	M-DK. GY. MAS. BRKN THIN LENSES AND LAMINAE OF COAL THROUGHOUT
70	127.12	127.30	0.18	06491 H		COAL	C-2. BRKN CM BANDS OF C-1 WITHIN; QTZ VEINLETS AND PYRITE

* DENOTES MEASURED. BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
70	127.30	127.51	0.21	06491 H		COAL	C-5. SHRD VERY SHEARED AND LISTRIC; COULD BE FROM C-3 TO C-6 AND DESTROYED CLAY BANDS APPROX 1.3CM INTO UNIT (.3CM IN DIAMETER)
70	127.51	127.60	0.09	06491 H		COAL	C-2. BRKN MINOR VEINLETS
70	127.60	127.73	0.13	06491 H		COAL	C-4. SHRD LISTRIC SURFACES; VERY FRIABLE; POWDERS LEAVING DUST AND SMALL VITRINITE FLECKS
70	127.73	127.80	0.07	06491 H		MUDSTONE	CARB. DK. GY. MAS. BRKN VERY LISTRIC
70	127.80	128.19	0.39	06491 H		COAL	C-2. VBRKN LISTRIC; INTERBANDS OF C-3 THROUGHOUT
70	128.19	128.31	0.12	06491 H		MUDSTONE	CARB. DK. GY. MAS. BRKN ABUNDANT COALY FRAGMENTS; LISTRIC SURFACES
70	128.31	128.54	0.23	06491 H		COAL	C-3. BRKN SHEARED; ABUNDANT LISTRIC SURFACES; DIFFICULT TO PICK OUT VITRINITE BANDS OF POORER QUALITY; COAL AND MUDSTONE THROUGHOUT

* DENOTES MEASURED. BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	70 128.54	128.81	0.27	06491 H		MUDSTONE	CARB. DK. GY. BRKN VERY SOFT IN PLACES; COAL LENSES AND LAMINAE WITHIN
	70 128.81	128.82	0.01	06491 H		COAL	C-2.SLD
	70 128.82	128.86	0.04	06491 H		MUDSTONE	CARB. DK. GY. BRKN
	70 128.86	128.89	0.03	06491 H		COAL	C-2. BRKN
	70 128.89	129.01	0.12	06491 H		MUDSTONE	CARB. DK. GY. MAS. BRKN CONTAINS NUMEROUS VITRINITE BANDS <1CM
	70 129.01	129.17	0.16	06491 H		COAL	C-2. BRKN MINOR MUDSTONE BANDS WITHIN
	70 129.17	129.21	0.04	06491 H		MUDSTONE	CARB. DK. GY. MAS. BRKN
	70 129.21	129.36	0.15	06491 H		COAL	C-1.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	70 129.36	129.52	0.16	06491 H		COAL	C-2. BRKN
	70 129.52	129.57	0.05	06492 H		MUDSTONE	CARB. DK. GY. MAS. SHRD. VERY LISTRIC
	70 129.57	129.72	0.15	06492 H		MUDSTONE	CARB. DK. GY. MAS. BRKN LISTRIC SURFACES
	69 129.72	129.88	0.16	06492 H		COAL	C-2. BRKN MINOR QTZ WITHIN
	69 129.88	129.98	0.10	06492 H		MUDSTONE	CARB. DK. GY. MAS. BRKN MINOR COAL STRINGERS
	69 129.98	130.03	0.05	06492 H		COAL	C-2. BRKN ABUNDANT QTZ STRINGERS
	69 130.03	130.06	0.03	06492 H		MUDSTONE	CARB. DK. GY. MAS. SLD
	69 130.06	130.26	0.20	06492 H		COAL	C-2. BRKN MINOR 1-3MM MUDSTONE BANDS
	69 130.26	130.54	0.28	06492 H		MUDSTONE	CARB. DK. GY. THNB. BRKN CONTAIN LENSES AND BANDS OF COAL UP TO 1CM THICK

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	69 130.54	130.84	0.30	06492 H		COAL	C-3 1CM MUDSTONE IN CENTER
	69 130.84	130.87	0.03	06492 H		MUDSTONE	CARB. M-DK. GY. BRKN
	69 130.87	131.19	0.32	06492 H		COAL	C-4. VBRKN LISTRIC SURFACES; POWDERY COAL APPEARANCE; 1CM MUDSTONE BAND RUNNING ALONG LENGTH OF CORE
	69 131.19	131.37	0.18	06492 H		MUDSTONE	CARB. DK. GY. BRKN
	69 131.37	131.50	0.13	06492 H		COAL	C-2. BRKN
	69 131.50	131.71	0.21	06492 H		COAL	C-2. BRKN SOFT
	69 131.71	131.73	0.02	06492 H		MUDSTONE	CARB. DK. GY. BRKN
	69 131.73	131.93	0.20	06492 H		COAL	C-2. BRKN

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	69 131.93	131.98	0.05	06492 H		MUDSTONE	CARB. DK. GY. SHRD
	69 131.98	132.03	0.05	06492 H		COAL	C-2. BRKN
	69 132.03	132.47	0.44	06492 H		MUDSTONE	CARB. DK. GY. BRKN SOME VERY SOFT; LISTRIC SURFACES; MICRO FOLDED; LOWER 15CM CONTAINS 2-4MM COAL BANDS
	69 132.47	132.54	0.07	06493 H		COAL	C-2. BRKN
	69 132.54	132.90	0.36	06493 H		COAL	C-2. BRKN MINOR THIN MUDSTONE BEDS ESPECIALLY AT TOP OF UNIT
	69 132.90	132.91	0.01	06493 H		MUDSTONE	CARB. DK. GY. SLD
	69 132.91	133.02	0.11	06493 H		COAL	C-2. BRKN MINOR 3MM MUDSTONE BANDS WITHIN
	69 133.02	133.05	0.03	06493 H		MUDSTONE	CARB. DK. GY. BRKN

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
69	133.05	133.22	0.17	06493	H	COAL	C-2, YBRKN VERY CRUMBLED; LISTRIC SURFACES
69	133.22	133.38	0.16	06493	H	ROCK LOSS	
69	133.38	133.46	0.08	06493	H	MUDSTONE	CARB. DK. GY. SLD .5CH VITRINITE BANDS THROUGHOUT
69	133.46	133.75	0.29	06493	H	COAL	C-2, YBRKN CRUMBLED; CONTAINS 2-5MM MUDSTONE BANDS INTERBEDS OF C-3 THROUGHOUT
69	133.75	133.83	0.08	06493	H	COAL	C-4, PHRD VERY FRIABLE; GRINDS TO NOTHING BETWEEN FINGERS
69	133.83	134.00	0.17	06493	H	COAL	C-2, BRKN
69	134.00	134.04	0.04	06493	H	MUDSTONE	CARB. DK. GY. BRKN
69	134.04	134.12	0.08	06493	H	COAL	C-2, BRKN

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
69	134.12	134.14	0.02	06493	H	MUDSTONE	CARB. DK. GY. BRKN
69	134.14	134.33	0.19	06493	H	COAL	C-3, BRKN
69	134.33	134.54	0.21	06494		MUDSTONE	CARB. DK. GY. BRKN VERY LISTRIC
69	134.54	135.62	1.08			MUDSTONE	M-DK. GY. THNB. BRKN BECOMING MORE SILTY DOWN UNIT
69	135.62	136.53	0.91			SANDSTONE	SLTY. YFG. PR. LT-M. GY. THNB. SLD THIN BEDS OF FG. SANDSTONE AND SILTY MUD STONE
69	136.53	137.26	0.73			SILTSTONE	M. GY. THNB. BRKN THINLY BEDDED SILTSTONE AND MUDSTONE W/ TH MINOR FG SANDSTONE BEDS
* 69	137.26	137.53	0.27			SANDSTONE	PR. LT-M. GY. MB. SLD MINOR SILTSTONE BEDS WITHIN SANDSTONE; QUITE DIRTY SANDSTONE; QTZ AND SIDERITE FILLED FRACTURES 45 DEGREES TO BEDDING
* 60	137.53	138.20	0.67			SANDSTONE	FG. PR. LT-M. GY. MB. SLD AS ABOVE

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	55 138.20	139.53	1.33			SANDSTONE	MG. MOD. LT-M. GY. MAS. SLD 1-4CM MUDSTONE RIP UP CLASTS AT TOP OF UNIT; CLEANER THAN SANDSTONE ABOVE; SANDSTONE APPROACHES FG SANDSTONE LOCALLY THROUGHOUT UNIT
*	50 139.53	140.20	0.67			SANDSTONE	MG. MOD. LT-M. GY. MAS. SLD AS ABOVE WITH MINOR THIN MUDSTONE BEDS AND RIP UP CLASTS
	51 140.20	140.41	0.21			MUDSTONE	CARB. M-DK. GY. THNB. BRKN CARBONACEOUS SILTY MUDSTONE SOME BEDS M ORE SILTY; HELMINTHOPSIS VISIBLE IN SILTY BEDS; BREAKAGE COMMON ALONG LISTRIC SURFACES
	52 140.41	141.25	0.84			MUDSTONE	CARB. M-DK. GY. THNB. BRKN AS ABOVE
	53 141.25	141.65	0.40			SILTSTONE	CLYV. M. GY. MAS. BRKN
	53 141.65	141.86	0.21	06495		MUDSTONE	CARB. DK. GY. MAS. BRKN LISTRIC; CONTAINS COALY LENSES AND LAMINAE
	53 141.86	141.88	0.02	06496	PHANTOM	COAL LOSS	

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	53 141.88	142.12	0.24	06496	PHANTOM	COAL	C-4. BRKN LISTRIC; CONTAINS NUMEROUS MM MUDSTONE BANDS
	54 142.12	142.60	0.48	06496	PHANTOM	MUDSTONE	DK. GY. MAS. BRKN CARBONACEOUS ON PLACES; LISTRIC SURFACE S. MM COALIFIED LENSES THROUGHOUT
	54 142.60	142.83	0.23	06496	PHANTOM	COAL	C-3. SHRD EXTREMELY DEFORMED; LISTRIC; CONTAINS 3CM MUDSTONE BANDS AND QZ VEINLETS
	55 142.83	142.93	0.10	06496	PHANTOM	COAL	C-2. BRKN LISTRIC; SHEARED; CORE TWISTED OFF AT TOP (POSSIBLE CORE LOSS)
	55 142.93	143.02	0.09	06497	PHANTOM	MUDSTONE	CARB. DK. GY. MAS. SLD MINOR COALY LENSES AND LAMINAE
	55 143.02	143.03	0.01	06497	PHANTOM	COAL	C-1. SLD
	55 143.03	143.10	0.07	06497	PHANTOM	MUDSTONE	CARB. DK. GY. MAS. SLD CONTAINS COAL BANDS FROM .2 TO .8CM THICK
	55 143.10	143.31	0.21	06497	PHANTOM	MUDSTONE	CARB. DK. GY. MAS. BRKN CONTAINS NUMEROUS COAL BANDS 2-5MM

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	53	143.31	143.44	0.13	06497	PHANTOM MUDSTONE	M-DK. GY. MAS. SLD ABUNDANT PLANT FRAGMENTS SOME COALIFIED
	56	143.44	144.06	0.62	06497	PHANTOM MUDSTONE	M-DK. GY. MAS. BRKN AS ABOVE
	57	144.06	144.38	0.22	06497	PHANTOM COAL	C-6. BRKN CONTAINS ABUNDANT VITRINITE STRINGERS AND BANDS 1-6MM
	58	144.38	145.14	0.76	06498	MUDSTONE	M-DK. GY. MAS. BRKN CONTAINS BLEBS AND LENSES OF VITRINITE THROUGHOUT; ABUNDANT PLANT FRAGMENTS SOME COALIFIED; UPPER 20CM SAMPLED
	58	145.14	145.42	0.28		MUDSTONE	CARB. DK. GY. MAS. SLD UNIFORM CARB MUDSTONES; SILTY IN PLACES; ABUNDANT PLANT FRAGMENTS MANY COALIFIED
	60	145.42	147.20	1.78		MUDSTONE	CARB. DK. GY. MAS. SLD AS ABOVE; BECOMES MORE SILTY TOWARDS BASE
	62	147.20	148.56	1.36		MUDSTONE	SILTY M-DK. GY. THNB. SLD SILTY MUDSTONE WITH OCCASIONAL BEDS OF SILTY SANDSTONE 2-5CM THICK

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	64	148.56	149.28	0.72		MUDSTONE	SILTY M-DK. GY. THNB. SLD AS ABOVE; BECOMES SANDIER TOWARDS BASE
	65	149.28	149.70	0.42		SANDSTONE	SILTY, FG. LT-M. GY. THNB. SLD MIXTURE OF FG SANDSTONE AND MUDDY SILTY TONE; FLAMES AND LOAD STRUCTURES INDICATED UP; FAINT SIGNS OF BURROWING AND BIOTURBATION
	66	149.70	151.20	1.50		SANDSTONE	SILTY, VFG. LT-M. GY. THNB. SLD AS ABOVE
	67	151.20	151.34	0.14		SANDSTONE	MG. PR. LT-M. GY. THNB. SLD LAMINAE OF MUDDY SILTSTONE THROUGHOUT
	68	151.34	152.76	1.42		SANDSTONE	MG. PR. LT-M. GY. THNB. SLD AS ABOVE; ABUNDANT SILTY MUDSTONE NEAR TOP OF UNIT
	* 70	152.76	153.44	0.68		SANDSTONE	MG. PR. LT-M. GY. MAS. SLD MAINLY MASSIVE SANDSTONE WITH MINOR MUDDY LAMINAE PERIODICALLY
	70	153.44	155.44	2.00		SANDSTONE	MG. PR. LT-M. GY. MAS. BRKN AS ABOVE
	70	155.44	155.96	0.52		SANDSTONE	MG. PR. LT-M. GY. MAS. SLD AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDP85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	71 155.96	157.49	1.53			SANDSTONE	MG. PR. LT-M. GY. MAS. SLD AS ABOVE; 1-4CM MUDSTONE RIP UP CLASTS PRESENT NEAR TOP OF UNIT
	71 157.49	159.00	1.51			SANDSTONE	MG. PR. LT-M. GY. MAS. SLD AS ABOVE; MUDSTONE RIP UP CLASTS AT TOP OF UNIT
	71 159.00	159.61	0.61			SANDSTONE	MG. PR. LT-M. GY. MAS. SLD MASSIVE FEATURELESS SANDSTONE
	71 159.61	161.77	2.16			SANDSTONE	MG. PR. LT-M. GY. MAS. SLD MASSIVE SANDSTONE WITH 1-5CM IN DIAMETER IN LOWER HALF OF UNIT; LOCALLY APPROXIMATES FG SANDSTONE VERY GRADUALLY
	72 161.77	162.16	0.39			SANDSTONE	MG. PR. LY-M. GY. MAS. BRKN AS ABOVE; UPPER 10CM MAINLY INTERBEDDED LAMINAE OF FG SANDSTONE AND SILTY MUDSTONE
	72 162.16	163.66	1.50			SANDSTONE	MG. PR. LT-M. GY. MAS. BRKN MEDIUM BEDDED TO MASSIVE SANDSTONE (FAINT COLOUR SHADE CHANGES-POSSIBLY BEDS)
*	72 163.66	164.92	1.26			SANDSTONE	MG. PR. LY-M. GY. MAS. BRKN AS ABOVE; SOME FRACTURES CONTAIN QTZ AS WELL AS COALIFIED MATERIAL

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDP85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	73 164.92	165.07	0.15			SANDSTONE	CG. MOD. LT. GY. MAS. BRKN FRACTURED
	73 165.07	165.25	0.18			SANDSTONE	PBLY. CG. MOD. LT. GY. MAS. BRKN AS ABOVE
	74 165.25	165.55	0.30			SANDSTONE	PBLY. MG. PR. LY-M. GY. MAS. BRKN COALIFIED LENSES AND FRACTURES; MEDIUM TO MASSIVELY BEDDED
	74 165.55	165.75	0.20			SANDSTONE	PBLY. CG. MOD. LT. GY. MAS. BRKN
*	76 165.75	167.53	1.78			SANDSTONE	MG. PR. LY-M. GY. MAS. BRKN MG. SANDSTONE WITH THIN TO MEDIUM BEDS OF SILTY MUDSTONE AND FG SANDSTONE; RARE 2CM MUDSTONE RIP UP CLASTS
	76 167.53	167.84	0.31			SANDSTONE	MG. PR. LY-M. GY. MAS. SLD AS ABOVE
	77 167.84	169.41	1.57			SANDSTONE	MG. PR. LY-M. GY. MAS. BRKN THIN TO MEDIUM SANDSTONE; MINOR RIP UP CLASTS (1-2-1.5CM); COALY QTZ FRACTURE FILL; SINGLE THINLY BEDDED MUDSTONE AT TOP OF UNIT

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	77 169.41	170.32	0.91			SANDSTONE	MG. PR. LT-M. GY. MAS. BRKN MASSIVE FEATURELESS SANDSTONE WITH FRACTURES
	78 170.32	171.26	0.94			SANDSTONE	MG. PR. LY-M. GY. MAS. BRKN MINOR MUDSTONE RIP UP CLASTS (1CM); MEDIUM TO MASSIVE BEDS
	78 171.26	173.35	2.09			SANDSTONE	MG. PR. LT-M. GY. MAS. BRKN AS ABOVE
	79 173.35	173.47	0.12			SANDSTONE	MG. PR. LT-M. GY. MAS. SLD AS ABOVE
	79 173.47	175.20	1.73			SANDSTONE	MG. PR. LT-M. GY. MAS. BRKN AS ABOVE; MORE FRACTURES THAN PREVIOUSLY; ABUNDANT RIP UP CLASTS (1-2CM)
*	80 175.20	176.60	1.40			SANDSTONE	MG. PR. LT-M. GY. MAS. YBRKN MEDIUM BEDDED TO MASSIVE SANDSTONE; ABUNDANT MUDSTONE RIP UP CLASTS; 6CM OF THINLY BEDDED MUDSTONE WITHIN SANDSTONE. BURROWS INDICATES TOPS UP
	82 176.60	177.08	0.48			SANDSTONE	MG. PR. LT-M. GY. MAS. BRKN CONTAINS THIN MUDSTONE LAMINAE AND 1-3CM RIP UP CLASTS OF MUDSTONE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	85 177.08	179.10	2.02			SANDSTONE	MG. PR. LT-M. GY. MAS. BRKN AS ABOVE
	78 179.10	179.70	0.60			SANDSTONE	MG. PR. LT-M. GY. MAS. BRKN AS ABOVE
	75 179.70	180.52	0.82			SANDSTONE	MG. PR. LT-M. GY. MAS. YBRKN AS ABOVE; NUMEROUS FRACTURES OFTEN OFFSET AND FILLED WITH SIDERITE AND QTZ; CORE THIST OFF WITHIN UNIT
	72 180.52	180.80	0.28			SANDSTONE	MG. PR. LT-M. GY. YBRKN HIGHLY DISTORTED; CONTORTED SANDSTONE WITH MUDSTONE CLASTS COALY FRAGMENTS AND QTZ FRAGMENTS; FRAGMENTS ARE ROUNDED AND ANGULAR POSSIBLE FAULT ZONE OR ZONE OF MOVEMENT
	71 180.80	180.88	0.08			MUDSTONE	SSY. M. GY. MAS. BRKN EXTREMELY DISTORTED ZONE OF SANDY MUDSTONE INDICATIVE OF MOVEMENT
	71 180.88	180.98	0.10			MUDSTONE	SLTY. M-DK. GY. MAS
	69 180.98	181.46	0.48			MUDSTONE	SLTY. M-DK. GY. MAS. YBRKN BECOMES MORE CARBONACEOUS NEAR BASE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPM BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	181.46	182.37	0.91			MUDSTONE	CARB. DK. GY. MAS. VBRKN ABUNDANT COALY STRINGERS AND LENSES INC REASING TOWARDS BASE
	182.37	182.44	0.07			MUDSTONE	CARB. BLK. LAM. VBRKN COALY MUDSTONE; COAL LAMINAE UP TO 1CM; QTZ. WITHIN
	182.44	182.64	0.20	06499		MUDSTONE	CARB. DK. GY. MAS. BRKN ABUNDANT COALY STRINGERS AND LENSES INC REASING TOWARDS BASE
	182.64	182.72	0.08	06499		MUDSTONE	CARB. DK. GY. MAS. BRKN LISTRIC SURFACES; 2-3MM COALY BANDS
	182.72	182.75	0.03	06500 G LOWER ?		COAL	C-2. BRKN
	182.75	182.91	0.16	06500 G LOWER ?		COAL	C-5 VBRKN INTENSLY CRUMBLD; VERY LISTRIC; DIFFIC ULT TO DETERMINE VITRINITE %
	182.91	182.93	0.02	06500 G LOWER ?		COAL	C-1. BRKN
	182.93	182.98	0.05	06500 G LOWER ?		COAL	C-3. BRKN

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPM BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	182.98	183.64	0.66	06500 G LOWER ?		COAL LOSS	
	183.64	184.19	0.55	06501		MUDSTONE	M-DK. GY. MAS. BRKN LISTRIC SURFACES; COALY STRINGERS NEAR TOP; PLANT FRAGMENTS THROUGHOUT
*	184.19	185.15	0.96			SILTSTONE	M. GY. THNB. BRKN INTERBEDDED WITH MUDSTONE GRADATIONAL F ROM ABOVE
	185.15	186.22	1.07			MUDSTONE	CARB. DK. GY. LAM. BRKN BECOMING INTERBEDDED WITH FG SILTSTONE TOWARDS BASE; LAMINATED TO THIN BEDDED; LOAD STRUCTURES INDICATE TOPS UP
*	186.22	187.14	0.92			SILTSTONE	CLYV. M-DK. GY. THNB. SLD GRADATION GRAIN SIZE INCREASE FROM OVER LYING MUDSTONE; STILL CARBONACEOUS; SOM E THIN BEDS OF FG SANDSTONE (CARBONACEO US); MINOR PLANT FRAGMENTS
*	187.14	188.97	1.83			MUDSTONE	CARB. DK. GY. THNB. BRKN SILTY MUDSTONE GRADATIONAL FROM OVERLYI NG UNIT; MINOR SILTSTONE LAMINAE ESPECI ALLY IN UPPER PORTION OF UNIT; LISTRIC SURFACES; MASSIVE TOWARDS BASE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	65	188.97	189.19	0.22		MUDSTONE	CARB. DK. GY. MAS. BRKN AS ABOVE; WITH LARGE BIVALVES (4-5CM) AND BIVALVE PIECES
	69	189.19	189.54	0.35		MUDSTONE	CARB. DK. GY. MAS. BRKN AS ABOVE; BIVALVES (4-5CM) AND BIVALVE FRAGMENTS
*	83	189.54	191.29	1.75		SANDSTONE	FG. M. GY. THNB. BRKN GRADATIONAL FROM SILTY MUDSTONE ABOVE; MINOR LAMINAE OF SILTY MUDSTONE; PARASITIC FOLD AXIS AT BASE (30CM FOLD)
	75	191.29	192.29	1.00		SANDSTONE	FG. M. GY. THNB. SSD. BRKN AS ABOVE; LOCALLY MORE SILTY MUDSTONE LAMINAE AND THIN BEDS; NORM. BURROWS HORIZONTAL AND VERTICAL (2-5MM); TOPS UP AS INDICATED BY FLAME STRUCTURES LOAD STRUCTURES AND BURROWS
	70	192.29	193.19	0.90		SANDSTONE	FG. M. GY. THNB. HRMBU. SLD CORE TWISTED OFF AT START; FINE GRAINED SANDSTONE WITH MUDSTONE LAMINAE; BECOMING DOMINANTLY MUDDY SILTSTONE AT BASE; HEMATITE FOUND IN FINER MATERIAL 2-5MM VERTICAL BURROWS INDICATE TOPS UP

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	64	193.19	194.26	1.07		MUDSTONE	SILTY M-DK. GY. THNB. BRKN GRADATIONAL FROM SANDSTONE ABOVE THROUGH M SILTSTONE TO SILTY MUDSTONE; HELMETHOIDA NEAR TOP; MUDSTONE IS CARBONACEOUS AND CONTAINS MINOR THIN SILTSTONE BEDS ESPECIALLY NEAR TOP OF UNIT; PYRITE BL EB. WITHIN
	58	194.26	195.17	0.91		MUDSTONE	CARB. DK. GY. MAS. SLD MASSIVE CARBONACEOUS MUDSTONE; HELMETHOIDA LOCALLY WITHIN
	53	195.17	195.92	0.75		MUDSTONE	CARB. DK. GY. MAS. SLD AS ABOVE
	49	195.92	196.73	0.81		SILTSTONE	M-DK. GY. MAS. SLD CARBONACEOUS MUDSTONE AT TOP GRADING TH ROUGH TO A FG SANDSTONE AT BASE; WHOLE UNIT CONTAINS QTZ; PEBBLY MATERIAL THROUGHOUT (MILKY WAY)
	45	196.73	197.16	0.43		SILTSTONE	CLYY. M-DK. GY. THNB. SLD THINLY BEDDED SILTSTONE AND SILTY MUDSTONE; TRACES OF MILKY WAY LAYER LEFT NEAR TOP; HELMETHOIDA LOCALLY THROUGHOUT
	42	197.16	197.85	0.69		SILTSTONE	CLYY. M-DK. GY. THNB. SLD AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 36	197.85	199.24	1.39			SANDSTONE	FG.LT-M.GY.THNB.BRKN FG SANDSTONE WITH THIN LAMINAE OF SILTY MUDSTONE; LOCALLY CONCENTRATED INTO THIN BEDS; HELMINTHOIDA OCCUR WHERE MUDST ONE IS CONCENTRATED
41	199.24	199.76	0.52			SANDSTONE	FG.LT-M.GY.THNB.BRKN AS ABOVE; FG SANDSTONE WITH THIN LAMINAE OF SILTY MUDSTONE LOCALLY CONCENTRATED INTO THIN BEDS
* 46	199.76	201.24	1.48			SANDSTONE	FG.LT-M.GY.THNB.BRKN AS ABOVE
* 44	201.24	201.46	0.22			SANDSTONE	FG.LT-M.GY.THNB.SLD AS ABOVE
45	201.46	203.28	1.82			SANDSTONE	FG.LT-M.GY.THNB.SLD AS ABOVE; SLIGHT OFFSETS ALONG FRACTURE S
* 47	203.28	204.59	1.25			SANDSTONE	FG.M.GY.THNB.YBRKN INTERBEDDED SANDSTONE AND SILTY MUDSTONE; INCREASING IN SILTSTONE AND MUDSTONE NEAR BASE; OFTEN BREAKS ALONG LISTRIC SURFACES; SLIGHT OFFSETS ALONG FRACTURE S; INCREASINGLY CARBONACEOUS TOWARDS BASE ESPECIALLY MUDSTONE

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 58	204.53	205.15	0.62	06502		SILTSTONE	CARB.M-DK.GY.THNB.YBRKN POSSIBLE CORE LOSS AREA AT END OF UNIT; THINLY BEDDED SILTSTONE AND MUDSTONE; TOPS UP AS INDICATED BY 5MM DIAMETER HO RM BURROW
59	205.15	205.20	0.05	06502		MUDSTONE	CARB.DK.GY.MAS.BRKN LISTRIC SURFACES
59	205.20	205.32	0.12	06503 F		COAL	C-1.BRKN
60	205.32	205.36	0.04	06503 F		MUDSTONE	CARB.DK.GY.MAS.SHRD LISTRIC SURFACES
60	205.36	205.39	0.03	06503 F		COAL	C-1.BRKN
61	205.39	205.93	0.54	06503 F		COAL	C-3.DK.BLK.SHRD LISTRIC IN PLACES; CONTAINS MUDSTONE BANDS (THIN) THROUGHOUT
62	205.93	206.08	0.15	06503 F		COAL	C-2.BRKN MINOR 2MM CARBONACEOUS MUDSTONE BANDS AT BASE
62	206.08	206.12	0.04	06503 F		MUDSTONE	CARB.DK.GY.MAS.BRKN 5MM VITRINITIC BAND WITHIN

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	63	206.12	206.34	0.22	06504 F	COAL	C-2.BRKN MINOR MUDSTONE LENSES
	63	206.34	206.47	0.13	06504 F	COAL	C-2.BRKN
	64	206.47	206.52	0.05	06504 F	COAL	C-1.BRKN
	64	206.52	206.76	0.24	06504 F	COAL	C-2.BRKN VERY MINOR MM MUDSTONE STREAKS
	64	206.76	206.79	0.03	06504 F	COAL	C-1.BRKN 3MM QTZ VEINLET AT TOP
	65	206.79	206.96	0.17	06504 F	COAL	C-5.BRKN DOMINANTLY CARBONACEOUS MUDSTONE WITH H M VITRINITE BANDS THROUGHOUT
	65	206.96	206.98	0.02	06504 F	COAL	C-1.BRKN
	65	206.98	206.99	0.01	06504 F	MUDSTONE	CARB. DK. GY. SHRD LISTRIC
	65	206.99	207.08	0.09	06504 F	MUDSTONE	CARB. DK. GY. MAS. BRKN ABUNDANT 1-2MM VITRINITE BANDS

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	66	207.08	207.30	0.22	06504 F	ROCK LOSS	
	67	207.30	207.49	0.19	06504 F	COAL	C-5.VBRKN HAIRLINE STRINGERS OF VITRINITE THROUGH OUT; VITRINITE PIECES PRESERVED IN POWD ER
	67	207.49	207.51	0.02	06504 F	COAL	C-1.BRKN
	67	207.51	207.59	0.08	06504 F	COAL	C-3.SLD TEXTURE LIKE FG SANDSTONE; TINY COAL FL AKES THROUGHOUT; BANDED AT BASE
	70	207.59	209.22	1.63	06505	MUDSTONE	M-DK.GY.MAS.BRKN CARBONACEOUS AT VERY TOP; COALY CARBONA TE LENSES AND VEINS THROUGHOUT; LISTRIC SURFACES
	75	209.22	210.71	1.49		MUDSTONE	SLTY. M-DK.GY.MAS. BIOTR. VBRKN MAINLY MUDSTONE OCCASIONALLY BECOMING M ORE SILTY; VERY FINE STRINGERS OF CALCI TE. SOME SANDSTONE WITH COALY STRINGERS
	78	210.71	211.10	0.39		MUDSTONE	SLTY. M-DK.GY.MAS. VBRKN AS ABOVE

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	82	211.10	212.99	1.89		MUDSTONE	SLTY. M-DK. GY. THNB. BRKN INTERBEDDED BANDS OF MUDSTONE AND SILTSTONE; THINLY BEDDED TO LAMINATED
	74	212.99	215.00	2.01		MUDSTONE	SLTY. M-DK. GY. THNB AS ABOVE; MINOR BURROWS (.5CM)
	69	215.00	215.60	0.60		MUDSTONE	SLTY. M-DK. GY. THNB. VBRKN AS ABOVE
*	65	215.60	216.77	1.17		MUDSTONE	SLTY. M-DK. GY. THNB. BRKN AS ABOVE; BECOMES MORE CARBONACEOUS NEAR BASE
*	78	216.77	217.53	0.76		MUDSTONE	SLTY. M-DK. GY. THNB. BRKN AS ABOVE
	75	217.53	218.55	1.02		MUDSTONE	SLTY. M-DK. GY. THNB. BRKN AS ABOVE; PROBABLE CORE LOSS; CORE THIS THIN OFF IN TWO PLACES WITHIN UNIT. POSSIBLE HELMINTHOSIS
*	70	218.55	220.55	2.00		MUDSTONE	SLTY. M-DK. GY. THNB. HRMBU. SLD INTERBEDDED SILTSTONE AND MUDSTONE; MUCH BETTER BEDDED THAN ABOVE; MORE SILTY THAN ABOVE; SMALL AMOUNT OF VERTICAL BURROWS (.5CM)

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	80	220.55	222.51	1.96		MUDSTONE	SLTY. M-DK. GY. THNB. BRKN INTERBEDDED SILTY MUDSTONE AND MUDDY SILTSTONE (2CM UNCONSOLIDATED MUD POSSIBLY FROM UP HOLE)
*	81	222.51	224.50	1.99		MUDSTONE	SLTY. M-DK. GY. THNB. SLD THINLY BEDDED MUDSTONE AND SILTSTONE; BEDDING WEAK BUT VISIBLE; DOMINANTLY MUDSTONE
*	76	224.50	225.82	1.32		MUDSTONE	SLTY. M-DK. GY. THNB. BRKN AS ABOVE; CORE THINDED OFF POSSIBLE CORE LOSS
	76	225.82	226.57	0.75		MUDSTONE	SLTY. M-DK. GY. THNB. SLD AS ABOVE
*	75	226.57	228.61	2.04		MUDSTONE	SLTY. M-DK. GY. THNB. SLD AS ABOVE; CONTAINS A 2CM QTZ AND SIDERITE VEIN WITH COALY FRAGMENTS IN CENTER OF UNIT
*	72	228.61	228.76	0.15		MUDSTONE	SLTY. M-DK. GY. THNB. SLD THINLY BEDDED SILTSTONE AND MUDSTONE

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	72	228.76	230.62	1.87		MUDSTONE	SLTY. DK. GY. THNB. SLD AS ABOVE; PLANT FRAGMENTS COMMON; NUMEROUS CARBONATE COALY STRINGERS BECOMING INCREASINGLY CARBONACEOUS TOWARDS BASE; BREAKS ALONG LISTRIC SURFACES
	72	230.62	231.45	0.82	06506	MUDSTONE	CARB. DK. GY. MAS. BRKN VERY CARBONACEOUS IN LOWER HALF OF UNIT; COALY LENSES AND LAMINAE THROUGHOUT; LISTRIC SURFACES
	72	231.45	231.54	0.09	06507 E	COAL	C-2. BRKN ABUNDANT QTZ. VEINLETS THROUGHOUT
	72	231.54	231.73	0.19	06507 E	COAL	C-2. YBRKN HEAVILY CRUSHED
	72	231.73	231.75	0.02	06507 E	COAL	C-6. BRKN VERY MUDDY
	72	231.75	231.81	0.06	06507 E	COAL LOSS	
	72	231.81	231.85	0.04	06507 E	COAL	C-2. BRKN MINOR 2-3MM MUDSTONE BANDS
	72	231.85	231.89	0.04	06507 E	COAL	C-1. BRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	72	231.89	231.93	0.04	06507 E	COAL	C-2. PHRD HIGHLY SHEARED AND CONTAINS 2-3MM MUDST ONE BANDS WITHIN
	72	231.93	232.56	0.63	06507 E	COAL	C-1. BRKN VERY HIGH GRADE; VERY MINOR BANDS OF COAL LESS THAN C-6
	72	232.56	232.64	0.08	06507 E	COAL	C-1. BRKN DOMINANTLY VITRIMITE
	72	232.64	232.65	0.01	06507 E	MUDSTONE	CARB. DK. GY. MAS. SLD 3MM BANDS OF COAL
	72	232.65	232.70	0.05	06507 E	ROCK LOSS	
	72	232.70	233.33	0.63	06508 E	COAL	C-1. BRKN CONTAINS INTERBANDS OF C-2 THROUGHOUT
	72	233.33	233.35	0.02	06508 E	COAL	C-3. SHRD 3-4MM BANDS OF CARBONACEOUS MUDSTONE AND D. QTZ. VEINLETS WITHIN
	72	233.35	233.55	0.20	06508 E	COAL	C-2. BRKN MINOR QTZ. VEINLETS
	72	233.55	233.59	0.04	06508 E	MUDSTONE	CARB. DK. GY. MAS. BRKN VERY LISTRIC

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	72	233.59	233.78	0.19	06508 E	COAL	C-1.BRKN CONTAIN C-2 INTERBANDS
	72	233.78	234.27	0.49	06509	MUDSTONE	M-DK.GY.MAS.BRKN ABUNDANT PLANT FRAGMENTS; SOME COALIFTE D
	72	234.27	234.54	0.27	06509	MUDSTONE	M-DK.GY.MAS.SLD AS ABOVE
	72	234.54	236.14	1.60		MUDSTONE	CARB.DK.GY.MAS.BRKN MASSIVE CARBONACEOUS MUDSTONE; CONTAIN COALY CARBONATE STRINGERS IN UPPER SECT ION; BECOMES HEAVILY BIOTURBATED AND MI XED WITH FG SANDSTONE TOWARDS BASE
	72	236.14	236.67	0.53		SANDSTONE	YFG.M.GY.THNB.BIOTR.BRKN YFG SANDSTONE WITH INTERBEDS OF MUDSTON E
	72	236.67	237.47	0.80		SANDSTONE	YFG.M.GY.THNB.HRMBU.SLD DOMINANTLY SANDSTONE WITH MINOR MUDSTON E LAMINAE MAINLY WITHIN BURROWS; BURROW S 1-3CM DIAMETER AND INDICATE TOPS UP B Y CONCAVE NATURE OF INNER BEDDING.

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	72	237.47	238.67	1.20		SANDSTONE	YFG.M.GY.THNB.HRMBU.SLD INTERBEDDED YFG SS AND MDST; BIOTRB AT TOP OF UNIT BECOMING MORE DISTINCTLY BE DDED AT BASE; MINOR COALY CARBONATE LAM INAE; 2-5MM HORIZONTAL AND VERTICAL BURR OWNS; TOPS UP AS INDICATED BY FLAME STRU CTURES AND BURROWS.
	77	238.67	240.58	1.91		SANDSTONE	FG.MOD.M.GY.THNB.HRMBU.SLD FG TO YFG SANDSTONE WITH THIN BEDS OF M UDSTONE; SANDSTONE LOCALLY BECOMES DIRT IER THROUGHOUT; LOCALIZED AREAS OF BIO TURBATION; MINOR WORM BURROWS VERTICAL .5CM
*	80	240.58	240.80	0.22		SANDSTONE	FG.MOD.M.GY.THNB.SLD AS ABOVE
*	80	240.80	242.80	2.00		SANDSTONE	FG.MOD.LT-M.GY.MB.BRKN YFG SS AT TOP OF UNIT BECOMING FINE TO MEDIUM GRAINED BELOW TOP 20CM; YFG SS A PPEARS MUDDY AND CONTAINS LAMINAE OF MD ST; FG TO MG SS CONTAINS SPARSE THIN BE DS OF MDST; MDST AND SLTST RIP UP CLAST S AND COALY CARBONACEOUS CLASTS.

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
78	242.80	244.10	1.30			SANDSTONE	FG. M. GY. THNB. WRMBU. BRKN INTERBEDDED SS AND MOST AS ABOVE; SS COARSENS LOCALLY; MAINLY SS WITH MOST OCCURRING IN THIN BEDS TO LAMINAE; 1-2CM VERTICAL BURROWS INDICATE TOPS UP; MINOR COALY CARBONATE BLEBS; MINOR MOST RIP UP CLASTS NEAR TOP
76	244.10	244.83	0.73			SANDSTONE	FG. M. GY. THNB. WRMBU. SLD AS ABOVE
75	244.83	246.85	2.02			SANDSTONE	FG. M. GY. THNB. SLD INTERBEDDED SS AND MOST; SS COARSENS LOCALLY; MOST OCCURS IN THIN BEDS TO LAMINAE; SS CONTAINS X-BEDDING INDICATING TOPS UP; MINOR COALY CARBONACEOUS STRINGERS PRESENT
* 72	246.85	248.93	2.08			SANDSTONE	YFG. M. GY. THNB. SLD AS ABOVE; MINOR COALY CARBONATE STRINGERS PRESENT; X-BEDDING SHOWS TOPS UP
75	248.93	249.95	1.02			SANDSTONE	YFG. M. GY. THNB. SLD FG TO YFG SANDSTONE WITH THIN BEDS AND LAMINAE OF MUDSTONE; COALY CARBONATE STRINGERS; 1-2CM VERTICAL BURROWS; CORE TRIMMED OFF AT BASE POSSIBLE CORE LOSS

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
78	249.95	251.03	1.08			SILTSTONE	SSY. M-DK. GY. BRKN SANDY SILTSTONE INTERBEDDED WITH LAMINAE AND THIN BEDS OF MUDSTONE; COALY CARBONATE STRINGERS WITHIN
* 80	251.03	252.24	1.21			SILTSTONE	SSY. M. GY. THNB. SLD SANDY SILTSTONE INTERBEDDED WITH THIN MUDSTONE BEDS; BECOMES SANDIER TOWARDS BASE
77	252.24	252.96	0.72			SANDSTONE	YFG. MOD. M. GY. THNB. WRMBU. BRKN INTERBEDDED YFG SANDSTONE AND SILTY MUDSTONE; GRADATIONAL FROM ABOVE UNIT; HELMINTHOIDA PRESENT
* 73	252.96	255.06	2.10			SANDSTONE	YFG. MOD. M. GY. THNB. BRKN INTERBEDDED YFG SS AND MOST; LOCALLY SS COARSENS SLIGHTLY AND CONTAINS 1-2MM MDS. SPECKS WITHIN; OCCASIONAL COALY CARBONATE LENSES AND STRINGERS
74	255.06	255.17	0.11			SANDSTONE	YFG. MOD. M. GY. THNB. SLD AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	74	255.17	257.13	1.96		SANDSTONE	YFG. MOD. H. GY. THNB. WRMBU. SLD INTERBEDDED VFG SS AND MDST; MDST BEDS AND LAMINAE LOCALLY CONCENTRATED AND MAY CONTAIN HELMENTHOIDA; TOPS UP AS INDICATED BY WORM BURROWS AND X-BEDDING; 1CM DIAMETER VERTICAL WORM BURROWS
	72	257.13	258.33	1.20		SANDSTONE	SLTY. VFG. M. GY. THNB. BRKN AS ABOVE; BECOMES MORE OF A MUDDY SILTSTONE TOWARDS BASE
*	71	258.33	259.16	0.83		SILTSTONE	M. GY. THNB. WRMBU. BRKN GRADATIONAL FROM SANDSTONE ABOVE; INTERBEDDED SILTSTONE AND MUDSTONE; HELMENTHOIDA VISIBLE IN SILTSTONE BANDS
*	70	259.16	261.14	1.98		MUDSTONE	CARB. DK. GY. THNB. BRKN INTERBEDDED SILT AND MDST; GRADATIONAL FROM ABOVE; HELMENTHOIDA IN SILTY BANDS; BECOMES INCREASINGLY CARB TOWARDS BASE; ABUNDANT BIVALVES AND MINOR GASTROPODS NEAR BASE; BREAKS ALONG LISTRIC SWR FACES
	71	261.14	261.44	0.30	06510	MUDSTONE	M-DK. GY. MAS. VBRKN CONTAINS ABUNDANT BIVALVES AND GASTROPODS AND PYRITE NEAR BASE

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	71	261.44	261.66	0.22	06511 D	COAL	C-2. BRKN V. MINOR MM MUDSTONE BANDS; MINOR PYRITE BANDS
	71	261.66	261.69	0.03	06511 D	MUDSTONE	CARB. DK. GY. SLD 1MM COAL BANDS WITHIN
	72	261.69	261.72	0.03	06511 D	COAL	C-2. BRKN MINOR QTZ VEINLETS
	72	261.72	261.80	0.08	06511 D	ROCK LOSS	
	72	261.80	262.08	0.28	06511 D	MUDSTONE	M-DK. GY. MAS. BRKN
	72	262.08	262.27	0.19	06511 D	MUDSTONE	CARB. DK. GY. MAS. SHRD 2-4MM VITRINITE BANDS THROUGHOUT
	72	262.27	263.00	0.73	06511 D	MUDSTONE	M-DK. GY. MAS. BRKN OCCASIONAL COALY BANDS AND LENSES; OVER ALL NOT CARBONACEOUS
	73	263.00	263.20	0.20	06512 D	COAL	C-1. BRKN OCCASIONAL MM MUDSTONE BANDS
	73	263.20	263.25	0.05	06512 D	COAL	C-3. BRKN

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	73	263.25	263.26	0.01	06512 D	COAL	C-6.BRKN
	73	263.26	263.38	0.12	06512 D	COAL	C-3.BRKN BRIGHT AND DULL BANDS
	73	263.38	263.43	0.05	06512 D	COAL	C-6.BRKN VERY FEW BRIGHT BANDS MAINLY CARBONACEOUS MUDSTONE
	73	263.43	263.58	0.15	06512 D	COAL	C-3.BRKN MEDIUM BANDED BRIGHT AND DULL
	73	263.58	263.68	0.10	06512 D	COAL	C-2.SLD CONTAIN 1CM BAND OF MUDSTONE RUNNING LE NORTH.WEST ALONG CORE
	73	263.68	263.71	0.03	06512 D	MUDSTONE	CARB.DK.GY.MAS.SLD
	74	263.71	263.79	0.08	06512 D	COAL	C-2.BRKN MINOR MM MUDDY LAMINAE
	74	263.79	263.81	0.02	06512 D	COAL	C-6.SLD MINOR MM VITRINITE BANDS
	74	263.81	264.00	0.19	06512 D	COAL	C-2.BRKN CONTAINS MEDIUM BANDS OF C-6

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	74	264.00	264.05	0.05	06512 D	MUDSTONE	CARB.DK.GY.BRKN VERY LISTRIC
	74	264.05	264.12	0.07	06512 D	COAL	C-6.SHRD VERY SHEARED AND LISTRIC SURFACES
	74	264.12	264.44	0.32	06512 D	COAL	C-3.BRKN CONTAINS THIN BANDS OF MUDSTONE AND/OR C-6
	74	264.44	264.64	0.20	06512 D	COAL	C-4.PHRD ABUNDANT POWDERED DULL COAL WITH LESSER CHUNKS OF VITRINITE WHICH DID NOT POWD ER
	74	264.64	264.82	0.18	06512 D	COAL	C-5.PHRD VERY MINOR VITRINITE PIECES WITHIN POWD ERED HIGHLY SHEARED SECTION
	75	264.82	264.87	0.05	06512 D	COAL	C-2.BRKN
	75	264.87	264.95	0.08	06512 D	COAL	C-6.BRKN MINOR MM VITRINITE BANDS
	75	264.95	265.00	0.05	06512 D	COAL	C-2.SLD

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

RCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	265.00	265.04	0.04	06512 D		MUDSTONE	CARB. BRKN CONTAINS COALY BLES AND STRINGERS
75	265.04	265.13	0.09	06512 D		COAL	C-2. BRKN
75	265.13	265.48	0.35	06512 D		COAL	C-3. SHRD HIGHLY SHEARED AND BROKEN; VERY LISTRIC DIFFICULT TO RANK
75	265.48	265.51	0.03	06512 D		COAL	C-2. SLD
* 76	265.51	267.07	1.56	06513		SILTSTONE	M. GY. THNB. BRKN INTERBEDDED WITH LAMINAE OF MUDSTONE; M. LOOY AT TOP; BECOMING SANDY AT BASE OF UNIT
78	267.07	267.85	0.78			SANDSTONE	FG. MOD. M. GY. THNB. BRKN FG SANDSTONE WITH THIN BEDS AND LAMINAE OF MUDSTONE
* 80	267.85	269.11	1.26			SANDSTONE	FG. MOD. M. GY. THNB. BRKN AS ABOVE

* DENOTES MEASURED RCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 62

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

RCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	269.13	271.00	1.89			SANDSTONE	SLTY. VFG. MOD. M. GY. THNB. BRKN AS ABOVE; BECOMING SLIGHTLY FINER GRAIN ED TOWARDS BASE
71	271.00	271.24	0.24			SILTSTONE	M-DK. GY. THNB. BRKN THINLY BEDDED TO LAMINATED SILTSTONE AN D MUDSTONE; GRADATIONALLY FINER FROM AB OVE PLANT FRAGMENTS WITHIN
* 67	271.24	273.40	2.16			SILTSTONE	DK. GY. THNB. BRKN THINLY BEDDED SILTSTONE AND MUDSTONE; B ECOMING MORE OF MASSIVE MUDSTONE AT BAS E; HELMETHOIDA PRESENT; LISTRIC SURFAC ES AND PLANT FRAGMENTS PRESENT; MINOR B IVALVE FRAGMENTS
70	273.40	275.58	2.18			MUDSTONE	SLTY. DK. GY. MAS. BRKN BECOMES SILTY LOCALLY; ABUNDANT BIVALVE FRAGMENTS AND SHELLS; OFTEN BREAKS ALG NG LISTRIC SURFACES
72	275.58	275.94	0.36			MUDSTONE	SLTY. DK. GY. MAS. BRKN AS ABOVE
* 74	275.94	277.64	1.70			MUDSTONE	SLTY. DK. GY. MAS. BRKN AS ABOVE; BECOMES MORE SILTY LOCALLY; A BUNDANT BIVALVES AND GASTROPODS NEAR BA SE; PYRITE BLES WITHIN

* DENOTES MEASURED RCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 63

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	77	277.64	279.01	1.37		MUDSTONE	SLTY. DK. GY. MAS SILTY MDST; ABUNDANT BIVALVES AND GASTROPODS THROUGHOUT; SOME PYRITIZED SOME COALY STRINGERS AND COALY CARBONATE BANDS; GASTROPODS AND BIVALVES ARE SMALL (GASTROPODS-2-5MM BIVALVES-5-10MM) NUMEROUS LISTRIC SURFACES.
*	79	279.01	279.64	0.63		SILTSTONE	CLYY. M-DK. GY. LAM. BRKN FINELY LAMINATED SILTST AND MDST; LOSS OF BIVALVES AND GASTROPODS FROM ABOVE BUT MANY CARBONACEOUS PLANT FRAGMENTS; MINOR SCOURS OR BURROWS INDICATE TOPS UP (2-4MM DIAMETER)
	78	279.64	279.69	0.05		ROCK LOSS	
	76	279.69	280.62	0.93		MUDSTONE	SLTY. M-DK. GY. LAM. BRKN FINELY LAMINATED IN UPPER SECTION BECOMING MORE MASSIVE SILTY MUDSTONE TOWARDS BASE.
	74	280.62	280.87	0.25		MUDSTONE	CARB. BLK VERY COALY THROUGHOUT CONTAINS STRINGERS AND LENSES OF PYRITE COAL AND CALCITE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 64

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	74	280.87	280.90	0.03		PYRITE	NEARLY MASSIVE PYRITE WITH SOME MUDDY LAMINAE
	74	280.90	281.09	0.19		COAL	C-2. BLK LAM CONTAINS 2-3MM LAMINAE OF MUDSTONE PERIODICALLY AS WELL AS MINOR CARBONATE STRINGERS
	73	281.09	281.41	0.32		MUDSTONE	CARB. DK. GY. MAS. SLD CONTAINS COAL STRINGERS AND CARBONACEOUS STRINGERS
	72	281.41	281.51	0.10		ROCK LOSS	
	72	281.51	281.54	0.03		COAL	C-1. BLK QZ2 STRINGER WITHIN
	72	281.54	281.57	0.03		MUDSTONE	CARB. DK. GY. MAS. SLD COALY AND CALCITE STRINGERS WITHIN
	72	281.57	281.66	0.09		ROCK LOSS	
	71	281.66	281.73	0.07		COAL	C-2. BLK VERY MINOR CALCITE STRINGERS WITHIN
	71	281.73	281.88	0.15		MUDSTONE	CARB. DK. GY. MAS. SLD CONTAINS COAL BANDS; CARBONATE WITHIN COAL

* DENOTES MEASURED BCA

FORM 4001

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 65

PROJECT: KPN BLOCK: LR DATA SOURCE: DCH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	70	281.88	282.21	0.33		MUDSTONE	SILTY, M-DK. GY. BRKN LISTRIC SURFACES; BECOMES LESS CARBONACEOUS TOWARD S BASE.
	70	282.21	282.33	0.12		SANDSTONE	FG. M. GY. MAS. BIOTR. BRKN SANDSTONE WITH BIOTURBATED MUDSTONE THROUGHOUT
*	67	282.33	283.82	1.49		SANDSTONE	FG. M. GY. THNB. BIOTR. BRKN FG SANDSTONE INTERBEDDED WITH MUDSTONE; LOCALLY MUDSTONE CONCENTRATED AND BIOTURBATED; LOADS AND FLAMES INDICATE TOPS UP; SANDSTONE BECOMES SILTY LOCALLY
	67	283.82	283.92	0.10		ROCK LOSS	
*	67	283.92	285.44	1.52		SANDSTONE	FG. PR. M. GY. MAS. BRKN CONTAINS MINOR MUDSTONE LAMINAE; SANDSTONE AS A WHOLE BECOMES VERY DIRTY (MUD) LOCALLY AND BREAKS ALONG LISTRIC SURFACES
	67	285.44	285.49	0.05		ROCK LOSS	

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 66

PROJECT: KPN BLOCK: LR DATA SOURCE: DCH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	67	285.49	285.56	0.07	06514	SANDSTONE	FG. PR. M. GY. MAS. BRKN AS ABOVE
	67	285.56	285.71	0.15	06514	MUDSTONE	M-DK. GY. MAS. BRKN ABUNDANT PYRITE WITHIN; VERY LISTRIC
	67	285.71	285.78	0.07	06515 C	COAL	C-6. BRKN VERY LISTRIC
	67	285.78	285.86	0.08	06515 C	COAL	C-2. VBRKN SHINY VITRINITIC BUT VERY CRUMBLY AND LACKS CONCHOIDAL FRACTURING; POSSIBLY SHEARED
	67	285.86	285.99	0.13	06515 C	COAL	C-1. VBRKN VERY HARD LIGHT AND BREAKS CONCHOIDALLY
	67	285.99	286.08	0.09	06515 C	COAL	C-2. SHRD MINOR QZ VEINLETS WITHIN; VERY LISTRIC
*	67	286.08	286.99	0.91	06516	MUDSTONE	DK. GY. MAS. BRKN INITIALLY CARBONACEOUS BUT BECOMING LESS SO DOWN UNIT; COALY LENSES THROUGHOUT
*	63	286.99	287.94	0.95		SANDSTONE	FG. MOD. M. GY. THNB. WRMBU. BRKN CONTAINS LAMINAE AND THIN BEDS OF MUDSTONE DECREASING DOWN UNIT

* DENOTES MEASURED BCA

FORM 40001

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 67

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	64	287.94	288.65	0.71		SANDSTONE	SLTY. FG. M. GY. THNB. HRMBU. BRKN SANDSTONE WITH THIN BEDS OF MUDSTONE; 5-1CM HORIZONTAL WORM BURROWS
*	65	288.65	289.97	1.32		SANDSTONE	SLTY. FG. M. GY. THNB. BRKN MUDSTONE LAMINAE AND THIN BEDS THROUGHOUT; BECOMES SILTY LOCALLY; CONTAINS COALY CARBONATE STRINGERS NEAR BASE
*	62	289.97	291.78	1.81		SANDSTONE	SLTY. VFG. M. GY. THNB. BRKN VFG SS; BECOMING SILTY AND CONTAINING LAMINAE OF MDST; LOCALLY COALY CARBONATE STRINGERS WITHIN; MDST RIP UP CLASTS NEAR BASE; LOCALLY BIOTURBATED IN FINER AREAS
	65	291.78	292.02	0.24		SANDSTONE	SLTY. VFG. M. GY. THNB. BRKN AS ABOVE
*	69	292.02	294.06	2.04		SILTSTONE	W-DK. GY. THNB. HRMBU. BRKN SILTSTONE INTERBEDDED WITH MUDSTONE; GRADATIONAL FINING FROM UNIT ABOVE; HELMINTHOIDA VISIBLE IN SILTSTONE
	61	294.06	295.79	1.73		MUDSTONE	SLTY. M-DK. GY. BRKN UNABLE TO SEE BEDDING DUE TO DRILL CORE BEING GROUND DOWN; MINOR COALY CARBONATE LENSES ABUNDANT; PLANT FRAGMENTS MANY COALIFIED

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 68

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	56	295.79	296.09	0.30		SANDSTONE	FG. LT-M. GY. THNB. SLD SMALL SCALE INFLEXES OF COARSER MATERIAL; GRADUALLY FINING UPWARDS (INFLEXES OF HIGH ENERGY); COALY CARBONATE STRINGERS; THIN MUDSTONE LAMINAE WITHIN
*	47	296.09	297.16	1.07		SANDSTONE	FG. LT-M. GY. THNB. SLD AS ABOVE
*	52	297.16	298.13	0.97		SANDSTONE	FG. M. GY. THNB. BRKN SANDSTONE WITH THIN BEDS TO LAMINAE OF MUDSTONE; ABUNDANT COALY CARBONATE STRINGERS; CHURNED UP AT BASE; BIVALVES? HE MUDDY RIP UP CLASTS
	53	298.13	298.58	0.45		SILTSTONE	M. GY. VBRKN VERY BROKEN AND HIGHLY DISTORTED; 29M SHOT FULL OF QTZ; POSSIBLE PARASITIC FO LD
	54	298.58	299.86	1.28		SILTSTONE	M. GY. THNB. VBRKN INTERBEDDED SILTSTONE AND MUDSTONE; RAPID CHANGE IN BCA FROM 18 DEGREES IMMEDIATELY BENEATH QTZ TO 56 DEGREES AT BASE OF UNIT; HELMINTHOIDA PRESENT IN SILTSTONE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 69

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP ID	SEAM ID	LITHOLOGY	DESCRIPTION
	299.86	301.46	1.60			MUDSTONE	SLTY. DK. GY. MAS. SLD UNIFORM SILTY MUDSTONE UNIT; LOCALLY COAL ONACEOUS; MINOR COALY CARBONATE STRINGE RS; SCATTERED BIVALVE FRAGMENTS
	301.46	301.92	0.46			MUDSTONE	SLTY. DK. GY. MAS. SLD AS ABOVE
	301.92	303.35	1.43			MUDSTONE	SLTY. DK. GY. MAS. SLD AS ABOVE
	303.35	304.00	0.65			MUDSTONE	SLTY. DK. GY. MAS. SLD UNIFORM SILTY MUDSTONE; SCATTERED BIVAL VE FRAGMENTS; CORE GROUND DOWN FROM DRI LL
	304.00	306.04	2.04			MUDSTONE	SLTY. DK. GY. MAS. SLD AS ABOVE
	306.04	306.36	0.32			MUDSTONE	SLTY. DK. GY. MAS. BRKN AS ABOVE
	306.36	308.18	1.82			MUDSTONE	SLTY. DK. GY. MAS. BRKN UNIFORM MUDSTONE; BIVALVE AND GASTROPOD FRAGMENTS AND SHELLS; CORE GROUND FROM DRILL

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 70

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP ID	SEAM ID	LITHOLOGY	DESCRIPTION
	308.18	308.90	0.72			MUDSTONE	SLTY. DK. GY. MAS. BRKN AS ABOVE; ABUNDANT BIVALVE AND GASTROPO D SHELLS
*	308.90	310.08	1.18			MUDSTONE	SLTY. MAS MOST BECOMING THINLY BEDDED WITH SILT IN LOWER PORTION; COALY CARBONATE BANDS IN CENTER OF UNIT; ABUNDANT GASTROPOD AND BIVALVE SHELLS UP TO COALY BANDSPYR ITE IN SOME BANDS; CORE TWISTED OFF AT ONE PLACE (POSSIBLE CORE LOSS)
*	310.08	311.17	1.09			SILTSTONE	M-DK. GY. THNB. BRKN SILTSTONE WITH THIN MUDSTONE INTERBEDS; GRADATIONAL FROM MUDSTONE ABOVE; COALY CARBONATE LENSES AND STRINGERS; PLANT FRAGMENTS
	311.17	311.97	0.80			SANDSTONE	FG. LT-M. GY. MAS. BRKN MINOR FINER LAMINAE PERIODICALLY; GRADA TIONAL FROM ABOVE UNIT; LOCALLY BECOMES DIRTY
*	311.97	313.98	2.01			SANDSTONE	FG. LT-M. GY. MAS. BRKN AS ABOVE
	313.98	315.08	1.10			SANDSTONE	FG. LT-M. GY. MAS. BRKN AS ABOVE; MINOR BIOGENIC ACTIVITY. NOTIC ED

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 71

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	55	315.08	315.87	0.79		SANDSTONE	FG. LT-M. GY. MAS. VBRKN AS ABOVE
*	56	315.87	317.91	2.04		SANDSTONE	FG. LT-M. GY. MAS. SLD SANDSTONE WITH THIN BEDS OF MUDSTONE; SANDSTONE QUITE MUDDY AT TOP OF UNIT BECOMES CLEANER TOWARDS BASE AND COARSENS; LOWER PORTION CONTAINS COALY QTZ AND CARBONATE BANDS AND STRINGERS; VERY MUDDY AT BASE
	60	317.91	318.22	0.31		MUDSTONE	CARB. DK. GY. MAS. BRKN COALY STRINGERS WITHIN
	61	318.22	318.27	0.05	B	COAL	C-5. BLK. SHRD VERY SHEARED; ABUNDANT LISTRIC SURFACES
	61	318.27	318.29	0.02	B	COAL	C-3. BRKN CONTAINS VEINLETS OF QTZ AND PYRITE
	61	318.29	318.31	0.02	B	CLAYSTONE	CARB. BLK. SLD PYRITIZED QTZ VEINLETS THROUGHOUT
	61	318.31	318.43	0.12	B	COAL	C-2. VBRKN PYRITIZED QTZ VEINLETS THROUGHOUT
	62	318.43	318.46	0.03	B	COAL	C-3. SHRD SHEARED WITH LISTRIC SURFACES

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 72

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	62	318.46	318.48	0.02	B	COAL	C-6. BRKN QTZ VEINLETS THROUGHOUT
	62	318.48	318.55	0.07	B	COAL	C-1. BRKN CONCHOIDAL FRACTURING; 2-3MM MUDDY BANDS WITHIN; QTZ VEINLETS THROUGHOUT
	63	318.55	319.10	0.55		MUDSTONE	CARB. DK. GY. THNB. BRKN BECOMES INTERBEDDED WITH SILTSTONE TOWARDS BASE; UPPER PORTION CONTAINS COALY STRINGERS
	64	319.10	319.13	0.03		MUD	UNCONSOLIDATED MUD
*	65	319.13	319.71	0.58		SANDSTONE	FG. MOD. LT-M. GY. THNB. BRKN FINE LAMINAE OF MUDSTONE WITHIN
	63	319.71	321.13	1.42		SANDSTONE	SLTY. VFG. PR. H. GY. THNB. BRKN CONTAINS COALY LENSES AND STRINGERS THROUGHOUT; THIN BEDS AND LAMINAE OF MUDSTONE THROUGHOUT; LOCALLY VERY DIRTY
*	62	321.13	321.57	0.44		SANDSTONE	SLTY. VFG. PR. H. GY. THNB. BRKN AS ABOVE
	62	321.57	323.69	2.12		SANDSTONE	SLTY. VFG. PR. H. GY. THNB. BRKN SANDSTONE WITH THIN BEDS OF MUDSTONE THROUGHOUT

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 73

PROJECT: KPN BLOCK: LR DATA SOURCE: 00H85016

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. TO	SEAM TO	LITHOLOGY	DESCRIPTION
62	323.69	324.22	0.53			SANDSTONE	SLTY. VFG. PR. H. GY. THNB. BRKN AS ABOVE

* DENOTES MEASURED BCA
NEWPAGE

GULF CANADA RESOURCES INC.

SEAM DETAIL

COAL DIVISION
MOUNT KLAPPAN PROJECT

TRUE THICKNESS

DATA SOURCE: KPN LR DDM85018 SEAM : G LOWER ? INTERVAL(M) : 182.72 - 183.64 ELEVATION(M) : 1833.8
 GEOLOGIST : VANDENBUSSCH SCALE: DATE : DEC 19/85 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	HEAT VAL MJ/KG		
	182.72	↑ [Patterned Box] ↓		0.23													
	183.64	[Patterned Box] ↓		(0.56)	28.6	8600	6500	0.78 / 0.60 0.78		0.56	81.04	8.96	38.44	0.33	—	—	

GULF CANADA RESOURCES INC.

SEAM DETAIL

COAL DIVISION
MOUNT KLAPPAN PROJECT

TRUE THICKNESS

DATA SOURCE: KPN LR CDH85018 SEAM: C INTERVAL(M): 285.71 - 286.08 ELEVATION(M): 1633.8
 GEOLOGIST: VANDENBUSSCH SCALE: DATE: DEC 19/85 DRAWING NO.:

SEAM COMP.	DRILL DEPTH <small>(METERS)</small>	COAL SEAM LOG	INTERVAL <small>(METERS)</small>		% REC.	SAMPLE ID			COAL/ROCK TOTAL	COAL QUALITY A.D.B.								
			ROCK	COAL		SIMP	COMP	COMPOS		MINING SECTION	RES MOIST	ASH	VM	FC	TS	SALTYL <small>(G/KG)</small>		
	285.71	↑																
	286.08	↓		0.34	100.0	4818	4818	0.34 / 0.00		0.54	33.18	8.78	88.54	2.18	—	—		

Gulf Canada Resources Inc. Coal Division

Geophysical Log

Datasource: **KPNLRDDH85016**

Province: BC

Northing: 6344870.00

Lat: 571456

Log Date: 85-07-20

Zone: 9

Easting: 505929.00

Long: 1285406

Company: CENTURY

Measuring Point:

Elevation: 1634.0

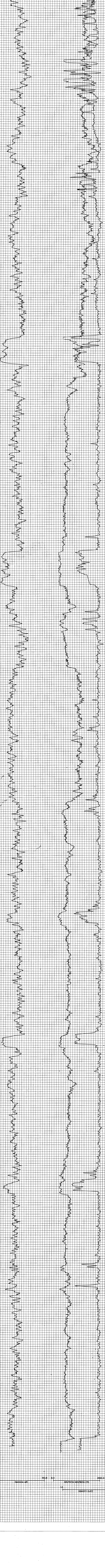
Geologist: VANDENBUSSCH

Scale: 1 to 100.0

Comments:
1. LOGGED THROUGH THE ROOS
2.

Depth Range: 0.0 to 327.0
True Thickness: NO

Logs Plotted:	Description	Axis Range	Axis Length	Smoothing Points	Tool	Comments
1.	GAMMA API	0.0 to 150.0	10.0	31	9055A	IN PIPE
2.	NEUTRON-NEUTRON CPS	0.0 to 2500.0	10.0	9	9055A	IN PIPE
3.	DENSITY G/CC	1.0 to 3.0	10.0	15	9030A	IN PIPE

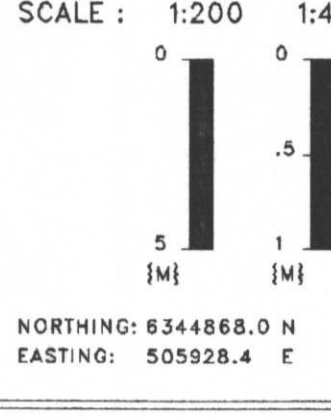


GULF CANADA RESOURCES INC.
 COAL DIVISION
 KLAPPAN PROJECT
 STRATIGRAPHIC LOG
 KPN LR DDH85016

GEOLOGIST : VANDENBUSSCH

DATE : JAN 08/86

DRAWING NO. :

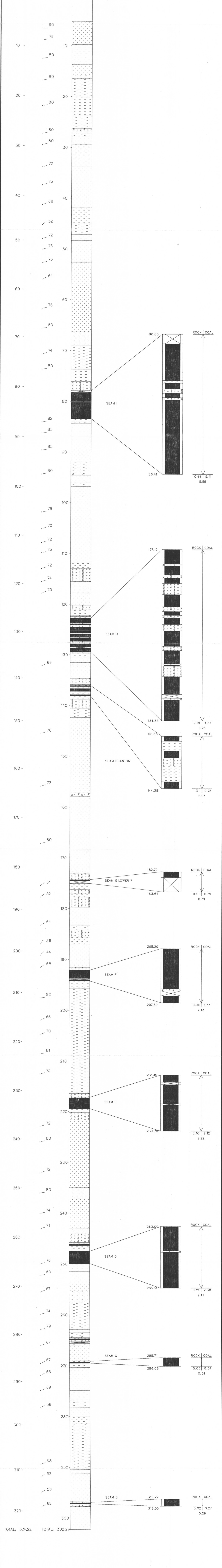


NORTHING: 6344868.0 N
 EASTING: 505928.4 E
 INCLINATION: 75.0 °
 BEARING: 10.0 °

LITHOLOGIC SYMBOLS

	SANDSTONE		BENTONITE
	SILTSTONE		BRECCIA
	COAL		CARBONACEOUS
	OVERBURDEN		QUARTZ
	MUDSTONE, CLAYSTONE		PYRITE
	TUFF		FERRUGINOUS
	LIMESTONE		CONGLOMERATE
	CORE LOSS		FOSSIL BED

SEAM DETAIL



KPNLRDDH85017

- D A T A S O U R C E S U M M A R Y -

DATA SOURCE - KPCLRDDH85017

DATE - 01/09/86

- H I S T O R Y -

START DATE - 07/17/85

END DATE - 07/21/85

CONTRACTOR - J T THOMAS

GEOLOGIST - BARKER

OPERATOR - GCRI

SURVEYOR - MWG & ASS

REMARKS -

- L O C A T I O N -

PROVINCE - BC
ELEVATION - 1635.01

LICENCE/LEASE NUMBER - 7151

ZONE - 9
NORTHING - 6344834.00
EASTING - 506805.00

LATITUDE - 571454
LONGITUDE - 1285314

- O R I E N T A T I O N -

LENGTH - 274.72

CORE SIZE - 0.0

CEMENT -
PLUG -
PIEZ -

INCLINATION - 75.0
AZIMUTH - 360.0

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

=====

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPN BLOCK: CR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	78	0.00	16.76	16.76		CASING	
	78	16.76	17.85	1.09		OVERBURDEN	VPR. M. GY. VBRKN SANDSTONE AND HUDSTONE BOULDERS AND COBBLES IN POORLY CONSOLIDATED SANDY CLAY; LIKELY CORE LOSS HERE
	78	17.85	19.85	2.00		ROCK LOSS	
	78	19.85	19.89	0.04		OVERBURDEN	VPR. M. GY. VBRKN AS ABOVE
	78	19.89	21.63	1.74		OVERBURDEN	VPR. M. GY. BRKN AS ABOVE; CORE IS MUCH LESS BROKEN; SAND/CLAY MIXTURE VERY COHESIVE
	78	21.63	21.88	0.25		ROCK LOSS	
	78	21.88	22.95	1.07		OVERBURDEN	VPR. M. GY. BRKN AS ABOVE
	78	22.95	23.79	0.84		OVERBURDEN	VPR. M. GY. BRKN AS ABOVE
	78	23.79	24.76	0.97		ROCK LOSS	

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 2

PROJECT: KPN BLOCK: CR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	78	24.76	26.00	1.24		OVERBURDEN	VPR. M. GY. VBRKN AS ABOVE
	78	26.00	27.40	1.40		ROCK LOSS	
	78	27.40	27.76	0.36		OVERBURDEN	VPR. M. GY. VBRKN AS ABOVE; CORE TWIST OFF AT TOP OF INTERVAL
	78	27.76	29.03	1.27		OVERBURDEN	VPR. M. GY. VBRKN AS ABOVE; LESS CONSOLIDATED; ONE COBBLE (5CM WIDE) CONTAINS NUMEROUS COAL STRINGERS (5-10MM WIDE)
	78	29.03	30.27	1.24		OVERBURDEN	VPR. DK. GY. VBRKN OVERBURDEN CONTAINS NUMEROUS COAL SPECKLES THROUGHOUT SAND AND TWO COAL STRINGERS
	78	30.27	30.69	0.42		OVERBURDEN	VPR. DK. GY. VBRKN OVERBURDEN VERY SANDY AND CONTAINS NUMEROUS COAL SPECKLES THROUGHOUT
	78	30.69	31.33	0.64		ROCK LOSS	
	78	31.33	32.08	0.75		OVERBURDEN	VPR. M. GY. VBRKN AS ABOVE; COAL SPECKLES IN SAND

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	78	32.08	33.16	1.08		OVERBURDEN	VPR. M. GY. VBRKN AS ABOVE
	78	33.16	33.66	0.50		OVERBURDEN	VPR. M. GY. BRKN AS ABOVE
	78	33.66	34.04	0.38		ROCK LOSS	
	78	34.04	34.67	0.63		OVERBURDEN	VPR. M. GY. VBRKN AS ABOVE
	78	34.67	34.98	0.31		COAL	BLK. BRKN BOULDER IN FLOAT? ABOUT 70% OF BOULDER IS C-2 OR C-3; 30% CLAYSTONE BANDS
	78	34.98	35.19	0.21		OVERBURDEN	VPR. M. GY. BRKN OVERBURDEN AS ABOVE
	78	35.19	35.98	0.79		OVERBURDEN	VPR. M. GY. BRKN PREDOMINANTLY DARK GREY MUDSTONE PIECES IN SOFT SANDY CLAY; END OF OVERBURDEN
	78	35.98	37.21	1.23		MUDSTONE	M. GY. MAS. BRKN MINOR PLANT HASH; OCCASIONAL SHORT TINY (1MM THICK) COAL STRINGERS AND SPECKS; MINOR ANKERITE VEINING; PLANT FOSSILS MORE NUMEROUS DOWNHOLE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	78	37.21	38.18	0.97		MUDSTONE	M. GY. MAS. SLD UNIFORM LITHOLOGY AS ABOVE; NO CARBONATE STRINGERS
	76	38.18	39.24	1.06		MUDSTONE	SILTY M. GY. MAS. BRKN DISSEMINATED PYRITE; LESS PLANT HASH; NO CARBONATE STRINGERS
	74	39.24	39.63	0.39		ROCK LOSS	
	72	39.63	41.23	1.60		MUDSTONE	SSY. M. GY. THNB. BIOTR. VBRKN SILTY MUDSTONE WITH VFG SANDSTONE INTER BEDS; IRREGULAR SHARP CONTACTS (LARGE MUDSTONE RIP UP CLASTS?)
*	70	41.23	41.79	0.56		MUDSTONE	SSY. M. GY. LAM. BRKN AS ABOVE; MINOR ANKERITE VEINING; SILTY LAMINATED THROUGHOUT
	73	41.79	43.29	1.50		SANDSTONE	FG. PR. M. GY. MAS. BRKN MASSIVE; UNIFORM GRADATIONAL CONTACT WITH ABOVE MUDSTONE
	77	43.29	44.24	0.95		SANDSTONE	FG. PR. M. GY. MAS. BRKN LITHOLOGY AS ABOVE; ONE LONG ANKERITE VEIN ABOUT PARALLEL TO CORE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 80	44.24	45.31	1.07			SANDSTONE	FG. PR. H. GY. MAS. BRKN LITH AS ABOVE; OCCASIONAL FAINT WISPY S ILT LAYERS
80	45.31	45.90	0.59			SANDSTONE	FG. PR. H. GY. MAS. BRKN LITH AS ABOVE
80	45.90	47.26	1.36			SANDSTONE	FG. PR. H. GY. MAS. SLD MUDSTONE RIP UP CLASTS THROUGHOUT; BCA OF ONE NARROW LAYER OF RIP UP CLASTS = 62 DEGREES
81	47.26	47.42	0.16			ROCK LOSS	
* 81	47.42	49.46	2.04			SANDSTONE	FG. PR. H. GY. MAS. BRKN LITH AS ABOVE; ANKERITE VEINING APPROX PARALLEL TO CORE; MUDSTONE RIP UP CLAST S NEAR BOTTOM OF BOX
* 75	49.46	49.75	0.29			SANDSTONE	SLTY. FG. PR. H. GY. YTHNB. BRKN MUDSTONE RIP UP CLASTS NEAR BOTTOM CONT ACT; MUCH SILTIER GRADING TO MUDSTONE A T. BOTTOM CONTACT

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 80	49.75	50.44	0.69			MUDSTONE	DK. GY. YTHNB. SLD EXTREMELY FINE GRAINED; ALMOST COASTER LITHOLOGY BUT NOT AS INTENSELY LAMINATE D. LAMINAE FINE UPWARD
79	50.44	51.58	1.14			MUDSTONE	DK. GY. YTHNB. SLD LITH AS ABOVE; VERY UNIFORM; NO FOSSILS ; IRREGULAR FRACTURE SURFACES
* 78	51.58	53.43	1.85			MUDSTONE	DK. GY. YTHNB. BRKN LITH AS ABOVE
79	53.43	53.55	0.12			MUDSTONE	DK. GY. YTHNB. BRKN LITH AS ABOVE
* 80	53.55	55.71	2.16			MUDSTONE	DK. GY. YTHNB. BRKN LITH AS ABOVE; OCCASIONALLY BREAKS ALON G BEDDING PLANES
* 79	55.71	56.43	0.72			SILTSTONE	DK. GY. YTHNB. SLD LITH SIMILAR TO ABOVE BUT COARSER GRAIN ED OVERALL; COARSE COASTER LITHOLOGY
* 84	56.43	57.83	1.40			MUDSTONE	DK. GY. YTHNB. SLD LITH AS ABOVE MUDSTONE
* 85	57.83	59.38	1.55			MUDSTONE	DK. GY. LAM. BRKN LITH SIMILAR TO ABOVE; NEAR COASTER LIT HOLOGY AS ABOVE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 85	59.38	59.88	0.50			MUDSTONE	DK. GY. LAM. BRKN LITH AS ABOVE
* 82	59.88	61.84	1.96			MUDSTONE	DK. GY. LAM. BRKN NEAR RYTHMITES (COASTER ZONE LITHOLOGY) OCCASIONALLY PARTS PARALLEL TO BEDDING
79	61.84	62.17	0.33			MUDSTONE	W. GY. LAM. BRKN END OF COASTER LITHOLOGY; RYTHMITES BUT NO COASTERS FORMED
78	62.17	62.43	0.26			ROCK LOSS	
76	62.43	63.31	0.88			MUDSTONE	DK. GY. THNB. YBRKN SOME PLACES POORLY CONSOLIDATED
73	63.31	64.86	1.55			ROCK LOSS	
71	64.86	65.03	0.17		J	COAL	C-4 DK. GY. YTHNB. BRKN ABOUT 70% COAL RANGING FROM C-3 TO C-4 GRADE; PYRITE LENSES; MUCH ANKERITE VEI. MING
* 70	65.03	65.23	0.20			MUDSTONE	CARB. DK. GY. YTHNB. BRKN FAINT SILTY BEDDING; FAIRLY CARBONACEOU S

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
70	65.23	65.48	0.25			MUDSTONE	CARB. DK. GY. MAS. BIOTR. BRKN FINE COAL STRINGERS 1-2MM WIDE THROUGH OUT; ANKERITE VEINING NEAR TOP; SOME BIO TURBATION THROUGHOUT
* 70	65.48	67.20	1.72			MUDSTONE	CARB. DK. GY. THNB. SLD NUMEROUS COAL STRINGERS THROUGHOUT; ONE COAL BAND 35MM WIDE
* 80	67.20	68.51	1.31			SANDSTONE	SLTY. VFG. VPR. W. GY. LAM. HRMBU. BRKN VFG TO FG SANDSTONE WITH NUMEROUS SILTY LAMINAE THROUGHOUT; VERT AND HORIZ MOR MBURROWS AS WELL AS SCOURS SHDN. TOPS UP
81	68.51	69.21	0.70			SILTSTONE	SSY. VPR. H. GY. LAM. SLD LITH FINER GRAINED THAN ABOVE; SCOURS S HOW TOPS UP
83	69.21	71.33	2.12			MUDSTONE	SLTY. VPR. DK. GY. YTHNB. SLD OCCASIONAL FINE CARBONACEOUS AND COALY FINE STRINGERS 1MM WIDE; ANKERITE VEINS 5-1 MM WIDE; PLANT FOSSILS ON BEDDING SURFACES
* 85	71.33	73.17	1.84			SILTSTONE	SSY. VPR. DK. GY. THNB. BIOTR. BRKN SLIGHTLY COARSER THAN ABOVE; MOSTLY BID TURBATED BUT SOME VERT MORH BURROWS AND SSD (LOADING) VISIBLE; TOPS UP

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	73.17	73.40	0.23			ROCK LOSS	
87	73.40	74.57	1.17			SANDSTONE	SLTY. FG. VPR. M. GY. VTHNB. BIOTR. BRKN NUMEROUS IRREGULAR SILTY LAMINAE THROUGHOUT SANDSTONE; WORM BURROWS AND SOFT SEDIMENT DEFORMATION
88	74.57	75.24	0.67			SANDSTONE	SLTY. FG. VPR. M. GY. VTHNB. BIOTR. BRKN LITH AS ABOVE; ONE COALY LENS SURROUND BY ANKERITE 3MM WIDE; 50MM LONG INSITU ORGANIC MATERIAL?; VERT WORM BURROWS AND LOADING SHOWS TOPS UP
* 90	75.24	77.31	2.07			SILTSTONE	SSY. VPR. M. GY. LAM. MRHBU. SLD SANDY SILTSTONE; MUCH BIOGENIC ACTIVITY; NUMEROUS HORIZ AND VERT WORM BURROWS THROUGHOUT; TOP UPS; BANDING RANGES FROM SILTY MUDSTONE TO FG SANDSTONE
86	77.31	77.56	0.25			SILTSTONE	SSY. VPR. M. GY. LAM. SLD LITH AS ABOVE; NO WORM BURROWS
* 82	77.56	79.40	1.84			SILTSTONE	SSY. VPR. M. GY. LAM. SLD VERY FINELY LAMINATED; PREDOMINANTLY SILTSTONE WITH DARKER MUDDY LAMINAE THROUGHOUT; OCCASIONALLY GRADING TO FG SANDSTONE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 79	79.40	80.61	1.21			SILTSTONE	SSY. VPR. M. GY. LAM. SLD LITH AS ABOVE; VERY FINELY LAMINATED
81	80.61	81.51	0.90			SILTSTONE	SSY. VPR. M. GY. LAM. XBDG. SLD LITH AS ABOVE BUT LESS SAND; X-BEDDING SHOWS TOPS UP
* 85	81.51	83.58	2.07			SILTSTONE	SSY. VPR. M. GY. LAM. BRKN SLIGHTLY MORE SAND THAN ABOVE; FINELY LAMINATED SILTSTONE
82	83.58	83.66	0.08			ROCK LOSS	
* 80	83.66	85.52	1.86			SILTSTONE	SSY. VPR. M. GY. LAM. BRKN LITH AS ABOVE
* 75	85.52	86.74	1.22			SILTSTONE	SSY. VPR. M. GY. LAM. BRKN LITH AS ABOVE
79	86.74	87.36	0.62			SILTSTONE	SSY. VPR. M. GY. LAM. XBDG. VBRKN LITH AS ABOVE
* 85	87.36	89.41	2.05			SILTSTONE	SSY. VPR. M. GY. VTHNB. XBDG. VBRKN MORE MUDDY NEAR TOP; GRADUALLY BECOMING MORE FG SANDY TOWARDS BOTTOM; NOT AS INTENSELY LAMINATED; MUCH X-BEDDING OF SILTY LAMINAE TOPS UP

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	89.41	89.52	0.11			ROCK LOSS	
	82 89.52	89.79	0.27			SILTSTONE	SSY. VPR. M. GY. LAM. XBDG. SLD LITH AS ABOVE; FINELY LAMINATED SILTSTONE WITH SOME VFG SAND MIXED IN
*	79 89.79	91.60	1.81			SILTSTONE	SSY. VPR. M. GY. VTHNB. XBDG. BRKN LITH AS ABOVE; NOT AS MANY FINE LAMINATIONS
*	78 91.60	92.85	1.25			SANDSTONE	SLTY. VFG. VPR. M. GY. VTHNB. XBDG. SLD HIGHER VFG SAND CONTENT THAN ABOVE; MUCH FLASER AND X-BEDDING
	79 92.85	93.62	0.77			SANDSTONE	SLTY. VFG. VPR. M. GY. VTHNB. XBDG. SLD LITH AS ABOVE
*	80 93.62	95.63	2.01			SANDSTONE	SLTY. VFG. VPR. LT. GY. VTHNB. XBDG. SLD LITH AS ABOVE; NUMEROUS X-BEDS AS ABOVE ; SOME BEDS FINE UPWARD FROM FG SAND TO DARK MUDSTONE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	80 95.63	95.81	0.18			SANDSTONE	SLTY. FG. VPR. LT. GY. LAM. XBDG. SLD VERY LIGHT GREY SANDS WHICH TYPICALLY OCCUR ABOVE BENTONITE ABOVE 1; NUMEROUS EXAMPLES OF EXCELLENT X-BEDDING
	80 95.81	95.90	0.09			ROCK LOSS	
	79 95.90	97.63	1.73			SANDSTONE	SLTY. FG. VPR. LT. GY. LAM. XBDG. BRKN LITH AS ABOVE
*	78 97.63	98.93	1.30			SILTSTONE	CLYY. VPR. LT. GY. LAM. XBDG. BRKN FINER GRAINED WITH MUCH LIGHT CLAY MIXED IN; BENTONITE?
	75 98.93	99.39	0.46			SILTSTONE	CLYY. VPR. LT. GY. LAM. VBRKN LITH AS ABOVE; SLIGHTLY MORE CLAY
	74 99.39	99.63	0.24			CLAY	MOD. LT. GY. VTHNB. VBRKN BENTONITE? LIGHT GREY; VERY SOFT
*	73 99.63	100.04	0.41			MUDSTONE	M. GY. LAM. VBRKN FINELY LAMINATED; VERY FINE GRAINED; BANDS FINE UPWARDS
	73 100.04	100.37	0.33			MUDSTONE	M. GY. MAS. VBRKN PLANT FOSSILS; CORE VERY BROKEN; UNIFORM LITHOLOGY

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	74	100.37	100.42	0.05		ROCK LOSS	
	74	100.42	101.22	0.80	06462	MUDSTONE	M-DK.GY.MAS.BRKN PLANT FRAGMENTS ABUNDANT; SOME COALIFIED; D; SAMPLED FROM 101.16 TO 101.36
	74	101.22	101.36	0.14	06462	MUDSTONE	M-DK.GY.MAS.BRKN AS ABOVE
	74	101.36	101.53	0.17	06451 I	COAL	C-2.VBRKN ABUNDANT VITRINITE IN BRIGHT BANDS; COAL LOSS
	75	101.53	101.72	0.19	06451 I	ROCK LOSS	
	75	101.72	101.76	0.04	06451 I	MUDSTONE	CARB.DK.GY.VBRKN
	75	101.76	101.77	0.01	06451 I	COAL	C-1.BRKN
	75	101.77	101.79	0.02	06451 I	MUDSTONE	CARB.DK.GY.BRKN

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	75	101.79	101.85	0.06	06451 I	COAL	C-2.BRKN MEDIUM BANDS OF CONDROAL VITRINITE WITH MIN
	75	101.85	101.87	0.02	06451 I	MUDSTONE	CARB.DK.GY.BRKN
	75	101.87	101.98	0.11	06451 I	COAL	C-2.BRKN CONTAINS MEDIUM BANDS OF C-1 WITHIN
	75	101.98	102.16	0.18	06451 I	COAL	C-1.BRKN
	75	102.16	102.18	0.02	06451 I	MUDSTONE	CARB.VBRKN COALY STRINGERS; LOSS
	75	102.18	102.27	0.09	06451 I	ROCK LOSS	
	75	102.27	102.44	0.17	06451 I	COAL	C-1.BRKN
	75	102.44	102.44	0.02	06451 I	COAL	C-2.SLD
	75	102.44	102.51	0.05	06451 I	COAL	C-1.SLD MINOR C-2 BANDS BUT STILL NEARLY ALL VITRINITE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	76	102.51	103.04	0.53	06451 I	COAL	C-2. BRKN CONTAINS MEDIUM BANDS OF C-1 (VITRINITE)
	76	103.04	103.87	0.03	06451 I	COAL	C-3. BRKN
	76	103.07	103.19	0.12	06451 I	COAL	C-2. BRKN CONTAINS MEDIUM TO THICK C-1 BANDS
	76	103.19	103.32	0.13	06451 I	MUDSTONE	CARB. DK. GY. VBRKN
	76	103.32	103.59	0.27	06451 I	COAL	C-2. BRKN MEDIUM BANDS OF C-1 AS WELL AS SOME 2MM DULL (C-4) BANDS
	77	103.59	103.66	0.07	06451 I	COAL	C-4. BRKN DIRTY APPEARANCE
	77	103.66	103.73	0.07	06451 I	COAL	C-2. BRKN THIN C-1 BANDS; MM DIRTY STREAKS THROUGH MOUT
	77	103.73	104.14	0.41	06451 I	COAL	C-2. VBRKN MEDIUM BANDS OF C-1 AND POSSIBLY C-3 IM ROUGHOUT; VERY BROKEN THUS DIFFICULT TO DISTINGUISH COAL TYPES

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	77	104.14	104.50	0.36	06451 I	ROCK LOSS	
	77	104.50	104.56	0.06	06451 I	MUDSTONE	CARB. DK. GY. VBRKN COALY STRINGERS THROUGHOUT
	77	104.56	104.58	0.02	06451 I	MUDSTONE	CARB. DK. GY. SLD VERY COALY
	78	104.58	104.82	0.24	06452 I	COAL	C-1. BRKN
	78	104.82	104.83	0.01	06452 I	MUDSTONE	CARB. DK. GY. SLD
	78	104.83	104.85	0.02	06452 I	COAL	C-1. SLD
	78	104.85	104.91	0.06	06452 I	COAL	C-2. BRKN MUDDY
	78	104.91	105.04	0.13	06452 I	COAL	C-3. VBRKN ABUNDANT MUD BANDS THROUGHOUT
	78	105.04	105.14	0.10	06452 I	COAL	C-1. BRKN

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	78	105.14	105.15	0.01	06452 I	COAL	C-4.BRKN
	78	105.15	105.17	0.02	06452 I	COAL	C-1.BRKN
	78	105.17	105.19	0.02	06452 I	COAL	C-4.SLD
	78	105.19	105.23	0.04	06452 I	COAL	C-1.BRKN
	78	105.23	105.25	0.02	06452 I	COAL	C-4.SLD
	78	105.25	105.34	0.09	06452 I	COAL	C-2.BRKN
	78	105.34	105.37	0.03	06452 I	COAL	C-1.SLD
	78	105.37	105.39	0.02	06452 I	MUDSTONE	CARB. DK. GY. SLD COALY BANDED
	79	105.39	106.21	0.82	06452 I	COAL	C-1 BRKN MINOR 1-4MM MUDSTONE OR C-6 BANDS THROU GHOUT

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	79	106.21	106.22	0.01	06452 I	MUDSTONE	CARB. DK. GY. SLD
	79	106.22	106.39	0.17	06452 I	COAL	C-1 SLD MINOR 1-4MM MUDSTONE BANDS THROUGHOUT
	79	106.39	106.57	0.18	06452 I	COAL	C-1 BRKN AS ABOVE
	79	106.57	106.87	0.30	06452 I	COAL	C-1 BRKN AS ABOVE
	80	106.87	107.33	0.46	06463	MUDSTONE	CARB. M-DK. GY. HAS BRKN ABUNDANT PLANT FOSSILS; MANY COALIFIED; COALY STRINGERS THROUGHOUT; TOP 20CM S AMPLED
	81	107.33	108.67	1.34		MUDSTONE	M. GY. HAS BRKN PLANT FRAGMENTS ABUNDANT; BECOMES LESS CARBONACEOUS AND MORE SILTY TOWARDS BAS E
	* B2	108.67	110.40	1.73		MUDSTONE	SLTY. VPR. DK. GY. LAM. SSD. BRKN FINELY LAMINATED; NUMEROUS VERT AND HOR IZ. WORM BURROWS THROUGHOUT; SANDIER TOW ARDS BOTTOM; LOAD CASTS ALSO SHOW TOPS UP

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	84	110.40	110.75	0.35		SANDSTONE	SLTY. VFG. PR. M. GY. LAM. SSD. SLD SILTY SANDSTONE; NUMEROUS WORM BURROWS; SHARP CONTACTS ON FINE SILTY LAMINAE; SOME WIDER BEDS FINE UPWARDS.
	85	110.75	111.51	0.76		ROCK LOSS	
*	87	111.51	112.84	1.33		SANDSTONE	SLTY. FG. PR. M. GY. LAM. SED. BRKN LITH AS ABOVE; FG SANDSTONE WITH FINE SILTY LAMINAE THROUGHOUT; SILTY BANDED SANDSTONE; WORM BURROWS; X-BEDDING.
*	80	112.84	113.49	0.65		SANDSTONE	SLTY. FG. PR. M. GY. LAM. SSD. SLD LITH AS ABOVE; HORIZ WORM BURROWS NUMEROUS; X-BEDDING; SILTY BANDED SANDSTONE
	80	113.49	113.83	0.34		SANDSTONE	SLTY. FG. PR. M. GY. LAM. SLD LITH AS ABOVE WITH NUMEROUS SILTSTONE R IP. UP. CLASTS.
	80	113.83	115.53	1.70		MUDSTONE	SLTY. FG. PR. DK. GY. VTHNB. HRMBU. SLD HELMINTHOPSIS; UNIFORM GRAIN SIZE; NO F OSSILS

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	81	115.53	116.76	1.23		MUDSTONE	DK. GY. MAS. SLD UNIFORM VERY FINE GRAINED; ONE PYRITIZED BIVALVE SHELL PIECE
	81	116.76	117.26	0.50		MUDSTONE	SSY. DK. GY. LAM. HRMBU. SLD SANDIER THAN ABOVE; 1CM DIAMETER VERT WORM BURROWS.
	81	117.26	117.68	0.42		SILTSTONE	SSY. M. GY. LAM. BIOTR. SLD BIOTURBATED SANDY SILTSTONE; DARK MUDDY LAYERS AS WELL AS FG SANDSTONE LAYERS THROUGHOUT; 1.5CM DIAMETER VERT WORM BURROWS.
	81	117.68	119.82	2.14		SILTSTONE	SSY. M. GY. LAM. HRMBU. SLD VERY FINELY LAMINATED SANDY SILTSTONE; WORM BURROWS 1-5MM WIDE; SHARP CONTACT
	81	119.82	120.13	0.31		SILTSTONE	SSY. M. GY. LAM. HRMBU. SLD LITH AS ABOVE; X-BEDDING
	82	120.13	121.97	1.84		SILTSTONE	SSY. M. GY. LAM. HRMBU. SLD LITH AS ABOVE; MINOR HELMINTHOPSIS; X-BEDDING
	82	121.97	122.25	0.28		SILTSTONE	SSY. VPR. M. GY. LAM. SLD LITH AS ABOVE

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 82	122.25	123.16	0.91			SANDSTONE	SLTY. FG. VPR. M. GY. LAM. HRMBU. SLD FG SANDSTONE WITH SILT BANDS THROUGHOUT ; SHARP CONTACTS; VERT WORM BURROWS 1-1 3CM IN DIAMETER; SOME BANDS CONTAIN VC G SAND CLASTS; OCCASIONAL COAL CLASTS 3 MM WIDE IN YCG SAND; 'STORM UNITS'
82	123.16	124.07	0.91			SANDSTONE	SLTY. FG. VPR. M. GY. LAM. SLD LITH AS ABOVE; BANDS RANGE IN GRAIN SIZ E FROM DARK SILTY TO MG. SANDSTONE; 'SIL TY BANDED SAND'
81	124.07	126.10	2.03			SANDSTONE	SLTY. FG. VPR. M. GY. LAM. BIOTR. SLD LITH AS ABOVE; OCCASIONAL CG SAND BANDS 2-3CM THICK; VERT WORM BURROWS
80	126.10	126.88	0.78			SANDSTONE	SLTY. FG. MOD. LT. GY. THNB. SLD PREDOMINANTLY FG SAND; THINLY BEDDED; U NIFORM BEDDING; UNDISTURBED SILT BANDS; SAND IS BETTER SORTED THAN ABOVE
* 80	126.88	127.63	0.75			SILTSTONE	PR. M. GY. LAM. HRMBU. SLD MOSTLY SILT; BIOTURBATED; VERT WORM BUR ROWS. 5-1.5MM IN DIAMETER; MUCH FINER G RAIN SIZE THAN ABOVE; SCOURS

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
80	127.63	127.77	0.14			SILTSTONE	SSY. VPR. M. GY. VTHNB. BIOTR. SLD SILT WITH QTZ CLASTS 5-1.5MM IN DIAMET ER THEREFORE STORM UNIT
80	127.77	128.25	0.48			SANDSTONE	SLTY. FG. VPR. M. GY. LAM. BIOTR. SLD FINELY LAMINATED SANDSTONE; HIGHLY BIOT URBATED
80	128.25	129.15	0.90			SANDSTONE	SLTY. FG. VPR. M. GY. MAS. HRMBU. SLD LITH AS ABOVE; BUT MASSIVE; BIVALVE ESC APES STRUCTURES; WORM BURROWS 2-3CM IN DIAMETER VERT; BIOTURBATED
80	129.15	129.59	0.44			SANDSTONE	SLTY. FG. VPR. M. GY. MAS. BIOTR. SLD LITH AS ABOVE
80	129.59	130.31	0.72			SANDSTONE	SLTY. FG. PR. M. GY. VTHNB. SLD 'SILTY BANDED SANDSTONE'; UNIFORM BANDI NG; SHARP CONTACTS
* 80	130.31	132.13	1.82			SANDSTONE	SLTY. FG. PR. M. GY. VTHNB. BIOTR. SLD LITH AS ABOVE; 'SILTY BANDED SANDSTONE' ; 'BIVALVE ESCAPE STRUCTURES'; WORM BUR ROWS
80	132.13	132.44	0.31			SANDSTONE	SLTY. FG. PR. M. GY. VTHNB. BIOTR. SLD LITH AS ABOVE

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
80	132.44	134.58	2.14			SANDSTONE	SLTY.FG.PR.H.GY.VTHNB.BIOTR.SLD LITH AS ABOVE; ONE 5CM THICK BAND OF HG SANDSTONE WITH MUDSTONE RIP UP CLASTS; NORM BURROWS
81	134.58	135.11	0.53			SANDSTONE	SLTY.FG.PR.H.GY.VTHNB.BIOTR.SLD LITH AS ABOVE
81	135.11	136.59	1.48			SANDSTONE	SLTY.FG.PR.H.GY.VTHNB.BIOTR.SLD LITH AS ABOVE; ONE 20CM THICK YCG SAND BAND AT TOP OF UNIT "STORM UNIT"; NORM BURROWS
* 81	136.59	138.16	1.57			SANDSTONE	SLTY.FG.PR.H.GY.VTHNB.BIOTR.BRKN LITH AS ABOVE; 'SILTY BANDED SAND'; BIO TURBATED THROUGHOUT; MINOR PLANT MASH I R SWAD; VERT WORM BURROWS
81	138.16	138.20	0.04			ROCK LOSS	
81	138.20	138.67	0.47			SANDSTONE	SLTY.FG.PR.H.GY.VTHNB.BIOTR.BRKN LITH AS ABOVE; VERT NORM BURROWS
81	138.67	140.30	1.63			SANDSTONE	SLTY.FG.PR.H.GY.VTHNB.BIOTR.SLD LITH AS ABOVE; BUT SLIGHTLY MORE SILT THROUGHOUT; VERT WORM BURROWS

* DENOTES MEASURED BCA.

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
80	140.30	140.81	0.51			SILTSTONE	SSY.PR.DK.GY.LAM.BIOTR.SLD MUCH LESS SAND BURROWS
80	140.81	141.09	0.28			SILTSTONE	SSY.PR.DK.GY.LAM.BIOTR.SLD LITH AS ABOVE
80	141.09	142.94	1.85			SILTSTONE	SSY.PR.DK.GY.LAM.BIOTR.SLD LITH AS ABOVE; BUT INTENSELY BIOTURBATED OVERALL; NORM BURROWS
* 80	142.94	144.14	1.20			SILTSTONE	SSY.VPR.M.GY.LAM.BIOTR.SLD FINE MUDDY LAMINAE THROUGHOUT; INTENSELY BIOTURBATED; VERT NORM BURROWS THROUGHOUT 1CM IN DIAMETER; TOPS UP
80	144.14	144.61	0.47			SILTSTONE	SSY.VPR.M.GY.LAM.BIOTR.SLD LITH AS ABOVE; VERT AND HORIZ NORM BURROWS
80	144.61	145.00	0.39			MUDSTONE	DK.GY.MAS.SLD VERY UNIFORM; EXTREMELY FINE GRAINED; MINOR PLANT MASH
80	145.00	147.11	2.11			MUDSTONE	DK.GY.MAS.SLD LITH AS ABOVE; MINOR PLANT MASH

* DENOTES MEASURED BCA.

