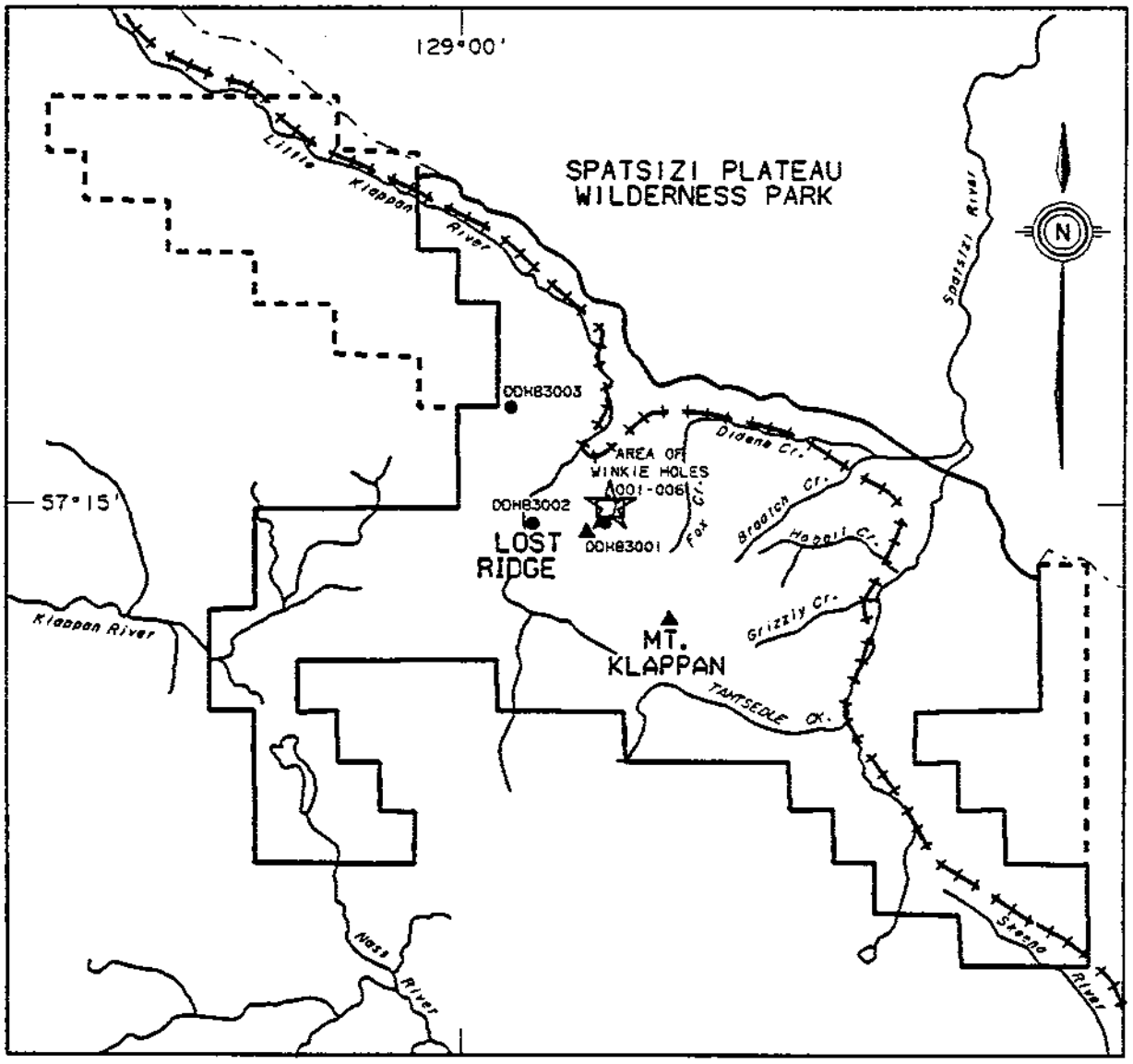
KPNLRWKD 83006

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 - KPNLRWKD83006 DATE - 12/04/84

- H I S T O R Y -

START DATE - 07/23/83
END DATE - 07/25/83

CONTRACTOR - TECK CORP
GEOLOGIST - R. MAYLOR
OPERATOR - KEVIN LEHMAN
SURVEYOR -

REMARKS -

- L O C A T I O N -

PROVINCE - BC
ELEVATION - 1673.00
ZONE - 9
NORTHING - 6344675.00
EASTING - 505625.00

LICENCE/LEASE NUMBER - 0

LATITUDE - 571449
LONGITUDE - 1285424

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

LENGTH - 19.81
INCLINATION - 70.0
AZIMUTH - 205.0

CORE SIZE - 0.0

CEMENT -
PLUG -
PIEZ -

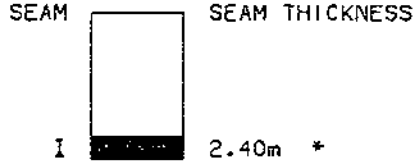
CASING DEPTH (M) - 4.27
AQUIFER DEPTHS (M) - 0.00
0.00
LOST CIRC. DEPTHS (M) - 6.09
0.00

*** NOTE *** 0 INDICATES NO VALUE

==========

MT. KLAPPAN COAL PROPERTY

1983 WINKIE DIAMOND DRILL HOLE
WKD83006



* NOTE: HOLE LOST DUE TO COREING
SEAM IS OVERTURNED

SCALE: 1:1000

KPNLRWKD 83006

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: WKD83006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
52	0.00	0.36	0.36			SILTSTONE	CLYY.M.GY.LAM.VBRKN ROUNDING OF CORE; POSSIBLE CORE LOSS
52	0.36	0.97	0.61			ROCK LOSS	
52	0.97	1.17	0.20			SILSTONE	CLYY.M.GY.LAM.VBRKN ROUNDING OF CORE; POSSIBLE CORE LOSS; I RON STAINED
* 52	1.17	1.64	0.47			SILSTONE	CLYY.M.GY.LAM.VBRKN ROUNDING OF CORE; POSSIBLE CORE LOSS; I RON STAINING
53	1.64	1.83	0.19			SILSTONE	CLYY.M.GY.LAM.VBRKN MINOR VERY FINE GRAINED SANDSTONE LAMIN ATIONS LESS THAN 1CM. THICK
54	1.83	2.23	0.40			ROCK LOSS	
* 56	2.23	2.79	0.56			SANDSTONE	CLYY.VFG.LT.GY.LAM.BRKN LAMINATIONS OF DARK GREY CLAYSTONE
57	2.79	3.15	0.36			ROCK LOSS	
58	3.15	3.43	0.28			SANDSTONE	CLYY.VFG.LT.GY.LAM.BRKN LAMINATIONS OF MEDIUM DARK GREY CLAYSTO NE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
59	3.43	3.76	0.33			ROCK LOSS	
* 60	3.76	4.42	0.66			SANDSTONE	CLYY.VFG.LT.GY.LAM.BRKN LAMINATIONS OF MEDIUM DARK GREY CLAYSTO NE; SOME CORE ENDS ROUNDED BY DRILLING; POSSIBLE CORE LOSS; LOADING FEATURES S UGGEST BEDS ARE OVERTURNED
59	4.42	4.67	0.25			ROCK LOSS	
59	4.67	5.14	0.47			SANDSTONE	SLTY.VFG.LT.GY.LAM.BRKN INTERLAMINATED WITH MEDIUM TO DARK GREY CLAYSTONE; SANDSTONE COARSENING SLIGHT LY DOWN HOLE; IRON STAINING
* 58	5.14	5.87	0.73			SANDSTONE	SLTY.FG.LT.GY.LAM.BRKN MINOR INTERLAMINATED MEDIUM TO DARK GRE Y CLAYSTONE; FRACTURES AT 33 DEGREES
58	5.87	6.04	0.17			SANDSTONE	SLTY.MG.M.GY.VBRKN IRON STAINED; VERY FRIABLE; LACKS COHES ION; MUCH OF CORE IN POWDERED STATE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKDB3006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
57	6.04	6.05	0.01			SILTSTONE	LT-M.GY.BRKN
57	6.05	6.35	0.30			ROCK LOSS	
57	6.35	6.40	0.05			SANDSTONE	SLTY.VFG.LT.GY.VTHNB.BRKN IRON STAINING
57	6.40	6.54	0.14			SANDSTONE	MG.M.GY.THNB.VBRKN VERY FRIABLE; IRON STAINED
57	6.54	6.59	0.05			SANDSTONE	MG.M.GY.THNB.VBRKN VERY FRIABLE; IRON STAINING; SOME ROUND ING OF CORE
57	6.59	6.73	0.14			CLAYSTONE	DK.GY.THNB.BRKN
57	6.73	7.26	0.53			ROCK LOSS	
56	7.26	7.95	0.69			CLAYSTONE	DK.GY.THNB.VBRKN MINOR IRON STAINING
56	7.95	8.18	0.23			ROCK LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKDB3006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
55	8.18	8.28	0.10			SILTSTONE	CLYY.M.GY.LAM.VBRKN SOME ROUNDING OF CORE
* 55	8.28	9.09	0.81			CLAYSTONE	DK.GY.LAM.VBRKN
56	9.09	9.39	0.30			ROCK LOSS	
56	9.39	9.58	0.19			CLAYSTONE	DK.GY.LAM.WRMBU.BRKN
56	9.58	9.76	0.18			SILTSTONE	CLYY.LT-M.GY.LAM.WRMBU.BRKN IRON STAINING; INTERBEDDED MEDIUM TO DA RK GREY CLAYSTONE
57	9.76	9.85	0.09			SANDSTONE	SLTY.VFG.LT.GY.LAM.BRKN INTERBEDDED WITH MINOR LAMINATIONS OF M EDIUM TO DARK GREY CLAYSTONE
57	9.85	10.27	0.42			SILTSTONE	CLYY.LT.GY.LAM.BRKN INTERBEDDED WITH MINOR LAMINATIONS OF M EDIUM DARK GREY CLAYSTONE; ROUNDING OF CORE ENDS; POSSIBLE CORE LOSS
57	10.27	10.49	0.22			SANDSTONE	MG.LT.GY.THNB.BRKN MINOR CLAYSTONE CLASTS ; FRACTURE ANGLE 30 DEGREES; IRON STAINING

• DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
58	10.49	11.46	0.97			SANDSTONE	FG-.LT-M.GY.THNB.BRKN MINOR CLAY RIP UP CLASTS; MINOR CLAY LA MINATIONS AT 26 CM., 32 CM., 39 CM. AND 43 CM. ALL LESS THAN 1 CM. THICK
59	11.46	11.68	0.22			ROCK LOSS	
* 60	11.68	12.61	0.93			SANDSTONE	FG-.LT-M.GY.THNB.BRKN MINOR CLAY LAMINATIONS AT 3 CM., 23 CM. , 34 CM. AND 51 CM. ALL LESS THAN 1 CM. THICK
59	12.61	12.85	0.24			SANDSTONE	CLYY.FG-.LT.GY.THNB.BRKN THIN CLAYSTONE INTERBEDS
59	12.85	13.05	0.20			ROCK LOSS	
59	13.05	13.21	0.16			SANDSTONE	SLTY.FG.LT.GY.VTHNB.BRKN CORE ENDS ROUNDED BY DRILLING; POSSIBLE CORE LOSS
59	13.21	13.48	0.27			SANDSTONE	SLTY.FG.LT.GY.VTHNB.WRMBU.VBRKN VERY FRIABLE; IRON STAINED; MINOR CLAY BANDS LESS THAN 0.5 CM. THICK

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
59	13.48	13.57	0.09			SANDSTONE	VFG.LT-M.GY.LAM.WRMBU.BRKN INTERBEDDED MEDIUM TO DARK GREY CLAYSTO NE
58	13.57	13.60	0.03			ROCK LOSS	
* 58	13.60	14.42	0.82			SANDSTONE	VFG.LT-M.GY.LAM.WRMBU.BRKN INTERBEDDED MEDIUM TO DARK GREY CLAYSTO NE
58	14.42	15.06	0.64			SANDSTONE	SLTY.VFG.LT-M.GY.LAM.WRMBU.BRKN INTERBEDDED MEDIUM TO DARK GREY CLAYSTO NE; CLAYSTONE BANDS, MORE PROMINANT TOW ARDS BASE OF MEASUREMENT
58	15.06	15.87	0.81			CLAYSTONE	SLTY.M-DK.GY.LAM.WRMBU.BRKN IRON STAINING; ROUNDING OF CORE BY DRIL LING; POSSIBLE CORE LOSS
58	15.87	16.28	0.41			CLAYSTONE	SLTY.M-DK.GY.LAM.WRMBU.BRKN
58	16.28	16.58	0.30			CLAYSTONE	CARB.BLK.LAM.BRKN COAL STRINGERS INCREASE TOWARDS TOP OF MEASUREMENT

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
58	16.58	16.66	0.08	06357	I	COAL	C-2.VBRKN QUARTZ VEINING; IRON STAINING
58	16.66	16.88	0.22	06357	I	COAL	C-1.SHRD SOME QUARTZ ON CLEAT SURFACES; MINOR IR ON STAINING; SOME CORE SHOWS ROUNDING G Y DRILLING; POSSIBLE CORE LOSS
58	16.88	17.27	0.39	06357	I	COAL LOSS	
58	17.27	17.32	0.05	06357	I	COAL	C-1.VBRKN
58	17.32	17.33	0.01	06357	I	CLAYSTONE	CARB.VBRKN IRON STAINING
58	17.33	17.84	0.51	06357	I	COAL	C-1.VSHRD IRON STAINING; MINOR QUARTZ ON CLEAT SU RFACES
58	17.84	18.04	0.20	06357	I	COAL LOSS	
58	18.04	18.12	0.08	06357	I	COAL	C-1.BRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
58	18.12	18.13	0.01	06357	I	CLAYSTONE	CARB.BRKN MINOR COAL STRINGERS
58	18.13	18.14	0.01	06357	I	COAL	C-1.BRKN
58	18.14	18.15	0.01	06357	I	CLAYSTONE	CARB.BRKN MINOR COAL STRINGERS
58	18.15	18.20	0.05	06357	I	COAL	C-1.BRKN
58	18.20	18.21	0.01	06357	I	CLAYSTONE	CARB.BRKN
58	18.21	18.31	0.10	06357	I	COAL	C-1.VBRKN QUARTZ ON CLEAT SURFACES
58	18.31	18.46	0.15	06357	I	COAL	C-2.VBRKN
58	18.46	18.47	0.01	06357	I	CLAYSTONE	CARB.VBRKN
58	18.47	18.49	0.02	06357	I	ROCK LOSS	
58	18.49	18.55	0.06	06357	I	COAL	C-3.VBRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
58	18.55	18.56	0.01	06357	I	CLAYSTONE	CARB.VBRKN
58	18.56	18.61	0.05	06357	I	COAL	C-3.VBRKN
58	18.61	18.62	0.01	06357	I	CLAYSTONE	CARB.VBRKN IRON STAINING
58	18.62	18.65	0.03	06357	I	COAL	C-4.VBRKN
58	18.65	18.66	0.01	06357	I	CLAYSTONE	CARB.VBRKN
58	18.66	18.71	0.05	06357	I	COAL	C-4.VBRKN
58	18.71	18.89	0.18	06357	I	COAL	C-2.VBRKN
58	18.89	18.95	0.06	06357	I	COAL	C-4.VSMRD
58	18.95	19.02	0.07	06357	I	COAL	C-2.VBRKN
58	19.02	19.10	0.08	06357	I	COAL LOSS	

