MOUNT KLAPPAN COAL PROJECT

LOST - FOX AREA

GEOLOGICAL REPORT

1984

APPENDIX IV

VOLUME I

1982, 1983 DIAMOND DRILL HOLE DATA

709

GULF CANADA RESOURCES INC.

COAL DIVISION

APPENDIX IV

VOLUME I

1982, 1983

LOST-FOX AREA

DIAMOND DRILL HOLE DATA

KPNLRDDH 82005

KPNLRDDH 83001

KPNLRDDH 83002

KPNLRWKD 83001

KPNLRWKD 83002

KPNLRWKD 83003

KPNLRWKD 83004

KPNLRWKD 83005

KPNLRWKD 83006

(For each where available)

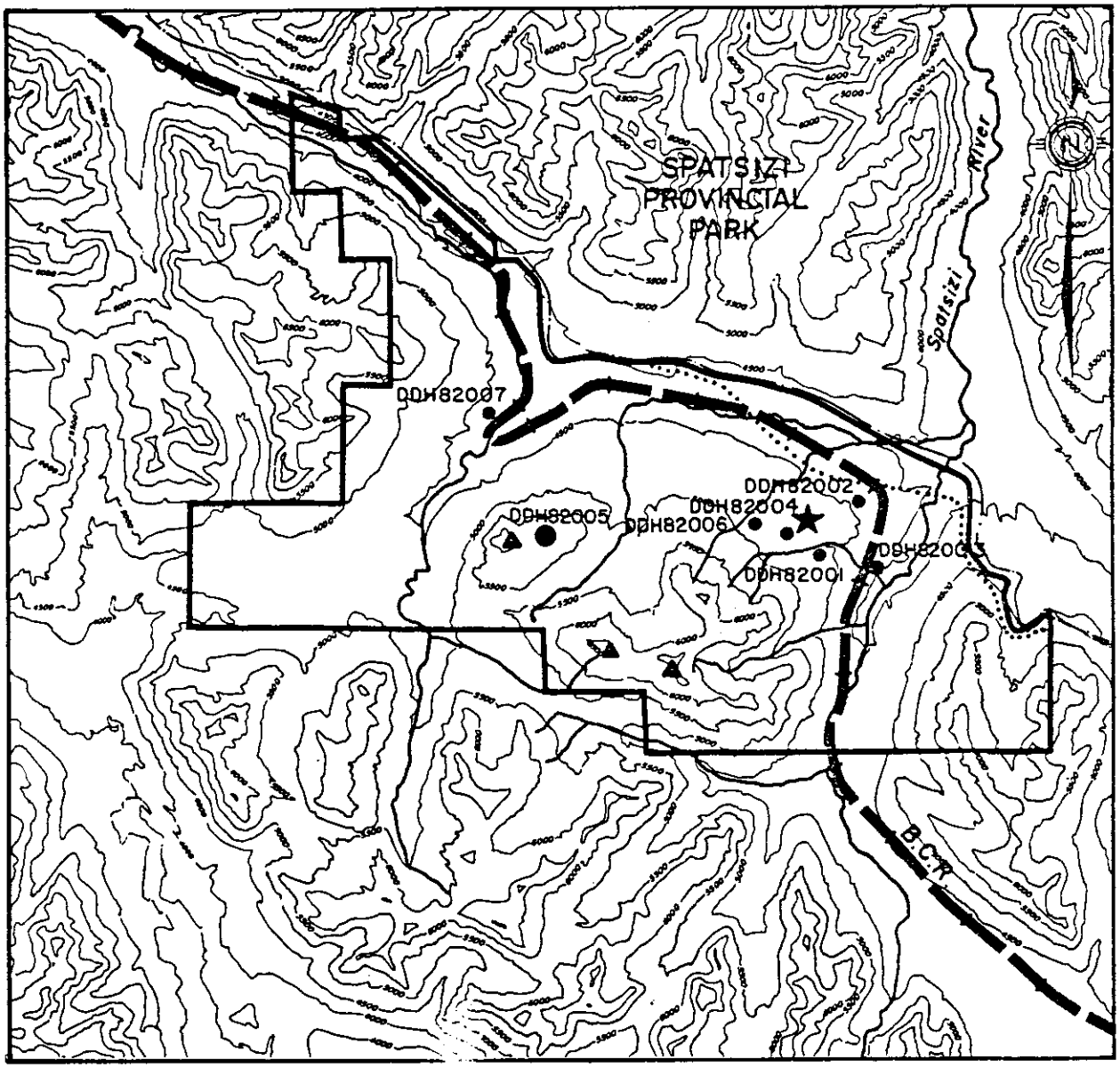
- Data Source Summary
- Descriptive Log
- Sample Summary
- Coal Seam Data Sheets
- Stratigraphic Log
- Geophysical Logs
- Deviation Survey

1:10 000 Drill Hole Location Map

KPNLRDDH 82005

MT. KLAPPAN COAL PROPERTY

DIAMOND DRILL HOLES



0 1 2 3 4 5 Km

FIGURE 3.4

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

GULF CANADA RESOURCES INC.

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

DATA SOURCE - KPNLRDDH82005 DATE - 12/06/84

- H I S T O R Y -

START DATE - 08/22/82
END DATE - 08/28/82

CONTRACTOR - J.T.THOMAS
GEOLOGIST - JENNER
OPERATOR - GCRI
SURVEYOR -

REMARKS - CASING PLACED AT 7.9M BUT KEPT SLIPPING DOWN THE D RILL HOLE. TOTAL OF 34.4M CASING PLACED. ANGLE OF DRILL HOLE DEVIATED APPROXIMATELY 030 DEGREES. GEO PHYSICAL LOG MEASURED FROM GROUND LEVEL + APPROX. o.6m

- L O C A T I O N -

PROVINCE - BC
ELEVATION - 1815.00
ZONE - 9
NORTHING - 6344340.00
EASTING - 506120.00

LICENCE/LEASE NUMBER - 0

LATITUDE - 571438
LONGITUDE - 1285355

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

LENGTH - 243.59
INCLINATION - 60.0
AZIMUTH - 55.0

CORE SIZE - 95.8

CEMENT -
PLUG -
PIEZ -

CASING DEPTH (M) - 34.40
AQUIFER DEPTHS (M) - 0.00
0.00
LOST CIRC. DEPTHS (M) - 0.00
0.00

*** NOTE *** 0 INDICATES NO VALUE

KPNLRDDH 82005

DESCRIPTIVE LOG

VALID COMPONENT DESCRIPTION CODES

MODIFIER

ROCK (PBLY) PEBBLY
(SSY) SANDY (PYR) PYRITIC
(SLTY) SILTY
(CLYY) CLAYEY
(CARB) CARBONACEOUS
(GYP) GYPSIFEROUS
(FER) FERRUGINOUS
COAL (C-1,C-2,C-3)
(C-4,C-5,C-6)

SED STRUCTURES
(XBDG) CROSS BEDDED
(WRMBUR) WORM BURROW
(RIPMK) RIPPLE MARKS
(BIOTRB) BOITURBATED
(RTB) ROOTLET BED
(SSD) SOFT SED.DEF.

SORTING
(VPR) VERY POOR
(PR) POOR
(MOD) MODERATE
(WEL) WELL
(VWEL) VERY WELL

GRAIN SIZE

(CBL) COBBLE
(PBL) PEBBLE
(GRAN) GRANULAR
(VCG) VERY COARSE GRAINED
(CG) COARSE GRAINED
(MG) MEDIUM GRAINED
(FG) FINE GRAINED
(VFG) VERY FINE GRAINED

BEDDING

(MAS) MASSIVE
(VTHKB) VERY THICK
(THKB) THICK
(MB) MEDIUM
(THNB) THIN
(VTHNB) VERY THIN
(LAM) LAMINATED

CORE STATE

(PWRD) POWDERED
(VSHRD) VERY SHEARED
(SHRD) SHEARED
(VBRKN) VERY BROKEN
(BRKN) BROKEN (SLD) SOLID

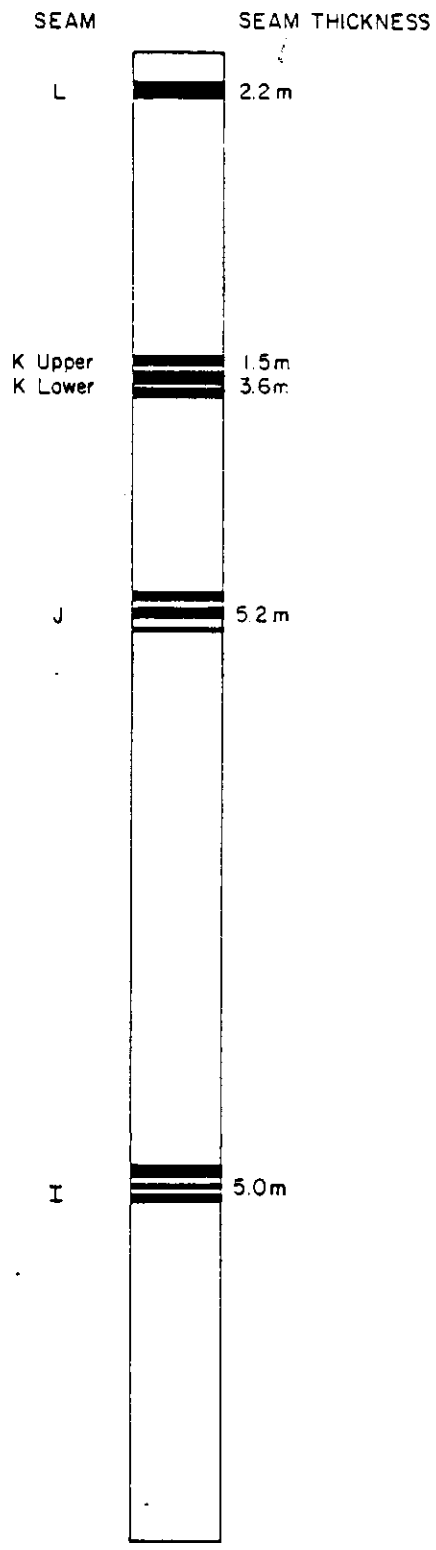
COLOR

(BLK) BLACK
(BN) BROWN
(BF) BUFF
(GN) GREEN
(GY) GREY
(MAR) MAROON
(ORNG) ORANGE
(PURP) PURPLE
(YEL) YELLOW
(TAN) TAN
(BLU) BLUE
(WH) WHITE

COLOR MOD
(LT) LIGHT
(M) MEDIUM
(DK) DARK
(LT-M)
(M-DK)
(LT-DK)
(S-P) SALT/PEP
(WEATH) WEATHERED

MT. KLAPPAN COAL PROPERTY

DDH82005



SCALE - 1:1000

P/C

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
54	0.00	0.10	0.10			OVERBURDEN	
54	0.10	0.51	0.41			SILTSTONE	SSY.DK.GY.LAM.VBRKN WEATHERED, CRUMBLY, UNCONSOLIDATED
54	0.51	8.06	1.55			SILTSTONE	SSY.DK.GY.LAM.VBRKN
54	8.06	9.27	1.21			ROCK LOSS	LOSS DUE TO PLACEMENT OF CASING
* 54	9.27	10.29	1.02			SANDSTONE	MG.MOD.GN.VTHNB.VBRKN WEATHERED ORANGE BROWN, SLTST INTBS, MN R QTZ VEINING
64	10.29	10.80	0.51			ROCK LOSS	
* 76	10.80	12.02	1.22			SANDSTONE	MG.MOD.GN.VTHNB.VBRKN
70	12.02	12.80	0.78			ROCK LOSS	
67	12.80	12.93	0.13			SANDSTONE	FG.WEL.DK.GY.VTHNB.VBRKN SLTST INTBS, CRUMBLY, WEATHERED

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
61	12.93	14.74	1.81			SANDSTONE	FG.WEL.DK.GY.VTHNB.VBRKN
55	14.74	15.05	0.31			ROCK LOSS	
* 53	15.05	15.31	0.26			SANDSTONE	FG.WEL.DK.GY.VTHNB.VBRKN
53	15.31	16.57	1.26			SANDSTONE	FG.WEL.DK.GY.VBRKN WEATHERED, FAIRLY UNCONSOLIDATED, IRON STAINING
52	16.57	16.88	0.31			ROCK LOSS	
52	16.88	17.87	0.99			SANDSTONE	FG.WEL.DK.GY.VBRKN
52	17.87	18.62	0.75			SILTSTONE	SSY.DK.GY.LAM.VBRKN MNR IRON STAINING, FAIRLY UNCONSOLIDATE D
52	18.62	19.02	0.40			ROCK LOSS	
51	19.02	20.53	1.51			SILTSTONE	CARB.DK.GY.LAM.VBRKN MDST INTBS, FAIRLY UNCON

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
51	20.53	22.49	1.96			MUDSTONE	BLK.LAM.BIOTR.BRKN SLTST INTBS. BIOTURB MNR
50	22.49	22.66	0.17			ROCK LOSS	
50	22.66	22.94	0.28			MUDSTONE	BLK.LAM.BIOTR.BRKN
50	22.94	23.37	0.43			SILTSTONE	DK.GY.LAM.BIOTR.SLD MUDST INTBS
* 50	23.37	23.87	0.50			SILTSTONE	SSY.DK.GY.LAM.BIOTR.SLD
52	23.87	25.15	1.28			SILTSTONE	DK.GY.BIOTR.VBRKN MUDST INTBS. FAIRLY UNCON. BIOTURB MNR
55	25.15	25.90	0.75			SILTSTONE	DK.GY.LAM.BIOTR.VBRKN WTHRD. MNR FE STN
57	25.90	26.15	0.25			ROCK LOSS	
57	26.15	26.24	0.09			SANDSTONE	SLTY.FG.M.GY.LAM.BIOTR.BRKN FE STN. SLTST INTBS
58	26.24	26.47	0.23			CLAYSTONE	CARB.DK.GY.VBRKN LISTRIC SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SLAM ID	LITHOLOGY	DESCRIPTION
58	26.47	26.75	0.28			CLAYSTONE	CARB.DK.GY.VBRKN
* 59	26.75	26.97	0.22			SANDSTONE	SLTY.FG.M.GY.LAM.BIOTR.BRKN BIOTURB MNR
45	26.97	27.28	0.31			CLAYSTONE	CARB.DK.GY.LAM.VBRKN COALY FRAGS, QTZ VEINING, LISTRIC SURFACES
* 31	27.28	27.52	0.24			MUDSTONE	BLK.LAM.BRKN MNR FOLD, MNR SLTST INTBS
39	27.52	26.47	0.95			SILTSTONE	DK.GY.LAM.BIOTR.BRKN SSY INTBS, BIOTURB MNR, UNCON IN PART
46	26.47	26.64	0.17			ROCK LOSS	
* 56	26.64	29.16	0.52			SANDSTONE	FG.MOD.M.GY.LAM.BIOTR.BRKN SSD INDICATE TOPS OVERTURNED, WRMBUR, SLTST INTBS, QTZ VEINING
52	29.16	29.91	0.75			SANDSTONE	MG.MOD.LT.GY.VTHNB.BIOTR.BRKN CALCT VEINING, MNR BRECCIATION, UNCON CLY WITHIN BRECCIA
53	29.91	30.24	0.33			SANDSTONE	MG.MOD.M.GY.VTHNB.BRKN SLTST INTBS

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
54	30.24	30.76	0.52			SILTSTONE	SSY.DK.GY.BRKN MNR CALCT VEINING
* 56	30.76	32.10	1.34			MUDSTONE	SLTY.DK.GY.LAM.BRKN SLTST INTBS, MNR FRACTURING
* 61	32.10	34.02	1.92			MUDSTONE	DK.GY.LAM.BIOTR.BRKN XBDG INDICATES TOPS OVERTURNED
* 66	34.02	34.27	0.25			MUDSTONE	SLTY.DK.GY.LAM.BIOTR.SLD BIOTURB MNR, SLTST INTBS
56	34.27	34.29	0.02			MUDSTONE	SLTY.DK.GY.LAM.BIOTR.SLD
* 53	34.29	34.34	0.05			SANDSTONE	MG.MUD.M.GY.THNB.SLD APPEARS AS INTB IN SURROUNDING MUDST UNIT
* 67	34.34	34.92	0.58			MUDSTONE	DK.GY.LAM.XBDG.SLD BIOTURB, SLTST INTBS, TOPS OVERTURNED
* 57	34.92	36.53	1.61			SILTSTONE	DK.GY.LAM.XBDG.BRKN SSY INTBS, BIOTURB, SSD
* 58	36.53	37.12	0.59			SILTSTONE	DK.GY.LAM.BIOTR.SLD INTBD SS, XBDG INDICATES TOPS OVERTURNED

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
63	37.12	37.63	0.51			SILTSTONE	DK.GY.LAM.BIOTR.SLD XBDG
* 66	37.63	38.03	0.40			SILTSTONE	SSY.M.GY.LAM.BIOTR.SLD SSY INTDS BECOMING MORE PROMINENT
65	38.03	38.61	0.58			SANDSTONE	MG.MOD.LT.GY.THNB.BIOTR.SLD SLTST LAM, MNR FE STN, XBDG INDICATES T OPS OVERTURNED
* 61	38.61	39.56	0.95			SILTSTONE	SSY.M.GY.VTHNB.BIOTR.SLD SS LAM
61	39.56	40.10	0.54			SANDSTONE	MG.MOD.M.GY.VTHNB.BIOTR.SLD SLTST LAM
61	40.10	40.79	0.69			SANDSTONE	MG.WEL.LT.GY.THNB.SLD MNR BIOTRB
* 61	40.79	41.70	0.91			SANDSTONE	MG.WEL.M.GY.VTHNB.BIOTR.SLD SLTST INTDS, SSD INDICATES TOPS OVERTUR NED
60	41.70	42.94	1.24			SANDSTONE	MG.WEL.LT.GY.THNB.BIOTR.SLD BIOTURB MNR, MNR SLTST LAM
* 59	42.94	43.36	0.42			SANDSTONE	MG.MOD.M.GY.THNB.SLD

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
59	43.36	43.63	0.27			MUDSTONE	SLTY.DK.GY.LAM.BRKN SLTY TOWARDS BASE
58	43.63	44.64	1.01			MUDSTONE	DK.GY.LAM.BRKN
58	44.64	45.10	0.46			MUDSTONE	SLTY.DK.GY.LAM.BIOTR.SLD SLTST INTBS. UNIT OVERTURNED
57	45.10	45.27	0.17			MUDSTONE	SLTY.DK.GY.LAM.BIOTR.SLD
57	45.27	45.60	0.33			SANDSTONE	SLTY.FG.M.GY.VTHNB.BIOTR.SLD SSD. SLTST INTBS
57	45.60	46.56	0.96			SILTSTONE	SSY.DK.GY.LAM.BIOTR.SLD SSD AND XBDG INDICATE TOPS OVERTURNED. SS AND MUDST INTBS. BEDDED QTZ
* 56	46.56	46.87	0.31			SANDSTONE	FG.M.GY.LAM.BRKN SLTST LAM. QTZ VEINING
56	46.87	47.09	0.22			SANDSTONE	FG.WEL.LT.GY.VTHNB.BRKN SLTST LAM. QTZ VEINING. OXIDATION ALONG FRACTURES
56	47.09	47.25	0.16			SANDSTONE	FG.WEL.M.GY.THNB.SLD

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
57	47.25	48.18	0.93			SANDSTONE	FG.WEL.GY.THNB.BRKN MNR SLTST INTBS, CALCT VEINING, OXIDIZED ALONG FRACTURES
57	48.18	48.77	0.59			SANDSTONE	MG.MOD.LT.GY.THNB.BRKN SLTST CLASTS APPROX 5%
57	48.77	49.52	0.75			SANDSTONE	MG.MOD.LT.GY.THKB.SLD OXIDIZED FRACTURES, CALCT FILLED FRACTURES, SLTST CLASTS APPROX 1%
58	49.52	50.19	0.67			SANDSTONE	MG.MOD.LT.GY.THKB.SLD
* 58	50.19	50.31	0.12			SANDSTONE	MG.MOD.LT.GY.THKB.SLD SLTST CLASTS NOT APPARENT
57	50.31	50.61	0.30			SANDSTONE	MG.MOD.DK.GY.VTHNB.BIOTR.BRKN SLTST INTBS
56	50.61	50.92	0.31			SILTSTONE	SSY.DK.GY.LAM.BIOTR.BRKN SS AND MUDST LAM
55	50.92	51.27	0.35			SANDSTONE	FG.M.GY.VTHNB.BIOTR.BRKN BIOTURB MNR, INTBD SLTST, MNR CALCT VEINS

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
54	51.27	51.66	0.39			SANDSTONE	MG.MOD.M.GY.THNB.BRKN OXIDIZED FRACTURES, MNR BIOTRB, MNR INT BD SLTST
* 52	51.66	52.38	0.72			SANDSTONE	SLTY.FG.M.GY.VTHNB.SSD.BRKN SS AND INTBD SLTST, OXIDIZED FRACTURE SURFACES, CALCT VEINIG
52	52.38	53.40	1.02			SILTSTONE	SSY.DK.GY.LAM.BIOTR.BRKN SSD, XBDG, SLTST AND SS LAMS, OXIDIZED FRACTURE SURFACES
* 52	53.40	53.79	0.39			MUDSTONE	SLTY.BLK.LAM.BIOTR.BRKN MUDST AND SLTST LAMS, MNR CALCT VEINING
52	53.79	53.92	0.13			MUDSTONE	BLK.LAM.BIOTR.SLD MNR COALY LAM
51	53.92	54.02	0.10			MUDSTONE	BLK.BRKN INTBD COAL, CALCI STRGS
51	54.02	54.23	0.21	04884	1	COAL	C-1.BLK.VBRKN
51	54.23	54.28	0.05	04884	1	COAL	C-2.BLK.VBRKN
51	54.28	54.47	0.19	04884	1	COAL	C-1.BLK.VBRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
50	54.47	54.58	0.11	04884	1	COAL	C-2.BLK.VBRKN
50	54.58	54.87	0.29	04884	1	COAL	C-1.BLK.VBRKN
50	54.87	54.96	0.09	04884	1	COAL LOSS	
50	54.96	55.19	0.23	04884	1	COAL	C-2.BLK.VBRKN
49	55.19	55.23	0.04	04884	1	COAL	C-1.BLK.VBRKN
49	55.23	55.25	0.02	04884	1	CLAYSTONE	CARB.BLK.VBRKN
49	55.25	55.36	0.11	04884	1	COAL	C-1.BLK.VBRKN
* 49	55.36	55.45	0.09	04884	1	COAL	C-2.BLK.VBRKN
50	55.45	55.49	0.04	04884	1	COAL	C-1.BLK.VBRKN
53	55.49	55.79	0.30	04884	1	COAL	C-2.BLK.VBRKN

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
57	55.79	55.84	0.05	04884	1	COAL	C-3.BLK.VBRKN
* 58	55.84	55.92	0.08	04884	1	COAL	C-2.BLK.VBRKN
58	55.92	55.95	0.03	04884	1	COAL	C-1.BLK.VBRKN
56	55.95	56.55	0.60	04884	1	COAL LOSS	
53	56.55	56.65	0.10	04884	1	ROCK LOSS	
53	56.65	56.72	0.07	04884	1	CLAYSTONE	CARB.BLK.VBRKN QTZ VEINING, CLY BANDS
* 52	56.72	56.88	0.16	04884	1	COAL	C-2.BLK.VBRKN
52	56.88	56.89	0.01	04884	1	CLAYSTONE	CARB.BLK.VBRKN
52	56.89	57.15	0.26	04884	1	COAL	C-2.BLK.VBRKN
* 52	57.15	57.17	0.02	04884	1	COAL	C-1.BLK.VBRKN

* DENOTES MEASURED BCA

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P/C

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
52	57.17	57.24	0.07	04884	1	COAL	C-2.BLK.VBRKN
* 53	57.24	57.37	0.13	04884	1	COAL	C-2.BLK.BRKN
53	57.37	57.46	0.09	04884	1	COAL	C-1.BLK.BRKN
52	57.46	57.79	0.33	04884	1	COAL LOSS	
52	57.79	57.92	0.13	04885	1	ROCK LOSS	
* 53	57.92	58.01	0.09	04885	1	CLAYSTONE	CARB.BLK.BRKN COALY BANDS
53	58.01	58.13	0.12	04885	1	COAL	C-2.BLK.BRKN
54	58.13	58.14	0.01	04885	1	CLAYSTONE	CARB.BLK.BRKN
* 54	58.14	58.16	0.02	04885	1	COAL	C-1.BLK.BRKN
54	58.16	58.24	0.08	04885	1	COAL	C-2.BLK.BRKN

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82065

	BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	54	56.24	56.35	0.11	04885	1	CLAYSTONE	BLK.BRKN UNCON
*	54	56.35	56.43	0.08	04885	1	CLAYSTONE	DK.BN.PWRD UNCON
	54	56.43	56.48	0.05	04885	1	CLAYSTONE	CARB.BLK.BRKN COALY BANDS
	54	56.48	56.53	0.05	04885	1	ROCK LOSS	
	53	56.53	56.63	0.10	04886	1	COAL LOSS	
	53	56.63	56.76	0.13	04886	1	COAL	C-2.BLK.BRKN
	52	56.76	56.80	0.04	04886	1	COAL	C-1.BLK.BRKN
	52	56.80	56.88	0.08	04886	1	COAL	C-2.BLK.BRKN
*	52	56.88	56.92	0.04	04886	1	COAL	C-1.BLK.SLD
	52	56.92	56.97	0.05	04886	1	COAL	C-2.BLK.SLD
	52	56.97	56.99	0.02	04886	1	COAL	C-1.BLK.SLD

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 52	58.99	59.16	0.17	04886	1	COAL	C-2.BLK.SLD
53	59.16	59.17	0.01	04886	1	CLAYSTONE	CARB.BLK.SLD
53	59.17	59.23	0.06	04886	1	COAL	C-2.BLK.SLD
* 54	59.23	59.28	0.05	04886	1	COAL	C-2.BLK.SLD
54	59.28	59.31	0.03	04886	1	COAL	C-1.BLK.SLD
54	59.31	59.46	0.15	04886	1	COAL	C-2.BLK.SLD
54	59.46	59.50	0.04	04886	1	COAL	C-1.BLK.SLD
54	59.50	59.54	0.04	04886	1	COAL	C-2.BLK.SLD
54	59.54	59.58	0.04	04886	1	COAL	C-1.BLK.SLD
53	59.58	59.83	0.25	04886	1	COAL	C-2.BLK.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
53	59.83	59.92	0.09	04886	1	COAL	C-4.BLK.BRKN
53	59.92	60.01	0.09	04886	1	CLAYSTONE	CARB.BLK.PWRD UNCONS, WTHRD
53	60.01	60.07	0.06	04886	1	MUDSTONE	BLK.PWRD UNCONS
* 53	60.07	60.17	0.10	04886	1	COAL	C-2.BLK.SLD
57	60.17	60.18	0.01	04886	1	CLAYSTONE	CARB.BLK.SLD
* 61	60.18	60.30	0.12	04886	1	COAL	C-2.BLK.SLD
59	60.30	61.34	1.04			MUDSTONE	BLK.LAM.BRKN COALY INTBS NEAR BOTTM
* 56	61.34	61.72	0.38			MUDSTONE	DK.GY.LAM.BRKN SLTST LAMS
* 51	61.72	63.56	1.84			MUDSTONE	DK.GY.LAM.BRKN LAMINATED SLTST BECOMING MORE PRONOUNCE D NEAR TOP

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 58	63.56	64.24	0.68			MUDSTONE	SLTY.DK.GY.LAM.BRKN LAM SLTS. MNR BIOTURB
55	64.24	64.41	0.17			MUDSTONE	SLTY.DK.GY.LAM.BRKN LAM SS AND SLTST
* 51	64.41	65.67	1.26			MUDSTONE	SLTY.DK.GY.LAM.BRKN LAM SS AND SLTST
53	65.67	65.98	0.31			MUDSTONE	SLTY.DK.GY.LAM.BIOTR.SLD SLTST LAM. CONSISTENT UNIT
* 56	65.98	67.62	1.64			MUDSTONE	SLTY.DK.GY.LAM.BIOTR.SLD
* 51	67.62	68.71	1.09			MUDSTONE	SLTY.DK.GY.LAM.SSD.SLD MNR BIOTURB. SLTST AND SS LAMS
53	68.71	68.92	0.21			SILTSTONE	SSY.M.GY.LAM.BIOTR.SLD SS LAMS
54	68.92	69.16	0.24			MUDSTONE	SLTY.DK.GY.LAM.SLD SLTST AND SS LAMS
* 56	69.16	69.77	0.61			SILTSTONE	DK.GY.LAM.SSD.SLD MUDST AND SS LAMS

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 50	69.77	71.94	2.17			SILTSTONE	DK.GY.LAM.BIOTR.SLD SS AND MUDST INTBS, XBDG AND SSD INDICATE TOPS OVERTURNED
52	71.94	72.03	0.09			SILTSTONE	DK.GY.LAM.WRMBO.SLD SS AND MUDST LAMS, BIOTURB, XBDG
* 54	72.03	74.05	2.02			SILTSTONE	DK.GY.LAM.BIOTR.BRKN SS AND MUDST LAMS, XBDG INDICATE TOPS OVERTURNED, MNR SS INTB
54	74.05	75.10	1.05			SILTSTONE	SSY.DK.GY.LAM.XBDG.BRKN SS AND MUDST LAMS, OXIDIZED FRACTURE, BIOTURB
* 54	75.10	76.21	1.11			SILTSTONE	SSY.DK.GY.LAM.BIOTR.SLD SS AND MUDST LAMS, MNR INTBD SS
* 44	76.21	76.49	0.28			MUDSTONE	BLK.LAM.SLD
44	76.49	76.80	0.31			SILTSTONE	DK.GY.LAM.SLD SS LAMS
45	76.80	76.83	0.03			CLAYSTONE	LT.GY.PWRD UNCONS CLY
45	76.83	76.95	0.12			SILTSTONE	DK.GY.LAM.SLD MUDST LAMS

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
45	76.95	77.05	0.10			CLAYSTONE	LT.GY.LAM.BRKN INCLUDES MNR DK LAMS. BECOMES PWRD NEAR BASE
45	77.05	77.90	0.85			SANDSTONE	CLYY.VFG.VWEL.LT.GY.VTHNB.SLD GRADATIONAL FROM THE CLYST. FE STN ALON G FRACTURES. MNR DK LAMS
* 46	77.90	78.23	0.33			SANDSTONE	CLYY.VFG.VWEL.LT.GY.VTHNB.SLD MNR QTZ VEINING
* 46	78.23	79.69	1.46			SANDSTONE	CLYY.VFG.VWEL.LT.GY.VTHNB.XBDG.SLD MNR QTZ VEINING. DK INTBS OF CLYY TEXTU RE. XBDG INDICATE TOPS OVERTURNED
48	79.69	80.45	0.76			SANDSTONE	FG.WEL.M.GY.THNB.SLD CALCT VEINING. MNR CLY INTBS
* 49	80.45	80.97	0.52			SANDSTONE	FG.MOD.LT.GY.THNB.BIOTR.BRKN CLYY BEDS. CALCT VEINING. SOME SLTY BED S
* 49	80.97	82.56	1.59			SANDSTONE	FG.MOD.LT.GY.THNB.SLD CALCT VEINING. MNR CLYST
52	82.56	82.95	0.39			SANDSTONE	FG.MOD.M.GY.VTHNB.BRKN CALCT VEINING. CLYY TEXTURE. OXIDATION ALONG FRACTURES. MNR DK INTBS

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 55	82.95	84.17	1.22			SILTSTONE	DK.GY.LAM.WRMBU.SLD MUDST AND SS LAMS. OXIDIZED ALONG FRACTURES. BIOTURB AND XBDG INDICATE TOPS OVERTURNED. GRADATIONAL FROM SS UNIT ABOVE
* 52	84.17	84.67	0.50			SILTSTONE	DK.GY.LAM.BIOTR.SLD WRMBUR. SS INTBS BECOMING PROMINENT NEAR TOP
* 46	84.67	85.10	0.43			SILTSTONE	DK.GY.LAM.BIOTR.SLD OXIDIZED ALONG FRACTURES
* 56	85.10	86.01	0.91			SILTSTONE	SSY.M.GY.VTHNB.BIOTR.SLD SS BECOMING MORE PROMINENT TOWARDS TOP. WRMBUR. SS INTBS
* 52	86.01	87.20	1.19			SANDSTONE	MG.MOD.M.GY.VTHNB.BIOTR.SLD SLTST INTBS PROMINENT. CALCT VEINING. WRMBUR
* 60	87.20	87.53	0.33			SANDSTONE	FG.MOD.M.GY.VTHNB.BIOTR.SLD INTBD SLTST AND MUDST. XBDG INDICATE TOPS OVERTURNED. WRMBUR
55	87.53	88.97	1.44			SILTSTONE	DK.GY.LAM.BIOTR.SLD WRMBUR. XBDG. LAM MUDST AND SS BECOMING SSY TOWARDS TOP

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 51	88.97	89.28	0.31			SILTSTONE	SSY.DK.GY.LAM.BIOTR.SLD INTBD SS BECOMING MORE PROMINENT TOWARD S TOP. FRACTURED SURFACE OXIDIZED
* 55	89.28	90.71	1.43			SILTSTONE	SSY.DK.GY.LAM.BIOTR.SLD XBDG INDICATE TOPS OVERTURNED. SS AND M UDST LAMS
* 51	90.71	91.44	0.73			SANDSTONE	SLTY.VFG.WEL.DK.GY.LAM.XBDG.SLD SLTST LAMS
* 54	91.44	92.00	0.56			SILTSTONE	DK.GY.LAM.WRMBU.SLD SS LAMS. WRMBUR INDICATE TOPS OVERTURNE D
54	92.00	93.42	1.42			MUDSTONE	SLTY.DK.GY.LAM.BIOTR.SLD OXIDATION ALONG FRACTURE. SLTST LAM
* 54	93.42	93.67	0.25			SILTSTONE	DK.GY.LAM.SLD
51	93.67	93.72	0.05			SILTSTONE	DK.GY.LAM.SLD
* 49	93.72	93.91	0.19			SILTSTONE	DK.GY.LAM.BIOTR.SLD SS INTBS PROMINENT TOWARDS TOP

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
49	93.91	94.56	0.65			SANDSTONE	FG.MOD.GY.VTHNB.WRMBU.SLD SS INTBS BECOMING MORE PROMINENT NEAR T OP, BIOTURB, SS HIGHLY BURROWED
* 50	94.56	95.31	0.75			SILTSTONE	DK.GY.LAM.WRMBU.SLD BIOTURB, SS LAMS, MNR CLYST INTBS
51	95.31	95.72	0.41			SILTSTONE	DK.GY.LAM.BIOTR.SLD MUDST LAMS
52	95.72	95.84	0.12			SILTSTONE	DK.GY.LAM.BIOTR.SLD MUDST LAMS
* 53	95.84	96.73	0.89			SANDSTONE	SLTY.FG.MOD.M.GY.VTHNB.BIOTR.SLD SLTST INTBS
54	96.73	97.42	0.69			SILTSTONE	DK.GY.LAM.BIOTR.SLD WRMBUR INDICATE TOPS OVERTURNED, MUDST AND SS LAMS
* 54	97.42	97.85	0.43			SANDSTONE	FG.MOD.LT.GY.THNB.WRMBU.SLD MNR SLTST BDS
* 51	97.85	99.33	1.48			SANDSTONE	FG.MOD.LT.GY.VTHNB.XBDG.SLD EXTENSIVE WRMBUR AND BIOTURB, FG SS INT BD WITH MG SS, MOTTLED APPEARANCE
52	99.33	99.59	0.26			SANDSTONE	MG.MOD.S-P.GY.THNB MNR SLTST LAMS, RELATIVELY MASSIVE UNIT

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
52	99.59	99.76	0.17			SANDSTONE	FG.MOD.LT.GY.VTHNB.SLD INTBD SLTST
52	99.76	99.89	0.13			SANDSTONE	FG.MOD.LT.GY.VTHNB.SSD.SLD SSD INDICATE TOPS OVERTURNED. INTBD SLT ST
53	99.89	100.36	0.47			SILTSTONE	SSY.DK.GY.LAM.SLD UNIT WITHIN SS
* 54	100.36	102.04	1.68			SANDSTONE	FG.WEL.S-P.GY.VTHNB.BIOTR.SLD INTBD VFG AND FG SS GIVES BANDED APPEARANCE, MNR SLTST BDS, SSD INDICATE TOPS OVERTURNED
* 50	102.04	102.85	0.81			SANDSTONE	FG.WEL.S-P.GY.VTHNB.WRMBU.SLD
52	102.85	102.92	0.07			SANDSTONE	FG.WEL.M.GY.VTHNB.SLD MNR SLTST INTBS
* 54	102.92	103.55	0.63			SILTSTONE	DK.GY.LAM.BIOTR.SLD MNR BRECCIATION, COAL BANDS ALONG FRACTURES, COALY FRAGS CEMENTED WITH CALCT, LISTRIC SURFACES

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 54	103.55	104.17	0.62			MUDSTONE	SLTY.DK.GY.LAM.SLD SLTST LAMS
53	104.17	104.47	0.30			MUDSTONE	DK.GY.LAM.BRKN COAL INTB APPROX 5CM THK ALONG FRACTURE SURFACE. LISTRIC SURFACES
* 51	104.47	105.93	1.46			MUDSTONE	SLTY.DK.GY.LAM.SLD SLTST LAMS
* 55	105.93	106.28	0.35			MUDSTONE	SLTY.DK.GY.LAM.SLD CLYST LAM
* 54	106.28	107.60	1.32			MUDSTONE	SLTY.DK.GY.LAM.WRMBU.SLD WRMBUR INDICATE TOPS OVERTURNED. SLTST LAMS
53	107.60	107.71	0.11			MUDSTONE	SLTY.DK.GY.LAM.SLD SS AND SLTST LAMS
* 53	107.71	108.17	0.46			MUDSTONE	CARB.BLK.LAM.BRKN COALY LAMS
* 53	108.17	108.35	0.18			COAL	C-2.BLK.BRKN MUDST INTBS PRONOUNCED TOWARDS BASE. CA LCT VEINING
53	108.35	108.88	0.53			MUDSTONE	BLK.LAM.BRKN COALY BANDS MNR. CALCT VEINING

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 52	108.88	109.70	0.82			MUDSTONE	SLTY.DK.GY.LAM.SLD SLTST AND SS LAMS
* 56	109.70	110.06	0.36			MUDSTONE	SLTY.DK.GY.LAM.SLD SLTST AND SS LAMS, CALCT VEINING
57	110.06	110.37	0.31			SANDSTONE	SLTY.FG.M.GY.VTHNB.SSD.BRKN MNR COALY BANDS, CALCT VEINING, SSD IND ICATE TOPS OVERTURNED
58	110.37	110.80	0.43			SANDSTONE	SLTY.VFG.DK.GY.LAM.WRMBU.BRKN BIOTURB, WRMBUR INDICATE TOPS OVERTURNE D, SLTST AND MUDST INTBS, MNR CALCT VEI NING
* 59	110.80	111.33	0.53			SILTSTONE	DK.GY.LAM.BRKN MUDST LAMS
57	111.33	111.66	0.33			SILTSTONE	DK.GY.LAM.BRKN MUDST LAMS
57	111.66	111.69	0.03			CLAYSTONE	LT.GY.PWKD FAIRLY UNCONS
* 56	111.69	112.10	0.41			SILTSTONE	CLYY.DK.GY.LAM.SLD CLYST AND MUDST LAMS
56	112.10	112.26	0.16			CLAYSTONE	CARB.DK.GY.LAM.BRKN RELATIVELY UNCONS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
56	112.26	112.29	0.03			CLAYSTONE	CARB.DK.GY.LAM.BRKN RELATIVELY UNCONS
56	112.29	112.33	0.04			CLAYSTONE	PYR.M-DK.YEL.LAM.SLD PYR XTALS, QTZ VEIN
* 56	112.33	113.00	0.67			CLAYSTONE	CARB.BLK.LAM.BRKN QTZ VEINING, MNR BRECCIATION, LISTRIC S URFACES
56	113.00	113.75	0.75			CLAYSTONE	CARB.BLK.LAM.BRKN PYR BAND, CALCT VEINING, MNR UNCONS CLY , LISTRIC SURFACES
* 56	113.75	114.09	0.34			MUDSTONE	DK.GY.LAM.BRKN INTBD SLTST
* 59	114.09	114.93	0.84			MUDSTONE	BLK.LAM.BRKN MNR SLTST LAMS
* 57	114.93	115.99	1.06			MUDSTONE	BLK.LAM.BRKN MNR SLTST LAMS, CALCT VEINING ALONG FRA CTURES
55	115.99	116.18	0.19			MUDSTONE	BLK.LAM.BRKN SLTST LAMS
* 52	116.18	118.10	1.92			MUDSTONE	BLK.LAM.SLD SLTST LAMS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
53	118.10	118.19	0.09			MUDSTONE	DK.GY.LAM.BRKN SLTST LAMS
* 54	118.19	119.78	1.59			MUDSTONE	DK.GY.LAM.BRKN SLTST LAMS
* 53	119.78	120.09	0.31			MUDSTONE	DK.GY.LAM.BRKN SLTST LAMS
53	120.09	120.36	0.27			MUDSTONE	CLYY.DK.GY.LAM.BRKN CLYY INTBS, LISTRIC SURFACE
54	120.36	122.10	1.74			MUDSTONE	DK.GY.LAM.XBDG.SLD XBDG INDICATES TOPS OVERTURNED, SLTST L AMS, MNR CALCT VEINING
* 54	122.10	122.23	0.13			MUDSTONE	DK.GY.LAM.SLD MNR SLTST LAMS
55	122.23	122.96	0.73			SILTSTONE	DK.GY.LAM.XBDG.SLD MUDST AND SS LAMS, SS INCREASING TOWARD S TOP
* 57	122.96	123.79	0.83			SILTSTONE	SSY.VFG.DK.GY.LAM.XBDG.SLD MNR BIOTURB TOWARDS TOP, XBDG INDICATES OVERTURNED, SS LAMS
* 50	123.79	124.12	0.33			SILTSTONE	DK.GY.LAM.SLD MUDST AND MNR SS LAMS

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 49	124.12	124.37	0.25			SILTSTONE	DK.GY.LAM.SLD MUDST LAMS
50	124.37	124.44	0.07			SILTSTONE	DK.GY.LAM.SLD MUDST LAMS
* 54	124.44	125.85	1.41			SANDSTONE	SLTY.VFG.M.GY.LAM.XBDG.SLD XBDG INDICATES TOPS OVERTURNED. SLTST L AMS. MNR CALCT VEINING
* 53	125.85	126.54	0.69			SILTSTONE	SSY.DK.GY.LAM SS LAMS. MNR CALCT VEINING
55	126.54	126.81	0.27			SILTSTONE	SSY.DK.GY.LAM
* 56	126.81	127.12	0.31			SANDSTONE	SLTY.FG.MUD.M.GY.VTHNB.XBDG.BRKN SLTST INTBS. SSY TOWARDS TOP
55	127.12	127.71	0.59			SANDSTONE	FG.MUD.M.GY.VTHNB.BRKN MNR SLTST INTBS
* 54	127.71	128.40	0.69			SILTSTONE	SSY.DK.GY.LAM.BRKN SS LAMS. MNR CLY BDS
53	128.40	128.67	0.27			SANDSTONE	FG.MUD.LT.GY.VTHNB.BRKN MNR SLTST INTBS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82605

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 52	128.67	128.89	0.22			SANDSTONE	VFG.WEL.DK.GY.LAM.SLD SLTST LAMS
51	128.89	129.35	0.46			SANDSTONE	FG.WEL.S-P.GY.VTHNB.SLD SLTST INTBS
50	129.35	129.91	0.56			SANDSTONE	MG.WEL.S-P.GY.VTHKB.SLD MNR CALCT ALONG FRACTURES
49	129.91	130.43	0.52			SANDSTONE	MG.WEL.S-P.GY.VTHKB.SLD
48	130.43	130.66	0.23			SANDSTONE	VFG.WEL.M.GY.THNB.XBDG.SLD XBDG INDICATES TOPS OVERTURNED. CALCT V EINING
* 45	130.66	132.89	2.23			SANDSTONE	FG.WEL.M.GY.THNB.SLD CALCT ALONG FRACTURE SURFACES. MNR SLTS T BDS TOWARDS TOP
* 56	132.89	133.44	0.55			SANDSTONE	FG.MOD.DK.GY.VTHNB.BRKN SLTST INTBS
* 52	133.44	134.43	0.99			MUDSTONE	DK.GY.LAM.BRKN SLTST AND SS LAMS
54	134.43	134.99	0.56			MUDSTONE	DK.GY.LAM.BRKN SLTST AND SS LAMS

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
55	134.99	135.37	0.38			MUDSTONE	CLYY.DK.GY.LAM.BRKN CLYST AND SLTST LAMS
56	135.37	135.86	0.49			MUDSTONE	SLTY.DK.GY.LAM.SLD SLTST AND SS LAMS
56	135.86	136.13	0.27			SANDSTONE	FG.MOD.GY.THNB.SLD SLTST INTBS
* 57	136.13	136.52	0.39			MUDSTONE	DK.GY.LAM.BRKN SLTST LAMS
* 60	136.52	136.66	0.14			MUDSTONE	SLTY.DK.GY.LAM.XBDG.SLD SLTST AND SS LAMS. XBDG INDICATES TOPS OVERTURNED
56	136.66	138.05	1.39			SANDSTONE	MG.MOD.S-P.GY.THKB.SLD CALCT VEINING. SLTST CLASTS 1%. MNR SLT ST BANDS
51	138.05	138.69	0.64			SANDSTONE	FG.MOD.S-P.GY.THKB.BRKN CALCT VEINING. MNR OXIDATION ALONG FRACTURES
45	138.69	140.48	1.79			SANDSTONE	FG.MOD.S-P.GY.THKB.BRKN QTZ AND CALCT VEINING
41	140.48	140.62	0.14			SANDSTONE	FG.MOD.S-P.GY.THKB.BRKN

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 40	140.62	140.79	0.17			SANDSTONE	SLTY.VFG.WEL.M.GY.VTHNB.SLD SLTST INTBS
43	140.79	141.39	0.60			MUDSTONE	DK.GY.LAM.BIOTR.SLD MNR SLTST LAMS
* 53	141.39	143.02	1.63			MUDSTONE	SLTY.DK.GY.LAM.BIOTR.SLD SLTST AND MNR SS LAMS
* 59	143.02	143.72	0.70			SILTSTONE	SSY.GY.VTHNB.XBDG.SLD BIOTURB, MNR FAULTING - 2CM SCALE, SS A ND MUDST INTBS
53	143.72	144.73	1.01			MUDSTONE	BLK.LAM.BIOTR.SLD SLTST LAMS
* 48	144.73	145.01	0.28			MUDSTONE	CLYY.BLK.LAM.SSD.BRKN WRMBUR, BIOTURB, CLYST AND SS LAMS
47	145.01	145.14	0.13			SILTSTONE	SSY.DK.GY.LAM.BIOTR.SLD SS LAMS
* 47	145.14	145.20	0.06			SILTSTONE	SSY.DK.GY.LAM.BIOTR.SLD SS LAMS
* 48	145.20	146.05	0.85			SANDSTONE	FG.WEL.GY.THNB.BIOTR.SLD SLTST INTBS

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
51	146.05	146.40	0.35			SILTSTONE	CLYY.DK.GY.LAM.BIOTR.BRKN OVAL SPHERES APPROX 1CM. CLYST LAMS. BD G GREATLY DISTURBED
52	146.40	146.94	0.54			MUDSTONE	DK.GY.LAM.BRKN
* 54	146.94	147.18	0.24			SILTSTONE	DK.GY.LAM.SLD SS LAMS
52	147.18	147.63	0.45			CLAYSTONE	CARB.BLK.BRKN LISTRIC SURFACES. COALY BANDS
* 56	147.63	148.09	0.46			CLAYSTONE	CARB.BLK.LAM.BRKN COALY BANDS BECOMING MORE FREQUENT TOWA RDS TOP
57	148.09	148.13	0.04	04887	J	COAL	C-3.BLK.BRKN
57	148.13	148.14	0.01	04887	J	CLAYSTONE	CARB.BLK.BRKN
* 59	148.14	148.26	0.12	04887	J	COAL	C-4.BLK.SLD

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
58	148.26	148.30	0.04	04867	J	COAL	C-2.BLK.BRKN
57	148.30	148.33	0.03	04867	J	COAL	C-4.BLK.BRKN
* 56	148.33	148.45	0.12	04867	J	COAL	C-2.BLK.SLD
57	148.45	148.57	0.12	04867	J	ROCK LOSS	
59	148.57	148.67	0.10	04867	J	COAL	C-1.BLK.SLD
* 60	148.67	148.80	0.13	04867	J	COAL	C-2.BLK.SLD
59	148.80	148.82	0.02	04867	J	COAL	C-2.BLK.BRKN
58	148.82	149.00	0.18	04867	J	COAL	C-2.BLK.BRKN

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
57	149.00	149.04	0.04	04887	J	COAL	C-3.BLK.BRKN
57	149.04	149.10	0.06	04887	J	COAL LOSS	
* 55	149.10	149.37	0.27	04888	J	MUDSTONE	BLK.SLD MNR COALY BANDS TOWARDS TOP
* 54	149.37	149.45	0.08	04888	J	MUDSTONE	BLK.BRKN MNR COALY BANDS
54	149.45	149.56	0.11	04888	J	ROCK LOSS	
55	149.56	150.42	0.86		J	COAL LOSS	
55	150.42	150.65	0.23	04889	J	CLAYSTONE	CARB.BLK.BRKN UNCONS PIECES
55	150.65	150.69	0.04	04889	J	COAL	C-2.BLK.BRKN
55	150.69	150.75	0.06	04889	J	COAL	C-3.BLK.BRKN
55	150.75	150.79	0.04	04889	J	COAL	C-4.BLK.BRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
55	150.79	150.91	0.12	04889	J	COAL LOSS	
55	150.91	151.06	0.15	04889	J	ROCK LOSS	
55	151.06	151.10	0.04	04889	J	CLAYSTONE	CARB.BLK.SLD
56	151.10	151.15	0.05	04890	J	COAL	C-4.BLK.BRKN CARB CLYST INTBS
56	151.15	151.16	0.01	04890	J	CLAYSTONE	CARB.BLK.SLD
56	151.16	151.20	0.04	04890	J	COAL	C-1.BLK.SLD
56	151.20	151.40	0.20	04890	J	COAL LOSS	
56	151.40	151.44	0.04	04890	J	COAL	C-3.BLK.SLD
56	151.44	151.52	0.08	04890	J	COAL	C-4.BLK.BRKN
56	151.52	151.59	0.07	04890	J	COAL	C-2.BLK.BRKN
56	151.59	151.61	0.02	04890	J	CLAYSTONE	CARB.BLK.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 56	151.61	151.68	0.07	04890	J	COAL	C-2.BLK.SLD
56	151.68	151.78	0.10	04890	J	COAL	C-4.BLK.SLD
56	151.78	151.79	0.01	04890	J	CLAYSTONE	CARB.BLK.SLD
56	151.79	151.95	0.16	04890	J	COAL	C-3.BLK.BRKN
56	151.95	151.96	0.01	04890	J	COAL	C-1.BLK.SLD
56	151.96	152.06	0.10	04890	J	COAL	C-2.BLK.SLD
56	152.06	152.24	0.18	04890	J	COAL	C-3.BLK.BRKN
56	152.24	152.29	0.05	04890	J	CLAYSTONE	CARB.BLK.VBRKN
56	152.29	152.49	0.20	04890	J	ROCK LOSS	
56	152.49	153.18	0.69	04890	J	COAL LOSS	
56	153.18	153.28	0.10	04890	J	COAL	C-4.BLK.BRKN

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
56	153.28	153.29	0.01	04896	J	COAL	C-2.BLK.SLD
56	153.29	153.58	0.29	04896	J	COAL	C-3.BLK.BRKN
56	153.58	154.07	0.49	04896	J	COAL LOSS	
56	154.07	154.19	0.12	04896	J	CLAYSTONE	CARB.BLK.BRKN
* 56	154.19	154.34	0.15	04896	J	COAL	C-3.BLK.BRKN
57	154.34	155.00	0.66			CLAYSTONE	CARB.BLK.BRKN COALY BANDS THINING TOWARDS TOP, MNR CA LCT VEINING
* 59	155.00	155.91	0.91			MUDSTONE	BLK.LAM.BRKN CLY BANDS AT BASE, SLTY TOWARDS TOP, MI NOTE CALCT FRACTURES
58	155.91	156.24	0.33			MUDSTONE	SLTY.BLK.LAM.SLD SLTST LAMS
* 57	156.24	157.46	1.22			SILTSTONE	SSY.DK.GY.LAM.SSD.SLD SSD INDICATES TOPS OVERTURNED, SS LAMS, MNR CLYST LAMS, EASILY WTHRD

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
56	157.46	157.89	0.43			SILTSTONE	SSY.DK.GY.LAM.SLD SS LAMS, EASILY WTHRD
* 54	157.89	160.09	2.20			SILTSTONE	SSY.DK.GY.LAM.XBDG.SLD FG SS LAMS, MNR CLYST INTBS, EASILY WTH RD, XBDG INDICATES TOPS OVERTURNED, MUD ST LAMS
* 52	160.09	160.43	0.34			SILTSTONE	SSY.DK.GY.LAM.BIOTR.BRKN SS LAMS, MNR CALCT VEINING
* 58	160.43	162.19	1.76			SILTSTONE	SSY.DK.GY.LAM.BIOTR.SLD XBDG, SS LAMS, XBDG INDICATES TOPS OVER TURNED, MNR FOLD, MNR MUDST LAMS
* 59	162.19	162.78	0.59			SILTSTONE	SSY.DK.GY.LAM.BIOTR.SLD SS LAMS
* 52	162.78	163.46	0.68			SANDSTONE	SLTY.DK.GY.LAM.BIOTR.BRKN SSD, MNR SYN-SEDIMENTARY FAULTING (3CM) , SLTST AND SS LAMS, EASILY WTHRD
53	163.46	163.81	0.35			SANDSTONE	SLTY.DK.GY.LAM.BIOTR.SLD SLTST LAMS
54	163.81	164.02	0.21			SANDSTONE	FG.WEL.S-P.GY.THNB.SLD MNR SLTST INTBS,BECOMING SLTY TOWARDS T OP

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
55	164.02	164.25	0.23			SILTSTONE	SSY.DK.GY.LAM.SSD.SLD SS LAMS, SSD INDICATES TOPS OVERTURNED, EASILY WTHRD
* 56	164.25	164.88	0.63			SILTSTONE	SSY.DK.GY.LAM.SLD MICRO FAULT (3CM), SS LAMS INCREASING TOWARDS TOP
* 56	164.88	166.43	1.55			SANDSTONE	SLTY.DK.GY.VTHNB.XBDG.SLD BIOTURB, SSD, SLTST INTBS AND LAMS, SED STRUCTURES INDICATE TOPS OVERTURNED, EASILY WTHRD
55	166.43	166.56	2.13			SILTSTONE	SSY.DK.GY.LAM.XBDG.SLD SS INTBS AND LAMS, SYN-SEDIMENTARY FAULTING (3CM), SED STRUCTURES INDICATE TOPS OVERTURNED, EASILY WTHRD
54	166.56	169.49	0.93			SILTSTONE	SSY.DK.GY.LAM.BIOTR.SLD SSD, SS LAMS, TOPS OVERTURNED, MNR COAL Y BAND (0-5CM)
* 54	169.49	170.72	1.23			SILTSTONE	SSY.DK.GY.LAM.SSD.SLD SS INTBS, TOPS OVERTURNED, EASILY WTHRD
* 52	170.72	172.40	1.68			SILTSTONE	SSY.DK.GY.LAM.XBDG.SLD SSD, SS INTBS, EASILY WTHRD

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 52	172.40	172.89	0.49			SILTSTONE	SSY.DK.GY.LAM.XBDG.SLD SS INTBS, BIOTURB
* 50	172.89	175.10	2.21			SILTSTONE	SSY.DK.GY.VTHNB.BIOTR.SLD SSD, SS INTBS, UNIT BIOLOGICALLY DISTUR BED, SED STRUC INDICATE TOPS OVERTURNED , EASILY WTHRD
* 48	175.10	175.49	0.39			SILTSTONE	SSY.DK.GY.LAM.SSD.SLD XBDG, SS INTBS, BDS DISTURBED, EASILY W THRD
46	175.49	176.11	0.62			SILTSTONE	SSY.DK.GY.LAM.BIOTR.SLD SSD
* 45	176.11	176.94	0.83			SANDSTONE	SLTY.VFG.WEL.DK.GY.VTHNB.BIOTR.SLD SLTST INTBS
47	176.94	178.10	1.16			SILTSTONE	SSY.DK.GY.LAM.BIOTR.SLD MNR SS LAMS
* 48	178.10	178.50	0.40			SILTSTONE	SSY.DK.GY.LAM.WRMBU.SLD SS LAMS
* 56	178.50	179.66	0.16			SANDSTONE	SLTY.VFG.WEL.DK.GY.LAM.SLD SLTST LAMS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 48	179.00	179.48	0.42			SANDSTONE	SLTY.VFG.WEL.DK.GY.VTHNB.SSD.SLD SLTST INTBS. EASILY WTHRD
49	179.48	179.51	0.03			MUDSTONE	PYR.BLK.SLD CALCT VEINING. ABUNDANT PYR
* 54	179.51	181.19	1.68			SANDSTONE	SLTY.VFG.WEL.M.GY.VTHNB.BIOTR.SLD SLTST INTBS. LISTRIC SURFACES TOWARDS T OP
49	181.19	181.29	0.10			SANDSTONE	SLTY.VFG.WEL.M.GY.VTHNB.SLD SLTST INTBS
* 48	181.29	181.51	0.22			SILTSTONE	SSY.DK.GY.LAM.SSD.SLD LAM SLTST AND MUDST. MNR CALCT ALONG FR AC
* 46	181.51	182.89	1.38			SANDSTONE	SLTY.VFG.DK.GY.VTHNB.BIOTR.SLD SSD. SLTST INTBS. MNR COALY LENSES (2MM). LISTRIC SURFACES ALONG FRAC. CALCT V EINING. MNR CLYST ON MNR FRAC SURFACES. SSD INDICATES FOLDS OVERTURNED
50	182.89	183.29	0.40			SANDSTONE	SLTY.FG.MOD.DK.GY.THNB.BIOTR.BRKN SLTST LAM. MNR CLY ALONG FRAC

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 54	183.29	184.37	1.08			SANDSTONE	FG.WEL.GY.VTHNB.SSD.SLD WRMBUR. BIOTURB. SLTST INTBS. MNR COALY PARTICLES APPROX 3MM THK. CALCT ALONG FRAC SURFACES. MNR LISTRIC SURFACES. WR MBUR INDICATE TOPS OVERTURNED
* 49	184.37	185.40	1.03			SANDSTONE	SLTY.FG.WEL.DK.GY.VTHNB.WRMBU.BRKN COAL INCLUSIONS. CALCT VEINING. SLTST L AM
51	185.40	186.12	0.72			MUDSTONE	SLTY.DK.GY.LAM.SLD SLTST AND SS LAMS
52	186.12	186.49	0.37			MUDSTONE	CLYY.GY.BRKN LISTRIC FRACTURE SURFACES. MNR COAL INC LUSIONS TOWARDS TOP
55	186.49	186.78	0.29			MUDSTONE	BLK.SLD COAL INCLUSIONS
53	186.78	186.89	0.11			MUDSTONE	CARB.BLK.LAM.PWRD CALCT VEINING. VERY WTHRD. UNCONS. COAL Y TOWARDS TOP
53	186.89	186.92	0.03	04691	K LOWER	COAL	C-2.BLK.SLD

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
53	186.92	186.95	0.03	04891	K LOWER	CLAYSTONE	CARB.BLK.SLD
53	186.95	187.03	0.08	04891	K LOWER	COAL	C-1.BLK.BRKN
54	187.03	187.10	0.07	04891	K LOWER	COAL	C-4.BLK.BRKN
54	187.10	187.16	0.06	04891	K LOWER	COAL	C-1.BLK.SLD
54	187.16	187.19	0.01	04891	K LOWER	CLAYSTONE	CARB.BLK.SLD
54	187.19	187.23	0.04	04891	K LOWER	COAL	C-4.BLK.BRKN
54	187.23	187.29	0.06	04891	K LOWER	CLAYSTONE	CARB.BLK.BRKN

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 54	187.29	187.32	0.03	04891	K LOWER	COAL	C-2.BLK.BRKN
54	187.32	187.34	0.02	04891	K LOWER	CLAYSTONE	CARB.BLK.SLD
54	187.34	187.36	0.02	04891	K LOWER	COAL	C-2.BLK.BRKN
55	187.36	187.48	0.12	04891	K LOWER	COAL	C-4.BLK.BRKN
56	187.48	187.74	0.26	04891	K LOWER	COAL LOSS	
57	187.74	187.92	0.18	04892	K LOWER	ROCK LOSS	
58	187.92	188.15	0.23	04892	K LOWER	CLAYSTONE	CARB.BLK.BRKN COALY BANDS
* 59	188.15	188.26	0.11	04892	K LOWER	COAL	C-5.BLK.BRKN
58	188.26	188.46	0.20	04892	K LOWER	ROCK LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
57	188.46	188.56	0.10	04892	K LOWER	CLAYSTONE	CARB.BLK.BRKN
57	188.56	188.60	0.04	04892	K LOWER	COAL	C-3.BLK.BRKN
57	188.60	188.73	0.13	04892	K LOWER	CLAYSTONE	CARB.BLK.BRKN COAL BANDS
56	188.73	188.76	0.03	04892	K LOWER	COAL	C-3.BLK.BRKN
55	188.76	189.09	0.33	04892	K LOWER	CLAYSTONE	CARB.BLK.BRKN INTBD COAL AND CLY
* 54	189.09	189.21	0.12	04893	K LOWER	COAL	C-4.BLK.SLD
54	189.21	189.23	0.02	04893	K LOWER	COAL	C-1.BLK.SLD
54	189.23	189.28	0.05	04893	K LOWER	COAL	C-2.BLK.SLD
55	189.28	189.34	0.06	04893	K LOWER	COAL	C-4.BLK.SLD
55	189.34	189.49	0.15	04893	K LOWER	COAL	C-3.BLK.BRKN

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
56	189.49	189.52	0.03	04893	K LOWER	COAL	C-4.BLK.BRKN
* 56	189.52	189.65	0.13	04894	K LOWER	CLAYSTONE	CARB.BLK.SLD COALY BANDS
56	189.65	189.66	0.01	04894	K LOWER	COAL	C-1.BLK.SLD
56	189.66	189.73	0.07	04894	K LOWER	CLAYSTONE	CARB.BLK.SLD COAL BANDS
57	189.73	189.78	0.05	04894	K LOWER	COAL	C-3.BLK.BRKN
57	189.78	189.88	0.10	04894	K LOWER	COAL	C-4.BLK.SLD
57	189.88	190.12	0.24	04894	K LOWER	CLAYSTONE	CARB.BLK.SLD COAL BANDS
* 58	190.12	190.28	0.16	04894	K LOWER	CLAYSTONE	CARB.BLK.SLD COAL BANDS
56	190.28	190.45	0.17	04894	K LOWER	COAL LOSS	
55	190.45	190.50	0.05	04894	K LOWER	COAL	C-4.BLK.BRKN

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
54	190.56	190.63	0.03	04894	K LOWER	COAL	C-2.BLK.BRKN
54	190.63	190.66	0.07	04894	K LOWER	CLAYSTONE	CARB.BLK.BRKN COAL BANDS
53	190.66	190.84	0.04	04894	K LOWER	COAL	C-2.BLK.BRKN
* 52	190.84	190.74	0.10	04894	K LOWER	COAL	C-4.BLK
53	190.74	190.80	0.06	04894	K LOWER	ROCK LOSS	
53	190.80	190.89	0.09	04894	K LOWER	CLAYSTONE	CARB.BLK.SLD COAL BANDS
54	190.89	190.99	0.10	04894	K LOWER	CLAYSTONE	CARB.BLK.BRKN COAL BANDS
54	190.99	191.01	0.02	04894	K LOWER	COAL	C-2.BLK.SLD
55	191.01	191.03	0.02	04894	K LOWER	COAL	C-4.BLK.SLD
55	191.03	191.04	0.01	04894	K LOWER	COAL	C-1.BLK.SLD

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 55	191.04	191.10	0.06	04894	K LOWER	COAL	C-5.BLK.SLD CARB CLYST BANDS
55	191.10	191.11	0.01	04894	K LOWER	COAL	C-4.BLK.SLD
55	191.11	191.16	0.05	04894	K LOWER	COAL	C-5.BLK.SLD VERY THN CLYST BANDS THROUGHOUT
55	191.16	191.26	0.10	04894	K LOWER	COAL	C-4.BLK.SLD
56	191.26	191.27	0.01	04894	K LOWER	COAL	C-1.BLK.SLD
56	191.27	191.43	0.16	04895	K UPPER	CLAYSTONE	CARB.BLK.SLD VERY THN COAL BANDS THROUGHOUT
56	191.43	191.45	0.02	04895	K UPPER	COAL	C-1.BLK.SLD
56	191.45	191.54	0.09	04895	K UPPER	CLAYSTONE	CARB.BLK.SLD COAL BANDS
57	191.54	191.55	0.01	04895	K UPPER	COAL	C-1.BLK.SLD
57	191.55	191.62	0.07	04895	K UPPER	CLAYSTONE	CARB.BLK.SLD COAL BANDS

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
57	191.82	191.83	0.21	04895	K UPPER	CLAYSTONE	CARB.BLK.SLD COALY BANDS. LISTRIC SURFACES
* 58	191.83	192.09	0.26	04895	K UPPER	CLAYSTONE	CARB.BLK.SLD COAL BANDS
57	192.09	192.11	0.02	04896	K UPPER	COAL	C-3.BLK.BRKN
57	192.11	192.14	0.03	04896	K UPPER	COAL	C-1.BLK.BRKN
57	192.14	192.16	0.02	04896	K UPPER	COAL	C-4.BLK.BRKN
57	192.16	192.19	0.03	04896	K UPPER	COAL	C-1.BLK.BRKN
57	192.19	192.20	0.01	04896	K UPPER	CLAYSTONE	CARB.BLK.BRKN COAL BANDS
57	192.20	192.22	0.02	04896	K UPPER	COAL	C-4.BLK.BRKN
56	192.22	192.25	0.03	04896	K UPPER	COAL	C-1.BLK.SLD
56	192.25	192.33	0.08	04896	K UPPER	ROCK LOSS	