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
80	147.11	149.08	1.97			MUDSTONE	DK.GY.MAS.SLD LITH AS ABOVE; MINOR PLANT WASH; RARE BIVALVE PIECES (SEEDS?) ONE 'GOOD' BIVALVE
80	149.08	151.15	2.07			MUDSTONE	DK.GY.MAS.SLD LITH AS ABOVE; TWO 3MM WIDE COAL STRINGERS AT END OF BOX; NUMEROUS PLANT FOSSILS; SOME COALIFIED; OCCASIONAL BIVALVE 3MM IN DIAMETER (SEED?)
80	151.15	152.36	1.21	06464		MUDSTONE	CARB.DK.GY.BRKN BECOMES VERY COALY TOWARDS BASE; CONTAINING STRINGERS TO 5MM BANDS OF COAL LOCALY APPROACHING C-5 OR C-6; LOWER ZONE SAMPLED
80	152.36	152.40	0.04	06453	H	COAL	C-5.BRKN
80	152.40	152.48	0.08	06453	H	COAL	C-6.BRKN VERY MUDDY; COALY SPECKS THROUGHOUT
80	152.48	152.54	0.06	06453	H	COAL	C-5.BRKN VITRINITE STRINGERS AND FLECKS IN DOMINANTLY MUDDY BASE

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
80	152.54	152.68	0.14	06453	H	COAL	C-1.SLD MINOR THIN MUDSTONE LAMINAE WITHIN; MINOR QTZ VEINLETS
80	152.68	152.71	0.03	06453	H	COAL	C-6.BRKN RESEMBLES SPOIL; BRIGHT SPECKS WITHIN
80	152.71	153.08	0.37	06453	H	COAL	C-1.BRKN MINOR MUDSTONE 1-2MM LAMINAE AND LENSES THROUGHOUT
80	153.08	153.37	0.29	06453	H	COAL	C-1.SLD AS ABOVE
80	153.37	153.46	0.09	06453	H	COAL LOSS	
80	153.46	153.50	0.04	06453	H	MUDSTONE	CARB.DK.GY.MAS.SLD CORE LOSS HERE
80	153.50	153.58	0.08	06453	H	COAL LOSS	
80	153.58	153.79	0.21	06453	H	COAL	C-1.BRKN BANDING OF C-3 WITHIN
80	153.79	153.97	0.18	06453	H	COAL	C-2.BRKN BANDING OF C-1 WITHIN

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
80	153.97	154.01	0.04	06453	H	COAL	C-4. BRKN DIRTY COAL WITH MINOR THIN VITRINITE BANDS
80	154.01	154.22	0.21	06454	H	MUDSTONE	M.GY. VBRKN
80	154.22	154.26	0.04	06454	H	MUDSTONE	SLTY. M-DK. GY. BRKN MINOR COALY STRINGERS
80	154.26	154.27	0.01	06454	H	COAL	C-1
80	154.27	154.35	0.08	06454	H	MUDSTONE	SLTY. M-DK. GY. BRKN THIN VITRINITE BANDS THROUGHOUT
80	154.35	154.55	0.20	06455	H	COAL	C-3. BRKN CONTAINS .2-.6MM C-1
80	154.55	154.58	0.03	06455	H	COAL	C-1. SLD
80	154.58	154.70	0.12	06455	H	COAL	C-2. BRKN INTERBEDS. OF MUDSTONE
80	154.70	154.73	0.03	06455	H	COAL	C-1. SLD INTERBEDS. OF MUDSTONE (VERY MINOR)

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
80	154.73	154.78	0.05	06455	H	COAL	C-2. BRKN
80	154.78	154.83	0.05	06455	H	MUDSTONE	CARB. DK. GY. BRKN
80	154.83	154.98	0.15	06455	H	COAL	C-2. BRKN THIN ROCK BANDS THROUGHOUT
80	154.98	155.07	0.09	06455	H	MUDSTONE	M-DK. GY. VBRKN MINOR COAL STRINGERS
80	155.07	155.14	0.07	06455	H	COAL	C-2. BRKN MUDSTONE BANDS WITHIN
80	155.14	155.15	0.01	06455	H	MUDSTONE	CARB. DK. GY. BRKN
80	155.15	155.16	0.01	06455	H	COAL	C-1. BRKN
80	155.16	155.18	0.02	06455	H	MUDSTONE	CARB. DK. GY. SLD
80	155.18	155.22	0.04	06455	H	COAL	C-4. SLD BANDS OF VITRINITE WITHIN MUDSTONE; QTZ STRINGERS THROUGHOUT

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	80 155.22	155.26	0.04	06455	H	MUDSTONE	CARB. DK. GY. MAS. BRKN
	80 155.26	155.51	0.25	06455	H	COAL	C-2 BRKN 2-6MM BANDS OF MUDSTONE THROUGHOUT
	80 155.51	155.53	0.02	06455	H	MUDSTONE	CARB. DK. GY. SLD CONTAINS COALY STRINGERS
	80 155.53	155.98	0.45	06456	H	COAL	C-1 BRKN MINOR MUDSTONE LAMINAE THROUGHOUT
	80 155.98	156.00	0.02	06456	H	MUDSTONE	CARB. DK. GY. SLD COALY LAMINAE WITHIN
	80 156.00	156.14	0.14	06456	H	COAL	C-1 SLD 2-4MM MUDSTONE BANDS WITHIN (MINOR)
	80 156.14	156.35	0.21	06456	H	COAL	C-1 BRKN AS ABOVE
	80 156.35	156.44	0.09	06456	H	COAL	C-2 BRKN MINOR DIRTY BAND
	80 156.44	156.49	0.05	06456	H	MUDSTONE	CARB. DK. GY. MAS. BRKN CORE LOSS HERE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	80 156.49	156.52	0.03	06456	H	SILTSTONE	M. GY. MAS. SLD
	80 156.52	156.68	0.16	06456	H	ROCK LOSS	
	80 156.68	156.71	0.03	06456	H	MUDSTONE	CARB. DK. GY. MAS. BRKN CORE LOSS HERE
	80 156.71	157.07	0.36	06456	H	COAL	C-1 BRKN ABUNDANT QTZ VEINLETS; MINOR 2-4MM MUDS. TONE BANDS
	80 157.07	157.10	0.03	06456	H	COAL	C-2 BRKN COALY FLECKS AND LENSES WITHIN CARB MUD STONE
	80 157.10	157.16	0.06	06465		MUDSTONE	CARB. DK. GY. BRKN ABUNDANT COALY CARBONATE LENSES AND STR INGERS
	80 157.16	157.25	0.09	06465		ROCK LOSS	
	80 157.25	157.91	0.66	06465		MUDSTONE	CARB. DK. GY. MAS. SLD NUMEROUS FINE COAL STRINGERS THROUGHOUT 3-2MM WIDE; COALIFIED PLANT MATERIAL THROUGHOUT; UPPER 14CM SAMPLED

* DENOTES MEASURED BCA

PROJECT: KPH BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 80	157.91	158.46	0.55			SILTSTONE	CLYY. M. GY. LAM. SLD MUDDY LAMINATED SILTSTONE
83	158.46	158.77	0.31			MUDSTONE	CARB. DK. GY. MAS. BRKN NUMEROUS FINE COAL STRINGERS THROUGHOUT .5-4MM; COALIFIED PLANT MATERIAL
86	158.77	159.35	0.58			SILTSTONE	M. GY. MAS. SLD MUCH PLANT WASH THROUGHOUT; NO APPARENT BEDDING
* 90	159.35	160.09	0.74			SILTSTONE	M. GY. LAM. SLD FINELY LAMINATED SILTSTONE
83	160.09	161.37	1.28			SANDSTONE	SLTY. FG. LT. GY. YTHNB. SLD OCCASIONAL FINE MISPY. SILTY. LAMINAE
* 78	161.37	161.79	0.42			SANDSTONE	FG. MOD. LT. GY. LAM. SLD 4CM BAND OF ELONGATED MUDSTONE RIP. UP. C. LASTS 2-20MM LONG BY 1-3MM WIDE
77	161.79	162.37	0.58			SANDSTONE	PBLY. FG. VPR. M. GY. THNB. BRKN NUMEROUS ROUNDED MUDSTONE CLASTS 3-30MM IN DIAMETER; FG SANDSTONE MATRIX
76	162.37	163.33	0.96			SANDSTONE	FG. WEL. LT. GY. THNB. BRKN OCCASIONAL FINE CARB SILTY MISPS; OCCAS IONAL MUDSTONE CLASTS 3-5MM IN DIAMETER

* DENOTES MEASURED BCA

PROJECT: KPH BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	163.33	163.40	0.07			ROCK LOSS	
73	163.40	165.42	2.02			SANDSTONE	FG. VPR. LT. GY. THNB. BRKN LITH AS ABOVE BUT WITH SOME HG SAND MIX ED IN; OCCASIONAL FINE CARB SILTY MISPS THROUGHOUT
* 70	165.42	166.23	0.81			SANDSTONE	FG. VPR. M. GY. THNB. BRKN LITH AS ABOVE; 4CM BAND OF MUDSTONE CLA STS 5-30MM LONG BY 3-12MM WIDE
75	166.23	167.46	1.23			MUDSTONE	SLTY. VPR. DK. GY. MAS. BRKN HELMINTHOPSIS; SHARP CONTACT WITH ABOVE ; ONE QTZ VEIN 3CM WIDE PARALLEL TO BED DING
* 80	167.46	168.09	0.63			SILTSTONE	CLYY. M. GY. LAM. BIOTR. SLD MUDDY SILTSTONE; NUMEROUS MUDDY LAMINAE THROUGHOUT; HOHN BURROWS 3MM WIDE AND BIOTURBATION THROUGHOUT; SOME LO-D CAST S
80	168.09	168.39	0.30			SANDSTONE	FG. PR. LT. GY. MAS. SLD RARE SILTY MISPS
80	168.39	169.45	1.06			SANDSTONE	FG. PR. LT. GY. MAS. SLD OCCASIONAL SILTY MISPS AS ABOVE; DARK S PECKS OF PLANT WASH THROUGHOUT

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	80	169.45	169.56	0.11		ROCK LOSS	
*	80	169.56	171.44	1.88		SANDSTONE	SLTY. FG. PR. M. GY. YTHNB. SLD BANDS OF DARK SILT WITH SHARP CONTACTS; OCCASIONAL MUDSTONE RIP UP CLASTS
	77	171.44	171.65	0.21		SANDSTONE	SLTY. FG. PR. M. GY. YTHNB. SLD LITH AS ABOVE; 2CM WIDE BAND OF MUDSTON F. RIP UP CLASTS
*	75	171.65	173.01	1.36		SANDSTONE	SLTY. FG. PR. M. GY. YTHNB. SLD LITH AS ABOVE
	75	173.01	173.78	0.77		SILTSTONE	YPR. M. GY. LAM. WRMBU. SLD MUCH SILTIER AND FINER GRAINED THAN ABO VE; NORM BURROWS 1-2CM IN DIAMETER (BY ALVE ESCAPE STRUCTURES?); MUCH BIOTURBA TED
	75	173.78	174.42	0.64		SILTSTONE	SSY. M. GY. LAM. WRMBU. SLD INTENSELY LAMINATED; MUCH BIOGENIC ACTI VITY AS ABOVE; HELMINTHOPSIS
*	75	174.42	175.87	1.45		SILTSTONE	CLY. M. GY. LAM. WRMBU. SLD LITH AS ABOVE; BUT LESS VFG SAND MIXED IN

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	78	175.87	177.13	1.26		MUDSTONE	SLTY. DK. GY. THNB. WRMBU. SLD MUCH LESS SILT THAN ABOVE; FAINT BEDDIN G; HELMINTHOPSIS; PYRITE BLEBS
	78	177.13	177.37	0.24		MUDSTONE	DK. GY. MAS. SLD MASSIVE; UNIFORM
	78	177.37	177.47	0.10		ROCK LOSS	
	78	177.47	178.15	0.68		MUDSTONE	DK. GY. MAS. SLD MASSIVE; UNIFORM; BIVALVES 4MM IN DIAHE TER; MINOR PLANT HASH
	78	178.15	180.26	2.11		MUDSTONE	DK. GY. MAS. SLD MASSIVE; UNIFORM; BIVALVES OR PIECES TH ROUGHOUT; MINOR PLANT HASH; 29CM BAND O F CALCAREOUS LT GREY MUDSTONE
	78	180.26	180.42	0.16		MUDSTONE	DK. GY. MAS. SLD LITH AS ABOVE
	78	180.42	182.26	1.84		MUDSTONE	SLTY. DK. GY. THNB. SLD LITH AS ABOVE; BUT SLIGHTLY MORE SILTY DOWNWARD; HELMINTHOPSIS; BIVALVES; FAIN T BEDDING
	78	182.26	183.15	0.89		MUDSTONE	SLTY. DK. GY. THNB. SLD LITH AS ABOVE; HELMINTHOPSIS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	78 183.15	183.44	0.29			ROCK LOSS	
	78 183.44	184.50	1.06	06466		MUDSTONE	SLTY. DK. GY. THNB. SLD LITH AS ABOVE; HELMINTHOPSTIS; LOWER 14C M SAMPLED
	79 184.50	184.56	0.06	06466		MUDSTONE	DK. GY. BRKN
	79 184.56	184.66	0.10	06457	PHANTOM	COAL	C-1. SLD CONTAINS 3CM BAND OF PYRITE AND ABUNDANT QTZ VEINING; MINOR MUDSTONE LAMINAE AT Y BASE
	79 184.66	184.75	0.09	06457	PHANTOM	MUDSTONE	CARB. DK. GY. BRKN LOADED WITH STRINGERS AND THIN BANDS OF VITRINITE
	79 184.75	184.78	0.03	06457	PHANTOM	COAL	C-1. SLD 2-5MM MUDSTONE BANDS THROUGHOUT
	79 184.78	184.95	0.17	06457	PHANTOM	MUDSTONE	CARB. DK. GY. BRKN NUMEROUS STRINGERS AND THIN BANDS OF VI TRINITE
	79 184.95	185.04	0.09	06457	PHANTOM	MUDSTONE	H. GY. VBRKN VERY CRUMBLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	79 185.04	185.07	0.03	06457	PHANTOM	MUDSTONE	CARB. DK. GY. BRKN STRINGERS OF COAL THROUGHOUT
	79 185.07	185.10	0.03	06457	PHANTOM	COAL	C-2. SLD QTZ VEINLETS THROUGHOUT
	79 185.10	185.12	0.02	06457	PHANTOM	COAL	C-3. BRKN MUDDY
	79 185.12	185.15	0.03	06457	PHANTOM	MUDSTONE	CARB. DK. GY. SLD POSSIBLY DRILL MUD OR SLUMP (SOFT)
	79 185.15	185.19	0.04	06457	PHANTOM	MUDSTONE	CARB. DK. GY. SLD COAL STRINGERS AND QTZ VEINING THROUGHOUT
	79 185.19	185.29	0.10	06457	PHANTOM	COAL	C-1. SLD ABUNDANT MUDSTONE INTERBANDS AND STRINGERS (50%); ONE LARGE QTZ VEIN THROUGHOUT
	79 185.29	185.46	0.17	06457	PHANTOM	MUDSTONE	CARB. DK. GY. BRKN VITRINITE STRINGERS AND 2-5MM BANDS THROUGHOUT
	79 185.46	185.47	0.01	06457	PHANTOM	COAL	C-1. SLD

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: ODH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	79 185.47	185.48	0.01	06457	PHANTOM	MUDSTONE	CARB. DK. GY. SLD COALY STRINGERS THROUGHOUT
	79 185.48	185.50	0.02	06457	PHANTOM	COAL	C-1. SLD
	79 185.50	185.67	0.17	06457	PHANTOM	COAL LOSS	
	79 185.67	185.83	0.16	06457	PHANTOM	ROCK LOSS	
	79 185.83	186.53	0.70	06458	PHANTOM	MUDSTONE	CARB. DK. GY. HAS. BRKN MINOR COAL STRINGERS AND .5CM VITRINITE BANDS; ABUNDANT PLANT FRAGMENTS, SOME C CALIFIED
	79 186.53	186.70	0.17	06458	PHANTOM	MUDSTONE	CARB. DK. GY. HAS. BRKN AS ABOVE
	79 186.70	186.92	0.22	06458	PHANTOM	MUDSTONE	CARB. DK. GY. HAS. BRKN AS ABOVE
	79 186.92	187.31	0.39	06459	PHANTOM	COAL	C-1. BRKN SIGNIFICANT 2-8MM MUDSTONE BANDS THROUGHOUT
	79 187.31	187.54	0.23	06460	PHANTOM	COAL	C-5. SLD ABUNDANT STRINGERS AND THIN BANDS OF VITRINITE THROUGHOUT (50%); MINOR QTZ VEINLETS

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: ODH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	79 187.54	188.18	0.64	06460	PHANTOM	MUDSTONE	CARB. DK. GY. BRKN ABUNDANT PLANT FRAGMENTS; VERY MINOR COAL STRINGERS
	79 188.18	188.22	0.04	06461	PHANTOM	COAL	C-1. SLD
	79 188.22	188.36	0.14	06461	PHANTOM	COAL	C-4. BRKN MUDDY; LISTRIC SURFACE; C-1 BANDS WITHIN
	79 188.36	188.48	0.12	06461	PHANTOM	MUDSTONE	CARB. DK. GY. HAS. BRKN MINOR LISTRIC SURFACES AND COALY STRINGERS
	79 188.48	188.73	0.25	06461	PHANTOM	COAL	C-6. BRKN VITRINITE SPECKS AND STRINGERS THROUGHOUT
	79 188.73	189.01	0.28	06461	PHANTOM	MUDSTONE	CARB. DK. GY. BRKN ABUNDANT COAL STRINGERS AND 2-5MM BANDS
	79 189.01	189.06	0.05	06461	PHANTOM	COAL	C-2. BRKN ALTERNATING 1CM BANDS OF VITRINITE AND MUDSTONE WITH COAL STRINGERS

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	79 189.06	189.41	0.35	06467		MUDSTONE	CARB. DK. GY. BRKN COAL STRINGERS AND THIN BANDS THROUGHOUT; PLANT FRAGMENTS; UPPER 20CM SAMPLED
	79 189.41	189.50	0.09			SILTSTONE	M. GY. THIN SLD INTERBEDDED WITH THIN BEDS AND LAMINAE OF MUDSTONE; COALY CARBONATE STRINGERS THROUGHOUT
	79 189.50	189.78	0.28			MUDSTONE	CARB. M-DK. GY. MAS. BRKN COAL STRINGERS THROUGHOUT BECOMING LESS CARBONACEOUS TOWARDS BASE; PLANT FRAGMENTS
	79 189.78	190.52	0.74			MUDSTONE	SILTY. M. GY. MAS. BRKN BECOMES SILTY TOWARDS BASE GRADATIONALLY; MUDSTONE AND SILTSTONE INTERBEDS NEAR BASE; PLANT FRAGMENTS
	79 190.52	191.52	1.00			MUDSTONE	SILTY. DK. GY. MAS. SLD MASSIVE; UNIFORM; MUCH PLANT MASH
*	79 191.52	192.58	1.06			SILTSTONE	SSY. M. GY. LAM. SSD. SLD FINELY LAMINATED; LAMINAE RANGING FROM MUD TO YFG SANDSTONE; LOGGING INDICATES TOPS UP
	79 192.58	192.78	0.20			SILTSTONE	SSY. YPR. M. GY. LAM. SLD LITH AS ABOVE

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	80 192.78	193.95	1.17			SILTSTONE	SSY. YPR. M. GY. LAM. SLD LITH AS ABOVE
	80 193.95	194.05	0.10			ROCK LOSS	
	80 194.05	194.75	0.70			SANDSTONE	FG. MEL. LT. GY. MAS. VBRKN MASSIVE; UNIFORM
	80 194.75	195.84	1.09			SANDSTONE	FG. MEL. LT. GY. MAS. VBRKN MASSIVE; UNIFORM
	80 195.84	195.89	0.05			ROCK LOSS	
	80 195.89	196.73	0.84			SANDSTONE	FG. MEL. LT. GY. MAS. VBRKN MASSIVE; UNIFORM
*	80 196.73	198.91	2.18			SANDSTONE	FG. MEL. LT. GY. MAS. BRKN OCCASIONAL VERY FINE 5MM SILTY STRINGERS THROUGHOUT; LARGE SCALE X-BEDDING; MUDSTONE RIP UP CLASTS 1-2MM IN DIAMETER IN BOTTOM 20CM OF BOX
	81 198.91	198.98	0.07			SANDSTONE	FG. MEL. LT. GY. MAS. SLD MASSIVE; UNIFORM

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	198.98	200.95	1.97			SANDSTONE	FG.MEL.LT.GY.MAS.SLD AS ABOVE; WITH OCCASIONAL MUDSTONE RIP UP CLASTS 3-12MM IN DIAMETER THROUGHOUT; ONE ANKERITE VEIN 3MM WIDE ABOUT PARALLEL TO CORE; ONE 3CM WIDE HUD BAND; SHARP CONTACTS
	200.95	201.93	0.98			SANDSTONE	FG.MEL.LT.GY.MAS.BRKN MASSIVE; UNIFORM; OCCASIONAL MUDSTONE RIP UP CLASTS 1CM IN DIAMETER
* 85	201.93	203.02	1.09			SANDSTONE	FG.MEL.LT.GY.MAS.SLD LITH. AS ABOVE; TWO 1CM WIDE MUDSTONE BANDS; OCCASIONAL SILT WISPS; VERY FINE LARGE SCALE X-BEDDING
* 72	203.02	204.72	1.70	06468		SANDSTONE	FG MINOR MUDSTONE LAMINAE AND THIN BEDS; BECOMES VERY MUDDY OVER ABOUT 20CM NEAR BASE; LOWER 20CM SAMPLED
	204.72	204.89	0.17	06469	G UPPER	COAL	C-1.BRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	204.89	204.95	0.06	06469	G UPPER	COAL	C-2.BRKN
	204.95	205.07	0.12	06469	G UPPER	ROCK LOSS	
	205.07	205.16	0.09	06469	G UPPER	MUDSTONE	CARB.BRKN COAL STRINGERS THROUGHOUT; CORE LOSS HERE
	205.16	205.17	0.01	06469	G UPPER	COAL	C-1.BRKN MINOR MUDSTONE STRINGER WITHIN
	205.17	205.18	0.01	06469	G UPPER	MUDSTONE	CARB.BRKN COAL STRINGERS THROUGHOUT
	205.18	205.25	0.07	06469	G UPPER	COAL	C-1.BRKN 2-5MM BANDS OF MUDSTONE BETWEEN 1CM VITRINITE BANDS
	205.25	205.26	0.01	06469	G UPPER	MUDSTONE	CARB.OK.GY.SLD

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDHBS017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LYTHOLOGY	DESCRIPTION
	81 205.26	205.27	0.01	06469	G UPPER	COAL	C-1. SLD
	81 205.27	205.38	0.11	06469	G UPPER	COAL	C-4. BRKN VITRINITE BANDS 2-4MM THROUGHOUT
	82 205.38	205.48	0.10	06469	G UPPER	MUDSTONE	CARB. DK. GY. BRKN
	82 205.48	205.51	0.03	06469	G UPPER	COAL	C-2. SLD MINOR MUDSTONE BANDS
	82 205.51	205.52	0.01	06469	G UPPER	MUDSTONE	CARB. DK. GY. SLD
	82 205.52	205.55	0.03	06469	G UPPER	COAL	C-2. SLD MINOR MUDSTONE BANDS
	83 205.55	205.58	0.03	06469	G UPPER	COAL	C-1. SLD
	83 205.58	205.67	0.09	06469	G UPPER	MUDSTONE	CARB. DK. GY. BRKN COALY STRINGERS AND THIN BANDS
	83 205.67	205.71	0.04	06469	G UPPER	COAL	C-2. SLD

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDHBS017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LYTHOLOGY	DESCRIPTION
	84 205.71	205.72	0.01	06469	G UPPER	COAL	C-1. SLD
	84 205.72	205.73	0.01	06469	G UPPER	COAL	C-2. SLD
	84 205.73	205.74	0.01	06469	G UPPER	COAL	C-1. SLD
	85 205.74	205.99	0.25	06470	G UPPER	MUDSTONE	BRKN COALY STRINGERS NEAR TOP OF UNIT; UPPER 20CM SAMPLED
*	89 205.99	207.17	1.18		G UPPER	MUDSTONE	W-DK. GY. HAS BRKN CARBONACEOUS TOWARDS TOP AND BOTTOM; SILTY IN CENTER; CONTAINS COAL STRINGERS NEAR BASE
	88 207.17	207.20	0.03		G UPPER	MUDSTONE	DK. GY. SLD COAL STRINGERS AND LENSES WITHIN
	87 207.20	207.29	0.09		G UPPER	COAL	C-1. BRKN 2-5MM MUDSTONE BANDS THROUGHOUT (25%)
	87 207.29	207.31	0.02		G UPPER	COAL	C-5. BRKN CONTAINS STRINGERS OF VITRINITE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	207.31	207.44	0.13		G UPPER	MUDSTONE	CARB. DK. GY. BRKN CONTAINS MINOR COALY STRINGERS THROUGHOUT
	207.44	207.62	0.18		G UPPER	MUDSTONE	DK. GY. BRKN LOCALLY CARBONACEOUS AND DEFORMED LEAVY NG. LITRIC SURFACES; ABUNDANT QTZ. VEINING
	207.62	207.78	0.16		G UPPER	ROCK LOSS	
	207.78	207.83	0.05		G UPPER	MUDSTONE	CARB. DK. GY. SLD STRINGERS AND 4MM BANDS OF VITRINITE THROUGHOUT
	207.83	208.08	0.25	06471	G UPPER	MUDSTONE	CARB. DK. GY. SLD VERY MINOR COAL STRINGERS; LOWER 20CM SAMPLED
	208.08	208.22	0.14	06472	G UPPER	COAL	C-2. BRKN
	208.22	208.23	0.01	06472	G UPPER	MUDSTONE	CARB. DK. GY. SLD

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	208.23	208.39	0.16	06472	G UPPER	COAL	C-2. BRKN
	208.39	208.45	0.06	06472	G UPPER	MUDSTONE	M-DK. GY. VBRKN
	208.45	208.53	0.08	06472	G UPPER	COAL	C-1. SLD MINOR QTZ
	208.53	208.98	0.45	06473		MUDSTONE	CARB. M-DK. GY. HAS BRKN VERY CARBONACEOUS AT TOP BECOMING SILTY TOWARDS BASE; COAL STRINGERS NEAR TOP; ABUNDANT PLANT FRAGMENTS; UPPER 20CM SAMPLED
	208.98	209.03	0.05			ROCK LOSS	
	209.03	209.36	0.33			MUDSTONE	SILTY M. GY. HAS BRKN ABUNDANT PLANT FRAGMENTS; SILTY BANDS TOWARDS BASE
	209.36	209.46	0.10			ROCK LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 80	209.48	211.66	2.20			MUDSTONE	SLTY. M. GY. LAM. BIOTR. SLD LAMINATED SILTY MUDSTONE; HIGHLY BIOTURBATED; BIVALVES 1CM IN DIAMETER OPEN AND CLOSED
76	211.66	212.24	0.58			MUDSTONE	SLTY. M. GY. LAM. WRMBU. SLD LITH AS ABOVE; BIVALVE ESCAPE STRUCTURES (VERT NORM BURROWS 1.5-2CM IN DIAMETER); BIOTURBATED
* 74	212.24	212.78	0.54			SANDSTONE	SLTY. FG. PR. LT. GY. YTHNB. BIOTR. SLD BIOGENIC ACTIVITY AS ABOVE
74	212.78	213.79	1.01			MUDSTONE	SLTY. M. GY. LAM. BIOTR. SLD
* 75	213.79	215.19	1.40			MUDSTONE	SLTY. M. GY. LAM. SSD. BRKN FINELY LAMINATED; X-BEDDING
63	215.19	215.29	0.10			ROCK LOSS	
* 59	215.29	215.70	0.41			MUDSTONE	DK. GY. LAM. VBRKN 17CM QTZ VEIN; POLISHED SLIPPAGE SURFACES ABOVE AND BELOW VEIN
63	215.70	215.75	0.05			ROCK LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 80	215.75	217.88	2.13			MUDSTONE	DK. GY. LAM. BIOTR. BRKN BCA'S OF FAINT BEDDING VARIES FROM 66' AT TOP OF BOX (NEAREST ABOVE QTZ VEIN) THROUGH 86' DOWNWARD; SILTY BIOTURBATED LAMINAE AT BOTTOM OF BOX BCA=78 HORIZ NO RM BURROWS 3-4MM WIDE; PLANT HASH AND BIVALVES
* 80	217.88	218.37	0.49			MUDSTONE	SLTY. DK. GY. THNB. WRMBU. SLD HELMINTHOSIS
79	218.37	218.41	0.04			ROCK LOSS	
78	218.41	219.95	1.54			MUDSTONE	DK. GY. MAS. WRMBU. SLD MASSIVE; UNIFORM; NO APPARENT BEDDING HELMINTHOSIS
75	219.95	221.18	1.23	06474		MUDSTONE	M-DK. GY. MAS. BRKN CONTAINS BIVALVES; LOWER 17CM SAMPLED
73	221.18	221.21	0.03	06474		MUDSTONE	CARB. DK. GY. MAS. BRKN COALY STRINGERS WITHIN
73	221.21	221.25	0.04	06475 G	LOHER	COAL	C-1. SLD INTERFERS OF MUDSTONE 2-4MM
73	221.25	221.28	0.03	06475 G	LOHER	COAL	C-5. BRKN

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	73	221.28	221.30	0.02	06475 G LOWER	COAL	C-3.BRKN
	73	221.30	221.33	0.03	06475 G LOWER	COAL	C-5.BRKN ABUNDANT MUDSTONE THROUGHOUT
	73	221.33	221.42	0.09	06475 G LOWER	COAL	C-6.VBRKN VERY LISTRIC; MAINLY MUDSTONE; COALY
	73	221.42	221.44	0.02	06475 G LOWER	MUDSTONE	CARB. M. GY. MAS. SLD LISTRIC; COAL STRINGERS THROUGHOUT
	72	221.44	221.50	0.06	06475 G LOWER	COAL	C-8.BRKN BASICALLY MUDSTONE WITH COALY STRINGERS WITHIN; PLANT FRAGMENTS
	72	221.50	221.59	0.09	06475 G LOWER	COAL	C-2.SLD SIGNIFICANT THIN CLAY (MUDSTONE) BANDS THROUGHOUT; SOME BANDS C-1
	72	221.59	221.62	0.03	06476 G LOWER	MUDSTONE	CARB. DK. GY. MAS. BRKN MINOR COAL STRINGERS THROUGHOUT
	72	221.62	221.63	0.01	06476 G LOWER	COAL	C-1.BRKN
	72	221.63	221.68	0.05	06476 G LOWER	COAL LOSS	

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	72	221.68	221.71	0.03	06476 G LOWER	MUDSTONE	CARB. DK. GY. BRKN VERY LISTRIC; CONTAINS MINOR COAL STRIN GERS; CORE LOSS HERE
	72	221.71	221.90	0.19	06476 G LOWER	MUDSTONE	CARB. DK. GY. BRKN MINOR COAL STRINGERS; TOP 14CM SAMPLED
	71	221.90	222.22	0.32	06476 G LOWER	COAL LOSS	
	71	222.22	222.23	0.01	06476 G LOWER	COAL	C-1.BRKN
	71	222.23	222.35	0.12		MUDSTONE	BRKN MINOR COAL STRINGERS
*	70	222.35	222.82	0.47		MUDSTONE	CARB. DK. GY. THNB BRKN COALY CARB. MUDSTONE; FINE COALY STRINGS RS; RARE FAINT BEDDING VISIBLE; NUMEROU S PLANT FOSSILS; UPPER 8CM SAMPLED
*	73	222.82	224.48	1.66		MUDSTONE	SLTY. M. GY. LAM. SSD. BRKN FINELY LAMINATED SILTY MUDSTONE; HORIZ WORM BURROWS 5MM IN DIAMETER; NUMEROUS PLANT FOSSILS; X-BEDDING BIOTURBATION
	74	224.48	224.60	0.12		MUDSTONE	SLTY. M. GY. LAM. XBDG. SLD LITH AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	74	224.60	224.89	0.29		SANDSTONE	SLTY. FG. VPR. LT. GY. LAM. XBDG. SLD VERY SILTY; POORLY SORTED; LAMINATED SA MDSTONE; SSD; BIOTURBATION
*	75	224.89	226.58	1.69		SANDSTONE	SLTY. FG. VPR. LT. GY. LAM. SSD. SLD SILTY LAMINAE THROUGHOUT LOADING; SCOUR S. SHQH. TOPS UP
	72	226.58	227.84	1.26		SANDSTONE	SLTY. FG. PR. LT. GY. LAM. SLD LITH. AS. ABOVE
*	70	227.84	228.63	0.79		SANDSTONE	SLTY. FG. PR. LT. GY. LAM. SLD LITH. AS. ABOVE; WITH SCATTERED 5MM DIAME TER MUDSTONE RIP UP CLASTS
*	75	228.63	229.54	0.91		SANDSTONE	FG. MEL. LT. GY. LAM. BIOTR. SLD LITH. AS. ABOVE; BUT SILTY LAYERS SLIGHTLY BIOTURBATED
*	78	229.54	230.73	1.19		SANDSTONE	MG. MEL. LT. GY. THNB. SLD LITH. AS. ABOVE SILT LAMINATIONS VARY .5- 30MM THICK; ONE ROUNDED MUDSTONE CLAST 2CM LONG BY 1CM WIDE
	76	230.73	231.81	0.78		SANDSTONE	MG. PR. LT. GY. MAS. BRKN RARE CARB MUDSTONE RIP UP CLASTS 7-12MM LONG BY 1-4MM LONG

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	75	231.53	232.45	0.94		MUDSTONE	CARB. DK. GY. LAM. BRKN 3-4CM WIDE COAL LENS AT UPPER CONTACT-H OSTLY GROUND OUT; ONE OTHER 5MM COAL LE NS. NEAR BASE OF UNIT; FINE SILTY LAMINA E; PLANT HASH THROUGHOUT
	74	232.45	232.77	0.32		SANDSTONE	SLTY. FG. VPR. M. GY. LAM. FINE SILTY LAMINAE AND COAL RIP UP CLAS TS 3-11MM IN DIAMETER THROUGHOUT; VCG S AND MIXED IN
	74	232.77	232.81	0.04		ROCK LOSS	
	73	232.81	234.86	2.05		SANDSTONE	FG. VPR. M. GY. THNB. BRKN VERY POORLY SORTED SANDSTONE; IRREGULAR BANDS OF FG SAND MG SAND AND VCG SAND MIXED WITH COAL STRINGERS AND RIP UP CL ASTS; COAL STRINGERS 1-4MM WIDE AND COA L CLASTS 2-25MM IN DIAMETER
	72	234.86	235.51	0.65		SANDSTONE	FG. VPR. M. GY. THNB. BRKN LITH EXACTLY AS ABOVE
	71	235.51	236.94	1.43		SANDSTONE	FG. VPR. M. GY. THNB. BRKN LITH AS ABOVE

* DENOTES MEASURED BCA

FORM
40001

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 70	238.94	238.89	1.65			SANDSTONE	FG. YPR. M. GY. THNB. BRKN LITH AS ABOVE
72	238.89	238.63	0.04			ROCK LOSS	
* 73	238.63	239.06	0.43			MUDSTONE	SLTY. DK. GY. LAM. SSD. BRKN FINE SILTY LAMINAE THROUGHOUT; LOAD FEATURE OR SMALL SLUMP SHOW TOPS UP SHARP CONTACT WITH SANDSTONE ABOVE
* 75	239.06	241.10	2.04			MUDSTONE	SLTY. DK. GY. LAM. SSD. BRKN LITH AS ABOVE; LOADING SHOWS TOPS UP; N O APPARENT BIOGENIC ACTIVITY
76	241.10	241.44	0.34	06477		SANDSTONE	CLYY. FG. LT-M. GY. THNB. BRKN MUDSTONE LAMINAE THROUGHOUT; LOWER 16CM SAMPLED
76	241.44	241.48	0.04	06477		MUDSTONE	CARB. DK. GY. BRKN COAL STRINGERS AND ONE 4MM BAND WITHIN
76	241.48	241.50	0.02	06478 F		COAL	C-2. SLD
76	241.50	241.53	0.03	06478 F		MUDSTONE	CARB. M-DK. GY. BRKN MINOR COAL STRINGERS
76	241.53	241.55	0.02	06478 F		COAL	C-2. BRKN

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 54

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
76	241.55	241.56	0.01	06478 F		MUDSTONE	CARB. M-DK. GY. BRKN MINOR COAL STRINGERS
76	241.56	241.66	0.10	06478 F		COAL	C-2. BRKN 1CM PYRITE WITHIN
76	241.66	241.68	0.02	06478 F		MUDSTONE	CARB. DK. GY. SLD
76	241.68	241.99	0.31	06478 F		COAL	C-1. BRKN 2-4MM MUDSTONE BANDS THROUGHOUT
76	241.99	242.07	0.08	06478 F		COAL	C-2. VBRKN MIXTURE OF MUDSTONE AND COAL (VERY SOFT BUT APPEARS TO BE HIGH IN VITRINITE); MUNCHED SECTION
76	242.07	242.16	0.09	06478 F		COAL	C-2. BRKN INTERBANDS OF MUDSTONE THROUGHOUT
76	242.16	242.21	0.05	06478 F		MUDSTONE	CARB. DK. GY. HAS. BRKN LITRIC
77	242.21	242.36	0.15	06478 F		ROCK LOSS	
77	242.36	242.39	0.03	06478 F		COAL	C-1. BRKN CORE LOSS HERE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	77 242.39	242.57	0.18	06478	F	COAL	C-3.YBRKN HIGH CARBON CONTENT 2-5MM MUDSTONE BANDS WITHIN; VERY LISTRIC IN PLACES
	77 242.57	242.63	0.06	06478	F	COAL	C-2.BRKN 2-4MM MUDSTONE BANDS WITHIN
	77 242.63	242.82	0.19	06478	F	COAL	C-1.BRKN MINOR MUDSTONE STREAKS
	77 242.82	242.83	0.01	06478	F	MUDSTONE	CARB.M-DK.GY.MAS.SLD
	77 242.83	242.84	0.01	06478	F	COAL	C-3.SHRD ABUNDANT MUDSTONE STREAKS; LISTRIC
	77 242.84	242.90	0.06	06478	F	COAL	C-2.SLD
	77 242.90	242.93	0.03	06478	F	MUDSTONE	CARB.M-DK.GY.MAS.SLD
	77 242.93	242.98	0.05	06478	F	COAL	C-2.SHRD VERY LISTRIC; MUDSTONE STRINGERS WITHIN
	77 242.98	243.02	0.04	06478	F	COAL	C-2.SHRD MIXTURE OF .5CM VITRINITE BANDS AND MUDSTONE WITH COAL STRINGERS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	77 243.02	243.04	0.02	06478	F	COAL	C-1.SLD MUDSTONE STREAKS WITHIN
	77 243.04	243.05	0.01	06478	F	MUDSTONE	CARB.DK.GY.MAS.SLD
	77 243.05	243.14	0.09	06478	F	COAL	C-1.BRKN
	77 243.14	243.24	0.10	06478	F	COAL	C-2.BRKN THIN BANDS OF MUDSTONE THROUGHOUT
	77 243.24	243.31	0.07	06478	F	COAL	C-3.SHRD ABUNDANT MUDDY MATERIAL; VERY LISTRIC
	77 243.31	243.34	0.03	06478	F	MUDSTONE	M-DK.GY.SLD INTENSE VEINING; THIN COAL BANDS
	77 243.34	243.38	0.04	06478	F	COAL	C-2.SLD SHEARED; LISTRIC SURFACES
	77 243.38	243.39	0.01	06478	F	MUDSTONE	M-DK.GY.SLD INTENSE VEINING; THIN COAL BANDS THROUGHOUT
	77 243.39	243.41	0.02	06478	F	COAL	C-6.SLD VERY CARB MUDSTONE WITH COAL (VITRINITE STRINGERS)

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DOH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	77	243.41	243.44	0.03	06478 F	MUDSTONE	M-OK.GY.MAS.YBRKN
	77	243.44	243.47	0.03	06478 F	COAL	C-6.BRKN VERY CARB MUDSTONE WITH COAL (VITRINITE) STRINGERS
	78	243.47	244.47	1.00	06479	MUDSTONE	M.GY.MAS.BRKN CARBONACEOUS AT TOP BECOMING LESS CARBO NACEOUS AND MORE SILTY TOWARDS BASE; CO AL STRINGERS NEAR TOP; UPPER 20CM SAMPL ED
	78	244.47	244.87	0.40		SILTSTONE	SSY.M.GY.THNB GRADATIONAL FROM ABOVE; SANDY SILTSTONE WITH LAMINAE OF MUDSTONE THROUGHOUT; 5 MM HORIZ WORM BURROWS
*	79	244.87	247.03	2.16		SILTSTONE	SSY.VPR.M.GY.VYHWS.BIOTA.SLD FAINT BANDING; GRAIN SIZE RANGING FROM MUD TO YFG SANDSTONE; SOME SILT BANDS M OTTLED (BIOTURBATED) BUT NO DISTINCT BU RROWS
*	70	247.03	247.49	0.46		SILTSTONE	SSY.VPR.M.GY.LAM.BRKN LITH AS ABOVE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 58

PROJECT: KPN BLOCK: LR DATA SOURCE: DOH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	72	247.49	248.21	0.72		SILTSTONE	SSY.VPR.M.GY.LAM.BRKN LITH AS ABOVE
	73	248.21	248.34	0.13		SILTSTONE	SSY.VPR.M.GY.LAM.BRKN SILTSTONE BRECCIA; LITH AS ABOVE BUT BR ECCIATED BY INTENSE QTZ VEINING
	74	248.34	248.44	0.10		ROCK LOSS	
*	75	248.44	248.98	0.54		SILTSTONE	SSY.VPR.M.GY.LAM.YBRKN SILTSTONE LITH AS ABOVE
	74	248.98	249.03	0.05		ROCK LOSS	
	72	249.03	250.38	1.35		SILTSTONE	SSY.VPR.M.GY.LAM.YBRKN LITH AS ABOVE; VERY BROKEN WITH MODERAT E QTZ VEINING IN UPPER 20CM OF BOX
*	70	250.38	250.91	0.53		SILTSTONE	SSY.VPR.M.GY.LAM.SLD LITH AS ABOVE
*	70	250.91	253.07	2.16		SILTSTONE	SSY.VPR.M.GY.LAM.SSD.SLD LITH AS ABOVE; ONE WORM BURROW 2MM IN D IAMETER; X-BEDDING; TOPS UP
	70	253.07	253.43	0.36		SILTSTONE	SSY.VPR.M.GY.LAM.SLD LITH AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 59

PROJECT: KPW BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	70	253.43	253.53	0.10		ROCK LOSS	
	70	253.53	255.15	1.62		SILTSTONE	SSY.VPR.M.GY.LAM.XBDG.VBRKN MODERATE QTZ VEINING ABOUT PARALLEL TO CORE THROUGHOUT CORE; TALC INFILL AND P OLISHED FRACTURE SURFACES
	70	255.15	255.25	0.10		ROCK LOSS	
	70	255.25	256.39	1.14		SILTSTONE	SSY.PR.M.GY.LAM.VBRKN LITH.AS.ABOVE; VERY MINOR QTZ VEINING
	70	256.39	256.64	0.25		ROCK LOSS	
*	70	256.64	257.19	0.55		SILTSTONE	SSY.PR.M.GY.LAM.XBDG.BRKN
	70	257.19	257.42	0.23		ROCK LOSS	
	71	257.42	259.55	2.13		SILTSTONE	PR.M.GY.LAM.SLD FAINTER MORE UNIFORM BANDING; NO BIOGEN IC ACTIVITY OR LOADING APPARENT; MUCH F INER GRAINED; LESS YFG SAND
*	72	259.55	259.81	0.26		SILTSTONE	PR.M.GY.LAM.SLD LITH.AS.ABOVE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 60

PROJECT: KPW BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	72	259.81	261.48	1.67	06480	MUDSTONE	CARB.DK.GY.MAS.SLD NUMEROUS TINY COAL STREAKS AND COALITE D PLANT FOSSILS NEAR BOTTOM; ONE ANKERI TE VEIN 10MM THICK; EXTREMELY FINE GRAI NED; MASSIVE; MUDSTONE BANDS; LOWER 20C M SAMPLED
	73	261.48	261.61	0.13	06481 E	COAL	C-5.BLK.VTHNB.VBRKN MUDSTONE BANDS
	73	261.61	261.80	0.19	06481 E	COAL	C-1.BRKN
	73	261.80	261.84	0.04	06481 E	COAL	C-2.BRKN
	73	261.84	262.49	0.65	06481 E	COAL	C-1.BRKN
	73	262.49	262.51	0.02	06481 E	COAL	C-5.BRKN BREAKS POWDERY; LISTRIC SURFACES
	73	262.51	262.57	0.06	06481 E	COAL	C-2.BRKN
	73	262.57	262.63	0.06	06481 E	COAL	C-5.VBRKN

* DENOTES MEASURED BCA

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M
1004

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 61

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	73	262.63	262.65	0.02	06481 E	COAL	C-2.YBRKN
	73	262.65	262.68	0.03	06481 E	MUDSTONE	M-DK.GY.MAS.SLD
	73	262.68	263.03	0.35	06481 E	COAL	C-2.BRKN
	74	263.03	263.05	0.02	06481 E	COAL	C-6.BRKN
	74	263.05	263.18	0.13	06481 E	COAL LOSS	
	74	263.18	263.53	0.35	06481 E	COAL	C-2.BRKN VERY SHEARED AND POWDERED WHEN CRUSHED; LISTERIC SURFACES; CORE LOSS HERE
	74	263.53	263.58	0.05	06481 E	COAL	C-1.BRKN SOME VERY SOFT (COULD BE FROM EXPOSURE)
	74	263.58	263.59	0.01	06481 E	COAL	C-5.BRKN
	74	263.59	263.85	0.26	06481 E	COAL	C-1.BRKN
	74	263.85	263.89	0.04	06481 E	MUDSTONE	CARB.DK.GY.MAS.SLD COAL STRINGERS WITHIN; PLANT FRAGMENTS

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 62

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	74	263.89	263.92	0.03	06481 E	COAL	C-1.BRKN
	74	263.92	264.43	0.51	06482 E	MUDSTONE	CARB.DK.GY.MAS.BRKN PYRITE AT TOP OF UNIT; PLANT FRAGMENTS THROUGHOUT; SOME COALIFIED
	74	264.43	264.54	0.11	06482 E	COAL LOSS	
	74	264.54	264.57	0.03	06482 E	COAL	C-1.SLD CORE LOSS HERE
	74	264.57	264.99	0.42	06482 E	MUDSTONE	SLTY.M-DK.GY.THNB.BRKN LAMINAE AND THIN BEDS OF SILTSTONE AND MUDSTONE INTERBEDDED
	74	264.99	265.09	0.10	06483 E	COAL	C-2.BRKN
	75	265.09	265.16	0.07	06483 E	ROCK LOSS	
	75	265.16	265.19	0.03	06483 E	MUDSTONE	CARB.M-DK.GY.MAS.SLD QTZ VEINLETS THROUGHOUT
	75	265.19	265.39	0.20	06483 E	COAL	C-2.BRKN

* DENOTES MEASURED BCA

FORM 4001

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	75	265.39	265.51	0.12	06483 E	COAL	C-1. BRKN
	75	265.51	265.63	0.12	06484	MUDSTONE	CARB. DK. GY. MAS. BRKN COAL STRINGERS AND THIN BANDS THROUGHOUT; QTZ VEINS WITHIN
	75	265.63	265.91	0.28	06484	MUDSTONE	CARB. DK. GY. VTHNB. BRKN FINE COAL STRINGERS AND LENSES 1-5MM WIDE THROUGHOUT; UPPER 8CM SAMPLED
*	75	265.91	266.47	0.56		MUDSTONE	CARB. DK. GY. VTHNB. BRKN ONE 5MM PYRITE BAND; LITH. AS ABOVE
*	67	266.47	267.62	1.15		SANDSTONE	SLTY. FG. PR. M. GY. VTHNB. BIOTR. BRKN FAINT BANDING; SLIGHTLY BIOTURBATED AT TOP
	73	267.62	268.74	1.12		SANDSTONE	SLTY. FG. PR. M. GY. MAS. XBDG. BRKN OCCASIONAL MUDSTONE RIP UP CLASTS; X-BANDING ON ONE SILTY BAND; ONE IRREGULAR SLUMP FEATURE WITH RIP UPS IN SILT; PRE DOMINANTLY MASSIVE
*	78	268.74	269.54	0.80		SANDSTONE	SLTY. FG. PR. M. GY. THNB. HRMBU. VBRKN SILTY MUD BANDS 1-15MM WIDE; ONE VERT WORM BURROW 10MM IN DIAMETER; SSD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85017

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	82	269.54	271.63	2.09		SANDSTONE	SLTY. FG. VPR. M. GY. THNB. HRMBU NUMEROUS SILTY MUD BANDS AND RIP UP CLASTS THROUGHOUT; WORM BURROWS 3-13MM IN DIAMETER; SCOURS
	78	271.63	271.79	0.16		SANDSTONE	SLTY. FG. PR. M. GY. VTHNB. VBRKN LITH. AS ABOVE
*	74	271.79	273.61	1.82		SILTSTONE	SSY. VPR. M. GY. THNB. HRMBU. SLD LESS BANDED THAN ABOVE; VERT WORM BURROWS 5MM IN DIAMETER; HELMINTHOPSIS
	74	273.61	274.72	1.11		SILTSTONE	SSY. VPR. M. GY. LAM. BIOTR. SLD FLAME STRUCTURE IN MUDSTONE; BIOTURBATION AND WORM BURROWS 3-5MM IN DIAMETER; COALIFIED PLANT MATERIAL; TO 275.84 END OF HOLE

* DENOTES MEASURED BCA
NEWPAGE

Gulf Canada Resources Inc. Coal Division

Geophysical Log

Datasource: **KPNLRDDH85017**

Province: BC Northing: 6344830.00 Lat: 571454

Log Date: 85-07-21

Zone: 9 Easting: 506805.00 Long: 1285314

Company: CENTURY

Measuring Point:

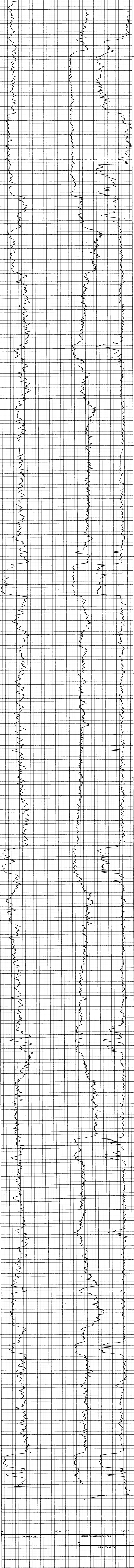
Elevation: 1635.0

Geologist: BARKER

Scale: 1 to 100.0
Depth Range: 0.0 to 275.0
True Thickness: NO

Comments:
1. LOGGED THROUGH THE ROOS
2.

Logs Plotted:	Axis Range	Axis Length	Smoothing Points	Tool	Comments
1. GAMMA API	0.0 to 150.0	10.0	31	9030A	IN PIPE
2. NEUTRON-NEUTRON CPS	0.0 to 2500.0	10.0	9	9055A	IN PIPE
3. DENSITY G/CC	1.0 to 3.0	10.0	15	9030A	IN PIPE



GULF CANADA RESOURCES INC. COAL DIVISION

KLAPPAN PROJECT

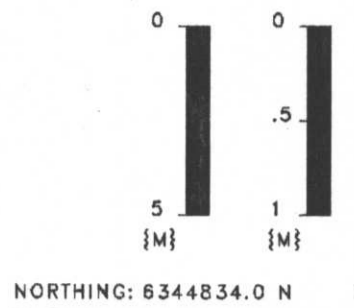
STRATIGRAPHIC LOG

KPN LR DDH85017

GEOLOGIST : BARKER

DATE : JAN 08/86

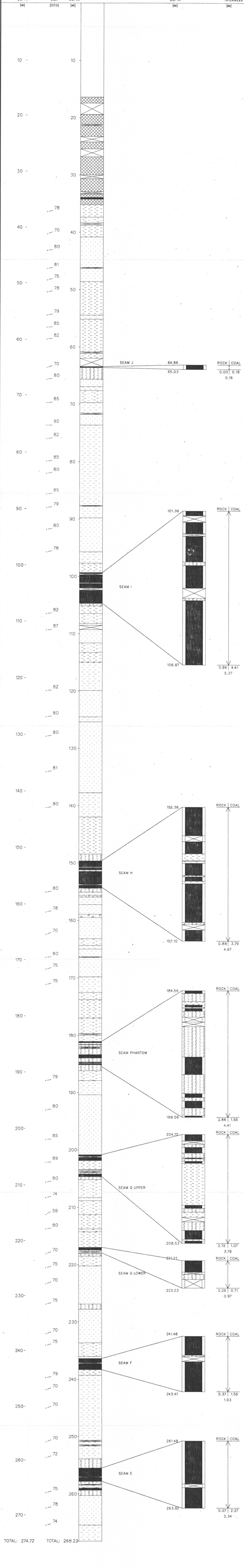
DRAWING NO. :



NORTHING: 6344834.0 N
EASTING: 506805.0 E
INCLINATION: 75.0°
BEARING: 360.0°

LITHOLOGIC SYMBOLS

- | | | | |
|--|---------------------|--|--------------|
| | SANDSTONE | | BENTONITE |
| | SILTSTONE | | BRECCIA |
| | COAL | | CARBONACEOUS |
| | OVERBURDEN | | QUARTZ |
| | MUDSTONE, CLAYSTONE | | PYRITE |
| | TUFF | | FERRUGINOUS |
| | LIMESTONE | | CONGLOMERATE |
| | CORE LOSS | | FOSSIL BED |



TOTAL: 274.72 TOTAL: 268.22

KPNLRDDH85018

- DATA SOURCE SUMMARY -

DATA SOURCE - KPMLRDDH85018

DATE - 01/09/86

- HISTORY -

START DATE - 07/21/85
END DATE - 07/24/85

CONTRACTOR - J T THOMAS
GEOLOGIST - BARKER

OPERATOR - GCR1
SURVEYOR - MWG & ASS

REMARKS -

- LOCATION -

PROVINCE - BC
ELEVATION - 1592.70

LICENCE/LEASE NUMBER - 7152

ZONE - 9
NORTHING - 6344973.00
EASTING - 505469.87

LATITUDE - 571459
LONGITUDE - 1285434

- ORIENTATION -

LENGTH - 274.75

INCLINATION - 60.0
AZIMUTH - 10.0

CORE SIZE - 0.0

CEMENT -
PLUG -
PIEZ -

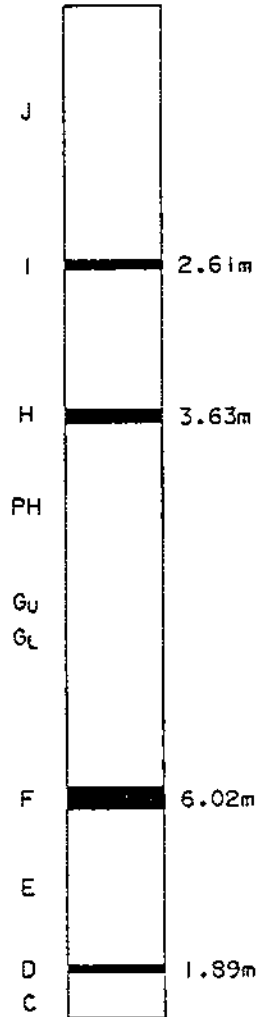
CASING DEPTH (M) - 3.08
AQUIFER DEPTHS (M) - 0.00
 - 0.00
LOST CIRC. DEPTHS (M) - 0.00
 - 0.00

*** NOTE *** 0 INDICATES NO VALUE



MT. KLAPPAN COAL PROPERTY
1985 DIAMOND DRILL HOLES
DDH85018

SEAM TRUE SEAM THICKNESS
 (COAL & ROCK)



NOTE: SCHEMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm COAL.

SCALE: 1:2000

GULF CANADA RESOURCES INC.
13/01/86



86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
70	0.00	3.08	3.08			CASING	
70	3.08	3.21	0.13			ROCK LOSS	
70	3.21	4.37	1.16			SANDSTONE	FG. HOD. LT. GY. MAS. BRKH MASSIVE; UNIFORM; 2 QTZ VEINS 7MM WIDE
70	4.37	5.09	0.72			SANDSTONE	FG. HOD. LT. GY. MAS. BRKH
70	5.09	5.58	0.49			SANDSTONE	FG. HOD. LT. GY. MAS. VBRKN AS ABOVE; SHARP CONTACT WITH MUDSTONE 8 ELOW
* 70	5.58	6.44	0.86			MUDSTONE	M. GY. LAM. VBRKN VERY UNIFORM BANDING; VERY FINE GRAINED ; COASTER LITHOLOGY; BANDS FINE UPWARDS
* 60	6.44	6.69	0.25			MUDSTONE	M. GY. LAM. VBRKN AS ABOVE
62	6.69	7.32	0.63			ROCK LOSS	

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 2

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
64	7.32	8.27	0.95			MUDSTONE	M. GY. LAM. VBRKN AS ABOVE; MODERATELY FISSILE
67	8.27	8.98	0.71			MUDSTONE	M. GY. LAM. VBRKN AS ABOVE; MODERATELY FISSILE
* 70	8.98	9.98	1.00			MUDSTONE	M. GY. LAM. BRKN UNIFORM COASTER LITHOLOGY AS ABOVE
69	9.98	11.08	1.10			SILTSTONE	SSY. VPR. M. GY. LAM. BRKN FINE SILTY LAMINAE THROUGHOUT; SOME BAN DS GRADING FROM SILT TO FG SANDSTONE
68	11.08	11.32	0.24			ROCK LOSS	
68	11.32	11.47	0.15			SILTSTONE	SSY. VPR. M. GY. LAM. VBRKN AS ABOVE
* 67	11.47	13.07	1.60			SILTSTONE	SSY. VPR. M. GY. LAM. VBRKN AS ABOVE
* 70	13.07	15.00	1.93			SILTSTONE	SSY. VPR. M. GY. LAM. VBRKN AS ABOVE
* 66	15.00	16.91	1.91			SILTSTONE	SSY. VPR. M. GY. LAM. BRKN AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
67	16.91	16.98	0.07			MUDSTONE	M.GY.LAM.SLD VERY UNIFORM BANDING; COASTER LITHOLOGY ; BANDS FINE UPWARDS; NOT FISSILE
* 68	16.98	18.60	1.62			MUDSTONE	M.GY.LAM.VBRKN AS ABOVE
* 65	18.60	18.70	0.10			MUDSTONE	M.GY.LAM.SLD AS ABOVE
* 80	18.70	20.35	1.65			MUDSTONE	M.GY.LAM.VBRKN MODERATELY FISSILE
* 60	20.35	21.55	1.20			MUDSTONE	M.GY.LAM.VBRKN FINELY LAMINATED; FISSILE; COASTER ZONE
60	21.55	21.95	0.40			ROCK LOSS	
60	21.95	22.42	0.47			MUDSTONE	M.GY.LAM.VBRKN COASTER ZONE
59	22.42	22.52	0.10		J	MUDSTONE	CARB.DK.GY.LAM.VSHRD VERY CARBONACEOUS MUDSTONE; MANY POLISH ED SURFACES; VERY SHEARED; CARBONACEOUS MUDSTONE COASTERS (J?); LISTRIC SURFAC ES

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
59	22.52	25.48	2.96			ROCK LOSS	
58	25.48	26.04	0.56			MUDSTONE	CARB.DK.GY.LAM.VSHRD AS ABOVE; HIGHLY VARIABLE BCA'S 05 TO 7 0 DEGREES; LISTRIC SURFACES; TIGHT PARA SIAC FOLD IN THIS INTERVAL.
58	26.04	26.39	0.35			ROCK LOSS	
58	26.39	26.49	0.10			MUDSTONE	CARB.DK.GY.LAM.VSHRD AS ABOVE; TIGHT PARASITIC FOLD IN THIS INTERVAL ALSO
58	26.49	26.75	0.26			MUDSTONE	CARB.DK.GY.LAM.BRKN AS ABOVE
58	26.75	27.36	0.61			ROCK LOSS	
58	27.36	27.62	0.26			MUDSTONE	CARB.DK.GY.LAM.VSHRD AS ABOVE
58	27.62	27.92	0.30			MUDSTONE	CARB.DK.GY.LAM.VSHRD SIMILAR TO ABOVE BUT SLIGHTLY SILTIER; FISSILE

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	57	27.92	28.02	0.10		CLAY	LT. GY. MAS. SLD BENTONITE(?) MASSIVE; UNIFORM
	57	28.02	28.64	0.62		MUDSTONE	SLTY. DK. GY. MAS. IRREGULAR ANKERITE(?) VEINING THROUGHOUT; 2CM BENTONITE BAND 5CM FROM UPPER CONTACT.
	57	28.64	28.94	0.30		MUDSTONE	SLTY. DK. GY. MAS. VBRKN CRUSHED CORE; LITH AS ABOVE; INTENSE ANKERITE/QTZ VEINING IN ONE 10CM THICK BAND
	57	28.94	30.04	1.10		ROCK LOSS	
	57	30.04	30.17	0.13		CLAY	LT. GY. MAS. BRKN BENTONITE; VERY SIMILAR TO ABOVE BANDS (SEE BOX 13)
	57	30.17	30.47	0.30		ROCK LOSS	
	56	30.47	30.95	0.48		MUDSTONE	SLTY. DK. GY. MAS. VBRKN CRUSHED CORE; MUDSTONE WITH ANKERITE VEINING AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	56	30.95	33.70	2.75		ROCK LOSS	
	55	33.70	34.00	0.30		MUDSTONE	SLTY. DK. GY. MAS. VBRKN CORE TOTALLY CRUSHED; FEATURES INDISTINGUISHABLE
	55	34.00	34.51	0.51		ROCK LOSS	
	* 55	34.51	34.92	0.41		MUDSTONE	SLTY. DK. GY. LAM. BIOTR. VBRKN MUDSTONE AS ABOVE; FINE LAMINAE IN ONE AREA; MUCH BIOTURBATION.
	52	34.92	36.16	1.24		MUDSTONE	SLTY. VPR. DK. GY. MAS. BIOTR. VBRKN CRUSHED CORE; LITH AS ABOVE; MODERATE ANKERITE/QTZ VEINING THROUGHOUT
	47	36.16	37.25	1.19		ROCK LOSS	
	42	37.25	38.27	0.92		MUDSTONE	SLTY. VPR. DK. GY. MAS. VBRKN LITH AS ABOVE; LESS VEINING
	40	38.27	38.40	0.13		MUDSTONE	SLTY. VPR. DK. GY. MAS. VBRKN AS ABOVE
	38	38.40	39.13	0.73		ROCK LOSS	

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH#5018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
34	39.13	40.23	1.10			MUDSTONE	SLTY. VPR. DK. GY. MAS. BIOTR. VBRKN AS ABOVE AND BEDDING IS VERY BIOTURBATE D; SLICKENSIDES; SILTIER THAN ABOVE
30	40.23	41.14	0.91			MUDSTONE	SLTY. VPR. DK. GY. MAS. VBRKN LITH AS ABOVE
27	41.14	41.75	0.61			ROCK LOSS	
* 25	41.75	42.10	0.35			SANDSTONE	SLTY. FG. VPR. M. GY. MAS. VBRKN FAINT SILTY BEDDING AT CONTACT BCA#25 CONTACT SHARP OVERLYING MUDSTONE APPEARS SCOURED BY THIS SANDSTONE THEREFORE TO PS DOWN(?)
32	42.10	45.92	3.82			ROCK LOSS	
38	45.92	46.32	0.40			SANDSTONE	SLTY. FG. VPR. M. GY. MAS. VBRKN VERY BROKEN CORE; MINOR QTZ VEINING THR OUGHOUT
39	46.32	46.61	0.29			SANDSTONE	SLTY. FG. VPR. M. GY. MAS. VBRKN AS ABOVE

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH#5018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
43	46.61	47.24	0.63			SILTSTONE	SSY. VPR. M. GY. THNB. BRKN VERY FAINT BEDDING; GRADATIONAL CONTACT S
44	47.24	48.90	1.66			SILTSTONE	SSY. VPR. M. GY. THNB. VBRKN LITH AS ABOVE
48	48.90	49.37	0.47			ROCK LOSS	
49	49.37	49.63	0.26			SILTSTONE	SSY. VPR. M. GY. THNB. VBRKN LITH AS ABOVE
50	49.63	50.33	0.70			SILTSTONE	SSY. VPR. M. GY. LAM. BIOTR. VBRKN BIOTURBATED VERY AMBIGUOUS TOPS; MANY H ORIZ HORN BURROWS 1-2MM DIAMETER; SSD; X-BEDDING; AS ABOVE
* 52	50.33	50.79	0.46			SILTSTONE	SSY. VPR. M. GY. LAM. BIOTR. VBRKN AS ABOVE
* 44	50.79	52.12	1.33			SILTSTONE	SSY. VPR. M. GY. LAM. BIOTR. VBRKN AS ABOVE
53	52.12	52.77	0.65			ROCK LOSS	

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
# 63	52.77	54.35	1.58			SILTSTONE	SSY.VPR.M.GY.LAM.BIOTR.VBRKN AS ABOVE; LESS BIOTURBATED; X-BEDDING 1 N FINE SILTY LAYERS MORE APPARENT; TOPS STILL AMBIGUOUS
# 60	54.35	55.55	1.20			SILTSTONE	SSY.VPR.M.GY.LAM.BIOTR.VBRKN LITH AS ABOVE; TOPS STILL VERY AMBIGUOUS S; SSD; X-BEDDING; WORM BURROWS
# 61	55.55	56.04	0.49			SILTSTONE	SSY.VPR.M.GY.LAM.BIOTR.VBRKN AS ABOVE
# 62	56.04	57.64	1.60			SILTSTONE	SSY.VPR.M.GY.LAM.BIOTR.VBRKN AS ABOVE
# 61	57.64	58.52	0.88			SILTSTONE	SSY.VPR.M.GY.LAM.BIOTR.VBRKN AS ABOVE
# 60	58.52	59.49	0.97			SILTSTONE	SSY.VPR.M.GY.LAM.BIOTR.VBRKN AS ABOVE
# 60	59.49	61.03	1.54			SILTSTONE	SSY.VPR.M.GY.LAM.BIOTR.VBRKN AS ABOVE
# 65	61.03	61.26	0.23			ROCK LOSS	
# 67	61.26	61.62	0.36			SILTSTONE	SSY.VPR.M.GY.LAM.BIOTR.VBRKN AS ABOVE

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
# 72	61.62	63.19	1.57			SILTSTONE	SSY.VPR.M.GY.LAM.BIOTR.BRKN AS ABOVE
# 75	63.19	64.55	1.36			SILTSTONE	SSY.VPR.M.GY.LAM.BIOTR.BRKN LITH AS ABOVE; TOPS DEFINITELY UP. VERY WORM BURROWS 4MM WIDE
# 76	64.55	65.10	0.55			SILTSTONE	SSY.VPR.M.GY.LAM.BIOTR.BRKN AS ABOVE
# 65	65.10	66.76	1.66			SILTSTONE	SSY.VPR.M.GY.LAM.BIOTR.BRKN LITH AS ABOVE; SLICKENSIDES
# 68	66.76	67.55	0.79			ROCK LOSS	
# 70	67.55	67.91	0.36			SILTSTONE	SSY.VPR.M.GY.LAM.BRKN MORE UNIFORM; NO BIOGENIC ACTIVITY X-BE DDING OR SSD
# 72	67.91	69.08	1.17	06542		SILTSTONE	SSY.VPR.M.GY.LAM.BIOTR.BRKN AS ABOVE; THO 2CM WIDE DIRTY COAL BANDS AT END OF BOX
# 74	69.08	69.42	0.34	06543 I		COAL LOSS	
# 75	69.42	69.64	0.22	06543 I		COAL	C-1.BRKN GOOD CLEAT

DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	69.64	69.69	0.05	06543	I	MUDSTONE	CARB. DK. GY. MAS. BRKN SURFACES LISTRIC; COALY STRINGERS THROUGHOUT
	69.69	69.83	0.14	06543	I	COAL	C-2. PWRD VERY SHEARED AND POWDERS UPON BREAKAGE
	69.83	69.85	0.02	06543	I	COAL	C-5. VBRKN MINOR VITRINITE BANDS THROUGHOUT
	69.85	70.29	0.44	06543	I	COAL	C-2. PWRD VERY LISTRIC AND SHEARED; MINOR MUDSTON E. BANDS WITHIN
	70.29	70.30	0.01	06543	I	MUDSTONE	CARB. DK. GY. MAS. SLD COAL STRINGERS WITHIN
	70.30	70.48	0.18	06544	I	COAL LOSS	
	70.48	71.54	1.06	06544	I	COAL	C-2. SHRD VERY SHEARED; BREAKS ALONG LISTRIC SURFACES; VERY MINOR MUDDY BANDS
	71.54	71.70	0.16	06544	I	COAL	C-2. SHRD AS ABOVE
	71.70	71.71	0.01	06544	I	MUDSTONE	CARB. DK. GY. MAS. SLD COAL STRINGERS THROUGHOUT

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	71.71	71.75	0.04	06544	I	COAL	C-2. BRKN THIN MUDSTONE BANDS AND CARBONATE BANDS WITHIN
	71.75	72.07	0.32	06543		MUDSTONE	CARB ABUNDANT COAL STRINGERS AND CARBONATE STRINGERS THROUGHOUT; BECOMING LESS CARBONACEOUS TOWARDS BASE; TOP 20CM SAMPLED
*	72.07	73.52	1.45			MUDSTONE	SLTY. M. GY. LAM. WRMBU. BRKN GRADATIONAL FROM ABOVE; LAMINATED MUDSTONE AND SILTSTONE BECOMING MUCH SILTIER NEAR BASE; WORM BURROWS (3MM DIAMETER) INDICATE TOPS UP
	73.52	74.63	1.11			SANDSTONE	SLTY. YEG. PR. M. GY. LAM. BIOTR. VBRKN FINELY LAMINATED; NUMEROUS VERT AND HORIZ WORM BURROWS 1-5MM WIDE TOPS UP SSD; GREEN TALC. QTZ. AND ANKERITE FILLING FR. ACTURES
	74.63	75.20	0.57			SANDSTONE	SLTY. FG. PR. M. GY. LAM. BIOTR. VBRKN SLIGHTLY COARSER; LESS BIOGENIC ACTIVITY
	75.20	75.51	0.31			ROCK LOSS	

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 80	75.51	76.81	1.30			SANDSTONE	FG. PR. M. GY. VTHNB. YBRKN FINE SILTY LAMINAE THROUGHOUT
80	76.81	77.24	0.43			SILTSTONE	CLYY. M. GY. LAM. SHRD SLUMP STRUCTURE 10CM WIDE; SLICKENSIDES
80	77.24	77.71	0.47			ROCK LOSS	
80	77.71	77.99	0.28			SILTSTONE	CLYY. M. GY. LAM. SHRD AS ABOVE; SLICKENSIDES
80	77.99	78.76	0.77			SILTSTONE	M. GY. LAM. SLD LESS CLAY THAN ABOVE
80	78.76	79.56	0.80			SANDSTONE	VFG. PR. LT. GY. VTHNB. SLD UNIFORM BANDING
80	79.56	79.95	0.39			SANDSTONE	VFG. VPR. LT. GY. VTHNB. BRKN AS ABOVE
* 80	79.95	80.67	0.72			SILTSTONE	M. GY. LAM. YBRKN SLICKENSIDES AND VERY SHEARED AT UPPER CONTACT
80	80.67	81.04	0.37			ROCK LOSS	
80	81.04	81.71	0.67			SILTSTONE	M. GY. LAM. YBRKN VERY UNIFORM LAMINAE AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
80	81.71	83.73	2.02			SILTSTONE	SSY. M. GY. LAM. SLD SLIGHTLY SANDIER THAN ABOVE
80	83.73	84.02	0.29			SILTSTONE	SSY. M. GY. LAM. BRKN
80	84.02	85.50	1.48			SILTSTONE	SSY. M. GY. LAM. BRKN 3-4CM WIDE BANDS OF VERY POORLY SORTED FG SAND MIXED WITH VCG SAND SIZED QTZ C LASTS; START OF 'SPECKLED SAND' OR 'STO RM UNITS' (?)
* 80	85.50	87.06	1.56			SILTSTONE	SSY. VPR. M-DK. GY. VTHNB. HRMBU. BRKN MUD AND FG SANDY BANDS THROUGHOUT; OCCA SIONAL 1-1.5MM QTZ CLAST IN VERY POORLY SORTED SAND; 5CM BAND OF HELMINTHOSIS IN SILTY MUD
81	87.06	87.44	0.38			SILTSTONE	SSY. VPR. M-DK. GY. VTHNB. BRKN LITH AS ABOVE
81	87.44	89.60	2.16			SANDSTONE	SILTY VPR. M-DK. GY. VTHNB. HRMBU. BRKN 'SILTY BANDED SANDSTONE' SIMILAR TO TYP ICAL M-1 INTERSEAM; SOME CG SANDSTONE B ANDS; INTERBEDDED SILT AND SAND WITH SH ARP CONTACTS; LARGE HORN BURROWS 1CM IN DIAMETER

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	DEPTH INTERVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	82	89.60	90.06	0.46		SANDSTONE	SLTY. VPR. M-DK. GY. VTHNB. WRMBU INTERBEDDED SILT AND SAND AS ABOVE; 1CM DIAMETER VERT WORM BURROWS; BIOTURBATION
*	83	90.06	91.60	1.54		SANDSTONE	SLTY. VPR. M-DK. GY. VTHNB. WRMBU LITH AS ABOVE WITH PLANT HASH IN MANY S AND LAYERS; BIOTURBATED
	81	91.60	93.10	1.50		SANDSTONE	SLTY. FG. VPR. M. GY. LAM. WRMBU. BRKN SILTY BANDED SANDSTONE AS ABOVE; VERT WORM BURROWS 1CM WIDE; SOME LAYERS VERY BIOTURBATED; OCCASIONAL M-CG SANDSTONE BANDS CONTAIN MUDSTONE RIP UP CLASTS
*	80	93.10	93.64	0.54		SANDSTONE	SLTY. FG. VPR. M. GY. LAM. WRMBU. BRKN LITH AS ABOVE
	76	93.64	96.18	2.54		SANDSTONE	SLTY. FG. VPR. M. GY. LAM. WRMBU. BRKN AS ABOVE; BUT MORE BIOTURBATION IN SANDS AND MANY MORE VERT WORM BURROWS
	72	96.18	96.50	0.32		ROCK LOSS	

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	DEPTH INTERVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	70	96.50	97.81	1.31		SANDSTONE	SLTY. FG. VPR. M. GY. LAM. WRMBU. BRKN LITH AS ABOVE; SILTY BANDED SANDSTONE; INTERBEDDED SILT AND SAND; SHARP CONTACTS BETWEEN LAMINAE
*	80	97.81	99.20	1.39		SILTSTONE	SSY. VPR. M. GY. LAM. BIOTR. BRKN VERY FINE WISPY DARK LAMINAE THROUGHOUT; MUCH BIOTURBATION AND PLANT HASH IN SANDIER AREAS
	80	99.20	99.86	0.66		SILTSTONE	SSY. VPR. M. GY. LAM. BIOTR. BRKN LITH AS ABOVE
	80	99.86	100.01	0.15		ROCK LOSS	
*	80	100.01	101.88	1.87		SILTSTONE	SSY. VPR. M. GY. LAM. BRKN LITH AS ABOVE; ONE 1.5CM WIDE ANKERITE VEIN PARALLEL TO BEDDING
	79	101.88	102.25	0.37		SILTSTONE	SSY. VPR. M. GY. LAM. BRKN AS ABOVE
*	78	102.25	104.04	1.79		SILTSTONE	SSY. VPR. M. GY. LAM. BRKN LITH AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	80	104.04	105.30	1.26		SILTSTONE	SSY. YPR. M. GY. LAM. BIOTR. BRKN LITH AS ABOVE; BUT MORE UNIFORM LAMINAE ; LESS DISTURBANCE OF BEDS; GRADATIONAL CONTACTS BETWEEN MUDDY SILTY AND FG SA. NO LAYERS ARE COMMON
*	75	105.30	106.09	0.79		SILTSTONE	SSY. YPR. M. GY. LAM. BRKN LITH AS ABOVE
*	78	106.09	108.22	2.13		SILTSTONE	SSY. YPR. M. GY. LAM. SSD. BRKN LITH AS ABOVE; BUT MORE SAND THAN IN AB OVE SILTSTONE UNITS; SCOURS LOADING STR UCTURES SHON TOPS UP
	76	108.22	108.28	0.06		MUDSTONE	SLTY. M. GY. MAS. SLD ABUNDANT PLANT FRAGMENTS SOME COALIFIED
	74	108.28	109.90	1.62	06546	MUDSTONE	CARB. M-DK. GY. MAS. BRKN ABUNDANT PLANT FRAGMENTS MANY COALIFIED ; COAL STRINGERS THROUGHOUT; SURFACES B ECOMING MORE LISTRIC TOWARDS BASE; LOWE R 20CM SAMPLED
	73	109.90	109.93	0.03	06547 H	COAL	C-3. SLD ABUNDANT MUDDY BANDS
	73	109.93	110.04	0.11	06547 H	COAL	C-1. BRKN SHEARED

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	73	110.04	110.07	0.03	06547 H	COAL	C-3. BRKN CARB AND MUDSTONE WITHIN
	72	110.07	110.17	0.10	06547 H	COAL	C-1. BRKN SHEARED
	72	110.17	110.81	0.64	06547 H	COAL	C-2. BRKN LISTRIC SURFACES; LOCALIZED CONCENTRATI ONS OF QTZ-CARBONATE STRINGERS; THIN BA NDS OF LOWER GRADE COAL AND MUDDY MATER IAL THROUGHOUT (<1CM)
	71	110.81	110.85	0.04	06547 H	MUDSTONE	CARB. BRKN ABUNDANT COAL MUDSTONE AND QTZ-CARBONAT E STRINGERS THROUGHOUT; DEFORMED
	71	110.85	111.25	0.40	06547 H	COAL	C-2. BRKN ABUNDANT MUDDY LAMINAE AND THIN BANDS T HROUGHOUT
	70	111.25	111.29	0.04	06547 H	COAL	C-6. BRKN MINOR QTZ-CARBONATE VEINING WITHIN
	70	111.29	111.43	0.14	06548 H	MUDSTONE	M. GY. MAS. BRKN
	70	111.43	111.46	0.03	06548 H	MUDSTONE	CARB. DK. GY. MAS. SLD QTZ STRINGERS THROUGHOUT

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
70	111.46	111.88	0.42	06548	H	COAL	C-2. BRKN NUMEROUS 2-8MM BANDS OF MUD WITH COAL'S STRINGERS THROUGHOUT UNIT; BREAKS ALONG LISTRIC SURFACES
69	111.88	111.91	0.03	06548	H	MUDSTONE	CARB. DK. GY. MAS. YBRKN MINOR COAL STRINGERS
69	111.91	111.92	0.01	06548	H	COAL	C-5. BRKN
69	111.92	111.93	0.01	06548	H	COAL	C-2. SLD
69	111.93	112.06	0.13	06548	H	COAL	C-2. BRKN
69	112.06	112.07	0.01	06548	H	MUDSTONE	CARB. DK. GY. BRKN
69	112.07	112.22	0.15	06548	H	COAL	C-1. BRKN
69	112.22	112.25	0.03	06548	H	COAL	C-4. BRKN ABUNDANT QTZ WITHIN
68	112.25	112.37	0.12	06548	H	COAL	C-5. BRKN STRINGERS OF VITRINITE THROUGHOUT

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
68	112.37	112.40	0.03	06548	H	COAL	C-2 MUDDY CARB BANDS WITHIN
68	112.40	112.53	0.13	06548	H	MUDSTONE	CLYY. M. GY. MAS. BRKN
68	112.53	112.56	0.03	06548	H	COAL	C-2. BRKN
68	112.56	112.58	0.02	06548	H	MUDSTONE	CLYY. M. GY. MAS. SLD ABUNDANT QTZ-CARB VEINING THROUGHOUT
67	112.58	113.21	0.63	06549	H	COAL	C-1. BRKN
67	113.21	113.23	0.02	06549	H	COAL	C-5. YBRKN
66	113.23	113.49	0.26	06549	H	COAL	C-2. YBRKN
66	113.49	113.51	0.02	06549	H	MUDSTONE	CLYY. M. GY. MAS. SLD
66	113.51	113.78	0.27	06549	H	COAL	C-2. YBRKN
66	113.78	113.86	0.08	06550		MUDSTONE	CARB. M-DK. GY. MAS. SLD

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP ID	SEAM ID	LYTHOLOGY	DESCRIPTION
	113.86	114.19	0.33	06550		SILTSTONE	SSY, M. GY. MAS. SLD MASSIVE WITH MODERATE ANKERITE VEINING THROUGHOUT
	114.19	114.43	0.24			SILTSTONE	SSY, M. GY. MAS. SLD AS ABOVE
	114.43	114.92	0.49			ROCK LOSS	
	114.92	116.17	1.25			MUDSTONE	SLTY, DK. GY. MAS. SHRD FINE COAL STREAKS AND ANKERITE WISPS TH THROUGHOUT; MUCH SHEARING AND SLICKENSIDE S
* 60	116.17	117.54	1.37			SANDSTONE	SLTY, FG. VPR. M. GY. THNB. BRKN MUCH SILT; GRADATIONAL CONTACTS BETWEEN MUDDY SILTY AND FG SANDSTONE BANDS
	117.54	118.23	0.69			SANDSTONE	SLTY, FG. VPR. M. GY. THNB. BRKN COARSENS TO ALMOST MG SANDSTONE DOWNWARD
	118.23	120.17	1.94			SANDSTONE	SLTY, FG. VPR. M. GY. VTHNB. VBRKN OCCASIONAL FINE WISPY SILTY LAMINAE
	120.17	120.49	0.32			SANDSTONE	SLTY, FG. VPR. M. GY. VTHNB. VBRKN AS ABOVE
	120.49	120.68	0.19			ROCK LOSS	

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP ID	SEAM ID	LYTHOLOGY	DESCRIPTION
	120.68	122.18	1.50			SANDSTONE	SLTY, FG. VPR. M. GY. VTHNB. VBRKN AS ABOVE BUT THICKER SILT BANDS WITH SH ARP CONTACTS; OCCASIONAL MG SANDSTONE BEDS CONTAINING NUMEROUS MUDSTONE RIP UP CLASTS
	122.18	122.54	0.36			ROCK LOSS	
	122.54	122.93	0.39			SILTSTONE	DK. GY. THNB. SLD YFG SANDY BANDS WHICH GRADE INTO DARK SILTSTONE BANDS; MINOR COALIFIED PLANT FRAGMENTS ON BEDDING PLANES
	122.93	123.83	0.90			SANDSTONE	SLTY, VPR. M. GY. THNB. BRKN PREDOMINANTLY FG SANDSTONE WITH SILT BE DS 2-4CM WIDE; GRADATIONAL CONTACTS
	123.83	124.49	0.66			SANDSTONE	MOO. M. GY. MAS. BRKN NO SILT BANDS IN THIS INTERVAL; OCCASIONAL SPECKS OF PLANT WASH THROUGHOUT

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	68	124.49	126.47	1.98		SANDSTONE	SLTY VPR. M. GY. THNB. XBDG. VBRKN SILT BANDS 1MM TO 10CM THICK; VERY FAIN 1 X-BEDDING IN SAND SHOWS TOPS UP; SLIC KENSIDES AND POLISHED FRACTURE SURFACES ; 8CM BAND OF LT GREY CALCAREOUS SILTST ONE
	69	126.47	126.83	0.36		SANDSTONE	SLTY VFG. PR. M. GY. YTHNB. BIOTR. SLD BEDDING LOCALLY DISRUPTED BY BIOTURBATI ON
*	70	126.83	128.13	1.30		SILTSTONE	SSY. PR. M-DK. GY. LAM. HRMBU. VBRKN MINOR HELMINTHOPSIS; FINE BANDING; GRAD ING FROM POORLY CONSOLIDATED MUDS TO FG SANDSTONE
	65	128.13	128.62	0.49		ROCK LOSS	
*	60	128.62	129.98	1.36		SILTSTONE	PR. M-DK. GY. YTHNB. HRMBU. VBRKN FAINT BEDDING; HELMINTHOPSIS AT TOP OF BOX; SLICKENSIDES ON SOME FRACTURE SURF ACES
	60	129.98	130.47	0.49		MUDSTONE	M. GY. MAS. BRKN VERY UNIFORM; AMSSIVE; NUMEROUS BIVALVE SHELLS (1-2CM) WIDE AND FRAGMENTS.

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	60	130.47	132.58	2.11		MUDSTONE	M. GY. MAS. BRKN AS ABOVE; BIVALVES 1-3CM WIDE
	60	132.58	132.95	0.37		MUDSTONE	SLTY. VPR. M. GY. MAS. SLD AS ABOVE; BUT MUCH SILTYIER; BIVALVES 2- 3CM WIDE
*	60	132.95	134.27	1.32	PHANTOM	MUDSTONE	SLTY. DK. GY. THNB. VBRKN VERY FAINT SILTY BANDS; COAL STRINGERS 1-3MM WIDE; MODERATE ANKERITE VEINING A PPOX PARALLEL TO BEDDING; CARBONACEOUS AND SHEARED; LOCAL PYRITE STRINGERS
	62	134.27	135.05	0.78	PHANTOM	ROCK LOSS	
	64	135.05	136.09	1.04	PHANTOM	MUDSTONE	CARB. DK. GY. MAS. SHRD. TINY COAL STRINGERS .5-3MM WIDE THROUGH OUT; MUCH COALIFIED PLANT MATERIAL NUME ROUS POLISHED SLIPPAGE SURFACES.
	66	136.09	136.49	0.40	PHANTOM	MUDSTONE	CARB. DK. GY. MAS. SHRD AS ABOVE

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	68	136.49	137.86	1.37	PHANTOM	MUDSTONE	CARB. DK. GY. MAS. SHRD VERY BROKEN CORE; LITH AS ABOVE; SLIGHTLY SILTIER DOWNWARD; ONE VERY DIRTY (C-?) SHEARED COAL BAND 8CM WIDE TOP OF 80
	70	137.86	138.63	0.77	PHANTOM	ROCK LOSS	
	71	138.63	139.12	0.49	PHANTOM	MUDSTONE	CARB. OK. BLK. MAS. VSHRD VERY CARBONACEOUS MUDSTONE WITH DIRTY COAL BANDS UP TO 8CM THICK; FINE ANKERITE VEINLETS THROUGHOUT; FRACTURE FILLED BY QTZ ANKERITE AND COAL SPECKS AT BOTTOM CONTACT
*	72	139.12	139.29	0.17		SANDSTONE	FG. M. GY. THMB. SLD UNIFORM SANDSTONE WITH ONE VERY FAINT BANDING SURFACE VISIBLE; BOUNDED TOP AND BOTTOM BY 4CM THICK QTZ VEIN
	76	139.29	139.87	0.58		SILTSTONE	M. GY. MAS. VBRKN SILTSTONE BRECCIA VERY DISRUPTED; BRECCIATED BY QTZ VEINING

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	80	139.87	140.21	0.34		SILTSTONE	M. GY. VTHMB. SHRD VERY BROKEN CORE; FINE QTZ STRINGERS THROUGHOUT; ALL FRACTURE SURFACES ARE POLISHED AND SHEARED
	80	140.21	140.77	0.56		ROCK LOSS	
	80	140.77	141.99	1.22		SANDSTONE	FG. MOD. LT. GY. MAS. BRKN INTENSELY VEINED BY QTZ
	79	141.99	142.29	0.30		ROCK LOSS	
	79	142.29	144.09	1.80		SANDSTONE	FG. MOD. LT. GY. MAS. VBRKN UNIFORM MASSIVE FG-MG. SANDSTONE; INTENSELY VEINED AS ABOVE
	78	144.09	145.08	0.99		SANDSTONE	FG. MOD. LT. GY. MAS. VBRKN LITH AS ABOVE; INTENSE QTZ VEINING
	78	145.08	145.44	0.36		ROCK LOSS	
	78	145.44	146.07	0.63		SANDSTONE	FG. MOD. LT. GY. MAS. VBRKN AS ABOVE
	78	146.07	147.55	1.48		SANDSTONE	FG. MOD. LT. GY. MAS. VBRKN LITH AS ABOVE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	77	147.55	148.16	0.61		ROCK LOSS	
	77	148.16	148.59	0.43		SANDSTONE	FG. MOD. LT. GY. MAS. VBRKN MODERATE QTZ VEINING THROUGHOUT; MASSIVE; TALC ON FRACTURE SURFACES; SOME POLISHED SLIPPAGE SURFACES
	77	148.59	149.71	1.12		SANDSTONE	FG. MOD. LT. GY. MAS. VBRKN AS ABOVE
	76	149.71	151.05	1.34		SANDSTONE	FG. PR. LT. GY. MAS. VBRKN LITH AS ABOVE
	76	151.05	151.86	0.81		SANDSTONE	FG. MED. M. GY. MAS. BRKN AS SANDSTONE ABOVE; MUCH QTZ VEINING 5C M WIDE QTZ VEIN PARALLEL TO CORE; SOME POLISHED FRACTURE SURFACES; SOME CARBON ACEOUS MATERIAL ON FRACTURES; THO CARB MUDSTONE BANDS 7MM THICK AT BOTTOM OF I NTERVAL
	76	151.86	152.44	0.58		SILTSTONE	CARB. VPR. DK. GY. MAS. VSHRD SHEARED SILTSTONE WITH MUCH CARBONACEOU S MATERIAL IN FRACTURES; ONE 3MM COAL S TRINGER
	76	152.44	153.44	1.00		SILTSTONE	CARB. VPR. DK. GY. MAS. VBRKN LESS CARB. THAN ABOVE; LESS SHEARED

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	75	153.44	154.17	0.73		ROCK LOSS	
*	75	154.17	155.01	0.84		SILTSTONE	CLYY. DK. GY. VTHNB. VBRKN VERY FAINT BANDING; MUCH MUD; SLICKENSI DES ON SOME FRACTURE SURFACES
*	75	155.01	156.18	1.17		SILTSTONE	SSY. DK. GY. LAM. SSD. BRKN SANDIER THAN ABOVE; FINELY LAMINATED; W ARPING (SLUMPING?) OF LAMINAE IN LOWER 10CM OF BOX
	78	156.18	158.08	1.90		SANDSTONE	SLTY. FG. VPR. M. GY. LAM. SSD. VBRKN LAMINATED; LARGE VARIATION IN GRAIN SIZ E OF BANDS FROM LIMY MUD TO FG SANDSTO NE CONTAINING MUDSTONE RIP UP CLASTS; V ERY DISRUPTED BEDDING IN SOME AREAS DUE TO LOCAL SLUMPING(?)
	82	158.08	160.13	2.05	G(UPPER)	SANDSTONE	SLTY. FG. VPR. M. GY. LAM. VBRKN NUMEROUS MUDSTONE RIP UP CLASTS THROUGH OUT; NUMEROUS FINE SILTY LAMINAE; IRREG ULAR COAL AND ANKERITE STRINGERS 1-3MM WIDE
*	85	160.13	160.92	0.79	G(UPPER)	SANDSTONE	SLTY. FG. VPR. M. GY. VTHNB. VBRKN LITH AS ABOVE; WITH NUMEROUS COAL STRIN GERS AND FINE SILTY LAMINAE

* DENOTES MEASURED BCA

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PROJECT: KPH BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	84	160.92	161.23	0.31		G(UPPER)	ROCK LOSS
	84	161.23	162.31	1.08		G(UPPER)	SANDSTONE FG. VPR. LT. GY. MAS. VBRKN VERY POORLY SORTED; OCCASIONAL SMALL COAL RIP UP CLASTS 3MM WIDE
	82	162.31	164.31	2.00		G(UPPER)	SANDSTONE FG. MOD. LT. GY. MAS. BRKN MASSIVE; ONE 15CM WIDE SILT BAND WHICH IS INTENSELY VEINED; COAL RIP UPS AND STRINGERS; 1-15MM WIDE AT BASE OF INTERVAL; DRILLER'S MARKER ERROR 6M INTERVAL BUT 3M RECOVERY THERE IS NOT 3M OF CORE LOSS HERE
	80	164.31	165.50	1.19		G(UPPER)	SANDSTONE SILTY FG. PR. M. GY. MAS. BRKN PREDOMINANTLY MASSIVE WITH OCCASIONAL SILTY STRINGERS AND COAL STREAKS 1MM WIDE; MINOR ANKERITE VEINING
	79	165.50	166.21	0.71			SANDSTONE MG. WEL. LT. GY. MAS. MUCH CLEANER; UNIFORM; MASSIVE
*	78	166.21	166.93	0.72			SANDSTONE FG. WEL. LT. GY. MAS. VBRKN LITH AS ABOVE; BCA ON ONE FINE SILT STRINGER=78
	78	166.93	167.16	0.23			ROCK LOSS

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPH BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	78	167.16	168.24	1.08			SANDSTONE FG. WEL. LT. GY. MAS. VBRKN LITH AS ABOVE; ONE VERY WIDE X-SHAPED QTZ VEIN 11CM WIDE AT TOP OF UNIT
	78	168.24	168.46	0.22			ROCK LOSS
	79	168.46	169.90	1.44			SANDSTONE FG. MOD. LT. GY. VBRKN LITH AS ABOVE; 1-3MM WIDE QTZ PEBBLES SCATTERED THROUGHOUT LOWER MOST 20CM OF INTERVAL
	79	169.90	170.30	0.40		G(LOWER)	SANDSTONE MM. VBRKN SANDSTONE BRECCIA; INTENSE QTZ VEINING; CONTAINING MINOR COAL RIP UPS AND CHLORITE
	79	170.30	172.18	1.88		G(LOWER)	SANDSTONE PBLY. FG. VPR. M. GY. THNB. VBRKN INTERBEDDED MG. SAND AND PEBBLY SAND; CHERT MUDSTONE AND COAL CLASTS 3-12MM WIDE IN BANDS 1-15CM WIDE; OCCASIONAL CARB SILTY STRINGERS; MODERATE TO INTENSE QTZ VEINING
	80	172.18	172.82	0.64			ROCK LOSS

* DENOTES MEASURED BCA

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	80	172.82	173.76	0.94		SANDSTONE	PBLY. FG. YPR. M. GY. THNB. VBRKN AS ABOVE
	80	173.76	174.45	0.69		SANDSTONE	PBLY. FG. YPR. M. GY. THNB. VBRKN AS ABOVE
	80	174.45	176.62	2.17		SANDSTONE	PBLY. FG. YPR. M. GY. THNB. VBRKN AS ABOVE
	81	176.62	176.83	0.21		SANDSTONE	PBLY. FG. YPR. M. GY. THNB. VBRKN LITH AS ABOVE; FEWER CHERT CLASTS
	81	176.83	178.67	1.84		SANDSTONE	PBLY. FG. YPR. M. GY. THNB. VBRKN AS ABOVE
	81	178.67	178.99	0.32		ROCK LOSS	
	82	178.99	179.98	0.99		SANDSTONE	PBLY. FG. YPR. M. GY. THNB. VBRKN LITH AS ABOVE; PREDOMINANTLY SAND
	82	179.98	180.90	0.92		SANDSTONE	PBLY. FG. YPR. M. GY. THNB. VBRKN AS ABOVE
	82	180.90	181.50	0.60		SANDSTONE	PBLY. FG. YPR. M. GY. THNB. VBRKN LITH AS ABOVE

* DENOTES MEASURED BCA

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	82	181.50	182.30	0.80		CONGLOMERATE	YPR. M. GY. MAS. VBRKN MATRIX SUPPORTED; MUCH LESS SAND THAN A NY PEBBLY BANDS ABOVE; OCCASIONAL COAL CLASTS AND STRINGERS; ONE 20CM MASSIVE SILT BAND
	83	182.30	183.51	1.21		CONGLOMERATE	YPR. M. GY. MAS. VBRKN AS ABOVE; SLIGHTLY MORE SAND; NUMEROUS COAL STRINGERS AND CLASTS 1-20MM WIDE
	83	183.51	184.33	0.82		ROCK LOSS	
*	83	184.33	184.86	0.53		MUDSTONE	SLTY. DK. GY. LAM. VBRKN LAMINATED SILTY MUDSTONE; SLICKENSIDES; MODERATE QTZ AND ANKERITE VEINING; FINE SILTY LAMINAE
*	90	184.86	186.79	1.93		MUDSTONE	SLTY. DK. GY. LAM. VBRKN LITH AS ABOVE; MORE MASSIVE TOWARDS BOT TOM; NO BEDDING APPARENT IN LAST 70CM; PLANT WASH AND BIVALVES 2CM WIDE AT BOT TOM OF INTERVAL
	83	186.79	187.28	0.49		MUDSTONE	SLTY. DK. GY. MAS. BRKN MASSIVE; SILTIER THAN ABOVE; BIVALVES

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	79	187.28	187.94	0.66		MUDSTONE	SLTY. DK. GY. MAS. LRKN MASSIVE; LITH AS ABOVE; OCCASIONAL BIVALVE 3-4CM IN DIAMETER; SILTIER DOWNWARD S; GRADATIONAL BOTTOM CONTACT
*	75	187.94	188.78	0.84		SANDSTONE	SLTY. M. GY. VTHNB. SLD BANDS RANGING FROM MUD TO FG SAND; INTERBEDDED SILTS AND SANDS
	77	188.78	190.24	1.46		SANDSTONE	SLTY. M. GY. VTHNB. WRMBU. SLD LITH AS ABOVE; OCCASIONAL HORIZ' WORM' BURROWS 2MM WIDE IN SILTY MUD BANDS; TOPS UP
*	79	190.24	192.34	2.10		SANDSTONE	SLTY. M. GY. VTHNB. BIOTR. SLD MUCH FG SANDSTONE IN THIS INTERVAL WITH THINNER SILT BANDS; SLIGHTLY BIOTURBATED AT BOTTOM
*	83	192.34	192.38	0.24		MUDSTONE	DK. GY. MAS. YBRKN OCCASIONAL FAINT SILTY LAMINAE BUT PREDOMINANTLY MASSIVE
	83	192.58	193.46	0.88		ROCK LOSS	
	82	193.46	194.78	1.32		MUDSTONE	DK. GY. MAS. YBRKN LITH AS ABOVE; 2CM BAND OF HELMINTHOPSIS; OCCASIONAL BIVALVE PIECES; NO SILT

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	82	194.78	195.11	0.33		ROCK LOSS	
	81	195.11	196.51	1.40		MUDSTONE	DK. GY. MAS. SLD VERY UNIFORM; EXTREMELY FINE GRAINED; NO SILT; BIVALVES
	81	196.51	196.82	0.31		MUDSTONE	SLTY. VPR. DK. GY. MAS. SLD 'MILKY WAY' DARK MUDSTONE WITH NUMEROUS ANGULAR 1MM QTZ(?) CLASTS THROUGHOUT
	80	196.82	197.17	0.35		SANDSTONE	SLTY. FG. VPR. M. GY. LAM. SLD FINE SILTY LAMINAE THROUGHOUT; MINOR MUDSTONE RIP UP CLASTS
*	80	197.17	197.88	0.71		SANDSTONE	SLTY. FG. PR. M. GY. LAM. BRKN FG SANDSTONE WITH FINE SILTY STRINGERS THROUGHOUT
*	83	197.88	198.38	0.50		MUDSTONE	SLTY. M. GY. VTHNB. WRMBU. BRKN FAIRLY UNIFORM BANDING; GRADATIONAL CONTACTS; HELMINTHOPSIS
*	82	198.38	199.05	0.67		MUDSTONE	SLTY. M. GY. VTHNB. WRMBU. BRKN LITH AS ABOVE; HELMINTHOPSIS
	80	199.05	199.20	0.15		MUDSTONE	SLTY. M. GY. VTHNB. WRMBU. BRKN LITH AS ABOVE; CORE THIST. OFF AT TOP OF INTERVAL

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 75	199.20	201.20	2.00			MUDSTONE	SLTY. M. GY. VTHNB. WRMBU. BRKN LITH AS ABOVE; HELMINTHOPSIS; 2' VERT HO RM BURROWS 7MM IN DIAMETER
75	201.20	201.39	0.19			ROCK LOSS	
* 75	201.39	202.10	0.71			MUDSTONE	SLTY. M. GY. LAM. WRMBU. BRKN LITH AS ABOVE; SLIGHTLY FINER; HELMINTH OPSIS; MINOR PLANT HASH
* 80	202.10	202.45	1.35			MUDSTONE	SLTY. M. GY. LAM. WRMBU. SLD LITH AS ABOVE; HELMINTHOPSIS; PLANT HAS H THROUGHOUT; CORE TWIST OFF AT TOP
* 80	203.45	205.10	1.65			MUDSTONE	SLTY. M. GY. LAM. XBDG. BRKN LITH AS ABOVE; FINELY LAMINATED; HELMIN THOPSIS; X-BEDDING OF SOME FINE SILTY L AMINAE; MINOR BIOTURBATION DISRUPTING B EDDING; WORM BURROWS
81	205.10	205.15	0.05			ROCK LOSS	

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
81	205.15	205.43	0.28			MUDSTONE	SLTY. M. GY. LAM. XBDG. BRKN LITH AS ABOVE; HELMINTHOPSIS; MINOR BIO TURBATION OF SILTIER LAYERS; WORM BURRO MS
* 83	205.43	207.43	2.00			MUDSTONE	SLTY. M. GY. LAM. XBDG. BRKN LITH AS ABOVE; HELMINTHOPSIS; 25CM LAMI NATED SILT BAND WITH X-BEDDING; BANDS I N MUDSTONE FINE UPWARDS
77	207.43	207.58	0.15			ROCK LOSS	
* 75	207.58	208.19	0.61			MUDSTONE	SLTY. M. GY. LAM. WRMBU. BRKN LITH AS ABOVE; HELMINTHOPSIS SLIGHTLY L ESS COMMON; MINOR LOADING BY SLIGHTLY C OARSER SILTS; SSD; TOPS UP
* 80	208.19	209.54	1.35			MUDSTONE	SLTY. M. GY. LAM. WRMBU. BRKN LITH AS ABOVE; SSD
80	209.54	209.84	0.30			ROCK LOSS	
* 80	209.84	211.55	1.71			MUDSTONE	DK. GY. LAM. WRMBU. VBRKN MUCH LESS SILT THAN ABOVE; VERY FAINT B EDDING; FEWER HELMINTHOPSIS; TWO COAL S TRINGERS 3MM WIDE AT END OF INTERVAL

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: OGH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	211.55	211.70	0.15			MUDSTONE	DK. GY. YTHNB. BRKN LITH AS ABOVE; OCCASIONAL COAL STRINGER S 3-5MM WIDE
	211.70	212.26	0.56	06551		SILTSTONE	M. GY. MAS. BRKN MINOR QTZ VEINS WITH PYRITE INCLUDED; L OTHER 20CM SAMPLED
	212.26	212.48	0.22	06552 F		COAL	C-1. SLD MINOR THIN MUD BANDS AS WELL AS QTZ STRINGERS
	212.48	212.52	0.04	06552 F		MUDSTONE	CARB. DK. GY. MAS. SLD
	212.52	212.78	0.26	06552 F		COAL	C-1. BRKN MINOR THIN MUDDY BANDS
	212.78	212.84	0.06	06552 F		MUDSTONE	CARB. M-DK. GY. MAS. BRKN LISTRIC SURFACES
	212.84	212.95	0.11	06552 F		COAL	C-3. BRKN
	212.95	213.00	0.05	06552 F		COAL	C-4. BRKN

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	213.00	213.10	0.10	06552 F		COAL	C-2. SLD
	213.10	213.17	0.07	06552 F		MUDSTONE	CARB. DK. GY. MAS. SLD ABUNDANT PLANT FRAGMENTS MANY COALIFIED
	213.17	213.27	0.10	06552 F		COAL	C-2. BRKN THIN MUD BANDS WITHIN
	213.27	213.28	0.01	06552 F		MUDSTONE	CARB.
	213.28	213.49	0.21	06552 F		COAL	C-1. BRKN MINOR THIN MUD BANDS THROUGHOUT
	213.49	213.51	0.02	06552 F		MUDSTONE	CARB. M-DK. GY. MAS. SLD COAL STRINGERS THROUGHOUT; PLANT FRAGMENTS ABUNDANT
	213.51	213.61	0.10	06552 F		COAL	C-1. VBRKN
	213.61	214.01	0.40	06552 F		COAL	C-1. VBRKN THIN MUD BANDS NEAR BASE OF UNIT
	214.01	214.03	0.02	06552 F		COAL	C-2. BRKN ABUNDANT MUD STRINGERS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	74	214.03	214.27	0.24	06553 F	MUDSTONE	CARB. M-DK. GY. MAS. BRKN ABUNDANT PLANT FRAGMENTS THROUGHOUT
	74	214.27	214.47	0.20	06553 F	ROCK LOSS	
	74	214.47	214.52	0.05	06553 F	COAL	C-2. BRKN
	73	214.52	214.65	0.13	06553 F	COAL	C-3. BRKN MIXTURE OF MUDSTONE AND COAL BANDS AND STRINGERS
	73	214.65	214.73	0.08	06553 F	COAL	C-2. BRKN ABUNDANT MUDSTONE THROUGHOUT WITH FOSSIL FRAGMENTS PRESENT
	73	214.73	214.78	0.05	06553 F	MUDSTONE	CARB. DK. GY. MAS. SLD PLANT FRAGMENTS ABUNDANT MANY COALIFIED
	73	214.78	214.88	0.10	06553 F	COAL	C-2. BRKN
	73	214.88	214.93	0.05	06553 F	MUDSTONE	CARB. DK. GY. MAS. BRKN COAL STRINGERS AND A 5MM BAND WITHIN
	73	214.93	215.06	0.13	06553 F	COAL	C-2. BRKN MINOR MUDDY BANDS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	72	215.06	215.51	0.45	06553 F	COAL	BRKN ALTERNATING BANDS OF COAL AND MUDSTONE WITH COAL STRINGERS; APPROX 50 % OF EACH
	72	215.51	215.59	0.08	06553 F	COAL	C-3. BRKN HELL BANDED
	72	215.59	215.62	0.03	06553 F	COAL	C-3. SLD
	71	215.62	215.76	0.14	06553 F	MUDSTONE	CARB. DK. GY. MAS. BRKN POSSIBLY C-6; MINOR VITRINITE BANDS THRO UGHOUT
	71	215.76	215.99	0.23	06553 F	COAL	C-4. BRKN INTERMIXED WITH ABUNDANT MUDSTONE
	71	215.99	216.01	0.02	06553 F	MUDSTONE	CARB. DK. GY. MAS. SLD COALY STRINGERS THROUGHOUT
	71	216.01	216.08	0.07	06553 F	COAL	C-4. BRKN
	71	216.08	216.10	0.02	06553 F	MUDSTONE	CARB. DK. GY. MAS. SLD
	71	216.10	216.16	0.06	06553 F	SILTSTONE	M. GY. MAS. SLD INTENSE QTZ VEINING; SOME COALY LENSES

* DENOTES MEASURED BCA

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. TO	SEAM TO	LITHOLOGY	DESCRIPTION
	71	216.16	216.30	0.14	06553 F	COAL	C-2.VBRKN
	70	216.30	216.32	0.02	06553 F	MUDSTONE	CARB.M-DK.GY.MAS.SLD
	70	216.32	216.66	0.34	06553 F	COAL	C-2.VBRKN MUDSTONE STRINGERS THROUGHOUT
	70	216.66	216.88	0.22	06553 F	COAL	C-3.VBRKN ABUNDANT MUDSTONE STRINGERS AND THIN BANDS THROUGHOUT
	69	216.88	217.03	0.15	06553 F	COAL	C-6 PLANT FRAGMENTS THROUGHOUT
	69	217.03	217.08	0.05	06553 F	COAL	C-3.BRKN
	69	217.08	217.12	0.04	06553 F	COAL	C-2.BRKN
	69	217.12	217.13	0.01	06553 F	COAL	C-1.SLD
	69	217.13	217.37	0.24	06553 F	COAL	C-5.BRKN

* DENOTES MEASURED BCA

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. TO	SEAM TO	LITHOLOGY	DESCRIPTION
	69	217.37	217.44	0.07	06553 F	COAL	BRKN ALTERNATING THIN BANDS AND LAMINAE OF MUDSTONE AND VITRINITE
	68	217.44	217.50	0.06	06553 F	COAL	C-3.BRKN
	68	217.50	217.92	0.42	06553 F	COAL LOSS	
	68	217.92	218.02	0.10	06553 F	COAL	C-3.BRKN
	67	218.02	218.07	0.05	06553 F	SILTSTONE	M.GY.MAS.SLD QTZ VEINING WITHIN
	67	218.07	218.11	0.04	06553 F	COAL	C-2.SLD
	67	218.11	218.14	0.03	06553 F	MUDSTONE	CARB.M.GY.MAS.SLD
	67	218.14	218.20	0.06	06553 F	COAL	C-2.SLD ABUNDANT QTZ AND MUD WITHIN
	67	218.20	218.29	0.09	06553 F	COAL	C-5.BRKN ABUNDANT QTZ VEINING

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	67	218.29	218.33	0.04	06553 F	COAL	C-2. SLD ABUNDANT QTZ
	67	218.33	218.43	0.10	06553 F	MUDSTONE	CARB. M-DK. GY. MAS. BRKN ABUNDANT QTZ AND COALY STRINGERS
	67	218.43	218.53	0.10	06553 F	COAL	C-2. BRKN
	67	218.53	218.60	0.07	06553 F	COAL	C-3. BRKN
	66	218.60	218.80	0.20		ROCK LOSS	
	65	218.80	219.85	1.05	06554	MUDSTONE	M. GY. MAS. BRKN GRADATIONAL FROM CARBONACEOUS NEAR TOP TO SILTY AT BASE; TOP 20CM SAMPLED
	64	219.85	220.70	0.85		MUDSTONE	DK. GY. MAS. VBRKN VERY UNIFORM; VERY HARD; MINOR COALIFIE D PLANT HASH
	62	220.70	221.48	0.78		MUDSTONE	DK. GY. MAS. VBRKN LITH AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	60	221.48	223.33	1.85		MUDSTONE	SLTY. M. GY. LAM. BIOTR. VBRKN SILTY FINELY LAMINATED MUDSTONE; ONE 7M M THICK UNCONSOLIDATED MUD BAND; SSD; SC CURS SHOW TOPS UP; NUMEROUS SILT BANDS FINE DOWNWARDS
	63	223.33	223.55	0.22		ROCK LOSS	
	63	223.55	223.75	0.20		MUDSTONE	SLTY. M. GY. LAM. BIOTR. VBRKN FINELY LAMINATED SILTY MUDSTONE; SSD
	66	223.75	225.34	1.59		MUDSTONE	SLTY. M. GY. LAM. BIOTR. BRKN LITH AS ABOVE; MINOR LOCAL SLUMP; X-BED DING AND SCOURS SHOW TOPS UP; MINOR SHA LL MUDDY RIP UP CLASTS IN SILTIER LAYER S; SSD; BCA'S RANGE FROM 57. TO 67. DEGRE ES
	68	225.34	225.49	0.15		ROCK LOSS	

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	70	225.49	226.75	1.26		MUDSTONE	SLTY. VPR. H. GY. LAM. BIOTR. BRKN FINELY LAMINATED BUT HIGHLY BIOTURBATED AND MUCH DISRUPTION OF BEDS; PLANT HAS M(?) IN BIOTURBATED COARSER UNITS
	67	226.75	226.95	0.20		ROCK LOSS	
	65	226.95	227.67	0.72		MUDSTONE	SLTY. VPR. M. GY. LAM. BIOTR. BRKN LITH AS ABOVE
*	60	227.67	229.71	2.04		MUDSTONE	SLTY. VPR. H. GY. LAM. BIOTR. BRKN LITH AS ABOVE; SLIGHTLY LESS BIOTURBATE D THAN ABOVE; OCCASIONAL NORM BURROWS 4 MM WIDE; SCOURS SHOW TOPS UP
	62	229.71	229.98	0.27		MUDSTONE	DK. GY. LAM. BRKN MUCH LESS SILT THAN ABOVE; VERY FAINT A NO FEWER LAMINAE
*	64	229.98	231.65	1.67		MUDSTONE	DK. GY. LAM. BRKN LITH AS ABOVE
	66	231.65	233.02	1.37		MUDSTONE	DK. GY. LAM. BRKN LITH AS ABOVE; OCCASIONAL FAINT WISPY S ILT LAMINAE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	67	233.02	233.66	0.64		MUDSTONE	DK. GY. MAS. BRKN LITH AS ABOVE; FEWER SILT LAMINATIONS
*	60	233.66	235.46	1.80		MUDSTONE	DK. GY. MAS. YBRKN LITH AS ABOVE; VERY UNIFORM; NO PLANT H ASH OR SHELLS
	62	235.46	236.07	0.61		ROCK LOSS	
	63	236.07	236.38	0.31		MUDSTONE	DK. GY. VTHNB. SLD LITH AS ABOVE; FAINT MUOY LAMINAE
	64	236.38	238.06	1.68		MUDSTONE	DK. GY. VTHNB. SLD LITH AS ABOVE WITH ONE COAL RIP UP CLAS 1.4CM LONG BY 1.5CM WIDE; NUMEROUS PLAM FOSSILS AND COALIFIED PLANT MATERIAL TOWARDS BOTTOM OF INTERVAL;
	66	238.06	238.76	0.70	06555	MUDSTONE	CARB. DK. GY. MAS. BRKN COALY STRINGERS AND THIN BANDS THROUGH OUT; LOWER 20CM SAMPLED
	67	238.76	238.94	0.18	06556 E	COAL	C-1. YBRKN
	67	238.94	239.00	0.06	06556 E	COAL LOSS	

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPH BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	67	239.00	239.33	0.33	06557	MUDSTONE	CARB. M-DK. GY. MAS. BRKN BECOMES SILTY AT BASE; UPPER 20CM SAMPL ED
	67	239.33	239.55	0.22		SANDSTONE	CLYY. FG. PR. LT. M. GY. THNB. BRKN FINE MUDDY LAMINAE WITHIN
	68	239.55	240.05	0.50		SANDSTONE	SLTY. VFG. M. GY. THNB. BRKN INTERBEDDED MUDDY SILTSTONE AND VFG SAN DSTONE BEDS; LAMINATED TO THINLY BEDDED
*	70	240.05	242.18	2.13		SANDSTONE	SLTY. FG. VPR. LT. GY. VTHNB. WRMBU. BRKN SILT BANDS OF VARYING WIDTHS (1-30MM) T HROUGHOUT; SOME POLISHED FRACTURE SURFA CES WITH TALC AND CHLORITE INFILL; VERT WORM BURROWS 3-4MM WIDE
	70	242.18	242.29	0.11		ROCK LOSS	
	70	242.29	242.53	0.24		SANDSTONE	SLTY. FG. VPR. LT. GY. VTHNB. SLD AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPH BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	70	242.53	244.18	1.65		SANDSTONE	SLTY. FG. VPR. LT. GY. VTHNB. WRMBU. BRKN LITH AS ABOVE; WITH A 16CM THICK CALCAR EOUS MUDSTONE BAND; NUMEROUS VERT WORM BURROWS 7-10MM WIDE; SOME SHEARING AND SLICKENSIDES
	69	244.18	245.37	1.19		SANDSTONE	SLTY. FG. VPR. LT. GY. VTHNB. BRKN LITH AS ABOVE BUT NO WORM BURROWS
	68	245.37	246.11	0.74		SANDSTONE	SLTY. FG. VPR. LT. GY. VTHNB. BRKN LITH AS ABOVE; SOME SHEARING AND SLICKE NSIDES
*	68	246.11	246.70	0.59		SANDSTONE	SLTY. FG. VPR. LT. GY. VTHNB. SLD LITH AS ABOVE
	69	246.70	248.24	1.54		SILTSTONE	CLYY. M. GY. LAM. SLD FINELY LAMINATED MUDDY SILTSTONE; BANDS FINE UPWARDS FROM DARK CLAYSTONE TO LI GHTER SILTSTONE
	69	248.24	248.36	0.12		SILTSTONE	CLYY. M. GY. LAM. SLD AS ABOVE
*	70	248.36	250.22	1.86		SILTSTONE	CLYY. M. GY. LAM. WRMBU. SLD LITH AS ABOVE; MINOR HELMINTHOPSTIS; CAL CAREOUS MUDSTONE BAND 13CM WIDE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DCRB5018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	70	250.22	251.36	1.14		SILTSTONE	CLYY.M.GY.LAM.SLD LITH AS ABOVE
*	70	251.36	252.26	0.90		SILTSTONE	CLYY.M.GY.LAM.SLD LITH AS ABOVE
	71	252.26	252.83	0.57		SANDSTONE	YFG.LT.GY.MAS.SLD
	72	252.83	254.88	2.05		SANDSTONE	SLTY.FG.VPR.LT.GY.LAM.XBDG.BRKN FINE WISPY SILT LAMINAE THROUGHOUT; TAL C ON FRACTURE SURFACES; BCA'S RANGE FRO M 45 TO 75 DEGREES; LARGE SCALE X-BEDDI NG?
*	73	254.88	256.64	1.76		SANDSTONE	SLTY.FG.VPR.LT.GY.LAM.XBDG.BRKN LITH AS ABOVE; 4CM WIDE QTZ VEIN ABOUT PARALLEL TO CORE
	66	256.64	257.61	0.97		SILTSTONE	M.GY.VTHNB.SLD
*	60	257.61	258.65	1.04		SILTSTONE	M.GY.LAM.HRMBU.SLD HELMINTHOPSIS AND 1CM DIAMETER VERT. HOR M BURROWS

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DCRB5018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	68	258.65	259.13	0.48		MUDSTONE	SLTY.M-DK.GY.THNB.BRKN INTERBEDDED MUDSTONE AND SANDY SILTSTON E
	60	259.13	259.21	0.08		MUDSTONE	SLTY.M-DK.GY.THNB.SLD BRECCIATED MUDSTONE WITHIN QTZ VEIN
*	45	259.21	260.22	1.01		MUDSTONE	SLTY.M-DK.GY.THNB.BRKN INTERBEDDED MUDSTONE AND SANDY SILTSTON E
	45	260.22	260.40	0.18	06558	MUDSTONE	CLYY.M-DK.GY.MAS.BRKN POORLY CONSOLIDATED
	45	260.40	260.56	0.16	06559 D	COAL LOSS	
	45	260.56	260.73	0.17	06559 D	COAL	C-6.VBRKN VERY LISTRIC SURFACES
	45	260.73	260.76	0.03	06559 D	COAL	C-2.SLD MUDDY STRINGERS WITHIN
	45	260.76	260.85	0.09	06559 D	COAL	C-2.BRKN
	45	260.85	260.99	0.14	06559 D	COAL	C-3.BRKN

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	45 260.99	261.09	0.10	06559	D	MUDSTONE	CARB. YBRKN VERY LISTRIC
	45 261.09	261.10	0.01	06559	D	COAL	C-2.SLD
	45 261.10	261.35	0.25	06559	D	MUDSTONE	CARB. DK. GY. BRKN LISTRIC
	45 261.35	261.57	0.22	06559	D	COAL	C-3.YBRKN
	45 261.57	261.70	0.13	06559	D	COAL	C-6.BRKN
	45 261.70	261.79	0.09	06559	D	MUDSTONE	CARB. M-DK. GY. MAS. BRKN COALY STRINGERS THROUGHOUT
	45 261.79	262.02	0.23	06560	D	COAL	C-2.PHRD
	45 262.02	262.03	0.01	06560	D	MUDSTONE	CARB. M-DK. GY. MAS. SLD
	45 262.03	262.31	0.28	06560	D	COAL	C-2.PHRD
	45 262.31	262.37	0.06	06560	D	COAL	C-4.SLD

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	45 262.37	262.92	0.55	06560	D	COAL LOSS	
	45 262.92	263.07	0.15	06560	D	COAL	C-6.BRKN VERY LISTRIC
	45 263.07	263.32	0.25	06561		MUDSTONE	CARB. DK. GY. MAS. YBRKN UPPER 14CM VERY POORLY CONSOLIDATED. CLAYSTONE
	45 263.32	264.80	1.48			MUDSTONE	CARB. DK. GY. MAS. BRKN VERY UNIFORM; OCCASIONAL GASTROPODS 2CM WIDE; 2 PIECES OF COALIFIED PLANT OBSERVED.
	45 264.80	266.82	2.02			MUDSTONE	CARB. DK. GY. MAS. BRKN LITH AS ABOVE; GASTROPODS; BIVALVES; DISSEMINATED PYRITE; ONE COAL STRINGER 5M WIDE
	45 266.82	267.66	0.84			MUDSTONE	CARB. DK. GY. MAS. BRKN LITH AS ABOVE; SHEARED; SLICKENSIDES
	45 267.66	268.87	1.21			SILTSTONE	CLAY. M. GY. MAS. BIOTR. BRKN GRADATIONAL UPPER CONTACT: ZONE 11CM HI DE HIGHLY BIOTURBATED OCCASIONAL DARK MUDSTONE STREAKS THROUGHOUT

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: D0885018

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
45	268.87	269.02	0.15			MUDSTONE	CARB. DK. GY. MAS. VBRKN VERY CARB COAL STREAKS .5-4MM WIDE THRO UGHOUT; MUCH COALIFIED PLANT MATERIAL
45	269.02	270.48	1.46		C	MUDSTONE	CARB. DK. GY. MAS. SSD. VBRKN LITH AS ABOVE WITH A VERY BROKEN COAL B AND 7CM WIDE (C-2); SILTIER WITH SSD (C GRADING) AND MUDDY LAYERS IN LOWER .45M
45	270.48	272.01	1.53			SILTSTONE	CLYY. VPR. M. GY. VTHNB. WRMBU. SLD SILTSTONE WITH MUDDY LAYERS THROUGHOUT; 1CM WIDE VERY WORM BURROWS THROUGHOUT MUDDY BANDS
45	272.01	272.59	0.58			SILTSTONE	CLYY. VPR. M. GY. VTHNB. WRMBU. SLD LITH AS ABOVE; ONE .3CM WIDE CARB. MUD AN D ANKERITE BAND
45	272.59	274.75	2.16			SILTSTONE	SSY. VPR. M. GY. VTHNB. WRMBU. SLD VERY THINLY BEDDED SILTSTONE WITH LAYER S GRADING FROM MUDSTONE TO FG SANDSTONE ; OCCASIONAL 1-2CM WIDE VERT. WORM BURRO W

* DENOTES MEASURED BCA
NEWPAGE

Gulf Canada Resources Inc. Coal Division

Geophysical Log

Datasource: **KPNLRDDH85018**

Province: BC

Northing: 6344970.00

Lat: 571459

Log Date: 85-07-24

Zone: 9

Easting: 505470.00

Long: 1285434

Company: CENTURY

Measuring Point:

Elevation: 1593.0

Geologist: BARKER

Scale: 1 to 100.0

Depth Range: 0.0 to 280.0

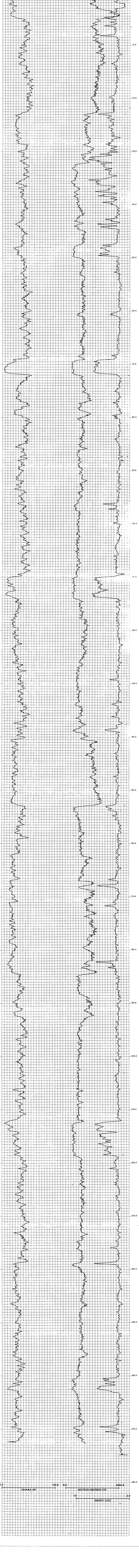
True Thickness: NO

Comments:

1. LOGGED THROUGH THE RODS

2.

Logs Plotted:	Axis Range	Axis Length	Smoothing Points	Tool	Comments
1. GAMMA API	0.0 to 150.0	10.0	31	9030A	IN PIPE
2. NEUTRON-NEUTRON CPS	0.0 to 2500.0	10.0	9	9055A	IN PIPE
3. DENSITY G/CC	1.0 to 3.0	10.0	15	9030A	IN PIPE

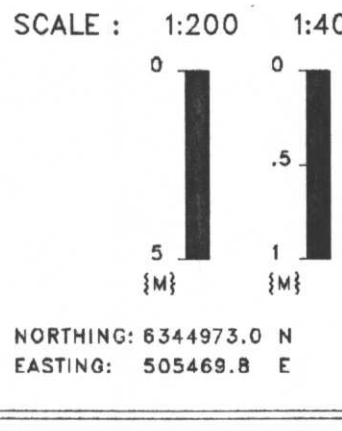


GULF CANADA RESOURCES INC.
 COAL DIVISION
 KLAPPAN PROJECT
 STRATIGRAPHIC LOG
 KPN LR DDH85018

GEOLOGIST : BARKER

DATE : JAN 08/86

DRAWING NO. :



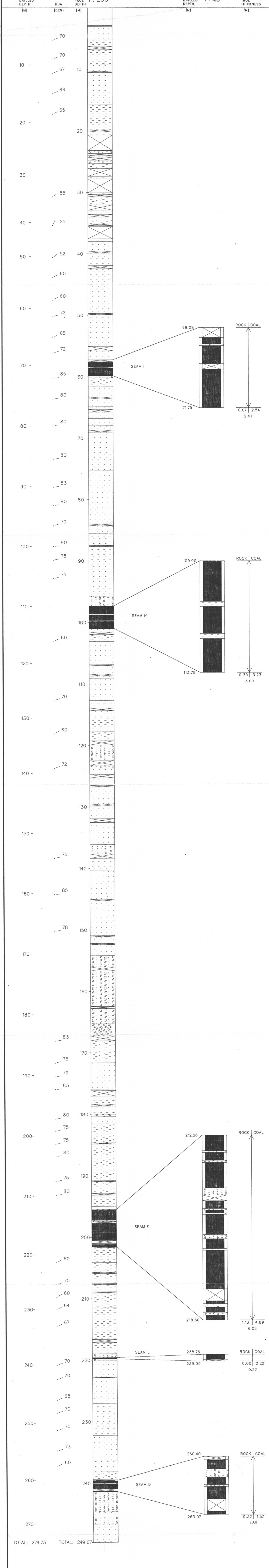
NORTHING: 6344973.0 N
 EASTING: 505469.8 E

INCLINATION: 60.0°
 BEARING: 10.0°

LITHOLOGIC SYMBOLS

	SANDSTONE		BENTONITE
	SILTSTONE		BRECCIA
	COAL		CARBONACEOUS
	OVERBURDEN		QUARTZ
	MUDSTONE, CLAYSTONE		PYRITE
	TUFF		FERRUGINOUS
	LIMESTONE		CONGLOMERATE
	CORE LOSS		FOSSIL BED

SEAM DETAIL



TOTAL: 274.75 TOTAL: 249.67

KPNLRDDH85019

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH85019

DATE - 01/09/86

- HISTORY -

START DATE - 07/21/85
END DATE - 07/23/85

CONTRACTOR - J T THOMAS
GEOLOGIST - BUHAY

OPERATOR - GCRI
SURVEYOR - MWG & ASS

REMARKS -

- LOCATION -

PROVINCE - BC
ELEVATION - 1573.54

ZONE - 9
NORTHING - 6345160.00
EASTING - 506845.00

LICENCE/LEASE NUMBER - 7169

LATITUDE - 571505
LONGITUDE - 1285312

- ORIENTATION -

LENGTH - 155.99

INCLINATION - 75.0
AZIMUTH - 360.0

CORE SIZE - 0.0

CEMENT -
PLUG -
PIEZ -

CASING DEPTH (M) - 9.10
AQUIFER DEPTHS (M) - 0.00
0.00
LOST CIRC. DEPTHS (M) - 0.00
0.00

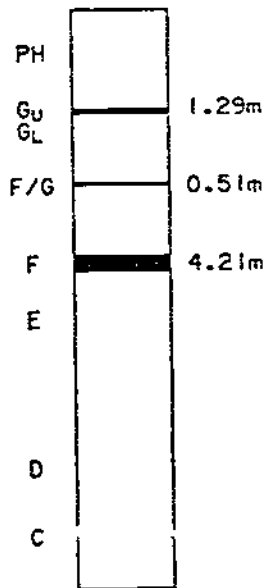
*** NOTE *** 0 INDICATES NO VALUE



MT. KLAPPAN COAL PROPERTY

1985 DIAMOND DRILL HOLES
DDH85019

SEAM TRUE SEAM THICKNESS
 (COAL & ROCK)



NOTE: SCHEMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm COAL.