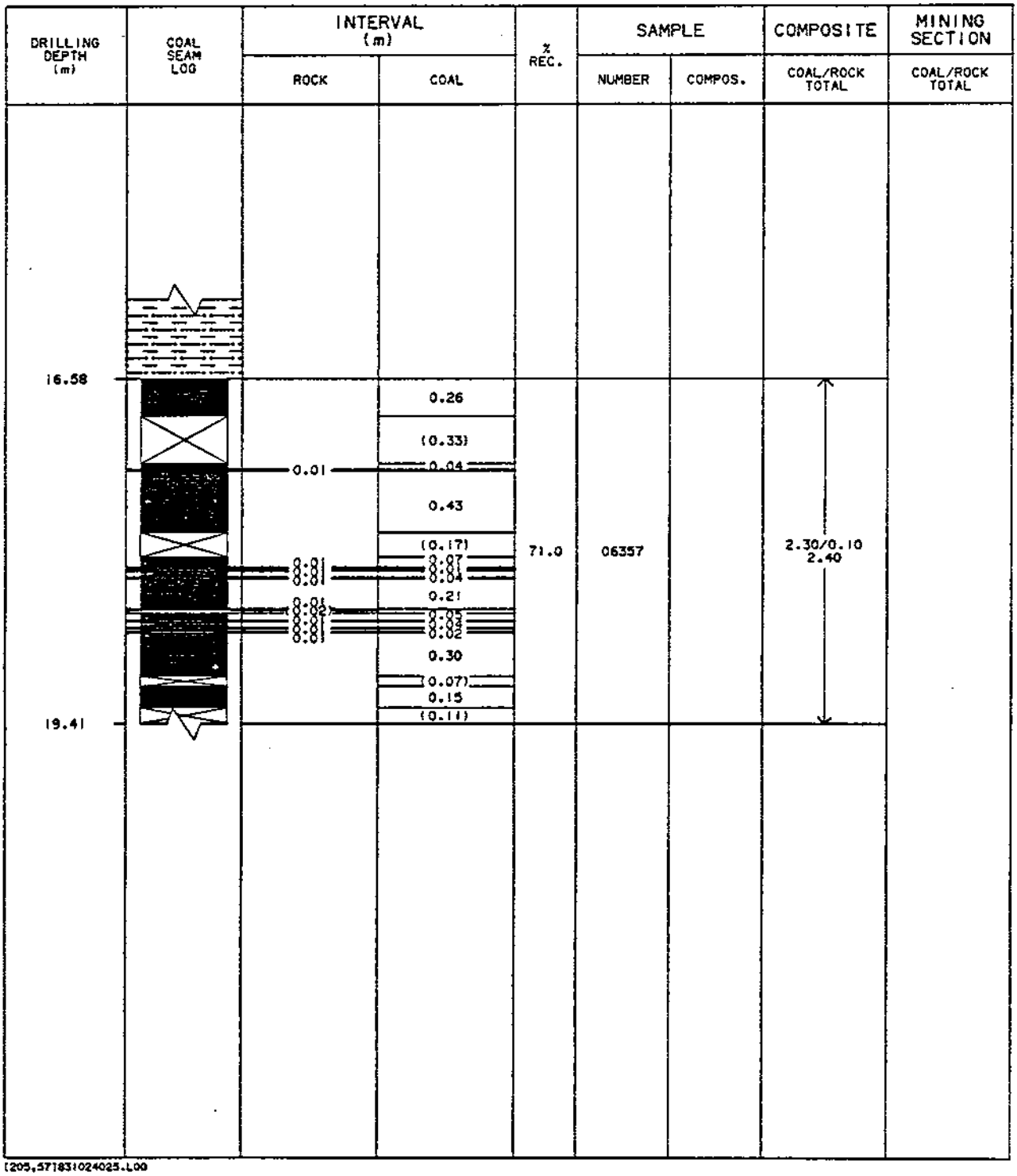
* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: WKD83006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
58	19.10	19.28	0.18	06357	I	COAL	C-2.VBRKN LISTRIC SURFACE
58	19.28	19.41	0.13	06357	I	COAL LOSS	

KPNLRWKD 83006

COAL SEAM DATA SHEETS



(205,57183:024025.LOG

GULF CANADA RESOURCES INC.	Gulf
MT. KLAPPAN COAL PROPERTY SEAM DETAIL TRUE THICKNESS WKD83006 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-83006 SEAM 1

SCALE 1:40 FORMATION KLAPPAN SEQUENCE

APPARENT THICKNESS
SEAM INTERVAL 16.58m-19.41m

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

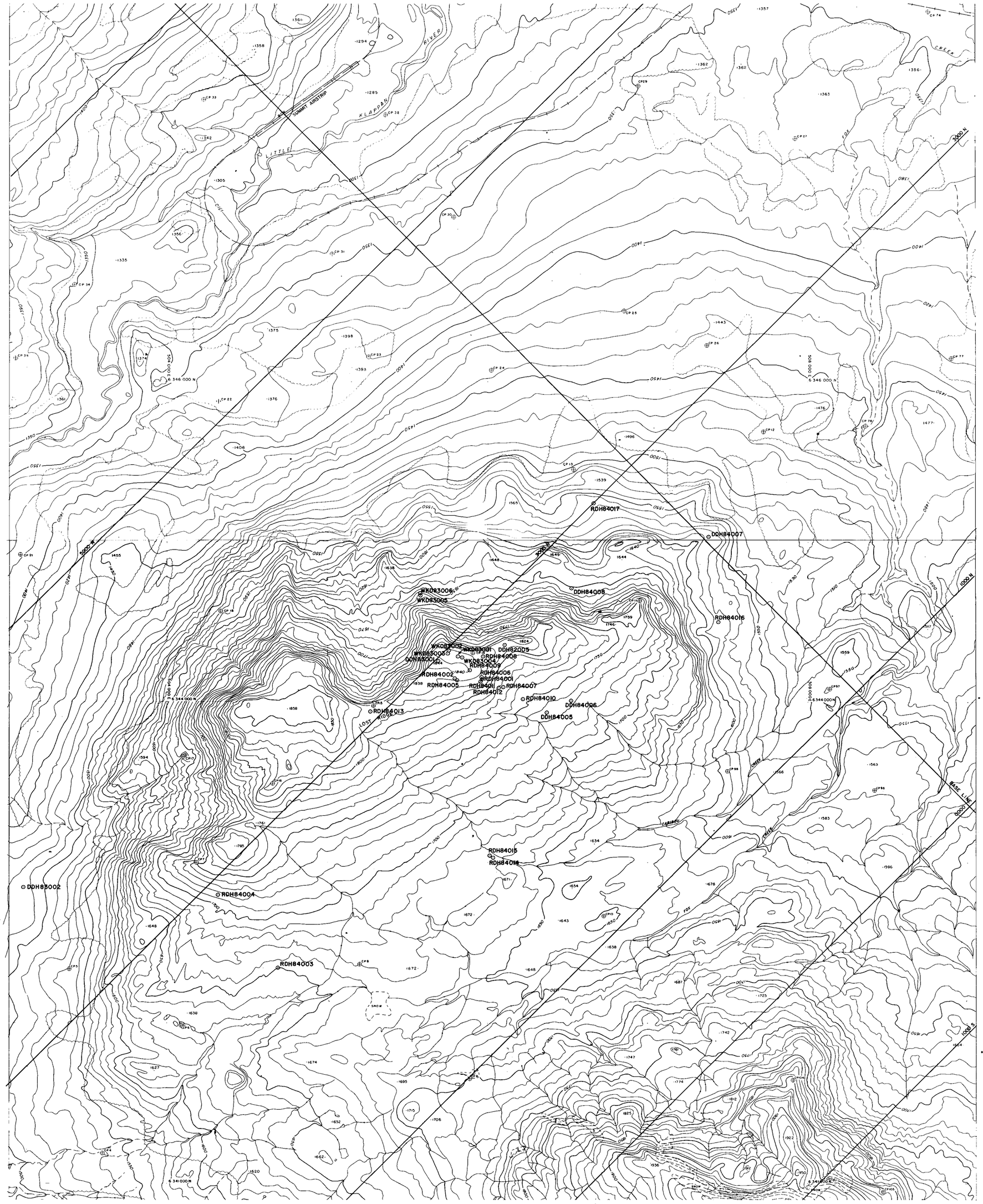
SEAM COMP. 1 2 3 4 5 6	DEPTH (m)	COAL SEAM LOG	INTERVAL (m) ROCK	INTERVAL (m) COAL	% REC.	SAMPLE NUMBER	SAMPLE COMPOS.	PROXIMATE ANALYSIS MOIST	ASH	VM	FC	S'	CAL. VAL. MJ/KG	FSI
	16.58			0.30	71.0	06357								
				(0.39)										
			0.01	0.05										
				0.51										
				(0.20)										
			0.01	0.08										
			0.01	0.01										
				0.05										
				0.25										
			0.01	0.06										
			(0.02)	0.05										
			0.01	0.03										
			0.01											
				0.36										
				(0.08)										
				0.18										
	19.41			(0.13)										