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
56	192.33	192.38	0.05	04896	K UPPER	CLAYSTONE	CARB.BLK.BRKN CALCT VEINING, COAL BANDS
56	192.38	192.40	0.02	04896	K UPPER	CLAYSTONE	CARB.BLK.SLD COAL BANDS, CALCT VEINING
56	192.40	192.42	0.02	04896	K UPPER	COAL	C-2.BLK.SLD CALCT VEINING
55	192.42	192.57	0.15	04896	K UPPER	CLAYSTONE	CARB.BLK.PWRD VERY CRUMBLY, LISTRIC SURFACES, COAL PA RTICLES
54	192.57	192.64	0.07	04896	K UPPER	COAL	C-3.BLK.VBRKN
* 54	192.64	192.73	0.09	04896	K UPPER	CLAYSTONE	CARB.BLK.BRKN V COALY BDS THROUGHOUT
57	192.73	192.85	0.12	04897	K UPPER	COAL	C-4.BLK.SLD
56	192.85	192.87	0.02	04897	K UPPER	COAL	C-1.BLK.SLD
* 59	192.87	192.90	0.03	04897	K UPPER	COAL	C-4.BLK.SLD

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
59	192.90	192.94	0.04	04897	K UPPER	COAL	C-2.BLK.SLD
58	192.94	193.07	0.13	04897	K UPPER	COAL	C-3.BLK.VBRKN
58	193.07	193.09	0.02	04897	K UPPER	CLAYSTONE	CARB.BLK.BRKN COALY BANDS
57	193.09	193.13	0.04	04897	K UPPER	COAL	C-2.BLK.SLD
57	193.13	193.20	0.07	04897	K UPPER	CLAYSTONE	CARB.BLK.BRKN
57	193.20	193.23	0.03	04897	K UPPER	COAL	C-4.BLK.BRKN
56	193.23	193.24	0.01	04897	K UPPER	COAL	C-1.BLK.SLD
56	193.24	193.30	0.06	04897	K UPPER	CLAYSTONE	CARB.BLK.PWRD UNCONS
56	193.30	193.36	0.06	04897	K UPPER	COAL	C-2.BLK.SLD
55	193.36	193.39	0.03	04897	K UPPER	CLAYSTONE	CARB.BLK.BRKN COALY BANDS, LISTRIC SURFACES

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
55	193.39	193.48	0.09	04897	K UPPER	COAL	C-2.BLK.BRKN
54	193.48	193.65	0.17	04897	K UPPER	COAL	C-3.BLK.VBRKN SOME PARTS UNCON AND CLYY DUE TO WTHRIN G
53	193.65	193.72	0.07	04897	K UPPER	COAL	C-4.BLK
53	193.72	193.73	0.01	04897	K UPPER	CLAYSTONE	CARB.BLK.SLD COALY BANDS
52	193.73	193.81	0.08	04897	K UPPER	COAL	C-2.BLK.BRKN
51	193.81	194.09	0.28			CLAYSTONE	CARB.DK.GY.BRKN LISTRIC FRAC SURFACES,CALCT ALONG FRAC. SLTY TOWARDS TOP
* 49	194.09	194.39	0.30			SILTSTONE	SSY.DK.GY.LAM.SLD CALCT ALONG FRAC SURFACES, SS LAM
* 55	194.39	194.79	0.40			SILTSTONE	SSY.DK.GY.LAM.BIOTR.SLD SS INTBS, EASILY WTHRD

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SLAM ID	LITHOLOGY	DESCRIPTION
55	194.79	195.47	0.68			SILTSTONE	CLYY.DK.GY.LAM.BIOTR.SLD COAL INCLUSIONS 5%, MNR SS LAM, UNCONS CLY ALONG FRACS, EASILY WTHRD
* 54	195.47	196.14	0.67			SILTSTONE	SSY.DK.GY.LAM.BIOTR.SLD BIOTURB MNR, SS LAM, CALCT VEINING, MNR COAL INCLUSIONS, EASILY WTHRD
55	196.14	196.31	0.17			CLAYSTONE	SSY.LT.GY.LAM.PWRD CALCT VEINING, SS LAM, EASILY WTHRD
56	196.31	196.41	0.10			ROCK LOSS	
* 57	196.41	196.99	0.58			SANDSTONE	SLTY.VFG.WEL.M.GY.LAM.SSD.SLD SSD INDICATES TOPS OVERTURNED, SLTST LA M
* 52	196.99	198.49	1.50			SANDSTONE	SLTY.VFG.WEL.M.GY.LAM.BIOTR.SLD SLTST LAM, CALCT VEINING, EASILY WTHRD
* 54	198.49	199.44	0.95			SANDSTONE	SLTY.VFG.WEL.M.GY.VTHNB.SLD SLTST INTBS, CALCT VEINING
* 53	199.44	199.65	0.21			SILTSTONE	DK.GY.LAM.SLD SS INTBS

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82065

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
53	199.65	200.02	0.37			SANDSTONE	SLTY.VFG.M.GY.LAM.BIOTR.SLD SLTST INTBS, CALCT VEINING, LISTRIC SURFACES, EASILY WTHRD
54	200.02	200.48	0.46			SANDSTONE	VFG.M.GY.THNB.WRMBU.SLD MNR SLTST LAM, CALCT VEINING, WRMBUR FILLED WITH SLTST
55	200.48	200.64	0.16			SANDSTONE	VFG.M.GY.THNB.WRMBU.SLD AS ABOVE
* 56	200.64	202.32	1.68			SANDSTONE	FG.MOD.S-P.GY.THNB.SLD CALCT VEINING, LISTRIC SURFACES ALONG FRACS, SLTST INTBS
57	202.32	202.56	0.24			SILTSTONE	DK.GY.LAM.SLD SS INTBS, CALCT VEINING, EASILY WTHRD
* 57	202.56	203.03	0.47			SANDSTONE	FG.MOD.M.GY.THNB.XBDG.SLD SLTST INTBS, XBDG INDICATES TOPS OVERTURNED, EASILY WTHRD
56	203.03	203.52	0.49			SANDSTONE	FG.MOD.M.GY.THNB.XBDG.SLD AS ABOVE
55	203.52	204.18	0.66			SILTSTONE	SSY.DK.GY.VTHNB.SSD.SLD CALCT VEINING, SS INTBS, MNR BIOTURB

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SLAM ID	LITHOLOGY	DESCRIPTION
54	204.18	204.51	0.33			SANDSTONE	FG.M.GY.THNB.SSD.BRKN SLTST INTBS, MNR BRECCIATION FILLED WIT H CALCT, WTHRS EASILY, SSD INDICATES TO PS OVERTURNED
* 52	204.51	206.04	1.53			SANDSTONE	FG.WEL.M.GY.THNB.BIOTR.SLD SLTST RIP-UP CLASTS THROUGHOUT, SLTST L AM, CALCT VEINING, EASILY WTHRD, MNR LI STRIC FRAC SURFACES
52	206.04	206.66	0.62			SANDSTONE	FG.WEL.M.GY.THNB.BIOTR.SLD AS ABOVE, WKMBOK
* 53	206.66	208.76	2.10			SANDSTONE	FG.M.GY.THNB.SSD.SLD SLTST LAM, CALCT VEINING, SSD INDICATE TOPS OVERTURNED, EASILY WTHRD
* 56	208.76	209.11	0.35			SANDSTONE	FG.M.GY.THNB.SSD.SLD SLTST LAM, MNR CALCT VEINING, CLY ALONG FRAC SURFACES
55	209.11	209.53	0.42			SANDSTONE	FG.M.GY.THNB.SSD.SLD SLTST INTBS
55	209.53	209.81	0.28			SANDSTONE	SLTY.DK.GY.VTHNB.SLD SLTST LAM, SLTST RIP-UP CLASTS, EASILY WTHRD

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 54	209.81	210.82	1.01			SANDSTONE	FG.WEL.S-P.GY.VTHNB.SLD MNR SLTST RIP-UP CLASTS, MNR SLTST LAM
* 49	210.82	212.85	2.03			SANDSTONE	FG.MOD.S-P.GY.VTHNB.SSD.SLD SLTST LAM, MNR SLTST CLASTS APPROX 5MM, CALCT AND QTZ VEINING TOWARDS TOP, EASILY WTHRD
* 46	212.85	212.99	0.14			SANDSTONE	FG.MOD.S-P.GY.VTHNB.SLD SLTST INTBS
* 49	212.99	214.61	1.62			SANDSTONE	VFG.MOD.M.GY.VTHNB.XBDG.SLD BIOTURB, WRMBUR, SLTST LAM, BECOMING SLTIER TOWARDS TOP, SED STRUC INDICATE TOPS OVERTURNED, EASILY WTHRD
52	214.61	214.94	0.33			SILTSTONE	SSY.DK.GY.LAM.BIOTR.SLD SS LAM, GRADATIONAL TOWARDS MUDST AT TOP
* 54	214.94	215.63	0.69			SILTSTONE	SSY.DK.GY.VTHNB.BIOTR.SLD XBDG, SS INTBS, XBDG INDICATES TOPS OVERTURNED
55	215.63	216.57	0.94			SILTSTONE	DK.GY.LAM.XBDG.SLD SS LAM, EASILY WTHRD, XBDG INDICATES TOPS OVERTURNED

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. SEAM ID	SAMP. SEAM IE	LITHOLOGY	DESCRIPTION
55	216.57	216.71	0.14			SANDSTONE	SLTY.VFG.WEL.M.GY.LAM.SSD.SLD SLTST LAM
* 55	216.71	216.82	0.11			SILTSTONE	DK.GY.LAM.SLD MNR SS LAM, EASILY WTHRD
54	216.82	217.02	0.20			SILTSTONE	CLYY.DK.GY.LAM.BIOTR.SLD WKMBDR, UNIT MOTTLED, SED STRUC INDICAT E TOPS OVERTURNED
54	217.02	217.13	0.11			SILTSTONE	SSY.DK.GY.VTHNB.SSD.SLD SS INTBS
* 52	217.13	217.89	0.76			SILTSTONE	SSY.DK.GY.LAM.BIOTR.SLD SS AND CLYST LAM, MORE CLYY TOWARDS TOP , COAL INCLUSIONS TOWARDS TOP
52	217.89	218.07	0.18			CLAYSTONE	SLTY.GY.LAM.BIOTR.SLD MOTTLED, COAL INCLUSIONS, MNR SLTST LAM
51	218.07	218.29	0.22			CLAYSTONE	SLTY.GY.LAM.BIOTR.SLD AS ABOVE, CALCT VEINING AT TOP
51	218.29	218.52	0.23			MUDSTONE	SLTY.DK.GY.LAM.BIOTR.SLD WKMBDR, MNR SLTST LAM
* 51	218.52	218.64	0.12			SILTSTONE	DK.GY.LAM.SLD MNR SS LAM, EASILY WTHRD

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

DCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
51	218.64	219.25	0.61			SANDSTONE	SLTY.DK.GY.VTHNB.BIOTR.SLD SLTST INTBS, EASILY WTHRD
51	219.25	219.56	0.31			SILTSTONE	SSY.DK.GY.LAM.SLD LISTRIC FRAC SURFACES, MNR COAL INCLUSIONS, SS INTBS
50	219.56	220.09	0.53			MUDSTONE	SLTY.DK.GY.LAM.SLD MNR GTZ VEINING, SS AND SLTST LAM, EASILY WTHRD, LISTRIC FRAC SURFACES
50	220.09	220.14	0.05			CLAYSTONE	SLTY.GY.BIOTR.SLD MOTTLED, COAL INCLUSIONS, LISTRIC FRAC
* 50	220.14	220.61	0.47			SANDSTONE	SLTY.DK.GY.VTHNB.BIOTR.SLD SLTST LAM, COALY INCLUSIONS TOWARDS TOP
53	220.61	220.68	0.07			CLAYSTONE	GY.PWRD UNCONS
* 55	220.68	221.13	0.45			SANDSTONE	SLTY.S-P.GY.THNB.BIOTR.SLD SLTST INTBS, COAL INCLUSIONS MNR, EASILY WTHRD
54	221.13	221.19	0.06			MUDSTONE	BLK.LAM.BIOTR.SLD CLYST LAM
54	221.19	221.28	0.09			MUDSTONE	CLYY.BLK.LAM.BIOTR.SLD COALY INCLUSIONS TOWARDS TOP, MOTTLED

* DENOTES MEASURED DCA

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PROJECT: KFN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
53	221.28	221.31	0.03			CLAYSTONE	LT.GY.PWKD UNCONS
52	221.31	222.08	0.77			MUDSTONE	BLK.LAM.BIOTR.BRKN SSD INDICATES TOPS OVERTURNED, FREQUENT COAL INCLUSIONS, DISTRIC FRAC SURFACES, QTZ VEINING
* 49	222.08	222.65	0.57			MUDSTONE	CLYY.GY.LAM.BIOTR.BRKN QTZ VEINING, QTZ CEMENTING, MNR BRECCIATED MUDST,DISTRIC FRAC SURFACES, MNR COALY INCLUSIONS
* 61	222.65	222.93	0.28			MUDSTONE	CLYY.GY.LAM.BIOTR.BRKN AS ABOVE
61	222.93	222.96	0.03			COAL	C-2.BLK.SLD QTZ VEINING AT BASE
60	222.96	223.11	0.15			MUDSTONE	BLK.LAM.BRKN CONTAINS UNCONS CLY BAND AT BASE, COALY INCLUSIONS
60	223.11	223.51	0.40			CLAYSTONE	LT.GY.BIOTR.SLD WKMBDR, MOTTLED SLTST, MNR QTZ VEINING
* 59	223.51	223.90	0.39			MUDSTONE	BLK.LAM.BIOTR.BRKN SLTST LAM, V EASILY WTHRD, MNR COALY INCLUSIONS

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
59	223.90	223.94	0.04			MUDSTONE	BLK.LAM.BIOTR.BRKN AS ABOVE
59	223.94	224.01	0.07			CLAYSTONE	BLK.PWKD UNCONS, V EASILY WTHRD
60	224.01	224.97	0.96			CLAYSTONE	CARB.BLK.LAM.SLD COALY INCLUSIONS, MNR CLYST TOWARDS BAS E, LISTRIC FRAC SURFACES
60	224.97	225.26	0.29			CLAYSTONE	DK.GY.LAM.PWKD CALCT VEINING, UNCONS CLY BANDS, LISTRI C FRAC SURFACES, MNR BRECCIATION, CEMEN TED WITH CALCT, MNR COAL INCLUSIONS
60	225.26	225.29	0.03			CLAYSTONE	DK.GY.LAM.PWKD AS ABOVE
61	225.29	225.58	0.29			MUDSTONE	BLK.LAM.BRKN
61	225.58	225.68	0.10			CLAYSTONE	GY.BRKN MOTTLED, UNCONS CLY BAND AT BASE
61	225.68	226.00	0.32			MUDSTONE	BLK.LAM.BRKN FISSILE, V EASILY WTHRD
61	226.00	226.49	0.49			CLAYSTONE	GY.WKMBD.BRKN BIOTURB, MOTTLED MUDST AND CLYST

* DENOTES MEASURED DCA

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PROJECT: KPK BLOCK: LK , DATA SOURCE: DDHC2005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
62	226.49	226.75	0.26			MUDSTONE	BLK.LAM.BRKN FISSILE, LISTRIC FRAC SURFACES, MNR QTZ VEINING
62	226.75	227.32	0.57			CLAYSTONE	GY.BRKN MOTTLED WITH MUDST, UNCONS CLY BAND AT BASE
63	227.32	228.24	0.92			MUDSTONE	BLK.LAM.SLD MNR COAL INCLUSIONS
63	228.24	228.47	0.23			CLAYSTONE	GY.DKTK.SLD WKMBOK, COAL INCLUSIONS, MOTTLED WITH S LIST, QTZ VEIN
64	228.47	228.74	0.27			CLAYSTONE	CARB.BLK.LAM.SLD CALCT VEINING, LISTRIC FRAC SURFACES, C OAL INCLUSIONS, V EASILY WTHRD
* 64	228.74	229.17	0.43			CLAYSTONE	CARB.BLK.LAM.SSD.BRKN FREQUENT COAL INCLUSIONS, MNR CALCT VEI NING
61	229.17	229.21	0.04			MUDSTONE	BLK.LAM.BRKN COAL INCLUSIONS

* DENOTES MEASURED BCA

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PROJECT: KMN BLOCK: LR DATA SOURCE: DDH82065

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
59	229.21	229.42	0.21			CLAYSTONE	LT.GY.LAM.BIOTR.SLD WKMBOR, LISTRIC FRAC SURFACES, COAL INC LUSIONS MNR, FOSSILIFEROUS, MOTTLED, PY R TOWARDS TOP
58	229.42	229.66	0.24			CLAYSTONE	CARB.BLK.LAM.BRKN LISTRIC FRAC SURFACES, COALY INCLUSIONS , MNR CALCT STRGS
52	229.66	229.90	0.24			SANDSTONE	MG.MOD.S-P.GY.THNB.BIOTR.BRKN BIOTURB MNR, MNR COAL INCLUSIONS, SLTST LAM, V EASILY WTHRD
50	229.90	230.06	0.16			CLAYSTONE	LT.GY.BIOTR.SLD COAL INCLUSIONS, MNR QTZ VEINING, FOSSI LIFEROUS
48	230.06	230.16	0.10			SANDSTONE	MG.MOD.S-P.GY.THNB.SLD MNR SLTST INTBS
46	230.16	230.26	0.10			CLAYSTONE	GY.PWRD UNCONS, V EASILY WTHRD
45	230.26	230.29	0.03			SANDSTONE	MG.GY.PWRD V EASILY WTHRD, UNCONS
* 45	230.29	230.33	0.04			SILTSTONE	GY.LAM.SLD MOIST LAM, LARGE QTZ VEIN

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

LCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
45	230.33	230.57	0.24			SANDSTONE	CG.MOD.S-P.GY.THNB.SLD SLTST RIP-UP CLASTS, MNR QTZ VEINING
45	230.57	230.93	0.36			SANDSTONE	FG.MOD.M.GY.THNB.SLD SLTST RIP-UP CLASTS COMMON, INTBD CG SS ANT SLTST
* 45	230.93	231.32	0.39			SANDSTONE	FG.S-P.GY.VTHNB.SLD EASILY WTHRD, SLTST LAM, INTBD CLY
51	231.32	231.53	0.21			SILTSTONE	FG.DK.GY.VTHNB.SSD.SLD SSD INDICATES TOPS OVERTURNED, SS INTBS
* 58	231.53	231.93	0.40			SANDSTONE	FG.WEL.S-P.GY.VTHNB.BRKN MNR SLST LAM
57	231.93	231.99	0.06			SILTSTONE	DK.GY.LAM.SLD MNR SS LAM
54	231.99	232.65	0.66			SANDSTONE	FG.GY.VTHNB.VBRKN ABUNDANT CALCT SURROUNDING BRECCIATED S S, SS WTHRD AND BRKN IN PARTS, FAULT
* 50	232.65	233.25	0.60			SANDSTONE	FG.MOD.GY.VTHNB.XBDG.SLD XBDG INDICATES TOPS OVERTURNED, SLTST L AM, SLTST RIP-UP CLASTS, EASILY WTHRD
49	233.25	233.34	0.09			SANDSTONE	FG.MOD.GY.VTHNB.XBDG.SLD AS ABOVE

* DENOTES MEASURED LCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82065

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
49	233.34	233.40	0.06			SILTSTONE	DK.GY.LAM.XBDG.SLD INTBD SS, XBDG INDICATES TOPS OVERTURNED
48	233.40	233.50	0.10			SANDSTONE	FG.MOD.S-P.GY.VTHNB.SLD MNR SLTST RIP-UP CLASTS, SLTST LAM
48	233.50	233.65	0.15			SANDSTONE	FG.MOD.S-P.GY.VTHNB.SLD AS ABOVE
* 47	233.65	233.96	0.31			SILTSTONE	DK.GY.VTHNB.BIOTR.BRKN INTBD SS, SLTST REWORKED
48	233.96	234.13	0.17			SILTSTONE	SSY.DK.GY.LAM.BRKN BRECCIATED TOWARDS BASE, CALCT VEINING, SS INTBS
48	234.13	234.22	0.09			SANDSTONE	FG.WEL.LT.GY.LAM.SLD SLTST INTBS
49	234.22	234.64	0.42			SILTSTONE	DK.GY.LAM.BIOTR.BRKN COALY BDS INCREASING TOWARDS TOP, V WTH RD, SS INTBS
51	234.64	234.97	0.33			CLAYSTONE	LT.GY.BIOTR.SLD COALY INCLUSIONS MNR, CALCT VEINING, SS AND SLTST LAM, MOTTLED, FOSSILIFEROUS

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
52	234.97	235.37	0.40			SANDSTONE	FG.WLL.DK.GY.BIOTR.BRKN BIOTURB MNR, EASILY WTHRD, SOME SLTST I NTBS
54	235.37	235.65	0.28			CLAYSTONE	DK.GY.BIOTR.BRKN EASILY WTHRD, FOSSIL ZONES, CALCT VEINI NG, LISTRIC FRAC SURFACES, FOSSILS INCR EASING TOWARDS TOP
55	235.65	235.84	0.19			CLAYSTONE	CARB.LT.GY.BIOTR.BRKN WRMBOR, LISTRIC FRAC SURFACES, MNR CALC I VEINING, MODERATELY FOSSILIFEROUS
56	235.84	236.14	0.30			CLAYSTONE	CARB.BLK.VBRKN COALY INCLUSIONS, LISTRIC SURFACES
56	236.14	236.21	0.07	04737	L	COAL	C-2.BLK.VBRKN
57	236.21	236.37	0.16	04737	L	COAL LOSS	
57	236.37	236.46	0.09	04737	L	COAL	C-2.BLK.SLD CALCT VEINING
58	236.46	236.54	0.08	04737	L	CLAYSTONE	CARB.BLK.BRKN LISTRIC SURFACES
58	236.54	236.57	0.03	04737	L	COAL	C-1.BLK.SLD

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 56	236.57	236.62	0.05	04737	L	COAL	C-2.BLK.SLD CALCT VEINING
56	236.62	236.80	0.18	04698	L	MUDSTONE	DK.GY.BRKN FOSSILIZED TREE. CALCT VEINING
* 52	236.80	237.02	0.22	04738	L	COAL	C-3.BLK.BRKN
52	237.02	237.05	0.03	04738	L	COAL	C-1.BLK.SLD
52	237.05	237.15	0.10	04738	L	COAL	C-2.BLK.SLD
53	237.15	237.33	0.18	04738	L	COAL	C-2.BLK.VBRKN
53	237.33	237.37	0.04	04738	L	COAL	C-4.BLK.BRKN COAL BANDS. LISTRIC SURFACES
* 53	237.37	237.47	0.10	04738	L	CLAYSTONE	CARB.BLK.BRKN COAL BANDS. LISTRIC SURFACES
53	237.47	237.55	0.08	04738	L	COAL	C-1.BLK.BRKN
53	237.55	237.59	0.04	04738	L	COAL	C-3.BLK.SLD CALCT VEINING MNR

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: LDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
54	237.59	237.80	0.21	04736	L	COAL	C-2.BLK.BRKN
54	237.81	237.88	0.08	04736	L	COAL	C-4.BLK.BRKN
54	237.88	237.90	0.02	04736	L	CLAYSTONE	CARB.BLK.SLD COAL BANDS. LISTRIC SURFACES
54	237.90	237.95	0.05	04738	L	COAL	C-1.BLK.VBRKN
54	237.95	238.22	0.27	04739	L	MUDSTONE	DK.GY.SLD COAL BANDS. CALCT VEINING
55	238.22	238.36	0.14	04739	L	ROCK LOSS	
55	238.36	238.51	0.15	04739	L	COAL LOSS	
56	238.51	238.63	0.12	04739	L	COAL	C-3.BLK.BRKN
* 56	238.63	238.74	0.11	04739	L	CLAYSTONE	CARB.BLK.PWRD LISTRIC SURFACES. COAL PARTICLES
56	238.74	238.83	0.09	04739	L	ROCK LOSS	
56	238.83	238.92	0.09	04739	L	COAL LOSS	

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82065

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
57	238.92	239.17	0.25			MUDSTONE	M.GY.LAM.BRKN
* 56	239.17	240.26	1.09			CLAYSTONE	DK.GY.LAM.BIOTR.SLD COALY BANDS. MNR CALCT VEINING. MNR SLT ST LAM
* 53	240.26	242.17	1.91			SILTSTONE	M.GY.LAM.SSD.BRKN XBDG. BIOTURB. WRMBUR. XBDG INDICATES T OPS OVERTURNED. SS INTBS. MNR CALCT VEI NING
59	242.17	242.28	0.11			SILTSTONE	DK.GY.VBRKN CALCT CEMENTING BRECCIATED PIECES
60	242.28	242.32	0.04			SANDSTONE	VFG.GY.VTHNB.SLD INTBD SLTST
60	242.32	242.47	0.15			SANDSTONE	VFG.M.GY.SLD BRECCIATED SLTST CEMENTED IN SS MATRIX
* 61	242.47	242.60	0.13			SANDSTONE	FG.WLL.M.GY.THNB.SSD.SLD SSD INDICATES TOPS OVERTURNED

* DENOTES MEASURED BCA

XXXX

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82065

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
61	242.60	243.59	0.99			SANDSTONE	VFG.WEL.M.GY.LAM.XBDG.BRKN MNR BIOTURB, XBDG INDICATES TOPS OVERTU RNED, CALCT VEINING, SLTST LAM //////// /////END OF CORE DRILLERS MARKER 243.8M ///////////////

* DENOTES MEASURED BCA

KPNLRDDH 82005

SAMPLE SUMMARY

GULF CANADA RESOURCES INC. - COAL DIVISION

24/JAN/83 SIMPLE SAMPLE SUMMARY

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	REC CORE	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK
DDH82005										
	I	4884	54.02	57.79	2.65	70.29	2.58	0.07	1.02	0.10
	I	4885	57.79	58.53	0.56	75.68	0.22	0.34	0.00	0.18
	I	4886	58.53	60.30	1.67	94.35	1.50	0.17	0.10	0.00
	J	4887	146.09	149.10	0.63	82.18	0.82	0.01	0.06	0.12
	J	4888	149.10	149.56	0.35	76.09	0.00	0.35	0.00	0.11
	J	4889	150.42	151.10	0.41	60.29	0.14	0.27	0.12	0.15
	J	4890	151.10	154.34	1.66	51.23	1.45	0.21	1.38	0.20
	K LOWER	4891	186.89	187.74	0.59	69.41	0.47	0.12	0.26	0.00
	K LOWER	4892	187.74	189.09	0.97	71.85	0.18	0.79	0.00	0.38
	K LOWER	4893	189.09	189.52	0.43	100.00	0.43	0.00	0.00	0.00
	K LOWER	4894	189.52	191.27	1.52	86.86	0.66	0.86	0.17	0.06
	K	4895	191.27	192.09	0.82	100.00	0.03	0.79	0.00	0.00
	K UPPER	4896	192.09	192.73	0.56	87.50	0.24	0.32	0.00	0.08
	K UPPER	4897	192.73	193.81	1.08	100.00	0.89	0.19	0.00	0.00
	L	4737	236.14	236.62	0.32	66.67	0.24	0.08	0.16	0.00
	L	4898	236.62	236.80	0.18	100.00	0.00	0.18	0.00	0.00
	L	4738	236.80	237.95	1.15	100.00	1.03	0.12	0.00	0.00
	L	4739	237.95	238.92	0.50	51.55	0.12	0.38	0.24	0.23

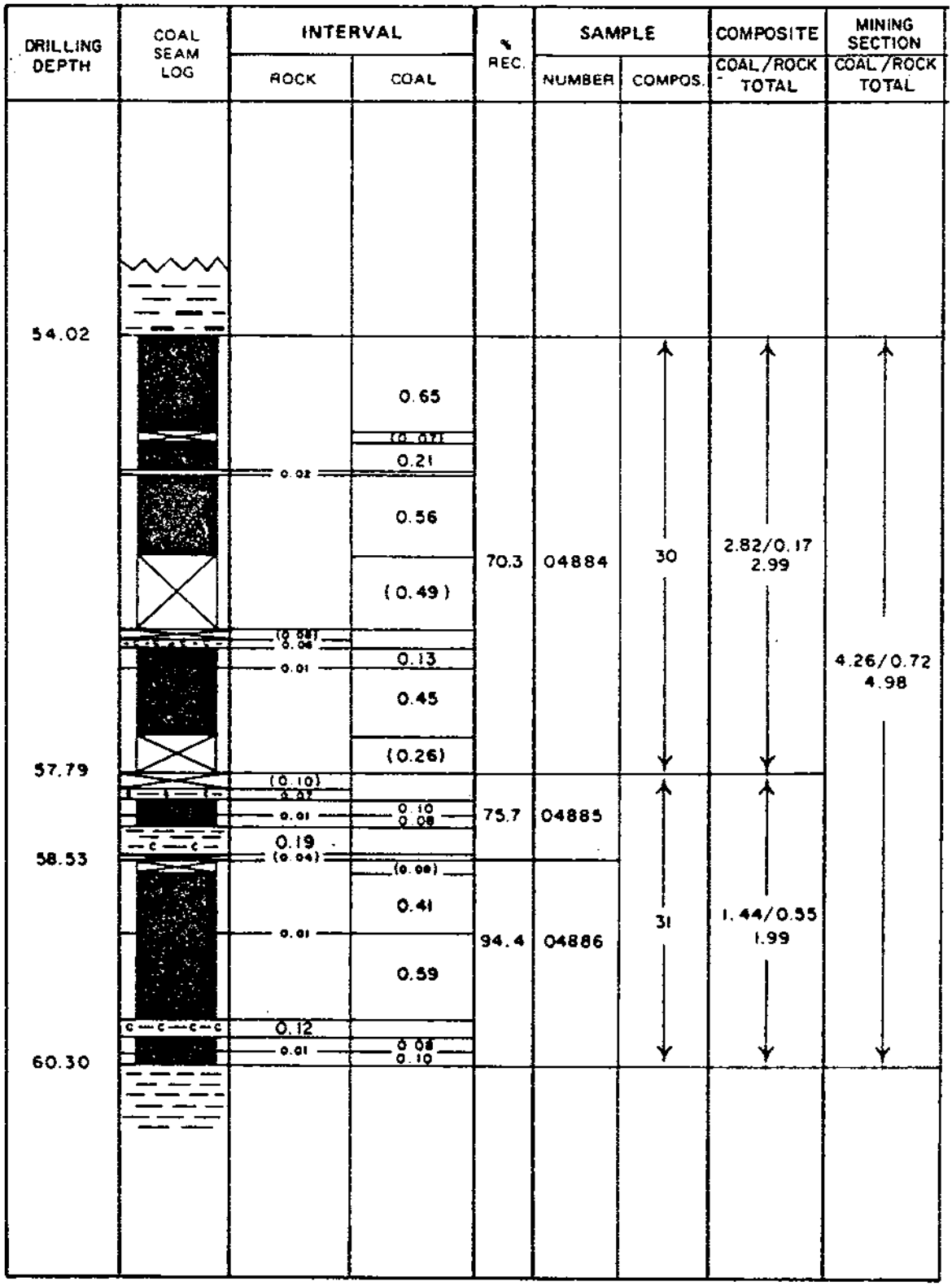
GULF CANADA RESOURCES INC. - COAL DIVISION

25/JAN/83 COMPOSITE SAMPLE SUMMARY PAGE 1

DATA SOURCE	SEAM	SAMPLE ID	SAMPLE FROM	SAMPLE TO	DEPTH FROM	DEPTH TO	REC CORE	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK
DDH82005												
	I	30	4884	4884	54.02	57.79	2.65	70.29	2.55	0.10	1.02	0.10
	I	31	4885	4886	57.79	60.30	2.23	88.84	1.72	0.51	0.10	0.18
	J	32	4887	4887	148.09	149.10	0.83	82.16	0.82	0.01	0.06	0.12
	J	33	4889	4889	150.42	151.10	0.41	60.29	0.14	0.27	0.12	0.15
	J	34	4890	4890	151.10	154.34	1.66	51.23	1.45	0.21	1.38	0.20
	K	35	4891	4895	186.89	192.09	4.33	83.27	1.77	2.56	0.43	0.44
	K	36	4896	4897	192.09	193.81	1.64	95.35	1.13	0.51	0.00	0.08
	L	37	4737	4737	236.14	236.62	0.32	66.67	0.24	0.08	0.16	0.00
	L	38	3738	3738	236.80	237.95	1.15	100.00	1.03	0.12	0.00	0.00
	L	39	4739	4898	237.95	238.92	0.50	51.55	0.12	0.38	0.24	0.23

KPNLRDDH 82005

COAL SEAM DATA SHEETS



SECTION OVERTURNED

GULF CANADA RESOURCES INC.
Coal Division
CALGARY ALBERTA

MT. KLAPPAN COAL PROJECT
SEAM DETAIL
TRUE THICKNESS
DDH-82-005
SEAM I

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

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.
COAL DIVISION

P–267 (12-80)

DENSITY ——— RESISTIVITY ———

DRILL NO. DDH-82-005 SEAM I SEAM INTERVAL

SCALE 1:40

APPARENT THICKNESS

Logged Through Drill Rods

DENSITY SCALE 1.00 1.10 1.20 1.30 1.40 1.50 1.60 1.70 1.80 1.90 2.00 2.10 2.20 2.30 2.40 2.50 2.60 2.70 2.80

RESISTIVITY SCALE DENSITY SCALE DOES NOT APPLY

SECTION OVERTURNED

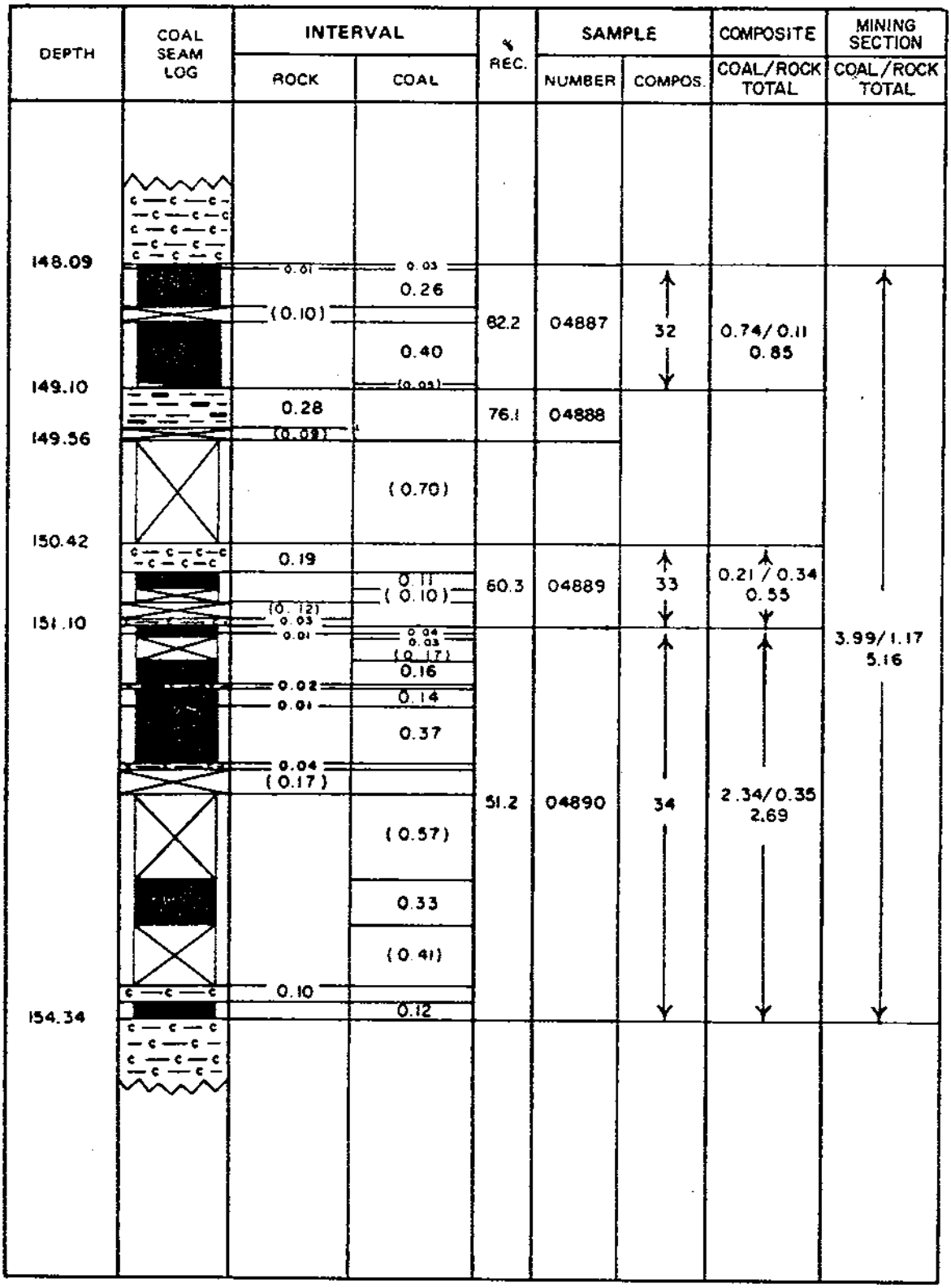
GEOPHYSICAL LOGS

SEAM COMP. 1 2 3 4 5 6	DEPTH metres	COAL SEAM LOG	INTERVAL ROCK	INTERVAL COAL	% REC.	SAMPLE NUMBER	SAMPLE COMPOS.	PROXIMATE ANALYSIS MOIST	ASH	VM	FC	S'	CAL.VAL MJ/kg	FSI
	54.02			0.85										
				(0.09)										
				0.27										
			0.02											
				0.70										
				(0.60)	70.3	048 84	30	2.52	14.21	7.44	75.83	——	29.13	——
			(0.10)											
			0.07											
				0.16										
			0.01											
				0.57										
				(0.33)										
	57.79													
			(0.13)											
			0.09											
				0.12										
			0.01											
				0.10	75.7	048 85								
			0.24											
	58.53		(0.05)											
				(0.10)										
				0.53										
			0.01				31	2.46	34.58	7.34	55.62	——	21.71	
				0.75	94.4	048 86								
			0.15											
				0.10										
			0.01											
	60.30			0.12										

Seam Interval (m): 54.02 - 60.30

Seam True Thickness (Coal/Rock): 4.26/0.72

Total 4.98



SECTION OVERTURNED

GULF CANADA RESOURCES INC.
Coal Division
CALGARY ALBERTA

MT. KLAPPAN COAL PROJECT
SEAM DETAIL
TRUE THICKNESS
DDH-82-005
SEAM J

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

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.
COAL DIVISION

P–267 (12-80)

DENSITY ——— RESISTIVITY ———

DRILL NO. DDH - 82 - 005 SEAM J

SCALE 1: 40

APPARENT THICKNESS

SEAM INTERVAL

Logged Through Drill Rods

DENSITY SCALE

1.00 1.10 1.20 1.30 1.40 1.50 1.60 1.70 1.80 1.90 2.00 2.10 2.20 2.30 2.40 2.50 2.60 2.70 2.80

RESISTIVITY **SCALE** DENSITY SCALE DOES NOT APPLY

SECTION OVERTURNED

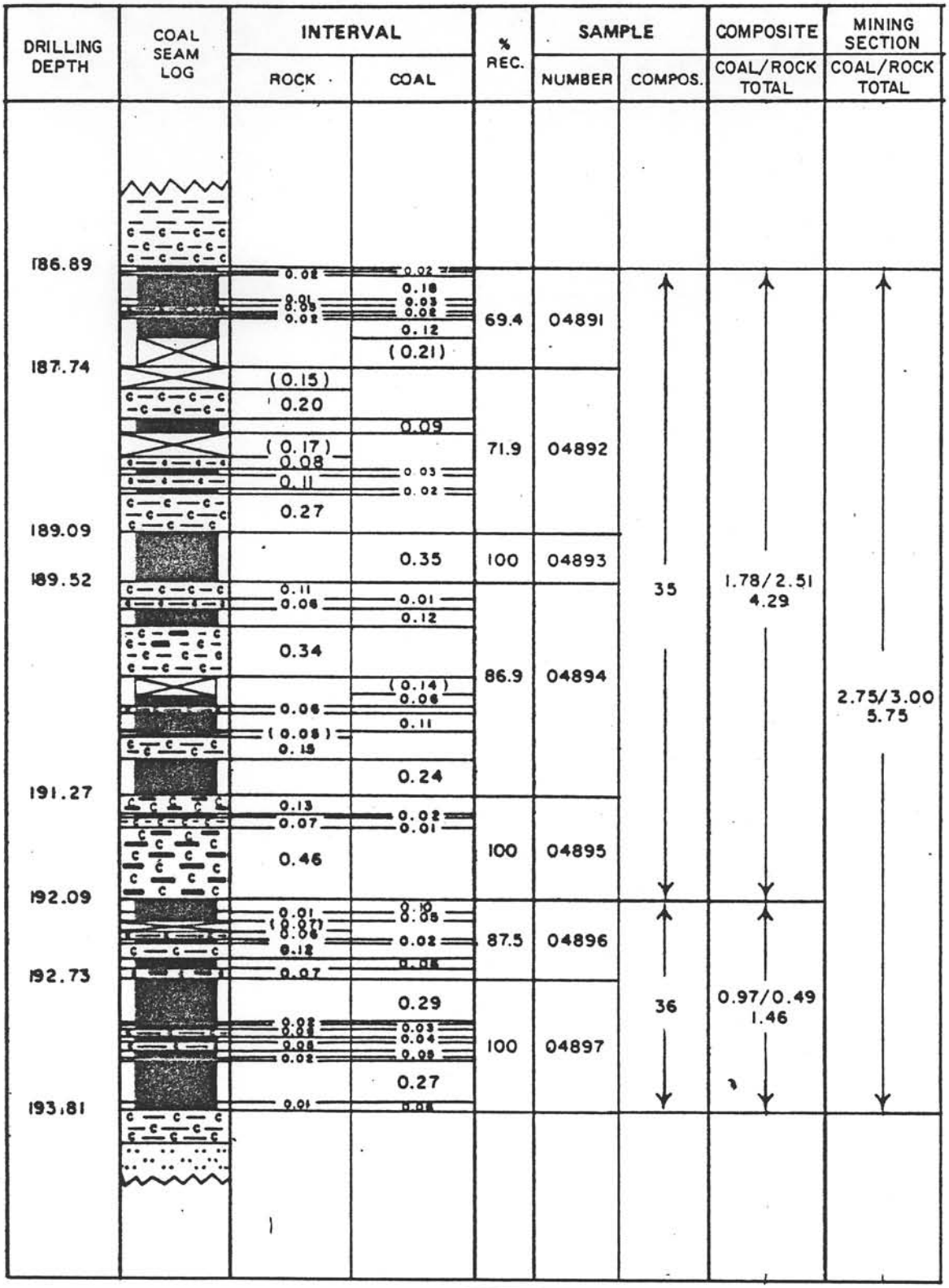
GEOPHYSICAL LOGS

SEAM COMP. 123456	DEPTH metres	COAL SEAM LOG	INTERVAL ROCK	INTERVAL COAL	% REC.	SAMPLE NUMBER	SAMPLE COMPOS.	PROXIMATE ANALYSIS MOIST	ASH	VM	FC	S'	CAL.VAL MJ/kg	FSI
	148.09		0.01	0.04										
				0.31										
			(0.12)		82.2	04887	32	1.90	19.64	9.84	68.62	——	26.62	
				0.47										
	149.10			(0.06)										
			0.35		76.1	04888								
	149.56		(0.11)											
				(0.86)										
	150.42		0.23											
				0.14										
				(0.12)	60.3	04889	33	1.61	60.19	13.04	25.16	——	10.15	
			(0.15)											
	151.10		0.04											
			0.01	0.05										
				0.04										
				(0.20)										
				0.19										
			0.02											
				0.17										
			0.01											
				0.45										
			0.05											
			(0.20)											
				(0.69)	51.2	04890	34	2.37	19.52	7.99	70.12	——	26.88	——
				0.40										
				(0.49)										
			0.12											
	154.34			0.15										

Seam Interval (m): 148.09 - 154.34

Seam True Thickness (Coal/Rock): 3.99/1.17

Total 5.16



SECTION OVERTURNED

GULF CANADA RESOURCES INC.
Coal Division
CALGARY ALBERTA

MT. KLAPPAN COAL PROJECT
SEAM DETAIL
TRUE THICKNESS
DDH-82-005
SEAM K

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

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.
COAL DIVISION

P–267 (12-80)

DENSITY ——— RESISTIVITY ———

DRILL NO. DDH - 82 - 005 SEAM K SEAM INTERVAL

SCALE 1:40 Logged Through Drill Rods

Apparent Thickness

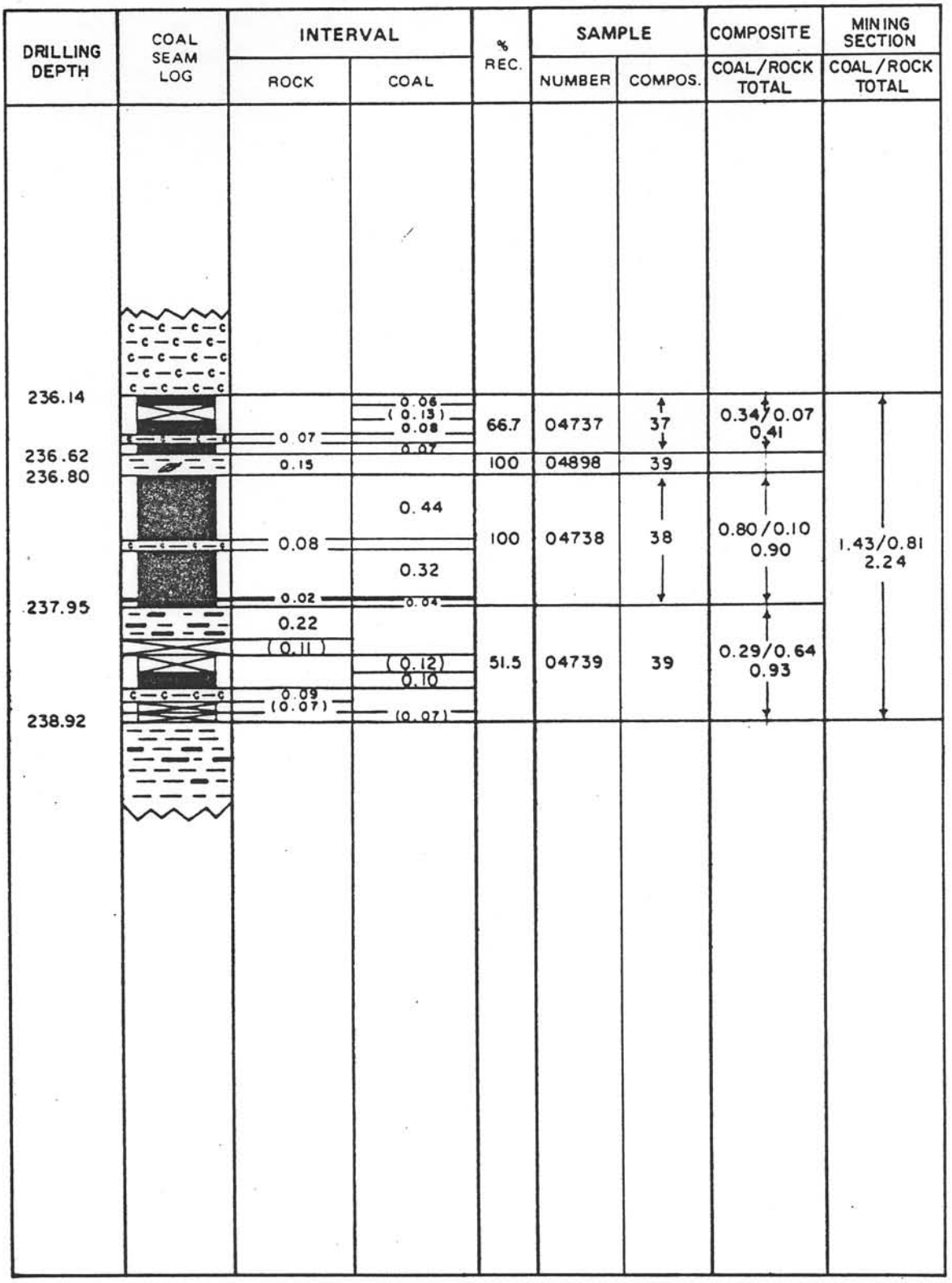
DENSITY SCALE 1.00 1.10 1.20 1.30 1.40 1.50 1.60 1.70 1.80 1.90 2.00 2.10 2.20 2.30 2.40 2.50 2.60 2.70 2.80

RESISTIVITY SCALE — DENSITY SCALE DOES NOT APPLY

SECTION OVERTURNED

GEOPHYSICAL LOGS

SEAM COMP. 123456	DEPTH meters	COAL SEAM LOG	INTERVAL ROCK	INTERVAL COAL	% REC.	SAMPLE NUMBER	SAMPLE COMPOS.	PROXIMATE ANALYSIS MOIST	ASH	VM	FC	S	Cal. Val. MJ/kg	FSI
							Seam Interval (m): 186.89 - 191.27							
							Seam True Thickness (Coal/Roal): 1.75/1.85							
							Total 3.60							
	186.89		0.03	0.03										
			0.01	0.23										
			0.06	0.04										
			0.02	0.03	69.4	04891								
				0.14										
	187.74			(0.26)										
			(0.18)											
			0.23											
				0.11										
			(0.20)		71.9	04892								
			0.10	0.04										
			0.13	0.03										
			0.33											
	189.09			0.43	100	04893	35	1.81	52.75	7.47	37.97		13.68	
	189.52		0.13	0.01										
			0.07	0.15										
			0.40											
				(0.17)										
				0.08	86.9	04894								
			0.07	0.14										
			(0.06)											
			0.19											
				0.28										
	191.27		0.16											
			0.09	0.02										
				0.01	100	04895								
			0.54											
	192.09			0.10										
			0.01	0.05										
			0.08											
			0.07	0.02	87.5	04896								
			0.15											
	192.73		0.09	0.07										
				0.34			36	1.90	38.38	7.66	52.06		20.22	
			0.02	0.04										
			0.07	0.04										
			0.06	0.06	100	04897								
			0.03											
				0.33										
	193.81		0.01	0.08										
							Seam Interval (m): 192.09 - 193.81							
							Seam True Thickness (Coal/Rock): 0.97/0.49							
							Total 1.46							



SECTION OVERTURNED

GULF CANADA RESOURCES INC.
Coal Division
CALGARY ALBERTA

MT. KLAPPAN COAL PROJECT
SEAM DETAIL
TRUE THICKNESS
DDH-82-005
SEAM L

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

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.
COAL DIVISION

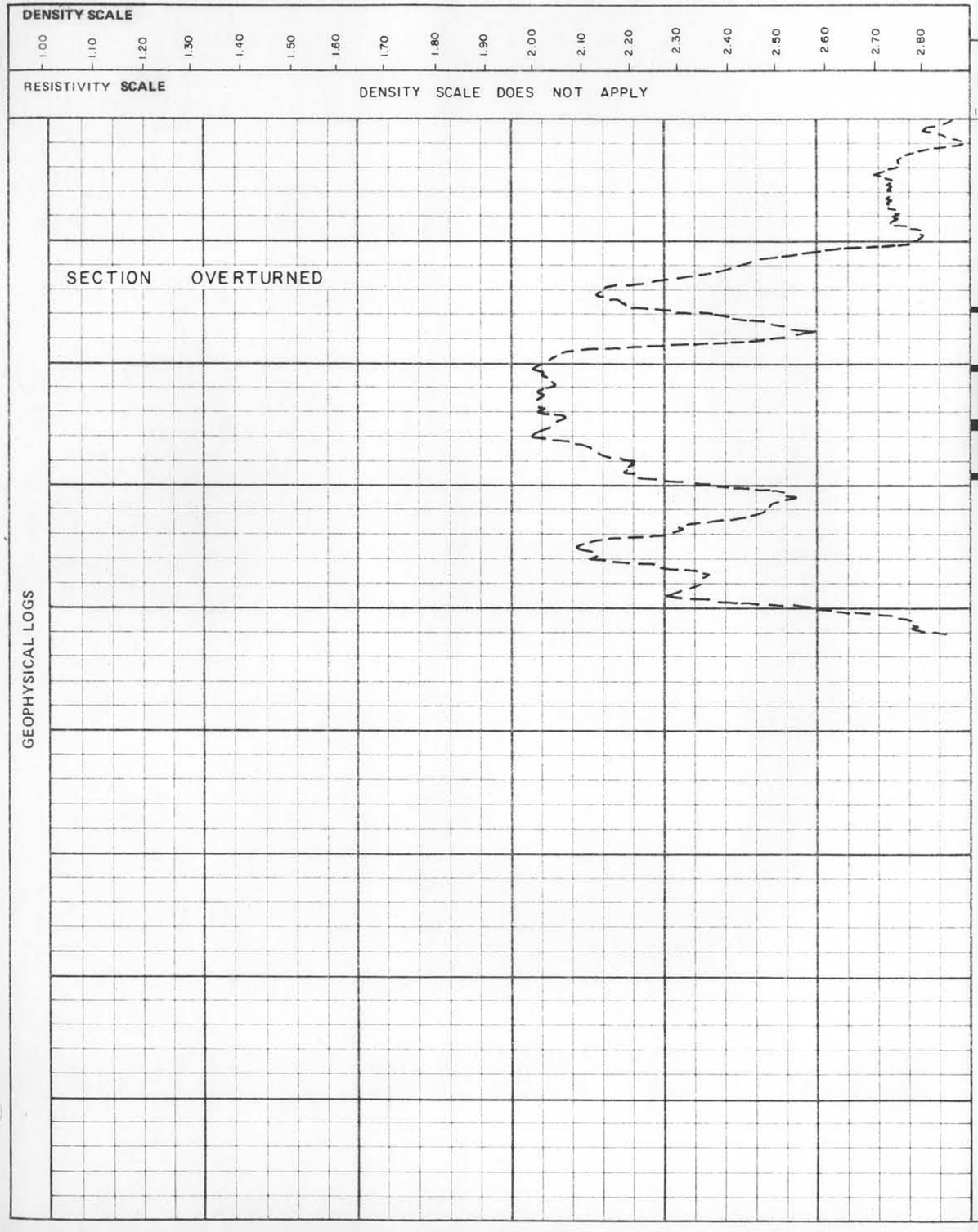
P-267 (12-80)

DENSITY ——— RESISTIVITY ———

Apparent Thickness

DRILL NO. DDH-82-005 SEAM L SEAM INTERVAL

SCALE 1:40 Logged Through Drill Rods



SEAM COMP. 123456	DEPTH meters	COAL SEAM LOG	INTERVAL ROCK	INTERVAL COAL	% REC.	SAMPLE NUMBER	SAMPLE COMPOS.	PROXIMATE ANALYSIS MOIST	ASH	VM	FC	S'	Cal. Val. MJ/kg	FSI
	236.14			0.07										
				(0.16)										
				0.09	66.7	04737	37	0.89	43.57	14.01	41.53		16.95	
	236.62		0.08	0.08										
	236.80		0.18		100	04898								
				0.57										
			0.10		100	04738	38	0.84	21.02	7.11	71.03		27.03	
				0.41										
	237.95		0.02	0.05										
			0.27											
			(0.14)											
				(0.15)										
				0.12	51.5	04739	39	0.29	54.93	31.34	13.44		5.54	
			0.11											
			(0.09)											
	238.92			(0.09)										

Seam Interval (m): 236.14 - 238.92

Seam True Thickness (Coal/Rock): 1.43/0.81

Total 2.24

709

MOUNT KLAPPAN
DRILL HOLE LOG
DDH 82-005

SCALE : 1:200 (0, 5 (m)) 1:40 (0, 0.5, 1 (m))

NORTHING: 6344375 N
EASTING: 506/20 E

INCLINATION: 60°
BEARING: 055°

LITHOLOGIC SYMBOLS

- CONGLOMERATE
- SANDSTONE
- CARBONACEOUS
- SILTSTONE
- COAL
- COAL - THIN BEDS
- OVERBURDEN
- QUARTZ
- PEBBLY SANDSTONE
- MUDSTONE, CLAYSTONE
- 10388 BENTONITE
- P PYRITE
- CORE LOSS
- PLANT FOSSIL
- SHELL FOSSIL

APPARENT THICKNESS 1:200 | TRUE THICKNESS 1:200 | SEAM DETAIL 1:40

(m)

10 — 54, 76
20 — 53
30 — 50, 59, 50, 56, 53
40 — 61, 61
50 — 56, 58, 56, 49, 58, 53, 61
60 — 56
70 — 59
80 — 49
90 — 52, 54, 53
100 — 54
110 — 56, 59
120 — 53, 49
130 — 52, 57
140 — 48
150 — 59, 57
160 — 56
170 — 52, 45, 54
180 — 54, 56, 59
190 — 53
200 — 52
210 — 49
220 — 50, 59
230 — 64, 45
240 — 58, 58, 61

Total 243.59m

SEAM I "HOBBIT SEAM"
54.02 — 60.33
ROCK | COAL
0.72 | 4.26
4.98

SEAM J
148.09 — 154.34
ROCK | COAL
1.17 | 3.99
5.16

SEAM K Lower
SEAM K Upper
186.89 — 191.27 — 192.09 — 193.81
ROCK | COAL
1.85 | 1.75
3.60
ROCK | COAL
0.49 | 0.97
1.46

SEAM L
236.14 — 238.92
ROCK | COAL
0.81 | 1.43
2.24

SECTION OVERTURNED

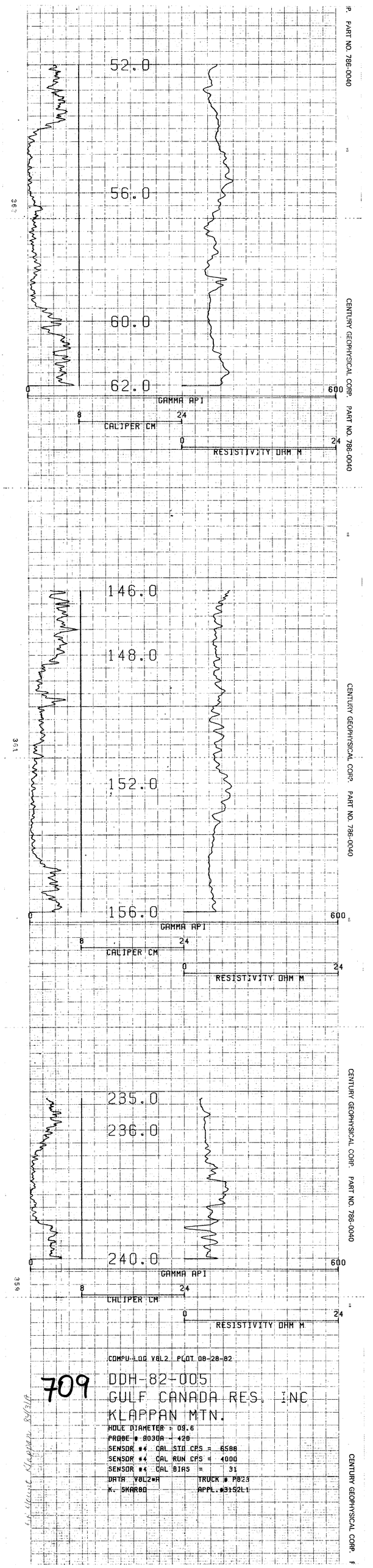
CENTURY GEOPHYSICAL CORP. PART NO. 786-0040

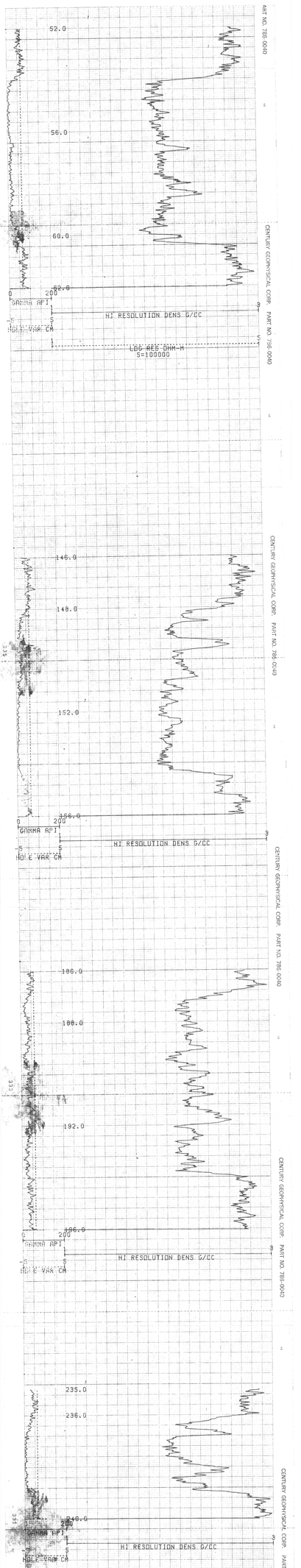
709

COMPU-LOG V8L2 PLOT 08-28-82

DDH-82-005
GULF CANADA RES. INC
KLAPPAN MTN.

HOLE DIAMETER : 09.6
PROBE # 9055A - 011
SENSOR #4 CAL STD CPS = 152
SENSOR #4 CAL RUN CPS = 272
SENSOR #4 CAL BIAS = 0
DATA V8L2*A TRUCK # P823
K. SKARBO APPL.#1087L1


52.0
56.0
60.0
62.0
0
600
GAMMA API
8
24
CALIPER CM
0
24
RESISTIVITY OHM M
CENTURY GEOPHYSICAL CORP. PART NO. 786-0040
146.0
148.0
152.0
156.0
0
600
GAMMA API
8
24
CALIPER CM
0
24
RESISTIVITY OHM M
CENTURY GEOPHYSICAL CORP. PART NO. 786-0040
235.0
236.0
240.0
0
600
GAMMA API
8
24
CALIPER CM
0
24
RESISTIVITY OHM M
CENTURY GEOPHYSICAL CORP. PART NO. 786-0040
COMPU-LOG V8L2 PLOT 08-28-82
709
DDH-82-005
GULF CANADA RES. INC
KLAPPAN MTN.
HOLE DIAMETER = 09.6
PROBE # 8030A - 420
SENSOR #4 CAL STD CPS = 6500
SENSOR #4 CAL RUN CPS = 4000
SENSOR #4 CAL BIAS = 31
DATA V8L2#A TRUCK # P823
K. SKARBO APPL.#3152L1
CENTURY GEOPHYSICAL CORP. P



709

COMPU-LOG YBL3 PLOT 08-28-82

DDH-82-005
GULF CANADA RES. INC
KLAPPAN MTN.

HOLE DIAMETER = 09.5
PROBE # 8030R - 420
SENSOR #4 CAL STD CPS = 6588
SENSOR #4 CAL RUN CPS = 4000
SENSOR #4 CAL BIAS = 31
DATA YBL2WR TRUCK # PB23
K. SKARBO RPPL:01

CENTURY GEOPHYSICAL CORP. PART NO. 786-0040

709

COMPU-LOG VER.2 PLOT:08-28-82

DDH-82-005

GULF CANADA RES. INC

KLAPPAN MTN.

HOLE DIAMETER = 09.8

PROBE # 9030A - 420

SENSOR #4 CAL STD CPS = 6588

SENSOR #4 CAL RUN CPS = 4000

SENSOR #4 CAL BIAS = 31

DATA: VAL2WA TRUCK # P823

A. SKARDO APPL.#2030LI

0 150 APPARENT G/CC

GAMMA API

.0 20.0 40.0 60.0 80.0 100.0 120.0 140.0 160.0 180.0 200.0 220.0 243.3

147 148 149 150

CENTURY GEOPHYSICAL CORP. PART NO. 786-0040

CENTURY GEOPHYSICAL CORP. PART NO. 786-0040

CENTURY GEOPHYSICAL CORP. PART NO. 786-0040

CENTURY GEOPHYSICAL CORP. PART NO. 786-0040

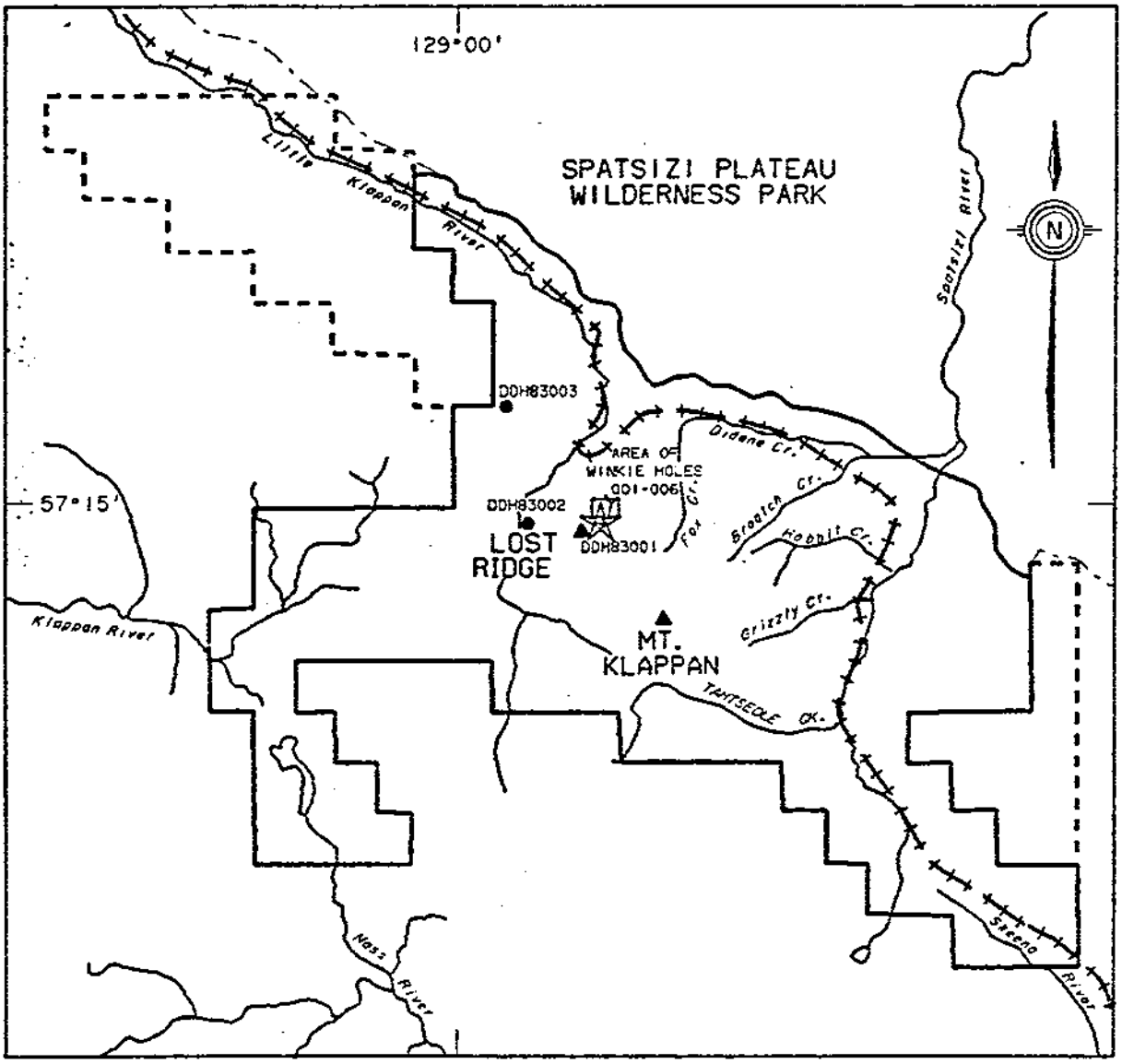
CENTURY GEOPHYSICAL CORP. PART NO. 786-0040

0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
160.0
180.0
200.0
220.0
243.6
GAMMA API
N-N KCPS
709
DDH-82-005
GULF CANADA RES. INC
KLAPPAN MTN.
DDH-82-005
GULF CANADA RES. INC
KLAPPAN MTN.