SCALE: 1:2000

GULF CANADA RESOURCES INC.
15/01/86



86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	9.10	9.10			CASING	
* 88	9.10	9.90	0.80			SILTSTONE	CLYY.FG.PR.H.GY.LAM.SSD.BRKN INTERBEDDED SILTSTONE AND MUDSTONE; GRADING SHOWS UPRIGHT BEDS; MORE SILT IN PROPORTION TO MUD
88	9.90	10.51	0.61			SILTSTONE	CLYY.FG.PR.H.GY.LAM.SSD.BRKN GETS MUDDY TOWARDS BOTTOM OF UNIT; ABUNDANT PLANT FRAGMENTS
87	10.51	10.71	0.20		PHANTOM	MUDSTONE	SLTY.FG.MOD.LT.BLK.LAM.RTB.BRKN PLANT FRAGMENTS ABUNDANT; OCCASIONAL COAL STRINGERS WITHIN MUDSTONE
87	10.71	11.11	0.40		PHANTOM	MUDSTONE	SLTY.FG.PR.LT.BLK.LAM.RTB.BRKN AS ABOVE
87	11.11	11.21	0.10		PHANTOM	MUDSTONE	CARB.FG.PR.M.BLK.LAM.RTB.BRKN ABUNDANT PLANT FRAGMENTS; COAL STRINGERS

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 2

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
87	11.21	12.41	1.20		PHANTOM	MUDSTONE	CARB.FG.PR.H.BLK.YTHNB.RTB.BRKN THIN BED OF COAL (C-2) 2CM THICK 10CM F ROM TOP OF BOX; ALSO 3CM OF C-2 COAL 50 CM DOWN
87	12.41	12.53	0.12			SILTSTONE	CLYY.FG.PR.H.GY.LAM.SSD.BRKN INTERBEDDED SANDSTONE AND MUDSTONE MORE SILT THAN MUD
87	12.53	12.53	0.10			SILTSTONE	CLYY.FG.PR.H.GY.LAM.SSD.BRKN AS ABOVE
86	12.53	13.55	0.92			SILTSTONE	CLYY.FG.PR.H.GY.LAM.SSD.BRKN AS ABOVE
86	13.55	14.55	1.00			SILTSTONE	CLYY.FG.PR.H.GY.LAM.SSD.BRKN SOME WORM BURROWS; BIOTURBATION; UPRIGHT BEDS
85	14.55	15.95	1.40			SILTSTONE	CLYY.FG.PR.H.GY.LAM.SSD.BRKN AS ABOVE
* 85	15.95	16.11	0.16			SILTSTONE	CLYY.FG.PR.H.GY.LAM.SSD.BRKN AS ABOVE
85	16.11	17.98	1.87			SILTSTONE	CLYY.FG.PR.H.GY.LAM.SSD.BRKN AS ABOVE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 3

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 85	17.98	18.43	0.45			SILTSTONE	CLY. FG. PR. M. GY. LAM. SSD. BRKN AS ABOVE
85	18.43	18.76	0.33			SANDSTONE	SLTY. FG. MOD. LT. GY. MAS. SLD DIFFICULT TO DETERMINE BEDDING; MASSIVE FINE SANDS; FRACTURES 75 DEGREES TO BEDDING; NO EVIDENCE OF MOVEMENT
85	18.76	19.78	1.02			SANDSTONE	SLTY. FG. MOD. LT. GY. MAS. BRKN AS ABOVE
84	19.78	21.78	2.00			SANDSTONE	SLTY. FG. MOD. LT. GY. MAS. SLD AS ABOVE
83	21.78	23.64	1.86			SANDSTONE	SLTY. FG. MOD. LT. GY. MAS. SLD AS ABOVE
83	23.64	24.75	1.11			SANDSTONE	SLTY. FG. MOD. LT. GY. MAS. SLD LITTLE EVIDENCE OF SHEARING ALONG FRACTURES
82	24.75	25.37	0.62			SANDSTONE	CLY. FG. PR. M. GY. MAS. SLD SANDSTONE BECOMES DARKER AND SLIGHTLY COARSER GRAINED; GET MORE MUD DRAPES AND THIN BEDS OF MUD
* 82	25.37	26.21	0.84	06517		SANDSTONE	CLY. FG. PR. M. GY. MAS. SSD. SLD AS ABOVE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 4

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
82	26.21	26.24	0.03	06518	G UPPER	COAL	C-3 SLD MIXED WITH ABUNDANT THIN MUDSTONE BANDS
82	26.24	26.32	0.08	06518	G UPPER	COAL	C-1. BRKN
82	26.32	26.33	0.01	06518	G UPPER	MUDSTONE	CARB. M-DK. GY. SLD
83	26.33	26.47	0.14	06518	G UPPER	COAL	C-1
82	26.47	26.54	0.07	06518	G UPPER	ROCK LOSS	
83	26.54	26.60	0.06	06518	G UPPER	MUDSTONE	CARB. DK. GY. MAS. BRKN VERY CARBONACEOUS APPROACHING C-6; ABUNDANT COALY STRINGERS THROUGHOUT
83	26.60	26.61	0.01	06518	G UPPER	COAL	C-1. BRKN
83	26.61	26.66	0.05	06518	G UPPER	MUDSTONE	CARB. DK. GY. MAS. BRKN VERY CARBONACEOUS APPROACHING C-6; COAL Y. STRINGERS WITHIN
83	26.66	26.79	0.13	06518	G UPPER	MUDSTONE	M-DK. GY. MAS. BRKN

* DENOTES MEASURED BCA

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86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 5

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	26.79	26.86	0.07	06518	G UPPER	ROCK LOSS	
	26.86	26.92	0.06	06518	G UPPER	COAL	C-2 BRKN THIN MUDSTONE BANDS WITHIN
	26.92	26.95	0.03	06518	G UPPER	MUDSTONE	CARB. DK. GY. SLD COALY STRINGERS THROUGHOUT
	26.95	27.15	0.20	06518	G UPPER	ROCK LOSS	
	27.15	27.23	0.08	06518	G UPPER	COAL	C-2 BRKN MIXED WITH ABUNDANT THIN BANDS OF MUDST. ONE
	27.23	27.33	0.10	06518	G UPPER	MUDSTONE	CARB. DK. GY. BRKN COALY STRINGERS WITHIN
	27.33	27.38	0.05	06518	G UPPER	ROCK LOSS	
	27.38	27.51	0.13	06518	G UPPER	COAL	C-2 SLD WELL BANDED EQUAL BRIGHT AND DULL
	27.51	27.74	0.23	06519		MUDSTONE	M-DK. GY. VBRKN CARBONACEOUS AT TOP OF UNIT (COALY STRINGERS WITHIN); BECOMES LESS CARB TOWARDS BASE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 6

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	27.74	27.75	0.01	06520		ROCK LOSS	
	27.75	29.77	2.02	06520		MUDSTONE	CARB. FG. MOO. M. BLK. LAM. RTS. VBRKN ABUNDANT PLANT FRAGMENTS ALONG LAMINATIONS; MUDSTONE TENDS TO BE ABIT SILTY; OCCASIONAL COAL STRINGERS PRESENT RANGING FROM 2-5MM IN WIDTH; COAL STRINGERS PRESENT NEAR BOTTOM OF BOX (1.5M DOWN)
	29.77	30.50	0.73	06520		MUDSTONE	CARB. DK. GY. MAS. VBRKN ABUNDANT PLANT FRAGMENTS SOME COALIFIED
	30.50	30.55	0.05	06521	G LOWER	COAL	C-2 SLD MUDSTONE BANDS (THIN) THROUGHOUT
	30.55	30.80	0.25	06521	G LOWER	ROCK LOSS	
	30.80	30.84	0.04	06521	G LOWER	MUDSTONE	CARB. DK. GY. MAS. BRKN COALY STRINGERS THROUGHOUT
	30.84	30.85	0.01	06521	G LOWER	COAL	C-2 SLD
	30.85	31.08	0.23	06521	G LOWER	MUDSTONE	CARB. DK. GY. MAS. VBRKN COALY STRINGERS WITHIN; LISTRIC SURFACE S; ABUNDANT PLANT FRAGMENTS

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 7

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	31.08	31.12	0.04	06521	G. LOHER	MUDSTONE	CARB. DK. GY. MAS. BRKN AS ABOVE
	31.12	31.13	0.01	06521	G. LOHER	COAL	C-1.5LD
	31.13	31.26	0.13	06521	G. LOHER	MUDSTONE	CARB. DK. GY. MAS. BRKN COAL STRINGERS THROUGHOUT
	31.26	31.51	0.25	06522	G. LOHER	COAL	C-1. BRKN.
	31.51	31.68	0.17	06522	G. LOHER	COAL	C-2. BRKN.
	31.68	31.75	0.07	06522	G. LOHER	MUDSTONE	CARB. DK. GY. MAS. YBRKN MINOR COALY STRINGERS; PLANT FRAGMENTS
	31.75	31.78	0.03	06522	G. LOHER	COAL	C-2. BRKN
	31.78	31.86	0.08	06523		MUDSTONE	CARB. DK. GY. MAS. YBRKN ABUNDANT PLANT FRAGMENTS
	31.86	32.03	0.17			MUDSTONE	CARB. FG. MOD. M. BLK. LAM. RTB. YBRKN MUDSTONE GETS SILTY TOWARDS BOTTOM; GRADES INTO UNDERLYING SILTSTONE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 8

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 88	32.03	33.89	1.86			SILTSTONE	CLYY. FG. PR. LT. BLK. VTHNB. SSD. BRKN INTERBEDDED SILTSTONE AND MUDSTONE; SSD AND SOME BURROWING (VERT) INDICATES UP RIGHT BEDS; SILTSTONE MORE MUDDY AT TOP OF UNIT; SCH OF CLAY .3M FROM TOP OF UNIT-MAY BE DRILLING MUD
* 80	33.89	34.29	0.40			SILTSTONE	SSY. MG. MOD. M. GY. VTHNB. SSD. BRKN SILTSTONE GETS SANDY; SOME BURROWS INDICATING UPRIGHT BEDS
80	34.29	35.78	1.49			SILTSTONE	SSY. MG. MOD. M. GY. VTHNB. SSD. BRKN AS ABOVE
* 79	35.78	36.49	0.71			SILTSTONE	SSY. MG. MOD. M. GY. MAS. BIOTR. SLD BIOTURBATION DESTROYED MOST OF BEDDING; VERY SANDY SILT HERE; BURROWS INDICATE UPRIGHT BEDDING
81	36.49	36.92	0.43			SILTSTONE	SSY. MG. MOD. M. GY. VTHNB. SSD. BRKN LESS BIOTURBATION; MORE INTERBEDDED SILTSTONE AND MUDSTONE
83	36.92	37.65	0.73			SILTSTONE	SSY. MG. MOD. M. GY. VTHNB. SSD. BRKN AS ABOVE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 85	37.65	37.85	0.20			SILTSTONE	CLYY.FG.PR.LY.BLK.LAM.SSD.BRKN SILTSTONE GETS MUDDY; GRADES INTO MUDST ONE UNIT BELOW
85	37.85	39.37	1.52			MUDSTONE	SLTY.FG.PR.DK.BLK.LAM.SSD.BRKN MUDSTONE WITH THIN INTERBEDS OF SILTSTO NE; SOME SOFT SEDIMENT DEFORMATION; SOM E VEIN FILLING PARALLEL TO BEDDING
84	39.37	39.83	0.46			SANDSTONE	CLYY.FG.PR.M.GY.THNB.SSD.SLD SANDSTONE WITH LENSES OF MUD; .01-.2M T HICK IRREGULARLY SPACED
* 84	39.83	40.08	0.25			SANDSTONE	CLYY.FG.PR.M.GY.THNB.SSD.BRKN AS ABOVE
84	40.08	41.87	1.79			SANDSTONE	CLYY.FG.PR.M.GY.THNB.SSD.BRKN SAND GETS FINER TOWARDS BASE OF UNIT
85	41.87	41.92	0.05			MUDSTONE	SLTY.FG.MOD.DK.BLK.LAM.SSD.BRKN MUDSTONE SILTY AT TOP OF UNIT
* 85	41.92	43.28	1.36			MUDSTONE	SLTY.FG.MOD.DK.BLK.LAM.SSD.YBRKN AS ABOVE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 10

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
84	43.28	43.92	0.64			MUDSTONE	SLTY.FG.MOD.DK.BLK.LAM.SSD.BRKN MUDSTONE STARTS TO GET LESS SILTY AND D ARKER-MORE CARBONACEOUS; SOME PLANT FRA GMENTS SEEN IN BEDDING PLANES
82	43.92	45.91	1.99			MUDSTONE	SLTY.FG.MOD.DK.BLK.LAM.SSD.BRKN AS ABOVE
81	45.91	46.09	0.18	06524		MUDSTONE	M-DK.GY.MAS.YBRKN
81	46.09	46.16	0.07	06524		MUDSTONE	PBLY.M.GY.MAS.SLD ABUNDANT PEBBLE SIZED CARBONATE BLEBS A ND SHELL FRAGMENTS THROUGHOUT; WISPY CA RBONATE LAMINAE ALSO PRESENT
80	46.16	46.21	0.05	06525 F/G		COAL	C-3.SLD ABUNDANT MUDDY LAMINAE
80	46.21	46.31	0.10	06525 F/G		COAL	C-2.BRKN STRINGERS AND THIN BANDS OF C-1 AND MUD STONE
80	46.31	46.35	0.04	06525 F/G		COAL	C-6.BRKN VERY CARBONACEOUS MUDSTONE; COAL PARTIC LES THROUGHOUT
80	46.35	46.42	0.07	06525 F/G		COAL	C-2.YBRKN MUD STRINGERS THROUGHOUT

* DENOTES MEASURED BCA

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86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	00	46.42	46.58	0.16	06525	F/G	COAL LOSS
	80	46.58	46.61	0.03	06525	F/G	COAL C-1.SLD
	80	46.61	46.66	0.05	06525	F/G	COAL C-2.SLD
	80	46.66	46.68	0.02	06525	F/G	COAL C-4.BRKN THIN VITRINITE BANDS THROUGHOUT
	79	46.68	47.28	0.60	06526		MUDSTONE CARB.DK.GY.MAS.BRKN THIN VITRINITE BAND IN CENTER
	79	47.28	47.36	0.08			COAL LOSS
	79	47.36	47.37	0.01			COAL C-1.SLD VITRINITE BAND
	79	47.37	47.97	0.60			MUDSTONE CARB.DK.GY.MAS.BRKN COALY STRINGERS AND THE ODD THIN BAND THROUGHOUT
	78	47.97	47.98	0.01			COAL C-1.PHRD
	78	47.98	48.03	0.05			MUDSTONE CARB.DK.GY.MAS.BRKN COALY STRINGERS THROUGHOUT

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 12

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	78	48.03	48.69	0.66			MUDSTONE CARB.DK.GY.MAS. CARBONACEOUS IN PATCHES; VERY MINOR COALY STRINGERS IN CARBONACEOUS ZONES; PLANT FRAGMENTS THROUGHOUT
	77	48.69	48.76	0.07			COAL C-6.VBRKN
	77	48.76	49.12	0.36			MUDSTONE CARB.DK.GY.MAS.BRKN
	77	49.12	49.23	0.11			SILTSTONE M.GY.MAS.SLD
	76	49.23	50.13	0.90			MUDSTONE M-DK.GY.MAS.BRKN CARBONACEOUS IN PLACES; COALY STRINGERS WITHIN; 1CM VITRINITE AT START OF UNIT
	75	50.13	50.21	0.08			ROCK LOSS

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 13

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 74	50.21	50.72	0.51			MUDSTONE	SLTY. FG. PR. DK. BLK. LAM. BRKN MUDSTONE GETS SILTY TOWARDS BASE OF UNIT; ALSO STILL PLANT FRAGMENTS WITHIN THE BEDDING PLANES
75	50.72	52.27	1.55			SILTSTONE	CLYY. FG. PR. DK. GY. LAM. SSD. BRKN SILTY AND MUDDY LENSES INTERBEDDED AND DEFORMED DUE TO SSD; VERY THIN COAL STR INGERS THROUGHOUT THE MUD LENSES; ALTER NATING ZONES OF SILT AND MUD DOMINATION
* 75	52.27	52.39	0.12			SILTSTONE	CLYY. FG. PR. DK. GY. LAM. SSD. BRKN AS ABOVE
78	52.39	54.19	1.80			SILTSTONE	CLYY. FG. PR. DK. GY. LAM. SSD. BRKN AS ABOVE
82	54.19	54.39	0.20			SANDSTONE	PBLY. MG. MOD. M. GY. MAS. SLD SS WITH INPUTS OF COARSER GRAINS THROUGH OUT; SOME MINOR MUD LENSES (THIN COAL STRINGERS WITHIN LOCALIZED MUDDY AREAS) ; CORE USUALLY BREAKS ALONG THESE PLANE ; SOME FRACTURES 70 DEGREES TO SS BEDD ING
* 84	54.39	55.47	1.08			SANDSTONE	PBLY. MG. MOD. M. GY. MAS. SLD AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
83	55.47	56.52	1.05			SANDSTONE	PBLY. MG. MOD. M. GY. MAS. SLD AS ABOVE
* 81	56.52	58.59	2.07			SANDSTONE	PBLY. MG. MOD. M. GY. MAS. SLD AS ABOVE
* 65	58.59	60.72	2.13			SANDSTONE	PBLY. MG. MOD. M. GY. MAS. SLD AS ABOVE
* 86	60.72	61.62	0.90			SANDSTONE	PBLY. MG. MOD. M. GY. MAS. LENSES OF COAL BECOME LESS ABUNDANT; CO AL FRAGMENTS INSTEAD DOMINATE
83	61.62	62.83	1.21			SANDSTONE	PBLY. MG. MOD. M. GY. MAS. AS ABOVE
81	62.83	63.14	0.31	06527		SANDSTONE	PBLY. MG. PR. LY. GY. MAS. SLD PEBBLY CLASTS THROUGHOUT; QTZ VEINING P ROMINENT
81	63.14	63.32	0.18	06528 F		COAL	C-3. PHRD
80	63.32	63.37	0.05	06528 F		MUDSTONE	CARB. DK. GY. MAS. SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
80	63.37	63.67	0.30	06528	F	COAL	C-2.BRKN
78	63.67	64.62	0.95	06529	F	SANDSTONE	PBLY.MG.LT.GY.MAS.SLD ABUNDANT OTZ AND SIDERITE FILLED VEINS; 1-3CM RIP UP CLASTS NEAR TOP. LOCALIZE D' PEBBLY BANDS
77	64.62	64.74	0.12	06529	F	SANDSTONE	PBLY.MG.LT.GY.MAS.SLD AS ABOVE
76	64.74	64.99	0.25	06529	F	SANDSTONE	PBLY.MG.LT.GY.MAS.SLD AS ABOVE; MUDSTONE AND COAL RIP UP AT B ASE
76	64.99	65.08	0.09	06529	F	ROCK LOSS	
75	65.08	65.40	0.32	06529	F	MUDSTONE	SLTY.M.GY.MAS.BRKN
74	65.40	65.65	0.25	06529	F	SANDSTONE	SLTY.VFG.M.GY.MAS.BRKN MUDDY
74	65.65	65.75	0.10	06530	F	COAL	C-3.VBRKN LISTRIC

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
74	65.75	65.77	0.02	06530	F	MUDSTONE	CARB.DK.GY.YBRKN
74	65.77	65.89	0.12	06530	F	COAL	C-3.VBRKN LISTRIC
73	65.89	65.91	0.02	06530	F	MUDSTONE	CARB.DK.GY.YBRKN
73	65.91	65.99	0.08	06530	F	COAL	C-3.VBRKN LISTRIC
73	65.99	66.04	0.05	06530	F	PYRITE	SLD COALY
73	66.04	66.19	0.15	06530	F	ROCK LOSS	
72	66.19	66.69	0.50	06531	F	COAL	C-2.VBRKN LISTRIC; POWDERS
71	66.69	67.09	0.40	06531	F	COAL	C-2.VBRKN LISTRIC; POWDERS
70	67.09	67.22	0.13	06531	F	COAL	C-3.VBRKN LISTRIC
69	67.22	67.96	0.74	06531	F	COAL	C-2.BRKN MUDDY WITHIN; VERY CONTORTED

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	67.90	68.18	0.22	06531	F	COAL LOSS	
	68.18	68.44	0.26	06531	F	COAL	C-2.BRKN
	68.44	68.46	0.02	06531	F	MUDSTONE	CARB.DK.GY.MAS.SLD
	68.46	68.84	0.38	06531	F	ROCK LOSS	
	68.84	69.26	0.42	06531	F	COAL	C-3.BRKN MINOR MUDSTONE STRINGERS WITHIN
	69.26	70.20	0.94	06531	F	COAL	C-3 CONTAINS BANDS (MED) OF C-2 AND MUDSTON E AS WELL AS DOMINANTLY C-2 COAL MINOR QTZ VEINLETS WITHIN
	70.20	71.20	1.00	06532		SILTSTONE	M.GY.MAS.WRMBU.BRKN SILTSTONE WITH FINE LAMINAE OF MUDSTONE WITHIN; TOPS UP AS INDICATED BY NORM 8 URRONS
* 58	71.20	72.20	1.00			SILTSTONE	CLYY.FG.PR.DK.GY.VTHNB.SSD.SLD SILT WITH MUD LENSES; LOTS OF QTZ VEINI NG PERPENDICULAR TO BEDDING

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	72.20	72.52	0.32			MUDSTONE	SLTY.FG.MOD.H.BLK.LAM.SSD.BRKN QTZ VEINING PRESENT MORE PARALLEL TO BE DDING; APPEARS TO BE SOME MOVEMENT ALON G SOME OF THE FRACTURES
	72.52	72.82	0.30			MUDSTONE	SLTY.FG.MOD.H.BLK.LAM.SSD.BRKN AS ABOVE
	72.82	73.07	0.25			ROCK LOSS	
	73.07	73.30	0.23			MUDSTONE	SLTY.FG.MOD.H.BLK.LAM.SSD.BRKN AS ABOVE; CORE LOSS
* 64	73.30	73.51	0.21			MUDSTONE	SLTY.FG.MOD.H.BLK.LAM.SSD.BRKN AS ABOVE
	73.51	75.21	1.70			SILTSTONE	CLYY.FG.PR.H.GY.VTHNB.SSD.BRKN SILT AND MUD LENSES ALTERNATE IN ABUNDA NCE; LOTS OF SSD; SOME QTZ VEINING (TWO SETS-ONE RUNNING PERPENDICULAR TO BEDD ING-OTHER RUNNING PARALLEL TO BEDDING)
* 57	75.21	75.72	0.51			SILTSTONE	CLYY.FG.PR.H.GY.VTHNB.SSD.BRKN AS ABOVE
	75.72	76.98	1.26			SILTSTONE	CLYY.FG.PR.H.GY.VTHNB.SSD.BRKN AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 55	76.98	77.68	0.70			SILTSTONE	CLYY.FG.PR.H.GY.VTHNB.SSD.BRKN AS ABOVE
56	77.68	77.78	0.10			SANDSTONE	SLTY.FG.MOD.H.GY.THNB.SSD.SLD THIN MUD DRAPES INTERBEDDED WITH THICKER SANDS; QTZ VEINING APPROX PERPENDICULAR TO BEDDING
56	77.78	78.13	0.35			SILTSTONE	CLYY.FG.PR.DK.GY.LAM.SSD.SLD THINLY LAMINATED SILT AND MUD; ONE QTZ VEIN WITH BRECCIA PARALLEL TO BEDDING
57	78.13	78.95	0.82			SANDSTONE	SLTY.FG.MOD.H.GY.THNB.SSD.SLD THICK SAND LENSES (2CM); THIN MUD DRAPE S (1.1CM); QTZ VEINING PERPENDICULAR TO BEDDING
* 58	78.95	79.03	0.08			SANDSTONE	SLTY.FG.MOD.H.GY.THNB.SSD.SLD AS ABOVE
58	79.03	80.68	1.65			SILTSTONE	CLYY.FG.PR.H.GY.LAM.SSD.BRKN SILT AND MUDSTONE THINLY LAMINATED; SOME BIOTURBATION EVIDENCE; LOTS OF QTZ VEINING; X-BEDDING AT 72 DEGREES EVIDENCE OF MOVEMENT ALONG THESE FRACTURE SURFACES

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
57	80.68	80.98	0.30			SILTSTONE	CLYY.FG.PR.H.GY.LAM.SSD.BRKN AS ABOVE
57	80.98	81.23	0.25			SANDSTONE	SLTY.FG.MOD.LT.GY.MAS.SLD MASSIVE BEDS OF SANDSTONE WITH MUD DRAPES APPROX 1MM THICK OCCURRING AT A .02-.03M INTERVAL
57	81.23	81.57	0.34			SANDSTONE	SLTY.FG.MOD.LT.GY.MAS.SLD AS ABOVE
* 57	81.57	82.57	1.00			SILTSTONE	SSY.FG.PR.H-DK.GY.LAM.SSD.BRKN SILTSTONE WITH INTERLAMINATED FG SANDSTONE; WORM BURROWS 10MM IN DIAMETER; TOP S UP; MINOR BIOTURBATION
* 54	82.57	82.86	0.29			SILTSTONE	SSY.FG.PR.H-DK.GY.LAM.SSD.BRKN SILTSTONE WITH INTERLAMINATED SANDSTONE
54	82.86	82.93	0.07			SANDSTONE	SLTY.FG.PR.H.GY.MAS.SLD LAMINATED SILTSTONE BANDS LOCALLY CONCENTRATED
* 55	82.93	84.13	1.20			SANDSTONE	SLTY.FG.PR.H.GY.MAS.SLD AS ABOVE

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0885019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	57	84.13	84.23	0.40		SILTSTONE	SSY.FG.PR.M-DK.GY.LAM.SLD SILTSTONE WITH INTERLAMINATED FG SANDSTONE
	58	84.53	85.21	0.68		SILTSTONE	SSY.FG.PR.M-DK.GY.LAM.SLD AS ABOVE
*	60	85.21	86.29	1.08		SILTSTONE	FG.MOD.M.GY.SLD VERY MINOR LAMINATED SANDSTONE; CONCENTRATED
	57	86.29	86.50	0.21		MUDSTONE	MOD.DK.GY.MAS
	55	86.50	87.36	0.86	06533	MUDSTONE	CARB.DK.GY.MAS.BRKN SILTY AT TOP BECOMING MORE CARBONACEOUS TOWARDS BASE; CONTAINS NUMEROUS STRINGERS AND THIN BANDS OF COAL; ABUNDANT QTZ FILLED FRACTURES NEAR BASE
	52	87.36	87.50	0.14	06534 E	COAL	C-1.BRKN
	52	87.50	87.61	0.11	06534 E	COAL	C-3.BRKN LITRIC

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0885019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	51	87.61	87.78	0.17	06534 E	COAL	C-1.BRKN
	49	87.78	88.44	0.66	06535	MUDSTONE	CARB.DK.GY.MAS.BRKN COALY STRINGERS AND PLANT FRAGMENTS NEAR TOP
	47	88.44	88.57	0.13		MUDSTONE	CARB.WEL.LY.BLK.MAS.BRKN ABUNDANT PLANT FOSSILS
	43	88.57	90.21	1.64		MUDSTONE	CARB.WEL.LY.BLK.MAS.BRKN AS ABOVE
	39	90.21	90.28	0.07		MUDSTONE	SLTY.WEL.DK.GY.MAS.BRKN DECREASE IN PLANT FOSSILS; UNIT IS BECOMING SILTIER
*	35	90.28	91.96	1.68		MUDSTONE	SLTY.PR.M-DK.GY.LAM.SSD.SLD UNIT BECOMES MUCH SILTIER WITH DEPTH; A PARASITIC FOLD EXISTS (92.71-93.73M); 0.6M BRECCIA ZONE
*	01	91.96	92.16	0.20		MUDSTONE	SLTY.PR.M-DK.GY.LAM.SLD 5MM QTZ VEIN PERPENDICULAR TO BEDDING; FIRST AXIS OF PARASITIC FOLD

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. TO	SEAM TO	LITHOLOGY	DESCRIPTION
* 02	92.16	92.97	0.81			MUDSTONE	SLTY. PR. M. GY. LAM. BRKN MUDSTONE WITH INTERLAMINATED SILTSTONE; SECOND AXIS OF PARASITIC FOLD AT TOP OF F UNIT; SILTIER TOWARD BASE; APPEARS TO BE SLIPPAGE ALONG FRACTURE SURFACES
* 69	92.97	93.69	0.72			SILTSTONE	CLYY. PR. M. GY. LAM. SSD. BRKN SILTSTONE WITH INTERLAMINATED MUDSTONE; POD OF FG SANDSTONE NEAR BASE; COALIFI ED PLANT FRAGMENTS APPEAR ON BROKEN SURF ACES; TOPS UP
* 78	93.69	94.29	0.60			SANDSTONE	SLTY. FG. PR. LT. GY. MAS. SSD. BRKN FG SANDSTONE WITH LOCALLY CONCENTRATED LAMINATED AND THINLY BEDDED MUDSTONE; T OPS UP
75	94.29	95.19	0.90			SANDSTONE	FG. HEL. LT. GY. MAS. BRKN MUDSTONE RIP UP CLASTS (LARGEST CLAST 6 CM) LOCALLY CONCENTRATED; MINOR QTZ FIL LED FRACTURE AT LOW ANGLE TO CORE
* 71	95.19	96.11	0.92			SANDSTONE	PR. LT. GY. MAS. BRKN LOCALIZED ZONES OF INTERLAMINATED MUDST ONE AND SILTSTONE; SMALL BAND OF COALY CARBONATE LENSES

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. TO	SEAM TO	LITHOLOGY	DESCRIPTION
70	96.11	96.73	0.62			SANDSTONE	SLTY. FG. PR. LT. GY. MAS. BRKN SANDSTONE WITH MINOR MUDSTONE AND SILTS TONE BANDS; MUDSTONE CLASTS ARE LOCALLY ABUNDANT; VERY MINOR QTZ VEINING
* 68	96.73	98.05	1.32			SILTSTONE	MOD. M. GY. MAS. WRMBU. BRKN SILTSTONE WITH MINOR BANDS OF MUDSTONE; VERY MINOR QTZ VEINS ALONG BEDDING PLA NES; HELMINTHOPSIS BURROWS
* 74	98.05	100.05	2.00			SILTSTONE	MOD. M. GY. LAM. WRMBU. BRKN SILTSTONE WITH MORE REGULAR MUDSTONE LA MINAE; VERY MINOR QTZ VEINS PARALLEL TO BEDDING; RARE SMALL PLANT IMPRINTS; HE LMINTHOPSIS BURROWS
75	100.05	100.81	0.76			SILTSTONE	MOD. LT. M. GY. LAM. WRMBU. BRKN SILTSTONE WITH BANDS OF MUDSTONE; BIVAL VES 45MM LONG NEAR TOP OF UNIT; HELMINT HOPSIS BURROWS
* 75	100.81	102.12	1.31			MUDSTONE	MOD. M. GY. MAS. BRKN TOP OF UNIT IS SILTY AND GRADUALLY INTO PR DOMINANTLY MUDSTONE AT BASE; 3MM BAND OF QTZ VEINING ALONG BEDDING SURFACE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	78 102.12	102.44	0.32			MUDSTONE	MEL. DK. GY. MAS. BRKN SOME MINOR QTZ VEINING; SMALL GASTROPOD SHELLS CONTAINED IN A PYRITE BLEB; SMALL BIVALVES ALSO FOUND (2MM)
	78 102.44	102.47	0.03			COAL	C-3. BRKN
	79 102.47	102.49	0.02			MUDSTONE	CARB. DK. GY
	79 102.49	102.52	0.03			COAL	C-2 ZONE CONTAINS 2 BANDS OF QTZ VEINING (2 MM EACH)
	79 102.52	102.62	0.10			MUDSTONE	CARB. DK. GY. BRKN ABUNDANT COALIFIED PLANT FRAGMENTS
*	81 102.62	103.72	1.10			SILTSTONE	CLYY. PR. M. GY. LAM. BRKN SILTSTONE WITH INTERLAMINATED MUDSTONE; PROGRESSIVELY SILTIER TOWARD BASE
	77 103.72	104.09	0.37			SILTSTONE	CLYY. PR. LT-M. GY. LAM. SLD SILTSTONE WITH INTERLAMINATED MUDSTONE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	70 106.09	106.29	2.20			SILTSTONE	LT-M. GY. LAM. BIOTR. SLD INTERLAMINATED SILTSTONE AND MUDSTONE; TOPS UP; BEDDING IS DISTURBED BY BIOTURBATION IN LOCALIZED SECTIONS; INCREASE IN MUDSTONE TOWARD BASE
	70 106.29	106.57	0.28			MUDSTONE	MEL. DK. GY. MAS. BRKN
	71 106.57	106.90	0.33			SILTSTONE	MEL. LT-M. GY. MAS. SLD VERY MINOR MUDSTONE STRINGERS WITH MUDSTONE CLAST APPEARING AT BASE (1CM ACROSS)
	71 106.90	107.67	0.77			SANDSTONE	SLTY. PR. LT-M. GY. MAS. YBRKN SOME MUDSTONE RIP UP CLASTS AND ONE BAND OF THINLY LAMINATED MUDSTONE; TOPS UP; COALY FRAGMENTS NEAR BASE
	71 107.67	107.87	0.20			ROCK LOSS	
	71 107.87	108.32	0.45			SANDSTONE	MEL. LT. GY. MB. SLD MUDSTONE RIP UP CLAST AT BASE (1CM ACROSS)

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	71 108.32	108.71	0.39			SANDSTONE	PR. LT. GY. THNB. SLD MINOR MUDSTONE LAMINAE; MUDSTONE CLAST AT BASE (2-3CM ACROSS)
	71 108.71	108.91	0.20			ROCK LOSS	
	71 108.91	109.71	0.80			SANDSTONE	MG. PR. LT. GY. MAS. YBRKN
	71 109.71	109.91	0.20			ROCK LOSS	
	72 109.91	110.12	0.21			SANDSTONE	MG. PR. LT. GY. YBRKN
	72 110.12	110.32	0.20			ROCK LOSS	
	72 110.32	110.53	0.21			SANDSTONE	MG. PR. LT. GY. YBRKN SANDSTONE BECOMES FG NEAR BASE OF UNIT
	72 110.53	110.73	0.20			ROCK LOSS	
*	72 110.73	111.97	1.24			SANDSTONE	MG. PR. LT.-M. GY. MAS. BRKN ABUNDANCE OF COALY FRAGMENTS AND STRINGERS ENCASED BY QTZ

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	85 111.97	112.45	0.48			SILTSTONE	PR. LT. GY. LAM. SLD INTERLAMINATED WITH MUDSTONE NEAR BASE; MUDSTONE RIP UP CLAST ZONE NEAR TOP OF UNIT; ABUNDANCE OF PLANT FRAGMENTS ON BEDDING SURFACES
	82 112.45	113.39	0.94			SILTSTONE	PR. LT. GY. LAM. SLD TOPS UP; LOCALIZED ZONES OF INTERLAMINA TD MUDSTONE
*	77 113.39	114.55	1.16			SILTSTONE	PR. LT. GY. LAM. SLD AS ABOVE; VERY MINOR COALY FRAGMENTS; G RADES INTO A FINE GRAINED SANDSTONE AT BASE
*	85 114.55	114.80	0.25			SANDSTONE	YFG. MEL. LT. GY. MAS. SLD VERY MINOR INDISTINCT STRINGERS OF MUD
	80 114.80	116.44	1.64			SILTSTONE	PR. LT.-M. GY. LAM. BRKN SILTSTONE INTERLAMINATED WITH MUDSTONE; LOCALIZED SCH ZONES OF FG SANDSTONE
*	75 116.44	116.63	0.19			SILTSTONE	PR. LT.-M. GY. LAM. SLD INTERLAMINATED WITH MUDSTONE

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 72	116.63	118.78	2.15			SILTSTONE	PR. LT-M. GY. LAM. SSD. BRKN AS ABOVE; ZONE NEAR THE TOP OF THIS SECTION IS HEAVILY FRACTURED; QTZ AND ANKERITE FRACTURE FILL; BRECCIA ZONE (117.7-118.4M) 1.5CM DISPLACEMENT BETWEEN LAMINAE; SILTSTONE INTERLAMINATED WITH MUDSTONE; TOPS UP.
* 74	118.78	119.48	0.70			SILTSTONE	PR. LT-M. GY. LAM. SSD. SLD INTERLAMINATED MUDSTONE; TOPS UP; MINOR BIOTURBATION
67	119.48	119.83	0.35			SILTSTONE	CLYY. PR. LT. GY. LAM. SSD. SLD INTERLAMINATED MUDSTONE; COALIFIED PLANT FRAGMENT 5CM FROM BASE OF UNIT
64	119.83	119.85	0.02			CLAYSTONE	LT. GY. SAMPLED ZONE OF POSSIBLE BENTONITE
62	119.85	120.15	0.30			SILTSTONE	CLYY. PR. LT-DK. GY. LAM. BRKN
55	120.15	120.85	0.70			MUDSTONE	CARB. WEL. H. GY. MAS. BRKN ABUNDANT COALY PLANT FRAGMENTS; TWO MIN OR .4CM QTZ FILLED FRACTURES
48	120.85	121.13	0.28			ROCK LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
43	121.13	121.53	0.40	06536		MUDSTONE	M-DK. GY. MAS. BRKN
39	121.53	121.72	0.19	06537 D		COAL	C-5. BRKN
37	121.72	121.83	0.11	06537 D		MUDSTONE	CARB. DK. GY. MAS. BRKN
36	121.83	121.85	0.02	06537 D		ROCK LOSS	
32	121.85	122.29	0.44	06537 D		COAL	C-3. YBRKN LENTIC; MUDSTONE STRINGERS AND THIN BANDS THROUGHOUT
29	122.29	122.33	0.04	06538		SILTSTONE	LT-M. GY. MAS. SLD BRECCIATED SILTSTONE FRAGMENTS WITHIN QTZ
28	122.33	122.50	0.17	06538		MUDSTONE	M-DK. GY. MAS. BRKN
25	122.50	122.70	0.20			ROCK LOSS	

* DENOTES MEASURED BCA

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86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDHB5019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	122.70	122.89	0.19			MUDSTONE	SLTY. M-DK. GY. MAS. BRKN
* 20	122.89	123.01	0.12			SANDSTONE	VFG. HEL. LT. GY. THWS. SLD SLIPPAGE SURFACE BETWEEN SANDSTONE AND UNDERLYING UNIT ALONG BEDDING PLANE
	123.01	123.58	0.57			MUDSTONE	CARB. LT-DK. GY. MAS. YBRKN SPORADIC QTZ VEINING INDICATING MOVEMENT WITHIN UNIT; BRECCIATED
	123.58	124.40	0.82			SANDSTONE	FG. PR. LT. GY. BRKN ENTIRE UNIT BRECCIATED; ABUNDANCE OF DIS- CORDANT QTZ VEINING THROUGHOUT; MINOR CARB. MUDSTONE ZONES (1CM THICK)
* 65	124.40	124.92	0.52			MUDSTONE	PR. DK. GY. LAM. BRKN DISCORDANT QTZ VEINING AND CARBONACEOUS IN UPPER 20CM CHANGING INTO A SILTIER UNIT WITHOUT QTZ
* 48	124.92	125.63	0.71			SILTSTONE	PR. LT. GY. MAS. BIOTR. BRKN BANDS OF MUDSTONE 2-3CM THICK; QTZ VEIN ING .3CM (MINOR)
	125.63	126.11	0.48			SILTSTONE	PR. LT. GY. MAS. SLD MINOR INTERLAMINATED MUD; BASE OF UNIT CONTAINS 3CM QTZ AND ANKERITE VEIN

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 32

PROJECT: KPN BLOCK: LR DATA SOURCE: DDHB5019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 04	126.11	126.73	0.62			MUDSTONE	PR. LT-M. GY. LAM. SLD ENTERING A LARGE ZONE OF PARASITIC FOLD ING; MUDSTONE WITH INTERLAMINATED SILTS TONE; DISPLACEMENT OF LAMINAE (<1CM). AL- ONG MICROFRACTURES
* 10	126.73	126.93	0.20			MUDSTONE	PR. M. GY. LAM. SLD PARASITIC FOLDS
	126.93	127.03	0.10			ROCK LOSS	
* 05	127.03	128.73	1.70			MUDSTONE	PR. M. GY. LAM. SLD AS ABOVE
	128.73	128.82	0.09			ROCK LOSS	
	128.82	129.08	0.26			MUDSTONE	PR. M. GY. LAM. SLD AS ABOVE; DISPLACEMENT OF LAMELLAE ALON- G MICROFRACTURES
	129.08	131.21	2.13			MUDSTONE	PR. M. GY. LAM. SLD AS ABOVE; MINOR QTZ VEINING AND COALY F- RAGMENTS
* 01	131.21	131.85	0.64			MUDSTONE	PR. M. GY. MAS. SLD PARASITIC FOLD; MINOR QTZ FILLED FRACTU- RES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: D085019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 04	131.85	133.11	1.26			MUDSTONE	PR. M-DK. GY. HAS. SLD PARASITIC FOLD; INTERLAMINATED SILTSTONE NEAR BASE OF UNIT; ICM DISPLACEMENT A LONG MICROFRACTURES.
11	133.11	133.21	0.10			ROCK LOSS	
* 20	133.21	134.76	1.55			SILTSTONE	PR. LT-M. GY. LAM. INTERLAMINATED WITH MUDSTONE; ABUNDANT QTZ AND ANKERITE FILLED FRACTURES (1-20 M. WIDE) PARALLEL TO BEDDING.
* 35	134.76	135.06	0.30			SILTSTONE	PR. H. GY. LAM. BRKN LAMINATED WITH MUDSTONE; POSSIBLE CORE LOSS
32	135.06	135.26	0.20			ROCK LOSS	
* 23	135.26	136.77	1.51			SILTSTONE	PR. H. GY. LAM. LAMINATED WITH MUDSTONE; MINOR QTZ VEINING
44	136.77	136.97	0.20			ROCK LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: D085019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
49	136.97	137.19	0.22			SILTSTONE	PR. H. GY. LAM. BRKN INTERLAMINATED WITH MUDSTONE
* 53	137.19	137.26	0.07			SILTSTONE	PR. M. GY. LAM. BRKN AS ABOVE
53	137.26	139.06	1.80	06539		MUDSTONE	CARB. DK. GY. HAS. YBRKN MINOR QTZ VEINING; ABUNDANT PYRITE BLEBS NEAR BASE; MINOR COAL STRINGERS AT BASE OF UNIT; BIVALVES IN CARBONACEOUS MUDSTONE BANDS
54	139.06	139.14	0.08	06540 C		COAL LOSS	
54	139.14	139.16	0.02	06540 C		COAL	C-4. BRKN POSSIBLE CORE LOSS
54	139.16	139.26	0.10	06540 C		MUDSTONE	CARB. DK. GY. LAM. SSD. SLD PYRITE BANDS WITHIN; BIVALVES
54	139.26	139.56	0.30	06540 C		COAL	C-2. BRKN MUDSTONE BANDS THROUGHOUT; ABUNDANT FRACTURES WITH QTZ FILL
54	139.56	139.65	0.09	06540 C		PYRITE	HAS. SLD MINOR COALY STRINGERS THROUGHOUT

* DENOTES MEASURED BCA

FUCR 4001

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
54	139.65	139.69	0.04	06540	C	COAL	C-2, SLD ABUNDANT QTZ FRACTURE FILL
54	139.69	139.86	0.17	06541		MUDSTONE	CARB. DK. GY. MAS. SLD ABUNDANT COAL STRINGERS AND LENSES
54	139.86	140.77	0.91	06541		MUDSTONE	SLTY. H. GY. MAS. SLD GRADATIONAL FROM CARBONACEOUS MUDSTONE ABOVE
54	140.77	141.06	0.29			MUDSTONE	SLTY. H. GY. MAS. BRKN AS ABOVE
* 55	141.06	143.26	2.20			SILTSTONE	PR. H. GY. MAS. SSD. SLD DISCONTINUOUS INTERLAMINATED MUDSTONE; TOPS UP; LOCALIZED ZONES OF BIOTURBATIO N; VERY MINOR COALY STRINGERS
* 56	143.26	143.84	0.58			SILTSTONE	PR. LT. H. GY. MAS. SSD. SLD SEVERAL BANDS OF DEFORMED MUDSTONE; MUD STONE CLASTS (1.5CM) NEAR TOP OF UNIT; TOPS UP; VERY MINOR QTZ FILLED PRESSURE FRACTURES
57	143.84	145.33	1.49			SANDSTONE	FG. MEL. S-P. GY. MAS. BRKN MINOR MUDSTONE RIP UP CLASTS (1CM) AND COALY DISCONTINUOUS STRINGERS; MINOR QZ VEINING AND SCATTERED MINOR COALY FRA GMENTS (2CM)

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
59	145.33	146.86	1.53			SANDSTONE	FG. MEL. S-P. GY. MAS. YBRKN AS ABOVE; MAJOR BREAKS ALONG COALY FRAG MENT PARTINGS
61	146.86	147.38	0.52			SANDSTONE	FG. MEL. S-P. GY. MAS. YBRKN AS ABOVE; COALY FRAGMENT (5CM)
62	147.38	149.48	2.10			SANDSTONE	FG. MEL. S-P. GY. MAS. BRKN TWO 30CM ZONES OF ABUNDANT DISCONTINUOU S MUDSTONE; MUD RIP UP CLASTS AND COALY PLANT MATERIAL IN A MASSIVE SANDSTONE; VERY MINOR QTZ VEINING (<.5CM)
64	149.48	150.01	0.53			SANDSTONE	FG. MOD. S-P. GY. MAS. BRKN ABUNDANT COALIFIED PLANT FRAGMENTS; COA L RIP UP CLASTS IN SILT BAND
65	150.01	151.49	1.48			SANDSTONE	FG. MOD. S-P. GY. MAS. BRKN AMOUNT OF PLANT FRAGMENTS DECREASE WITH DEPTH
66	151.49	151.55	0.06			SANDSTONE	FG. MOD. S-P. GY. MAS. BRKN SHARP CONTACT WITH UNDERLYING SILTSTONE
* 67	151.55	152.89	1.34			SILTSTONE	PR. LT. GY. LAM. BRKN SPORADIC MUDSTONE LAMINAE THROUGHOUT; T OPS UP; MINOR SSD

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85019

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 64	152.89	153.53	0.64			SILTSTONE	PR. LT. GY. LAM. SLD SPORADIC MUDSTONE LAMINAE THROUGHOUT
* 68	153.53	155.69	2.16			SILTSTONE	PR. LT. GY. LAM. BRKN AS ABOVE; TOPS UP
68	155.69	155.99	0.30			SILTSTONE	PR. LT. GY. LAM. SLD AS ABOVE; TOPS UP

* DENOTES MEASURED BCA
NEWPAGE

GULF CANADA RESOURCES INC.

SEAM DETAIL

COAL DIVISION
MOUNT KLAPPAN PROJECT

TRUE THICKNESS

DATA SOURCE: KPM LR 00H85019 SEAM : 0 INTERVAL(M) : 121.53 - 122.29 ELEVATION(M) : 1573.5
 GEOLOGIST : BUHAY SCALE: - DATE : DEC 19/85 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	HEAT VAL MJ/KG		
	121.53	↑		4.12													
	122.29	↓		0.24	97.2	8637	8637	0.38/0.08	0.43	0.84	49.48	7.37	42.13	0.34	—	—	

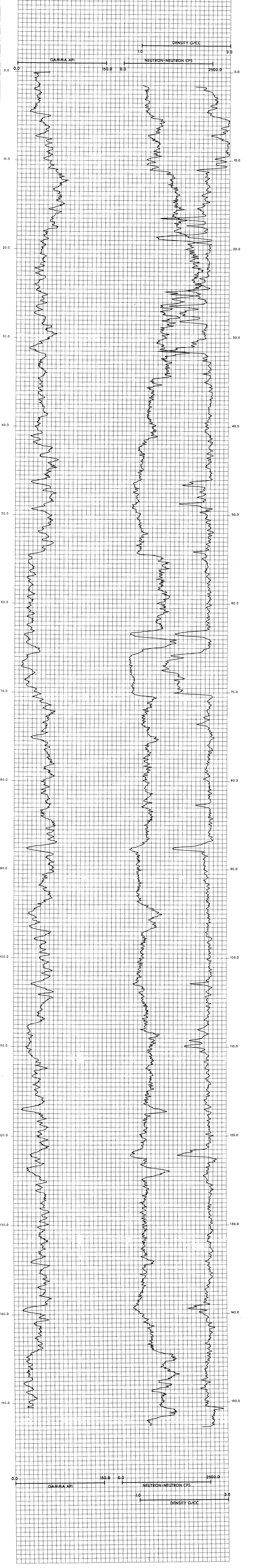
Gulf Canada Resources Inc.

Coal Division

Geophysical Log

Datasource: KPNLRDDH85019 Log Date: 85-07-23 Company: CENTURY Geologist: BUHAY	Province: BC Zone: 9 Measuring Point:	Northing: 6345160.00 Easting: 506845.00 Elevation: 1574.0
Scale: 1 to 100.0 Depth Range: 0.0 to 158.0 True Thickness: NO	Comments: 1. LOGGED THROUGH THE RODS 2.	

Logs Plotted:	Axis Range	Axis Length	Smoothing Points	Tool	Comments
1. GAMMA API	0.0 to 150.0	10.0	31	9030A	1 IN PIPE
2. NEUTRON-NEUTRON CPS	0.0 to 2500.0	10.0	9	9055A	1 IN PIPE
3. DENSITY G/CC	1.0 to 3.0	10.0	15	9030A	1 IN PIPE



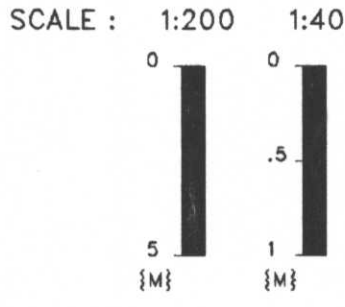
GULF CANADA RESOURCES INC.
 COAL DIVISION
 KLAPPAN PROJECT
 STRATIGRAPHIC LOG
 KPN LR DDH85019

GEOLOGIST : BUHAY

DATE : JAN 08/86

DRAWING NO. :

LITHOLOGIC SYMBOLS

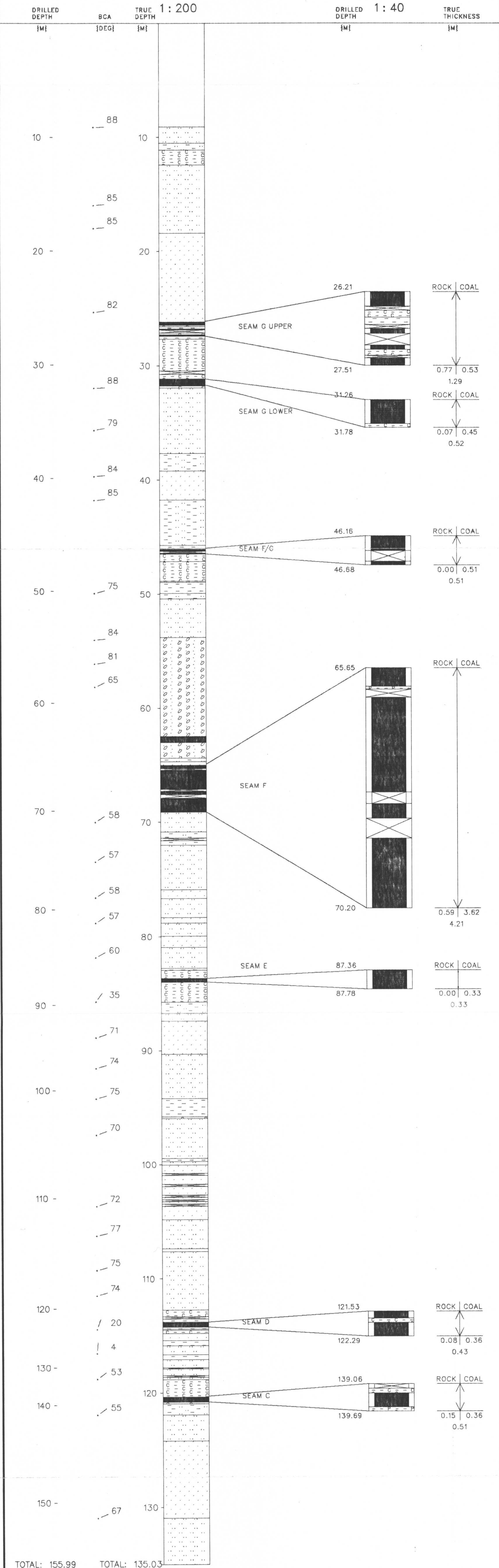


NORTHING: 6345160.0 N
 EASTING: 506845.0 E

INCLINATION: 75.0°
 BEARING: 360.0°

	SANDSTONE		BENTONITE
	SILTSTONE		BRECCIA
	COAL		CARBONACEOUS
	OVERBURDEN		QUARTZ
	MUDSTONE, CLAYSTONE		PYRITE
	TUFF		FERRUGINOUS
	LIMESTONE		CONGLOMERATE
	CORE LOSS		FOSSIL BED

SEAM DETAIL



KPNLRDDH85020

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH85020

DATE - 01/09/86

- HISTORY -

START DATE - 07/24/85
END DATE - 07/26/85

CONTRACTOR - J T THOMAS
GEOLOGIST - SAVOIE

OPERATOR - GCRI
SURVEYOR - MWG & ASS

REMARKS -

- LOCATION -

PROVINCE - BC
ELEVATION - 1820.10

LICENCE/LEASE NUMBER - 7152

ZONE - 9
NORTHING - 6344003.00
EASTING - 505449.56

LATITUDE - 571428
LONGITUDE - 1285435

- ORIENTATION -

LENGTH - 162.16

INCLINATION - 75.0
AZIMUTH - 225.0

CORE SIZE - 0.0

CEMENT -
PLUG -
PIEZ -

CASING DEPTH (M) - 4.57
AQUIFER DEPTHS (M) - 0.00
0.00
LOST CIRC. DEPTHS (M) - 0.00
0.00

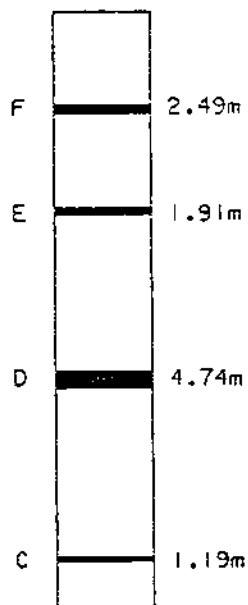
*** NOTE *** 0 INDICATES NO VALUE



MT. KLAPPAN COAL PROPERTY

1985 DIAMOND DRILL HOLES
DDH85020

SEAM TRUE SEAM THICKNESS
 (COAL & ROCK)



NOTE: SCHEMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm COAL.

SCALE: 1:2000

GULF CANADA RESOURCES INC.
15/01/86



86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	75	0.00	4.57	4.57		CASING	
	75	4.57	5.79	1.22		OVERBURDEN	YBRKN INTENSELY WEATHERED
	75	5.79	7.02	1.23		ROCK LOSS	
	75	7.02	7.62	0.60		SANDSTONE	FG.LT.GY.MAS.VBRKN YELLOWISH RED STAINING
	75	7.62	8.12	0.50		SANDSTONE	FG.LT.GY.MAS.VBRKN AS ABOVE
	75	8.12	8.36	0.24		ROCK LOSS	
	75	8.36	10.06	1.70		SANDSTONE	FG.PR.LT.GY.MAS.BRKN MINOR MUDSTONE LAMINAE; WEATHERED YELLOW-BROWN
	75	10.06	10.14	0.08		SANDSTONE	FG.LT.GY.MAS.VBRKN PILE OF RUBBLE; INTENSIVELY WEATHERED YELLOW-BROWN; POSSIBLE CORE LOSS
*	75	10.14	12.07	1.93		SANDSTONE	FG.PR.LT.GY.MAS.VBRKN MINOR MUDSTONE LAMINAE; YELLOW RED STAINING DUE TO WEATHERING
	75	12.07	12.45	0.38		SANDSTONE	FG.PR.LT.GY.MAS.VBRKN AS ABOVE; LARGE MUDSTONE CLAST SCH

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 2

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	72	12.45	13.68	1.23		SANDSTONE	SLTY.FG.PR.LT.GY.THNB.VBRKN NUMEROUS 1CM MUDSTONE BANDS; WEATHERED YELLOW RED ALONG MUDSTONE-SANDSTONE CONTACTS
	71	13.68	13.73	0.05		SANDSTONE	SLTY.FG.PR.LT.GY.THNB.VBRKN WEATHERED YELLOW RED
*	70	13.73	15.63	1.90		SANDSTONE	SLTY.FG.PR.LT-M.GY.SSD.BRKN NUMEROUS SILTSTONE AND MUDSTONE LAMINAE; TOPS UP; HELMINTHOPSIS BURROWS 10CM LONG AT 15.2M DEPTH; POSSIBLE CORE LOSS; SILTIER TOWARDS BASE
*	75	15.63	16.39	0.76		SILTSTONE	CLYY.PR.LT-M.GY.LAM.SSD.VBRKN INTERLAMINATED WITH MUDSTONE; YELLOW RED WEATHERING STAIN; 2CM ZONE OF HELMINTHOPSIS BURROWS (AT 16.35M DEPTH)
	75	16.39	16.72	0.33		ROCK LOSS	
	76	16.72	17.65	0.93		MUDSTONE	SLTY.PR.LT-M.GY.MAS.VBRKN MINOR SILTY LAMINATIONS; YELLOW RED WEATHERING ALONG BROKEN SURFACES; MUD INCREASES AT BASE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 3

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
77	17.65	19.43	1.78			MUDSTONE	MED. DK. GY. MAS. BRKN BIVALVES (1CH UP TO 3CH); YELLOW RED STAINING ALONG BROKEN SURFACES
78	19.43	19.61	0.18			MUDSTONE	MED. DK. GY. MAS. VBRKN
79	19.61	20.63	1.02			MUDSTONE	SLTY. PR. LT-M. GY. MAS. VBRKN 10CM ZONE OF QTZ VEINING; BASE OF UNIT VERY FRIABLE
79	20.63	21.23	0.60			ROCK LOSS	
* 80	21.23	21.83	0.60			SILTSTONE	PR. LT-M. GY. LAM. SSD INTERLAMINATED WITH MUDSTONE; SMALL SCALE QTZ FILLED DISPLACEMENT ALONG MICROF AULT (3MM); HELMINTHOISIS BURROWS
* 90	21.83	22.43	0.60			MUDSTONE	M-DK. GY. MAS. VBRKN MINOR PLANT IMPRINTS < 5CM LONG
89	22.43	23.69	1.26			MUDSTONE	M-DK. GY. MAS. VBRKN MINOR QTZ BLEBS; VERY SOFT
89	23.69	24.65	0.96			MUDSTONE	M-DK. GY. MAS. BRKN AS ABOVE; LOCALIZED SILTY UNIT AT BASE (7CH)

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 88	24.65	25.35	0.70			MUDSTONE	MOD. DK. GY. MAS. VBRKN 5CM ZONE OF SILTSTONE; VERY SOFT CORE; INCONSOLIDATED
85	25.35	25.59	0.24			MUDSTONE	DK. GY. MAS. BRKN POORLY CONSOLIDATED; VERY SOFT; COALY MATERIAL ON ONE FRACTURE SURFACE; CORE LOSS HERE
85	25.59	25.67	0.08		F	COAL	C-4. BLK. VBRKN FAIRLY SOFT IN PLACES; LIKELY MUCH CORE LOSS
84	25.67	25.72	0.05		F	COAL	C-6. BLK. VBRKN MUCH CORE LOSS; RUBBLE OF ROUNDED PIECE S. OF VERY DIRTY COAL
84	25.72	25.82	0.10		F	COAL	C-1. BLK. VBRKN MUCH LOSS LIKELY HERE. (THIS INTERVAL M AS ORIGINALLY SAMPLED BY 06651).
80	25.82	27.02	1.20		F	ROCK LOSS	
77	27.02	27.05	0.03		F	COAL	C-2. BLK. VBRKN
77	27.05	27.18	0.13		F	COAL LOSS	

* DENOTES MEASURED BCA

40001

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 5

PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	76	27.18	27.21	0.03	F	MUDSTONE	CARB. DK. GY. YBRKN MINOR COALY STREAKS
	76	27.21	27.42	0.21	F	MUDSTONE	CARB. DK. GY. BRKN NUMEROUS COAL STRINGERS THROUGHOUT
	75	27.42	27.45	0.03	F	COAL	C-2. BLK. BRKN
	75	27.45	27.49	0.04	F	MUDSTONE	CARB. DK. GY. SLD COAL STRINGERS THROUGHOUT
	74	27.49	27.54	0.05	F	ROCK LOSS	
	74	27.54	27.55	0.01	F	COAL	C-1. BLK. SLD
	74	27.55	27.60	0.05	F	COAL	C-2. BLK. YBRKN
	73	27.60	27.79	0.19	F	COAL LOSS	
	73	27.79	27.86	0.07	F	MUDSTONE	CARB. DK. GY. SLD MINOR COAL STRINGERS
	72	27.86	27.89	0.03	F	COAL	C-2. BLK. BRKN
	72	27.89	28.01	0.12	F	ROCK LOSS	

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	72	28.01	28.09	0.08	F	MUDSTONE	CARB. DK. GY. BRKN NUMEROUS COAL STRINGERS THROUGHOUT
	71	28.09	28.14	0.05	F	COAL	C-3. BLK. YBRKN
	70	28.14	28.55	0.41		MUDSTONE	CARB. DK. GY. COALIFIED PLANT MATERIAL
	69	28.55	28.60	0.05		COAL LOSS	
	68	28.60	28.86	0.26		MUDSTONE	CARB. DK. GY. BRKN FINE COAL STRINGERS THROUGHOUT
	67	28.86	29.01	0.15		COAL LOSS	
	66	29.01	29.14	0.13		MUDSTONE	CARB. DK. GY. YBRKN OCCASIONAL BRIGHT COAL STRINGERS THROUGHOUT
	65	29.14	29.39	0.25		MUDSTONE	CARB. DK. GY. YBRKN
	* 62	29.39	30.25	0.86		SILTSTONE	N. GY. VTHNB. YBRKN CORE LOSS
	64	30.25	30.61	0.36		ROCK LOSS	

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
64	30.61	30.66	0.05			MUDSTONE	MOD. M. GY. VBRKN RUBBLE PILE
65	30.66	31.44	0.78			MUDSTONE	SLTY. MOD. M. GY. VBRKN LOCALIZED 10CM UNITS OF RESISTIVE SILTS TONE AND MUDSTONE LAMINAE; PYRITE BLEBS ; VERY SOFT MUD; UNCONSOLIDATED
68	31.44	32.36	0.92			ROCK LOSS	
70	32.36	33.16	0.80			MUDSTONE	SLTY. MOD. M. GY. VBRKN AS ABOVE
72	33.16	34.01	0.85			MUDSTONE	PR. M. GY. VBRKN VERY UNCONSOLIDATED; POSSIBLE CORE LOSS
74	34.01	34.51	0.50			ROCK LOSS	
76	34.51	35.34	0.83			MUDSTONE	PR. M. GY. VBRKN AS ABOVE; 16CM ZONE OF CONSOLIDATED MUDSTONE WITH ABUNDANT QTZ VEINING
78	35.34	36.04	0.70			ROCK LOSS	
80	36.04	36.35	0.31			MUDSTONE	PR. LT-M. GY. BRKN UNCONSOLIDATED

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
82	36.35	37.55	1.20			SILTSTONE	PR. LT. GY. LAM. SSD. BRKN DISCONTINUOUS MUDSTONE LAMINAE
84	37.55	37.70	0.15			ROCK LOSS	
84	37.70	38.03	0.33			SILTSTONE	PR. LT. GY. LAM. BRKN AS ABOVE; LARGE QTZ VEIN. CONTAINING BRECCIATED FRAGMENTS
* 88	38.03	40.33	2.30			SILTSTONE	PR. LT. GY. LAM. SSD. SLD INTERLAMINATED MUDSTONE; 6CM OF QTZ VEIN AT TOP OF UNIT AS ABOVE
80	40.33	40.89	0.56			SILTSTONE	VPR. LT. GY. BRKN MINOR .4CM QTZ VEINING; HELMINTHOPSIS BUBBLES AT BASE (.5CM)
* 74	40.89	42.26	1.37			SILTSTONE	PR. LT. GY. LAM. BRKN MINOR LOCALIZED MUDSTONE LAMINAE THROUGHOUT; QTZ VEIN .5CM; MINOR ZONE OF VFG SANDSTONE
79	42.26	43.97	1.71			SILTSTONE	PR. LT. GY. LAM. SSD. BRKN INTERLAMINATED WITH MUDSTONE; LOCALIZED ZONES (.5-10CM) OF SILTSTONE; TOPS UP
82	43.97	44.23	0.26			SILTSTONE	PR. LT. GY. LAM. SLD DISCONTINUOUS INTERLAMINATED MUDSTONE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 85	44.23	46.19	1.96			SANDSTONE	PR. LT. GY. LAM. BRKN INTERLAMINATED WITH SILTSTONE AND MUDST ONE; TOPS UP; SILTIER TOWARD BASE
75	46.19	46.99	0.80			SILTSTONE	PR. LT. GY. LAM. BIOTR. BRKN VERY DISCONTINUOUS MUDSTONE LAMINAE
* 88	46.99	48.09	1.10			SILTSTONE	PR. LT. GY. LAM. SSD. BRKN DISCONTINUOUS BIOTURBATED MUDSTONE LAMINAE; MINOR FG SANDSTONE UNIT (.3CM); TOP S UP
* 60	48.09	50.09	2.00			SILTSTONE	PR. LT. GY. LAM. SSD. BRKN INTERLAMINATED WITH MUDSTONE; NUMEROUS 2-3CM ZONES OF FG SANDSTONE; TOPS UP
* 45	50.09	51.06	0.97			SILTSTONE	PR. LT. GY. LAM. SSD. BRKN AS ABOVE
67	51.06	51.17	0.11			MUDSTONE	LT. GY UNCONSOLIDATED; VERY SOFT
72	51.17	51.32	0.15			ROCK LOSS	
* 86	51.32	51.88	0.56			SILTSTONE	PR. LT. GY. LAM. SSD. BRKN INTERLAMINATED WITH MUDSTONE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 67	51.88	53.06	1.18			SILTSTONE	PR. LT-M. GY. LAM. BRKN INTERLAMINATED WITH MUDSTONE; ABUNDANT COALY PLANT FRAGMENTS
71	53.06	53.69	0.63			MUDSTONE	SILTY. PR. M. GY. LAM. BRKN ABUNDANT COALY FRAGMENTS AND STRINGERS
72	53.69	53.87	0.18	06652		MUDSTONE	CARB. PR. DK. GY UNCONSOLIDATED MUD WITH COALY STRINGERS ; POSSIBLE CORE LOSS
74	53.87	54.39	0.52	06653 E		COAL	C-1. BLK. VBRKN
76	54.39	55.03	0.64	06653 E		COAL	C-1. BLK. VBRKN PARTLY SHEARED AND CRUMBLED
78	55.03	55.24	0.21	06653 E		COAL	C-2. BLK. VBRKN PARTLY SHEARED AND CRUMBLED
80	55.24	55.83	0.59	06653 E		COAL LOSS	
81	55.83	56.12	0.29	06654		MUDSTONE	DK. GY PLANT HASH
* 86	56.12	58.02	1.90			MUDSTONE	CARB. MEL. M. GY. HAS. VBRKN COALY FRAGMENTS AT TOP OF UNIT; MINOR P. LANT IMPRINTS DECREASING TOWARD BASE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	72	58.02	58.38	0.36		MUDSTONE	SLTY. MOD. M. GY. MAS. BRKN MINOR PLANT IMPRINTS
*	64	58.38	59.29	0.91		SILTSTONE	PR. LT. GY. LAM. SSD. SLD DISCONTINUOUS MUDSTONE LAMINAE; 14CM OF FG SANDSTONE
	65	59.29	60.01	0.72		SANDSTONE	FG. MOD. LT. GY. MAS. SLD SMALL IRREGULAR MUDSTONE CLAST <1CM
	68	60.01	62.21	2.20		SANDSTONE	FG. PR. LT. GY. MAS. BRKN INDISTINCT MUDSTONE LAMINAE THROUGHOUT; 2CM BAND OF MUDSTONE CONTAINING BLESS OF PYRITE; SMALL MINOR MUDSTONE CLASTS <1CM
	69	62.21	62.49	0.28		SANDSTONE	FG. PR. LT. GY. MAS. SLD INDISTINCT MUDSTONE LAMINAE; 5CM MUDST NE. CLAST
*	71	62.49	64.26	1.77		SANDSTONE	FG. PR. LT. GY. MAS. BRKN LOCALIZED MUDSTONE LAMINAE; LARGE MUDST. ONE CLASTS 2-5CM
*	82	64.26	65.47	1.21		SANDSTONE	FG. PR. LT. GY. MAS. BIOTR. SLD LOCALIZED MUDSTONE BANDS INCREASING THK ARD BASE; NUMEROUS INDISTINCT HORN BURR OHS (ESCAPE STRUCTURES?)

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	73	65.47	66.31	0.84		SANDSTONE	FG. PR. LT. GY. MAS. BIOTR. SLD AS ABOVE; 1CM QZ VEIN PARALLEL TO BED DING AT TOP OF UNIT
	77	66.31	68.40	2.09		SANDSTONE	FG. PR. LT. GY. NB. WNB. SLD INTERBEDDED WITH 12CM ZONES OF INTERLAM INATED MUDSTONE AND SILTSTONE; MINOR MU DSTONE CLASTS 1-2CM; HORN BURROWS 9CM L ONG 2CM WIDE; TOPS UP; SSD
	80	68.40	68.60	0.20		SANDSTONE	FG. PR. LT. GY. MAS. SLD
	81	68.60	68.83	0.23		SILTSTONE	SSY. PR. LT. M. GY. LAM. BRKN 10CM SANDSTONE GRADING INTO SILTSTONE A ND MUDSTONE INTERLAMINATED.
	81	68.83	68.86	0.03		MUD	LT. GY VERY HOMOGENEOUS AND SOFT; POSSIBLY DRI LLING MUD

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85020

BCA	DEPTH FROM	DEPTH TO	DEPTH INTERVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 83	68.86	70.31	1.45			SILTSTONE	CLY. PR. LT. GY. LAM. SSD. BRKN INTERLAMINATED SILTSTONE AND MUDSTONE; LOAD CASTS; TOPS UP; HELMINTHOPSIS BURR OMS BETWEEN 68.84 AND 70.15M DEPTH; LOCALIZED 8CM UNITS OF VFG SANDSTONE
* 83	70.31	71.61	1.30			SANDSTONE	FG. PR. LT. GY. HAS. BRKN LOCALIZED MUDSTONE LAMINAE; MINOR PLANT IMPRINTS ON BROKEN SURFACES
79	71.61	71.71	0.10			ROCK LOSS	
* 77	71.71	72.45	0.74			SILTSTONE	PR. LT. GY. LAM. SSD. BRKN TOPS UP; INTERLAMINATED WITH MUDSTONE; MINOR 5CM UNITS OF FG SANDSTONE; SANDY TOWARD BASE
* 80	72.45	74.51	2.06			SANDSTONE	SLTY. FG. PR. LT. GY. THNB. BRKN FG SANDSTONE INTERBEDDED WITH BANDS OF MUDSTONE; HELMINTHOPSIS BURRONS FROM 73.75 TO 73.85M DEPTH; MINOR MUDSTONE CLASTS
* 77	74.51	74.67	0.16			SANDSTONE	SLTY. FG. PR. LT. GY. THNB. BRKN INTERBEDDED MUDSTONE

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85020

BCA	DEPTH FROM	DEPTH TO	DEPTH INTERVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 71	74.67	76.30	1.63			SANDSTONE	SLTY. FG. PR. LT. GY. THNB. SSD. VBRKN AS ABOVE; POSSIBLE CORE LOSS; TOPS UP
* 80	76.30	77.70	1.40			SANDSTONE	SLTY. FG. PR. LT. GY. THNB. SSD. BRKN LOCALIZED ZONES OF THINLY BEDDED MUDSTONE AND SILTSTONE
73	77.70	78.39	0.69			SANDSTONE	SLTY. FG. PR. LT. GY. THNB. SSD. BRKN AS ABOVE
* 65	78.39	79.89	1.50			SANDSTONE	FG. PR. LT. GY. HAS. BRKN MINOR LOCALIZED ZONES OF MUDSTONE BANDS; SEVERAL 1MM DISCONTINUOUS BANDS OF SM ALL (< 5MM) BLACK EQUIDIMENSIONAL GRANULES (WORM FECAL PELLETS?)
* 79	79.89	80.49	0.60			SANDSTONE	FG. PR. LT. GY. HAS. BRKN AS ABOVE WITH AN INCREASE IN MUDSTONE BANDS (60%)
78	80.49	80.66	0.17			SANDSTONE	SLTY. FG. PR. LT. GY. THNB. BRKN 5CM MUDSTONE BAND; 8CM QTZ VEIN PARALLEL TO BEDDING

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 74	80.66	82.51	1.85			SANDSTONE	SLTY. FG. PR. LT. GY. THNB. BRKN LOCALIZED ZONES OF MUDSTONE BANDS; BLACK EQUIDIMENSIONAL GRANULES (<5MM) AS ABOVE; MINOR QTZ VEINING ALONG FRACTURES WITH SLICKENSIDES 130 DEGREE ANGLE TO CDRE
74	82.51	83.51	1.00			SANDSTONE	SLTY. FG. PR. LT. GY. MAS. BRKN AS ABOVE
74	83.51	83.71	0.20			ROCK LOSS	
* 74	83.71	84.40	0.69			SILTSTONE	PR. LT. GY. THNB. BRKN AS ABOVE; HELMINTHOPSIS BURROWS START AT T 84.42M DEPTH
75	84.40	84.50	0.10			ROCK LOSS	
* 72	84.50	86.48	1.98			SILTSTONE	CLY. PR. LT. GY. THNB. BIOTR ABUNDANT INTERBEDDED TO INTERLAMINATED MUDSTONE; HELMINTHOPSIS BURROWS THROUGH OUT; MINOR QTZ ALONG SLICKENSIDE SURFACE
75	86.48	86.72	0.24			SILTSTONE	PR. LT. GY. THNB. BIOTR. BRKN ABUNDANT MUDSTONE BANDS; HELMINTHOPSIS BURROWS CONTINUE THROUGHOUT

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 78	86.72	88.40	1.68			MUDSTONE	SLTY. PR. LT. M. GY. THNB. BIOTR. BRKN FRAGMENTS (10CH) AROUND 87.65M DEPTH
69	88.40	89.83	1.43			MUDSTONE	SLTY. PR. M. GY. BRKN SILT DECREASES WITH DEPTH; HELMINTHOPSIS BURROWS CEASE TO EXIST; SLICKENSIDES SIMILAR TO THOSE ABOVE; POSSIBLE CORE LOSS AT BASE OF UNIT
* 64	89.83	90.33	0.50			MUDSTONE	SLTY. PR. M. GY. YBRKN
60	90.33	91.92	1.59	06655		MUDSTONE	SLTY. M. GY. YTHNB
57	91.92	91.99	0.07	06656 D		COAL	C-1. BLK. YBRKN
57	91.99	92.07	0.08	06656 D		COAL	C-3 BLK CORE BROKEN

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	92.07	92.24	0.17	06656 D		COAL	C-2, BLK. YBRKN
	92.24	92.25	0.01	06656 D		MUDSTONE	CARB. DK. GY. SLD ALMOST C-6; LIGHT
	92.25	92.33	0.08	06656 D		COAL	C-1, BLK. SLD ANKERITE THROUGHOUT
	92.33	92.41	0.08	06656 D		MUDSTONE	CARB. DK. GY. BRKN COAL STRINGERS THROUGHOUT
	92.41	92.49	0.08	06656 D		COAL	C-3, BLK. YBRKN
	92.49	92.67	0.18	06656 D		COAL LOSS	
	92.67	92.75	0.08	06657 D		MUDSTONE	CLYY. DK. GY. BRKN MUCH CLAY MIXED IN; VERY SOFT
	92.75	93.25	0.50	06657 D		MUDSTONE	CLYY. DK. GY. MAS. BRKN ONE 9CM SOFTER DARK CLAY-RICH BAND; BIV. ALVE PIECES; DISSEMINATED PYRITE
* 50	93.25	94.25	1.00	06658 D		MUDSTONE	CLYY. DK. GY. MAS. BRKN AS ABOVE
	94.25	94.32	0.07	06658 D		ROCK LOSS	

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	94.32	94.41	0.09	06659 D		COAL	C-1, BLK. BRKN
	94.41	94.45	0.04	06659 D		COAL	C-1, BLK. BRKN CRUMBLES EASILY
	94.45	94.69	0.24	06659 D		MUDSTONE	CARB. BLK. SLD MINOR ANKERITE; DISSEMINATED PYRITE
	94.69	94.92	0.23	06659 D		COAL	C-2, BLK. BRKN MINOR ANKERITE ON CLEATS
	94.92	95.07	0.15	06659 D		MUDSTONE	CARB. DK. GY. BRKN
	95.07	95.17	0.10	06659 D		COAL	C-1, YBRKN CRUMBLED
	95.17	95.29	0.12	06659 D		MUDSTONE	CARB. DK. GY. BRKN NUMEROUS COAL STRINGERS 2-6MM WIDE; WAK E PYRITE STRINGERS
	95.29	95.78	0.49	06659 D		MUDSTONE	CARB. DK. GY. MAS. BRKN MINOR COAL STREAKS THROUGHOUT; OCCASION AL ANKERITE STRINGERS
	95.78	95.80	0.02	06659 D		COAL	C-1, BLK. SLD LIKELY CORE LOSS HERE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	95.80	95.82	0.02	06659 D		COAL	C-1.BLK.SLD
61	95.82	95.95	0.13	06659 D		COAL	C-6.BLK.SLD APPROX EQUAL AMOUNTS OF MUDSTONE AND FINE COAL STRINGERS
61	95.95	96.10	0.15	06659 D		COAL	C-4.BLK.BRKN MINOR ANKERITE
62	96.10	96.17	0.07	06659 D		COAL	C-2.BLK.BRKN
62	96.17	96.20	0.03	06659 D		MUDSTONE	CARB.BLK.BRKN MINOR MUDDY STRINGERS THROUGHOUT
63	96.20	96.37	0.17	06659 D		COAL	C-2.BLK.BRKN
63	96.37	96.49	0.12	06659 D		COAL LOSS	
64	96.49	96.63	0.14	06659 D		MUDSTONE	CARB.DK.GY.MAS.VBRKN MODERATE ANKERITE VEINING
65	96.63	96.72	0.09	06659 D		COAL	C-4.BLK.SLD NUMEROUS COAL STRINGERS; SOME IRREGULAR MUDDY BANDS; ANKERITE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
65	96.72	96.82	0.10	06659 D		MUDSTONE	CARB.DK.GY.MAS.BRKN SOME SHEARING
65	96.82	96.89	0.07	06659 D		ROCK LOSS	
66	96.89	96.94	0.05	06659 D		COAL	C-3.BLK.BRKN
66	96.94	96.99	0.05	06659 D		COAL	C-6.BLK.VSHRD MUDDY BUT VERY LIGHT
66	96.99	97.05	0.06	06659 D		MUDSTONE	CARB.DK.GY.BRKN
67	97.05	97.13	0.08	06659 D		COAL	C-2.BLK.BRKN
67	97.13	97.19	0.06	06659 D		COAL	C-1.BLK.SLD
67	97.19	97.26	0.07	06659 D		COAL	C-2.BLK.SLD
68	97.26	97.39	0.13	06659 D		MUDSTONE	CARB.DK.GY.MAS.BRKN
68	97.39	97.44	0.05	06659 D		COAL	C-4.DK.GY.SLD

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	97.44	97.58	0.14	06659 D		MUDSTONE	CARB. BLK. SLD NUMEROUS COALY AREAS THROUGHOUT
	97.58	97.71	0.13	06659 D		COAL	C-4. DK. GY. SLD VERY IRREGULAR BEDDING; BRIGHT COAL TSW IRLED WITH ANKERITE AND SOME MUD
	97.71	97.72	0.01	06659 D		MUDSTONE	CARB. DK. GY. SLD
	97.72	97.76	0.04	06659 D		COAL	C-3. DK. GY. MAS. SLD SHEARED
	97.76	98.12	0.36	06659 D		MUDSTONE	CARB. DK. GY. VTHNB. BRKN DISSEMINATED COAL SPECKS
	98.12	98.25	0.13	06660 D		COAL	C-5. BRKN FINE STRINGERS THROUGHOUT; VERY LOW BCA 'S: 20-30 DEGREES; LOCAL FOLDING
	98.25	98.30	0.05	06660 D		COAL	C-3. BLK. MAS. VBRKN
	98.30	98.56	0.26	06660 D		COAL	C-5. BRKN

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	98.56	98.58	0.02	06660 D		MUDSTONE	CARB. BRKN
	98.58	98.74	0.16	06660 D		COAL	C-3. BLK. VBRKN
	98.74	98.77	0.03	06660 D		MUDSTONE	CARB. DK. GY SOLID CORE
*	98.77	98.79	0.02	06660 D		COAL	C-2. BLK. LAM. SLD
	98.79	98.82	0.03	06660 D		COAL	C-2. BLK. SLD SHEARED
	98.82	98.85	0.03	06660 D		MUDSTONE	CARB. SLD
	98.85	98.95	0.10	06660 D		COAL	C-3. SLD
	98.95	99.00	0.05	06660 D		MUDSTONE	CARB. BLK. SLD SHEARED
	99.00	99.16	0.16	06660 D		COAL	C-2. BLK. BRKN VERY LOW BCA'S

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 01	99.16	99.27	0.11	06660 D		COAL	C-3, BLK, BRKN AXIS OF LOCAL SMALL FOLD
01	99.27	99.43	0.16	06660 D		COAL	C-2, BLK, BRKN
01	99.43	99.52	0.09	06660 D		COAL	C-3, BRKN
01	99.52	99.60	0.08	06660 D		COAL	C-2
01	99.60	99.76	0.16	06660 D		COAL	C-4, BRKN
01	99.76	99.81	0.05	06660 D		COAL	C-2, BRKN
01	99.81	99.97	0.16	06660 D		COAL	C-3, BLK, YBRKN SOME SHEARING
01	99.97	100.00	0.03	06660 D		COAL	C-2
01	100.00	100.04	0.04	06660 D		MUDSTONE	CARB, DK, GY, MAS, SLD
* 01	100.04	100.35	0.31	06660 D		COAL	C-4, SHRD MINOR MUDDY WISPS; AXIS OF FOLD

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
06	100.35	100.47	0.12	06661 D		MUDSTONE	CARB
07	100.47	100.50	0.03	06661 D		COAL	C-2
08	100.50	100.52	0.02	06661 D		MUDSTONE	CARB, BLK, YSHRD MUCH COAL MIXED WITH MUD; COAL STRINGERS THROUGHOUT
09	100.52	100.58	0.06	06661 D		COAL	C-3
10	100.58	100.62	0.04	06661 D		MUDSTONE	CARB ALMOST C-6
11	100.62	100.70	0.08	06661 D		COAL	C-6
13	100.70	100.77	0.07	06661 D		MUDSTONE	CARB
14	100.77	100.82	0.05	06661 D		COAL	C-2, BLK, SLD
15	100.82	100.83	0.01	06661 D		MUDSTONE	CARB, DK, GY, SLD

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	100.83	100.86	0.03	06661 D		COAL	C-1.BLK.SLD
	100.86	100.97	0.11	06661 D		MUDSTONE	CARB.BLK.BRKN
	100.97	101.01	0.04	06661 D		COAL	C-1.BLK.SLD
	101.01	101.07	0.06	06661 D		MUDSTONE	CARB.BLK.SLD DISSEMINATED PYRITE
	101.07	101.10	0.03	06661 D		COAL	C-3.BLK.SLD
	101.10	101.12	0.02	06661 D		MUDSTONE	CARB.BLK.BRKN
	101.12	101.48	0.36	06661 D		ROCK LOSS	
	101.48	101.60	0.12	06661 D		COAL	C-2.BLK.BRKN
	101.60	101.65	0.05	06661 D		COAL	C-3.BRKN
	101.65	101.72	0.07	06661 D		MUDSTONE	CARB.DK.GY.MAS.BRKN

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	101.72	101.82	0.10	06661 D		ROCK LOSS	
	101.82	101.84	0.02	06662 D		COAL	C-1.BLK.SLD
	101.84	102.07	0.23	06662 D		COAL	C-1.BLK.VBRKN LARGE FACES, WELL DEVELOPED CLEAT
	102.07	102.18	0.11	06662 D		COAL	C-3.BLK.BRKN OCCASIONAL FINE MUDDY STRINGERS
*	102.18	102.27	0.09	06662 D		COAL	C-2.BLK.SLD SHEARED
	102.27	102.37	0.10	06662 D		COAL	C-1.BRKN
	102.37	102.48	0.11	06662 D		COAL	C-2.BRKN
	102.48	102.81	0.33	06662 D		COAL	C-1.BLK.BRKN
	102.81	102.88	0.07	06662 D		COAL	C-2.BRKN
	102.88	103.04	0.16	06662 D		MUDSTONE	CARB.BLK.VBRKN

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	13	103.04	103.06	0.02	06662 D	COAL	C-1, BLK. YBRKN
	11	103.06	103.12	0.06	06662 D	COAL	C-3, BLK. YBRKN
	10	103.12	103.15	0.03	06662 D	COAL	C-1, BLK. YBRKN
	06	103.15	103.28	0.13	06662 D	COAL	C-3, YBRKN
	03	103.28	103.34	0.06	06662 D	COAL	C-2
*	01	103.34	103.37	0.03	06662 D	MUDSTONE	CARB. BLK. BRKN MINOR ANKERITE; SOME TINY MUDDY STRINGERS; SHEARED IN PLACES
	14	103.37	103.52	0.15	06662 D	COAL	C-3
	40	103.52	103.71	0.19	06662 D	COAL	C-2

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	56	103.71	103.74	0.03	06662 D	COAL	C-1, BLK. SLD
*	70	103.74	103.90	0.16	06662 D	COAL	C-2, BLK. SLD
	70	103.90	104.21	0.31	06662 D	COAL	C-1, BRKN
	69	104.21	104.61	0.40	06662 D	MUDSTONE	CARB. DK. GY. SLD
	68	104.61	105.11	0.50	06663 D	COAL	C-3, SLD
	67	105.11	105.19	0.08	06663 D	MUDSTONE	CARB. DK. GY. BRKN
	67	105.19	105.34	0.15	06663 D	COAL	C-1, BLK. SLD

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	67	105.34	105.59	0.25	06663 D	COAL	C-1. BLK. SLD
	66	105.59	105.82	0.23	06663 D	MUDSTONE	CARB. BLK. YSHRD NUMEROUS COAL STRINGERS THROUGHOUT; VES. Y. SHEARED; ALMOST C-6.
	66	105.82	105.93	0.11	06663 D	COAL	C-3. BLK. YBRKN SHEARED; MINOR ANKERITE
	66	105.93	106.13	0.20	06663 D	COAL	C-2. BLK. BRKN
	65	106.13	106.31	0.18	06663 D	COAL	C-3. BLK. BRKN
	65	106.31	106.38	0.07	06663 D	MUDSTONE	CARB. BLK NUMEROUS COAL STRINGERS THROUGHOUT
	65	106.38	106.40	0.02	06663 D	COAL	C-2. BLK. BRKN
	64	106.40	106.93	0.53	06664	MUDSTONE	CARB. DK. GY. MAS. SHRD MINOR COAL STREAKS
*	63	106.93	107.76	0.83	06664	SILTSTONE	H. GY. LAM. BRKN DARK, MUDDY LAMINAE THROUGHOUT

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	62	107.76	108.33	0.57		SILTSTONE	PR. LT. GY. LAM. SSD. BRKN INTERLAMINATED MUDSTONE; DISTORTED; SLI CKENSIDES ALONG BROKEN SURFACES; FRESH Y. BROKEN SURFACES APPEAR TO HAVE A SCHI STOSITY; TOPS UP
	60	108.33	109.66	1.33		SANDSTONE	SLTY. YFG. PR. LT. GY. MAS. SSD. BRKN LOCALIZED BANDS OF MUDSTONE; SLICKENSID ES ALONG BROKEN SURFACES; TOPS UP; APPE ARS SCHISTOSE
*	57	109.66	110.78	1.12		SANDSTONE	SLTY. YFG. PR. LT. GY. MAS. SSD. BRKN NUMEROUS BANDS OF MUDSTONE; SLICKENSID ES; OBVIOUS 1-2CM DISPLACEMENT ALONG NUM EROUS SLIPPAGE SURFACES SUB-PERPENDICUL AR TO BEDDING; MINOR QTZ FILLED FRACTUR ES; APPEARS SCHISTOSE
	66	110.78	111.59	0.81		SANDSTONE	SLTY. YFG. PR. LT. GY. MAS. SSD. BRKN AS ABOVE
*	80	111.59	113.64	2.05		SANDSTONE	SLTY. YFG. MOD. LT. GY. MAS. BRKN SLICKENSIDES; MINOR INDISTINCT MUDSTONE LAMINAE; APPEARS SCHISTOSE; SILTIER TO HARDS BASE
	80	113.64	113.84	0.20		SILTSTONE	PR. LT. GY. THNB. SSD. BRKN INTERBEDDED WITH MUDSTONE; TOPS UP; SLI CKENSIDES

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	80	113.84	114.04	0.20		ROCK LOSS	
*	80	114.04	115.80	1.76		SILTSTONE	SSY, PR. LT. GY. THNB. SSD. BRKN AS ABOVE; 2 MINOR .5CM QTZ VEINS PARALLEL TO BEDDING
	72	115.80	117.03	1.23		SILTSTONE	SSY, PR. LT. GY. THNB. SSD. BRKN INTERBEDDED TO INTERLAMINATED WITH MUDDSTONE; APPEARS BIOTURBATED; MORE MASSIVE SILTSTONE TOWARD BASE
	67	117.03	117.84	0.81		SILTSTONE	SSY, PR. LT. GY. MAS. BRKN LOCALIZED MUDSTONE BANDS (.5-2CM); 2CM ZONE OF HELMINTHOPSIS BURROWS
*	63	117.84	118.47	0.63		SILTSTONE	SSY, PR. LT. GY. MAS. SSD AS ABOVE; WORM BURROWS (.4CM WIDE 1.5CM LONG); TOPS UP; 7CM ZONE OF STRUCTURALLY DEFORMED QTZ VEINING SUB-PARALLEL TO BEDDING
	64	118.47	118.58	0.11		SILTSTONE	LT. GY. VBRKN VERY UNCONSOLIDATED AND SHEARED
	64	118.58	118.83	0.25		SANDSTONE	FG. PR. LT. GY. MAS. BRKN TWO 1CM MUDSTONE BANDS; QTZ VEINING

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	65	118.83	119.63	0.80		SILTSTONE	PR. LT. GY. MAS. BRKN MINOR MUDSTONE LAMINAE; SLICKENSIDES; T MIN QTZ VEINING (<2MM)
	50	119.63	119.93	0.30		SILTSTONE	PR. LT. GY. MAS. VBRKN VERY BROKEN AND SHEARED; SLICKENSIDE SURFACES ARE ABUNDANT; CORE LOSS POSSIBLE
	44	119.93	120.08	0.15		ROCK LOSS	
	39	120.08	120.26	0.18		SILTSTONE	PR. LT. GY. MAS. VBRKN AS ABOVE; MINOR QTZ VEINING
	30	120.26	120.78	0.52		SILTSTONE	PR. LT. GY. VBRKN VERY SHEARED; CORE LOSS? FOLD
*	05	120.78	122.06	1.28		SILTSTONE	SSD INTERLAMINATED MUDSTONE; LARGE WORM BURROWS .5CM WIDE 2CM LONG; FOLD
*	20	122.06	122.27	0.21		SILTSTONE	PR. LT. GY. THNB. BRKN 1CM MUDSTONE BANDS
	09	122.27	123.32	1.05		SILTSTONE	VPR. LT. GY. VBRKN VERY SHEARED; IRREGULAR QTZ VEINING; FOLD

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 65	123.32	124.04	0.72			SILTSTONE	PR. LT. GY. THNB. SSD. BRKN THINLY BEDDED WITH MUDSTONE; SMALL FINI NG UPWARD SEQUENCE; ABUNDANT HELMINTHOP SIS BURROWS
* 62	124.04	126.14	2.10			SILTSTONE	SSY. PR. LT. GY. THNB. SSD. BRKN INTERBEDDED WITH MUDSTONE; TOPS UP; BIO TURBATION; 23CM ZONE OF FG SANDSTONE; H ELMINTHOPSIS BURROWS
65	126.14	126.45	0.31			SILTSTONE	SSY. PR. LT. GY. THNB. SSD. BRKN INTERBEDDED WITH MUDSTONE
* 63	126.45	128.12	1.67			SILTSTONE	SSY. PR. LT. GY. THNB. SSD. BRKN WORM BURROWS; TOPS UP; MINOR PLANT IMPR INTS
62	128.12	128.18	0.06			MUDSTONE	SLTY. M. GY. MAS. BRKN
* 58	128.18	129.46	1.28			MUDSTONE	PR. M. GY. MAS. SSD. SLO MINOR LOCALIZED CLCH SILTY BANDS; TOPS UP
56	129.46	129.50	0.04			ROCK LOSS	

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
56	129.50	130.13	0.63			SILTSTONE	CLYY. PR. LT. GY. THNB. SSD. VBRKN INTERBEDDED MUDSTONE; MINOR HELMINTHOPS IS BURROWS; SLICKENSIDE SURFACES
55	130.13	130.29	0.16			ROCK LOSS	
* 52	130.29	132.23	1.94			SILTSTONE	PR. LT. GY. THNB. SSD. BRKN INTERBEDDED WITH MUDSTONE; LOCALIZED ZO NES OF HELMINTHOPSIS BURROWS; MINOR PLA NT IMPRINTS ON BROKEN SURFACES; 1CM ZON E OF THINLY LAMINATED CARBONATE AND MUD STONE PARALLEL TO BEDDING
38	132.23	132.55	0.32			SILTSTONE	PR. LT. GY. THNB. SSD. BRKN AS ABOVE WITHOUT CARBONATE
30	132.55	133.55	1.00			SILTSTONE	PR. LT. GY. THNB. SSD. BRKN AS ABOVE WITH CARBONATE; OBVIOUS DISPLA CEMENT ALONG SLIPPAGE SURFACES; SLICKEN SIDES
* 26	133.55	134.27	0.72			SILTSTONE	SSY. PR. LT. GY. MAS. BRKN TOP 15CM ARE VERY BROKEN AND SHEARED; 1 0CM BAND OF MUDSTONE AT BASE; CONTAINS HELMINTHOPSIS BURROWS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	24	134.27	134.87	0.60		SILTSTONE	SSY. PR. LT. GY. THNB. SSD. SLD INTERBEDDED TO INTERLAMINATED MUDSTONE
	21	134.87	135.59	0.72		SANDSTONE	SLTY. FG. PR. LT. GY. MAS. BRKN LOCALIZED THINLY LAMINATED MUDSTONE
	17	135.59	136.34	0.75		SANDSTONE	SLTY. FG. PR. LT. GY. MAS. SLD AS ABOVE
*	11	136.34	138.35	2.01		SANDSTONE	SLTY. FG. PR. LT. GY. THNB. SSD. BRKN INTERBEDDED BANDS OF DISCONTINUOUS MUDD ONE; FOLD; MINOR <.5CM QTZ VEINS SUB-PERPENDICULAR TO BEDDING; SLICKENSIDES. ALONG BROKEN SURFACES
*	04	138.35	138.55	0.20		SANDSTONE	FG. PR. LT. GY. THNB. VBRKN INTERBEDDED WITH SILTSTONE; MINOR <.5CM QTZ VEINING
	05	138.55	138.63	0.08		ROCK LOSS	
*	12	138.63	140.17	1.54		SILTSTONE	SSY. PR. LT. M. GY. LAM. SSD. BRKN DISCONTINUOUS MUDSTONE BANDS AND LAMINAE; SLICKENSIDES
	25	140.17	140.27	0.10		ROCK LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	37	140.27	141.68	1.41		SILTSTONE	CLY. PR. M. GY. THNB. BRKN MINOR QTZ VEINING; 2MM CRINKLED HAIRLY FINE FRACTURES PARALLEL TO BEDDING AND FILLED WITH CARBONATE; 2CM CARBONATE ZONE WITH VERY FINE MUDSTONE LAMINAE; INCREASE OF % OF MUDSTONE TOWARD BASE
	36	141.68	142.01	0.33		MUDSTONE	SLTY. PR. LT. M. GY. VBRKN SLICKENSIDES
	36	142.01	144.21	2.20		MUDSTONE	SLTY. MOD. LT. M. GY. WRMBU. VBRKN AS ABOVE; HELMINTHOPIS BURROWS
*	35	144.21	144.68	0.47		MUDSTONE	SLTY. MOD. LT. M. GY. BRKN 2CM ZONE OF CARBONATE WITH MUDSTONE LAMINAE
	35	144.68	144.73	0.05		ROCK LOSS	
	37	144.73	146.23	1.50		MUDSTONE	SLTY. LT. M. GY. VBRKN 7CM ZONE OF HELMINTHOPIS BURROWS; SLICKENSIDES
	40	146.23	147.63	1.40		MUDSTONE	M. GY. VBRKN COALY STRINGERS
	41	147.63	147.78	0.15		ROCK LOSS	

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	42	147.78	148.18	0.40		MUDSTONE	CARB. H. GY. BRKN COALY STRINGERS MORE ABUNDANT
	42	148.18	148.51	0.33		MUDSTONE	CARB. DK. GY. MAS. SLD COALY STRINGERS 1MM WIDE BY 10MM LONG
	43	148.51	148.53	0.02	06665 C	COAL	C-3 DK. GY. MAS. SLD ANKERITE ALONG CLEAT
	43	148.53	148.72	0.19	06665 C	MUDSTONE	CARB. DK. GY. MAS. SLD COALY STRINGERS THROUGHOUT; MODERATE ANKERITE VEINING
	43	148.72	148.80	0.08	06666 C	COAL	C-3 DK. GY. SLD OCCASIONAL MUDDY BANDS
	43	148.80	148.86	0.06	06666 C	MUDSTONE	CARB. DK. GY. LAM. BRKN
	43	148.86	148.94	0.08	06666 C	COAL LOSS	
	43	148.94	148.98	0.04	06666 C	COAL	C-5 BLK. SLD
	44	148.98	149.21	0.23	06666 C	COAL	C-2 BLK. SLD MINOR ANKERITE
	44	149.21	149.24	0.03	06666 C	COAL	C-3 BLK. SLD

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	44	149.24	149.29	0.05	06666 C	MUDSTONE	CARB. DK. GY. LAM. SLD MUCH ANKERITE VEINING
	44	149.29	149.53	0.24	06666 C	COAL	C-2 BLK. BRKN MINOR ANKERITE THROUGHOUT
	45	149.53	149.56	0.03	06666 C	COAL	C-1. YBRKN
	45	149.56	149.59	0.03	06666 C	MUDSTONE	CARB. BLK. YBRKN
	45	149.59	149.66	0.07	06666 C	COAL	C-3 BLK. BRKN
	45	149.66	149.76	0.10	06666 C	MUDSTONE	CARB. BLK. SLD NUMEROUS COALY AREAS; MINOR ANKERITE
	45	149.76	150.13	0.37	06666 C	COAL	C-2 BLK. SHRD MINOR ANKERITE THROUGHOUT
	46	150.13	150.41	0.28	06666 C	COAL	C-1 BLK. SLD MUCH ANKERITE IN LAST 10CM
	46	150.41	150.66	0.25	06667 C	MUDSTONE	CARB. DK. GY. SLD COAL STRINGERS THROUGHOUT; ANKERITE
	47	150.66	150.67	0.01	C	COAL	C-1. SLD

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	47	150.67	151.35	0.68	C	MUDSTONE	CARB. DK. GY. SLD COAL STRINGERS THROUGHOUT
	48	151.35	151.37	0.02	C	COAL	C-2. BLK. SLD
	49	151.37	151.99	0.62	06668 C	MUDSTONE	CARB. DK. GY. SLD OCCASIONAL COAL STRINGERS; MINOR ANKERITE
	49	151.99	152.19	0.20	06668 C	ROCK LOSS	
	50	152.19	152.20	0.01	06669 C	COAL	C-1. BLK. SLD
	50	152.20	152.25	0.05	06669 C	MUDSTONE	CARB. DK. GY. BRKN
	50	152.25	152.37	0.12	06669 C	COAL	C-5. DK. GY. SHRD MINOR ANKERITE
	50	152.37	152.60	0.23	06669 C	MUDSTONE	CARB. DK. GY. SHRD OCCASIONAL COALY STRINGERS

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	50	152.60	152.67	0.07	06669 C	COAL	C-4. DK. GY. SLD VARIED BCA'S; SMALL LOCAL FOLD (?) MING R ANKERITE
	50	152.67	152.70	0.03	06669 C	MUDSTONE	CARB. DK. GY. SLD
	50	152.70	152.72	0.02	06669 C	COAL	C-3. DK. GY. SLD
	51	152.72	152.75	0.03	06669 C	MUDSTONE	CARB. DK. GY. SLD
	51	152.75	152.82	0.07	06669 C	COAL	C-2. DK. GY. SLD
	51	152.82	152.83	0.01	06669 C	MUDSTONE	CARB. DK. GY. SLD
	51	152.83	152.85	0.02	06669 C	COAL	C-2. DK. GY. SLD

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	152.85	152.90	0.05	06669 C		MUDSTONE	CARB. DK. GY. SLD
	152.90	152.99	0.09	06669 C		ROCK LOSS	
	152.99	153.09	0.10	06669 C		COAL LOSS	
	153.09	153.12	0.03	06669 C		COAL	C-3. DK. GY. SLD
	153.12	153.19	0.07	06669 C		MUDSTONE	CARB. DK. GY. SLD
	153.19	153.20	0.01	06669 C		COAL	C-2. DK. GY. SLD
	153.20	153.29	0.09	06669 C		MUDSTONE	CARB. SLD MUCH ANKERITE THROUGHOUT
	153.29	153.42	0.13	06669 C		COAL	C-1. BLK. VBRKN

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	153.42	153.50	0.08	06669 C		MUDSTONE	CARB. BLK. SHRD
	153.50	153.60	0.10	06669 C		ROCK LOSS	
	153.60	153.84	0.24	06669 C		COAL	C-2. BLK. VBRKN SHEARED
	153.84	153.98	0.14	06670		MUDSTONE	CARB. DK. GY. MAS. VBRKN SHEARED
*	153.98	154.14	0.16	06670		SILTSTONE	H. GY. LAM. VBRKN
*	154.14	155.07	0.93			SILTSTONE	SSY. PR. LT. GY. THNB. SSD. BRKN DISCONTINUOUS INTERLAMINATED MUDSTONE; QTZ FILLED FRACTURES
	155.07	156.05	0.98			SANDSTONE	SLTY. VPR. LT. GY. VBRKN VERY CONSOLIDATED; POSSIBLE CORE LOSS
*	156.05	157.95	1.90			SILTSTONE	SSY. PR. LT. GY. THNB. SSD. VBRKN WORM BURROWS; TOPS UP; LOCALIZED MUDSTO NE BANDS THROUGHOUT; UNCONSOLIDATED NEAR R. BASE
	157.95	159.15	1.20			SILTSTONE	PR. LT. GY. VBRKN VERY UNCONSOLIDATED

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH89020

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	58	159.15	159.86	0.71		SILTSTONE	CLYY. PR. LT. GY. MAS. BRKN MINOR DISCONTINUOUS MUDSTONE LAMINAE
*	52	159.86	161.96	2.10		SILTSTONE	SSY. PR. LT. GY. THNB. BIOTR. BRKN INTERBEDDED DISCONTINUOUS BANDS OF MUDS TONE
	52	161.96	162.16	0.20		SILTSTONE	SSY. PR. LT. GY. THNB. BRKN INCREASE IN MUDSTONE BANDS

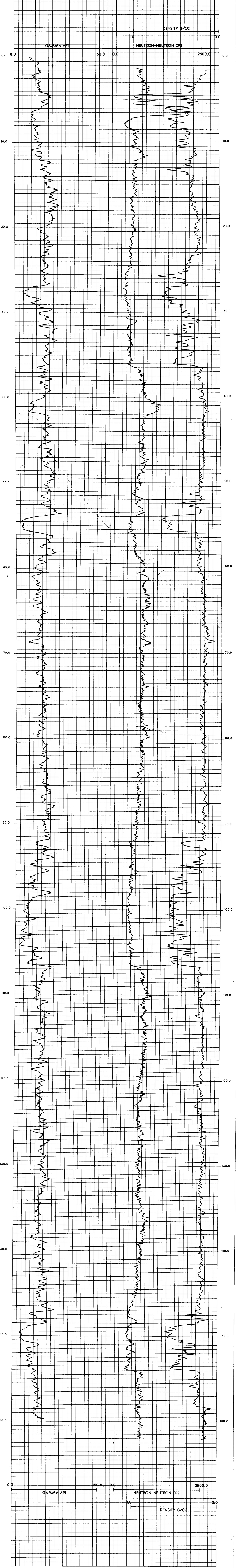
* DENOTES MEASURED BCA
NEWPAGE

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Gulf Canada Resources Inc. Coal Division

Geophysical Log

Datasource: KPNLRDDH85020 Log Date: 85-07-26 Company: CENTURY Geologist: SAVOIE	Province: BC Zone: 9 Measuring Point:	Northing: 6344000.00 Easting: 505450.00 Elevation: 1820.0
Scale: 1 to 100.0 Depth Range: 0.0 to 167.0 True Thickness: NO	Comments: 1. LOGGED THROUGH THE RODS 2.	
Logs Plotted: 1. GAMMA API 2. NEUTRON-NEUTRON CPS 3. DENSITY G/CC	Axis Range 0.0 to 150.0 0.0 to 2500.0 1.0 to 3.0	Axis Length 10.0 10.0 10.0
	Smoothing Points 31 9 15	Tool 9030A 9055A 9030A
		Comments IN PIPE IN PIPE IN PIPE

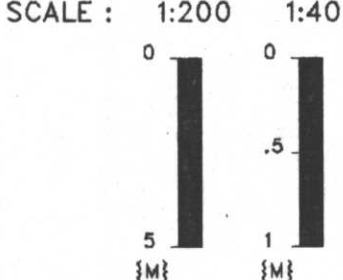


GULF CANADA RESOURCES INC.
 COAL DIVISION
 KLAPPAN PROJECT
 STRATIGRAPHIC LOG
 KPN LR DDH85020

GEOLOGIST : SAVOIE

DATE : JAN 08/86

DRAWING NO. :



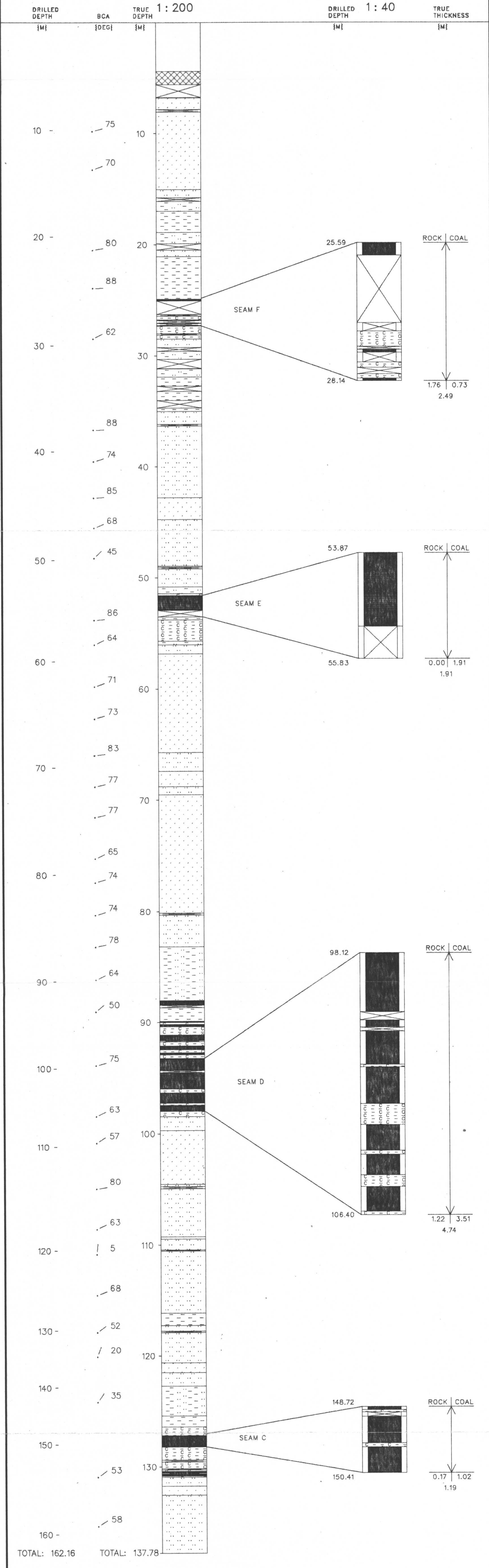
NORTHING: 8344003.0 N
 EASTING: 505449.5 E

INCLINATION: 75.0°
 BEARING: 225.0°

LITHOLOGIC SYMBOLS

	SANDSTONE		BENTONITE
	SILTSTONE		BRECCIA
	COAL		CARBONACEOUS
	OVERBURDEN		QUARTZ
	MUDSTONE, CLAYSTONE		PYRITE
	TUFF		FERRUGINOUS
	LIMESTONE		CONGLOMERATE
	CORE LOSS		FOSSIL BED

SEAM DETAIL



KPNLRDDH85021

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

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH85021

DATE - 01/09/86

- HISTORY -

START DATE - 07/24/85
END DATE - 07/27/85

CONTRACTOR - J T THOMAS
GEOLOGIST - BARKER

OPERATOR - GCRI
SURVEYOR - MWG & ASS

REMARKS -

- LOCATION -

PROVINCE - BC
ELEVATION - 1540.40

ZONE - 9
NORTHING - 6345237.00
EASTING - 505628.25

LICENCE/LEASE NUMBER - 7170

LATITUDE - 571507
LONGITUDE - 1285424

- ORIENTATION -

LENGTH - 165.28

INCLINATION - 80.0
AZIMUTH - 120.0

CORE SIZE - 0.0

CEMENT -
PLUG -
PIEZ -

CASING DEPTH (M) - 4.80
AQUIFER DEPTHS (M) - 0.00
0.00
LOST CIRC. DEPTHS (M) - 0.00
0.00

*** NOTE *** O INDICATES NO VALUE

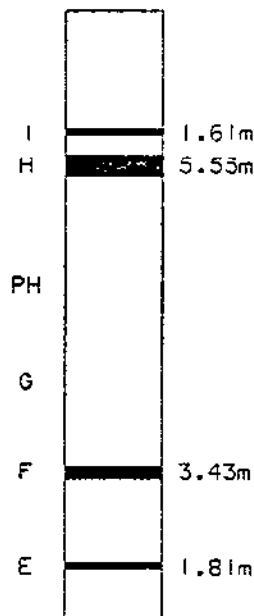


MT. KLAPPAN COAL PROPERTY

1985 DIAMOND DRILL HOLES

DDH85021

SEAM TRUE SEAM THICKNESS
(COAL & ROCK)



NOTE: SCHEMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm COAL.