[205,57]831024024.LOG

LOST-FOX AREA

DRILL HOLE LOCATION MAP

1:10 000



LEGEND

- BUILDING
- ROAD, HARD SURFACE
- LOOSE SURFACE
- CART TRACK
- TRAIL
- RAILROAD BED
- RIVER
- STREAM, DEFINITE
- APPROXIMATE
- SPLIT
- LAKE
- WATER LEVEL — EL 5051
- SWAMP
- BEAVER DAM — BD. BD.
- TREE LINE
- CUT LINE
- CONTOURS, INDEX — 1750
- INTERMEDIATE
- DEPRESSION
- APPROXIMATE
- SPOT ELEVATION — 7654
- FIELD CONTROL POINT — CP121
- COAL LICENCE

NOTES

CONTOUR INTERVAL 10 METERS

SURVEY CONTROL TAKEN FROM EXISTING PHOTO IDENTIFIABLE GOVERNMENT SURVEY MONUMENTS AND N.T.S. MAPS. MAPPING IS BASED ON UNIVERSAL TRANSVERSE MERCATOR GRID AND GEODETIC DATUM.

RAILROAD BED LOCATION BASED ON DATA SUPPLIED BY B C RAIL

COMPILED BY
WESTERN PHOTOGRAMMETRY, A DIVISION OF UNDERWOOD McLELLAN LTD.,
FROM FEDERAL GOVERNMENT AERIAL PHOTOGRAPHY FLOWN IN AUGUST/67
AT A SCALE OF 1:60 000 (APPROXIMATE)

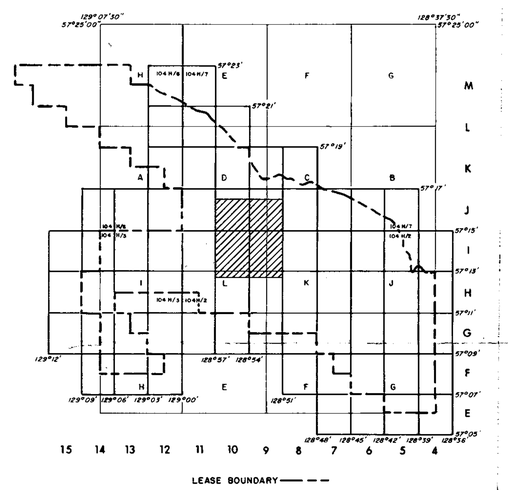
SCALE 1:10 000

0 0.25 0.5 0.75 1.00 MILES

100 0 100 200 300 400 500 600 700 800 900 1KM METERS

MT. KLAPPAN AREA

INDEX MAP



LEASE BOUNDARY

GR Mount Klappan 84(3)A 709

GULF CANADA RESOURCES INC.
Coal Division
CALGARY ALBERTA

MOUNT KLAPPAN COAL PROPERTY
1984
LOST - FOX AREA
DRILL HOLE LOCATION MAP

PREPARED BY: V.L.D.	DRAWING No.
APPROVED BY: V.L.D. DATE: JAN. 1985	KPN84LF-C05

MOUNT KLAPPAN COAL PROJECT

LOST - FOX AREA

GEOLOGICAL REPORT

1984

APPENDIX IV

VOLUME II

1984 DIAMOND DRILL HOLE DATA

709

GULF CANADA RESOURCES INC.

COAL DIVISION

APPENDIX IV

VOLUME II

LOST-FOX AREA

1984 DIAMOND DRILL HOLE DATA

APPENDIX IV

VOLUME II

1984

LOST-FOX AREA

DIAMOND DRILL HOLE DATA

KPNLRDDH 84005

KPNLRDDH 84006

KPNLRDDH 84007

KPNLRDDH 84008

(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

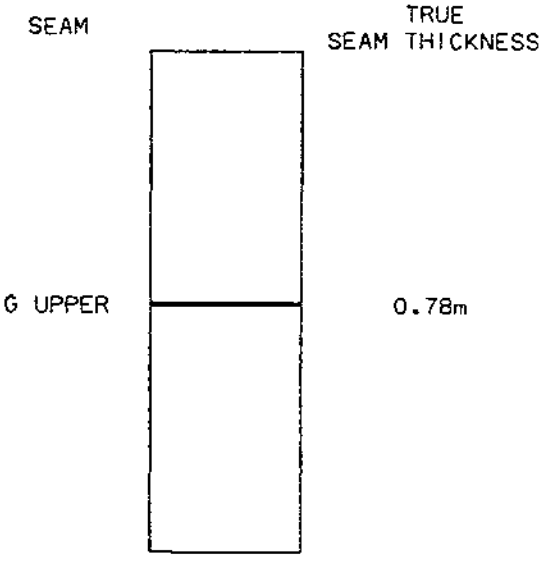
KPNLRDDH 84005

MOUNT KLAPPAN COAL PROPERTY

LOST-FOX AREA

DIAMOND DRILL HOLE

KPNLRDDH84005



SCALE 1:2000

GULF CANADA RESOURCES INC.
14/12/84

Gulf

FILE NAME [205,057]841165030.CHT

GULF CANADA RESOURCES INC.

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

DATA SOURCE - KPNLRDDH84005 DATE - 12/04/84

- H I S T O R Y -

START DATE - 08/14/84
END DATE - 08/16/84

CONTRACTOR - JT THOMAS
GEOLOGIST - V. DUFORD

OPERATOR - GCRI
SURVEYOR -

REMARKS -

- L O C A T I O N -

PROVINCE - BC
ELEVATION - 1740.00

LICENCE/LEASE NUMBER - 7151

ZONE - 9
NORTHING - 6343938.00
EASTING - 506370.00

LATITUDE - 571425
LONGITUDE - 1285340

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

LENGTH - 160.70

INCLINATION - 88.6
AZIMUTH - 304.4

CORE SIZE - 63.5

CEMENT - N
PLUG - N
PIEZ -

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

*** NOTE *** 0 INDICATES NO VALUE

KPNLRDDH 84005

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 BROK(EN
(BRK(N) BROK(EN (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

84/12/06 GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
80	0.00	3.66	3.66			OVERBURDEN	CASED; NO CORE; NOTE: HOLE LOGGED QUICK LY; SHOULD BE RELOGGED
80	3.66	4.86	1.20			MUD	CHUNKS OF SILTSTONE AND MUDSTONE MIXED WITH MUD
80	4.86	4.93	0.07			ROCK LOSS	
80	4.93	5.74	0.81			SILTSTONE	DK.GY.LAM.VBRKN RUBBLE; SOME SAND LAMINATIONS IN PLACES ; MIXED WITH MUD
80	5.74	5.90	0.16			SANDSTONE	VFG.DK.GY VERY WEATHERED; SOFT; BROKEN
80	5.90	6.10	0.20			SILTSTONE	DK.GY VERY BROKEN; SLIGHTLY SANDY; CARBONACEO US RESIDUE ON SOME SURFACES
80	6.10	6.42	0.32			MUD	WITH SILTSTONE AND MUDSTONE PIECES
80	6.42	7.49	1.07			SANDSTONE	VFG.DK.GY FAINT SILTY LAMINATIONS; CORE IS VERY B ROKEN; VERY TINY CARBONACEOUS PLANT DEB RIS; LENSES OF MUD; GRADES DOWN INTO SI LTSTONE