KPNLRDDH 83001

MT. KLAPPAN COAL PROPERTY

1983 DIAMOND DRILL HOLE
DDH83001



LEGEND	SCALE
PREPARED RAIL BED	0 1 2 3 4 5 km
PROVINCIAL PARK BOUNDARY	
HQ DIAMOND DRILL HOLE - 1983	
AIX WINKIE HOLES - 1983 001-006	
ADIT 1983	
LICENCE AREA	
LICENCES UNDER APPLICATION	

GULF CANADA RESOURCES INC.
03/03/84

Gulf

GULF CANADA RESOURCES INC.

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

DATA SOURCE - KPNLRDDH83001 DATE - 12/06/84

- H I S T O R Y -

START DATE - 08/01/83
END DATE - 08/08/83

CONTRACTOR - J.T. THOMAS
GEOLOGIST - K. JENNER
OPERATOR - GCRI
SURVEYOR -

REMARKS - 410 LITRES OF DIESEL INTRODUCED INTO DRILLING FLUI
D AT A DEPTH OF 45 METERS

- L O C A T I O N -

PROVINCE - BC
ELEVATION - 1841.00
ZONE - 9
NORTHING - 6344261.00
EASTING - 505704.00

LICENCE/LEASE NUMBER - 0

LATITUDE - 571436
LONGITUDE - 1285420

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

LENGTH - 299.40
INCLINATION - 90.0
AZIMUTH - 0.0

CORE SIZE - 0.0

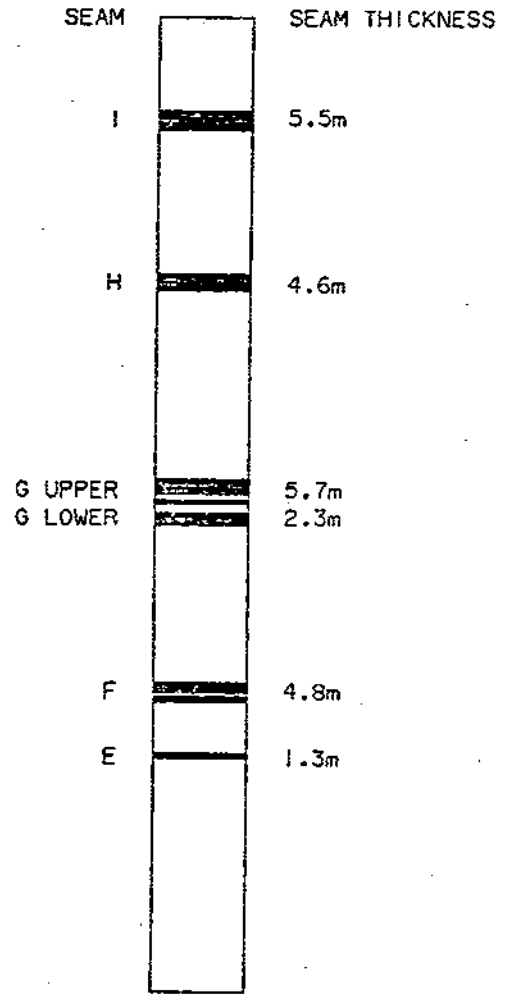
CEMENT -
PLUG -
PIEZ -

CASING DEPTH (M) - 3.66
AQUIFER DEPTHS (M) - 0.00
0.00
LOST CIRC. DEPTHS (M) - 37.45
42.60

*** NOTE *** 0 INDICATES NO VALUE

MT. KLAPPAN COAL PROPERTY

1983 DIAMOND DRILL HOLE
DDH83001



SCALE: 1:1000

GULF CANADA RESOURCES INC.
09/03/84

KPNLRDDH 83001

DESCRIPTIVE LOG

VALID COMPONENT DESCRIPTION CODES

MODIFIER

ROCK (PBLY) PEBBLY
(SSY) SANDY (PYR) PYRITIC
(SLTY) SILTY
(CLYY) CLAYEY
(CARB) CARBONACEOUS
(GYP) GYPSIFEROUS
(FER) FERRUGINOUS
COAL (C-1,C-2,C-3)
(C-4,C-5,C-6)

SED STRUCTURES

(XBDG) CROSS BEDDED
(WRMBUR) WORM BURROW
(RIPMK) RIPPLE MARKS
(BIOTRB) BOITURBATED
(RTB) ROOTLET BED
(SSD) SOFT SED.DEF.

SORTING

(VPR) VERY POOR
(PR) POOR
(MOD) MODERATE
(WEL) WELL
(VWEL) VERY WELL

GRAIN SIZE

(CBL) COBBLE
(PBL) PEBBLE
(GRAN) GRANULAR
(VCG) VERY COARSE GRAINED
(CG) COARSE GRAINED
(MG) MEDIUM GRAINED
(FG) FINE GRAINED
(VFG) VERY FINE GRAINED

BEDDING

(MAS) MASSIVE
(VTHK(B) VERY THICK
(THKB) THICK
(MB) MEDIUM
(THNB) THIN
(VTHNB) VERY THIN
(LAM) LAMINATED

CORE STATE

(PWRD) POWDERED
(VSHRD) VERY SHEARED
(SHRD) SHEARED
(VBRKN) VERY BROKEN
(BRKN) BROKEN (SLD) SOLID

COLOR

(BLK) BLACK
(BN) BROWN
(BF) BUFF
(GN) GREEN
(GY) GREY
(MAR) MAROON
(ORNG) ORANGE
(PURP) PURPLE
(YEL) YELLOW
(TAN) TAN
(BLU) BLUE
(WH) WHITE

COLOR MOD

(LT) LIGHT
(M) MEDIUM
(DK) DARK
(LT-M)
(M-DK)
(LT-DK)
(S-P) SALT/PEP
(WEATH) WEATHERED

84/03/11 GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
76	0.00	1.75	1.75			OVERBURDEN	MG.MOD.LT.GY.THNB.VBRKN CASING SET TO 3.66M MINOR QUARTZ STRING ERS
74	1.75	1.92	0.17			SANDSTONE	MG.MOD.LT.GY.THNB.VBRKN SPIN OFF IN CORE OCCURRING JUST BELOW C ASING;CALCITE VEINING ALONG FRACTURES; MINOR QUARTZ STRINGERS
74	1.92	1.98	0.06			SANDSTONE	SLTY.VFG.MOD.M.GY.VTHNB.BRKN M-DK GREY SILTSTONE INTERBEDS
* 74	1.98	3.22	1.24			SANDSTONE	SLTY.VFG.MOD.M.GY.VTHNB.SSD.BRKN CUT AND FILL INDICATE TOPS UPRIGHT;DK G REY SILTSTONE INTERBEDS;CALCITE VEINING ALONG FRACTURES
71	3.22	3.29	0.07			SANDSTONE	FG.MOD.LT.GY.THNB.SSD.SLD IRON STAINING WITHIN SANDSTONE;CALCITE VEINING ALONG FRACTURES
* 70	3.29	3.52	0.23			SANDSTONE	SLTY.VFG.MOD.M.GY.VTHNB.SSD.BRKN DK GREY SILTSTONE INTERBEDS
76	3.52	3.57	0.05			SANDSTONE	FG.MOD.LT.GY.THNB.BRKN MINOR DK GREY SILTSTONE LAMINATIONS

* DENOTES MEASURED BCA

84/03/11 GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG PAGE 2

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 78	3.57	3.64	0.07			SANDSTONE	SLTY.VFG.MOD.M.GY.VTHNB.SSD.SLD MINOR SSD;DK GREY SILTSTONE INTERBEDS
* 73	3.64	3.78	0.14			SANDSTONE	SLTY.VFG.MOD.M.GY.VTHNB.SSD.SLD SSD MORE FREQUENT TOWARDS BASE;DK GREY SILTSTONE INTERBEDS
73	3.78	3.82	0.04			SILTSTONE	SSY.VFG.M.BN.VTHNB.SLD BROWN COLOUR POSSIBLY DUE TO OXIDATION (IRON STAINING);INTERBEDDED MEDIUM GREY LAMINAE
* 74	3.82	5.70	1.88			SILTSTONE	SSY.VFG.M.BN.VTHNB.SSD.BRKN SSD INDICATES UNIT UPRIGHT;CALCITE VEIN ING ALONG FRACTURES
* 74	5.70	6.08	0.38			SILTSTONE	SSY.VFG.M.GY.VTHNB.BRKN MINOR MEDIUM BROWN BEDS-POSSIBLY DUE TO OXIDATION
* 60	6.08	6.42	0.34			SANDSTONE	VFG.MEL.LT.GY.THNB.BRKN SANDSTONE HAS SLIGHT BROWNISH TINGE
* 70	6.42	6.76	0.34			SILTSTONE	VFG.MEL.M.GY.VTHNB.SSD.VBRKN HIGHLY OXIDIZED PIECES;SOME PIECES CONS IST OF FINE GRAIN SANDSTONE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 78	6.76	7.62	0.86			SILTSTONE	VFG.M.BN.VTHNB.SSD.BRKN THIN INTERBEDS OF DK GREY SILTSTONE;NRM BURS IN A 0.08M BAND
74	7.62	7.69	0.07			SILTSTONE	VFG.M.BN.VTHNB.BRKN MINOR INTERBEDDED DK GREY SILTSTONE
* 71	7.69	8.29	0.60			SANDSTONE	SLTY.VFG.WEL.M.GY.THNB.XBDG MINOR BLACK SILTSTONE LAMINAE;CALCITE F RACTURE INFILLING;PARTIALLY IRON STAINE D;SANDSTONE FAIRLY FRIABLE
72	8.29	8.74	0.45			SILTSTONE	SSY.M.GY.VTHNB.SSD.VBRKN FRIABLE FINE GRAIN SANDSTONE CEMENTED B Y CLAY WITHIN BRKN CORE;IRON STAINING A LONG FRACTURES
* 72	8.74	9.06	0.32			SILTSTONE	SSY.M.GY.VTHNB.BRKN RUST COLOUR ON PART OF CORE
73	9.06	9.60	0.54			SANDSTONE	FG.WEL.BN.THNB.BRKN COLOUR ORANGE-BROWN;SANDSTONE FAIRLY FR IABLE;MINOR BLACK LAMINATIONS THROUGHOU T
* 75	9.60	10.52	0.92			SANDSTONE	FG.WEL.BN.THNB.XBDG.BRKN COLOUR ORANGE-BROWN;SLICKENSIDES ALONG FRACTURE SURFACES;BLACK LAMINAE THROUGH OUT;FRIABLE;XBDG INDICATES TOPS UPRIGHT

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	10.52	10.82	0.30			SANDSTONE	FG.MOD.GY.THNB.SLD COLOUR ORANGE-GREY;UNIT REACTS TO HCL (MARL?);MORE CALCITE TOWARDS TOP
75	10.82	11.05	0.23			SANDSTONE	MG.MOD.BN.THNB.BRKN COLOUR ORANGE-BROWN;VERY FRIABLE WHEN S CRATCHED
75	11.05	11.67	0.62			SANDSTONE	FG.WEL.GY.THNB.VBRKN COLOUR ORANGE-GREY;PYROLUSITE AND CALCI TE ALONG FRACTURES;BLACK LAMINAE THROUG HOUT
75	11.67	11.82	0.15			SANDSTONE	MOD.M.BN.VTHNB.VBRKN
75	11.82	11.88	0.06			CLAYSTONE	LT.BN.SLD VERY SMOOTH;PYROLUSITE ALONG FRACTURES
75	11.88	11.97	0.09			BENTONITE	LT.GY.PWRD SOAPY TEXTURE;UNCONSOLIDATED CLAY
75	11.97	12.06	0.09			SANDSTONE	VFG.MOD.M.GY.THNB.SLD IRON STAINING;CALCITE ALONG FRACTURES
75	12.06	12.14	0.08			CLAYSTONE	LT-M.GY.VBRKN SOAPY TEXTURE;UNCONSOLIDATED CLAY

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 75	12.14	13.68	1.54			SANDSTONE	SLTY.VFG.MOD.M.GY.THNB.WRMBU.BRKN SSD;IRON STAINING ALONG FRACTURES
* 72	13.68	14.97	1.29			SILTSTONE	SSY.M.GY.VTHNB.SSD.BRKN XBDG:RUSTY COLOUR TO SOME OF THE INTERB EDS;IRON STAINING;CALCITE VEINING ALONG FRACTURE SURFACES;SILTSTONE RIP UP CLA STS CONFINED TO 0.03M BED
72	14.97	15.52	0.55			SILTSTONE	SSY.M.GY.VTHNB.VBRKN IRON STAINING;CALCITE VEINING ALONG FRA CTURE SURFACES;RUSTY COLOURED INTERBEDS
72	15.52	15.75	0.23			SILTSTONE	SSY.M.GY.VBRKN HIGHLY OXIDIZED ALONG FRACTURE SURFACES
72	15.75	15.83	0.08			SILTSTONE	CLYY.M.GY.VBRKN UNCONSOLIDATED CLAY ACTING AS CEMENT;IR ON STAINING
72	15.83	16.84	1.01			SILTSTONE	SSY.M.GY.VTHNB.VBRKN IRON STAINING ALONG FRACTURES;SAND CONT ENT DECREASES TOWARDS BASE OF MEASUREME NT
72	16.84	17.20	0.36			SILTSTONE	M.GY.VTHNB.BRKN IRON STAINING ALONG FRACTURES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
72	17.20	17.26	0.06			SILTSTONE	CLYY.M.GY.PHRD UNCONSOLIDATED;CEMENTED WITH CLAY (NOT BENTONITE)
72	17.26	17.38	0.12			SILTSTONE	M.GY.VTHNB.BRKN IRON STAINING
* 72	17.38	19.25	1.87			SILTSTONE	M.GY.VTHNB.BRKN CALCITE VEINING AND IRON STAINING;FRACT URING ABUNDANT;MINOR SANDY INTERBEDS
76	19.25	19.48	0.23			SILTSTONE	M.GY.VTHNB.BRKN CALCITE VEINING AND IRON STAINING;FRACT URING ABUN DANT;MINOR SANDY INTERBEDS
77	19.48	19.68	0.20			SILTSTONE	GY.VTHNB.VBRKN IRON STAINING;SILTSTONE BECOMING CLAYEY DUE TO UNCONSOLIDATION
* 81	19.68	21.19	1.51			SILTSTONE	GY.VTHNB.SSD.BRKN IRON STAINING;DOMINANT FRACTURING;DRILL SPIN OFF;SSD INDICATES TOPS UPRIGHT
* 73	21.19	22.62	1.43			SILTSTONE	M.GY.VTHNB.BRKN HIGHLY FRACTURED;IRON STAINING ALONG FR ACTURES;CONTAINS VERY FINE GRAINED SAND STONE INTERBEDS TOWARDS BASE OF MEASURE MENT

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
73	22.62	23.16	0.54			SILTSTONE	SSY.M.GY.VTHNB.SSD.BRKN HIGHLY FRACTURED WITH IRON STAINING;SSD INDICATES TOPS UPRIGHT
* 74	23.16	25.38	2.22			SILTSTONE	M.GY.VTHNB.SSD.BRKN HIGHLY FRACTURED WITH IRON STAINING;MIN OR LIGHTER GREY LAMINAE OF VFG SANDSTON E
71	25.38	25.83	0.45			SILTSTONE	SSY.M.GY.VTHNB.BRKN OXIDIZED FRACTURE SURFACES
* 70	25.83	26.18	0.35			SILTSTONE	SSY.M.GY.VTHNB.SLD LT GREY SANDY LAMINAE;REPETITOUS BANDIN G
72	26.18	26.56	0.38			SILTSTONE	M.GY.VTHNB.BRKN IRON STAINING AND CALCITE VEINING ALONG FRACTURED SURFACES
* 74	26.56	26.90	0.34			MUDSTONE	DK.GY.BRKN MINOR COAL STRINGERS (1MM) TOWARDS BASE ;MODERATELY CARBONACEOUS
* 73	26.90	27.10	0.20	06358	I	COAL	C-2.BLK.BRKN ANKERITE VEINING ALONG FRACTURES;IRON S TAINING

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
71	27.10	27.13	0.03	06358	I	CLAYSTONE	BLK.VTHNB.SLD EASILY BRKN
71	27.13	27.14	0.01	06358	I	COAL	C-3.BLK.SLD MINOR CLAYSTONE INTERBEDS
71	27.14	27.15	0.01	06358	I	COAL	C-2.BLK.SLD
71	27.15	27.16	0.01	06358	I	COAL	C-2.BLK.SLD LISTRIC SURFACES ON MINOR CARB CLAYSTON E LAMINAE
* 70	27.16	27.29	0.13	06358	I	COAL	C-2.BLK.BRKN LISTRIC SURFACES ON MINOR CARB CLAYSTON E LAMINAE
70	27.29	27.31	0.02	06358	I	CLAYSTONE	BLK.PHRD VERY SOFT
71	27.31	27.53	0.22	06358	I	COAL	C-2.BLK.SLD IRON STAINING ALONG CLEAT SURFACES
72	27.53	27.59	0.06	06358	I	COAL	C-2.BLK.SLD
72	27.59	27.62	0.03	06358	I	COAL	C-4.BLK.SLD CARB CLAYSTONE INTERBEDS;LISTRIC SURFAC ES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
72	27.62	27.75	0.13	06358	I	COAL	C-2.BLK.SLD
73	27.75	27.76	0.01	06358	I	CLAYSTONE	CARB.BLK.SLD MINOR COAL STRINGERS
* 73	27.76	27.93	0.17	06358	I	COAL	C-2.BLK.SLD MINOR QUARTZ ALONG CLEAT SURFACES
72	27.93	27.94	0.01	06358	I	COAL	C-1.BLK.SLD SUBCONCHOIDAL FRACTURE: MINOR IRON STAI NING
72	27.94	27.98	0.04	06358	I	COAL	C-2.BLK.SLD WHITE SUBSTANCE ALONG CLEAT SURFACE (A NKERITE ?)
72	27.98	27.99	0.01	06358	I	COAL	C-3.BLK.SLD CARB CLAYSTONE LAMINAE
72	27.99	28.01	0.02	06358	I	COAL	C-2.BLK.SLD
72	28.01	28.02	0.01	06358	I	COAL	C-2.BLK.SLD
72	28.02	28.04	0.02	06358	I	COAL	C-3.BLK.SLD CARB CLAYSTONE INTERBEDS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
71	28.04	28.05	0.01	06358	I	COAL	C-1.BLK.SLD SUBCONCHOIDAL FRACTURE
* 70	28.05	28.42	0.37	06358	I	COAL	C-2.BLK.BRKN SLICKENSIDES ALONG FRACTURE SURFACES;MI NOR IRON STAINING
70	28.42	28.44	0.02	06358	I	COAL	C-1.BLK.SLD
70	28.44	28.54	0.10	06358	I	COAL	C-2.BLK.BRKN LISTRIC SURFACES IN CARB CLAYSTONE LAMI NAE
70	28.54	28.61	0.07	06358	I	CLAYSTONE	BLK.PHRD VERY SOFT
70	28.61	28.65	0.04	06358	I	COAL	C-4.BLK.BRKN CARB CLAYSTONE INTERBEDS
70	28.65	28.67	0.02	06358	I	COAL	C-3.BLK.SLD
70	28.67	28.70	0.03	06358	I	COAL	C-2.BLK.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
70	28.70	28.77	0.07	06358	1	CLAYSTONE	CARB.BLK.SLD MINOR (APPROX 1MM) COALY STRINGERS THRO UGHOUT
70	28.77	28.89	0.12	06358	1	ROCK LOSS	
69	28.89	29.02	0.13	06358	1	COAL LOSS	
69	29.02	29.29	0.27	06358	1	COAL	C-2.BLK.PWRD COAL UNCONSOLIDATED AND EASILY CRUMBLED ;LISTRIC SURFACES ON MINOR CARB CLAYSTO NE LAMINAE
69	29.29	29.33	0.04	06358	1	COAL	C-2.BLK.SLD
69	29.33	29.34	0.01	06358	1	COAL	C-1.BLK.SLD
69	29.34	29.46	0.12	06358	1	COAL	C-2.BLK.BRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
69	29.46	29.51	0.05	06358	1	COAL	C-1.BLK.SLD SUBCONCHOIDAL FRACTURE
69	29.51	29.57	0.06	06358	1	COAL	C-3.BLK.VBRKN CARB CLAYSTONE LAMINAE
* 69	29.57	29.67	0.10	06358	1	COAL	C-2.BLK.VBRKN LISTRIC SURFACES;EASILY BRKN;SOFT
70	29.67	29.72	0.05	06358	1	CLAYSTONE	CARB.BLK.VTHNB.BRKN IRON STAINING;SOFT
70	29.72	29.84	0.12	06358	1	COAL	C-2.BLK.BRKN MINOR CALCITE,ANKERITE? VEINING;IRON ST AINING
71	29.84	29.86	0.02	06358	1	CLAYSTONE	CARB.BLK.SLD MINOR COAL STRINGERS
71	29.86	29.94	0.08	06358	1	COAL	C-2.BLK.VBRKN SOFT;EASILY BRKN
72	29.94	30.02	0.08	06358	1	COAL	C-2.BLK.VBRKN SOFT
72	30.02	30.03	0.01	06358	1	CLAYSTONE	CARB.BLK.SLD IRON STAINING

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
72	30.03	30.04	0.01	06358	I	COAL	C-2.BLK.SLD IRON STAINING
73	30.04	30.07	0.03	06358	I	CLAYSTONE	BLK.VTHNB.SLD EASILY BRKN
73	30.07	30.08	0.01	06359	I	COAL	C-1.BLK.SLD
73	30.08	30.20	0.12	06359	I	COAL	C-2.BLK.SLD IRON STAINING (MINOR) ALONG CLEAT SURFA CES
74	30.20	30.21	0.01	06359	I	CLAYSTONE	CARB.BLK.SLD IRON STAINING
* 76	30.21	30.75	0.54	06359	I	COAL	C-2.BLK.BRKN OXIDATION WITHIN COAL RESULTS IN IRON S TAINING AND BLUISH-PURPLE TINGE
74	30.75	30.79	0.04	06359	I	COAL	C-1.BLK.SLD CONCHOIDAL FRACTURE
* 73	30.79	31.15	0.36	06359	I	COAL	C-2.BLK.BRKN WHITE DEPOSIT ALONG CLEAT SURFACES, (A NKERITE ?);IRON STAINING

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
73	31.15	31.22	0.07	06359	I	COAL	C-1.BLK.SLD
73	31.22	31.27	0.05	06359	I	COAL	C-3.BLK.PHRD UNCONSOLIDATED
74	31.27	31.28	0.01	06359	I	COAL	C-1.BLK.SLD IRON STAINING
74	31.28	31.33	0.05	06359	I	COAL	C-2.BLK.SLD IRON STAINING
74	31.33	31.36	0.03	06359	I	COAL	C-1.BLK.SLD IRON STAINING
74	31.36	31.50	0.14	06359	I	COAL	C-2.BLK.SLD WHITE DEPOSIT ALONG CLEAT SURFACES;IRON STAINING
* 74	31.50	31.65	0.15	06359	I	COAL	C-1.BLK.SLD MINOR IRON STAINING
74	31.65	31.76	0.11	06359	I	COAL	C-2.BLK.SLD
75	31.76	31.78	0.02	06359	I	COAL	C-1.BLK.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	31.78	31.80	0.02	06359	I	COAL	C-4.BLK.BRKN SOFT;CARB CLAYSTONE INTERBEDS
75	31.80	31.86	0.06	06359	I	COAL	C-1.BLK.SLD IRON STAINING
75	31.86	31.96	0.10	06359	I	COAL	C-2.BLK.BRKN IRON STAINING
75	31.96	31.99	0.03	06359	I	COAL	C-1.BLK.SLD
75	31.99	32.07	0.08	06359	I	COAL	C-2.BLK.BRKN VERY EASILY BRKN;IRON STAINING DOMINANT
* 76	32.07	32.33	0.26	06359	I	COAL	C-2.BLK MINOR ANKERITE(?) VEINING ALONG BEDDING :IRON STAINING; MINOR CARBONACEOUS CLAY STONE (1MM) IN INTERBEDS
76	32.33	32.38	0.05	06359	I	COAL	C-2.BLK.VBRKN IRON STAINING; ANKERITE (?) VEINING PRE DOMINANT
76	32.38	32.42	0.04	06359	I	COAL	C-4.BLK.PHRD IRON STAINING;EASILY BRKN;SOFT;CARB CLA YSTONE INTERBEDS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
76	32.42	32.47	0.05	06359	I	COAL	C-2.BLK.VBRKN IRON STAINING; ANKERITE (?) VEINING; SO FT
76	32.47	32.61	0.14	06359	I	CLAYSTONE	CARB.DK.GY.BRKN LISTRIC SURFACES;IRON STAINING;COALY ST RINGERS
76	32.61	32.68	0.07	06359	I	COAL	C-3.BLK.VBRKN ANKERITE (?) VEINING; IRON STAINING; CA RBONACEOUS CLAYSTONE INTERBEDS; SOFT
76	32.68	32.75	0.07			CLAYSTONE	DK.GY.BRKN IRON STAINING;MINOR COAL STRINGERS AND SILTY INTERBEDS;MINOR ANKERITE (?) VEIN ING ALONG BEDDING
76	32.75	33.38	0.63			SILTSTONE	M.GY.VTHNB.BRKN COALY BANDS AND FOSSILS TOWARDS TOP OF MEASUREMENT;IRON STAINING
* 76	33.38	33.95	0.57			SILTSTONE	SSY.M.GY.VTHNB.SSD.BRKN ANKERITE (?) VEINING NORMAL TO BEDDING; IRON STAINED FRACTURES
75	33.95	34.08	0.13			SILTSTONE	SSY.M.GY.VTHNB.SLD ANKERITE (?) VEINING ON FRACTURES; IRON STAINING

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 74	34.08	34.82	0.74			SANDSTONE	SLTY.FG.MOD.M.GY.VTHNB.SSD.BRKN DK GREY SILTSTONE LAMINAE;FREQUENT CALC ITE VEINING ALONG FRACTURES;IRON STAINI NG;SSD INDICATES TOPS UPRIGHT
* 74	34.82	35.70	0.88			SANDSTONE	SLTY.FG.MOD.M.GY.THNB.SSD.BRKN MINOR CALCITE VEINING IN FRACTURE;XBDG; IRON STAINING ALONG FRACTURES
73	35.70	35.94	0.24			SANDSTONE	FG.MOD.M.GY.THNB.SSD.BRKN SILTSTONE INTERBEDS
* 72	35.94	36.87	0.93			SANDSTONE	FG.MOD.M.GY.THNB.BRKN MINOR BEDDING PLANE FAULT (0.01M);ANKER ITE (?) VEINING (1MM;
74	36.87	37.17	0.30			SANDSTONE	FG.MOD.M.GY.THNB.VBRKN IRON STAINING;CALCITE VEINING (0.01M);L OST CIRCULATION WHEN DRILLING
75	37.17	37.20	0.03			ROCK LOSS	
75	37.20	37.38	0.18			SANDSTONE	FG.MEL.M.GY.SLD CALCITE (1-3 MM) VEINING

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
78	37.38	39.01	1.63			SANDSTONE	MG.MEL.M.GY.THKB.SLD SILTSTONE RIP UP CLASTS TOWARDS TOP-CON FINED TO 0.15M; ANKERITE(?) VEINING IN FRACTURES
* 81	39.01	39.38	0.37			SANDSTONE	SLTY.FG.MEL.M.GY.THNB.SSD.BRKN IRON STAINING;DK GREY SILTSTONE INTERBE DS;SSD INDICATES TOPS UPRIGHT
* 71	39.38	40.42	1.04			SILTSTONE	DK.GY.VTHNB.SSD.BRKN CALCITE VEINING (1MM);VFG SANDSTONE LAM INAE;SSD INDICATES TOPS UPRIGHT
72	40.42	41.28	0.86			MUDSTONE	DK.GY.VTHNB.BRKN WEATHERING CAUSES MUDSTONE TO BE VERY F RIABLE
73	41.28	41.78	0.50			MUDSTONE	DK.GY.BRKN CALCITE VEINING (1MM)
74	41.78	42.11	0.33			SANDSTONE	MG.MOD.LT.BN.VBRKN VERY FRIABLE;IRON STAINING; LOST CIRCUL ATION
74	42.11	42.34	0.23			CLAY	LT.BN.PHRD UNCONSOLIDATED;SANDSTONE FRAGMENTS WITH IN CLAY

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	42.34	43.01	0.67			SANDSTONE	FG.MEL.LT.GY.THKB.BRKN SILTSTONE RIP UP CLASTS CONFINED TO 0.1 0M;MINOR IRON STAINING
75	43.01	43.10	0.09			SANDSTONE	FG.MEL.LT.GY.THKB.SLD SILTSTONE RIP UP CLASTS CONFINED TO 0.1 0M;MINOR IRON STAINING
* 76	43.10	44.17	1.07			SANDSTONE	MG.MOD.LT.GY.THKB.BRKN DK GREY SILTSTONE RIP UP CLASTS CONFINE D TO 0.01M;IRON STAINING ALONG FRACTURE S
77	44.17	44.26	0.09			SANDSTONE	FG.MEL.LT.GY.THKB.BRKN DK GREY SILTSTONE RIP UP CLASTS CONFINE D TO 0.04M;IRON STAINING;CALCITE VEININ G (0.01M) ALONG FRACTURES
78	44.26	44.71	0.45			SILTSTONE	SSY.M.GY.VTHNB.BRKN SILTSTONE RIP UP CLASTS;LT-M GREY SANDS TONE LAMINATIONS
* 79	44.71	45.14	0.43			SANDSTONE	MG.MOD.LT.GY.THKB.BRKN DK GREY SUBROUNDED SILTSTONE RIP UP CLA STS;IRON STAINING

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 76	45.14	45.40	0.26			SANDSTONE	SLTY.MG.MOD.M.GY.THNB.BRKN DK GREY SUBROUNDED SILTSTONE RIP UP CLA STS;CALCITE AND ANKERITE(?) VEIN (0.01M M) PARALLEL TO BEDDING
75	45.40	45.45	0.05			SILTSTONE	SSY.M.GY.THNB.SLD DK GREY SILTSTONE LAMINATIONS
74	45.45	45.85	0.40			SILTSTONE	CLYY.M.GY.VBRKN SILTSTONE CEMENTED BY CLAY;FAIRLY UNCON SOLIDATED
* 71	45.85	46.96	1.11			SILTSTONE	SSY.M.GY.THNB.SSD.BRKN SSD INDICATES TOPS UPRIGHT;QUARTZ VEIN (0.01M) PARALLEL TO BEDDING;CALCITE VEI NING (1.0MM);IRON STAINING
72	46.96	47.69	0.73			SILTSTONE	DK.GY.VTHNB.WRMBU.BRKN WRMBUR AND SSD INDICATES TOPS UPRIGHT;V FG SANDY LAMINATIONS THROUGHOUT;CALCITE VEINING (1MM)
* 72	47.69	48.17	0.48			SILTSTONE	DK.GY.VTHNB.BRKN IRON STAINING ALONG FRACTURES
74	48.17	48.87	0.70			SILTSTONE	GY.VBRKN CALCITE VEINING (1MM);SANDY FRAGMENTS;U NCONSOLIDATED

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	48.87	49.27	0.40			SILTSTONE	GY.VBRKN SOLIDIFIED CLAYEY MATERIAL;CALCITE VEIN ING (1MM)
* 77	49.27	50.48	1.21			SILTSTONE	DK.GY.VTHNB.BRKN CALCITE AND ANKERITE(?) VEINING (1MM-CR OSS CUTTING EACH OTHER); LIGHT SANDY LA MINATIONS THROUGHOUT; IRON STAINING
* 75	50.46	52.30	1.82			SILTSTONE	SSY.M.GY.VTHNB.XBDG.BRKN SSD:SANDY LAMINATIONS THROUGHOUT;SED ST RUCTURES INDICATE TOPS UPRIGHT;IRON STA INING WITHIN SANDSTONE LAMINATIONS GIVE S RUSTY COLOUR;CALCITE VEINING (1MM); S ANDSTONE IS LT GREY
* 77	52.30	53.14	0.84			SILTSTONE	SSY.M.GY.VTHNB.BRKN IRON STAINING;LT GREY SANDSTONE LAMINAT IONS;CALCITE VEINING (1MM)
76	53.14	53.56	0.42			SILTSTONE	DK.GY.BRKN WEATHERED CRUMBLY FORMING SMALL SHARDS (1MM)
76	53.56	53.90	0.34			SILTSTONE	DK.GY.BRKN VERY WEATHERED FORMING SMALL SHARDS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
76	53.90	54.43	0.53			SANDSTONE	VFG.WEL.M.GY.BRKN VERY WEATHERED FORMING SMALL SHARDS;DRI LLERS MARKED 2 BOX #27'S
75	54.43	55.31	0.88			SILTSTONE	DK.GY.VTHNB.BRKN VERY WEATHERED FORMING SMALL SHARDS
75	55.31	55.73	0.42			SILTSTONE	CLYY.DK.GY.PWRD VERY WEATHERED FORMING CLAYEY TEXTURE
74	55.73	56.57	0.84			SANDSTONE	FG.MOD.S-P.GY.THNB.SLD WEATHERED TO ALMOST CLAYEY TEXTURE;VERY FRIABLE
74	56.57	56.70	0.13			SANDSTONE	FG.MOD.S-P.GY.VTHNB.BRKN WEATHERED TO FRIABLE TEXTURE
* 73	56.70	57.71	1.01			SANDSTONE	FG.MOD.LT.GY.THNB.SSD.BRKN VERY EASILY WEATHERED; ANKERITE(?) VEIN ING ON FRACTURE (1MM); SILTSTONE LAMINA TIONS THROUGHOUT
72	57.71	57.92	0.21			SANDSTONE	MOD.S-P.GY.THNB.BRKN SANDSTONE RESISTANT CONTAINING SUBROUND ED CLASTS ANKERITE(?) VEINS PARALLEL TO BEDDING (5MM); MORE DARK GREY AND SILT Y AT TOP AND BOTTOM OF MEASUREMENT

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 71	57.92	58.33	0.41			SANDSTONE	FG.MOD.LT.GY.THNB.BRKN VERY EASILY WEATHERED:DK GREY SILTSTONE LAMINATIONS THROUGHOUT
* 76	58.33	59.75	1.42			SANDSTONE	FG.WEL.LT.GY.THNB.MRMBU.BRKN SSD:SILTSTONE LAMINATIONS THROUGHOUT;CLAM BURROW:VERY FRIABLE
* 72	59.75	60.12	0.37			SANDSTONE	SLTY.VFG.MOD.M.GY.VTHNB.BRKN DK GREY SILTSTONE LAMINATIONS;EASILY WEATHERED
72	60.12	60.48	0.36			SANDSTONE	FG.MOD.LT.GY.THNB.BRKN SILTSTONE LAMINATIONS;MORE EASILY WEATHERED
73	60.48	60.81	0.33			SANDSTONE	FG.MOD.LT.GY.THNB.BRKN LT GREY MINOR SILTSTONE LAMINATIONS
73	60.81	61.13	0.32			SANDSTONE	FG.WEL.M.GY.VTHNB.BRKN DK GREY SILTSTONE INTERBEDS FREQUENT;VERY EASILY WEATHERED
73	61.13	61.40	0.27			SANDSTONE	FG.MOD.LT.GY.THNB.SSD.BRKN MINOR COAL STRINGER AT BASE (1MM);MINOR SILTSTONE LAMINATIONS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 74	61.40	62.51	1.11			SANDSTONE	FG.WEL.M.GY.VTHNB.SSD.BRKN FREQUENT DK GREY SILTSTONE LAMINATIONS; WEATHERED TO SHARDS WITH SOME CLAYEY TEXTURE
75	62.51	62.57	0.06			SANDSTONE	FG.WEL.M.GY.VTHNB.BRKN EASILY WEATHERED;DK GREY SILTSTONE LAMINATIONS
75	62.57	62.65	0.08			SANDSTONE	FG.WEL.M.GY.VTHNB.BRKN DK GREY SILTSTONE LAMINATIONS;EASILY WEATHERED
75	62.65	62.77	0.12			SANDSTONE	VFG.MOD.M.GY.THNB.MRMBU.SLD CLAM BURROW:SILTSTONE LAMINATIONS
76	62.77	63.29	0.52			SILTSTONE	DK.GY.VTHNB.BRKN WEATHERED
76	63.29	63.38	0.09			SILTSTONE	SSY.M.GY.VTHNB.SLD LT GREY SILTSTONE LAMINATIONS THROUGHOUT
77	63.38	64.17	0.79			SILTSTONE	SSY.DK.GY.VTHNB.BRKN LT GREY SANDY LAMINATIONS;WEATHERED TO SHARDS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 78	64.17	64.32	0.15			SANDSTONE	FG.MOD.LT.GY.WRMBU.SLD MINOR DK GREY SILTSTONE LAMINATIONS TOW ARDS BASE
76	64.32	64.52	0.20			SILTSTONE	DK.GY.VTHNB.BRKN WEATHERED TO SHARDS
* 69	64.52	65.25	0.73			SILTSTONE	DK.GY.VTHNB.SLD WEATHERED TO SHARDS;LT GREY SANDSTONE L AMINATIONS TOWARDS BASE
71	65.25	65.58	0.33			SANDSTONE	VFG.MOD.M.GY.THNB.BRKN WEATHERED TO ALMOST CLAYEY TEXTURE; INF REQUENT DK GREY SILSTONE LAMINATIONS
* 74	65.58	66.61	1.03			SILTSTONE	SSY.DK.GY.VTHNB.BRKN WEATHERS VERY EASILY;MINOR COAL STRINGE RS (1MM) IN MIDDLE SECTION OF MEASUREME NT
70	66.61	68.80	2.19			MUDSTONE	DK.GY.BRKN WEATHERED;QUARTZ VEIN (0.02M) PARALLEL TO BEDDING;CLAYEY FROM WEATHERING
67	68.80	68.97	0.17			MUDSTONE	DK.GY.VTHNB.BRKN VERY EASILY WEATHERED

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 65	68.97	70.82	1.85			MUDSTONE	SLTY.DK.GY.VTHNB.SLD VERY EASILY WEATHERED;PYRITE INCLUSIONS (0.03M)
72	70.82	72.20	1.38			MUDSTONE	DK.GY.VTHNB.BRKN VERY EASILY WEATHERED TO SHARDS
* 76	72.20	72.95	0.75			MUDSTONE	DK.GY.BRKN VERY EASILY WEATHERED TO SHARDS
79	72.95	74.69	1.74			MUDSTONE	DK.GY.VTHNB.BRKN ANKERITE (?) VEINING PARALLEL TO BEDDIN G; COAL STRINGERS (1MM) TOWARDS BASE
81	74.69	74.70	0.01			COAL	C-3.BLK.SLD
81	74.70	74.73	0.03			CLAYSTONE	CARB.BLK MINOR COALY STRINGERS
81	74.73	74.78	0.05	06360	H	COAL LOSS	
* 81	74.78	74.80	0.02	06360	H	COAL	C-3.BLK.SLD 1MM ANKERITE(?) VEINING ALONG CLEAT SUR FACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
81	74.80	74.82	0.02	06360	H	COAL	C-1.BLK.SLD WHITE DEPOSIT ALONG CLEAT SURFACE;SUBCO NCHOIDAL FRACTURE; ANKERITE(?) VEIN (1M M)
81	74.82	74.84	0.02	06360	H	COAL	C-3.DK.BLK.SLD 1MM ANKERITE(?) VEINS
81	74.84	74.86	0.02	06360	H	COAL	C-1.BLK.SLD ANKERITE(?) VEIN (1MM) ALONG CLEAT SURF ACES
80	74.86	74.87	0.01	06360	H	COAL	C-3.BLK.SLD
80	74.87	74.92	0.05	06360	H	CLAYSTONE	BLK.SLD COAL STRINGERS;LISTRIC SURFACES;EASILY WEATHERED
79	74.92	75.12	0.20	06360	H	COAL	C-2.BLK.VBRKN CALCITE VEINS (1MM);MINOR CARBONACEOUS CLAYSTONE LAMINATIONS
78	75.12	75.14	0.02	06360	H	MUDSTONE	DK.GY.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
78	75.14	75.22	0.08	06360	H	COAL	C-2.BLK.SLD ANKERITE(?) VEINS (0.01M) ALONG CLEAT S URFACES
77	75.22	75.23	0.01	06360	H	COAL	C-1.BLK.SLD SUBCONCHOIDAL FRACTURES; CALCITE, ANKER ITE(?) VEINING ALONG CLEAT SURFACES
77	75.23	75.27	0.04	06360	H	COAL	C-3.BLK.SLD CALCITE, ANKERITE(?) VEINING (1MM) ON C LEAT SURFACES
* 77	75.27	75.28	0.01	06360	H	CLAYSTONE	CARB.BLK.SLD COALY STRINGERS
77	75.28	75.37	0.09	06360	H	COAL	C-2.BLK.BRKN SUBCONCHOIDAL FRACTURE
77	75.37	75.38	0.01	06360	H	CLAYSTONE	SLD COALY STRINGERS
77	75.38	75.40	0.02	06360	H	COAL	C-3.BLK.SLD
77	75.40	75.51	0.11	06360	H	COAL	C-2.BLK.SLD SUBCONCHOIDAL FRACTURE
76	75.51	75.56	0.05	06360	H	COAL LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
76	75.56	75.64	0.08	06360	H	CLAYSTONE	SLD CALCITE, ANKERITE(?) VEINING (1MM) ALON G FRACTURES
76	75.64	75.73	0.09	06360	H	COAL	C-3.BLK.SLD MINOR CARB CLAYSTONE LAMINATIONS
76	75.73	75.81	0.08	06360	H	COAL	C-2.BLK.SLD
76	75.81	75.83	0.02	06360	H	COAL	C-3.BLK.SLD
76	75.83	75.84	0.01	06360	H	CLAYSTONE	SLD
76	75.84	75.90	0.06	06360	H	COAL	C-4.BLK.BRKN CARB CLAYSTONE ON LISTRIC SURFACES
76	75.90	75.93	0.03	06360	H	COAL	C-3.BLK.SLD
76	75.93	75.95	0.02	06360	H	COAL	C-2.BLK.SLD CARB CLAYSTONE LAMINATIONS
76	75.95	75.96	0.01	06360	H	CLAYSTONE	CARB.BLK.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
76	75.96	76.08	0.12	06360	H	COAL	C-4.BLK.BRKN CARB CLAYSTONE LAMINATIONS;LISTRIC SURF ACES
75	76.08	76.09	0.01	06360	H	CLAYSTONE	BLK.SLD CALCITE AND ANKERITE(?) BANDING ALONG F RACTURE (1MM)
75	76.09	76.10	0.01	06360	H	COAL	C-3.BLK.SLD
75	76.10	76.16	0.06	06360	H	COAL	C-2.BLK.BRKN
75	76.16	76.23	0.07	06360	H	COAL LOSS	
75	76.23	76.25	0.02	06360	H	COAL	C-2.BLK.SLD CONCHOIDAL FRACTURE:ANKERITE(?) VEINING 1MM
* 75	76.25	76.32	0.07	06360	H	COAL	C-3.BLK.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	76.32	76.33	0.01	06360	H	CLAYSTONE	DK.GY.VTHNB.SLD
75	76.33	76.34	0.01	06360	H	COAL	C-2.BLK.SLD
75	76.34	76.35	0.01	06360	H	COAL	C-5.BLK.SLD
75	76.35	76.36	0.01	06360	H	COAL	C-1.BLK.SLD WHITE DEPOSIT:SUBCONCHOIDAL FRACTURING
75	76.36	76.38	0.02	06360	H	COAL	C-3.BLK.SLD
75	76.38	76.39	0.01	06360	H	COAL	C-2.BLK.SLD WHITE DEPOSIT ON CLEAT SURFACES:CALCITE , ANKERITE(?) ON CLEAT SURFACES
75	76.39	76.46	0.07	06360	H	COAL	C-3.BLK.SLD CALCITE,ANKERITE(?) BANDING ON CLEAT SU RFACES
75	76.46	76.56	0.10	06360	H	CLAYSTONE	BLK.VTHNB.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	76.56	76.58	0.02	06360	H	COAL	C-2.BLK.SLD
75	76.58	76.67	0.09	06360	H	CLAYSTONE	BLK.SLD
75	76.67	76.68	0.01	06360	H	COAL	C-1.BLK.SLD SUBCONCHOIDAL FRACTURING
75	76.68	76.72	0.04	06360	H	COAL	C-2.BLK.SLD
75	76.72	76.73	0.01	06360	H	COAL	C-3.BLK.SLD MINOR CALCITE, ANKERITE(?) VEINS (1MM) ON CLEAT SURFACES
75	76.73	76.80	0.07	06360	H	COAL	C-2.BLK.SLD
* 75	76.80	76.81	0.01	06360	H	COAL	C-3.BLK.SLD
75	76.81	76.82	0.01	06360	H	COAL	C-1.BLK.SLD SUBCONCHOIDAL FRACTURING:CALCITE, ANKER ITE(?) VEINS ON CLEAT SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	76.82	76.83	0.01	06360	H	COAL	C-3.BLK.SLD CALCITE, ANKERITE(?) VEINS ON CLEAT SUR FACES
75	76.83	76.91	0.08	06360	H	COAL	C-2.BLK.SLD
75	76.91	76.92	0.01	06360	H	COAL	C-5.BLK.SLD
75	76.92	76.96	0.04	06360	H	COAL	C-2.BLK.SLD
75	76.96	77.00	0.04	06360	H	MUDSTONE	BLK.SLD VERY HARD: CALCITE, ANKERITE(?) VEINING (1MM)
75	77.00	77.08	0.08	06360	H	COAL	C-4.SLD CALCITE, ANKERITE(?) VEINING (1MM) ON C LEAT SURFACES
75	77.08	77.10	0.02	06360	H	CLAYSTONE	CARB.BLK,BRKN HARD:COAL STRINGERS TOWARD BASE OF MEAS UREMENT

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	77.10	77.13	0.03	06361	H	COAL	C-3.BLK.SLD
75	77.13	77.15	0.02	06361	H	COAL	C-2.BLK.SLD
75	77.15	77.18	0.03	06361	H	COAL	C-3.BLK.SLD
75	77.18	77.19	0.01	06361	H	COAL	C-5.BLK.SLD
75	77.19	77.24	0.05	06361	H	COAL	C-1.BLK.SLD SUBCONCHOIDAL FRACTURING:CALCITE, ANKER ITE(?) VEINING (1MM) ON CLEAT SURFACES
74	77.24	77.27	0.03	06361	H	COAL	C-5.BLK.SLD DULL
74	77.27	77.29	0.02	06361	H	COAL	C-2.BLK.SLD
74	77.29	77.34	0.05	06361	H	COAL	C-5.BLK

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
74	77.34	77.35	0.01	06361	H	CLAYSTONE	CARB.BLK.SLD
* 74	77.35	78.00	0.65	06361	H	COAL	C-2.BLK.BRKN MINOR 1MM CALCITE, ANKERITE(?) STRINGER S
76	78.00	78.01	0.01	06361	H	COAL	C-1.BLK.SLD
76	78.01	78.02	0.01	06361	H	CLAYSTONE	CARB.BLK.SLD COAL STRINGERS
76	78.02	78.07	0.05	06361	H	COAL	C-1.BLK.SLD
77	78.07	78.17	0.10	06361	H	COAL	C-2.BLK.SLD CALCITE, ANKERITE(?) VEINING (1MM) ON C LEAT SURFACES
78	78.17	78.23	0.06	06361	H	COAL	C-2.BLK.BRKN
78	78.23	78.25	0.02	06361	H	COAL	C-1.BLK.BRKN SUBCONCHOIDAL FRACTURING

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
79	78.25	78.47	0.22	06361	H	COAL	C-2.BLK.BRKN
80	78.47	78.53	0.06	06361	H	COAL	C-1.BLK.BRKN CONCHOIDAL FRACTURING:CALCITE, ANKERITE (?) (1MM)ON CLEAT SURFACES
80	78.53	78.55	0.02	06361	H	COAL	C-2.BLK.SLD
80	78.55	78.56	0.01	06361	H	COAL	C-1.BLK.SLD SUBCONCHOIDAL FRACTURING
80	78.56	78.62	0.06	06361	H	COAL	C-2.BLK.SLD
80	78.62	78.64	0.02	06361	H	COAL	C-3.BLK.SLD
81	78.64	78.70	0.06	06361	H	COAL	C-1.BLK.SLD SUBCONCHOIDAL FRACTURING:CALCITE, ANKERITE(?) VEINING ON CLEAT SURFACES
81	78.70	78.74	0.04	06361	H	COAL	C-2.BLK.BRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 82	78.74	78.98	0.24	06362	H	CLAYSTONE	BLK.VTHNB.SLD VERY HARD;MINOR COAL STRINGERS (1MM) TH ROUGHOUT;LISTRIC SURFACES;CALCITE, ANKE RITE(?) VEINING ON FRACTURE SURFACES
81	78.98	79.05	0.07	06362	H	COAL	C-2.BLK.SLD CALCITE, ANKERITE(?) VEINING (1MM; ON C LEAT SURFACES
81	79.05	79.06	0.01	06362	H	COAL	C-1.BLK.SLD CALCITE, ANKERITE(?) ON CLEAT SURFACES
81	79.06	79.11	0.05	06362	H	COAL	C-2.BLK.BRKN CALCITE, ANKERITE(?) ON CLEAT SURFACES (1MM)
81	79.11	79.18	0.07	06362	H	COAL	C-3.BLK.SLD
81	79.18	79.20	0.02	06362	H	COAL	C-2.BLK.SLD
81	79.20	79.21	0.01	06362	H	COAL	C-1.BLK.SLD CALCITE, ANKERITE(?) VEINING (2MM) ON C LEAT SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
80	79.21	79.31	0.10	06362	H	COAL	C-2.BLK.SLD CALCITE, ANKERITE(?) (3MM) ON CLEAT SUR FACES
80	79.31	79.38	0.07	06362	H	COAL	C-2.BLK.SLD FREQUENT CALCITE, ANKERITE(?) VEINS ON CLEAT SURFACES
* 77	79.38	80.79	1.41			MUDSTONE	DK.GY.VTHNB.SLD CALCITE, ANKERITE(?) VEINS ON BEDDING; MORE FREQUENT TOWARDS TOP OF MEASUREMEN T; BECOMING MORE SILTY TOWARDS THE BASE ; COALY INCLUSIONS TOWARDS TOP
77	80.79	81.29	0.50			SANDSTONE	SLTY.VFG.WEL.M.GY.SLD
77	81.29	81.43	0.14			SANDSTONE	VFG.WEL.M.GY.BRKN
* 77	81.43	82.65	1.22			SILTSTONE	SSY.M.GY.THNB.SSD.BRKN LT GREY SANDY UNITS TOWARDS TOP;DISSEMI NATED PYRITE AT BASE IN SILTSTONE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
76	82.65	82.72	0.07			MUDSTONE	PYR.DK.GY.THNB.BRKN CALCITE, ANKERITE(?) VEINS ON FRACTURE SURFACES; 5MM PYRITE BLEBS; MINOR COAL STRINGERS AT TOP
76	82.72	83.63	0.91			MUDSTONE	DK.GY.SLD WEATHERED FAIRLY EASILY
75	83.63	84.25	0.62			MUDSTONE	DK.GY.SLD WEATHERED FAIRLY EASILY
74	84.25	84.81	0.56			MUDSTONE	DK.GY.SLD WEATHERED FAIRLY EASILY
* 73	84.81	85.66	0.85			SANDSTONE	SLTY.FG.MEL.M.GY.THNB.SSD.BRKN DK GREY SILTSTONE INTERBEDS;SSD FREQUENT AND INDICATES TOPS UPRIGHT
* 73	85.66	85.83	0.17			SILTSTONE	SSY.M.GY.VTHNB.BRKN LT GREY SANDY LAMINATIONS
72	85.83	86.87	1.04			SANDSTONE	SSY.FG.MOD.LT.GY.THKB.SLD MINOR ANKERITE(?) VEINING (1MM) ALONG BEDDING; MINOR COAL WITHIN VEINS; MINOR SILTY INTERBEDS TOWARDS TOP OF MEASUREMENT

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
71	86.87	87.19	0.32			SANDSTONE	MG.MOD.LT.GY.THKB.BRKN S-P COLOUR;SILTY RIP UP CLASTS CONFINED TO 0.01M BEDS
* 71	87.19	87.51	0.32			SANDSTONE	MG.MOD.LT.GY.THKB.SLD MINOR 1MM QUARTZ, ANKERITE(?) VEINING ALONG BEDDING.SILTY RIP UP CLASTS ALONG BEDDING
* 60	87.51	88.89	1.38			SANDSTONE	MG.MOD.LT.GY.THKB.BRKN SILTSTONE RIP UP CLASTS ALONG BEDDING (THROUGHOUT);CALCITE, ANKERITE(?) NORMAL TO BEDDING; MINOR SLICK SURFACE TOWARDS THE TOP; SILTY INTERBEDS TOWARDS TOP AND BOTTOM OF MEASUREMENT
66	88.89	89.44	0.55			SANDSTONE	SLTY.FG.MEL.M.GY.THNB.SSD.SLD SILTSTONE RIP UP CLASTS (0.06M);DARKER GREY SILTSTONE INTERBEDS
68	89.44	89.64	0.20			SANDSTONE	FG.MOD.LT.GY.THNB.SLD SILTIER TOWARDS TOP OF MEASUREMENT;MINOR SILTSTONE RIP UP CLASTS TOWARDS TOP
* 70	89.64	90.06	0.42			SANDSTONE	FG.MOD.LT.GY.THKB.SLD MINOR CALCITE.ANKERITE(?) STRINGERS (1MM NORMAL TO BEDDING; MINOR SILTSTONE INTERBEDS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
71	90.06	90.12	0.06			SANDSTONE	FG.MEL.M.GY.SLD VERY EASILY WEATHERED;CALCITE,ANKERITE(?) (0.02) PARALLEL TO BEDDING
72	90.12	90.30	0.18			SANDSTONE	FG.MOD.LT.GY.THKB.SLD SOME SILTSTONE INTERBEDS
* 73	90.30	90.74	0.44			SANDSTONE	FG.MOD.LT.GY.THKB.SSD.SLD MINOR SILTSTONE INTERBEDS;TOWARDS BASE OF MEASUREMENT SANDSTONE IS CALCAREOUS; SILTSTONE RIP UP CLASTS;POSSIBLE FOSSI L ZONE (0.04M);POSSIBLE MINOR FAULTING
75	90.74	91.50	0.76			SANDSTONE	FG.MOD.LT.GY.THKB.BRKN CALCITE, ANKERITE(?: VEINING (0.01M) JU ST BELOW CALCAREOUS ZONE; MINOR SLICKEN SIDES AND RIP UP CLASTS; SANDSTONE SLIG HTLY CALCAREOUS IN REMAINING SECTION
77	91.50	91.64	0.14			SILTSTONE	DK.GY.VTHNB.SLD EASILY WEATHERED
* 78	91.64	92.38	0.74			SILTSTONE	SSY.DK.GY.VTHNB.SSD.BRKN SANDY INTERBEDS MORE FREQUENT TOWARDS T OP OF MEASUREMENT;EASLIY WEATHERED

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
79	92.38	93.52	1.14			SILTSTONE	DK.GY.VTHNB.BRKN VERY EASILY WEATHERED;CALCITE BED (5MM) AT BASE;MINOR SANDSTONE LAMINATIONS TH ROUGHOUT
* 80	93.52	93.86	0.34			SILTSTONE	DK.GY.VTHNB.BRKN
* 76	93.86	95.72	1.86			SANDSTONE	SLTY.VFG.M.GY.VTHNB.SSD.SLD XBDG;FRIABLE; WEATHERED; DARK GREY SILT STONE LAMINATIONS
78	95.72	96.39	0.67			SILTSTONE	SSY.DK.GY.VTHNB.XBDG.SLD SSD;EASILY WEATHERED;SANDSTONE LAMINATI ONS MORE FREQUENT TOWARDS TOP OF MEASUR EMENT
* 79	96.39	97.28	0.89			SILTSTONE	SSY.DK.GY.VTHNB.SLD MOTTLED TEXTURE WITHIN SOME SANDSTONE L AMINATIONS;EASILY WEATHERED
79	97.28	97.90	0.62			MUDSTONE	DK.GY.VTHNB.SSD.SLD MINOR SSD;SOME VFG LT GREY SANDSTONE LA MINATIONS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 80	97.90	99.30	1.40			MUDSTONE	DK.GY.VTHNB.SLD FEW LT GREY SANDSTONE LAMINATIONS;HEATH ERS FAIRLY EASILY;MORE FRIABLE TOWARDS BASE OF MEASUREMENT
79	99.30	100.04	0.74			MUDSTONE	DK.GY.SLD FAIRLY EASILY WEATHERED
78	100.04	102.23	2.19			MUDSTONE	SLTY.DK.GY.BRKN FAIRLY EASILY WEATHERED TO SMALL PIECES ;ABUNDANT COALY STRINGERS (1MM) PARALLE L TO BEDDING;QUARTZ, ANKERITE(?) BED TO WARDS TOP OF MEASUREMENT (0.01M)
78	102.23	102.35	0.12			MUDSTONE	DK.GY.BRKN MINOR CALCITE, ANKERITE(?) VEINING AND COAL MATERIAL (5MM)
78	102.35	102.37	0.02			COAL	C-2.BLK.BRKN CALCITE VEINING, ANKERITE(?) VEINING
78	102.37	102.46	0.09			MUDSTONE	DK.GY.VBRKN MODERATELY CARB;SOME COALY STRINGERS
78	102.46	102.53	0.07			ROCK LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 77	102.53	104.35	1.82			SANDSTONE	FG-.MOD.M.GY.THNB.BRKN MINOR COALY BAND AT TOP (2MM);CALCITE V EINING NORMAL TO BEDDING (1MM); DK GREY SILTSTONE INTERBEDS THROUGHOUT;IRON ST AINING ON FRACTURE NEAR TOP OF MEASUREM ENT
* 63	104.35	105.34	0.99			SANDSTONE	FG.MOD.LT.GY.THNB.BRKN MINOR CALCITE, ANKERITE(?) VEINING AT B OTTOM (1MM);IRON STAINING ALONG FRACTUR E SURFACES
67	105.34	105.95	0.61			SANDSTONE	FG.WEL.LT.GY.BRKN IRON STAINING ON FRACTURE SURFACES
70	105.95	106.36	0.41			SANDSTONE	FG.MOD.LT.GY.SLD IRON STAINING ON FRACTURE SURFACES;SILT STONE BEDS TOWARDS TOP OF MEASUREMENT
72	106.36	106.69	0.33			SILTSTONE	M.GY.SLD COALY INCLUSIONS (0.01M);CALCITE, ANKER ITE(?) VEINING SURROUNDING INCLUSIONS
* 76	106.69	107.65	0.96			SANDSTONE	FG.MOD.M.GY.THNB.SSD.BRKN SILTSTONE INTERBEDS TOWARDS MIDDLE SECI ION OF MEASUREMENT;CORE SPIN OUT;SLIGHT LY CALCAREOUS IN MIDDLE SECTION

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	107.65	108.62	0.97			SILTSTONE	DK.GY.VTHNB.SSD.BRKN MUDDY;MOTTLED IN SOME LAMINATIONS;MINOR COAL INCLUSIONS;CALCITE, ANKERITE(?) V EINING SURROUNDING INCLUSIONS
* 73	108.62	110.11	1.49			SILTSTONE	M-DK.GY.VTHNB.BRKN 1MM MINOR CALCITE, ANKERITE(?) STRINGER S; MINOR COALY INCLUSIONS AROUND CALCIT E; PLANT FOSSILS
72	110.11	110.57	0.46			SILTSTONE	M-DK.GY.SLD CALCITE,ANKERITE(?) ALONG FRACTURES; SI LTSTONE BECOMING SANDY TOWARDS BASE OF MEASUREMENT
* 72	110.57	111.51	0.94			SANDSTONE	FG.MEL.M.GY.VTHNB.SSD.SLD IRON STAINING ON FRACTURE SURFACES;MINO R DK GREY SILTSTONE LAMINATIONS
72	111.51	111.68	0.17			SILTSTONE	SSY.M.GY.SLD LT GREY SANDY LAMINATIONS THROUGHOUT;IR ON STAINING ALONG FRACTURES
* 72	111.68	112.78	1.10			SANDSTONE	SLTY.FG.MEL.M.GY.VTHNB.SSD.SLD DK GREY SILTSTONE LAMINATIONS THROUGHOU T

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
73	112.78	112.93	0.15			SANDSTONE	FG.MEL.M.GY.THNB.SLD
* 73	112.93	113.79	0.86			SANDSTONE	FG.MOD.M.GY.THNB.MRMBU.SLD SSD;IRON STAINING ALONG FRACTURE SURFAC ES;DK GREY SILTSTONE INTERBEDS THROUGHO UT
74	113.79	113.93	0.14			SILTSTONE	SSY.M-DK.GY.VTHNB.SLD LT GREY SANDY LAMINATIONS TOWARDS BASE OF MEASUREMENT
* 75	113.93	114.87	0.94			SANDSTONE	SLTY.MOD.M.GY.VTHNB.SSD.BRKN MRMBUR;2 CALCITE VEINS NORMAL TO BEDDIN G (0.01M);IRON STAINING ALONG FRACTURE SURFACES
* 73	114.87	115.49	0.62			SANDSTONE	SLTY.FG.MOD.M.GY.VTHNB.SSD.SLD MRMBUR;CALCITE VEIN (0.01M) NORMAL TO B EDDING; DARK GREY SILTSTONE LAMINATIONS THROUGHOUT
71	115.49	116.88	1.39			SANDSTONE	SLTY.FG.MOD.M.GY.VTHNB.SSD.BRKN CALCITE VEINS (5MM) NORMAL TO BEDDING T HROUGHOUT;IRON STAINING ALONG FRACTURE SURFACES;LAST 0.03M CONTAIN SILTSTONE B RECCIA IN CALCITE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 68	116.88	118.31	1.43			SANDSTONE	FG.MOD.M.GY.VTHNB.SSD.BRKN IRON STAINING ALONG FRACTURE SURFACES;M INOR 1MM CALCITE STRINGERS;DK GREY SILT STONE LAMINATIONS
69	118.31	118.39	0.08			SILTSTONE	DK.GY.VTHNB.BRKN CALCITE.ANKERITE(?) VEINING NORMAL TO B EDDING
* 69	118.39	118.60	0.21			SANDSTONE	FG.M.GY.VTHNB.SLD INTERBEDDED SILTSTONE LAMINATIONS
69	118.60	118.69	0.09			CLAY	LT-M.GY.BRKN CONSOLIDATED
70	118.69	118.92	0.23			SANDSTONE	FG.M.GY.VTHNB.BRKN SILTSTONE LAMINATIONS THROUGHOUT
* 73	118.92	120.60	1.68			SANDSTONE	FG.MOD.M.GY.THNB.BRKN SILTSTONE INTERBEDS MORE FREQUENT TOWAR DS TOP OF MEASUREMENT;IRON STAINING; CA LCITE.ANKERITE(?) VEINING
73	120.60	120.80	0.20			SANDSTONE	FG.M.GY.THNB.BRKN DK GREY SILTSTONE INTERBEDS;CALCITE VEI NING (0.01M) AT TOP OF MEASUREMENT
73	120.80	120.86	0.06			CLAY	M.GY.SLD CONSOLIDATED