SCALE: 1:2000

GULF CANADA RESOURCES INC.
15/01/86



86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: DDB85021

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	4.88	4.88			CASING	
70	4.88	5.49	0.61			SANDSTONE	FG.MOD.M.GY.MAS.SLD PREDOMINANTLY MASSIVE SANDSTONE WITH OC CASIONAL DARK WISPY SILT STRINGERS
70	5.49	6.76	1.27			SANDSTONE	FG.MOD.M.GY.MAS.BRKN LITH AS ABOVE; PARTLY WEATHERED; FE STA INING
* 70	6.76	7.42	0.66			SANDSTONE	FG.MOD.M.GY.MAS.BRKN LITH AS ABOVE; FE STAINING
73	7.42	8.78	1.36			SANDSTONE	SLTY.FG.MOD.M.GY.YHNB.BIOTR.BRKN DARK SILT BANDS THROUGHOUT; CONTAINING VERT WORM BURROWS ABOUT 1CM IN DIAMETER ; SOME SILT BANDS; VERY BIOTURBATED; TO PS UP; FE STAINING
* 78	8.78	10.66	1.88			SANDSTONE	SLTY.FG.MOD.M.GY.LAM.BIOTR.BRKN LITH AS ABOVE; BUT SILT BANDS MUCH MORE NUMEROUS; MUCH BIOGENIC ACTIVITY AS AB OVE; SOME FE STAINING; WRMBUR
* 70	10.66	12.43	1.77			SANDSTONE	SLTY.FG.PR.M.GY.YHNB.WRMBU.VBRKN LITH AS ABOVE; ONE 3CM WIDE OTZ VEIN PA RALLEL TO BEDDING; BIOGENIC ACTIVITY AS ABOVE; TOPS UP; SOME FE STAINING

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 2

PROJECT: KPN BLOCK: LR DATA SOURCE: DDB85021

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 70	12.43	14.36	1.93			SANDSTONE	SLTY.FG.PR.M.GY.YHNB.WRMBU.VBRKN LITH AS ABOVE; ONE 3CM WIDE OTZ VEIN PA RALLEL TO BEDDING; BIOGENIC ACTIVITY AS ABOVE; TOPS UP; SOME FE STAINING
69	14.36	15.86	1.50			ROCK LOSS	
68	15.86	16.69	0.83			SANDSTONE	SLTY.FG.PR.M.GY.YHNB.WRMBU.VBRKN LITH AS ABOVE; BIOTR
* 68	16.69	17.52	0.83			SILTSTONE	YFG.PR.LI.GY.LAM.VBRKN VERY UNIFORM LAMINAE; NO DISRUPTION OF BEDS; FE STAINING; CORE TWIST OFF
68	17.52	17.82	0.30			SILTSTONE	YFG.PR.LY.GY.LAM.VBRKN LITH AS ABOVE
68	17.82	19.10	1.28			SILTSTONE	CLYY.YFG.PR.LY.BN.LAM.VBRKN VERY UNIFORM; VERY CLAYEY (CONTAINS BEN TONITE?) TOWARDS BOTTOM; TYPICAL LITHOL OGY ABOVE I SEAM
68	19.10	20.31	1.21			ROCK LOSS	

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 3

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85021

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
68	20.31	20.87	0.56			CLAY	LT. BN. MAS. VBRKN WEATHERED BENTONITE(?); PREDOMINANTLY MASSIVE WITH MINOR MORE CONSOLIDATED SILT AT TOP.
68	20.87	20.97	0.10			CLAY	LT. BN. MAS. VBRKN LITH AS ABOVE; POORLY CONSOLIDATED; 'CHUNKY PEANUT BUTTER'; SHARP LOWER CONTACT
* 68	20.97	21.58	0.61			MUDSTONE	SLTY. DK. GY. LAM. XBDG. VBRKN FINELY LAMINATED; X-BEDDING IN PLACES; TOPS UP.
* 60	21.50	21.81	0.31			MUDSTONE	SLTY. DK. GY. LAM. XBDG. VBRKN LITH AS ABOVE.
* 60	21.81	23.73	1.92			MUDSTONE	SLTY. DK. GY. LAM. XBDG. VBRKN LITH AS ABOVE; MINOR FE STAINING.
54	23.73	23.88	0.15			ROCK LOSS	
* 50	23.88	25.08	1.20			MUDSTONE	SLTY. DK. GY. LAM. XBDG. VBRKN VERY FINELY LAMINATED
52	25.08	25.18	0.10			MUDSTONE	SLTY. DK. GY. LAM. XBDG. VBRKN LITH AS ABOVE
56	25.18	27.45	2.27			ROCK LOSS	

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85021

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
61	27.45	28.13	0.68			MUDSTONE	SLTY. DK. GY. LAM. VBRKN LESS SILT THAN ABOVE; VERY FAINT BUT UNIFORM BEDDING
* 63	28.13	28.76	0.63			MUDSTONE	DK. GY. LAM. VBRKN LITH AS ABOVE; LESS SILT
* 55	28.76	29.96	1.20			MUDSTONE	DK. GY. LAM. VBRKN LITH AS ABOVE; VERY UNIFORM; VERY HARD; MASSIVE TOWARDS BOTTOM
62	29.96	31.83	1.87			ROCK LOSS	
66	31.83	32.02	0.19			MUDSTONE	DK. GY. MAS. VBRKN SLIGHTLY CARBONACEOUS
67	32.02	32.18	0.16	06572		MUDSTONE	CARB. M-DK. MAS. BRKN AS ABOVE
68	32.18	32.70	0.52	06573	I	COAL LOSS	
69	32.70	32.83	0.13	06573	I	COAL	C-3. PRRD
70	32.83	32.96	0.13	06573	I	COAL	C-3. SLD POORLY CONSOLIDATED
71	32.96	33.06	0.10	06573	I	ROCK LOSS	

* DENOTES MEASURED BCA

FORM 4001

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85021

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
72	33.06	33.49	0.43	06573	I	COAL	G-2.PHRD
73	33.49	33.51	0.02	06573	I	MUDSTONE	CARB.DK.GY.MAS.SLD
73	33.51	33.72	0.21	06573	I	ROCK LOSS	
74	33.72	33.89	0.17	06573	I	COAL	G-2.PHRD
75	33.89	34.32	0.43	06574	I	MUDSTONE	CLYY.M-DK.GY.MAS.VBRKN UPPER 20CM SAMPLED
77	34.32	34.55	0.23			ROCK LOSS	
77	34.55	34.65	0.10			MUDSTONE	CLYY.M-DK.GY.MAS.VBRKN
* 80	34.65	35.84	1.19			SILTSTONE	CLYY.VPR.M-DK.GY.LAM.VBRKN VERY POORLY CONSOLIDATED; .26M OF FG SI LTY SANDSTONE SURROUNDED BY VERY POORLY CONSOLIDATED CLAY-RICH SILTSTONE; SLIC KENSIDES

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 6

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85021

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
77	35.84	36.19	0.35			SILTSTONE	CLYY.VPR.M.GY.LAM.VBRKN LITH AS ABOVE; VERY SOFT AND POORLY CON SOLIDATED; SLIGHTLY HIGHER SAND CONTENT THAN ABOVE; VERY MIXED UP; FAULTED AND INTENSELY FOLDED; MUCH ANKERITE IN LAS T 10CM; SLICKENSIDES
* 79	36.19	37.35	1.16			MUDSTONE	CLYY.VPR.DK.GY.MAS.VBRKN VERY SOFT; LIKE PLASTICENE; SILT LAMINA E NEAR TOP OF BOX; PREDOMINANTLY MASSIV E; MUCH COALIFIED PLANT HASH
75	37.35	37.67	0.32			ROCK LOSS	
75	37.67	38.27	0.60			MUDSTONE	CLYY.DK.GY.MAS.VBRKN LITH AS ABOVE; BUT NO SILT; VERY UNIFOR M AND VERY SOFT; MUCH COALIFIED PLANT H ASH AS ABOVE; SLICKENSIDES
76	38.27	39.85	1.58	06575		MUDSTONE	CLYY.DK.GY.MAS.VBRKN LITH AS ABOVE; VERY SOFT; VERY UNIFORM; MUCH COALIFIED PLANT HASH; NUMEROUS SLI CKENSIDES; TWO 3MM WIDE COAL STRINGERS WITH BCA'S = 55 DEGREES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85021

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
76	39.85	39.91	0.06	06575		ROCK LOSS	
76	39.91	40.00	0.09	06575		MUDSTONE	CARB. DK. GY. MAS. BRKN MINOR COAL STRINGERS THROUGHOUT
76	40.00	40.45	0.45	06576	H	COAL	C-2. VBRKN HIGHLY WEATHERED; HARD TO IDENTIFY
76	40.45	40.57	0.12	06576	H	COAL	C-2. BRKN AS ABOVE
76	40.57	40.96	0.39	06576	H	COAL	C-4. VBRKN VERY LISTRIC; VERY MUDDY WEATHERED AND HARD TO IDENTIFY; MINOR VITRINITE FLECK S WITHIN; POSSIBLY HIGHER QUALITY THAN STATED
76	40.96	41.15	0.19	06576	H	COAL	C-2. VBRKN ABUNDANT MUDDY BANDS WITHIN
76	41.15	41.59	0.44	06576	H	COAL	C-2. PHRD POWDERED C-2
76	41.59	41.76	0.17	06577	H	ROCK LOSS	
76	41.76	41.85	0.09	06577	H	MUDSTONE	CARB. DK. GY. MAS. VBRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85021

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
76	41.85	41.87	0.02	06577	H	COAL	C-1. BRKN
76	41.87	41.94	0.07	06577	H	COAL	C-2. BRKN
76	41.94	42.08	0.14	06577	H	COAL	C-1. SLD MINOR QTZ AND MUDSTONE WITHIN
77	42.08	42.22	0.14	06577	H	MUDSTONE	CLYY. M-DK. GY. MAS. VBRKN LISTRIC
77	42.22	42.84	0.62	06577	H	COAL LOSS	
77	42.84	42.87	0.03	06577	H	COAL	C-1. BRKN
77	42.87	43.06	0.19	06577	H	MUDSTONE	CLYY. M-DK. GY. MAS. BRKN
77	43.06	43.34	0.28	06577	H	COAL	C-1. BRKN
77	43.34	43.35	0.01	06577	H	MUDSTONE	M-DK. GY. MAS. SLD
77	43.35	43.42	0.07	06577	H	COAL	C-1. BRKN MUDDY BANDS THROUGHOUT

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85021

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	77	43.62	43.66	0.24	06577 H	COAL	C-2, PHRD
	77	43.66	43.68	0.02	06577 H	MUDSTONE	M-DK, GY, MAS, SLD
	77	43.68	43.85	0.17	06577 H	COAL	C-1, YBRKN
	77	43.85	43.93	0.08	06577 H	MUDSTONE	CLYY, M-DK, GY, MAS, BRKN
	77	43.93	43.95	0.02	06577 H	MUDSTONE	CLYY, M-DK, GY, MAS, BRKN
	77	43.95	44.22	0.27	06577 H	COAL	C-1, YBRKN THIN BANDS OF LOWER GRADE COAL WITHIN
	77	44.22	44.27	0.05	06577 H	COAL	C-1, SLD
	77	44.27	44.32	0.05	06577 H	COAL	C-6, SLD
	77	44.32	44.34	0.02	06577 H	COAL	C-1, SLD
	77	44.34	44.39	0.05	06577 H	COAL	C-6, SLD

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85021

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	77	44.39	44.67	0.28	06577 H	COAL	C-1, BRKN
	77	44.67	44.68	0.01	06577 H	SILTSTONE	M, GY, MAS, BRKN
	77	44.68	44.69	0.01	06577 H	COAL	C-1, BRKN
	77	44.69	44.72	0.03	06577 H	SILTSTONE	M, GY, MAS, BRKN
	77	44.72	44.90	0.18	06577 H	COAL	C-1, BRKN
	77	44.90	44.91	0.01	06577 H	MUDSTONE	CARB, DK, GY, MAS, BRKN
	77	44.91	44.93	0.02	06577 H	COAL	C-1, BRKN
	77	44.93	45.03	0.10	06577 H	MUDSTONE	M-DK, GY, MAS, SLD
	77	45.03	45.27	0.24	06578 H	COAL	C-1, BRKN
	77	45.27	45.39	0.12	06578 H	COAL	C-3, BRKN C-1 BANDS WITHIN

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85021

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	77	45.39	45.70	0.31	06578 H	COAL LOSS	
	78	45.70	46.36	0.66	06579	MUDSTONE	M-DK. GY. MAS. BRKN ABUNDANT PLANT FRAGMENTS, SOME COALIFIED; UPPER 20CM SAMPLED
*	78	46.36	48.39	2.03		SILTSTONE	CARB. BLK. VTHNB. BRKN VERY UNIFORM; OCCASIONAL COAL STRINGERS 1-3MM WIDE; VERY FAINT BEDDING VISIBLE ; COALIFIED PLANT MATERIAL; COARSENING TO POORLY CONSOLIDATED FG SANDSTONE DOWNWARD
	76	48.39	48.78	0.39		SANDSTONE	FG. PR. M. GY. MAS. BRKN POORLY CONSOLIDATED OCCASIONAL WISPY SILT LAMINATIONS THROUGHOUT
	75	48.78	49.40	0.62		SANDSTONE	FG. PR. M. GY. MAS. BRKN LITH AS ABOVE; GRADATIONAL LOWER CONTACT
	74	49.40	50.25	0.85		SILTSTONE	PR. DK. GY. MAS. BRKN MASSIVE; DARK; MINOR COAL STRINGERS 1-1 0MM WIDE NEAR UPPER CONTACT; PLANT WASH
	72	50.25	51.97	1.72		SILTSTONE	SSY. PR. DK. GY. MAS. SLD LITH AS ABOVE; VERY UNIFORM; MASSIVE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85021

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	70	51.97	52.36	0.39		SANDSTONE	SLTY. FG. VPR. LT. GY. VTHNB. SLD OCCASIONAL DARK SILTY BANDS
*	75	52.36	54.47	2.11		SANDSTONE	SLTY. FG. VPR. LT. GY. VTHNB. SSO. SLD LITH AS ABOVE; LOADING AND SCOURS SHOW TOPS UP; SOME HG SAND MIXED IN
*	70	54.47	54.95	0.48		SANDSTONE	SLTY. FG. VPR. LT. GY. MAS. XBDG. SLD LITH AS ABOVE; FINE TO MEDIUM GRAINED S ANDSTONE; VERY FINE SILT WISPS THROUGHOUT UT; PREDOMINANTLY MASSIVE; LARGE SCALE X-BEDDING?
	70	54.95	56.46	1.51		SANDSTONE	SLTY. FG. VPR. LT. GY. MAS. XBDG. SLD LITH AS ABOVE
	70	56.46	56.72	0.26		ROCK LOSS	
	70	56.72	58.31	1.59		SANDSTONE	SLTY. FG. VPR. LT. GY. MAS. XBDG. BRKN LITH AS ABOVE
	70	58.31	58.65	0.34		SANDSTONE	SLTY. FG. VPR. LT. GY. MAS. SLD LITH AS ABOVE; WITH NUMEROUS MUDSTONE R IP UP CLASTS 1-30MM IN DIAMETER
	70	58.65	58.98	0.33		SANDSTONE	SLTY. FG. VPR. LT. GY. VTHNB. BRKN LITH AS ABOVE; WITH OCCASIONAL RIP UP C LASTS; MORE SILTY CLAY-RICH DOWNWARD

* DENOTES MEASURED BCA

FORM 4001

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPM BLOCK: LR DATA SOURCE: DDH85021

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 70	58.98	59.84	0.86			SILTSTONE	SSY. PR. M. GY. LAM. SLD FINE UNIFORM LAMINAE; GRADATIONAL LOWER CONTACT INTO SANDSTONE
* 82	59.84	60.73	0.89			SANDSTONE	FG. MOD. LT. GY. MAS. SLD OCCASIONAL FINE WISPY SILT LAMINAE; LARGE SCALE X-BEDDING(?)
80	60.73	61.34	0.61			SANDSTONE	SLTY. FG. PR. M. GY. YTHNB. YBRKH DARK SILT BANDS 1-2CM WIDE
* 78	61.34	62.56	1.22			SANDSTONE	SLTY. FG. PR. M. GY. YTHNB. SSD. YBRKH LITH AS ABOVE; BUT MORE SILT BANDS; INT ERBEDDED SILTS AND SANDS WITH GRADATION AL CONTACTS
* 70	62.56	64.42	1.86			SANDSTONE	SLTY. FG. VPR. M. GY. LAM. XBDG. SLD LITH AS ABOVE BUT FINER BANDING; NUMERO US SCOURS AND X-BEDDING SHOW TOPS UP
71	64.42	64.79	0.37			ROCK LOSS	
72	64.79	66.85	2.06			SANDSTONE	SLTY. FG. VPR. M. GY. LAM. XBDG. BRKH LITH AS ABOVE; FINELY LAMINATED; VERY S ILTY SANDSTONE; SCOURS

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPM BLOCK: LR DATA SOURCE: DDH85021

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 73	66.95	67.82	0.87			MUDSTONE	VPR. DK. GY. LAM. SLD VERY FAINT BANDS OF VFG SANDSTONE THROU Ghout
74	67.82	68.93	0.71			MUDSTONE	VPR. DK. GY. YTHNB. WRMBU. SLD LITH AS ABOVE; ALMOST MASSIVE SILTSTONE ; VERY FAINT BANDING; HELMINTHOPSIS; MI NOR PLANT HASH
75	68.93	70.36	1.43			MUDSTONE	CLYY. M. GY. MAS. SLD MASSIVE; UNIFORM; BIVALVES 3-10MM IN DI AMETER; MINOR PLANT HASH
76	70.36	70.86	0.50			ROCK LOSS	
76	70.86	71.08	0.22			MUDSTONE	CLYY. M. GY. MAS. SLD AS ABOVE; WITH BIVALVES AND MINOR PLANT HASH
* 77	71.08	73.09	2.01			MUDSTONE	CLYY. M. GY. MAS. SLD LITH AS ABOVE; 1-2MM COAL STRINGERS THR OUGHOUT LAST 10CM OF INTERVAL WITH PYRI TE BANDS; LARGE BIVALVES 1-4CM IN DIAME TER; MINOR PLANT HASH

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85021

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	77	73.09	73.55	0.46		ROCK LOSS	
	77	73.55	73.97	0.42	PHANTOM	MUDSTONE	CARB. DK. GY. MAS. VBRKN CARBONACEOUS PLANT MATERIAL THROUGHOUT; SHEARED
	77	73.97	74.48	0.51	PHANTOM	ROCK LOSS	
	78	74.48	75.19	0.71	PHANTOM	MUDSTONE	CARB. DK. GY. MAS. VBRKN AS ABOVE; 1-2MM COAL STRINGERS THROUGHOUT
	78	75.19	75.67	0.48	PHANTOM	ROCK LOSS	
	78	75.67	76.18	0.51	PHANTOM	MUDSTONE	CARB. DK. GY. MAS. VBRKN 7CM BAND OF C-2 COAL AT TOP OF BOX (VERY BROKEN); SMALLER COAL STRINGERS 1-3MM THROUGHOUT; GRADATIONAL BOTTOM CONTACT
*	78	76.18	77.02	0.84		SANDSTONE	SLTY. VFG. VPR. LT. GY. LAM. BRKN FINE WISPY SILT LAMINAE THROUGHOUT

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85021

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	78	77.02	77.55	0.53		SANDSTONE	SLTY. VFG. VPR. LT. GY. LAM. BRKN LITH AS ABOVE
	78	77.55	79.09	1.54		SANDSTONE	VFG. PR. LT. GY. VTHNB. VBRKN AS ABOVE BUT FEWER FINE SILT LAMINAE
	78	79.09	79.46	0.37		ROCK LOSS	
*	78	79.46	81.31	1.85		SANDSTONE	VFG. PR. LT. GY. MAS. VBRKN MUCH LESS SILT THAN ABOVE; PREDOMINANTLY MASSIVE
	74	81.31	81.71	0.40		ROCK LOSS	
	73	81.71	82.05	0.34		SANDSTONE	VFG. VPR. LT. GY. LAM. VBRKN VERY FINE SILTY LAMINAE THROUGHOUT
	72	82.05	82.38	0.33		ROCK LOSS	
*	70	82.38	83.12	0.74		SANDSTONE	VFG. VPR. LT. GY. LAM. VBRKN AS ABOVE; OCCASIONAL MUDSTONE RIP UP CL. AST
	71	83.12	83.60	0.48		SANDSTONE	VFG. VPR. LT. GY. MAS. VBRKN AS ABOVE BUT LESS SILT; PREDOMINANTLY MASSIVE WITH OCCASIONAL SILTY WISPS

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85021

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	72	83.60	84.40	C.80		SANDSTONE	FG.LT.GY.MAS.VBRKN AS ABOVE BUT NO SILT; NO BEDDING
	73	84.40	84.62	0.22		ROCK LOSS	
	74	84.62	85.64	1.02		SANDSTONE	SLTY.FG.LT.GY.VTHNB.BRKN SANDSTONE WITH SILT BANDS AS IN SILTY SANDSTONE ABOVE
	76	85.64	87.47	1.82		SANDSTONE	SLTY.FG.LT.GY.VTHNB.BRKN LITH AS ABOVE; OCCASIONAL MUDSTONE RIP UP CLASTS; CARBONACEOUS MATERIAL ON SOME FRACTURE SURFACES
	79	87.47	89.03	1.56		SANDSTONE	SLTY.FG.LT.GY.VTHNB.SSD.VBRKN LITH AS ABOVE; OCCASIONAL MUDSTONE RIP UP CLASTS; ONE FLAME STRUCTURE SHOWS TO PS UP; CARBONACEOUS MATERIAL ON SOME FRACTURE SURFACES
	80	89.03	89.37	0.34		ROCK LOSS	
	81	89.37	89.61	0.24		SANDSTONE	SLTY.FG.LT.GY.VTHNB.VBRKN LITH AS ABOVE; NUMEROUS MUDSTONE RIP UP CLASTS <1CM IN DIAMETER

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85021

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 82	89.61	90.98	1.37			SANDSTONE	SLTY.FG.LT.GY.VTHNB.VBRKN LITH AS ABOVE; WITH OCCASIONAL MUDSTONE RIP UP CLASTS
* 77	90.98	92.64	1.66			SANDSTONE	FG.PR.LT.GY.VTHNB.VBRKN DARK SILT LAYERS THROUGHOUT THICKNESSES VARY FROM 1-30MM; 21M OF INTENSE QTZ VEINING; RARE COAL STRINGERS 1-3MM WIDE
	76	92.64	94.03	1.39		ROCK LOSS	
	75	94.03	94.49	0.46		SANDSTONE	FG.PR.LT.GY.VTHNB.VBRKN LITH AS ABOVE; WITH RARE COAL STRINGERS AND ELONGATED MUDSTONE RIP UP CLASTS
	75	94.49	94.88	0.39		SANDSTONE	FG.PR.LT.GY.VTHNB.VBRKN LITH AS ABOVE; INTENSE QTZ VEINING; CARBONACEOUS MATERIAL ON FRACTURE SURFACES
	74	94.88	95.44	0.56		SANDSTONE	VCG.VPR.LT.GY.VTHNB.VBRKN VCG/GRANULAR SANDSTONE; INTENSE QTZ VEINING; CARBONACEOUS MATERIAL ON SOME FRACTURE SURFACES; GRADATIONAL UPPER CONTACT

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85021

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	74	95.44	96.05	0.61		SANDSTONE	YCG, VPR, LT. GY. MAS. BRKN LITH AS ABOVE; YCG/GRANULAR SANDSTONE; INTENSELY FRACTURED
	74	96.05	96.43	0.38		ROCK LOSS	
	73	96.43	97.23	0.80		SILTSTONE	SSY, VPR, H. GY. MAS. VBRKN SHARP UPPER CONTACT
	73	97.23	97.45	0.22		SANDSTONE	SSY, FG, VPR, H. GY. VTHNB, VBRKN 3-4CM WIDE SILT BANDS; POLISHED FRACTUR E SURFACES; CORE SPIN. OFF. AT TOP
	72	97.45	98.06	0.61		CLAYSTONE	LT. GY. MAS. SHRD VERY UNIFORM; EXTREMELY FINE GRAINED; N UMEROUS POLISHED SLIPPAGE SURFACES
	72	98.06	98.55	0.49		ROCK LOSS	
	71	98.55	99.67	1.12		SANDSTONE	FG, LT. GY. MAS. VBRKN MASSIVE; FINE GRAINED; MODERATE QTZ VEI NING; CARBONACEOUS MATERIAL INFILLING F RACTURES
	71	99.67	99.89	0.22	G	SANDSTONE	FG, VPR, LT. GY. MAS. BRKN AS ABOVE; NUMEROUS SMALL COAL RIP UP CL ASTS THROUGHOUT

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85021

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	71	99.89	100.34	0.45	G	ROCK LOSS	
*	70	100.34	101.60	1.26	G	MUDSTONE	CARB. DK. GY. VTHNB, VBRKN VERY FINE FAINT SILTY LAMINAE THROUGHOU T; MINOR PYRITE BLEBS AND BANDS; HAIR L IKE COAL STREAKS THROUGHOUT; SILT CONTE NT INCREASES DOWNWARD; PLANT WASH; SLIC KENSIDES
	69	101.60	101.90	0.30		SILTSTONE	SSY, VPR, H. GY. LAM. SLD FINE GRAINED SANDY LAMINAE THROUGHOUT
	69	101.90	102.05	0.15		ROCK LOSS	
*	67	102.05	104.14	2.09		SANDSTONE	SLTY, FG, VPR, H. GY. LAM. HRMBU, BRKN DARK SILTY LAMINAE THROUGHOUT; BIOTURBA TION AND VERT WORM BURROWS 5-10MM IN DI AMETER THROUGHOUT; TOPS UP; LARGE PYRIT E BLEB 3CM LONG BY 1.5CM WIDE
	68	104.14	104.75	0.61		SANDSTONE	SLTY, FG, VPR, H. GY. HRMBU, SLD LITH AS ABOVE; BIVALVES 1.5CM WIDE; BIO TURBATION
*	68	104.75	106.25	1.50		SANDSTONE	SLTY, FG, VPR, H. GY. LAM. HRMBU, BRKN LITH AS ABOVE; BIOTURBATED

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85021

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
67	106.25	108.13	1.88			SILTSTONE	M.GY.MAS.HRMBU.BRKN MASSIVE; NUMEROUS SLICKENSIDES; OCCASIONAL 1MM WIDE COAL STRINGERS; VERY THIN SAND BANDS WITH GRADATIONAL CONTACTS AT BOTTOM; HELMINTHOPSIS; PLANT MASH
66	108.13	108.27	0.14			SANDSTONE	FG.LT.GY.MAS.VBRKN CONTINUATION OF SAND BANDS ABOVE; TALC ON FRACTURE SURFACES
66	108.27	108.78	0.51			ROCK LOSS	
66	108.78	109.32	0.54			MUDSTONE	DK.GY.MAS.SHRD UNIFORM; MASSIVE; BIVALVES
66	109.32	109.78	0.46			MUDSTONE	SLTY.OK.GY.MAS.VBRKN SHEARING AT TOP OF UNIT WITH BIVALVES; SILTY WITH 5MM WHITE CLASTS IN DARK MU. STONE MATRIX 'MILKY MAY' UNIT
66	109.78	110.02	0.24			ROCK LOSS	

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85021

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 65	110.02	111.74	1.72			SANDSTONE	SLTY.VEG.VPR.H.GY.LAM.HRMBU.VBRKN DARK SILTY LAMINAE THROUGHOUT; UPPER .19M CONTAIN NUMEROUS TINY WORM BURROWS; HELMINTHOPSIS NEAR BOTTOM OF INTERVAL; SLICKENSIDES AND LISTRIC SURFACES;
* 67	111.74	112.37	0.63			SILTSTONE	VPR.H.GY.LAM.HRMBU.BRKN NUMEROUS HELMINTHOPSIS AND OCCASIONAL VERT WORM BURROWS 1CM IN DIAMETER; SCOUR S AND WORM BURROWS SHOWN TOPS UP; FINELY LAMINATED SILTSTONE
67	112.37	112.61	0.24			ROCK LOSS	
68	112.61	113.99	1.38			SILTSTONE	VPR.H.GY.LAM.HRMBU.BRKN LITH AS ABOVE
69	113.99	115.98	1.99			SILTSTONE	VPR.H.GY.LAM.HRMBU.BRKN LITH AS ABOVE; NUMEROUS; HELMINTHOPSIS AS ABOVE
* 70	115.98	117.02	1.04			SILTSTONE	VPR.H.GY.LAM.HRMBU.BRKN LITH AS ABOVE; BIOGENIC ACTIVITY
69	117.02	118.02	1.00			SILTSTONE	VPR.H.GY.LAM.HRMBU.BRKN AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85021

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	68 118.02	118.42	0.40			ROCK LOSS	
*	67 118.42	120.17	1.75			SILTSTONE	YPR. M. GY. LAM. HRMBU. BRKN LITH AS ABOVE; HELMINTHOPSIS; MANY BANDS FINE UPWARDS FROM VFG SAND TO DARK MUD
	68 120.17	120.30	0.13			SILTSTONE	YPR. M. GY. LAM. HRMBU. BRKN LITH AS ABOVE
*	70 120.30	122.42	2.12			SILTSTONE	CLYY. VPR. DK. GY. YTHNB. HRMBU. BRKN LESS SILT THAN ABOVE; LESS BEDDING AND FAINTER; OCCASIONAL SMALL (1-3MM WIDE) HORIZ. WORM BURROWS; GRADED BEDDING-FINING UPWARDS
	72 122.42	123.27	0.85			SILTSTONE	CLYY. VPR. DK. GY. YTHNB. BIOTR. BRKN LITH AS ABOVE; MORE IRREGULAR BIOTURBATION THAN UNIFORM BURROWS; SLICKENSIDES
*	73 123.27	124.40	1.13	06580		SILTSTONE	CLYY. VPR. DK. GY. YTHNB. BRKN LITH AS ABOVE; WITH A 5CM BAND OF IRREGULAR COAL BANDS; MASSIVE COAL STARTS AT 4CM FROM END OF INTERVAL WITH A SHARP CONTACT AND SLICKENSIDES
	71 124.40	124.79	0.39	06581 F		COAL	C-2. VBRKN MUDDY BANDS THROUGHOUT

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85021

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	71 124.79	124.80	0.01	06581 F		COAL	C-6. VBRKN
	71 124.80	125.12	0.32	06581 F		COAL LOSS	
	70 125.12	125.43	0.31	06581 F		COAL	C-1. BRKN MINOR THIN MUDDY BANDS
	70 125.43	125.44	0.01	06581 F		COAL	C-6. SLD
	70 125.44	125.48	0.04	06582 F		COAL	C-1. BRKN
	69 125.48	125.61	0.13	06582 F		COAL	C-2. BRKN
	69 125.61	125.80	0.19	06582 F		MUDSTONE	CARB. DK. GY. MAS. BRKN MINOR COAL STRINGERS THROUGHOUT
	69 125.80	125.94	0.14	06582 F		COAL	C-6. BRKN VITRINITE STRINGERS WITHIN
	68 125.94	126.18	0.24	06582 F		COAL LOSS	
	68 126.18	126.25	0.07	06582 F		COAL	C-4. BRKN

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85021

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	126.25	126.31	0.06	06582 F		COAL	C-1. SLD MUDDY BANDS WITHIN
	126.31	126.56	0.25	06582 F		COAL	C-3. BRKN THIN BANDS AND LAMINAE OF C-1 AND MUDDY BANDS WITH COAL STRINGERS
	126.56	126.81	0.25	06582 F		COAL	C-1. BRKN MINOR MUDDY BANDS THROUGHOUT
	126.81	127.00	0.19	06582 F		COAL	C-1. BRKN THIN MUDDY BANDS AND STRINGERS
	127.00	127.01	0.01	06582 F		COAL	C-6. BRKN
	127.01	127.17	0.16	06582 F		COAL	C-1. BRKN THIN MUDDY BANDS AND STRINGERS
	127.17	127.29	0.12	06583 F		COAL	C-6. BRKN THIN BANDS AND STRINGERS OF VITRINITE THROUGHOUT
	127.29	127.36	0.07	06583 F		MUDSTONE	CARB. DK. GY. BRKN AS ABOVE
	127.36	127.38	0.02	06583 F		ROCK LOSS	
	127.38	127.44	0.06	06583 F		COAL	C-1. BRKN

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85021

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	127.44	127.70	0.26	06583 F		COAL	C-3. BRKN GRADES FROM C-1 TO C-6 TOWARDS BASE OF UNIT
	127.70	127.74	0.04	06583 F		MUDSTONE	M. GY. MAS. SLD UNCONSOLIDATED
	127.74	128.11	0.37	06583 F		COAL	C-6. BRKN VITRINITE STRINGERS THROUGHOUT
	128.11	128.80	0.69	06584		MUDSTONE	CARB. H-DK. GY. LAM. BRKN BECOMING LESS CARB AND MORE SILTY TOWARD BS. BASE; ABUNDANT COAL STRINGERS; UPPER 20CM SAMPLED
	128.80	129.22	0.42			MUDSTONE	DK. GY. MAS. BIOTR. SLD THOROUGHLY BIOTURBATED; OCCASIONAL COAL Y STRINGERS 1-2MM WIDE
	129.22	129.28	0.06			ROCK LOSS	
*	129.28	130.85	1.57			SILTSTONE	M. GY. MAS. BIOTR. SLD LITH AS ABOVE BUT SLIGHTLY SILTIER; VER Y FAINT BEDDING; .28M BAND OF CALCAREOUS MUDSTONE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85021

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 62	130.85	132.24	1.39			SILTSTONE	M. GY. LAM. MRMBU. SLD LITH AS ABOVE; BUT NUMEROUS VERY FAINT LAMINAE THROUGHOUT; WORM BURROWS 5MM IN DIAMETER
63	132.24	132.34	0.10			ROCK LOSS	
63	132.34	133.00	0.66			SILTSTONE	M. GY. LAM. MRMBU. SLD LITH AS ABOVE
* 64	133.00	135.04	2.04			SILTSTONE	M. GY. LAM. SSD. SLD LITH AS ABOVE BUT SANDIER DOWNWARD; SCOUR LOADING AND OCCASIONAL WORM BURROWS SHOW TOPS UP; 22M BAND OF CALCAREOUS MUDSTONE; SANDIER DOWNWARD
61	135.04	135.36	0.32			SANDSTONE	SLTY. VFG. PR. LT. GY. YTHNB. SLD OCCASIONAL SILTY BAND 3CM WIDE
59	135.36	136.97	1.61			SANDSTONE	SLTY. VFG. YPR. FT. GY. YTHNB. SSD. BRKN AS ABOVE; BIOTURBATED
57	136.97	137.07	0.10			ROCK LOSS	
* 55	137.07	138.39	1.32			SANDSTONE	SLTY. VFG. YPR. LT. GY. YTHNB. BRKN LITH AS ABOVE; OCCASIONAL SILTY LAYER

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85021

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
60	138.39	138.98	0.59			SANDSTONE	SLTY. VFG. YPR. LT. GY. YTHNB. BRKN AS ABOVE
* 66	138.98	140.83	1.85			SANDSTONE	SLTY. VFG. YPR. LT. GY. YTHNB. MRMBU YBRKN AS ABOVE; SCOURS SHOW TOPS UP; MINOR HO RIZ. WORM BURROWS 2-3MM WIDE
63	140.83	140.91	0.08			ROCK LOSS	
62	140.91	141.50	0.59			SILTSTONE	YPR. LT. GY. YTHNB. SLD SILTIER THAN ABOVE AND MORE INTENSELY L AMINATED
* 59	141.50	142.89	1.39			SILTSTONE	YPR. LT. GY. YTHNB. SLD AS ABOVE
* 65	142.89	144.46	1.57			SILTSTONE	M. GY. LAM. SSD. BRKN VERY FINELY LAMINATED; LITH AS ABOVE; L LOADING SHOWS TOPS UP
65	144.46	144.77	0.31			SILTSTONE	M. GY. LAM. SSD. BRKN AS ABOVE
65	144.77	144.87	0.10			ROCK LOSS	

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85021

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 65	144.87	147.00	2.13			SILTSTONE	M. GY. LAM. SSD. SLD LITH AS ABOVE BUT MORE UNIFORM GRAIN SIZE AND FAINTER BANDING
65	147.00	147.65	0.65			SILTSTONE	M. GY. VTHNB. SSD. SLD VERY UNIFORM ALMOST MASSIVE
65	147.65	149.02	1.37			SILTSTONE	M. GY. VTHNB. SSD. SLD AS ABOVE; MINOR PLANT HASH
* 65	149.02	150.22	1.20	06585		MUDSTONE	CARB. M-DK. GY. MAS. BRKN GRADATIONAL FROM SILTY NEAR TOP TO VERY CARBONACEOUS AT BASE; INCREASING AMOUNT OF COAL STRINGERS TOWARDS BASE; LOWER 20CM SAMPLED
66	150.22	150.35	0.13	06586	E	COAL	C-2. SLD ABUNDANT QTZ AND MUDSTONE STRINGERS
66	150.35	150.40	0.05	06586	E	COAL	C-1. SLD
66	150.40	150.56	0.16	06586	E	COAL LOSS	
66	150.56	150.58	0.02	06586	E	CLAYSTONE	M. GY. MAS. SLD SOFT CLAY MATERIAL
67	150.58	151.09	0.51	06586	E	COAL	C-1. BRKN MINOR MUD BANDS THROUGHOUT

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85021

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
67	151.09	151.45	0.36	06586	E	COAL	C-2. PHRD MUD BANDS THROUGHOUT
68	151.45	152.12	0.67	06586	E	COAL LOSS	
68	152.12	152.19	0.07	06586	E	COAL	C-1. PHRD AS ABOVE
69	152.19	152.60	0.41	06587		MUDSTONE	CARB. DK. GY. BRKN LITRIFIC SURFACES; TOP 20CM SAMPLED
70	152.60	153.76	1.16			MUDSTONE	CARB. DK. GY. MAS. BRKN AS ABOVE; BECOMES LESS CARB TOWARDS BASE
71	153.76	154.34	0.58			MUDSTONE	DK. GY. MAS. BRKN UNIFORM; VFG OCCASIONAL COALY STRINGERS 1-3MM WIDE
* 72	154.34	155.64	1.30			SANDSTONE	SLTY. VFG. VPR. LT. GY. VTHNB. BIOTN ONE BAND 6CM WIDE VERY BIOTURBATED
* 60	155.64	157.66	2.02			SANDSTONE	SLTY. VFG. VPR. LT. GY. VTHNB. WRHBU. SLD OCCASIONAL SILTY STRINGER THROUGHOUT; 1 NO BIVALVE ESCAPE STRUCTURES(?) 1.5CM. 1 W DIAMETER; BIOTURBATION; SSD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85021

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 66	157.66	158.55	0.89			SANDSTONE	SLTY. VFG. YPR. LT. GY. VTHNB. WRMBU. SLD LITH AS ABOVE; SSD
64	158.55	159.64	1.09			SANDSTONE	SLTY. VFG. YPR. LT. GY. VTHNB. WRMBU. SLD AS ABOVE; TWO 10CM BANDS OF BIOTURBATIO N AND 1.5-2CM WIDE WORM BURROWS; SSD
* 61	159.64	161.63	1.99			SANDSTONE	SLTY. VFG. YPR. LT. GY. VTHNB. SLD LITH AS ABOVE; FAINT SILTY MISPS THROUG HOUT
* 60	161.63	163.69	2.06			SANDSTONE	SLTY. VFG. YPR. LT. GY. VTHNB. WRMBU. SLD LITH AS ABOVE; BIOTURBATION AND WIDE (1 -1.5CM) LONG VERT WORM BURROWS
* 65	163.69	164.62	0.93			SANDSTONE	SLTY. VFG. YPR. LT. GY. VTHNB. YBRKN LITH AS ABOVE
65	164.62	165.28	0.66			SANDSTONE	SLTY. VFG. YPR. LT. GY. VTHNB. YBRKN LITH AS ABOVE

* DENOTES MEASURED BCA
NEWPAGE

GULF CANADA RESOURCES INC.

COAL DIVISION
MOUNT KLAPPAN PROJECT

SEAM DETAIL

TRUE THICKNESS

DATA SOURCE: KPN LR DDM85021 SEAM: F INTERVAL(M): 124.40 - 128.11 ELEVATION(M): 1540.4
 GEOLOGIST: BARKER SCALE: DATE: DEC 19/85 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	
	124.40			0.38												
				(0.30)	88.2	8881										
	125.44			0.46												
				0.18												
				0.13												
				(0.22)												
				1.02	88.1	8882	85	3.14 / 0.30 3.43		1.65	48.92	8.65	43.48	0.33	15.97	
	127.17			0.29	87.8	8883										
				0.33												
	128.11															

3-23

GULF CANADA RESOURCES INC.

COAL DIVISION
MOUNT KLAPPAN PROJECT

TRUE THICKNESS

DATA SOURCE: KPN LR DDH85021 SEAM: E INTERVAL(M): 150.22 - 152.19 ELEVATION(M): 1540.4
 GEOLOGIST: BARKER SCALE: DATE: DEC 19/85 DRAWING NO.:

SEAM COMP.	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES		X 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 YAL M/ES				
		↑																	
	150.22			0.17 (0.18)															
				0.80	57.8	6588	88	1.80 / 0.02 1.81		1.09	19.70	8.27	72.94	0.45	27.89				
				(0.82)															
	152.19																		
		↓																	

108

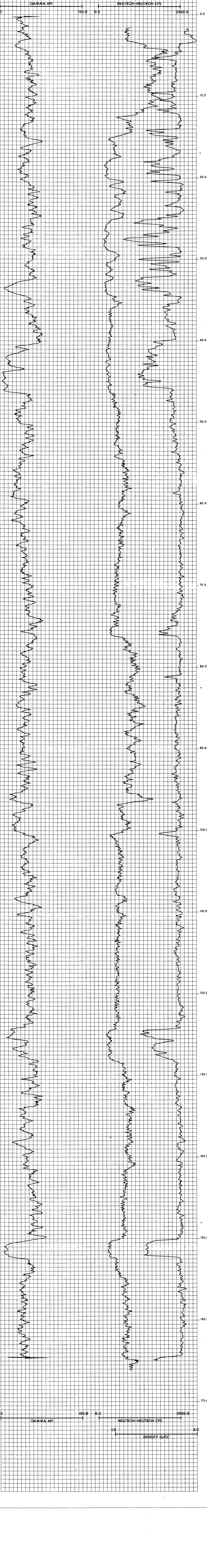
Gulf Canada Resources Inc.

Coal Division

Geophysical Log

Datasource: KPNLRDDH85021	Province: BC	Northing: 6345240.00	Lat: 571507
Log Date: 85-07-27	Zone: 9	Easting: 505628.00	Long: 1285424
Company: CENTURY	Measuring Point:		Elevation: 1540.0
Geologist: BARKER			
Scale: 1 to 100.0	Comments:		
Depth Range: 0.0 to 171.0	1. LOGGED THROUGH THE RODS		
True Thickness: NO	2.		

Logs Plotted:	Axis Range	Axis Length	Smoothing Points	Tool	Comments
1. GAMMA API	0.0 to 150.0	10.0	31	9055A	IN PIPE
2. NEUTRON-NEUTRON CPS	0.0 to 2500.0	10.0	9	9055A	IN PIPE
3. DENSITY G/CC	1.0 to 3.0	10.0	15	9030A	IN PIPE



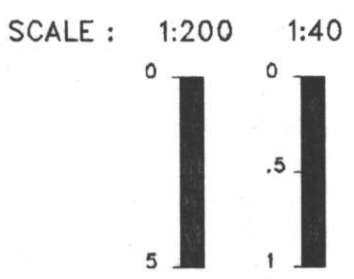
GULF CANADA RESOURCES INC.
 COAL DIVISION
 KLAPPAN PROJECT
 STRATIGRAPHIC LOG
 KPN LR DDH85021

GEOLOGIST : BARKER

DATE : JAN 08/86

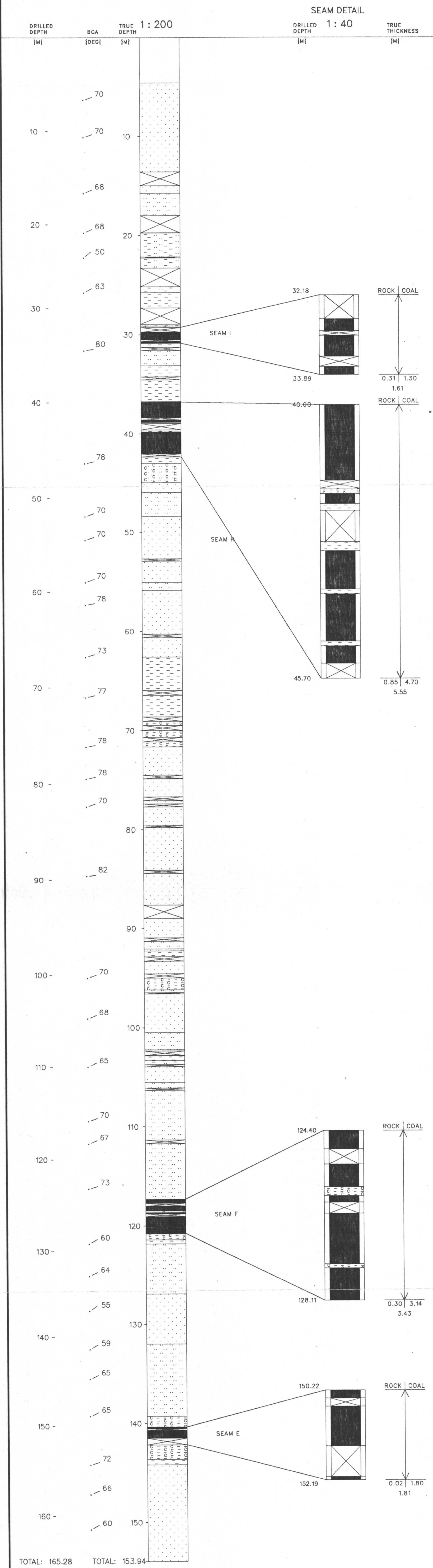
DRAWING NO. :

LITHOLOGIC SYMBOLS



	SANDSTONE		BENTONITE
	SILTSTONE		BRECCIA
	COAL		CARBONACEOUS
	OVERBURDEN		QUARTZ
	MUDSTONE, CLAYSTONE		PYRITE
	TUFF		FERRUGINOUS
	LIMESTONE		CONGLOMERATE
	CORE LOSS		FOSSIL BED

NORTHING: 6345237.0 N INCLINATION: 80.0°
 EASTING: 505628.2 E BEARING: 120.0°



KPNLRDDH85022

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH85022

DATE - 01/09/86

- HISTORY -

START DATE - 07/26/85
END DATE - 07/28/85

CONTRACTOR - J T THOMAS
GEOLOGIST - SAVOIE

OPERATOR - GCR1
SURVEYOR - MWG & ASS

REMARKS -

- LOCATION -

PROVINCE - BC
ELEVATION - 1678.40

ZONE - 9
NORTHING - 6343550.00
EASTING - 506630.06

LICENCE/LEASE NUMBER - 7151

LATITUDE - 571413
LONGITUDE - 1285325

- ORIENTATION -

LENGTH - 178.28

INCLINATION - 90.0
AZIMUTH - 0.0

CORE SIZE - 0.0

CEMENT -
PLUG -
PIEZ -

CASING DEPTH (M) - 3.35
AQUIFER DEPTHS (M) - 0.00
0.00
LOST CIRC. DEPTHS (M) - 0.00
0.00

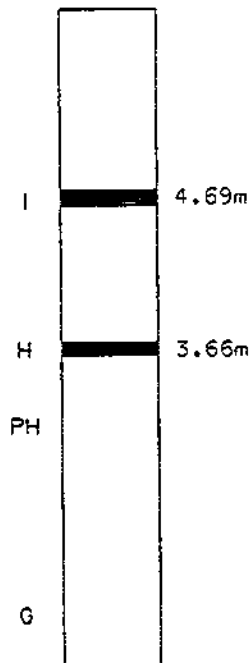
*** NOTE *** 0 INDICATES NO VALUE



MT. KLAPPAN COAL PROPERTY

1985 DIAMOND DRILL HOLES
DDH85022

SEAM	TRUE SEAM THICKNESS (COAL & ROCK)
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NOTE: SCHEMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm COAL.

SCALE: 1:2000

GULF CANADA RESOURCES INC.
15/01/86



86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85022

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	77	0.00	3.35	3.35		CASING	
*	77	3.35	5.35	2.00		SILTSTONE	SSY. PR. LT-M. GY. LAM. SSD. BRKN INTERLAMINATED MUDSTONE; MINOR ORANGE-BROWN WEATHERING; TOPS UP; LOCALIZED MIN OR FG SANDSTONE
	79	5.35	5.92	0.57		SILTSTONE	SSY. PR. LT-M. GY. LAM. XBDG. BRKN INTERLAMINATED MUDSTONE; TRUNCATION OF BEDDING; TOPS UP
*	81	5.92	6.97	1.05		SILTSTONE	SSY. PR. LT-M. GY. LAM. BRKN AS ABOVE
	81	6.97	7.39	0.42		SILTSTONE	CLYY. PR. LT-M. GY. LAM. BRKN THINLY LAMINATED WITH MUDSTONE; COASTER LITHOLOGY
	82	7.39	7.75	0.36		SILTSTONE	CLYY. PR. LT-M. GY. LAM. SLD AS ABOVE
*	82	7.75	9.46	1.71		SILTSTONE	CLYY. PR. LT-M. GY. LAM. SSD. BRKN INTERLAMINATED WITH MUDSTONE COASTER LITHOLOGY; RED-BROWN WEATHERING ON BROKEN SURFACES
*	79	9.46	10.83	1.37		SILTSTONE	CLYY. PR. LT-M. GY. LAM. BRKN AS ABOVE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 2

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85022

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	84	10.83	11.53	0.70		SILTSTONE	CLYY. PR. LT-M. GY. LAM. BRKN AS ABOVE
	83	11.53	13.53	2.00		SILTSTONE	CLYY. PR. LT-M. GY. LAM. BRKN AS ABOVE
	83	13.53	14.43	0.90		SILTSTONE	PR. LT-M. GY. LAM. BRKN COASTER ZONE; RED-BROWN WEATHERING
	82	14.43	15.25	0.82		SILTSTONE	PR. LT-M. GY. LAM. BRKN AS ABOVE
	82	15.25	15.85	0.60		SILTSTONE	PR. LT-M. GY. LAM. BRKN AS ABOVE
	81	15.85	16.65	0.80		MUDSTONE	SLTY. M. GY. LAM. SSD. BRKN TOPS UP; THREE 1-2CM ZONES OF CLAY POSSIBLY BENTONITE AT 16.39 16.24 AND 16.08 M; COALY STRINGER 1.2CM WIDE; 1CM ZONE OF DISSEMINATED PYRITE; SEMI SOFTISH SEDIMENT DEFORMATION WITH MINOR FAULTING
*	81	16.65	17.13	0.48		MUDSTONE	SLTY. M. GY. LAM. BRKN

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 3

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85022

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 80	17.13	19.13	2.00			MUDSTONE	SLTY. M. GY. LAM. SSD. BRKN INTERLAMINATED SILTSTONE; 4CM BAND OF C LAY AT 17.79M; POSSIBLY BENTONITE; 10CM ZONE OF SLUMPED SEDIMENT AT CENTER OF UNIT
78	19.13	19.62	0.49			MUDSTONE	CARB. H-DK. GY. LAM. BRKN ABUNDANT PLANT FRAGMENTS; MINOR COALY S TRINGERS
77	19.62	19.82	0.20			MUDSTONE	CARB. H-DK. GY. LAM. BRKN AS ABOVE
76	19.82	21.10	1.28			MUDSTONE	SLTY. M. GY. LAM. SSD. BRKN INTERLAMINATED WITH SILTSTONE; LOCALIZE D MINOR FG SANDSTONE BAND 2CM CONTAININ G SMALL MUDSTONE RIP UP CLASTS; TOPS UP ; 20CM ZONE ABUNDANT PLANT IMPRINTS; SI LTIER. TOWARD BASE
* 73	21.10	22.66	1.56			SILTSTONE	CLYY. LT-M. GY. LAM. BIOTR. BRKN SSD. TOPS UP
76	22.66	23.13	0.47			SILTSTONE	CLYY. LT-M. GY. LAM. BIOTR. BRKN AS ABOVE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 4

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85022

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 79	23.13	25.17	2.04			MUDSTONE	SLTY. LT-M. GY. LAM. BIOTR. BRKN INTERLAMINATED BIOTURBATED SILTSTONE TH AT DECREASES WITH DEPTH; TOPS UP; MINOR CARBONATE VEINING
80	25.17	25.56	0.39			MUDSTONE	SLTY. LT-M. GY. LAM. BRKN INTERLAMINATED WITH DISCONTINUOUS SILTS TONE
* 80	25.56	27.09	1.53			MUDSTONE	SLTY. LT-M. GY. BRKN MINOR SILTSTONE LAMINAE
82	27.09	28.56	1.47			MUDSTONE	SLTY. LT-M. GY. LAM. SSD. BRKN MINOR SILTSTONE LAMINAE; TOPS UP
* 83	28.56	29.05	0.49			MUDSTONE	SLTY. LT-M. GY. LAM. SSD. SLD AS ABOVE
79	29.05	29.83	0.78			MUDSTONE	SLTY. LT-M. GY. BRKN AS ABOVE
* 76	29.83	31.04	1.21			SILTSTONE	CLYY. LT-M. GY. LAM. SSD. BRKN MUDSTONE LAMINAE; LOCALIZED BANDS (2-3C M) OF FG SANDSTONE
77	31.04	31.20	0.16			SILTSTONE	SSY. LT-M. GY. LAM. BRKN INTERLAMINATED TO INTERBEDDED MUDSTONE

* DENOTES MEASURED BCA

FORM
4001

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85022

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	31.20	33.13	1.93			SANDSTONE	FG, PR, LT, GY, MAS, SSD, BRKN LOCALIZED ZONES OF INTERBEDDED MUDSTONE ; LOAD CAST; TOPS UP; WORM BURROWS 3MM WIDE 1CM LONG; LARGE COALY PLANT FRAGME NT FOUND IN MUDSTONE BAND
	33.13	33.31	0.18			SANDSTONE	FG, PR, LT, GY, MAS, SLD MINOR CARBONATE VEINING SUB-PERPENDICUL AR TO BEDDING
*	33.31	34.23	0.92			SANDSTONE	CLYY, VFG, PR, LT, M, GY, THNB, VBRKN 20CM ZONE OF CONSOLIDATED SILT AND FG S AND WITH MINOR MUDSTONE
	34.23	34.81	0.58			SANDSTONE	CLYY, VFG, PR, LT, M, GY, VBRKN UNCONSOLIDATED WITH A HIGH % OF MUDSTON E
	34.81	35.34	0.53			SANDSTONE	SLTY, VFG, PR, LT, M, GY, MAS, SSD, BRKN DISCONTINUOUS .2CM LAMINAE OF MUDSTONE
	35.34	36.76	1.42			SILTSTONE	SSY, PR, LT, M, GY, LAM, BRKN INTERBEDDED WITH MUDSTONE
	36.76	37.34	0.58			SILTSTONE	PR, LT, GY, LAM, VBRKN INTERLAMINATED MUDSTONE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 6

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85022

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	37.34	38.71	1.37			SILTSTONE	PR, LT, M, GY, LAM, BRKN AS ABOVE; MINOR CARBONATE VEINING AT BA SE
*	38.71	40.46	1.75			SILTSTONE	SSY, LT, M, GY, LAM, VBRKN INTERLAMINATED WITH MUDSTONE; LOCALIZED BANDS OF FG SANDSTONE; MINOR CARBONATE VEINING; CLAY RICH TOWARD BASE; MINOR X-BEDDING; TOPS UP
	40.46	40.61	0.15			SANDSTONE	CLYY, VFG, PR, LT, GY, MAS, BRKN
*	40.61	42.65	2.04			SANDSTONE	CLYY, VFG, PR, LT, GY, MAS, BRKN LOCALIZED INDISTINCT MUDSTONE LAMINAE; CLAY ENRICHED; MINOR CARBONATE VEINING
	42.65	43.63	0.98			SANDSTONE	CLYY, VFG, PR, LT, GY, MAS, VBRKN AS ABOVE
*	43.63	44.38	0.75			SANDSTONE	CLYY, VFG, PR, LT, GY, MAS, BRKN AS ABOVE
*	44.38	44.72	0.34			SANDSTONE	CLYY, VFG, MOD, LT, GY, MAS, BRKN CLAY ENRICHED

* DENOTES MEASURED BCA

1004 3301

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 7

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85022

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
88	44.72	44.90	0.18			CLAYSTONE	WH. BRKN BENTONITE ABOVE T SEAM
86	44.90	46.36	1.46			MUDSTONE	SLTY. LI-M. GY. MAS. VBRKN SOME SECTIONS APPEAR SEMI-CONSOLIDATED
88	46.36	46.71	0.35			MUDSTONE	SLTY. LI-M. GY. MAS. VBRKN
* 80	46.71	48.31	1.60			MUDSTONE	SLTY. M. GY. LAM. SSD. VBRKN THIN SILTSTONE LAMINAE
* 80	48.31	49.04	0.73	06562		MUDSTONE	M-DK. GY. MAS. BRKN BECOMES MORE CARBONACEOUS NEAR BASE; LO MER 20CM SAMPLED
79	49.04	49.32	0.28	06563	I	COAL LOSS	
79	49.32	49.60	0.28	06563	I	COAL	C-3. PWRD
79	49.60	49.73	0.13	06563	I	COAL	C-2. VBRKN MUDDY IN PLACES
79	49.73	49.77	0.04	06563	I	SILTSTONE	M. GY. MAS. SLD

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 8

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85022

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
79	49.77	49.88	0.11	06563	I	COAL	C-1. BRKN
79	49.88	49.89	0.01	06563	I	MUDSTONE	CARB. DK. GY. MAS. SLD
79	49.89	50.00	0.11	06563	I	COAL	C-1 SLD THIN MUD BANDS THROUGHOUT
78	50.00	50.42	0.42	06563	I	COAL	C-1. BRKN AS ABOVE
78	50.42	50.44	0.02	06563	I	COAL	C-1. BRKN AS ABOVE
78	50.44	50.53	0.09	06563	I	MUDSTONE	M. GY. BRKN
78	50.53	50.55	0.02	06563	I	SILTSTONE	LI-M. GY. SLD MUDSTONE WITHIN
* 78	50.55	50.71	0.16	06564	I	COAL	C-1. BRKN
78	50.71	50.79	0.08	06564	I	COAL	C-5. BRKN
77	50.79	51.41	0.62	06564	I	COAL	C-1. BRKN MINOR MUD LAMINAE

* DENOTES MEASURED BCA

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86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85022

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	77	51.41	51.44	0.03	06564 I	COAL	C-6. BRKN
	76	51.44	51.78	0.34	06564 I	COAL	C-1. BRKN MUD BANDS AND STRINGERS
	76	51.78	51.79	0.01	06564 I	COAL	C-6. BRKN
	76	51.79	51.81	0.02	06564 I	MUDSTONE	CARB. DK. GY. MAS. SLD
	76	51.81	51.87	0.06	06564 I	COAL	C-1. SLD
	76	51.87	51.88	0.01	06564 I	MUDSTONE	CARB. DK. GY. MAS. BRKN
	76	51.88	52.00	0.12	06564 I	COAL LOSS	
	73	52.00	52.58	0.58	06565 I	COAL	C-1. BRKN THIN MUDSTONE BANDS THROUGHOUT
	74	52.58	52.95	0.37	06565 I	COAL	C-1. BRKN AS ABOVE
	73	52.95	53.87	0.92	06565 I	COAL	C-1. BRKN AS ABOVE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85022

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 72	53.87	54.25	0.38	06566		MUDSTONE	CARB. DK. GY. MAS. BRKN COALY STRINGERS THROUGHOUT; ABUNDANT PLANT FRAGMENTS SOME COALIFIED; UPPER 20CM SAMPLED
	73	54.25	54.46	0.21		MUDSTONE	CARB. DK. GY. MAS. BRKN AS ABOVE
* 75	54.46	55.91	1.45			MUDSTONE	SLTY. LT-M. GY. THMB. SSD. BRKN UNIT IS A GRADATIONAL ZONE OF SILTY MUDSTONE GRADING TO CLAYEY SILTSTONE; AMBIGIOUS TOPS
	80	55.91	56.22	0.31		SILTSTONE	CLYV. LT-M. GY. LAM. SSD. BRKN INTERLAMINATED MUDSTONE
* 81	56.22	56.45	0.23			SANDSTONE	FG. LY. GY. MAS. SSD. SLD LOCALIZED MUDSTONE BANDS; TOPS UP
* 76	56.45	58.17	1.72			SANDSTONE	FG. LY. GY. MAS. SSD. BRKN LOCALIZED DISCONTINUOUS BANDS OF MUDSTONE; LARGE (5CM) RIP UP CLASTS QUITE ROUND; 2CM GTZ AND CARBONATE VEIN; SANDSTONE COARSER GRAINED TOWARD BASE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 11

PROJECT: KPW BLOCK: LR DATA SOURCE: DDH85022

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 88	58.17	58.44	0.27			SANDSTONE	MG. LT. GY. MAS. SLD.
87	58.44	59.00	0.56			SANDSTONE	MG. LT. GY. MAS. SLD.
84	59.00	60.25	1.25			SANDSTONE	FG. LT. GY. MAS. BRKN FIRST BCH OF CORE IS RUBBLE
* 80	60.25	61.45	1.20			SANDSTONE	FG. LT. GY. MAS. BRKN TWO ZONES OF ABUNDANT MUDSTONE RIP UP C LASTS APPROX 10CM EACH
81	61.45	61.49	0.04			ROCK LOSS	
81	61.49	61.98	0.49			SILTSTONE	SSY. LT-M. GY. LAM. VBRKN INTERLAMINATED MUDSTONE
* 83	61.98	63.94	1.96			SILTSTONE	SSY. LT-M. GY. LAM. BRKN THIN DISCONTINUOUS MUDSTONE LAMINAE; % OF MUDSTONE INCREASES GRADUALLY TOWARD BASE; COARSENING UPWARD SEQUENCE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPW BLOCK: LR DATA SOURCE: DDH85022

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
81	63.94	65.04	1.10			MUDSTONE	SLTY. M. GY. LAM. BRKN GRADES TO SILTSTONE TOWARD BASE
* 80	65.04	65.84	0.80			SANDSTONE	SLTY. FG. LT-M. GY. LAM. SSD. BRKN DISCONTINUOUS MUDSTONE BANDS
* 82	65.84	67.62	1.78			SILTSTONE	SSY. LT-M. GY. LAM. MRMBU. SLD. DISCONTINUOUS INTERLAMINATED MUDSTONE
77	67.62	67.98	0.36			SANDSTONE	SLTY. FG. LT-M. GY. MAS. SLD. VERY MINOR DISCONTINUOUS MUDSTONE BANDS
76	67.98	68.18	0.20			SANDSTONE	SLTY. FG. LT-M. GY. MAS. SLD. AS ABOVE
* 72	68.18	69.54	1.36			SANDSTONE	SLTY. FG. LT-M. GY. MAS. BRKN AS ABOVE
* 82	69.54	69.97	0.43			SANDSTONE	SLTY. FG. LT-M. GY. THMB. SLD. FAIRLY REGULAR .5-1CM SILT AND MUDSTONE BANDS
79	69.97	72.05	2.08			SANDSTONE	SLTY. FG. LT-M. GY. THMB. SLD. AS ABOVE; MINOR WORM BURROWS .4CM WIDE 1.5CM LONG; LOCAL SSD.

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DOR85022

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. TO	SEAM ID	LITHOLOGY	DESCRIPTION
* 74	72.05	72.20	0.15			SILTSTONE	SSY. PR. LT-M. GY. LAM. WRMBU. BRKN INTERLAMINATED MUDSTONE; LOCALIZED BANDS OF FG SANDSTONE; MINOR BURROWING; BECOMING MUDDY TOWARD BASE
75	74.20	74.47	0.27			SILTSTONE	SSY. PR. LT-M. GY. LAM. BRKN INCREASE IN % OF MUDSTONE
* 75	74.47	76.20	1.73			MUDSTONE	M-DK. GY. MAS. BRKN MINOR SILTSTONE LAMINAE AT VERY TOP OF UNIT; BIVALVES RICH APPEAR AT BASE
73	76.20	77.38	1.18			MUDSTONE	M-DK. GY. MAS. BRKN ONE MINOR COALY PLANT FRAGMENT
* 71	77.38	78.27	0.89			MUDSTONE	M-DK. GY. MAS. BRKN 20CM SILTY ZONE; BIVALVES AT TOP OF UNIT
71	78.27	78.39	0.12			MUDSTONE	M-DK. GY. MAS. BRKN
72	78.39	80.35	1.96			SANDSTONE	SILTY. FG. PR. LT-M. GY. MAS. SSD. BRKN BANDS OF INTERBEDDED SILTSTONE AND MUDSTONE (APPROX 40CM) NEAR TOP OF UNIT; TOPS UP; COAL STRINGERS IN SILTSTONE AND MUDSTONE

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DOR85022

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. TO	SEAM ID	LITHOLOGY	DESCRIPTION
73	80.35	80.47	0.12			SILTSTONE	SSY. PR. LT-M. GY. LAM. VRRKN MUDSTONE LAMINAE
73	80.47	80.57	0.10			ROCK LOSS	
* 74	80.57	81.55	0.98			SILTSTONE	CLYY. PR. LT-M. GY. LAM. SSD. BRKN INTERLAMINATED SILTSTONE AND MUDSTONE; MINOR FG SANDSTONE BANDS (<.5CM); TOPS UP
78	81.55	82.46	0.91			MUDSTONE	M-DK. GY. MAS. BRKN PYRITE BLEBS
82	82.46	83.62	1.16			MUDSTONE	M-DK. GY. MAS. BRKN AS ABOVE; SILTY TOWARD BASE
* 86	83.62	84.47	0.85			MUDSTONE	SILTY. M-DK. GY. MAS. BRKN GRADATIONAL SILTY BANDS; PLANT IMPRINTS ON BROKEN SURFACES 10CM ZONE
* 80	84.47	86.50	2.03			MUDSTONE	SILTY. M. GY. LAM. SSD. BRKN MINOR PLANT IMPRINTS; LOCALIZED DEFORMED SILTSTONE BANDS AT TOP OF UNIT
80	86.50	86.54	0.04			MUDSTONE	SILTY. M. GY. LAM. BRKN PYRITE BLEB

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85022

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	86.54	88.62	2.08			MUDSTONE	SLTY. M. GY. LAM. BRKN MINOR COALY STRINGERS; LARGE PYRITE BLE BS; MINOR PLANT IMPRINTS
	88.62	89.59	0.97			MUDSTONE	CARB. DK. GY. MAS. BRKN PYRITE NODULES IN UPPER 20CM
*	89.59	90.02	0.43			MUDSTONE	CARB. DK. GY. MAS. BRKN
	90.02	90.19	0.17			SILTSTONE	M. GY. MAS. SLD
	90.19	90.26	0.07	06567 H		MUDSTONE	CARB. DK. GY. MAS. BRKN
	90.26	90.39	0.13	06567 H		COAL	C-6. BRKN
	90.39	90.46	0.07	06567 H		ROCK LOSS	
	90.46	90.80	0.34	06568 H		COAL	C-1. BRKN MINOR MUDSTONE BANDS THROUGHOUT
	90.80	90.93	0.13	06568 H		COAL	C-1. SLD AS ABOVE
	90.93	90.95	0.02	06568 H		COAL	C-6. SLD

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85022

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	90.95	91.40	0.45	06568 H		COAL	C-2. BRKN ABUNDANT THIN MUDDY BANDS THROUGHOUT
	91.40	91.57	0.17	06569 H		MUDSTONE	CLY. LT. M. GY. MAS. YBRKN. DARKER PATCHES WITHIN
	91.57	91.59	0.02	06569 H		COAL	C-6. SLD
	91.59	91.61	0.02	06569 H		COAL	C-3. SLD
	91.61	91.63	0.02	06569 H		COAL	C-5. SLD
	91.63	91.73	0.10	06569 H		COAL	C-2. BRKN MUDDY BANDS THROUGHOUT
	91.73	91.75	0.02	06569 H		MUDSTONE	CARB. M-DK. GY. MAS. BRKN COAL STRINGERS WITHIN
	91.75	91.87	0.12	06569 H		COAL	C-2. BRKN ABUNDANT MUDSTONE BANDS
	91.87	91.94	0.07	06569 H		COAL	C-5. BRKN
	91.94	92.09	0.15	06569 H		COAL	C-3. BRKN ABUNDANT MUDSTONE BANDS THROUGHOUT

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85022

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	92.09	92.13	0.04	06569	H	MUDSTONE	CLYY. H. GY. SLD
	92.13	92.21	0.08	06569	H	COAL	C-3. SLD MUDDY BANDS THROUGHOUT
	92.21	92.25	0.04	06569	H	MUDSTONE	CARB. DK. GY. BRKN
	92.25	92.31	0.06	06569	H	COAL	C-3. SLD THIN VITRINITE BANDS WITHIN
	92.31	92.33	0.02	06569	H	MUDSTONE	CARB. H. DK. GY. BRKN
	92.33	92.34	0.01	06569	H	COAL	C-3. SLD
	92.34	92.38	0.04	06569	H	COAL	C-1. SLD
	92.38	92.40	0.02	06569	H	SILTSTONE	H. GY. HAS. SLD WITHIN C-1 COAL
	92.40	92.42	0.02	06569	H	COAL	C-3. SLD
	92.42	92.43	0.01	06569	H	COAL	C-1. SLD

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85022

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	92.43	92.45	0.02	06569	H	MUDSTONE	H-DK. GY. SLD
	92.45	92.46	0.01	06569	H	COAL	C-2. SLD
	92.46	92.48	0.02	06569	H	MUDSTONE	H-DK. GY. SLD
	92.48	92.57	0.09	06569	H	COAL	C-1. SLD
	92.57	92.59	0.02	06569	H	SILTSTONE	H. GY. SLD
	92.59	93.47	0.88	06570	H	COAL	C-1. BRKN NUMEROUS THIN MUDSTONE BANDS AND NODULES THROUGHOUT; QTZ-CARB VEINING PERPENDI CULAR TO CORE
	93.47	93.50	0.03	06570	H	COAL	C-6. SLD
	93.50	93.53	0.03	06570	H	MUDSTONE	CARB. SLD

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H95022

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	81 93.55	93.67	0.12	06570	H	COAL	C-1, SLD MUDSTONE BANDS WITHIN
	81 93.67	93.82	0.15	06570	H	COAL LOSS	
	82 93.82	93.96	0.14	06570	H	ROCK LOSS	
	82 93.96	93.98	0.02	06570	H	MUDSTONE	CARB. DK. GY. MAS. BRKN
	82 93.98	94.14	0.16	06570	H	COAL	C-1, BRKN
	82 94.14	94.16	0.02	06570	H	COAL	C-5, SLD QTZ VEINING WITHIN
	82 94.16	94.20	0.04	06570	H	COAL	C-1, BRKN
*	83 94.20	94.68	0.48	06571		MUDSTONE	CARB. DK. GY. MAS. BRKN COAL STRINGERS ABUNDANT IN UPPER PORTIO N; UPPER 20 CM. SAMPLED
*	88 94.68	95.53	0.85			MUDSTONE	CARB. M-DK. GY. MAS. BRKN ABUNDANCE OF PLANT MATERIAL AND COALY S TRINGERS; 1CM BAND OF DISSEMINATED PYRI TE; SLICKENSIDES ON A BROKEN SURFACE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H95022

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	88 95.53	96.69	1.16			MUDSTONE	CARB. LT-M. GY. LAM ABUNDANT PLANT FRAGMENTS; SILTY TOWARD BASE
	88 96.69	97.54	0.85			SILTSTONE	SSY. LT-M. GY. LAM. SSD. BRKN DISCONTINUOUS MUDSTONE LAMINAE AND BLOT CHES; UNIT BECOMES SANDIER TOWARD BASE; BASE OF UNIT HAS < 5CM ROUNDED FRAGMEN TS OF MUDSTONE PACKED INTO A 10CM ZONE
*	88 97.54	98.54	1.00			SANDSTONE	FG. PR. LT. GY. MAS. VBRKN IRREGULAR AND DISCONTINUOUS MUDSTONE; S LICKENSIDE SURFACES
*	75 98.54	100.51	1.97			SANDSTONE	FG. PR. LT. GY. MAS. BRKN LOCALIZED ZONES OF DISCONTINUOUS MUDSTO NE LAMINAE AND MUDSTONE RIP UP CLASTS; 10CM ZONE OF CARBONATE VEINING WITH MIN OR BRECCIATION
	80 100.51	100.57	0.06			SANDSTONE	MG. YPR. LT. GY. MAS. SLD WELL ROUNDED MUDSTONE CLASTS (LARGEST I S 1.5CM)
	81 100.57	100.92	0.35			SANDSTONE	MG. YPR. LT. GY. MAS. BRKN AS ABOVE; (LARGEST CLAST IS 5CM)

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85022

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	84	100.92	101.50	0.58		MUDSTONE	SSY. PR. LT-M. GY. THNB. SSD. BRKN LOCALIZED MINOR BANDS FG SANDSTONE AND SILTSTONE
*	88	101.50	102.58	1.08		MUDSTONE	SLTY. PR. M. GY. LAM. BRKN PLANT FRAGMENTS; 10CM ZONE OF HELMINTHO PSIS BURROWS AT BASE OF UNIT; INTERLAMI NATED SILTSTONE
*	85	102.58	104.59	2.01		SILTSTONE	SSY. PR. M. GY. LAM. BIOTR. BRKN INTERLAMINATED (AT TIMES INDISTINCT) MU DSTONE; LOCALIZED ZONES OF PREDOMINANTL Y MUDSTONE; MINOR MUDSTONE RIP UP CLAST S; FIRST 20CM ARE BIOTURBATED
	84	104.59	104.71	0.12		SILTSTONE	CLYY. PR. LT-M. GY. BRKN APPROX 5CM OF CARBONATE ENRICHED SEDIME NT (POSSIBLE RECRYSTALLIZATION)
*	83	104.71	106.07	1.36		SILTSTONE	CLYY. PR. GY. SSD. BRKN LOCALIZED ZONEDS OF DISCONTINUOUS MUDST ONE LAMINAE; LAST 15CM OF ZONE HAS RECR YSTALLIZED CARBONATE; WORM BURROWS 2CM LONG 1 CM WIDE
	83	106.07	106.90	0.83		MUDSTONE	SLTY. M. GY. MAS. BRKN PLANT FRAGMENTS ABOUND; HELMINTHOPSIS & URROWS THROUGHOUT

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85022

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	83	106.90	107.66	0.76		MUDSTONE	SLTY. M. GY. MAS. BRKN MINOR SILTY LAMINAE; PLANT IMPRINTS
	84	107.66	109.01	1.35		MUDSTONE	SLTY. M. GY. MAS. BRKN MINOR SILTY LAMINAE; BIVALVES (<1CM) FO UND AT 109.1M AND SCATTERED BELOW; PLAN T IMPRINTS AND FRAGMENTS ARE FOUND THRO UGHOUT; PYRITE BLEB 1CM ACROSS
	84	109.01	110.86	1.85		MUDSTONE	SLTY. M-DK. GY. MAS. BRKN <2.5CM BIVALVE FRAGMENTS FOUND IN A 10CM ZONE
	84	110.86	111.08	0.22		MUDSTONE	SLTY. M-DK. GY. MAS. BRKN
	84	111.08	113.18	2.10	PHANTOM	MUDSTONE	SLTY. M-DK. GY. MAS. YBRKN ABUNDANT BIVALVES AND BIVALVE FRAGMENTS (<1CM); COALY STRINGERS; ABUNDANT SLIC KENSIDES AND LISTRIC SURFACES THROUGHOU T; DISCONTINUOUS .5CM ZONE OF EUBEDRAL PYRITE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85022

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	85 113.18	114.02	0.84		PHANTOM	MUDSTONE	CARB. M-DK. GY. MAS. VBRKN MINOR COALY STRINGERS AND QTZ VEINING AT T BASE OF UNIT; PHANTOM SEAM IS A CARBO NACEOUS ZONE OF APPROX. 3M CONTAINING N UMEROUS <1CM COAL STRINGERS (STARTS AT 114.4M)
	85 114.02	114.58	0.56		PHANTOM	MUDSTONE	CARB. DK. GY. MAS. VBRKN PHANTOM SEAM CONTINUED AS DESCRIBED ABOVE
	85 114.58	115.11	0.53			MUDSTONE	SLTY. M. GY. MAS. SLD VERY WELL CEMENTED; SLICKENSIDE SURFACE S; MINOR QTZ VEINING
	85 115.11	115.45	0.34			SANDSTONE	FG. PR. LT-M. GY. MAS. BRKN MINOR DISCONTINUOUS MUDSTONE BANDS AND LAMINAE; <.5CM QTZ VEINING PERPENDICULA R TO BEDDING
*	85 115.45	116.93	1.48			MUDSTONE	CARB. M. GY. LAM. SSD. BRKN UNIT IS SILTY AT TOP AND AT BASE; TWO 2 CM FG SANDSTONE BANDS NEAR BASE; CENTER 8M ARE CARBONACEOUS WITH <.5CM COALY STRINGERS LINED WITH QTZ AND CARBONATE VEINS BEING PREVALENT

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85022

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	85 116.93	117.18	0.25			SILTSTONE	CLY. LT-M. GY. LAM. HRMBU. BRKN THINLY LAMINATED WITH MUDSTONE; TOPS UP ; NORM BURRHOES <1CM WIDE BY 3CM LONG
	86 117.18	118.06	0.88			SILTSTONE	SSV. LT-M. GY. LAM. BIOTR. BRKN DISCONTINUOUS SWIRLED MUDSTONE LAMINAE; SSD; TOPS UP
	86 118.06	119.31	1.25			SANDSTONE	FG. LT. GY. MAS. SLD MINOR MUDSTONE LAMINAE; CARBONATE FRACT URES SHOWING <.3CM DISPLACEMENT
	87 119.31	119.98	0.67			SANDSTONE	FG. MOD. LT. GY. MAS. BRKN MINOR CARBONATE AND QTZ VEINING
	88 119.98	121.23	1.25			SANDSTONE	FG. MOD. LT. GY. MAS. BRKN AS ABOVE
	88 121.23	123.11	1.88			SANDSTONE	FG. MOD. LT. GY. MAS. BRKN 1CM CARBONATE VEIN RUNNING SUB-PERPENDI CULAR TO BEDDING; OCCASIONAL VERY FAINT MUDDY BANDS
*	89 123.11	123.29	0.18			SANDSTONE	FG. MOD. LT. GY. MAS. SLD VERY FAINT MUDDY LAMINAE
	87 123.29	125.36	2.07			SANDSTONE	FG. MOD. LT. GY. MAS. BRKN FRACTURES ALONG LENGTH OF CORE; .5CM CA RBONATE FILLED FRACTURE

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85022

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	125.36	126.38	1.02			SANDSTONE	FG.MOD.LT.GY.MAS.VBRKN AS ABOVE
* 82	126.38	126.62	0.24			SANDSTONE	FG.MOD.LT.GY.MAS.SLD
81	126.62	127.36	0.74			MUDSTONE	SLTY.VPR.LT-M.GY.THNB.BRKN 3 BANDS OF FG SANDSTONE INTERBEDDED WITH LAMINATED SILTSTONE AND MUDSTONE; <1CM INTERLAMINATED CARBONATE DEPOSITION WITHIN THE SILT AND MUD
* 80	127.36	129.49	2.13			SANDSTONE	SLTY.FG.PR.LT-M.GY.LAM.WRMBU.SLD IRREGULAR AND DISCONTINUOUS MUDSTONE AND SILTSTONE LAMINAE; LOCALIZED ZONES OF BIOTURBATED.
* 77	129.49	131.67	2.18			SILTSTONE	SSY.PR.M.GY.LAM.WRMBU.SLD INTENSE BIOTURBATION AND BURROWING; TWO 5CM BANDS OF FG SANDSTONE; MINOR PLANT IMPRINTS; MUDSTONE LAMINAE
81	131.67	132.52	0.85			SILTSTONE	SSY.PR.M.GY.LAM.WRMBU.BRKN AS ABOVE
* 83	132.52	133.66	1.14			SILTSTONE	SSY.PR.M.GY.LAM.WRMBU.BRKN AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85022

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
84	133.66	134.57	0.91			SILTSTONE	SSY.PR.M.GY.LAM.WRMBU.BRKN AS ABOVE
* 85	134.57	135.57	1.00			SANDSTONE	SLTY.PR.LT-M.GY.LAM.SSD.BRKN LOCALIZED MUDSTONE LAMINAE SOME DISCONTINUOUS AND IRREGULAR
86	135.57	135.63	0.06			SANDSTONE	SLTY.PR.LT-M.GY.LAM.BRKN AS ABOVE
* 88	135.63	137.60	1.97			SANDSTONE	SLTY.PR.LT-M.GY.LAM.SSD.BRKN MUDSTONE LAMINAE THAT ARE LOCALLY BIOTURBATED; 1CM CARBONATE AND MUDSTONE; PLANT IMPRINTS; NORM BURROWS 1CM WIDE 5CM LONG; TOPS UP
84	137.60	138.43	0.83			SANDSTONE	SLTY.PR.LT-M.GY.LAM.WRMBU.SLD INCREASING % OF MUDSTONE LAMINAE; NORM BURROWS AS ABOVE; TOPS UP
82	138.43	138.56	0.13			MUDSTONE	SLTY.M.GY.LAM.SLD INTERLAMINATED SILTSTONE; ABUNDANT COAL PLANT IMPRINTS ON BROKEN SURFACE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85022

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 79	138.56	140.47	1.91			SANDSTONE	SLTY. FG. PR. LT-M. GY. LAM. WRMBU. BRKN LOCALIZED ZONES OF BIOTURBATION; NORM BURROHS 1CM WIDE 5-6CM LONG; TOPS UP; ABUNDANT IRREGULAR MUDSTONE LAMINAE; PLANT IMPRINTS
79	140.47	140.61	0.14			SANDSTONE	SLTY. FG. PR. M. GY. LAM. WRMBU. SLD AS ABOVE; INCREASE IN % OF MUDSTONE LAMINAE
79	140.61	142.82	2.01			MUDSTONE	SLTY. M. GY. LAM. WRMBU. BRKN INTERLAMINATED WITH SILTSTONE AND LOCALIZED FG SANDSTONE; TOP 50CM ARE BIOTURBATED WITH NORM BURROHS 1.5CM WIDE 5CM LONG; CARBONACEOUS PLANT MATERIAL THROUGHOUT; INCREASE IN % OF SAND AND SILTSTONE TOWARD BASE
80	142.82	143.36	0.74			SANDSTONE	SLTY. FG. PR. LT-M. GY. LAM. SSD. BRKN DISCONTINUOUS INTERLAMINATED MUDSTONE; COALY PLANT IMPRINTS ABOUND
* 80	143.36	144.26	0.90			SANDSTONE	SLTY. FG. PR. LT-M. GY. LAM. VBRKN AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85022

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 70	144.26	145.98	1.72			SANDSTONE	SLTY. FG. PR. LT-M. GY. LAM. WRMBU. BRKN INTERLAMINATED MUDSTONE DECREASING WITH DEPTH; QTZ FILLED FRACTURES (MINOR); NORM BURROHS 1.5M WIDE 4CM LONG; ABUNDANT COALY PLANT MATERIAL IN MUDSTONE
75	145.98	146.11	0.13			SANDSTONE	FG. PR. LT-M. GY. MAS. SLD
76	146.11	146.32	0.21			SANDSTONE	FG. PR. LT-M. GY. MAS. BRKN
* 82	146.32	148.13	1.81			SANDSTONE	FG. PR. LT-M. GY. MAS. BRKN 10CM ZONE OF DISPERSED SHORT STRING LYK E MUDSTONE RIP UP CLASTS; 9CM OF INTERLAMINATED SILTSTONE AND MUDSTONE NEAR BASE OF UNIT; .4CM WIDE CARBONATE FILLED FRACTURE SUB-PERPENDICULAR TO BEDDING
80	148.13	149.41	1.28			SANDSTONE	FG. PR. LT-M. GY. MAS. BRKN DISPERSED ANGULAR MUDSTONE CLASTS (<1CM) THROUGHOUT; WITH A 7CM ZONE OF CONCENTRATED MUDSTONE RIP UP CLASTS

* DENOTES MEASURED BCA

FORM
4001

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 29

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85022

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	79	149.41	150.15	0.74		SANDSTONE	SLTY. FG. PR. M. GY. LAM. SSD. BRKN INTERLAMINATED MUDSTONE BANDS; TOPS UP; 1CM OF CARBONATE VEINING; ABUNDANT PLANT MATERIAL WITHIN THE MUDSTONE BANDS
*	78	150.15	152.31	2.16		SANDSTONE	SLTY. FG. PR. LT-M. GY. MAS. BRKN LOCALIZED MUDSTONE LAMINAE; ABUNDANT MUD STONE RIP UP CLASTS; SUB-ROUNDED AND EL LONGATED IN SHAPE (LARGEST 6CM); SLICKE SIDES; MINOR CARBONATE VEINING SUB-PER PENDICULAR TO BEDDING
	81	152.31	152.46	0.15		SANDSTONE	SLTY. FG. PR. LT-M. GY. MAS. BRKN AS ABOVE
*	83	152.46	154.19	1.73		SANDSTONE	SLTY. FG. PR. LT-M. GY. MAS. BRKN AS ABOVE; 1CM ZONE OF CARBONATE VEINING INTERLAMINATED WITH MUDSTONE
	82	154.19	155.52	1.33		SANDSTONE	SLTY. FG. PR. LT-M. GY. MAS. BRKN LOCALIZE MUDSTONE LAMINAE; ABUNDANT MUD STONE RIP UP CLASTS; SUB-ROUNDED AND EL ONGATED; MINOR CARBONATE VEINING PARALL EL TO BEDDING

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 30

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85022

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	82	155.52	156.00	0.48		SANDSTONE	SLTY. FG. PR. LT-M. GY. MAS. VBRKN OCCASIONAL LOCALIZED MUDSTONE LAMINAE AND RIP UP CLASTS; MINOR CARBONATE VEINING NG. PARALLEL TO BEDDING.
*	81	156.00	158.04	2.04		SANDSTONE	FG. MOD. LT. GY. MAS. BRKN AS ABOVE; LARGE YUGGY CARBONATE VEIN (A PPOX 2CM) SUB-PERPENDICULAR TO BEDDING ; COARSER GRAINED TOWARD BASE
	77	158.04	158.45	0.41		SANDSTONE	MG. PR. LT-M. GY. MAS. SLD VERY MINOR MUDSTONE LAMINAE; CARBONATE VEINING SUB-PERPENDICULAR TO BEDDING
	77	158.45	158.50	0.05		CONGLOMERATE	M. GY. SLD CHERT PEBBLES (<1CM) AND MUDSTONE RIP UP CLASTS (<4CM); EROSIONAL BASE
	74	158.50	160.05	1.55	G	MUDSTONE	CARB. M-DK. GY. LAM. VBRKN SILTSTONE LAMINAE AT TOP OF UNIT; TWO 1 CM COALY BANDS; COALY STRINGERS; ABUNDA NT PLANT MATERIAL; MINOR SLICKENSIDE SUR FACE
	70	160.05	161.61	1.56	G	MUDSTONE	CARB. M-DK. GY. MAS. BRKN ABUNDANT COALY PLANT MATERIAL THROUGHOU T; COALY STRINGERS; CARBONACEOUS ZONE M AY REPRESENT SEAM G. UPPER

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 31

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85022

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	67	161.61	161.98	0.37	G	MUDSTONE	CARB. M-DK. GY. MAS. SSD. BRKN ABUNDANT COALY STRINGERS (0.5-1CM) AND CALIFIED PLANT FRAGMENTS
	65	161.98	162.68	0.70	G	MUDSTONE	CARB. M-DK. GY. MAS. BRKN AS ABOVE
*	62	162.68	164.15	1.47		MUDSTONE	SLTY. M. GY. MAS. BRKN FAINT SILTY BANDS THROUGHOUT; ABUNDANT PLANT IMPRINTS; SLICKENSIDES
	63	164.15	164.60	0.45		MUDSTONE	SLTY. M. GY. MAS. BRKN FAINT SILTY LAMINAE; PLANT IMPRINTS.
	64	164.60	165.54	0.94		MUDSTONE	SLTY. LT-M. GY. LAM. XBDG. BRKN INTERLAMINATED SILTSTONE; 10CM ZONE OF SMALL SCALE X-BEDDING; TOPS UP; SILTYER TOWARD BASE
	65	165.54	166.04	0.50		SILTSTONE	SSY. LT-M. GY. LAM. BRKN DISCONTINUOUS MUDSTONE LAMINAE; PYRITE BLEBS AT TOP OF UNIT.
*	66	166.04	167.39	1.35		SILTSTONE	SSY. LT-M. GY. LAM. HRNBU. BRKN DISCONTINUOUS MUDSTONE LAMINAE AND BAND S; MINOR BIOTURBATION; WORM BURROWS (1C M WIDE 10CM LONG)

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 32

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85022

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	66	167.39	168.11	0.72		SILTSTONE	SSY. LT-M. GY. LAM. BRKN DISCONTINUOUS MUDSTONE BANDS AND LAMINA E
*	66	168.11	169.24	1.13		SILTSTONE	SSY. LT-M. GY. LAM. SSD. BRKN AS ABOVE; MUDSTONE LAMINAE DECREASE WITH H. DEPTH; BOTTOM 5CM OF UNIT REPRESENT A N EROSIONAL CONTACT WITH ANGULAR MUDSTO NE RIP UP CLASTS; TOPS UP
	64	169.24	170.20	0.96		MUDSTONE	SLTY. M. GY. MAS. BRKN PYRITE BLEB
	62	170.20	170.43	0.23		MUDSTONE	SLTY. M. GY. MAS. SLD AS ABOVE
*	60	170.43	172.23	1.80		MUDSTONE	SLTY. M. GY. MAS. BRKN 10CM ZONE OF PYRITIZED BIVALVES (<2CM); PROGRESSIVELY SILTYER TOWARD BASE
*	58	172.23	173.71	1.48		SANDSTONE	FG. MOD. LT. GY. MAS. YBRKN QTZ VEINING SUB-PERPENDICULAR TO BEDDIN G; MINOR SLICKENSIDE SURFACES; SANDSTON E COARSENS WITH DEPTH
	63	173.71	174.11	0.40		SANDSTONE	MG. PR. LT. GY. MAS. SLD APPEARANCE OF ANGULAR MUDSTONE CLASTS (<2CM)

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 33

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85022

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LYTHOLOGY	DESCRIPTION
	65	174.11	174.38	0.27		SANDSTONE	MG. PR. LT. GY. MAS. SLD EROSIONAL BASE WITH ANGULAR MUDSTONE RI P UP CLASTS; QTZ VEINING (MINOR)
	67	174.38	174.98	0.60		SILTSTONE	SSY LT-M. GY. LAM. BRKN INTERLAMINATED BANDS OF MUDSTONE
	71	174.98	176.12	1.14		SANDSTONE	SLTY. FG. LT. GY. MAS. BRKN MINOR QTZ VEINING; LOCALIZED DISCONTINU OUS MUDSTONE LAMINAE
*	76	176.12	176.86	0.74		SANDSTONE	SLTY. FG. PR. LT-M. GY. MAS. BRKN 2 MUDSTONE-SILTSTONE BANDS (APPROX. 5CM) ; QTZ VEINING
	76	176.86	177.76	0.90		SANDSTONE	SLTY. FG. PR. LT-M. GY. MAS. YBRKN AS ABOVE; POSSIBLE CORE LOSS
	76	177.76	178.28	0.52		SANDSTONE	SLTY. FG. PR. LT-M. GY. MAS. YBRKN ONE LARGE 7CM BAND OF SILTSTONE AND MUD STONE NEAR BASE

* DENOTES MEASURED BCA
NEWPAGE

GULF CANADA RESOURCES INC.

COAL DIVISION
MOUNT KLAPPAN PROJECT

SEAM DETAIL

TRUE THICKNESS

DATA SOURCE: KPM LR 00H85022 SEAM: 1 INTERVAL(M) : 49.04 - 53.87 ELEVATION(M) : 1678.4
 GEOLOGIST : SAVOIE SCALE: DATE : DEC 19/85 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	SAFETY VAL		
		↑															
	49.04			(0.28)													
				0.40													
				0.54	81.4	8543											
	50.55			1.21	81.8	8544											
				1.80	100.0	8545											
	52.00			(0.12)													
	53.87	↓															



4.69

4.60 / 0.19
4.89

GULF CANADA RESOURCES INC.

SEAM DETAIL

COAL DIVISION
MOUNT KLAPPAN PROJECT

TRUE THICKNESS

DATA SOURCE: KPM LR 00H85022 SEAM: H INTERVAL(M) : 90.48 - 94.20 ELEVATION(M) : 1678.4
 GEOLOGIST : SAVOIE SCALE: DATE : DEC 19/85 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	DAI. VAL MJ/KG		
	90.48	↑															
	91.40			0.91	100.0	4588											
				0.17													
				0.33	100.0	4589											
	92.59						88	3.09 / 0.57		1.41	35.27	6.78	56.54	0.37	21.44		
				0.90		4576		3.68									
				0.22													
	94.20	↓															

3.66

Gulf Canada Resources Inc. Coal Division

Geophysical Log

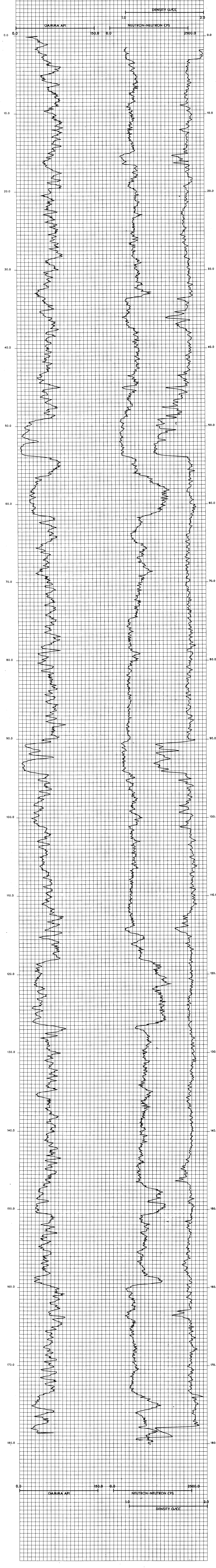
Datasource: **KPNLRDDH85022**
Log Date: 85-07-28
Company: CENTURY
Geologist: SAVOIE

Province: BC Northing: 6343550.00 Lat: 571413
Zone: 9 Easting: 506630.00 Long: 1285325
Measuring Point: Elevation: 1678.0

Scale: 1 to 100.0
Depth Range: 0.0 to 185.0
True Thickness: NO

Comments:
1. LOGGED THROUGH THE RODS
2.

Logs Plotted:	Axis Range	Axis Length	Smoothing Points	Tool	Comments
1. GAMMA API	0.0 to 150.0	10.0	31	9055A	IN PIPE
2. NEUTRON-NEUTRON CPS	0.0 to 2500.0	10.0	9	9055A	IN PIPE
3. DENSITY G/CC	1.0 to 3.0	10.0	15	9030A	IN PIPE

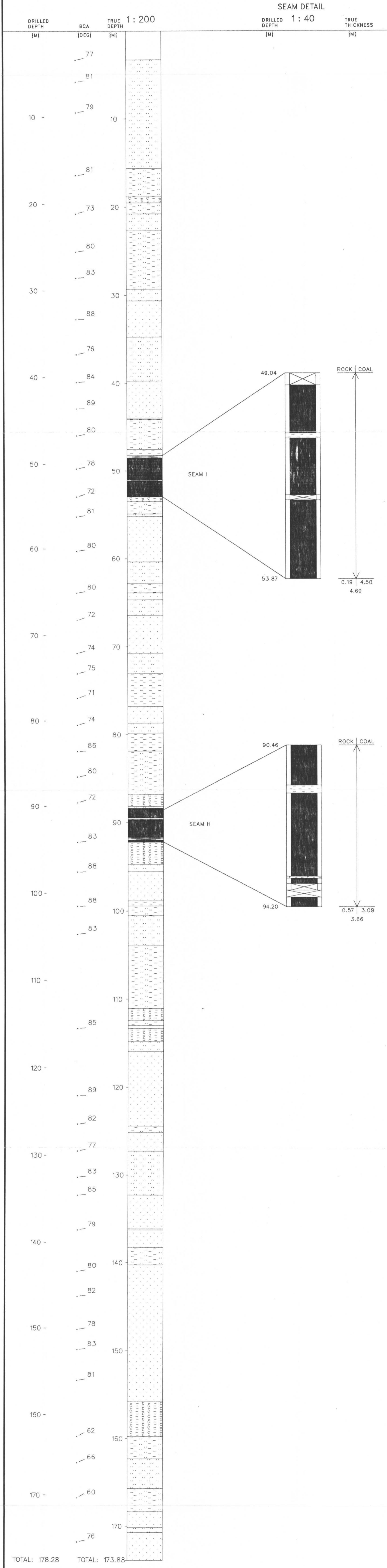
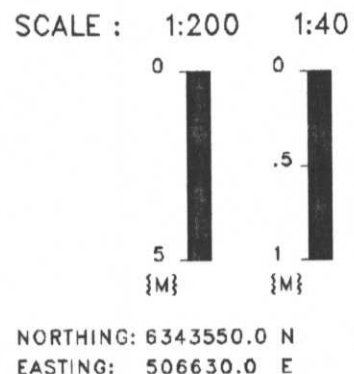


GULF CANADA RESOURCES INC.
 COAL DIVISION
 KLAPPAN PROJECT
 STRATIGRAPHIC LOG
 KPN LR DDH85022

GEOLOGIST : SAVOIE DATE : JAN 08/86 DRAWING NO. :

LITHOLOGIC SYMBOLS

	SANDSTONE		BENTONITE
	SILTSTONE		BRECCIA
	COAL		CARBONACEOUS
	OVERBURDEN		QUARTZ
	MUDSTONE, CLAYSTONE		PYRITE
	TUFF		FERRUGINOUS
	LIMESTONE		CONGLOMERATE
	CORE LOSS		FOSSIL BED



KPNLRDDH85023

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH85023

DATE - 01/10/86

- HISTORY -

START DATE - 07/23/85
END DATE - 07/30/85

CONTRACTOR - J T THOMAS
GEOLOGIST - BARKER

OPERATOR - GCR1
SURVEYOR - MWG & ASS

REMARKS -

- LOCATION -

PROVINCE - BC
ELEVATION - 1741.60
LICENCE/LEASE NUMBER - 7151

ZONE - 9
NORTHING - 6344164.00
EASTING - 506616.94
LATITUDE - 571433
LONGITUDE - 1285325

- ORIENTATION -

LENGTH - 299.08
CORE SIZE - 0.0

INCLINATION - 60.0
AZIMUTH - 45.0

CEMENT -
PLUG -
PIEZ -

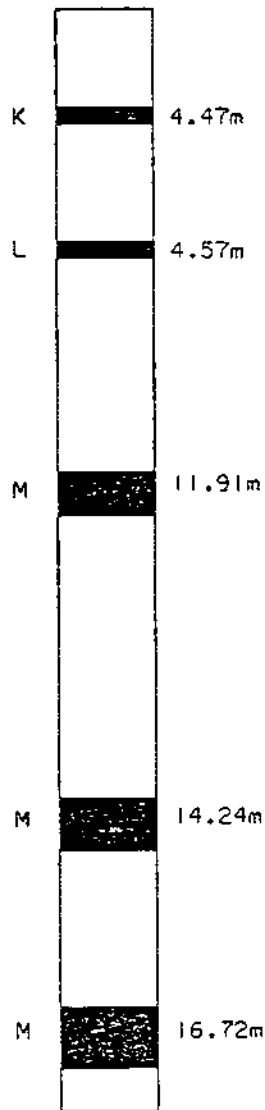
CASING DEPTH (M) - 6.10
AQUIFER DEPTHS (M) - 0.00
0.00
LOST CIRC. DEPTHS (M) - 0.00
0.00

*** NOTE *** 0 INDICATES NO VALUE

MT. KLAPPAN COAL PROPERTY

1985 DIAMOND DRILL HOLES
DDH85023

SEAM TRUE SEAM THICKNESS
 (COAL & ROCK)



NOTE: SCHEMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm COAL.

SCALE: 1:2000

GULF CANADA RESOURCES INC.
13/01/86



86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: DDM85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	60	0.00	6.10	6.10		CASING	
	60	6.10	7.12	1.02		ROCK LOSS	
	60	7.12	7.92	0.80		SILTSTONE	M.GY. LAM. VBRKN FINELY LAMINATED; OCCASIONAL FG SANDSTONE BAND; CORE VERY BROKEN; MUCH FE STAINING; VERY UNIFORM BANDING; COARSE COASTER LITHOLOGY(?)
*	60	7.92	8.41	0.49		SILTSTONE	M.GY. LAM. VBRKN LITH AS ABOVE; MUCH FE STAINING ON FRACTURE SURFACES
*	57	8.41	9.27	0.86		SILTSTONE	SSY. H.GY. VTHNB. VBRKN LITH AS ABOVE; SLIGHTLY SANDIER; LARGE SCALE X-BEDDING(?). BCA'S 45-70 DEGREES
	58	9.27	9.87	0.60		ROCK LOSS	
	59	9.87	10.89	1.02		SANDSTONE	FG. MOD. LT. GY. MAS. VBRKN LIMONITE(?) ON FRACTURE SURFACES
*	60	10.89	12.50	1.61		SANDSTONE	FG. MOD. LT. GY. MAS. VBRKN LITH AS ABOVE; MUCH FE STAINING; 1.6M B AND OF DARK MUDSTONE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 2

PROJECT: KPN BLOCK: LN DATA SOURCE: DDM85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	60	12.50	13.50	1.00		ROCK LOSS	
	60	13.50	13.83	0.33		SANDSTONE	FG. LT. GY. MAS. VBRKN MASSIVE SAND AS ABOVE; FE STAINING
	60	13.83	14.53	0.70		MUDSTONE	M-DK. GY. LAM. VBRKN VFG VERY UNIFORM LAMINAE 'COASTER LITHOLOGY'; MUCH FE STAINING
	60	14.53	15.53	1.00		ROCK LOSS	
*	60	15.53	16.28	0.75		MUDSTONE	M-DK. GY. LAM. VBRKN COASTER LITHOLOGY AS ABOVE; FE STAINING THROUGHOUT
	59	16.28	17.08	0.80		SANDSTONE	FG. MOD. LT. GY. MAS. VBRKN AS MASSIVE SAND ABOVE; MUCH FE STAINING
	58	17.08	17.15	0.07		ROCK LOSS	
	57	17.15	19.05	1.90		SANDSTONE	FG. MOD. LT. GY. MAS. XBOG. VBRKN PREDOMINANTLY MASSIVE; OCCASIONAL SILTY LAMINAE; MINOR QTZ VEINING; FE STAINING IN FRACTURES; X-BEDDING SHOWS TOPS OF MN

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 3

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	19.05	19.58	0.53			SANDSTONE	FG. MOD. LT. GY. MAS. VBRKN LITH AS ABOVE
*	19.58	20.95	1.37			SILTSTONE	SSY. VPR. M. GY. LAM. SSD. BRKN VFG SANDY LAMINAE THROUGHOUT; SSD SHOWS TOPS DOWN; NUMEROUS DISRUPTED BEDS-SLU MPED(?)
	20.95	22.62	1.67			SILTSTONE	SSY. VPR. M. GY. VTHNB. SSD. BRKN LITH AS ABOVE; NUMEROUS DISTURBED BANDS
	22.62	22.97	0.35			SILTSTONE	SSY. VPR. M. GY. VTHNB. SSD. SLD AS ABOVE
*	22.97	24.21	1.24			SILTSTONE	M. GY. LAM. BRKN LITH AS ABOVE; VERY FINE UNIFORM LAMINA E; SHARP BOTTOM CONTACT
*	24.21	24.79	0.58			SANDSTONE	FG. MOD. LT. GY. MAS. BRKN MASSIVE UNIFORM; OCCASIONAL SILTY LAMIN AE; LIMONITE ON FRACTURE SURFACES
	24.79	25.05	0.26			SANDSTONE	FG. MOD. LT. GY. MAS. VBRKN SLIGHTLY SILTIER THAN ABOVE
	25.05	26.10	1.05			MUDSTONE	DK. GY. MAS. VBRKN

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 4

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	26.10	26.68	0.58			MUDSTONE	SLTY. M. GY. MAS. VBRKN
	26.68	26.93	0.25	06719		MUDSTONE	SLTY. M. GY. MAS. VBRKN
	26.93	26.99	0.06	06719	K	COAL	C-1. BRKN
	26.99	27.03	0.04	06719	K	COAL	C-2. SLD
	27.03	27.10	0.07	06719	K	COAL	C-1. VBRKN
	27.10	27.17	0.07	06719	K	COAL	C-6. SLD
	27.17	27.49	0.32	06719	K	COAL LOSS	
	27.49	27.66	0.17	06719	K	ROCK LOSS	
	27.66	27.73	0.07	06719	K	MUDSTONE	CARB. BLK. MAS. BRKN VITRINITE STRINGERS
	27.73	27.80	0.07	06719	K	COAL	C-1. VBRKN

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 5

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	27.80	27.82	0.02	06719	K	MUDSTONE	M. GY. MAS. SLD.
	27.82	27.84	0.02	06719	K	COAL	C-1
	27.84	27.91	0.07	06719	K	MUDSTONE	M. GY. LAM. SLD WAVEY BEDDING; MINOR COALY STRINGERS
	27.91	27.97	0.06	06719	K	COAL	C-2. YBRKN
	27.97	28.03	0.06	06719	K	COAL	C-3. YBRKN
	28.03	28.05	0.02	06719	K	COAL	C-1. BRKN
	28.05	28.10	0.05	06719	K	COAL	C-5. YBRKN
	28.10	28.17	0.07	06719	K	MUDSTONE	CARB. BLK. BRKN COALY STRINGERS THROUGHOUT
	28.17	28.21	0.04	06719	K	COAL	C-3. YBRKN MUCH COAL LOSS LIKELY
	28.21	28.25	0.04	06719	K	MUDSTONE	CARB. SLD MUCH COAL STRINGERS; ALMOST C-6

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 6

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	28.25	28.34	0.09	06719	K	CLAYSTONE	M. GY. MAS. YBRKN VERY SOFT; POORLY CONSOLIDATED
	28.34	28.45	0.11	06719	K	COAL	C-1. YBRKN CRUSHED CORE
	28.45	28.48	0.03	06719	K	MUDSTONE	CARB. BLK. MAS. SLD.
	28.48	28.60	0.12	06719	K	COAL	C-1. YBRKN CRUSHED CORE
	28.60	28.62	0.02	06719	K	MUDSTONE	M. GY. MAS. SLD SOFT
	28.62	28.79	0.17	06719	K	ROCK LOSS	
	28.79	30.16	1.37	06720	K	COAL LOSS	
	30.16	30.37	0.21	06720	K	COAL	C-1. YBRKN
	30.37	30.58	0.21	06720	K	COAL	C-2. YBRKN VERY SOFT; SHEARED
	30.58	30.78	0.20	06720	K	COAL	C-1. VSHRD

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	53	30.78	31.85	1.07	06720 K	COAL	C-2, BRKN
	52	31.85	31.98	0.13	06720 K	COAL	C-1, YBRKN
	52	31.98	32.27	0.29	06720 K	COAL	C-2, YBRKN ONE 3CM BAND WITH MUCH ANKERITE
	52	32.27	32.42	0.15	06720 K	COAL	C-2, BLK. SLD MINOR ANKERITE VEINS
	51	32.42	33.36	0.94	06721 K	ROCK LOSS	
*	50	33.36	34.30	0.94	06721 K	MUDSTONE	CARB. DK. GY. LAM. YBRKN VERY SOFT; POORLY CONSOLIDATED; UNIFORM BANDING; SHREARED; RARE PLANT HASH
	45	34.30	34.48	0.18		MUDSTONE	CARB. DK. GY. LAM. YBRKN AS ABOVE
	42	34.48	34.83	0.35		MUDSTONE	CARB. DK. GY. LAM. YBRKN AS ABOVE
	39	34.83	35.21	0.38		COAL LOSS	
	36	35.21	35.36	0.15		COAL	C-6, BLK. YBRKN VERY DIRTY BUT BRIGHT VITRAIN CHUNKS TH ROUGHOUT

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	34	35.36	35.62	0.26		MUDSTONE	SSY, VPR. M. GY. MAS. YBRKN VERY POORLY CONSOLIDATED SANDY MUDSTONE ; VERY CRUMBLY; NUMEROUS EMBEDRAL QTZ CRYSTALS
*	30	35.62	36.22	0.60		SILTSTONE	CLYY, VPR. M. GY. VTHNB, YBRKN VERY CLAYEY; SIMILAR TO ABOVE; SLIGHTLY MORE CONSOLIDATED; SILTIER
	38	36.22	38.11	1.89		SILTSTONE	CLYY, VPR. M. GY. LAM. YBRKN AS ABOVE
	47	38.11	38.76	0.65		ROCK LOSS	
	50	38.76	38.97	0.21		SILTSTONE	CLYY, VPR. M. GY. LAM. YBRKN AS ABOVE
*	55	38.97	40.33	1.36		SANDSTONE	CLYY, M. GY. LAM. YBRKN SIMILAR TO ABOVE BUT MUCH MORE SAND; ON E 7CM WIDE CLAY BAND; SILT BANDS THROUGH OUT
	55	40.33	40.58	0.25		ROCK LOSS	

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DCH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 56	40.58	42.02	1.44			SANDSTONE	CLYY. FG. YPR. LT. GY. LAM. XBDG. BRKN POORLY CONSOLIDATED SANDSTONE WITH NUMEROUS CLAYEY SILT LAMINAE THROUGHOUT; X-BEDDING AND SCOURS SHOW TOPS DOWN
58	42.02	42.51	0.49			SANDSTONE	CLYY. FG. YPR. LT. GY. LAM. XBDG. BRKN AS ABOVE; SCOURS
59	42.51	42.93	0.42			ROCK LOSS	
59	42.93	43.24	0.31			SANDSTONE	CLYY. FG. YPR. LT. GY. LAM. XBDG. BRKN AS ABOVE WITH OCCASIONAL RIP UP CLASTS
* 61	43.24	44.82	1.58			SANDSTONE	MG. MOD. LT. GY. MAS. YBRKN PREDOMINANTLY MASSIVE; OCCASIONAL FAINT FINE GRAINED SILTY SAND LAMINAE THROUGHOUT; LARGE SCALE X-BEDDING(?) POORLY CONSOLIDATED
61	44.82	44.92	0.10			ROCK LOSS	
61	44.92	46.26	1.34			SANDSTONE	MG. MOD. LT. GY. MAS. YBRKN AS ABOVE
62	46.26	46.73	0.47			SANDSTONE	MG. MOD. LT. GY. MAS. YBRKN AS ABOVE

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DCH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 62	46.73	48.78	2.05			SANDSTONE	MG. MOD. LT. GY. MAS. BRKN AS ABOVE; BCA'S 55-70 DEGREES
55	48.78	50.07	1.29			SANDSTONE	FG. MOD. LT. GY. LAM. BRKN FINER GRAINED THAN ABOVE; NUMEROUS VERY FAINT SILTY LAMINAE THROUGHOUT
51	50.07	50.76	0.69			MUDSTONE	SLTY. YPR. M. GY. LAM. BRKN SHARP CONTACT WITH ABOVE SANDSTONE; POORLY CONSOLIDATED; FINE SILTY AND FG. SAND LAMINAE THROUGHOUT
* 47	50.76	51.80	1.04			MUDSTONE	SLTY. YPR. M. GY. LAM. BRKN AS ABOVE
* 48	51.80	52.33	0.53			MUDSTONE	SLTY. YPR. M. GY. LAM. BRKN AS ABOVE
47	52.33	52.37	0.04			ROCK LOSS	
* 45	52.37	54.12	1.75			SILTSTONE	PR. M. GY. LAM. YBRKN FINELY LAMINATED; OCCASIONAL SMALL SCOUR SHOWS TOPS DOWN
45	54.12	54.73	0.61			SILTSTONE	SSY. M. GY. LAM. BRKN MUCH FG SAND MIXED IN; FINELY LAMINATED AS ABOVE

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	54.73	56.14	1.41			SILTSTONE	SSY. M. GY. LAM. BRKN AS ABOVE BUT SLIGHTLY MORE MASSIVE DOWNWARD
	56.14	57.64	1.50			SILTSTONE	SSY. VPR. M. GY. LAM. VBRKN LITH AS ABOVE; SLIGHTLY FAINTER BEDDING
	57.64	57.79	0.15			ROCK LOSS	
	57.79	58.04	0.25			SILTSTONE	VPR. M. GY. LAM. VBRKN FINER GRAINED THAN ABOVE; NUMEROUS SLIC KENSIDES
	58.04	59.12	1.08			SILTSTONE	VPR. M. GY. LAM. VBRKN AS ABOVE; THO 5CM BRECCIA ZONES
	59.12	59.97	0.85			MUDSTONE	DK. GY. MAS. VBRKN UNIFORM MASSIVE; NO PLANTS OR BIVALVE PIECES
	59.97	60.77	0.80			MUDSTONE	DK. GY. MAS. VBRKN AS ABOVE; VERY MINOR PLANT MASH AND COALIFIED PLANT MATERIAL
	60.77	60.83	0.06			ROCK LOSS	

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
48	60.89	61.97	1.14			MUDSTONE	DK. GY. MAS. VBRKN AS ABOVE; SOFTER AND LESS CONSOLIDATED DOWNWARD; NUMEROUS POLISHED SLIPPAGE SURFACES
48	61.97	62.44	0.47			MUDSTONE	CARB. DK. GY. MAS. SLD NUMEROUS COALY STRINGERS THROUGHOUT; NUMEROUS POLISHED SLIPPAGE SURFACES; SLIC KENSIDES
48	62.44	62.46	0.02			COAL	C-2. DK. GY. VBRKN
48	62.46	63.18	0.72	06722	L	MUDSTONE	CARB. DK. GY. BRKN COALY STRINGERS THROUGHOUT; LOWER 20CM SAMPLED
48	63.18	63.20	0.02	06723	L	COAL	C-2. DK. GY. BRKN
48	63.20	63.32	0.12	06723	L	MUDSTONE	CARB. BRKN

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDM85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
49	63.32	63.33	0.01	06723	L	COAL	C-6.SLD
49	63.33	63.37	0.04	06723	L	MUDSTONE	CARB.SLD COALY STRINGERS THROUGHOUT
49	63.37	63.50	0.13	06723	L	COAL	C-8.BLK.SLD FOAM ON SURFACE OF CORE; QUITE SOFT
49	63.50	63.56	0.06	06723	L	COAL	C-5.SLD
49	63.56	63.59	0.03	06723	L	COAL	C-1.SLD
49	63.59	63.61	0.02	06723	L	COAL	C-5.SLD
49	63.61	63.62	0.01	06723	L	COAL	C-1.SLD
49	63.62	63.66	0.04	06723	L	MUDSTONE	CARB.BLK.SLD COAL STRINGERS
49	63.66	63.69	0.03	06723	L	COAL	C-8.SLD OCCASIONAL BRIGHT BANDS

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDM85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
49	63.69	63.71	0.02	06723	L	MUDSTONE	CARB.BLK.YBRKN VERY SOFT; MUCH CLAY
49	63.71	63.77	0.06	06723	L	MUDSTONE	CARB.BLK.SLD
49	63.77	64.08	0.31	06723	L	ROCK LOSS	
49	64.08	64.29	0.21	06723	L	COAL	C-3.SLD
49	64.29	64.31	0.02	06723	L	MUDSTONE	CLYY.H.GY.SLD
49	64.31	64.52	0.21	06723	L	ROCK LOSS	
49	64.52	64.59	0.07	06723	L	COAL	C-3.BRKN
49	64.59	64.62	0.03	06723	L	MUDSTONE	CARB.SLD
49	64.62	64.78	0.16	06723	L	COAL LOSS	
49	64.78	64.85	0.07	06723	L	COAL	C-2.YBRKN
49	64.85	65.04	0.19	06723	L	COAL	C-5.BRKN

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	49 65.04	65.13	0.09	06723	L	MUDSTONE	CARB. GY. SLD
	49 65.13	65.14	0.01	06723	L	COAL	C-1. BRKN
	49 65.14	65.15	0.01	06723	L	COAL	C-5. SLD
	49 65.15	65.22	0.07	06723	L	COAL LOSS	
	49 65.22	65.23	0.01	06723	L	COAL	C-1. VBRKN LOSS HERE (?)
	49 65.23	65.29	0.06	06723	L	MUDSTONE	CARB. BLK. BRKN
	49 65.29	65.46	0.17	06723	L	ROCK LOSS	
	49 65.46	65.49	0.03	06723	L	COAL	C-1. BRKN
	50 65.49	65.63	0.14	06723	L	COAL	C-2. BRKN
	50 65.63	65.76	0.13	06723	L	COAL	C-3. BRKN
	50 65.76	65.80	0.04	06723	L	COAL	C-5. VSHRD

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	50 65.80	65.87	0.07	06723	L	MUDSTONE	CARB. BLK. BRKN
	50 65.87	66.03	0.16	06723	L	ROCK LOSS	
	50 66.03	66.06	0.03	06724	L	COAL	C-1. BRKN
	50 66.06	66.20	0.14	06724	L	COAL	C-3. BRKN
	50 66.20	66.23	0.03	06724	L	COAL	C-1. BRKN
	50 66.23	66.27	0.04	06724	L	COAL	C-6. SLD
	50 66.27	66.32	0.05	06724	L	COAL	C-2. VBRKN
	50 66.32	66.43	0.11	06724	L	COAL	C-2. VBRKN
	50 66.43	66.51	0.08	06724	L	COAL	C-3. VBRKN ALMOST POWDERED
	50 66.51	66.59	0.08	06724	L	COAL	C-2. VBRKN

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	50	66.59	66.64	0.05	06724 L	COAL	C-3, BRKN CLAY BANDS
*	50	66.64	66.68	0.04	06724 L	COAL	C-1, SLD
	50	66.68	66.72	0.04	06724 L	MUDSTONE	CARB. BLK. SLD
	50	66.72	66.75	0.03	06724 L	COAL	C-6, SLD
	50	66.75	66.77	0.02	06724 L	COAL	C-2, SLD
*	50	66.77	66.83	0.06	06724 L	COAL	C-3, SLD
	50	66.83	66.96	0.13	06724 L	COAL	C-2, YBRKN
	51	66.96	67.00	0.04	06724 L	CLAYSTONE	CARB. BLK. BRKN VERY SOFT; PLIABLE
	51	67.00	67.03	0.03	06724 L	COAL	C-1, YBRKN MUCH LOSS LIKELY
	51	67.03	67.06	0.03	06724 L	COAL	C-1, SLD

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	51	67.06	67.07	0.01	06724 L	MUDSTONE	CARB. BLK. BRKN
	51	67.07	67.10	0.03	06724 L	COAL	C-1, YBRKN
	54	67.10	68.12	1.02	06724 L	COAL LOSS	
	56	68.12	68.20	0.08	06724 L	COAL	C-3, YBRKN
	56	68.20	68.23	0.03	06724 L	COAL	C-1, YBRKN
	56	68.23	68.24	0.01	06724 L	MUDSTONE	CARB. BLK. SLD
	56	68.24	68.31	0.07	06724 L	COAL	C-2, YBRKN CRUSHED CORE
	57	68.31	68.33	0.02	06724 L	COAL	C-3, BRKN
	57	68.33	68.40	0.07	06724 L	COAL	C-2, BRKN
	57	68.40	68.55	0.15	06724 L	COAL	C-3, SLD CLAY AND ANKERITE BANDS; AXIS OF LOCAL FOLD; SMALL BANDS OF C-1 ALSO

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 58	68.55	68.66	0.11	06724	L	CLAYSTONE	CARB. BF. BRKN VERY SOFT-LIKE PLASTICENE; DRIES WITH A BUFF COLOURED OUTER CRUST; BLACK ON FR ESH SURFACE; CLAY SAMPLED: #049
58	68.66	68.67	0.01	06724	L	COAL	C-1.SLD MINOR QTZ VEINING
58	68.67	68.72	0.05	06724	L	COAL	C-3.VBRKN
59	68.72	69.04	0.32	06724	L	COAL LOSS	
60	69.04	69.05	0.01	06725		PYRITE	H.GY.SLD
* 60	69.05	69.13	0.08	06725		MUDSTONE	CARB.H.GY.VBRKN COALY STRINGERS THROUGHOUT
* 35	69.13	69.25	0.12	06725		MUDSTONE	CARB.H.GY.BRKN COALY STRINGERS THROUGHOUT
* 30	69.25	69.58	0.33			SILTSTONE	H.GY.VYHNB.SLD MINOR COAL STRINGERS

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 25	69.58	71.10	1.52			SANDSTONE	CLYY.FG.PR.LT.GY.LAM.BRKN MUCH CLAY MIXED IN AS WELL AS NUMEROUS FINE SILTY CLAY LAMINAE THROUGHOUT; MIN OR COALIFIED PLANT MATERIAL AT TOP; SLI CKENSIDES
* 39	71.10	73.10	2.00			SANDSTONE	CLYY.FG.PR.LT.GY.MAS.BRKN LITH AS ABOVE BUT FAINTER AND FINER SIL TY LAMINAE; MODERATELY CONSOLIDATED LOC AL FINE COALY STRINGERS 1-3MM WIDE; PRE DOMINANTLY MASSIVE
37	73.10	73.55	0.45			SANDSTONE	CLYY.FG.PR.LT.GY.MAS.SLD LITH AS ABOVE; NUMEROUS SLICKENSIDES
* 35	73.55	74.92	1.37			SANDSTONE	CLYY.FG.PR.LT.GY.LAM.BRKN LITH AS ABOVE BUT FINE CLAYEY STRINGERS MORE COMMON THAN ABOVE
34	74.92	75.05	0.13			ROCK LOSS	
* 33	75.05	76.59	1.54			SANDSTONE	CLYY.FG.PR.LT.GY.LAM.BRKN LITH AS ABOVE
31	76.59	77.02	0.43			SANDSTONE	CLYY.FG.PR.LT.GY.LAM.BRKN AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
28	77.02	78.94	1.92			SANDSTONE	SLTY. FG. VPR. M. GY. MAS. BRKN NUMEROUS ELONGATED SILTSTONE RIP UP CLASTS 1-3MM WIDE; MODERATE QTZ VEINING TH ROUGHOUT
26	78.94	79.15	0.21			ROCK LOSS	
25	79.15	77.64	0.49			SANDSTONE	SLTY. FG. VPR. M. GY. VTHNB. BRKN SANDSTONE AS ABOVE; TWO CLAY BANDS ONE AT BOTTOM OF INTERVAL LIKELY BENTONITE SIMILAR TO 'CREST' ZONE
* 23	79.64	81.11	1.47			SANDSTONE	SLTY. FG. VPR. M. GY. MAS. SLD AS ABOVE; 1CM OF BENTONITE AT TOP OF IN TERVAL (CONTINUED FROM ABOVE); MINOR MU DSTONE RIP UP CLASTS
* 28	81.11	82.18	1.07			SANDSTONE	SLTY. FG. PR. LT. GY. MAS. BRKN PREDOMINANTLY MASSIVE WITH OCCASIONAL F INE SILTY LAMINAE
27	82.18	83.13	0.95			SANDSTONE	SLTY. FG. PR. LT. GY. MAS. BRKN AS ABOVE
26	83.13	83.66	0.53			ROCK LOSS	