* DENOTES MEASURED BCA

84/12/06 GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG PAGE 2

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 80	7.49	7.72	0.23			MUDSTONE	SLTY.DK.GY.VBRKN 1.0 CM SANDSTONE LENS; VERY FINE GRAINE D; LIGHT GRAY; 1.0 X 2.0 cm PYRITIC NOD ULE; MUD WITH BRIGHT COAL CHIPS
81	7.72	8.32	0.60			SILTSTONE	M-DK.GY.VBRKN WITH MUDSTONE
83	8.32	8.98	0.66			MUDSTONE	SLTY.DK.GY.VBRKN GROUND CORE
* 85	8.98	9.63	0.65			MUDSTONE	SLTY.DK.GY.BRKN SANDY LAMINATIONS
83	9.63	10.67	1.04		H?	MUDSTONE	SLTY.DK.GY SLIGHTLY CARBONACEOUS; RUSTY WEATHERED ON FRACTURE SURFACES
82	10.67	11.34	0.67		H?	SILTSTONE	DK.GY.SLD LISTRIC SURFACES; 2.0 cm COAL STRINGERS ; CARBONACEOUS PLANT DEBRIS
80	11.34	12.24	0.90		H?	MUDSTONE	CARB.BLK.BRKN BRIGHT COAL STRINGERS
79	12.24	12.75	0.51			MUDSTONE	DK.GY SLIGHTLY SILTY; FRACTURED AT 50 DEGREES TO CORE AXIS

* DENOTES MEASURED BCA

FORM 4001

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
78	12.75	13.35	0.60			SILTSTONE	SILTSTONE TO MUDSTONE; VERY FINE GRAINED SANDY LENS 2.0 cm AT TOP
* 76	13.35	14.42	1.07			SANDSTONE	VFG.GY.THNB INTERBEDDED SILTSTONE; BANDED LIGHT-DARK GRAY; PLANT/LEAF IMPRESSIONS; PYRITE COATING FRACTURE SURFACES AND AS STRINGERS; UNDULATING CONTACTS-TOPS UP?
71	14.42	15.03	0.61			SILTSTONE	DK.GY MUDSTONE INTERBEDS; LISTRIC SURFACES; PYRITE DISSEMINATED AND AS STRINGERS; VERY THIN BRIGHT COAL STRINGERS TOWARDS TOP
69	15.03	15.17	0.14			SILTSTONE	DK.GY.BRKN
* 67	15.17	15.73	0.56			SILTSTONE	M-DK.GY.SLD VERY FINE GRAINED SAND LAMINATIONS
70	15.73	15.97	0.24			SANDSTONE	SLTY.VFG.M.GY LAMINATED; DISSEMINATED PYRITE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 75	15.97	17.09	1.12			SANDSTONE	VFG.M.GY SILTSTONE LAMINATIONS; DISSEMINATED PYRITE; UNDULATING BEDDING-TOPS UP?; MORE FINE GRAINED TOWARDS BOTTOM; SHARP CONTACT WITH UNDERLYING SILTSTONE
* 81	17.09	17.99	0.90			SILTSTONE	LT-DK.GY LAMINATED WITH VERY FINE GRAINED SAND
73	17.99	18.36	0.37			SILTSTONE	LAMINATED LIGHT TO DARK GRAY; SAND INCREASING TO BOTTOM
* 62	18.36	19.85	1.49			SANDSTONE	VFG.M-DK.GY.SLD DISSEMINATED PYRITE; BCA ON BED OF RIP UP CLASTS; SLIGHTLY ROUNDED RIP UP CLASTS OF LAMINATED SILTSTONE; IMBRICATED 1.0 mm-4.0 cm AT TOP OF UNIT; LAMINATED; FAINT CROSS BEDDING - TOPS UP
* 78	19.85	21.81	1.96			SANDSTONE	VFG.M-DK.GY.SLD SILTY LAMINATIONS; MINOR DISSEMINATED PYRITE; MORE MASSIVE TO BASE
* 80	21.81	22.34	0.53			SANDSTONE	FG.M.GY.SLD FAINT BEDDING WITHIN SAND; ELONGATE ROUNDED SILTSTONE RIP UP CLASTS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 82	22.34	22.87	0.53			SANDSTONE	GY.BRKN INTERBEDDED SILTSTONE; LAMINATED MEDIUM -DARK GRAY QUARTZ AND CALCITE VEIN ALONG BEDDING; CROSS-BEDDED--TOPS UP-- UNDULATING LAMINATIONS
* 84	22.87	23.10	0.23			SANDSTONE	INTERBEDDED SILTSTONE; LAMINATED MEDIUM -DARK GRAY QUARTZ AND CALCITE VEIN ALONG BEDDING; CROSS-BEDDED--TOPS UP-- UNDULATING LAMINATIONS; BECOMING THIN BEDDED AT BASE.
84	23.10	23.81	0.71			SANDSTONE	FG.M.GY.SLD TRACE RIP UP CLASTS; MASSIVE WITH FAINT APPARENT BEDDING
83	23.81	25.13	1.32			SANDSTONE	SLD TRACE RIP UP CLASTS; MASSIVE; MUDSTONE RIP UP CLASTS AT BOTTOM 0.3 m; VERY BROKEN AT BASE; CONSISTENT FRACTURES AT 12 DEGREES TO CORE AXIS; RIP-UP CLASTS 1.0-5.0 MM (UNORIENTED)
82	25.13	25.48	0.35			SANDSTONE	VERY BROKEN
81	25.48	25.88	0.40			ROCK LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
81	25.88	27.10	1.22			SANDSTONE	FG.LT-M.GY.VBRKN PEBBLE BANDS THROUGHOUT; PEBBLES: WELL ROUNDED; 0-10.0 mm; LIGHT-DARK GRAY CHERT; TWO FRACTURE FILLINGS: 1.0 - 2.0 cm CARBONATE (ANKERITE?); FIN SHAPED WITH GOOD QUARTZ TERMINATIONS
80	27.10	27.44	0.34			SANDSTONE	FG.LT-M.GY PEBBLE BANDS TOP AND BOTTOM 5.0 cm; CALCAREOUS; CHERT PEBBLES; BRIGHT COAL FRAGMENTS; NO RELIABLE BCAS'; EROSIONAL CONTACT
* 79	27.44	29.22	1.78			SANDSTONE	FG OCCASIONALLY MEDIUM GRAINED; FREQUENT CHERT-PEBBLE BANDS; MORE COALIFIED FRAGMENTS; WISPY QUARTZ STRINGERS; CALCAREOUS INTERVALS; QUARTZ VEINING TO BASE AT 64 DEGREES TO CORE AXIS; SUBANGULAR PEBBLES NEAR BASE; TRACES DISSEMINATED PYRITE
77	29.22	29.40	0.18			SANDSTONE	FG.M.GY MASSIVE; TRACE PYRITE; VERY THIN QUARTZ WISPS
77	29.40	29.50	0.10			SANDSTONE	VBRKN MASSIVE; TRACE PYRITE; VERY THIN QUARTZ WISPS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
76	29.50	29.90	0.40			ROCK LOSS	
* 74	29.90	31.55	1.65			MUDSTONE	M-DK.GY.VBRKN SLIGHTLY SILTY; MINOR CARBONACEOUS BEDS ; SILTSTONE/VERY FINE GRAINED MEDIUM GR AY SANDSTONE INTERBEDS UP TO 3.0 cm THI CK
* 78	31.55	32.47	0.92			SILTSTONE	M-DK.GY BIOTURBATED(?)/DISTURBED STRUCTURALLY; INTERBEDDED MUDSTONE
70	32.47	33.53	1.06			MUDSTONE	SLTY TRACES OF BRIGHT COAL AND PLANT DEBRIS; ALSO BIT WEAR EVIDENT
64	33.53	33.82	0.29			MUDSTONE	BRKN TRACES OF BRIGHT COAL AND PLANT DEBRIS; BIT WEAR; LISTRIC SURFACES; CALCITE CO ATED SLICKENSIDE SURFACES
62	33.82	33.96	0.14			ROCK LOSS	
61	33.96	33.98	0.02			MUD	LT.GY SOFT; TUFFACEOUS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 60	33.98	34.30	0.32			MUDSTONE	SLTY MINOR STRINGERS OF BRIGHT COAL; QUARTZ AND CALC ITE WISPS
54	34.30	35.19	0.89		G(UPPER)	MUDSTONE	SLTY.DK.GY.VBRKN ABUNDANT COAL STRINGERS AND LENSES; QUA RTZ WISPS; CARBONACEOUS; PULVERIZED; MA NY LISTRIC SURFACES
49	35.19	35.30	0.11		G(UPPER)	MUDSTONE	BLK SLIGHTLY CARBONACEOUS; BRIGHT COAL STRI NGERS; LISTRIC SURFACES
42	35.30	36.70	1.40		G(UPPER)	MUDSTONE	DK.GY SLIGHTLY SILTY; CARBONACEOUS INTERBEDS; MINOR QUARTZ WISPS; SHEARED APPEARANCE ; MINOR BRIGHT COAL INCREASES TO BOTTOM ; LISTRIC SURFACES; BCA DECREASES TO 35 ; SOFT POWDERY MINERAL ON SLICKENSIDE S URFACES; KAOLIN?
* 35	36.70	36.80	0.10		G(UPPER)	MUDSTONE	SLIGHTLY SILTY; CARBONACEOUS INTERBEDS; MINOR QUARTZ WISPS; SHEARED APPEARANCE S; MINOR BRIGHT COAL INCREASES; LISTRIC SURFACES; SOFT POWDERY MINERALS ON SLI CKENSIDE SURFACES; KAOLIN?