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
72	120.86	120.94	0.08			SANDSTONE	MOD.M.GY.THNB.BRKN MINOR SILTSTONE INTERBEDS
* 72	120.94	123.05	2.11			SANDSTONE	FG.MEL.M.GY.THNB.XBDG.BRKN XBDG INDICATES TOPS UPRIGHT;CALCITE.ANK ERITE(?) VEINING AND IRON STAINING ON F RACTURE SURFACES.; SOME DK GREY SILTSTONE LAMINATIONS
* 73	123.05	123.49	0.44			SANDSTONE	FG.MEL.M.GY.THNB.SLD MINOR SILTSTONE LAMINATIONS IN MIDDLE S ECTION OF MEASUREMENT
59	123.49	125.02	1.53			SANDSTONE	FG.MEL.M.GY.THNB.BRKN CALCITE VEIN (5MM) NORMAL TO BEDDING IN MIDDLE SECTION; MINOR CALCITE, ANKERIT E(?) VEINING (1MM) TOWARDS BASE; SOME S ILTSTONE LAMINATIONS THROUGHOUT
* 47	125.02	125.16	0.14			SANDSTONE	FG.MEL.M.GY.THNB.BRKN NUMEROUS CALCITE.ANKERITE(?) STRINGERS (1MM) NORMAL TO BEDDING; NOTICEABLE CHA NGE IN BCA WITHIN THIS UNIT
* 66	125.16	126.07	0.91			SANDSTONE	FG.MEL.M.GY.THNB.VBRKN CALCITE VEINING (5MM) AT BASE OF MEASUR EMENT

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
74	126.07	126.31	0.24			SANDSTONE	FG.MEL.M.GY.THNB.SLD LARGE CALCITE VEINING (30% OF MEASURED INTERVAL);MINOR ISOLATION OF SANDSTONE TO FORM BRECCIA;MICRO BEDDING FAULTS (0.01M DISPLACEMENT)
* 80	126.31	126.94	0.63			SANDSTONE	FG.MEL.M.GY.VTHNB.SSD.BRKN SILTSTONE LAMINATIONS TOWARDS TOP OF MEASUREMENT
* 80	126.94	127.58	0.64			SANDSTONE	VFG.MEL.M-DK.GY.VTHNB.BRKN SANDSTONE WITHIN CALCITE BRECCIA FORMING 0.04M BAND;MINOR CALCITE VEINING (0.02M) THROUGHOUT;MINOR DK GREY SILTSTONE LAMINATIONS
* 79	127.58	128.70	1.12			SILTSTONE	SSY.DK.GY.VTHNB.XBDG.BRKN SED STRUCTURES INDICATE TOPS UPRIGHT; HEAVILY CALCITE VEINED FORMING BRECCIA; LT GREY SILTSTONE LAMINATIONS THROUGHOUT
77	128.70	128.74	0.04			SILTSTONE	SSY.DK.GY.VTHNB.SLD MAJOR CALCITE, ANKERITE(?) VEINING

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 73	128.74	130.70	1.96			SILTSTONE	SSY.DK.GY.VTHNB.VBRKN CALCITE, ANKERITE(?) VEINING (1MM) THROUGHOUT; 0.04M BAND OF CALCITE BRECCIA; LT GREY SILTSTONE LAMINATIONS THROUGHOUT
68	130.70	130.81	0.11			ROCK LOSS	
67	130.81	131.05	0.24			SILTSTONE	DK.GY.VTHNB.VBRKN
* 64	131.05	132.12	1.07			SILTSTONE	DK.GY.VTHNB.BRKN MINOR LISTRIC SURFACES ALONG BEDDING
* 68	132.12	132.72	0.60			SANDSTONE	SLTY.VFG.MEL.LT-M.GY.VTHNB.SLD SLIGHTLY CALCAREOUS;DK GREY SILTSTONE LAMINATIONS THROUGHOUT
71	132.72	132.86	0.14			SANDSTONE	FG.MEL.M.GY.THKB.SLD CALCAREOUS;MINOR CALCITE, ANKERITE(?) VEINING (1MM) THROUGHOUT

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 72	132.86	133.03	0.17			SILTSTONE	DK.GY.VTHNB.SLD
73	133.03	133.42	0.39			MUDSTONE	DK.GY.BRKN COALY INCLUSIONS (5MM);MINOR CALCITE, A NKERITE(?) VEINING (1MM)
75	133.42	133.70	0.28	06363	G	COAL LOSS	
76	133.70	133.74	0.04	06363	G	COAL	C-4.BLK.SLD
76	133.74	133.75	0.01	06363	G	COAL	C-1.BLK.SLD CALCITE, ANKERITE(?) STRINGERS ALONG BE DDING (1MM)
76	133.75	133.79	0.04	06363	G	COAL	C-4.BLK.SLD
77	133.79	133.97	0.18	06363	G	MUDSTONE	DK.GY.SLD COAL STRINGERS THROUGHOUT
77	133.97	133.99	0.02	06363	G	COAL	C-3.BLK.SLD CALCITE, ANKERITE(?) VEINING ALONG BEDD ING (1MM)

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
78	133.99	134.06	0.07	06363	G	MUDSTONE	DK.GY.BRKN
78	134.06	134.10	0.04	06363	G	COAL	C-3.BLK.SLD CALCITE, ANKERITE(?) VEINING ALONG BEDD ING (1MM); MINOR CLAYSTONE LAMINATIONS TOWARDS TOP
* 78	134.10	134.13	0.03	06363	G	COAL	C-2.BLK.SLD CALCITE,ANKERITE(?) STRINGERS THROUGHOU T
78	134.13	134.17	0.04	06363	G	MUDSTONE	DK.GY CALCITE, ANKERITE(?) VEINING THROUGHOUT ;MINOR COALY INCLUSIONS
78	134.17	134.24	0.07	06363	G	COAL	C-2.BLK.SLD ABUNDANT CALCITE, ANKERITE(?) VEINING T HROUGHOUT
78	134.24	134.28	0.04	06363	G	COAL	C-3.BLK.BRKN LISTRIC SURFACES ALONG SOME BEDDING;FRI ABLE
79	134.28	134.69	0.41	06363	G	COAL	C-2.BLK.VBRKN VERY EASILY WEATHERED;ALMOST POWDER WHE N BROKEN;LISTRIC SURFACES ALONG SOME BE DDING PLANES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
79	134.69	134.77	0.08	06363	G	COAL	C-3.BLK.SLD EASILY BRKN;CALCITE, ANKERITE(?) VEININ G (1MM)
79	134.77	134.85	0.08	06363	G	COAL	C-2.BLK.VBRKN
79	134.85	134.90	0.05	06363	G	COAL	C-3.BLK.SLD
79	134.90	134.92	0.02	06363	G	COAL	C-2.BLK.SLD
79	134.92	134.98	0.06	06363	G	COAL	C-3.BLK.VBRKN
79	134.98	135.02	0.04	06363	G	COAL LOSS	
80	135.02	135.11	0.09	06363	G	MUDSTONE	VBRKN COALY STRINGERS THROUGHOUT
80	135.11	135.19	0.08	06363	G	COAL	C-2.BLK.VBRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 80	135.19	135.57	0.38	06363	G	COAL	C-2.BLK.VBRKN
79	135.57	135.64	0.07	06363	G	MUDSTONE	BLK.SLD COALY STRINGERS THROUGHOUT
78	135.64	135.67	0.03	06363	G	COAL	C-3.BLK.SLD
78	135.67	135.76	0.09	06363	G	MUDSTONE	SLD ABUNDANT COALY STRINGERS
78	135.76	135.81	0.05	06363	G	COAL	C-2.BLK.SLD
77	135.81	135.95	0.14	06363	G	CLAYSTONE	CARB.BLK.SLD COALY STRINGERS ABUNDANT;MINOR (1MM) CA LCITE, ANKERITE(?) VEINS
77	135.95	136.01	0.06	06363	G	COAL	C-2.BLK.SLD
76	136.01	136.05	0.04	06363	G	COAL	C-5.BLK.SLD
* 76	136.05	136.10	0.05	06363	G	MUDSTONE	BLK.SLD COAL STRINGERS THROUGHOUT

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
76	136.10	136.12	0.02	06363	G	COAL	C-2.BLK.BRKN
76	136.12	136.15	0.03	06363	G	COAL	C-3.BLK.SLD
76	136.15	136.55	0.40	06363	G	COAL	C-2.BLK.YBRKN VERY EASILY WEATHERED TOWARDS TOP OF ME ASUREMENT
79	136.55	136.60	0.05	06363	G	COAL	C-3.BLK.SLD
* 79	136.60	136.61	0.01	06363	G	COAL	C-2.BLK.SLD
79	136.61	136.63	0.02	06363	G	COAL	C-3.BLK.SLD
79	136.63	136.73	0.10	06363	G	COAL	C-2.BLK.SLD
80	136.73	136.79	0.06	06363	G	CLAYSTONE	CARB.BLK.SLD LISTRIC SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
80	136.79	136.81	0.02	06363	G	COAL	C-3.BLK.BRKN
80	136.81	136.83	0.02	06363	G	COAL	C-2.BLK.BRKN
81	136.83	136.88	0.05	06363	G	CLAYSTONE	CARB.BLK.SLD COAL STRINGERS ABUNDANT;LISTRIC SURFACE S ALONG BEDDING
* 81	136.88	136.96	0.08	06363	G	COAL	C-2.BLK.SLD MINOR CALCITE, ANKERITE(?) STRINGERS
81	136.96	136.97	0.01	06363	G	CLAYSTONE	BLK.SLD ABUNDANT COAL STRINGERS
80	136.97	137.07	0.10	06363	G	COAL	C-2.BLK.SLD THIN CALCITE,ANKERITE(?) STRINGERS THRO UGHOUT
80	137.07	137.17	0.10	06363	G	COAL	C-1.BLK.SLD SUBCONCHOIDAL FRACTURING
79	137.17	137.21	0.04	06363	G	COAL	C-2.BLK.SLD
79	137.21	137.25	0.04	06363	G	CLAYSTONE	CARB.BLK.SLD COAL STRINGERS ABUNDANT

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
78	137.25	137.30	0.05	06363	G	COAL	C-2.SLD CALCITE, ANKERITE(?) STRINGERS ABUNDANT
* 78	137.30	137.36	0.06	06363	G	CLAYSTONE	CARB.DK.GY.SLD CALCITE, ANKERITE(?) STRINGERS ALONG BE DDING
78	137.36	137.41	0.05	06363	G	COAL	C-2.BLK.SLD
78	137.41	137.43	0.02	06363	G	COAL	C-3.BLK.SLD
78	137.43	137.55	0.12	06364	G	CLAYSTONE	CARB.BLK.SLD COAL STRINGERS THROUGHOUT;MINOR LISTRIC SURFACES
* 79	137.55	138.22	0.67	06364	G	MUDSTONE	DK.GY MINOR CALCITE, ANKERITE(?) TOWARDS BOTT OM OF MEASUREMENT; LISTRIC SURFACES
80	138.22	138.24	0.02	06365	G	COAL	C-3.BLK.SLD
80	138.24	138.34	0.10	06365	G	COAL	C-5.BRKN CARBONACEOUS CLAYSTONE INTERBEDS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
80	138.34	138.40	0.06	06365	G	COAL	C-3.BLK.SLD
80	138.40	138.43	0.03	06365	G	COAL	C-2.BLK.SLD
80	138.43	138.48	0.05	06365	G	MUDSTONE	BLK.SLD MINOR COAL STRINGERS
* 80	138.48	138.51	0.03	06365	G	COAL	C-4.BLK.SLD
80	138.51	138.59	0.08	06365	G	COAL	C-3.BLK.SLD
80	138.59	138.70	0.11	06365	G	COAL LOSS	
80	138.70	138.89	0.19	06365	G	MUDSTONE	BLK.VBRKN MINOR COAL STRINGERS THROUGHOUT
80	138.89	138.99	0.10	06365	G	COAL	C-2.BLK.SLD
80	138.99	139.04	0.05	06365	G	COAL	C-5.BLK.SLD CALCITE, ANKERITE VEINS ALONG BEDDING T OWARDS BOTTOM OF MEASUREMENT

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
80	139.04	139.14	0.10	06365	G	CLAYSTONE	BLK.SLD
80	139.14	139.15	0.01	06365	G	COAL	C-2.BLK.SLD
* 80	139.15	139.19	0.04	06365	G	COAL	C-5.BLK.SLD MINOR CALCITE, ANKERITE(?) VEINING ALON G BEDDING
79	139.19	139.31	0.12			CLAYSTONE	COAL STRINGERS THROUGHOUT
79	139.31	139.32	0.01			COAL	C-2.BLK.SLD
78	139.32	139.55	0.23			MUDSTONE	BLK.BRKN COAL STRINGERS THROUGHOUT
76	139.55	139.80	0.25			MUDSTONE	BLK.SLD
75	139.80	139.86	0.06			CLAYSTONE	CARB.BLK.VBRKN VERY EASILY WEATHERED

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
73	139.86	140.26	0.40			MUDSTONE	BLK.BRKN LISTRIC SURFACES ON BEDDING;CALCITE, AN KERITE(?) STRINGERS; COALY INCLUSIONS; MINOR PLANT FOSSILS.
* 68	140.26	141.30	1.04			MUDSTONE	DK.GY.VTHNB.SSD.SLD SED STRUCTURES INDICATE TOPS UPRIGHT;SM H POSSIBLE SELENITE VEIN (LT GREEN
74	141.30	141.71	0.41			SILTSTONE	DK.GY.VBRKN CONSOLIDATED BUT POWDERS WHEN HAMMERED; BECOMES CARBONACEOUS TOWARDS BOTTOM WIT H LISTRIC SURFACES;CALCITE, ANKERITE(?) VEINS
75	141.71	141.78	0.07			SANDSTONE	FG.MOD.M.GY.BRKN LISTRIC SURFACES:EASILY WEATHERED
* 77	141.78	142.11	0.33			SANDSTONE	FG.MOD.M.GY.THNB.SLD VERY EASILY WEATHERED
78	142.11	142.32	0.21			SILTSTONE	DK.GY.SLD CLAYEY WHEN BROKEN; MINOR CALCITE, ANKE RITE(?) VEINING; LISTRIC SURFACES
79	142.32	142.45	0.13			CLAYSTONE	CARB.BLK.SLD COAL STRINGERS THROUGHOUT;LISTRIC SURFA CES AND CALCITE, ANKERITE(?) VEINING TH ROUGHOUT

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
80	142.45	142.47	0.02	06367	G	COAL	C-2.BLK.SLD
80	142.47	142.49	0.02	06367	G	COAL LOSS	
80	142.49	142.63	0.14	06367	G	CLAYSTONE	CARB.BLK.SLD COALY STRINGERS & LISTRIC SURFACES; CAL CITE, ANKERITE(?) VEINING THROUGHOUT
* 81	142.63	142.81	0.18	06367	G	COAL	C-2.BLK.SLD MINOR CALCITE, ANKERITE(?) STRINGERS
80	142.81	142.84	0.03	06367	G	COAL	C-3.BLK.SLD
79	142.84	142.88	0.04	06367	G	COAL	C-2.BLK.BRKN
79	142.88	142.89	0.01	06367	G	MUDSTONE	BLK.SLD
78	142.89	143.05	0.16	06367	G	COAL	C-2.BLK.VBRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 77	143.05	143.07	0.02	06367	G	COAL	C-3.BLK.SLD
77	143.07	143.10	0.03	06367	G	COAL	C-2.BLK.SLD
77	143.10	143.14	0.04	06367	G	COAL	C-3.BLK.BRKN CALCITE STRINGERS
77	143.14	143.17	0.03	06367	G	MUDSTONE	BLK.SLD COALY INCLUSIONS;MINOR CALCITE, ANKERIT E(?) STRINGERS
77	143.17	143.20	0.03	06367	G	COAL	C-3.BLK.SLD
77	143.20	143.33	0.13	06367	G	CLAYSTONE	CARB.BLK.SLD PLANT FOSSILS;MINOR CALCITE, ANKERITE(?) ALONG LISTRIC SURFACES
77	143.33	143.46	0.13	06367	G	COAL	C-5.BLK.VBRKN MINOR CALCITE, ANKERITE(?) STRINGERS; C ARBONACEOUS CLAYSTONE LAMINATIONS
77	143.46	143.50	0.04	06367	G	ROCK LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
77	143.50	143.68	0.18	06367 G		CLAYSTONE	CARB.BLK.BRKN ABUNDANT LISTRIC SURFACES;COAL STRINGER S;MINOR CALCITE, ANKERITE(?) STRINGERS
77	143.68	143.70	0.02	06367 G		COAL	C-2.BLK.BRKN
77	143.70	143.76	0.06	06367 G		CLAYSTONE	CARB.BLK.VBRKN LISTRIC SURFACES
77	143.76	143.86	0.10	06367 G		CLAYSTONE	CARB.CBL.BLK FAIRLY EASILY WEATHERED;MUDSTONE LAMINA TIONS;LISTRIC SURFACES;CALCITE, ANKERIT E(?) STRINGERS
77	143.86	143.98	0.12	06367 G		COAL	C-3.BLK.BRKN ABUNDANT LISTRIC SURFACES;EASILY BROKEN ;VERY CARBONACEOUS;MINOR COAL STRINGERS
78	143.98	144.24	0.26	06367 G		CLAYSTONE	CARB.BLK.BRKN COAL STRINGERS THROUGHOUT;ABUNDANT LIST RIC SURFACES
78	144.24	144.32	0.08	06367 G		COAL	C-3.BLK.BRKN CALCITE, ANKERITE(?) VEINING ALONG CLEA T SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
78	144.32	144.36	0.04	06367 G		COAL	C-4.BRKN CALCITE,ANKERITE(?) VEINING ALONG CLEAT SURFACES
78	144.36	144.37	0.01	06367 G		COAL	C-2.BLK.SLD
78	144.37	144.46	0.09	06367 G		CLAYSTONE	CARB.BLK.BRKN LISTRIC SURFACES ABUNDANT;COAL STRINGER S THROUGHOUT; CALCITE ANKERITE(?) VEINI NG (1MM)
78	144.46	144.47	0.01	06367 G		COAL	C-3.BLK.SLD
78	144.47	144.56	0.09	06367 G		COAL	C-4.BLK.BRKN
78	144.56	144.59	0.03	06367 G		COAL	C-2.BLK.BRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
78	144.59	144.72	0.13	06367	G	COAL	C-5.BLK.BRKN ABUNDANT LISTRIC SURFACES
78	144.72	144.74	0.02	06367	G	COAL LOSS	
78	144.74	144.75	0.01	06367	G	COAL	C-3.BLK.BRKN
78	144.75	144.79	0.04			CLAYSTONE	CARB.BLK.BRKN ABUNDANT LISTRIC SURFACES
* 78	144.79	145.06	0.27			MUDSTONE	BLK.SLD COALY STRINGERS TOWARDS BASE
78	145.06	145.07	0.01			COAL	C-2.BLK.SLD CALCITE, ANKERITE(?) VEINING (1MM), ALON G BEDDING
78	145.07	145.25	0.18			MUDSTONE	BLK.SLD COAL STRINGERS;CALCITE VEIN (3MM) ALONG BEDDING AT BASE
78	145.25	145.26	0.01			COAL	C-2.BLK.SLD CALCITE ALONG BEDDING (4MM)

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
79	145.26	146.05	0.79			MUDSTONE	BLK.SLD CALCITE, ANKERITE(?) VEINING (2MM) ALON G BEDDING (MINOR); 5MM COALY BEDS SCATT ERED THROUGHOUT MAINLY AT TOP OF MEASUR EMENT
* 79	146.05	146.41	0.36			MUDSTONE	BLK.SLD MINOR CALCITE, ANKERITE(?) STRINGERS (1 MM);COALY INCLUSIONS (2MM) THROUGHOUT
79	146.41	146.48	0.07			CLAY	M.GY.SLD CONSOLIDATED BUT POWDERED;POSSIBLY BENT ONITE
80	146.48	146.67	0.19			CLAYSTONE	CARB.BLK.BRKN MINOR COALY INCLUSIONS;POSSIBLE CHLORII E(?) (1MM)
80	146.67	146.73	0.06			MUDSTONE	BLK.SLD CALCITE, ANKERITE(?) VEINING (1MM) THRO UGHOUT; 2MM BED OF POSSIBLE CHLORITE AT TOP
* 81	146.73	148.12	1.39			SILTSTONE	DK.GY.VTHNB.SLD MINOR SANDSTONE LAMINATIONS NEAR BASE;W EATHERS EASILY TO SMALL PIECES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 80	146.12	148.38	0.26			SILTSTONE	DK.GY.VTHNB.SLD EASILY WEATHERS TO SMALL PIECES;MINOR L T GREY SANDSTONE LAMINATIONS
80	148.38	148.42	0.04			SANDSTONE	MG.S-P.GY.BRKN SILTSTONE RIP UP CLASTS (0.02M)
* 79	148.42	148.77	0.35			SILTSTONE	DK.GY.VTHNB.BRKN SOME LT GREY SANDSTONE LAMINATIONS;EASI LY WEATHERS TO SMALL PIECES
79	148.77	149.36	0.59			SILTSTONE	SSY.M.GY.VTHNB.BRKN EASILY WEATHERS TO SMALL PIECES;LT GREY SANDSTONE LAMINATIONS THROUGHOUT;MINOR PYRITE BEDS;0.02M BED OF CALCITE & ANK ERITE(?) & CHLORITE; MINOR COALY INCLUS IONS
80	149.36	149.70	0.34			SANDSTONE	MG.MOD.S-P.GY.THNB.BRKN SILTSTONE RIP-UP CLASTS CONFINED TO 0.0 5 METER INTERVAL; SILTSTONE BED (2MM) T OWARDS TOP OF MEASUREMENT
80	149.70	149.90	0.20			CLAYSTONE	M.GY.SLD EASILY TURNED TO CLAY WHEN EXPOSED TO W ATER

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
80	149.90	150.07	0.17			SILTSTONE	DK.GY.VTHNB.BRKN LISTRIC SURFACES;WHITE DEPOSIT ON LISTR IC SURFACES
* 80	150.07	150.80	0.73			SANDSTONE	MG.MOD.S-P.GY.MB.SLD SILTSTONE RIP UP CLASTS TOWARDS TOP OF MEASUREMENT;CALCITE VEIN 0.01M CROSS- C UTTING BEDDING
79	150.80	150.84	0.04			CLAYSTONE	M.GY.SLD TURNS TO CLAY WHEN WET
79	150.84	150.92	0.08			SILTSTONE	SSY.DK.GY.VTHNB.BRKN
* 78	150.92	152.03	1.11			SANDSTONE	FG-.S-P.GY.THNB.BRKN BECOMES FINER GRAINED TOWARDS BASE;CALC ITE VEIN (1MM) CROSS-CUTTING BEDDING
* 77	152.03	152.40	0.37			SANDSTONE	SLTY.M.GY.VTHNB.SSD.SLD DK GREY SILTSTONE LAMINATIONS THROUGHOU T;MINOR COALY INCLUSIONS TOWARDS TOP
78	152.40	153.27	0.87			SANDSTONE	FG.WEL.LT.GY.THNB.HRMBU SSD;SILTSTONE INTERBEDS FREQUENT TOWARD S TOP
79	153.27	153.40	0.13			SANDSTONE	FG.WEL.LT.GY.THNB.BRKN MINOR SILTSTONE LAMINATIONS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
79	153.40	153.50	0.10			SILTSTONE	DK.GY.VTHNB.SLD MINOR LT GREY SANDY LAMINATIONS;EASILY WEATHERS TO SMALL FRAGMENTS
79	153.50	153.55	0.05			SANDSTONE	FG.MOD.LT.GY.THNB.SLD
* 80	153.55	154.15	0.60			SILTSTONE	DK.GY.VTHNB.SLD MINOR LT GREY SANDSTONE LAMINATIONS;EASILY WEATHERED TO FRAGMENTS
80	154.15	155.10	0.95			MUDSTONE	DK.GY.SLD EASILY WEATHERED TO SHARDS
80	155.10	155.13	0.03			CLAYSTONE	M.GY EASILY TURNED TO CLAY WHEN WET-POSSIBLY DRILLERS' MUD AS NOT FORMING BED
80	155.13	155.39	0.26			MUDSTONE	DK.GY.SLD EASILY BROKEN TO SHARDS
80	155.39	155.55	0.16			SILTSTONE	M.GY.BRKN
80	155.55	155.89	0.34			MUDSTONE	DK.GY.SLD EASILY WEATHERED TO SHARDS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
80	155.89	156.13	0.24			SILTSTONE	M.GY.VBRKN
79	156.13	156.31	0.18			SILTSTONE	DK.GY.VBRKN POSSIBLE ANKERITE(?) AND CHLORITE VEIN (5MM)
79	156.31	156.37	0.06			SANDSTONE	VFG.M.GY.THNB
79	156.37	156.72	0.35			SANDSTONE	FG.M.GY.THNB.SLD MINOR SILTSTONE CLASTS;CALCITE, ANKERITE(?) VEINING
79	156.72	156.77	0.05			SILTSTONE	SSY.M.GY.SLD
79	156.77	158.09	1.32			SANDSTONE	FG-.S-P.GY.THKB.BRKN IN MIDDLE OF UNIT-0.38M CONTAINING ABUNDANT CALCITE, ANKERITE(?) VEINING CROSS-CUTTING BEDDING THROUGHOUT; SOME SILTSTONE BEDS (0.01M)

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 79	158.09	158.94	0.85			SANDSTONE	FG-.MEL.M.GY.THNB.BRKN
* 75	158.94	159.77	0.83			SANDSTONE	FG-.MOD.S-P.GY.THNB.MRMBU.BRKN CALCITE, ANKERITE(?) VEINING ALONG FRAC TURES; MINOR SILTSTONE INTERBEDS TOWARD S BASE
75	159.77	159.90	0.13			SANDSTONE	VFG.MEL.LT.GY.BRKN CALCITE, ANKERITE(?) VEINING ON FRACTUR E SURFACES;MEDIUM GREY SILTSTONE INTERB EDS
76	159.90	160.14	0.24			SANDSTONE	VFG.MEL.LT.GY.BRKN CALCITE,ANKERITE(?) VEINING ON FRACTURE SURFACES; MEDIUM GREY SILTSTONE INTERB EDS
* 76	160.14	160.88	0.74			SANDSTONE	FG-.MEL.M.GY.THNB.BRKN CALCITE VEINING ON FRACTURE SURFACES;SI LTSTONE BEDS (5MM) TOWARDS TOP

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
78	160.88	161.86	0.98			SANDSTONE	FG-.MEL.M.GY.MB.BRKN FAIRLY MASSIVE;SOME SILTSTONE BEDS TOWA RDS BASE (5MM);WHITE DEPOSIT (TALC?) ON FRACTURE SURFACES WITH CALCITE, ANKERI TE(?)
* 79	161.86	161.99	0.13			SANDSTONE	SLTY.FG.MEL.M-DK.GY.VTHNB.MRMBU.SLD MINOR FAULT (5MM) CROSS-CUTTING BEDS;CA LCITE, ANKERITE(?) VEINING(1MM) CROSS-C UTTING BEDDING
79	161.99	162.19	0.20			SANDSTONE	VFG.MEL.LT.GY.THNB.SLD CALCAREOUS;MINOR CALCITE, ANKERITE(?) V EINING (1MM) NORMAL TO BEDDING
78	162.19	163.68	1.49			SANDSTONE	FG-.MOD.S-P.GY.THKB.BRKN MASSIVE;MINOR CALCITE,ANKERITE(?)VEININ G NORMAL TO BEDDING; TALC(?) ALONG BEDD ING
* 77	163.68	164.33	0.65			SANDSTONE	FG.MEL.M.GY.THNB.SLD TALC(?) AND LISTRIC SURFACES ALONG BEDD ING & POSSIBLY CHLORITE
* 75	164.33	164.54	0.21			SANDSTONE	SLTY.VFG.MEL.M.GY.VTHNB.MRMBU.SLD MINOR BIOTURBATION;DK GREY SILTY INTERB EDS THROUGHOUT;MRMBUR 0.09M LONG

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	164.54	164.64	0.10			SANDSTONE	FG.MEL.S-P.GY.IHNB.SSD.SLD MINOR SILTSTONE LAMINATIONS
* 73	164.64	165.63	0.99			SILTSTONE	SSY.M.GY.VTHNB.BIOTR.SLD LT GREY SANDSTONE LAMINATIONS THROUGHOU T;MINOR BIOTURBATION
77	165.63	165.67	0.04			SILTSTONE	M-DK.GY.VTHNB.SLD SOME LT GREY SANDY LAMINATIONS
78	165.67	165.73	0.06			SANDSTONE	FG.MEL.LT.GY.SLD
* 81	165.73	166.52	0.79			SILTSTONE	SSY.M-DK.GY.VTHNB.BIOTR.SLD WRMBURS INDICATE TOPS POSSIBLY UPRIGHT; LT GREY SANDSTONE LAMINATIONS THROUGHOU T;MINOR QUARTZ, ANKERITE(?) VEINING ALO NG FRACTURES
* 75	166.52	167.67	1.15			SILTSTONE	M-DK.GY.VTHNB.BIOTR.BRKN 0.02M INTERBED OF CALCITE & QUARTZ;SAND Y LAMINATIONS LESS FREQUENT TOHARDS BAS E
76	167.67	167.78	0.11			SILTSTONE	M-DK.GY.VTHNB.BRKN MINOR LT GREY SANDSTONE LAMINATONS
78	167.78	169.80	2.02			MUDSTONE	DK.GY.SLD VERY EASILY WEATHERED TO SHARDS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
81	169.80	170.05	0.25			MUDSTONE	DK.GY.SLD EASILY WEATHERED TO SHARDS
81	170.05	170.41	0.36			SANDSTONE	FG.MEL.M-DK.GY.BRKN ABUNDANT 1MM WHITE SPHERES GIVING SPECK LED APPEARANCE;UNIT SEEMS TO FINGER OUT OVERLYING MUDSTONE; DK GREY CLAY FORMS CONTACT
* 83	170.41	171.86	1.45			SILTSTONE	SSY.DK.GY.VTHNB.XBDG.BRKN MINOR BIOTURBATION;XBDG INDICATES TOPS UPRIGHT;MINOR 1MM CALCITE.ANKERITE(?. V EIN; MEDIUM GREY SANDY LAMINATIONS THRO UGHOUT
* 88	171.86	172.68	0.82			SILTSTONE	M-DK.GY.VTHNB.SLD LT GREY SANDSTONE LAMINATIONS;VERY EASI LY WEATHERED TO SHARDS
* 78	172.68	173.93	1.25			SILTSTONE	SSY.M-DK.GY.VTHNB.BIOTR.SLD BIOTURBATION MINOR & CONFINED TO 0.01M; LT GREY SANDSTONE LAMINATIONS;EASILY WE ATHERED TO SHARDS
* 81	173.93	174.70	0.77			SANDSTONE	SLTY.MEL.M.GY.VTHNB.XBDG.BRKN SSD;XBDG INDICATES TOPS UPRIGHT;VERY EA SILY WEATHERED TO SHARDS;DK GREY SILTST ONE LAMINATIONS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 89	174.70	176.01	1.31			SILTSTONE	SSY.DK.GY.VTHNB.WRMBU.SLD LT GREY SANDY LAMINATIONS;VERY EASILY H EATHERED TO SHARDS
87	176.01	176.20	0.19			SILTSTONE	SSY.DK.GY.VTHNB.SLD EASILY WEATHERED TO SHARDS; LT GREY SAN DSTONE LAMINATIONS
87	176.20	176.52	0.32			SANDSTONE	SLTY.VFG.WEL.M.GY.THNB.SLD VERY EASILY WEATHERED TO SHARDS;SILTSTO NE INTERBEDS
86	176.52	176.56	0.04			CLAYSTONE	M.GY.SLD TURNS TO CLAY WHEN WET
86	176.56	176.98	0.42			SILTSTONE	DK.GY.VTHNB.SLD EASILY WEATHERED TO SHARDS;LT GREY SAND STONE LAMINATIONS
* 85	176.98	177.26	0.28			SANDSTONE	SLTY.VFG.WEL.M.GY.VTHNB.XBDG.SLD RYTHMIC BANDING OF SILTSTONE AND SANDST ONE LAMINATIONS (DISTINCTIVE)
78	177.26	177.94	0.68			SILTSTONE	DK.GY.VTHNB.XBDG.SLD VERY EASILY WEATHERED TO PIECES;XBDG IN DICATES TOPS UPRIGHT
73	177.94	178.03	0.09			SILTSTONE	DK.GY.VTHNB.SLD WAS FRACTURED BUT CEMENTED BY CLAY

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 67	178.03	178.80	0.77			SILTSTONE	SSY.DK.GY.VTHNB.BRKN CALCITE VEINING ALONG FRACTURE SURFACES ;QUARTZ.ANKERITE(?) VEIN (0.02M) TOWARD S BASE WITH CHLORITE AND CALCITE; MICRO FAULTING (0.01M); FRACTURES INFILLED W ITH CLAY
* 73	178.80	179.21	0.41			SANDSTONE	SLTY.VFG.WEL.M.GY.VTHNB.XBDG.BRKN SSD:RYTHMIC BANDING OF SANDSTONE AND SI LTSTONE;XBDG INDICATES TOPS UPRIGHT
* 71	179.21	179.38	0.17			SILTSTONE	DK.GY.THNB.BRKN
72	179.38	180.07	0.69			SILTSTONE	SSY.DK.GY.VTHNB.SSD.SLD MINOR CALCITE, ANKERITE VEINING; LIGHT GREY SANDSTONE LAMINATIONS
73	180.07	180.39	0.32			MUDSTONE	BLK.SLD
* 74	180.39	180.62	0.23			SANDSTONE	FG.WEL.DK.GY.THNB.SLD SORTING WELL TO MODERATE;CONTAINS 1MM W HITE SPECKS TOWARDS BASE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
77	180.62	180.71	0.09	06366	F	COAL	C-3.BLK.SLD MINOR 1MM CALCITE, ANKERITE(?) VEINING ON CLEAT SURFACES
78	180.71	180.74	0.03	06368	F	COAL	C-1.BLK.SLD SUBCONCHOIDAL FRACTURING, MINOR CALCITE ,ANKERITE(?) VEINING (1MM)
79	180.74	180.83	0.09	06368	F	COAL	C-2.SLD MINOR CALCITE STRINGERS;DISSEMINATED PY RITE
79	180.83	180.84	0.01	06368	F	COAL	C-1.BLK.SLD SUBCONCHOIDAL FRACTURUNG
80	180.84	180.92	0.08	06368	F	COAL	C-2.BLK.SLD DISSEMINATED PYRITE ON BEDDING PLANES;M INOR CALCITE, ANKERITE(?) STRINGERS
81	180.92	180.93	0.01	06368	F	COAL	C-3.BLK.SLD 1MM PYRITE ON CLEAT SURFACES
82	180.93	181.07	0.14	06368	F	COAL	C-2.BLK.SLD MINOR CALCITE,ANKERITE(?) STRINGERS; MI NOR PYRITE(1MM) ON CLEAT SURFACES
83	181.07	181.09	0.02	06368	F	COAL	C-1.BLK.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 84	181.09	181.15	0.06	06368	F	COAL	C-2.BLK.SLD 1MM MUDSTONE;DISSEMINATED PYRITE ON BED DING PLANES
83	181.15	181.24	0.09	06368	F	COAL	C-2.BLK.SLD PYRITE 1MM ON CLEAT SURFACES
83	181.24	181.25	0.01	06368	F	CLAYSTONE	CARB.BLK.SLD LISTRIC SURFACES
83	181.25	181.31	0.06	06368	F	COAL	C-4.BLK.SLD MINOR CALCITE, ANKERITE(?) ON CLEAT SUR FACES
82	181.31	181.34	0.03	06368	F	COAL	C-2.BLK.SLD PYRITE (1MM) ON CLEAT SURFACES
82	181.34	181.36	0.02	06368	F	COAL	C-1.BLK.SLD
82	181.36	181.40	0.04	06368	F	COAL	C-2.BLK.SLD
81	181.40	181.42	0.02	06368	F	COAL	C-1.BLK.SLD
81	181.42	181.46	0.04	06368	F	COAL	C-2.BLK.BRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
81	181.46	181.51	0.05	06368	F	CLAYSTONE	BLK.BRKN LISTRIC SURFACES AND QUARTZ VEINS WITHI N
80	181.51	181.55	0.04	06368	F	COAL	C-2.BLK.BRKN
80	181.55	181.62	0.07	06368	F	COAL	C-2.BLK.BRKN
80	181.62	181.63	0.01	06368	F	COAL	C-4.BLK.BRKN
* 77	181.63	182.21	0.58	06368	F	COAL	C-2.BLK.SLD EASILY BROKEN;SOME LISTRIC SURFACES
77	182.21	182.23	0.02	06368	F	COAL	C-1.BLK.SLD
77	182.23	182.25	0.02	06368	F	COAL	C-2.BLK.SLD MINOR (1MM) CALCITE, ANKERITE(?) STRING ERS
77	182.25	182.29	0.04	06368	F	COAL	C-2.BLK.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
77	182.29	182.32	0.03	06368	F	COAL	C-1.BLK.SLD
77	182.32	182.53	0.21	06368	F	COAL	C-2.BLK.BRKN LISTRIC SURFACES; EASILY BROKEN
77	182.53	182.56	0.03	06368	F	COAL	C-3.BLK.SLD
77	182.56	182.61	0.05	06368	F	COAL	C-2.BLK.BRKN
78	182.61	182.82	0.21	06368	F	COAL	C-2.BLK.BRKN MINOR CALCITE, ANKERITE(?) STRINGERS
78	182.82	182.93	0.11	06368	F	COAL	C-2.DK LISTRIC SURFACES
78	182.93	182.98	0.05	06368	F	COAL	C-5.BLK.BRKN
78	182.98	183.10	0.12	06369	F	CLAYSTONE	BLK.BRKN COALY STRINGER;MINOR CALCITE, ANKERITE(?) VEINING
78	183.10	183.11	0.01	06369	F	COAL	C-2.BLK.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
78	183.11	183.14	0.03	06369	F	CLAYSTONE	BLK.SLD COALY STRINGERS WITHIN
78	183.14	183.19	0.05	06369	F	COAL	C-3.BLK.SLD
78	183.19	183.25	0.06	06369	F	CLAYSTONE	BLK.SLD MINOR DISSEMINATED PYRITE;MINOR QUARTZ, ANKERITE(?) VEINING
78	183.25	183.32	0.07	06370	F	COAL	C-4.BLK.SLD MINOR CALCITE, ANKERITE(?) STRINGERS
78	183.32	183.36	0.04	06370	F	COAL	C-3.BLK.SLD MINOR CALCITE, ANKERITE(?) STRINGERS
78	183.36	183.37	0.01	06370	F	COAL	C-2.BLK.SLD
* 78	183.37	183.44	0.07	06370	F	COAL	C-3.BLK.SLD
78	183.44	183.48	0.04	06370	F	COAL	C-4.BLK.SLD
78	183.48	183.55	0.07	06370	F	CLAYSTONE	BLK.SLD ABUNDANT COAL STRINGERS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
78	183.55	183.60	0.05	06370	F	COAL	C-2.BLK.SLD MINOR CALCITE, ANKERITE(?) STRINGERS
79	183.60	183.62	0.02	06370	F	COAL	C-1.BLK.SLD SUBCONCHOIDAL FRACTURING
79	183.62	183.67	0.05	06370	F	COAL	C-4.BLK.SLD
79	183.67	183.73	0.06	06370	F	COAL	C-3.BLK.SLD MINOR CALCITE, ANKERITE(?) STRINGERS
79	183.73	183.74	0.01	06370	F	COAL	C-1.BLK.SLD
* 79	183.74	183.78	0.04	06370	F	COAL	C-2.BLK.SLD
79	183.78	183.88	0.10	06370	F	COAL	C-3.BLK.SLD LISTRIC SURFACES
79	183.88	183.89	0.01	06370	F	COAL	C-1.BLK.SLD
79	183.89	184.02	0.13	06370	F	COAL	C-3.BLK.SLD
79	184.02	184.04	0.02	06370	F	COAL	C-2.BLK.SLD

* DENOTES MEASURED BCA

PROJECT: KPK BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
78	184.04	184.05	0.01	06370	F	COAL	C-1.BLK.SLD
78	184.05	184.11	0.06	06370	F	COAL	C-5.BLK.SLD
78	184.11	184.16	0.05	06370	F	MUDSTONE	BLK.SLD ABUNDANT COAL STRINGERS
78	184.16	184.18	0.02	06370	F	COAL	C-2.BLK.SLD
78	184.18	184.19	0.01	06370	F	COAL	C-2.BLK.SLD
78	184.19	184.21	0.02	06370	F	COAL	C-3.BLK.SLD
78	184.21	184.27	0.06	06370	F	COAL	C-2.BLK.SLD
78	184.27	184.30	0.03	06370	F	COAL	C-3.BLK.SLD
78	184.30	184.32	0.02	06370	F	CLAYSTONE	CARB.BLK.SLD COAL STRINGERS
* 78	184.32	184.34	0.02	06370	F	COAL	C-3.BLK.SLD

* DENOTES MEASURED BCA

PROJECT: KPK BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
78	184.34	184.35	0.01	06370	F	COAL	C-2.BLK.SLD
78	184.35	184.39	0.04	06370	F	COAL	C-3.BLK.SLD
78	184.39	184.40	0.01	06370	F	COAL	C-1.BLK.SLD MINOR CALCITE, ANKERITE(?) ON CLEAT SUR FACES
77	184.40	184.45	0.05	06370	F	COAL	C-2.BLK.SLD
77	184.45	184.48	0.03	06370	F	COAL	C-3.BLK.SLD
77	184.48	184.51	0.03	06370	F	COAL	C-2.BLK.SLD MINOR CALCITE AND QUARTZ, ANKERITE(?) S TRINGERS
77	184.51	184.54	0.03	06370	F	COAL	C-5.BLK.SLD
77	184.54	184.56	0.02	06370	F	COAL	C-2.BLK.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
77	184.56	184.61	0.05	06370	F	COAL	C-5.BLK.SLD
76	184.61	184.62	0.01	06370	F	COAL	C-2.BLK.SLD
76	184.62	184.65	0.03	06370	F	COAL	C-5.BLK.SLD
76	184.65	184.88	0.23	06371	F	CLAYSTONE	CARB.BLK.SLD CONTAINING COAL STRINGERS THROUGHOUT:VERY HARD;MINOR CALCITE, ANKERITE(?) STRINGERS
75	184.88	184.89	0.01	06371	F	COAL	C-2.BLK.SLD
74	184.89	185.01	0.12	06371	F	CLAYSTONE	CARB.BLK.SLD MINOR CALCITE AND COAL STRINGERS
74	185.01	185.04	0.03	06371	F	COAL	C-5.BLK.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
74	185.04	185.10	0.06	06371	F	CLAYSTONE	CARB.BLK.XRDG.SLD CONTAINING COAL BEDS AND MINOR CALCITE, ANKERITE(?)
74	185.10	185.12	0.02	06371	F	COAL	C-3.BLK.SLD
74	185.12	185.13	0.01	06371	F	COAL	C-1.BLK.SLD SUBCONCHOIDAL FRACTURING
73	185.13	185.15	0.02	06371	F	COAL	C-2.BLK.SLD CALCITE, ANKERITE(?) VEINING (2MM) ON BEDDING PLANES
73	185.15	185.17	0.02	06371	F	CLAYSTONE	CARB.BLK.SLD VERY HARD; MINOR CALCITE STRINGERS
73	185.17	185.21	0.04	06371	F	COAL	C-1.BLK.SLD CONCHOIDAL FRACTURING:1MM CALCITE,ANKERITE(?) VEINING ON CLEAT SURFACES
* 73	185.21	185.22	0.01	06371	F	CLAYSTONE	CARB.BLK.SLD
73	185.22	185.26	0.04	06371	F	COAL	C-1.BLK.SLD CALCITE, ANKERITE(?) STRINGERS (2MM) ALONG BEDDING

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
73	185.26	185.33	0.07	06371	F	COAL	C-2.BLK.SLD MINOR CALCITE, ANKERITE(?) VEINS ON CLE AT SURFACES
73	185.33	185.34	0.01	06371	F	CLAYSTONE	CARB.BLK.SLD
73	185.34	185.39	0.05	06371	F	COAL	C-1.BLK.SLD CALCITE, ANKERITE(?) STRINGERS ON CLEAT SURFACES; MINOR CLAYSTONE LAMINATIONS
73	185.39	185.43	0.04	06371	F	COAL	C-4.BLK.SLD CLAYSTONE STRINGERS;CALCITE, ANKERITE(?) VEINING
73	185.43	185.44	0.01	06371	F	COAL	C-2.BLK.SLD
73	185.44	185.52	0.08	06371	F	CLAYSTONE	BLK.SLD CONTAINING CALCITE, ANKERITE(?) VEINING
73	185.52	185.54	0.02			COAL	C-2.BLK.SLD CALCITE, ANKERITE(?) VEINING
73	185.54	185.57	0.03			COAL	C-1.BLK.XBDG.SLD CALCITE, ANKERITE(?) VEINING; SUBCONCHO IDAL FRACTURING

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
73	185.57	185.62	0.05			CLAYSTONE	BLK.SLD CALCITE, ANKERITE(?) VEINING THROUGHOUT
73	185.62	185.63	0.01			COAL	C-2.BLK.SLD
* 73	185.63	185.74	0.11			CLAYSTONE	CARB.BLK.SLD LISTRIC SURFACES;COAL LAMINATIONS;ABUND ANT CALCITE, ANKERITE(?) STRINGERS
73	185.74	185.77	0.03			COAL	C-2.BLK.SLD MINOR CALCITE, ANKERITE(?) STRINGERS
74	185.77	185.86	0.09			CLAYSTONE	BLK.SLD SOME LISTRIC SURFACES
74	185.86	185.88	0.02			COAL	C-2.SLD
74	185.88	185.89	0.01			COAL	C-1.BLK.SLD SUNCONCHOIDAL FRACTURING
74	185.89	185.93	0.04			CLAYSTONE	BLK.SLD
74	185.93	185.94	0.01			COAL	C-1.BLK.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
74	185.94	186.01	0.07			CLAYSTONE	CARB.BLK.SLD MINOR COALY AND CALCITE, ANKERITE(?) STRINGERS; POWDERED WHEN BROKEN
75	186.01	186.07	0.06			COAL	C-5.BLK.SLD CALCITE VEINING ALONG BEDDING (2MM)
76	186.07	186.35	0.28			CLAYSTONE	DK.GY.BRKN COAL INCLUSIONS:CALCITE, ANKERITE(?) VEINING
* 78	186.35	187.06	0.71			MUDSTONE	BLK.SLD CONTORTED BEDDING:ABUNDANT COAL STRINGERS (5MM);CALCITE AND QUARTZ; ANKERITE(?) VEINING ALONG BEDDING; MINOR MICROFAULTING (1CM DISPLACEMENT); MINOR DISSEMINATED PYRITE IN QUARTZ, ANKERITE(?) VEIN
* 78	187.06	188.01	0.95			SILTSTONE	DK.GY.SLD MINOR COALY INCLUSIONS:QUARTZ,ANKERITE(?) VEINS;0.03M BAND OF CALCITE AND COAL (MICRO FAULTING DISPLACEMENT 3MM)
78	188.01	188.35	0.34			SILTSTONE	DK.GY.VTHNB.SLD MINOR QUARTZ, ANKERITE(?) AND CALCITE STRINGERS; RARE COAL UNITS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 78	188.35	190.19	1.84			SILTSTONE	DK.GY.VTHNB MINOR HAIRLIKE WHITE STRINGERS
80	190.19	190.29	0.10			CLAYSTONE	M.GY.SLD
80	190.29	190.42	0.13			CLAYSTONE	DK.GY.SLD 15MM CALCITE BAND WITH SILTSTONE INCLUSIONS (BRECCIA);SOME LISTRIC SURFACES
80	190.42	190.54	0.12			CLAYSTONE	SLTY.M.GY.SLD
80	190.54	190.94	0.40			SILTSTONE	DK.GY.VTHNB.SLD
* 82	190.94	192.44	1.50			SILTSTONE	DK.GY.VTHNB.SLD MINOR WHITE MINERAL? 5MM BAND
* 76	192.44	194.13	1.69			SILTSTONE	DK.GY.VTHNB.BRKN MINOR LT GREY SANDSTONE LAMINATIONS TOWARDS BASE
75	194.13	194.25	0.12			SILTSTONE	DK.GY.VTHNB.BRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	194.25	195.63	1.38			SILTSTONE	SSY.DK.GY.VTHNB.XBDG.BRKN WRMBUR;XBDG INDICATES TOPS UPRIGHT;LIGHTER GREY SANDSTONE LAMINATIONS;TALC? ON FRACTURE SURFACES
75	195.63	195.67	0.04			ROCK LOSS	
75	195.67	195.98	0.31			SILTSTONE	SSY.DK.GY.VTHNB.BRKN LIGHTER GREY SANDSTONE LAMINATIONS
74	195.98	196.48	0.50			MUDSTONE	SLTY.DK.GY.VTHNB.SLD CONTAINS 0.06M BAND OF MUDSTONE BRECCIA IN CALCITE;3 CALCITE VEINS PARALLEL TO BEDDING (5-10MM)
* 74	196.48	196.94	0.46			SILTSTONE	M.GY.VTHNB.BRKN MINOR CALCITE, ANKERITE(?) VEINING (1MM) PARALLEL TO BEDDING AT TOP OF MEASUREMENT
77	196.94	198.02	1.08			SILTSTONE	DK.GY.VTHNB.WRMBU.SLD SSD;MINOR LIGHTER GREY SANDSTONE LAMINATIONS TOWARDS BASE
* 80	198.02	198.69	0.67			SILTSTONE	SSY.DK.GY.VTHNB.BIOTR.BRKN SSD;BEDS DISTURBED THROUGHOUT;LIGHTER GREY SANDSTONE LAMINATIONS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 82	198.69	199.90	1.21			SILTSTONE	SSY.DK.GY.VTHNB.BIOTR.BRKN CALCITE VEIN 0.04M THICK AT BASE CONTAINING SOME SILTSTONE FRAGMENTS;LIGHTER GREY SANDSTONE LAMINATIONS
* 79	199.90	200.22	0.32			SILTSTONE	SSY.DK.GY.VTHNB.BIOTR.SLD SANDSTONE LAMINATONS BECOMING MORE FREQUENT TOWARDS BASE
81	200.22	200.63	0.41			SILTSTONE	SSY.M.GY.THNB.BIOTR.SLD WRMBUR;BEDDING DISTURBED THROUGHOUT;LT BROWN SANDSTONE INTERBEDS VERY DISTINCTIVE
* 85	200.63	201.84	1.21			SILTSTONE	SSY.DK.GY.VTHNB.BIOTR.SLD LIGHTER GREY SANDSTONE LAMINATIONS
85	201.84	201.94	0.10			SILTSTONE	SSY.DK.GY.VTHNB.SLD LIGHTER GREY SANDSTONE LAMINATIONS
* 86	201.94	203.95	2.01			SILTSTONE	SSY.DK.GY.THNB.BIOTR.SLD WRMBUR;BEDS FAIRLY WELL DISTURBED;BIOTURBATION INDICATES TOPS UPRIGHT;LT GREY TO LT BROWN SANDSTONE INTERBEDS
81	203.95	203.99	0.04			SANDSTONE	FG.WEL.S-P.GY.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
80	203.99	204.11	0.12			SANDSTONE	FG.WEL.M.GY.THNB.BIOTR.SLD MINOR INTERBEDS OF VFG DK GREY SANDSTON E
* 78	204.11	204.94	0.83			SANDSTONE	VFG.WEL.DK.GY.VTHNB.BIOTR.SLD XBDG INDICATES TOPS UPRIGHT:BIOTURBATIO N CONFINED TO 2 BEDS;DK GREY SILTSTONE LAMINATIONS
* 78	204.94	206.09	1.15			SANDSTONE	VFG.WEL.DK.GY.VTHNB.BIOTR.SLD BIOTURBATION MINOR-INDICATES TOPS UPRIG HT;CALCITE VEIN 3MM PARALLEL TO BEDDING ; SOME LT BROWN SANDSTONE INTERBEDS
* 78	206.09	208.23	2.14			SANDSTONE	VFG.WEL.DK.GY.VTHNB.BIOTR.SLD DK GREY SILTSTONE LAMINATIONS THROUGHOU T;CLAM BURROW INDICATES TOPS UPRIGHT; 2 -0.09M THICK BIOTURBATED ZONES
* 82	208.23	208.74	0.51			SANDSTONE	SLTY.DK.GY.VTHNB.WRMBU.SLD LIGHTER GREY SANDSTONE LAMINATIONS;MINO R BIOTURBATION
81	208.74	209.13	0.39			SILTSTONE	DK.GY.VTHNB.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
80	209.13	209.57	0.44			MUDSTONE	BLK.SLD HAIRLIKE CALCITE, ANKERITE(?) STRINGERS THROUGHOUT
79	209.57	209.60	0.03			MUDSTONE	BLK.SLD CALCITE, ANKERITE(?) VEINING 3MM; COALY INCLUSIONS
* 78	209.60	210.25	0.65	06372	E	COAL	C-2.BLK.SLD VERY EASILY POWDERED;LISTRIC SURFACES;M INOR CALCITE; ANKERITE(?) STRINGERS (1M M) ALONG CLEAT SURFACES
79	210.25	210.27	0.02	06372	E	COAL	C-1.BLK.SLD
79	210.27	210.33	0.06	06372	E	COAL	C-2.BLK.SLD LISTRIC SURFACES;EASILY POWDERED
79	210.33	210.36	0.03	06372	E	COAL	C-1.BLK.SLD MINOR CALCITE, ANKERITE(?) STRINGERS (1 MM); LISTRIC SURFACES; EASILY POWDERED
79	210.36	210.41	0.05	06372	E	COAL	C-2.BLK.SLD EASILY POWDERED

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
79	210.41	210.76	0.35	06372	E	COAL	C-2.BLK.SLD EASILY BROKEN;LISTRIC SURFACES;CALCITE , ANKERITE(?) VEIN (1MM)
80	210.76	210.78	0.02	06372	E	COAL	C-1.BLK.SLD CONCHOIDAL FRACTURE
80	210.78	210.86	0.08	06372	E	COAL	C-2.BLK.SLD CALCITE, ANKERITE(?) VEINING (1MM) ALON G CLEAT FACES
80	210.86	210.88	0.02	06372	E	COAL	C-1.BLK.SLD
80	210.88	210.91	0.03	06372	E	COAL	C-2.BLK.SLD MINOR CALCITE, ANKERITE(?) VEINING ALON G CLEAT SURFACES
80	210.91	210.94	0.03	06372	E	COAL LOSS	
80	210.94	211.35	0.41			MUDSTONE	BLK.SLD MINOR COALY STRINGERS (2MM) TOWARDS TOP OF MEASUREMENT
81	211.35	211.40	0.05			MUDSTONE	BLK.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 82	211.40	212.44	1.04			SILTSTONE	DK.GY.VTHNB.SLD
78	212.44	212.58	0.14			SILTSTONE	DK.GY.VTHNB.SLD
75	212.58	213.46	0.88			MUDSTONE	BLK.SLD EASILY WEATHERED INTO SHARDS;CALCITE VE IN 0.02M THICK;MINOR LISTRIC SURFACES
72	213.46	213.52	0.06			SILTSTONE	DK.GY.VTHNB.SLD LISTRIC SURFACES AT BASE OF MEASUREMENT
* 70	213.52	214.03	0.51			SANDSTONE	FG.WEL.LT.GY.MB.BIOTR.SLD CALCAREOUS & FOSSILIFEROUS;SHELLS 5MM I N LENGTH;DISSEMINATED PYRITE THROUGHOUT
71	214.03	214.46	0.43			SANDSTONE	MG.MOD.M.GY.MB.SLD
71	214.46	214.60	0.14			SANDSTONE	FG.WEL.LT.GY.SLD CALCAREOUS;CALCITE, ANKERITE(?) VEIN 2M M AT BASE CONTAINING DISSEMINATED PYRIT E

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
72	214.60	215.29	0.69			SANDSTONE	FG.MEL.LT.GY.MB.SLD CALCAREOUS;CALCITE, ANKERITE(?) VEINS (2MM) AT BASE; MINOR DISSEMINATED PYRITE
73	215.29	215.45	0.16			SANDSTONE	FG.MEL.M.GY.THNB.BRKN LISTRIC SURFACES;EASILY WEATHERED
* 74	215.45	216.52	1.07			SANDSTONE	FG.MOD.M.GY.THNB.SLD SOME DK GREY SILTSTONE INTERBEDS;MINOR CALCITE VEIN 3MM
76	216.52	216.63	0.11			SANDSTONE	MG.MOD.LT.GY.SLD
* 77	216.63	217.65	1.02			SANDSTONE	MG.MEL.M.GY.MB.SLD SOME SILTSTONE INTERBEDS;CALCITE, ANKERITE(?) VEIN(1MM)
72	217.65	217.86	0.21			SANDSTONE	FG.MEL.LT.GY.THNB.BIOTR.SLD DISTINCTIVE BURROW INDICATES TOPS UPRIGHT (0.09M LONG);0.02M THICK BIVALVE HORIZON DISPLAYING SAW-TOOTHED EDGE OF SHELLS;CALCAREOUS
* 68	217.86	218.47	0.61			SANDSTONE	FG.MEL.M.GY.MB.SLD SOME SILTSTONE INTERBEDS;0.14M SECTION AT BASE CONTAINING CALCITE, ANKERITE(?) VEINS THROUGHOUT (1-4MM)

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
69	218.47	218.67	0.20			SANDSTONE	FG.MEL.M.GY.MB.SLD MINOR DISTURBANCE OF BEDS;CALCITE, ANKERITE(?) VEIN 1MM PARALLEL TO BEDDING
* 71	218.67	220.84	2.17			SANDSTONE	FG.MEL.M.GY.MB.HRMBD.SLD 2 CALCITE VEINS IN MIDDLE (0.02M);SOME SILTSTONE INTERBEDS THROUGHOUT;WEATHERS FAIRLY EASILY
* 67	220.84	221.72	0.88			SANDSTONE	FG.MEL.M.GY.MB.SLD MINOR SILTSTONE LAMINATIONS
* 78	221.72	222.18	0.46			SANDSTONE	FG.MEL.M.GY.MB.SLD TALC? ALONG FRACTURE SURFACES AT BASE;SILTSTONE INTERBEDS TOWARDS BASE
76	222.18	222.51	0.33			SANDSTONE	FG.M.GY.SLD FRAGMENTED SANDSTONE CEMENTED BY CLAY;EASILY POWDERED;CALCITE, ANKERITE(?) VEINING FORMING BRECCIA AT BASE (0.06M)
75	222.51	222.87	0.36			SANDSTONE	FG.MEL.M.GY.MB.BRKN SOME SILTSTONE INTERBEDS;TALC? ALONG FRACTURE SURFACE
* 73	222.87	223.60	0.73			SANDSTONE	FG.MEL.M.GY.THNB.SLD SOME DK GREY SILTSTONE INTERBEDS;QUARTZ , ANKERITE(?) AND CALCITE VEIN (2MM) AT BASE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 77	223.60	224.03	0.43			SILTSTONE	DK.GY.THNB.SLD QUARTZ, ANKERITE(?) AND CALCITE VEIN IN MIDDLE SECTION(0.06M); BCA AT BASE IS 45 DEGREES
* 69	224.03	224.61	0.58			SANDSTONE	FG.WEL.M.GY.MB.SLD 1MM COAL STRINGER IN BEDDING AT TOP OF MEASUREMENT
* 74	224.61	224.98	0.37			SILTSTONE	DK.GY.THNB.SLD MINOR SANDSTONE INTERBED TOWARDS TOP
* 72	224.98	225.99	1.01			SANDSTONE	FG.WEL.M.GY.THNB.SLD MINOR COAL INCLUSIONS (1MM) TOWARDS BAS E OF MEASUREMENT
71	225.99	226.52	0.53			SANDSTONE	VFG.WEL.DK.GY.SSD.SLD MINOR SSD;CALCITE, ANKERITE(?) VEIN (2M M) AT BASE
* 71	226.52	227.16	0.64			SANDSTONE	FG.WEL.M.GY.THNB.SLD
69	227.16	227.53	0.37			SANDSTONE	VFG.DK.GY.THNB.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
69	227.53	227.62	0.09			SANDSTONE	FG.WEL.LT.GY.SLD SLIGHTLY CALCAREOUS
* 68	227.62	227.84	0.22			SANDSTONE	FG.M.GY.THNB.BRKN
* 67	227.84	229.19	1.35			SANDSTONE	FG.M.GY.MB.SLD SOME SILTSTONE INTERBEDS;SPORATIC CALCI TE, ANKERITE(?) VEINING ALONG 0.06M INT ERVAL
* 64	229.19	230.56	1.37			SANDSTONE	FG.M.GY.THNB.XBDG.BRKN MINOR BIOTURBATION INDICATES TOPS UPRIG HT;SOME SILTSTONE INTERBEDS
63	230.56	230.67	0.11			SANDSTONE	FG.WEL.LT.GY.SLD SLIGHTLY CALCAREOUS
62	230.67	230.74	0.07			SANDSTONE	FG.WEL.M.GY.SLD
62	230.74	231.12	0.38			SANDSTONE	FG.WEL.M.GY.VTHNB.SLD
61	231.12	231.24	0.12			SANDSTONE	FG.WEL.LT.GY.SSD.SLD SLIGHTLY CALCAREOUS
* 60	231.24	232.60	1.36			SANDSTONE	FG.WEL.M.GY.THNB.SLD SILTSTONE RIP UP CLASTS IN TOP 0.04M

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
60	232.60	233.09	0.49			SANDSTONE	FG.MOD.M.GY.MB.SLD SILTSTONE RIP UP CLASTS-0.04M DIAMETER- OVER 0.05M SECTION
* 60	233.09	233.23	0.14			SANDSTONE	MG.MOD.M.GY.MB.SSD.SLD CALCITE, ANKERITE(?) VEIN (2MM) TOWARDS BASE;SSD INTERBED WITHIN SANDSTONE
59	233.23	233.72	0.49			SANDSTONE	MG.S-P.GY.THKB.SLD CALCITE, ANKERITE(?) VEIN (2MM) TOWARDS TOP
* 58	233.72	234.11	0.39			SANDSTONE	FG.WEL.M.GY.THNB.SLD POSSIBLE HORIZONTAL WORM BURROW
58	234.11	234.44	0.33			SANDSTONE	MG.MOD.S-P.GY.THKB.SLD MASSIVE
* 57	234.44	235.33	0.89			SANDSTONE	FG.MOD.M.GY.THNB.SLD SOME SILTSTONE INTERBEDS;0.03M ZONE CON TAINING HAIRLIKE CALCITE, ANKERITE(?) S TRINGERS
* 65	235.33	235.64	0.31			SANDSTONE	FG-.MOD.M.GY.THNB.SLD 0.04M INTERVAL OF QUARTZ, ANKERITE(?) A ND CALCITE;MINOR COALY INCLUSIONS TOWAR DS TOP; EASILY WEATHERED

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 67	235.64	237.01	1.37			SANDSTONE	FG.WEL.M.GY.THNB.BIOTR.SLD CALCITE, ANKERITE(?) VEIN (3MM) TOWARDS TOP; SOME SILTSTONE INTERBEDS
69	237.01	237.26	0.25			SILTSTONE	M.GY.THNB.SLD
* 70	237.26	237.93	0.67			SANDSTONE	FG.DK.GY.MB.SSD.SLD SILTSTONE INTERBEDS
* 63	237.93	239.18	1.25			SILTSTONE	SSY.DK.GY.THNB.SLD CALCITE, ANKERITE(?) VEINING (3MM) NORM AL TO BEDDING; TALC(?) ALONG LISTRIC SU RFACES
* 70	239.18	239.60	0.42			SILTSTONE	DK.GY.THNB.SLD CALCITE, ANKERITE(?) VEIN TOWARDS TOP
70	239.60	239.82	0.22			SILTSTONE	DK.GY.THNB.BRKN CALCITE AND QUARTZ, ANKERITE(?) VEIN TO WARDS BASE
70	239.82	239.95	0.13			SILTSTONE	LT.GY.BRKN EXTENSIVE ANKERITE(?) AND CALCITE VEINI NG

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
70	239.95	240.37	0.42			SILTSTONE	DK.GY.THNB.SLD ANKERITE(?), CALCITE(?) BLEB CONTAINING MINOR DISSEMINATED PYRITE
70	240.37	240.45	0.08			CLAY	M.GY.SLD PLIABLE WHEN WET;QUARTZ AND CALCITE VEIN ABOVE (0.03M)
70	240.45	240.65	0.20			MUDSTONE	DK.GY.SLD CALCITE VEIN TOWARDS TOP; ANKERITE(?) AND CHLORITE?
* 70	240.65	241.23	0.58			SILTSTONE	DK.GY.THNB.SLD LISTRIC SURFACES;CALCITE VEIN TOWARDS BASE
* 65	241.23	242.66	1.43			MUDSTONE	DK.GY.SLD SPORADIC ANKERITE(?) AND CALCITE VEINING THROUGHOUT; WELL FRACTURED PARALLEL AND NORMAL TO BEDDING (FAULT ZONE); LISTRIC SURFACE CONTAINS MINOR PYRITE (1MM)
59	242.66	243.14	0.48			MUDSTONE	DK.GY.SLD ANKERITE(?), CALCITE VEIN THROUGHOUT 0.02M; LISTRIC SURFACES; MINOR 1MM PYRITIC VEIN (FAULT ZONE)

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
50	243.14	245.21	2.07			MUDSTONE	DK.GY.BRKN ANKERITE AND CALCITE VEINING THROUGHOUT ;VERY EASILY WEATHERED AND FRACTURED; LISTRIC SURFACES;SOME ZONES WEATHERED TO CLAY (FAULT ZONE?)
42	245.21	245.32	0.11			MUDSTONE	BLK.VBRKN LISRTIC SURFACES;MINOR CALCITE, ANKERITE(?) VEINING
41	245.32	245.51	0.19			CLAYSTONE	M.GY.SLD CONTAINS SOME SILTSTONE CLASTS;CONSOLIDATED BUT SOFT WHEN WEATHERED;WHEN BRKN DISPLAYS BEDDING
* 35	245.51	247.20	1.69			MUDSTONE	BLK.SLD EXTREMELY FISSILE;SOME LISTRIC SURFACES
* 20	247.20	248.97	1.77			MUDSTONE	DK.GY.BIOTR.SLD FISSILE WHEN WEATHERED;MINOR TALC? ON FRACTURE SURFACES;BIOTURBATION INDICATES TOPS UPRIGHT
* 28	248.97	249.25	0.28			MUDSTONE	SLTY.DK.GY.BRKN GOING THROUGH OVERTURN?