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
25	83.66	85.58	1.92			SANDSTONE	SLTY. FG. VPR. M. GY. VTHNB. XBDG. BRKN AS ABOVE BUT SILTIER; SOME FINE SILTY L AMINAE CONTAIN COALY SPECKS; THO 7CM BA NDS OF 'CRINKLED' SILT AND ANKERITE; TO PS DOWN
24	85.58	87.67	2.09			SANDSTONE	FG. MOD. LT. GY. MAS. SLD AS ABOVE; BUT NO SILTY LAMINATIONS
22	87.67	88.58	0.91			SANDSTONE	SLTY. FG. VPR. M. GY. LAM. VBRKN AS ABOVE BUT WITH NUMEROUS SILT BANDS; SLICKENSIDES
21	88.58	89.42	0.84			SANDSTONE	SLTY. FG. VPR. M. GY. LAM. VBRKN AS ABOVE
21	89.42	89.62	0.20			ROCK LOSS	
20	89.62	91.73	2.11			SANDSTONE	FG. MOD. LT. GY. MAS. BRKN SANDSTONE AS ABOVE BUT NO SILTY LAMINAT IONS; MINOR QTZ VEINING
* 18	91.73	93.70	1.97			SANDSTONE	FG. MOD. LT. GY. MAS. BRKN AS ABOVE; 7CM BAND OF SMALL COALY RIP U P. CLASTS 1MM WIDE BY 5MM LONG
23	93.70	95.48	1.78			SANDSTONE	FG. MOD. LT. GY. MAS. BRKN AS ABOVE; ONE 2CM WIDE SILTY BAND WITH SMALL COALY RIP UP CLASTS 3MM WIDE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDM85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	28	95.48	97.62	2.14		SANDSTONE	SLTY. FG. MOD. LT. GY. MAS. SLD AS ABOVE; FINE SILTY LAMINAE
	31	97.62	98.08	0.46		SANDSTONE	SLTY. FG. LT. GY. LAM. SLD AS ABOVE
*	32	98.08	99.68	1.60		SANDSTONE	SLTY. FG. VPR. DK. GY. LAM. SLD MUCH SILT; FLASER BEDDING QUESTIONABLE TOPS
	34	99.68	100.93	1.25		SANDSTONE	SLTY. FG. MOD. LT. GY. LAM. SLD FINE SILTY LAMINAE; OCCASIONAL MUDSTONE RIP UP CLASTS; RARE COAL SPECKS IN SAND
*	35	100.93	101.68	0.75		SANDSTONE	SLTY. FG. MOD. LT. GY. LAM. XBDG. SLD AS ABOVE; X-BEDDING SSD SHOWN TOPS DOWN
	32	101.68	102.24	0.56		ROCK LOSS	
*	30	102.24	104.08	1.84		SANDSTONE	SLTY. FG. MOD. LT. GY. LAM. XBDG. BRKN AS ABOVE; VERY FINELY LAMINATED; X-BEDDING AND BIOTURBATION; TOPS DOWN
	32	104.08	104.26	0.18		SANDSTONE	SLTY. FG. MOD. LT. GY. LAM. SLD AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDM85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	33	104.26	106.27	2.01		SILTSTONE	SSY. VPR. M. GY. LAM. BRKN VERY UNIFORM SANDY LAMINAE AT TOP OF INTERVAL; GRADING DOWNWARD TO VF SILTSTONE WITH OCCASIONAL 1-20MM WIDE COAL STRINGERS AND RIP UP CLASTS; 3MM WIDE PYRITE LAYERS; OCCASIONAL SLICKENSIDES
	36	106.27	107.11	0.84		SILTSTONE	SSY. VPR. M. GY. VTHNB. VBRKN AS ABOVE; MODERATE ANKERITE VEINING; SLICKENSIDES
*	37	107.11	107.98	0.87		SILTSTONE	SSY. VPR. M. GY. VTHNB. XBDG. BRKN AS ABOVE; SLIGHTLY MORE FG. SAND; SLICKENSIDES; TOPS DOWN
*	22	107.98	109.85	1.87		SILTSTONE	SSY. VPR. M. GY. VTHNB. VBRKN AS ABOVE; OCCASIONAL COAL STRINGERS 5-15MM WIDE
	24	109.85	110.05	0.20		ROCK LOSS	
	26	110.05	111.58	1.53		SILTSTONE	VPR. M. GY. VTHNB. BIOTR. VBRKN AS ABOVE; COALIFIED PLANT MATERIAL ON FRACTURE SURFACES
	27	111.58	111.80	0.22		SILTSTONE	VPR. M. GY. VTHNB. BRKN AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
28	111.80	112.46	0.66			SILTSTONE	VPR. M. GY. VTHNB. BRKN AS ABOVE
* 30	112.46	113.58	1.12			SANDSTONE	SLTY. FG. PR. M. GY. LAM. SLD FINE SILTY LAMINATIONS THROUGHOUT; LIKE LY INCORRECT FOOT MARKERS-NOT 3M OF COR E. LOSS HERE
* 47	113.58	115.48	1.90			SILTSTONE	SSY. VPR. M. GY. LAM. BICTR. BRKN MUCH FINER GRAINED THAN ABOVE
45	115.48	116.11	0.63			ROCK LOSS	
45	116.11	116.42	0.31			SILTSTONE	VPR. M. GY. LAM. VBRKN NUMEROUS COALY STREAKS IN VERY CRUSHED CORE
44	116.42	117.75	1.33			SILTSTONE	SSY. VPR. LT. GY. MAS. BRKN MUCH FG SAND MIXED IN; ONE ACM. POORLY CONSOLIDATED SAND BAND
42	117.75	118.08	0.33			ROCK LOSS	
41	118.08	119.47	1.39			SILTSTONE	SSY. VPR. LT. GY. MAS. BRKN AS ABOVE
40	119.47	119.62	0.15			SILTSTONE	SSY. VPR. LT. GY. MAS. BRKN AS ABOVE

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
39	119.62	121.50	1.88			SILTSTONE	SSY. VPR. LT. GY. MAS. VBRKN AS ABOVE; SLIGHTLY MORE CARBONACEOUS
37	121.50	122.09	0.59			ROCK LOSS	
36	122.09	122.82	0.73			SILTSTONE	VPR. M. GY. MAS. VBRKN AS ABOVE; NO BEDDING VISIBLE
35	122.82	123.76	0.94			SILTSTONE	VPR. M. GY. MAS. VBRKN AS ABOVE
34	123.76	124.05	0.29			ROCK LOSS	
33	124.05	125.84	1.79	06726		SILTSTONE	VPR. M. GY. MAS. VBRKN AS ABOVE; WITH MINOR COAL STRINGERS 1-3 MM. WIDE
31	125.84	126.89	1.05	06727	M	COAL LOSS	
30	126.89	127.13	0.24	06727	M	ROCK LOSS	
30	127.13	127.20	0.07	06727	M	MUDSTONE	CARB. BLK. SLD COAL STREAKS AND FINE ANKERITE VEINLETS
30	127.20	127.24	0.04	06727	M	COAL	C-6. BLK. SLD VERY FINE WAVEY COAL STREAKS AND ANKERITE STREAKS THROUGHOUT

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	30	127.24	127.31	0.07	06727 M	MUDSTONE	CARB. BLK. MAS. SLD NUMEROUS COALY ANKERITE STREAKS; SOME S HEARING; START OF ZONE OF INTENSE DEFOR MATION BELOW
*	30	127.31	127.43	0.12	06727 M	MUDSTONE	CARB. DK. GY. SLD MODERATELY VEINED BY ANKERITE; MUCH COA L AND MUD MIXED TOGETHER; COAL BANDS TH ROUGHOUT; VERY HARD
	30	127.43	127.76	0.33	06728 M	COAL	C-1 COAL BRECCIA; CONTAINING NUMEROUS IRREG ULAR MUDSTONE STREAKS AND CLASTS; NUMER OUS FINE ANKERITE VEINLETS-SOME IN EN-E CHELON PATTERN; MUD AND COAL CLASTS SUR ROUNDED BY QTZ AND ANKERITE
	30	127.76	128.71	0.95	06728 M	COAL	C-2. BLK. BRKN COAL BRECCIA; INTENSELY VEINED; NUMEROU S LARGE MUD CLASTS (3-10CM IN DIAMETER) THROUGHOUT; ANY VISIBLE BEDDING VARIES FROM 30-62 DEGREES BCA
	30	128.71	128.72	0.01	06728 M	MUDSTONE	CARB. BLK. YBRKN NUMEROUS COAL STRINGERS THROUGHOUT; VER GING ON C-6

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	30	128.72	128.76	0.04	06728 M	COAL	C-1. YBRKN
*	30	128.76	128.90	0.14	06728 M	COAL	C-2. SLD THIN BANDS OF C-3 AND CLAY; HIGHLY DISR UPTED
*	30	128.90	129.38	0.48	06728 M	COAL	C-2. BRKN AS ABOVE; HIGHLY DISRUPTED; COAL INTENS ELY FOLDED WITH SLIGHTLY MORE ANKERITE VEINING THAN ABOVE; OCCASIONAL BANDS OF C-1 AND ELONGATED MUDSTONE STRINGERS; AXIS OF LOCAL FOLD
*	Q1	129.38	129.55	0.17	06729 M	MUDSTONE	CARB. BLK. YSHRD COAL STRINGERS THROUGHOUT.
	Q1	129.55	129.58	0.03	06729 M	COAL	C-1. YBRKN
	Q1	129.58	129.66	0.08	06729 M	COAL	C-3. SLD
	Q1	129.66	129.68	0.02	06729 M	SILTSTONE	M. GY. BRKN FINE QTZ VEINS THROUGHOUT
	Q1	129.68	129.73	0.05	06729 M	COAL	C-3

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
01	129.73	129.77	0.04	06729 M		SILTSTONE	M. GY. VBRKN OCCASIONAL 4MM COAL STRINGERS; INTENSE QTZ VEINING THROUGHOUT; POLISHED SLIPPA GE SURFACES
01	129.77	129.93	0.16	06729 M		CLAYSTONE	CARB. BLK. VSHRD VERY SOFT; PLIABLE; INTENSELY FOLDED AND VERY SHEARED
01	129.93	130.03	0.10	06729 M		COAL	C-5 SLD INTENSELY FOLDED; LOCAL FOLD AXIS HERE; INTENSE QTZ/ANK VEINING OUTLINES REMNANT BEDDING TRACES; LISTRIC SURFACES
01	130.03	130.10	0.07	06729 M		CLAYSTONE	CARB. DK. GY. MAS. SLD SOFT; VERY SHEARED
01	130.10	130.11	0.01	06729 M		COAL	C-2 SLD ANKERITE VEINS THROUGHOUT
* 01	130.11	130.26	0.15	06729 M		COAL	C-5 SLD AXIS OF LOCAL FOLD HERE; VERY VARIABLE BCA'S
01	130.26	130.39	0.13	06729 M		MUDSTONE	CARB. BLK. VBRKN SHEARED; COALIFIED; PLANT FOSSILS THROUGHOUT

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
01	130.39	130.62	0.23	06729 M		ROCK LOSS	
01	130.62	130.65	0.03	06730 M		COAL	C-2 SLD MUDDY BANDS AND MINOR ANKERITE THROUGHOUT
* 01	130.65	131.24	0.59	06730 M		COAL	C-3 VSHRD INTENSELY FOLDED; AT LEAST 3 LOCAL FOLD AXES IN THE UPPER MOST 50CM; LISTRIC SURFACES; BCA'S VARY FROM 0 TO 45 DEGREE S; MINOR ANKERITE AND QTZ VEINING IN PLACES
* 25	131.24	131.47	0.23	06730 M		COAL	C-2 VSHRD INTENSELY FOLDED
39	131.47	131.97	0.50	06730 M		COAL	C-3 VSHRD AS ABOVE; INTENSELY FOLDED; CORE CRUSHE D; MINOR QTZ ANKERITE VEINS
* 50	131.97	132.09	0.12	06731 M		MUDSTONE	CARB. BLK. VSHRD MUCH COALY MATERIAL; ALMOST C-6; CRUSHE D CORE
* 45	132.09	132.24	0.15	06731 M		COAL	C-2 VBRKN POWDERED IN PLACES

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
48	132.24	132.29	0.05	06731	M	MUDSTONE	CARB. BLK. YBRKN FAIRLY SOFT
50	132.29	132.33	0.04	06731	M	MUDSTONE	DK. GY. SLD 4MM COAL STRINGER AT TOP OF INTERVAL; R IBBONS OF FIBEROUS MATERIAL PRESERVED I N ANKERITE THROUGHOUT; VERY HARD
53	132.33	132.45	0.12	06731	M	COAL	C-3. YBRKN OCCASIONAL CLAY BANDS
56	132.45	132.49	0.04	06731	M	MUDSTONE	CARB. BLK. YBRKN
57	132.49	132.52	0.03	06731	M	COAL	C-3. SLD
58	132.52	132.56	0.04	06731	M	MUDSTONE	CARB. YBRKN
60	132.56	132.66	0.10	06731	M	COAL	C-3. YBRKN
63	132.66	132.72	0.06	06731	M	COAL	C-2. SLD
65	132.72	132.74	0.02	06731	M	MUDSTONE	DK. GY. SLD RIBBONS OF FIBEROUS PLANT MATERIAL PRES ERVED WITH ANKERITE

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
67	132.74	132.84	0.10	06731	M	COAL	C-2. BRKN
69	132.84	132.85	0.01	06731	M	COAL	C-3. SLD
69	132.85	132.87	0.02	06731	M	COAL	C-2. SLD
* 70	132.87	132.90	0.03	06731	M	COAL	C-3. SLD
* 70	132.90	132.93	0.03	06731	M	COAL	C-2. SLD WITH OCCASIONAL PIECES OF FIBEROUS PLAN T. MATERIAL PRESERVED WITH ANKERITE
68	132.93	132.96	0.03	06731	M	COAL	C-1. SLD
60	132.96	133.15	0.19	06731	M	COAL	C-2. YBRKN

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	53 133.15	133.18	0.03	06731	M	MUDSTONE	CARB. BLK. VBRKN
	50 133.18	133.23	0.05	06731	M	COAL	C-2. VBRKN
	47 133.23	133.29	0.06	06731	M	COAL	C-1. VBRKN
	40 133.29	133.43	0.14	06731	M	COAL	C-3
*	33 133.43	133.49	0.06	06732	M	MUDSTONE	CARB. BLK. SLD OCCASIONAL FINE COALY STREAKS
	33 133.49	133.64	0.15	06732	M	MUDSTONE	CARB. DK. GY. VBRKN CORE TOTALLY CRUSHED; COAL STRINGERS TH ROUGHOUT
	33 133.64	133.71	0.07	06732	M	MUDSTONE	CARB. DK. GY. VBRKN CRUSHED CORE; OCCASIONAL PLANT WASH; CO AL STREAKS ARE VERY RARE
	33 133.71	133.80	0.09	06732	M	MUDSTONE	CARB. BLK. VBRKN COALY STRINGERS THROUGHOUT

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	34 133.80	135.31	1.51	06732	M	COAL LOSS	
	35 135.31	135.37	0.06	06732	M	COAL	C-3. BLK. VBRKN
*	35 135.37	135.43	0.06	06732	M	COAL	C-5. SLD CLAY BANDS
	36 135.43	135.55	0.12	06732	M	COAL	C-3. VBRKN
	37 135.55	135.60	0.05	06732	M	COAL	C-2. VBRKN VERY HIGHLY FOLDED LOCALLY
	38 135.60	135.63	0.03	06732	M	MUDSTONE	CARB. DK. GY. SLD HIGHLY DISRUPTED; NUMEROUS FRACTURES FI LLED BY ANKERITE AND BLACK CARB MATERIA L
	39 135.63	135.71	0.08	06732	M	COAL	C-3. VSHRD CLAY BANDS THROUGHOUT; LISTRIC SURFACES ; VERY SHEARED; CORE LOSS (?)
	40 135.71	135.75	0.04	06732	M	COAL	C-2. BRKN CLAY BANDS
	41 135.75	135.83	0.08	06732	M	COAL	C-4. PHRD CORE TOTALLY CRUSHED

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	41	135.83	135.86	0.03	06733 M	MUDSTONE	CARB. BLK. SLD MODERATE ANKERITE VEINING
	42	135.86	135.99	0.13	06733 M	MUDSTONE	LT. GY. BIOTR. SLD MOTTLED OR CLOUDY TEXTURE DUE TO BIOTURBATION; LARGE PYRITE BLEBS THROUGHOUT
	44	135.99	136.01	0.02	06733 M	MUDSTONE	CARB. DK. GY. BRKN LARGE ANKERITE VEIN WITH MUDSTONE CLASTS
	44	136.01	136.08	0.07	06733 M	MUDSTONE	CARB. DK. GY. BIOTR. BRKN OCCASIONAL LIGHT GREY BIOTURBATED AREAS; SLIGHTLY FISSILE
	46	136.08	136.32	0.24	06733 M	MUDSTONE	LT. GY. BIOTR. BRKN MOTTLED OR CLOUDY TEXTURE; GRADATIONAL UPPER AND LOWER CONTACTS; DISSEMINATED PYRITE.
	49	136.32	136.44	0.12	06733 M	MUDSTONE	CARB. DK. GY. SLD FISSILE
	50	136.44	136.48	0.04	06733 M	MUDSTONE	CARB. DK. GY. BIOTR. SLD OCCASIONAL LIGHT GREY BIOTURBATED PATCHES; SLIGHTLY FISSILE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	52	136.48	136.73	0.25	06733 M	MUDSTONE	LT. GY. BIOTR. SLD MOTTLED OR CLOUDY TEXTURE; GRADATIONAL CONTACTS
	55	136.73	136.87	0.14	06733 M	MUDSTONE	CARB. DK. GY. BRKN FISSILE
*	57	136.87	137.03	0.16	06733 M	MUDSTONE	LY. GY. BIOTR. SLD MOTTLED OR CLOUDY TEXTURE; PYRITE BLEBS ; GRADATIONAL UPPER CONTACT; BCA OF UPPER CONTACT APPROX 57 DEGREES
	60	137.03	137.08	0.05	06733 M	MUDSTONE	LT. GY. BIOTR. SLD MOTTLED TEXTURE; INTENSE ANKERITE VEINING IN LOWER 2CM
	62	137.08	137.14	0.06	06733 M	MUDSTONE	CARB. DK. GY. BRKN FISSILE
	64	137.14	137.18	0.04	06733 M	MUDSTONE	LY. GY. BIOTR. SLD HIGHLY DISRUPTED WITH MUCH QTZ/ANK VEINING; PYRITE THROUGHOUT
*	65	137.18	137.21	0.03	06733 M	COAL	C-3. SLD CLAY BANDS THROUGHOUT
	64	137.21	137.23	0.02	06733 M	COAL	C-4. BRKN CLAY BANDS

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	63	137.23	137.26	0.03	06733 M	MUDSTONE	CARB. BLK. YBRKN FINE COAL STRINGERS THROUGHOUT
	59	137.26	137.47	0.21	06733 M	MUDSTONE	CARB. BLK. BRKN HIGHLY DISRUPTED ZONE; INTENSE ANK VEIN ING WITH COAL AND MUD CLASTS THROUGHOUT
*	55	137.47	137.48	0.01	06733 M	COAL	C-2. SLD COAL WITH 7MM WIDE ANKERITE VEIN; EDGE OF LOCAL FOLD
*	01	137.48	137.95	0.47	06733 M	MUDSTONE	CARB. BLK. YBRKN HIGHLY FOLDED; 3 LOCAL FOLD AXES HERE; COAL STRINGERS THROUGHOUT; ANK VEINING AT CORE OF FOLDS
	60	137.95	137.97	0.02	06733 M	ANKERITE	WH. SLD
	68	137.97	138.02	0.05	06733 M	MUDSTONE	CARB. BLK. YBRKN FISSILE
	75	138.02	138.03	0.01	06733 M	MUDSTONE	LT. GY. BRKN VERY HARD
	78	138.03	138.04	0.01	06733 M	ANKERITE	WH. SLD

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	80	138.04	138.05	0.01	06733 M	MUDSTONE	LT. GY. SLD
	79	138.05	138.22	0.17	06733 M	COAL	C-3. BRKN VERY DISRUPTED; WAVY ANKERITE VEINS AND MUDSTONE CLASTS THROUGHOUT
	77	138.22	138.23	0.01	06733 M	COAL	C-2. BRKN
	77	138.23	138.27	0.04	06733 M	COAL	C-4. BRKN
	76	138.27	138.29	0.02	06733 M	MUDSTONE	CARB. BLK. SLD INTENSE QTZ VEINING
	75	138.29	138.39	0.10	06733 M	MUDSTONE	CARB. M. GY. BIOTR. SLD MOTTLED BIOTURBATED PATCHES; SLIGHTLY C ARBONACEOUS; BCA = 70 DEGREES AT TOP AND 0.40 DEGREES AT BOTTOM OF UNIT
	73	138.39	138.62	0.23	06733 M	COAL	C-6. BRKN HIGHLY FOLDED; BCA'S VARY FROM 40 TO 70 DEGREES
*	70	138.62	138.75	0.13	06733 M	MUDSTONE	CARB. BLK. BRKN FINE COAL STRINGERS THROUGHOUT

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	70	138.75	138.81	0.06	06733 M	MUDSTONE	CARB. M. GY. SLD OCCASIONAL VERY FINE COAL STRINGERS
	70	138.81	138.82	0.01	06733 M	COAL	C-2. SLD
	70	138.82	138.85	0.03	06733 M	MUDSTONE	DK. GY. SLD
*	70	138.85	138.86	0.01	06733 M	COAL	C-2. SLD
	55	138.86	138.97	0.11	06733 M	MUDSTONE	CARB. DK. GY. BRKN FISSELE; COAL STRINGERS THROUGHOUT
	31	138.97	139.04	0.09	06733 M	COAL	C-5 SLD INTENSE QTZ/ANK VEINING
*	01	139.06	139.22	0.16	06733 M	COAL	C-6 BRKN INTENSE FOLDING; LOCAL FOLD AXIS HERE
	10	139.22	139.47	0.25	06733 M	MUDSTONE	CARB. DK. GY. VSHRD NUMEROUS FINE HAVY ANKERITE VEINS FORMING CRENULATION CLEAVAGE
	18	139.47	139.59	0.12	06733 M	MUDSTONE	LT. GY. BIOTR. SLD MOTTLED TEXTURE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	33	139.59	140.14	0.55	06733 M	MUDSTONE	CARB. DK. GY. BRKN RARE CARBONACEOUS STRINGERS
	49	140.14	140.34	0.20	06733 M	MUDSTONE	LT. GY. BIOTR. BRKN MOTTLED TEXTURE
	59	140.34	140.61	0.27	06733 M	MUDSTONE	M. GY. BRKN
*	67	140.61	140.70	0.09	06733 M	CLAY	LT. GY. BRKN SOFT; DRIES TO LIGHT GREY-BUFF COLOUR
	67	140.70	140.77	0.07	06733 M	CLAY	LT. GY. BRKN AS ABOVE
	68	140.77	140.81	0.04	06733 M	MUDSTONE	CARB. DK. GY. SLD ANKERITE VEINS
	68	140.81	140.85	0.04	06733 M	COAL	C-4. BLK. SHRD CLAY BANDS
	68	140.85	140.94	0.09	06733 M	MUDSTONE	CARB. BLK. SHRD COAL STRINGERS THROUGHOUT
	69	140.94	141.02	0.08	06734 M	COAL	C-2. SHRD MUCH ANKERITE
	69	141.02	141.08	0.06	06734 M	COAL	C-4. SHRD MUCH ANKERITE

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	69	141.08	141.12	0.04	06734 M	MUDSTONE	CARB. BLK. SLD COAL STRINGERS THROUGHOUT
*	70	141.12	141.30	0.18	06734 M	COAL	C-6. SHRD.
*	72	141.30	141.44	0.14	06734 M	MUDSTONE	LT. GY. BIOTR. SLD SLIGHTLY MOTTLED
	47	141.44	141.46	0.02	06735 M	COAL	C-6. DK. GY. SLD NUMEROUS FINE ANKERITE VEINLETS
	36	141.46	141.51	0.05	06735 M	COAL	C-4. BLK. SLD BANDS OF BETTER COAL THROUGHOUT
*	01	141.51	141.68	0.17	06735 M	COAL	C-5. VBRKN HIGHLY DISRUPTED ZONE; HIGHLY FOLDED WITH MANY ANKERITE VEINS AND MUDSTONE CLASTS MIXED IN WITH COAL
	06	141.68	141.79	0.11	06735 M	COAL	C-4. BRKN
	08	141.79	141.84	0.05	06735 M	COAL	C-3. BRKN

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	10	141.84	141.88	0.04	06735 M	COAL	C-2. VBRKN
	11	141.88	141.90	0.02	06735 M	QUARTZITE	WH. SLD
	12	141.90	141.94	0.04	06735 M	COAL	C-2. VBRKN NUMEROUS QTZ/ANK VEINS
	14	141.94	142.04	0.10	06735 M	MUDSTONE	M. GY. LAM. SLD VARIABLE BCA'S: 60 TO 30 DEGREES; LOCAL FOLDING
	18	142.04	142.19	0.15	06735 M	COAL	C-2. VBRKN CORE TOTALLY CRUSHED; CLAY BANDS; SHEARED
	22	142.19	142.24	0.05	06735 M	COAL	C-2. VBRKN TOTALLY CRUSHED
	23	142.24	142.27	0.03	06735 M	MUDSTONE	CARB. BLK. VBRKN CRUSHED
	29	142.27	142.62	0.35	06735 M	COAL	C-3. VBRKN CRUSHED

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85029

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	39 142.62	142.85	0.23	06735	M	COAL	C-2. YBRKN CRUSHED; CLAY BANDS THROUGHOUT
	55 142.85	143.60	0.75	06735	M	COAL LOSS	
	72 143.60	143.87	0.27	06735	M	ROCK LOSS	
	77 143.87	143.89	0.02	06735	M	MUDSTONE	CARB. BLK. YBRKN COALY STRINGERS; CORE CRUSHED
*	80 143.89	144.03	0.14	06735	M	MUDSTONE	CARB. BLK. YBRKN MUDDY CLASTS SURROUNDED BY VERY DIRTY COAL; ANKERITE VEINS THROUGHOUT; SHEARED
	79 144.03	144.27	0.24	06735	M	COAL	C-2. YSHRD CLAY BANDS
	78 144.27	144.32	0.05	06735	M	COAL	C-3. PHRD
	78 144.32	144.39	0.07	06735	M	MUDSTONE	CARB. BLK. YSHRD CRUSHED CORE
	78 144.39	144.48	0.09	06735	M	COAL	C-2. YBRKN AS ABOVE
	77 144.48	144.52	0.04	06735	M	COAL	C-1. YBRKN AS ABOVE

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85029

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	77 144.52	144.64	0.12	06735	M	MUDSTONE	CARB. BLK. YSHRD CRUSHED CORE
	76 144.64	144.75	0.11	06735	M	COAL	C-2. YBRKN AS ABOVE; POWDERED IN PLACES
	73 144.75	145.84	1.09	06735	M	COAL LOSS	
	70 145.84	145.95	0.11	06736		MUDSTONE	CARB. BLK. YSHRD ANKERITE VEINS THROUGHOUT
*	66 145.95	147.66	1.71	06736		MUDSTONE	CARB. H. GY. MAS. YBRKN OCCASIONAL COALY STRINGERS 1-3MM WIDE AT TOP; SILTIER DOWNWARD; SLICKENSIDES
	69 147.66	147.90	0.24			ROCK LOSS	
*	73 147.90	149.83	1.93			SILTSTONE	H. GY. YTHNG. HRMBU. BRKN OCCASIONAL COALY STREAKS; HORIZ WORM BU RROHS SSD SCOURS SHOW TOPS UP; FAINT BE DDING
	65 149.83	150.71	0.88			SILTSTONE	CLY. H. GY. MAS. BRKN TINY COALY/ANKERITE STREAKS THROUGHOUT; 10CM POORLY CONSOLIDATED CLAY BAND

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 60	150.71	151.73	1.02			SILTSTONE	CLY. M. GY. MAS. BIOTR. BRKN AS ABOVE; SLIGHTLY BIOTURBATED; ONE COAL LENS 4CM WIDE; OCCASIONAL SMALLER COAL STRINGERS AS ABOVE
* 80	151.73	153.73	2.00			SILTSTONE	M. GY. LAM. XBDG. BRKN FINELY LAMINATED
77	153.73	155.80	2.07			SANDSTONE	SLTY. FG. VPR. H. GY. LAM. XBDG. BRKN SILTY WISPS THROUGHOUT; VERY FINELY LAMINATED; SLIGHTLY COARSER THAN ABOVE; X-BEDDING SHOWS TOPS UP
75	155.80	156.75	0.95			SANDSTONE	SLTY. FG. PR. LT. GY. LAM. XBDG. SLD NUMEROUS FINE SILTY WISPS THROUGHOUT
74	156.75	157.88	1.13			SANDSTONE	SLTY. FG. PR. LT. GY. LAM. XBDG. SLD AS ABOVE
72	157.88	159.58	1.70			SANDSTONE	SLTY. FG. VPR. LT. GY. LAM. XBDG. SLD LITH AS ABOVE; SOME YCG SAND MIXED IN WITH OCCASIONAL 5MM DIAMETER COAL RIP UP CLASTS
71	159.58	159.80	0.22			ROCK LOSS	

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
71	159.80	160.00	0.20			SANDSTONE	FG. MEL. LT. GY. MAS. SLD NO SILTY LAMINAE
69	160.00	162.02	2.02			SANDSTONE	FG. MOD. LT. GY. MAS. BRKN MINOR 3MM DIAMETER MUDSTONE RIP UP CLASTS; ONE 3MM WIDE COALY LENS
68	162.02	162.86	0.84			SANDSTONE	FG. VPR. LT. GY. VTHNB. BRKN MODERATE QTZ VEINING; BANDS OF FG SANDS TONE AND VERY POORLY SORTED CG SANDSTONE; MINOR CARBONACEOUS LAMINAE NEAR TOP
66	162.86	163.94	1.08			SANDSTONE	FG. VPR. LT. GY. VTHNB. BRKN AS ABOVE
65	163.94	165.78	1.84			SANDSTONE	MG. PR. LT. GY. MAS. SLD AS ABOVE BUT LESS YCG SAND CLASTS; SHARP CONTACT WITH FG SAND BELOW; MODERATE QTZ VEINING
63	165.78	165.93	0.15			SANDSTONE	FG. MOD. LT. GY. MAS. SLD MASSIVE FG SANDSTONE
62	165.93	168.05	2.12			SANDSTONE	FG. MOD. LT. GY. MAS. BRKN PREDOMINANTLY MASSIVE; TWO MUDSTONE RIP UP CLASTS 7-10CM WIDE; MINOR QTZ VEINING; SLICKENSIDES

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 60	168.05	168.85	0.80			SANDSTONE	FG. MOD. LT. GY. MAS. SLD OCCASIONAL SILTY LAMINAE WITH VARYING B CA'S: 60-90 DEGREES
64	168.85	169.94	1.09			SANDSTONE	FG. MOD. LT. GY. MAS. BRKN LITH AS ABOVE; FAINT SILTY LAMINATIONS VARY FROM 05 TO 55 DEGREES FORMING A SH. ALL LOCAL FOLD
69	169.94	171.78	1.84			SANDSTONE	FG. MOD. LT. GY. MAS. BRKN NUMEROUS WIDE (1-5CM) QTZ VEINS
73	171.78	171.92	0.14			SANDSTONE	FG. MOD. LT. GY. MAS. BRKN AS ABOVE
* 77	171.92	174.01	2.09			SANDSTONE	FG. MOD. LT. GY. MAS. BRKN AS ABOVE; MUCH WIDE QTZ VEINING-ALMOST A BRECCIA ZONE
75	174.01	174.78	0.77			SANDSTONE	SLTY. FG. PR. LT. GY. MAS. BRKN AS ABOVE; FINE FAINT SILTY STREAKS THRO UGHOUT SOME WITH CARB. MATERIAL; MINOR A NKERITE LENSES; SLIGHTLY MORE SILTY OVER ALL THAN ABOVE
74	174.78	175.97	1.19			SANDSTONE	SLTY. FG. PR. LT. GY. MAS. BRKN AS ABOVE

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
72	175.97	177.76	1.79			SANDSTONE	SLTY. FG. PR. LT. GY. MAS. BRKN AS ABOVE
70	177.76	177.97	0.21			SANDSTONE	SLTY. FG. PR. LT. GY. MAS. BRKN AS ABOVE
62	177.97	180.05	2.08			SANDSTONE	SLTY. FG. PR. LT. GY. MAS. BRKN AS ABOVE BUT SLIGHTLY LESS SILTY; MUCH Q TZ IN BOTTOM 15CM
67	180.05	180.81	0.76			SANDSTONE	SLTY. FG. PR. LT. GY. MAS. BRKN AS ABOVE
65	180.81	182.02	1.21			SANDSTONE	SLTY. FG. PR. LT. GY. MAS. BRKN LOCAL FOLDING; BCA'S VARY FROM 03 TO 45 DEGREES
63	182.02	183.88	1.86			SANDSTONE	SLTY. FG. PR. LT. GY. MAS. BRKN AS ABOVE; NUMEROUS LOCAL SMALL FOLDS
62	183.88	184.11	0.23			SANDSTONE	SLTY. FG. PR. LT. GY. MAS. SLD AS ABOVE; MUCH QTZ; ONE 18CM WIDE QTZ V EIN; SLICKENSIDES
* 60	184.11	186.27	2.16			SANDSTONE	FG. MOD. LT. GY. MAS. SLD AS ABOVE; FAINT SILTY STREAKS THROUGHOU T SOME WITH CARB MATERIAL

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 67	186.27	188.24	1.97			SANDSTONE	FG. MOD. LT. GY. MAS. SLD AS ABOVE; BCA'S 43-50 DEGREES
57	188.24	189.76	1.52			SANDSTONE	FG. MOD. LT. GY. MAS. SLD AS ABOVE; INTENSE QTZ VEINING ALMOST BR ECCIA
63	189.76	190.24	0.48			SANDSTONE	FG. MOD. LT. GY. MAS. SLD AS ABOVE
* 70	190.24	192.25	2.01			SANDSTONE	FG. MOD. LT. GY. MAS. SLD AS ABOVE; MODERATE QTZ VEINING; BCA'S 6 5-75 DEGREES
72	192.25	192.48	0.23			SANDSTONE	FG. MOD. LT. GY. MAS. BRKN
72	192.48	192.81	0.33			ROCK LOSS	
73	192.81	193.23	0.42			MUDSTONE	DK. GY. MAS. SHRD MINOR CARB STRINGERS +2MM WIDE
74	193.23	193.43	0.20			ROCK LOSS	
* 75	193.43	194.67	1.24			MUDSTONE	SLTY. DK. GY. MAS. SHRD AS ABOVE BUT SLIGHTLY SILTIER DOWNWARD

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 64	194.67	196.18	1.51			SILTSTONE	M. GY. LAM. BRKN FINELY LAMINATED WITH BANDS GRADING FRO M MUD TO FG SAND; MINOR PLANT HASH
65	196.18	196.38	0.20			ROCK LOSS	
65	196.38	196.78	0.40			SILTSTONE	M. GY. LAM. BRKN AS ABOVE
* 67	196.78	198.88	2.10			SANDSTONE	SLTY. VFG. PR. LT. GY. LAM. XBDG. BRKN SLIGHTLY COARSER THAN ABOVE; FINE WISPY LAMINAE THROUGHOUT; TOPS UP
63	198.88	199.21	0.33			SANDSTONE	SLTY. VFG. PR. LT. GY. LAM. XBDG. BRKN AS ABOVE
* 60	199.21	200.78	1.57			SANDSTONE	SLTY. VFG. PR. LT. GY. VTHNS. BRKN AS ABOVE BUT COARSENING DOWNWARD TO MG SANDSTONE IN PLACES; SLICKENSIDES
62	200.78	202.18	1.40			SANDSTONE	FG. MOD. LT. GY. MAS. BRKN MUDSTONE RIP UP CLASTS 3-15MM WIDE BY 5 -30MM LONG THROUGHOUT
63	202.18	202.77	0.59			SANDSTONE	MOD. LT. GY. MAS. BRKN AS ABOVE

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	65	202.77	204.90	2.13		SANDSTONE	FG. MOD. LT. GY. MAS. SLD PREDOMINANTLY MASSIVE; FINE WISPY SILTY LAMINAE THROUGHOUT
	68	204.90	205.22	0.32		SILTSTONE	M. GY. LAM. VBRKN FINELY LAMINATED
	68	205.22	205.45	0.23		ROCK LOSS	
*	70	205.45	206.83	1.38		MUDSTONE	DK. GY. VTHNB. VBRKN VERY FAINT BEDDING; NUMEROUS POLISHED S LIPPAGE SURFACES AND SLICKENSIDES
	67	206.83	208.27	1.44		MUDSTONE	DK. GY. VTHNB. SLD AS ABOVE
*	65	208.27	208.87	0.60		MUDSTONE	DK. GY. VTHNB. SLD AS ABOVE
*	68	208.87	210.89	2.02		MUDSTONE	SLTY. M. GY. VTHNB. BRKN AS ABOVE BUT SLIGHTLY SILTIER; MINOR FG SAND BANDS; VERY FINELY LAMINATED; VER Y UNIFORM LAYERS
	57	210.89	211.27	0.38		ROCK LOSS	

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	47	211.27	212.95	1.68		MUDSTONE	CARB. DK. GY. MAS. VBRKN NUMEROUS 1-5MM COAL STRINGERS THROUGHOUT
*	37	212.95	213.32	0.37		MUDSTONE	CARB. DK. GY. BRKN OCCASIONAL COAL STRINGERS THROUGHOUT
	53	213.32	213.46	0.14		MUDSTONE	LT. GY. B10TR. SLD MOTTLED TEXTURE
	61	213.46	213.57	0.11		MUDSTONE	CARB. BLK. BRKN OCCASIONAL COAL STRINGERS THROUGHOUT
*	65	213.57	213.60	0.03		COAL	C-4. SLD
	65	213.60	213.61	0.01		CLAY	M. GY. SLD SOFT; DRIES TO LIGHT GREY COLOUR
	65	213.61	213.63	0.02		COAL	C-1. SLD INTENSE ANKERITE VEINING APPROX PERPEND ICULAR TO BEDDING
*	65	213.63	213.66	0.03		CLAY	M. GY. SLD FRAGILE; SOFT
	65	213.66	213.70	0.04		COAL	C-6. SLD

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	65	213.70	213.76	0.06		MUDSTONE	LT. GY. BIOTR. SLD MOTTLED TEXTURE FROM BIOTURBATION; OCCASIONAL TINY COAL STREAKS
	65	213.76	213.78	0.02		COAL	C-6.SLD
*	65	213.78	213.99	0.21	06737 M	OVERTURNED MUDSTONE	CARB. BLK. BRKN NUMEROUS COAL STRINGERS THROUGHOUT
	58	213.99	214.32	0.33	06737 M	OVERTURNED ROCK LOSS	
	52	214.32	214.40	0.08	06738 M	OVERTURNED COAL LOSS	
*	50	214.40	214.50	0.10	06738 M	OVERTURNED COAL	C-2. BRKN CLAY BANDS; ANKERITE VEINS PERPENDICULAR TO BEDDING
	53	214.50	214.55	0.05	06738 M	OVERTURNED COAL	C-3 OCCASIONAL ANKERITE STRINGERS
	56	214.55	214.65	0.10	06738 M	OVERTURNED MUDSTONE	M. GY. SLD INTENSE QTZ VEINING IN BOTTOM SCH
	59	214.65	214.67	0.02	06738 M	OVERTURNED COAL	C-5.5HRD

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	60	214.67	214.71	0.04	06738 M	OVERTURNED COAL	C-2 SLD NUMEROUS FINE ANKERITE VEINS THROUGHOUT PERPENDICULAR TO BEDDING
*	60	214.71	214.75	0.04	06738 M	OVERTURNED COAL	C-4.SLD
	61	214.75	214.90	0.15	06738 M	OVERTURNED MUDSTONE	CARB. BLK. SLD COALY STRINGERS THROUGHOUT
	62	214.90	214.92	0.02	06738 M	OVERTURNED COAL	C-2.SLD
	63	214.92	215.01	0.09	06738 M	OVERTURNED MUDSTONE	CARB. BLK. SLD COAL STRINGERS THROUGHOUT
	64	215.01	215.04	0.03	06738 M	OVERTURNED MUDSTONE	M. GY. SLD OCCASIONAL FINE COAL STRINGERS
	65	215.04	215.07	0.03	06738 M	OVERTURNED COAL	C-2. BRKN
*	65	215.07	215.11	0.04	06738 M	OVERTURNED COAL	C-6.SLD
	65	215.11	215.31	0.20	06738 M	OVERTURNED MUDSTONE	CARB. BLK. BRKN COAL STRINGERS THROUGHOUT

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	65	215.31	215.33	0.02	06738	M OVERTURNED MUDSTONE	M.GY.SLD BAND OF LAMINATED MUDSTONE RIP UP CLAST S (?); VERY HARD
	65	215.33	215.42	0.09	06738	M OVERTURNED MUDSTONE	CARB.BLK.BRKN COAL STRINGERS THROUGHOUT
	65	215.42	215.46	0.04	06738	M OVERTURNED COAL	C-5.SLD
	65	215.46	215.53	0.07	06738	M OVERTURNED COAL	C-1.SLD QTZ VEINS THROUGHOUT
	65	215.53	215.56	0.03	06738	M OVERTURNED COAL	C-2.VBRKN
	65	215.56	215.60	0.04	06738	M OVERTURNED COAL	C-1.SLD
*	65	215.60	215.73	0.13	06738	M OVERTURNED COAL	C-2.SLD
	65	215.73	215.75	0.02	06738	M OVERTURNED COAL	C-1.SLD
	65	215.75	215.76	0.01	06738	M OVERTURNED COAL	C-2.SLD QTZ VEINS MINOR

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	65	215.76	215.78	0.02	06738	M OVERTURNED COAL	C-1.SLD
	65	215.78	215.84	0.06	06738	M OVERTURNED COAL	C-5.SLD
	65	215.84	215.96	0.12	06738	M OVERTURNED MUDSTONE	CARB.BLK.SLD
	65	215.96	216.00	0.04	06738	M OVERTURNED CLAY	M.GY.VBRKN SOFT; PLIABLE
	65	216.00	216.03	0.03	06738	M OVERTURNED MUDSTONE	CARB.BLK.SLD COAL STRINGERS THROUGHOUT
*	65	216.03	216.19	0.16	06739	M OVERTURNED COAL	C-1.SLD LAST 2CM CRUSHED; MINOR QTZ VEINING
	68	216.19	216.25	0.06	06739	M OVERTURNED COAL	C-2.VBRKN
	69	216.25	216.26	0.01	06739	M OVERTURNED PYRITE	YEL.SLD
*	70	216.26	216.34	0.08	06739	M OVERTURNED COAL	C-2.SLD MINOR QTZ/ANK VEINING
*	70	216.34	216.45	0.11	06739	M OVERTURNED COAL	C-1.SLD MINOR QTZ/ANK VEINING

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	70 216.45	216.46	0.01	06739	M	OVERTURNED MUDSTONE	CARB. M. GY. SLD COAL STRINGERS; VERY HARD
	70 216.46	216.48	0.02	06739	M	OVERTURNED COAL	C-2. SLD
	70 216.48	216.50	0.02	06739	M	OVERTURNED MUDSTONE	CARB. M. GY. SLD COAL STRINGERS; VERY HARD
	70 216.50	216.60	0.10	06739	M	OVERTURNED COAL	C-2. SLD QTZ/ARK VEINLETS THROUGHOUT
	70 216.60	216.62	0.02	06739	M	OVERTURNED MUDSTONE	CARB. DK. GY. SLD
	70 216.62	216.63	0.01	06739	M	OVERTURNED COAL	C-2. SLD
	70 216.63	216.68	0.05	06739	M	OVERTURNED CLAY	DK. GY. YBRKN SOFT
	70 216.68	216.72	0.04	06739	M	OVERTURNED COAL	C-2. SLD
	70 216.72	216.75	0.03	06739	M	OVERTURNED COAL	C-3. SLD
	70 216.75	216.80	0.05	06739	M	OVERTURNED COAL	C-1. SLD

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	70 216.80	216.81	0.01	06739	M	OVERTURNED COAL	C-2. SLD
*	70 216.81	216.84	0.03	06739	M	OVERTURNED COAL	C-1. SLD
*	60 216.84	216.87	0.03	06739	M	OVERTURNED COAL	C-2. SLD
	60 216.87	216.92	0.05	06739	M	OVERTURNED MUDSTONE	CARB. BLK. BRKN
	60 216.92	216.98	0.06	06739	M	OVERTURNED COAL	C-2. SLD
	60 216.98	217.05	0.07	06739	M	OVERTURNED ROCK LOSS	
	60 217.05	217.08	0.03	06739	M	OVERTURNED MUDSTONE	CARB. BLK. SLD
*	60 217.08	217.31	0.23	06739	M	OVERTURNED COAL	C-1. SLD MINOR QTZ VEINING
	55 217.31	217.36	0.05	06739	M	OVERTURNED COAL	C-2. SLD
	54 217.36	217.40	0.04	06739	M	OVERTURNED COAL	C-1. SLD

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	52	217.40	217.47	0.07	06739	M OVERTURNED COAL	C-2.SLD
*	50	217.47	217.54	0.07	06739	M OVERTURNED COAL	C-6.SLD
	49	217.54	217.59	0.05	06739	M OVERTURNED MUDSTONE	CARB.BLK.YBRKN
*	45	217.59	217.97	0.38	06739	M OVERTURNED COAL	C-2.SLD OCCASIONAL QTZ VEIN
	47	217.97	218.16	0.19	06739	M OVERTURNED ROCK LOSS	
	47	218.16	218.24	0.08	06739	M OVERTURNED MUDSTONE	CARB.BLK.BRKN
	48	218.24	218.34	0.10	06739	M OVERTURNED COAL	C-3.SLD
	48	218.34	218.38	0.04	06739	M OVERTURNED COAL	C-1.SLD
	48	218.38	218.43	0.05	06739	M OVERTURNED COAL	C-2.SLD
	49	218.43	218.58	0.15	06739	M OVERTURNED COAL	C-1.BRKN

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	49	218.58	218.61	0.03	06739	M OVERTURNED COAL	C-2.SLD
	50	218.61	218.64	0.03	06739	M OVERTURNED COAL	C-1.SLD
	50	218.64	218.73	0.09	06739	M OVERTURNED COAL	C-3.SLD MUCH ANKERITE THROUGHOUT; VERY HARD
	50	218.73	218.78	0.05	06739	M OVERTURNED COAL	C-1.YBRKN COAL LOSS LIKELY
	51	218.78	218.96	0.18	06739	M OVERTURNED COAL	C-1.YBRKN
	51	218.96	218.97	0.01	06739	M OVERTURNED CLAY	M.GY.BRKN
	52	218.97	219.10	0.13	06739	M OVERTURNED MUDSTONE	CARB.BLK.YSHRD CRUSHED CORE
	53	219.10	219.47	0.37	06739	M OVERTURNED COAL	C-2.YSHRD CRUSHED CORE (LOSS ?)
	54	219.47	219.50	0.03	06739	M OVERTURNED MUDSTONE	CARB.DK.GY.YBRKN VERY SOFT; FALLEN FROM DP HOLE
	54	219.50	219.56	0.06	06739	M OVERTURNED COAL	C-2.YBRKN

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	55	219.56	219.59	0.03	06739	M OVERTURNED MUDSTONE	CARB. BLK. VBRKN MUCH COAL MIXED IN
	56	219.59	220.05	0.46	06739	M OVERTURNED COAL	C-2, VBRKN
	59	220.05	220.58	0.53	06739	M OVERTURNED COAL LOSS	
	60	220.58	220.73	0.15	06740	M OVERTURNED ROCK LOSS	
	61	220.73	220.76	0.03	06740	M OVERTURNED CLAY	M. GY. VBRKN SOFT
	61	220.76	220.88	0.12	06740	M OVERTURNED MUDSTONE	CARB. DK. GY. SLD BRECCIA OF MUDSTONE CLASTS SURROUNDED BY Y. COAL AND ANKERITE
	62	220.88	220.92	0.04	06740	M OVERTURNED COAL	C-3, VBRKN
	62	220.92	221.02	0.10	06740	M OVERTURNED MUDSTONE	CARB. DK. GY. SLD BRECCIA AS DESCRIBED ABOVE
	63	221.02	221.29	0.27	06740	M OVERTURNED MUDSTONE	CARB. DK. GY. VBRKN VERY DISRUPTED AND SHEARED BUT MORE CAR BONACEOUS THAN ABOVE; MUCH QTZ/ANK VEIN ING

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	64	221.29	221.53	0.24	06741	M OVERTURNED COAL	C-2, VBRKN
	65	221.53	221.55	0.02	06741	M OVERTURNED CLAY	LT. GY. VBRKN SOFT, PLIABLE
	65	221.55	221.68	0.13	06741	M OVERTURNED MUDSTONE	CARB. BLK. VSHRD
	66	221.68	221.81	0.13	06741	M OVERTURNED COAL	C-1, VBRKN
	67	221.81	221.90	0.09	06741	M OVERTURNED MUDSTONE	CARB. DK. GY. BRKN DISRUPTED; MUDSTONE AND COAL CLASTS MIX ED TOGETHER
	67	221.90	221.97	0.07	06741	M OVERTURNED COAL	C-2, VBRKN
	67	221.97	222.00	0.03	06741	M OVERTURNED COAL	C-5 SLD MUCH ANKERITE; VERY HARD
	68	222.00	222.05	0.05	06741	M OVERTURNED COAL	C-2 BRKN LIKELY CORE LOSS AT BOTTOM OF INTERVAL

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	222.05	222.15	0.10	06741	M	OVERTURNED CLAY	LT. GY. VBRKN SOFT; PLIABLE; DRIES TO LIGHT GREY COLOR
	222.15	222.18	0.03	06741	M	OVERTURNED MUDSTONE	CARB. DK. GY. VBRKN
	222.18	222.23	0.05	06741	M	OVERTURNED COAL	C-3. SLD
	222.23	222.26	0.03	06741	M	OVERTURNED COAL	C-2. VBRKN POSSIBLY CORE LOSS HERE
	222.26	222.30	0.04	06741	M	OVERTURNED COAL	C-2. VBRKN
	222.30	222.37	0.07	06741	M	OVERTURNED MUDSTONE	CARB. BLK. VBRKN
	222.37	222.41	0.04	06741	M	OVERTURNED COAL	C-2. VBRKN
	222.41	222.45	0.04	06741	M	OVERTURNED MUDSTONE	CARB. BLK. VBRKN
*	222.45	222.48	0.03	06741	M	OVERTURNED COAL	C-2. VBRKN

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	222.48	222.61	0.13	06741	M	OVERTURNED COAL	C-1. VBRKN
	222.61	222.81	0.20	06741	M	OVERTURNED COAL	C-2. VBRKN CLAY BANDS
	222.81	223.03	0.22	06741	M	OVERTURNED COAL LOSS	
*	223.03	223.11	0.08	06741	M	OVERTURNED MUDSTONE	CARB. DK. GY. SLD VERY HARD; OCCASIONAL COAL STRINGERS
	223.11	223.34	0.23	06741	M	OVERTURNED ROCK LOSS	
	223.34	223.75	0.41	06742	M	OVERTURNED COAL LOSS	
	223.75	223.90	0.15	06742	M	OVERTURNED COAL	C-2. YSHRD
	223.90	223.95	0.05	06742	M	OVERTURNED MUDSTONE	CARB. DK. GY. VBRKN
	223.95	224.33	0.38	06742	M	OVERTURNED COAL	C-3. BLK. YSHRD CRUSHED CORE; CLAY BANDS
	224.33	224.49	0.16	06742	M	OVERTURNED COAL	C-6. YSHRD CRUSHED CORE; MORE CLAY THAN ABOVE; LIS TRIC

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	66 224.49	224.53	0.04	06742	M	OVERTURNED COAL	C-3, YSHRD CRUSHED CORE; VERY LITRIC
	66 224.53	224.56	0.03	06742	M	OVERTURNED MUDSTONE	CARB. DK. GY. SLD
	66 224.56	224.66	0.10	06742	M	OVERTURNED CLAY	M. GY. YBRKN SOFT; DRIES TO MEDIUM GREY COLOUR
*	65 224.66	225.14	0.48	06742	M	OVERTURNED COAL	C-2, YBRKN MINOR QTZ VEINING; SOME SHEARING
*	65 225.14	225.17	0.03	06742	M	OVERTURNED COAL	C-5, SLD VERY HARD
	66 225.17	225.24	0.07	06742	M	OVERTURNED CLAY	CARB. M. GY. BRKN SOFT
	67 225.24	225.25	0.01	06742	M	OVERTURNED COAL	C-2, BRKN
	67 225.25	225.27	0.02	06742	M	OVERTURNED CLAY	CARB. DK. GY. BRKN SOFT
	67 225.27	225.32	0.05	06742	M	OVERTURNED COAL	C-3, YBRKN
	68 225.32	225.35	0.03	06742	M	OVERTURNED CLAY	M. GY. BRKN SOFT

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	69 225.35	225.37	0.02	06742	M	OVERTURNED MUDSTONE	CARB. BLK. SHRD
	69 225.37	225.42	0.05	06742	M	OVERTURNED COAL	C-3, YSHRD
*	70 225.42	225.45	0.03	06742	M	OVERTURNED COAL	C-2, SLD
	70 225.45	225.48	0.03	06742	M	OVERTURNED CLAY	CARB. DK. GY. YBRKN SOFT
	70 225.48	225.64	0.16	06742	M	OVERTURNED COAL	C-2, BRKN CLAY BANDS THROUGHOUT
	70 225.64	225.70	0.06	06742	M	OVERTURNED COAL	C-1, SLD
*	70 225.70	225.74	0.04	06742	M	OVERTURNED COAL	C-3, SLD
*	70 225.74	225.85	0.11	06742	M	OVERTURNED COAL	C-1, SLD
	70 225.85	225.87	0.02	06742	M	OVERTURNED MUDSTONE	CARB. BLK. BRKN COAL STRINGERS
	70 225.87	225.93	0.06	06742	M	OVERTURNED CLAY	CARB. DK. GY. BRKN SOFT

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	70	225.93	226.15	0.22	06742 M	OVERTURNED ROCK	LOSS
	70	226.15	226.26	0.11	06742 M	OVERTURNED COAL	LOSS
	70	226.26	226.30	0.04	06742 M	OVERTURNED COAL	C-3.SLD
	70	226.30	226.33	0.03	06742 M	OVERTURNED COAL	C-1.SLD
	70	226.33	226.41	0.08	06742 M	OVERTURNED COAL	C-2.SLD
	70	226.41	226.44	0.03	06742 M	OVERTURNED MUDSTONE	CARB. BLK. BRKN COALY STRINGERS
	70	226.44	226.48	0.04	06742 M	OVERTURNED CLAY	CARB. DK. GY. BRKN SOFT
	70	226.48	226.57	0.09	06742 M	OVERTURNED COAL	C-1.SLD
	70	226.57	226.72	0.15	06742 M	OVERTURNED COAL	C-1.YBRKN
	70	226.72	226.77	0.05	06742 M	OVERTURNED COAL	C-2.SLD

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	70	226.77	226.81	0.04	06742 M	OVERTURNED MUDSTONE	CARB. DK. GY. SLD OCCASIONAL COAL STRINGERS
	70	226.81	226.92	0.11	06742 M	OVERTURNED COAL	C-2.BRKN
	70	226.92	226.95	0.03	06742 M	OVERTURNED CLAYSTONE	CARB. BLK. BRKN
	70	226.95	226.99	0.04	06742 M	OVERTURNED COAL	C-1.BRKN
	70	226.99	227.00	0.01	06742 M	OVERTURNED COAL	C-3.BRKN
	70	227.00	227.10	0.10	06742 M	OVERTURNED COAL	C-2.BRKN
	70	227.10	227.13	0.03	06742 M	OVERTURNED MUDSTONE	CARB. DK. GY. BIOTR. SLD SLIGHTLY MOTTLED; OCCASIONAL COAL STRIN GERS
	70	227.13	227.14	0.01	06742 M	OVERTURNED COAL	C-4.SLD
	70	227.14	227.17	0.03	06742 M	OVERTURNED MUDSTONE	CARB. DK. GY. BIOTR. SLD SLIGHTLY MOTTLED

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	70	227.17	227.20	0.03	06742 M	OVERTURNED COAL	C-1.BRKN
	70	227.20	227.30	0.10	06742 M	OVERTURNED MUDSTONE	CARB.BLK.BRKN
	70	227.30	227.34	0.04	06742 M	OVERTURNED CLAY	LT.GY.BRKN SOFT
	70	227.34	227.52	0.18	06742 M	OVERTURNED MUDSTONE	CARB.DK.GY.BRKN OCCASIONAL COALY STRINGER; TWO LIGHT GR EY SILTIER BANDS 3MM WIDE
	70	227.52	227.54	0.02	06742 M	OVERTURNED COAL	C-1.SLD
	70	227.54	227.56	0.02	06742 M	OVERTURNED COAL	C-6.PHRD
	70	227.56	227.60	0.04	06742 M	OVERTURNED COAL	C-1.SLD
	70	227.60	227.63	0.03	06742 M	OVERTURNED COAL	C-2.SLD

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	70	227.63	227.80	0.17	06742 M	OVERTURNED COAL	C-1.VBRKN
	70	227.80	227.83	0.03	06742 M	OVERTURNED COAL	C-2.SLD
	70	227.83	227.86	0.03	06742 M	OVERTURNED COAL	C-3.VBRKN
	70	227.86	227.91	0.05	06742 M	OVERTURNED COAL	C-1.VBRKN
	70	227.91	227.95	0.04	06742 M	OVERTURNED COAL	C-3.PHRD
	70	227.95	228.07	0.12	06742 M	OVERTURNED COAL	C-1.VBRKN
	70	228.07	228.15	0.08	06742 M	OVERTURNED COAL	C-1.VBRKN

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDM85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. TO	SEAM TO	LITHOLOGY	DESCRIPTION
	70	228.15	228.44	0.29	06742	M OVERTURNED COAL LOSS	
*	70	228.44	228.54	0.10	06742	M OVERTURNED COAL	C-2.VBRKH CRUSHED CORE
	55	228.54	228.72	0.18	06742	M OVERTURNED COAL	C-3.PHRD
	33	228.72	228.96	0.24	06743	M OVERTURNED MUDSTONE	CARB.BLK.PHRD LOSS (?); COAL STRINGERS THROUGHOUT
	15	228.96	229.07	0.11	06743	M OVERTURNED MUDSTONE	CARB.BLK.PHRD
*	01	229.07	229.22	0.15	06743	M OVERTURNED COAL	C-6.VBRKH INTENSELY FOLDED
	38	229.22	229.52	0.30	06743	M OVERTURNED MUDSTONE	CARB.BLK.PHRD VERY SHEARED; INTENSE FOLDING (?)
*	70	229.52	229.61	0.09	06744	M OVERTURNED COAL	C-2.SLD MODERATE QTZ VEINING
*	60	229.61	229.79	0.18	06744	M OVERTURNED COAL	C-2.SLD INTENSE QTZ VEINING PERPENDICULAR TO BEDDING; SLICKENSIDES

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDM85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. TO	SEAM TO	LITHOLOGY	DESCRIPTION
	60	229.79	229.82	0.03	06744	M OVERTURNED MUDSTONE	CARB.BLK.BRKN SOFT
	59	229.82	229.95	0.13	06744	M OVERTURNED COAL	C-2.SLD INTENSE QTZ VEINING PERPENDICULAR TO BEDDING (AS ABOVE)
	58	229.95	230.40	0.45	06744	M OVERTURNED COAL LOSS	
	56	230.40	230.86	0.46	06744	M OVERTURNED ROCK LOSS	
*	55	230.86	230.93	0.07	06745	M OVERTURNED COAL	C-6.SLD
*	50	230.93	232.48	1.55	06745	MUDSTONE	CARB.DK.GY.BIGTR.SLD SSD SHOWS TOPS DOWN (?); SOME MOTTLING; BIVALVES; MINOR PLANT FRAGMENTS
*	55	232.48	234.11	1.63		MUDSTONE	DK.GY.VTHNB.BRKN SLICKENSIDES AND NUMEROUS POLISHED SLIP PAGE SURFACES; RARE PLANT WASH; CLADOPH LEBIS VIRGINIENSIS; VERY FAINT BEDDING
	31	234.11	234.49	0.38		ROCK LOSS	

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 12	234.49	235.65	1.16			MUDSTONE	DK. GY. VTHNB. BRKN POSSIBLE FOLD AXIS HERE; BCAs 1-25 DEG REES; SLICKENSIDES AND FAINT BEDDING AS ABOVE
26	235.65	236.18	0.53			MUDSTONE	DK. GY. VTHNB. BRKN AS ABOVE
* 40	236.18	237.29	1.11			MUDSTONE	DK. GY. VTHNB. SSD. YBRKN AS ABOVE; POSSIBLE FLAME STRUCTURES SHO W TOPS UP (?)
* 32	237.29	237.80	0.51			MUDSTONE	DK. GY. VTHNB. BRKN AS ABOVE; NO FOSSILS - PLANT OR SHELL
31	237.80	238.43	0.63			ROCK LOSS	
29	238.43	238.97	0.54			MUDSTONE	DK. GY. VTHNB. BRKN AS ABOVE
27	238.97	240.28	1.31			MUDSTONE	DK. GY. VTHNB. BRKN AS ABOVE; 3.5CM OF CARBONATE VEINING AT TOP OF INTERVAL
* 24	240.28	242.08	1.80			MUDSTONE	DK. GY. VTHNB. SLD AS ABOVE; FAINT BEDDING; EXTREMELY FINE GRAINED; POSSIBLE SSD; AMBIGUOUS TOPS

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
24	242.08	242.36	0.28			MUDSTONE	DK. GY. VTHNB. SLD LIKELY INCORRECT FOOT MARKER; VERY UNIF ORN; NO FOSSILS
* 25	242.36	244.38	2.02			MUDSTONE	DK. GY. VTHNB. SLD AS ABOVE
23	244.38	244.56	0.18			MUDSTONE	DK. GY. VTHNB. SLD AS ABOVE
* 22	244.56	246.42	1.86			MUDSTONE	DK. GY. VTHNB. SLD AS ABOVE
18	246.42	246.77	0.35			ROCK LOSS	
* 15	246.77	247.92	1.15			MUDSTONE	DK. GY. VTHNB. SLD AS ABOVE
12	247.92	248.67	0.75			MUDSTONE	DK. GY. VTHNB. SLD AS ABOVE
11	248.67	248.90	0.23			ROCK LOSS	
09	248.90	249.75	0.85			MUDSTONE	DK. GY. VTHNB. BRKN AS ABOVE
07	249.75	250.44	0.69			MUDSTONE	DK. GY. VTHNB. BRKN AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 03	250.44	252.28	1.84			MUDSTONE	DK. GY. VTHNB. BRKN AS ABOVE; QTZ VEINS 3-13MM WIDE; AXIS O F FOLD ? BCA'S 1-7 DEGREES
04	252.28	252.48	0.20			ROCK LOSS	
* 04	252.48	252.74	0.26			MUDSTONE	DK. GY. VTHNB. SLD AS ABOVE
09	252.74	254.21	1.47			MUDSTONE	DK. GY. VTHNB. BRKN AS ABOVE; 1CM WIDE CARBONATE VEINS
14	254.21	254.45	0.24			ROCK LOSS	
* 18	254.45	255.77	1.32			MUDSTONE	DK. GY. VTHNB. SSD. BRKN AS ABOVE; POSSIBLE FLAME STRUCTURES; TO PS DOWN (?)
* 20	255.77	256.18	0.41			MUDSTONE	DK. GY. VTHNB. SLD AS ABOVE
* 30	256.18	258.32	2.14			MUDSTONE	DK. GY. VTHNB. SLD AS ABOVE; SCOURS (?); POSSIBLY TOPS DOWN; BCA'S 6-33 DEGREES
32	258.32	258.81	0.49			MUDSTONE	DK. GY. VTHNB. BRKN AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 34	258.81	260.19	1.38			MUDSTONE	DK. GY. VTHNB. BRKN AS ABOVE
* 38	260.19	261.80	1.61			MUDSTONE	DK. GY. VTHNB. BRKN AS ABOVE; MINOR QTZ VEINING
* 39	261.80	262.06	0.26			MUDSTONE	DK. GY. VTHNB. BRKN AS ABOVE
* 46	262.06	264.12	2.06			MUDSTONE	DK. GY. VTHNB. BRKN AS ABOVE; ONE QTZ/ANK VEIN 4CM WIDE
* 48	264.12	264.80	0.68			MUDSTONE	DK. GY. VTHNB. BRKN AS ABOVE
* 51	264.80	266.22	1.42			MUDSTONE	DK. GY. VTHNB. SSD. BRKN AS ABOVE; LOADING (?) SHOWS TOPS UP
* 46	266.22	267.77	1.55			MUDSTONE	DK. GY. VTHNB. SLD LITH AS ABOVE
47	267.77	268.23	0.46			MUDSTONE	DK. GY. VTHNB. SLD AS ABOVE; ONE PIECE OF PLANT RASH AND ONE POSSIBLE BIVALVE
* 48	268.23	270.32	2.09			MUDSTONE	DK. GY. VTHNB. SLD AS ABOVE; BIVALVES 10MM IN DIAMETER

* DENOTES MEASURED BCA

100-400-003

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. TO	SEAM ID	LITHOLOGY	DESCRIPTION
	270.32	270.74	0.42	06746		MUDSTONE	CARB. DK. GY. MAS. BRKN BIVALVES; RARE PLANT FRAGMENTS
53	270.74	270.76	0.02	06747	M UPRIGHT	COAL	C-2. SLD ANKERITE ON CLEAT
53	270.76	270.86	0.10	06747	M UPRIGHT	MUDSTONE	CARB. BRKN MINOR ANKERITE THROUGHOUT
54	270.86	270.91	0.05	06747	M UPRIGHT	COAL	C-1. SLD ANKERITE THROUGHOUT
54	270.91	270.93	0.02	06747	M UPRIGHT	COAL	C-2. SLD
54	270.93	271.00	0.07	06747	M UPRIGHT	COAL	C-1. BRKN TWO MUDSTONE LENSES 3MM WIDE
54	271.00	271.06	0.06	06747	M UPRIGHT	COAL	C-2. SLD ANKERITE THROUGHOUT
54	271.06	271.11	0.05	06747	M UPRIGHT	COAL	C-1. BRKN
55	271.11	271.15	0.04	06747	M UPRIGHT	COAL	C-2. BRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. TO	SEAM ID	LITHOLOGY	DESCRIPTION
55	271.15	271.23	0.08	06747	M UPRIGHT	MUDSTONE	CARB. M. GY. LAM. SLD INTENSE QTZ/ANK VEINING; VERY FINE ANKERITE RICH LAMINAE
* 55	271.23	271.28	0.05	06747	M UPRIGHT	COAL	C-2. SLD
57	271.28	271.57	0.29	06747	M UPRIGHT	COAL LOSS	
58	271.57	271.65	0.08	06747	M UPRIGHT	MUDSTONE	CARB. BLK. VBRKN OCCASIONAL RIBBONS OF PRESERVED FIBROUS ORGANIC MATERIAL; SHEARED
59	271.65	271.69	0.04	06747	M UPRIGHT	MUDSTONE	CARB. DK. GY. SLD INTENSELY VEINED BY ANKERITE/QTZ; SHEARED
60	271.69	271.90	0.21	06747	M UPRIGHT	MUDSTONE	CARB. BLK. YSHRD CRUSHED CORE; VERY LISTRIC
63	271.90	272.27	0.37	06747	M UPRIGHT	MUDSTONE	CARB. BLK. SHRD INTENSE LOCAL FOLDING; NUMEROUS COAL ST RINGERS AND QTZ/ANK VEINLETS THROUGHOUT
* 65	272.27	272.33	0.06	06747	M UPRIGHT	COAL	C-2. BRKN

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	59	272.33	272.36	0.03	06747 M UPRIGHT	COAL	C-1.VBRKN CRUMBLED
*	01	272.36	272.71	0.35	06747 M UPRIGHT	COAL	C-2.VBRKN INTENSE LOCAL FOLDING; NUMEROUS QTZ/ANK VEINS
	01	272.71	272.78	0.07	06747 M UPRIGHT	MUDSTONE	CARB.BLK.VSHRD OCCASIONAL COAL STRINGERS THROUGHOUT; V ERY LISTRIC
	01	272.78	272.80	0.02	06747 M UPRIGHT	COAL	C-2.SLD
	01	272.80	272.81	0.01	06747 M UPRIGHT	MUDSTONE	CARB.DK.GY.SLD
	01	272.81	272.85	0.04	06747 M UPRIGHT	COAL	C-2.SLD QTZ VEINS THROUGHOUT
*	01	272.85	273.29	0.44	06747 M UPRIGHT	MUDSTONE	CARB.BLK.VBRKN NUMEROUS COAL STRINGERS THROUGHOUT; LOC AL FOLDING AND SHEARING
*	01	273.29	273.36	0.07	06747 M UPRIGHT	COAL	C-3.SHRD

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	01	273.36	273.44	0.08	06747 M UPRIGHT	CLAY	M.GY.VSHRD SOFT
	01	273.44	273.50	0.06	06747 M UPRIGHT	COAL	C-3.SLD
	01	273.50	273.51	0.01	06747 M UPRIGHT	CLAY	M.GY.VBRKN SOFT
	01	273.51	273.55	0.04	06747 M UPRIGHT	COAL	C-2.VBRKN
	01	273.55	273.59	0.04	06747 M UPRIGHT	MUDSTONE	CARB.DK.GY.SLD IRREGULAR CONTACTS; COAL STRINGERS THRO UGHOUT
*	01	273.59	273.86	0.27	06748 M UPRIGHT	COAL	C-2.VBRKN SHEARED; INTENSE LOCAL FOLDING
	11	273.86	273.93	0.07	06748 M UPRIGHT	COAL	C-2.BRKN
	14	273.93	273.95	0.02	06748 M UPRIGHT	COAL	C-3.SLD
	14	273.95	273.96	0.01	06748 M UPRIGHT	COAL	C-2.SLD

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	15 273.96	273.98	0.02	06748	M UPRIGHT	MUDSTONE	CARB. M. GY. SLD LENS OF MUDSTONE; VERY HARD
	17 273.98	274.02	0.04	06748	M UPRIGHT	COAL	C-2. SLD
	19 274.02	274.04	0.02	06748	M UPRIGHT	COAL	C-3. SLD
	25 274.04	274.23	0.19	06748	M UPRIGHT	COAL	C-2. BRKN
	36 274.23	274.44	0.21	06748	M UPRIGHT	COAL LOSS	
	48 274.44	274.63	0.19	06748	M UPRIGHT	MUDSTONE	CARB. BLK. VSHRD
	56 274.63	274.72	0.09	06748	M UPRIGHT	COAL	C-3. SLD INTENSE LOCAL FOLDING; MODERATE QTZ/ANK VEINING
*	65 275.72	274.93	0.21	06748	M UPRIGHT	COAL	C-2. BRKN
	65 274.93	275.05	0.12	06748	M UPRIGHT	MUDSTONE	CARB. DK. GY. VBRKN

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	65 275.05	275.24	0.19	06748	M UPRIGHT	COAL	C-2. BRKN OCCASIONAL MUDSTONE LENSES WITH FIBEROUS ORGANIC MATERIAL; BCA VARIES FROM 30 TO 70 DEGREES
	65 275.24	275.37	0.13	06748	M UPRIGHT	COAL	C-3. SHRD
	65 275.37	275.40	0.03	06748	M UPRIGHT	CLAY	LT. GY. VBRKN DRIES TO LIGHT GREY COLOUR; SOFT
	66 275.40	275.52	0.12	06748	M UPRIGHT	COAL	C-2. VSHRD
	66 275.52	275.57	0.05	06748	M UPRIGHT	CLAY	M. GY. VBRKN SOFT
	66 275.57	275.65	0.08	06748	M UPRIGHT	MUDSTONE	CARB. BLK. VBRKN INTENSE QTZ/ANK VEINING; COAL STRINGERS ; SHEARED
	66 275.65	275.73	0.08	06748	M UPRIGHT	COAL	C-3. VSHRD OCCASIONAL BRIGHTER STRINGERS
	66 275.73	275.75	0.02	06748	M UPRIGHT	COAL	C-2. BRKN

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION	
	66	275.75	275.85	0.10	06748	M UPRIGHT	COAL	C-3. VBRKN CLAY BANDS AS WELL AS BRIGHT STRINGERS THROUGHOUT
	66	275.85	275.89	0.04	06748	M UPRIGHT	MUDSTONE	CARB. DK. GY. SLD RIBBONS OF FIBEROUS PLANT MATERIAL PRES ERVED.
	67	275.89	275.91	0.02	06748	M UPRIGHT	COAL	C-2. BRKN
	67	275.91	276.19	0.28	06748	M UPRIGHT	COAL	C-1. VBRKN
	67	276.19	276.26	0.07	06749	M UPRIGHT	MUDSTONE	CARB. BLK. VBRKN
	67	276.26	276.27	0.01	06749	M UPRIGHT	CLAY	M. GY. VBRKN SOFT
	67	276.27	276.31	0.04	06749	M UPRIGHT	MUDSTONE	CARB. DK. GY. SLD INTENSE QTZ VEINING
	67	276.31	276.35	0.04	06749	M UPRIGHT	COAL	C-2. SLD CLAY BANDS

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION	
	67	276.35	276.36	0.01	06749	M UPRIGHT	CLAY	M. GY. BRKN SOFT
	67	276.36	276.42	0.06	06749	M UPRIGHT	MUDSTONE	CARB. BLK. BRKN COAL STRINGERS THROUGHOUT; ALMOST C-8
	68	276.42	276.45	0.03	06749	M UPRIGHT	COAL	C-6. BRKN
	68	276.45	276.48	0.03	06749	M UPRIGHT	MUDSTONE	CARB. BLK. BRKN
	68	276.48	276.62	0.14	06749	M UPRIGHT	MUDSTONE	CARB. DK. GY. SLD VERY HARD; INTENSE QTZ/ANK VEINING THRO UGHOUT; OCCASIONAL COAL STRINGERS
	68	276.62	276.68	0.06	06749	M UPRIGHT	COAL	C-2. BRKN
	68	276.68	276.74	0.06	06749	M UPRIGHT	CLAY	CARB. M. GY. VBRKN MORE CARBONACEOUS TOWARDS CONTACTS; SOF T
	68	276.74	276.84	0.10	06749	M UPRIGHT	COAL	C-3. SHRD MODERATE QTZ VEINING THROUGHOUT
	69	276.84	277.08	0.24	06749	M UPRIGHT	COAL	C-2. VBRKN SHEARED; LISTRIC SURFACES THROUGHOUT

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	69 277.08	277.23	0.15	06749	M UPRIGHT	MUDSTONE	CARB. BLK. YBRKN COAL STRINGERS THROUGHOUT; SHEARED
	69 277.23	277.24	0.01	06749	M UPRIGHT	COAL	C-2. SLD
	69 277.24	277.27	0.03	06749	M UPRIGHT	MUDSTONE	CARB. BLK. YBRKN COAL STRINGERS
	69 277.27	277.28	0.01	06749	M UPRIGHT	COAL	C-2. SLD
	69 277.28	277.31	0.03	06749	M UPRIGHT	MUDSTONE	CARB. BLK. YBRKN COAL STRINGERS
	69 277.31	277.47	0.16	06749	M UPRIGHT	COAL	C-2. BRKN
	70 277.47	277.50	0.03	06749	M UPRIGHT	COAL	C-6. YBRKN SHEARED
	70 277.50	277.51	0.01	06749	M UPRIGHT	COAL	C-2. SLD
	70 277.51	277.57	0.06	06749	M UPRIGHT	MUDSTONE	CARB. BLK. YBRKN SHEARED; ALMOST C-6; COAL STRINGERS THRU OUGHOUT

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	70 277.57	277.75	0.18	06749	M UPRIGHT	COAL	C-2. BRKN CLAY BANDS
	69 277.75	277.81	0.06	06749	M UPRIGHT	MUDSTONE	CARB. BLK. YSHRD
	69 277.81	277.87	0.06	06749	M UPRIGHT	COAL	C-5. YBRKN
	69 277.87	277.96	0.09	06749	M UPRIGHT	COAL	C-1
	68 277.96	278.01	0.05	06749	M UPRIGHT	COAL	C-2. YBRKN
	68 278.01	278.05	0.04	06749	M UPRIGHT	MUDSTONE	CARB. BLK. BRKN
	68 278.05	278.07	0.02	06749	M UPRIGHT	COAL	C-1. SLD CLAY BANDS
	68 278.07	278.08	0.01	06749	M UPRIGHT	COAL	C-5. SLD
	67 278.08	278.39	0.31	06749	M UPRIGHT	COAL LOSS	
	66 278.39	278.45	0.06	06749	M UPRIGHT	ROCK LOSS	

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPW BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	66	278.45	278.60	0.15	06749 M UPRIGHT	MUDSTONE	CARB. BLK. BRKN OCCASIONAL QTZ VEINS; COAL STRINGERS TH ROUGHOUT
*	65	278.60	278.65	0.05	06749 M UPRIGHT	COAL	C-1.SLD
	66	278.65	278.68	0.03	06749 M UPRIGHT	COAL	C-5.SLD
	66	278.68	278.70	0.02	06749 M UPRIGHT	COAL	C-1.SLD
	67	278.70	278.75	0.05	06749 M UPRIGHT	MUDSTONE	CARB. BLK. SLD
*	70	278.75	279.01	0.26	06749 M UPRIGHT	COAL	C-2.BRKN
	72	279.01	279.11	0.10	06749 M UPRIGHT	COAL	C-5.YBRKN

* DENOTES MEASURED BCA

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PROJECT: KPW BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	72	279.11	279.16	0.05	06749 M UPRIGHT	CLAY	DK. GY. YBRKN SOFT
	72	279.16	279.26	0.10	06749 M UPRIGHT	MUDSTONE	CARB. BLK. SLD VERY HARD
	74	279.26	279.29	0.03	06749 M UPRIGHT	COAL	C-6.BRKN
	74	279.29	279.31	0.02	06749 M UPRIGHT	MUDSTONE	CARB. DK. GY. SLD OCCASIONAL RIBBONS OF PRESERVED FIBEROUS PLANT MATERIAL
	75	279.31	279.45	0.14	06749 M UPRIGHT	COAL LOSS	
	76	279.45	279.65	0.20	06749 M UPRIGHT	ROCK LOSS	
	78	279.65	279.92	0.27	06749 M UPRIGHT	COAL LOSS	
	79	279.92	279.93	0.01	06749 M UPRIGHT	COAL	C-1.SLD
*	80	279.93	280.03	0.10	06749 M UPRIGHT	COAL	C-2.BRKN

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	80	280.03	280.05	0.02	06749 M UPRIGHT	MUDSTONE	CARB. BLK. BRKN SOFT
	80	280.05	280.06	0.01	06749 M UPRIGHT	COAL	C-2, SLD
	79	280.06	280.12	0.06	06749 M UPRIGHT	MUDSTONE	M. GY. BIOTR. SLD MOTTLED TEXTURE
	79	280.12	280.16	0.04	06749 M UPRIGHT	CLAY	LT. GY. BRKN SOFT
	79	280.16	280.27	0.11	06749 M UPRIGHT	COAL	C-3 SHRD ANKERITE VEINLETS AND CLAY BANDS THROUGHOUT
	78	280.27	280.49	0.22	06749 M UPRIGHT	MUDSTONE	CARB. BLK. YSHRD OCCASIONAL QTZ VEINS THROUGHOUT
	77	280.49	280.52	0.03	06749 M UPRIGHT	COAL	C-3, SLD
	77	280.52	280.57	0.05	06749 M UPRIGHT	MUDSTONE	CARB. BLK. BRKN
	76	280.57	280.59	0.02	06749 M UPRIGHT	QUARTZITE	WH. SLD

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	76	280.59	280.64	0.05	06749 M UPRIGHT	COAL	C-6, BRKN
	76	280.64	280.76	0.12	06749 M UPRIGHT	COAL	C-3, BRKN QTZ VEINS THROUGHOUT
	75	280.76	280.90	0.14	06749 M UPRIGHT	MUDSTONE	CARB. BLK. SHRD
	74	280.90	281.02	0.12	06749 M UPRIGHT	COAL	C-3, YBRKN QTZ VEINS THROUGHOUT
	74	281.02	281.07	0.05	06749 M UPRIGHT	COAL	C-5, YSHRD
	73	281.07	281.18	0.11	06749 M UPRIGHT	COAL	C-3, YBRKN
	73	281.18	281.22	0.04	06749 M UPRIGHT	COAL	C-4, BRKN
	72	281.22	281.26	0.04	06749 M UPRIGHT	MUDSTONE	CARB. YSHRD
	72	281.26	281.42	0.16	06749 M UPRIGHT	COAL	C-2, BRKN COAL LOSS (?)
	71	281.42	281.47	0.05	06749 M UPRIGHT	COAL	C-6, YSHRD

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	71	281.47	281.49	0.02	06749 M UPRIGHT	COAL	C-1.VBRKN
	70	281.49	281.66	0.17	06749 M UPRIGHT	COAL	C-2.VBRKN
	70	281.66	281.68	0.02	06749 M UPRIGHT	COAL	C-6.VBRKN
	70	281.68	281.70	0.02	06749 M UPRIGHT	CLAY	M.GY.VBRKN SOFT
	69	281.70	281.77	0.07	06749 M UPRIGHT	MUDSTONE	CARB.BLK.YSHRD
	69	281.77	281.88	0.11	06749 M UPRIGHT	COAL	C-6.YSHRD
	68	281.88	282.00	0.12	06749 M UPRIGHT	COAL LOSS	
	68	282.00	282.01	0.01	06749 M UPRIGHT	MUDSTONE	CARB.M.GY.SLD SHALL LENS
	68	282.01	282.12	0.11	06749 M UPRIGHT	COAL	C-2.VBRKN CLAY BANDS
	67	282.12	282.18	0.06	06749 M UPRIGHT	CLAY	M.GY.VBRKN SOFT

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	67	282.18	282.26	0.08	06749 M UPRIGHT	COAL	C-3.SLD
	66	282.26	282.28	0.02	06749 M UPRIGHT	CLAY	M.GY.VBRKN SOFT
	66	282.28	282.37	0.09	06749 M UPRIGHT	COAL	C-2.BRKN
	66	282.37	282.39	0.02	06749 M UPRIGHT	MUDSTONE	CARB.DK.GY.SLD VERY HARD
	66	282.39	282.41	0.02	06749 M UPRIGHT	COAL	C-3.SLD
	65	282.41	282.45	0.04	06749 M UPRIGHT	CLAY	M.GY.VBRKN SOFT
	65	282.45	282.52	0.07	06749 M UPRIGHT	MUDSTONE	CARB.M.GY.SLD VERY HARD
	65	282.52	282.57	0.05	06749 M UPRIGHT	COAL	C-2.SLD MUCH ANKERITE
	65	282.57	282.70	0.13	06749 M UPRIGHT	MUDSTONE	CARB.BLK.BRKN
	65	282.70	282.76	0.06	06749 M UPRIGHT	COAL	C-6.BRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. TO	SEAM TO	LITHOLOGY	DESCRIPTION
	65 282.76	283.08	0.32	06749	M UPRIGHT	COAL	C-2.VBRKN
	65 283.08	283.18	0.10	06749	M UPRIGHT	COAL	C-1.BRKN
	65 283.18	283.31	0.13	06749	M UPRIGHT	COAL	C-2.BRKN
	65 283.31	283.33	0.02	06749	M UPRIGHT	COAL	C-1.SLD
	65 283.33	283.37	0.04	06749	M UPRIGHT	CLAY	M.GY.VBRKN SOFT
	65 283.37	283.42	0.05	06749	M UPRIGHT	MUDSTONE	CARB.BLK.SLD COAL STRINGERS
*	65 283.42	283.46	0.04	06749	M UPRIGHT	MUDSTONE	M.GY.BIOTR.SLD MOTTLED TEXTURE
*	70 283.46	283.47	0.01	06749	M UPRIGHT	COAL	C-6.SLD
	70 283.47	283.57	0.10	06749	M UPRIGHT	COAL	C-6.BRKN
	71 283.57	283.59	0.02	06749	M UPRIGHT	CLAY	DK.GY.VBRKN SOFT

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. TO	SEAM TO	LITHOLOGY	DESCRIPTION
	71 283.59	283.60	0.01	06749	M UPRIGHT	COAL	C-6.BRKN
	72 283.60	283.76	0.16	06749	M UPRIGHT	COAL	C-3.SLD MUCH ANKERITE THROUGHOUT
	73 283.76	283.83	0.07	06749	M UPRIGHT	CLAY	DK.GY.VBRKN SOFT
	73 283.83	283.85	0.02	06749	M UPRIGHT	COAL	C-6.SLD
	73 283.85	283.87	0.02	06749	M UPRIGHT	CLAY	DK.GY.VBRKN
	74 283.87	283.98	0.11	06749	M UPRIGHT	COAL	C-2.BRKN
	74 283.98	284.02	0.04	06749	M UPRIGHT	MUDSTONE	CARB.DK.GY.SLD RIBBONS OF PRESERVED FIBEROUS PLANT MAT ERIAL
	75 284.02	284.05	0.03	06749	M UPRIGHT	COAL	C-2.BRKN
	75 284.05	284.10	0.05	06749	M UPRIGHT	MUDSTONE	CARB.DK.GY.VBRKN

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDR85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	76 284.10	284.15	0.05	06749	M UPRIGHT	COAL	C-6.VBRKN
	76 284.15	284.18	0.03	06749	M UPRIGHT	COAL	C-2.SLD
	76 284.18	284.21	0.03	06749	M UPRIGHT	COAL	C-6.SLD
	76 284.21	284.25	0.04	06749	M UPRIGHT	MUDSTONE	CARB.BLK.SHRD
	77 284.25	284.41	0.16	06749	M UPRIGHT	COAL	C-1.BRKN
	78 284.41	284.43	0.02	06749	M UPRIGHT	COAL	C-3.SLD
	78 284.43	284.49	0.06	06749	M UPRIGHT	COAL	C-2.BRKN

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDR85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	79 284.49	284.54	0.05	06749	M UPRIGHT	COAL	C-5.BRKN
	79 284.54	284.57	0.03	06749	M UPRIGHT	COAL	C-3.SLD
	79 284.57	284.59	0.02	06749	M UPRIGHT	MUDSTONE	CARB.SLD
	80 284.59	284.64	0.05	06749	M UPRIGHT	COAL	C-2.SLD MUCH QTZ VEINING
	80 284.64	284.66	0.02	06749	M UPRIGHT	COAL	C-6.SLD
	80 284.66	284.78	0.12	06749	M UPRIGHT	MUDSTONE	M.GY.VBRKN SOFT
	81 284.78	284.85	0.07	06749	M UPRIGHT	ROCK LOSS	
	82 284.85	285.04	0.19	06750	M UPRIGHT	COAL LOSS	
	83 285.04	285.10	0.06	06750	M UPRIGHT	COAL	C-2.BRKN

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
84	285.10	285.15	0.05	06750	M UPRIGHT	CLAY	M. GY. YBRKN SOFT
85	285.15	285.26	0.11	06750	M UPRIGHT	COAL	C-2. SLD
86	285.26	285.49	0.23	06750	M UPRIGHT	COAL	C-1. SLD
87	285.49	285.57	0.08	06750	M UPRIGHT	COAL	C-1. SLD
88	285.57	285.61	0.04	06750	M UPRIGHT	COAL	C-2. SLD
88	285.61	285.62	0.01	06750	M UPRIGHT	MUDSTONE	CARB. BLK. YBRKN
88	285.62	285.73	0.11	06750	M UPRIGHT	COAL	C-2. BRKN
89	285.73	285.75	0.02	06750	M UPRIGHT	CLAY	DK. GY. YBRKN SOFT
89	285.75	285.77	0.02	06750	M UPRIGHT	COAL	C-3. SLD
* 90	285.77	285.95	0.18	06750	M UPRIGHT	COAL	C-1. SLD

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 98

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
87	285.95	285.97	0.02	06750	M UPRIGHT	COAL	C-3. YBRKN CRUSHED
86	285.97	286.01	0.04	06750	M UPRIGHT	COAL	C-2. YBRKN
85	286.01	286.03	0.02	06750	M UPRIGHT	QUARTZITE	MH. SLD COALY INCLUSIONS
83	286.03	286.10	0.07	06750	M UPRIGHT	COAL	C-3. YBRKN SHEARED
* 80	286.10	286.25	0.15	06750	M UPRIGHT	COAL	C-2. SLD CLAY BANDS
80	286.25	286.47	0.22	06750	M UPRIGHT	COAL	C-1. SLD
80	286.47	286.52	0.05	06750	M UPRIGHT	COAL	C-2. SLD
80	286.52	286.63	0.11	06750	M UPRIGHT	MUDSTONE	CARB. YBRKN COALY STREAKS THROUGHOUT
80	286.63	286.78	0.15	06750	M UPRIGHT	COAL	C-2. BRKN
80	286.78	286.79	0.01	06750	M UPRIGHT	MUDSTONE	CARB. BLK. BRKN

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 99

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LYTHOLOGY	DESCRIPTION
	80 286.79	286.84	0.05	06750	M UPRIGHT	COAL	C-3.VBRKN
	80 286.84	286.93	0.09	06750	M UPRIGHT	COAL	C-2.VBRKN
	80 286.93	287.14	0.21	06750	M UPRIGHT	COAL	C-3.BRKN
*	80 287.14	287.35	0.21	06750	M UPRIGHT	COAL	C-1.BRKN
	80 287.35	287.53	0.18	06750	M UPRIGHT	COAL	C-2.VBRKN
	80 287.53	287.61	0.08	06750	M UPRIGHT	MUDSTONE	CARB.BLK.VBRKN COAL STRINGERS THROUGHOUT
	80 287.61	287.63	0.02	06750	M UPRIGHT	COAL	C-3.BRKN
	80 287.63	287.66	0.03	06750	M UPRIGHT	MUDSTONE	CARB.BLK.VBRKN
	80 287.66	287.70	0.04	06750	M UPRIGHT	COAL	C-4.VBRKN
	80 287.70	287.77	0.07	06750	M UPRIGHT	QUARTZITE	MH.SLD COALY INCLUSIONS

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 100

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LYTHOLOGY	DESCRIPTION
	80 287.77	288.12	0.35	06750	M UPRIGHT	COAL LOSS	
	80 288.12	288.23	0.11	06750	M UPRIGHT	COAL	C-2.VBRKN CRUSHED CORE
	80 288.23	288.27	0.04	06750	M UPRIGHT	COAL	C-3.BRKN
	80 288.27	288.37	0.10	06750	M UPRIGHT	COAL	C-1.BRKN
	80 288.37	288.42	0.05	06750	M UPRIGHT	COAL	C-2.SLD
	80 288.42	288.44	0.02	05151	M UPRIGHT	MUDSTONE	CARB.BLK.SLD
	80 288.44	288.48	0.04	05151	M UPRIGHT	COAL	C-6.BRKN
	80 288.48	288.50	0.02	05151	M UPRIGHT	CLAY	M.GY.VBRKN SOFT
	80 288.50	288.57	0.07	05151	M UPRIGHT	MUDSTONE	CARB.BLK.SLD QTZ VEINS
	80 288.57	288.61	0.04	05151	M UPRIGHT	COAL	C-6.BRKN

* DENOTES MEASURED BCA

FORM 4001

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 101

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	80 288.61	288.65	0.04	05151	M UPRIGHT	MUDSTONE	CARB. BLK. SLD HARD
	80 288.65	288.78	0.13	05151	M UPRIGHT	COAL LOSS	
	80 288.78	289.00	0.22	05151	M UPRIGHT	COAL	C-2. VBRKN CLAY BANDS; SLICKENSIDES THROUGHOUT
	80 289.00	289.06	0.06	05151	M UPRIGHT	COAL	C-3. SLD QTZ. VEINS THROUGHOUT
	80 289.06	289.09	0.03	05151	M UPRIGHT	COAL	C-2. SLD QTZ. VEINS THROUGHOUT
	80 289.09	289.15	0.06	05151	M UPRIGHT	COAL	C-6. SLD
	80 289.15	289.21	0.06	05151	M UPRIGHT	COAL	C-2. SLD QTZ. VEINS THROUGHOUT
	80 289.21	289.22	0.01	05151	M UPRIGHT	MUDSTONE	CARB. BLK. BRKN
*	80 289.22	289.23	0.01	05151	M UPRIGHT	COAL	C-1. SLD
	80 289.23	289.25	0.02	05151	M UPRIGHT	COAL	C-6. SLD

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	80 289.25	289.26	0.01	05151	M UPRIGHT	COAL	C-1. SLD
	80 289.26	289.29	0.03	05151	M UPRIGHT	COAL	C-5. SLD
	80 289.29	289.46	0.17	05151	M UPRIGHT	COAL	C-6. BRKN
	80 289.46	289.51	0.05	05151	M UPRIGHT	MUDSTONE	CARB. M. GY. VBRKN PYRITE BLEBS THROUGHOUT; SLICKENSIDES
	80 289.51	289.56	0.05	05151	M UPRIGHT	MUDSTONE	CARB. BLK. VBRKN SLICKENSIDES
	80 289.56	289.69	0.13	05151	M UPRIGHT	MUDSTONE	CARB. BLK. BRKN ALMOST C-6; COAL STRINGERS THROUGHOUT
	80 289.69	289.75	0.06	05151	M UPRIGHT	COAL	C-2. SLD QTZ VEINS THROUGHOUT
	80 289.75	289.83	0.08	05151	M UPRIGHT	MUDSTONE	CARB. SLD NUMEROUS COAL STREAKS THROUGHOUT
	80 289.83	289.88	0.05	05151	M UPRIGHT	COAL	C-5. BRKN
	80 289.88	289.90	0.02	05151	M UPRIGHT	MUDSTONE	CARB. BLK. BRKN

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	80 289.90	289.95	0.05	05151	M UPRIGHT	COAL	C-2.VBRKN
	80 289.95	290.04	0.09	05151	M UPRIGHT	COAL	C-6.VSHRD
	80 290.04	290.11	0.07	05151	M UPRIGHT	COAL	C-2.BRKN
	80 290.11	290.26	0.15	05151	M UPRIGHT	COAL	C-4.BRKN INTENSE QTZ VEINING THROUGHOUT
	80 290.26	290.32	0.06	05152		MUDSTONE	CARB.BRKN
	80 290.32	290.33	0.01	05152		MUDSTONE	CARB.DK.GY.SLD RIBBONS OF PRESERVED FIBEROUS ORGANIC MATERIAL
	80 290.33	290.53	0.20	05152		MUDSTONE	CARB.BLK.SLD COALY STREAKS AND PLANT WASH THROUGHOUT
	80 290.53	290.56	0.03			MUDSTONE	CARB.BLK.SLD COALY STREAKS
	80 290.56	290.57	0.01			COAL	C-1.SLD

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	80 290.57	290.59	0.02			MUDSTONE	CARB.BLK.SLD PLANT WASH THROUGHOUT
	80 290.59	290.67	0.08			CLAY	M.GY.VBRKN SOFT
	80 290.67	290.79	0.12			MUDSTONE	CARB.BLK.MAS.SLD OCCASIONAL STREAKS
	80 290.79	290.99	0.20			MUDSTONE	LT.GY.BIOTR.SLD CLOUDY/MOTTLED TEXTURE; VERY HARD
*	80 290.99	291.46	0.47			MUDSTONE	CARB.DK.GY.BIOTR.SLD SLIGHTLY MOTTLED NEAR BASE
*	80 291.46	293.18	1.72			SILTSTONE	CLYY DK.GY.MAS.SSD.BRKN SILTIER DOWNWARD; OCCASIONAL COAL STRYIN GER 3-20MM WIDE; SLICKENSIDES; POSSIBLE LOADING; TOPS UP
	80 293.18	293.31	0.13			SILTSTONE	CLYY DK.GY.MAS.BRKN AS ABOVE
*	80 293.31	295.12	1.81			SANDSTONE	SLTY.VFG.PR.H.GY.LAM.VBRKN SLIGHTLY COARSER DOWNWARD; SLICKENSIDES

* DENOTES MEASURED BCA

FORM
4001

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 105

PROJECT: KPN BLOCK: LR DATA SOURCE: D0885023

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	85	295.12	296.03	0.91		SANDSTONE	SLTY. VFG. PR. LT. GY. MAS. VBRKN MORE MASSIVE THAN ABOVE; NUMEROUS TALC FILLED FRACTURES
	82	296.03	296.75	0.72		SANDSTONE	SLTY. VFG. PR. LT. GY. MAS. VBRKN AS ABOVE
*	77	296.75	298.75	2.00		SANDSTONE	SLTY. FG. PR. LT. GY. LAM. XBDG. VBRKN NUMEROUS DARK SILTY LAMINAE THROUGHOUT; ELONGATED MUDSTONE RIP UP CLASTS AT BO TTOM; X-BEDDING SHOWS TOPS UP
	77	298.75	299.08	0.33		SANDSTONE	SLTY. FG. PR. LT. GY. LAM. VBRKN AS ABOVE; TD DRILLER'S MARK AT 300.84

* DENOTES MEASURED BCA
NEWPAGE

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GULF CANADA RESOURCES INC.

COAL DIVISION MOUNT KLAPPAN PROJECT

TRUE THICKNESS

SEAM DETAIL

DATA SOURCE: KPN LR DDM85023 SEAM : M INTERVAL(M) : 133.43 - 140.94 ELEVATION(M) : 1741.6
 GEOLOGIST : BARKER SCALE: 1:40 DATE : JAN 07/86 DRAWING NO. :

SEAM COMP.	DRILL DEPTH	COAL SEAM LOG	INTERVAL METRES		% REC.	SAMPLE ID			COAL QUALITY A.D.B.									
			ROCK	COAL		SIMP	COMP	COMPOS	MINING SECTION	RES MOIST	ASH	VM	FC	TS	CAL VAL MJ/KG			
	133.43	↑		0.20														
		X		(0.85)	37.9	8732	8732	1.14 / 0.22 1.36										
	135.83			0.17														
				0.13														
				0.17														
				0.12														
				0.20														
				0.12														
				0.18														
				0.29														
				0.22														
				0.12	100.0	8733	8733	0.59 / 2.79 3.39										
				0.22														
				0.19														
				0.24														
				0.30														
				0.38														
				0.15														
				0.24														
	140.94	↓		0.04														

1-36

3-39

GULF CANADA RESOURCES INC.

COAL DIVISION
MOUNT KLAPPAN PROJECT

TRUE THICKNESS

SEAM DETAIL

DATA SOURCE: KPN LR DDH85023 SEAM: M INTERVAL(M): 140.94 - 145.84 ELEVATION(M): 1741.6
 GEOLOGIST: BARKER SCALE: 1:40 DATE: JAN 07/86 DRAWING NO.:

SEAM COMP.	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES		% REC.	SAMPLE ID			COAL QUALITY A.D.B.									
			ROCK	COAL		SIMP	COMP	COMPOS	MINING SECTION	RES MOIST	ASH	VM	FC	TS	CAL.YAL M./Kg			
	140.94		0.24	0.13														
				0.17	100.0	6734												
	141.44		0.13	0.08														
			0.21	0.37														
				0.32														
				(0.62)														
				(0.26)														
			0.18				82	2.84 / 0.81		0.85	41.08	10.89	47.20	0.35	18.47			
				0.29	41.8	6735		3.76										
			0.37	0.13														
			0.12	0.11														
				(1.05)														
	145.84																	

3.76

GULF CANADA RESOURCES INC.

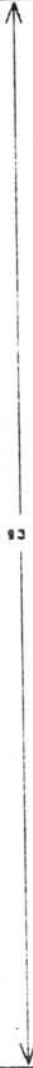
SEAM DETAIL

COAL DIVISION
MOUNT KLAPPAN PROJECT

TRUE THICKNESS

DATA SOURCE: KPN LR DDH85023 SEAM : M OVERTURNED INTERVAL(M) : 221.29 - 228.72 ELEVATION(M) : 1741.8
 GEOLOGIST : BARKER SCALE: 1:40 DATE : JAN 08/86 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 M./KG			
	221.29	↑																	
				0.22															
				0.12															
				0.12															
				0.08															
				0.16															
				0.27															
				0.11															
				0.21		77.8	6741												
				0.34															
				(0.21)															
				(0.22)															
	223.34	↓		(0.38)															
				0.16															
				0.53															
				0.46															
				0.09															
				0.09															
				0.35															
				(0.21)															
				(0.10)															
				0.14															
				0.27															
				0.04															
				0.10															
				0.14															
				0.37															
				0.22															
				0.17															
				0.59															
				(0.27)															
				0.24															
	228.72	↓																	



83

5.07 / 1.83
6.89

6.89

80.7 6742

0.77 41.79 9.80 47.64 0.35 18.77

GULF CANADA RESOURCES INC.

COAL DIVISION
MOUNT KLAPPAN PROJECT

TRUE THICKNESS

SEAM DETAIL

DATA SOURCE: KPN LR DDH85023 SEAM: M OVERTURNED INTERVAL(M) : 228.72 - 232.48 ELEVATION(M) : 1741.6
 GEOLOGIST : BARKER SCALE: 1:40 DATE : JAN 09/86 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	KALVAL MJ/EG			
		↑																
	228.72		0.35		100.0	8743												
	229.52			0.24														
			0.11															
			(0.38)		33.2	8744		93	0.74 / 0.75	0.77	41.79	9.50	47.54	0.38	18.77			
			(0.38)						1.48									
	230.86																	
			1.19		100.0	8745		8745	0.08 / 1.19									
	232.48								1.24									
		↓																

1.99

1.24

GULF CANADA RESOURCES INC.

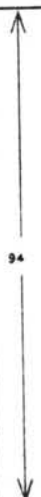
SEAM DETAIL

COAL DIVISION
MOUNT KLAPPAN PROJECT

TRUE THICKNESS

DATA SOURCE: KPN LR DDH85023 SEAM : M UPRIGHT INTERVAL(M) : 270.74 - 276.19 ELEVATION(M) : 1741.5
 GEOLOGIST : BARKER SCALE: 1:40 DATE : JAN 07/86 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	KAL VAL MJ/KC		
	270.74	↑		0.24													
				(0.24)	82.7	8747											
			0.61														
	273.59			0.23													
				(0.13)													
				0.27													
				0.29	93.1	8748											
				0.18													
				0.28													
	276.19	↓															



94
1.99 / 1.21
3.20

3.2

GULF CANADA RESOURCES INC.

COAL DIVISION MOUNT KLAPPAN PROJECT

TRUE THICKNESS

SEAM DETAIL

DATA SOURCE: KPN LR DDM85023 SEAM : M UPRIGHT INTERVAL(M) : 276.19 - 282.70 ELEVATION(M) : 1741.6
 GEOLOGIST : BARKER SCALE: 1:40 DATE : JAN 08/96 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 YAL MJ/KG				
	276.19	↑		0.11															
				0.18															
				0.32															
				0.21															
				0.19															
				0.17															
				0.19															
				0.25															
				(0.29)															
				0.14															
				0.28															
				0.34															
				0.10															
				(0.14)		82.8	6748	94	3.82 / 2.30		0.97	45.75	8.87	44.51	0.41	16.92			
				(0.19)					6.13										
				(0.26)															
				0.22															
				0.17															
				0.14															
				0.31															
				0.24															
				0.40															
				0.10															
				(0.12)															
				0.10															
				0.22															
				0.11															
				0.12															
	282.70	↓		0.12															

G-13

Gulf Canada Resources Inc. Coal Division

Geophysical Log

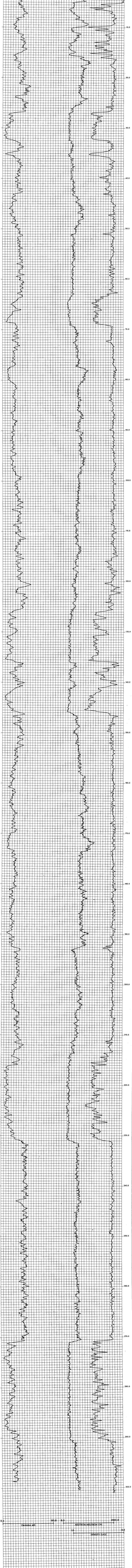
Datasource: **KPNLRDDH85023**
Log Date: 85-07-30
Company: CENTURY
Geologist: BARKER

Province: BC Northing: 6344170.00 Lat: 571433
Zone: 9 Easting: 506617.00 Long: 1285325
Measuring Point:
Elevation: 1742.0

Scale: 1 to 100.0
Depth Range: 0.0 to 306.0
True Thickness: NO

Comments:
1. LOGGED THROUGH THE RODS
2.

Logs Plotted:	Axis Range	Axis Length	Smoothing Points	Tool	Comments
1. GAMMA API	0.0 to 150.0	10.0	31	9030A	IN PIPE
2. NEUTRON-NEUTRON CPS	0.0 to 2500.0	10.0	9	9055A	IN PIPE
3. DENSITY G/CC	1.0 to 3.0	10.0	15	9030A	IN PIPE



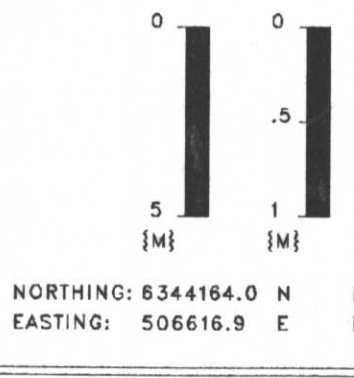
GULF CANADA RESOURCES INC.
 COAL DIVISION
 KLAPPAN PROJECT
 STRATIGRAPHIC LOG
 KPN LR DDH85023

GEOLOGIST : BARKER

DATE : JAN 08/86

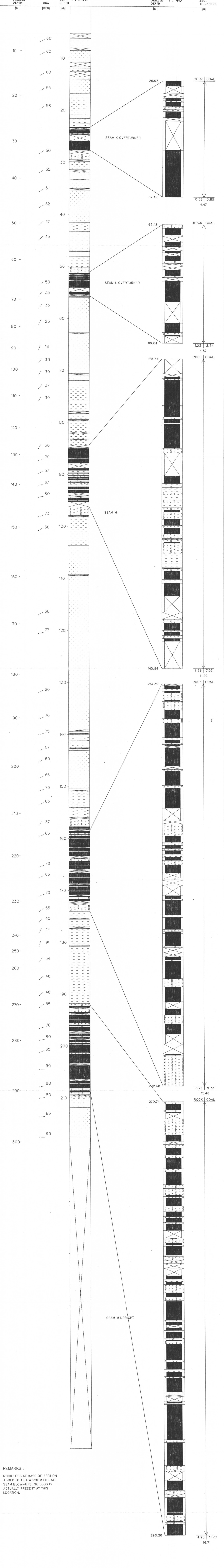
DRAWING NO. :

LITHOLOGIC SYMBOLS



	SANDSTONE		BENTONITE
	SILTSTONE		BRECCIA
	COAL		CARBONACEOUS
	OVERBURDEN		QUARTZ
	MUDSTONE, CLAYSTONE		PYRITE
	TUFF		FERRUGINOUS
	LIMESTONE		CONGLOMERATE
	CORE LOSS		FOSSIL BED

NORTHING: 6344164.0 N
 EASTING: 506616.9 E
 INCLINATION: 60.0°
 BEARING: 45.0°



REMARKS :
 ROCK LOSS AT BASE OF SECTION
 ADDED TO ALLOW ROOM FOR ALL
 SEAM BLOW-UPS. NO LOSS IS
 ACTUALLY PRESENT AT THIS
 LOCATION.

MOUNT KLAPPAN COAL PROJECT
LOST - FOX AREA
GEOLOGICAL REPORT
1985

APPENDIX III

DIAMOND DRILL HOLE DATA
VOLUME IV

KPNLRDDH 85024
TO
KPNLRDDH 85034



GULF CANADA LIMITED
COAL DIVISION

707

KPNLRDDH85024

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

- DATA SOURCE SUMMARY -

DATA SOURCE - KPnlR00H85024

DATE - 01/03/86

- HISTORY -

START DATE - 07/28/85

END DATE - 07/30/85

CONTRACTOR - JT THOMAS

GEOLOGIST - BUHAY

OPERATOR - GCR1

SURVEYOR - MWG & ASS

REMARKS -

- LOCATION -

PROVINCE - BC

ELEVATION - 1709.50

LICENCE/LEASE NUMBER - 7151

ZONE - 9

NORTHING - 6343684.00

EASTING - 506360.25

LATITUDE - 571417

LONGITUDE - 1285341

- ORIENTATION -

LENGTH - 153.60

CORE SIZE - 0.0

CEMENT - N

PLUG - N

PIEZ -

INCLINATION - 90.0

AZIMUTH - 0.0

CASING DEPTH (M) - 3.35

AQUIFER DEPTHS (M) - 0.00

0.00

LOST CIRC. DEPTHS (M) - 0.00

0.00

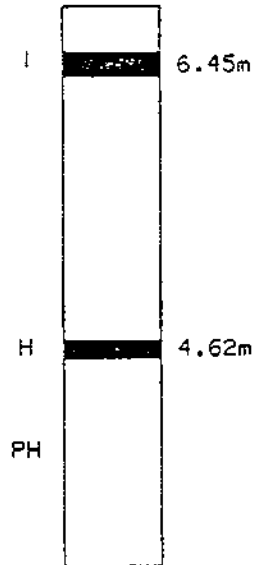
*** NOTE *** 0 INDICATES NO VALUE

=====

MT. KLAPPAN COAL PROPERTY

1985 DIAMOND DRILL HOLES DDH85024

SEAM TRUE SEAM THICKNESS
 (COAL & ROCK)



NOTE: SCHEMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm COAL.