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
21	36.80	38.00	1.20		G(UPPER)	MUDSTONE	BLK.BRKN ABUNDANT BRIGHT COAL STRINGERS AND LISTRIC SURFACES; CALCITE VEINING AND ASSOCIATED PYRITE
* 01	38.00	38.75	0.75		G(UPPER)	MUDSTONE	APPEARS TO BE BCA OF 0
29	38.75	40.74	1.99		G(UPPER)	MUDSTONE	VERY THIN 4.0 mm COAL STRINGERS AND OCCASIONAL COAL LENS
52	40.74	41.10	0.36		G(UPPER)	MUDSTONE	VBRKN CONTINUING DOWN-DIP
62	41.10	41.67	0.57		G(UPPER)	MUDSTONE	VBRKN CONTINUING DOWN-DIP; LISTRIC SURFACES AND SLICKENSIDE; BED SHALLOWING TO BASE
* 70	41.67	41.91	0.24		G(UPPER)	MUDSTONE	BRKN 70.0 TO CORE AXIS ON SLIGHTLY CONVULUTE PYRITE BED AND QUARTZ BED
46	41.91	42.52	0.61		G(UPPER)	MUDSTONE	CARB.BRKN COALY STRINGERS DEFORMED WITHIN CORE; APPEARANCE OF DRILLING DOWN DIP
* 01	42.52	43.50	0.98		G(UPPER)	MUDSTONE	CARB.VBRKN COALY STRINGERS DEFORMED WITHIN CORE; APPEARANCE OF DRILLING DOWN DIP; LESS VEINING; PULVERIZED AT BASE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
06	43.50	44.23	0.73		G(UPPER)	MUDSTONE	VBRKN INCREASING AMOUNT OF VEINS; LENSES WITH DISSEMINATED PYRITE
09	44.23	44.31	0.08		G(UPPER)	MUDSTONE	INCREASING AMOUNT OF VEINS; LENSES OF DISSEMINATED PYRITE; DOWN-DIP
12	44.31	45.20	0.89		G(UPPER)	MUDSTONE	DK.GY.VBRKN SLIGHTLY SILTY; BRIGHT COAL STRINGERS AND LENSES; PULVERIZED AT BASE
16	45.20	45.45	0.25		G(UPPER)	ROCK LOSS	
19	45.45	46.31	0.86		G(UPPER)	MUDSTONE	QUARTZ AND CARBONATE FRACTURE-FILL; DOWN-DIP
28	46.31	48.24	1.93		G(UPPER)	MUDSTONE	QUARTZ AND CARBONATE FRACTURE FILL; INCREASES TO BASE; DOWN-DIP; HALF OF CORE IS CARBONACEOUS
36	48.24	48.70	0.46		G(UPPER)	MUDSTONE	SLTY.M.GY.SLD WISPS AND LENSES OF BRIGHT COAL; MORE SILTY TO BASE; SOFT WHITE MINERAL ON FRACTURES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 42	48.70	50.20	1.50			SILTSTONE	GY LAMINATED LIGHT TO DARK GRAY; BECOMES MORE SANDY TO BASE; POSSIBLE CROSS BEDDING; TOPS UP; SOFT WHITE MINERAL ON LISTRIC SURFACE (KAOLIN?)
* 45	50.20	51.11	0.91			SANDSTONE	FG.M-DK.GY.SLD INTERBEDDED WITH SILTSTONE; TOPS UP; MINOR QUARTZ FILLED FRACTURES
45	51.11	51.32	0.21			SANDSTONE	FG.M-DK.GY.SLD BRECCIATED VEIN FILL OF QUARTZ AND CARBONATE HOSTING SANDSTONE CLASTS; POWDERY WHITE MINERAL ALONG GRADATIONAL CONTACT OF SILTSTONE AND SANDSTONE
45	51.32	51.60	0.28			SANDSTONE	FG.M-DK.GY.SLD
45	51.60	51.93	0.33			SANDSTONE	FG.BRKN CORE SURFACE APPEARS MEDIUM GRAINED; FAIRLY MASSIVE; MEDIUM GRAINED TOWARDS BASE WHERE THERE IS MORE VEIN FILLING.

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
45	51.93	52.77	0.84			SANDSTONE	FG.BRKN FRACTURED AT 72 DEGREES AND BROKEN;CRYSTALLINE CALCITE ON FRACTURES;WHITE POWDER (KAOLIN?) ON LISTRIC SURFACES; MAJOR 1.0 cm CARBONATE FILLED FRACTURE; BCA MEASURED ON VERY THIN MUD LAMINAE;OTHERWISE SANDSTONE IS MASSIVE
* 45	52.77	53.61	0.84			SANDSTONE	FG.M.GY.BRKN FRACTURE; WHITE FILLED VEINS; BCA ON SILTSTONE BED 27 cm FROM BASE OF OTHERWISE MASSIVE SANDSTONE; SLIGHTLY CARBONACEOUS ON PARTINGS TO BASE
* 50	53.61	54.11	0.50			ROCK LOSS	
49	54.11	55.37	1.26			SANDSTONE	FG.VBRKN GREASY LISTRIC SURFACES; MINOR FAULT 4.0 cm DISPLACEMENT; MEDIUM GRAINED APPEARANCE; MUDSTONE FILMS ON BEDDING SURFACE; ABUNDANT QUARTZ AND CALCITE VEINING; SLICKENSIDE SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
48	55.37	56.17	0.80			SANDSTONE	FG.DK.GY
47	56.17	56.41	0.24			MUDSTONE	CARB.VBRKN BRIGHT COAL STRINGERS; FRIABLE; MINOR QUARTZ VEINING; PULVERIZED
47	56.41	56.67	0.26			ROCK LOSS	
46	56.67	57.09	0.42			MUDSTONE	CARB.BLK BRIGHT COAL STRINGERS THROUGHOUT GRADATIONAL CONTACT
46	57.09	57.55	0.46			SILTSTONE	DK.GY SLIGHTLY SANDY; NO BEDDING APPARENT; CALCITE WISPS; GRADATIONAL TO:
* 45	57.55	58.60	1.05			MUDSTONE	CARB.DK.GY.BRKN BRIGHT COALY STRINGERS; SILTY IN PLACES; LISTRIC SURFACES
47	58.60	59.00	0.40			MUDSTONE	SLTY MINOR COALY STRINGERS; SILTY IN PLACES; LISTRIC SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
48	59.00	59.26	0.26		G(UPPER)	COAL	C-1 BRIGHT; CARBONACEOUS MUDSTONE STRINGERS AND CALCITE VEINING
48	59.26	59.40	0.14		G(UPPER)	COAL LOSS	
49	59.40	59.54	0.14		G(UPPER)	MUDSTONE	SLTY.DK.GY FINE COAL STRINGERS
* 50	59.54	60.52	0.98		G(UPPER)	MUDSTONE	CARB.SLD SLIGHTLY SILTY; BREAKS ON COAL STRINGERS
53	60.52	60.80	0.28		G(UPPER)	MUDSTONE	SLIGHTLY SILTY; BREAKS ON COAL STRINGERS; VERY CARBONACEOUS AT BASE
55	60.80	61.07	0.27		G(UPPER)	COAL	C-3.VBRKN ABUNDANT CALCITE/QUARTZ VEINS; MUDSTONE PARTINGS; FRIABLE; ABUNDANT C-1 BANDS; PYRITE RICH LENS
56	61.07	61.10	0.03		G(UPPER)	COAL LOSS	
56	61.10	61.16	0.06			MUDSTONE	CARB.BLK