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 31	249.25	251.38	2.13			SILTSTONE	DK.GY.VTHNB.XBDG.SLD XBDG INDICATES TOPS UPRIGHT;SOME LIGHTE R GREY VFG SANDSTONE LAMINATIONS TOWARD S BASE OF MEASUREMENT
* 32	251.38	252.10	0.72			SILTSTONE	SSY.DK.GY.THNB.BRKN LIGHTER GREY VFG SANDSTONE INTERBEDS;SO ME LISTRIC SURFACES
* 30	252.10	253.41	1.31			SILTSTONE	SSY.DK.GY.THNB.SSD.SLD AS ABOVE
* 32	253.41	254.50	1.09			SILTSTONE	DK.GY.THNB.SLD MINOR CALCITE, ANKERITE VEINING (1MM); TALC? ALONG FRACTURE SURFACES
37	254.50	254.59	0.09			SILTSTONE	DK.GY.SLD CONTAINING CALCITE, ANKERITE(?) VEINING FORMING MINOR BRECCIA AT BASE
* 40	254.59	255.25	0.66			SILTSTONE	DK.GY.MB.SLD LISTRIC FRACTURE SURFACES CONTAINING TA LC?; MINOR CALCITE VEINS (2MM); CONTAIN S SOME LIGHT BROWN SILTSTONE INTERBEDS (APPROX 0.15M THICK)
39	255.25	255.42	0.17			SILTSTONE	DK.GY.MB.SLD CALCITE VEIN 2MM

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 35	255.42	257.61	2.19			SILTSTONE	SSY.DK.GY.THNB.WRMBU.SLD MINOR BIOTURBATION;LIGHTER GREY SANDSTO NE INTERBEDS;MINOR COALY INCLUSIONS (3M M)TOWARDS TOP
* 40	257.61	258.34	0.73			SANDSTONE	VFG.WEL.M.GY.THNB.BIOTR.SLD
* 46	258.34	259.73	1.39			SANDSTONE	VFG.WEL.M.GY.THNB.SLD MINOR LISTRIC SURFACES AND CALCITE, ANK ERITE(?) VEINING (APPROX 1MM);.SANDSTON E BECOMES FINE GRAINED TOWARDS BASE
* 40	259.73	261.03	1.30			SANDSTONE	FG.WEL.M.GY.THNB.BIOTR.SLD WRMBUR
40	261.03	261.40	0.37			SANDSTONE	MG.WEL.LT.GY.MB.SLD MINOR COALY INCLUSIONS;SPECKLED WITH DK SILTSTONE? THROUGHOUT
* 40	261.40	261.82	0.42			SANDSTONE	MG.MOD.M.YEL.THNB.SLD DRILL STEM OUT;YELLOWISH GREY COLOUR AN D DK GREY INTERBEDS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 44	261.82	263.45	1.63			SANDSTONE	MG.MOD.LT-M.GY.THKB.SLD MINOR CALCITE, ANKERITE(?) VEINING 2MM NORMAL TO BEDDING; SOME DARK GREY SILTSTONE RIP UP CLASTS PARALLEL TO BEDDING
* 43	263.45	263.82	0.37			SANDSTONE	FG.MEL.M.GY.MB.SLD VFG SANDSTONE INTERBEDS;MINOR CALCITE, ANKERITE(?)VEINING (1MM) NORMAL TO BEDDING;TALC? ALONG LISTRIC SURFACES
* 43	263.82	264.79	0.97			SANDSTONE	FG.MEL.M.GY.THKB.SLD MINOR LISTRIC FRACTURE SURFACES WITH TALC?;CALCITE, ANKERITE(?) WITHIN 0.02M B AND AT BASE OF MEASUREMENT
40	264.79	264.81	0.02			CLAY	M.GY.SLD PLIABLE;POSSIBLY BENTONITE
* 39	264.81	265.35	0.54			SANDSTONE	MEL.M.GY.THNB.SLD FAIRLY EASILY BROKEN;CONTAINS SOME CALCITE VEINS 2MM;MINOR LISTRIC SURFACES
41	265.35	265.40	0.05			CLAY	M.GY.SLD SEEMS TO BE WEATHERED FROM CLAYSTONE; MUSHY

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 42	265.40	265.84	0.44			SANDSTONE	FG.MEL.M.GY.VTHNB.BIOTR.SLD SOME SILTSTONE LAMINATIONS AND CALCITE, ANKERITE(?) VEINING AT BASE
* 37	265.84	267.37	1.53			SANDSTONE	FG.MEL.LT-M.GY.THNB.BRKN BANDING OF MEDIUM AND DARK GREY SANDSTONE INTERBEDS;TALC? ALONG FRACTURE SURFACES
* 37	267.37	267.38	0.01			SANDSTONE	FG.MEL.M.GY.SLD
37	267.38	267.40	0.02			CLAY	M.GY.SLD CLAY CONTAINS SANDSTONE FRAGMENTS;BENTONITE?
* 37	267.40	267.90	0.50			SANDSTONE	VFG.MEL.M.GY.THNB.SLD
* 36	267.90	268.75	0.85			SANDSTONE	FG.MEL.M.GY.MB.BRKN DK GREY SILTSTONE BEDS;SANDSTONE AND SILTSTONE INTERBEDS FORM BANDING
36	268.75	269.80	1.05			SANDSTONE	FG.MEL.M-DK.GY.THKB.SLD FAIRLY MASSIVE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
36	269.80	269.97	0.17			SANDSTONE	FG.MEL.M.YEL.SLD SLIGHTLY CALCAREOUS
36	269.97	270.54	0.57			SANDSTONE	FG.MEL.M.YEL.SLD FAIRLY MASSIVE;SLIGHTLY CALCAREOUS
36	270.54	270.88	0.34			SANDSTONE	FG.MEL.DK.GY.SLD FAIRLY MASSIVE CALCITE AND QUARTZ, ANKE RITE(?) VEINING TOWARDS BASE OF MEASURE MENT
* 36	270.88	271.67	0.79			SANDSTONE	MG.MEL.M.GY.MB.BRKN MINOR FG SANDSTONE INTERBEDS;SOME SANDS TONE EASILY WEATHERED
33	271.67	271.75	0.08			SANDSTONE	FG.MEL.DK.GY.MB.SLD
* 32	271.75	271.86	0.11			SILTSTONE	SSY.DK.GY.THNB.SLD
* 33	271.86	272.46	0.60			SANDSTONE	MG.MOD.LT-M.GY.MB.SLD SOME DK GREY SANDSTONE INTERBEDS
* 33	272.46	272.88	0.42			SANDSTONE	FG.MEL.M.GY.THNB.BRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 35	272.88	273.67	0.79			SANDSTONE	VFG.MEL.M.GY.THNB.SLD SOME DK GREY SILTSTONE INTERBEDS
33	273.67	273.83	0.16			SANDSTONE	VFG.MEL.M.GY.BRKN
32	273.83	273.97	0.14			SANDSTONE	FG.MEL.M.GY.BRKN VERY EASILY WEATHERED AT BASE TO SAND
31	273.97	274.24	0.27			SANDSTONE	VFG.MEL.DK.GY.MB.HRMBU.SLD SOME FG SANDSTONE INTERBEDS
30	274.24	274.31	0.07			SANDSTONE	FG-.MOD.LT.GY.SLD 2 SHELLS (CALCAREOUS) 0.01M IN DIAMETER
* 29	274.31	274.90	0.59			SILTSTONE	SSY.DK.GY.VTHNB.XBDG.SLD XBDG INDICATES UNIT POSSBILY OVERTURNED :SOME FG SANDSTONE INTERBEDS
32	274.90	275.00	0.10			SANDSTONE	FG.M.GY.VTHNB.SLD DK SANDSTONE LAMINATIONS THROUGHOUT
33	275.00	275.20	0.20			SILTSTONE	SSY.DK.GY.THNB.SLD CALCITE VEIN 3MM ALONG LISTRIC SURFACE
* 34	275.20	275.27	0.07			SANDSTONE	FG-.M.GY.THNB.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
35	275.27	275.66	0.39			SANDSTONE	VFG.WEL.DK.GY.VTHNB.SLD
35	275.66	276.01	0.35			SANDSTONE	FG.WEL.M.GY.VTHNB.SLD DK GREY SANDSTONE LAMINATONS GIVE BANDE D APPEARANCE
* 37	276.01	277.03	1.02			SANDSTONE	FG.WEL.M.GY.VTHNB.SLD FAIRLY MASSIVE
36	277.03	277.16	0.13			SANDSTONE	VFG.WEL.DK.GY.VTHNB.BRKN
36	277.16	277.66	0.50			SANDSTONE	FG.WEL.M.GY.VTHNB.SLD CALCITE, ANKERITE(?) VEINING 2MM NORMAL TO BEDDING
* 35	277.66	277.89	0.23			MARL	VFG.WEL.LT.GN.MB.SLD BANDS DISTORTED:CALCAREOUS
34	277.89	278.05	0.16			SANDSTONE	VFG.WEL.DK.GY.THNB.SSD.SLD SOME FG SANDSTONE INTERBEDS
* 32	278.05	278.58	0.53			SANDSTONE	VFG.WEL.DK.GY.VTHNB.BRKN
33	278.58	279.23	0.65			SANDSTONE	FG.WEL.M.GY.VTHNB.XBDG.SLD XBDG INDICATES BEDS OVERTURNED

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
34	279.23	279.29	0.06			SANDSTONE	FG.WEL.LT.YEL.VTHNB.SLD MODERATELY CALCAREOUS
* 34	279.29	279.75	0.46			SANDSTONE	FG.WEL.M.GY.VTHNB.SLD
38	279.75	279.83	0.08			SANDSTONE	FG.WEL.M.GY.VTHNB.SLD
39	279.83	279.98	0.15			SANDSTONE	VFG.WEL.LT.YEL.VTHNB.SLD MODERATELY CALCAREOUS
* 42	279.98	280.24	0.26			SANDSTONE	FG.WEL.M.GY.VTHNB.XBDG.SLD XBDG INDICATES BEDS OVERTURNED
* 34	280.24	280.42	0.18			SANDSTONE	VFG.WEL.LT.YEL.THNB.XBDG.SLD XBDG INDICATES BEDS OVERTURNED:SLIGHTLY CALCAREOUS
* 43	280.42	282.32	1.90			SANDSTONE	FG.MOD.M.GY.THNB.WRMBU.BRKN VFG AND MG SANDSTONE INTERBEDS THROUGHO UT;MINOR LISTRIC SURFACES CONTAINING IA LC?
36	282.32	282.44	0.12			SANDSTONE	MG-.MOD.S-P.GY.THKB.SLD CONSISTS OF QUARTZ, MICA, DARK ORANGE M INERALS (KSP?)

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
35	282.44	282.70	0.26			SILISTONE	DK.GY.THNB.BRKN EASILY WEATHERED;CONTAINING MG LIGHT BR OWN SANDSTONE INTERBEDS
34	282.70	282.76	0.06			SILTSTONE	DK.GY.THNB.BIOTR.SLD AS ABOVE
* 33	282.76	282.94	0.18			SANDSTONE	MG-.MOD.S-P.GY.THKB.SLD
34	282.94	283.51	0.57			SILTSTONE	BLK.SLD CONTAINS MG LIGHT BROWN SANDSTONE INTER BEDS;WEATHERS EASILY
* 34	283.51	283.62	0.11			SANDSTONE	MG.MOD.S-P.GY.MB.SLD
* 32	283.62	284.11	0.49			SILTSTONE	BLK.WRMBU.SLD SSD;WRMBUR INDICATES BEDS OVERTURNED;SI LTSTONE MOTTLED WITH LIGHT BROWN SANDST ONE TOWARDS BASE;FAIRLY EASILY WEATHERE D
31	284.11	284.30	0.19			SANDSTONE	MG.MOD.S-P.GY.MB.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
31	284.30	284.40	0.10			SANDSTONE	MG.MOD.S-P.GY.MB.SSD.SLD
31	284.40	284.62	0.22			SILISTONE	BLK.VTHNB.WRMBU.SLD MINOR LIGHT BROWN SANDSTONE LAMINATIONS ;COALY INCLUSIONS (1MM)
* 30	284.62	285.10	0.48			SANDSTONE	MG.MOD.S-P.GY.THKB.SLD SILTSTONE RIP UP CLASTS
33	285.10	285.42	0.32			SILTSTONE	BLK.BIOTR.SLD WRMBUR;EXTENSIVELY BIOTURBATED TOWARD S TRATIGRAPHIC BOTTOM (TOP OF MEASUREMENT);GRADATIONAL CONTACT INTO LIGHT BROWN SANDSTONE;COALY INCLUSIONS
34	285.42	285.52	0.10			SANDSTONE	MG.MOD.S-P.GY.MB.SLD
35	285.52	285.86	0.34			SANDSTONE	FG.WEL.DK.GY.THKB.SSD.SLD SANDSTONE SPECKLED WITH LIGHT BROWN SAN DSTONE;SSD GIVES MOTTLED APPEARANCE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
38	285.86	286.17	0.31			SANDSTONE	FG.MEL.DK.GY.THKB.SSD.SLD AS ABOVE
39	286.17	286.33	0.16			SANDSTONE	FG-.MEL.LT.GY.THNB.SLD CONTAINS DK GREY SILTSTONE INTERBEDS
* 41	286.33	286.73	0.40			SANDSTONE	FG.MEL.M.GY.MB.SLD
38	286.73	287.14	0.41			SANDSTONE	FG.MEL.LT.YEL.THNB.BIOTR.SLD HRMBUR:MODERATELY CALCAREOUS;HRMBUR IND ICATES BEDS OVERTURNED
* 34	287.14	287.85	0.71			SANDSTONE	FG.MEL.M.GY.THNB.SLD INTERBEDDED DK GREY SILTSTONE
* 39	287.85	288.47	0.62			SANDSTONE	SLTY.FG.MEL.M-DK.GY.VTHNB.SLD SILTSTONE INTERBEDS GIVE BANDED APPEARA NCE;FAIRLY EASILY WEATHERED
* 35	288.47	289.02	0.55			SANDSTONE	SLTY.FG.MEL.M-DK.GY.VTHNB.BIOTR.SLD BIOTURBATION INDICATES BEDS OVERTURNED
37	289.02	289.36	0.34			SANDSTONE	SLTY.FG.MEL.M-DK.GY.VTHNB.BIOTR.SLD BIOTURBATION INDICATES BEDS OVERTURNED

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 38	289.36	289.66	0.30			SANDSTONE	FG.MEL.M.GY.VTHNB.BIOTR.SLD MINOR SILTSTONE INTERBEDS:BIOTURBATION INDICATES BEDS OVERTURNED;FAIRLY EASILY WEATHERED
38	289.66	289.98	0.32			SANDSTONE	FG.MEL.M.GY.THKB.SLD
39	289.98	290.04	0.06			SANDSTONE	FG.MEL.LT.YEL.THKB.BIOTR.SLD SLIGHTLY CALCAREOUS;MINOR BIOTURBATION
39	290.04	290.58	0.54			SANDSTONE	FG.MEL.M.GY.THKB.SLD FAIRLY MASSIVE:MINOR SILTSTONE INTERBED S
39	290.58	291.11	0.53			SANDSTONE	FG.MEL.M.GY.THKB.SLD BECOMING SLIGHTLY COARSER GRAINED TOWAR DS BASE
40	291.11	291.18	0.07			SANDSTONE	FG.MEL.M.GY..SLD
40	291.18	291.20	0.02			SANDSTONE	FG.MEL.LT.GY.BIOTR.SLD SLIGHTLY CALCAREOUS-GRADATIONAL CONTACT WITH SANDSTONE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
40	291.20	291.62	0.42			SANDSTONE	M.GY.THKB.SLD CALCITE VEIN 5MM
40	291.62	291.69	0.07			SANDSTONE	FG.WEL.LT.YEL.BIOTR SLIGHTLY CALCAREOUS-GRADATIONAL CONTACT WITH SANDSTONE
40	291.69	291.90	0.21			SANDSTONE	FG.WEL.M.GY.THKB.SLD
41	291.90	292.58	0.68			SANDSTONE	FG.WEL.M.GY.THKB.SLD
41	292.58	292.62	0.04			SANDSTONE	CARB.FG.DK.GY.PWRD LISTRIC SURFACES;EASILY WEATHERED
41	292.62	292.71	0.09			SANDSTONE	FG.WEL.M.GY.THKB.SLD LISTRIC SURFACES;MINOR CALCITE, ANKERITE(?) VEIN 1MM
42	292.71	293.99	1.28			SANDSTONE	FG.WEL.M.GY.THKB.BRKN MASSIVE;MINOR SILTSTONE CLASTS;SLIGHTLY CALCAREOUS BAND (0.04M) TOWARDS TOP

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
43	293.99	294.68	0.69			SANDSTONE	VFG.WEL.M-DK.GY.MB.SSD.BRKN CALCITE, ANKERITE(?) VEIN (3MM) AT BASE ; MINOR SLICKENSIDES; BEDS MOTTLED
44	294.68	294.81	0.13			SANDSTONE	FG.WEL.DK.GY.SSD.VBRKN CALCITE, ANKERITE(?) ALONG SLICKED SURFACE; FAIRLY EASILY WEATHERED
* 44	294.81	295.48	0.67			SANDSTONE	FG.WEL.DK.GY.SSD.BRKN MINOR CALCITE, ANKERITE(?) VEIN; SLICKENSIDE SURFACES; FAIRLY EASILY WEATHERED
42	295.48	295.83	0.35			CLAYSTONE	CARB.DK.GY.PWRD WEATHERED TO CLAY WHEN WET;ABUNDANT LISTRIC SURFACES;CALCITE, ANKERITE(?) VEINING
41	295.83	295.97	0.14			SILTSTONE	DK.GY.SLD CALCITE, ANKERITE(?) VEINING THROUGHOUT 1MM
41	295.97	296.02	0.05			SANDSTONE	WEL.DK.GY.VBRKN WEATHERS FAIRLY EASILY
39	296.02	296.74	0.72			MUDSTONE	DK.GY.SLD SOME LISTRIC SURFACES;EASILY WEATHERED INTO SHARDS;MINOR COAL INCLUSIONS AT STRATIGRAPHIC TOP (BASE OF MEASUREMENT)

* DENOTES MEASURED BCA

R/C

(2)

84/03/11 GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG PAGE 119

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83001

RCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
37	296.74	297.15	0.41			MUDSTONE	DK.GY.SLD LISTRIC SURFACES;COALY INCLUSIONS
* 36	297.15	297.16	0.01			COAL	C-2.BLK.SLD.
35	297.16	297.48	0.32			MUDSTONE	DK.GY.BRKN CALCITE,ANKERITE(?) 2MM; LISTRIC SURFAC ES
* 33	297.48	298.70	1.22			SANDSTONE	PYR.FG.WEL.DK.GY.THNB.BRKN LISTRIC SURFACES;MINOR COAL INCLUSIONS; DISSEMINATED PYRITE THROUGHOUT-ESPECIAL LY TOWARDS STRATIGRAPHIC BOTTOM (TOP OF MEASUREMENT);FAIRLY EASILY WEATHERED
* 20	298.70	299.36	0.66			SANDSTONE	FG.WEL.DK.GY.THNB.SLD FAIRLY EASILY WEATHERED;MINOR LISTRIC S URFACES
20	299.36	299.40	0.04			SANDSTONE	FG.WEL.DK.GY.SLD **********END OF HOLE (982.3' /299.4M)**********

* DENOTES MEASURED BCA
NEWPAGE

KPNLRDDH 83001

SAMPLE SUMMARY

GULF CANADA RESOURCES INC. - COAL DIVISION

15/MAR/84

SIMPLE SAMPLE SUMMARY

APPARENT THICKNESS

KLAPPAN PROJECT

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK	TOTAL COAL-ROCK
DDH83001										
	I	6358	26.90	30.07	92.11	2.61	0.31	0.13	0.12	2.74- 0.43
	I	6359	30.07	32.68	100.00	2.46	0.15	0.00	0.00	2.46- 0.15
	H	6360	74.73	77.10	92.82	1.74	0.46	0.17	0.00	1.91- 0.46
	H	6361	77.10	78.74	100.00	1.62	0.02	0.00	0.00	1.62- 0.02
	H	6362	78.74	79.38	100.00	0.40	0.24	0.00	0.00	0.40- 0.24
	G	6363	133.42	137.43	92.01	2.74	0.95	0.32	0.00	3.06- 0.95
	G	6364	137.43	138.22	100.00	0.00	0.79	0.00	0.00	0.00- 0.79
	G	6365	138.22	139.19	88.65	0.52	0.34	0.11	0.00	0.63- 0.34
	G	6367	142.45	144.75	96.52	1.22	1.00	0.04	0.04	1.26- 1.04
	F	6368	180.62	182.98	100.00	2.30	0.06	0.00	0.00	2.30- 0.06
	F	6369	182.98	183.25	100.00	0.06	0.21	0.00	0.00	0.06- 0.21
	F	6370	183.25	184.65	100.00	1.26	0.14	0.00	0.00	1.26- 0.14
	F	6371	184.65	185.52	100.00	0.34	0.53	0.00	0.00	0.34- 0.53
	E	6372	209.60	210.94	97.76	1.31	0.00	0.03	0.00	1.34- 0.00

GULF CANADA RESOURCES INC. - COAL DIVISION

15/MAR/84 COMPOSITE SAMPLE SUMMARY

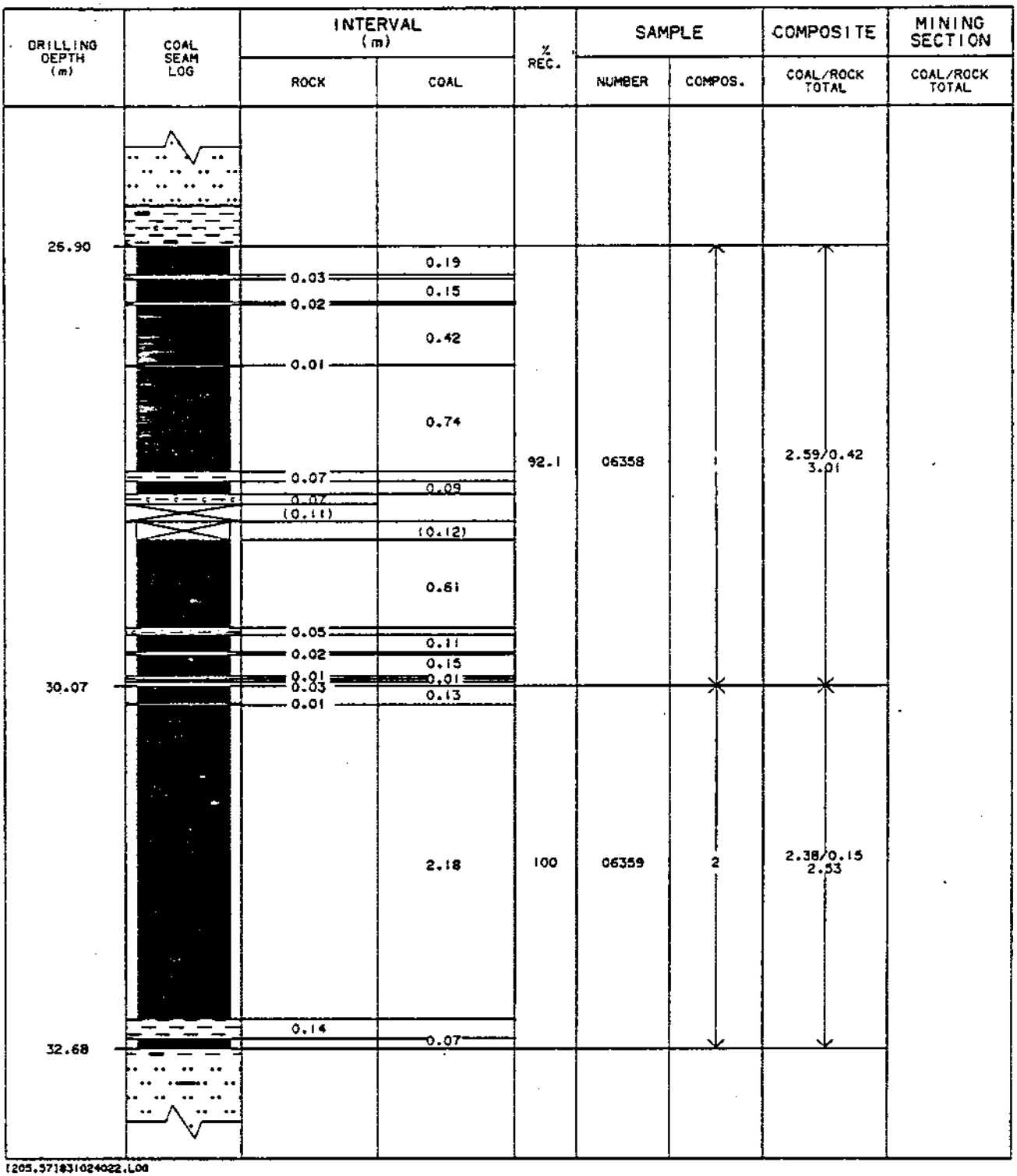
APPARENT THICKNESS

KLAPPAN PROJECT

DATA SOURCE	SEAM	COMP ID	SAMPLE FROM	SAMPLE TO	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK	TOTAL COAL-ROCK
ODH83001												
	SEAM I	1	6358	6358	26.90	30.07	92.11	2.61	0.31	0.13	0.12	2.74- 0.43
	SEAM I	2	6359	6359	30.07	32.68	100.00	2.46	0.15	0.00	0.00	2.46- 0.15
	SEAM H	3	6360	6360	74.73	77.10	92.82	1.74	0.46	0.17	0.00	1.91- 0.46
	SEAM H	4	6361	6361	77.10	78.74	100.00	1.62	0.02	0.00	0.00	1.62- 0.02
	SEAM H	5	6362	6362	78.74	79.38	100.00	0.40	0.24	0.00	0.00	0.40- 0.24
	SEAM G	6	6363	6363	133.42	137.43	92.01	2.74	0.95	0.32	0.00	3.06- 0.95
	SEAM G	7	6367	6367	142.45	144.75	96.52	1.22	1.00	0.04	0.04	1.26- 1.04
	SEAM F	8	6368	6371	180.62	185.52	100.00	3.96	0.94	0.00	0.00	3.96- 0.94
	SEAM E	9	6372	6372	209.60	210.94	97.76	1.31	0.00	0.03	0.00	1.34- 0.00

KPNLRDDH 83001

COAL SEAM DATA SHEETS



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GULF CANADA RESOURCES INC.

MT. KLAPPAN COAL PROPERTY

SEAM DETAIL

TRUE THICKNESS

DDH83001

SEAM 1

DRAWN BY: C. LOUIE	SCALE: 1:40
APPROVED BY: C. WILLIAMS	DATE: FEB 1984

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.
COAL DIVISION

APPARENT DENSITY GRAMS/cc _____ RESISTIVITY _____

DRILL No. KPN-DDH83001 SEAM 1
SCALE 1:40 FORMATION KLAPPAN SEQUENCE

APPARENT THICKNESS
SEAM INTERVAL 26.90 m - 32.68 m

DENSITY SCALE 1.30 1.40 1.50 1.60 1.70 1.80 1.90 2.00 2.10 2.20 2.30 2.40 2.50 2.60 2.70 2.80 2.90

RESISTIVITY SCALE KOHM m

GEOPHYSICAL LOGS

SEAM COMP. 1 2 3 4 5 6	DEPTH (m)	COAL SEAM LOG	INTERVAL (m) ROCK	INTERVAL (m) COAL	% REC.	SAMPLE NUMBER	SAMPLE COMPOS.	PROXIMATE ANALYSIS MOIST	ASH	VM	FC	S'	CAL. VAL. MJ/KG	FSI
	26.90			0.20										
			0.03	0.16										
			0.02	0.44										
			0.01											
				0.78	92.1	06358	1	2.54	25.98	6.67	64.81	0.39	23.98	
			0.07											
			0.07	0.09										
			(0.12)	(0.13)										
				0.65										
			0.05											
			0.02	0.12										
			0.01	0.16										
	30.07		0.03	0.01										
			0.01	0.13										
				2.26	100	06359	2	4.17	16.66	10.73	68.44	0.41	26.20	
			0.14											
	32.68			0.07										

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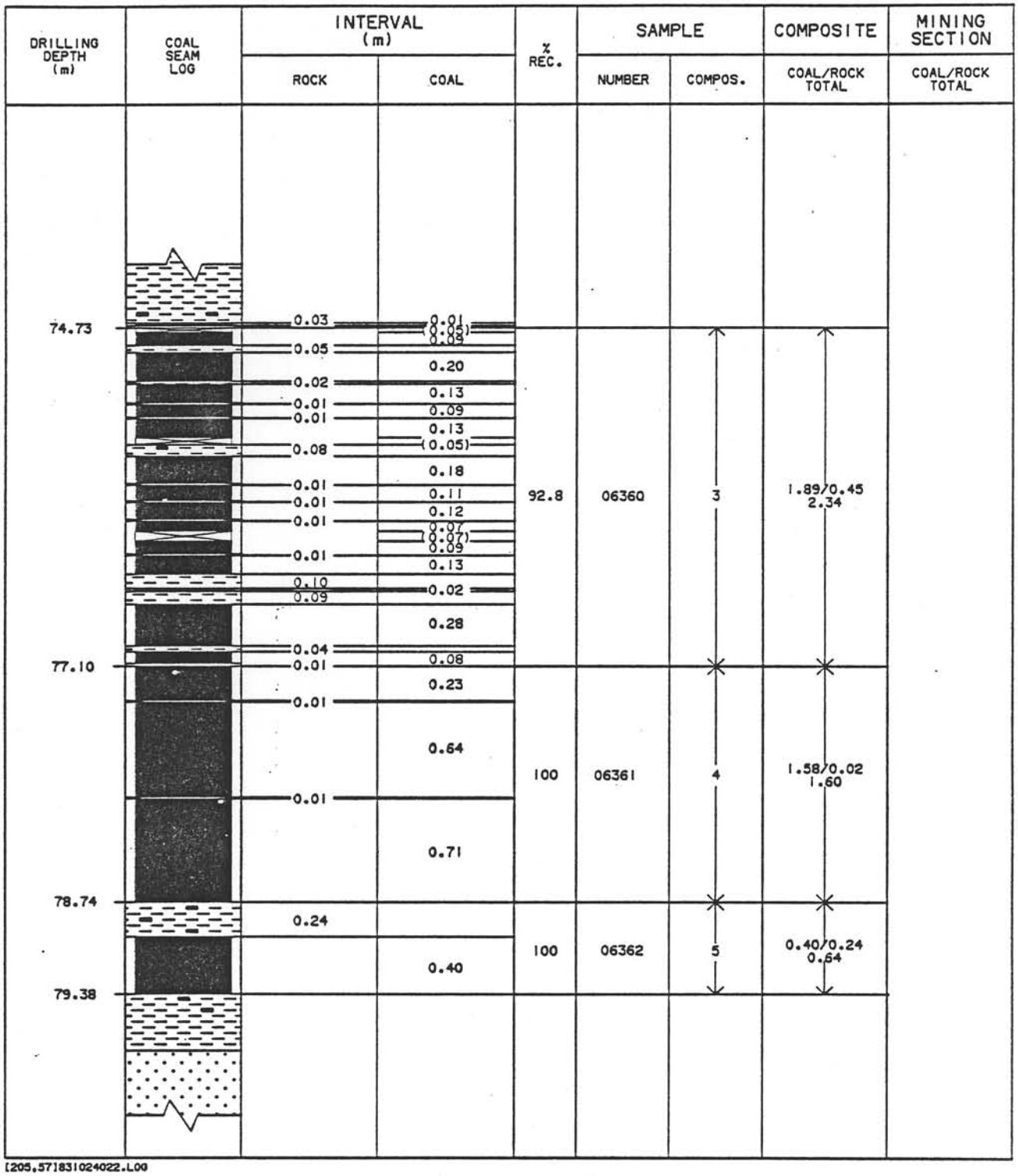

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GULF CANADA RESOURCES INC.

MT. KLAPPAN COAL PROPERTY

SEAM DETAIL

TRUE THICKNESS

DDH83001

SEAM H

DRAWN BY: C. LOUIE	SCALE: 1:40
APPROVED BY: C. WILLIAMS	DATE: FEB 1984

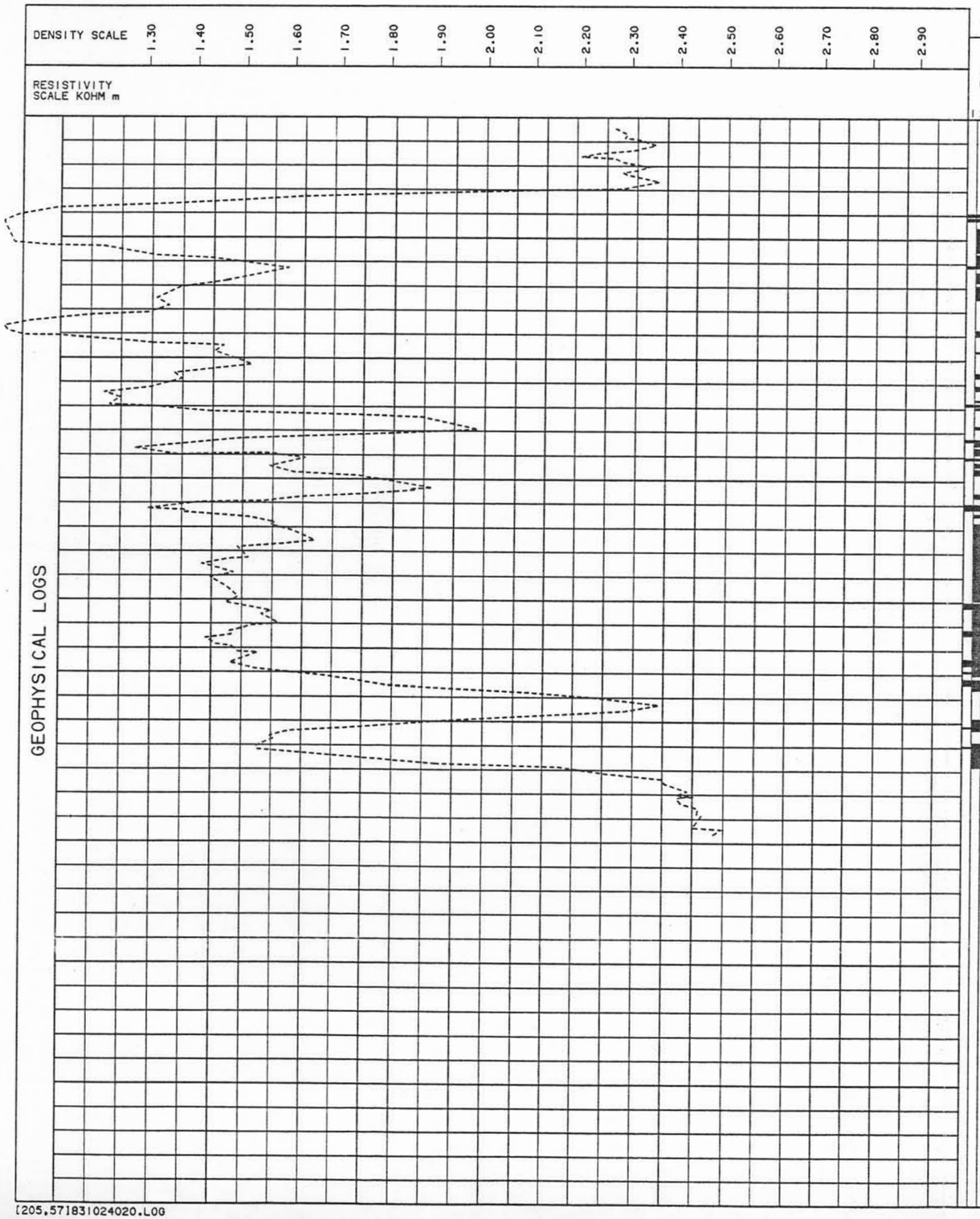
COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.
COAL DIVISION

APPARENT DENSITY GRAMS/cc _____ RESISTIVITY _____

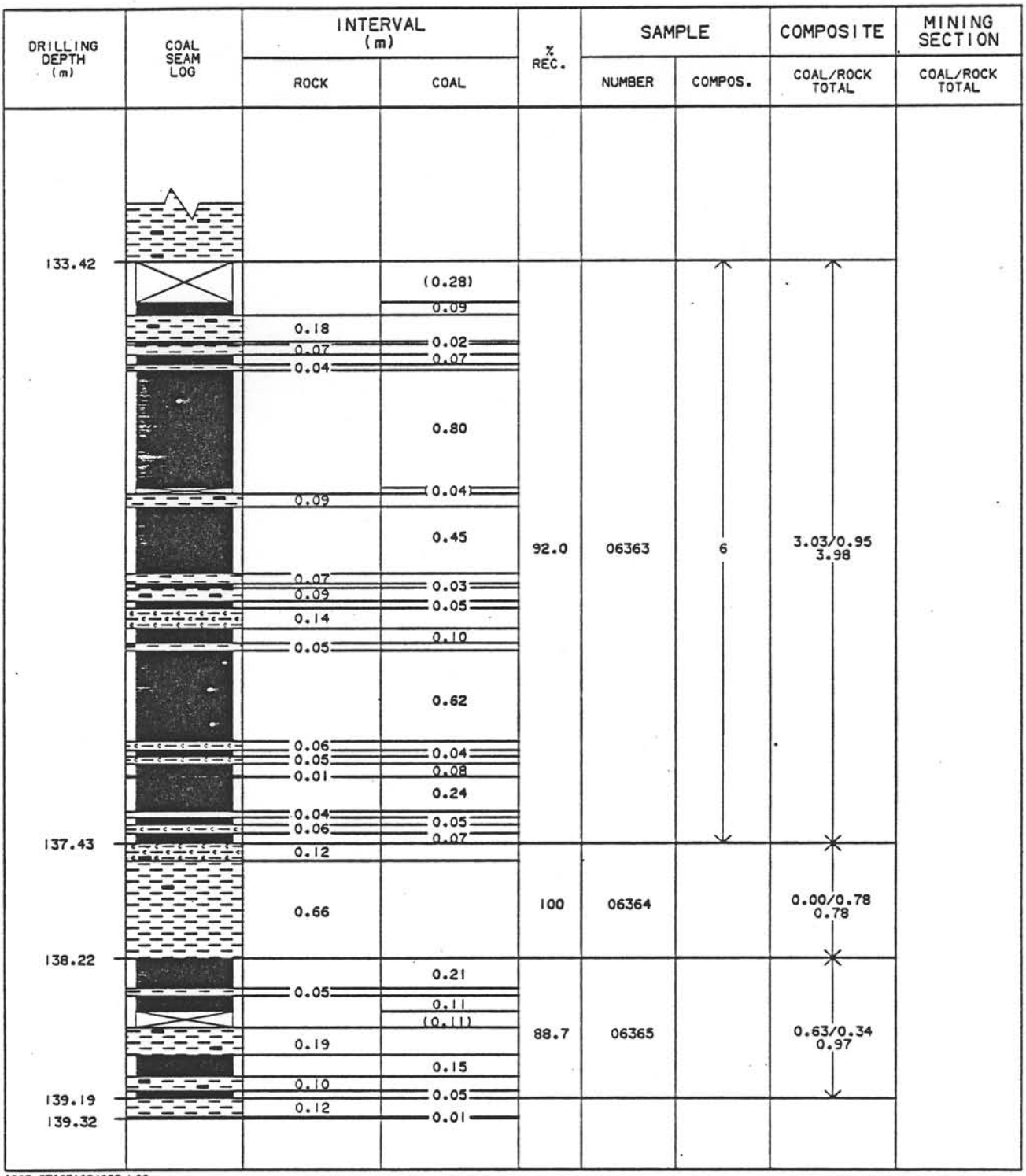
DRILL No. KPN-DDH83001 SEAM H
SCALE 1:40 FORMATION KLAPPAN SEQUENCE

APPARENT THICKNESS
SEAM INTERVAL 74.73 m - 79.38 m



SEAM COMP. 1 2 3 4 5 6	DEPTH (m)	COAL SEAM LOG	INTERVAL (m) ROCK	INTERVAL (m) COAL	% REC.	SAMPLE NUMBER	SAMPLE COMPOS.	PROXIMATE ANALYSIS MOIST	ASH	VM	FC	S'	CAL. VAL. MJ/KG	FSI
	74.73			(0.05)										
			0.05	0.03										
				0.20										
			0.02											
				0.13										
			0.01	0.09										
			0.01											
				0.13										
				(0.05)										
			0.08											
				0.19										
			0.01											
				0.11										
			0.01		92.8	06360	3	1.58	38.58	6.20	53.64	0.42	19.63	
				0.12										
			0.01											
				(0.07)										
				0.09										
			0.01											
				0.13										
			0.10											
			0.09	0.02										
				0.29										
			0.04											
	77.10		0.02	0.08										
				0.24										
			0.01											
				0.66										
			0.01		100	06361	4	1.47	16.74	5.39	76.40	0.43	28.45	
				0.72										
	78.74		0.24											
				0.40	100	06362	5	1.69	49.94	9.68	38.69	0.28	14.75	
	79.38													

[205,571831024020.LOG



[205,571831024022.LOG

GULF CANADA RESOURCES INC.

MT. KLAPPAN COAL PROPERTY

SEAM DETAIL

TRUE THICKNESS

DDH83001

SEAM G UPPER

DRAWN BY: C. LOUIE	SCALE: 1:40
APPROVED BY: C. WILLIAMS	DATE: FEB 1984

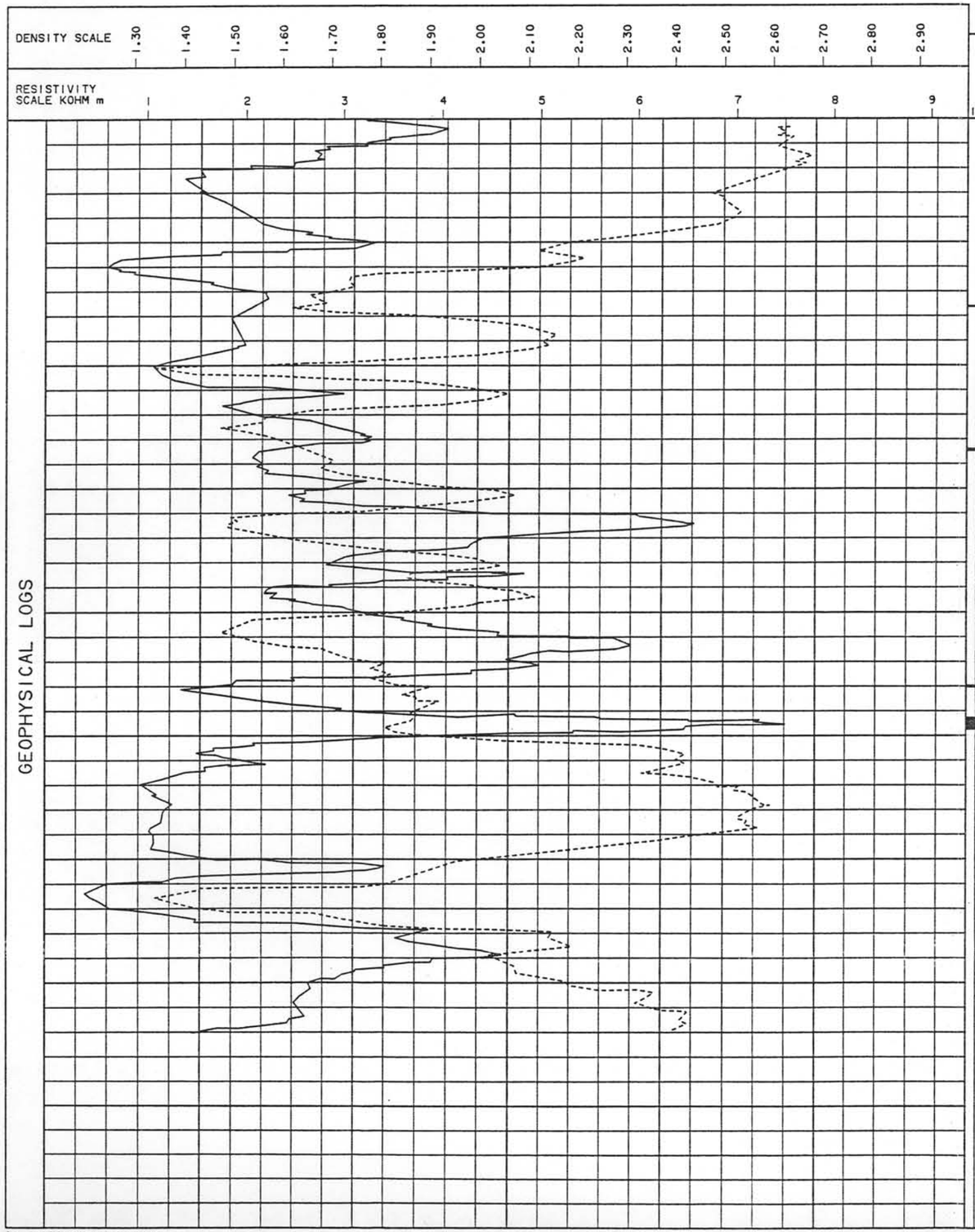
GULF CANADA RESOURCES INC.
COAL DIVISION

COAL SEAM DATA SHEET

APPARENT DENSITY GRAMS/cc _____ RESISTIVITY _____

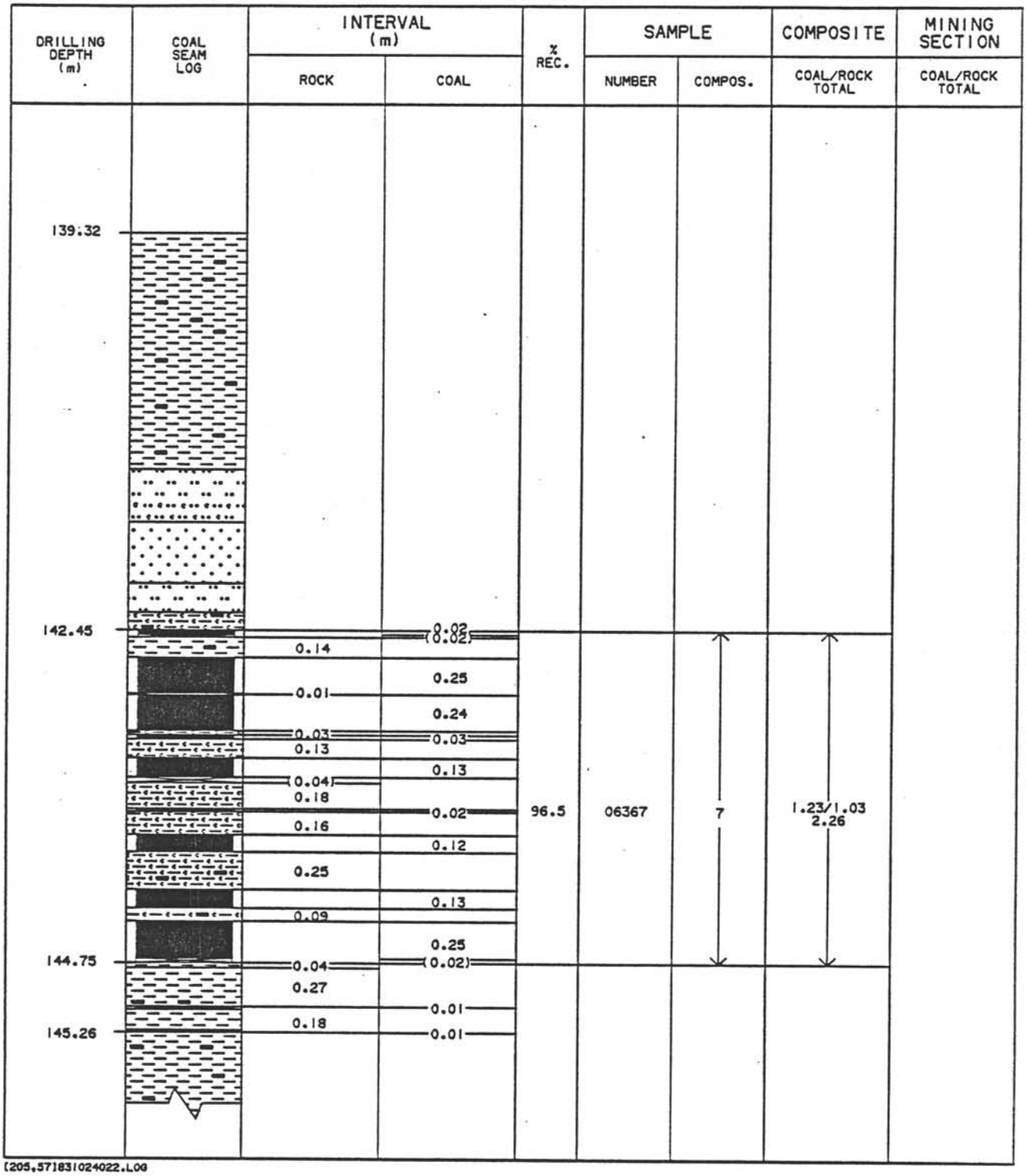
DRILL No. KPN-DDH83001 SEAM G UPPER
SCALE 1:40 FORMATION KLAPPAN SEQUENCE

APPARENT THICKNESS
SEAM INTERVAL 133.42 m - 139.19 m



SEAM COMP. 1 2 3 4 5 6	DEPTH (m)	COAL SEAM LOG	INTERVAL (m) ROCK	INTERVAL (m) COAL	% REC.	SAMPLE NUMBER	SAMPLE COMPOS.	PROXIMATE ANALYSIS MOIST	ASH	VM	FC	S'	CAL. VAL. MJ/KG	FSI
	133.42			(0.28)										
				0.09										
			0.18											
			0.07	0.02										
			0.04	0.07										
				0.81										
				0.04										
			0.09											
				0.46	92.0	06363	6	1.33	42.75	7.21	48.71	0.51	17.88	
			0.07	0.03										
			0.09	0.05										
			0.14											
			0.05	0.10										
				0.63										
			0.06	0.04										
			0.05											
			0.01	0.08										
				0.24										
			0.04	0.05										
	137.43		0.06	0.07										
			0.12											
			0.67		100	06364			89.44					
	138.22			0.21										
			0.05	0.11										
				(0.11)										
			0.19		88.7	06365			64.03				10.08	
				0.15										
			0.10	0.05										
	139.19													
	139.32			0.01										

[205,57]831024020.L06



[205,571831024022.LOG

GULF CANADA RESOURCES INC.

MT. KLAPPAN COAL PROPERTY

SEAM DETAIL

TRUE THICKNESS

DDH83001

SEAM G LOWER

DRAWN BY: C. LOUIE	SCALE: 1:40
APPROVED BY: C. WILLIAMS	DATE: FEB 1984

GULF CANADA RESOURCES INC.
COAL DIVISION

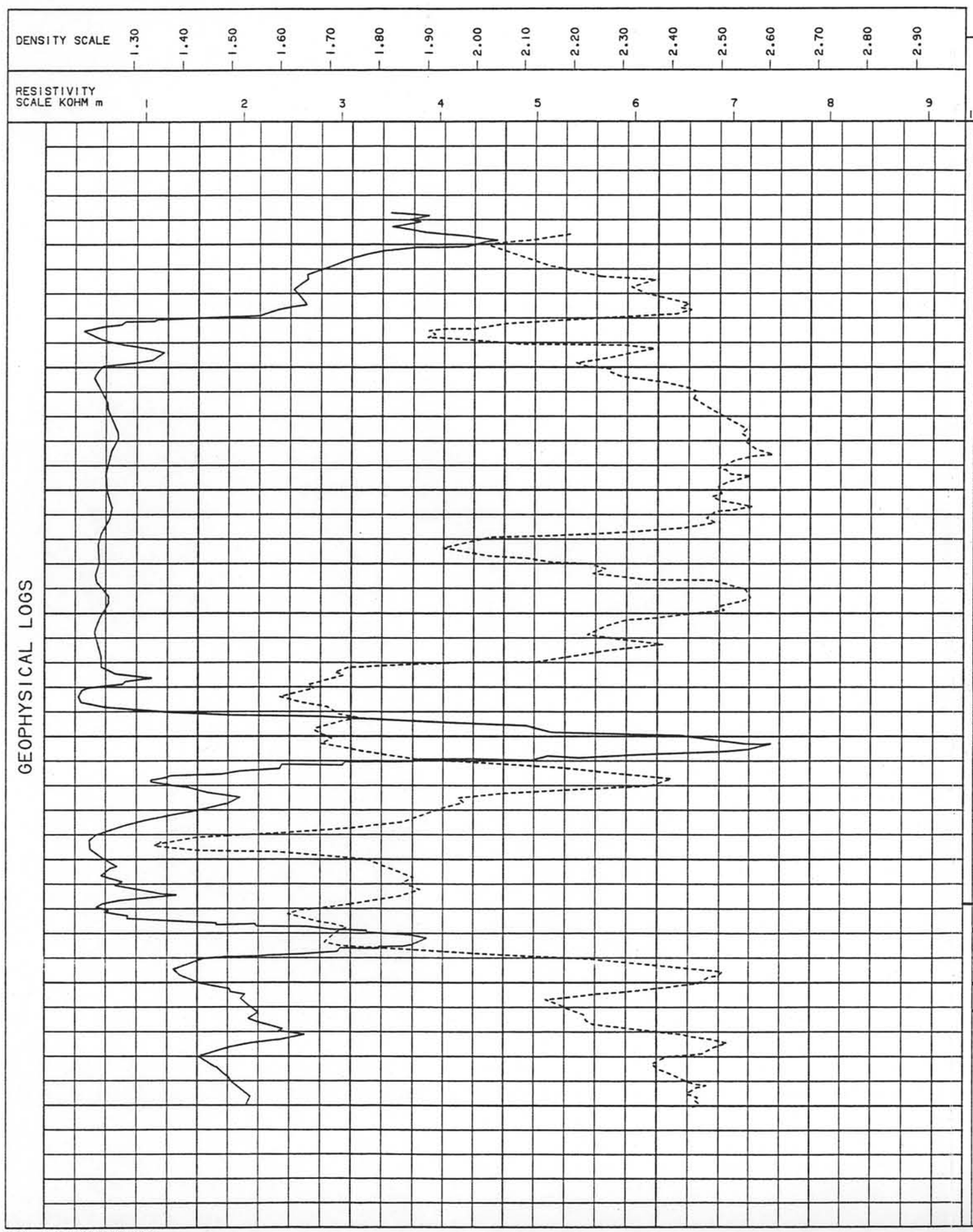
COAL SEAM DATA SHEET

APPARENT DENSITY GRAMS/cc _____ RESISTIVITY _____

DRILL No. KPN-DDH83001 SEAM G LOWER

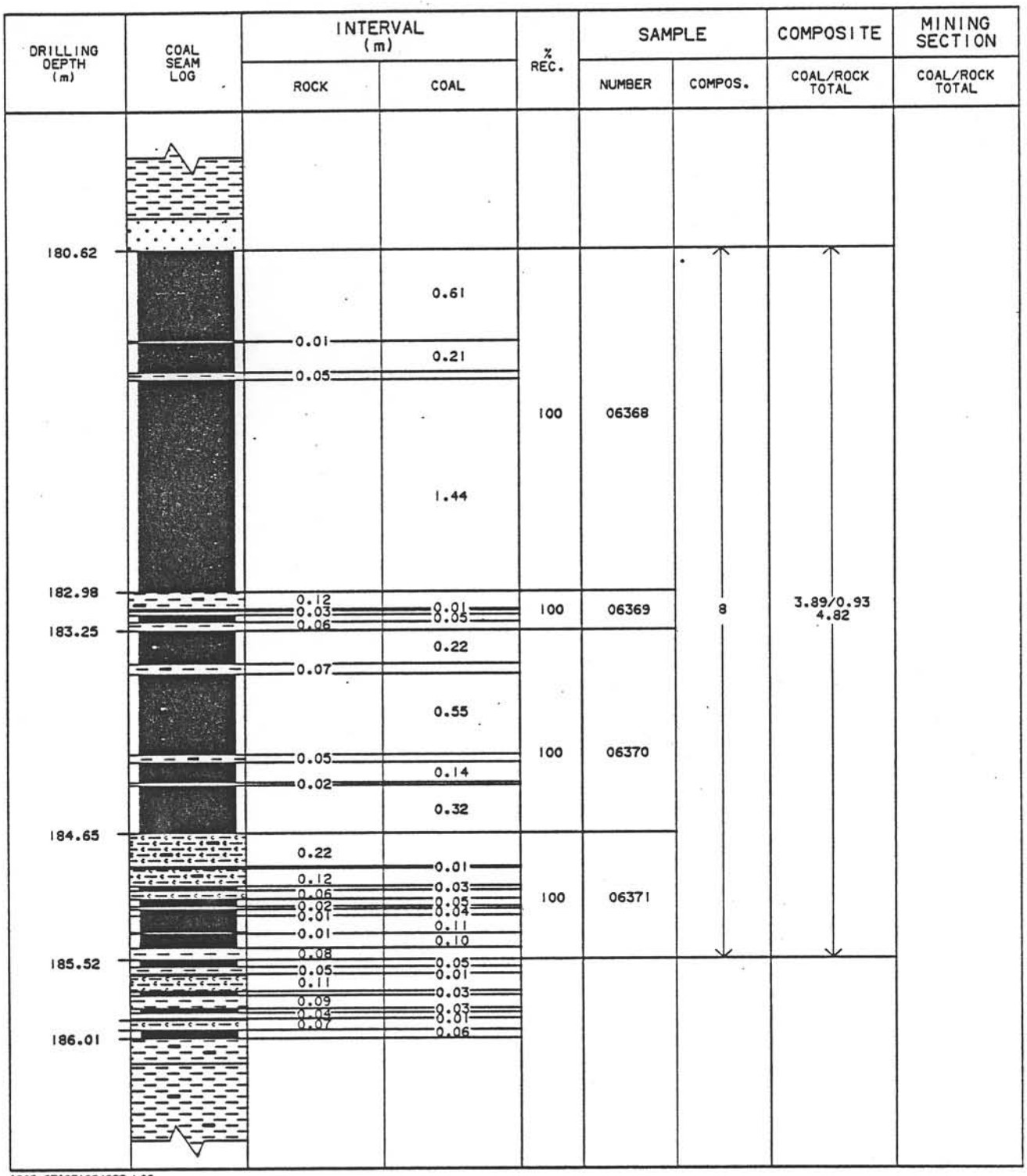
SCALE 1:40 FORMATION KLAPPAN SEQUENCE

APPARENT THICKNESS
SEAM INTERVAL 142.45 m - 144.75 m



SEAM COMP.	DEPTH (m)	COAL SEAM LOG	INTERVAL (m) ROCK	INTERVAL (m) COAL	% REC.	SAMPLE NUMBER	SAMPLE COMPOS.	PROXIMATE ANALYSIS MOIST	ASH	VM	FC	S'	CAL. VAL. MJ/KG	FSI
1 2 3 4 5 6	139.32													
	142.45			0.02 (0.02)										
			0.14	0.25										
			0.01	0.25										
			0.03	0.03										
			0.13	0.13										
			(0.04) 0.18	0.02	96.5	06367	7	1.43	53.80	6.12	38.65	0.26	13.81	
			0.16	0.12										
			0.26	0.13										
			0.09	0.26 (0.02)										
	144.75		0.04	0.01										
			0.27	0.01										
	145.26		0.18	0.01										

[205,571831024020.LOG



[205.571831024022.LOG

GULF CANADA RESOURCES INC.	Gulf
MT. KLAPPAN COAL PROPERTY SEAM DETAIL TRUE THICKNESS DDH83001 SEAM F	
DRAWN BY: C. LOUIE	SCALE: 1:40
APPROVED BY: C. WILLIAMS	DATE: FEB 1984

GULF CANADA RESOURCES INC.
COAL DIVISION

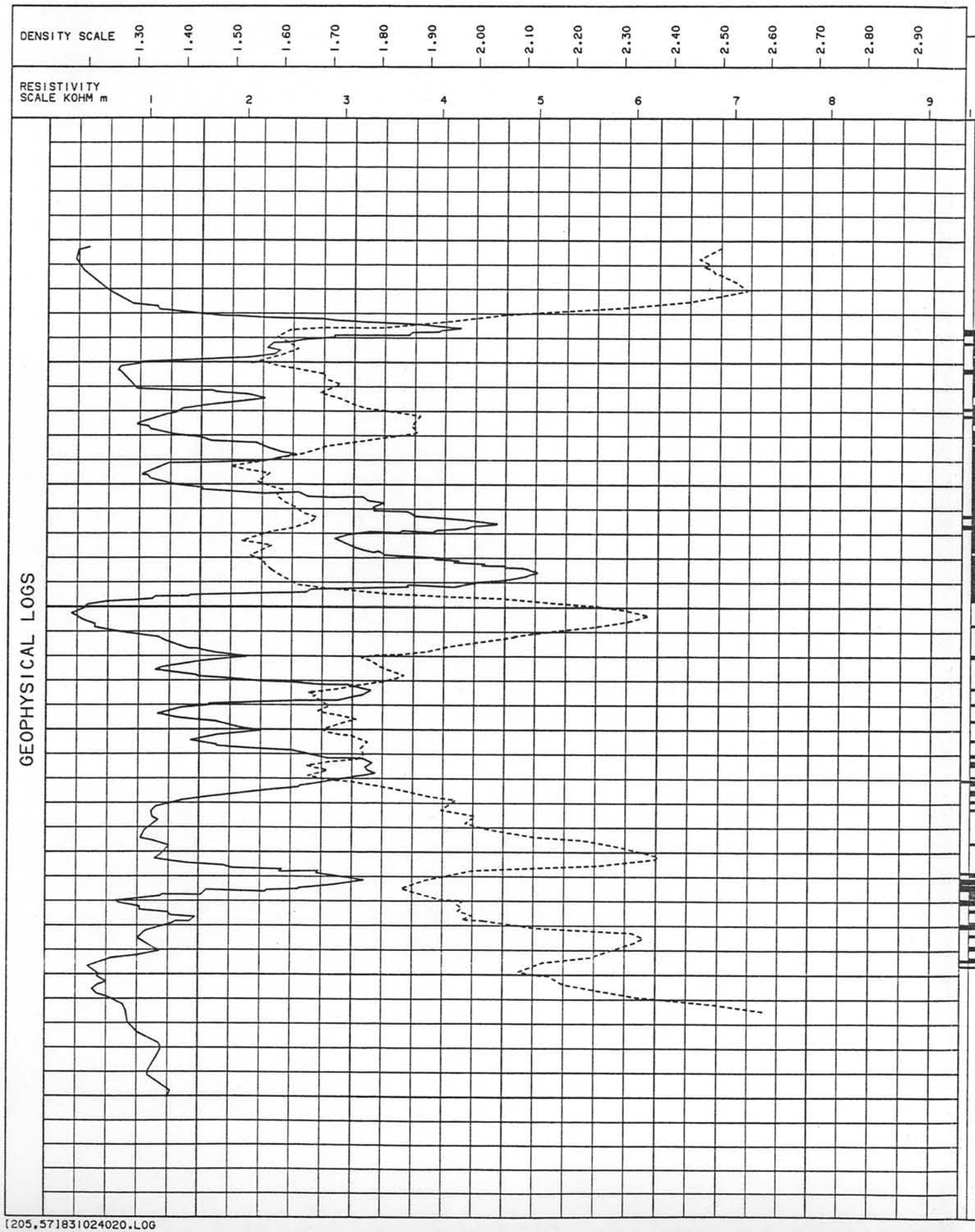
COAL SEAM DATA SHEET

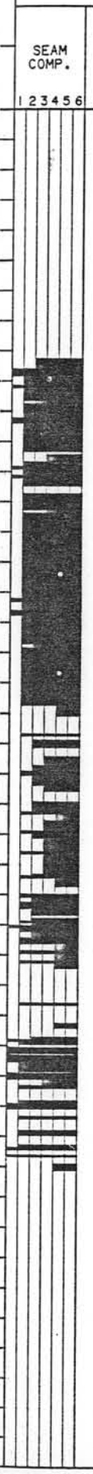
APPARENT DENSITY GRAMS/cc _____ RESISTIVITY _____

DRILL No. KPN-DDH83001 SEAM F

SCALE 1:40 FORMATION KLAPPAN SEQUENCE

APPARENT THICKNESS
SEAM INTERVAL 180.62 m - 185.52 m





DEPTH (m)	COAL SEAM LOG	INTERVAL (m) ROCK	INTERVAL (m) COAL	% REC.	SAMPLE NUMBER	SAMPLE COMPOS.	PROXIMATE ANALYSIS MOIST	ASH	VM	FC	S'	CAL. VAL. MJ/KG	FSI
180.62			0.62										
		0.01	0.21										
		0.05		100	06368								
			1.47										
182.98		0.12	0.01										
		0.03	0.05	100	06369	8	1.42	36.68	6.30	55.60	0.86	20.74	
183.25		0.06											
			0.23										
		0.07											
			0.56										
		0.05		100	06370								
			0.14										
		0.02											
			0.33										
184.65													
		0.23	0.01										
		0.12	0.03										
		0.06	0.05										
		0.02	0.04	100	06371								
		0.01	0.11										
		0.01	0.10										
185.52		0.08	0.05										
		0.05											
		0.11	0.03										
		0.09	0.03										
		0.04	0.01										
186.01		0.07	0.06										

[205,571831024020.LOG

DRILLING DEPTH (m)	COAL SEAM LOG	INTERVAL (m) ROCK	INTERVAL (m) COAL	% REC.	SAMPLE NUMBER	SAMPLE COMPOS.	COMPOSITE COAL/ROCK TOTAL	MINING SECTION COAL/ROCK TOTAL
209.60								
			1.29	97.8	06372	9	1.32/0.00 1.32	
210.94			(0.03)					

[205,37183:024022.L00

GULF CANADA RESOURCES INC.