SCALE: 1:2000

GULF CANADA RESOURCES INC.
15/01/86



86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85024

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	77	0.00	3.35	3.35		CASING	
	77	3.35	4.90	1.55		ROCK LOSS	
	77	4.90	6.00	1.10		SANDSTONE	SSY. MG. WEL. LY. GY. MAS. BRKN MG SANDSTONE WITH MASSIVE BEDDING; LOTS OF QTZ AND SIDERITE FILLED FRACTURES & 0-90 DEGREES TO BEDDING; SANDSTONE SEEM S TO BE GETTING COARSER DOWNWARDS
	77	6.00	6.55	0.55		CONGLOMERATE	SSY. PBL. PR. H. GY. VBRKN PARACONGLOMERATE; PEBBLES 1 -1.5CM; MOSTLY COMPOSED OF CHERT FRAGMENTS WITH SANDY MATRIX
	77	6.55	6.63	0.08		SILTSTONE	SSY. H. GY. MAS. VBRKN VERY FG SANDY SILTSTONE; EXTREMELY BIG UNBATED; NOSED STRUCTURE CAN BE SEEN
*	77	6.63	7.05	0.42		SILTSTONE	SSY. H. GY. VBRKN AS ABOVE
	74	7.05	8.65	1.60		SILTSTONE	CLYY. DK. GY. LAM. SSD. BRKN THIN LAMELLAE OF SILT AND MUD; LAYERS V ERY EVENLY LAMINATED
*	70	8.65	9.28	0.63		SILTSTONE	CLYY. DK. GY. LAM. SSD. BRKN AS ABOVE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 2

PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85024

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	74	9.28	10.23	0.95		SILTSTONE	CLYY. DK. GY. LAM. SSD. BRKN AS ABOVE
	78	10.23	10.60	0.37		SILTSTONE	CLYY. DK. GY. LAM. SSD. BRKN AS ABOVE
*	80	10.60	10.95	0.35		MUDSTONE	CARB. H. BLK. LAM. BRKN COALIFIED PLANT FRAGMENTS ABUNDANT; COAL L STRINGERS; VITRINITE STRINGERS
	79	10.95	12.59	1.64	06588	SILTSTONE	CLYY. H. GY. LAM. SSD. SLD COAL STRINGERS IN TOP 1M; MUD CONTENT SLOWLY BECOMES LESS PROMINENT DOWN UNIT (SILT CONTENT INCREASES); SOME BURROWS LOWER IN UNIT; GRADING UPWARDS SEQUENC ES INDICATE UPRIGHT BEDDING
	78	12.59	12.68	0.09	06588	MUDSTONE	CARB. DK. GY. LAM. BRKN SOME PLANT FRAGMENTS COALIFIED; SOMEHHA T SILTY MUDSTONE AT TOP OF UNIT
	78	12.68	12.84	0.16	06589.1	COAL	C-6. BRKN VERY MUDDY
*	78	12.84	13.05	0.21	06589.1	MUDSTONE	CARB. H. DK. GY. MAS. BRKN COAL STRINGERS THROUGHOUT
	77	13.05	13.36	0.31	06589.1	COAL LOSS	

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85024

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	76	13.36	13.69	0.33	06589 I	COAL	C-1.BRKN
	76	13.69	13.80	0.11	06589 I	MUDSTONE	CARB.M-DK.GY.MAS.BRKN COALY STRINGERS THROUGHOUT
	75	13.80	13.84	0.04	06589 I	COAL	C-1.BRKN
	75	13.84	13.88	0.04	06589 I	MUDSTONE	CARB.GY.BRKN COALY STRINGERS THROUGHOUT
	75	13.88	13.93	0.05	06589 I	COAL	C-2.SLD
	75	13.93	14.07	0.14	06589 I	MUDSTONE	CARB.DK.GY.MAS.BRKN ABUNDANT PLANT FRAGMENTS SOME COALIFIED
	74	14.07	14.40	0.33	06589 I	COAL	C-1.YBRKN
	73	14.40	14.80	0.40	06590 I	MUDSTONE	CARB
	73	14.80	14.84	0.04	06590 I	COAL	C-3.PHRD
	72	14.84	14.88	0.04	06590 I	COAL	C-6.BRKN VITRINITE STRINGERS THROUGHOUT

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85024

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	72	14.88	14.95	0.07	06590 I	COAL	C-5.YBRKN
	71	14.95	15.58	0.63	06590 I	COAL LOSS	
	70	15.58	15.82	0.24	06590 I	ROCK LOSS	
	69	15.82	16.16	0.34	06590 I	MUDSTONE	M.GY.MAS.BRKN
	68	16.16	16.36	0.20	06590 I	SILTSTONE	LY-M.GY.MAS.SLD
*	68	16.36	16.40	0.04	06590 I	MUDSTONE	M.GY.MAS BRKN
	68	16.40	16.46	0.06	06591 I	COAL	C-2.BRKN MUDDY BANDS WITHIN
	67	16.46	16.58	0.12	06591 I	COAL	C-6.BRKN
	67	16.58	16.69	0.11	06591 I	COAL	C-1.BRKN
	67	16.69	16.72	0.03	06591 I	MUDSTONE	CARB.M-DK.GY.MAS.SLD

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 5

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85024

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	67	16.72	16.85	0.13	06591 I	COAL	C-2, VBRKN
	66	16.85	16.93	0.08	06591 I	COAL	C-3, VBRKN
	66	16.93	16.99	0.06	06591 I	MUDSTONE	CARB. M-DK. GY. MAS. SLD
	65	16.99	17.57	0.58	06591 I	COAL	C-2 PHRD POSSIBLY C-1; THIN MUDDY BANDS THROUGHOUT
	63	17.57	17.95	0.38	06591 I	COAL	C-3, VBRKN THIN MUDDY BANDS THROUGHOUT
	62	17.95	18.15	0.20	06591 I	MUDSTONE	CARB. M-DK. GY. MAS. VBRKN COAL STRINGERS THROUGHOUT
	61	18.15	18.64	0.49	06591 I	COAL	C-3, PHRD VITRINITE BANDS WITHIN
	59	18.64	19.12	0.48	06592 I	COAL LOSS	
	57	19.12	19.64	0.52	06592 I	MUDSTONE	M. GY. MAS. VBRKN COALY PLANT FRAGMENTS THROUGHOUT; TWISTED OFF

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 6

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85024

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	56	19.44	19.68	0.24	06592 I	COAL	C-2, SLD INTERSELY QTZ VEINED
	56	19.68	19.87	0.19	06592 I	MUDSTONE	M. GY. MAS. BRKN ABUNDANT PLANT FRAGMENTS
*	52	19.87	21.61	1.74		SILTSTONE	CLYY. M. GY. LAM. SSD. BRKN SILT AND MUD INTERLAMINAE CONSTANT THROUGHOUT UNIT; LOTS OF QTZ VEINING MOSTLY PERPENDICULAR TO BEDDING; SOME VEINING CLOSE TO OR ALONG BEDDING; APPEARS TO HAVE BEEN MOVEMENT ALONG SOME OF THE VEINS
	56	21.61	21.98	0.37		MUDSTONE	CARB. M. BLK. LAM. BRKN PLANT FRAGMENTS ABUNDANT; LOTS OF NEEDLE QTZ VEINING (VERY LARGE VEIN 8CM WIDE - 1.5M DOWN UNIT); COAL STRINGERS THROUGH SOME OF THE MUDSTONE.
*	58	21.98	22.58	0.60		SILTSTONE	CLYY. DK. GY. LAM. BRKN MUD CONTENT DECREASES AS YOU GO DOWN UNIT (BECOMES MORE SILTY AND LESS MUDDY); LOTS OF VEINING FILLED WITH TALC SUBSTANCE. NO PREFERRED ORIENTATION.
	60	22.58	23.95	1.37		SILTSTONE	CLYY. DK. GY. LAM. BRKN AS ABOVE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85024

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 62	23.95	24.11	0.16			SILTSTONE	CLYY DK. GY. LAM. BRKN AS ABOVE
63	24.11	24.35	0.24			MUDSTONE	CARB. LT. BLK. LAM. VBRKN MUDDIER AT TOP THAN AT BOTTOM OF UNIT (GETS SILTYER); COAL STRINGERS THROUGHOUT MUDSTONE
64	24.35	25.25	0.90			SANDSTONE	SLTY. MG. MOD. LT. GY. MAS. VBRKN CONSTANT GRAIN SIZE ABOVE AND LOWER IN UNIT; LOTS OF BRECCIATION IN QTZ VEINS (RANDOM ORDER TO THE VEINING); SANDSTONE GETS MUDDIER TOWARDS BASE
65	25.25	25.30	0.05			MUDSTONE	SLTY. LT. BLK. LAM. VBRKN LOTS OF FRACTURES ON OR CLOSE TO BEDDING WITH EVIDENCE OF MOVEMENT (TALC SUBSTANCE FOUND IN SOME OF THE FRACTURES); VERY FEW PLANT FRAGMENTS FOUND
66	25.30	25.83	0.53			MUDSTONE	SLTY. LT. BLK. LAM. VBRKN AS ABOVE
* 67	25.83	26.09	0.26			SILTSTONE	CLYY. M. GY. LAM. SSD. VBRKN BECOMES SANDIER LOWER IN UNIT; LOTS OF VEINING PERPENDICULAR TO BEDDING

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85024

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
63	26.09	26.56	0.47			MUDSTONE	CARB. M. BLK. LAM. VBRKN PLANT FOSSILS WITHIN BEDDING PLANES; FRACTURES FILLED WITH TALC PARALLEL TO BEDDING; VERY THIN COAL STRINGERS THROUGH BEDDING
55	26.56	27.77	1.21			SANDSTONE	SLTY. MG. MOD. LT. GY. MAS. VBRKN COARSER GRAINED AT TOP OF UNIT GETS FINER LOWER IN UNIT; EXTREMELY BROKEN UP AND VEINED (QTZ); EVIDENCE OF BRECCIATION AND MOVEMENT ALONG THE VEINS (SOME TALC ALONG FRACTURES)
* 48	27.77	28.07	0.30			SANDSTONE	SLTY. MG. MOD. LT. GY. MAS. VBRKN AS ABOVE
53	28.07	29.42	1.35			SANDSTONE	SLTY. MG. MOD. LT. GY. MAS. VBRKN AS ABOVE
* 59	29.42	30.42	1.00			SANDSTONE	SLTY. MG. MOD. LT. GY. MAS. VBRKN AS ABOVE
55	30.42	30.58	0.16			SANDSTONE	SLTY. MG. MOD. LT. GY. MAS. VBRKN AS ABOVE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85024

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
52	30.58	31.40	0.82			SILTSTONE	CLYY. LT. BLK. LAM. SSD. SLD GOOD SSD INDICATING UPRIGHT BEDDING; SOME BIOTURBATION; MUD CONTENT INCREASES LOWER IN THE SECTION; SOME FRACTURES PERPENDICULAR TO BEDDING INDICATING MOVEMENT ALONG THEM; TALC ON SOME SURFACES
48	31.40	31.65	0.25			SILTSTONE	CLYY. LY. BLK. LAM. SSD. SLD AS ABOVE
43	31.65	33.17	1.52			SILTSTONE	CLYY. LY. BLK. LAM. SSD. VBRKN AS ABOVE
33	33.17	34.60	1.43			SILTSTONE	CLYY. LY. BLK. LAM. SSD. BRKN AS ABOVE
27	34.60	35.11	0.51			MUDSTONE	SLTY. M. BLK. LAM. VBRKN MUDSTONE VERY THINLY LAMINATED; VERY DIFFICULT TO PICK OUT BEDDING; SOME TALC FOUND ALONG FRACTURE SURFACES; NO PLANT FRAGMENTS
20	35.11	36.56	1.45			MUDSTONE	SLTY. M. BLK. LAM. VBRKN AS ABOVE
15	36.56	36.81	0.25			MUDSTONE	SLTY. M. BLK. LAM. VBRKN AS ABOVE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85024

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
14	36.81	36.82	0.08			MUDSTONE	SLTY. M. BLK. LAM. BRKN AS ABOVE
* 08	36.82	38.42	1.60			SILTSTONE	CLYY. LT. BLK. LAM. SSD. BRKN LAMINATIONS OF SILT AND MUD INDICATE BEDDING IS VERY STEEP; RHYTHMITE GRADING INDICATES UPRIGHT BEDDING HOWEVER CLEAVAGE SEEMS TO BE ALONG OR CLOSE TO BEDDING
* 06	38.42	40.25	1.76			SILTSTONE	CLYY. LY. BLK. LAM. SSD. VBRKN LAMINATIONS PERSIST AND MORE SILT CONTENT IS ENCOUNTERED LOWER IN THE UNIT
07	40.25	40.34	0.09			SILTSTONE	CLYY. LT. BLK. LAM. SSD. BRKN AS ABOVE
* 08	40.34	42.33	1.99			SILTSTONE	CLYY. LT. BLK. LAM. SSD. BRKN BEDDING APPEARS TO OVERTURN SLIGHTLY SOMEWHERE BETWEEN BOX 19 AND 20
* 04	42.33	43.39	1.06			SILTSTONE	CLYY. LT. BLK. LAM. SSD. BRKN SMALL PARASITIC FOLDS UNULATE BEDDING UPRIGHT AND OVERTURNED
06	43.39	44.26	0.87			SILTSTONE	CLYY. LY. BLK. LAM. SSD. BRKN AS ABOVE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85024

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	06	44.26	44.57	0.31		SILTSTONE	CLYY.LT.BLK.LAM.SSD.YBRKN AS ABOVE
	07	44.57	44.68	0.11		SILTSTONE	CLYY.LT.BLK.LAM.SSD.YBRKN AS ABOVE
*	08	44.68	46.09	1.41		SANDSTONE	CLYY.FG.PR.M.GY.LAM.SSD.BRKN LENSES OF MUDSTONE LAMINATED AND DEFORMED WITHIN THE THIN BEDS OF SANDSTONE; LOTS OF PARASTIC FOLDING IN THIS BOX; CLEAVAGE BREAKING CORE ALONG BEDDING (SO RT OF LATERAL COASTER ZONE)
*	06	46.09	46.59	0.50		SANDSTONE	CLYY.FG.PR.M.GY.LAM.SSD.BRKN AS ABOVE
	07	46.59	47.66	1.07		SANDSTONE	CLYY.FG.PR.M.GY.LAM.SSD.BRKN AS ABOVE
	09	47.66	48.06	0.40		SANDSTONE	CLYY.FG.MOD.LT.GY.MAS.SSD MUDDY LAMINATIONS DISAPPEAR; MASSIVE FINE GRAINED SANDSTONE WITH SILTY LENSES OCCASIONALLY
*	10	48.06	48.91	0.85		SANDSTONE	CLYY.FG.MOD.LT.GY.MAS.BRKN AS ABOVE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85024

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	10	48.91	49.85	0.94		SANDSTONE	CLYY.FG.PR.M.GY.LAM.SSD.YBRKN SANDSTONE AGAIN HAS MUDDY LAMINAE WITHIN THE THIN SAND BEDS; AGAIN CLEAVAGE ALONG BEDDING PLANES CAUSES LATERAL COASTER ZONE; BEDDING HERE APPEARS TO BE OVER TURNED STILL
*	10	49.85	51.65	1.80		SANDSTONE	CLYY.FG.PR.M.GY.LAM.SSD.YBRKN AS ABOVE
*	12	51.65	52.85	1.20		SANDSTONE	CLYY.FG.PR.M.GY.LAM.SSD.YBRKN SS BECOMING COARSER (SLIGHTLY) AND MUD LENSES BECOMING THICKER; MORE QTZ VEINING PRESENT; SOME MOVEMENT ALONG SOME OF THE FRACTURES BEDDING SEEMS TO BE COMING BACK UPRIGHT AGAIN
	10	52.85	53.54	0.69		SANDSTONE	CLYY.FG.PR.M.GY.LAM.SSD.YBRKN AS ABOVE
*	07	53.54	55.40	1.86		SANDSTONE	CLYY.FG.PR.LT.GY.LAM.SSD.YBRKN SAME AS BEFORE EXCEPT MORE VEINING AND BRECCIATION; TWO LARGE QTZ VEINS PERPENDICULAR TO BEDDING; BEDDING UPRIGHT
*	06	55.40	55.49	0.09		SANDSTONE	CLYY.FG.PR.LT.GY.LAM.SSD.BRKN AS ABOVE

* DENOTES MEASURED BCA

F
P
M
4
0
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1

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85024

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
07	55.49	55.76	0.27			SANDSTONE	CLYY, FG, PR, LT, GY, LAM, SSD, BRKN AS ABOVE
11	55.76	57.64	1.88			SANDSTONE	SLTY, FG, MOD, LT, GY, MAS, SLD MUD CLASTS INSTEAD OF MUD LAMINATIONS ARE THE PREDOMINANT TEXTURES (MUD CLASTS ARE MINOR); GRAIN SIZE OF SANDSTONE TENDS TO INCREASE LOWER IN UNIT
17	57.64	58.20	0.56			SANDSTONE	SLTY, FG, MOD, LT, GY, MAS, BRKN SAME LITHOLOGY AS ABOVE ONLY MUCH MORE QTZ VEINING AND BRECCIATION (NO ORDER TO VEINING ORIENTATION); SANDSTONE STARTS TO GET MUDDY TOWARDS BOTTOM OF UNIT
24	58.20	59.40	1.20			SANDSTONE	SLTY, FG, MOD, LT, GY, MAS, YBRKN AS ABOVE
42	59.40	59.70	0.30			SANDSTONE	SLTY, FG, MOD, LT, GY, MAS, YBRKN AS ABOVE
59	59.70	61.21	1.51			MUDSTONE	SLTY, M, BLK, LAM, YBRKN BEDDING HARD TO DETERMINE; MUDSTONE HAS LOTS OF FRACTURES THROUGHOUT WITH STRIATED SURFACES; MUDSTONE BECOMING SILTIER LOWER IN UNIT
* 75	61.21	61.41	0.20			MUDSTONE	SLTY, M, BLK, LAM, BRKN AS ABOVE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85024

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
76	61.41	62.21	0.80			MUDSTONE	SLTY, M, BLK, LAM, BRKN AS ABOVE
78	62.21	63.05	0.84			SANDSTONE	CLYY, FG, PR, M, GY, THNB, SSD, BRKN THIN MASSIVE SANDSTONE BEDS WITH MUD LAMINAE BETWEEN; SAND GETTING COARSER COARSER LOWER IN UNIT; QTZ VEINING TO DEGREES TO BEDDING; BEDDING UPRIGHT
* 80	63.05	64.38	1.33			SANDSTONE	CLYY, FG, PR, M, GY, THNB, SSD, SLD AS ABOVE
72	64.38	64.98	0.60			SANDSTONE	CLYY, FG, PR, M, GY, THNB, SSD, SLD AS ABOVE
* 68	64.98	66.26	1.28			SANDSTONE	CLYY, FG, MOD, LT, GY, THNB, SSD, SLD SAND CONTENT HAS INCREASED IN COMPARTMENT TO MUD LAMINAE; SOME EVIDENCE OF BURROWING ACTIVITY INDICATING UPRIGHT BEDDING; SOME QTZ VEINING TO DEGREES TO BEDDING
65	66.26	66.92	0.66			SANDSTONE	CLYY, FG, MOD, M, GY, LAM, SSD, BRKN THINLY LAMINATED FINE SANDS AND MUD LAMINAE IN REGULAR RHYTHMITE SPACING; SOME BURROWING ACTIVITY INDICATING UPRIGHT BEDDING; MINOR QTZ VEINING APPROX PERPENDICULAR TO BEDDING

* DENOTES MEASURED BCA

36/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85024

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 65	66.92	67.29	0.37			SANDSTONE	CLYY, FG, MOD, M, GY, LAM, SSD, BRKN AS ABOVE
68	67.29	69.23	1.74			SANDSTONE	CLYY, FG, MOD, M, GY, LAM, SSD, BRKN AS ABOVE
* 70	69.03	69.16	0.12			SANDSTONE	CLYY, FG, MOD, M, GY, LAM, SSD, BRKN AS ABOVE
72	69.16	70.47	1.31			SILTSTONE	CLYY, M, BLK, LAM, SSD, YBRKN INTERLAMINATED MUD AND SILT; MUD LENSES TEND TO BE THICKER THAN THE SILT LENSES IN SOME AREAS AND THE REVERSE IS TRUE IN OTHER AREAS; QTZ VEINS OCCUR APPROX PERPENDICULAR TO BEDDING; MOVEMENT ALONG THESE VEIN SURFACES IS COMMON
74	70.47	70.98	0.51			SILTSTONE	CLYY, M, BLK, LAM, SSD, BRKN AS ABOVE
75	70.98	71.02	0.04			SILTSTONE	CLYY, M, BLK, LAM, SSD, BRKN AS ABOVE
78	71.02	72.94	1.92			MUDSTONE	SLTY, M, BLK, LAM, YBRKN THICK MUD LAMELLAE WITH OCCASIONAL SILTY INTERLAMELLAE; SOME COAL STRINGERS LOWER IN UNIT; COALIFIED PLANT MATERIAL (NOT VERY ABUNDANT); STARTS TO GET SILTY TOWARDS BOTTOM OF UNIT

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85024

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
81	72.94	73.40	0.46			MUDSTONE	SLTY, M, BLK, LAM, YBRKN AS ABOVE
82	73.40	74.03	0.63			MUDSTONE	SLTY, M, BLK, LAM, YBRKN AS ABOVE
84	74.03	74.51	0.48			SILTSTONE	CLYY, M, BLK, LAM, SSD, YBRKN VERY FINE LAMELLAE OF SILTY AND MUD; LOTS OF COALIFIED PLANT FRAGMENTS WITHIN LAMELLAE (FRAGMENTS ARE VERY BROKEN UP - NO WHOLE LEAVES OR STEMS SEEN)
* 85	74.51	74.86	0.35			SILTSTONE	CLYY, M, BLK, LAM, SSD, BRKN AS ABOVE
85	74.86	76.42	1.56			SANDSTONE	CLYY, FG, PR, M, GY, THNB, SSD, SLD THIN LAYERS OF FINE SAND WITH LAMELLAE OF MUD BETWEEN (PROPORTION OF SAND AND MUD VARIES THROUGH THE UNIT); MAY BE SOME MUD BIOTURBATION THROUGH SOME OF THE LAYERS INDICATING UPRIGHT BEDS; OCC LARGE QTZ VEINS PARALLEL TO BEDDING
86	76.42	76.58	0.16			SANDSTONE	CLYY, FG, PR, M, GY, THNB, SSD, SLD AS ABOVE
* 86	76.58	77.13	0.55			SILTSTONE	CLYY, M, BLK, LAM, SSD, SLD INTERLAMINATED SILT AND MUD; LOTS OF SO FT SEDIMENT DEFORMATION

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85024

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP ID	SEAM ID	LITHOLOGY	DESCRIPTION
86	77.13	77.98	0.85			SANDSTONE	CLYY. FG. PR. H. GY. THNB. SSD. SLD THIN LAMELLAE OF MUD WITHIN THIN BEDS OF F SAND ALSO THIN ZONES OF COALIFIED PLANT FRAGMENTS IN SOME AREAS-NOT DISTRIBUTED THROUGHOUT
85	77.98	78.72	0.74			MUDSTONE	SLTY. LT. BLK. LAM. SSD. SLD LAMINATED MUD AND THIN SILTY LAMELLAE; SOME SMALL PARTICLES OF COALIFIED PLANT FRAGMENTS; BECOMES MUDDIER LOWER IN UNIT
85	78.72	79.44	0.72			MUDSTONE	SLTY. LT. BLK. LAM. SSD. BRKN AS ABOVE
85	79.44	80.01	0.57			MUDSTONE	SLTY. LT. BLK. LAM. SSD. BRKN AS ABOVE
84	80.01	80.65	0.64			MUDSTONE	CARB. DK. BLK. LAM. BRKN MUDSTONE STILL HAS MINOR SILTY CONTENT BUT COALIFIED PLANT MATERIAL BECOMES MUCH MORE ABUNDANT; COAL STRINGERS FOUND OCCASIONALLY
* 84	80.65	81.14	0.49			MUDSTONE	CARB. DK. BLK. LAM. SLD AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85024

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP ID	SEAM ID	LITHOLOGY	DESCRIPTION
84	81.14	82.35	1.21			MUDSTONE	SLTY. DK. BLK. LAM. SLD SILTY CONTENT INCREASES IN MUDSTONE; PLANT FRAGMENTS ARE NOT AS BROKEN UP. 7CM POD FOUND LOOKS LIKE SEED. MAY BE A BIVALVE
85	82.35	82.65	0.30			MUDSTONE	SLTY. DK. BLK. LAM. SLD AS ABOVE
* 85	82.65	84.74	2.09			MUDSTONE	SLTY. DK. BLK. LAM. SLD AS ABOVE
* 77	84.74	85.05	0.31			MUDSTONE	SLTY. DK. BLK. LAM. BRKN AS ABOVE
76	85.05	85.24	0.19			MUDSTONE	SLTY. M. BLK. LAM. SSD. BRKN SILTY CONTENT INCREASES IN MUDSTONE SUCH THAT ACTUAL BEDDING CAN BE SEEN; PLANT FRAGMENTS ARE STILL ABUNDANT
73	85.24	86.63	1.39			MUDSTONE	SLTY. M. BLK. LAM. SSD. SLD AS ABOVE
* 70	86.63	87.07	0.44			MUDSTONE	SLTY. M. BLK. LAM. SSD. BRKN AS ABOVE

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85024

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
71	87.07	88.32	1.25			MUDSTONE	SLTY. LT. BLK. MAS. BRKN MUDSTONE STILL SILTY BUT BEDDING OR LAMINATION DEFINITION (SILT AND MUD) IS NO LONGER VISIBLE (EXCEPT IN THIN PATCHES) PLANT FRAGMENTS STILL ABUNDANT; GRADING SHOWS UPRIGHT BEDDING; COAL STRINGERS OCCUR; PYRITIZED FRAGMENTS
72	88.32	88.86	0.54			MUDSTONE	SLTY. LT. BLK. MAS. BRKN AS ABOVE
* 73	88.86	90.93	2.07			MUDSTONE	SLTY. LT. BLK. MAS. SLD AS ABOVE
73	90.93	91.08	0.15	06594		MUDSTONE	CARB. DK. GY. MAS. SLD 2CM. BAND OF PYRITE AT BASE
74	91.08	91.23	0.15	06595	H	COAL	C-2. BRKN
74	91.23	91.29	0.06	06595	H	COAL	C-3. BRKN
74	91.29	91.43	0.14	06595	H	MUDSTONE	CARB. DK. GY. MAS. BRKN
74	91.43	91.68	0.25	06595	H	COAL LOSS	
74	91.68	91.71	0.03	06595	H	COAL	C-1. SLD

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85024

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
74	91.71	92.29	0.58	06595	H	COAL	C-2. BRKN MIXTURE OF C-1 TO C-3 WITH MUDSTONE BANDS THROUGHOUT
74	92.29	92.34	0.05	06595	H	COAL	C-4. SLD ABUNDANT MUD AND QTZ VEINING; DEFORMED
74	92.34	92.51	0.17	06595	H	COAL	C-2. BRKN MIXTURE OF C-1 TO C-3 THIN BANDS
74	92.51	92.52	0.01	06595	H	SILTSTONE	M. GY. MAS. SLD
74	92.52	92.72	0.20	06595	H	COAL	C-2. BRKN MIXTURE OF C-1 TO C-3 THIN BANDS
74	92.72	92.74	0.02	06595	H	COAL	C-2. BRKN AS ABOVE
74	92.74	92.84	0.10	06595	H	COAL LOSS	
74	92.84	93.02	0.18	06596	H	MUDSTONE	M. DK. GY. MAS. BRKN
74	93.02	93.05	0.03	06596	H	COAL	C-6. SLD
74	93.05	93.26	0.21	06596	H	COAL	C-2. BRKN THIN C-1 AND MUDSTONE BANDS THROUGHOUT

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85024

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP ID	SEAM ID	LITHOLOGY	DESCRIPTION
	93.26	93.38	0.12	06596	H	COAL	C-3.BRKN
	93.38	93.51	0.13	06596	H	COAL	C-2.BRKN
	93.51	93.53	0.02	06596	H	COAL	C-6.BRKN
	93.53	93.54	0.01	06596	H	COAL	C-2.SLD
	93.54	93.57	0.03	06596	H	COAL	C-6.SLD
	93.57	93.60	0.03	06596	H	MUDSTONE	CARB.M-DK.GY.MAS.BRKN
	93.60	93.68	0.08	06596	H	COAL	C-3.BRKN
	93.68	93.72	0.04	06596	H	COAL	C-5.BRKN
	93.72	94.07	0.35	06596	H	COAL	C-2.BRKN MIXTURE OF C-1 TO C-3 THIN BANDS AS WELL AS THIN BANDS OF MUDSTONE

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85024

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP ID	SEAM ID	LITHOLOGY	DESCRIPTION
	94.07	94.14	0.07	06596	H	MUDSTONE	CARB.M-DK.GY.MAS.YBRKN
	94.14	94.59	0.45	06597	H	COAL	C-1.BRKN THIN MUDSTONE BANDS WITHIN
	94.59	94.70	0.11	06597	H	COAL	C-1.BRKN AS ABOVE
	94.70	95.33	0.63	06597	H	COAL	C-1.BRKN AS ABOVE
	95.33	95.34	0.01	06597	H	MUDSTONE	CARB.M-DK.GY.MAS.BRKN
	95.34	95.37	0.03	06597	H	COAL	C-1.BRKN
	95.37	95.49	0.12	06597	H	MUDSTONE	CARB.M-DK.GY.MAS.SLD
	95.49	95.81	0.32	06597	H	COAL	C-1.BRKN
	95.81	95.87	0.06	06597	H	COAL	C-5

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85024

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	76 95.87	96.39	0.52	06598		MUDSTONE	CARB. DK. GY. MAS. BRKN PYRITE IN PLACES; COAL STRINGERS THROUGHOUT; BECOMING SANDY TOWARDS BASE; TOP 20CM SAMPLED
	76 96.39	96.85	0.46			SANDSTONE	CLYY. M. GY. LAM GRADATIONAL INCREASE IN SAND FROM ABOVE
*	76 96.85	97.39	0.54			SILTSTONE	CLYY. LT. BLK. LAM. SSD. SLD MOSTLY SILTY LAMELLAE WITH BROKEN UP LAMELLAE OF MUDSTONE; LOTS OF PLANT FRAGMENTS AND COAL STRINGERS THROUGHOUT
	76 97.39	97.50	0.11			MUDSTONE	CARB. DK. BLK. LAM. SLD COAL STRINGERS ABUNDANT MAY BE C-6 COAL
	76 97.50	97.79	0.29			MUDSTONE	CARB. DK. BLK. LAM. SLD AS ABOVE
	75 97.79	98.47	0.68			MUDSTONE	CARB. DK. BLK. LAM. SLD AS ABOVE
	75 98.47	98.80	0.33			SILTSTONE	CLYY. H. BLK. LAM. SSD. SLD SILT CONTENT INCREASES LOWER IN THE UNIT
*	75 98.80	98.96	0.16			SILTSTONE	CLYY. H. BLK. LAM. SSD. SLD AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85024

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	73 98.96	100.94	1.98			SANDSTONE	CLYY. FG. PR. M. GY. THMB. SSD. SLD SAND WITH CLASTS AND LAMELLAE OF MUD; SOME REGIONS HAVE MORE MUD THAN OTHERS; VERY THIN COAL STRINGERS THROUGHOUT
	71 100.94	101.07	0.13			SANDSTONE	SLTY. MG. MOD. LT. GY. MAS. SLD SOME MUD CLASTS WITHIN SANDSTONE LAYERS (NO DEFINITE ZONE BUT SPREAD THROUGHOUT) SOME MUD LAMINATIONS OCCUR IN ZONES
	69 101.07	103.16	2.09			SANDSTONE	SLTY. MG. MOD. LT. GY. MAS. SLD AS ABOVE
	66 103.16	103.26	0.10			ROCK LOSS	
	64 103.26	105.14	1.88			SANDSTONE	SLTY. MG. MOD. LT. GY. MAS. SLD SAME AS ABOVE; GOOD DEWATERING DISH STRUCTURES INDICATING UPRIGHT BEDS
*	61 105.14	106.57	1.43			SILTSTONE	CLYY. H. BLK. LAM. SSD. SLD AS ABOVE
*	60 106.57	106.64	0.07			SANDSTONE	CLYY. H. BLK. LAM. SSD. SLD AS ABOVE
	60 106.64	106.74	0.10			ROCK LOSS	

* DENOTES MEASURED BCA

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	79	106.74	107.15	0.41		SANDSTONE	CLYY.FG.PR.M.GY.THNB.SSD.SLD THIN BEDS OF SANDSTONE WITH THIN LENSES OF MUD BETWEEN; DISH STRUCTURES FOUND AT A SHARP CONTACT ZONE BETWEEN SANDSTONE AND MUD (INDICATING UPRIGHT BEDDING); SOME QTZ VEINING AND FRACTURING PERPENDICULAR TO BEDDING
	77	107.15	108.74	1.59		SANDSTONE	CLYY.FG.PR.M.GY.THNB.SSD.SLD AS ABOVE
	76	108.74	108.84	0.10		ROCK LOSS	
	75	108.84	109.03	0.19		SANDSTONE	CLYY.FG.PR.M.GY.THNB.SSD.SLD AS ABOVE
	74	109.03	110.36	1.33		SANDSTONE	CLYY.FG.PR.M.GY.MAS.SLD SAME LITHOLOGY AS ABOVE EXCEPT LAMELLAE OF MUD HAS DISAPPEARED; MORE EVEN MIXTURE OF MUD AND SAND
	72	110.36	110.47	0.11		ROCK LOSS	
	72	110.47	110.87	0.40		SILTSTONE	CLYY.M.BLK.LAM.SSD.SLD DEFORMED LAMELLAE OF MUD AND SILT; MUD CONTENT INCREASES LOWER IN THE UNIT; MICROLINTHOPSIS (.1M INTERVAL)

* DENOTES MEASURED BCA

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	70	110.87	112.16	1.29		SILTSTONE	CLYY.M.BLK.LAM.SSD.SLD SAME AS ABOVE; LOTS OF BRECCIATED QTZ VEINS; EVIDENCE OF FAULTING; .13M ZONE RICH IN MUD AND TALC EXTREMELY BROKEN UP AND BRECCIATED; QTZ VEINS RUNNING THROUGH (POWDERY GREENISH GREY MATERIAL FEELS LIKE TALC)
	71	112.16	112.26	0.10		ROCK LOSS	
	71	112.26	113.06	0.80		MUDSTONE	SLTY.M.BLK.MAS.SLD MASSIVE MUDSTONE WITH MINOR THIN LAYERS OF SILTY SAND; PLANT FRAGMENTS ABUNDANT THROUGHOUT
	72	113.06	113.65	0.59		MUDSTONE	SLTY.M.BLK.MAS.SLD AS ABOVE
	73	113.65	115.22	1.57		MUDSTONE	SLTY.M.BLK.MAS.SLD AS ABOVE; SMALL BIVALVES FOUND 1CM (MIDDLE BIVALVES AND FRAGMENTS CALCIFIED) CALCIFIED PLANTS AND COAL STRINGERS ALSO

* DENOTES MEASURED BCA

LURE 4001

PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85024

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP ID	SEAM ID	LYTHOLOGY	DESCRIPTION
	74	115.22	115.80	0.58		MUDSTONE	SLTY. H. BLK. MAS. SLD AS ABOVE
	75	115.80	117.31	1.51		MUDSTONE	SLTY. H. BLK. MAS. SLD AS ABOVE
	76	117.31	118.76	1.45	PHANTOM	MUDSTONE	CARB. H. BLK. MAS. SLD MASSIVE MUDSTONE WITH ABUNDANT COAL STRINGERS; LOTS OF COALIFIED PLANT MATERIAL (THO STRINGERS > 1CM THICK); BECOMING MORE CARBONACEOUS THAN OVERLYING MUDSTONE
	77	118.76	119.32	0.56	PHANTOM	MUDSTONE	CARB. H. BLK. MAS. SLD AS ABOVE
	78	119.32	120.36	1.04	PHANTOM	MUDSTONE	CARB. H-DK. GY. MAS. SLD ABUNDANT COALIFIED PLANT FRAGMENTS AND COALY CALCITE STRINGERS THROUGHOUT
	78	120.36	120.49	0.13	PHANTOM	SILTSTONE	LT-H. GY. MAS. SLD
	78	120.49	121.00	0.51	PHANTOM	MUDSTONE	CARB. DK. BRKN VERY CARBONACEOUS MUDSTONE WITH A GREAT DEAL OF COAL BANDS THROUGHOUT; ABUNDANT QTZ-CARB VEINING AT TOP OF UNIT COULD BE CLASSIFIED AS C-6 OR C-5 LOCALLY

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85024

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP ID	SEAM ID	LYTHOLOGY	DESCRIPTION
	78	121.00	121.11	0.11	PHANTOM	COAL	C-4. VBRKN
	79	121.11	121.30	0.19	PHANTOM	MUDSTONE	CARB. DK. GY. MAS. SLD COALIFIED PLANT FRAGMENTS WITHIN (STRINGERS AND LENSES)
*	79	121.30	121.42	0.12	PHANTOM	MUDSTONE	CARB. H. BLK. MAS. SLD ABUNDANT COAL STRINGERS
	78	121.42	122.01	0.59	PHANTOM	SILTSTONE	CLY. LT. BLK. LAM. SSS. SLD RYTHMIC ALTERNATION OF SILT AND MUD; SOME COAL STRINGERS
	78	122.01	122.15	0.14	PHANTOM	MUDSTONE	CARB. DK. BLK. MAS. BRKN 1/2" OF COAL BANDS (1/2" THICK) THEN STRINGERS THIN OUT BUT OCCUR QUITE FREQUENTLY IN MUDSTONE; LOTS OF PLANT FOSSIL MATERIAL
	76	122.15	123.36	1.21	PHANTOM	MUDSTONE	CARB. DK. BLK. MAS. BRKN AS ABOVE
*	75	123.36	123.60	0.24	PHANTOM	MUDSTONE	CARB. DK. BLK. MAS. BRKN AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: 00H85024

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	75 123.60	125.09	1.49			SILTSTONE	CLYY, LT. BLK. LAM. SSD. SLD THIN LAYERS OF SILT AND MUD ALTERNATION REGULARLY; SOME BIOTURBATED ZONES
	75 125.09	125.80	0.41			SILTSTONE	CLYY, LT. BLK. LAM. SSD. SLD AS ABOVE
*	75 125.80	125.83	0.33			SILTSTONE	CLYY, LT. BLK. LAM. SSD. SLD AS ABOVE
	74 125.83	127.71	1.88			SANDSTONE	CLYY, FG. PR. H. GY. THNB. SSD. SLD THIN BEDS OF SAND PARTED BE DEFORMED MU D LAMELLAE; EVIDENCE OF VERT. AND HORIZ. BIOTURBATION
*	73 127.71	128.17	0.46			SANDSTONE	CLYY, FG. PR. H. GY. THNB. SSD. SLD AS ABOVE
	74 128.17	128.70	0.53			SANDSTONE	CLYY, FG. PR. H. GY. THNB. SSD. SLD AS ABOVE
	76 128.70	129.74	1.04			SANDSTONE	MG. MEL. LT. GY. MAS. SLD MASSIVE; MG SANDSTONE WITH OCCASIONAL M UD CLASTS SPREAD AT RANDOM INTERVALS TH ROUGHOUT THE UNIT; MUD CLAST ZONES AVER AGE .05- .1M WIDE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: 00H85024

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	79 129.74	131.24	1.50			SANDSTONE	MG. MEL. LT. GY. MAS. BRKN SAME LITHOLOGY AS ABOVE; QTZ VEINS APPR OX 70 DEGREES TO BEDDING; CORE MORE FRA CTURED; APPEARS TO BE SOME CORE LOSS HE RE
	81 131.24	131.39	0.15			SANDSTONE	MG. MEL. LT. GY. MAS. BRKN AS ABOVE
*	82 131.39	132.38	1.99			SANDSTONE	MG. MEL. LT. GY. MAS. BRKN AS ABOVE
*	75 132.38	132.58	0.20			SANDSTONE	MG. MEL. LT. GY. MAS. BRKN AS ABOVE
	76 132.58	134.12	0.54			SANDSTONE	CLYY, FG. PR. H. GY. THNB. BIOTR. SLD THIN BEDS OF SAND WITH DEFORMED MUDSTON E LAYERS-IN SOME PLACES THE LAYERING HA S BEEN DESTROYED BY BIOTURBATION (VERT AND HORIZ); VERT WORM BURROWS INDICATE UPRIGHT BEDDING
	78 134.12	135.08	0.96			SANDSTONE	CLYY, FG. PR. H. GY. THNB. BIOTR. SLD AS ABOVE
	80 135.08	135.25	0.17			SILTSTONE	CLYY, M. BLK. LAM. SSD. SLD ALTERNATING THIN LAMELLAE OF SILT AND M UD DEFORMED BY SSD

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDM85024

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 80	135.25	135.40	0.15			SILTSTONE	CLYY.M.BLK.LAM.SSD.SLD AS ABOVE
79	135.40	135.75	0.35			SANDSTONE	CLYY.FG.PR.M.GY.THNB.SSD.SLD MASSIVE SANDS WITH DEFORMED MUD LAYERS
77	135.75	137.15	1.40			SILTSTONE	CLYY.M.BLK.LAM.BIOTR.SLD THIN LAMELLAE OF SILT AND MUD DEFORMED AND REMORDED; SSD; SILT CONTENT INCREASES LOWER IN UNIT WHILE MUD CONTENT DECREASES
76	137.15	137.24	0.09			SILTSTONE	CLYY.M.BLK.LAM.BIOTR.SLD AS ABOVE
75	137.24	137.35	0.11			SANDSTONE	CLYY.FG.PR.M.GY.THNB.BIOTR.SLD THIN LAYERS OF SANDS WITH DEFORMED MUDS BETWEEN THEM; LOTS OF BIOTURBATION; SSD; UPRIGHT BEDDING
* 73	137.35	139.22	1.87			SANDSTONE	CLYY.FG.PR.M.GY.THNB.BIOTR.SLD AS ABOVE
70	139.22	139.34	0.12			SILTSTONE	CLYY.M.BLK.LAM.BIOTR.SLD VERY THIN LAMELLAE OF MUD AND SILT (LARGER PROPORTION OF MUD THAN SILT); IN SOME PLACES LAYERING DESTROYED BY BURROWING ORGANISMS; IN MOST PLACES JUST RHYTHMIC ALTERNATION OF MUD AND SILT

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 32

PROJECT: KPN BLOCK: LR DATA SOURCE: DDM85024

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 69	139.34	140.13	0.79			SILTSTONE	CLYY.M.BLK.LAM.BIOTR.SLD AS ABOVE
67	140.13	141.35	1.22			SILTSTONE	CLYY.M.BLK.LAM.BIOTR.SLD AS ABOVE
* 63	141.35	143.33	1.98			SILTSTONE	CLYY.M.BLK.LAM.SSD.SLD AS ABOVE EXCEPT BIOTURBATION OF LAYERS DECREASES AND SSD BECOMES MAJOR SEDIMENTARY STRUCTURE
* 68	143.33	143.95	0.62			SILTSTONE	CLYY.M.BLK.LAM.SSD.SLD AS ABOVE
70	143.95	144.40	0.45			SILTSTONE	CLYY.M.BLK.LAM.SSD.SLD AS ABOVE
72	144.40	145.25	0.85			SANDSTONE	CLYY.FG.PR.DK.GY.THNB.BIOTR.SLD THIN BEDS OF SANDS AND MUDS (MORE SAND THAN MUD); VERY BIOTURBATED (DESTROYED MUCH OF THE LAYERING); SOME SSD OCCURS
* 75	145.25	146.50	1.25			SANDSTONE	CLYY.FG.PR.DK.GY.THNB.BIOTR.SLD AS ABOVE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: D0885024

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	75 146.50	146.65	0.15			SANDSTONE	CLYY.FG.PR.OK.GY.THNB.SSD.SLD AS ABOVE; SSD MORE DEVELOPED LOWER IN U MIT; LESS BIOTURBATED AND THINNER LAYER S
	75 146.65	147.37	0.72			SANDSTONE	FG.WEL.LT.GY.MAS.SLD MASSIVE FINE SAND WITH VERY LITTLE INPU T OF MUDS AND SILTS; SOME MUD CLASTS; F RACTURES 70-80 DEGREES TO BEDDING
	74 147.37	149.35	1.98			SANDSTONE	FG.WEL.LY.GY.MAS.SLD AS ABOVE
	74 149.35	151.36	2.01			SANDSTONE	FG.WEL.LY.GY.MAS.BRKN AS ABOVE EXCEPT A LOT OF QTZ VEINING TH ROUGH MASSIVE SANDSTONE; SIDERITE VEINI NG; RIP UP BRECCIATION; MUD CLAST PROPO RTION SLIGHTLY INCREASED
*	73 151.36	152.42	1.06			SANDSTONE	FG.WEL.LY.GY.MAS.SLD AS ABOVE; QTZ VEINING HAS SUBSIDED
	73 152.42	152.85	0.43			SANDSTONE	FG.WEL.LY.GY.MAS.SLD AS ABOVE

* DENOTES MEASURED BCA
NEWPAGE

GULF CANADA RESOURCES INC.

COAL DIVISION
MOUNT KLAPPAN PROJECT

TRUE THICKNESS

SEAM DETAIL

DATA SOURCE: KPN LR 00H85024 SEAM : 1 INTERVAL(M) : 12.68 - 19.68 ELEVATION(M) : 1703.5
 GEOLOGIST : BUHAY SCALE: DATE : DEC 19/85 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	DRY VAL M/TS				
	12.68			0.16															
				0.21															
				(0.30)															
				0.32	81.9	8589													
				0.11															
				0.22															
				0.14															
	14.40			0.32															
				0.38															
				0.14															
				(0.80)	54.5	6590													
				(0.23)															
				0.32															
				0.10															
	16.40			0.27															
				0.19															
				0.86	100.0	8591													
				0.18															
				0.43															
	18.64			(0.41)															
				0.27	53.3	8592													
				0.20															
	19.68																		

95

4.28 / 2.16
6.46

6.45

2.40 57.81 5.79 34.00 0.81 12.18

GULF CANADA RESOURCES INC.

SEAM DETAIL

COAL DIVISION
MOUNT KLAPPAN PROJECT

TRUE THICKNESS

DATA SOURCE: XPM LR 00H85024 SEAM: H INTERVAL(M) : 91.08 - 95.87 ELEVATION(M) : 1709.5
 GEOLOGIST : BUHAY SCALE: " DATE : DEC 19/85 DRAWING NO. :

SEAM COMP.	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES		X 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			
	91.08	↑		0.20														
				0.12														
				(0.24)														
				0.80	80.1	6586												
				0.21														
	92.84	↓		(0.18)														
				0.17														
				0.53														
				0.45	100.0	6598	88	4.08 / 0.54		1.21	38.98	6.58	53.25	0.38	23.27			
				0.45				4.62										
	94.14			1.15	100.0	6597												
				0.37														
	95.87	↓																

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Gulf Canada Resources Inc.

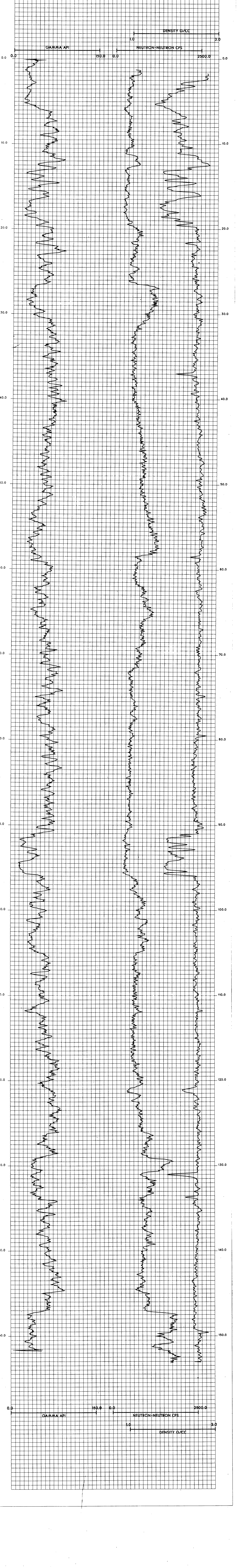
Coal Division

Geophysical Log

Datasource: KPNLRDDH85024	Province: BC	Northing: 6343690.00	Lat: 571417
Log Date: 85-07-30	Zone: 9	Easting: 506360.00	Long: 1285341
Company: CENTURY	Measuring Point:		Elevation: 1710.0
Geologist: BUHAY			

Scale: 1 to 100.0	Comments: 1. LOGGED THROUGH THE RODS 2.
Depth Range: 0.0 to 158.0	
True Thickness: NO	

Logs Plotted:	Axis Range	Axis Length	Smoothing Points	Tool	Comments
1. GAMMA API	0.0 to 150.0	10.0	31	9055A	IN PIPE
2. NEUTRON-NEUTRON CPS	0.0 to 2500.0	10.0	9	9055A	IN PIPE
3. DENSITY G/CC	1.0 to 3.0	10.0	15	9030A	IN PIPE



707

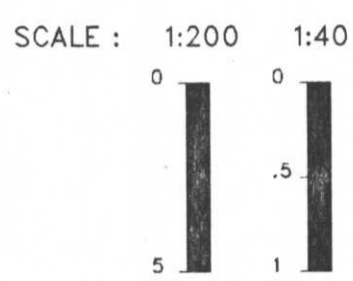
GULF CANADA RESOURCES INC.
 COAL DIVISION
 KLAPPAN PROJECT
 STRATIGRAPHIC LOG
 KPN LR DDH85024

GEOLOGIST : BUHAY

DATE : JAN 08/86

DRAWING NO. :

LITHOLOGIC SYMBOLS

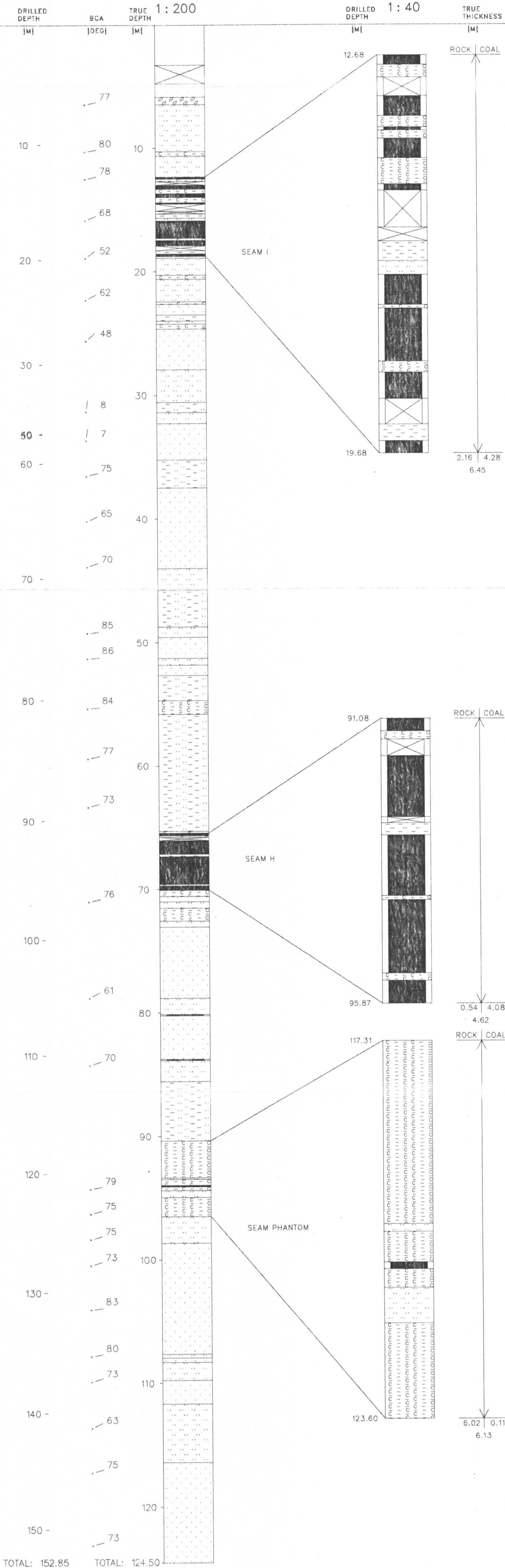


NORTHING: 6343684.0 N
 EASTING: 506360.2 E

INCLINATION: 90.0°

	SANDSTONE		BENTONITE
	SILTSTONE		BRECCIA
	COAL		CARBONACEOUS
	OVERBURDEN		QUARTZ
	MUDSTONE, CLAYSTONE		PYRITE
	TUFF		FERRUGINOUS
	LIMESTONE		CONGLOMERATE
	CORE LOSS		FOSSIL BED

SEAM DETAIL



KPNLRDDH85025

- DATA SOURCE SUMMARY -

DATA SOURCE - KPDLRDDH85025

DATE - 01/09/86

- HISTORY -

START DATE - 07/30/85
 END DATE - 07/31/85

CONTRACTOR - J T THOMAS
 GEOLOGIST - SAVOIE

OPERATOR - GCR!
 SURVEYOR - MWG & ASS

REMARKS -

- LOCATION -

PROVINCE - BC
 ELEVATION - 1684.30

ZONE - 9
 NORTHING - 6343436.00
 EASTING - 506419.87

LICENCE/LEASE NUMBER - 7151

LATITUDE - 571409
 LONGITUDE - 1285337

- ORIENTATION -

LENGTH - 111.32

INCLINATION - 90.0
 AZIMUTH - 0.0

CORE SIZE - 0.0

CEMENT -
 PLUG -
 PIEZ -

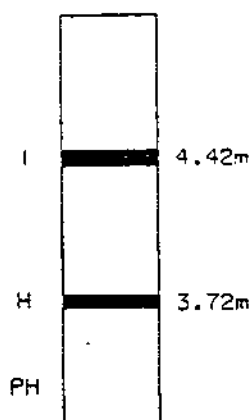
CASING DEPTH (M) - 3.66
 AQUIFER DEPTHS (M) - 0.00
 0.00
 LOST CIRC. DEPTHS (M) - 0.00
 0.00

*** NOTE *** 0 INDICATES NO VALUE



MT. KLAPPAN COAL PROPERTY
 1985 DIAMOND DRILL HOLES
 DDH85025

SEAM	TRUE SEAM THICKNESS (COAL & ROCK)
------	--------------------------------------



NOTE: SCHEMATIC PROFILE.
 NO THICKNESSES SHOWN
 FOR SEAMS CONTAINING
 LESS THAN 50cm COAL.

SCALE: 1:2000

GULF CANADA RESOURCES INC.
 15/01/86



86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85025

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	3.66	3.66			CASING	
85	3.66	5.76	2.10			SILTSTONE	CLYY.LT-M.GY.LAM.WRMBU.BRKN FAINT LAMINATIONS OF SILTSTONE AND MUOS TONE; MINOR WORM BURROWS (1.5CM BY 1CM) AND LOCALIZED BIOTURBATION; POSSIBLE CO RE LOSS
85	5.76	5.90	0.14			MUDSTONE	SLTY.LT-M.GY.LAM.YBRKN
85	5.90	6.01	0.11			ROCK LOSS	
85	6.01	6.44	0.43			MUDSTONE	SLTY.LT-M.GY.HAS.YBRKN MINOR PLANT FRAGMENTS; LARGE SCH QTZ YE IN WITH MUDSTONE FRAGMENTS ENCASED WITH IN
85	6.44	7.32	0.88			MUDSTONE	CARB.M.GY.LAM.BRKN NUMEROUS THIN COALY STRINGERS; ABUNDANT COALY PLANT MATERIAL

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 2

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85025

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
85	7.32	8.01	0.69			SILTSTONE	CLYY.LT-M.GY.LAM.SSD.BRKN LOCALIZED MINOR BIOTURBATION; YELLOWISH -RED WEATHERING ON BROKEN SURFACES
* 85	8.01	8.91	0.90			SILTSTONE	CLYY.LT-M.GY.LAM.SSD.BRKN INTERLAMINATED MUDSTONE; REDDISH YELLOW WEATHERING ON BROKEN SURFACES; TOPS UP ; POSSIBLE CORE LOSS
86	8.91	9.98	1.07			SANDSTONE	SLTY.LT-M.GY.LAM.SSD.BRKN AS ABOVE
86	9.98	11.12	1.14			SILTSTONE	SSY.LT-M.GY.LAM.SSD.BRKN INTERLAMINATED MUDSTONE; REDDISH YELLOW WEATHERING LOCALIZED ZONES OF BIOTURBAT ION; WORM BURROWS (1.5CM BY 4CM); TOPS UP
87	11.11	11.18	0.07			ROCK LOSS	
87	11.18	12.12	0.94			SILTSTONE	SSY.LT-M.GY.LAM.BIOTR.BRKN SSD; INTERLAMINATED MUDSTONE; TOPS UP; MINOR FG SANDSTONE BANDS; OCCASIONAL WO RM BURROWS

* DENOTES MEASURED BCA

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86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 3

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85025

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 88	12.12	14.16	2.04			SILTSTONE	CLYY.M.GY.LAM.BIOTR.BRKN AS ABOVE; INCREASE IN % OF MUDSTONE TOWARD BASE
* 89	14.16	15.62	1.46			MUDSTONE	SLTY.M.GY.MAS.BRKN MINOR FAINT SILTSTONE LAMINAE; MINOR WORM BURROWS
89	15.62	16.09	0.47			SILTSTONE	CLYY.LT-M.GY.LAM.SSD.BRKN MINOR FG SANDSTONE BANDS; TOPS UP
89	16.09	16.24	0.15			MUDSTONE	SLTY.M.GY.LAM.SLD INTERLAMINATED SILTSTONE
89	16.24	17.36	1.12			MUDSTONE	SLTY.M.GY.LAM.SSD.BRKN AS ABOVE; TOPS UP; 3CM CARBONATE ZONE WITH MUDSTONE STRINGERS; POSSIBLE CORE LOSS
* 89	17.36	18.25	0.89			MUDSTONE	SLTY.M.GY.LAM.SSD.BRKN INTERLAMINATED SILTSTONE; TOPS UP; SILT TIER TOWARD BASE
* 89	18.25	20.20	1.95			SILTSTONE	CLYY.LT-M.GY.LAM.SSD.BRKN INTERLAMINATED DISCONTINUOUS MUDSTONE LAMINAE; TOPS UP
89	20.20	20.34	0.14			SILTSTONE	CLYY.LT-M.GY.LAM.BRKN INTERLAMINATED MUDSTONE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 4

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85025

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 89	20.34	20.59	0.25			SILTSTONE	SSY.LT-M.GY.LAM.SSD.SLD AS ABOVE; DISCONTINUOUS; TOPS UP
89	20.59	20.88	0.29			ROCK LOSS	
88	20.88	22.05	1.17			SILTSTONE	SSY.LT-M.GY.LAM.BRKN AS ABOVE
* 88	22.05	22.21	0.16			SILTSTONE	SSY.LT-M.GY.LAM.BRKN MINOR QTZ FILLED MICROFRACTURES
88	22.21	22.85	0.64			MUDSTONE	SLTY.LT-M.GY.MAS.VBRKN PARTIALLY UNCONSOLIDATED WITH IRREGULAR QTZ FILLED MICROFRACTURES
88	22.85	22.89	0.04			SILTSTONE	SSY.LT-M.GY.LAM.BRKN
88	22.89	23.22	0.33			SILTSTONE	SSY.LT-M.GY.LAM.SSD.BRKN INTERLAMINATED MUDSTONE IRREGULAR AND DISCONTINUOUS; TOPS UP
88	23.22	24.72	1.50			MUDSTONE	SLTY.M.GY.LAM.SSD.VBRKN INTERLAMINATED SILTSTONE; 16CM OF FG SANDSTONE WITH MUDSTONE LAMINAE; THIN LAYER OF QTZ FOUND ON SOME BROKEN SURFACES

* DENOTES MEASURED BCA

FORM 4001

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 5

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85025

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
88	24.72	25.27	0.55			MUDSTONE	M.GY.MAS.BRKN FAIRLY UNIFORM MUDSTONE WITH MINOR SILTY LAMINAE
88	25.27	26.63	1.36			MUDSTONE	M.GY.MAS.BRKN AS ABOVE
88	26.63	27.10	0.47			MUDSTONE	M.GY.MAS.BRKN AS ABOVE
88	27.10	27.23	0.13			MUDSTONE	M.GY.MAS.BRKN AS ABOVE
88	27.23	27.24	0.01			CLAYSTONE	SLTY.LT.GY POSSIBLY BENTONITIC; SAMPLED
88	27.24	28.32	1.08			SILTSTONE	CLYY.LT-M.GY.MAS.BRKN LOCALIZED MUDSTONE LAMINAE AND BANDS SOME DISCONTINUOUS
88	28.32	28.62	0.30			SANDSTONE	CLYY.VFG.LT-M.GY.MAS.BRKN AS ABOVE; MINOR DISPLACEMENT OF LAMINAE (<.5CM) ALONG MICROFRACTURE
88	28.62	30.92	2.30			SANDSTONE	CLYY.VFG.LT.GY.MAS.WRMBU.BRKN LOCALIZED INDISTINCT MUDSTONE LAMINAE; ONE WORM BURROW (<.4CM BY 3CM); MINOR LOCALIZED X-BEDDING

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 6

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85025

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
88	30.92	31.47	0.55			SANDSTONE	CLYY.VFG.LT.GY.MAS.BRKN MINOR INDISTINCT MUDSTONE LAMINAE
88	31.47	31.50	0.03			SANDSTONE	CLYY.VFG.LT.GY.MAS.BRKN
88	31.50	31.53	0.03			CLAYSTONE	
* 88	31.53	32.99	1.46			SILTSTONE	CLYY.LT-M.GY.LAM.SLD FAINTLY INTERLAMINATED WITH MUDSTONE; TOPS UP
* 90	32.99	34.40	1.41			SILTSTONE	CLYY.LT-M.GY.LAM.BRKN AS ABOVE
90	34.40	35.08	0.68			SILTSTONE	CLYY.M.GY.LAM.BRKN AS ABOVE; WITH MUDSTONE BECOMING MORE PROMINENT
89	35.08	36.40	1.32	06599		SILTSTONE	CLYY.M.GY.LAM.SLD COALY LENSES AND STRINGERS THROUGHOUT; ABUNDANT PLANT FRAGMENTS; LOWER 20CM SAMPLED
89	36.40	36.72	0.32	06600 I		COAL LOSS	

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85025

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	89	36.72	36.90	0.18	06600 I	COAL	C-1 SLD QTZ VEINS THROUGHOUT
	89	36.90	36.94	0.04	06600 I	MUDSTONE	CLYY.M.GY.MAS.SLD
	89	36.94	37.31	0.37	06600 I	COAL	C-1.BRKN
	89	37.31	37.73	0.42	06600 I	COAL	C-1.BRKN MINOR MUDSTONE STRINGERS
	89	37.73	37.92	0.19	06601 I	ROCK LOSS	
	89	37.92	38.02	0.10	06601 I	MUDSTONE	CLYY.M-DK.GY.MAS.BRKN
	89	38.02	38.17	0.15	06601 I	COAL	C-1.SLD
	89	38.17	38.20	0.03	06601 I	SILTSTONE	M.GY.MAS.SLD
	88	38.20	38.80	0.60	06601 I	COAL	C-1.BRKN
	88	38.80	38.82	0.02	06601 I	COAL	C-6.BRKN

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85025

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	88	38.82	39.18	0.36	06601 I	COAL	C-1.BRKN
	88	39.18	39.19	0.01	06601 I	MUDSTONE	M-DK.GY.MAS.SLD
	88	39.19	39.28	0.09	06601 I	COAL	C-1.SLD
	88	39.28	39.29	0.01	06601 I	MUDSTONE	M-DK.GY.MAS.SLD
	88	39.29	39.50	0.21	06602 I	COAL	C-1.SLD MINOR MUDDY BANDS
	88	39.50	40.60	1.10	06602 I	COAL	C-1.SLD AS ABOVE
	88	40.60	40.82	0.22	06602 I	COAL	C-1.SLD AS ABOVE
	88	40.82	41.53	0.71	06603	MUDSTONE	SLTY.M-DK.GY.MAS.SLD ABUNDANT PLANT FRAGMENTS SOME COALIFIED ; UPPER 20CM SAMPLED

* DENOTES MEASURED BCA

FORM
4001

36/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPW BLOCK: LR DATA SOURCE: DDM85025

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LYTHOLOGY	DESCRIPTION
	87	41.53	42.61	1.08		MUDSTONE	SLTY. M. GY. LAM. SSD. BRKN MINOR SILTY LAMINAE; < 2CM MINOR COALY STRINGERS; ABUNDANT PLANT FRAGMENTS; 5CM ZONE OF SMALL SCALE X-BEDDING; TOPS U
*	87	42.61	43.36	0.75		SILTSTONE	SSY. LT-M. GY. LAM. SSD. BRKN INTERMITTENT MUDSTONE LAMINAE; MINOR PLANT FRAGMENTS; SMALL ZONES OF FG SANDSTONE
	89	43.36	43.69	0.33		SANDSTONE	SLTY. FG. PR. LT-M. GY. MAS. SSD. BRKN MUDSTONE LAMINAE AND BANDS IN LOCALIZED ZONE APPROX .14M THICK
	89	43.69	43.85	0.16		SANDSTONE	SLTY. FG. PR. LT. GY. MAS. BRKN VERY MINOR QTZ VEINING
*	90	43.85	44.16	0.31		SANDSTONE	FG. PR. LT. GY. MAS. SLD UNIFORM AND WELL CEMENTED
	90	44.16	44.25	0.09		SILTSTONE	LT-M. GY. LAM. SLD INTERLAMINATED
	90	44.25	44.44	0.19		SANDSTONE	FG. PR. LT. GY. MAS. SLD MINOR INTERLAMINATED MUDSTONE (DISCONTINUOUS)

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 10

PROJECT: KPW BLOCK: LR DATA SOURCE: DDM85025

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LYTHOLOGY	DESCRIPTION
	90	44.44	44.54	0.10		SILTSTONE	LT-M. GY. LAM. BRKN MINOR QTZ VEINING; POSSIBLE CORE LOSS OR FAULT AT BOTTOM OF SEQUENCE
	90	44.54	45.55	1.01		SANDSTONE	FG. LT. GY. MAS. BRKN LARGE 3CM QTZ VEIN RUNS ALONG THE LENGTH OF THE CORE; BOTTOM OF UNIT CONTAINS ABUNDANT MUDSTONE RIP UP CLASTS (LARGEST 1.7CM) CONCENTRATED IN A 35CM ZONE
	90	45.55	46.86	1.31		SANDSTONE	FG. LT. GY. MAS. BRKN MUDSTONE RIP UP CLASTS (TOP 15CM); LARGE QTZ VEINING (APPROX 1-2CM) ALONG LENGTH OF CORE
	89	46.86	47.57	0.71		SANDSTONE	FG. LT. GY. MAS. BRKN LARGE QTZ VEINING AS ABOVE
	89	47.57	48.98	1.41		SANDSTONE	FG. LT. GY. MAS. BRKN AS ABOVE; 18CM ZONE OF IRREGULAR SHAPED MUDSTONE CLASTS CONCENTRATED AT BASE OF UNIT
*	89	48.98	49.70	0.72		SILTSTONE	SSY. LT-M. GY. LAM. SSD. BRKN INTERLAMINATED, DISCONTINUOUS MUDSTONE; MINOR SSD

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH89025

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	88	49.70	49.97	0.27		SILTSTONE	CLYY.LT-M.GY.LAM.SSD.BRKN AS ABOVE; 1-2CM BANDS OF HELMINTHOPSIS BURROWS (3 BANDS)
	87	49.97	50.24	0.27		SILTSTONE	CLYY.LT-M.GY.LAM.SSD.BRKN AS ABOVE
	86	50.24	51.48	1.24		MUDSTONE	SLTY.M.GY.MAS.WRMBU.BRKN OCCASIONAL SILTSTONE LAMINAE; HELMINTHO PSIS BURROWS; OCCASIONAL PYRITE BLESS
	85	51.48	51.69	0.21		SILTSTONE	CLYY.LT-M.GY.LAM.SLD INDISTINCT MUDSTONE LAMINAE
	84	51.69	52.33	0.64		SILTSTONE	SSY.LT-M.GY.LAM.WRMBU.BRKN WORM BURROW (1CM BY 3CM); BIOTURBATION HAS DESTROYED MUDSTONE LAMINAE
	83	52.33	52.79	0.46		SANDSTONE	SLTY.LT.GY.MAS.BRKN LOCALIZED MINOR MUDSTONE LAMINAE
*	82	52.79	52.93	0.14		SILTSTONE	SSY.LT-M.GY.LAM.SLD INTERLAMINATED MUDSTONE LAMINAE
	83	52.93	53.57	0.64		SANDSTONE	SLTY.FG.LT-M.GY.LAM.SSD.BRKN LOCALIZED ZONES OF INTERLAMINATED SILTS TONE AND MUDSTONE; TOPS UP; MINOR ZONE OF BIOTURBATION

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85025

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	86	53.57	54.48	0.91		SANDSTONE	SLTY.FG.LT-M.GY.LAM.SSD.BRKN MORE ABUNDANT MUDSTONE AND SILTSTONE LA MINAE; TOPS UP; MINOR BIOTURBATION
	87	54.48	55.63	1.15		SANDSTONE	FG.LT.GY.MAS.BIOTR.SLD OCCASIONAL MUDSTONE BANDS; 20CM ZONE OF BIOTURBATION
	89	55.63	55.95	0.32		SANDSTONE	FG.LT.GY.MAS.SLD OCCASIONAL MUDSTONE BANDS (<1CM)
*	90	55.95	57.72	1.77		SILTSTONE	SSY.LT-M.GY.LAM.SSD.BRKN INTERLAMINATED MUDSTONE; MINOR PLANT IM PRINTS; TOPS UP; 15CM ZONE OF MINOR BIO TURBATION AT BASE; MINOR LOW ANGLE X-BE DDING (15CM ZONE)
	89	57.72	58.38	0.66		SANDSTONE	SLTY.FG.VPR.LT.GY.LAM.BRKN INDISTINCT INTERLAMINATED MUDSTONE; MIN OR PLANT IMPRINTS
	89	58.38	58.98	0.60		MUDSTONE	SLTY.LT-M.GY.LAM.SSD.BRKN INDISTINCT AND DEFORMED SILTSTONE BANDS AND LAMINAE; MINOR BANDS OF FG SANDSTO NE
*	88	58.98	59.72	0.74		MUDSTONE	SLTY.LT-M.GY.LAM.BIOTR.BRKN AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85025

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	59.72	60.55	0.83			SILTSTONE	SSY LT-M.GY.LAM.BRKN LOCALIZED INTERLAMINATED MUDSTONE AND F G SANDSTONE BANDS
	60.55	61.41	0.86			MUDSTONE	SLTY.M.GY.MAS.BRKN 4CM SILTY ZONE NEAR BASE
	61.41	61.74	0.33			MUDSTONE	SLTY.DK.GY.MAS.BRKN NUMEROUS PLANT IMPRINTS; ABSENCE OF SILTY LAMINAE
	61.74	63.72	1.98			MUDSTONE	LT.BLK.MAS.HRMBU.BRKN MINOR PLANT IMPRINTS; 5CM ZONE OF SILTY MUDSTONE THAT CONTAINS HELMINTHOPSIS B URRONS
	63.72	64.26	0.54			MUDSTONE	LT.BLK.MAS.BRKN ONE COALY STRINGER <.2CM; MINOR PLANT IMPRINTS
	64.26	64.50	0.24			SILTSTONE	SLTY.M.GY.LAM.BRKN INDISTINCT VERY FINE MUDSTONE LAMINAE
	64.50	64.80	0.30			MUDSTONE	LT.BLK.MAS.BRKN
	64.80	65.20	0.40			SILTSTONE	SSY LT-M.GY.LAM.BRKN INTERLAMINATED MUDSTONE WITH SEVERAL FG SANDSTONE BANDS

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85025

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	65.20	65.70	0.50			SANDSTONE	SLTY.FG.LT.GY.LAM.SLD LOCALIZED INTERLAMINATED MUDSTONE
*	65.70	66.14	0.44			SANDSTONE	SLTY.VFG.PR.LT-M.GY.LAM.SSD.BRKN DISTURBED INTERLAMINATED MUDSTONE
	66.14	67.34	1.20			SANDSTONE	SLTY.FG.PR.LT.GY.MAS.BRKN SPARSE MUDSTONE LAMINAE WHICH INCREASE TOWARD BASE
	67.34	67.58	0.24			SILTSTONE	CLYY.LT-M.GY.LAM.BRKN INCREASE IN % OF INTERLAMINATED MUDSTONE
	67.58	67.80	0.22			MUDSTONE	SLTY.M.GY.LAM.BRKN INTERLAMINATED DISCONTINUOUS SILTSTONE
	67.80	67.91	0.11			ROCK LOSS	
	67.91	70.09	2.18			MUDSTONE	DK.GY.MAS.BRKN LOCALIZED ZONES OF SILTY MUDSTONE; ONE COALY STRINGER <.5CM; 4CM CARBONACEOUS ZONE (BLACK); PYRITE BLEBS
	70.09	70.83	0.74			MUDSTONE	SLTY.DK.GY.MAS.VBRKN MINOR BANDS OF SILTY MUDSTONE; 2CM THICK K QTZ AND CARBONATE VEIN AT TOP OF UNIT ; POSSIBLE CORE LOSS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DCH85025

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
86	70.83	71.99	1.16			MUDSTONE	SLTY. DK. GY. MAS. BRKN MINOR COALY PLANT IMPRINTS; FRIABLE
86	71.99	73.87	1.88			MUDSTONE	DK. GY. MAS. YBRKN
86	73.87	75.74	1.87	06604		MUDSTONE	LT. BLK. MAS. BRKN CARBONACEOUS TOWARD BASE; BOTTOM 10CM O F CORE HAS AN ABUNDANCE OF PYRITE; COAL Y STRINGER (APPROX 1CM) WITH .5CM OF QT Z VEINING AT VERY BASE
86	75.74	75.75	0.01	06605 H		COAL	C-3. SLD
86	75.75	76.32	0.57	06605 H		COAL	C-1. BRKN THIN MUDDY BANDS THROUGHOUT
86	76.32	76.35	0.03	06605 H		COAL	C-5. BRKN
86	76.35	76.37	0.02	06605 H		MUDSTONE	CLYY. M-DK. GY. MAS. BRKN
86	76.37	76.42	0.06	06605 H		COAL	C-1. BRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DCH85025

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
86	76.42	76.44	0.01	06605 H		MUDSTONE	M-DK. GY. MAS. BRKN
86	76.44	76.81	0.37	06605 H		COAL	C-1. BRKN MINOR MUDDY BANDS
86	76.81	77.00	0.19	06606 H		MUDSTONE	CLYY. M. GY. MAS. YBRKN
86	77.00	77.32	0.32	06606 H		COAL LOSS	
86	77.32	77.48	0.16	06606 H		COAL	C-2. YBRKN
86	77.48	77.58	0.10	06606 H		SILTSTONE	CLYY. M-DK. GY. MAS. SLD
86	77.58	77.67	0.09	06606 H		COAL	C-3. SLD
86	77.67	77.71	0.04	06606 H		MUDSTONE	CLYY. M-DK. GY. MAS. SLD
86	77.71	77.77	0.06	06606 H		COAL	C-3. SLD VITRINITE BANDS WITHIN
86	77.77	77.81	0.04	06606 H		MUDSTONE	CLYY. M-DK. GY. MAS. BRKN

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85025

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	77.81	77.88	0.07	06607	H	COAL	C-1.SLD BANDS OF C-2 THROUGHOUT
	77.88	78.06	0.18	06607	H	COAL	C-1.SLD THIN BANDS OF MUDSTONE THROUGHOUT
	78.06	78.07	0.01	06607	H	MUDSTONE	CARB. DK. GY. MAS. BRKN
	78.07	79.01	0.34	06607	H	COAL	C-1. BRKN THIN BANDS OF MUDSTONE THROUGHOUT
	79.01	79.07	0.26	06607	H	MUDSTONE	CLY. M-DK. GY. MAS. BRKN
	79.07	79.47	0.40	06607	H	COAL	C-1. BRKN THIN BANDS OF MUDSTONE THROUGHOUT
	79.47	79.99	0.52	06608		MUDSTONE	SSY. M-DK. GY. MAS. BRKN INCREASINGLY SANDY TOWARDS BASE; UPPER 20CM SAMPLED
	79.99	80.35	0.36			SILTSTONE	SSY. LT-M. GY. LAM. BRKN DISCONTINUOUS INTERLAMINATED MUDSTONE; WELL CEMENTED
	80.35	80.66	0.31			SILTSTONE	SSY. LT-M. GY. LAM. BRKN AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85025

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	80.66	82.02	1.36			MUDSTONE	SLTY. M. GY. LAM. BRKN FAINT SILTSTONE LAMINAE SPARSELY DISTRIBUTED; ABUNDANT COALY STRINGERS (LARGEST APPROX 1CM); 35CM ZONE OF CARBONACEOUS MATERIAL
	82.02	82.73	0.71			MUDSTONE	SLTY. M. GY. LAM. BIOTR. BRKN INDISTINCT SILTSTONE LAMINAE
	82.73	83.09	0.36			SILTSTONE	SSY. LT-M. GY. BRKN INTERLAMINATED MUDSTONE (INDISTINCT)
	83.09	83.30	0.21			MUDSTONE	SLTY. M. GY. LAM. BIOTR. SLD
	83.30	84.05	0.75			SANDSTONE	FG. LT. GY. MAS. SLD OCCASIONAL MUDSTONE LAMINAE THROUGHOUT; 12CM ZONE OF SUB-ANGULAR RIP UP CLASTS (PREDOMINANTLY 1CM)
	84.05	86.26	2.21			SANDSTONE	FG. PR. LT. GY. MAS. SLD FEW MINOR DISCONTINUOUS MUDSTONE LAMINAE; OCCASIONAL MUDSTONE RIP UP CLASTS WITH A CONCENTRATION NEAR BASE OF UNIT (5CM ZONE)
	86.26	86.41	0.15			SANDSTONE	FG. PR. LT. GY. MAS. SLD AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85025

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	86.41	87.56	1.15			SANDSTONE	FG. PR. LT. GY. MAS. BRKN OCCASIONAL MUDSTONE BANDS; 8CM ZONE OF MUDSTONE RIP UP CLASTS AT TOP OF UNIT
	87.56	88.29	0.73			MUDSTONE	SLTY. LT-M. GY. LAM. BRKN DISCONTINUOUS SILTY LAMINAE
	88.29	89.42	1.13			MUDSTONE	SLTY. M. GY. LAM. SSD. BRKN INTERLAMINATED SILTSTONE
*	89.42	90.25	0.93			SILTSTONE	SSY. LT-M. GY. LAM. BIOTR. BRKN DISCONTINUOUS MUDSTONE BANDS AND LAMINA E; 20CM ZONE OF BIOTURBATION.
	90.25	92.39	2.04			SILTSTONE	LT-M. GY. LAM. SSD. BRKN FREQUENT MUDSTONE BANDS (1-3CM); MINOR BIOTURBATION AND WORM BURROWS; TOPS UP; MINOR PLANT IMPRINTS
	92.39	94.53	2.14			MUDSTONE	SLTY. M. GY. LAM. BRKN MINOR SILTY LAMINAE THAT DECREASE TOWAR D. BASE; DISSEMINATED HELMINTHOPOD BURR OWS
	94.53	95.06	0.53			MUDSTONE	M-DK. GY. MAS. BRKN PYRITE BLEBS
	95.06	96.55	1.49			MUDSTONE	M-DK. GY. MAS. BRKN

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 20

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85025

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	96.55	98.10	1.55			MUDSTONE	SLTY. M. GY. MAS. BRKN CARBONACEOUS TOWARD BASE; 4CM ZONE OF V ERY FINE COALY STRINGERS
	98.10	98.50	0.40		PHANTOM	MUDSTONE	CARB. DK. GY. MAS. BRKN ABUNDANT COALY STRINGERS
	98.50	99.98	1.48		PHANTOM	MUDSTONE	SLTY. M-DK. GY. MAS. BRKN
	99.98	100.56	0.58		PHANTOM	MUDSTONE	CARB. LT. BLK. MAS. VBRKN ABUNDANT COALY STRINGERS THROUGHOUT; 10 CM ZONE OF INTERLAMINATED MUDSTONE AND CARBONATE AT TOP OF UNIT; POSSIBLY PHAN TOM SEAM
	100.56	101.36	0.80		PHANTOM	MUDSTONE	CARB. DK. GY. MAS. VBRKN 30CM ZONE OF ABUNDANT COALY STRINGERS; UNIT BECOMES SILTIER TOWARD BASE
*	101.36	102.32	0.96		PHANTOM	SILTSTONE	SSY. LT-M. GY. LAM. SLD INTERLAMINATED DISCONTINUOUS MUDSTONE; MORE MUDSTONE TOWARD BASE
	102.32	102.64	0.32		PHANTOM	MUDSTONE	CARB. LT. BLK. LAM. BRKN FREQUENT COALY STRINGERS; MINOR SILTY B ANDS AT BASE

* DENOTES MEASURED BCA

FORM
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86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 21

PROJECT: KPW BLOCK: LR DATA SOURCE: DDH85025

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	80 102.64	104.47	1.83			MUDSTONE	SLTY. M. GY. LAM. SSD. BRKN FAINTLY LAMINATED WITH INOISTINCT SILTS TONE BANDS; LARGE DEFORMED SILTY SAND B ANDS AT BASE; TOPS. UP
	80 104.47	105.25	0.78			SILTSTONE	CLYY. LT-M. GY. BIOTR. SLD SSD; TOPS. UP; DEFORMED. SILTY SAND BANDS.
	81 105.25	107.45	2.20			MUDSTONE	SLTY. M. GY. BIOTR. SLD DISTURBED SILTY SANDSTONE BANDS; TOPS. U P
	82 107.45	108.18	0.73			MUDSTONE	SLTY. M. GY. BIOTR. SLD AS ABOVE
	82 108.18	109.48	1.30			SILTSTONE	SSY. LT-M. GY. BIOTR. BRKN AREAS OF DISTURBED SILTY MUD
	83 109.48	110.88	1.40			SANDSTONE	SLTY. FS. LT. GY. MAS. BRKN DISCONTINUOUS MUDSTONE BANDS AND LAMINA E AT TOP OF UNIT; 20CM ZONE OF ANGULAR MUDSTONE RIP UP CLASTS; ONE 4CM COALY F RAGMENT
*	83 110.88	111.32	0.44			SANDSTONE	SLTY. YFG. LT-M. GY. MAS. BRKN OCCASIONAL DISCONTINUOUS MUDSTONE LAMIN AE

* DENOTES MEASURED BCA
NEHPAGE

GULF CANADA RESOURCES INC.

COAL DIVISION
MOUNT KLAPPAN PROJECT

TRUE THICKNESS

SEAM DETAIL

DATA SOURCE: KPN LR DDH85025 SEAM : 1 INTERVAL(M) : 36.40 - 40.82 ELEVATION(M) : 1684.3
 GEOLOGIST : SAVOIE SCALE: DATE : DEC 19/85 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	HEAT VAL MJ/KG			
	36.40	↑		(0.32)														
				0.18														
				0.79	75.8	8600												
	37.73	↓		(0.19)														
				0.10														
				0.18														
				0.98	87.8	8601	87	4.04 / 0.38	4.42	0.80	21.30	6.08	71.82	0.36	26.59			
	39.29			0.88														
				1.53	100.0	8602												
	40.82	↓																

4.42

GULF CANADA RESOURCES INC.

SEAM DETAIL

COAL DIVISION
MOUNT KLAPPAN PROJECT

TRUE THICKNESS

DATA SOURCE: KPM LR DDH85029 SEAM: H INTERVAL(M) : 75.74 - 79.47 ELEVATION(M) : 1684.3
 GEOLOGIST : SAVOIE SCALE: DATE : DEC 19/85 DRAWING NO. :

SEAM COMP.	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES		X REC.	SAMPLE ID			COAL/ROCK TOTAL		COAL QUALITY A.D.B.							
			ROCK	COAL		SIMP	COMP	COMPOS	MINING SECTION	RES MOIST	ASH	VM	FC	TS	CALYAL %/KG			
	75.74	↑		0.61														
				0.37	100.0	6606												
	76.81			0.19														
				(0.32)	88.1	6606												
				0.16														
				0.16														
				0.26				38	3.35 / 0.47		0.78	36.16	7.87	85.27	0.38	20.02		
	77.81			0.94	100.0	6607												
				0.40														
	79.47	↓																

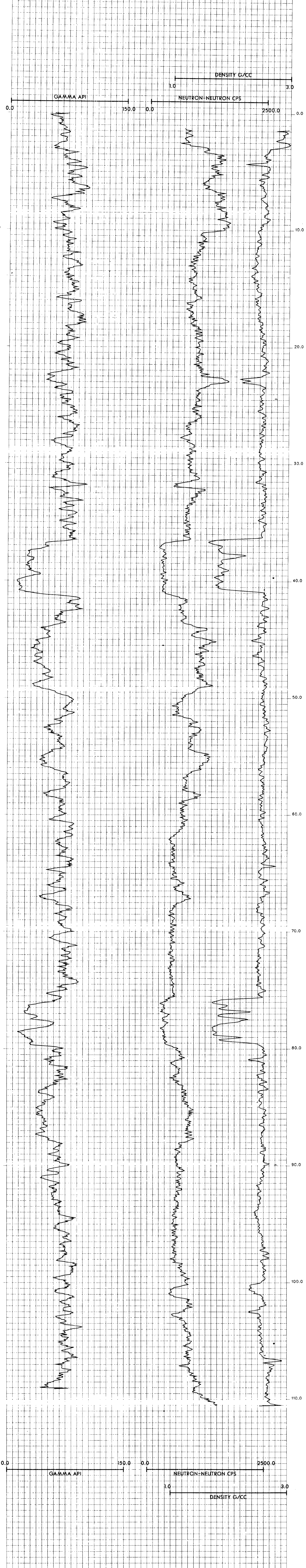
3-72

Gulf Canada Resources Inc. Coal Division

Geophysical Log

Datusource: KPNLRDDH85025	Province: BC	Northing: 6343440.00	Lat: 571409
Log Date: 85-07-31	Zone: 9	Easting: 506420.00	Long: 1285337
Company: CENTURY	Measuring Point:	Elevation: 1684.0	
Geologist: SAVOIE	Comments:		
Scale: 1 to 100.0	1. LOGGED THROUGH THE RODS		
Depth Range: 0.0 to 115.0	2.		
True Thickness: NO			

Logs Plotted:	Axis Range	Axis Length	Smoothing Points	Tool	Comments
1. GAMMA API	0.0 to 150.0	10.0	31	9055A	IN PIPE
2. NEUTRON-NEUTRON CPS	0.0 to 2500.0	10.0	9	9055A	IN PIPE
3. DENSITY G/CC	1.0 to 3.0	10.0	15	9030A	IN PIPE

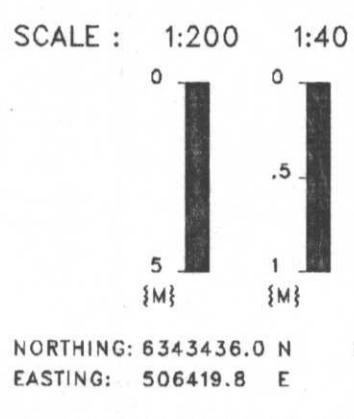


GULF CANADA RESOURCES INC.
 COAL DIVISION
 KLAPPAN PROJECT
 STRATIGRAPHIC LOG
 KPN LR DDH85025

GEOLOGIST : SAVOIE

DATE : JAN 08/86

DRAWING NO. :



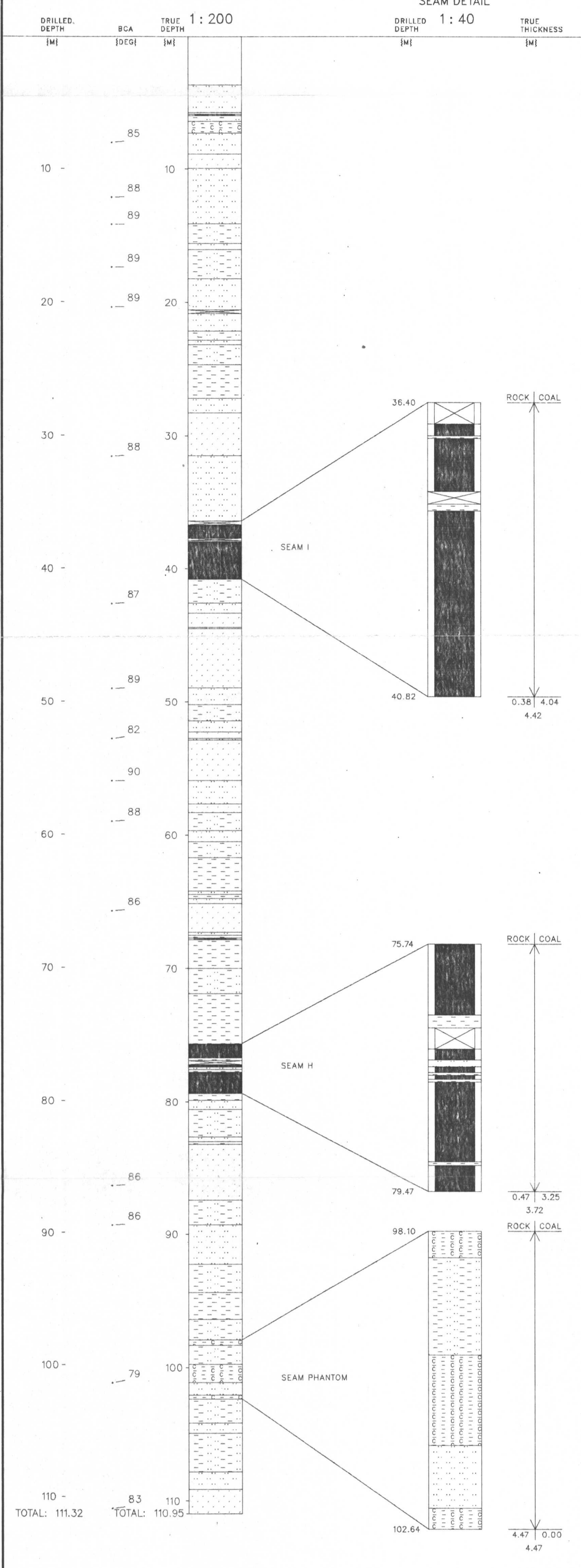
NORTHING: 6343436.0 N
 EASTING: 506419.8 E

INCLINATION: 90.0°

LITHOLOGIC SYMBOLS

	SANDSTONE		BENTONITE
	SILTSTONE		BRECCIA
	COAL		CARBONACEOUS
	OVERBURDEN		QUARTZ
	MUDSTONE, CLAYSTONE		PYRITE
	TUFF		FERRUGINOUS
	LIMESTONE		CONGLOMERATE
	CORE LOSS		FOSSIL BED

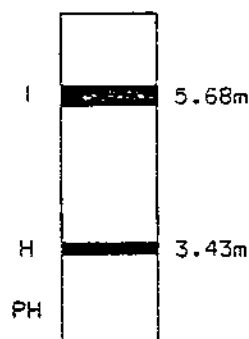
SEAM DETAIL



KPNLRDDH85026

MT. KLAPPAN COAL PROPERTY
 1985 DIAMOND DRILL HOLES
 DDH85026

SEAM TRUE SEAM THICKNESS
 (COAL & ROCK)



NOTE: SCHEMATIC PROFILE.
 NO THICKNESSES SHOWN
 FOR SEAMS CONTAINING
 LESS THAN 50cm COAL.

SCALE: 1:2000

GULF CANADA RESOURCES INC.
 15/01/86



86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85026

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	2.00	2.00			CASING	
* 88	2.00	3.49	1.49			SILTSTONE	CLYY LT. BLK. LAM. SSD. SLD LAMINATED SILTS AND MUD SOME LAMINATION S DESTROYED BY BIOTURBATION
85	3.49	3.59	0.10			SANDSTONE	CLYY FG. PR. LT. GY. THNB. SSD. SLD THIN BEDS OF SAND WITH MUD LENSES (DEFO RMED) BETWEEN THE BEDS (SOME BURROWING INDICATING UPRIGHT BEDS)
84	3.59	4.02	0.43			SANDSTONE	CLYY FG. PR. LT. GY. THNB. SSD. SLD AS ABOVE
* 82	4.02	4.43	0.41			SANDSTONE	CLYY FG. PR. LT. GY. THNB. SSD. SLD AS ABOVE
82	4.43	5.78	1.25			SILTSTONE	CLYY M. BLK. LAM. SSD. BRKN MOSTLY MUD WITH SILT INTERBEDS; SOME BI OTURBATION INDICATING UPRIGHT BEDDING; QTZ VEINING PERPENDICULAR TO BEDDING
82	5.78	6.09	0.31			ROCK LOSS	

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 2

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85026

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
82	6.09	6.34	0.25			SILTSTONE	LT. GY. MAS. SLD SILTSTONE WITH LITTLE OR NO MUD INTERLA MINATED; SOME PLANT FRAGMENTS WITHIN BE DDING PLANES
* 82	6.34	7.04	0.70			SILTSTONE	LT. GY. MAS. SLD AS ABOVE
82	7.04	7.15	0.11			SILTSTONE	LT. GY. MAS. SLD AS ABOVE
82	7.15	8.48	1.33			SILTSTONE	CLYY OK. GY. LAM. SSD. BRKN LAMINATED SILT AND MUD DEFORMED BY SSD- SOME BIOTURBATED LAYERS; BEDDING UPRIGH T; LOTS OF FRACTURES APPROX PERPENDICULA R TO BEDDING-SOME MOVEMENT ON THEM SEEN TALC FILLS SOME OF THE SURFACES
* 81	8.48	9.48	1.00			SILTSTONE	CLYY OK. GY. LAM. SSD. YBRKN AS ABOVE
81	9.48	10.38	0.90			SILTSTONE	CLYY OK. GY. LAM. SSD. YBRKN AS ABOVE
* 81	10.38	11.60	1.22			SILTSTONE	CLYY OK. GY. LAM. SSD. YBRKN AS ABOVE
84	11.60	12.20	0.60			SILTSTONE	CLYY OK. GY. LAM. SSD. BRKN AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPH BLOCK: LR DATA SOURCE: DDH85026

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 85	12.20	12.95	0.15			SILTSTONE	CLYY, DK. GY. LAM. SSD. BRKN AS ABOVE
87	12.35	14.22	1.87			SANDSTONE	CLYY. FG. PR. LT. GY. THNB. SSD. BRKN
* 89	14.22	15.68	1.46			SANDSTONE	CLYY. FG. PR. LT. GY. THNB. VBRKN AS ABOVE
81	15.68	15.08	0.40			SANDSTONE	CLYY. FG. PR. LT. GY. LAM. VBRKN LITH AS ABOVE; GETS TO BE A LIGHTER COLOR AND EXTREMELY BROKEN UP; MAY BE SOME CORE LOSS. BENTONITES SHOULD BE FOUND HERE
* 79	16.08	16.14	0.06			SILTSTONE	CLYY. M. GY. LAM. SSD. VBRKN THINLY LAMINATED SILT AND MUD; SOME BURROWS INDICATING UPRIGHT BEDDING; MUD CONTENT INCREASES LOWER IN THE SECTION
79	16.14	17.88	1.74			SILTSTONE	CLYY. M. GY. LAM. SSD. BRKN AS ABOVE
80	17.88	19.22	1.34			SILTSTONE	CLYY. M. GY. LAM. SSD. VBRKN AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPH BLOCK: LR DATA SOURCE: DDH85026

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
81	19.22	19.42	0.20			MUDSTONE	CARB. DK. BLK. LAM. VBRKN SLIGHTLY SILTY MUDSTONE; LOTS OF PLANT FOSSILS (COALIFIED); COAL STRINGERS C-1 COAL (2CM) AT BOTTOM OF UNIT
81	19.42	19.64	0.22	06609		MUDSTONE	CARB. DK. BLK. LAM. BRKN AS ABOVE; LOWER 20CM SAMPLED
81	19.64	19.68	0.04	06609		MUDSTONE	M-DK. GY. MAS. SLD POSSIBLY DRILLER'S MUD
81	19.68	19.78	0.10	06610 I		COAL	C-2. PHRD VERY BROKEN AND THISTED OFF
81	19.78	20.83	1.05	06610 I		COAL LOSS	
81	20.83	21.28	0.45	06610 I		ROCK LOSS	
82	21.28	21.38	0.10	06610 I		MUDSTONE	M-DK. GY. MAS. SLD
82	21.38	22.72	1.34	06610 I		COAL LOSS	
82	22.72	23.07	0.35	06610 I		COAL	C-1. VBRKN COAL LOSS EVIDENT; MINOR MUDDY BANDS. HT. THIN
83	23.07	23.20	0.13	06610 I		COAL	C-1 VBRKN CORE LOSS

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85026

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP ID	SEAM ID	LITHOLOGY	DESCRIPTION
	23.20	24.20	1.00	06610	I	COAL LOSS	
	24.20	24.76	0.56	06610	I	ROCK LOSS	
	24.76	25.26	0.50	06610	I	COAL LOSS	
	25.26	25.27	0.01	06610	I	MUDSTONE	M-DK.GY.MAS.BRKN
	25.27	25.41	0.14	06610	I	COAL	C-1.VBRKN CORE LOSS
	25.41	25.79	0.38	06611		MUDSTONE	CARB.DK.GY.MAS.BRKN TWISTED OFF AT BASE; TOP 20CM SAMPLED
	25.79	26.04	0.25			ROCK LOSS	
	26.04	26.44	0.40			SANDSTONE	CLYY.FG.LT-M.GY.MAS.BRKN QTZ YEIN WITHIN
	26.44	26.78	0.34			SANDSTONE	MG.WEL.LT.GY.MAS.BRKN MASSIVE MEDIUM GRAINED SANDSTONE; SOME THIN MUD LAMELLAE
	26.78	27.88	1.10			SANDSTONE	MG.WEL.LT.GY.MAS.BRKN AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85026

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP ID	SEAM ID	LITHOLOGY	DESCRIPTION
85	27.88	28.05	0.17			CONGLOMERATE	SSY.PR.LT.GY.VBRKN CHERT PEBBLES IN A SANDY MATRIX; MOST P EBBLES ARE TOUCHING-PARACONGLOMERATE; M OSTLY CHERT BUT ALSO OTHER PEBBLES; BED DING APPEARS TO BE-BCA=90 DEGREES; FRAC TURES FILLED WITH QTZ APPROX PERPENDICU LAR TO BEDDING
85	28.05	28.30	0.25			CONGLOMERATE	SSY.PR.LT.GY.VBRKN AS ABOVE
86	28.30	29.72	1.42			CONGLOMERATE	SSY.PR.LT.GY.VBRKN AS ABOVE
86	29.72	30.12	0.40			CONGLOMERATE	SSY.PR.LT.GY.VBRKN AS ABOVE
86	30.12	30.42	0.30			CONGLOMERATE	SSY.PR.LT.GY.VBRKN AS ABOVE
86	30.42	30.99	0.57			CONGLOMERATE	SSY.PR.LT.GY.VBRKN AS ABOVE
87	30.99	31.42	0.43			CONGLOMERATE	SSY.PR.LT.GY.VBRKN AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85026

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
87	31.42	31.55	0.13			SANDSTONE	PBLY. MG. PR. LT. GY. BRKN MG SANDSTONE WITH LENSES OF ORTHOCONGLOMERATE; CHERT PEBBLES MOSTLY BUT ALSO CLASTS OF MUD (RIP UP CLASTS).
87	31.55	32.74	1.19			SANDSTONE	PBLY. MG. PR. LT. GY. BRKN AS ABOVE
88	32.74	33.60	0.86			SILTSTONE	CLYY. M. BLK. LAM. SSD. BRKN ALTERNATING LAMELLAE OF SILT AND MUD; SOME LAYERS BIOTURBATED; UPRIGHT BEDS; FRACTURES APPROX PERPENDICULAR TO BEDDING. SOME DISPLACEMENT ALONG THEM.
88	33.60	33.75	0.15			SANDSTONE	CLYY. FG. PR. M. GY. THNB. SSD. SLD THIN BEDS OF SAND WITH LAMELLAE OF MUD (UNIFORM-NOT EXTREMELY DEFORMED); FRACTURES-LARGE VEIN FILLED FRACTURES WITH STRINGER FRACTURES (SORT OF LIKE BEARDS); FRACTURES JUST IN SANDSTONE NOT IN SILTSTONE ON EITHER SIDE
* 88	33.75	34.09	0.34			SANDSTONE	CLYY. FG. PR. M. GY. THNB. SSD. SLD AS ABOVE
88	34.09	34.66	0.57			SILTSTONE	CLYY. LT. BLK. LAM. SSD. BRKN SILT CONTENT INCREASES LOWER IN THE SECTION; LITTLE EVIDENCE OF BIOTURBATION IN THIS UNIT

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85026

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
87	34.66	35.71	1.05			SILTSTONE	CLYY. LT. BLK. LAM. SSD. BRKN AS ABOVE
* 87	35.71	35.85	0.14			SILTSTONE	CLYY. LT. BLK. LAM. SSD. BRKN AS ABOVE
87	35.85	37.32	1.47			MUDSTONE	SLTY. DK. BLK. MAS. BRKN MASSIVE MUD WITH SILTY PARTICLES THROUGHOUT; SILT CONTENT INCREASES LOWER IN UNIT
87	37.32	37.42	0.10			MUDSTONE	SLTY. DK. BLK. MAS. BRKN AS ABOVE
* 87	37.42	38.86	1.44			SANDSTONE	FG. MEL. LT. GY. MAS. BRKN MASSIVE FG SANDSTONE WITH STRINGER QTZ VEIN FRACTURES APPROX PERPENDICULAR TO BEDDING
86	38.86	38.99	0.13			SANDSTONE	CLYY. FG. PR. M. GY. THNB. BIOTR. BRKN SANDSTONE INTERLAMINATED WITH MUDS; SOME ZONES ARE VERY BIOTURBATED; UPRIGHT BEDDING

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85026

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
85	38.99	40.12	1.13			SANDSTONE	CLYY.FG.PR.H.GY.THNB.SSD.BRKN ALTERNATING SANDSTONE AND SAND-MUD RICH LAYERS; STRAIGHT SAND RICH LAYERS HAVE PERPENDICULAR QTZ FILLED FRACTURES WHICH USUALLY DO NOT PENETRATE INTO THE MUD AND SAND RICH LAYERS
83	40.12	40.63	0.51			SANDSTONE	CLYY.FG.PR.H.GY.THNB.SSD.BRKN AS ABOVE
* 81	40.63	42.60	1.97			SANDSTONE	CLYY.FG.PR.H.GY.THNB.SSD.BRKN AS ABOVE
* 89	42.60	42.87	0.27			SANDSTONE	CLYY.FG.PR.H.GY.THNB.SSD.BRKN AS ABOVE
87	42.87	44.43	1.56			SILTSTONE	CLYY.DK.GY.LAM.SSD.VBRKN LAMELLAE OF MUD AND SILT ALTERNATING FAIRLY REGULARLY; THICKNESS OF LAMELLAE VARY; THIN FRACTURES HAVE DISPLACED BEDDING (MICROFAULTS) IN SOME PLACES (APPROX. 70 DEGREES TO BEDDING)
* 84	44.43	44.71	0.28			SILTSTONE	CLYY.DK.GY.LAM.SSD.VBRKN AS ABOVE
84	44.71	45.69	0.98			SILTSTONE	CLYY.DK.GY.LAM.SSD.VBRKN AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85026

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
84	45.69	46.17	0.48			MUDSTONE	SLTY.DK.BLK.MAS.BRKN MASSIVE MUDSTONE WITH SILTY GRAINS; PYRITIZED BIVALVE ZONE .27M FROM TOP OF UNIT
85	46.17	47.07	0.90			MUDSTONE	SLTY.DK.BLK.MAS.BRKN AS ABOVE
85	47.07	48.97	1.90			MUDSTONE	SLTY.DK.BLK.MAS.BRKN SAME AS ABOVE; PYRITIZED BIVALVE ZONES AT APPROX 48.84 AND 48.99M
86	48.97	50.05	1.08			MUDSTONE	SLTY.DK.BLK.MAS.SLD SAME AS ABOVE; PLANT FRAGMENTS START TO SHOW UP ALONG BEDDING PLANES
86	50.05	51.00	0.95			MUDSTONE	SLTY.DK.BLK.MAS.SLD AS ABOVE
* 86	51.00	51.17	0.17			MUDSTONE	SLTY.DK.BLK.MAS.SLD AS ABOVE
86	51.17	52.57	1.40			SILTSTONE	CLYY.H.BLK.LAM.SSD.SLD DEFORMED LAMELLAE OF SILTSTONE AND MUD
86	52.57	53.07	0.50			MUDSTONE	SLTY.DK.BLK.MAS.SLD MASSIVE MUD WITH SILTY GRAINS; PLANT FOSSILS BECOMING MORE ABUNDANT

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85026

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. TO	SEAM TO	LITHOLOGY	DESCRIPTION
86	53.07	53.12	0.05			MUDSTONE	SLTY. DK. BLK. MAS. SLD AS ABOVE
86	53.12	55.07	1.95			MUDSTONE	SLTY. DK. BLK. MAS. SLD SAME AS ABOVE; LARGE ZONE OF PYRITIZED SIVALVES AT APPROX 55.55M
* 86	55.07	55.36	0.29			MUDSTONE	SLTY. DK. BLK. MAS. SLD AS ABOVE
86	55.36	56.13	0.77			SILTSTONE	CLYY. M. BLK. LAM. SSD. SLD ALTERNATING BANDS OF SILT AND MUD (DEFO RMEQ. BY LOADING AND SLUMPING)
86	56.13	57.16	1.03			SILTSTONE	CLYY. M. BLK. LAM. SSD. SLD AS ABOVE
86	57.16	57.24	0.08			SILTSTONE	CLYY. M. BLK. LAM. SSD. SLD AS ABOVE
86	57.24	59.14	1.90			MUDSTONE	SLTY. DK. BLK. MAS. SLD PLANT FOSSILS BECOME ABUNDANT LOWER IN THE UNIT; GET SOME COAL STRINGERS
87	59.14	59.23	0.19			MUDSTONE	SLTY. DK. BLK. MAS. SLD AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85026

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. TO	SEAM TO	LITHOLOGY	DESCRIPTION
87	59.33	61.31	1.98			MUDSTONE	SLTY. DK. BLK. MAS. BRKN MUDSTONE WITH LOTS OF SILTY GRAINS; MUD STONE HAS BEEN SHEARED ON FRACTURES APP ROX 45 DEGREES TO BEDDING; MAY BE SOME PLANT FOSSILS BUT THEY HAVE BEEN SHEARE D OFF THE BEDDING PLANES (FEW TRACES OF PLANT FOSSILS)
87	61.31	62.10	0.79			MUDSTONE	CARB. M-DK. GY. MAS. BRKN CARBONACEOUS NEAR TOP BECOMING SILTY NE AR BASE; PLANT FRAGMENTS THROUGHOUT
87	62.10	62.60	0.50	06612		MUDSTONE	CARB. M-DK. GY. MAS. BRKN PLANT FRAGMENTS ABUNDANT; MINOR PYRITE BLEBS; COALY STRINGERS THROUGHOUT; LOME R. 20CM. SAMPLED
87	62.60	62.61	0.01	06613 H		COAL	C-1. SLD
87	62.61	62.62	0.01	06613 H		MUDSTONE	CARB. DK. GY. MAS. SLD COALY STRINGERS WITHIN
87	62.62	62.68	0.06	06613 H		COAL	C-1. SLD

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDM85026

BCA	DEPTH FROM	DEPTH TO	INTERVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	87 62.68	62.70	0.02	06613	H	COAL	C-3.SLD
	87 62.70	63.13	0.43	06613	H	COAL	C-1.BRKN CORE LOSS (?) TWIST OFF
	87 63.13	63.15	0.02	06613	H	MUDSTONE	CARB. DK. GY. MAS. BRKN
	87 63.25	63.24	1.09	06613	H	COAL	C-1.BRKN
	87 63.24	63.51	0.27	06613	H	COAL	C-1.BRKN
	87 63.51	63.63	0.12	06614	H	MUDSTONE	CARB. M-DK. GY. MAS. BRKN TWIST OFF
	87 63.63	63.73	0.10	06614	H	MUDSTONE	CARB. M-DK. GY. MAS. BRKN MINOR COALY STRINGERS WITHIN
	87 63.73	63.80	0.07	06614	H	COAL	C-1.BRKN
	87 63.80	63.83	0.03	06614	H	COAL	C-3.BRKN
	87 63.83	63.39	0.06	06614	H	COAL	C-1.BRKN

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDM85026

BCA	DEPTH FROM	DEPTH TO	INTERVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	87 63.89	63.91	0.02	06614	H	COAL	C-3.BRKN
	87 63.91	64.32	0.41	06614	H	COAL LOSS	
	87 64.32	64.35	0.03	06615	H	MUDSTONE	CLY. M. GY. MAS. SLD TWISTED OFF
	87 64.35	64.38	0.03	06615	H	COAL	C-3.SLD
	88 64.38	64.95	0.57	06615	H	COAL	C-1.BRKN
	88 64.95	65.30	0.35	06615	H	COAL	C-1.BRKN MINOR MUDDY BANDS WITHIN
	88 65.30	65.44	0.14	06615	H	ROCK LOSS	
	88 65.44	65.53	0.09	06615	H	MUDSTONE	SLY. M. GY. MAS. SLD TWISTED OFF AT TOP
	88 65.53	65.86	0.33	06616	H	COAL	C-1.BRKN
	88 65.86	65.96	0.10	06616	H	COAL LOSS	
	88 65.96	66.03	0.07	06616	H	COAL	C-2.BRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85026

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
88	66.03	67.04	1.01	06617		MUDSTONE	M.GY.MAS.BRKN CARBONACEOUS NEAR TOP BECOMING SILTY NEAR BASE; PLANT FRAGMENTS WITHIN; UPPER 20CM SAMPLED
88	67.04	67.43	0.39			SILTSTONE	SSY.LT-M.GY.LAM.BRKN SANDY LAMINAE INCREASE TOWARDS BASE
* 88	67.43	68.04	0.61			SANDSTONE	CLYY.MG.PR.DK.GY.THNB.BRKN SAND GRAINS GET LARGER LOWER IN THE UNIT THIN SAND BEDS AND LAMINATED THIN MUDS; TOWARDS BOTTOM OF UNIT MUDS BECOME LESS ABUNDANT; QTZ VEINING PERPENDICULAR TO BEDDING (ONLY IN SAND RICH ZONES); SOME CARBONATES IN VEINS
88	68.04	68.74	0.70			SANDSTONE	CLYY.MG.PR.DK.GY.THNB.BRKN AS ABOVE
88	68.74	69.49	0.75			SILTSTONE	CLYY.H.BLK.LAM.SSD.BRKN ALTERNATING SILTY AND MUDDY LAYERS; ABUNDANT PLANT FOSSILS WITHIN MUD LAYERS; MUD CONTENT DECREASES AND SILT CONTENT INCREASES LOWER IN UNIT
88	69.49	70.00	0.51			SILTSTONE	CLYY.H.BLK.LAM.SSD.BRKN AS ABOVE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85026

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
87	70.00	70.82	0.82			SANDSTONE	CLYY.MG.PR.DK.GY.MAS.SLD MOSTLY MASSIVE SANDS WITH LARGE MUD RIP UP CLASTS; SOME THIN LAMELLAE OF MUD
87	70.82	70.93	0.11			MUDSTONE	CARB.DK.BLK.MAS.SLD COAL STRINGERS; COALIFIED PLANT FRAGMENTS
87	70.93	71.09	0.16			SILTSTONE	CLYY.H.BLK.LAM.SSD.SLD LAMINATED SILTS AND MUDS; UNIT INCREASES IN MUD CONTENT LOWER IN THE UNIT (PLANT FOSSILS ALONG MUD LAYERS) CARB MUD
87	71.09	71.53	0.44			SILTSTONE	CLYY.H.BLK.LAM.SSD.SLD AS ABOVE
* 87	71.53	72.16	0.63			SILTSTONE	CLYY.H.BLK.LAM.SSD.SLD AS ABOVE
79	72.16	73.71	1.55			SANDSTONE	CLYY.MG.PR.DK.GY.THNB.SSD.SLD THIN BEDS OF SAND AND MUD LAMELLAE (SOME MUD LAYERS ARE LARGE RIP UP CLASTS); A FEW PLANT FOSSILS; CYLINDER SHAPED RIP UPS-LOOK LIKE 'MAGGOTS'
* 71	73.71	74.09	0.38			SANDSTONE	CLYY.MG.PR.DK.GY.THNB.SSD.SLD AS ABOVE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: 00H85026

BCA	DEPTH FROM	DEPTH TO	DEPTH INTERVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
72	74.09	75.80	1.71			SANDSTONE	CLYY. HG. PR. DK. GY. THNB. SSD. SLD SAME AS ABOVE: HELMINTHOPHYSIS FOUND AT APPROX 76.6M
74	75.80	75.99	0.19			SANDSTONE	CLYY. DK. GY. THNB. SSD. SLD AS ABOVE
75	75.99	77.05	1.06			MUDSTONE	SLTY. H. BLK. MAS. SLD MASSIVE MUDSTONE WITH SCATTERED SILT IN SILT RICH ZONES (COALIFIED PLANT FRAGMENTS)
76	77.05	77.80	0.75			MUDSTONE	SLTY. H. BLK. MAS. SLD AS ABOVE
78	77.80	79.87	2.07		PHANTOM	MUDSTONE	CARB. DK. BLK. MAS. SLD LITH AS ABOVE; BIVALVE FRAGMENTS APPROX 9TH FROM TOP OF BOX; COAL STRINGERS INCREASING IN ABUNDANCE; MUDSTONE BECOMING MORE CARBONACEOUS
79	79.87	79.99	0.12		PHANTOM	MUDSTONE	CARB. DK. BLK. MAS. SLD AS ABOVE
80	79.99	81.79	1.80		PHANTOM	MUDSTONE	CARB. DK. BLK. MAS. SLD ABUNDANT COALIFIED PLANT FOSSILS; COAL STRINGERS AND COAL BANDS 1-2CM WIDE SOME ZONES OF THESE ARE ABUNDANT OTHERS ARE WIDE SPACED (C-1 TO C-2 COAL)

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: 00H85026

BCA	DEPTH FROM	DEPTH TO	DEPTH INTERVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 82	81.79	82.22	0.43		PHANTOM	MUDSTONE	CARB. DK. BLK. MAS. SLD AS ABOVE
82	82.22	82.98	0.76		PHANTOM	SANDSTONE	CLYY. FG. PR. M. GY. THNB. SSD. BRKN FINE SANDS WITH OCCASIONAL MUD RICH ZONES; LARGE QTZ AND CARBONATE VEINS APPROX. PERPENDICULAR TO BEDDING
82	82.98	83.01	0.03		PHANTOM	MUDSTONE	CARB. DK. BLK. BRKN ABUNDANT COALIFIED PLANT FRAGMENTS; ALSO CALCIFIED VEINS RUNNING PARALLEL TO COAL STRINGERS
82	83.01	83.44	0.43		PHANTOM	MUDSTONE	CARB. DK. BLK. BRKN AS ABOVE
81	83.44	83.77	0.31			SILTSTONE	CLYY. H. BLK. LAM. SSD LAMINATED SILTS AND MUDS; SOME PLANT FRAGMENTS; UPRIGHT BEDDING; SILT CONTENT INCREASES TOWARDS BOTTOM OF UNIT
* 81	83.77	85.90	2.13			SILTSTONE	CLYY. H. BLK. LAM. SSD. BRKN AS ABOVE
* 89	85.90	85.96	0.06			SILTSTONE	CLYY. H. BLK. LAM. SSD AS ABOVE
89	85.96	87.73	1.77			SILTSTONE	CLYY. H. BLK. LAM. SSD AS ABOVE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85026

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	87.73	87.90	0.17			SANDSTONE	SSY, MG. WEL. LT. GY. MAS. SLD MASSIVE SANDSTONE WITH A FEW MUDDY (DAR KER) ZONES; VEINING APPROX PERPENDICULA R TO BEDDING-FILLED WITH QTZ AND CALCIT E OR SIDERITE
	87.90	89.08	1.18			SANDSTONE	SSY, MG. WEL. LT. GY. MAS. SLD AS ABOVE
	89.08	89.36	0.28			SANDSTONE	SSY, MG. WEL. LT. GY. MAS. SLD AS ABOVE
	89.36	90.01	0.15			SANDSTONE	SSY, MG. WEL. LT. GY. MAS. SLD AS ABOVE

* DENOTES MEASURED BCA
NEWPAGE

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85026

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	72	74.09	75.80	1.71		SANDSTONE	CLYY. MG. PR. DK. GY. THNB. SSD. SLD SAME AS ABOVE; "HELMINTHOPSIS" FOUND AT APPROX 76.6M
	74	75.80	75.99	0.19		SANDSTONE	CLYY. DK. GY. THNB. SSD. SLD AS ABOVE
	75	75.99	77.05	1.06		MUDSTONE	SLTY. M. BLK. MAS. SLD MASSIVE MUDSTONE WITH SCATTERED SILT IN SILT RICH ZONES (CALCIFIED PLANT FRAGMENTS)
	76	77.05	77.80	0.75		MUDSTONE	SLTY. M. BLK. MAS. SLD AS ABOVE
	78	77.80	79.87	2.07	PHANTOM	MUDSTONE	CARB. DK. BLK. MAS. SLD LITH AS ABOVE; BIVALVE FRAGMENTS APPROX .91M FROM TOP OF BOX; COAL STRINGERS INCREASING IN ABUNDANCE; MUDSTONE BECOMING MORE CARBONACEOUS
	79	79.87	79.99	0.12	PHANTOM	MUDSTONE	CARB. DK. BLK. MAS. SLD AS ABOVE
	80	79.99	81.79	1.80	PHANTOM	MUDSTONE	CARB. DK. BLK. MAS. SLD ABUNDANT COALIFIED PLANT FOSSILS; COAL STRINGERS AND COAL BANDS 1-2CM WIDE SOME ZONES OF THESE ARE ABUNDANT OTHERS ARE WIDE SPACED (C-1 TO C-2 COAL)

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85026

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 82	81.79	82.22	0.43		PHANTOM	MUDSTONE	CARB. DK. BLK. MAS. SLD AS ABOVE
82	82.22	82.98	0.76		PHANTOM	SANDSTONE	CLYY. FG. PR. M. GY. THNB. SSD. BRKN FINE SANDS WITH OCCASIONAL MUD RICH ZONES; LARGE QTZ AND CARBONATE VEINS APPROX. PERPENDICULAR TO BEDDING
82	82.98	83.01	0.03		PHANTOM	MUDSTONE	CARB. DK. BLK. BRKN ABUNDANT COALIFIED PLANT FRAGMENTS; ALSO CALCIFIED VEINS RUNNING PARALLEL TO COAL STRINGERS
82	83.01	83.46	0.45		PHANTOM	MUDSTONE	CARB. DK. BLK. BRKN AS ABOVE
81	83.46	83.77	0.31			SILTSTONE	CLYY. M. BLK. LAM. SSD LAMINATED SILTS AND MUDS; SOME PLANT FRAGMENTS; UPRIGHT BEDDING; SILT CONTENT INCREASES TOWARDS BOTTOM OF UNIT
* 81	83.77	85.90	2.13			SILTSTONE	CLYY. M. BLK. LAM. SSD. BRKN AS ABOVE
* 89	85.90	85.96	0.06			SILTSTONE	CLYY. M. BLK. LAM. SSD AS ABOVE
89	85.96	87.73	1.77			SILTSTONE	CLYY. M. BLK. LAM. SSD AS ABOVE

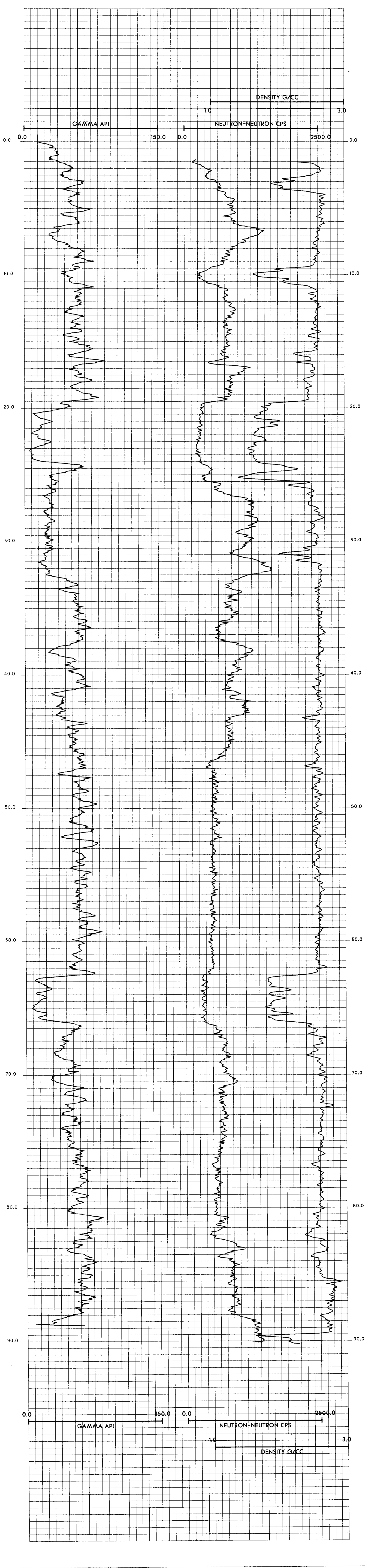
* DENOTES MEASURED BCA

Gulf Canada Resources Inc. Coal Division

Geophysical Log

Datasource: KPNLRDDH85026	Province: BC	Northing: 6343430.00	Lat: 571409
Log Date: 85-08-01	Zone: 9	Easting: 506857.00	Long: 1285311
Company: CENTURY	Measuring Point:		Elevation: 1642.0
Geologist: BUHAY			
Scale: 1 to 100.0	Comments:		
Depth Range: 0.0 to 95.0	1. LOGGED THROUGH THE RODS		
True Thickness: NO	2.		