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
57	61.16	61.34	0.18			MUDSTONE	SLTY.DK.GY MINOR BRIGHT COAL STRINGERS; LISTRIC SURFACES
59	61.34	61.93	0.59			ROCK LOSS	
* 63	61.93	62.81	0.88			SILTSTONE	M.GY SLIGHTLY SANDY WITH SAND FILLED FRACTURE INCLUDING TRACES OF BRIGHT COAL; GRADES INTO INTERBEDDED MUDSTONE/SILTSTONE; TOPS UP
65	62.81	63.97	1.16			SILTSTONE	M-DK.GY.BIOTR.SLD INTERBEDDED MUDSTONE; MORE SANDY TO BASE
* 67	63.97	64.87	0.90			SANDSTONE	SLTY.VFG.M-DK.GY.SLD SLIGHTLY BIOTURBATED; TOPS UP; BCA ON FAINT BEDDING
66	64.87	64.99	0.12			SILTSTONE	DK.GY SLIGHTLY SANDY; LISTRIC SURFACES; WHITE POWDERY MINERAL (KAOLIN?)

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
65	64.99	65.80	0.81			SANDSTONE	FG.LT-M.GY SOME THIN < 5.0 mm SILTSTONE; FRACTURED; SLICKENSIDES;MAJOR QUARTZ/CALCITE FRACTURE FILL; 4.0 CM SILTY MUDSTONE (CLAST OR BEDDING) NEAR MIDPOINT
* 62	65.80	67.78	1.98			SANDSTONE	FG WEATHERED COARSE GRAINED; CROSS BEDDING TOPS UP; 1.0 X 2.0 cm COAL FRAGMENT; FINING UPWARD SEQUENCES IRREGULAR THROUGHOUT; 3.0 -6.0 CM LIGHT-DARK GRAY AND BLACK CHERT GRAINS
63	67.78	67.94	0.16			SANDSTONE	.
* 64	67.94	69.37	1.43			SANDSTONE	FG.VBRKN SILTSTONE INTERBEDS; NO CROSS BEDS; FRACTURED; TRACES OF COAL FRAGMENIS
60	69.37	70.32	0.95			ROCK LOSS	
* 55	70.32	72.04	1.72			SANDSTONE	GY.VBRKN INTERBEDDED FINE TO COARSE GRAINED;TOPS UP;FINING UPWARD SEQUENCES 1.0 - 8.0 cm OFTEN INCOMPLETE; COAL AND MUDSTONE INCLUSIONS < 5.0 cm DIAMETER; QUARTZ AND CALCITE VEINING

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 71	72.04	72.26	0.22			SANDSTONE	SLD FINE TO MEDIUM GRAINED WITH MINOR COARSE LENSES
71	72.26	73.93	1.67			SANDSTONE	SLD FINE TO MEDIUM GRAINS WITH MINOR COARSE LENSES; QUARTZ STRINGERS UP TO 1.0 cm WIDE; THIN CLAY RESIDUE ON BEDDING PLANES(DEPOSITIONAL?);BROKEN AT BASE; WEATHERED QUICKLY
70	73.93	74.81	0.88			SANDSTONE	GY.SLD FEWER COARSE LENSES; TRACES OF MUDSTONE INCLUSIONS; TRACES OF LISTRIC SURFACES
* 70	74.81	75.80	0.99			SANDSTONE	SLD FEWER COARSE LENSES; TRACES OF MUDSTONE INCLUSIONS; TRACES OF LISTRIC SURFACES; MAJOR 3.0 cm QUARTZ VEIN AT 30 DEGREES TO CORE AXIS
* 75	75.80	77.53	1.73			SANDSTONE	BRKN FINE TO MEDIUM GRAINED; SOME COARSE GRAINED DISSEMINATED PYRITE; VERY THIN BRIGHT COAL STRINGERS; QUARTZ AND CARBONATE VEINS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
65	77.53	77.77	0.24			SANDSTONE	FINE TO MEDIUM GRAIN; SOME COARSE GRAIN DISSEMINATED PYRITE; VERY THIN COAL STRINGERS; QUARTZ AND CARBONATE VEINS
56	77.77	79.43	1.66			SANDSTONE	SLD AT TOP TO BRECCIATED AT 18CM FROM BASE WITH FRACTURE FILLING OF QUARTZ AND CARBONATE AND SOFT POWDERY KAOLIN
44	79.43	80.20	0.77			SANDSTONE	FG.M.GY.BRKN MASSIVE; BEDDING INDETERMINATE; TRACE AMOUNT OF MUDSTONE CLASTS; WHITE POWDERY COATING ON FRACTURES (KAOLIN?)
38	80.20	80.69	0.49			QUARTZ	WITH CARBONATE; EXCELLENT CRYSTALS WITHIN; VUGGY; CONTAINS SANDSTONE FRAGMENTS
34	80.69	80.85	0.16			QUARTZ	BRKN ABUNDANT (50%)SANDSTONE; SILTSTONE INCLUSIONS; WELL DEVELOPED CARBONATE CRYSTALS; FOLD AXIS? .
31	80.85	81.28	0.43			SANDSTONE	DISTURBED: 30% QUARTZ VEINS WITH 1.0 cm MUDSTONE BAND AT TOP SHOWING LISTRIC SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 20	81.28	83.17	1.89			SANDSTONE	BRKN FINE TO COARSE GRAINED; BEDDING INDETERMINATE; ABUNDANT QUARTZ/WELL-DEVELOPED TERMINATIONS IN FRACTURES; ALSO CARBONATE FANS IN SAME; VERY DISTURBED; COALY PARTINGS; BCA 20 DEGREES--VERY LOCAL
28	83.17	83.40	0.23			SANDSTONE	FINE TO COARSE GRAINED; BEDDING INDETERMINATE; ABUNDANT QUARTZ WITH BEAUTIFUL TERMINATIONS IN FRACTURES; CARBONATE FANS IN SAME; VERY DISTURBED COALY PARTINGS
30	83.40	83.62	0.22		G(UPPER)	COAL	C-4.VBRKN PULVERIZED; SHARP CONTACT WITH ABOVE
35	83.62	84.78	1.16		G(UPPER)	COAL	VBRKN BADLY DEFORMED; WISPY QUARTZ THROUGHOUT; ABUNDANT LISTRIC SURFACES; CARBONACEOUS MUDSTONE INTERBEDS INCREASING TO BASE; BEDDING INDETERMINATE; DISSEMINATED PYRITE ASSOCIATED WITH QUARTZ; 1.0 X 7.0 cm SANDSTONE INCLUSIONS
42	84.78	85.34	0.56			MUDSTONE	DK.GY CARBONACEOUS AT TOP; MINOR BRIGHT COAL STRINGERS; LISTRIC FRACTURE SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 50	85.34	86.76	1.42			SILTSTONE	DK.GY INTERBEDDED FINE GRAIN SANDSTONE; TRUNCATIONS: TOPS DOWN
* 55	86.76	87.00	0.24			ROCK LOSS	
* 50	87.00	87.56	0.56			SILTSTONE	DK.GY.SLD WAVY INTERBEDDED; FINE-MEDIUM GRAINED SANDSTONE TRUNCATIONS; TOPS DOWN; SLICKENSIDE PLANE 55 DEGREES FROM CORE AXIS
54	87.56	87.60	0.04			SILTSTONE	DK.GY.SLD
* 65	87.60	89.04	1.44			SANDSTONE	MG.M.GY.BRKN SOME FINER LENSES AND MINOR COARSER BANDS; SMALL SCALE CROSS BEDS; TOPS DOWN; MINOR QUARTZ VEINS < 1.0 mm THICK; COARSER BANDS CONTAIN WHITE (CHERT?) GRAINS TO ELONGATE < 3.0 CM IMBRICATE ROUNDED MUDSTONE CLASTS
* 57	89.04	90.57	1.53			SANDSTONE	COARSER BANDS TO FINER AND MORE UNIFORM BANDS; PROGRESSIVELY MORE BROKEN AND INCREASING QUARTZ FILLED FRACTURES; MINOR COAL FRAGMENTS
63	90.57	90.87	0.30			SANDSTONE	MORE COALY FRAGMENTS; LESS BROKEN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 70	90.87	92.73	1.86			SANDSTONE	BRKN COALY FRAGMENTS; LESS BROKEN; MEDIUM-CO ARSE GRAINS; COARSER BANDS; QUARTZ-COAL CLASTS < 2.0 cm; TWO MAJOR QUARTZ-CARB ONATE 5.0 cm INCLUDE SANDSTONE GRAINS
* 60	92.73	93.63	0.90			SANDSTONE	VBRKN UNDULATING BEDDING SURFACES; TWO ZONES SHATTERED WITH WHITE POWDERY MINERAL CO ATING SURFACES; NO COAL FRAGMENTS
61	93.63	94.22	0.59			SANDSTONE	BRKN MINOR QUARTZ FRACTURES
* 63	94.22	95.60	1.38			SANDSTONE	BRKN MINOR QUARTZ FRACTURES
64	95.60	95.85	0.25			SANDSTONE	VBRKN SHATTERED; MINOR QUARTZ FRACTURES
66	95.85	97.35	1.50			SANDSTONE	VBRKN SHATTERED; MINOR QUARTZ FRACTURES; BEDD ING HORIZONTAL
* 68	97.35	99.00	1.65			SANDSTONE	BRKN SHATTERED; MINOR QUARTZ FRACTURES; BEDD ING HORIZONTAL