MT. KLAPPAN COAL PROPERTY

SEAM DETAIL

TRUE THICKNESS

DDH83001

SEAM E

DRAWN BY: C. LOUIE	SCALE: 1:40
APPROVED BY: C. WILLIAMS	DATE: FEB 1984

GULF CANADA RESOURCES INC.
COAL DIVISION

COAL SEAM DATA SHEET

APPARENT DENSITY GRAMS/cc _____ RESISTIVITY _____

DRILL No. KPN-DDH83001 SEAM E

SCALE 1:40 FORMATION KLAPPAN SEQUENCE

APPARENT THICKNESS
SEAM INTERVAL 209.60 m - 210.94 m

DENSITY SCALE 1.30 1.40 1.50 1.60 1.70 1.80 1.90 2.00 2.10 2.20 2.30 2.40 2.50 2.60 2.70 2.80 2.90

RESISTIVITY SCALE KOHM m 1 2 3 4 5 6 7 8 9

GEOPHYSICAL LOGS

SEAM COMP. 1 2 3 4 5 6	DEPTH (m)	COAL SEAM LOG	INTERVAL (m) ROCK	INTERVAL (m) COAL	% REC.	SAMPLE NUMBER	SAMPLE COMPOS.	PROXIMATE ANALYSIS MOIST	ASH	VM	FC	S'	CAL. VAL. MJ/KG	FSI
	209.60			1.31	97.8	06372	9	1.41	17.43	6.32	74.84	0.45	28.11	
	210.94			(0.03)										

[205,57]831024020.LOG

709

GULF CANADA RESOURCES INC.

Coal Division

Gulf

PREPARED BY: C. LOUIE	LOGGED BY: K. JENNER	SCALE : 1:200 , 1:40
APPROVED BY: C. WILLIAMS	DATE: FEB. 1984	DRAWING No. KPN83S01

GR Mount Klappan 84(3)A

MOUNT KLAPPAN
DRILL HOLE LOG
DDH83001

LITHOLOGIC SYMBOLS

SCALE : 1:200 1:40

NORTHING : 6344261.0 N
EASTING : 505704.0 E
INCLINATION : 90°
BEARING :

- CONGLOMERATE
- SANDSTONE
- CARBONACEOUS
- SILTSTONE
- COAL
- COAL-THIN BEDS
- OVERBURDEN
- QUARTZ
- PEBBLY SANDSTONE
- MUDSTONE, CLAYSTONE
- BENTONITE
- PYRITE
- CORE LOSS
- PLANT FOSSIL
- SHELL FOSSIL
- MARL
- ANKERITE

APPARENT THICKNESS 1:200 | TRUE THICKNESS 1:200 | SEAM DETAIL TRUE THICKNESS 1:40

QS0:[205,57]831024028.LOG

GR Mount Klappan
84(3)A

709

CENTURY GEOPHYSICAL CORPORATION

* * * * * * * * * VERTICAL DEVIATION * * * * * * * * *

COMPU-LOG V8L1 DEVIATION

CLIENT : GULF CANADA RES.

HOLE ID : DDH-83-001

LOCATION : MT. KLAPPAN

DATE OF LOG : 08-08-83

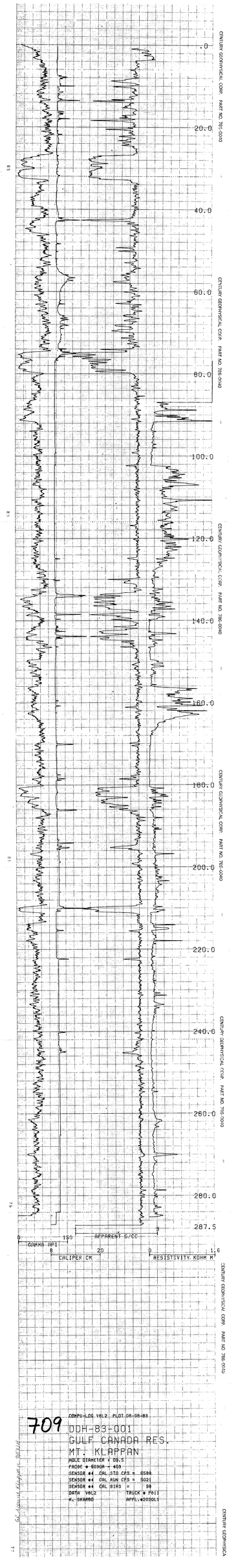
DATA FROM : V8L2*

PROBE : 9055A 0008

TD = TOTAL DEPTH
T = TOP OF ZONE
B = BOTTOM OF ZONE

	DEPTH	TRUE DEPTH	NORTH DEV	EAST DEV	DISTANCE	AZIMUTH	SA	SAB
	.00	.00	.00	.00	.00	.0	.0	.0
	10.00	9.99	-.18	.06	.20	159.8	1.1	159.8
	20.00	19.99	-.33	.11	.35	160.6	.8	161.6
	30.00	29.99	-.41	.12	.43	163.1	.5	173.1
	40.00	39.99	-.55	.15	.57	164.6	.7	169.6
	50.00	49.99	-.63	.21	.66	161.3	.5	141.4
	60.00	59.99	-.54	.26	.61	154.0	.5	33.9
	70.00	69.98	-.62	.26	.67	157.2	.4	183.6
	80.00	79.98	-.61	.35	.71	150.3	.5	85.0
	90.00	89.98	-.53	.29	.60	151.3	.6	324.6
	100.00	99.98	-.52	.27	.59	152.0	.0	301.9
	110.00	109.98	-.35	.27	.44	142.0	.9	359.2
	120.00	119.98	-.25	.05	.26	167.4	1.3	293.9
	130.00	129.98	-.17	-.10	.19	210.8	1.0	297.7
	140.00	139.97	-.05	-.12	.13	247.5	.6	349.5
	150.00	149.97	.08	-.24	.25	288.5	1.0	318.1
	160.00	159.97	.19	-.42	.46	294.7	1.2	302.3
	170.00	169.97	.32	-.59	.67	298.2	1.2	305.7
	180.00	179.96	.45	-.78	.90	300.1	1.3	305.8
	190.00	189.96	.64	-.93	1.13	304.5	1.3	320.7
	200.00	199.96	.82	-1.07	1.35	307.6	1.2	323.5
	210.00	209.95	.99	-1.12	1.50	311.5	1.0	342.7
	220.00	219.95	1.20	-1.06	1.60	318.5	1.2	16.9
	230.00	229.95	1.40	-.98	1.71	324.9	1.2	20.1
	240.00	239.95	1.63	-.89	1.86	331.2	1.3	21.6
	250.00	249.94	1.83	-.83	2.01	335.5	1.1	18.3
	260.00	259.94	1.99	-.88	2.18	336.1	1.0	343.0
	270.00	269.94	2.16	-1.02	2.39	334.6	1.2	318.9
	280.00	279.94	2.37	-1.15	2.64	334.1	1.4	329.2
	290.00	289.93	2.56	-1.10	2.79	336.7	1.1	14.7
TD	297.40	297.33	2.70	-1.05	2.90	338.7	1.1	20.0

46708


CENTURY GEOPHYSICAL CORP. PART NO. 786-0040
0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
160.0
180.0
200.0
220.0
240.0
260.0
280.0
287.5
0 150
APPARENT Ω/CC
GAMMA API
0 20
CALIPER CM
0 1.6
RESISTIVITY KOHM M
709
COMPU-LOG VOL2 PLOT 08-08-83
DDH-83-001
GULF CANADA RES.
MT. KLAPPAN
HOLE DIAMETER = 09.5
PROBE # 6030A - 409
SENSOR #4 CAL STD CPS = 8588
SENSOR #4 CAL RUN CPS = 5021
SENSOR #4 CAL WIRS = 98
DATA VOL2 TRUCK # P811
K. SKARBO APPL.#2030L1

709

COMPU-LOG V8L2 PLOT 08-08-83

DDH-83-001
GULF CANADA RES.
MT. KLAPPAN

HOLE DIAMETER : 09.5
PROBE # 9030A - 403
SENSOR #4 CAL STD CPS = 6588
SENSOR #4 CAL RUN CPS = 5021
SENSOR #4 CAL BIAS = 98
DATA V8L2 TRUCK # P811
K. SKARBO APPL.# A

1:40 DETAILED

GR Mount Klappan 84(3)17

181

709

COMPU-LOG V8L2 PLOT 08-08-83

DDH-83-001
GULF CANADA RES.
MT. KLAPPAN

HOLE DIAMETER : 08.3
PROBE # 9055A - 008
SENSOR #4 CAL STD CPS = 152
SENSOR #4 CAL RUN CPS = 217
SENSOR #4 CAL BIAS = 0
DATA V8L2 TRUCK # P811
K. SKARHO APPL.#10071.1

GR Mount Klappan 84(3)A

CENTURY GEOPHYSICAL CORP. PART NO. 786-0040

GR Mount Klappan 84(3)H

709

VERTICAL DEVIATION

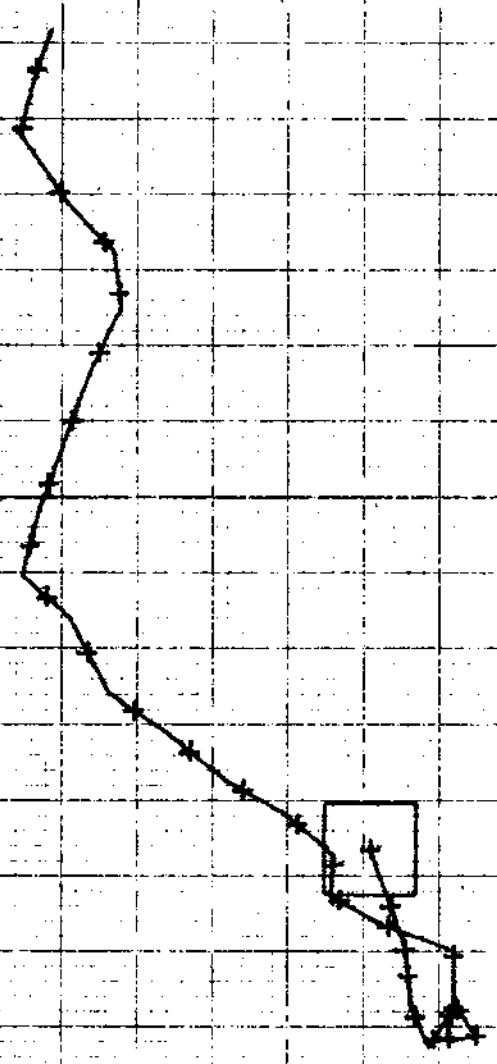
COMPU-LOG V8L1 DEVIATION
DATA FROM : V8L2

CLIENT : GULF CANADA RES.
LOCATION : MT. KLAPPAN
HOLE ID : DDH-83-001
DATE OF LOG : 08-08-83
PROBE : 9055A 0008

SCALE: .25 M/DIV
MAG DECL: 29.5
TRUE DEPTH: 297.3 M
AZIMUTH: 338.7
DISTANCE: 2.90 M

+ = 10.0 M INCR
△ = TOP OF ZONE
◇ = BOTTOM OF ZONE

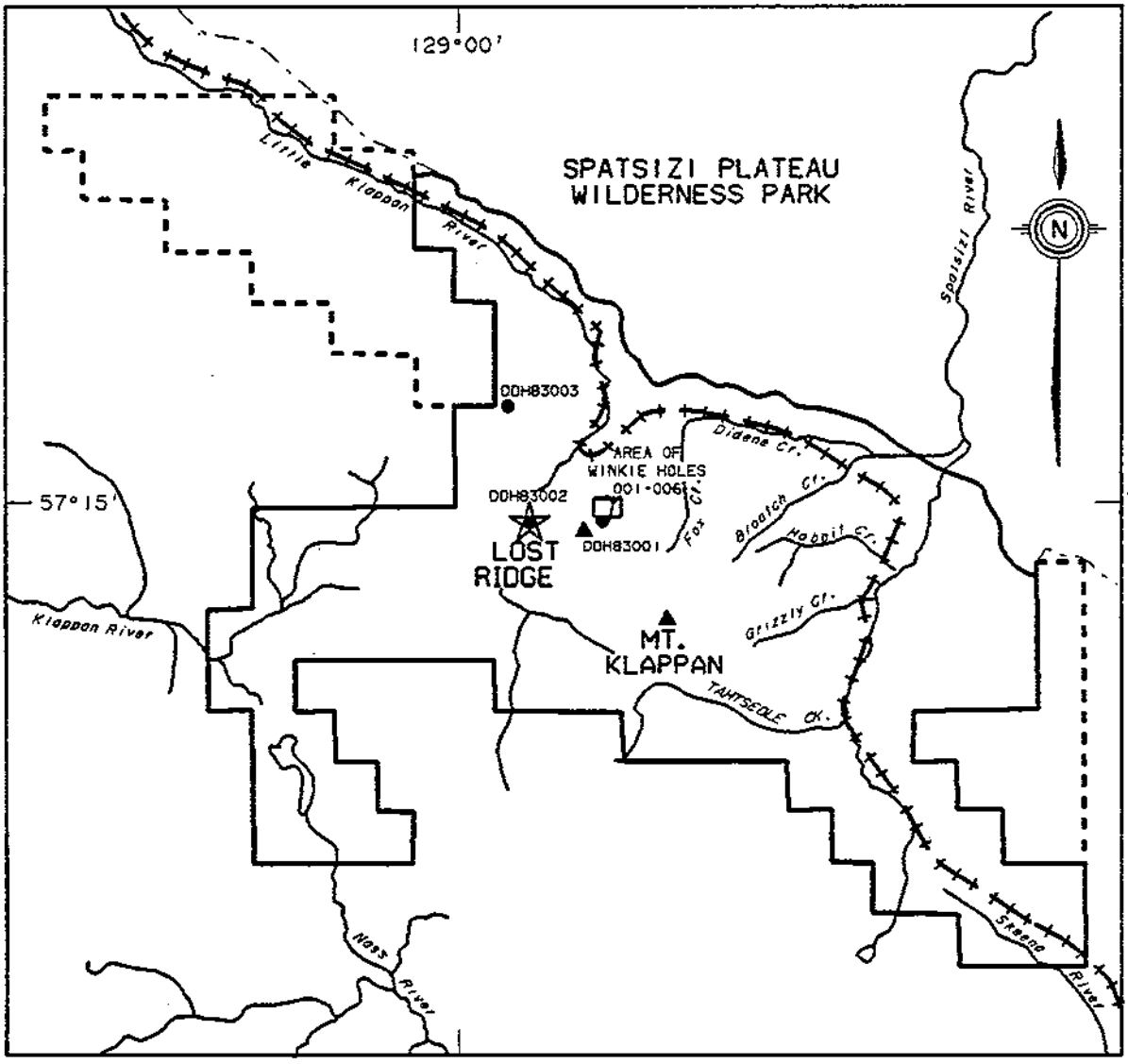
TRUE NORTH ↑



KPNLRDDH 83002

MT. KLAPPAN COAL PROPERTY

1983 DIAMOND DRILL HOLE
DDH83002



LEGEND

- PREPARED RAIL BED
- PROVINCIAL PARK BOUNDARY
- HQ DIAMOND DRILL HOLE - 1983
- AIX WINKIE HOLES - 1983 001-006
- ADIT 1983
- LICENCE AREA
- LICENCES UNDER APPLICATION

SCALE

0 1 2 3 4 5 km

GULF CANADA RESOURCES INC.
09/03/84

Gulf

GULF CANADA RESOURCES INC.

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

DATA SOURCE - KPNLRDDH83002 DATE - 12/06/84

- H I S T O R Y -

START DATE - 08/10/83
END DATE - 08/13/83

CONTRACTOR - J.T. THOMAS
GEOLOGIST - G. SEVE
OPERATOR - GCRI
SURVEYOR -

REMARKS -

- L O C A T I O N -

PROVINCE - BC
ELEVATION - 1484.00
ZONE - 9
NORTHING - 6342845.00
EASTING - 503090.00

LICENCE/LEASE NUMBER - 0

LATITUDE - 571350
LONGITUDE - 1285656

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

LENGTH - 111.25
INCLINATION - 90.0
AZIMUTH - 0.0

CORE SIZE - 0.0

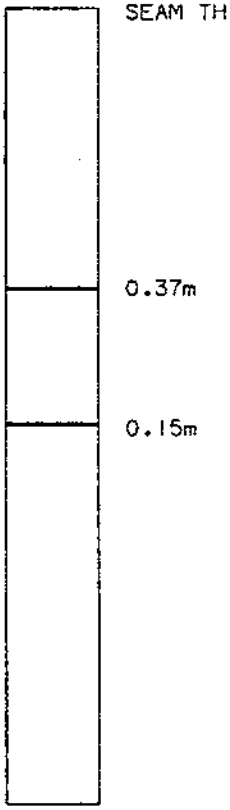
CEMENT -
PLUG -
PIEZ -

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

1983 DIAMOND DRILL HOLE
DDH83002



SCALE: 1:1000

GULF CANADA RESOURCES INC.
09/03/84

KPNLRDDH 83002

DESCRIPTIVE LOG

VALID COMPONENT DESCRIPTION CODES

MODIFIER

ROCK	
(SSY)	SANDY
(PBLY)	PEBBLY
(PYR)	PYRITIC
(SLTY)	SILTY
(CLYY)	CLAYEY
(CARB)	CARBONACEOUS
(GYP)	GYPSIFEROUS
(FER)	FERRUGINOUS
COAL	(C-1,C-2,C-3)
	(C-4,C-5,C-6)
SED STRUCTURES	
(XBDG)	CROSS BEDDED
(WRMBUR)	WORM BURROW
(RIPMK)	RIPPLE MARKS
(BIOTRB)	BOITURBATED
(RTB)	ROOTLET BED
(SSD)	SOFT SED.DEF.
SORTING	
(VPR)	VERY POOR
(PR)	POOR
(MOD)	MODERATE
(WEL)	WELL
(VWEL)	VERY WELL

GRAIN SIZE

(CBL)	COBBLE
(PBL)	PEBBLE
(GRAN)	GRANULAR
(VCG)	VERY COARSE GRAINED
(CG)	COARSE GRAINED
(MG)	MEDIUM GRAINED
(FG)	FINE GRAINED
(VFG)	VERY FINE GRAINED

BEDDING

(MAS)	MASSIVE
(VTHK(B)	VERY THICK
(THK(B)	THICK
(MB)	MEDIUM
(THNB)	THIN
(VTHNB)	VERY THIN
(LAM)	LAMINATED

CORE STATE

(PWRD)	POWDERED
(VSHRD)	VERY SHEARED
(SHRD)	SHEARED
(VBRK(N)	VERY BROKEN
(BRK(N)	BROKEN
(SLD)	SOLID

COLOR

(BLK)	BLACK
(BN)	BROWN
(BF)	BUFF
(GN)	GREEN
(GY)	GREY
(MAR)	MAROON
(ORNG)	ORANGE
(PURP)	PURPLE
(YEL)	YELLOW
(TAN)	TAN
(BLU)	BLUE
(WH)	WHITE

COLOR MOD

(LT)	LIGHT
(M)	MEDIUM
(DK)	DARK
(LT-M)	
(M-DK)	
(LT-DK)	
(S-P)	SALT/PEP
(WEATH)	WEATHERED

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
82	0.00	3.66	3.66			OVERBURDEN	CASING SET TO 3.66M
* 82	3.66	4.33	0.67			MUDSTONE	SLTY.DK.GY.BRKN ANKERITE LAMINATIONS;IRON STAINING ON F RACTURE SURFACE
84	4.33	4.38	0.05			SILTSTONE	CLYY.DK.GY.BRKN
84	4.38	4.54	0.16			MUDSTONE	SLTY.DK.GY.VBRKN CORE LOSS POSSIBLE
* 88	4.54	5.78	1.24			SANDSTONE	SLTY.VFG-.MOD.M.GY.THNB.BRKN MINOR MUDSTONE LAMINATONS AT TOP OF MEA SUREMENT;GRAIN SIZE INCREASES TOWARDS B ASE;MODERATE ANKERITE VEINING;MINOR LIS TRIC SURFACES
88	5.78	7.76	1.98			SANDSTONE	MG-.PR.LT-M.GY.MB.BRKN GRAIN SIZE INCREASES TOWARDS BASE OF ME ASUREMENT;MINOR PEBBLE FLOAT TOWARD BAS E;CORE VBRKN AT BASE ;MINOR MUDSTONE RI P UP CLASTS IN PART

• DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 88	7.76	9.27	1.51			SANDSTONE	PBLY.FG-.MOD.LT-M.GY.MB.VBRKN PEBBLE CLASTS UP TO 0.02M-MATRIX SUPPOR TED;CLASTS CONSIST OF VFG SANDSTONE AND SILTSTONE;MINOR ANKERITE VEINING
88	9.27	9.77	0.50			SANDSTONE	FG-.MOD.LT-M.GY.MB.BRKN MINOR ANKERITE VEINING
88	9.77	11.20	1.43			SANDSTONE	FG-.MOD.LT-M.GY.MB.SLD VERY MINOR PEBBLE FLOAT IN PART;LAMINAT IONS OF SILTSTONE & VFG SANDSTONE TOWAR DS BASE OF MEASUREMENT
87	11.20	11.67	0.47			SANDSTONE	FG-.MOD.LT-M.GY.MB.BRKN SILTSTONE & VFG SANDSTONE LAMINATIONS
87	11.67	11.81	0.14			SANDSTONE	FG-.MOD.LT-M.GY.MB.SLD AS ABOVE SILTSTONE AND VFG SANDSTONE LA MINATIONS
* 87	11.81	13.88	2.07			SANDSTONE	FG-.MOD.LT-M.GY.MB.SLD SILTSTONE BANDS UP TO 0.01M IN PART
87	13.88	14.27	0.39			SANDSTONE	SLTY.FG.MOD.M.GY.THNB.BRKN
87	14.27	14.30	0.03			ANKERITE	MH.THNB.SLD MUST BE SCRATCHED TO EFFERVESCE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 87	14.30	15.85	1.55			SANDSTONE	SLTY.FG-.MOD.M.GY.MB.XBDG.BRKN MINOR SILTSTONE & MUDSTONE BANDS IN PAR T;XBDG INDICATES TOPS UPRIGHT
* 84	15.85	17.32	1.47			SANDSTONE	SLTY.FG-.MOD.M.GY.MB.SSD.SLD CONVOLUTED LAMINATIONS OF MUDSTONE IN P ART
85	17.32	17.90	0.58			SANDSTONE	SLTY.FG.MOD.M.GY.MB.SLD MINOR MUDSTONE RIP UP CLASTS
* 86	17.90	19.29	1.39			SANDSTONE	SLTY.FG-.MOD.M-DK.GY.THNB.SSD.SLD INCREASING AMOUNTS OF SILTSTONE & MUDST ONE LAMINATIONS AND THIN BANDS;MINOR AN KERITE VEINS
86	19.29	19.99	0.70			SANDSTONE	SLTY.FG.MOD.M-DK.GY.THNB.SLD
* 87	19.99	22.13	2.14			SANDSTONE	SLTY.FG.MOD.M-DK.GY.THNB.SLD MINOR SSD IN PART;ANKERITE VEINING TOWA RDS BASE
89	22.13	22.19	0.06			SANDSTONE	SLTY.VFG-.MOD.M-DK.GY.THNB.SLD MINOR ANKERITE BANDS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 90	22.19	23.04	0.85			SANDSTONE	SLTY.VFG-.MOD.M.GY.MB.SSD.BRKN SSD AT TOP IN FINE GRAINED SILTSTONE-MU DSTONE
89	23.04	23.99	0.95			SANDSTONE	SLTY.VFG-.MOD.M-DK.GY.THNB.SSD.BRKN NUMEROUS SILTSTONE & MUDSTONE LAMINATIO NS;POSSIBLE BIOTURBATION NEAR BASE
89	23.99	24.44	0.45			SANDSTONE	SLTY.VFG-.MOD.M-DK.GY.THNB.XBDG BRKN
89	24.44	24.92	0.48			SILTSTONE	SSY.M-DK.GY.VTHNB.BRKN
* 88	24.92	25.89	0.97			SILTSTONE	SSY.M-DK.GY.VTHNB.BIOTR.SLD CLAM BURROWS AT TOP;SSD TOWARDS BASE OF MEASUREMENT
88	25.89	26.27	0.38			SILTSTONE	SSY.M-DK.GY.VTHNB.SSD.SLD
* 87	26.27	27.75	1.48			SANDSTONE	SLTY.FG-.MOD.M.GY.MB.SSD.BRKN CONVOLUTED MUDSTONE LAMINATONS TOWARDS BASE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
83	27.75	27.99	0.24			SANDSTONE	SLTY.FG-.MOD.M.GY.MB.BRKN
* 79	27.99	29.38	1.39			SILTSTONE	SSY.M-DK.GY.THNB.BRKN MODERATE ANKERITE VEINING;BECOMING CLAYEY AT BASE
79	29.38	29.77	0.39			MUDSTONE	SLTY.DK.GY.VTHNB.SLD
78	29.77	30.23	0.46			MUDSTONE	SLTY.DK.GY.VTHNB.SLD
78	30.23	30.52	0.29			SILTSTONE	PYR.M-DK.GY.MB.BRKN
78	30.52	31.11	0.59			MUDSTONE	SLTY.DK.GY.VTHNB.BRKN PYRITIC IN PART
* 78	31.11	31.30	0.19			SILTSTONE	CLYY.DK.GY.MB.SLD
* 80	31.30	31.71	0.41			MUDSTONE	SLTY.DK.GY.VTHNB.BRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
80	31.71	32.47	0.76			MUDSTONE	CARB.DK.GY.LAM.VBRKN PYRITE ON FRACTURE PLANE-INCREASES TOWARDS BASE;INCREASINGLY CARBONACEOUS
79	32.47	32.59	0.12			MUDSTONE	CARB.DK.GY.VBRKN MINOR COAL C-6 IN CORE
79	32.59	33.70	1.11			MUDSTONE	CARB.DK.GY.SLD PYRITE VUGS IN PART
78	33.70	35.58	1.88			MUDSTONE	CARB.DK.GY.BRKN MINOR PYRITE INCLUSIONS IN PART
78	35.58	35.75	0.17			MUDSTONE	CARB.DK.GY.BRKN
77	35.75	37.54	1.79			CLAYSTONE	CARB.BLK.VBRKN MINOR BIVALVE FOSSILS
76	37.54	37.72	0.18			CLAYSTONE	CARB.BLK.VBRKN MINOR PYRITE INCLUSIONS IN PART
* 76	37.72	39.24	1.52			CLAYSTONE	CARB.BLK.BRKN BIVALVES AT TOP;BECOMES INCREASINGLY PYRITIC TOWARDS BASE
78	39.24	39.39	0.15			COAL	C-1.BLK.BRKN COAL INTERBEDED WITH PYRITIC CLAYSTONE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
78	39.39	39.44	0.05			CLAYSTONE	CARB.BLK.BRKN
78	39.44	39.61	0.17			COAL	C-1.BLK.SLD INTERBEDDED WITH MUDSTONE;MODERATE ANKERITE VEINING
* 80	39.61	40.78	1.17			CLAYSTONE	CARB.BLK.BRKN COAL LAMINATIONS AND INCLUSIONS DECREASING TOWARDS BASE;PYRITIC AT TOP; CARBONACEOUS PLANT FRAGMENTS
82	40.78	41.16	0.38			CLAYSTONE	CARB.BLK.BRKN MINOR COAL INCLUSIONS AND LAMINATIONS AT TOP;CARBONACEOUS PLANT FRAGMENTS
83	41.16	41.59	0.43			CLAYSTONE	CARB.BLK.VBRKN
* 85	41.59	43.27	1.68			MUDSTONE	CARB.BLK.SSD.BRKN MINOR CARBONACEOUS PLANT FRAGMENTS
84	43.27	43.92	0.65			MUDSTONE	CARB.BLK.VTHNB.BRKN MINOR CARBONACEOUS PLANT FRAGMENTS
* 83	43.92	45.26	1.34			MUDSTONE	CARB.BLK.VTHNB.BRKN MINOR CARBONACEOUS PLANT FRAGMENTS;INCREASINGLY CARBONACEOUS TOWARDS BASE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 89	45.26	47.07	1.81			MUDSTONE	CARB.BLK.VTHNB.BIOTR.BRKN SILTY STRINGERS;MINOR CARBONACEOUS PLANT FRAGMENTS;MINOR WORM BURROWS
85	47.07	47.34	0.27			MUDSTONE	CARB.BLK.VTHNB.SLD MINOR CARBONACEOUS PLANT FRAGMENTS
* 82	47.34	48.73	1.39			MUDSTONE	CARB.BLK.VTHNB.BIOTR.BRKN POSSIBLE WORM BURROWS
84	48.73	49.07	0.34			MUDSTONE	CARB.BLK.SHRD LISTRIC SURFACES;CORE BADLY BROKEN
84	49.07	49.43	0.36			MUDSTONE	CARB.BLK.VTHNB.VBRKN MINOR CARBONACEOUS PLANT FRAGMENTS;MINOR PYRITE
85	49.43	50.22	0.79			MUDSTONE	CARB.BLK.VTHNB.BRKN MINOR CARBONACEOUS PLANT FRAGMENTS
* 87	50.22	51.41	1.19			MUDSTONE	SLTY.DK.GY.THNB.SLD
87	51.41	51.70	0.29			MUDSTONE	SLTY.DK.GY.VTHNB.SLD MINOR CARBONACEOUS PLANT FRAGMENTS
87	51.70	52.26	0.56			SILTSTONE	SSY.DK.GY.THNB.SLD COAL INCLUSIONS IN PART

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 87	52.26	53.39	1.13			MUDSTONE	SLTY.DK.GY.VTHNB.SLD MINOR ANKERITE VEINING
87	53.39	53.49	0.10			MUDSTONE	SLTY.DK.GY.VTHNB.BRKN
87	53.49	53.63	0.14			SILTSTONE	CLYY.LT-M.GY.MB.BRKN
87	53.63	54.18	0.55			MUDSTONE	SLTY.DK.GY.VTHNB.SLD LISTRIC SURFACES
86	54.18	55.61	1.43			MUDSTONE	SLTY.DK.GY.VTHNB.SLD LISTRIC SURFACES
86	55.61	56.46	0.85			MUDSTONE	SLTY.DK.GY.VTHNB.BRKN MINOR FRACTURE DISPLACEMENT
* 86	56.46	57.43	0.97			MUDSTONE	SLTY.DK.GY.VTHNB.SLD LISTRIC SURFACES;MINOR ANKERITE VEINS
* 83	57.43	58.30	0.87			MUDSTONE	SLTY.DK.GY.VTHNB.SLD CORE INCREASINGLY CARBONACEOUS;PYRITIC TOWARDS BASE;COAL STRINGERS AT BASE
83	58.30	58.45	0.15			COAL	C-1.BLK.SLD COAL INTERBEDDED WITH CLAYSTONE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
84	58.45	59.55	1.10			CLAYSTONE	CARB.DK.GY.BRKN COAL LAMINATIONS & INCLUSIONS DECREASE TOWARDS BASE
85	59.55	59.61	0.06			CLAYSTONE	CARB.DK.GY.SLD MINOR COAL LAMINATIONS
85	59.61	60.01	0.40			MUDSTONE	CARB.DK.GY.LAM.SLD MINOR COAL LAMINATONS;CORE BECOMES SILTIER TOWARDS BASE
85	60.01	60.42	0.41			SILTSTONE	CLYY.M-DK.GY.LAM.SLD BECOMES SANDY TOWARDS BASE
* 86	60.42	61.69	1.27			SANDSTONE	SLTY.VFG-.MOD.M-DK.GY.THNB.SLD SILTSTONE & MUDSTONE LAMINATONS THROUGH OUT
87	61.69	61.95	0.26			SANDSTONE	SLTY.VFG-.WEL.M.GY.VTHNB.BRKN MUDSTONE LAMINATIONS THROUGHOUT
87	61.95	62.26	0.31			SILTSTONE	SSY.M-DK.GY.LAM.SLD MINOR COAL LAMINATONS AT TOP
87	62.26	62.73	0.47			SANDSTONE	SLTY.VFG-.MOD.M-DK.GY.THNB.VBRKN LISTRIC SURFACES AND ANKERITE VEINS INCREASE TOWARDS BASE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
88	62.73	63.67	0.94			SANDSTONE	FG-.PR.M.GY.MB.BRKN MODERATE ANKERITE VEINING THROUGHOUT;LI STRIC SURFACES
* 89	63.67	65.30	1.63			SANDSTONE	FG-.MOD.M.GY.MB.BRKN MINOR ANKERITE VEINING-SOME LISTRIC SUR FACES
87	65.30	65.57	0.27			SANDSTONE	FG-.MOD.M.GY.MB.SLD OCCASIONAL MUDSTONE CLASTS
86	65.57	66.44	0.87			SANDSTONE	FG-.PR.LT-M.GY.MB.BRKN MINOR MUDSTONE BANDS
86	66.44	66.69	0.25			SILTSTONE	SSY.M-DK.GY.LAM.BIOTR.SLD BIOTURBATION INCLUDES CLAM & WORM BURRO WS
85	66.69	67.49	0.80			SANDSTONE	FG-.MOD.LT-M.GY.MB.SLD MINOR SILTSTONE LAMINATIONS
83	67.49	68.31	0.82			SANDSTONE	CARB.FG-.MOD.LT-M.GY.MB.BRKN MINOR CARBONACEOUS STRINGERS
82	68.31	69.35	1.04			SANDSTONE	FG-.MOD.LT-M.GY.MB.BRKN MINOR MUDSTONE BANDS;MINOR ANKERITE VEI NING TOWARDS BASE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 80	69.35	70.47	1.12			SANDSTONE	CARB.FG-.PR.LT-M.GY.MB.BRKN MUDSTONE CLASTS IN PART;POSSIBLE BIOTUR BATION AT TOP
81	70.47	70.69	0.22			SILTSTONE	SSY.M-DK.GY.THNB.WRMBU.VBRKN ZONE OF CONSIDERABLE BIOTURBATION
82	70.69	71.35	0.66			SANDSTONE	FG-.MOD.LT-M.GY.MB.BRKN MINOR MUDSTONE BANDS;ANKERITE VEINING
83	71.35	72.16	0.81			SANDSTONE	SLTY.FG-.MOD.M.GY.MB.BRKN SILTSTONE BANDS THROUGHOUT
84	72.16	72.87	0.71			SANDSTONE	SLTY.FG.WEL.M-DK.GY.MB.SLD BECOMES INCREASINGLY SILTY TOWARDS BASE
85	72.87	73.39	0.52			SILTSTONE	SSY.M-DK.GY.THNB.SSD.SLD MODERATE ANKERITE VEINING
85	73.39	74.18	0.79			SILTSTONE	CARB.M-DK.GY.THNB.VBRKN SANDY IN PART;LISTRIC SURFACES;MINOR AN KERITE VEINING
86	74.18	74.56	0.38			SILTSTONE	CARB.M-DK.GY.THNB.BRKN MODERATE ANKERITE VEINING

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 87	74.56	75.21	0.65			SANDSTONE	SLTY.FG-.MOD.M.GY.MB.SLD MINOR MUDSTONE CLASTS IN PART;MODERATE ANKERITE VEINING
86	75.21	76.11	0.90			SANDSTONE	SLTY.FG.WEL.M.GY.MB.SLD MINOR MUDSTONE LAMINATIONS IN PART
* 85	76.11	76.54	0.43			SILTSTONE	SSY.M-DK.GY.THNB.SLD MINOR QUARTZ VEINING
86	76.54	77.27	0.73			SANDSTONE	VFG-.MOD.M.GY.MB:SLD
* 88	77.27	78.95	1.68			SANDSTONE	SLTY.VFG-.MOD.M.GY.MB.BRKN MUDSTONE LAMINATIONS AND RIP UP CLASTS IN PART
86	78.95	79.01	0.06			SANDSTONE	SLTY.VFG.WEL.M-DK.GY.MB.SLD
85	79.01	79.13	0.12			MUDSTONE	CARB.DK.GY.LAM.VBRKN CARBONACEOUS MUDSTONE INTERBEDDED WITH ANKERITE
85	79.13	79.18	0.05			SANDSTONE	SLTY.FG.MOD.M.GY.MB.BRKN LISTRIC SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
85	79.18	79.25	0.07			SANDSTONE	SLTY.FG.WEL.M.GY.MB.BRKN
* 82	79.25	81.31	2.06			SANDSTONE	FG-.MOD.M.GY.MB.BRKN MINOR ANKERITE VEINING & LISTRIC SURFACES
81	81.31	82.15	0.84			SANDSTONE	VFG-.MOD.M.GY.MB.SLD
* 80	82.15	83.21	1.06			SANDSTONE	VFG-.PR.M.GY.MB.BRKN MINOR SILTSTONE BANDS
83	83.21	83.37	0.16			SANDSTONE	VFG-.MOD.M.GY.MB.VBRKN
* 87	83.37	85.08	1.71			SANDSTONE	VFG-.MOD.M.GY.MB.SSD.BRKN MINOR ANKERITE VEINING;CONVOLUTED LAMINATIONS AT BASE;POSSIBLE WORM BURROWS AT BASE OF MEASUREMENT
39	85.08	85.35	0.27			SANDSTONE	SLTY.VFG.WEL.LT-M.GY.MB.BRKN
* 15	85.35	86.07	0.72			SILTSTONE	SSY.LT-M.GY.LAM.SLD BCA'S SWING TO LOW ANGLE;POSSIBLE XBDG

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
47	86.07	86.54	0.47			SANDSTONE	SLTY.VFG-.MOD.M-DK.GY.THNB.SSD.SLD FLAME STRUCTURES
* 65	86.54	86.73	0.19			SANDSTONE	SLTY.FG-.PR.M-DK.GY.MB.SLD
* 85	86.73	87.09	0.36			SILTSTONE	SSY.M-DK.GY.THNB.BIOTR.SLD MODERATE TO HEAVY BIOTURBATION;MINOR XB DG INDICATES TOPS UPRIGHT
* 81	87.09	87.56	0.47			SILTSTONE	SSY.M-DK.GY.LAM.BIOTR.SLD MODERATE BIOTURBATION (BURROWS)
82	87.56	87.88	0.32			SANDSTONE	SLTY.VFG-.MOD.M.GY.MB.BRKN
83	87.88	89.09	1.21			SILTSTONE	SSY.M-DK.GY.THNB.BIOTR.SLD MODERATE TO HEAVY BIOTURBATION-BURROWS
* 84	89.09	89.66	0.57			SILTSTONE	SSY.M-DK.GY.THNB.BIOTR.BRKN BIOTURBATION MODERATE;MINOR ANKERITE VE INING NEAR BASE
84	89.66	90.86	1.20			SILTSTONE	CARB.DK.GY.LAM.BIOTR.VBRKN MODERATE BIOTURBATION;LISTRIC SURFACES; INCREASINGLY CARBONACEOUS TOWARDS BASE
85	90.86	90.89	0.03			ANKERITE	CLYY.WH.BRKN INTERBEDDED WITH MUDSTONE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
85	90.89	90.91	0.02			ANKERITE	CLYY.WH.LAM.SLD INTERBEDDED WITH MUDSTONE
85	90.91	91.41	0.50			SILTSTONE	CLYY.DK.GY.LAM.SLD MUDSTONE INTERBEDS THROUGHOUT
85	91.41	91.50	0.09			SANDSTONE	FG.WEL.M.GY.MB.SLD
* 85	91.50	91.82	0.32			SILTSTONE	CLYY.M-DK.GY.THNB.SLD MINOR SANDSTONE BANDS
86	91.82	92.80	0.98			MUDSTONE	SLTY.DK.GY.LAM.SLD MINOR PYRITE INCLUSIONS AT BASE OF MEAS UREMENT
86	92.80	92.90	0.10			MUDSTONE	SLTY.DK.GY.LAM.SLD
86	92.90	93.61	0.71			MUDSTONE	SLTY.DK.GY.BRKN MINOR PYRITE INCLUSIONS AT TOP;LISTRIC SURFACES;SLIGHTLY CARBONACEOUS
87	93.61	93.75	0.14			SILTSTONE	SSY.M-DK.GY.SLD FRACTURE DISPLACEMENT UP TO 0.03M;MODER ATE ANKERITE VEINING

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 87	93.75	94.73	0.98			MUDSTONE	SLTY.DK.GY.THNB.BIOTR.SLD MODERATE BIOTURBATION (BURROWS)
86	94.73	94.83	0.10			MUDSTONE	SLTY.DK.GY.BRKN
86	94.83	94.93	0.10			SANDSTONE	FG.WEL.M.GY.THNB.SLD
85	94.93	95.77	0.84			SILTSTONE	SSY.M-DK.GY.LAM.BIOTR.SLD BURROWS IN PART;SANDSTONE BANDS UP TO 0 .06M
* 83	95.77	96.35	0.58			SILTSTONE	SSY.DK.GY.LAM.BIOTR.SLD BECOMES SANDIER TOWARDS BASE;MINOR ANKE RITE VEINING AT BASE;MODERATE BURROWING
83	96.35	96.75	0.40			SANDSTONE	SLTY.FG-.MOD.M.GY.MB.SLD ANKERITE VEINING MODERATE AT BASE
84	96.75	97.59	0.84			SANDSTONE	SLTY.FG-.MOD.M.GY.MB.SSD.BRKN ANKERITE VEINING AT TOP;CONVOLUTED BEDD ING IN PART;MINOR MUDSTONE RIP UP CLAST S
84	97.59	97.74	0.15			ROCK LOSS	

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 85	97.74	98.82	1.08			SANDSTONE	SLTY.VFG-.MOD.M-DK.GY.THNB.SSD.SLD CONVOLUTED BEDDING IN PART
82	98.82	99.36	0.54			SANDSTONE	FG-.MOD.M.GY.MB.SLD
* 79	99.36	100.53	1.17			SILTSTONE	SSY.M-DK.GY.LAM.BIOTR.BRKN LISTRIC SURFACES;MODERATE BIOTURBATION (BURROWS)
82	100.53	100.73	0.20			ROCK LOSS	
83	100.73	100.90	0.17			SILTSTONE	DK.GY.LAM.SLD
84	100.90	101.44	0.54			SILTSTONE	DK.GY.LAM.BIOTR.BRKN MINOR BIOTURBATION
* 86	101.44	101.90	0.46			SANDSTONE	SLTY.VFG-.MOD.M-DK.GY.THNB.BIOTR SLD MINOR BIOTURBATION
86	101.90	102.21	0.31			SILTSTONE	CLYY.DK.GY.VTHNB.BIOTR.SLD MINOR ANKERITE VEINING
86	102.21	102.90	0.69			MUDSTONE	DK.GY.VBRKN MINOR ANKERITE VEINING

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
85	102.90	103.25	0.35			ROCK LOSS	
* 85	103.25	104.60	1.35			MUDSTONE	DK.GY.BIOTR.SLD MODERATE BIOTURBATION;XBDG INDICATES TO PS UPRIGHT
81	104.60	105.22	0.62			MUDSTONE	SLTY.DK.GY.BIOTR.SLD MODERATE BURROWING;DEPTH MARKER DISPLACED
80	105.22	105.52	0.30			MUDSTONE	SLTY.DK.GY.BIOTR.SLD MINOR BIOTURBATION (BURROWING)
* 78	105.52	106.19	0.67			MUDSTONE	SLTY.DK.GY.BIOTR.SLD BURROWING MODERATE
77	106.19	106.27	0.08			SANDSTONE	VFG-.WEL.M.GY.MB.SLD
77	106.27	106.59	0.32			MUDSTONE	SLTY.DK.GY.BIOTR.SLD MINOR BIOTURBATION
77	106.59	106.69	0.10			ANKERITE	CLYY.MH.SLD MUDSTONE REPLACED BY ANKERITE
76	106.69	107.32	0.63			MUDSTONE	SLTY.DK.GY.BIOTR.SLD BIOTURBATION (BURROWS) MODERATE TO HEAVY

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	107.32	107.74	0.42			SILTSTONE	SSY.M.GY.BIOTR.SLD CLAM BURROWS INDICATE TOPS UPRIGHT
74	107.74	108.33	0.59			MUDSTONE	SLTY.DK.GY.BIOTR.SLD MODERATE BURROWING
73	108.33	109.18	0.85			MUDSTONE	DK.GY.BIOTR.SLD MINOR BIOTURBATION;LISTRIC SURFACES
* 70	109.18	111.25	2.07			MUDSTONE	SLTY.DK.GY.BIOTR.SLD LIGHT TO MODERATE BIOTURBATION;BURROWS INDICATE TOPS UPRIGHT; ********** * END OF CORE (365'/111.25M)********** *******

* DENOTES MEASURED BCA
NEWPAGE

Gk Mount Klappan 84(3)A

709

GULF CANADA RESOURCES INC.

Coal Division

PREPARED BY: C. LOUIE	LOGGED BY: G. SEVE	SCALE : 1:200, 1:40
APPROVED BY: C. WILLIAMS	DATE: FEB. 1984	DRAWING No. KPN83502

MOUNT KLAPPAN

DRILL HOLE LOG

DDH83002

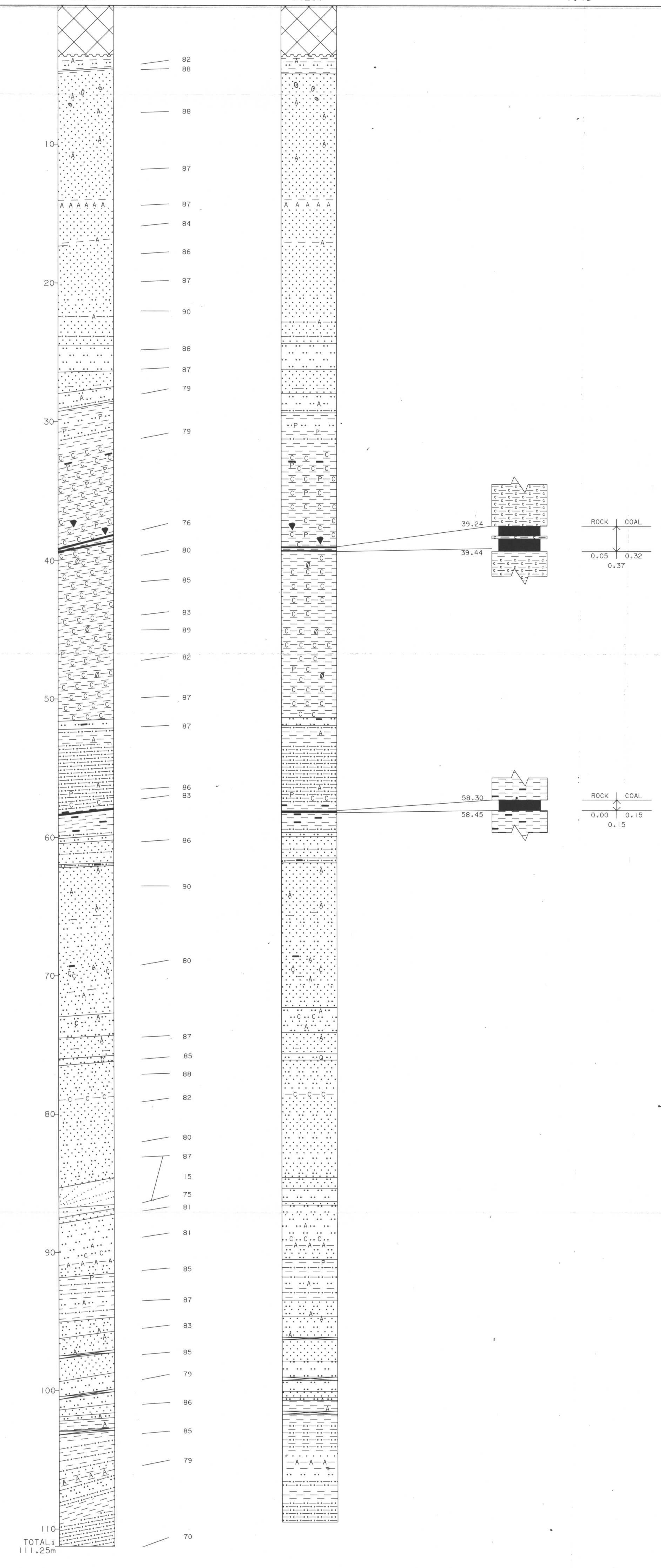
SCALE : 1:200 1:40

NORTHING : 6342845.0 N INCLINATION : 90.0°
EASTING : 503090.0 E BEARING : -

LITHOLOGIC SYMBOLS

- CONGLOMERATE
- SANDSTONE
- CARBONACEOUS
- SILTSTONE
- COAL
- COAL-THIN BEDS
- OVERBURDEN
- QUARTZ
- PEBBLY SANDSTONE
- MUDSTONE, CLAYSTONE
- BENTONITE
- PYRITE
- CORE LOSS
- PLANT FOSSIL
- SHELL FOSSIL
- MARL
- ANKERITE

APPARENT THICKNESS 1:200	TRUE THICKNESS 1:200	SEAM DETAIL TRUE THICKNESS 1:40



QSO:[205,57]831024026.LOG

CENTURY GEOPHYSICAL CORPORATION GR Mount Klappan 84G/1A

709

* * * * * * * * VERTICAL DEVIATION * * * * * * * *

COMPU-LOG V8LI DEVIATION

CLIENT : GULF CANADA RES. HOLE ID : DDH-83-002

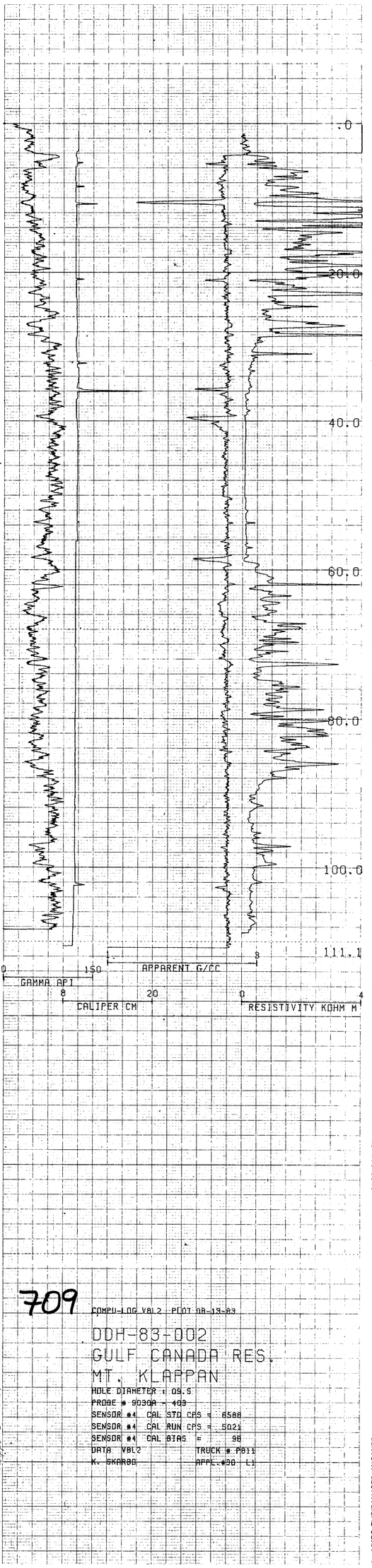
LOCATION : MT. KLAPPAN DATE OF LOG : 08-13-83

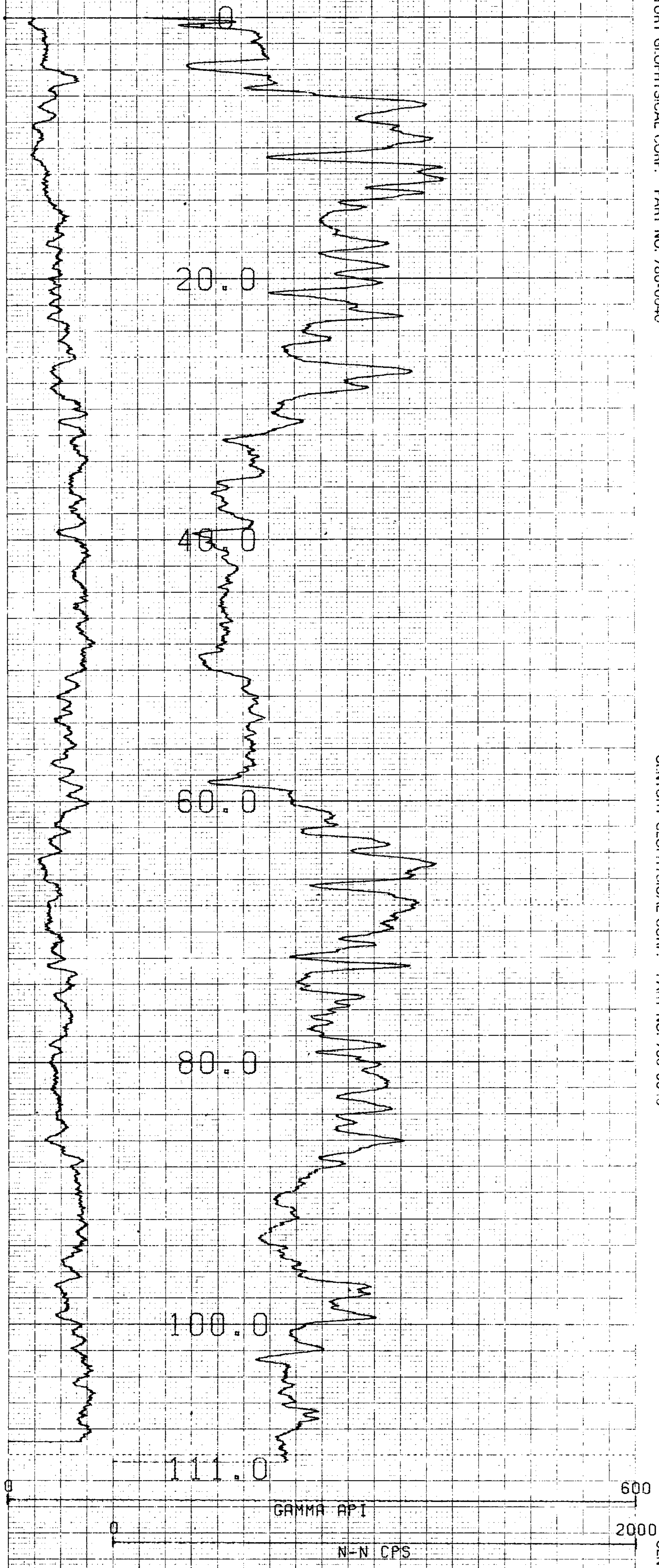
DATA FROM : V8L2* PROBE : 9055A 0008

TD = TOTAL DEPTH
T = TOP OF ZONE
B = BOTTOM OF ZONE

	DEPTH	TRUE DEPTH	NORTH DEV	EAST DEV	DISTANCE	AZIMUTH	SA	SAB
	.00	.00	.00	.00	.00	0	.0	.0
	5.00	4.60	.23	-1.92	1.94	277.0	22.8	277.0
	10.00	9.20	.47	-3.85	3.88	277.0	22.8	277.0
	15.00	13.79	.79	-5.82	5.87	277.8	23.4	279.7
	20.00	18.33	1.31	-7.85	7.96	279.5	24.8	284.1
	25.00	22.87	1.91	-9.86	10.04	281.0	24.7	286.7
	30.00	27.42	2.46	-11.85	12.10	281.7	24.4	285.4
	35.00	31.96	3.04	-13.86	14.19	282.4	24.7	286.2
	40.00	36.50	3.65	-15.86	16.27	283.0	24.7	287.0
	45.00	41.04	4.27	-17.85	18.36	283.5	24.6	287.2
	50.00	45.58	4.89	-19.86	20.45	283.8	24.8	287.9
	55.00	50.11	5.50	-21.87	22.56	284.1	24.8	287.8
	60.00	54.65	6.12	-23.87	24.65	284.4	24.7	287.1
	65.00	59.20	6.75	-25.86	26.73	284.6	24.6	287.6
	70.00	63.73	7.32	-27.89	28.83	284.7	24.9	285.7
	75.00	68.24	8.06	-29.89	30.96	285.1	25.3	290.2
	80.00	72.78	8.80	-31.86	33.06	285.4	24.8	290.3
	85.00	77.32	9.45	-33.84	35.14	285.6	24.6	289.3
	90.00	81.87	10.10	-35.82	37.21	285.8	24.5	288.7
	95.00	86.42	10.78	-37.77	39.28	285.9	24.4	289.1
	100.00	90.96	11.46	-39.74	41.36	286.1	24.6	289.0
	105.00	95.52	12.06	-41.71	43.42	286.1	24.3	286.9
	110.00	100.09	12.71	-43.63	45.45	286.2	24.0	288.6
TD	110.90	100.91	12.84	-43.98	45.82	286.3	24.0	290.3

46706


709
COMPU-LOG V8L2 PLOT 08-19-83
DDH-83-002
GULF CANADA RES.
MT. KLAPPAN
HOLE DIAMETER : 05.5
PROBE # 9030A - 403
SENSOR #4 CAL STD CPS = 6588
SENSOR #4 CAL RUN CPS = 5021
SENSOR #4 CAL BIAS = 98
DATA V8L2 TRUCK # P811
K. SKARBO APPL.#30 L1
0.0
20.0
40.0
60.0
80.0
100.0
111.1
0
150
GAMMA API
8
20
CALIPER CM
APPARENT G/CC
0
4
RESISTIVITY: KOHM M
CENTURY GEOPHYSICAL CORP. PART NO. 786-0040



709

COMPU-LOG V8L2 PLOT 08-12-83

DDH-83-002
GULF CANADA RES.
MT. KLAPPAN

HOLE DIAMETER : 08.3
PROBE # 9055A - 008
SENSOR #4 CAL STD CPS = 152
SENSOR #4 CAL RUN CPS = 217
SENSOR #4 CAL BIAS = 0
DATA V8L2 TRUCK # P811
K. SKARAB APPL.#1007L1

709

VERTICAL DEVIATION

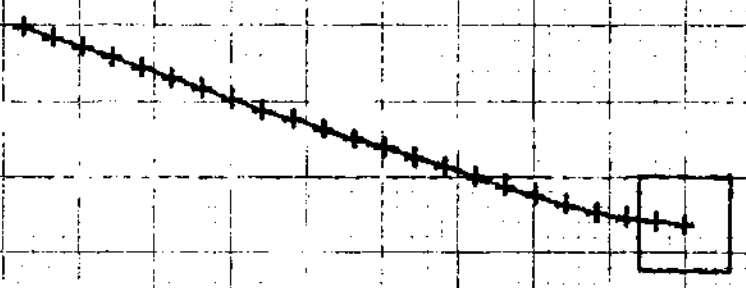
COMPU-LOG V8L1 DEVIATION
DATA FROM : V8L2

CLIENT : GULF CANADA RES.
LOCATION : MT. KLAPPAN
HOLE ID : DDH-83-002
DATE OF LOG : 08-13-83
PROBE : 9055A 0008

SCALE: 5.00 M/DIV
MAG DECL: 29.5
TRUE DEPTH: 100.9 M
AZIMUTH: 286.3
DISTANCE: 45.82 M

+ = 5.0 M INCR
Δ = TOP OF ZONE
◇ = BOTTOM OF ZONE

TRUE NORTH ↑



Mount Klappan 84(3)A

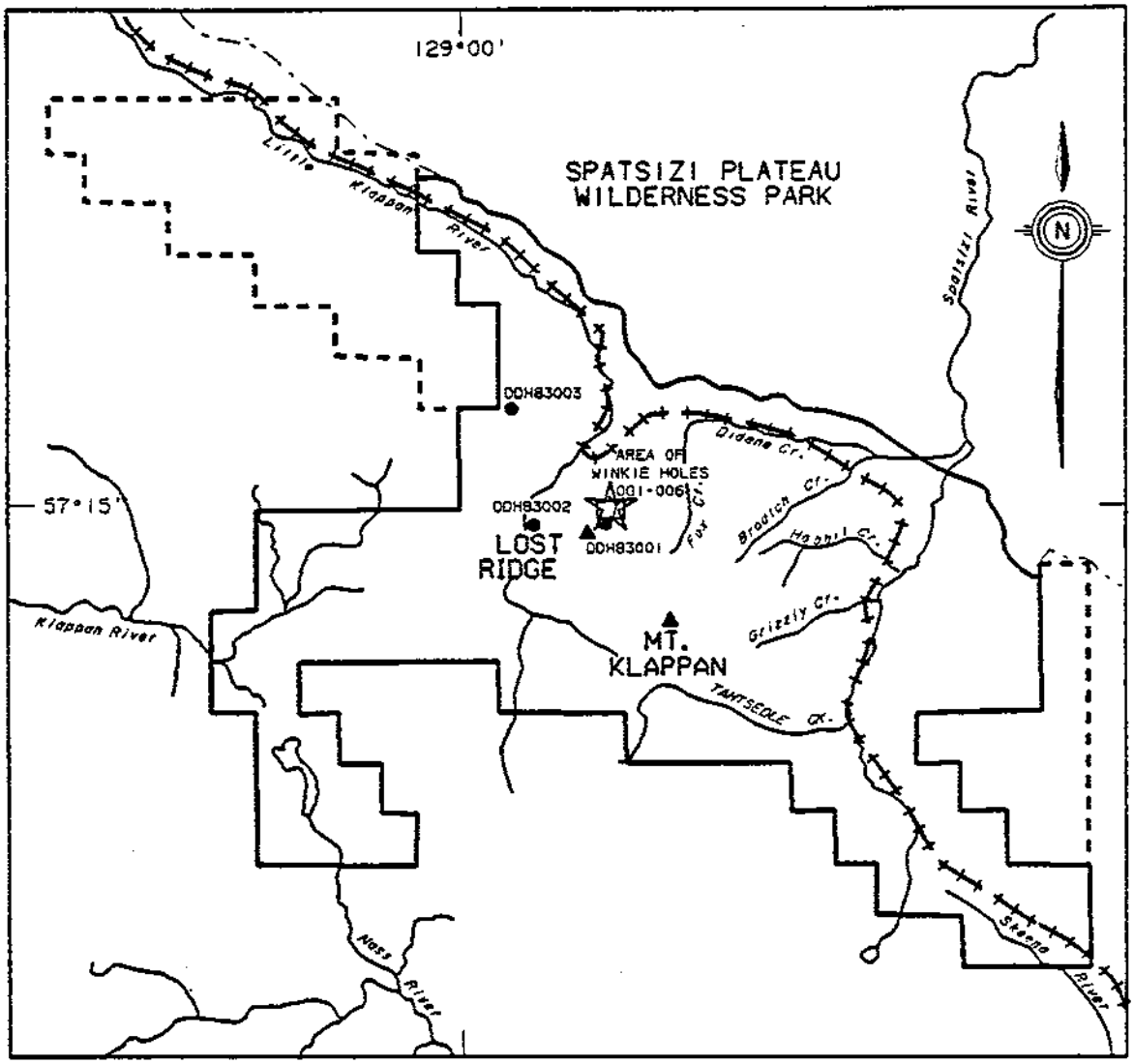
14

CENTURY GEOPHYSICAL CORP. P

KPNLRWKD 83001

MT. KLAPPAN COAL PROPERTY

1983 WINKIE DIAMOND DRILL HOLES
WKD83001 -WKD83006



LEGEND

- PREPARED RAIL BED
- PROVINCIAL PARK BOUNDARY
- HQ DIAMOND DRILL HOLE - 1983
- AIX WINKIE HOLES - 1983 001-006
- ADIT 1983
- LICENCE AREA
- LICENCES UNDER APPLICATION

SCALE

0 1 2 3 4 5 km

GULF CANADA RESOURCES INC.
09/03/84

Gulf

GULF CANADA RESOURCES INC.

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

DATA SOURCE - KPNLRWKD83001 DATE - 12/04/84

- H I S T O R Y -

START DATE - 07/07/83
END DATE - 07/08/83

CONTRACTOR - TECK
GEOLOGIST - C.WILLIAMS
OPERATOR - GCRI
SURVEYOR -

REMARKS - CORE BARREL TWISTED OFF ; HOLE LOST DUE TO CAVE IN

- L O C A T I O N -

PROVINCE - BC
ELEVATION - 1827.00
ZONE - 9
NORTHING - 6344339.00
EASTING - 505758.00

LICENCE/LEASE NUMBER - 0

LATITUDE - 0
LONGITUDE - 0

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

LENGTH - 7.01
INCLINATION - 90.0
AZIMUTH - 0.0

CORE SIZE - 34.0

CEMENT - N
PLUG - N
PIEZ -

CASING DEPTH (M) - 1.50
AQUIFER DEPTHS (M) - 0.00
0.00
LOST CIRC. DEPTHS (M) - 0.00
0.00

*** NOTE *** 0 INDICATES NO VALUE

MT. KLAPPAN COAL PROPERTY

1983 WINKIE DIAMOND DRILL HOLE
WKD83001

SEAM [ ] SEAM THICKNESS
*

* NOTE: HOLE LOST DUE TO COREING

SCALE: 1:1000

GULF CANADA RESOURCES INC.
09/03/84

KPNLRWKD 83001

DESCRIPTIVE LOG

VALID COMPONENT DESCRIPTION CODES

MODIFIER

ROCK (PBLY)	PEBBLY
(SSY)	SANDY
(PYR)	PYRITIC
(SLTY)	SILTY
(CLYY)	CLAYEY
(CARB)	CARBONACEOUS
(GYP)	GYPSIFEROUS
(FER)	FERRUGINOUS
COAL (C-1,C-2,C-3)	
(C-4,C-5,C-6)	

SED STRUCTURES

(XBDG)	CROSS BEDDED
(WRMBUR)	WORM BURROW
(RIPMK)	RIPPLE MARKS
(BIOTRB)	BOITURBATED
(RTB)	ROOTLET BED
(SSD)	SOFT SED.DEF.