Logs Plotted:	Axis Range	Axis Length	Smoothing Points	Tool	Comments
1. GAMMA API	0.0 to 150.0	10.0	31	9055A	IN PIPE
2. NEUTRON-NEUTRON CPS	0.0 to 2500.0	10.0	9	9055A	IN PIPE
3. DENSITY G/CC	1.0 to 3.0	10.0	15	9030A	IN PIPE



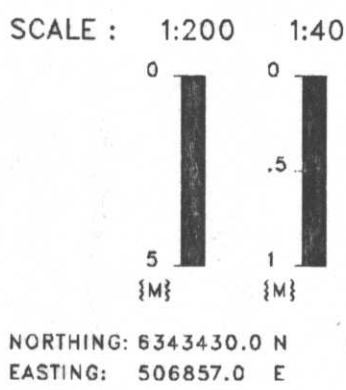
GULF CANADA RESOURCES INC.
 COAL DIVISION
 KLAPPAN PROJECT
 STRATIGRAPHIC LOG
 KPN LR DDH85026

GEOLOGIST : BUHAY

DATE : JAN 08/86

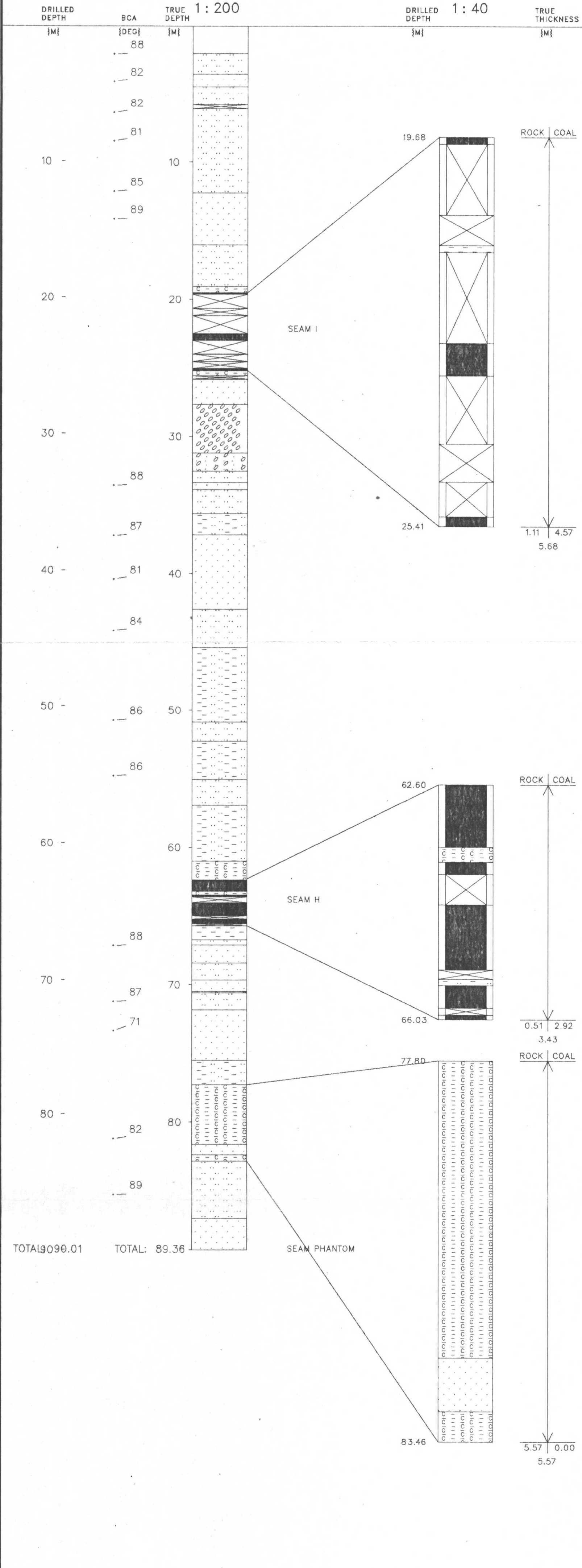
DRAWING NO. :

LITHOLOGIC SYMBOLS



	SANDSTONE		BENTONITE
	SILTSTONE		BRECCIA
	COAL		CARBONACEOUS
	OVERBURDEN		QUARTZ
	MUDSTONE, CLAYSTONE		PYRITE
	TUFF		FERRUGINOUS
	LIMESTONE		CONGLOMERATE
	CORE LOSS		FOSSIL BED

SEAM DETAIL



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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH05027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. TO ID	SEAM ID	LITHOLOGY	DESCRIPTION
	60	0.00	3.10	3.10		CASING	
	60	3.10	3.57	0.47		ROCK LOSS	
	60	3.57	4.66	1.09		MUDSTONE	CARB. DK. BLK. MAS. BRKN LARGE PLANT FOSSILS AND OCCASIONAL COAL STRINGERS
	60	4.66	4.91	0.25		MUDSTONE	SLTY. DK. BLK. MAS. SLD PLANT FRAGMENTS ARE RARE; SILTY MIX OF GRAINS WITH THE MUD
	60	4.91	5.60	0.69		MUDSTONE	SLTY. DK. BLK. MAS. SLD AS ABOVE
*	60	5.60	6.39	0.79		MUDSTONE	SLTY. DK. BLK. MAS. SLD AS ABOVE
	59	6.39	7.54	1.15		SANDSTONE	CLYY. FG. PR. M. GY. THNB. SSD. BRKN SLUMPED AND DEFORMED THIN BEDS OF SAND WITH MUD LAMELLAE; ONE LARGE SLUMP APPR QX, 5M FROM TOP OF UNIT; UPRIGHT BEDDING
*	58	7.54	8.04	0.50		SANDSTONE	CLYY. FG. PR. M. GY. THNB. SSD. BRKN AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 2

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH05027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. TO ID	SEAM ID	LITHOLOGY	DESCRIPTION
	58	8.04	9.34	1.30		SANDSTONE	CLYY. FG. PR. M. GY. THNB. SSD. BRKN AS ABOVE
	59	9.34	9.42	0.08		SANDSTONE	MG. MEL. LT. GY. MAS. BRKN MASSIVE MG SANDSTONE; FIRST 72M OF UNIT HAVE MUD RIP UP CLASTS; QTZ-CARB VEINING APPROX PERPENDICULAR TO BEDDING (LOWER IN UNIT)
	59	9.42	11.11	1.69		SANDSTONE	MG. MEL. LT. GY. MAS. BRKN AS ABOVE
	60	11.11	12.35	0.24		SANDSTONE	MG. MEL. LT. GY. MAS. BRKN AS ABOVE
*	60	11.35	12.24	0.89		SANDSTONE	MG. MEL. LT. GY. MAS. BRKN AS ABOVE
	67	12.24	13.36	1.12		SANDSTONE	CLYY. FG. PR. M. GY. THNB. BIOTR. SLD THIN BEDS OF SAND AND MUD LAMELLAE - MOST LAYERS ARE BIOTURBATED (VERT AND HORIZ WORM BURROWS); A LOT OF SSD; ZONES OF SAND RICH BEDS AND ZONES OF MUD RICH LAMELLAE; SOME SMALL PLANT FOSSILS IN MUD RICH ZONES; UPRIGHT BEDS
*	73	13.36	14.03	0.67		SANDSTONE	CLYY. FG. PR. M. GY. THNB. BIOTR. SLD AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	72	14.03	14.31	0.28		ROCK LOSS	
	72	14.31	15.73	1.42		SANDSTONE	CLYY.FG.PR.H.GY.THNB.BIOTR.SLD AS ABOVE
*	70	15.73	17.28	1.55		SANDSTONE	CLYY.FG.PR.H.GY.THNB.BIOTR.SLD AS ABOVE
	71	17.28	17.36	0.08		SANDSTONE	CLYY.MG.PR.LT.GY.THNB.SLD MASSIVE MG SANDSTONE; OCCASIONAL ZONES OF THIN INTERLAMINATED MUD; LOTS OF DEWATERING CHUTES THROUGH SANDSTONE; SOME LENSES OF MUD-VERY BIOTURBATED
	71	17.36	17.76	0.40		SANDSTONE	CLYY.MG.PR.LT.GY.THNB.SLD AS ABOVE
*	73	17.76	19.81	2.05		SANDSTONE	CLYY.MG.PR.LT.GY.THNB.SLD LITH AS ABOVE; BURROW LAYER (MUD RICH) 2M FROM TOP OF BOX
*	68	19.81	20.42	0.61		SANDSTONE	CLYY.MG.PR.LT.GY.THNB.SLD AS ABOVE
	66	20.42	21.84	1.42		SANDSTONE	CLYY.MG.PR.LT.GY.THNB.SLD AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	62	21.84	23.36	1.52		SANDSTONE	CLYY.MG.PR.LT.GY.THNB.SLD LITH AS ABOVE EXCEPT MUD CONTENT INCREASES SLIGHTLY AND BURROWING INCREASES
	65	23.36	23.92	0.56		SANDSTONE	CLYY.MG.PR.LT.GY.THNB.SLD AS ABOVE
*	68	23.92	25.35	1.43		SANDSTONE	CLYY.MG.PR.LT.GY.THNB.SSD.SLD THINLY BEDDED SANDS AND LAMINATED MUDS; UPRIGHT BEDDING
*	70	25.35	25.65	0.30		SANDSTONE	CLYY.MG.PR.LT.GY.THNB.SSD.SLD AS ABOVE
	71	25.65	27.30	1.65		SANDSTONE	CLYY.MG.PR.LT.GY.THNB.SSD.SLD AS ABOVE
	72	27.30	27.67	0.37		SANDSTONE	CLYY.MG.PR.LT.GY.THNB.SSD.SLD AS ABOVE
	73	27.67	28.98	1.31		SANDSTONE	CLYY.FG.PR.LT.BLK.THNB.SSD.BRKN MUD CONTENT HAS INCREASED (SAND:MUD=1:1); SOME SMALL BIOTURBATED LENSES; UPRIGHT BEDDING
	74	28.98	29.57	0.59		SANDSTONE	CLYY.FG.PR.LT.BLK.THNB.SSD.BRKN AS ABOVE

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	74	29.57	29.62	0.05		SANDSTONE	CLYY.HG.PR.H.GY.THNB.SSD.BRKN THIN BEDS OF SAND WITH INTERLAMINATED MUDS; SOME BIOTURBATION
*	75	29.62	30.93	1.31		SANDSTONE	CLYY.HG.PR.H.GY.THNB.SSD.BRKN AS ABOVE
	71	30.93	31.74	0.81		MUDSTONE	SSY.DK.BLK.THNB.SLD THICK MUD LENSES WITH SANDY BEDS; OCCASIONALLY SOME SSD; MUD LENSES ARE SILTY; 'HELMINTHOPSIS' ALSO FOUND APPROX .75M FROM TOP OF UNIT; UPRIGHT BEDS
*	69	31.74	32.05	0.31		MUDSTONE	SSY.DK.BLK.THNB.SLD AS ABOVE
	68	32.05	33.90	1.85		MUDSTONE	SSY.DK.BLK.THNB.SLD AS ABOVE
*	66	33.90	35.13	1.23		MUDSTONE	SSY.DK.BLK.THNB.SLD AS ABOVE
	68	35.13	35.87	0.74		MUDSTONE	SSY.DK.BLK.THNB.SLD AS ABOVE
*	70	35.87	38.01	2.14		MUDSTONE	SLTY.DK.BLK.SLD LITH AS ABOVE; LESS SANDY AND MORE SILTY; ABUNDANT 'HELMINTHOPSIS' FOUND AT .2, .58 AND 1.58M FROM TOP OF BOX 17

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	74	38.01	38.13	0.12		MUDSTONE	SLTY.DK.BLK.SLD AS ABOVE
	74	38.13	39.87	1.74		MUDSTONE	SLTY.DK.BLK.SLD LITH AS ABOVE; 'HELMINTHOPSIS' FOUND 1.2M BELOW DRILL MARKER 38.4
	74	39.87	39.97	0.10		MUDSTONE	DK.BLK.MAS.SLD BASICALLY AS ABOVE BUT SILT CONTENT HAS DECREASED CONSIDERABLY; PYRITE BLEBS FOUND THROUGHOUT
	74	39.97	41.05	1.08		MUDSTONE	DK.BLK.MAS.SLD AS ABOVE
	74	41.05	42.01	0.96		MUDSTONE	DK.BLK.MAS.SLD AS ABOVE
*	74	42.01	43.03	1.02		MUDSTONE	DK.BLK.MAS.SLD AS ABOVE
	73	43.03	44.06	1.03	06621	SANDSTONE	CLYY.HG.PR.DK.GY.MAS.SLD MG MASSIVE SANDSTONE WITH COALIFIED PLANT FRAGMENTS AND COAL STRINGERS; THREE LAYERS OF COAL .02, .01 AND .05M THICK WITHIN A .15M SPACING OF SANDSTONE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. TO	SEAM ID	LITHOLOGY	DESCRIPTION
73	44.06	44.20	0.14	06622	0	COAL	C-2. VBRKN CHUNK OF MUD WITHIN BUT PROBABLY DRILL MUD
73	44.20	44.22	0.02	06622	0	COAL	C-4. SLD
73	44.22	44.25	0.03	06622	0	ROCK LOSS	
73	44.25	44.45	0.20	06622	0	MUDSTONE	CLYY. M. GY. MAS. SLD
72	44.45	44.62	0.17	06622	0	COAL	C-2. SLD
72	44.62	44.67	0.05	06622	0	COAL	C-1. SLD
72	44.67	44.71	0.04	06622	0	MUDSTONE	CLYY. M. GY. MAS. SLD

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. TO	SEAM ID	LITHOLOGY	DESCRIPTION
72	44.71	44.75	0.04	06623	0	COAL	C-1. BRKN MINOR MUDSTONE LAMINAE AND THIN BANDS Y THROUGHOUT
72	44.75	44.86	0.11	06623	0	ROCK LOSS	
72	44.86	45.46	0.60	06623	0	COAL	C-1. BRKN MINOR MUDST. LAMINAE AND THIN BANDS THR OUGHOUT
72	45.46	45.64	0.18	06623	0	COAL	C-2. BRKN
72	45.64	46.00	0.36	06624		MUDSTONE	CARB. DK. GY. MAS. SLD ABUNDANT PLANT FRAGMENTS THROUGHOUT Y COALIFIED; UPPER 20CM SAMPLED
71	46.00	46.05	0.05			ROCK LOSS	
* 71	46.05	47.03	0.98			MUDSTONE	CARB. DK. BLK. LAM. SLD SOME SILTY INTERBEDS; LOTS OF PLANT FOS SILS; COAL STRINGERS (CALCITE STRINGERS)

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
71	47.03	47.09	0.06			SANDSTONE	CLYY.FG.PR.DK.GY.THNU.BIOTR.BRKN THIN SAND BEDS WITH INTERLAMINATED MUDS; LOTS OF BURROWING; UPRIGHT BEDS; MING & PLANT WASH ALONG MUD LAMELLAE
71	47.09	47.89	0.80			SANDSTONE	CLYY.FG.PR.DK.GY.THNB.BIOTR.BRKN AS ABOVE
* 70	47.89	49.91	2.02			SANDSTONE	CLYY.FG.PR.DK.GY.THNB.BIOTR.BRKN AS ABOVE
73	49.91	50.07	0.16			ROCK LOSS	
* 73	50.07	50.17	0.10			SILTSTONE	CLYY.M.BLK.LAM.SSD.BRKN THIN LAMELLAE OF SILT AND MUD; LAMELLAE BROKEN UP IN MOST PLACES. BE SSD
73	50.17	50.75	0.58			SILTSTONE	CLYY.M.BLK.LAM.SSD.BRKN AS ABOVE
72	50.75	50.81	0.06			BENTONITE	WH 'CREST ZONE'
72	50.81	52.01	1.20			SILTSTONE	CLYY.DK.BLK.MAS.SLD MIXTURE OF SILT AND MUD; MASSIVE-NOT LAYERED; SOME PLANT FOSSILS ALONG MUD PARTINGS

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
70	52.01	53.26	1.25			SILTSTONE	CLYY.DK.BLK.MAS.SLD AS ABOVE; LARGE BIVALVES FOUND 1.02M FROM TOP OF BOX 25
69	53.26	54.09	0.83			SILTSTONE	CLYY.DK.BLK.MAS.SLD BIVALVE ZONE
68	54.09	55.57	1.48			SILTSTONE	CLYY.DK.BLK.MAS.SLD LARGE BIVALVES AGAIN
67	55.57	55.77	0.20			BENTONITE	WH OTZ VEIN THROUGH MIDDLE OF BENTONITE; 'CREST ZONE'
66	55.77	56.14	0.37			SILTSTONE	CLYY.DK.BLK.MAS.SLD MIXTURE OF MUD AND SILT (NOT LAYERED); SMALL BIVALVE FRAGMENT ZONE
66	56.14	56.44	0.30			SILTSTONE	CLYY.DK.BLK.MAS.SLD AS ABOVE
66	56.44	56.65	0.21			SILTSTONE	CLYY.DK.BLK.MAS.SLD AS ABOVE
65	56.65	57.35	0.70			MUDSTONE	SILTY DK.BLK.MAS.SLD MASSIVE MUDSTONE WITH SOME SILT GRAINS; SLIGHTLY CARB; PLANT FRAGMENTS PRESENT

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 64	57.35	58.09	0.74			SILTSTONE	CLYY, DK, BLK, LAM, SSD, BRKN UPPER UNIT-SILT AND MUD LAMELLAE NOT WELL DEFINED; BOTTOM OF UNIT-THIN LAYERS OF SILT AND MUD DEFORMED AND SOMEWHAT DISTURBED; UPRIGHT BEDDING
* 63	58.09	59.44	1.35			SILTSTONE	CLYY, DK, BLK, LAM, SSD, BRKN AS ABOVE
66	59.44	60.17	0.73			SILTSTONE	CLYY, DK, BLK, LAM, SSD, BRKN AS ABOVE
* 67	60.17	60.42	0.25			SILTSTONE	CLYY, DK, BLK, LAM, SSD, BRKN AS ABOVE
66	60.42	62.15	1.73			SANDSTONE	CLYY, MG, PR, M, GY, THNB, SSD, BRKN MASSIVE BEDS OF SAND WITH MUD LAMELLAE; SOME MUD CLASTS; ZONES OF MUD RICH AND MUD POOR SANDS
* 65	62.15	62.47	0.32			SANDSTONE	CLYY, MG, PR, M, GY, THNB, SSD, BRKN AS ABOVE
67	62.47	64.22	1.75			SANDSTONE	CLYY, MG, PR, M, GY, THNB, SSD, BRKN AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
71	64.22	65.54	1.32			SANDSTONE	CLYY, MG, MOD, H, GY, MAS, SSD, SLD SANDSTONE WITH MUD CLASTS (SOME LARGE-01-07M THICK) ALSO VERY SMALL PIECES OF MUD MIXED IN WITH SAND GIVING THE SANDSTONE ITS DARK COLOUR (RIP UPS)
74	65.54	66.26	0.72			SANDSTONE	CLYY, MG, MOD, H, GY, MAS, SSD, SLD AS ABOVE
* 77	66.26	68.42	2.16			SANDSTONE	CLYY, MG, MOD, H, GY, MAS, SSD, SLD AS ABOVE
75	68.42	68.61	0.19			SANDSTONE	CLYY, MG, MOD, H, GY, MAS, SSD, SLD AS ABOVE
74	68.61	69.17	0.56			SANDSTONE	CLYY, MG, MOD, H, GY, MAS, SSD, SLD AS ABOVE
72	69.17	70.55	1.38			SANDSTONE	CLYY, MG, MOD, H, GY, THNB, SLD LITH AS ABOVE BUT MUD NOW IN LAMELLAE NOT IN CLASTS; SOME CARB MUD WITH THIN COAL STRINGERS ALSO QTZ VEINS APPROX PERPENDICULAR TO BEDDING
* 69	70.55	71.73	1.18			SANDSTONE	CLYY, MG, MOD, H, GY, THNB, SLD AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: ODH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	67	71.73	72.63	0.90		SANDSTONE	CLYY. MG. MOD. M. GY. THNB. SLD AS ABOVE
*	55	72.63	74.74	2.11		SANDSTONE	CLYY. MG. MOD. M. GY. LAM. SLD LITH AS ABOVE; MUD LAMELLAE GO BACK INT O RIP UP MUD CLASTS; CARB MUD STRINGERS STILL OCCUR
	64	74.74	75.26	0.52	06625	SANDSTONE	CLYY. M. GY. LAM. SLD MUDDY SANDSTONE WITH MUDSTONE LAMINAE THROUGHOUT; LOWER 20CM SAMPLED
	64	75.26	75.48	0.22	06626 N	COAL	C-1. SLD
	64	75.48	75.56	0.08	06626 N	COAL	C-3. BRKN
	64	75.56	75.68	0.12	06626 N	COAL	C-2. BRKN THIN MUDSTONE BANDS THROUGHOUT
	64	75.68	76.03	0.35	06626 N	COAL	C-1. BRKN AS ABOVE
	64	76.03	76.06	0.03	06626 N	MUDSTONE	CARB. DK. GY. MAS. SLD COAL STRINGERS WITHIN

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: ODH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	64	76.06	76.12	0.06	06626 N	COAL	C-2. SLD
	64	76.12	76.18	0.06	06626 N	COAL	C-1. SLD
	64	76.18	76.24	0.06	06626 N	MUDSTONE	CARB. M-DK. GY. MAS. SLD
	64	76.24	76.29	0.05	06626 N	COAL	C-1. SLD
	64	76.29	76.39	0.10	06626 N	COAL	C-4. SLD
	64	76.39	76.51	0.12	06626 N	MUDSTONE	CARB. DK. GY. MAS. BRKN
	63	76.51	76.54	0.03	06626 N	COAL	C-2. SLD
	63	76.54	76.57	0.03	06626 N	MUDSTONE	CARB. DK. GY. MAS. BRKN
	63	76.57	76.60	0.03	06627 N	COAL	C-1. SLD
	63	76.60	76.64	0.04	06627 N	COAL	C-3. SLD

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	63	76.64	76.77	0.13	06627 N	COAL	C-2, BRKN
	63	76.77	76.84	0.07	06627 N	COAL	C-1, BRKN
	63	76.84	76.95	0.11	06627 N	COAL	C-2, BRKN
	63	76.95	77.32	0.37	06627 N	COAL	C-1, BRKN
	63	77.32	77.54	0.22	06627 N	COAL LOSS	
	63	77.54	77.55	0.01	06627 N	MUDSTONE	CARB. M-DK. GY. MAS. SLD
	63	77.55	77.65	0.10	06627 N	COAL	C-1, VBRKN
	63	77.65	77.68	0.03	06627 N	COAL	C-1, VBRKN
	63	77.68	78.65	0.97	06628	MUDSTONE	CARB ABUNDANT PLANT FRAGMENTS AND COAL STRINGS THROUGHOUT; LISTRIC SURFACES; UPPER 20CM SAMPLED

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	62	78.65	80.60	1.95		MUDSTONE	CARB. DK. BLK. MAS. VBRKN MUDSTONE (SLIGHT SILT CONTENT); PLANT FOSSILS—MOST EVIDENCE SHEARED OFF BY FAULT SURFACES; MUDSTONE EXTREMELY FAULTED AND BROKEN UP; SOME CALCITE VEINS RANDOM ORIENTATION
	61	80.60	80.65	0.05		MUDSTONE	CARB. DK. BLK. MAS. VBRKN AS ABOVE
	61	80.65	80.72	0.07		ROCK LOSS	
	61	80.72	82.64	1.92		MUDSTONE	CARB. DK. BLK. MAS. BRKN AS ABOVE EXCEPT SILT CONTENT INCREASES (SILT LAMELLAE)
	* 60	82.64	83.18	0.54		MUDSTONE	CARB. DK. BLK. MAS. BRKN AS ABOVE
	60	83.18	83.73	0.55		SILTSTONE	CLY. LT. BLK. LAM. SSD. VBRKN THIN LAMELLAE OF SILT AND MUD; BIOTURBATED; UPRIGHT BEDDING; CORE EXTREMELY FRACTURED AND FAULTED; CALCITE VEINS RANDOMLY DISTRIBUTED
	59	83.73	83.85	0.12		ROCK LOSS	

* DENOTES MEASURED BCA

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BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
59	83.85	84.65	0.80			SILTSTONE	CLYY. LT. BLK. LAM. SSD. VBRKN
* 58	84.65	86.71	2.06			SILTSTONE	CLYY. LT. BLK. LAM. SSD. VBRKN AS ABOVE
* 79	86.71	86.86	0.15			SILTSTONE	CLYY. LT. BLK. LAM. SSD. VBRKN AS ABOVE
77	86.86	88.80	1.94			SILTSTONE	CLYY. LT. BLK. LAM. BIOTR. BRKN BIOTURBATED LAYERS OF SILT AND MUD; UPR IGHT BEDDING; FRACTURED AND FAULTED PER PENDICULAR TO BEDDING.
75	88.80	88.92	0.12			ROCK LOSS	
74	88.92	89.86	0.94			SILTSTONE	CLYY. LT. BLK. LAM. BIOTR. BRKN AS ABOVE
73	89.86	90.75	0.89			SILTSTONE	CLYY. LT. BLK. LAM. BIOTR. BRKN AS ABOVE
* 70	90.75	92.85	2.10			SILTSTONE	CLYY. LT. BLK. LAM. BIOTR. BRKN AS ABOVE

* DENOTES MEASURED BCA

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
67	92.85	92.97	0.12			MUDSTONE	SLTY. M. GY. MAS. BRKN
65	92.97	94.32	1.35	06629		MUDSTONE	SLTY. M. GY. MAS. BRKN LOCALIZED PATCHES OF SOFT CLAYEY MAYERI AL THROUGHOUT; MINOR LAMINAE AND LENSES OF COAL WITHIN; LOWER 20CM SAMPLED.
63	94.32	94.35	0.03	06630	M/N	COAL	C-3. VBRKN
63	94.35	94.39	0.04	06630	M/N	COAL	C-5. VBRKN
62	94.39	94.41	0.02	06630	M/N	MUDSTONE	CARB. DK. GY. MAS. SLD.
63	94.41	94.42	0.01	06630	M/N	COAL	C-1. SLD

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
63	94.42	94.78	0.36	06630	M/N	MUDSTONE	SLTY. M-DK. GY. MAS. SLD CONTORTED AND HIGHLY QTZ VEINED; COAL L ENSES THROUGHOUT
62	94.78	95.02	0.24	06630	M/N	COAL LOSS	
61	95.02	95.16	0.14	06630	M/N	COAL	C-3. BRKN
61	95.16	95.40	0.24	06630	M/N	COAL	C-2. YBRKN
60	95.40	95.48	0.08	06630	M/N	COAL	C-3. BRKN
60	95.48	95.59	0.11	06630	M/N	MUDSTONE	CARB. M-DK. GY. MAS. BRKN
60	95.59	95.63	0.04	06630	M/N	COAL	C-2. BRKN

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
60	95.63	95.78	0.15	06631		MUDSTONE	CARB. M-DK. GY. MAS. BRKN ABUNDANT COAL STRINGERS AND BANDS THRU GHOUT
59	95.78	96.16	0.38			MUDSTONE	SLTY. M. GY. LAM. BRKN SOFTER MUDDY AREAS LOCALLY THROUGHOUT
57	96.16	96.85	0.69			SILTSTONE	CLYY. LT-M. GY. LAM. BRKN GRADATIONAL FROM ABOVE; SILTSTONE AND M UDSTONE BANDS
* 54	96.85	98.71	1.86			SILTSTONE	CLYY. LT. BLK. LAM. YBRKN LAMINATED SILT AND MUDES; BIOTURBATED; F. RACTURED; UPRIGHT BEDS
* 62	98.71	99.12	0.41			SILTSTONE	CLYY. LT. BLK. LAM. YBRKN AS ABOVE
61	99.12	100.59	1.47			SILTSTONE	CLYY. LT. BLK. LAM. YBRKN AS ABOVE
* 60	100.59	102.00	1.41			SILTSTONE	CLYY. LT. BLK. LAM. SSD. BRKN LAMINATED SAND AND SILT; LESS BIOTURBAT ION MORE SSD; FRACTURING INCREASES MOVE MENT ON FRACTURE SURFACES DISPLACING BE DDING; UPRIGHT BEDDING
60	102.00	102.62	0.62			SILTSTONE	CLYY. LT. BLK. LAM. SSD. BRKN AS ABOVE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDM85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	60	102.62	104.53	1.91		SILTSTONE	CLYY M. BLK. LAM. SSD. BRKN LITH AS ABOVE; PROPORTION OF MUD INCREASES AND SILT DECREASES; FRACTURES PERPENDICULAR TO BEDDING
*	60	104.53	104.85	0.32		SILTSTONE	CLYY LT. BLK. LAM. XBDG. BRKN SOME X-BEDDING SEEN WITH RESPECT TO LAMINATED SILTS AND MUDES; UPRIGHT BEDDING; FRACTURES (FAULTS) PERPENDICULAR TO BEDDING
	60	104.85	106.41	1.56		SILTSTONE	CLYY LT. BLK. LAM. XBDG. BRKN AS ABOVE
*	60	106.41	106.92	0.51		SILTSTONE	CLYY LT. BLK. LAM. XBDG. BRKN AS ABOVE
	61	106.92	108.25	1.33		SILTSTONE	CLYY DK. GY. LAM. BRKN SILT WITH MUD RIP UP CLASTS AS WELL AS MUD LAMELLAE
	62	108.25	108.92	0.67		SILTSTONE	CLYY DK. GY. LAM. BRKN AS ABOVE
	63	108.92	109.24	0.32	06632	MUDSTONE	CARB. M-DK. GY. HAS. SLD SURFACES LISTRIC; LOWER 20CM SAMPLED
	63	109.24	109.61	0.37	06633 M. UPPER	COAL	C-2 PHRD MUDDY BANDS WITHIN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDM85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	63	109.61	109.63	0.02	06633 M. UPPER	MUDSTONE	CARB. M-DK. GY. HAS. SLD
	63	109.63	109.71	0.08	06633 M. UPPER	COAL	C-2. BRKN
	63	109.71	109.78	0.07	06633 M. UPPER	COAL	C-1. SLD
	63	109.78	109.92	0.14	06633 M. UPPER	COAL	C-2. BRKN
	64	109.92	110.40	0.48	06633 M. UPPER	COAL	C-3. BRKN ABUNDANT THIN MUDDY BANDS THROUGHOUT
	64	110.40	110.46	0.06	06633 M. UPPER	COAL	C-1. BRKN
	64	110.46	110.51	0.05	06633 M. UPPER	COAL	C-3. BRKN
	64	110.51	110.53	0.02	06633 M. UPPER	COAL	C-6. BRKN
	64	110.53	110.61	0.08	06633 M. UPPER	COAL	C-2. BRKN
	64	110.61	110.72	0.11	06633 M. UPPER	COAL	C-1. BRKN

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
64	110.72	110.80	0.08	06633	M UPPER	COAL	C-2.BRKN
64	110.80	110.82	0.02	06633	M UPPER	COAL	C-1.SLD
64	110.82	110.84	0.02	06633	M UPPER	MUDSTONE	CLYY.M-DK.GY.MAS.SLD
64	110.84	111.08	0.24	06633	M UPPER	COAL	C-2.BRKN THIN MUDDY BANDS THROUGHOUT
65	111.08	111.30	0.22	06633	M UPPER	COAL	C-2.BRKN
65	111.30	111.38	0.08	06634	M UPPER	MUDSTONE	CARB.M-DK.GY.MAS.BRKN LISTRIC
65	111.38	111.47	0.09	06634	M UPPER	COAL	C-2.BRKN THIN MUDDY BANDS THROUGHOUT
65	111.47	111.65	0.18	06634	M UPPER	MUDSTONE	CARB.M-DK.GY.MAS.SLD MINOR COAL STRINGERS WITHIN; LISTRIC SURFACES
65	111.65	111.76	0.11	06634	M UPPER	COAL	C-3.VBRKN

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
65	111.76	111.78	0.02	06634	M UPPER	COAL	C-6.VBRKN
66	111.78	112.16	0.38	06634	M UPPER	COAL LOSS	
66	112.16	112.47	0.31	06634	M UPPER	MUDSTONE	CARB.M-DK.GY.MAS.BRKN ABUNDANT COALY FRAGMENTS
66	112.47	112.73	0.26	06634	M UPPER	SILTSTONE	M.GY.LAW.BRKN SANDY AND MUDDY BANDS THROUGHOUT
66	112.73	112.92	0.19	06634	M UPPER	MUDSTONE	CARB.M-DK.GY.MAS.SLD LISTRIC SURFACES
67	112.92	114.27	1.35	06634	M UPPER	SANDSTONE	CLYY.M.GY.LAW.BRKN
68	114.27	114.53	0.26	06634	M UPPER	SANDSTONE	CLYY.M.GY.LAW.BRKN AS ABOVE
68	114.53	114.88	0.35	06634	M UPPER	MUDSTONE	CARB.M-DK.GY.MAS.BRKN VERY CARBONACEOUS AND LISTRIC
69	114.88	115.06	0.18	06635	M LOWER	COAL	C-3.VBRKN C-3 TO C-6 MIX (TOO CRUMBLED TO IDENTIFY)

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	69 115.06	115.08	0.02	06635	M LOWER	MUDSTONE	M-DK. GY. MAS. SLD
	69 115.08	115.33	0.25	06635	M LOWER	COAL	C-3. YBRKN
	69 115.33	115.66	0.33	06635	M LOWER	COAL LOSS	
	69 115.66	115.69	0.03	06635	M LOWER	MUDSTONE	M-DK. GY. MAS. SLD
	70 115.69	115.95	0.26	06635	M LOWER	COAL	C-2. YBRKN VERY LISTRIC
	70 115.95	116.16	0.21	06635	M LOWER	COAL	C-6. YBRKN VERY MUDDY; GARBAGE COAL
	70 116.16	117.05	0.89	06636		MUDSTONE	CARB. M-DK. GY. MAS. BRKN CARBONACEOUS NEAR TOP; BECOMES SILTIER & ND LAMINATED NEAR BASE; UPPER 20CM SAMP LED

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	71 117.05	117.58	0.53			MUDSTONE	CARB. DK. BLK. MAS. YBRKN MASSIVE MUDSTONE WITH SILTY GRAINS THRO UGHOUT; PLANT FOSSILS; SLIPPAGE SURFACE S NEAR BEDDING PLANES; SOME CALCITE AND COAL STRINGERS ALONG FRACTURES
	72 117.58	119.03	1.45			MUDSTONE	CARB. DK. BLK. MAS. YBRKN AS ABOVE
	73 119.03	120.23	1.20			MUDSTONE	CARB. DK. BLK. MAS. YBRKN AS ABOVE
	74 120.23	120.57	0.34			SANDSTONE	CLYY. HG. PR. DK. GY. THNB. SSD. BRKN THIN BEDS OF MEDIUM SAND PARTED BY MUD LAMELLAE; MUD CONTENT INCREASES TOWARDS TOP AND BOTTOM OF UNIT; SOME LARGE CAL CITE VEINS ALONG BEDDING
	75 120.57	120.90	0.33			SANDSTONE	CLYY. PR. DK. GY. THNB. BRKN AS ABOVE
	75 120.90	121.03	0.13			ROCK LOSS	
	* 76 121.03	123.11	2.08			SANDSTONE	CLYY. DK. GY. THNB. BRKN AS ABOVE
	* 56 123.11	123.27	0.16			SANDSTONE	CLYY. DK. GY. THNB. BRKN AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	57	123.27	123.57	0.30		MUDSTONE	SLTY. DK. BLK. MAS. BRKN MASSIVE MUDSTONE-SILTY GRAINS WITHIN MU D; FEW PLANT FOSSILS; FRACTURES PERPEND ICULAR TO BEDDING
	59	123.57	124.27	0.70		ROCK LOSS	
	63	124.27	125.70	1.43		MUDSTONE	SLTY. DK. BLK. MAS. BRKN AS ABOVE
*	68	125.70	126.51	0.81		MUDSTONE	SLTY. DK. BLK. MAS. BRKN LITH AS ABOVE EXCEPT MUDSTONE STARTS TO GET SLIGHTLY CARBONACEOUS (SOME COAL S TRINGERS)
	68	126.51	126.92	0.41		MUDSTONE	SLTY. DK. BLK. MAS. BRKN AS ABOVE
	69	126.92	127.56	0.64	06637	MUDSTONE	CARB. DK. GY. MAS. BRKN LITRIFIC SURFACES; LOWER. ZOOM. SAMPLED
	69	127.56	127.57	0.01	06638 L	COAL	C-2. BRKN
	69	127.57	127.62	0.05	06638 L	COAL	C-3. BRKN QTZ. VEINING AND MUDDY BANDS WITHIN

* DENOTES MEASURED. BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	69	127.62	127.94	0.32	06638 L	COAL	C-2. BRKN
	69	127.94	127.97	0.03	06638 L	MUDSTONE	CARB. DK. GY. MAS. SLD
	69	127.97	128.45	0.48	06638 L	COAL	C-2. BRKN
	69	128.45	128.54	0.09	06638 L	ROCK LOSS	
	69	128.54	128.56	0.02	06638 L	COAL	C-6. SLD
	69	128.56	128.66	0.10	06638 L	COAL	C-3. BRKN
	69	128.66	128.72	0.06	06638 L	MUDSTONE	CARB. DK. GY. MAS. SLD
	69	128.72	128.84	0.12	06638 L	COAL	C-2. SLD
	69	128.84	128.93	0.09	06638 L	COAL	C-2. BRKN
	70	128.93	128.95	0.02	06638 L	MUDSTONE	CARB. DK. GY. MAS. SLD

* DENOTES MEASURED. BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	70	128.95	129.11	0.16	06638 L	COAL	C-2, BRKN
	70	129.11	129.12	0.01	06638 L	MUDSTONE	CARB. M-DK. GY. MAS. SLD
	70	129.12	129.29	0.17	06638 L	COAL	C-2, BRKN
	70	129.29	129.36	0.07	06639	ROCK LOSS	
	70	129.36	129.72	0.36	06639	MUDSTONE	CARB. M. GY. MAS VERY LISTRIC; 2CM QTZ VEIN WITHIN; SILTY TOWARDS BASE; UPPER 20CM SAMPLED
	70	129.72	130.73	1.01		MUDSTONE	SLTY. M. GY. LAM. BRKN THINLY LAMINATED SILTSTONE AND MUDSTONE
*	71	130.73	132.66	1.93		MUDSTONE	SLTY. M. BLK. MAS. BRKN MASSIVE MUD FOR THE MOST PART WITH SOME SILTY LAMELLAE; SOME CALCITE VEINS ALSO NG. BEDDING
	71	132.66	132.76	0.10		MUDSTONE	CARB. DK. BLK. LAM. SSD. BRKN INTERLAMINATED SILTY AND CARBONACEOUS MUD; VERY THIN COAL STRINGERS AS WELL AS CALCITE STRINGERS; SSD OF THESE LAYERS

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	71	132.76	133.38	0.62		MUDSTONE	CARB. DK. BLK. LAM. SSD. BRKN AS ABOVE
	72	133.38	134.87	1.49		SILTSTONE	CLYY. M. BLK. LAM. BRKN THIN LAMELLAE OF SILT AND MUD; OCCASIONALLY THICK LENSES OF SILT OCCUR (APPROX EVERY 1M ON AVERAGE); SOME COAL STRINGERS STILL PERSIST AT TOP OF UNIT
*	72	134.87	135.75	0.88		SILTSTONE	CLYY. M. BLK. LAM. BRKN AS ABOVE
	76	135.75	136.95	1.20		SILTSTONE	CLYY. M. BLK. LAM. BRKN AS ABOVE
*	82	136.95	138.85	1.90		SILTSTONE	CLYY. M. BLK. LAM. XBDG. BRKN SILT LAYERS BECOME SLIGHTLY COARSER AND X-BEDDING OCCURS BETWEEN THE SILT AND MUD; MORE OF A SILTY SAND THAN A SILT; MOVEMENT ON FRACTURES APPROX 67 DEGREES TO BEDDING; SOME SSD
	79	138.85	139.01	0.16		SILTSTONE	CLYY. M. BLK. LAM. XBDG. BRKN AS ABOVE
*	75	139.01	141.11	2.10		SILTSTONE	CLYY. M. BLK. LAM. XBDG. BRKN AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	63	141.11	141.86	0.75		SILTSTONE	CLYY. M. BLK. LAM. XBDG. BRKN AS ABOVE
	60	141.86	142.57	0.71		SILTSTONE	CLYY. M. BLK. LAM. XBDG. BRKN AS ABOVE
	57	142.57	143.01	0.44		SILTSTONE	CLYY. LT. BLK. LAM. SSD. BRKN SILT CONTENT HAS INCREASED AND MUD CONTENT HAS DECREASED IN COMPARISON TO THE SILTSTONE ABOVE; SOME SLUMPING OF LAYER HAS OCCURED-LOOKS LIKE FOLDING IN SOME PLACES
	56	143.01	143.21	0.20		SILTSTONE	CLYY. DK. BLK. LAM. SLD VERY THINLY LAMINATED SILTS AND MUD
*	55	143.21	143.33	0.12		SILTSTONE	CLYY. DK. BLK. LAM. SLD AS ABOVE
	51	143.33	144.85	1.52		SILTSTONE	CLYY. LY. BLK. LAM. SSD. BRKN SILT LAYERS GET THICKER; SOME BIOTURBATION; UPRIGHT BEDS; FRACTURES APPROX 70 DEGREES TO BEDDING-FILLED WITH QTZ AND CALCITE-SOME DISPLACEMENT ALONG THESE FRACTURES
	46	144.85	145.20	0.35		SILTSTONE	CLYY. LT. BLK. LAM. SSD. BRKN AS ABOVE

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	40	145.20	147.01	1.81		SILTSTONE	CLYY. DK. GY. LAM. SSD. VBRKN SILT INCREASED IN ABUNDANCE; LARGER GRAINS (MAY BE FINE SAND); CORE EXTREMELY BROKEN UP; FRACTURED-NO ORIENTATION OF FRACTURES-IN MOST PLACES THERE HAS BEEN DISPLACEMENT ALONG THESE FRACTURES
	44	147.01	147.21	0.20		MUDSTONE	CARB. DK. GY. HAS. BRKN LISTRIC SURFACES
	45	147.21	147.23	0.02		COAL	C-1. SLD
	46	147.23	147.78	0.55	06640	MUDSTONE	CARB LOWER 20CM SAMPLED
	48	147.78	148.10	0.32	06641 K/L	COAL	C-2 MUDDY BANDS WITHIN
	49	148.10	148.15	0.05	06641 K/L	MUDSTONE	CARB. M-DK. GY. HAS. SLD
	49	148.15	148.25	0.10	06641 K/L	COAL	C-3. BRKN
	49	148.25	148.32	0.07	06641 K/L	MUDSTONE	CARB. M-DK. GY. HAS LISTRIC

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	148.32	148.85	0.53	06642	K/L	COAL	C-2.BRKN
	148.85	148.87	0.02	06642	K/L	COAL	C-6.SLD
	148.87	149.02	0.15	06642	K/L	ROCK LOSS	
	149.02	149.24	0.22	06642	K/L	COAL	C-3.BRKN THIN BANDS OF ALTERNATING VITRINITE AND C-5 (COALY MUDSTONE BANDS)
	149.24	149.49	0.25	06642	K/L	COAL	C-2.BRKN LOWER GRADE COAL AND MUDDY BANDS THROUGH HOUT
	149.49	149.50	0.01	06642	K/L	COAL	C-4.BRKN
	149.50	149.51	0.01	06642	K/L	COAL	C-1.BRKN
	149.51	149.52	0.01	06642	K/L	COAL	C-4.BRKN

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	149.52	149.53	0.01	06642	K/L	COAL	C-1.BRKN
	149.53	149.57	0.04	06642	K/L	COAL	C-4.BRKN
	149.57	149.60	0.03	06642	K/L	MUDSTONE	CARB. DK. GY. MAS. BRKN COALY STRINGERS THROUGHOUT
	149.60	149.77	0.17	06642	K/L	COAL	C-2.BRKN
	149.77	149.88	0.11	06642	K/L	COAL	C-4.BRKN
	149.88	150.03	0.15	06642	K/L	COAL	C-2.BRKN
	150.03	150.06	0.03	06642	K/L	MUDSTONE	CARB. BRKN
	150.06	150.28	0.22	06642	K/L	COAL LOSS	
	150.28	150.60	0.32	06642	K/L	COAL	C-1.BRKN
	150.60	150.65	0.05	06642	K/L	COAL	C-3.BRKN

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	150.65	150.67	0.02	06642	K/L	SILTSTONE	M. GY. MAS. SLD
	150.67	150.81	0.14	06642	K/L	COAL	C-1. SLD MINOR MUDSTONE BANDS WITHIN
	150.81	150.84	0.03	06643	K/L	MUDSTONE	CARB. DK. GY. MAS. BRKN
	150.84	150.87	0.03	06643	K/L	COAL	C-3. BRKN
	150.87	150.94	0.07	06643	K/L	MUDSTONE	CARB. DK. GY. MAS. BRKN VERY LISTRIC
	150.94	151.06	0.12	06643	K/L	MUDSTONE	CARB. DK. GY. MAS. BRKN AS ABOVE
	151.06	151.23	0.17	06643	K/L	COAL	C-5. BRKN ODD MUDDY AND VITRINITE BANDS THROUGHOUT
	151.23	151.55	0.32	06643	K/L	MUDSTONE	CARB. DK. GY. MAS. BRKN COALY STRINGERS THROUGHOUT
	151.55	151.69	0.14	06643	K/L	COAL	C-6. BRKN

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	151.69	151.73	0.04	06644		MUDSTONE	CARB. DK. GY. MAS. BRKN
	151.73	152.62	0.89	06644		SANDSTONE	CLY. LT-M. GY. LAM. BRKN MUDDY LAMINAE THROUGHOUT; SILTY TOWARDS BASE; UPPER 16CM SAMPLED
	152.62	152.83	0.21			MUDSTONE	CARB. DK. GY. MAS. BRKN INTENSELY FILLED WITH COAL STRINGERS; A PROACHING LOW GRADE COAL IN PLACES (LO CALLY)
	152.83	153.28	0.45			MUDSTONE	CARB. DK. GY. MAS. BRKN AS ABOVE
	153.28	153.30	0.02			COAL	C-6. SLD MUDDY
	153.30	153.59	0.29			MUDSTONE	CARB. DK. GY. MAS. BRKN VERY LISTRIC
	153.59	153.63	0.04			COAL	C-2. SLD
	153.63	153.79	0.16			MUDSTONE	CARB. DK. GY. MAS. BRKN LISTRIC
	153.79	154.38	0.59			MUDSTONE	CARB. DK. GY. MAS. BRKN AS ABOVE

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. TO	SEAM ID	LITHOLOGY	DESCRIPTION
	154.38	154.55	0.17			CLAYSTONE	LT. GY. MAS. BRKN
	154.55	154.65	0.10			MUDSTONE	SILTY M. GY. LAM. BRKN INTERBEDDED SILTSTONE AND MUDSTONE
	154.65	154.73	0.08			ROCK LOSS	
	154.73	154.86	0.13			SILTSTONE	CLYY. DK. GY. LAM. SSD. YBRKN AS ABOVE
	154.86	154.95	0.09			ROCK LOSS	
	154.95	156.40	1.45			MUDSTONE	SILTY M. BLK. MAS. BRKN SILTY MASSIVE MUDSTONE; SILTY LAMELLAE S PART TO APPEAR AT THE BOTTOM OF THE UNI.
	156.40	156.89	0.49			SILTSTONE	CLYY. LT. BLK. LAM. SSD. BRKN MUDDY SILTSTONE WITH LAMELLAE OF SILTY A ND MUD THROUGHOUT; SOME ZONES ARE MUD R ICH WHILE OTHERS ARE SANDY; SILTY RICH LAYERS ARE BIOTURBATED
*	156.89	156.93	0.04			SILTSTONE	CLYY. LT. BLK. LAM. SSD. BRKN AS ABOVE
	156.93	158.70	1.77			SILTSTONE	CLYY. LT. BLK. LAM. SSD. BRKN AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. TO	SEAM ID	LITHOLOGY	DESCRIPTION
	158.90	159.00	0.10			ROCK LOSS	
*	159.00	160.11	1.11			SILTSTONE	CLYY. LT. BLK. LAM. SSD. BRKN AS ABOVE
	160.11	160.94	0.83			SILTSTONE	CLYY. LT. BLK. LAM. SSD. BRKN AS ABOVE
*	160.94	162.54	1.60			SILTSTONE	CLYY. LT. BLK. LAM. SSD. BRKN AS ABOVE
	162.54	162.59	0.05			ROCK LOSS	
	162.59	163.07	0.48			SANDSTONE	CLYY. FG. PR. DK. GY. THNB. BIOTR. BRKN BIOTURBATED LAYERS OF SAND AND SILTY M D; UPRIGHT BEDDING
	163.07	163.21	0.14			SANDSTONE	CLYY. H. GY. MAS. BRKN
	163.21	163.48	0.27			SILTSTONE	CLYY. M. GY. MAS. BRKN GRADATIONAL FROM ABOVE
	163.48	163.80	0.32	06645		MUDSTONE	M-DK. GY. MAS. BRKN GRADATIONAL FROM ABOVE; LARGE (3CM) STZ VEINS WITHIN; LOWER 20CM SAMPLED

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	76 163.80	163.91	0.11	06646 K		COAL	C-2.YBRKN
	76 163.91	163.95	0.04	06646 K		MUDSTONE	CARB.M-DK.GY.MAS.SLD
	76 163.95	164.04	0.09	06646 K		COAL	C-4.YBRKN VERY LISTRIC
	76 164.04	164.05	0.01	06646 K		MUDSTONE	CARB.M-DK.GY.MAS.SLD
	76 164.05	164.20	0.15	06646 K		COAL LOSS	
	77 164.20	164.31	0.11	06646 K		COAL	C-2.BRKN
	77 164.31	164.33	0.02	06646 K		MUDSTONE	CARB.DK.GY.MAS.BRKN
	77 164.33	164.37	0.04	06646 K		COAL	C-3.BRKN
	77 164.37	164.39	0.02	06646 K		COAL	C-5.BRKN
	77 164.39	164.47	0.08	06646 K		COAL	C-3.BRKN

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	77 164.47	164.56	0.09	06646 K		MUDSTONE	CARB.M-DK.GY.MAS.SLD LISTRIC
	78 164.56	164.76	0.20	06647 K		COAL	C-1.BRKN THIN MUDSTONE BANDS THROUGHOUT
	78 164.76	164.88	0.12	06647 K		COAL	C-2.BRKN
	78 164.88	164.91	0.03	06647 K		COAL	C-6.BRKN
*	80 164.91	166.13	1.22	06648		MUDSTONE	CARB.DK.BLK.BRKN COAL STRINGERS ABUNDANT THROUGH MUDSTON E: ONE COAL BED .02-.03M THICK (C-1 TO C-2 COAL); COAL STRINGERS BECOME LESS A BUNDANT LOWER IN THE UNIT
	80 166.13	166.30	0.17			MUDSTONE	CARB.DK.BLK.BRKN AS ABOVE
	80 166.30	166.80	0.50			SILTSTONE	CLYD.DK.GY.LAM.BRKN THIN LAMELLAE OF SILT AND MUD-IN SOME Z ONES LOOKS LIKE COASTER LITHOLOGY IN OT HERS THERE IS MORE SILT OR MUD NOT EQUA L THIN SPACINGS
*	80 166.80	167.87	1.07			SILTSTONE	CLYD.DK.GY.LAM.BRKN AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	167.87	168.40	0.53			SANDSTONE	CLYY, FG, MOD. LT. GY. MAS. YBRKN MASSIVE FG SANDSTONE WITH SOME THIN MUD LAMELLAE; QTZ VEINING APPROX PERPENDICULAR TO BEDDING
	168.40	168.53	0.13			SILTSTONE	CLYY, M. GY. LAM. BRKN THIN LAYERS OF SILT AND MUD-SOME AREAS MUD RICH AND SOME MUD POOR
*	168.53	169.06	0.53			SILTSTONE	CLYY, M. GY. LAM. BRKN AS ABOVE
	169.06	170.41	1.35			SILTSTONE	CLYY, M. GY. LAM. BRKN AS ABOVE
*	170.41	171.23	0.82			SILTSTONE	CLYY, M. GY. LAM. BRKN AS ABOVE
	171.23	172.13	0.90			SILTSTONE	CLYY, DK. GY. LAM. BRKN VERY THIN LAMELLAE OF SILT AND MUD-COASTERS ZONE (RHYTHMITES)
	172.13	172.79	0.66			SILTSTONE	CLYY, DK. GY. LAM. BRKN AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	172.79	173.99	1.20			SANDSTONE	CLYY, MG. MEL. M. GY. MAS. BRKN MASSIVE SANDSTONE-MUD MIXED IN AT TOP; MUD DECREASES LOWER IN THE UNIT; FRACTURES PERPENDICULAR TO BEDDING
*	173.99	174.53	0.54			SANDSTONE	CLYY, MG. MEL. M. GY. MAS. BRKN AS ABOVE
	174.53	176.02	1.49			SILTSTONE	CLYY, LT. BLK. LAM. SSD. SLD ALTERNATING LAMELLAE OF MUD AND SILT; REGIONS OF MUD AND SILT DOMINATION; SOME SILTY AREAS GET A BIT SANDY; LAMELLAE UNIFORM NOT MUCH SSD; OCCASIONAL QTZ VEININGS PERPENDICULAR TO BEDDING
*	176.02	178.27	2.25			SILTSTONE	CLYY, LT. BLK. LAM. SSD. SLD AS ABOVE
*	178.27	180.27	2.00			SILTSTONE	CLYY, LT. BLK. LAM. SSD. SLD AS ABOVE
*	180.27	181.22	0.95			SILTSTONE	CLYY, LT. BLK. LAM. SSD. SLD AS ABOVE
	181.22	182.40	1.18			SILTSTONE	CLYY, LT. BLK. LAM. SSD. SLD LITH AS ABOVE; THE SILTY MUD LAMINATIONS BECOME MORE RHYTHMIC-NOT COASTERS YET THOUGH

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	80	132.40	184.37	1.97		SILTSTONE	CLY. LT. BLK. LAM. SSD. SLD AS ABOVE
	81	184.37	184.52	0.15		SILTSTONE	CLY. LT. BLK. LAM. SSD. SLD AS ABOVE
*	81	184.52	184.60	0.08		SILTSTONE	CLY. LT. BLK. LAM. SSD. SLD AS ABOVE
	81	184.60	186.61	2.01		SILTSTONE	CLY. LT. BLK. LAM. BRKN COASTER (RHYTHMITE) LITHOLOGY; RHYTHMITES INDICATE UPRIGHT BEDDING
*	82	186.61	187.44	0.83		SILTSTONE	CLY. LT. BLK. LAM. BRKN AS ABOVE
	81	187.44	188.53	1.09		SILTSTONE	CLY. LT. BLK. LAM. BRKN AS ABOVE
*	80	188.53	189.67	1.14		SILTSTONE	CLY. LT. BLK. LAM. BRKN AS ABOVE
	68	189.67	190.46	0.79		MUDSTONE	CARB. DK. BLK. LAM. SSD. BRKN CARB. MUD INTERBEDDED WITH SOME SILT (IN SOME OF THE SILT LAYERS ARE CONCENTRATIONS OF PYRITE); CALCITE VEINS AND QTZ VEINS ALONG BEDDING; PLANT FOSSILS

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	63	190.46	190.48	0.02		MUDSTONE	CARB. M-DK. GY. MAS. SLD
	62	190.48	190.62	0.14		SILTSTONE	CLY. M. GY. MAS. BRKN PYRITE BAND WITHIN
	61	190.62	190.65	0.03		MUDSTONE	CARB. M-DK. GY. MAS. BRKN
	56	190.65	191.45	0.80		MUDSTONE	CLY. LI. GY. MAS. BRKN
	48	191.45	191.97	0.52	J	MUDSTONE	CARB. M-DK. GY. LAM. BRKN SILTY LAMINAE NEAR TOP; ABUNDANT COALY LENSES AND STRINGERS NEAR BASE
	45	191.97	191.98	0.01	J	COAL	C-1:SLD
	42	191.98	192.36	0.38		MUDSTONE	CARB. M-DK. GY. MAS. BRKN

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	192.38	192.45	0.09			MUDSTONE	CARB. M-DK. GY. MAS. SLD CONTORTED MASS OF C-1 MUDSTONE SILTSTON E AND OTZ
	192.45	193.03	0.58			MUDSTONE	CARB. M-DK. GY. MAS. BRKN ABUNDANT COAL STRINGERS THROUGHOUT (PLA NT. FRAGMENTS)
*	193.03	193.27	0.24			MUDSTONE	CARB. M. BLK. LAM. BRKN COALIFIED PLANT FRAGMENTS AND COAL STRI NGERS
	193.27	193.94	0.67			SILTSTONE	CLYY. DK. GY. LAM. SSD. BRKN ALTERNATING SILT AND MUOS; DEFORMED BY SSD; MAY BE SOME BURROWING; MICRO FAULT ING PERPENDICULAR TO BEDDING-DISPLACING BEDS
	193.94	194.90	0.96			SILTSTONE	CLYY. DK. GY. LAM. SSD. BRKN AS ABOVE
*	194.90	196.38	1.48			SILTSTONE	CLYY. DK. GY. LAM. SSD. BRKN AS ABOVE
	196.38	196.72	0.34			SILTSTONE	CLYY. DK. GY. LAM. BIOTR. BRKN VERY THINLY LAMINATED SILTS AND MUOS; L OTS OF BIOTURBATION; SOME SSD; UPRIGHT BEDDING.

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	196.72	196.83	0.11			SILTSTONE	CLYY. DK. GY. LAM. BIOTR. BRKN AS ABOVE
*	196.83	198.85	2.02			SILTSTONE	CLYY. DK. GY. LAM. BIOTR. BRKN AS ABOVE
*	198.85	199.52	0.67			SILTSTONE	CLYY. DK. GY. LAM. BIOTR. BRKN LITH AS ABOVE EXCEPT GET ALTERNATING LE NSES (.02-.07M) OF MUD AND SILTY SAND; IN SILTY LENSES GET X-BEDDING INDICATIN G UPRIGHT BEDDING; LENSES GET BIGGER LO MER IN UNIT
	199.52	200.56	1.04			SILTSTONE	CLYY. DK. GY. LAM. BIOTR. BRKN AS ABOVE
	200.56	201.96	1.40			SILTSTONE	CLYY. DK. GY. LAM. BIOTR. BRKN AS ABOVE
	201.96	202.48	0.52			SILTSTONE	CLYY. DK. GY. LAM. SSD. BRKN THINLY LAMINATED SILTS AND MUD; SOME CO AL STRINGERS IN UPPER UNIT; UPRIGHT BED S
*	202.48	202.64	0.16			SILTSTONE	CLYY. DK. GY. LAM. SSD. BRKN AS ABOVE
	202.64	203.60	0.96			SILTSTONE	CLYY. DK. GY. LAM. SSD. BRKN AS ABOVE

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	60	203.60	204.29	0.69		SANDSTONE	CLYY, MG, PR, DK, GY, THMB, SSD, SLD THIN SANDSTONE BEDS PARTED BY MUD LAMEL LAE; SOME BIOTURBATION; UPRIGHT BEDS
*	54	204.29	205.61	1.32		SILTSTONE	CLYY, LT, BLK, LAM, SLD SILT WITH THIN LAMELLAE OF MUD (EVEN MU D LAYERS ARE SILTY); QTZ VEINING PERPEN DICULAR TO BEDDING; SOME SSD
	57	205.61	206.29	0.68		SILTSTONE	CLYY, LT, BLK, LAM, SLD AS ABOVE
*	62	206.29	208.39	2.10		SILTSTONE	CLYY, LT, BLK, LAM, SLD AS ABOVE
*	54	208.39	208.70	0.31		SILTSTONE	CLYY, LT, BLK, LAM, SLD LITH AS ABOVE; MUD CONTENT INCREASES SL IGHTLY; SSD INDICATED BEDDING UPRIGHT
	61	208.70	210.41	1.71		SILTSTONE	CLYY, LT, BLK, LAM, SLD AS ABOVE
	72	210.41	211.54	1.13		SILTSTONE	CLYY, LT, GY, LAM, BRKN SILTSTONE WITH MUD LAMELLAE BUT BENTONI TE FLAKES GIVE THE SILTSTONE A LT GREY COLOUR
	78	211.54	212.14	0.60		SILTSTONE	CLYY, LT, GY, LAM, BRKN AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	80	212.14	212.27	0.13		BENTONITE	MH
*	81	212.27	212.29	0.02		BENTONITE	MH
	75	212.29	214.13	1.84		SILTSTONE	CLYY, LT, BLK, LAM, BRKN THIN LAMINATED SILT AND MUD; SOME SSD; FRACTURES PERPENDICULAR TO BEDDING
*	66	214.13	214.98	0.85		SILTSTONE	CLYY, LT, BLK, LAM, BRKN AS ABOVE
	66	214.98	215.57	0.59		SILTSTONE	CLYY, LT, BLK, LAM, BRKN AS ABOVE
	67	215.57	216.04	0.47		SILTSTONE	CLYY, M, BLK, LAM, BRKN LITH AS ABOVE; COAL STRINGERS AND COALI FIED PLANT FRAGMENTS BECOME ABUNDANT; E XTREMELY FRACTURED PERPENDICULAR TO BED DING
	67	216.04	216.16	0.12	08649	MUDSTONE	CARB, H-DK, GY, MAS, BRKN

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	216.16	216.38	0.22	06650	I	COAL	C-1.VBRKN
	216.38	216.40	0.02	06650	I	MUDSTONE	M.GY.MAS.BRKN
	216.40	216.41	0.01	06650	I	COAL	C-1.BRKN
	216.41	216.46	0.05	06650	I	MUDSTONE	M.GY.MAS.BRKN
	216.46	216.60	0.14	06650	I	COAL	C-1.BRKN

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	216.60	216.74	0.14	06650	I	COAL	C-2.BRKN
	216.74	216.92	0.18	06650	I	COAL LOSS	
	216.92	216.95	0.03	06650	I	COAL	C-6
	216.95	217.40	0.45	06650	I	COAL	C-1.BRKN THIN MUDDY BANDS THROUGHOUT
	217.40	217.42	0.02	06650	I	MUDSTONE	M-DK.GY.MAS.SLD
	217.42	217.68	0.26	06650	I	COAL	C-1.BRKN THIN MUDDY BANDS THROUGHOUT
	217.68	217.70	0.02	06650	I	COAL	C-5.SLD

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	217.70	217.80	0.10	06650	I	MUDSTONE	M-DK. GY. MAS. BRKN
	217.80	217.82	0.02	06650	I	COAL	C-6. SLD
	217.82	217.83	0.01	06650	I	COAL	C-2. SLD
	217.83	217.86	0.03	06650	I	COAL	C-6. BRKN
	217.86	217.94	0.08	06650	I	COAL	C-1. BRKN
	217.94	218.07	0.13	06650	I	MUDSTONE	CARB. SLD
	218.07	218.38	0.31	06671	I	COAL LOSS	
	218.38	218.51	0.13	06671	I	COAL	C-2. BRKN
	218.51	219.06	0.55	06671	I	COAL	C-1. BRKN
	219.06	219.08	0.02	06671	I	MUDSTONE	CARB. M-DK. GY. MAS. SLD

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	219.08	219.27	0.19	06671	I	COAL	C-1. BRKN
	219.27	219.30	0.03	06671	I	SILTSTONE	M. GY. MAS. SLD CLAST WITHIN COAL
	219.30	219.42	0.12	06671	I	COAL	C-1. BRKN
	219.42	219.43	0.01	06671	I	SILTSTONE	M. GY. MAS. SLD
	219.43	219.49	0.06	06671	I	COAL	C-1. SLD
	219.49	219.50	0.01	06671	I	MUDSTONE	CARB. DK. GY. MAS. SLD
	219.50	219.68	0.18	06672	I	COAL	C-1. BRKN
	219.68	221.18	1.50	06672	I	COAL	C-1. BRKN VARIABLY BROKEN THROUGHOUT BUT ALL C-1; VERY MINOR MUDDY STRINGERS THROUGHOUT; SOLID AT TOP

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	71	221.18	221.33	0.15	06672 I	COAL	C-1, BRKN
	71	221.33	221.55	0.22	06672 I	COAL	C-1, BRKN
	71	221.55	222.04	0.49	06673	MUDSTONE	CARB. M-DK. GY. MAS. BRKN ABUNDANT COALY STRINGERS AND LENSES; VE RY LISTRIC; UPPER 20CM SAMPLED
	71	222.04	222.05	0.01		COAL	C-1, SLD
	72	222.05	223.14	1.09		SILTSTONE	SSY. M. GY. MAS. BRKN MUDDY AT TOP BECOMES SANDY NEAR BASE; M INOR MUD STRINGERS WITHIN
	73	223.14	224.14	1.00		SANDSTONE	PBLY. MG. MOD. LY. GY. MAS. YBRKN MASSIVE MG SANDSTONE WITH OCCASIONAL CH ERT PEBBLES; PEBBLES INCREASE IN ABUNDA NCE LOWER IN SANDSTONE UNIT

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	73	224.14	225.07	0.93		SANDSTONE	PBLY. MG. MOD. LY. GY. MAS. YBRKN AS ABOVE
	74	225.07	225.57	0.50		SANDSTONE	PBLY. MG. MOD. LY. GY. MAS. YBRKN AS ABOVE
	74	225.57	225.83	0.26		CONGLOMERATE	SSY. PR. M. GY. BRKN PARACONGLOMERATE; SUB-ROUNDED CHERT AND QTZ PEBBLES; FRACTURES APPROX PERPENDI CULAR TO BEDDING; SOME QTZ VEINING IN F RACTURES
	75	225.83	227.18	1.35		CONGLOMERATE	SSY. PR. M. GY. BRKN AS ABOVE
	75	227.18	227.35	0.17		CONGLOMERATE	SSY. PR. M. GY. BRKN AS ABOVE
	75	227.35	227.70	0.35		ROCK LOSS	
	76	227.70	229.40	1.70		CONGLOMERATE	SSY. PR. M. GY. BRKN AS ABOVE
	77	229.40	230.10	0.70		CONGLOMERATE	SSY. PR. M. GY. BRKN AS ABOVE
	78	230.10	231.79	1.69		CONGLOMERATE	SSY. PR. M. GY. BRKN AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	79	231.79	232.84	1.05		SANDSTONE	PBLY. MG. WEL. LT. GY. MAS. BRKN PEBBLES (CHERT) AT TOP OF UNIT; PEBBLES DISAPPEAR LOWER IN UNIT; QTZ VEINING P ERPENDICULAR TO BEDDING
*	83	232.84	233.12	0.28		SANDSTONE	CLYY. FG. PR. DK. GY. MAS. BRKN FG MASSIVE SAND WITH MIXED IN MUD ALSO SOME LAYERS OF MUD; SOME QTZ VEINING PER PENDICULAR TO BEDDING
	83	233.12	234.49	1.37		SANDSTONE	CLYY. FG. PR. DK. GY. MAS. BRKN AS ABOVE
	83	234.49	234.74	0.25		SILTSTONE	CLYY. M. BLK. LAM. BIOTR. SLD VERY THIN LAMELLAE OF SILT AND MUD; 'HE LMINTHOPSIS' FOUND IN PLACES .05M FROM TOP OF UNIT
*	83	234.74	236.83	2.09		SILTSTONE	CLYY. M. BLK. LAM. BIOTR. SLD LITH AS ABOVE; 'HELMINTHOPSIS' FOUND .0 2M AND .99M FROM TOP OF BOX 117
*	88	236.83	236.88	0.05		SILTSTONE	CLYY. M. BLK. LAM. BIOTR. SLD AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	84	236.88	238.84	1.96		SANDSTONE	CLYY. MG. WEL. M. GY. THNB. BRKN ABUNDANT MUD LAMELLAE NEAR TOP OF UNIT - DISAPPEAR LOWER IN UNIT; SOME BIOTURBAT ION; UPRIGHT BEDDING; QTZ YEINS APPROX 80 DEGREES TO BEDDING
*	80	238.84	239.04	0.20		SANDSTONE	CLYY. MG. WEL. M. GY. THNB. BRKN LITH AS ABOVE; MUD LAMELLAE BECOME MORE ABUNDANT; UPRIGHT BEDDING; MORE SSD; S OME COAL STRINGERS LOWER IN UNIT (SOME PLANT FRAGMENTS ALONG MUD LAMELLAE)
	79	239.04	240.69	1.65		SANDSTONE	CLYY. MG. WEL. M. GY. THNB. BRKN AS ABOVE
*	78	240.69	241.80	1.11		SANDSTONE	CLYY. MG. WEL. M. GY. THNB. BRKN AS ABOVE
	79	241.80	242.09	0.29		SANDSTONE	CLYY. MG. WEL. M. GY. MAS. SLD MASSIVE MG SANDSTONE WITH SOME MUD LAME LLAE IN UPPER UNIT (LESS IN LOWER UNIT)
	79	242.09	242.65	0.56		SANDSTONE	CLYY. MG. WEL. M. GY. MAS. SLD AS ABOVE
*	81	242.65	244.36	1.71		SANDSTONE	CLYY. MG. WEL. M. GY. MAS. SLD AS ABOVE

* DENOTES MEASURED BCA

FORM
4001

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	77	244.36	244.83	0.47		SANDSTONE	CLYY, FG, PR, DK, GY, THNB, SSD, BRKN THINLY BEDDED FINE SANDS WITH MUD DRAPE S; SOME COAL STRINGERS OCCUR; PLANT FRAGMENTS AND CALCITE VEINS; MUD LAMELLAE GET THICKER LOWER IN UNIT
*	75	244.83	245.22	0.39		SANDSTONE	CLYY, FG, PR, DK, GY, THNB, SSD, BRKN AS ABOVE
	76	245.22	246.58	1.36		SANDSTONE	CLYY, FG, PR, DK, GY, THNB, SSD, BRKN AS ABOVE
	76	246.58	246.88	0.30		SILTSTONE	CLYY, LT, BLK, LAM, SSD, YBRKN ALTERNATING LAMELLAE OF SILT AND MUD; UPRIGHT BEDDING; GETS MUDDY TOWARDS BOTTOM OF UNIT
*	77	246.88	248.43	1.55		SILTSTONE	CLYY, LT, BLK, LAM, SSD, YBRKN AS ABOVE
	77	248.43	248.83	0.40		SILTSTONE	CLYY, LT, BLK, LAM, SSD, YBRKN AS ABOVE
	77	248.83	249.21	0.38		SILTSTONE	CLYY, LT, BLK, LAM, SSD, YBRKN AS ABOVE
	77	249.21	250.81	1.60		MUDSTONE	SLTY, DK, BLK, MAS, BRKN MASSIVE SILTY MUDSTONE (SILT SCATTERED RANDOMLY THROUGH MUD)

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	77	250.81	251.27	0.46		MUDSTONE	SLTY, DK, BLK, MAS, BRKN AS ABOVE; BIVALVES 3H, 72H AND .92M FROM TOP OF BOX; 'HELMINTHOPSIS' 1.45M FROM TOP OF BOX 125
	77	251.27	252.89	1.62		MUDSTONE	SLTY, DK, BLK, MAS, BRKN AS ABOVE
*	77	252.89	254.47	1.58		MUDSTONE	SLTY, DK, BLK, MAS, BRKN LITH AS ABOVE; SOME COAL STRINGERS NEAR TOP OF BOX 126
	77	254.47	254.89	0.42		MUDSTONE	SLTY, DK, BLK, MAS, BRKN AS ABOVE
	77	254.89	256.99	2.10		MUDSTONE	SLTY, DK, BLK, MAS, BRKN AS ABOVE; 'HELMINTHOPSIS' APPROX .55M FROM TOP OF BOX 127
	77	256.99	257.74	0.75		MUDSTONE	SLTY, DK, BLK, MAS, BRKN AS ABOVE
	77	257.74	259.00	1.26		MUDSTONE	SLTY, DK, BLK, MAS, BRKN AS ABOVE
	77	259.00	260.86	1.86		MUDSTONE	SLTY, DK, BLK, MAS, BRKN SAME AS ABOVE; PYRITE NODULES APPROX .7 M FROM TOP OF BOX

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	77 260.86	261.11	0.25			MUDSTONE	SLTY. DK. BLK. MAS. BRKN AS ABOVE
	77 261.11	263.10	1.99			MUDSTONE	SLTY. DK. BLK. MAS. BRKN AS ABOVE
	77 263.10	263.80	0.70			MUDSTONE	SLTY. DK. BLK. MAS. BRKN AS ABOVE
	77 263.80	265.07	1.27			MUDSTONE	SLTY. DK. BLK. MAS. BRKN SAME LITHOLOGY AS ABOVE; PLANT FRAGMENT S (COALIFIED) START TO SHOW UP APPROX . 96M FROM MARKER 263.9
	77 265.07	265.98	0.91	06674		MUDSTONE	CARB. M-DK. GY. MAS. BRKN SILTY NEAR TOP; COALY STRINGERS INCREASE NEAR BASE; LOWER 20CM SAMPLED
	77 265.98	266.26	0.28	06675 H		COAL	C-1. VBRKN
	77 266.26	266.36	0.10	06675 H		COAL	C-3. VBRKN
	77 266.36	266.40	0.04	06675 H		COAL	C-1. VBRKN

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	77 266.40	266.41	0.01	06675 H		MUDSTONE	CARB. M-DK. GY. MAS. SLD
	77 266.41	266.66	0.25	06675 H		COAL LOSS	
	77 266.66	266.92	0.26	06675 H		COAL	C-1. BRKN
	77 266.92	267.03	0.11	06675 H		COAL	C-1. BRKN
	77 267.03	267.31	0.28	06675 H		COAL	C-1. BRKN MINOR MUDDY BANDS THROUGHOUT
	77 267.31	267.32	0.01	06675 H		SILTSTONE	M. GY. MAS. SLD
	77 267.32	267.59	0.27	06675 H		COAL	C-1. BRKN MINOR MUDDY BANDS THROUGHOUT
	77 267.59	267.66	0.07	06675 H		COAL	C-6. BRKN
	77 267.66	268.17	0.51	06676 H		COAL	C-1. BRKN

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	77	268.17	268.27	0.10	06676 H	COAL	C-2.BRKN
	77	268.27	268.28	0.01	06676 H	MUDSTONE	CARB.DK.GY.MAS.SLD COALY STRINGERS
	77	268.28	268.29	0.01	06676 H	COAL	C-1.SLD
	77	268.29	268.70	0.41	06677	MUDSTONE	CARB.M-DK.GY.MAS.BRKN ABUNDANT PLANT FRAGMENTS SOME COALIFIED ; UPPER 20CM SAMPLED
*	77	268.70	269.34	0.64		MUDSTONE	SILTY.DK.BLK.MAS.BRKN SILTY MUDSTONE; GETS SILTIER TOWARDS BOT TOM. OF UNIT
	74	269.34	269.79	0.45		SANDSTONE	CLYY.MG.MOD.M.GY.THNB.SSD.SLD THIN BEDDED SANDS WITH LAMELLAE OF MUD; SOME SOFT SEDIMENT DEFORMATION
	71	269.79	270.84	1.05		SANDSTONE	CLYY.MG.MOD.M.GY.THNB.SSD.SLD AS ABOVE
*	64	270.84	272.70	1.86		SANDSTONE	CLYY.MG.MOD.M.GY.THNB.SSD.SLD LITH AS ABOVE; MUD RIP UP CLASTS OCCUR AS WELL APPROX .1M FROM TOP OF BOX 135

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85027

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	62	272.70	272.84	0.14		SANDSTONE	CLYY.MG.MOD.M.GY.THNB.SSD.SLD AS ABOVE
*	60	272.84	274.95	2.11		SANDSTONE	CLYY.MG.MOD.M.GY.THNB.SLD THIN BEDDED SANDS WITH MUD LAMELLAE; MU D RIP UP CLASTS OCCUR APPROX .78M BELOW TOP OF BOX 136 TO END OF BOX 136; CLAS TS ARE SUB ROUNDED APPROX .5-4CM IN SIZ E
	60	274.95	275.67	0.72		SANDSTONE	CLYY.MG.MOD.M.GY.THNB.SLD LITH AS ABOVE; MUD CLASTS BECOME LESS A BUNDANT AND SMALLER IN SIZE

* DENOTES MEASURED BCA
NEWPAGE

GULF CANADA RESOURCES INC.

SEAM DETAIL

COAL DIVISION
MOUNT KLAPPAN PROJECT

TRUE THICKNESS

DATA SOURCE: KPN LR DOH85027 SEAM : 0 INTERVAL(M) : 44.08 - 45.84 ELEVATION(M) : 1829.7
 GEOLOGIST : BUHAY SCALE: DATE : DEC 19/85 DRAWING NO. :

SEAM COMP.	DRILL DEPTH	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	HEAT VAL M/EG		
	44.08	↑		0.18 (0.18)													
				0.19	88.3	8622											
	44.71			0.21 (0.11)													
							100	1.14 / 0.38		0.89	39.72	5.86	53.43	1.50	18.81		
	45.84	↓			88.1	8623		1.51									
				0.76													

1.51

GULF CANADA RESOURCES INC.

SEAM DETAIL

COAL DIVISION
MOUNT KLAPPAN PROJECT

TRUE THICKNESS

DATA SOURCE: KPN LR DDH85027 SEAM : M INTERVAL(M) : 75.26 - 77.69 ELEVATION(M) : 1629.7
 GEOLOGIST : BUNAY SCALE: DATE : DEC 19/85 DRAWING NO. :

SEAM COMP.	DRILL DEPTH	COAL SEAM LOG	INTERVAL		% 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		
	75.26	↑		0.88													
	76.57	↓		0.11 0.14 0.11 0.12	100.0	6426	101	1.94 / 0.22 2.17	1.08	37.31	7.40	84.20	1.08	20.36			
	77.68	↓		0.67 (0.21) 0.12	79.3	6427											
		↓															

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GULF CANADA RESOURCES INC.

SEAM DETAIL

COAL DIVISION
MOUNT KLAPPAN PROJECT

TRUE THICKNESS

DATA SOURCE: KPM LR 00H85027 SEAM: M/W INTERVAL(M): 94.32 - 95.83 ELEVATION(M): 1629.7
 GEOLOGIST: BUHAY SCALE: DATE: DEC 19/85 DRAWING NO.:

SEAM COMP.	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES		X REC.	SAMPLE ID			COAL/ROCK TOTAL		COAL QUALITY A.D.B.						
			ROCK	COAL		SIMP	COMP	COMPOS	MINING SECTION	RES MOIST.	ASH	VM	FC	TS	KAL VAL M/KB		
	94.32	↑		0.32													
		X		(0.21)	81.7	8630	102	0.72 / 0.43			6.78	61.28	8.53	31.36	0.22	16.37	—
				0.40				1.18									
	95.83	↓		0.16													

1.15

GULF CANADA RESOURCES INC.

COAL DIVISION
MOUNT KLAPPAN PROJECT

SEAM DETAIL

TRUE THICKNESS

DATA SOURCE: KPN LR DDM85027 SEAM: MUPPER INTERVAL(M) : 109.24 - 111.30 ELEVATION(M) : 1829.7
 GEOLOGIST : BURAY SCALE: DATE : DEC '9/85 DRAWING NO. :

SEAM COMP.	DRILL DEPTH	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	HEAT VAL MJ/88		
	109.24	↑		0.33													
		↓		1.07	100.0	8433	103	1.81 / 0.84		1.10	32.54	8.48	89.58	0.41	27.50		
	111.30	↓		0.42													
		↓															

1.85

GULF CANADA RESOURCES INC.

COAL DIVISION
MOUNT KLAPPAN PROJECT

TRUE THICKNESS

SEAM DETAIL

DATA SOURCE: KPN LR DDH85027 SEAM: M LOWER INTERVAL(M): 114.88 - 116.16 ELEVATION(M): 1629.7
 GEOLOGIST: BUNAY SCALE: DATE: DEC 19/85 DRAWING NO.:

SEAM COMP.	DRILL DEPTH	COAL SEAM LOG	INTERVAL METERS		X REC.	SAMPLE ID			COAL QUALITY A.D.B.									
			ROCK	COAL		SIMP	COMP	COMPOS	MINING SECTION	RES MOIST	ASH	VM	FC	TS	HALVAL M/EE			
	114.88	↑		0.17														
				0.23														
		X		(0.31)	74.3	8635	8835	1.18 / 0.05		0.41	80.58	—	—	—	—	—	—	—
				0.44				1.20										
	116.16	↓																

1.20

GULF CANADA RESOURCES INC.

SEAM DETAIL

COAL DIVISION
MOUNT KLAPPAN PROJECT

TRUE THICKNESS

DATA SOURCE: KPN LR DDM85027 SEAM : 1 INTERVAL(M) : 216.15 - 221.55 ELEVATION(M) : 1629.7
 GEOLOG ST : BU-HAY SCALE: DATE : DEC 19/85 DRAW NO NO.

SEAM COMP.	DRILL DEPTH	COAL SEAM LOG	INTERVAL METERS		X 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 M/RS		
	216.15	↑		0.20													
				0.26													
				(0.17)													
				0.45	80.8	8880											
				0.28													
				0.13													
	218.07	↑		0.18													
				(0.29)													
				0.84	78.4	8871	107	4.87 / 8.38		1.70	21.14	5.58	71.58	6.38	28.91		
				0.18				8.03									
	219.50																
				2.12	100.0	8872											
	221.55	↓															

5-03

GULF CANADA RESOURCES INC.

SEAM DETAIL

COAL DIVISION
MOUNT KLAPPAN PROJECT

TRUE THICKNESS

DATA SOURCE: KPN LP ODH85027 SEAM: L INTERVAL(M): 127.56 - 129.29 ELEVATION(M): 1629.7
 GEOLOG ST: BU-HY SCALE: DATE: DEC 19/85 DRAWING NO.:

SEAM COMP.	DRILL DEPTH	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	HEAT VAL MJ/KG		
	127.56	↑		0.38													
				0.45													
				0.11	94.3	6838	104	1.42 / 0.20		0.88	39.36	9.48	80.21	0.35	19.38		
				0.20				1.82									
	129.29	↓		0.32													

1.62

GULF CANADA RESOURCES INC.

SEAM DETAIL

COAL DIVISION
MOUNT KLAPPAN PROJECT

TRUE THICKNESS

DATA SOURCE: KPN LP D085027 SEAM: K/L INTERVAL(M): 147.78 - 151.69 ELEVATION(M): 1529.7
 GEOLOGIST: BUNAY SCALE: DATE: DEC 19/85 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	HEAT VAL M/KG		
	147.78	↑		0.24													
				0.43	100.0	8841											
	148.87	(0.12)		0.44													
				0.38	81.1	8842	105	2.47 / 0.75	0.98	50.56	7.28	41.21	0.29	15.37			
				0.32				3.22									
	150.81			0.17													
				0.28	100.0	8843											
	151.69	↓		0.13													

3-22

GULF CANADA RESOURCES INC.

SEAM DETAIL

COAL DIVISION
MOUNT KLAPPAN PROJECT

TRUE THICKNESS

DATA SOURCE: KPN LR DDH85027 SEAM : K INTERVAL(M) : 163.80 - 164.91 ELEVATION(M) : 1629.7
 GEOLOGIST : BUHAY SCALE: DATE : DEC 19/85 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	DAIYAL Wt/28		
	163.80	↑																
			0.84	0.11														
			0.81	0.22														
			(0.18)		80.2	6646		↑										
			0.22	0.11														
			0.14					106	0.92 / 0.16									
	164.56		0.22					↓	1.08									
				0.34	100.0	6647												
	164.91	↓																

1.08

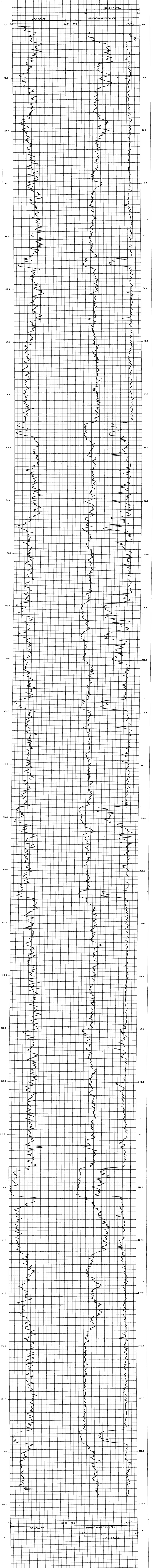
Gulf Canada Resources Inc.

Coal Division

Geophysical Log

Datasource: KPNLRDDH85027 Log Date: 85-08-03 Company: CENTURY Geologist: BUHAY Scale: 1 to 100.0 Depth Range: 0.0 to 283.0 True Thickness: NO	Province: BC Northings: 6343060.00 Zone: 9 Easting: 506959.00 Measuring Point: Comments: 1. LOGGED THROUGH THE ROOS 2.	Lat: 571357 Long: 1285305 Elevation: 1630.0
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Logs Plotted:	Axis Range	Axis Length	Smoothing Points	Tool	Comments
1. GAMMA API	0.0 to 150.0	10.0	31	9055A	IN PIPE
2. NEUTRON-NEUTRON CPS	0.0 to 2500.0	10.0	9	9055A	IN PIPE
3. DENSITY G/CC	1.0 to 3.0	10.0	15	9030A	IN PIPE



GULF CANADA RESOURCES INC.
 COAL DIVISION
 KLAPPAN PROJECT
 STRATIGRAPHIC LOG
 KPN LR DDH85027

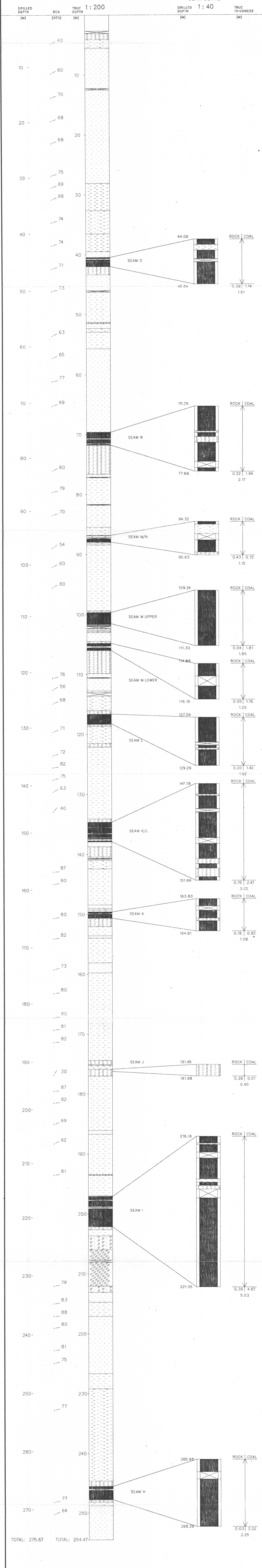
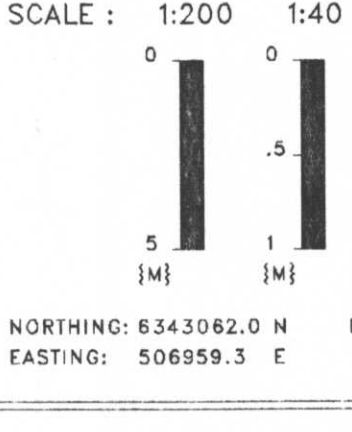
GEOLOGIST : BUHAY

DATE : JAN 08/86

DRAWING NO. :

LITHOLOGIC SYMBOLS

	SANDSTONE		BENTONITE
	SILTSTONE		BRECCIA
	COAL		CARBONACEOUS
	OVERBURDEN		QUARTZ
	MUDSTONE, CLAYSTONE		PYRITE
	TUFF		FERRUGINOUS
	LIMESTONE		CONGLOMERATE
	CORE LOSS		FOSSIL BED



TOTAL: 275.67 TOTAL: 254.47

KPNLRDDH85028

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH85028

DATE - 01/09/86

- HISTORY -

START DATE - 08/01/85
END DATE - 08/02/85

CONTRACTOR - J T THOMAS
GEOLOGIST - SAVOIE

OPERATOR - GCR I
SURVEYOR - MWG & ASS

REMARKS -

- LOCATION -

PROVINCE - BC
ELEVATION - 1668.60

ZONE - 9
NORTHING - 6343175.00
EASTING - 506256.50

LICENCE/LEASE NUMBER - 7151

LATITUDE - 571401
LONGITUDE - 1285347

- ORIENTATION -

LENGTH - 79.06

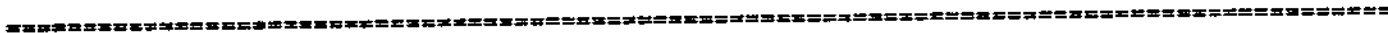
INCLINATION - 90.0
AZIMUTH - 0.0

CORE SIZE - 0.0

CEMENT -
PLUG -
PIEZ -

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

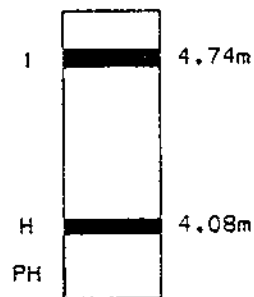
*** NOTE *** 0 INDICATES NO VALUE



MT. KLAPPAN COAL PROPERTY

1985 DIAMOND DRILL HOLES
DDH85028

SEAM TRUE SEAM THICKNESS
 (COAL & ROCK)



NOTE: SCHEMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm COAL.

SCALE: 1:2000

GULF CANADA RESOURCES INC.
15/01/86



86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85028

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	3.66	3.66			CASING	
	3.66	4.68	1.02			ROCK LOSS	
	4.68	5.73	1.05			MUDSTONE	SLTY. M. GY. VBRKN CORE IS VERY UNCONSOLIDATED; POSSIBLE CORE LOSS
	5.73	6.68	0.95			MUDSTONE	SLTY. M. GY. LAM. VBRKN SEMI-CONSOLIDATED; INTERLAMINATED SILTS TONE
	6.68	7.37	0.69			MUDSTONE	SLTY. M. GY. LAM. VBRKN AS ABOVE
	7.37	8.02	0.65			MUDSTONE	SLTY. M. GY. LAM. VBRKN AS ABOVE
	8.02	8.48	0.46			MUDSTONE	SLTY. M. GY. LAM. BRKN INTERLAMINATED SILTSTONE
* 75	8.48	9.56	1.08			MUDSTONE	SLTY. M. GY. LAM. BRKN INDISTINCT INTERLAMINATED SILTSTONE; IN 0 2CM ZONES OF HELMINTHOPSIS BURROWING

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 2

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85028

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	9.56	10.45	0.89			MUDSTONE	SLTY. M. GY. LAM. VBRKN UNCONSOLIDATED RUBBLE; MINOR PLANT FRAGMENTS; CORE LOSS
	10.45	10.77	0.32	06709		MUDSTONE	CARB. M-DK. GY. MAS. VBRKN CORE LOSS; LOWER 17CM SAMPLED
	10.77	10.80	0.03	06709		MUDSTONE	CARB. M-DK. GY. MAS. VBRKN AS ABOVE
	10.80	10.85	0.05	06710 I		COAL	C-3. SLD VITRINITE BANDS THROUGHOUT
	10.85	10.95	0.10	06710 I		COAL	C-1. VBRKN
	10.95	10.98	0.03	06710 I		COAL	C-1. VBRKN
	10.98	11.54	0.56	06710 I		COAL LOSS	
	11.54	11.66	0.12	06710 I		MUDSTONE	SLTY. M. GY. MAS. VBRKN FRUSTED OFF
	11.66	11.70	0.04	06710 I		COAL	C-3. BRKN
	11.70	11.95	0.25	06710 I		COAL	C-3. VBRKN MUDDY BANDS THROUGHOUT

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 3

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85028

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	76	11.95	12.35	0.40	06710 I	COAL LOSS	
	76	12.35	12.46	0.11	06710 I	ROCK LOSS	
	76	12.46	12.47	0.01	06710 I	MUDSTONE	SLTY. M-GY. MAS. SLD TWISTED OFF
	76	12.47	14.32	1.35	06711 I	COAL LOSS	
	76	14.32	14.46	0.14	06711 I	COAL	C-2. VBRKN
	77	14.46	14.48	0.02	06711 I	COAL	C-1. BRKN
	77	14.48	14.70	0.22	06711 I	COAL	C-1. VBRKN CORE LOSS (ROUNDED PIECES MIXED WITH DR ILL MUD)
	77	14.70	14.78	0.08	06711 I	COAL	C-1. BRKN
	77	14.78	15.58	0.80	06711 I	COAL LOSS	
	77	15.58	15.62	0.04	06711 I	MUDSTONE	CARB. M-DK. GY. MAS. SLD COALY STRINGERS WITHIN

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 4

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85028

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	77	15.62	15.68	0.06	06711 I	COAL	C-3. VBRKN
	77	15.68	16.58	0.90	06712	MUDSTONE	SLTY. M-DK. GY. MAS. BRKN ABUNDANT PLANT FRAGMENTS; UPPER 20CM SA MPLED
	77	16.58	17.25	0.67		MUDSTONE	SLTY. M-DK. GY. MAS. BRKN AS ABOVE; BECOMING SANDIER AND LAMINATE D. TOWARD BASE
	77	17.25	17.52	0.27		ROCK LOSS	
	78	17.52	18.72	1.20		SANDSTONE	SLTY. VFG. LT. GY. MAS. VBRKN MINOR. QTZ. VEINING; PILE OF RUBBLE
	78	18.72	19.16	0.44		SANDSTONE	SLTY. VFG. LT. GY. MAS. VBRKN AS ABOVE; POSSIBLE CORE LOSS
	78	19.16	19.58	0.42		SANDSTONE	PBLY. FG. LT. GY. MAS. BRKN CHERT PEBBLE (LARGEST APPROX. 1CM) SUB-R OUNDED
	78	19.58	20.58	1.00		SANDSTONE	FG. LT. GY. MAS. VBRKN TWO 10CM ZONES OF MUDSTONE RIP UP CLAST S (LARGEST 4CM)

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 5

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85028

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	20.58	21.18	0.60			ROCK LOSS	
78	21.18	21.40	0.22			SANDSTONE	FG, LT. GY. MAS. YBRKN MUDSTONE RIP UP CLASTS; CORE LOSS
79	21.40	22.53	1.13			SANDSTONE	FG, LT. GY. MAS. BRKN LOCALIZED ZONES OF MUDSTONE RIP UP CLASTS 5CM; UNIT BECOMES SILTIER AT BASE; MINOR QTZ VEINING ALONG CORE
79	22.53	23.04	0.51			SILTSTONE	SSY, LT-M. GY. LAM. BRKN DISCONTINUOUS, INTERLAMINATED MUDSTONE
79	23.04	23.55	0.51			SILTSTONE	SSY, LT-M. GY. LAM. BRKN DISCONTINUOUS, INTERLAMINATED MUDSTONE
79	23.55	24.26	0.71			SILTSTONE	SSY, LT-M. GY. LAM. YBRKN TALC ALONG A SLIPPAGE SURFACE
79	24.26	24.50	0.24			ROCK LOSS	
79	24.50	24.96	0.46			MUDSTONE	SLTY, M. GY. LAM. YBRKN
80	24.96	25.86	0.90			MUDSTONE	SLTY, M. GY. LAM. BRKN MINOR HELMINTHOPSIS BURROWS

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 6

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85028

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
80	25.86	26.18	0.32			SILTSTONE	CLYY, LT-M. GY. LAM. BRKN HELMINTHOPSIS BURROWS (15CM ZONE)
80	26.18	26.58	0.40			SILTSTONE	CLYY, LT-M. GY. LAM. YBRKN
* 80	26.58	27.69	1.11			SANDSTONE	SLTY, FG. YPR. LT. GY. THNB. BRKN LOCALIZED MUDSTONE BANDS; SHARP CONTACT BETWEEN MG SANDSTONE AND UNDERLYING MUDSTONE; FINING UPWARDS SEQUENCE; ABUNDANT CARBONATE VEINING; VUGGY POROSITY WITH THIN VEINS
79	27.69	29.39	1.70			SANDSTONE	FG, PR. LT. GY. MAS. YBRKN LOCALIZED MUDSTONE LAMINAE; MINOR CARBONATE VEINING
78	29.39	29.58	0.19			ROCK LOSS	
78	29.58	29.76	0.18			SANDSTONE	FG, PR. LT. GY. MAS. YBRKN AS ABOVE
77	29.76	31.66	1.90			SANDSTONE	SLTY, FG, PR. LT. GY. MAS. WRMBU. YBRKN LOCALIZED MUDSTONE LAMINAE (<1CM BY 5CM); TOPS UP
75	31.66	32.82	1.16			SANDSTONE	FG, PR. LT. GY. MAS. YBRKN MINOR CARBONATE VEINING

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 7

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85028

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	74	32.82	33.42	0.60		SILTSTONE	SSY-LT-M.GY.LAM.BRKN INTERLAMINATED DISCONTINUOUS MUDSTONE (LOCALIZED)
	74	33.42	33.83	0.41		SILTSTONE	SSY-LT-M.GY.LAM.SSD.BRKN INTERLAMINATED MUDSTONE; BIOTURBATED
*	73	35.53	35.51	1.68		SILTSTONE	M.GY.LAM.WRMBU.BRKN INTERLAMINATED MUDSTONE; WORM BURROWS (FCH BY BCM); SANDY AND BIOTURBATED AT TOP; BECOMING MUDDY TOWARD BASE
	74	35.51	35.57	0.06		ROCK LOSS	
	74	35.57	35.67	0.10		SILTSTONE	M.GY.LAM.BRKN INTERLAMINATED MUDSTONE
*	76	35.67	37.60	1.93		MUDSTONE	SLTY-M.GY.LAM.BRKN DISCONTINUOUS INTERLAMINATED SILTSTONE; ABUNDANT HELMINTHOPIA BURROWS
*	75	37.60	38.83	1.23		MUDSTONE	SLTY-M-DK.GY.LAM.BRKN INTERLAMINATED SILTSTONE; LOCALIZED SILTY SANDSTONE
	74	38.83	39.64	0.81		MUDSTONE	DK.GY.LAM.BRKN MINOR INTERLAMINATED SILTSTONE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 8

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85028

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	73	39.64	39.97	0.33		MUDSTONE	SLTY-M.GY.LAM.BRKN INTERLAMINATED SILTSTONE
	73	39.97	40.98	1.01		MUDSTONE	SLTY-M-DK.GY.LAM.BRKN MINOR INTERLAMINATED SILTSTONE; NUMEROUS PYRITE BLEBS
	73	40.98	41.71	0.73		MUDSTONE	LT.BLK.MAS.VBRKN SEMI-CONSOLIDATED; BIVALVE FRAGMENTS (SOME PYRITIZED)
	73	41.71	41.91	0.20		MUDSTONE	M-DK.GY.MAS.BRKN
	73	41.91	42.01	0.10		ROCK LOSS	
	73	42.01	43.63	1.62		MUDSTONE	LT.BLK.MAS.VBRKN SEMI-CONSOLIDATED; SILTIER TOWARD BASE
	73	43.63	43.79	0.16		MUDSTONE	SLTY-M.GY.LAM.BRKN
	74	43.79	45.15	1.36		MUDSTONE	SLTY-M-DK.GY.LAM.VBRKN LOCALIZED DISCONTINUOUS INTERLAMINATED SILTSTONE

* DENOTES MEASURED BCA

FORM 4001

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85028

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	74	45.15	45.77	0.62		MUDSTONE	SLTY. H. GY. LAM. YBRKN AS ABOVE; MINOR CARBONATE VEINING
	74	45.77	46.49	0.72		MUDSTONE	SLTY. H. GY. LAM. BRKN AS ABOVE; QTZ VEIN (TICH)
	74	46.49	47.89	1.40		MUDSTONE	DK. GY. MAS. YBRKN SEMI-CONSOLIDATED; MINOR PLANT FRAGMENT S NEAR BASE
	74	47.89	48.21	0.32		MUDSTONE	H. GY. MAS. BRKN
	74	48.21	49.91	1.70		MUDSTONE	DK. GY. MAS. BRKN
	74	49.91	50.71	0.80		ROCK LOSS	
	74	50.71	52.49	1.78		MUDSTONE	LT. BLK. MAS. YBRKN
	75	52.49	53.35	0.86		MUDSTONE	H. GY. MAS. YBRKN VERY MINOR PLANT FRAGMENTS

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 10

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85028

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	75	53.35	54.29	0.94		MUDSTONE	LT. BLK. MAS. YBRKN
	75	54.29	56.25	1.96		MUDSTONE	LT. BLK. LAM. BRKN VERY MINOR LAMINATED SILTYSTONE; NUMEROUS PYRITE BLEBS; MUDSTONE IS CARBONACEOUS TOWARD BASE
	75	56.25	56.40	0.15		ROCK LOSS	
	75	56.40	56.96	0.56	06713	MUDSTONE	CARB. DK. GY. MAS. BRKN ABUNDANT PLANT FRAGMENTS MANY COALIFIED; LOWER 20CM SAMPLED
	75	56.96	56.98	0.02	06714 H	COAL	C-1.SLD
	75	56.98	57.00	0.02	06714 H	COAL	C-6.SLD THWISTED OFF
	75	57.00	57.05	0.05	06714 H	COAL	C-2.SLD
	75	57.05	57.35	0.30	06714 H	COAL	C-1.BRKN MINOR MUDDY BANDS THROUGHOUT

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 11

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85028

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	75	57.95	57.36	0.01	06714 H	MUDSTONE	CARB. M-DK. GY. MAS. SLD
	75	57.36	57.47	0.11	06714 H	COAL	C-1. BRKN
	75	57.47	57.95	0.48	06714 H	COAL	C-2. BRKN ABUNDANT MUDDY STREAKS AND BANDS THROUGH HGT
	75	57.95	58.05	0.10	06714 H	ROCK LOSS	
	75	58.05	58.08	0.03	06714 H	COAL	C-4. SLD
	75	58.08	58.20	0.12	06715 H	MUDSTONE	CARB. M-DK. GY. MAS. BRKN VERY LISTRIC
	75	58.20	58.35	0.15	06715 H	COAL	C-2. BRKN
	75	58.35	58.57	0.22	06715 H	COAL	C-2. BRKN
	75	58.57	58.62	0.05	06715 H	MUDSTONE	CARB. M-DK. GY. MAS. SLD COALY STRINGERS

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85028

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	75	58.62	58.72	0.10	06715 H	COAL	C-3. BRKN
	75	58.72	58.88	0.16	06715 H	ROCK LOSS	
	75	58.88	58.99	0.11	06715 H	MUDSTONE	CARB. M-DK. GY. MAS. SLD COALY STRINGERS
	75	58.99	59.05	0.06	06715 H	COAL	C-2. BRKN
	75	59.05	59.12	0.07	06715 H	COAL	C-5. BRKN
	75	59.12	59.31	0.19	06715 H	COAL	C-3. BRKN
	75	59.31	59.36	0.05	06715 H	COAL	C-4. BRKN
	75	59.36	59.39	0.03	06715 H	MUDSTONE	CARB. M-DK. GY. MAS. SLD
	75	59.39	59.43	0.04	06715 H	MUDSTONE	CARB. M-DK. GY. MAS. SLD TWISTED OFF
	75	59.43	59.60	0.17	06716 H	COAL	C-2. SLD

* DENOTES MEASURED BCA

FORM
40001

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 13

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85028

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	59.60	59.62	0.02	06716	H	COAL	C-1.SLD
	59.62	59.84	0.22	06716	H	COAL	C-2.BRKN
	59.84	59.87	0.03	06716	H	COAL	C-3.SLD
	59.87	60.01	0.14	06716	H	COAL	C-1.VBRKN
	60.01	60.38	0.37	06716	H	COAL LOSS	
	60.38	60.40	0.02	06716	H	MUDSTONE	CARB.M-DK.GY.MAS.SLD
	60.40	60.50	0.10	06716	H	COAL LOSS	
	60.50	60.69	0.19	06716	H	COAL	C-1.BRKN
	60.69	60.83	0.14	06716	H	COAL	C-1.BRKN MUDDY BANDS THROUGHOUT
	60.83	60.89	0.06	06716	H	MUDSTONE	CARB.M-DK.GY.MAS.BRKN

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85028

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	60.89	60.94	0.05	06716	H	COAL	C-2.SLD INTERBANDED C-1 OR C-2 AND MUDDY BANDS
	60.94	61.03	0.09	06716	H	COAL	C-1.SLD
	61.03	61.05	0.02	06716	H	MUDSTONE	CARB.M-DK.GY.MAS.SLD
	61.05	61.12	0.07	06716	H	COAL	C-1.SLD
	61.12	61.14	0.02	06716	H	COAL	C-3.SLD
	61.14	61.18	0.04	06716	H	COAL	C-1.BRKN
	61.18	61.96	0.78	06717	H	MUDSTONE	CARB.M-DK.GY.MAS.BRKN ABUNDANT COAL STRINGERS THROUGHOUT; BEC OMING SILTY NEAR BASE; DISSEMINATED PYR ITE WITHIN; UPPER 20CM SAMPLED
	61.96	62.38	0.42			MUDSTONE	SHARP CONTACT OF THIS MUDSTONE WITH SIL TYER BASE OF UNIT ABOVE; ABUNDANT COALY STRINGERS IN UPPER 20H; BECOMES LESS C ARBONACEOUS NEAR BASE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 15

PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85028

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. TO ID	SEAM ID	LITHOLOGY	DESCRIPTION
	76	62.38	62.45	0.07		MUDSTONE	CARB. M-DK. GY. MAS. BRKN
	76	62.45	62.91	0.46		MUDSTONE	M. GY. LAM. BRKN MINOR SILTSTONE LAMINAE
	76	62.91	63.29	0.38		SILTSTONE	SSY. LT-M. GY. LAM. SSD. SLD MUDSTONE LAMINAE; DECREASING WITH DEPTH
*	76	63.29	64.64	1.35		SANDSTONE	SLTY. FG. PR. LT. GY. MAS. BRKN MINOR DISCONTINUOUS MUDSTONE LAMINAE; T TRACE OF CARBONATE VEINING
	76	64.64	65.48	0.84		SANDSTONE	SLTY. FG. PR. LT. GY. MAS. BRKN AS ABOVE
	76	65.48	66.58	1.10		SANDSTONE	SLTY. FG. PR. LT. GY. MAS. BRKN AS ABOVE; WITH LOCALIZED ZONE OF WELL R OUNDED MUDSTONE RIP UP CLASTS
	76	66.58	68.51	1.93		SANDSTONE	FG. VPR. LT. GY. MAS MINOR DISCONTINUOUS MUDSTONE LAMINAE; S PARSELY SCATTERED WELL ROUNDED MUDSTONE RIP UP CLASTS; GRADED LOCALIZED ZONES OF MG SANDSTONE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85028

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. TO ID	SEAM ID	LITHOLOGY	DESCRIPTION
	75	68.51	68.63	0.12		SANDSTONE	MG. PR. LT. GY. MAS. SLD LARGE MUDSTONE RIP UP CLAST (ROUNDED); SHARP EROSIONAL LOWER CONTACT
	75	68.63	69.43	0.80		SILTSTONE	SSY. LT-M. GY. MAS. SLD DISCONTINUOUS BANDS AND BLEBS OF FG-MG SANDSTONE
	75	69.43	69.60	0.17		SILTSTONE	M. GY. MAS. BRKN
	75	69.60	70.63	1.03	PHANTOM	MUDSTONE	CARB. DK. GY. VSHRD VERY DISRUPTED AND FRACTURED; MUCH TALC ON SLIPPAGE SURFACES; MUCH PLANT WASH IN LOWER 19CM
	75	70.63	70.81	0.18	PHANTOM	MUDSTONE	CARB. DK. GY. MAS. VBRKN SEMI-CONSOLIDATED
	75	70.81	72.68	1.87	PHANTOM	MUDSTONE	DK. GY. MAS. VBRKN ABUNDANT TALC COATED FRACTURES INDICATE NG SLIPPAGE
	75	72.68	72.98	0.30	PHANTOM	MUDSTONE	DK. GY. MAS. VBRKN AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 17

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85028

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 75	72.98	73.34	0.36		PHANTOM	SANDSTONE	FG. LT. GY. MAS. BRKN LOCALIZED MUDSTONE BANDS AND LAMINAE; OBVIOUS DISPLACEMENT OF LAMINAE ALONG FRACTURES (1CM); ABUNDANT SLICKENSIDES
38	73.34	73.46	0.12		PHANTOM	MUDSTONE	CARB. OK. GY. MAS. VBRKN ABUNDANT LISTRIC SURFACES
* 01	73.46	73.83	0.37		PHANTOM	SILTSTONE	CLYY. M. GY. LAM. BRKN RHYTHMITES; COASTER LITHOLOGY; ENTERING ZONE OF INTENSE PARALLEL FOLDING; TWO FOLD AXES IN THIS UNIT; DISCONCORDANT QTZ AND CARBONATE VEINING
* 01	73.83	74.59	0.76			SILTSTONE	CLYY. M. GY. LAM. BRKN RHYTHMITES CONTINUE; BEDDING IS VERY DISTURBED; BCA'S RANGE FROM 0 TO 90 DEGREE S; LITHOLOGY AND VEINING AS ABOVE; THREE FOLD AXES IN THIS UNIT; POSSIBLE CORE LOSS
* 74	74.59	76.49	1.90			SILTSTONE	CLYY. M. GY. LAM. BRKN AS ABOVE; FOUR MORE FOLD AXES IN THIS UNIT; BCA'S APPROX 74 DEGREES IN BOTTOM THIRD OF THIS UNIT; GRADING INDICATES BEDS ARE UPRIGHT

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 18

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85028

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 74	76.49	76.81	0.32			SILTSTONE	CLYY. M. GY. LAM. BRKN RHYTHMITES DISAPPEAR AT BASE OF THIS UNIT
74	76.81	77.38	0.57			SILTSTONE	M. GY. THNB. VBRKN INTERBEDDED SILTSTONE AND MUDSTONE; 7CM ZONE OF DISTURBED BEDDING; LOCALIZED CARBONATE AND QTZ VEINING
74	77.38	78.38	1.00			MUDSTONE	SILTY. M. OK. GY. MAS. BRKN ABUNDANT SLICKENSIDE SURFACES; CARBONATE EDGES TOWARD BASE; MINOR QTZ AND CARBONATE VEINING
74	78.38	79.06	0.68			MUDSTONE	CARB. LT. BLK. MAS. VBRKN MINOR COALY STRINGERS; CARBONATE VEINING IS PREVALENT

* DENOTES MEASURED BCA
NEWPAGE

1003 4001

GULF CANADA RESOURCES INC.

SEAM DETAIL

COAL DIVISION
MOUNT KLAPPAN PROJECT

TRUE THICKNESS

DATA SOURCE: KPN LR DDH85028 SEAM : INTERVAL(M) 10.80 - 15.68 ELEVATION(M) : 1568.5
 GEOLOGIST : SAVOIE SCALE: DATE : JAN 07/86 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		
	10.80	↑		0.17													
		X		(0.54)													
		-	8.12		35.8	8710											
		X		0.28													
		-		(0.39)													
	12.47	X		(2.11)													
		X		(1.80)			111	4.47 / 0.27		0.41	41.58			0.36			
		-			17.4	8711		4.76									
		X		0.45													
		-		(0.78)													
	15.68	↓															

4.74

GULF CANADA RESOURCES INC.

COAL DIVISION
MOUNT KLAPPAN PROJECT

TRUE THICKNESS

SEAM DETAIL

DATA SOURCE: KPN R DCH85028 SEAM: H INTERVAL(M): 56.95 - 61.18 ELEVATION(M): 1668.8
 GEOLOGIST: SAVOIE SCALE: DATE: JAN 07/86 DRAWING NO.:

SEAM COMP.	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES		% REC.	SAMPLE ID			COAL QUALITY A.D.B.								
			ROCK	COAL		SIMP	COMP	COMPOS	MINING SECTION	RES MOIST	ASH	VM	FC	TS	CAL. VAL M./Tg		
	56.95	↑		0.38													
				0.57	91.0	6714											
	58.08			0.38													
				0.36	88.1	6715											
	59.43			0.56													
				(0.36)	73.1	6716											
				0.32													
	61.18	↓		0.16													
				0.13													
									108	3.39 / 0.70 4.08		0.97	34.88	8.63	55.52	0.68	21.28

P. 08

Gulf Canada Resources Inc. Coal Division

Geophysical Log

Datasource: **KPNLRDDH85028**

Province: BC

Northing: 6343180.00

Lat: 571401

Log Date: 85-08-02

Zone: 9

Easting: 506257.00

Long: 1285347

Company: CENTURY

Measuring Point:

Elevation: 1669.0

Geologist: SAVOIE

Scale: 1 to 100.0

Comments:

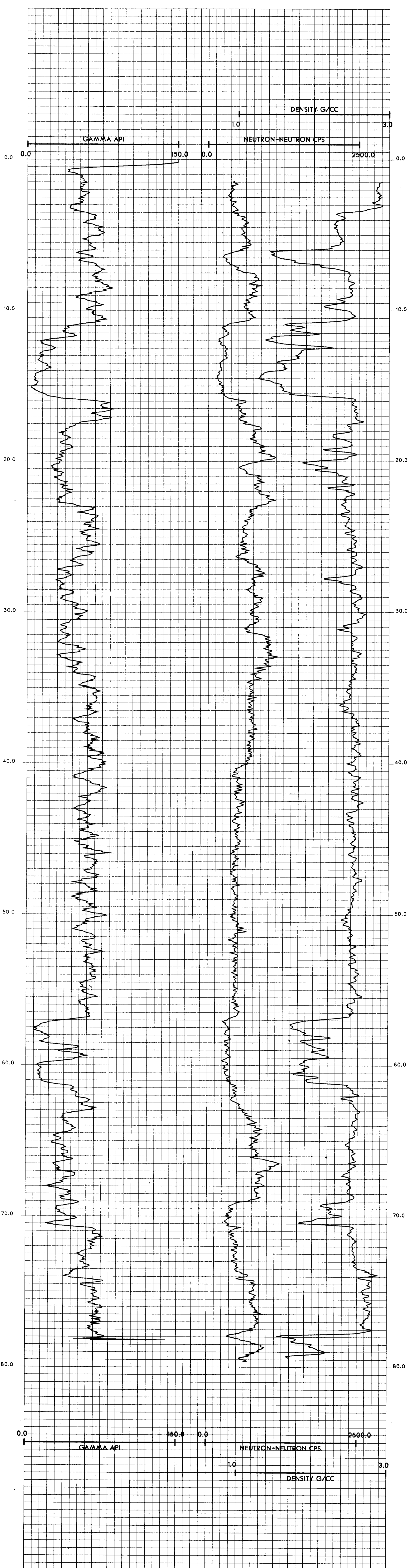
1. LOGGED THROUGH THE RODS
- 2.