SORTING

(VPR)	VERY POOR
(PR)	POOR
(MOD)	MODERATE
(WEL)	WELL
(VWEL)	VERY WELL

GRAIN SIZE

(CBL)	COBBLE
(PBL)	PEBBLE
(GRAN)	GRANULAR
(VCG)	VERY COARSE GRAINED
(CG)	COARSE GRAINED
(MG)	MEDIUM GRAINED
(FG)	FINE GRAINED
(VFG)	VERY FINE GRAINED

BEDDING

(MAS)	MASSIVE
(VTHKB)	VERY THICK
(THKB)	THICK
(MB)	MEDIUM
(THNB)	THIN
(VTHNB)	VERY THIN
(LAM)	LAMINATED

CORE STATE

(PWRD)	POWDERED
(VSHRD)	VERY SHEARED
(SHRD)	SHEARED
(VBRKN)	VERY BROKEN
(BRKN)	BROKEN
(SLD)	SOLID

COLOR

(BLK)	BLACK
(BN)	BROWN
(BF)	BUFF
(GN)	GREEN
(GY)	GREY
(MAR)	MAROON
(ORNG)	ORANGE
(PURP)	PURPLE
(YEL)	YELLOW
(TAN)	TAN
(BLU)	BLUE
(WH)	WHITE

COLOR MOD

(LT)	LIGHT
(M)	MEDIUM
(DK)	DARK
(LT-M)	
(M-DK)	
(LT-DK)	
(S-P)	SALT/PEP
(WEATH)	WEATHERED

84/03/13 GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
85	0.00	0.03	0.03			OVERBURDEN	
85	0.03	1.03	1.00			ROCK LOSS	
85	1.03	1.06	0.03			MUDSTONE	M.GY.VBRKN ENDS OF CORE ROUNDED
85	1.06	1.09	0.03			SILTSTONE	CLYY.LT.GY.SLD ENDS OF CORE ROUNDED;VERY CALCAREOUS
85	1.09	1.13	0.04			SANDSTONE	VFG.LT.GY.BRKN UNIT APPEARS TO BE WEATHERED ALONG EXIS TING FRACTURES;IRON STAINING
85	1.13	1.15	0.02			MUDSTONE	SLTY.LT.ORNG.VBRKN VERY CALCAREOUS;PERHAPS ORANGE WEATHERE D NODULE BEDS SEEN IN OUTCROP
85	1.15	1.24	0.09			SILTSTONE	CLYY.M.GY.LAM
* 85	1.24	1.33	0.09			SILTSTONE	CLYY.M.GY.LAM.SLD ROCK HAS UNDERGONE WEATHERING ALONG FRA CTURE SURFACES;REACTS TO 10 % HCL APPEA RS TO BE INTERLAMINATED WITH LT GY SILT STONE AND M GY MUDSTONE

* DENOTES MEASURED BCA

84/03/13 GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG PAGE 2

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
60	1.33	1.36	0.03			MUDSTONE	SLTY.LI.BN.LAM.SLD UNIT IS LAMINATED WITH LT GY SILSTONE;S ILSTONE LAM REACT TO HCL;END OF PIECES ROUNDED FROM DRILL
* 45	1.36	1.40	0.04			SILTSTONE	CLYY.M.ORNG.LAM.HRMBU.SLD POSSIBLE IRONSTONE BAND;NOTE - BCA: ITE M IDENTIFIED AS HRMBUR;MAY BE SOMETHING ELSE;PIECE COULD BE FROM CAVE.
62	1.40	1.45	0.05			SILTSTONE	CLYY.LT.GY.LAM.VBRKN SILSTONE INTERLAMINATED WITH MUDSTONE;S ILSTONE REACTS WITH HCL
* 80	1.45	1.50	0.05			SILSTONE	CLYY.MOD.M.GY.LAM.BRKN SILSTONE ALSO SSY AND FER;SURFACES SHOW WEATHERING;ENDS OF CORE ROUNDED BY DRI LL
52	1.50	1.53	0.03			MUDSTONE	SLTY.M.ORNG.LAM.BRKN BRKN SURFACES ARE OXIDIZED
* 20	1.53	1.59	0.06			SANDSTONE	CLYY.VFG.M.GY.LAM.VBRKN PIECE MAY BE SLUMPED (20 DEGREE BCA)
35	1.59	1.63	0.04			MUDSTONE	SLTY.M.GY.LAM.VBRKN SOME ORANGE COLORED LAM;CORE HAS BEEN D AMAGED BY DRILL

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
52	1.63	1.70	0.07			MUDSTONE	SLTY.M.GY.LAM.VBRKN CORE HAS BEEN ROUNDED ; SLTY INTERVALS APPEAR TO HAVE ORANGE STAINING
* 85	1.70	1.85	0.15			SILTSTONE	CLYY.LT.GY.LAM.WRMBU.BRKN SED STRUX APPEAR TO BE BURROWS
85	1.85	1.92	0.07			SILTSTONE	CLYY.LT.GY.LAM.VBRKN SILTSTONE ALSO FER
85	1.92	1.97	0.05			MUDSTONE	CLYY.LT.TAN.BRKN MUDSTONE ALSO FER;POSSIBLE TUFF;REACTS WITH HCL;SOFT-EASILIY SCRATCHED WITH FI NGERNAIL
85	1.97	2.07	0.10			MUDSTONE	SLTY.M.GY.LAM.VBRKN MUDSTONE ALSO FER;CORE IS HIGHLY BROKEN AND ROUNDED;FRACTURE FACE INDICATES WE ATHERING
85	2.07	2.31	0.24			SILTSTONE	CLYY.M.GY.LAM.VBRKN SILTSTONE ALSO SSY AND FER
84	2.31	2.54	0.23			SILTSTONE	CLYY.M.GY.LAM.VBRKN SILSTONE ALSO SSY AND FER;ORANGE WEATHE RING IRONSTONE CONCRETIONS FROM .11 TO .13 METERS;UNIT BECOMES SANDIER TOWARDS BASE;NOTE-PURP TINT ON SOME FRACTURE F ACES;ALL LAM APPEAR UNIFORM

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 84	2.54	2.68	0.14			SANDSTONE	CLYY.VFG.MOD.LT.GY.LAM.VBRKN LAM APPEAR UNIFORM;ORANGE WEATHERING IR ONSTONE BAND AT .08 CM
82	2.68	2.83	0.15			MUDSTONE	SLTY.MOD.M.GY.LAM.VBRKN ORANGE WEATHERED IRONSTONE BAND AT .14 AND .16 M;POSSIBLE IRONSTONE NODULES; N OTE-PURP COLORED FRACTURE SURFACES
80	2.83	3.04	0.21			SANDSTONE	SLTY.MOD.M.GY.LAM.VBRKN SANDSTONE ALSO CLYY;UNIFORM LAMINATIONS ;FEW ORANGE TO BROWN WEATHER BANDS- GEN ERALLY .01 TO .02 M THICKNESS;FRACTURE SURFACES OXIDIZED
* 75	3.04	3.59	0.55			MUDSTONE	SLTY.M.GY.LAM.VBRKN UNIFORM LAMINATIONS WHERE PRESENT;UNIT STILL APPEARS TO HAVE ORANGE TO ORANGE BROWN BANDING-ACYCLIC NATURE TO IT (VAR YED ALMOST);FRACTURE SURFACES HAVE PURP AND RED STAINING;CORE EXTREMELY BRKN;B ANDING COULD BE IRONSTONE IN NATURE
73	3.59	4.57	0.98			ROCK LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: HKD83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
71	4.57	5.06	0.49			ROCK LOSS	
70	5.06	5.14	0.08			MUDSTONE	SLTY.M.GY.VTHN8.VBRKN CLAY AND IRONSTONE NODULE AT .06 M:FRAC TURE SURFACES SHOW WEATHERING FEATURES
* 70	5.14	5.22	0.08			SILTSTONE	CLYY.MOD.LT.GY.LAM.BRKN SILTSTONE ALSO FER:CORE IS ROUNDED DUE TO DRILL
73	5.22	5.64	0.42			MUDSTONE	SLTY.M.GY.LAM.VBRKN ORANGE-BROWN LAMINATING OCCUR THROUGHOU T MEASURED INTERVAL EVERY .01 TO .05 M ON AVERAGE; CLAY GALL AT 0.23 METERS
77	5.64	5.71	0.07			MUDSTONE	SLTY.M.GY.VBRKN ALL PIECES HAVE BEEN TURNED IN DRILL CO RE
* 80	5.71	6.10	0.39			MUDSTONE	SLTY.M.GY.LAM.VBRKN ALL FRACTURE FACES ARE OXIDIZED AND COV ERED WITH LIMONITE STAIN AND PURPLE STA IN-FRACTURE ANGLE 45 AND 90 DEGREES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: HKD83001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	6.10	6.16	0.06			MUDSTONE	M.GY.LAM.VBRKN
* 72	6.16	6.34	0.18			MUDSTONE	SLTY.M.GY.LAM.VBRKN FRACTURE ANGLES 20 AND 90 DEG;ALL FRACT URE SURFACES ARE OXIDIZED;SOME PIECES H EAVILIY GROUND BY DRILL
72	6.34	6.58	0.24			MUDSTONE	SLTY.M.GY.LAM.VBRKN IRON STAINED FRACTURES THROUGHOUT
72	6.58	6.63	0.05			MUDSTONE	LT.GY.SLD INTERVAL MARKS UNIT WHICH IS MUCH LIGHT ER IN COLOR THAN UNITS ABOVE;MAS SOFT S OAPY TEXTURE
72	6.63	6.81	0.18			MUDSTONE	SLTY.LT.GY.LAM.VBRKN CLAY-IRONSTONE NODULE AT .09 M ******** *END OF CORE;7.01 M**********; CORE BA RREL TWISTED OFF;HOLE LOST DUE TO CAVEI N
72	6.81	7.01	0.20			ROCK LOSS	**********END OF CORE (7.01M)********** *** HOLE LOST DUE TO CAVE;CORE BARREL T WISTED OFF

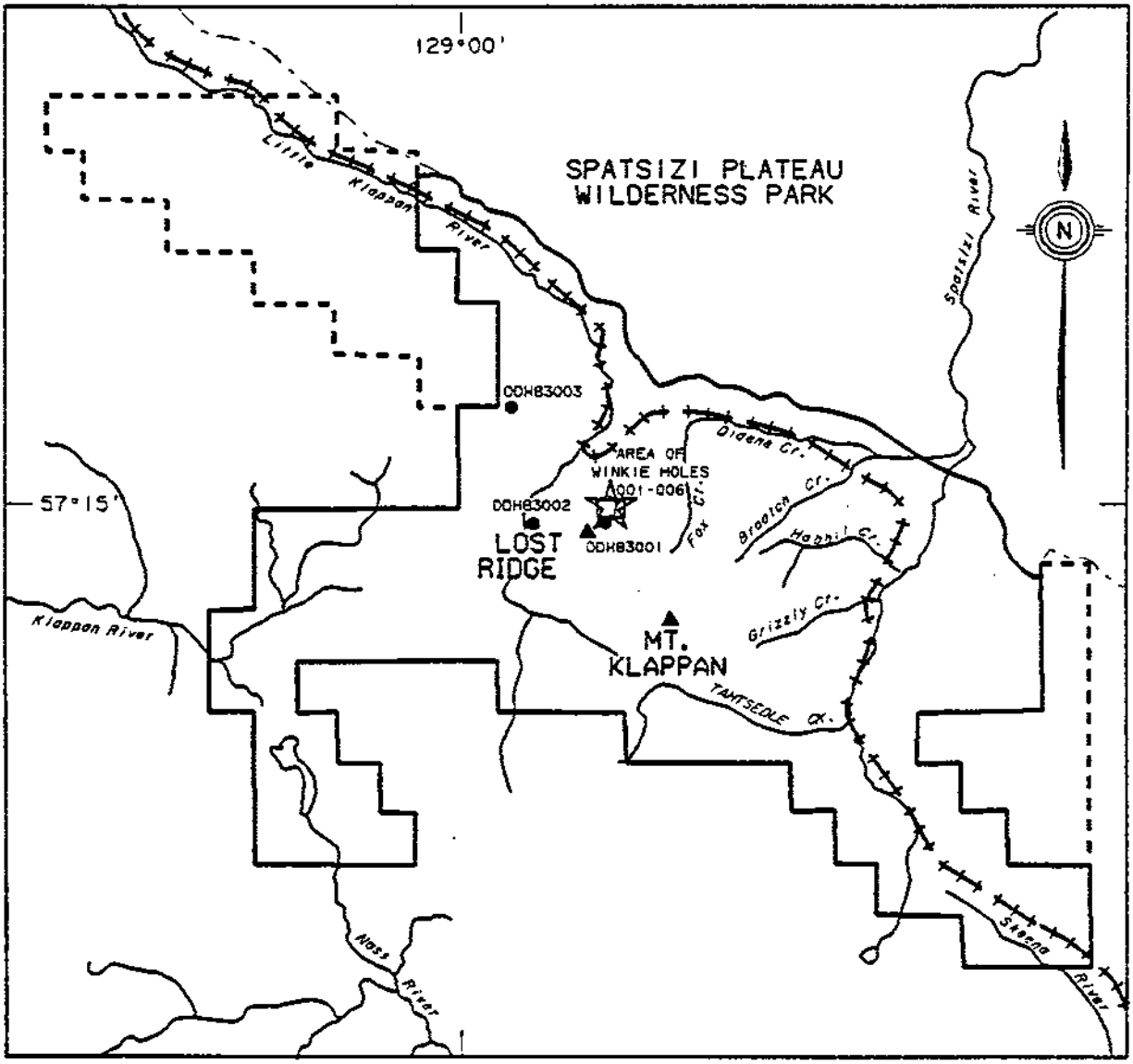
* DENOTES MEASURED BCA

NEWPAGE

KPNLRWKD 83002

MT. KLAPPAN COAL PROPERTY

1983 WINKIE DIAMOND DRILL HOLES
WKD83001 -WKD83006



LEGEND

- PREPARED RAIL BED
- PROVINCIAL PARK BOUNDARY
- HQ DIAMOND DRILL HOLE - 1983
- AIX WINKIE HOLES - 1983 001-006
- ADIT 1983
- LICENCE AREA
- LICENCES UNDER APPLICATION

SCALE

0 1 2 3 4 5 km

GULF CANADA RESOURCES INC.
09/03/84

Gulf

GULF CANADA RESOURCES INC.

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

DATA SOURCE - KPNLRWK083002 DATE - 12/04/84

- H I S T O R Y -

START DATE - 07/09/83
END DATE - 07/10/83

CONTRACTOR - TECK CORP
GEOLOGIST - C WILLIAMS
OPERATOR - GCRI
SURVEYOR -

REMARKS - ENTIRE HOLE INCLUDING COAL SHOW SIGNS OF OXIDATION . TIGHT INTERVAL AT APPROXIMATELY 3.05 METERS AND AGAIN AT 8.23 METERS.

- L O C A T I O N -

PROVINCE - BC
ELEVATION - 1827.00
ZONE - 9
NORTHING - 6344340.00
EASTING - 505758.00

LICENCE/LEASE NUMBER - 0

LATITUDE - 0
LONGITUDE - 0

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

LENGTH - 17.22
INCLINATION - 90.0
AZIMUTH - 0.0

CORE SIZE - 34.0

CEMENT - N
PLUG - N
PIEZ -

CASING DEPTH(M) - 2.74
AQUIFER DEPTHS(M) - 0.00
0.00
LOST CIRC. DEPTHS(M) - 0.00
0.00

*** NOTE *** 0 INDICATES NO VALUE

MT. KLAPPAN COAL PROPERTY

1983 WINKIE DIAMOND DRILL HOLE
WKD83002

SEAM		SEAM THICKNESS
1		4.8m

SCALE: 1:1000

GULF CANADA RESOURCES INC.
09/03/84

KPNLRWKD 83002

DESCRIPTIVE LOG

VALID COMPONENT DESCRIPTION CODES

MODIFIER

ROCK (PBLY) PEBBLY
(SSY) SANDY (PYR) PYRITIC
(SLTY) SILTY
(CLYY) CLAYEY
(CARB) CARBONACEOUS
(GYP) GYPSIFEROUS
(FER) FERRUGINOUS
COAL (C-1,C-2,C-3)
(C-4,C-5,C-6)

SED STRUCTURES
(XBDG) CROSS BEDDED
(WRMBUR) WORM BURROW
(RIPMK) RIPPLE MARKS
(BIOTRB) BOITURBATED
(RTB) ROOTLET BED
(SSD) SOFT SED.DEF.

SORTING
(VPR) VERY POOR
(PR) POOR
(MOD) MODERATE
(WEL) WELL
(VWEL) VERY WELL

GRAIN SIZE

(CBL) COBBLE
(PBL) PEBBLE
(GRAN) GRANULAR
(VCG) VERY COARSE GRAINED
(CG) COARSE GRAINED
(MG) MEDIUM GRAINED
(FG) FINE GRAINED
(VFG) VERY FINE GRAINED

BEDDING

(MAS) MASSIVE
(VTHKB) VERY THICK
(THKB) THICK
(MB) MEDIUM
(THNB) THIN
(VTHNB) VERY THIN
(LAM) LAMINATED

CORE STATE

(PWRD) POWDERED
(VSHRD) VERY SHEARED
(SHRD) SHEARED
(VBRKN) VERY BROKEN
(BRKN) BROKEN (SLD) SOLID

COLOR

(BLK) BLACK
(BN) BROWN
(BF) BUFF
(GN) GREEN
(GY) GREY
(MAR) MAROON
(ORNG) ORANGE
(PURP) PURPLE
(YEL) YELLOW
(TAN) TAN
(BLU) BLUE
(WH) WHITE

COLOR MOD
(LT) LIGHT
(M) MEDIUM
(DK) DARK
(LT-M)
(M-DK)
(LT-DK)
(S-P) SALT/PEP
(WEATH) WEATHERED

PROJECT: KPN BLOCK: LR DATA SOURCE: WKDB3002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	0.00	0.89	0.89			ROCK LOSS	
75	0.89	0.99	0.10			SANDSTONE	SLTY.VFG.WEL.LT.GY.THNB.XBDG.BRKN END OF CORE PIECES ARE ROUNDED;POSSIBLE CORE LOSS
75	0.99	1.21	0.22			SILTSTONE	CLYY.LT.TAN UNIT APPEARS VERY SOFT
75	1.21	1.22	0.01			MUDSTONE	SLTY.LT.GY VERY SOFT-ALMOST LIKE A CLAY;POSSIBLE CORE LOSS
75	1.22	1.87	0.65			ROCK LOSS	
75	1.87	2.00	0.13			SILTSTONE	CLYY.M.GY.LAM.VBRKN POSSIBLE CORE LOSS
* 75	2.00	2.31	0.31			SILTSTONE	CLYY.M.GY.LAM.WRMBU.VBRKN ABUNDANT INTERSTITUAL LIMONITE STAINING
76	2.31	2.35	0.04			SILTSTONE	CLYY.LT.GY.LAM.VBRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKDB3002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
77	2.35	2.51	0.16			SILTSTONE	CLYY.LT.GY.LAM.VBRKN HEAVY OXIDATION ALONG FRACTURES;LIMONITE STAINING
78	2.51	2.59	0.08			SILTSTONE	CLYY.LT.GY.LAM.VBRKN POSSIBLE CORE LOSS AT END OF UNIT
79	2.59	2.69	0.10			SILTSTONE	CLYY.LT.GY.VBRKN
* 80	2.69	2.87	0.18			SILTSTONE	CLYY.LT.GY.VBRKN
83	2.87	3.05	0.18			ROCK LOSS	
* 90	3.05	3.71	0.66			SILTSTONE	CLYY.LT.GY.LAM.VBRKN POSSIBLE CORE LOSS THROUGHOUT;UNIT EXHIBITS SOME FACILITY;ORANGE COLOURED CLAY NODULES PRESENT THROUGHOUT.
85	3.71	3.98	0.27			MUDSTONE	SLTY.LT.GY.LAM.VBRKN
82	3.98	4.19	0.21			MUDSTONE	SLTY.LT.GY.LAM.VBRKN LIMONITE STAINING ON FRACTURE SURFACES AND AROUND CLAY NODULES;POSSIBLE CORE LOSS THROUGHOUT;CORE ENDS ARE ROUNDED

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
79	4.19	4.42	0.23			ROCK LOSS	
* 75	4.42	4.98	0.56			SILTSTONE	CLYY.M.GY.LAM.VBRKN FEW ORANGE WEATHER CLAY NODULES THROUGH OUT
* 75	4.98	5.71	0.73			MUDSTONE	SLTY.M.GY.LAM.VBRKN
74	5.71	5.79	0.08			ROCK LOSS	
* 72	5.79	6.75	0.96			MUDSTONE	SLTY.M.GY.LAM.VBRKN NUMEROUS ORANGE WEATHER CLAY NODULES TH ROUGHOUT;ALL FRACTURE SURFACES HEAVILY OXIDIZED
72	6.75	6.86	0.11			ROCK LOSS	
* 72	6.86	7.42	0.56			MUDSTONE	SLTY.M.GY.LAM.VBRKN NUMEROUS CLAY GALLS THROUGHOUT-ORANGE W EATHERING;POSSIBLE CORE LOSS THROUGHOUT ;SOME PIECES ARE ROUNDED OFF BY DRILL

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
76	7.42	8.19	0.77			MUDSTONE	SLTY.M.GY.LAM.VBRKN PIECES ROUNDED OFF BY DRILL
76	8.19	8.38	0.19			ROCK LOSS	
79	8.38	9.48	1.10			MUDSTONE	SLTY.M.GY.LAM.VBRKN NUMEROUS CLAY GALLS THROUGHOUT;POSSIBLE CORE LOSS;PIECES ROUNDED BY DRILL
81	9.48	9.62	0.14			MUDSTONE	SLTY.M.GY.VBRKN CLAY NODULES AT .01M AND .04M;FRACTURE SURFACES OXIDIZED WITH LIMONITE STAININ G
82	9.62	9.91	0.29			CORE LOSS	
* 83	9.91	10.40	0.49			MUDSTONE	SLTY.M.GY.LAM.BRKN CLAY-ORANGE BROWN WEATHER NODULES AT .0 4M AND .20M;ALL FRACTURE SURFACES OXIDI ZED-SHOW LIMONITE COATING
* 77	10.40	10.82	0.42			MUDSTONE	SLTY.M.GY.LAM.BRKN ORANGE WEATHER CLAY NODULES AT .00M & .10M & .21M & .33M;FRACTURE BCA 20-40 DE G;FRACTURE SURFACES OXIDIZED

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 80	10.82	11.27	0.45			MUDSTONE	SLTY.M.GY.LAM.BRKN ORANGE WEATHERING CLAY NODULES AT .02M & .10M & .19M
79	11.27	11.38	0.11			MUDSTONE	SLTY.M.GY.LAM.VBRKN CORE IS VERY BADLY BRKN WITH ROUNDED EN DS;AREA OF POSSIBLE CORE LOSS
* 77	11.38	12.41	1.03			MUDSTONE	SLTY.M.GY.LAM.VBRKN ORANGE WEATHERING CLAY NODULES OR BANDS EVERY .07M & .25M & .56M & .66M & .80M ETC.;POSSIBLE WORM BURROW AT .15M
77	12.41	12.45	0.04	06352	I	COAL	C-5.BLK.PWRD UNIT CONSISTS OF GROUNDUP COAL AND MUDS TONE FROM DRILL
77	12.45	12.46	0.01	06352	I	COAL	C-5.BLK.VBRKN CORE VBRKN TO PWRD;VERY BADLY WEATHERED
77	12.46	12.48	0.02	06352	I	COAL	C-1.BLK.VBRKN ABUNDANT GYPSUM ALONG CLEAT FACES;CRUMB LES READILY
77	12.48	12.59	0.11	06352	I	COAL	C-3.BLK.VBRKN CORE VBRKN TO PWRD;CLEAT FACE CONTAINS LIMONITE STAINING

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
77	12.59	12.61	0.02	06352	I	COAL	C-2.BLK.SLD OXIDIZED ALONG CLEAT FACES
77	12.61	12.62	0.01	06352	I	COAL	C-4.BLK SEVERAL 1MM ASH BANDS
77	12.62	12.65	0.03	06352	I	COAL	C-3.BLK.SLD OXIDIZED ALONG CLEAT FACES
77	12.65	12.67	0.02	06352	I	COAL	C-6.BLK.SLD SEVERAL .5MM BRIGHT BANDS & A 2.0MM BRI GHT BAND;TOP ROUNNDED-POSSIBLE CORE LOS S AT EITHER END
77	12.67	12.68	0.01	06352	I	CLAYSTONE	CARB.M.GY.PWRD
77	12.68	12.71	0.03	06352	I	COAL	C-4.BLK.SLD DIFFICULT TO DETERMINE MODIFIER SINCE A LL CLEAT FACES ARE COVERED WITH LIMONIT E
77	12.71	12.74	0.03	06352	I	COAL	C-2.BLK.SLD SEVERAL 2.0MM DULL C-5 BANDS THROUGH CE NTER

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
77	12.74	12.78	0.04	06352 I		COAL	C-4.BLK.SLD ABUNDANT GYPSUM? ON CLEAT FACES-DIFFICU LT TO DETERMINE MODIFIER;POSSIBLE CORE
77	12.78	12.79	0.01	06352 I		ROCK LOSS	
77	12.79	12.81	0.02	06352 I		MUDSTONE	CARB.PHRD POSSIBLE CORE LOSS
77	12.81	12.82	0.01	06352 I		MUDSTONE	CARB.SLD ONE 2MM C-1 BAND
77	12.82	12.85	0.03	06352 I		COAL	C-2.BLK.SLD SEVERAL 1-2MM ASH BANDS AT 1CM AND 2.5C M;CLEAT FACES COVERED BY GYPSUM? AND HE MATITE STAINING
77	12.85	12.86	0.01	06352 I		COAL	C-5.BLK.SLD CLEAT FACES COVERED AS ABOVE
77	12.86	12.89	0.03	06352 I		COAL	C-3.BLK.SLD CLEATS COVERED AS ABOVE
77	12.89	12.90	0.01	06352 I		COAL	C-5.BLK.SLD POSSIBLE 2-3MM ASH BAND
77	12.90	12.91	0.01	06352 I		COAL	C-3.BLK.SLD SEVERAL SMALL 1MM ASH BANDS AT BASE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
77	12.91	12.96	0.05	06352 I		COAL	C-3.BLK.SLD CLEAT FACES COVERED WITH GYPSUM
77	12.96	12.98	0.02	06352 I		COAL	C-3.BLK.SLD 3MM ASH BAND AT TOP
77	12.98	12.99	0.01	06352 I		COAL	C-4.BLK.SLD NOTE-BLUE AND PURPLE SHEEN ON CLEAT FAC ES
77	12.99	13.02	0.03	06352 I		COAL	C-2.BLK.SLD DIFFICULT TO DETERMINE MODIFIER DUE TO COATING OF GYPSUM ON ALL CLEAT FACES
77	13.02	13.04	0.02	06352 I		COAL	C-2.BLK.VBRKN
77	13.04	13.06	0.02	06352 I		COAL	BLK.SLD OXIDIZED
77	13.06	13.08	0.02	06352 I		COAL	C-2.BLK.SLD OXIDIZED-CLEAT FACES ARE COVERED WITH M INERAL DEPOSITS
77	13.08	13.09	0.01	06352 I		COAL	C-5.BLK.SLD SEVERAL APPARENT 1MM ASH BANDS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
77	13.09	13.11	0.02	06352	I	COAL	C-4.BLK.SLD AS ABOVE
77	13.11	13.12	0.01	06352	I	MUDSTONE	CARB.PHRD
77	13.12	13.13	0.01	06352	I	COAL	C-4.BLK.SLD SEVERAL 1MM ASH BANDS THROUGHOUT
77	13.13	13.14	0.01	06352	I	COAL	C-2.BLK
77	13.14	13.15	0.01	06352	I	COAL	C-4.BLK
77	13.15	13.16	0.01	06352	I	MUDSTONE	CARB.SLD GREEN STAIN ON CLEAT FACES
77	13.16	13.18	0.02	06352	I	COAL	C-3.BLK.SLD SEVERAL 1MM ASH BANDS
77	13.18	13.21	0.03	06352	I	COAL	C-1.BLK.SLD
77	13.21	13.24	0.03	06352	I	COAL	C-2.BLK.SLD OXIDIZED
77	13.24	13.34	0.10	06352	I	COAL	C-3.BLK.SLD OXIDIZED COATINGS ON ALL SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
77	13.34	13.39	0.05	06352	I	COAL	C-2.BLK.SLD
77	13.39	13.43	0.04	06352	I	COAL	C-2.BLK.SLD
77	13.43	13.45	0.02	06352	I	COAL	C-3.BLK.SLD
77	13.45	13.48	0.03	06352	I	COAL	C-1.BLK.SLD 1MM ASH BAND AT END OF MEASURMENT
77	13.48	13.50	0.02	06352	I	COAL	C-1.BLK.VBRKN
77	13.50	13.51	0.01	06352	I	COAL	C-3.BLK.SLD
77	13.51	13.52	0.01	06352	I	COAL	C-4.BLK.SLD GREEN COATING-SARICITE
77	13.52	13.55	0.03	06352	I	COAL	C-3.BLK.SLD
77	13.55	13.59	0.04	06352	I	COAL	C-3.BLK.SLD
77	13.59	13.61	0.02	06352	I	COAL	C-4.BRKN OXIDIZED

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
77	13.61	13.62	0.01	06352	I	COAL	C-2.BRKN OXIDIZED
77	13.62	13.64	0.02	06352	I	COAL	C-3.BLK.SLD OXIDIZED
77	13.64	13.65	0.01	06352	I	COAL	C-4.BLK.SLD OXIDIZED
77	13.65	13.68	0.03	06352	I	COAL	C-4.BLK.SLD
77	13.68	13.69	0.01	06352	I	COAL	C-1.BLK.VBRKN PWRD IN TRAY
77	13.69	13.70	0.01	06352	I	COAL	C-2.BLK.SLD
77	13.70	13.75	0.05	06352	I	COAL	C-4.BLK.SLD
77	13.75	13.78	0.03	06352	I	COAL	C-2.BLK.VBRKN
77	13.78	13.87	0.09	06352	I	COAL	C-1.BLK.SLD
77	13.87	13.89	0.02	06352	I	COAL	C-5.BLK.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
77	13.89	13.99	0.10	06353	I	CLAY	CARB.SLD
77	13.99	14.01	0.02	06353	I	COAL	C-4.BLK.SLD
77	14.01	14.02	0.01	06353	I	MUDSTONE	CARB.SLD GREEN OXIDATION MATERIAL ON FRACTURE SURFACES
77	14.02	14.07	0.05	06353	I	COAL	C-4.BLK.SLD SEVERAL 3MM BRIGHT BANDS THROUGHOUT
77	14.07	14.09	0.02	06353	I	MUDSTONE	CARB.BRKN OXIDIZED GREEN COATING ON FRACTURE SURFACES
77	14.09	14.11	0.02	06353	I	COAL	C-3.SLD SEVERAL 1MM ASH BANDS THROUGHOUT
77	14.11	14.14	0.03	06353	I	COAL	C-3.BLK AS ABOVE
77	14.14	14.16	0.02	06353	I	COAL	C-4.BLK.SLD GREENISH STAINED AND VUGGY PLANT MATERIAL:UNIT IS VERY DIRTY AT END OF MEASUREMENT

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
77	14.16	14.17	0.01	06353	I	COAL	C-5.BLK
77	14.17	14.19	0.02	06353	I	COAL	C-3.BLK.BRKN SEVERAL 2 MM AS ABOVE
77	14.19	14.34	0.15	06353	I	ROCK LOSS	
77	14.34	14.44	0.10	06353	I	COAL LOSS	
77	14.44	14.45	0.01	06353	I	COAL	C-1.BLK.VBRKN POWDER
77	14.45	14.50	0.05	06353	I	COAL	C-3.BLK.SHRD OXIDIZED
77	14.50	14.52	0.02	06353	I	COAL	C-1.BLK.SLD COAL IS SHEARED;OXIDIZED
77	14.52	14.53	0.01	06353	I	COAL	C-4.BLK.SLD VERY HEAVILIY OXIDIZED WITH LIMONITE AN D GREEN STAINING
77	14.53	14.54	0.01	06353	I	COAL	C-3.BLK.BRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
77	14.54	14.56	0.02	06353	I	COAL	C-4.BLK.BRKN OXIDIZED
77	14.56	14.58	0.02	06353	I	COAL	C-1.BLK.BRKN
77	14.58	14.60	0.02	06353	I	COAL	C-1.BLK.BRKN
77	14.60	14.62	0.02	06353	I	COAL	C-1.BLK.SLD
77	14.62	14.65	0.03	06353	I	COAL	C-2.BLK.BRKN OXIDIZED
77	14.65	14.68	0.03	06353	I	COAL	C-2.BLK.BRKN OXIDIZED
77	14.68	14.89	0.21	06353	I	COAL LOSS	
77	14.89	14.94	0.05	06353	I	ROCK LOSS	
77	14.94	14.99	0.05	06353	I	COAL	BLK.PWRD POSSIBLE CORE LOSS AT THIS POINT
77	14.99	15.03	0.04	06353	I	COAL	C-3.BLK

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: MKD83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
77	15.03	15.04	0.01	06353	I	COAL	C-4.BLK.SLD OXIDIZED
77	15.04	15.09	0.05	06353	I	COAL	C-1.BLK.SLD
77	15.09	15.14	0.05	06353	I	COAL	C-2.BLK.VBRKN OXIDIZED
77	15.14	15.16	0.02	06353	I	COAL	C-4.BLK.SLD
77	15.16	15.18	0.02	06353	I	COAL	C-2.BLK.SLD
77	15.18	15.19	0.01	06353	I	MUDSTONE	CARB.SLD
77	15.19	15.21	0.02	06353	I	COAL	C-4.SLD 3 MM BRIGHT BAND AT THE TOP OF MEASUREM ENT
77	15.21	15.22	0.01	06353	I	COAL	C-2.SLD OXIDIZED
77	15.22	15.26	0.04	06353	I	COAL	C-2.BLK.BRKN SEVERAL MM ASH BANDS NEAR TOP OF MEASUR EMENT

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: MKD83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
77	15.26	15.28	0.02	06353	I	COAL	C-1.BLK.SLD
77	15.28	15.30	0.02	06353	I	COAL	C-3.BLK.SLD SEVERAL MM ASH BANDS
77	15.30	15.32	0.02	06353	I	COAL	C-3.BLK.SLD
77	15.32	15.36	0.04	06353	I	COAL	C-1.BLK.SLD
77	15.36	15.46	0.10	06353	I	COAL	C-1.BLK.SLD
77	15.46	15.50	0.04	06353	I	COAL	C-2.BLK.SLD SEVERAL 1 MM ASH BANDS
77	15.50	15.52	0.02	06353	I	COAL	C-1.BLK.SLD OXIDIZED STAINING ON ALL FACES
77	15.52	15.56	0.04	06353	I	COAL	C-2.BLK.SLD SEVERAL 1 MM ASH BANDS
77	15.56	15.61	0.05	06353	I	COAL	C-1.BLK.SLD OXIDIZED

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
77	15.61	15.68	0.07	06353	I	COAL	C-2.BLK.SLD OXIDIZED
77	15.68	15.70	0.02	06353	I	MUDSTONE	CARB.SLD SEVERAL BRIGHT BANDS;NOTE HEAVY GREEN S TAINING THROUGHOUT
77	15.70	15.76	0.06	06353	I	COAL	C-1 WHITE FLAKES ON ALL FRACTURE SURFACES
77	15.76	15.93	0.17	06353	I	COAL	C-1.BLK.SLD SEVERAL 1 MM ASH BANDS NEAR BASE
77	15.93	15.97	0.04	06353	I	COAL	C-4.BLK.SLD 2 MM ASH BANDS AT BASE
77	15.97	16.12	0.15	06353	I	COAL	C-2.BLK SEVERAL 2-5MM BRIGHT BANDS THROUGHOUT:S EVERAL 1MM ASH BANDS AT TOP AND BOTTOM OF UNIT:OXIDATION PRESENT ON CLEAT FACE S OF COAL;LIMONITE STAINING AND WHITE C OATING GYPSUM?
77	16.12	16.17	0.05	06353	I	COAL	C-1.BLK.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
77	16.17	16.19	0.02	06353	I	COAL	C-2.BLK.VBRKN
77	16.19	16.21	0.02	06353	I	COAL	C-1.BLK.VBRKN
77	16.21	16.23	0.02	06353	I	COAL	C-3.BLK.VBRKN POWDER
77	16.23	16.38	0.15	06353	I	COAL LOSS	
77	16.38	16.41	0.03	06353	I	COAL	C-3.BLK.BRKN
77	16.41	16.42	0.01	06353	I	COAL	C-1.BLK.BRKN
77	16.42	16.47	0.05	06353	I	COAL	C-2.BLK.BRKN OXIDIZED

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
77	16.47	16.51	0.04	06353	I	COAL	C-3.BLK
77	16.51	16.56	0.05	06353	I	COAL	C-2.BLK.SLD SEVERAL 1MM ASH BANDS THROUGHOUT
77	16.56	16.59	0.03	06353	I	COAL	C-2.BLK.BRKN
77	16.59	16.67	0.08	06353	I	COAL	C-1.BLK.YBRKN
77	16.67	16.70	0.03	06353	I	COAL	C-2.BLK.BRKN SEVERAL 1MM ASH BANDS
77	16.70	16.74	0.04	06353	I	COAL	C-1.BLK.BRKN
77	16.74	16.87	0.13	06353	I	COAL	C-2.BLK.YBRKN
77	16.87	16.89	0.02	06353	I	COAL	C-4.BLK.YBRKN
77	16.89	16.91	0.02	06353	I	COAL	C-4.BLK.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
77	16.91	17.00	0.09	06353	I	COAL	C-3.BLK.SLD SEVERAL 1MM ASH BANDS AT TOP;REDDISHSTA IN ON CLEAT FACES
77	17.00	17.03	0.03	06353	I	COAL	C-4.BLK.PWRD
77	17.03	17.18	0.15	06353	I	COAL LOSS	
77	17.18	17.24	0.06			MUDSTONE	CARB.DK.GY.BRKN LIMONITE STAINING ON FRACTURE FACES;POS SIBLE CORE LOSS
77	17.24	17.62	0.38			MUDSTONE	CARB.M.GY.BRKN POSSIBLE CORE LOSS ;NOTE-ENTIRE HOLE HA S HEAVY STAINING ON ALL FRACTURE SURFAC ES - OM TO 17.22M. THEREFORE ENTIRE HOL E MAY BE OXIDIZED.

* DENOTES MEASURED BCA
NEWPAGE

KPNLRWKD 83002

COAL SEAM DATA SHEETS

GULF CANADA RESOURCES INC. - COAL DIVISION

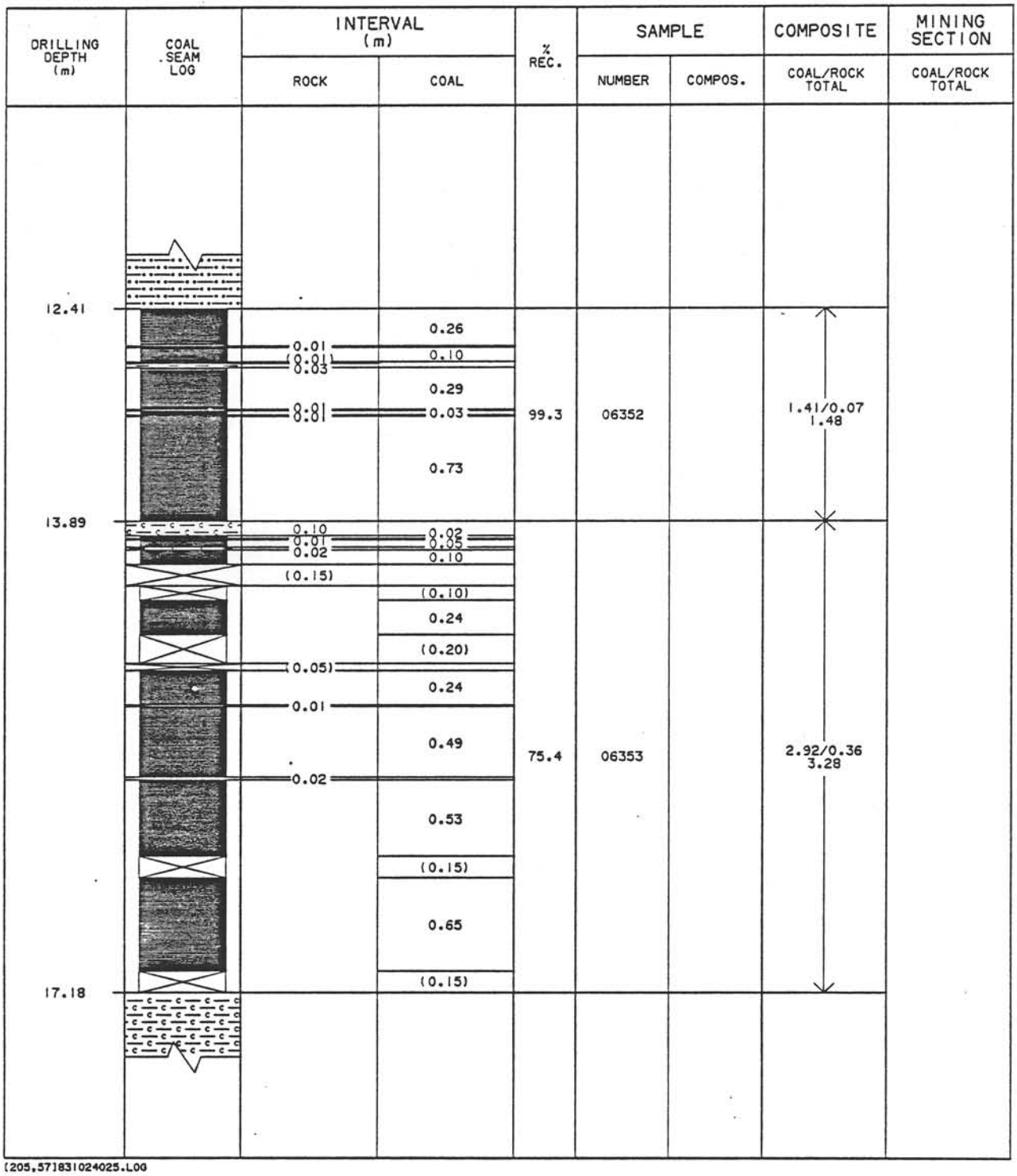
15/MAR/84

SIMPLE SAMPLE SUMMARY

APPARENT THICKNESS

KLAPPAN PROJECT

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK	TOTAL COAL-ROCK
WKD83002										
		6352	12.41	13.89	99.32	1.41	0.06	0.00	0.01	1.41- 0.07
		6353	13.89	17.18	75.37	2.32	0.16	0.61	0.20	2.93- 0.36



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GULF CANADA RESOURCES INC.	Gulf
MT. KLAPPAN COAL PROPERTY SEAM DETAIL TRUE THICKNESS WKD83002 SEAM 1	
DRAWN BY: C. LOUIE	SCALE: 1:40
APPROVED BY: C. WILLIAMS	DATE: FEB 1984

GULF CANADA RESOURCES INC.
COAL DIVISION

COAL SEAM DATA SHEET

APPARENT DENSITY GRAMS/cc _____ RESISTIVITY _____

DRILL No. WKD-83002 SEAM _____

SCALE 1:40 FORMATION KLAPPAN SEQUENCE

APPARENT THICKNESS
SEAM INTERVAL 12.41m-17.18m

DENSITY SCALE 1.30 1.40 1.50 1.60 1.70 1.80 1.90 2.00 2.10 2.20 2.30 2.40 2.50 2.60 2.70 2.80 2.90

RESISTIVITY SCALE KOHM m 1 2 3 4 5 6 7 8 9

GEOPHYSICAL LOGS

SEAM COMP. 1 2 3 4 5 6

DEPTH (m)	COAL SEAM LOG	INTERVAL (m) ROCK	INTERVAL (m) COAL	% REC.	SAMPLE NUMBER	SAMPLE COMPOS.	PROXIMATE ANALYSIS MOIST	ASH	VM	FC	S'	CAL. VAL. MJ/KG	FSI
12.41			0.26										
		0.01											
		0.01	0.10										
		0.03											
			0.29										
		0.01	0.03	99.3	06352		1.70	19.10	7.70	71.50	0.45	6292	
			0.73										
13.89		0.10	0.02										
		0.01	0.05										
		0.02	0.10										
		(0.15)											
			(0.10)										
			0.24										
			(0.21)										
		0.05											
			0.24										
		0.01											
			0.49	75.4	06353		1.70	22.10	7.50	68.70	0.41	5957	
		0.02											
			0.53										
			(0.15)										
			0.65										
17.18			(0.15)										

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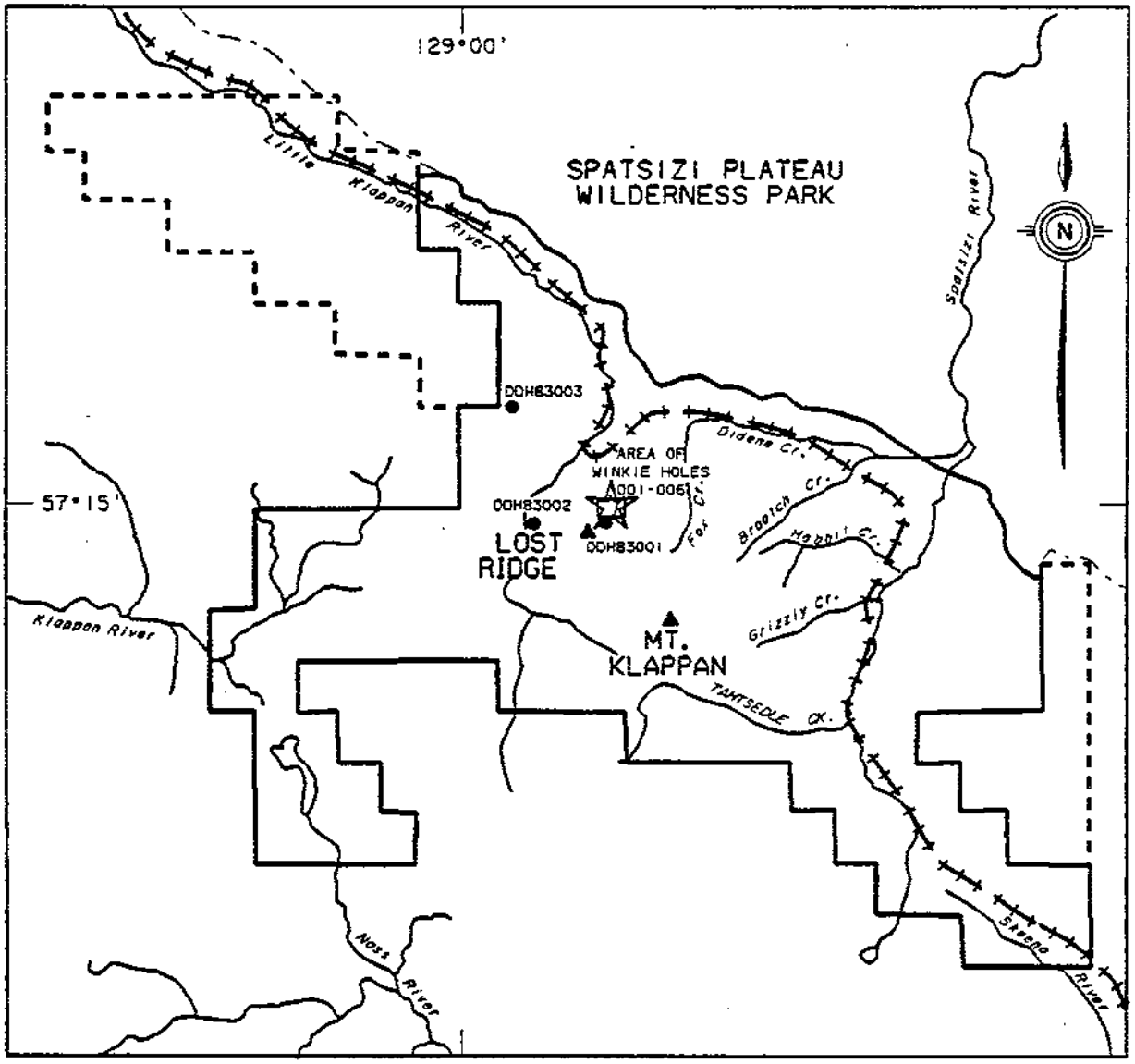
KPNLRWKD 83003

MT. KLAPPAN COAL PROPERTY

1983 WINKIE DIAMOND DRILL HOLES
WKD83001 -WKD83006



LEGEND

- PREPARED RAIL BED
- PROVINCIAL PARK BOUNDARY
- HQ DIAMOND DRILL HOLE - 1983
- AIX WINKIE HOLES - 1983 001-006
- ADIT 1983
- LICENCE AREA
- LICENCES UNDER APPLICATION

SCALE

0 1 2 3 4 5 km

GULF CANADA RESOURCES INC.
09/03/84

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

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

DATA SOURCE - KPNLRWKD83003 DATE - 12/04/84

- H I S T O R Y -

START DATE - 07/11/83
END DATE - 07/14/83

CONTRACTOR - TECK CORP
GEOLOGIST - C. WILLIAMS
OPERATOR - GCRI
SURVEYOR -

REMARKS - RIG DOWN FROM 12/07/83 TO 13/07/83;ENTIRE HOLE SHO
WS SIGNS OF OXIDATION INCLUDES COAL SEAM

- L O C A T I O N -

PROVINCE - BC
ELEVATION - 1832.00
ZONE - 9
NORTHING - 6344324.00
EASTING - 505758.00

LICENCE/LEASE NUMBER - 0

LATITUDE - 0
LONGITUDE - 0

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

LENGTH - 21.00
INCLINATION - 90.0
AZIMUTH - 0.0

CORE SIZE - 34.0

CEMENT - N
PLUG - N
PIEZ -

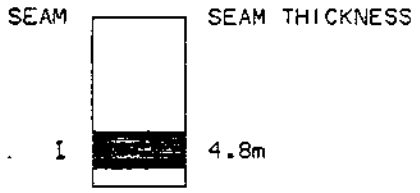
CASING DEPTH (M) - 4.89
AQUIFER DEPTHS (M) - 0.00
0.00
LOST CIRC. DEPTHS (M) - 0.00
0.00

*** NOTE *** 0 INDICATES NO VALUE

==========

MT. KLAPPAN COAL PROPERTY

1983 WINKIE DIAMOND DRILL HOLE
WKD83003



SCALE: 1:1000

GULF CANADA RESOURCES INC.
09/03/84

KPNLRWKD 83003

DESCRIPTIVE LOG

VALID COMPONENT DESCRIPTION CODES

MODIFIER

ROCK (PBLY) PEBBLY
(SSY) SANDY (PYR) PYRITIC
(SLTY) SILTY
(CLYY) CLAYEY
(CARB) CARBONACEOUS
(GYP) GYPSIFEROUS
(FER) FERRUGINOUS
COAL (C-1,C-2,C-3)
(C-4,C-5,C-6)

SED STRUCTURES

(XBDG) CROSS BEDDED
(WRMBUR) WORM BURROW
(RIPMK) RIPPLE MARKS
(BIOTRB) BOITURBATED
(RTB) ROOTLET BED
(SSD) SOFT SED.DEF.

SORTING

(VPR) VERY POOR
(PR) POOR
(MOD) MODERATE
(WEL) WELL
(VWEL) VERY WELL

GRAIN SIZE

(CBL) COBBLE
(PBL) PEBBLE
(GRAN) GRANULAR
(VCG) VERY COARSE GRAINED
(CG) COARSE GRAINED
(MG) MEDIUM GRAINED
(FG) FINE GRAINED
(VFG) VERY FINE GRAINED

BEDDING

(MAS) MASSIVE
(VTHK(B) VERY THICK
(THK(B) THICK
(MB) MEDIUM
(THNB) THIN
(VTHNB) VERY THIN
(LAM) LAMINATED

CORE STATE

(PWRD) POWDERED
(VSHRD) VERY SHEARED
(SHRD) SHEARED
(VBRK(N) VERY BROKEN
(BRK(N) BROKEN (SLD) SOLID

COLOR

(BLK) BLACK
(BN) BROWN
(BF) BUFF
(GN) GREEN
(GY) GREY
(MAR) MAROON
(ORNG) ORANGE
(PURP) PURPLE
(YEL) YELLOW
(TAN) TAN
(BLU) BLUE
(WH) WHITE

COLOR MOD

(LT) LIGHT
(M) MEDIUM
(DK) DARK
(LT-M)
(M-DK)
(LT-DK)
(S-P) SALT/PEP
(WEATH) WEATHERED

PROJECT: KPN BLOCK: LR DATA SOURCE: HKD83003

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
60	0.00	0.98	0.98			OVERBURDEN	CASING FROM 0.00 TO 4.88M
60	0.98	1.02	0.04			SILTSTONE	CLYY.M.GY.SLD CORE IS ROUNDED AT ENDS;POSSIBLE CORE L OSS.
60	1.02	1.22	0.20			SILTSTONE	CLYY.LT.TAN.LAM.VBRKN POSSIBLE CORE LOSS
60	1.22	1.61	0.39			ROCK LOSS	
* 60	1.61	1.83	0.22			SILTSTONE	CLYY.LT.TAN.LAM.VBRKN POSSIBLE CORE LOSS
62	1.83	2.17	0.34			ROCK LOSS	
65	2.17	2.44	0.27			SANDSTONE	CLYY.LT.TAN.LAM.VBRKN VERY FRIABLE-COMES APART READILY;CORE I S OXIDIZED
67	2.44	2.79	0.35			SANDSTONE	CLYY.VFG.LT.TAN.LAM.VBRKN FRACTURE ANGLE 20 DEG. FROM CORE AXIS (VERTICAL)
* 70	2.79	3.07	0.28			SILTSTONE	CLYY.LT.TAN.LAM.VBRKN POSSIBLE CORE LOSS
71	3.07	3.35	0.28			ROCK LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: HKD83003

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
71	3.35	3.73	0.38			SILTSTONE	CLYY.LT.TAN.LAM.VBRKN POSSIBLE CORE LOSS;CORE IS OXIDIZED;END S GROUND OFF
72	3.73	3.96	0.23			ROCK LOSS	
72	3.96	4.16	0.20			SILTSTONE	CLYY.LT.TAN.LAM.VBRKN OXIDIZED
72	4.16	4.22	0.06			SILTSTONE	CLYY.LT.GY.LAM.VBRKN OXIDIZED
73	4.22	4.71	0.49			ROCK LOSS	
73	4.71	4.91	0.20			SILTSTONE	CLYY.M.GY.LAM.VBRKN
74	4.91	5.06	0.15			MUDSTONE	SLTY.M.GY.LAM.VBRKN POSSIBLE CORE LOSS;OXIDIZED
74	5.06	5.18	0.12			SILTSTONE	CLYY.M.GY.LAM.VBRKN POSSIBLE CORE LOSS;OXIDIZED
74	5.18	5.39	0.21			ROCK LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: MKD83003

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	5.39	6.13	0.74			MUDSTONE	SLTY.M.GY.LAM.VBRKN INTERLAMINATED SLTY MUDSTONE AND SILTST ONE;HEAVILY OXIDIZED ALONG FRACTURE FAC ES;FRACTURE ANGLE 20 DEG BCA
77	6.13	7.45	1.32			MUDSTONE	SLTY.M.GY.LAM.VBRKN OXIDIZED THROUGHOUT;ORANGE WEATHERING C LAY NODULES THROUGHOUT
78	7.45	7.48	0.03			MUDSTONE	SLTY.M.GY.LAM.VBRKN OXIDIZED;POSSIBLE CORE LOSS
79	7.48	8.11	0.63			ROCK LOSS	
* 80	8.11	8.62	0.51			MUDSTONE	SLTY.M.GY.LAM.VBRKN OXIDIZED;POSSIBLE CORE LOSS
78	8.62	9.06	0.44			MUDSTONE	SLTY.M.GY.LAM.VBRKN OXIDIZED;CLAY NODULES THROUGHOUT;POSSIB LE CORE LOSS
* 75	9.06	10.28	1.22			MUDSTONE	SLTY.M.GY.LAM.VBRKN CLAY NODULES THROUGHOUT;OXIDIZED;POSSIB LE CORE LOSS
75	10.28	10.52	0.24			ROCK LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: MKD83003

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	10.52	11.37	0.85			MUDSTONE	SLTY.M.GY.LAM.VBRKN CORE IS HEAVILY OXIDIZED AND BRKN;ABUND ANT CLAY NODULES THROUGHOUT
75	11.37	11.97	0.60			MUDSTONE	SLTY.LT.GY.LAM.VBRKN NOTE THAT THERE APPEARS TO BE ABUNDANT CAVES WITHIN THIS PORTION;APPEARS TO BE ABUNDANT CLAY NODULES THROUGHOUT
75	11.97	12.63	0.66			ROCK LOSS	
* 75	12.63	13.69	1.26			MUDSTONE	SLTY.M.GY.LAM.VBRKN OXIDIZED;CLAY NODULES THROUGHOUT;VERY B ADLY BRKN;ENDS OF CORE ROUNDED;POSSIBLE COR LOSS
75	13.69	14.92	1.23			MUDSTONE	SLTY.M.GY.LAM.VBRKN AS ABOVE;FRACTURE CORE BCAS 50 DEG & 0 DEG &75 DEG (PARALLEL TO BEDDING)
75	14.92	15.18	0.26			ROCK LOSS	
75	15.18	15.27	0.09			MUDSTONE	SLTY.M.GY.LAM.VBRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: MKD83003

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	15.27	15.63	0.36			MUDSTONE	CARB.M.GY.LAM.BRKN PLANT FOSSILS BECOME MORE ABUNDANT TOWARDS BASE OF MEASUREMENTS BECOMING MORE CARBONACEOUS;NUMEROUS 1MM VITRAIN BANDS AT BASE
75	15.63	15.71	0.08	06351	I	COAL LOSS	
75	15.71	15.76	0.05	06351	I	COAL	C-3.BLK.VBRKN VERY OXIDIZED;BLUE SHEEN ON ALL CLEAR FACES
75	15.76	15.80	0.04	06351	I	COAL	C-4.BLK.VBRKN AS ABOVE
75	15.80	15.86	0.06	06351	I	COAL	C-4.BLK.VBRKN AS ABOVE
75	15.86	15.88	0.02	06351	I	COAL	C-1.BLK.VBRKN AS ABOVE
75	15.88	15.94	0.06	06351	I	MUDSTONE	CARB.M.GY.SLD
75	15.94	16.01	0.07	06351	I	COAL	C-6.BLK.SLD OXIDIZED

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: MKD83003

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	16.01	16.31	0.30	06351	I	COAL LOSS	
75	16.31	16.36	0.05	06351	I	ROCK LOSS	
75	16.36	16.38	0.02	06351	I	MUDSTONE	CARB.PHRD BRKN AND PHRD
75	16.38	16.43	0.05	06351	I	COAL	C-4.BLK.SLD
75	16.43	16.50	0.07	06351	I	COAL	C-1.BLK.SLD
75	16.50	16.53	0.03	06351	I	COAL	C-3.BLK.RTB.SLD SEVERAL 2MM ASH BANDS AT BASE OF MEASUREMENT
75	16.53	16.55	0.02	06351	I	COAL	C-2.BLK.SLD OXIDIZED
75	16.55	16.57	0.02	06351	I	COAL	C-4.BLK.SLD SEVERAL 1MM ASH BANDS
75	16.57	16.64	0.07	06351	I	COAL	C-3.BLK.SLD SEVERAL 1MM ASH BANDS
75	16.64	16.66	0.02	06351	I	COAL	C-4.BLK.SLD BECOMING VERY DIRTY TOWARDS BASE;OXIDIZED

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83003

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	16.66	16.67	0.01	06351 I		MUDSTONE	CARB.SLD
75	16.67	16.73	0.06	06351 I		COAL	C-1.BLK.SLD OXIDIZED
75	16.73	16.76	0.03	06351 I		COAL	C-3.BLK.VBRKN OXIDIZED;POSSIBLE CORE LOSS
75	16.76	16.82	0.06	06351 I		COAL	C-1.BRKN POSSIBLE CORE LOSS
75	16.82	16.88	0.06	06351 I		COAL	C-2.BLK.SLD SEVERAL 1MM ASH BANDS;NOTE-END OF BOX 6 -BOX IS NOT FULL
75	16.88	16.89	0.01	06351 I		COAL	C-3.BLK.SLD
75	16.89	16.91	0.02	06351 I		COAL	C-3.BLK.SLD
75	16.91	16.93	0.02	06351 I		COAL	C-3.BLK.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83003

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	16.93	17.02	0.09	06351 I		COAL	C-1.BLK.VBRKN CORE IS VBRKN TO PWRD
75	17.02	17.08	0.06	06351 I		COAL	C-2.BLK.SLD CORE IS OXIDIZED;NUMEROUS 1MM ASH BANDS THROUGHOUT
75	17.08	17.11	0.03	06351 I		MUDSTONE	CARB.SLD NUMEROUS 1MM BRIGHT BANDS THROUGHOUT
75	17.11	17.13	0.02	06351 I		MUDSTONE	CARB.PWRD PWRD COAL MIXED WITH MUDSTONE
75	17.13	17.19	0.06	06351 I		ROCK LOSS	
75	17.19	17.21	0.02	06351 I		COAL	C-2.BLK.SLD OXIDIZED
75	17.21	17.23	0.02	06351 I		COAL	C-4.BLK.SLD OXIDIZED
75	17.23	17.24	0.01	06351 I		COAL	C-6.BLK.SHRD BONE COAL
75	17.24	17.44	0.20	06351 I		COAL LOSS	
75	17.44	17.58	0.14	06351 I		ROCK LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83003

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	17.58	17.73	0.15	06351	I	COAL	BLK.PWRD OXIDIZED
75	17.73	17.83	0.10	06351	I	COAL	BLK.PWRD
75	17.83	17.86	0.03	06351	I	COAL	C-2.BLK.BRKN OXIDIZED
75	17.86	17.91	0.05	06351	I	COAL	BLK.PWRD
75	17.91	17.95	0.04	06351	I	COAL	C-6.BLK.SHRD
75	17.95	18.13	0.18	06351	I	COAL LOSS	
75	18.13	18.18	0.05	06351	I	ROCK LOSS	
75	18.18	18.22	0.04	06351	I	COAL	BLK.PWRD
75	18.22	18.26	0.04	06351	I	COAL	C-3.BLK.VBRKN CORE VBRKN TO PWRD;OXIDIZED
75	18.26	18.32	0.06	06351	I	COAL	C-3.BLK.VBRKN OXIDIZED

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83003

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	18.32	18.36	0.04	06351	I	COAL	C-4.BLK.SHRD OXIDIZED
75	18.36	18.39	0.03	06351	I	COAL	C-6.BLK.SHRD VERY SANDY;HEAVY OXIDATION
75	18.39	18.45	0.06	06351	I	COAL	C-4.BLK.SHRD NUMEROUS 1MM ASH BANDS THROUGHOUT
75	18.45	18.50	0.05	06351	I	COAL LOSS	
75	18.50	18.55	0.05	06351	I	ROCK LOSS	
75	18.55	18.68	0.13	06351	I	COAL	C-2.BLK.VBRKN HEAVILY OXIDIZED
75	18.68	18.71	0.03	06351	I	COAL	C-1.BLK.VBRKN
75	18.71	18.73	0.02	06351	I	COAL	C-1.BLK.SLD ONE 1MM VITRAIN BAND AT TOP
75	18.73	18.74	0.01	06351	I	COAL	C-1.BLK.SLD
75	18.74	18.76	0.02	06351	I	COAL	C-1.BLK.VBRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKDB3003

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	18.76	18.79	0.03	06351	I	COAL	C-3.BLK.VBRKN OXIDIZED;SEVERAL 1MM ASH BANDS
75	18.79	18.87	0.08	06351	I	COAL	C-3.BLK.VBRKN
75	18.87	18.88	0.01	06351	I	COAL	C-1.BLK.SLD OXIDIZED
75	18.88	18.89	0.01	06351	I	MUDSTONE	SLO
75	18.89	18.95	0.06	06351	I	COAL	C-2.BLK.SLD NUMEROUS 1MM ASH BANDS THROUGHOUT;OXIDI ZED;CORE BREAKS EASILY
75	18.95	18.96	0.01	06351	I	MUDSTONE	CARB.SLD
75	18.96	19.00	0.04	06351	I	COAL	C-1.BLK.SLD THREE 3MM ASH BANDS AT BASE OF MEASUREM ENT
75	19.00	19.07	0.07	06351	I	COAL	C-1.BLK.VBRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKDB3003

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	19.07	19.12	0.05	06351	I	COAL	C-2.BLK.SLD OXIDIZED
75	19.12	19.16	0.04	06351	I	COAL	C-2.BLK.SLD
75	19.16	19.18	0.02	06351	I	COAL	C-2.BLK.SLD OXIDIZED
75	19.18	19.19	0.01	06351	I	COAL	C-3.BLK.SHRD OXIDIZED ALONG SHEAR FACES
75	19.19	19.34	0.15	06351	I	COAL	C-3.BLK.VBRKN OXIDIZED;SHEARED IN PLACES-CORE DISSEMM INATES WHEN TOUCHED
75	19.34	19.39	0.05	06351	I	COAL	C-3.BLK.SLD OXIDIZED
75	19.39	19.41	0.02	06351	I	COAL	C-2.BLK.SLD OXIDIZED
75	19.41	19.43	0.02	06351	I	COAL	C-3.BLK.SLD OXIDIZED
75	19.43	19.44	0.01	06351	I	COAL	C-1.BLK.SLD OXIDIZED

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: HKD83003

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	19.44	19.46	0.02	06351	I	COAL	C-3.BLK.SLD OXIDIZED
75	19.46	19.51	0.05	06351	I	COAL	C-2.BLK.SLD
75	19.51	19.55	0.04	06351	I	COAL	C-2.BLK.SLD OXIDIZED;1MM ASH BAND AT TOP
75	19.55	19.64	0.09	06351	I	COAL	C-1.BLK.VBRKN
75	19.64	19.76	0.12	06351	I	COAL	C-1.BLK.VBRKN OXIDIZED
75	19.76	19.84	0.08	06351	I	COAL	C-3.BLK.VBRKN SHEARED;OXIDIZED
75	19.84	19.91	0.07	06351	I	COAL LOSS	
75	19.91	19.93	0.02	06351	I	COAL	C-3.BLK.SLD
75	19.93	19.98	0.05	06351	I	COAL	C-4.BLK.SLD OXIDIZED;0.3-2MM ASH BANDS
75	19.98	20.03	0.05	06351	I	COAL	C-1.BLK.SLD OXIDIZED

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: HKD83003

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	20.03	20.13	0.10	06351	I	COAL	C-2.BLK.SLD OXIDIZED
75	20.13	20.18	0.05	06351	I	COAL	OXIDIZED
75	20.18	20.22	0.04	06351	I	COAL	C-2.BLK.SLD
75	20.22	20.25	0.03	06351	I	COAL	C-3.BLK.SLD
75	20.25	20.27	0.02	06351	I	COAL	C-1.BLK.SLD ASH BAND <2MM IN CENTRE OF UNIT
75	20.27	20.33	0.06	06351	I	COAL	C-3.BLK.SLD OXIDIZED
75	20.33	20.38	0.05	06351	I	COAL	C-4.BLK.SLD OXIDIZED;7MM ASH BAND AT TOP
75	20.38	20.39	0.01	06351	I	COAL	C-1.BLK.SLD CORE ROUNDED AT TOP-POSSIBLE CORE LOSS
75	20.39	20.44	0.05	06351	I	COAL	C-3.BLK.SLD OXIDIZED
75	20.44	20.50	0.06	06351	I	COAL	C-3.BLK.VBRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: HKD83003

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	20.50	20.99	0.49			MUDSTONE	CARB.VBRKN POSSIBLE CORE LOSS THOUGHOUT;BECOMES SL TY TOWARDS BASE **********END OF CORE 21.0M**********:ENTIRE HOLE IS OXIDIZED
75	20.99	21.12	0.13			ROCK LOSS	

* DENOTES MEASURED BCA
NEWPAGE

KPNLRWKD 83003

COAL SEAM DATA SHEETS

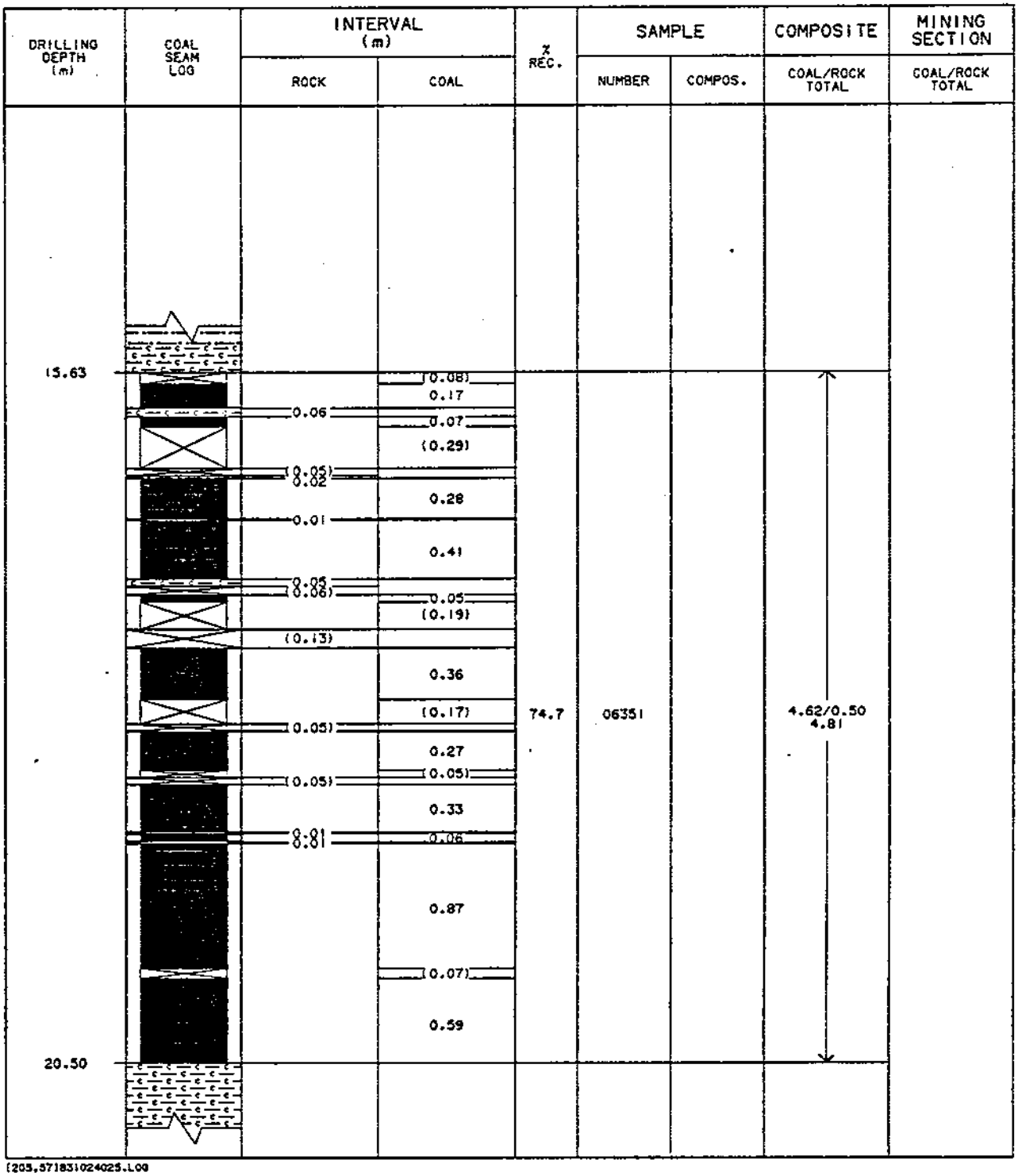
GULF CANADA RESOURCES INC. - COAL DIVISION

15/MAR/84 SIMPLE SAMPLE SUMMARY PAGE 3

APPARENT THICKNESS

KLAPPAN PROJECT

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK	TOTAL COAL-ROCK
WKD83003										
	1	6351	15.63	20.50	74.74	3.48	0.16	0.88	0.35	4.36- 0.51



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GULF CANADA RESOURCES INC.	Gulf
MT. KLAPPAN COAL PROPERTY SEAM DETAIL TRUE THICKNESS WKD83003 SEAM 1	
DRAWN BY: C. LOUIE	SCALE: 1:40
APPROVED BY: C. WILLIAMS	DATE: FEB 1984

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.
COAL DIVISION

APPARENT DENSITY GRAMS/cc _____ RESISTIVITY _____

DRILL No. WKD-83003 SEAM 1

SCALE 1:40 FORMATION KLAPPAN SEQUENCE

APPARENT THICKNESS
SEAM INTERVAL 15.63m-20.50m

DENSITY SCALE 1.30 1.40 1.50 1.60 1.70 1.80 1.90 2.00 2.10 2.20 2.30 2.40 2.50 2.60 2.70 2.80 2.90

RESISTIVITY SCALE KOHM m 1 2 3 4 5 6 7 8 9

GEOPHYSICAL LOGS

SEAM COMP. 1 2 3 4 5 6	DEPTH (m)	COAL SEAM LOG	INTERVAL (m) ROCK	INTERVAL (m) COAL	% REC.	SAMPLE NUMBER	SAMPLE COMPOS.	PROXIMATE ANALYSIS MOIST	ASH	VM	FC	S'	CAL. VAL. MJ/KG	FSI
	15.63			(0.08)										
				0.17										
			0.06											
				0.07										
				(0.30)										
			(0.05)											
			0.02											
				0.28										
			0.01											
				0.41										
			(0.05)											
			0.06											
				(0.05)										
				(0.20)										
			(0.14)											
				0.37										
				(0.18)	74.7	06351								
			0.05											
				0.27										
			0.05	(0.05)										
				0.33										
			0.81	0.06										
				0.88										
				(0.07)										
				0.59										
	20.50													

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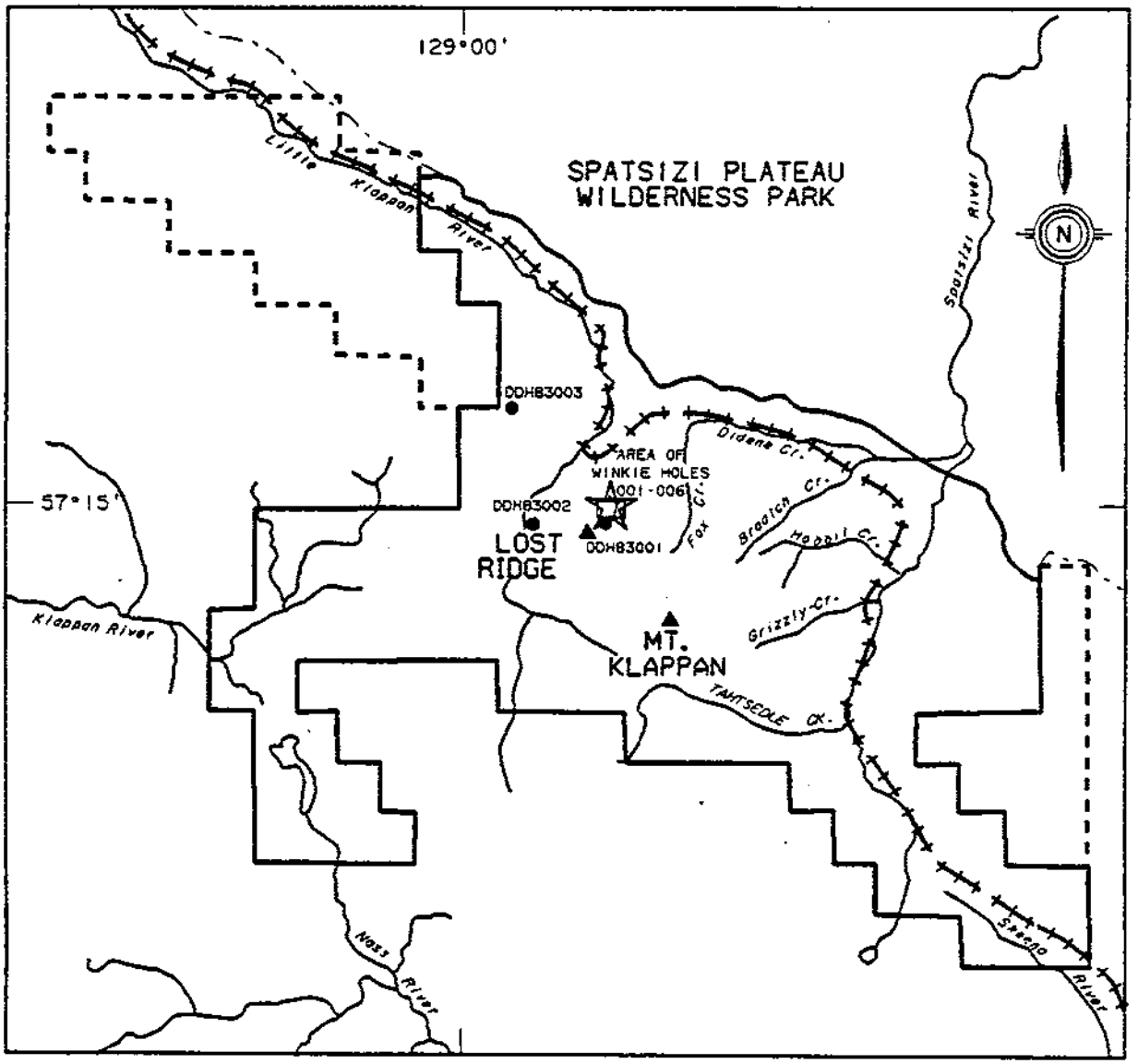
KPNLRWKD 83004

MT. KLAPPAN COAL PROPERTY

1983 WINKIE DIAMOND DRILL HOLES
WKD83001 -WKD83006



LEGEND

- PREPARED RAIL BED
- PROVINCIAL PARK BOUNDARY
- HQ DIAMOND DRILL HOLE - 1983
- AIX WINKIE HOLES - 1983 001-006
- ADIT 1983
- LICENCE AREA
- LICENCES UNDER APPLICATION

SCALE

0 1 2 3 4 5 km

GULF CANADA RESOURCES INC.
09/03/84

Gulf

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

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

DATA SOURCE - KPNLRWKD83004 DATE - 12/04/84

- H I S T O R Y -

START DATE - 07/15/83
END DATE - 07/17/83

CONTRACTOR - TECK CORP
GEOLOGIST - C.WILLIAMS
OPERATOR - GCRI
SURVEYOR -

REMARKS - 72% COAL SEAM RECOVERY

- L O C A T I O N -

PROVINCE - BC
ELEVATION - 1824.00
ZONE - 9
NORTHING - 6344334.00
EASTING - 505816.00

LICENCE/LEASE NUMBER - 0

LATITUDE - 571438
LONGITUDE - 1285413

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

LENGTH - 30.93
INCLINATION - 90.0
AZIMUTH - 0.0

CORE SIZE - 34.0

CEMENT - N
PLUG - N
PIEZ -

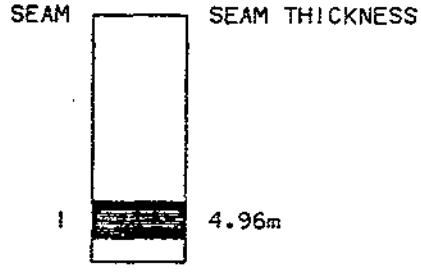
CASING DEPTH (M) - 0.00
AQUIFER DEPTHS (M) - 0.00
0.00
LOST CIRC. DEPTHS (M) - 0.00
0.00

*** NOTE *** 0 INDICATES NO VALUE

==========

MT. KLAPPAN COAL PROPERTY

1983 WINKIE DIAMOND DRILL HOLE
WKD83004



SCALE: 1:1000

GULF CANADA RESOURCES INC.
09/03/84

KPNLRWKD 83004

DESCRIPTIVE LOG

VALID COMPONENT DESCRIPTION CODES

MODIFIER

(PBLY)	PEBBLY
(SSY)	SANDY
(PYR)	PYRITIC
(SLTY)	SILTY
(CLYY)	CLAYEY
(CARB)	CARBONACEOUS
(GYP)	GYPSIFEROUS
(FER)	FERRUGINOUS

COAL (C-1,C-2,C-3)
(C-4,C-5,C-6)

SED STRUCTURES

(XBDG)	CROSS BEDDED
(WRMBUR)	WORM BURROW
(RIPMK)	RIPPLE MARKS
(BIOTRB)	BOITURBATED
(RTB)	ROOTLET BED
(SSD)	SOFT SED.DEF.

SORTING

(VPR)	VERY POOR
(PR)	POOR
(MOD)	MODERATE
(WEL)	WELL
(VWEL)	VERY WELL

GRAIN SIZE

(CBL)	COBBLE
(PBL)	PEBBLE
(GRAN)	GRANULAR
(VCG)	VERY COARSE GRAINED
(CG)	COARSE GRAINED
(MG)	MEDIUM GRAINED
(FG)	FINE GRAINED
(VFG)	VERY FINE GRAINED

BEDDING

(MAS)	MASSIVE
(VTHKB)	VERY THICK
(THKB)	THICK
(MB)	MEDIUM
(THNB)	THIN
(VTHNB)	VERY THIN
(LAM)	LAMINATED

CORE STATE

(PWRD)	POWDERED
(VSHRD)	VERY SHEARED
(SHRD)	SHEARED
(VBRKN)	VERY BROKEN
(BRKN)	BROKEN

COLOR

(BLK)	BLACK
(BN)	BROWN
(BF)	BUFF
(GN)	GREEN
(GY)	GREY
(MAR)	MAROON
(ORNG)	ORANGE
(PURP)	PURPLE
(YEL)	YELLOW
(TAN)	TAN
(BLU)	BLUE
(WH)	WHITE

COLOR MOD

(LT)	LIGHT
(M)	MEDIUM
(DK)	DARK
(LT-M)	
(M-DK)	
(LT-DK)	
(S-P)	SALT/PEP
(WEATH)	WEATHERED
(SLD)	SOLID

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83004

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
88	0.00	1.35	1.35			ROCK LOSS	
88	1.35	1.55	0.20			SANDSTONE	CLYY.FG.MOD.LT.TAN.LAM.VBRKN MOST PIECES ARE ROUNDED AT ENDS;POSSIBL E CORE LOSS
* 88	1.55	2.13	0.58			SANDSTONE	CLYY.FG.PR.LT.GY.LAM.SSD.BRKN SANDSTONE LAMINATIONS 70% WHITE CHERT A ND 30% BLACK CHERTS;INTERSITUTAL LIMONI TESTAINING THROUGH SANDSTONE HORIZONS
86	2.13	2.26	0.13			SANDSTONE	CLYY.FG.PR.LT.GY.LAM.VBRKN POSSIBLE CORE LOSS-PIECES ROUNDED
85	2.26	2.59	0.33			MUDSTONE	SLTY.M.GY.VBRKN OXIDATION ON FRACTURE FACES
* 83	2.59	3.39	0.80			MUDSTONE	SLTY.M.GY.LAM.VBRKN OXIDIZED
79	3.39	4.04	0.65			ROCK LOSS	
77	4.04	4.13	0.09			MUDSTONE	SLTY.M.GY.LAM.VBRKN CORE PIECES ARE ROUNDED;POSSIBLE CORE L OSS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83004

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 76	4.13	4.41	0.28			SANDSTONE	CLYY.FG.PR.LT.GY.LAM.WRMBU.BRKN ABUNDANT INTERSTITIAL LIMONITE STAINING ;CORE IS OXIDIZED
* 73	4.41	5.32	0.91			SILTSTONE	CLYY.PR.M.GY.LAM.WRMBU.SLD SILTSTONE IS INTERBEDDED WITH MUDSTONE AND VERY FINE GRAINED SANDSTONE;SANDSTO NEAND SILTSTONE LAMINATIONS ARE A LIGHT GREY
74	5.32	5.76	0.44			SILTSTONE	CLYY.PR.M.GY.LAM.WRMBU.SLD SILTSTONE INTERBEDDED WITH SANDSTONE LA MINATIONS AND MUDSTONE;POSSIBLE CLAM BU RROW
76	5.76	7.16	1.40			SILTSTONE	CLYY.PR.M.GY.LAM.WRMBU.SLD INTERLAMINATED LIGHT GREY SILTSTONES AN D SANDSTONES;WITH MEDIUM GREY MUDSTONES ; SOME SSD PRESENT
* 78	7.16	7.66	0.50			SILTSTONE	CLYY.PR.M.GY.LAM.WRMBU.SLD AS ABOVE
* 75	7.66	8.75	1.09			MUDSTONE	SLTY.M.GY.LAM.BRKN FEW ORANGE BANDS THROUGHOUT;BECOMING SI LTIER TOWARDS BASE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKDB3004

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
78	8.75	8.97	0.22			SILTSTONE	CLYY.M.GY.LAM.BRKN
78	8.97	9.11	0.14			MUDSTONE	SLTY.M.GY.LAM.BRKN OXIDIZED;PIECES ROUNDED AT END OF MEASU REMENT
79	9.11	9.14	0.03			ROCK LOSS	
* 80	9.14	9.80	0.66			MUDSTONE	SLTY.M.GY.LAM.WRMBU.BRKN SILTY LAMINATIONS CONTAIN HEAVY LIMONIT E STAINING;CORE IS BRKN WITH SOME ROUND EDENDS;UNIT BECOMES SANDIER TOWARDS BAS E OF MEASUREMENT;CORE APPEARS TO HAVE M EAVYBIOGENETIC ACTIVITY IN SOME OF THE SILTIER AND SANDIER LAMINATIONS
* 82	9.80	10.49	0.69			SANDSTONE	CLYY.VFG.PR.M.GY.LAM.BRKN ALL FRACTURE SURFACES ARE OXIDIZED;FRAC TURE ANGLE 85 DEG
81	10.49	10.66	0.17			ROCK LOSS	
* 80	10.66	10.89	0.23			SANDSTONE	CLYY.VFG.MOD.LT.GY.LAM.VBRKN POSSIBLE GREENISH TINGE AT .20M

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKDB3004

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 75	10.89	11.13	0.24			SANDSTONE	CLYY.VFG.MOD.LT.GY.LAM.BRKN OXIDIZED;POSSIBLE DARK GREY MINERAL LAM INATIONS THROUGHOUT
76	11.13	11.25	0.12			MUDSTONE	SLTY.M.GY.LAM
76	11.25	11.30	0.05			ROCK LOSS	
77	11.30	12.08	0.78			MUDSTONE	SLTY.M.GY.LAM.BRKN OXIDIZED
* 80	12.08	12.80	0.72			SANDSTONE	CLYY.FG.WEL.LT.GY.VTHNB.WRMBU.BRKN UNOXIDIZED SURFACES ARE LIGHT GREY;OXID IZED SURFACES ARE REDDISH BROWN;POSSIBL E AREAS OF DARK MINERAL LAMINATIONS PAR ALLEL TO BEDDING
* 75	12.80	13.76	0.96			SANDSTONE	CLYY.FG.WEL.LT.GY.WRMBU.SLD AS ABOVE
76	13.76	13.97	0.21			SANDSTONE	CLYY.FG.WEL.LT.GY.SLD
77	13.97	14.28	0.31			CLAYSTONE	LT.GY.THNB.SLD FEELS SOFT AND SMOOTH TO THE TOUCH

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83004

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
77	14.28	14.44	0.16			CLAYSTONE	LT.GY.THNB.BRKN BECOMES LIGHTER IN COLOUR AND SOFTER TO WARDS BASE OF MEASUREMENT
78	14.44	14.57	0.13			SILTSTONE	CLYY.M.GY.LAM.VBRKN OXIDIZED
78	14.57	14.60	0.03			CLAYSTONE	LT.TAN.VBRKN SOFT AND SOAPY TO TOUCH;CRUMBLES EASILY
78	14.60	14.97	0.37			SILTSTONE	CLYY.M.GY.LAM.WRMBU.VBRKN INTERLAMINATED SILTSTONE & SILTY MUDSTO NE & SOME SANDSTONE;SANDSTONE OXIDIZED WITH ORANGE COLOURATION READILY;UNIT IS HEAVILY OXIDIZED
79	14.97	15.08	0.11			ROCK LOSS	
* 80	15.08	16.28	1.20			SILTSTONE	CLYY.PR.M.GY.LAM.WRMBU.SLD MUDSTONE & SILTSTONE & FG SANDSTONE INT ERLAMINATED;CORE IS OXIDIZED;BIOTURBATE D ZONES THROUGHOUT
78	16.28	16.67	0.39			ROCK LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83004

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
77	16.67	17.22	0.55			SILTSTONE	CLYY.M.GY.LAM.WRMBU.BRKN OXIDIZED;UNIT BECOMES MORE ARGILLACIOUS TOWARDS END OF MEASUREMENT
* 75	17.22	17.82	0.60			MUDSTONE	SLTY.M.GY.LAM.WRMBU.BRKN OXIDIZED
* 75	17.82	18.36	0.54			MUDSTONE	SLTY.M.GY.LAM.VBRKN OXIDIZED;CORE PIECES ROUNDED BY DRILL-P OSSIBLE CORE LOSS
76	18.36	19.24	0.88			MUDSTONE	SLTY.M.GY.LAM.VBRKN OXIDIZED;SOME PIECES ARE ROUNDED BY DRI LL;FEW CLAY NODULES THROUGHOUT;POSSIBLE CORE LOSS AT END OF MEASUREMENT
78	19.24	19.67	0.43			ROCK LOSS	
79	19.67	20.57	0.90			MUDSTONE	SLTY.M.GY.LAM.VBRKN CLAY NODULES;OXIDIZED;POSSIBLE CORE LOS S
* 81	20.57	21.82	1.25			MUDSTONE	SLTY.M.GY.LAM.VBRKN OXIDIZED AND HEAVILY BROKEN;NUMEROUS CL AY NODULES THROUGHOUT;POSSIBLE CORE LOS S

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: MKD83004

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
81	21.82	22.82	1.00			MUDSTONE	SLTY,M.GY,LAM,VBRKN CLAY NODULES ARE BECOMING MORE NUMEROUS ;CORE IS OXIDIZED AND BROKEN; 10M OF PO SSIBLE CAVE AT END OF MEASUREMENT
80	22.82	23.16	0.34			ROCK LOSS	
80	23.16	23.31	0.15			MUDSTONE	SLTY,M.GY,LAM,VBRKN AS ABOVE
* 80	23.31	24.40	1.09			MUDSTONE	SLTY,M.GY,LAM,VBRKN CLAY NODULES THROUGHOUT;ALL FRACTURE SU RFACES ARE OXIDIZED;ENDS OF CORE ARE RO UNDED
79	24.40	24.64	0.24			ROCK LOSS	
* 79	24.64	25.60	0.96			MUDSTONE	SLTY,M.GY,LAM,MRMBU,VBRKN OXIDIZED;CLAY NODULES THROUGHOUT
79	25.60	25.69	0.09			MUDSTONE	CARB,M.GY,SLD CORE ENDS ARE ROUNDED;BECOMING MORE CAR BONACEOUS AT END OF MEASUREMENT

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: MKD83004

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
79	25.69	25.72	0.03	06354	I	COAL	C-4,BLK,BRKN OXIDIZED
79	25.72	25.75	0.03	06354	I	COAL	C-1,BLK,BRKN OXIDIZED
79	25.75	25.80	0.05	06354	I	COAL	C-4,BLK,SLD OXIDIZED
79	25.80	25.83	0.03	06354	I	COAL	C-1,BLK,VBRKN
79	25.83	25.84	0.01	06354	I	MUDSTONE	CARB,M,BN,SLD DIRT BAND HAS A BROWNISH GREEN TINT
79	25.84	25.88	0.04	06354	I	COAL	C-1,BLK,SLD HEAVILY OXIDIZED
79	25.88	25.92	0.04	06354	I	COAL	C-3,BLK,SLD OXIDIZED-BLUE SHEEN ON CLEAT FACES
79	25.92	25.94	0.02	06354	I	COAL	C-4,BLK,SLD SEVERAL IMM DIRT BANDS AT END OF MEASUR EMENT
79	25.94	25.97	0.03	06354	I	MUDSTONE	CARB,VBRKN VBRKN TO PWDR;SHEARED

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: MKD83004

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
79	25.97	25.99	0.02	06354	I	COAL	C-4.BLK VBRKN TO PHDR
79	25.99	26.25	0.26	06354	I	COAL LOSS	
79	26.25	26.30	0.05	06354	I	MUDSTONE	CARB.PHRD
79	26.30	26.36	0.06	06354	I	COAL	C-3.BLK.VBRKN SEVERAL 1MM DIRT BANDS AT TOP OF MEASUR EMENT;OXIDIZED-BLUE SHEEN PRESENT ON CL EAT FACES
79	26.36	26.39	0.03	06354	I	COAL	C-4.BLK.VBRKN
79	26.39	26.42	0.03	06354	I	COAL	C-4.BLK.BRKN SEVERAL 1MM ASH BANDS THROUGHOUT
79	26.42	26.44	0.02	06354	I	COAL	C-1.BLK.SLD
79	26.44	26.52	0.08	06354	I	COAL	C-3.BLK.SLD OXIDIZED;0.01M ASH BAND BETWEEN 0.03M A ND 0.04M

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: MKD83004

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
79	26.52	26.55	0.03	06354	I	MUDSTONE	CARB VBRKN TO POWDERED
79	26.55	26.60	0.05	06354	I	COAL	C-1.BLK.VBRKN
79	26.60	26.63	0.03	06354	I	COAL	C-3.BLK.VBRKN VBRKN TO POWDERED
79	26.63	26.71	0.08	06354	I	COAL	C-3.BLK.SLD DIFFICULT TO DETERMINE COAL RATING DUE TO HEAVY IRON STAINING ON CLEAT FACES
79	26.71	26.77	0.06	06354	I	COAL	C-1.BLK.SLD
79	26.77	26.82	0.05	06354	I	COAL LOSS	
79	26.82	26.98	0.16	06354	I	COAL	C-2.BLK.SLD OXIDIZED;POSSIBLE CORE LOSS AT FOOTAGE BLOCK-CORE ENDS ROUNDED
79	26.98	27.05	0.07	06354	I	COAL	C-3.BLK.SLD SEVERAL 1MM ASH BANDS THROUGHOUT
79	27.05	27.08	0.03	06354	I	COAL	C-2.BLK.VBRKN OXIDIZED

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83004

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
79	27.08	27.18	0.10	06354	I	COAL	C-3.BLK.VBRKN OXIDIZED
79	27.18	27.26	0.08	06354	I	COAL	C-4.BLK.VBRKN SEVERAL 1MM ASH BANDS THROUGHOUT;HEAVY IRON STAINING ON CLEAT FACES
79	27.26	27.34	0.08	06354	I	COAL	BLK.VBRKN VBRKN TO POWDERED
79	27.34	27.43	0.09	06355	I	MUDSTONE	CARB.VBRKN VBRKN TO POWDERED;SHEARED
79	27.43	27.62	0.19	06355	I	COAL	BLK.PWRD
79	27.62	27.76	0.14	06355	I	ROCK LOSS	
79	27.76	27.96	0.20	06355	I	COAL LOSS	
79	27.96	28.04	0.08	06355	I	COAL	C-3.BLK.VBRKN VBRKN TO POWDERED
79	28.04	28.23	0.19	06355	I	COAL	C-2.BLK.VBRKN CORE IS VBRKN TO POWDERED-THIS INCLUDES ABUNDANT SHEARING WITH LISTRIC SURFACE S PRESENT;OXIDIZED

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83004

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
79	28.23	28.25	0.02	06355	I	COAL	C-3.BLK.SLD
79	28.25	28.30	0.05	06355	I	MUDSTONE	CARB.SLD
79	28.30	28.38	0.08	06355	I	COAL	C-3.BLK.SHRD CORE IS BADLY BRKN-POWDERED AND SHEARED :SOLID PIECES HAVE SEVERAL 1MM ASH BAND S
79	28.38	28.74	0.36	06355	I	COAL LOSS	
79	28.74	28.78	0.04	06355	I	ROCK LOSS	
79	28.78	28.83	0.05	06355	I	COAL	PWRD POWDERED COAL AND MUDSTONE INTERMIXED
79	28.83	28.86	0.03	06355	I	COAL	C-3.BLK.BRKN OXIDIZED

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83004

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
79	28.86	28.89	0.03	06355	I	COAL	C-6.BLK.BRKN OXIDIZED
79	28.89	28.90	0.01	06355	I	COAL	C-1.BLK.BRKN OXIDIZED
79	28.90	28.97	0.07	06355	I	COAL	C-3.BLK.BRKN OXIDIZED;SEVERAL 1MM ASH BANDS
79	28.97	29.03	0.06	06355	I	COAL	C-3.BLK.SLD
79	29.03	29.07	0.04	06355	I	COAL	C-5.BLK.BRKN
79	29.07	29.09	0.02	06355	I	COAL	C-6.BLK.BRKN SEVERAL 2-3MM ASH BANDS THROUGHOUT
79	29.09	29.11	0.02	06355	I	COAL	C-3.BLK.BRKN
79	29.11	29.13	0.02	06355	I	COAL	C-1.BLK.SLD OXIDIZED;SEVERAL 1MM ASH BANDS
79	29.13	29.24	0.11	06355	I	COAL	C-3.BLK.SLD
79	29.24	29.28	0.04	06355	I	COAL	C-3.BLK.VBRKN POSSIBLE CORE LOSS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83004

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
79	29.28	29.68	0.40	06355	I	COAL LOSS	
79	29.68	29.83	0.15	06355	I	COAL	C-3.BLK
79	29.83	29.93	0.10	06355	I	COAL	C-1.BLK.VBRKN
79	29.93	30.04	0.11	06355	I	COAL	C-2.BLK.VBRKN OXIDIZED
79	30.04	30.16	0.12	06355	I	COAL	C-1.BLK.VBRKN OXIDIZED;POSSIBLE CORE LOSS AT END OF MEASUREMENT
79	30.16	30.69	0.53	06355	I	COAL LOSS	
79	30.69	30.91	0.22			MUDSTONE	CARB.M.GY.BRKN SILTY AND SHEARED;FRACTURE SURFACES ARE OXIDIZED
79	30.91	31.51	0.60			ROCK LOSS	

* DENOTES MEASURED BCA

PROJECT: KPW BLOCK: LR DATA SOURCE: WKDB3004

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
79	31.51	31.76	0.25			MUDSTONE	SLTY,M-DK.GY,LAM,SHRD CORE VERY BADLY BRKN & SHRD:ALL FRACTUR E FACES IRON STAINED:CORE IS CARB:SHRD FACES MAY BE COVERED WITH QTZ &/OR GYPS UM: NOTE:DUE TO DEGREE OF HEAVY SHEARIN G-BDG PLANE FAULT MAY EXIST WITHIN BASE OF OR BELOW SEAM:****END OF CORE 30.93 ****

* DENOTES MEASURED BCA
NEWPAGE

KPNLRWKD 83004

COAL SEAM DATA SHEETS

GULF CANADA RESOURCES INC. - COAL DIVISION

15/MAR/84

SIMPLE SAMPLE SUMMARY

APPARENT THICKNESS

KLAPPAN PROJECT

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK	TOTAL COAL-ROCK
WKD83004										
		6354	26.69	27.34	81.21	1.22	0.12	0.31	0.00	1.53- 0.12
		6355	29.68	30.69	47.52	0.48	0.00	0.53	0.00	1.01- 0.00

DRILLING DEPTH (m)	INTERVAL (m) ROCK	INTERVAL (m) COAL	% REC.	SAMPLE NUMBER	SAMPLE COMPOS.	COMPOSITE COAL/ROCK TOTAL	MINING SECTION COAL/ROCK TOTAL
25.69		0.14	81.2	06354		1.52/0.12 1.64	
	0.01						
		0.10					
	0.03						
		0.02					
		(0.25)					
	0.05						
		0.22					
	0.03						
		0.22					
		(0.05)					
		0.52					
27.34	0.09		50.1	06355		3.00/0.32 3.32	
		0.19					
	(0.14)						
		(0.20)					
		0.29					
	0.05						
		0.08					
		(0.35)					
	(0.04)						
		0.50					
		(0.39)					
		0.48					
		(0.52)					
30.69							

(205,57)831024025.LOG

GULF CANADA RESOURCES INC.

MT. KLAPPAN COAL PROPERTY

SEAM DETAIL

TRUE THICKNESS

WKD83004

SEAM I

DRAWN BY: C. LOUIE	SCALE: 1:40
APPROVED BY: C. WILLIAMS	DATE: FEB 1984

GULF CANADA RESOURCES INC.
COAL DIVISION

COAL SEAM DATA SHEET

APPARENT DENSITY GRAMS/cc _____ RESISTIVITY _____

DRILL No. WKD-83004 SEAM 1

SCALE 1:40 FORMATION KLAPPAN SEQUENCE

APPARENT THICKNESS
SEAM INTERVAL 26.69m-30.69m

DENSITY SCALE 1.30 1.40 1.50 1.60 1.70 1.80 1.90 2.00 2.10 2.20 2.30 2.40 2.50 2.60 2.70 2.80 2.90

RESISTIVITY SCALE KOHM m 1 2 3 4 5 6 7 8 9

GEOPHYSICAL LOGS

SEAM COMP. 1 2 3 4 5 6

DEPTH (m)	COAL SEAM LOG	INTERVAL (m) ROCK	INTERVAL (m) COAL	% REC.	SAMPLE NUMBER	SAMPLE COMPOS.	PROXIMATE ANALYSIS MOIST	ASH	VM	FC	S'	CAL. VAL. MJ/KG	FSI
25.69			0.14										
		0.01	0.10										
		0.03	0.02										
			(0.26)										
		0.05											
			0.22										
		0.03		81.2	06354		1.40	15.70	6.30	76.60	0.48	6782	
			0.22										
			(0.05)										
			0.52										
27.34		0.09											
			0.19										
		(0.14)											
			(0.20)										
			0.29										
		0.05											
			0.08										
			(0.36)										
		(0.04)											
			0.50	50.1	06355		1.50	30.00	7.40	61.10	0.39	5257	
			(0.40)										
			0.48										
			(0.53)										
30.69													

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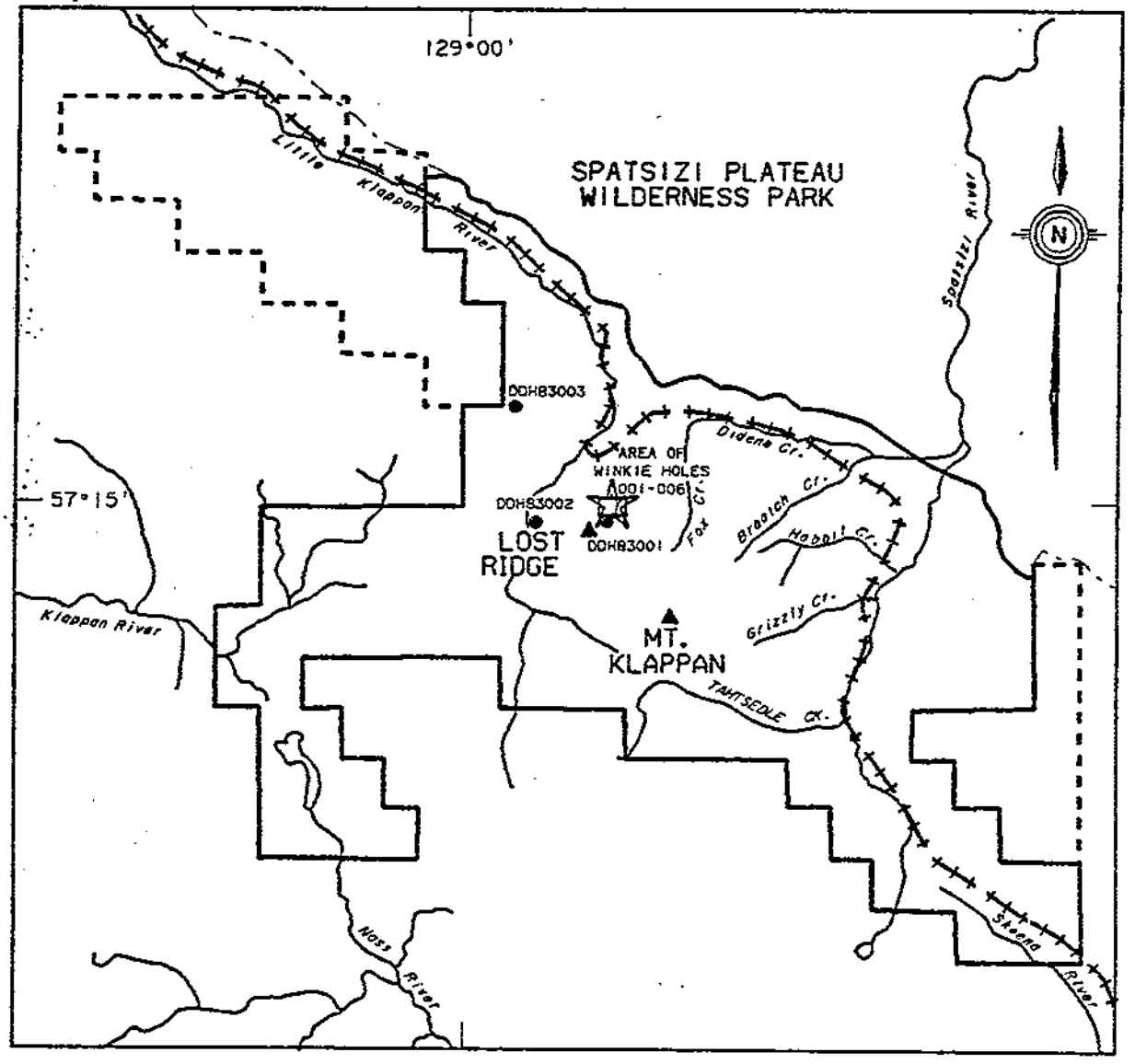
KPNLRWKD 83005

MT. KLAPPAN COAL PROPERTY

1983 WINKIE DIAMOND DRILL HOLES
WKD83001 -WKD83006



LEGEND

- PREPARED RAIL BED
- PROVINCIAL PARK BOUNDARY
- HQ DIAMOND DRILL HOLE - 1983
- AIX WINKIE HOLES - 1983 001-006
- ADIT 1983
- LICENCE AREA
- LICENCES UNDER APPLICATION

SCALE

0 1 2 3 4 5 km

GULF CANADA RESOURCES INC.
09/03/84

GULF CANADA RESOURCES INC.

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

DATA SOURCE - KPNLRWKD83005 DATE - 12/04/84

- H I S T O R Y -

START DATE - 07/18/83
END DATE - 07/22/83

CONTRACTOR - TECK CORP
GEOLOGIST - ROSS MAYLOR
OPERATOR - KEVIN LEHMANN
SURVEYOR - GCRI

REMARKS - HOLE LOST IN "I" SEAM DUE TO CAVING

- L O C A T I O N -

PROVINCE - BC
ELEVATION - 1678.00
ZONE - 9
NORTHING - 6344670.00
EASTING - 505620.00

LICENCE/LEASE NUMBER - 0

LATITUDE - 571449
LONGITUDE - 1285425

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

LENGTH - 29.87
INCLINATION - 90.0
AZIMUTH - 0.0

CORE SIZE - 0.0

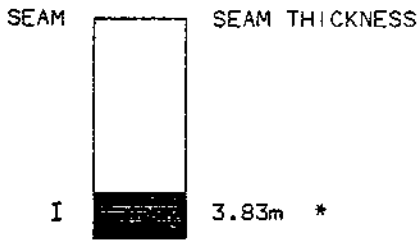
CEMENT -
PLUG -
PIEZ -

CASING DEPTH(M) - 3.96
AQUIFER DEPTHS(M) - 0.00
0.00
LOST CIRC. DEPTHS(M) - 0.00
0.00

*** NOTE *** 0 INDICATES NO VALUE

MT. KLAPPAN COAL PROPERTY

1983 WINKIE DIAMOND DRILL HOLE
WKD83005



* NOTE: HOLE LOST DUE TO COREING
SEAM OVERTURNED

SCALE: 1:1000

GULF CANADA RESOURCES INC.
09/03/84

KPNLRWKD 83005

DESCRIPTIVE LOG

VALID COMPONENT DESCRIPTION CODES

MODIFIER				GRAIN SIZE				COLOR			
ROCK	(PBLY)	PEBBLY		(CBL)	COBBLE			(BLK)	BLACK		
(SSY)	SANDY	(PYR)	PYRITIC	(PBL)	PEBBLE			(BN)	BROWN		
	(SLTY)	SILTY		(GRAN)	GRANULAR			(BF)	BUFF		
	(CLYY)	CLAYEY		(VCG)	VERY COARSE GRAINED			(GN)	GREEN		
	(CARB)	CARBONACEOUS		(CG)	COARSE GRAINED			(GY)	GREY		
	(GYP)	GYPSIFEROUS		(MG)	MEDIUM GRAINED			(MAR)	MAROON		
	(FER)	FERRUGINOUS		(FG)	FINE GRAINED			(ORNG)	ORANGE		
COAL	(C-1,C-2,C-3)			(VFG)	VERY FINE GRAINED			(PURP)	PURPLE		
	(C-4,C-5,C-6)			BEDDING				(YEL)	YELLOW		
SED STRUCTURES				(MAS)	MASSIVE			(TAN)	TAN		
(XBDG)	CROSS BEDDED			(VTHK(B)	VERY THICK			(BLU)	BLUE		
(WRMBUR)	WORM BURROW			(THK(B)	THICK			(WH)	WHITE		
(RIPMK)	RIPPLE MARKS			(MB)	MEDIUM			COLOR MOD			
(BIOTRB)	BOITURBATED			(THNB)	THIN			(LT)	LIGHT		
(RTB)	ROOTLET BED			(VTHNB)	VERY THIN			(M)	MEDIUM		
(SSD)	SOFT SED.DEF.			(LAM)	LAMINATED			(DK)	DARK		
SORTING				CORE STATE				(LT-M)			
(VPR)	VERY POOR			(PWRD)	POWDERED			(M-DK)			
(PR)	POOR			(VSHRD)	VERY SHEARED			(LT-DK)			
(MOD)	MODERATE			(SHRD)	SHEARED			(S-P)	SALT/PEP		
(WEL)	WELL			(VBRK(N)	VERY BROKEN			(WEATH)	WEATHERED		
(VWEL)	VERY WELL			(BRK(N)	BROKEN	(SLD)	SOLID				

84/03/13 GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: HKD83005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP ID	SEAM ID	LITHOLOGY	DESCRIPTION
45	0.00	0.84	0.84			OVERBURDEN	
45	0.84	1.37	0.53			SILTSTONE	CLYY.M.GY.LAM.VBRKN A LOT OF THE PEICES OF CORE SHOW ROUNDI NG FROM DRILL
45	1.37	1.76	0.39			SILTSTONE	CLYY.M.GY.LAM.VBRKN AS ABOVE
45	1.76	2.29	0.53			ROCK LOSS	
* 45	2.29	2.64	0.35			SILTSTONE	CLYY.M.GY.LAM.VBRKN
42	2.64	3.05	0.41			ROCK LOSS	
* 38	3.05	3.52	0.47			SILTSTONE	CLYY.M.GY.LAM.WRMBU.VBRKN CORE ENDS REGROUND; BECOMES SANDIER TOW ARDS BASE OF MEASURMENT
40	3.52	3.67	0.15			ROCK LOSS	

* DENOTES MEASURED BCA

84/03/13 GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG PAGE 2

PROJECT: KPN BLOCK: LR DATA SOURCE: HKD83005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 42	3.67	4.12	0.45			SANDSTONE	SLTY.VFG.LT-M.GY.VTHNB.WRMBU.BRKN SOME CARBONACEOUS MATERIAL FOUND IN COR E,POSSIBLE ROOTLETS
* 34	4.12	4.42	0.30			SANDSTONE	SLTY.VFG.LT-M.GY.VTHNB.WRMBU.VBRKN SANDSTONE ISD BECOMING SILTIER TOWARDS BASE; WORM BURROWS INDICATE THAT THE BE DS IS OVERTURNED; MINOR CROSSBEDDING
34	4.42	5.20	0.78			SANDSTONE	CLYY.VFG.LT-M.GY.LAM.WRMBU.VBRKN LT-GY SANDSTONE AND M-GY MUDSTONE INTER LAMINATED
34	5.20	5.49	0.29			ROCK LOSS	
* 34	5.49	6.21	0.72			SANDSTONE	CLYY.VFG.LT-M.GY.LAM.WRMBU.VBRKN SANDSTONE GRAIN SIZE INCREASES TO FINE GRAIN FROM 0.34 TO 0.48 CM AND 0.68 TO 0.72 CM
38	6.21	6.40	0.19			ROCK LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: HKD83005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 42	6.40	7.06	0.66			SANDSTONE	CLYY.VFG.PR.LT-M.GY.LAM.WRMBU.VBRKN LT-GY VFG TO MGR SANDSTONE INTERLAMINAT ED WITH M-GY SILTY MUDSTONE; CORE BREAK S LARGLY ALONG BEDDING PLANES; POSSIBLE CORELOSS; RIP-UP CLASTS AT 0.25 CM
41	7.06	7.37	0.31			ROCK LOSS	
40	7.37	8.08	0.71			SANDSTONE	CLYY.FG.LT-M.GY.VTHNB.BRKN SANDSTONE INTERLAMINATED WITH MEDIUM GR EY MUDSTONE; CORE IS OXIDIZED ALONG FRA CTURE SURFACES; FRACTURE ANGLE 45 DEGRE ES
39	8.08	8.48	0.40			SANDSTONE	SLTY.FG.LT-M.GY.VTHNB.BRKN
38	8.48	8.79	0.31			SANDSTONE	CLYY.FG.LT-M.GY.VTHNB.VBRKN SANDSTONE IS POORLY CEMENTED WITH CORE DISINTIGRATING RAPIDLY
37	8.79	9.30	0.51			ROCK LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: HKD83005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
36	9.30	9.73	0.43			SANDSTONE	CLYY.FG.LT-M.GY.VTHNB.VBRKN SANDSTONE IS BECOMING MORE ARGILLACEOUS AT END OF MEASUREMENT; POSSIBLE CORE L OSS
35	9.73	10.19	0.46			ROCK LOSS	
35	10.19	10.52	0.33			MUDSTONE	SLTY.M.GY.VBRKN POSSIBLE CORE LOSS
34	10.52	10.69	0.17			MUDSTONE	M.GY.VBRKN AS ABOVE
33	10.69	11.23	0.54			MUDSTONE	SLTY.M.GY.LAM.WRMBU.VBRKN ABUNDENT 1-2MM DIAMETER WORM BURROWS; C ORE DETERIORATES RAPIDLY
32	11.23	11.73	0.50			ROCK LOSS	
31	11.73	12.36	0.63			SILTSTONE	M.GY.LAM.WRMBU.VBRKN AS ABOVE
30	12.36	12.50	0.14			ROCK LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 30	12.50	12.65	0.15			MUDSTONE	SLTY.M.GY.LAM.BRKN AS ABOVE CORE ENDS SHOW ROUNDING FROM D RILL
31	12.65	12.87	0.22			ROCK LOSS	
32	12.87	13.41	0.54			SANDSTONE	CLYY.VFG.LT.GY.VTHN8.BRKN INTERLAMINATIONS OF M-DK.GY CLAYSTONE
* 34	13.41	14.33	0.92			SANDSTONE	CLYY.VFG.LT.GY.VTHN8.WRMBU.BRKN INTERLAMINATED WITH M-DK GY CLAYSTONE; SANDSTONE COARSENING SLIGHTLY TO BASE
35	14.33	14.36	0.03			SANDSTONE	CLYY.VFG.LT.GY.VTHN8.WRMBU.BRKN AS ABOVE
35	14.36	14.52	0.16			ROCK LOSS	
35	14.52	14.63	0.11			SANDSTONE	SLTY.FG.LT.GY.THK8.BRKN RIP-UP CLASTS
36	14.63	15.35	0.72			SANDSTONE	SLTY.FG.LT.GY.THK8.BRKN RIP-UP CLASTS UP TO 2.5X2.5CM; FRACTURE ANGLE 45 DEGREES; OXIDIZED ALONG FRACT URES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
37	15.35	15.54	0.19			ROCK LOSS	
37	15.54	16.29	0.75			SANDSTONE	CLYY.VFG.M-DK.GY.THN8.BRKN SANDSTONE IS INTERLAMINATED WITH MEDIUM TO DARK GREY CLAYSTONE; SANDSTONE COLO R GRADING TO LT-M NEAR BASE OF MEASUREM ENT;LESS ARGILLACEOUS TOWARDS BASER
* 38	16.29	16.38	0.09			SANDSTONE	CLYY.VFG.LT.GY.VTHN8.VBRKN INTERLAMINATED CARBONACEOUS MATERIAL DI SPLAYING CALCITE HALOS, POSSIBLE ROOTLE TS
38	16.38	16.43	0.05			SANDSTONE	SLTY.FG.LT-M.GY.THN8.VBRKN CORE HAS BEEN SPUN BY DRILL; POSSIBLE C ORE LOSS
37	16.43	16.95	0.52			SANDSTONE	SLTY.FG.LT.GY.THN8.BRKN FEW INTERLAMINATIONS OF M-DK GY CLAYSTO NE LESS THAN 2CM THICK; PARTS OF MEASUR EMENT VERY IRONSTAINED
37	16.95	17.15	0.20			ROCK LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
35	17.15	18.13	0.98			SANDSTONE	SLTY.FG.LT.GY.THNB.WRMBU.BRKN VERY BROKEN AT TOP; POSSIBLE CORE LOSS; MINOR INTERLAMINATIONS OF M-DK GY CLAYSTONE LESS THAN 2CM THICK; CLAYSTONE LAMINATIONS OFTEN DEFORMED FROM WEIGHT OF OVERLYING SEDIMENT
34	18.13	18.37	0.24			ROCK LOSS	
34	18.37	18.72	0.35			SANDSTONE	SLTY.FG.LT.GY.THNB.WRMBU.BRKN AS ABOVE CORE ENDS ROUNDED BY DRILL; POSSIBLE CORE LOSS
33	18.72	18.92	0.20			ROCK LOSS	
32	18.92	19.96	1.04			SANDSTONE	CLYY.VFG.LT.GY.THNB.WRMBU.BRKN SANDSTONE INTERLAMINATED WITH M-DK GY CLAYSTONE; CLAYSTONE LAMINATIONS OFTEN DEFORMED BY SANDSTONE; FLAME AND LOADING STRUCTURES INDICATE BEDS ARE OVERTURNED

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 30	19.96	20.88	0.92			SANDSTONE	CLYY.VFG.LT.GY.THNB.WRMBU.VBRKN AS ABOVE SANDSTONE BECOMING FINER WITH DEPTH; CLAYSTONE LAMINATIONS MORE FREQUENT WITH DEPTH
31	20.88	21.06	0.18			ROCK LOSS	
33	21.06	21.78	0.72			SILTSTONE	CLYY.LT-M.GY.LAM.WRMBU.VBRKN AS ABOVE
34	21.78	21.87	0.09			SILTSTONE	CLYY.LT.GY.LAM.BRKN SANDSTONE INTERLAMINATED WITH MEDIUM TO DARK GREY CLAYSTONE CLAYSTONE LAMINATIONS OFTEN DEFORMED BY SANDSTONE; FLAME AND LOADING STRUCTURES INDICATE BEDS ARE OVERTURNED
35	21.87	22.71	0.84			SILTSTONE	CLYY.LT-M.GY.LAM.WRMBU.BRKN AS ABOVE
37	22.71	23.30	0.59			SILTSTONE	CLYY.M-DK.GY.LAM.VBRKN ROUNDING OF CORE BY DRILL; POSSIBLE CORE LOSS; BECOMING MORE CLAYEY TOWARDS BASE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 38	23.30	23.62	0.32			CLAYSTONE	CARB.BLK.LAM.BRKN PLANT FRAGMENT FOSSILS INCREASE TOWARDS BASE
38	23.62	23.65	0.03	06356	I	COAL	C-3.VBRKN 3MM OF CALCITE LIGHTLY SHEARED WITH ABUNDENT LISTRIC SURFACES; POSSIBLE CORE LOSS
38	23.65	23.67	0.02	06356	I	COAL	C-1.BRKN CLEAT SURFACES COATED WITH CALCITE
38	23.67	23.73	0.06	06356	I	COAL	C-1.BRKN CLEAT SURFACES COATED WITH CALCITE
38	23.73	23.77	0.04	06356	I	COAL	C-2.VBRKN
38	23.77	23.78	0.01	06356	I	COAL	C-1.BRKN MINOR ROCK SPLIT LESS THAN ONE MM
38	23.78	23.79	0.01	06356	I	COAL	C-4.BRKN OXIDIZED
38	23.79	23.81	0.02	06356	I	COAL	C-1.BRKN CALCITE ON CLEAT SURFACES; OXIDIZED
38	23.81	23.85	0.04	06356	I	COAL	C-1.VBRKN OXIDIZED; CALCITE ON CLEAT SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
38	23.85	24.08	0.23	06356	I	COAL LOSS	
38	24.08	24.28	0.20	06356	I	COAL	C-1.PHRD QUARTZ VEINING FROM .07 TO .10 UP TO 2MM THICK
38	24.28	24.62	0.34	06356	I	COAL	C-1.VSHRD OXIDIZED
38	24.62	26.52	1.90	06356	I	COAL LOSS	
38	26.52	26.67	0.15	06356	I	COAL	C-1.PHRD
38	26.67	26.75	0.08	06356	I	COAL	C-1.PHRD
38	26.75	26.79	0.04	06356	I	COAL	PHRD
38	26.79	26.89	0.10	06356	I	COAL	
38	26.89	26.99	0.10	06356	I	COAL	C-1.VBRKN OXIDIZED
38	26.99	27.02	0.03	06356	I	COAL	C-2.SHRD OXIDIZED

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
38	27.02	27.03	0.01	06356	I	COAL	C-2.VBRKN OXIDIZED
38	27.03	27.04	0.01	06356	I	CLAYSTONE	CARB.VBRKN
38	27.04	27.08	0.04	06356	I	COAL	C-1.VBRKN OXIDIZED
38	27.08	27.16	0.08	06356	I	COAL	C-2.VBRKN OXIDIZED; POSSIBLE MINOR ROCK SPLITS LESS THAN ONEMM
38	27.16	27.22	0.06	06356	I	COAL	C-2.SHRD
38	27.22	27.24	0.02	06356	I	COAL	C-1.BRKN OXIDIZED; CLEAT SURFACE COATED WITH NON HCL REACTIVE MATERIAL
38	27.24	27.25	0.01	06356	I	COAL	C-4.BRKN OXIDIZED
38	27.25	27.26	0.01	06356	I	COAL	C-1.BRKN OXIDIZED
38	27.26	27.27	0.01	06356	I	COAL	C-4.BRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
38	27.27	27.31	0.04	06356	I	COAL	C-1.BRKN OXIDIZED
38	27.31	27.34	0.03	06356	I	COAL	C-3.VBRKN
38	27.34	27.59	0.25	06356	I	COAL	C-1.PWRD
38	27.59	27.63	0.04	06356	I	COAL	C-3.VBRKN OXIDIZED
38	27.63	27.69	0.06	06356	I	COAL	C-1.BRKN END HAS BEEN ROUNDED BY DRILL; MINOR C-4LESS THAN 2MM
38	27.69	27.71	0.02	06356	I	COAL	C-1.VBRKN
38	27.71	27.72	0.01	06356	I	COAL	C-4.VBRKN
38	27.72	27.74	0.02	06356	I	COAL	C-1.VBRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: HKD83005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
38	27.74	27.75	0.01	06356	I	COAL	C-4.VBRKN
38	27.75	27.79	0.04	06356	I	COAL	C-1.BRKN OXIDIZED
38	27.79	27.86	0.07	06356	I	COAL	C-2.VBRKN OXIDIZED; CLEAT FACES COVERED WITH NON HCL REACTANT MATERIAL
38	27.86	27.91	0.05	06356	I	COAL	C-2.VBRKN
38	27.91	27.94	0.03	06356	I	COAL	C-2.VBRKN OXIDIZED; CLEAT FACES COVERED WITH NON HCL REACTANT MATERIAL
38	27.94	27.98	0.04	06356	I	COAL	C-2.BRKN OXIDIZED; MINOR IRONSTAINING; MINOR QUARTZ VEINING
38	27.98	28.00	0.02	06356	I	COAL	C-4.BRKN
38	28.00	28.02	0.02	06356	I	COAL	C-1.BRKN OXIDIZED

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: HKD83005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
38	28.02	28.03	0.01	06356	I	COAL	C-4.BRKN
38	28.03	28.04	0.01	06356	I	COAL	C-1.BRKN
38	28.04	28.08	0.04	06356	I	MUDSTONE	DK.GY.VBRKN MINOR COAL STRINGERS LESS THAN 2MM
38	28.08	28.09	0.01	06356	I	COAL	C-2.VBRKN MINOR CLAYSTONE LENSES LESS THAN 2MM
38	28.09	28.11	0.02	06356	I	COAL	C-5.VBRKN
38	28.11	28.12	0.01	06356	I	COAL	C-5.VBRKN
38	28.12	28.17	0.05	06356	I	COAL	C-2.VBRKN OXIDIZED; CLEAT COATED WITH NON HCL REACTANT MATERIAL
38	28.17	28.20	0.03	06356	I	CLAYSTONE	CARB.VBRKN COALY STRINGERS
38	28.20	28.35	0.15	06356	I	ROCK LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
38	28.35	28.50	0.15	06356	I	COAL	C-2.VSHRD ABUNDENT CLAYSTONE PARTINGS LESS THAN 2 MM
38	28.50	28.67	0.17	06356	I	COAL	C-5.SHRD
38	28.67	28.73	0.06	06356	I	CLAYSTONE	CARB.PHRD MINOR COAL
38	28.73	28.81	0.08	06356	I	COAL	C-3.PHRD ABUNDENT CLAYSTONE
38	28.81	28.84	0.03	06356	I	COAL	C-3.VBRKN LISTRIC SURFACES
38	28.84	28.95	0.11	06356	I	COAL LOSS	
38	28.95	29.01	0.06	06356	I	COAL	C-1.PHRD MINOR CLAYSTONE
38	29.01	29.11	0.10	06356	I	COAL	C-1.PHRD MINOR CLAYSTONE
38	29.11	29.20	0.09	06356	I	COAL	C-4.VBRKN MINOR CLAYSTONE CARBONACEOUS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
38	29.20	29.23	0.03	06356	I	CLAYSTONE	M.GY.BRKN
38	29.23	29.26	0.03	06356	I	CLAYSTONE	M.GY.BRKN CORE SPUN BY DRILL
38	29.26	29.32	0.06	06356	I	COAL	C-4.SHRD
38	29.32	29.51	0.19	06356	I	COAL	C-1.PHRD
38	29.51	29.59	0.08	06356	I	COAL	C-3.PHRD IRONSTAINED
38	29.59	29.68	0.09	06356	I	COAL	C-3.PHRD
38	29.68	29.75	0.07	06356	I	COAL	C-3.VSHRD
38	29.75	29.87	0.12			COAL LOSS	END OF HOLE

* DENOTES MEASURED BCA

NEWPAGE

KPNLRWKD 83005

COAL SEAM DATA SHEETS

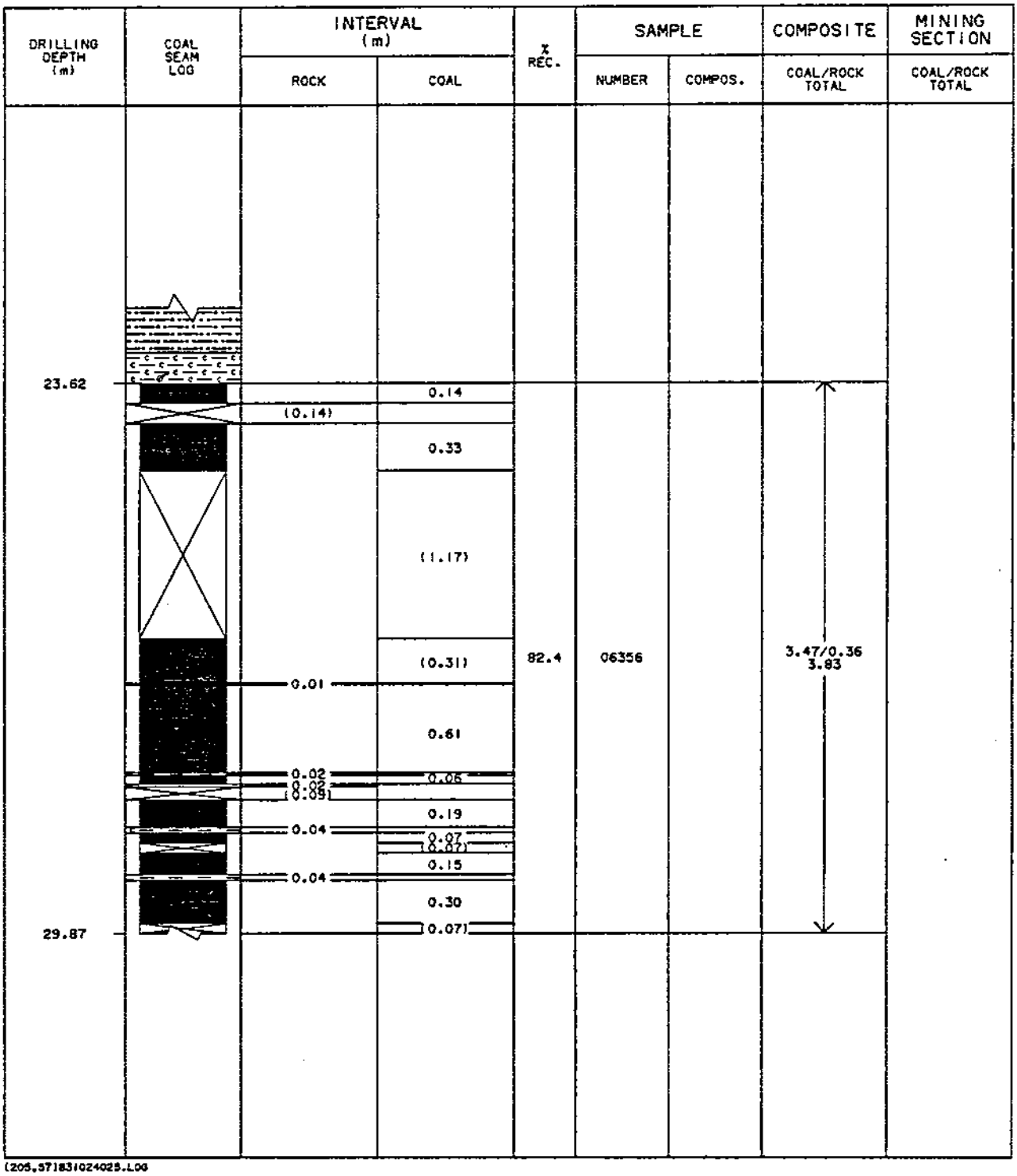
GULF CANADA RESOURCES INC. - COAL DIVISION

15/MAR/84 SIMPLE SAMPLE SUMMARY PAGE 5

APPARENT THICKNESS

KLAPPAN PROJECT

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK	TOTAL COAL-ROCK
WKD83005	I	6356	23.62	29.75	61.01	3.54	0.20	2.01	0.38	5.55- 0.58



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GULF CANADA RESOURCES INC.

MT. KLAPPAN COAL PROPERTY

SEAM DETAIL

TRUE THICKNESS

WKD83005

SEAM 1

DRAWN BY: C. LOUIE	SCALE: 1:40
APPROVED BY: C. WILLIAMS	DATE: FEB 1984

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.
COAL DIVISION

APPARENT DENSITY GRAMS/cc _____ RESISTIVITY _____

DRILL No. WKD-83005 SEAM 1

SCALE 1:40 FORMATION KLAPPAN SEQUENCE

APPARENT THICKNESS
SEAM INTERVAL 23.62m-29.87m

DENSITY SCALE 1.30 1.40 1.50 1.60 1.70 1.80 1.90 2.00 2.10 2.20 2.30 2.40 2.50 2.60 2.70 2.80 2.90

RESISTIVITY SCALE KOHM m 1 2 3 4 5 6 7 8 9

GEOPHYSICAL LOGS

SEAM COMP. 1 2 3 4 5 6	DEPTH (m)	COAL SEAM LOG	INTERVAL (m) ROCK	INTERVAL (m) COAL	% REC.	SAMPLE NUMBER	SAMPLE COMPOS.	PROXIMATE ANALYSIS MOIST	ASH	VM	FC	S'	CAL. VAL. MJ/KG	FSI
	23.62			0.23										
			(0.23)											
				0.54										
				(1.19)										
				0.51	59.8	06356								
			0.01											
				1.00										
			0.04											
				0.09										
			0.03											
			(0.15)											
				0.32										
			0.06											
				0.11										
				(0.11)										
				0.25										
			0.06											
				0.49										
	29.87			(0.12)										

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