Depth Range: 0.0 to 84.0

True Thickness: NO

Logs Plotted:

Description	Axis Range	Axis Length	Smoothing Points	Tool	Comments
1. GAMMA API	0.0 to 150.0	10.0	31	9055A	1N PIPE
2. NEUTRON-NEUTRON CPS	0.0 to 2500.0	10.0	9	9055A	1N PIPE
3. DENSITY G/CC	1.0 to 3.0	10.0	15	9030A	1N PIPE



GULF CANADA RESOURCES INC.
 COAL DIVISION
 KLAPPAN PROJECT
 STRATIGRAPHIC LOG
 KPN LR DDH85028

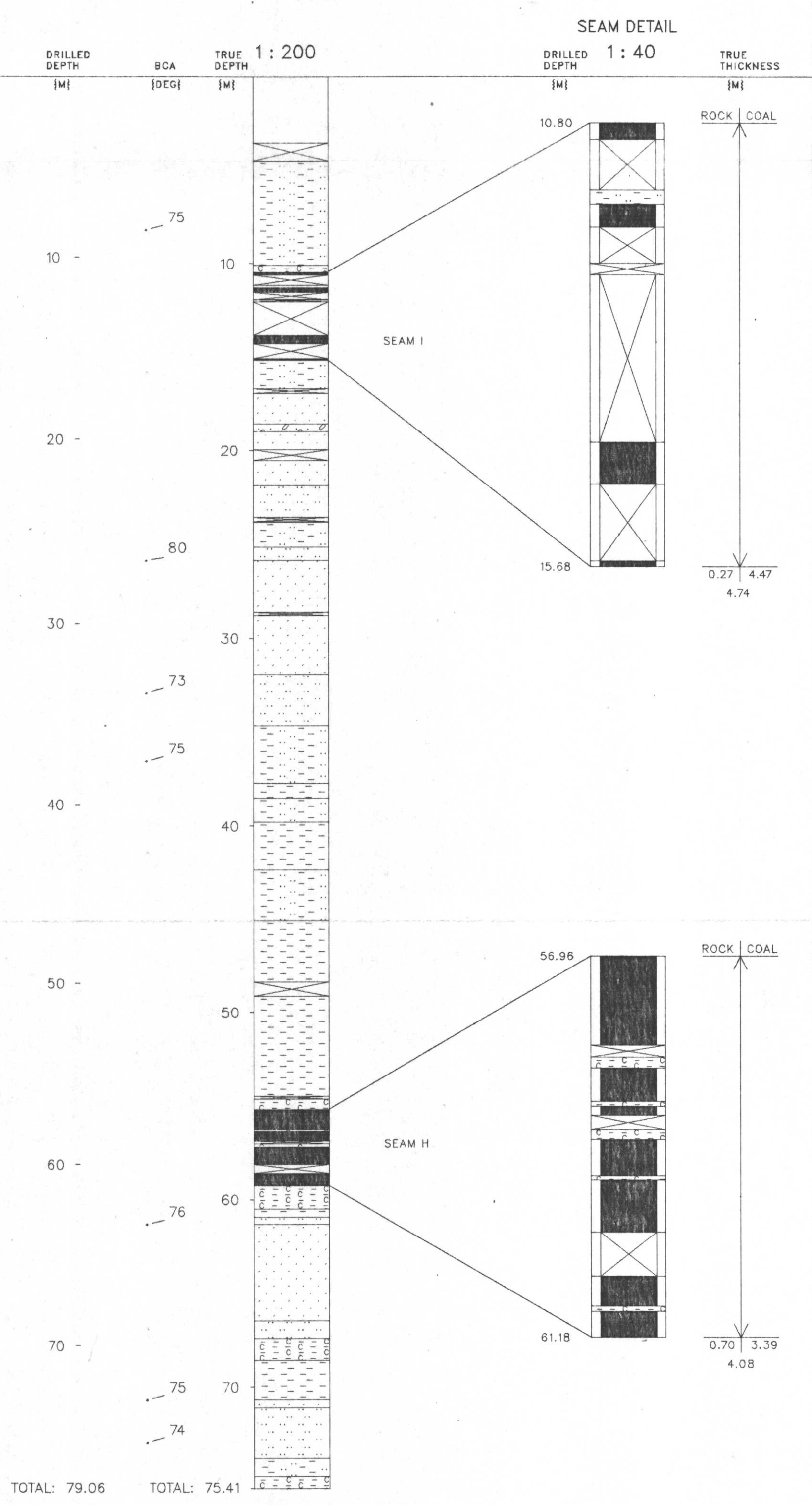
GEOLOGIST : SAVOIE DATE : JAN 08/86 DRAWING NO. :

LITHOLOGIC SYMBOLS

	SANDSTONE		BENTONITE
	SILTSTONE		BRECCIA
	COAL		CARBONACEOUS
	OVERBURDEN		QUARTZ
	MUDSTONE, CLAYSTONE		PYRITE
	TUFF		FERRUGINOUS
	LIMESTONE		CONGLOMERATE
	CORE LOSS		FOSSIL BED

SCALE : 1:200 1:40

NORTHING: 6343175.0 N INCLINATION: 90.0°
 EASTING: 506256.5 E



KPNLRDDH85029

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH85029

DATE - 01/09/86

- HISTORY -

START DATE - 08/02/85
END DATE - 08/03/85

CONTRACTOR - J T THOMAS
GEOLOGIST - SAVOIE

OPERATOR - GCR
SURVEYOR - MWG & ASS

REMARKS -

- LOCATION -

PROVINCE - BC
ELEVATION - 1661.70

ZONE - 9
NORTHING - 6343261.00
EASTING - 506523.94

LICENCE/LEASE NUMBER - 7151

LATITUDE - 571403
LONGITUDE - 1285331

- ORIENTATION -

LENGTH - 104.25

INCLINATION - 90.0
AZIMUTH - 0.0

CORE SIZE - 0.0

CEMENT -
PLUG -
PIEZ -

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



MT. KLAPPAN COAL PROPERTY

1985 DIAMOND DRILL HOLES
DDH85029

SEAM

TRUE SEAM THICKNESS
(COAL & ROCK)

J



NOTE: SCHEMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm COAL.

SCALE: 1:2000

GULF CANADA RESOURCES INC.
15/01/86



86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85029

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	30	0.00	13.72	13.72		CASING	
	30	13.72	16.67	2.95		ROCK LOSS	
	30	16.67	17.37	0.70		MUDSTONE	M. GY. MAS. VBRKN PARTIALLY UNCONSOLIDATED; FRIABLE; OBVIOUS CORE LOSS
	30	17.37	18.12	0.75		MUDSTONE	M. GY. MAS. VBRKN AS ABOVE; 5CM ZONE OF CARBONACEOUS MUDSTONE
	30	18.12	20.12	2.00		ROCK LOSS	
*	30	20.12	21.97	1.85		MUDSTONE	M. GY. MAS. VBRKN MINOR PLANT FRAGMENTS
	39	21.97	23.16	1.19		ROCK LOSS	
*	43	23.16	24.21	1.05		MUDSTONE	M. GY. MAS. VBRKN MINOR CARBONATE VEINING; SILTIER TOWARD BASE
	49	24.21	24.76	0.55		SILTSTONE	CLYY. LT-M. GY. VBRKN

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 2

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85029

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	51	24.76	25.16	0.40		SILTSTONE	CLYY. LT-M. GY. VBRKN
	53	25.16	25.82	0.66		SILTSTONE	SSY. LT-M. GY. VBRKN QTZ VEINING THROUGHOUT; CORE LOSS
	56	25.82	26.68	0.86		ROCK LOSS	
	59	26.68	27.06	0.38		SILTSTONE	SSY. LT-M. GY. VBRKN MINOR QTZ VEINING
	60	27.06	27.19	0.13		SILTSTONE	SSY. LT-M. GY. BRKN
	61	27.19	27.51	0.32		SANDSTONE	SLTY. LT. GY. MAS. VBRKN QTZ VEINING
	63	27.51	27.80	0.29		ROCK LOSS	
*	65	27.80	28.55	0.75		SILTSTONE	LT-M. GY. MAS. VBRKN MINOR QTZ VEINING; OCCASIONAL MUDSTONE BANDS INCREASING TOWARD BASE
	63	28.55	29.48	0.93		ROCK LOSS	
	62	29.48	29.59	0.11		MUDSTONE	SLTY. LT-M. GY. MAS. VBRKN

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 3

PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85029

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
62	29.59	29.81	0.22			ROCK LOSS	
61	29.81	29.86	0.05			MUDSTONE	M. GY. MAS. VBRKN
60	29.86	31.14	1.28			MUDSTONE	SLTY. LT. M. GY. THNB. VBRKN MINOR QTZ
57	31.14	32.90	1.76			ROCK LOSS	
54	32.90	33.16	0.26			SANDSTONE	SLTY. FG. LT. GY. MAS. VBRKN MINOR QTZ VEINING
53	33.16	34.36	1.20			SANDSTONE	FG. MOD. LT. GY. MAS. VBRKN MINOR QTZ VEINING
51	34.36	34.73	0.37			ROCK LOSS	
50	34.73	34.99	0.26			SANDSTONE	FG. PR. LT. GY. MAS. VBRKN
50	34.99	35.32	0.33			SANDSTONE	FG. PR. LT. GY. MAS. BRKN SLICKENSIDE SURFACE
48	35.32	36.42	1.10			SANDSTONE	FG. PR. LT. GY. MAS. VBRKN MINOR QTZ VEINING

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 4

PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85029

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
47	36.42	36.48	0.06			SANDSTONE	FG. PR. LT. GY. MAS. BRKN AS ABOVE
48	36.48	36.96	0.48			ROCK LOSS	
46	36.96	37.03	0.07			MUDSTONE	M. GY. VBRKN SHARP CONTACT WITH OVERLYING SANDSTONE
44	37.03	38.68	1.65			MUDSTONE	M-DK. GY. MAS. VBRKN SLICKENSIDE SURFACES; QTZ VEINING; SILT IER TOWARD BASE
42	38.68	38.77	0.09			SILTSTONE	M. GY. LAM. BRKN
* 40	38.77	40.40	1.63			SILTSTONE	SSY. LY. M. GY. LAM. VBRKN INDISTINCT MUDSTONE LAMINAE THAT INCREA SE TOWARD BASE; MINOR QTZ VEINING; SLI CKENSIDE SURFACES
38	40.40	40.50	0.10			SILTSTONE	CLYY. M. GY. LAM. VBRKN
37	40.50	41.57	1.07			SILTSTONE	CLYY. M. GY. LAM. VBRKN SLICKENSIDES; INTERLAMINATED WITH MUDST ONE

* DENOTES MEASURED BCA

FORM
4001

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 5

PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85029

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 35	41.57	42.33	0.76			SILTSTONE	M. GY. LAM. BRKN INTERLAMINATED MUDSTONE; GRADATIONAL CONTACTS; MINOR QTZ VEINING
35	42.33	42.89	0.56			SILTSTONE	SSY. LT-M. GY. HAS. BRKN MINOR LAMINAE OF MUDSTONE DISCONTINUOUS; GRADES INTO A FG. SANDSTONE AT BASE; MINOR QTZ VEINING
* 35	42.89	44.15	1.26			SILTSTONE	SSY. LT-M. GY. LAM. BRKN INTERLAMINATED MUDSTONE; 10CM ZONE OF FG SANDSTONE; QTZ VEINING
* 35	44.15	44.82	0.67			SILTSTONE	LT-M. GY. LAM. BRKN INTERLAMINATED MUDSTONE
37	44.82	46.16	1.34			SILTSTONE	LT-M. GY. LAM. XBDG. BRKN INTERLAMINATED MUDSTONE; VERY LOW ANGLE MINOR X-BEDDING; TOPS UP; QTZ VEINING
38	46.16	46.44	0.28			SILTSTONE	CLYY. LT-M. GY. VBRKN
39	46.44	46.75	0.31			ROCK LOSS	

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 6

PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85029

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 40	46.75	47.65	0.90			SILTSTONE	LT-M. GY. LAM. VBRKN UNIFORM MUDSTONE AND SILTSTONE LAMINAE; COASTER LITHOLOGY; RYTHMITES
43	47.65	47.99	0.34			SILTSTONE	LT-M. GY. LAM. BRKN AS ABOVE
44	47.99	48.56	0.57			ROCK LOSS	
47	48.56	49.18	0.62			SILTSTONE	LT-M. GY. LAM. VBRKN AS ABOVE
49	49.18	49.50	0.32			SILTSTONE	LT-M. GY. LAM. VBRKN AS ABOVE
* 50	49.50	49.79	0.29			SILTSTONE	LT-M. GY. LAM. BRKN RYTHMITES CONTINUE; MINOR QTZ VEINING
53	49.79	50.51	0.72			ROCK LOSS	
57	50.51	51.01	0.50			SILTSTONE	LT-M. GY. LAM. VBRKN AS ABOVE; VERY BROKEN
* 60	51.01	51.51	0.50			SILTSTONE	LT-M. GY. LAM. VBRKN AS ABOVE
58	51.51	52.01	0.50			SILTSTONE	LT-M. GY. LAM. VBRKN AS ABOVE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85029

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	56	52.01	52.24	0.23		ROCK LOSS	
	54	52.24	53.34	1.10		SILTSTONE	LT-M.GY.LAM.VBRKN AS ABOVE
*	50	53.34	53.94	0.60		SILTSTONE	LT-M.GY.LAM.VBRKN AS ABOVE
	54	53.94	54.53	0.59		ROCK LOSS	
*	60	54.53	56.08	1.55		SILTSTONE	LT-M.GY.LAM.VBRKN RYTHMITES CONTINUE
*	60	56.08	57.18	1.10		MUDSTONE	SLTY.M.GY.LAM.VBRKN INCREASE IN MUDSTONE % WITH DEPTH; RYTHMITES ARE NOT PRESENT AT BASE; INTERLAMINATED SILTSTONE DECREASES WITH DEPTH
	62	57.18	57.28	0.10		MUDSTONE	CARB.M.BLK.MAS.BRKN
	62	57.28	57.54	0.26		MUDSTONE	SLTY.DK.GY.MAS.BRKN SWIRLED MUDSTONE WITH SILTY BANDS; LARGE QTZ AND CARBONATE VEIN (5CM) CONTAINS 1.5CM DISSEMINATED PYRITE BAND

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 8

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85029

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	64	57.54	58.58	1.04		ROCK LOSS	
*	65	58.58	58.62	0.04		CLAYSTONE	SLTY.LT.GY.MAS.VBRKN
	65	58.62	58.82	0.20		MUDSTONE	CARB.M.BLK.LAM.BRKN MINOR SILTY LAMINAE; CARBONATE VEINS (2) PARALLEL TO BEDDING (<1CM)
	64	58.82	60.24	1.42		MUDSTONE	CARB.M.BLK.LAM.BRKN 20CM ZONE OF INTERLAMINATED SILTSTONE IN CENTER OF UNIT; NUMEROUS <1CM COALY STRINGERS; UPPER SECTION CONTAINS QTZ AND CARBONATE VEINING; MUCH MORE CARBONATE TOWARD BASE
	63	60.24	60.45	0.21		MUDSTONE	CARB.LT.BLK.MAS.VBRKN COALY STRINGER (1.5CM) MIXED WITH CARBONATE
	63	60.45	60.75	0.30		MUDSTONE	M-DK.GY.MAS.BRKN CARBONATE ALONG FRACTURED SURFACES
*	62	60.75	62.20	1.45		SILTSTONE	CLTY.M.GY.LAM.VBRKN MINOR QTZ VEINING; MUDSTONE LAMINAE

* DENOTES MEASURED BCA

FORM 4001

BCA	DEPTH FROM	DEPTH TO	DEPTH INTERVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	62.20	62.85	0.65			SILTSTONE	CLY. M. GY. LAM. BIOTR. VBRKN
	62.85	63.90	1.05			SILTSTONE	SSY. LT-M. GY. THNB. SSD. VBRKN INTERBEDDED FG SANDSTONE BANDS; CORE IS SEMI CONSOLIDATED; OBVIOUS DISPLACEMENT OF BEDDING ALONG FRACTURED SURFACES
	63.90	64.17	0.27			SILTSTONE	SSY. LT-M. GY. THNB. SSD. BRKN AS ABOVE; MINOR CARBONATE MICROFRACTURE
	64.17	65.27	1.10			SILTSTONE	LT-M. GY. LAM. VBRKN INTERLAMINATED MUDSTONE; UNIT BECOMES MORE CLAYEY AT BASE
	65.27	65.59	0.32			MUDSTONE	SLTY. M. GY. MAS. VBRKN
	65.59	66.31	0.72			SILTSTONE	SSY. LT-M. GY. LAM. SSD. VBRKN MINOR INTERLAMINATED TO THIN BEDDED MUDSTONE; LOAD CAST; TOPS UP
	66.31	66.91	0.60			MUDSTONE	SLTY. M. GY. MAS. BRKN MINOR SILTSTONE BANDS

* DENOTES MEASURED BCA

BCA	DEPTH FROM	DEPTH TO	DEPTH INTERVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 80	66.91	67.61	0.70			SILTSTONE	LT-M. GY. LAM. SSD DISTORTED BEDDING; INTERLAMINATED MUDSTONE; CARBONATE FILLED MICROFRACTURES OBVIOUS DISPLACEMENT (1.5CM); MUD RICH TOWARD BASE
	67.61	68.63	1.02			MUDSTONE	SLTY. M. GY. LAM. SSD. BRKN LARGE CARBONATE VEIN; INTERLAMINATED SILTSTONE; DISTORTED BEDDING
	68.63	69.59	0.96			MUDSTONE	M-DK. GY. LAM. BRKN FAINTLY VISIBLE SILTSTONE LAMINAE
	69.59	71.60	2.01			MUDSTONE	SLTY. M. GY. LAM. BRKN DISCORDANT INTERLAMINATED SILTSTONE THAT INCREASES TOWARD BASE OF UNIT
	71.60	71.78	0.18			MUDSTONE	SLTY. M. GY. LAM. BRKN
* 80	71.78	71.89	0.11			SILTSTONE	LT. GY. MAS. SLD MUDSTONE DISH STRUCTURES; POSSIBLY RECRYSTALLIZATION OF CARBONATE; MINOR CARBONATE VEINING

* DENOTES MEASURED BCA

F R O M 4 0 0 1

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 11

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85029

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	78	71.89	73.94	1.45		MUDSTONE	SLTY. LT-M. GY. LAM. BRKN INTERLAMINATED DISCONTINUOUS SILTSTONE; OBVIOUS DISPLACEMENT ALONG FRACTURES (1CM); MINOR CARBONATE VEIN (APPROX .5C M)
*	75	73.34	74.41	1.07		MUDSTONE	SLTY. LT-M. GY. LAM. BRKN AS ABOVE
	64	74.41	74.71	0.20		MUDSTONE	CLYY. LT-M. GY. LAM. BRKN CONTORTED; GRADATIONAL FROM ABOVE
	61	74.71	74.85	0.14	06618	CLAYSTONE	NH. MAS. SLD POSSIBLY BENYONITE; LOWER SCM SAMPLED
	59	74.85	75.00	0.15	06618	MUDSTONE	CARB. M. GY. MAS. BRKN
	57	75.00	75.04	0.04	06619 J	COAL	C-5. BRKN
	57	75.04	75.06	0.02	06619 J	COAL	C-3. BRKN
	56	75.06	75.21	0.15	06619 J	COAL	C-2. YBRKN
	52	75.21	75.53	0.32	06619 J	COAL	C-2. YBRKN

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85029

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	40	75.53	76.78	1.25	06620	MUDSTONE	SLTY. M. GY. MAS. YBRKN SILTIER TOWARDS BASE; UPPER 20CM SAMPLE D
	35	76.78	76.96	0.18		MUDSTONE	SLTY. M. GY. MAS. YBRKN AS ABOVE
*	29	76.96	78.70	1.74		MUDSTONE	SLTY. M. GY. LAM. SSD. BRKN THINLY INTERLAMINATED SILTSTONE (MINOR) ; ENTERING A LARGE FOLD LIMB OR A POSSI BLE LARGE MONOCLINE
	26	78.70	78.90	0.20		MUDSTONE	SLTY. M. GY. LAM. YBRKN
	26	78.90	79.00	0.10		MUDSTONE	SLTY. M. GY. LAM. YBRKN AS ABOVE; MINOR CARBONATE VEINING
	25	79.00	79.65	0.65		MUDSTONE	SLTY. M. GY. LAM. YBRKN AS ABOVE
*	22	79.65	80.81	1.16		MUDSTONE	SLTY. M. GY. LAM. YBRKN AS ABOVE; 30CM ZONE OF BRECCIATED MUDST ONE APPEARING
*	05	80.81	81.79	0.98		MUDSTONE	SLTY. M. GY. LAM. HRMBU. BRKN THINLY INTERLAMINATED SILTSTONE

* DENOTES MEASURED BCA

FORM
4001

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85029

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 02	81.79	82.69	0.90			MUDSTONE	SLTY. M. GY. LAM. SSD. BRKN AS ABOVE
* 01	82.69	84.19	1.50			MUDSTONE	SLTY. M. GY. LAM. BRKN AS ABOVE
01	84.19	84.67	0.48			MUDSTONE	SLTY. M. GY. LAM. BRKN AS ABOVE
* 02	84.67	86.77	2.10			MUDSTONE	SLTY. M. GY. LAM. BRKN AS ABOVE; FRACTURES ARE AT 30 DEGREES TO BEDDING; STILL ON LIMB OF FOLD; VERTI CAL BEDS.
* 11	86.77	88.59	1.82			MUDSTONE	SLTY. M. GY. LAM. BRKN THINLY INTERLAMINATED SILTSTONE; LIMB OF FOLD HAS SLIGHT UNDUCLATIONS
11	88.59	88.69	0.10			MUDSTONE	SLTY. M. GY. LAM. BRKN THINLY INTERLAMINATED SILTSTONE
10	88.69	89.66	0.97			MUDSTONE	SLTY. M. GY. LAM. YBRKN AS ABOVE
* 10	89.66	90.28	0.62			MUDSTONE	SLTY. M. GY. LAM. BRKN AS ABOVE
09	90.28	90.58	0.30			MUDSTONE	SLTY. M. GY. LAM. YBRKN AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85029

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
06	90.58	91.92	1.34			MUDSTONE	SLTY. M. GY. LAM. YBRKN AS ABOVE
04	91.92	92.01	0.09			MUDSTONE	SLTY. M. GY. LAM. BRKN THINLY INTERLAMINATED SILTSTONE; STILL ON FOLD LIMB OF MONOCLINE
* 01	92.01	93.86	1.85			MUDSTONE	SLTY. M. GY. LAM. SSD. BRKN AS ABOVE
02	93.86	94.96	1.10			MUDSTONE	SLTY. M. GY. LAM. SSD. BRKN AS ABOVE
02	94.96	95.53	0.57			MUDSTONE	SLTY. M. GY. LAM. SSD. BRKN AS ABOVE
03	95.53	96.20	0.67			MUDSTONE	SLTY. M. GY. LAM. SSD. BRKN AS ABOVE
03	96.20	97.36	1.16			MUDSTONE	SLTY. M. GY. LAM. SSD. BRKN AS ABOVE
04	97.36	97.72	0.36			MUDSTONE	SLTY. M. GY. LAM. BRKN AS ABOVE
04	97.72	98.92	1.20			MUDSTONE	SLTY. M. GY. LAM. BRKN AS ABOVE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85029

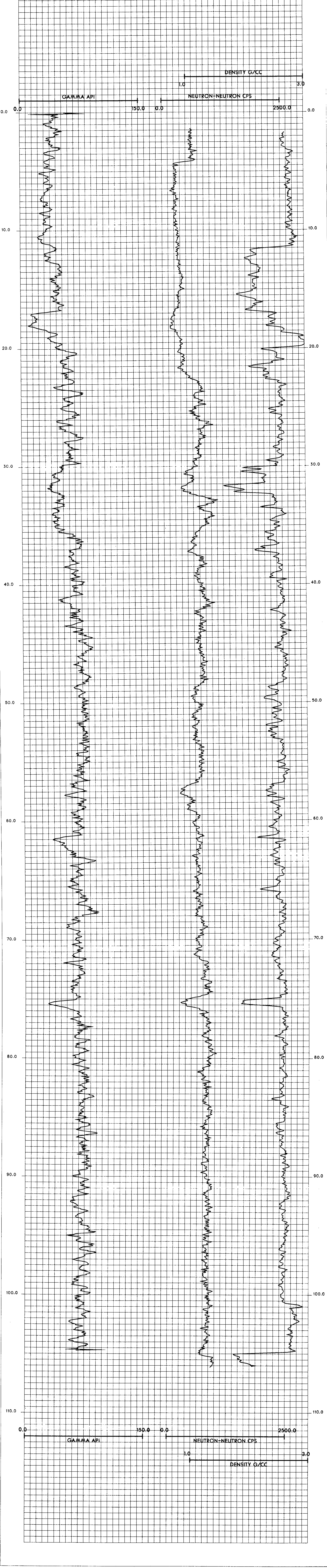
BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
05	98.92	99.47	0.55			MUDSTONE	SLTY. M. GY. LAM. BRKN AS ABOVE
* 05	99.47	100.69	1.22			MUDSTONE	SLTY. M. GY. LAM. BRKN AS ABOVE
12	100.69	101.06	0.37			MUDSTONE	SLTY. M. GY. LAM. BRKN AS ABOVE
17	101.06	101.66	0.60			MUDSTONE	SLTY. M. GY. LAM. VBRKN AS ABOVE
* 23	101.86	102.38	0.52			MUDSTONE	SLTY. M. GY. LAM. BRKN INTERLAMINATED SILTSTONE
* 34	102.38	103.20	0.82			MUDSTONE	SLTY. M. GY. LAM. VBRKN BCA'S INCREASE; POSSIBLY COMING OUT OF THE MONOCLINE
34	103.20	104.25	1.05			MUDSTONE	SLTY. M. GY. LAM. VBRKN

* DENOTES MEASURED BCA
NEWPAGE

Gulf Canada Resources Inc. Coal Division

Geophysical Log

Datasource: KPNLRDDH85029 Log Date: 85-08-04 Company: CENTURY Geologist: SAVOIE	Province: BC Zone: 9 Measuring Point:	Northing: 6343260.00 Easting: 506524.00 Elevation: 1662.0			
Scale: 1 to 100.0 Depth Range: 0.0 to 111.0 True Thickness: NO	Comments: 1. LOGGED THROUGH THE RODS 2.				
Logs Plotted:					
Description	Axis Range	Axis Length	Smoothing Points	Tool	Comments
1. GAMMA API	0.0 to 150.0	10.0	31	9055A	IN PIPE
2. NEUTRON-NEUTRON CPS	0.0 to 2500.0	10.0	9	9055A	IN PIPE
3. DENSITY G/CC	1.0 to 3.0	10.0	15	9030A	IN PIPE



707

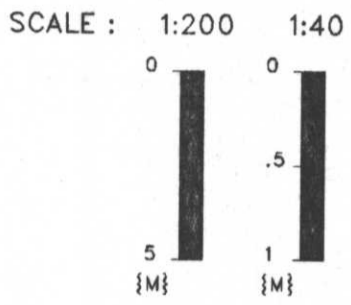
GULF CANADA RESOURCES INC.
 COAL DIVISION
 KLAPPAN PROJECT
 STRATIGRAPHIC LOG
 KPN LR DDH85029

GEOLOGIST : SAVOIE

DATE : JAN 08/86

DRAWING NO. :

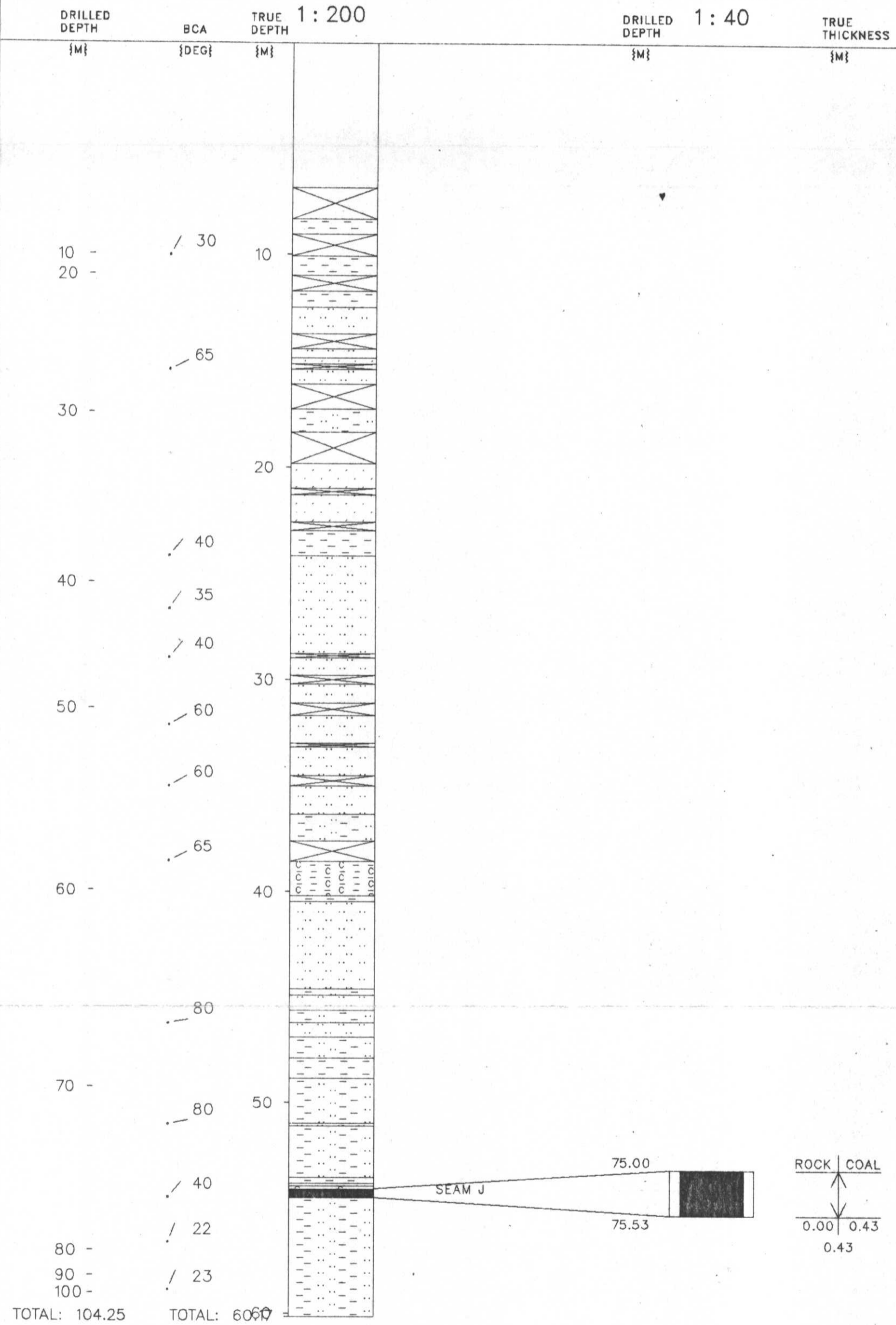
LITHOLOGIC SYMBOLS



NORTHING: 6343261.0 N INCLINATION: 90.0°
 EASTING: 506523.9 E

	SANDSTONE		BENTONITE
	SILTSTONE		BRECCIA
	COAL		CARBONACEOUS
	OVERBURDEN		QUARTZ
	MUDSTONE, CLAYSTONE		PYRITE
	TUFF		FERRUGINOUS
	LIMESTONE		CONGLOMERATE
	CORE LOSS		FOSSIL BED

SEAM DETAIL



KPNLRDDH85030

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH85030

DATE - 01/09/86

- HISTORY -

START DATE - 08/04/85
END DATE - 08/04/85

CONTRACTOR - J T THOMAS
GEOLOGIST - SWANBERGSON

OPERATOR - GCRI
SURVEYOR - MWG & ASS

REMARKS - DRILLED IN PIT AREA AND HAS SINCE BEEN MINED

- LOCATION -

PROVINCE - BC
ELEVATION - 1826.20

ZONE - 9
NORTHING - 6344306.00
EASTING - 505778.31

LICENCE/LEASE NUMBER - 7152

LATITUDE - 571437
LONGITUDE - 1285415

- ORIENTATION -

LENGTH - 31.17

INCLINATION - 90.0
AZIMUTH - 0.0

CORE SIZE - 0.0

CEMENT -
PLUG -
PIEZ -

CASING DEPTH (M) - 0.00
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 RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85030

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 75	0.00	0.90	0.90			SILTSTONE	M.GY. THNB. BRKN THIN SANDY LENTICULAR INTERBEDS
74	0.90	2.59	1.69			ROCK LOSS	
72	2.59	3.29	0.70			SILTSTONE	M.GY. THNB. BRKN AS ABOVE
72	3.29	3.52	0.23			SILTSTONE	M.GY. THNB. BRKN AS ABOVE; FE STAINING
71	3.62	4.57	0.95			SANDSTONE	FG. MEL. M.GY. THNB. SLD THIN SILTY LAMINATIONS
70	4.57	4.79	0.22			SANDSTONE	FG. MEL. M.GY. THNB. SLD AS ABOVE; FE STAINING
* 70	4.79	5.26	0.47			SILTSTONE	M.GY. THNB. SLD THIN SILTY MUDSTONE INTERBEDS; FE STAINING
* 75	5.26	5.50	0.24			SILTSTONE	LT. GY. SLD BROKEN AT TOP; FE STAINING
74	5.50	5.95	0.45			SANDSTONE	FG. MEL. M.GY. THNB. SLD BROKEN AT BASE; COMPLETELY ALTERED HEATED ZONE CUTTING BEDDING (RUST COLOUR ED-SOFT MUDSTONE TEXTURE)

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 2

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85030

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
73	5.95	6.34	0.39			SANDSTONE	FG. MEL. M.GY. THNB. BRKN CORE VERY BROKEN AT TOP; WEATHERED GREY SILTY (12CM) INTERBED IN MIDDLE
72	6.34	7.07	0.73			SANDSTONE	FG. MEL. M.GY. THNB. VBRKN WEATHERED LIGHT TAN GREY
* 70	7.07	7.69	0.62			SANDSTONE	FG. MEL. M.GY. THNB. XBDG. SLD TOPS UP
* 65	7.69	7.94	0.25			SANDSTONE	FG. MEL. M.GY. THNB. XBDG. SLD SHARP CHANNEL SCOUR AT ABRUPT BASAL CONTACT; TOPS UP; OCCASIONAL CARBONACEOUS MISP
70	7.94	8.44	0.50			MUDSTONE	LT. GY. SLD BROKEN AT BASE; MARKER HORIZON ABOVE I SEAM; SLIGHTLY BENTONITIC ?
74	8.44	8.49	0.05			BENTONITE	BF. SLD SLIGHTLY GRITTY
* 75	8.49	8.62	0.13			MUDSTONE	LY. GY. SLD BENTONITIC ?
75	8.62	9.69	1.07			SILTSTONE	M.GY. LAM. SLD FG SANDSTONE INTERBEDS; THINLY BEDDED I M PART; MINOR SAND FILLED FEEDING TRACK

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85030

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 75	9.69	10.13	0.44			SILTSTONE	M. GY. LAM. SLD. AS ABOVE
* 75	10.13	11.71	1.58			SILTSTONE	M. GY. LAM. SLD. AS ABOVE
76	11.71	13.23	1.52			SILTSTONE	M. GY. LAM. BRKN. AS ABOVE
77	13.23	13.56	0.33			SILTSTONE	M. GY. LAM. BRKN. AS ABOVE
78	13.56	15.46	1.90			SILTSTONE	M. GY. LAM. BRKN. AS ABOVE
79	15.46	15.96	0.50			SILTSTONE	M. GY. LAM. YBRKN FE STAINED
* 80	15.96	17.30	1.34			MUDSTONE	SLTY. M. GY. HRMBU. BRKN. TOPS UP; MINOR FG SANDY LAMINATIONS; SO ME FE STAINING
76	17.30	17.90	0.60			MUDSTONE	SLTY. M. GY. HRMBU. VBRKN AS ABOVE
* 72	17.90	19.05	1.15			MUDSTONE	SLTY. M. GY. LAM. HRMBU. BRKN VFG SANDSTONE LAMINATIONS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85030

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
72	19.05	20.48	1.43	06678		MUDSTONE	SLTY. M. GY. LAM. HRMBU. BRKN. AS ABOVE; LOWER 20CM SAMPLED
71	20.48	20.77	0.29	06679 I		COAL	C-2. BLK. SLD
71	20.77	20.81	0.04	06679 I		MUDSTONE	DK. GY. SLD. SOFT
71	20.81	20.82	0.01	06679 I		MUDSTONE	CARB. BLK. BRKN. COAL STRINGERS; SOFT
71	20.82	20.88	0.06	06679 I		ROCK LOSS	
71	20.88	20.95	0.07	06679 I		COAL	C-2. BLK. SLD
71	20.95	21.03	0.08	06679 I		COAL	C-1. BLK. SLD
71	21.03	21.08	0.05	06679 I		ROCK LOSS	
71	21.08	21.10	0.02	06679 I		MUDSTONE	CARB. BLK. SLD. SOFT; COAL STRINGERS
71	21.10	21.98	0.88	06679 I		COAL	C-1. BLK. SLD. BROKEN AT BASE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDM85030

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
71	21.98	22.01	0.03	06680	I	MUDSTONE	CARB. BLK. SLD SOFT; COAL STRINGERS
71	22.01	22.17	0.16	06680	I	COAL	C-3. BLK. VSHRD
71	22.17	22.31	0.14	06680	I	COAL	C-2. YBRKN
71	22.31	22.36	0.05	06680	I	MUDSTONE	CARB. DK. GY. MAS. SLD
71	22.36	22.53	0.17	06681	I	COAL	C-2. BRKN
71	22.53	22.76	0.23	06681	I	COAL	C-1. BRKN
71	22.76	24.69	1.93	06681	I	COAL	C-1. BRKN MINOR THIN MUDDY BANDS WITHIN
70	24.69	24.76	0.07	06682		MUDSTONE	CARB. BLK. YBRKN MINOR COALY STRINGERS
70	24.76	25.33	0.57	06682		MUDSTONE	DK. GY. YBRKN INTERBEDDED MUDSTONE AND SILTSTONE; SILTY TOWARDS BASE; UPPER 20CM SAMPLED

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDM85030

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 70	26.33	26.57	1.24			SILTSTONE	M. GY. BRKN INTERBEDDED WITH FG SANDSTONE; FE STAINING
70	26.57	27.33	0.76			SILTSTONE	M. GY. BRKN AS ABOVE
* 70	27.33	28.53	1.20			SILTSTONE	M. GY. BRKN LAMINATED TO THINLY BEDDED; MINOR FE STAINING; MINOR SLD
70	28.53	28.65	0.12			SILTSTONE	M. GY. BRKN AS ABOVE
70	28.65	30.11	1.46			SANDSTONE	FG. WEL. H. GY. THNB. SLD MINOR SILTY LAMINATIONS AND INTERBEDS; FRACTURE PLANE AT 4 DEGREES BCA; WEATHERED ALONG FRACTURE
70	30.11	30.23	0.12			MUDSTONE	SILTY M. GY. BRKN FE STAINING
70	30.23	30.49	0.26			SANDSTONE	FG. WEL. M. GY. THNB. BRKN WITH SILTY MUDSTONE INTERBEDS
70	30.49	30.94	0.45			SANDSTONE	FG. WEL. M. GY. THNB. YBRKN AS ABOVE

* DENOTES MEASURED BCA

1-000-200-7

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLDCK: LR DATA SOURCE: DDH85050

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
79	30.94	31.17	0.23			SANDSTONE	FG. WEL. M. GY. THNB. VBRKH AS ABOVE; END OF HOLE

* DENOTES MEASURED BCA
NEWPAGE

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MRO

GULF CANADA RESOURCES INC.

COAL DIVISION
MOUNT KLAPPAN PROJECT

SEAM DETAIL

TRUE THICKNESS

DATA SOURCE: KPN LR 00H85030 SEAM : INTERVAL(M) : 20.48 - 24.89 ELEVATION(M) : 1826.2
 GEOLOGIST : SWANBERGSON SCALE: DATE : DEC 19/85 DRAWING NO. :

SEAM COMP.	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES		X REC.	SAMPLE ID		COAL/ROCK TOTAL		COAL QUALITY A.D.B.							
			ROCK	COAL		SIMP	COMP	COMPOS	MINING SECTION	RES MOIST	ASH	YM	FC	TS	SAL/VOL W/RS		
	20.48	↑		0.28													
				0.16													
					92.7	8479											
				0.83													
	21.98																
				0.28	100.0	8480											
	22.38																
								0	3.73 / 0.25	3.26	16.88	5.46	74.62	0.45	27.84		
									3.08								
					100.0	8481											
				2.20													
	24.89	↓															

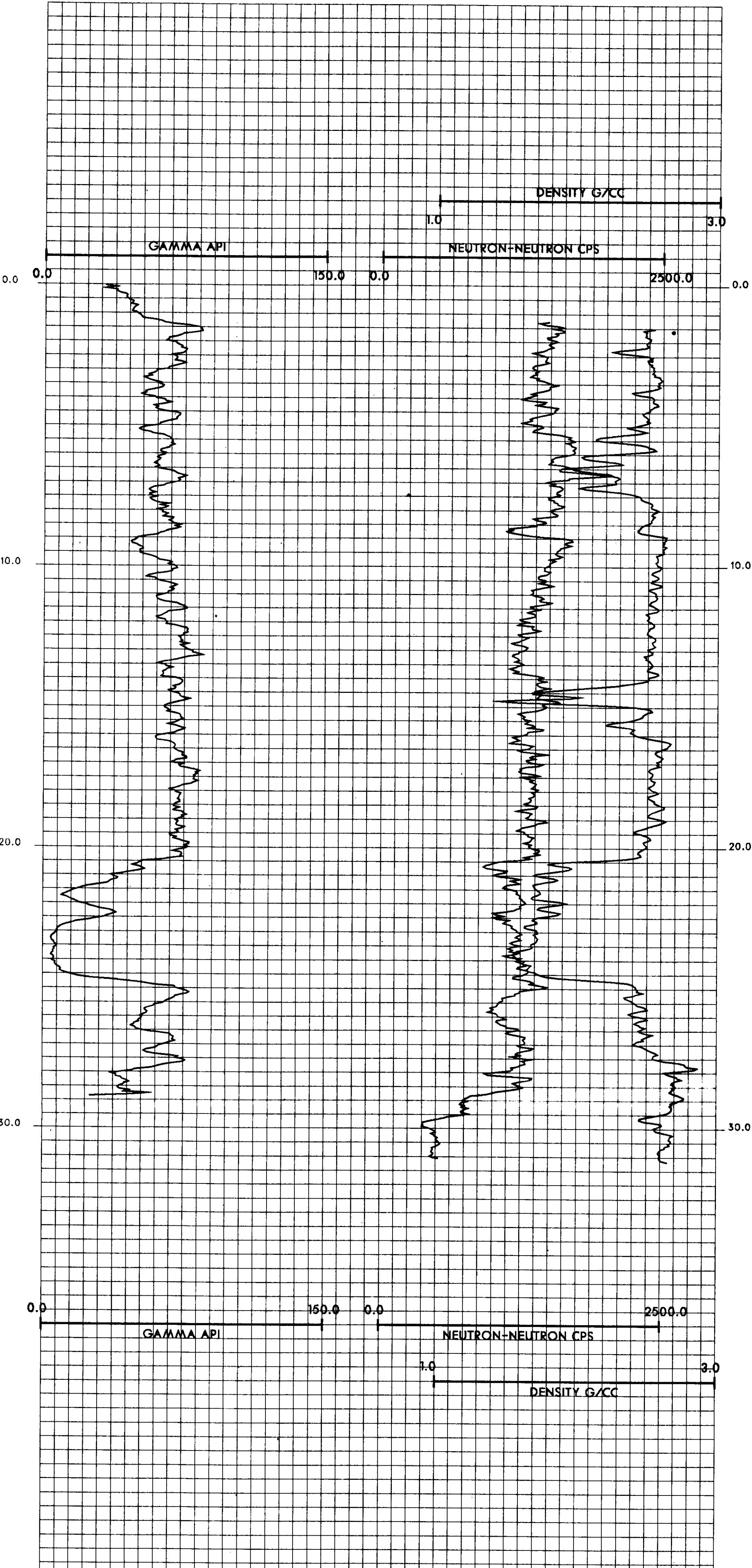
3.9.8

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Gulf Canada Resources Inc. Coal Division

Geophysical Log

Datasource: KPNLRDDH85030 Log Date: 85-08-05 Company: CENTURY Geologist: SWANBERGSON	Province: BC Northing: 6344310.00 Lat: 571437 Zone: 9 Easting: 505778.00 Long: 1285415 Measuring Point: Elevation: 1826.0																									
Scale: 1 to 100.0 Depth Range: 0.0 to 36.0 True Thickness: NO	Comments: 1. LOGGED THROUGH THE RODS 2.																									
Logs Plotted:																										
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Description</th> <th style="text-align: left;">Axis Range</th> <th style="text-align: left;">Axis Length</th> <th style="text-align: left;">Smoothing Points</th> <th style="text-align: left;">Tool</th> <th style="text-align: left;">Comments</th> </tr> </thead> <tbody> <tr> <td>1. GAMMA API</td> <td>0.0 to 150.0</td> <td>10.0</td> <td>31</td> <td>9030A</td> <td>IN PIPE</td> </tr> <tr> <td>2. NEUTRON-NEUTRON CPS</td> <td>0.0 to 2500.0</td> <td>10.0</td> <td>9</td> <td>9055A</td> <td>IN PIPE</td> </tr> <tr> <td>3. DENSITY G/CC</td> <td>1.0 to 3.0</td> <td>10.0</td> <td>15</td> <td>9030A</td> <td>IN PIPE</td> </tr> </tbody> </table>	Description	Axis Range	Axis Length	Smoothing Points	Tool	Comments	1. GAMMA API	0.0 to 150.0	10.0	31	9030A	IN PIPE	2. NEUTRON-NEUTRON CPS	0.0 to 2500.0	10.0	9	9055A	IN PIPE	3. DENSITY G/CC	1.0 to 3.0	10.0	15	9030A	IN PIPE		
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2. NEUTRON-NEUTRON CPS	0.0 to 2500.0	10.0	9	9055A	IN PIPE																					
3. DENSITY G/CC	1.0 to 3.0	10.0	15	9030A	IN PIPE																					



707

GULF CANADA RESOURCES INC.
 COAL DIVISION
 KLAPPAN PROJECT
 STRATIGRAPHIC LOG
 KPN LR DDH85030

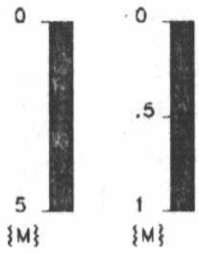
GEOLOGIST : SWANBERGSON

DATE : JAN 08/86

DRAWING NO. :

LITHOLOGIC SYMBOLS

SCALE : 1:200 1:40

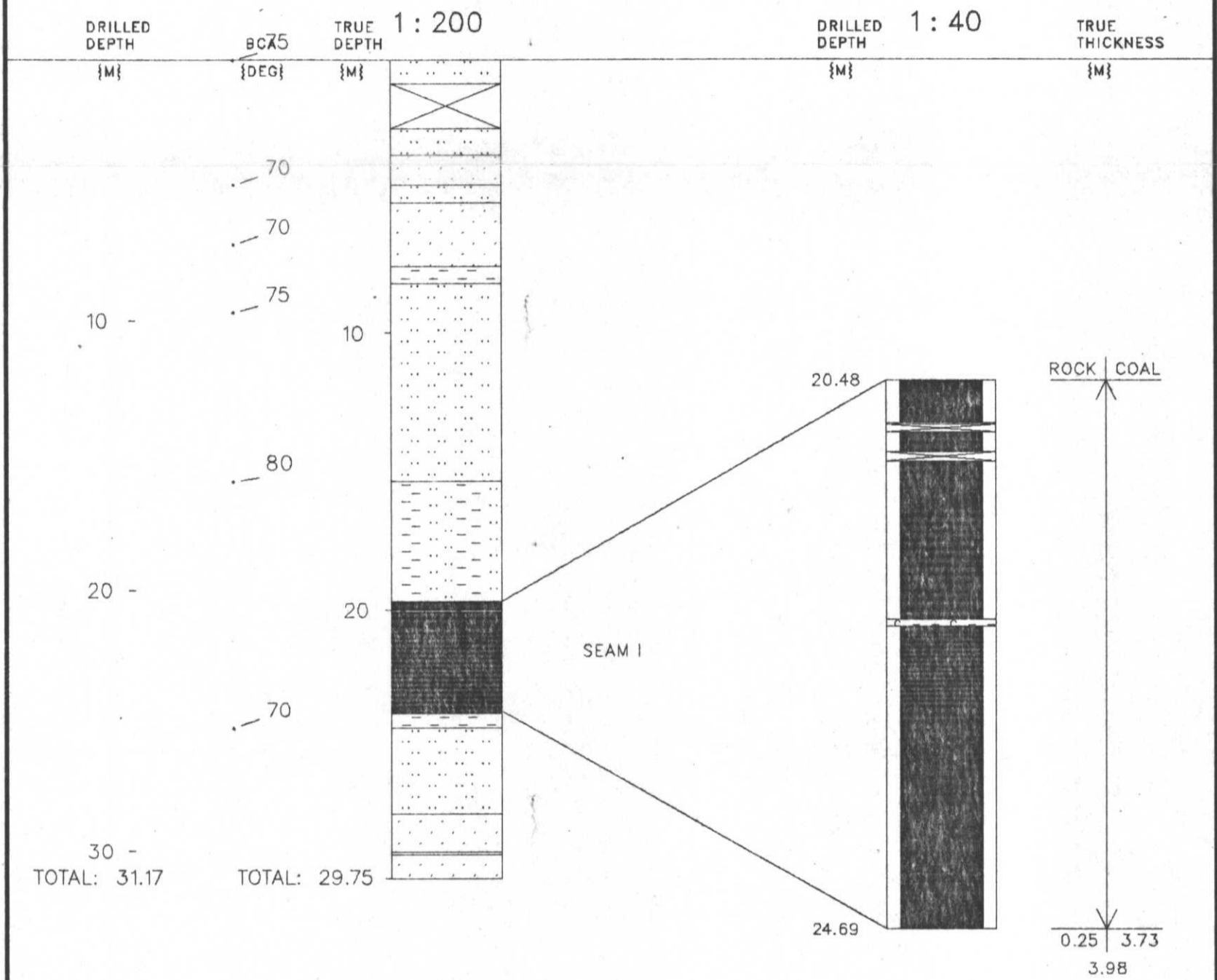


NORTHING: 6344306.0 N
 EASTING: 505778.3 E

INCLINATION: 90.0°

	SANDSTONE		BENTONITE
	SILTSTONE		BRECCIA
	COAL		CARBONACEOUS
	OVERBURDEN		QUARTZ
	MUDSTONE, CLAYSTONE		PYRITE
	TUFF		FERRUGINOUS
	LIMESTONE		CONGLOMERATE
	CORE LOSS		FOSSIL BED

SEAM DETAIL



KPNLRDDH85031

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH85031

DATE - 01/09/86

- HISTORY -

START DATE - 08/05/85
END DATE - 08/05/85

CONTRACTOR - J T THOMAS
GEOLOGIST - SAVOIE

OPERATOR - GCRI
SURVEYOR - MWG & ASS

REMARKS - DRILLED IN PIT AREA AND HAS SINCE BEEN MINED

- LOCATION -

PROVINCE - BC
ELEVATION - 1827.40

ZONE - 9
NORTHING - 6344324.00
EASTING - 505717.44

LICENCE/LEASE NUMBER - 7152

LATITUDE - 571438
LONGITUDE - 1285419

- ORIENTATION -

LENGTH - 22.11

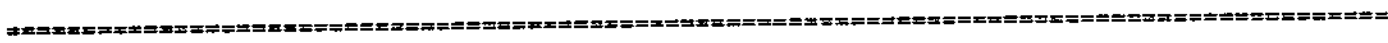
INCLINATION - 90.0
AZIMUTH - 0.0

CORE SIZE - 0.0

CEMENT -
PLUG -
PIEZ -

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

*** NOTE *** 0 INDICATES NO VALUE



MT. KLAPPAN COAL PROPERTY

1985 DIAMOND DRILL HOLES
DDH85031

SEAM

TRUE SEAM THICKNESS
(COAL & ROCK)



NOTE: SCHEMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm COAL.

SCALE: 1:2000

GULF CANADA RESOURCES INC.
15/01/86



86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85031

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	70	0.00	1.00	1.00		ROCK LOSS	
	70	1.00	2.70	1.70		SILTSTONE	M. GY. LAM. VBRKN FIRST 70CM UNCONSOLIDATED; VERY WEATHERED (ORANGE-BROWN); INTERLAMINATED SILTS TONE AND MUDSTONE
	70	2.70	3.79	1.09		ROCK LOSS	
	70	3.79	4.39	0.60		SILTSTONE	M. GY. LAM. VBRKN INTERLAMINATED SILTSTONE AND MUDSTONE; VERY WEATHERED ORANGE-BROWN
	70	4.39	5.55	1.16		SILTSTONE	CLYY. M. GY. LAM. VBRKN AS ABOVE; INCREASE IN % OF MUDSTONE TOWARD BASE
	70	5.55	5.93	0.38		ROCK LOSS	
*	70	5.93	6.83	0.90		SILTSTONE	CLYY. M. GY. LAM. VBRKN AS ABOVE
	70	6.83	7.53	0.70		SILTSTONE	CLYY. M-DK. GY. LAM. VBRKN AS ABOVE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 2

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85031

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	70	7.53	8.12	0.59	06683	MUDSTONE	SLTY. M-DK. GY. LAM. BRKN ORANGE WEATHERING ALONG PLANES OF WEAKNESS; LOWER 20CM SAMPLED
	70	8.12	8.14	0.02	06684 I	COAL	C-2.5LD
	71	8.14	8.30	0.16	06684 I	COAL	C-1. BRKN
	71	8.30	8.32	0.02	06684 I	MUDSTONE	CARB. M-DK. GY. MAS. BRKN
	71	8.32	8.61	0.29	06684 I	COAL	C-1 MINOR MUDDY STRINGERS WITHIN
	71	8.61	8.66	0.05	06684 I	MUDSTONE	CARB. M-DK. GY. MAS. VBRKN COALY STRINGERS WITHIN; CORE LOSS (?)
	72	8.66	9.16	0.50	06684 I	COAL	C-1. BRKN
	72	9.16	9.22	0.06	06684 I	COAL	C-1. BRKN
	72	9.22	9.72	0.50	06684 I	COAL LOSS	

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 3

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85031

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	73	9.72	9.86	0.14	06685 I	ROCK LOSS	
	73	9.86	9.90	0.04	06685 I	MUDSTONE	CARB. M-DK. GY. MAS. BRKN
	73	9.90	10.01	0.11	06685 I	COAL	C-3. BRKN C-1. BANDS WITHIN
	73	10.01	10.08	0.07	06686 I	COAL	C-1. SLD
	73	10.08	10.36	0.28	06686 I	COAL	C-1. BRKN
	74	10.36	10.40	0.04	06686 I	COAL	C-3. BRKN
	74	10.40	10.72	0.32	06686 I	COAL LOSS	
	74	10.72	10.90	0.18	06686 I	ROCK LOSS	
	74	10.90	10.94	0.04	06686 I	MUDSTONE	CARB. M-DK. GY. MAS. BRKN WEATHERED
	74	10.94	10.97	0.03	06686 I	COAL	C-5. BRKN
	75	10.97	11.10	0.13	06686 I	COAL	C-2. BRKN

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 4

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85031

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	75	11.10	11.18	0.08	06686 I	COAL	C-1. SLD THIN BANDS OF POORER COAL
	75	11.18	11.20	0.02	06686 I	COAL	C-5. SLD WEATHERED ORANGE
	75	11.20	11.35	0.15	06686 I	COAL	C-1. BRKN
	75	11.35	11.37	0.02	06686 I	COAL	C-2. BRKN
	76	11.37	12.08	0.71	06686 I	COAL	C-1. BRKN
	76	12.08	12.11	0.03	06686 I	COAL	C-1. SLD
	76	12.11	12.54	0.43	06686 I	COAL	C-1. BRKN
	77	12.54	12.57	0.03	06686 I	COAL	C-3. BRKN WEATHERED ORANGE IN PLACES
	77	12.57	12.63	0.06	06686 I	COAL	C-1. BRKN
	77	12.63	12.69	0.06	06686 I	COAL LOSS	

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 5

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85031

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	77	12.69	12.70	0.01	06686.1	MUDSTONE	M-DK. GY. MAS. SLD COALY STRINGERS WITHIN
	77	12.70	12.81	0.11	06686.1	COAL	C-2. BRKN THIN MUDDY BANDS THROUGHOUT
	77	12.81	12.85	0.04	06686.1	COAL	C-5. BRKN
	77	12.85	12.88	0.03	06687	MUDSTONE	CARB. M-DK. GY. MAS. BRKN WEATHERS ORANGE; COALY STRINGERS
	78	12.88	13.38	0.50	06687	SILTSTONE	CLTY. M. GY. LAM. YBRKN WEATHERED ORANGE; MUDDY AT TOP OF UNIT GRADING THROUGH SILTSTONE; SILTSTONE AND MUDSTONE INTERBEDS; UPPER 17CM. SAMPLE D
	78	13.38	13.85	0.47		SANDSTONE	SLTY. M. GY. LAM. YBRKN GRADATIONAL FROM ABOVE; DOMINANTLY SAND STONE WITH MUDDY LAMINAE
*	80	13.85	15.85	2.00		SANDSTONE	SLTY. FG. PR. LT-M. GY. LAM. SSD. BRKN INTERLAMINATED TO THINLY BEDDED MUDSTON E; TOPS UP; DECREASE IN MUDSTONE TOWARD BASE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85031

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	82	15.85	16.19	0.34		SANDSTONE	SLTY. FG. PR. LT-M. GY. LAM. SSD. BRKN INTERLAMINATED MUDSTONE; LAMINATED TO T HIN BEDDED
	82	16.19	17.80	1.61		SANDSTONE	SLTY. FG. PR. LT-M. GY. LAM. SSD. BRKN LOCALIZED INTERLAMINATED MUDSTONE WHICH DECREASES WITH DEPTH; SANDSTONE GRADES INTO MG SANDSTONE; WEATHERING (ORANGE- BROWN) ALONG FRACTURE SURFACE
	82	17.80	17.96	0.16		SANDSTONE	MG. PR. LT. GY. MAS. SLD IRREGULAR 1CM OTZ VEIN
*	82	17.96	18.22	0.26		SANDSTONE	SLTY. FG. PR. LT-M. GY. LAM. SSD. BRKN INTERLAMINATED AND DISTORTED MUDSTONE L AMINAE
	81	18.22	19.47	1.25		SANDSTONE	SLTY. YFG. PR. LT-M. GY. LAM. SSD. BRKN DISCONTINUOUS INTERLAMINATED MUDSTONE; TOPS UP
	79	19.47	20.32	0.85		SANDSTONE	SLTY. YFG. PR. LT-M. GY. YBRKN
	78	20.32	21.04	0.72		SANDSTONE	FG. MOD. LT. GY. MAS. YBRKN ORANGE-BROWN WEATHERING ALONG FRACTURE SURFACES

* DENOTES MEASURED BCA

PROJECT: KPW BLOCK: LR DATA SOURCE: D0885031

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP ID	SEAM ID	LITHOLOGY	DESCRIPTION
	77	21.04	21.26	0.22		SANDSTONE	FG. MOD. LT. GY. MAS. YBRKN AS ABOVE
*	76	21.26	22.11	0.85		SANDSTONE	FG. MOD. LT. GY. MAS. SLD AS ABOVE; ONE LOCALIZED MUDSTONE BAND A PPROX 1CM THICK NEAR BASE; CORE LOSS

* DENOTES MEASURED BCA
NEWPAGE

4000-1000

GULF CANADA RESOURCES INC.

COAL DIVISION MOUNT KLAPPAN PROJECT

TRUE THICKNESS

SEAM DETAIL

DATA SOURCE: KPN LR 00H85031 SEAM: 1 INTERVAL(M) : 8.12 - 12.85 ELEVATION(M) : 1827.4
 GEOLOGIST : SAVOIE SCALE: DATE : DEC 19/85 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		
	8.12	↑		0.17													
				0.27													
				0.53	88.8	8888											
				(0.48)													
	9.72			(0.12)	51.8	8885											
	10.01			0.48													
				(0.31)				4.08 / 0.48		5.19	12.45	8.85	73.51	0.41	27.84		
				(0.17)				4.54									
				1.64	80.4	8888											
	12.85	↓		9.16													

4-54

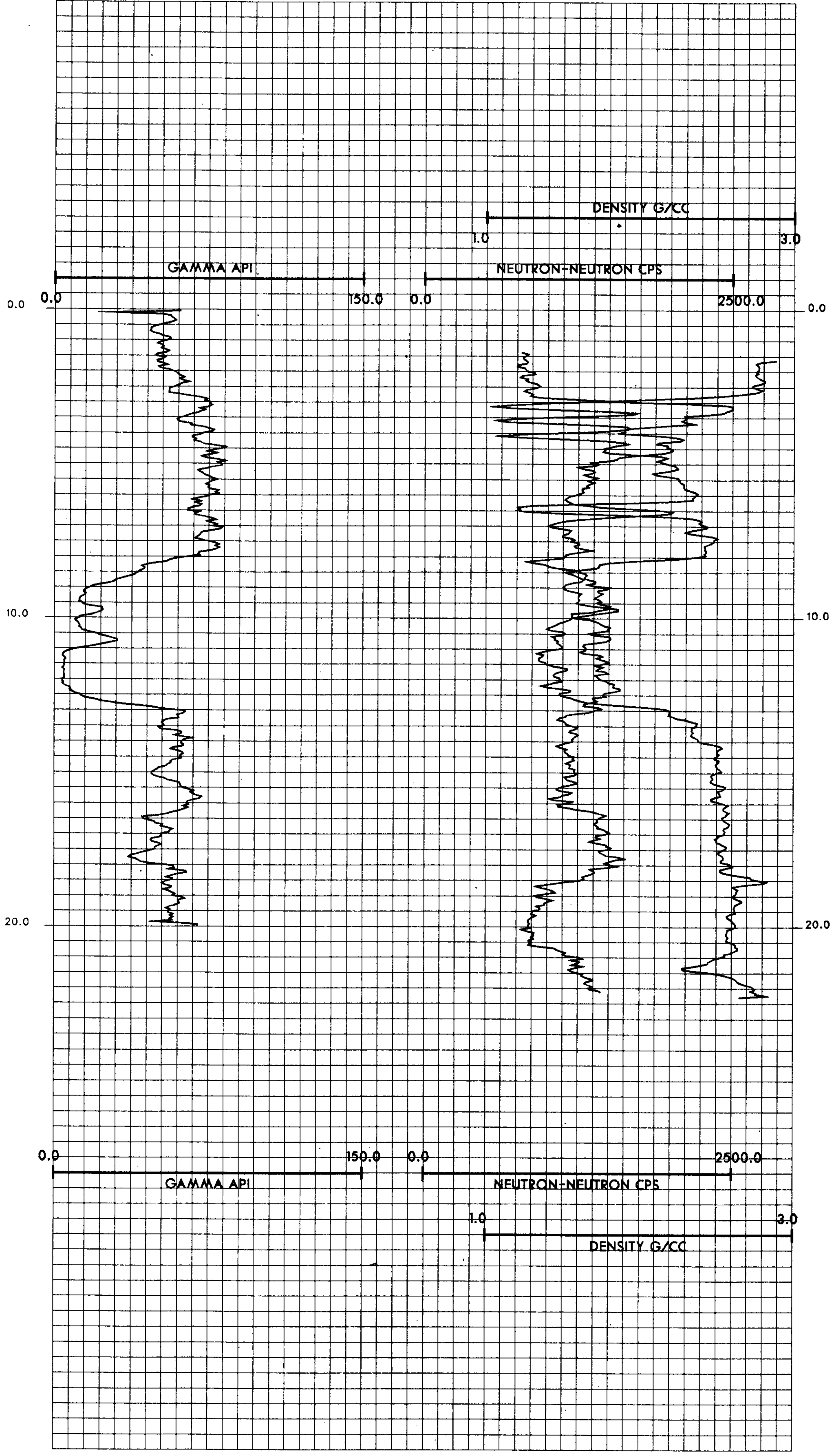
707

Gulf Canada Resources Inc. Coal Division

Geophysical Log

Datasource: KPNLRDDH85031 Log Date: 85-08-05 Company: CENTURY Geologist: SAVOIE	Province: BC Northing: 6344330.00 Lat: 571438 Zone: 9 Easting: 505717.00 Long: 1285419 Measuring Point: Elevation: 1827.0	
Scale: 1 to 100.0 Depth Range: 0.0 to 27.0 True Thickness: NO	Comments: 1. LOGGED THROUGH THE RODS 2.	

Logs Plotted:	Axis Range	Axis Length	Smoothing Points	Tool	Comments
1. GAMMA API	0.0 to 150.0	10.0	31	9030A	IN PIPE
2. NEUTRON-NEUTRON CPS	0.0 to 2500.0	10.0	9	9055A	IN PIPE
3. DENSITY G/CC	1.0 to 3.0	10.0	15	9030A	IN PIPE



707

GULF CANADA RESOURCES INC.
 COAL DIVISION
 KLAPPAN PROJECT
 STRATIGRAPHIC LOG
 KPN LR DDH85031

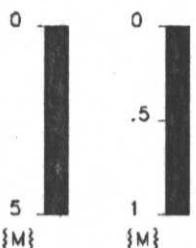
GEOLOGIST : SAVOIE

DATE : JAN 08/86

DRAWING NO. :

LITHOLOGIC SYMBOLS

SCALE : 1:200 1:40

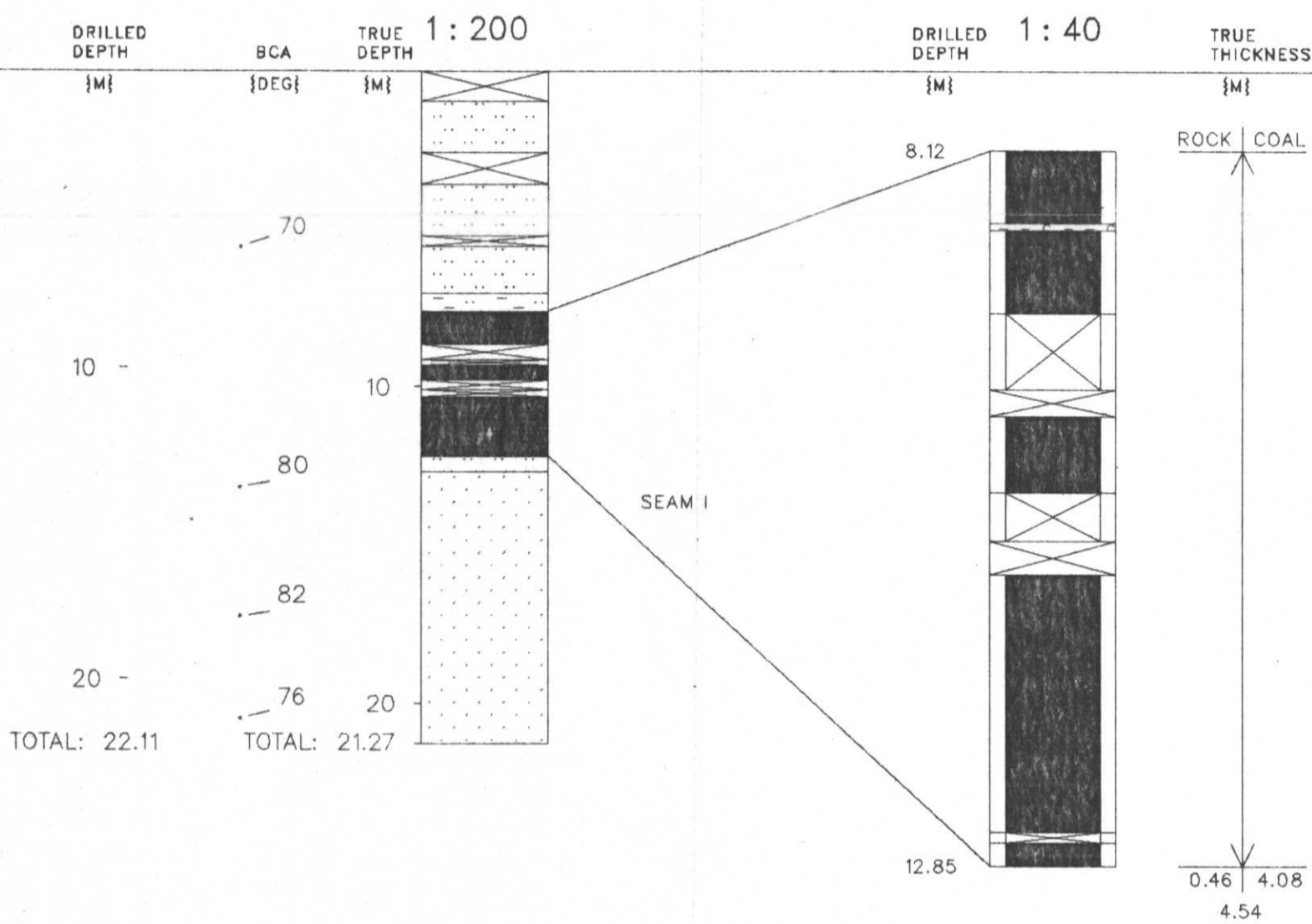


NORTHING: 6344324.0 N
 EASTING: 505717.4 E

INCLINATION: 90.0°

	SANDSTONE		BENTONITE
	SILTSTONE		BRECCIA
	COAL		CARBONACEOUS
	OVERBURDEN		QUARTZ
	MUDSTONE, CLAYSTONE		PYRITE
	TUFF		FERRUGINOUS
	LIMESTONE		CONGLOMERATE
	CORE LOSS		FOSSIL BED

SEAM DETAIL



KPNLRDDH85032

MT. KLAPPAN COAL PROPERTY

1985 DIAMOND DRILL HOLES
DDH85032

SEAM

TRUE SEAM THICKNESS
(COAL & ROCK)



NOTE: SCHEMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm COAL.

SCALE: 1:2000

GULF CANADA RESOURCES INC.
15/01/86



86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85032

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	74	0.00	2.00	2.00		ROCK LOSS	
*	74	2.00	4.04	2.04		SANDSTONE	SLTY. VFG. PR. LT-M. GY. LAM. SSD. BRKN INTERLAMINATED MUDSTONE
	75	4.04	5.04	1.00		ROCK LOSS	
	76	5.04	6.09	1.05		SANDSTONE	SLTY. VFG. PR. LT-M. GY. LAM. HRMBU. BRKN AS ABOVE; SSD: -MBUR (1.9-1CM BY 1-1.5C M); TOPS UP
	77	6.09	7.02	0.93		SILTSTONE	SSY. M. GY. LAM. SSD. BRKN THINLY INTERLAMINATED MUDSTONE
	78	7.02	7.33	0.31		ROCK LOSS	
	78	7.33	7.92	0.59		SILTSTONE	M. GY. LAM. BRKN AS ABOVE; INDISTINCT
	79	7.92	8.83	0.91		SILTSTONE	SSY. M. GY. LAM. SSD. BRKN INTERLAMINATED MUDSTONE; TOPS UP
	79	8.83	9.28	0.45		SANDSTONE	SLTY. VFG. LT-M. GY. LAM. BRKN AS ABOVE; ORANGE-BROWN WEATHERING OF SANDSTONE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 2

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85032

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	80	9.28	10.98	1.70		SANDSTONE	SLTY. FG. PR. LT-M. GY. LAM. SSD. BRKN INTERLAMINATED MUDSTONE; TOPS UP
	80	10.98	11.27	0.29		SILTSTONE	SSY. LT-M. GY. LAM. SSD. BRKN AS ABOVE
*	80	11.27	13.30	2.03		SILTSTONE	SSY. M. GY. LAM. SSD. BRKN AS ABOVE; SANDSTONE WEATHERS ORANGE-BROWN
	80	13.30	14.10	0.80		SILTSTONE	SSY. LT-M. GY. LAM. SSD. BRKN INTERLAMINATED MUDSTONE; MINOR WORM BURROWS; TOPS UP
	81	14.10	14.30	0.20		ROCK LOSS	
	81	14.30	15.22	0.92		SILTSTONE	SSY. LT-M. GY. LAM. BRKN INTERLAMINATED MUDSTONE UNIT WEATHERED ORANGE-BROWN
*	81	15.22	16.06	0.84		SANDSTONE	SLTY. VFG. PR. LT-M. GY. LAM. VBRKN AS ABOVE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85032

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	16.06	17.16	1.10			SANDSTONE	CLYY, FG, PR, LT, GY, LAM, XBDG, SLD VERY INDISTINCT MUDSTONE LAMINAE SHOWN G LOW ANGLE X-BEDDING; TOPS UP; ORANGE BROWN WEATHERING ON FRACTURED SURFACE; CLAY ENRICHED
	17.16	17.92	0.76			SANDSTONE	CLYY, FG, PR, LT, GY, LAM, XBDG, BRKN AS ABOVE; INCREASE IN WEATHERING TOWARD BASE
	17.92	17.95	0.03			CLAYSTONE	WH BENTONITE
	17.95	19.05	1.10			SILTSTONE	SSY, LT-M, GY, LAM, BRKN INTERLAMINATED MUDSTONE; LOCALIZED ZONE S. OF FG SANDSTONE BANDS
*	19.05	20.03	0.98			SILTSTONE	LT-M, GY, LAM, SSD, BRKN INTERLAMINATED MUDSTONE; TOPS UP
	20.03	21.02	0.99			SILTSTONE	LT-M, GY, LAM, SSD, BRKN AS ABOVE
*	21.02	22.99	1.97			SILTSTONE	LT-M, GY, LAM, SSD, BRKN INTERLAMINATED MUDSTONE
	22.99	23.14	0.15			SILTSTONE	CLYY, LT-M, GY, LAM, SSD, BRKN AS ABOVE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85032

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	23.14	24.70	1.56			SILTSTONE	CLYY, LT-M, GY, LAM, SSD, VBRKN AS ABOVE; ORANGE-BROWN WEATHERING ON BR OKEN SURFACES
	24.70	24.81	0.11			SILTSTONE	CLYY, LT-M, GY, LAM, VBRKN AS ABOVE
*	24.81	26.09	1.28			SILTSTONE	CLYY, LT-M, GY, LAM, VBRKN AS ABOVE
*	26.09	27.54	1.45	06688		SILTSTONE	CLYY, M, GY, LAM, BRKN FINELY LAMINATED SILTSTONE AND MUDSTONE ; BECOMING MORE MUDDY TOWARDS BASE; LHM ER 20CM SAMPLED
	27.54	27.56	0.02	06689 I		COAL	C-5, SLD
	27.56	27.57	0.01	06689 I		COAL	C-2, SLD
	27.57	27.69	0.12	06689 I		COAL LOSS	

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 5

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85032

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	27.69	27.79	0.10	06689 I		ROCK LOSS	
	27.79	27.81	0.02	06689 I		MUDSTONE	CARB. M-DK. GY. MAS. SLD
	27.81	28.16	0.35	06689 I		COAL	C-1. BRKN
	28.16	28.17	0.01	06689 I		COAL	C-2. SLD
	28.17	28.19	0.02	06689 I		COAL	C-1. SLD
	28.19	28.57	0.38	06689 I		COAL	C-1. YBRKN

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 6

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85032

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	28.57	28.58	0.01	06689 I		MUDSTONE	CARB. M-DK. GY. MAS. SLD
	28.58	29.06	0.48	06689 I		COAL	C-1. BRKN
	29.06	29.12	0.06	06690 I		MUDSTONE	CLYY. M. GY. MAS. SLD
	29.12	29.22	0.10	06690 I		COAL	C-2
	29.22	29.33	0.11	06690 I		COAL	C-1. SLD
	29.33	29.36	0.03	06690 I		COAL	C-3. SLD

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 7

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85032

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	29.36	29.39	0.03	06690	I	MUDSTONE	CLY. M. GY. MAS. SLD
86	29.39	29.97	0.58	06691	I	COAL	C-1. BRKN MINOR LOWER GRADE THIN BANDS ESPECIALLY NEAR TOP OF UNIT
85	29.97	30.17	0.20	06691	I	COAL LOSS	
85	30.17	30.36	0.19	06691	I	ROCK LOSS	
85	30.36	30.59	0.23	06691	I	COAL LOSS	
85	30.59	30.69	0.10	06691	I	ROCK LOSS	
85	30.69	30.77	0.08	06691	I	MUDSTONE	CARB. M-DK. GY. MAS. VBRKN LISTRIC; ABUNDANT COALY STRINGERS THRU GROUT
84	30.77	30.95	0.18	06691	I	COAL	C-2. BRKN

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 8

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85032

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
84	30.95	30.97	0.02	06692	I	MUDSTONE	CARB. M-DK. GY. MAS. BRKN LISTRIC
84	30.97	31.19	0.22	06692	I	COAL	C-2. PHRD VERY CRUMBLD
84	31.19	31.21	0.02	06692	I	MUDSTONE	CLY. M-DK. GY. MAS. BRKN COALY STRINGERS WITHIN
84	31.21	31.46	0.25	06693	I	COAL	C-1. VBRKN
84	31.46	31.81	0.35	06693	I	COAL	C-2. PHRD POSSIBLY C-1
84	31.81	32.11	0.30	06693	I	COAL	C-1. VBRKN
83	32.11	32.12	0.01	06693	I	MUDSTONE	CARB. M-DK. GY. MAS. SLD
83	32.12	32.44	0.32	06693	I	COAL	C-1. VBRKN FE ALONG CLEAT SURFACES
83	32.44	32.69	0.25	06693	I	COAL	C-2. VBRKN CONTORED; SOFT; POWDERY
83	32.69	32.90	0.21	06693	I	COAL	C-1. VBRKN AS ABOVE

* DENOTES MEASURED BCA

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86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 9

PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85032

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	32.90	33.03	0.13	06693	I	COAL	C-2, YBRKN AS ABOVE
* 82	33.03	34.38	1.35	06694		SILTSTONE	M. GY. LAM. BRKN LAMINATED SILTSTONE AND MUDSTONE NEAR TOP GRADING TO INTERBEDDED SILTSTONE AND FG SANDSTONE AT BASE (MUDDY AT TOP AND SANDY AT BASE); UPPER 20CM SAMPLED
	34.33	34.99	0.60			SANDSTONE	SLTY. FG. PR. LT. M. GY. LAM. SSD. BRKN INTERLAMINATED SILTSTONE AND MUDSTONE (DISCONTINUOUS); TOPS UP
* 81	34.98	36.38	1.40			SANDSTONE	SLTY. FG. PR. LT. M. GY. LAM. SSD. BRKN AS ABOVE; LOCALIZED ZONE OF 1-2CM MUDDY ONE BANDS
	36.38	37.86	1.48			SANDSTONE	FG. PR. LT. GY. MAS. YBRKN LOCALIZED MUDSTONE LAMINAE; INTERLAMINATED MUDSTONE AND SILTSTONE BANDS UP TO 7CM TOWARD BASE
* 82	37.86	38.16	0.30			SANDSTONE	FG. PR. LT. GY. MAS. BRKN LARGE MUDSTONE BAND (6CM) WITH A TALC COVERED SLIPPAGE SURFACE AT THE TOP; ORANGE-BROWN WEATHERING

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 10

PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85032

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 86	38.16	39.26	1.10			SILTSTONE	SSY. M. GY. LAM. SSD. YBRKN DISCONTINUOUS INTERLAMINATED MUDSTONE AND SILTSTONE; MINOR ORANGE-BROWN WEATHERING; DECREASE IN % OF SANDSTONE TOWARD BASE
	39.26	39.72	0.46			SILTSTONE	CLY. M-DK. GY. LAM. BRKN INTERLAMINATED MUDSTONE; HELMINTHOPHYSIS BURROWS (10CM ZONE); GRADES DOWN INTO A MUDSTONE
	39.72	40.75	1.03			MUDSTONE	SLTY. M-DK. GY. MAS. YBRKN ORANGE-BROWN WEATHERING
	40.75	40.85	0.10			SANDSTONE	SLTY. FG. PR. M. GY. MAS. SLD

* DENOTES MEASURED BCA
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GULF CANADA RESOURCES INC.

SEAM DETAIL

COAL DIVISION
MOUNT KLAPPAN PROJECT

TRUE THICKNESS

DATA SOURCE: XPH LR 00H85032 SEAM: 1 INTERVAL(M): 27.54 - 33.03 ELEVATION(M): 1825.0
 GEOLOGIST: SAVOIE SCALE: DATE: DEC 19/85 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/TG		
	27.54			(0.16)													
				(0.17)													
				0.78	95.3	8888											
				0.48													
	29.06			(0.24)													
				0.26	100.0	8890											
	29.39			(0.20)													
				0.58													
				(0.19)	57.9	3891											
				(0.23)													
				(0.16)													
				0.18					4.83/0.84								
	30.95			(0.23)					5.97								
				0.22	100.0	8882											
	31.21			(0.23)													
				0.90													
				(0.23)	100.0	8883											
				0.90													
	33.03																

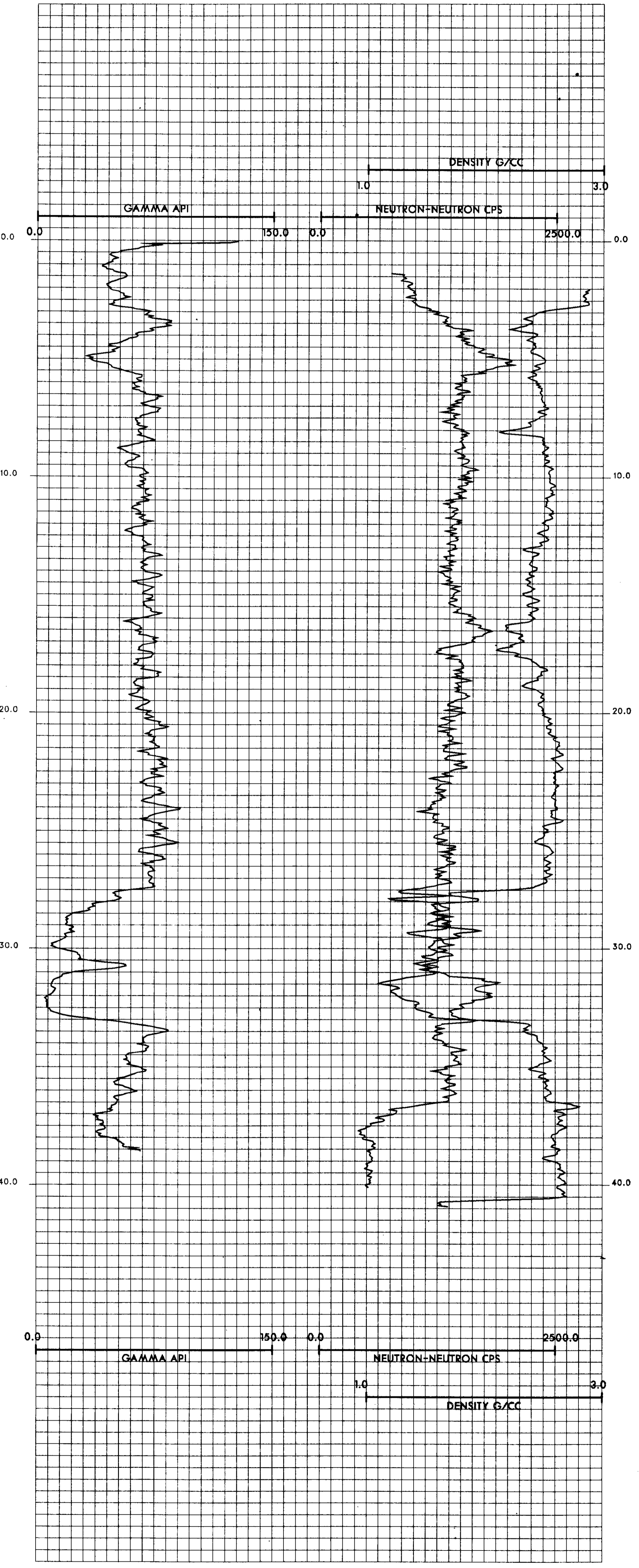
5.47

Gulf Canada Resources Inc. Coal Division

Geophysical Log

Datasource: KPNLRDDH85032 Log Date: 85-08-06 Company: CENTURY Geologist: SAVOIE	Province: BC Northing: 6344290.00 Zone: 9 Easting: 505844.00 Measuring Point:	Lat: 571437 Long: 1285411 Elevation: 1825.0
Scale: 1 to 100.0 Depth Range: 0.0 to 46.0 True Thickness: NO	Comments: 1. LOGGED THROUGH THE RODS 2.	

Logs Plotted:	Axis Range	Axis Length	Smoothing Points	Tool	Comments
1. GAMMA API	0.0 to 150.0	10.0	31	9030A	1 IN PIPE
2. NEUTRON-NEUTRON CPS	0.0 to 2500.0	10.0	9	9055A	1 IN PIPE
3. DENSITY G/CC	1.0 to 3.0	10.0	15	9030A	1 IN PIPE



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GULF CANADA RESOURCES INC.
 COAL DIVISION
 KLAPPAN PROJECT
 STRATIGRAPHIC LOG
 KPN LR DDH85032

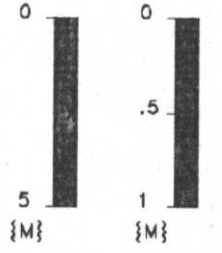
GEOLOGIST : SAVOIE

DATE : JAN 08/86

DRAWING NO. :

LITHOLOGIC SYMBOLS

SCALE : 1:200 1:40

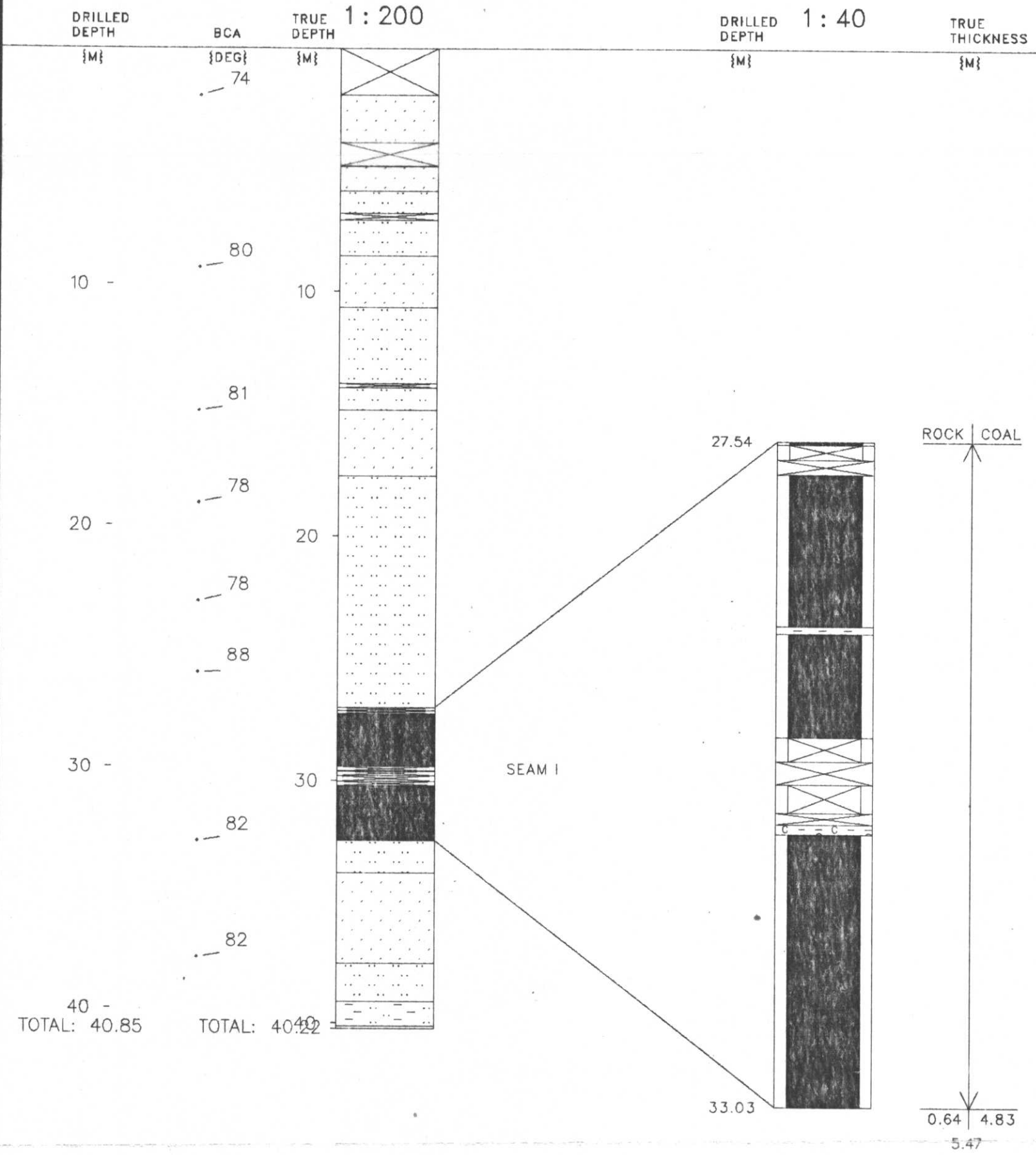


NORTHING: 6344291.0 N
 EASTING: 505843.5 E

INCLINATION: 90.0°

	SANDSTONE		BENTONITE
	SILTSTONE		BRECCIA
	COAL		CARBONACEOUS
	OVERBURDEN		QUARTZ
	MUDSTONE, CLAYSTONE		PYRITE
	TUFF		FERRUGINOUS
	LIMESTONE		CONGLOMERATE
	CORE LOSS		FOSSIL BED

SEAM DETAIL



KPNLRDDH85033

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

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH85033

DATE - 01/09/86

- HISTORY -

START DATE - 08/06/85
END DATE - 08/06/85

CONTRACTOR - J T THOMAS
GEOLOGIST - BUHAY

OPERATOR - GCRI
SURVEYOR - MWG & ASS

REMARKS - DRILLED IN PIT AREA AND HAS SINCE BEEN MINED

- LOCATION -

PROVINCE - BC
ELEVATION - 1809.10

ZONE - 9
NORTHING - 6344258.00
EASTING - 506019.06

LICENCE/LEASE NUMBER - 7152

LATITUDE - 571436
LONGITUDE - 1285401

- ORIENTATION -

LENGTH - 22.23

INCLINATION - 90.0
AZIMUTH - 0.0

CORE SIZE - 0.0

CEMENT -
PLUG -
PIEZ -

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

*** NOTE *** 0 INDICATES NO VALUE

=====

MT. KLAPPAN COAL PROPERTY

1985 DIAMOND DRILL HOLES
DDH85033

SEAM

TRUE SEAM THICKNESS
(COAL & ROCK)



NOTE: SCHEMATIC PROFILE.
NO THICKNESSES SHOWN
FOR SEAMS CONTAINING
LESS THAN 50cm COAL.

SCALE: 1:2000

GULF CANADA RESOURCES INC.
15/01/86



26/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85033

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	2.00	2.00			ROCK LOSS	
* 70	2.00	3.93	1.93			SILTSTONE	CLYY DK. GY. LAM. SSD. BRKN INTERLAMINATED SILT AND MUD; SSD; WEATHERED ORANGE-BROWN
	3.93	5.29	1.36			ROCK LOSS	
	5.29	5.79	0.50			SILTSTONE	CLYY DK. GY. LAM. SSD. VBRKN AS ABOVE
	5.79	6.99	1.20			SILTSTONE	CLYY DK. GY. LAM. SSD. VBRKN AS ABOVE
	6.99	8.01	1.02			ROCK LOSS	
	8.01	9.76	1.75			SILTSTONE	CLYY DK. GY. LAM. SSD. VBRKN INTERLAMINATED SILT AND MUD; WEATHERED ORANGE-BROWN; SOME EVIDENCE OF SHEARING ALONG FRACTURES
	9.76	10.26	0.50			SILTSTONE	CLYY M. GY. VBRKN POSSIBLE CORE LOSS; VERY WEATHERED
	10.26	10.83	0.57	06695		SILTSTONE	CLYY M. GY. VBRKN AS ABOVE; LOWER 7CM SAMPLED

* DENOTES MEASURED BCA

26/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 2

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85033

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	10.83	10.96	0.13	06695		MUDSTONE	CARB. M-DK. GY. MAS. SLD
	10.96	11.29	0.33	06696 I		COAL LOSS	
	11.29	11.33	0.04	06696 I		COAL	C-2. BRKN
	11.33	11.36	0.03	06696 I		MUDSTONE	CLYY. M-DK. GY. MAS. SLD
	11.36	11.41	0.05	06696 I		COAL	C-2. SLD
	11.41	11.64	0.23	06696 I		COAL	C-1. BRKN
	11.64	11.66	0.02	06696 I		MUDSTONE	CARB. M-DK. GY. MAS. SLD
	11.66	11.92	0.26	06696 I		ROCK LOSS	
	11.92	12.21	0.29	06696 I		COAL LOSS	
	12.21	12.44	0.23	06696 I		COAL	C-1. BRKN
	12.44	12.62	0.18	06696 I		COAL	C-1. BRKN

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 3

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85033

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	75	12.62	12.74	0.12	06697 I	ROCK LOSS	
	75	12.74	12.86	0.12	06697 I	MUDSTONE	CLYY. M. GY. MAS. SLD
	75	12.86	12.87	0.01	06697 I	COAL	C-2. SLD
	75	12.87	12.88	0.01	06697 I	MUDSTONE	CLYY. M. GY. MAS. SLD
	75	12.88	13.07	0.19	06698 I	COAL	C-1. BRKN
	75	13.07	13.09	0.02	06698 I	MUDSTONE	CLYY. M. GY. MAS. SLD
	75	13.09	13.20	0.11	06698 I	COAL	C-2. BRKN
	75	13.20	13.66	0.46	06698 I	COAL	C-1. BRKN
	76	13.66	13.69	0.03	06698 I	COAL	C-1. BRKN
	76	13.69	14.16	0.47	06698 I	COAL LOSS	
	76	14.16	14.18	0.02	06698 I	COAL	C-6. BRKN

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 4

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85033

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	76	14.18	14.28	0.10	06698 I	COAL	C-1. BRKN
	76	14.28	14.29	0.01	06699 I	MUDSTONE	CARB. M-DK. GY. MAS. SLD WEATHERED
	76	14.29	14.40	0.11	06699 I	COAL	C-1. BRKN
	76	14.40	14.45	0.05	06699 I	COAL	C-2. SLD
	76	14.45	14.46	0.01	06699 I	MUDSTONE	CLYY. M-DK. GY. MAS. SLD
	76	14.46	14.77	0.31	06700 I	COAL	C-1. BRKN MINOR MUDDY THIN BANDS
	77	14.77	16.47	1.70	06700 I	COAL	C-1. BRKN AS ABOVE; FE AT BASE
	77	16.47	16.55	0.08	06700 I	COAL	C-6. BRKN FE PRESENT (WEATHERED)
	* 77	16.55	16.62	0.07	06700 I	COAL	C-1. DK. BLK C-1 TO C-2 COAL; LOWER END OF I SEAM; P TECE PROBABLY MISPLACED

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 5

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85033

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
77	16.62	17.14	0.52	06701		MUDSTONE	CARB. LT. BLK. HAS. BRKN MUDSTONE WITH SILT GRAINS THROUGHOUT; A BUNDANT PLANT FOSSILS; MUD GETS SILTIER LOWER IN UNIT; UPPER 20CM SAMPLED
77	17.14	17.63	0.49			SILTSTONE	CLYY. DK. GY. LAM. SSD. BRKN LAMINATED SILT AND MUD; SILT INCREASES IN SIZE TOWARDS BOTTOM OF UNI
76	17.53	18.57	0.74			SANDSTONE	CLYY. FG. MOD. M. GY. THNB. BRKN FINE GRAYED SAND BEDS WITH THIN MUD LA MELLAE; ORANGE BANDED WEATHERING ON SOM E OF THE CLAY LAMELLAE; SOME MUD CLASTS OCCUR
* 76	18.57	19.17	0.50			SANDSTONE	CLYY. FG. MOD. M. GY. THNB. BRKN AS ABOVE
81	19.17	20.50	1.33			SANDSTONE	CLYY. FG. HEL. LT. GY. HAS. SLD LITH AS ABOVE; MUD LAMELLAE BECOMES LES S ABUNDANT-MORE MIXED IN WITH SAND GRAI NS; SAND GETTING SLIGHTLY LARGER IN GRA IN SIZE; FRACTURES AT HIGH ANGLE TO BED DING
* 86	20.50	21.03	0.53			SANDSTONE	CLYY. FG. HEL. LT. GY. HAS. SLD AS ABOVE

* DENOTES MEASURED BCA

36/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 6

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85033

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
86	21.93	21.93	0.90			SILTSTONE	CLYY. LT. BLK. LAM. SSD. BRKN LAMINATED AND DEFORMED SILT AND MUD; UN IT INCREASES IN SILT CONTENT TOWARDS TO P AND MUD INCREASES TOWARDS BOTTOM; FRA CTURES APPROX 70 DEGREES TO BEDDING
86	21.93	22.23	0.30			SILTSTONE	CLYY. LT. BLK. LAM. SSD. BRKN AS ABOVE

* DENOTES MEASURED BCA
MENPAGE

GULF CANADA RESOURCES INC.

COAL DIVISION
MOUNT KLAPPAN PROJECT

TRUE THICKNESS

SEAM DETAIL

DATA SOURCE: KPH LR D0H85033 SEAM : 1 INTERVAL(M) : 10.96 - 16.62 ELEVATION(M) : 1809.1
 GEOLOGIST : BUHAY SCALE: DATE : DEC 19/85 DRAWING NO. :

SEAM COMP.	DRILL DEPTH	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				
	10.96	↑																	
		X		(0.32)															
		X		0.27															
		X		(0.25)	47.0	8688													
		X		(0.28)															
		X		0.40															
	12.62	↓																	
	12.88	X		(0.12)	54.0	8697													
		X		0.18															
		X		0.58	88.4	8688													
		X		(0.48)					4.80 / 0.58	4.58	16.40	7.11	73.81	0.48	27.72				
		X		0.12					5.48										
	14.28	X		0.12	100.0	8688													
	14.46	X		0.16															
		X		2.10	100.0	8700													
	16.62	↓																	

3-48

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GULF CANADA RESOURCES INC.
 COAL DIVISION
 KLAPPAN PROJECT
 STRATIGRAPHIC LOG
 KPN LR DDH85033

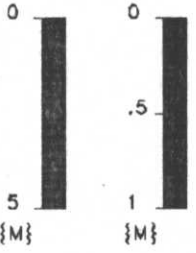
GEOLOGIST : BUHAY

DATE : JAN 08/86

DRAWING NO. :

LITHOLOGIC SYMBOLS

SCALE : 1:200 1:40

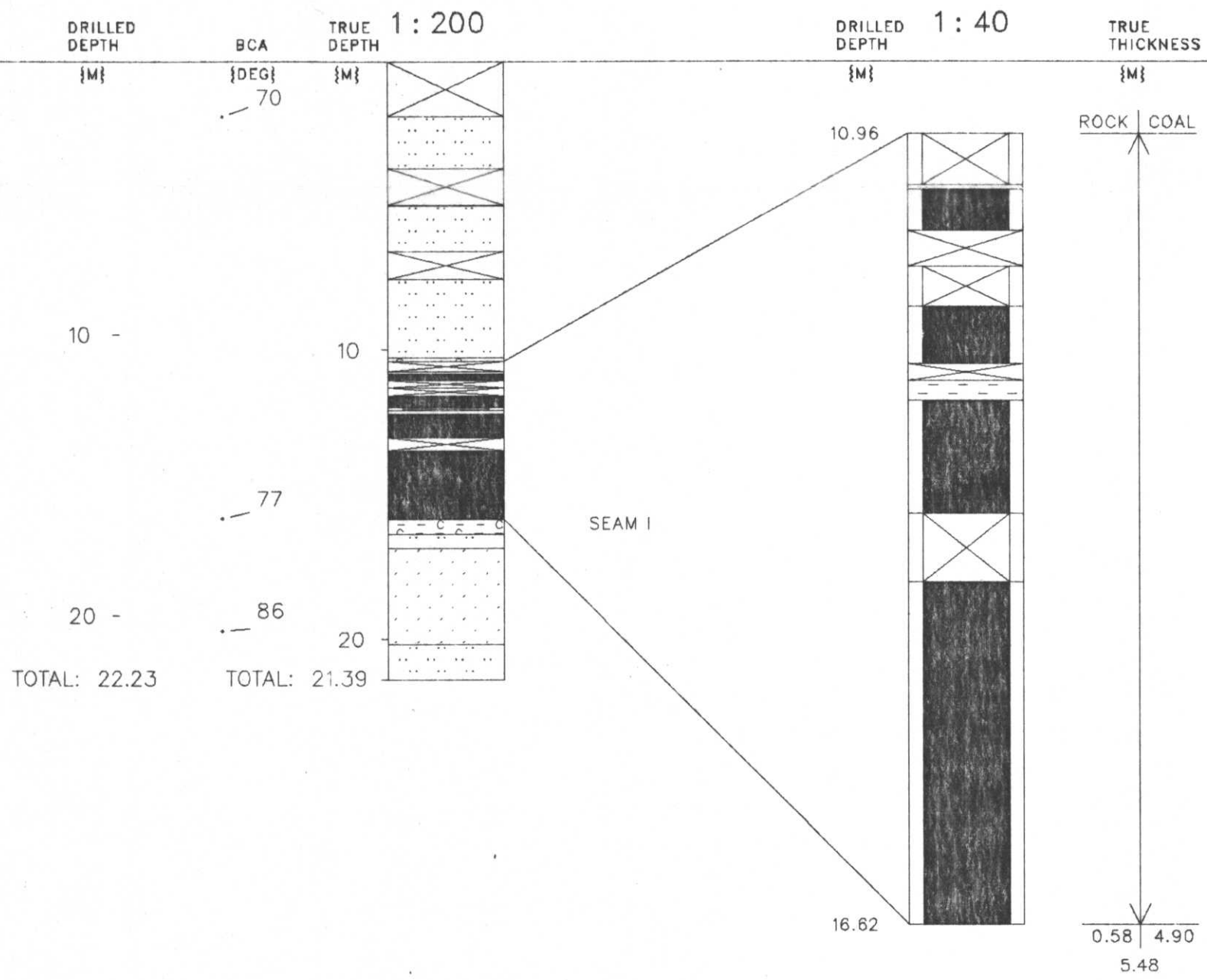


NORTHING: 6344258.0 N
 EASTING: 506019.0 E

INCLINATION: 90.0°

	SANDSTONE		BENTONITE
	SILTSTONE		BRECCIA
	COAL		CARBONACEOUS
	OVERBURDEN		QUARTZ
	MUDSTONE, CLAYSTONE		PYRITE
	TUFF		FERRUGINOUS
	LIMESTONE		CONGLOMERATE
	CORE LOSS		FOSSIL BED

SEAM DETAIL



KPNLRDDH85034

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

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRDDH85034

DATE - 01/09/86

- HISTORY -

START DATE - 08/06/85
END DATE - 08/06/85

CONTRACTOR - J T THOMAS
GEOLOGIST - BUHAY

OPERATOR - GCRI
SURVEYOR - MWG & ASS

REMARKS - DRILLED IN PIT AREA AND HAS SINCE BEEN MINED

- LOCATION -

PROVINCE - BC
ELEVATION - 1820.02

ZONE - 9
NORTHING - 6344261.00
EASTING - 505908.12

LICENCE/LEASE NUMBER - 7152

LATITUDE - 571436
LONGITUDE - 1285408

- ORIENTATION -

LENGTH - 40.35

INCLINATION - 90.0
AZIMUTH - 0.0

CORE SIZE - 0.0

CEMENT -
PLUG -
PIEZ -

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

*** NOTE *** 0 INDICATES NO VALUE

=====

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85034

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	2.00	2.00			ROCK LOSS	
* 84	2.00	3.46	1.46			SANDSTONE	CLYY. FG. PR. H. GY. THNB. SSD. BRKN INTERBEDDED FG SAND AND MUD LAMINAE; UPRIGHT BEDDING. SAND ALTERNATES WITH FINE SILT IN PLACES (ALTERNATING PODS OF SANDSTONE AND SILTSTONE WITH MUD LAMELLAE) SAND PATCH AREAS HAVE FRACTURES APPROX PERPENDICULAR TO BEDDING
	2.46	4.88	1.42			ROCK LOSS	
	4.88	5.38	0.50			SANDSTONE	CLYY. FG. PR. H. GY. THNB. SSD. BRKN AS ABOVE
	5.38	7.25	1.87			SANDSTONE	CLYY. FG. PR. H. GY. THNB. SSD. BRKN AS ABOVE
	7.25	7.41	0.16			ROCK LOSS	

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 2

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85034

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 70	7.41	7.52	0.11			SANDSTONE	CLYY. FG. PR. H. GY. THNB. SSD. VBRKN FG SANDS AND SILT INTERBEDDED WITH MUD LAMELLAE; SOME WORM BURROWING; UPRIGHT BEDS; SANDIER TOWARDS TOP OF BOX 3-GETS SILTIER TOWARDS BOTTOM OF BOX 3 AND IN BOX 4
	7.52	8.88	1.36			SANDSTONE	CLYY. FG. PR. H. GY. THNB. SSD. VBRKN AS ABOVE
	8.88	9.10	0.22			SILTSTONE	CLYY. DK. GY. LAM. SSD. BRKN INTERLAMINATED SILT AND MUDS
* 80	9.10	10.55	1.45			SILTSTONE	CLYY. FG. DK. GY. LAM. SSD. BRKN LITH AS ABOVE
	10.55	10.82	0.27			SILTSTONE	CLYY. DK. GY. LAM. SSD. BRKN AS ABOVE
* 82	10.82	10.92	0.10			SILTSTONE	CLYY. DK. GY. LAM. SSD. BRKN AS ABOVE
	10.92	12.61	1.69			SANDSTONE	CLYY. FG. PR. H. GY. THNB. SSD. BRKN THIN BEDS OF FG SANDS WITH INTERLAMINATED MUDS; SOME BIOTURBATED LAYERS; TOPS UP

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPM BLOCK: LR DATA SOURCE: DDH85034

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 82	12.61	14.43	1.82			SANDSTONE	CLYY, FG, PR, M, GY, THNB, SSD, BRKN LITH AS ABOVE; BEDS GET THINNER (LAMINATED SANDS); SANDS GET FINER-SILTIER PART OF UNIT
* 78	14.43	15.73	1.30			SANDSTONE	CLYY, FG, PR, M, GY, THNB, SSD, BRKN AS ABOVE
61	15.73	15.90	0.17			SANDSTONE	CLYY, FG, PR, M, GY, THNB, SSD, BRKN THIN BEDS OF SAND AND MUD LAMELLAE; SOME DISTURBED LAYERS; UPRIGHT BEDDING; SOME X-BEDDING
* 82	15.90	16.02	0.12			SANDSTONE	CLYY, FG, PR, M, GY, THNB, SSD, BRKN AS ABOVE
82	16.02	16.03	0.01			BENTONITE	WH SHELLING CLAYS
82	16.03	17.86	1.83			SANDSTONE	CLYY, FG, PR, M, GY, THNB, SSD, BRKN THIN BEDS OF SAND AND MUD; GOOD X-BEDDING FEATURES INDICATING UPRIGHT BEDDING
* 82	17.86	18.71	0.85			SANDSTONE	SLTY, FG, PR, LT, GY, THNB, BRKN FG SANDSTONE WITH BENTONITE (CLAY) FLAKES AND SILTY (MUDDY) INTERLAMINAE; BEN- TONIC SANDSTONE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPM BLOCK: LR DATA SOURCE: DDH85034

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
82	18.71	18.99	0.28			SANDSTONE	SLTY, FG, PR, LT, GY, THNB, BRKN AS ABOVE
82	18.99	19.03	0.04			BENTONITE	WH SHELLING CLAYS
82	19.03	19.19	0.16			SANDSTONE	SLTY, FG, PR, M, GY, THNB, BRKN FG SAND WITH SILTY LAMELLAE (DARKER THAN SAND ABOVE)
83	19.19	19.22	0.03			BENTONITE	WH SHELLING CLAYS
83	19.22	19.69	0.47			SANDSTONE	CLYY, FG, PR, DK, GY, THNB, SSD, BRKN THIN BEDS OF SAND WITH DEFORMED LAMELLAE OF MUD (SILTY MUD); SILTY SANDSTONE; X-BEDDING INDICATING UPRIGHT BEDDING
* 84	19.69	21.94	2.25			SANDSTONE	CLYY, FG, PR, DK, GY, THNB, SSD, BRKN AS ABOVE
* 82	21.94	22.43	0.49			SANDSTONE	CLYY, FG, PR, DK, GY, THNB, SSD, BRKN ALTERNATING THIN SANDS AND MUDS; SAND GETS SLIGHTLY FINER-SILTIER SAND
83	22.43	23.73	1.30			SANDSTONE	CLYY, FG, PR, DK, GY, THNB, SSD, BRKN AS ABOVE

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85034

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
*	23.73	25.53	1.80			SANDSTONE	CLYY.FG.PR.DK.GY.THNB.SSD.BRKN LITH AS ABOVE; GETS SILTIER
*	25.53	27.45	1.92			SILTSTONE	SSY.DK.GY.LAM.SSD.VBRKN THIN LAMELLAE OF SANDY SILT AND MUD; SS D AND SOME BIOTURBATION
*	27.45	28.79	1.34			SILTSTONE	SSY.DK.GY.LAM.SSD.VBRKN AS ABOVE
	28.79	29.46	0.67			SILTSTONE	SSY.DK.GY.LAM.SSD.VBRKN AS ABOVE
	29.46	30.32	0.86	06702		MUDSTONE	SLTY.M-DK.GY.MAS.BRKN ABUNDANT PLANT FRAGMENTS INCREASING TOW ARDS BASE; LOWER ZONE SAMPLED
	30.32	30.36	0.04	06703 I		COAL	C-4.SLD
	30.36	30.57	0.21	06703 I		COAL	C-1.SLD
	30.57	30.60	0.03	06703 I		MUDSTONE	CLYY.H.GY.MAS.SLD

* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85034

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	30.60	30.70	0.10	06703 I		ROCK LOSS	
	30.70	30.86	0.16	06703 I		COAL LOSS	
	30.86	31.48	0.62	06703 I		COAL	C-1.BRKN THIN BANDS OF LOWER GRADE COAL WITHIN
	31.48	31.74	0.26	06703 I		COAL	C-1.BRKN
	31.74	31.84	0.10	06703 I		COAL	C-1.SLD
	31.84	31.87	0.03	06703 I		COAL	C-4.SLD
	31.87	31.94	0.07	06704 I		MUDSTONE	CLYY.H.GY.MAS.SLD
	31.94	32.10	0.16	06704 I		COAL	C-1.SLD
	32.10	32.15	0.05	06704 I		COAL	C-4.SLD
	32.15	32.20	0.05	06704 I		MUDSTONE	CLYY.H.GY.MAS.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85034

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
82	32.20	32.52	0.32	06705	I	COAL	C-1.BRKN
81	32.52	32.86	0.34	06705	I	COAL	C-2.BRKN
81	32.86	33.28	0.42	06705	I	COAL LOSS	
81	33.28	33.29	0.01	06706	I	MUDSTONE	CLYY.M.GY.MAS.SLD
81	33.29	33.33	0.04	06706	I	COAL	C-2.SLD
81	33.33	33.35	0.02	06706	I	MUDSTONE	CLYY.M.GY.MAS.SLD
81	33.35	33.36	0.01	06706	I	COAL	C-2.SLD
81	33.36	33.38	0.02	06706	I	MUDSTONE	CLYY.M.GY.MAS.SLD
81	33.38	33.42	0.04	06706	I	COAL	C-2.SLD
81	33.42	33.43	0.01	06706	I	MUDSTONE	M.GY.MAS.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH85034

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
81	33.43	33.63	0.20	06707	I	COAL	C-1.BRKN
81	33.63	34.87	1.24	06707	I	COAL	C-1.BRKN
81	34.87	35.21	0.34	06707	I	COAL	C-1.BRKN
80	35.21	35.26	0.05	06707	I	COAL	C-5.BRKN
80	35.26	35.52	0.26	06707	I	COAL LOSS	
80	35.52	35.62	0.10	06708		MUDSTONE	SLTY.M-DK.GY.LAM.BRKN
* 80	35.62	37.66	2.04	06708		SILTSTONE	M.GY.THNB.BRKN MUDDY TOWARDS TOP GRADING TO SANDY NEAR BASE; THINLY BEDDED TO LAMINATED (FROM MUDSTONE AND SILTSTONE TO SILTSTONE AN D SANDSTONE); UPPER 10CM SAMPLED
* 86	37.66	38.18	0.52			SANDSTONE	CLYY.FG.PR.M.GY.THNB.BRKN AS ABOVE
86	38.18	38.29	0.11			SANDSTONE	CLYY.FG.PR.M.GY.THNB.BRKN AS ABOVE

* DENOTES MEASURED BCA

86/01/02

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: D0H85034

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	87	38.29	39.79	1.50		SANDSTONE	MG. MEL. LT. GY. MAS. SLD MASSIVE MG SANDSTONE WITH OCCASIONAL MU O RIP UP CLASTS: SOME SILTY GRAINS MIXED IN WITH SAND GRAINS.
*	88	39.79	40.35	0.56		SANDSTONE	MG. MEL. LT. GY. MAS. SLD AS ABOVE.

-854- NOW IN CONTACT WITH SYSTEM 2000 -
 ***** GEX - 03.01 - COCC. COAL/21
 -855- NO. LONGER IN CONTACT WITH SYSTEM 2000 -

ALLOCATED.

W02Z 4001

GULF CANADA RESOURCES INC.

COAL DIVISION MOUNT KLAPPAN PROJECT

TRUE THICKNESS

SEAM DETAIL

DATA SOURCE: KPM LR DDM85034 SEAM : 1 INTERVAL(M) : 30.32 - 35.52 ELEVATION(M) : 1820.0
 GEOLOGIST : BUHAY SCALE: DATE : DEC 19/85 DRAWING NO. :

SEAM COMP.	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES		% RES.	SAMPLE ID			COAL/ROCK TOTAL		COAL QUALITY A.D.B.							
			ROCK	COAL		SIMP	COM	COMPOS	MINING SECTION	RES MOIST	ASH	VM	FC	TS	SALTYAL W/EE			
		↑																
	30.32			0.25														
				(0.14)														
				(0.18)														
					83.3	8703												
				1.00														
	31.87			0.21	100.0	8704												
	32.20			0.65	81.1	8705												
				(0.42)														
	33.28				100.0	8704												
	33.43									4.83 / 0.31 5.16	3.16	18.71	5.72	74.42	0.42	27.85		
				1.81	87.8	8707												
				(0.26)														
	35.52																	
		↓																

5-14

707

GULF CANADA RESOURCES INC.
 COAL DIVISION
 KLAPPAN PROJECT
 STRATIGRAPHIC LOG
 KPN LR DDH85034

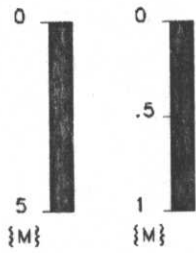
GEOLOGIST : BUHAY

DATE : JAN 08/86

DRAWING NO. :

LITHOLOGIC SYMBOLS

SCALE : 1:200 1:40



NORTHING: 6344261.0 N
 EASTING: 505908.1 E

INCLINATION: 90.0°

	SANDSTONE		BENTONITE
	SILTSTONE		BRECCIA
	COAL		CARBONACEOUS
	OVERBURDEN		QUARTZ
	MUDSTONE, CLAYSTONE		PYRITE
	TUFF		FERRUGINOUS
	LIMESTONE		CONGLOMERATE
	CORE LOSS		FOSSIL BED

SEAM DETAIL