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
72	99.00	100.50	1.50			SANDSTONE	BRKN AS ABOVE; MAJOR CARBONACEOUS FILLED FRA CTURES; QUARTZ FILLED AND UNFILLED FRAC TURES
75	100.50	101.37	0.87			SANDSTONE	BRKN FINE COARSE BANDING; AS ABOVE; CARBONAT E 2.0 cm
* 77	101.37	102.47	1.10			SANDSTONE	BRKN AS ABOVE; FINING UPWARDS; TOPS UP; QUAR TZ FRACTURES; MINOR IRON STAINING
* 73	102.47	104.51	2.04			SANDSTONE	AS ABOVE; TOPS UP; MAJOR CARBONATE VEIN S <10 CM; FINE CRYSTAL TERMINATIONS
66	104.51	106.47	1.96			SANDSTONE	AS ABOVE; FEWER CARBONATE VEINS
* 60	106.47	108.51	2.04			SANDSTONE	AS ABOVE; MUCH THINNER CARBONATE VEINS
67	108.51	108.71	0.20			SANDSTONE	WEATHERED; FRIABLE
72	108.71	110.40	1.69			SANDSTONE	FG EMPTY AND CARBONATE FILLED TINY FRACTUR ES; 2 MAJOR CARBONATE BANDS; 2.0 cm CAR BONACEOUS POLISHED BAND
* 80	110.40	111.40	1.00			SANDSTONE	BANDS OF CARBONACEOUS MUDSTONE RIP UP C LASTS TO BASE; TOPS UP

* DENOTES MEASURED BCA

FORM 4001

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
79	111.40	112.25	0.85		G(LOWER)	MUDSTONE	CARB POLISHED (LISTRIC); COAL BANDS C-2 WEAT HERED; FRIABLE AND TARNISHED (OXIDIZED)
78	112.25	113.38	1.13		G(LOWER)	MUDSTONE	CARB MINOR COAL; SHEARED CONVOLUTE QUARTZ VE INS AND BRECCIA
76	113.38	114.13	0.75		G(LOWER)	MUDSTONE	AS ABOVE; 30.0 cm INTENSELY SHATTERED
76	114.13	114.42	0.29		G(LOWER)	MUDSTONE	DK.BN.SLD CARBONACEOUS TO COALY; ABUNDANT LISTRIC SURFACES AND BRIGHT COALY BANDS
75	114.42	115.05	0.63			MUDSTONE	DK.GY.SLD SLIGHTLY CARBONACEOUS; GRADATIONAL TO S ILTSTONE
* 74	115.05	116.19	1.14			SILTSTONE	FAINT BEDDING
* 57	116.19	117.97	1.78			SILTSTONE	AS ABOVE; TOPS UP; DISTURBED BEDDING; S TRUCTURAL DEFORMATION; SANDSTONE AND QU ARTZ AND CARBONACEOUS STRINGERS
* 53	117.97	119.55	1.58			SILTSTONE	AS ABOVE
48	119.55	119.67	0.12			SILTSTONE	CALCITE VEIN (MAYBE SOME QUARTZ); FRACT URE FILL WITH SILTSTONE LENSES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
47	119.67	120.00	0.33			SILTSTONE	TOPS UP; DISTURBED BEDDING OF INTERBEDD ED FINE SANDSTONE
* 45	120.00	120.51	0.51			SILTSTONE	VBRKN CARBONATE STRINGER
* 48	120.51	121.74	1.23			SILTSTONE	VBRKN DISTURBED BEDDING; AS ABOVE; MINO R SMALL FAULTS
27	121.74	123.50	1.76			SILTSTONE	VBRKN AS ABOVE; VERY FRACTURED; BRECCIATED RE GION
15	123.50	123.55	0.05			SILTSTONE	LISTRIC SURFACES; AS ABOVE
* 01	123.55	125.52	1.97			SILTSTONE	INTERBEDDED VERY FINE SANDSTONE BEDS VE RTICAL TO OVERTURNED; BRECCIATED; TRUNC ATION OF QUARTZ VEINS
31	125.52	126.64	1.12			SILTSTONE	VBRKN VERY FRACTURED; ABUNDANT LISTRIC SURFAC ES
50	126.64	127.44	0.80			SILTSTONE	AS ABOVE
* 61	127.44	127.80	0.36			SILTSTONE	BRKN LESS DISTURBED; TOPS DOWN; INTERBEDDED VERY FINE GRAINED SANDSTONE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
59	127.80	129.30	1.50			SILTSTONE	BRKN AS ABOVE BUT FAIRLY DISTURBED BEDDING; ESPECIALLY AT TOP; QUARTZ AND CARBONATE VEINS AND SOFT WHITE MINERALS
58	129.30	129.56	0.26			SILTSTONE	AS ABOVE; INCREASING SAND CONTENT
56	129.56	131.27	1.71			SANDSTONE	VFG INTERBEDDED SILTSTONE; INCREASINGLY SANDY TO BASE; LISTRIC SURFACES; DISTURBED BEDDING; WHITE POWDERY SUBSTANCE (KAOLIN?)
53	131.27	133.22	1.95			SANDSTONE	DISTURBED; AS ABOVE; ABUNDANT THIN CARBONATE STRINGERS AND WISPS; SOME CRYSTAL S DEVELOPING IN VUGS; SILTY MUDSTONE INCLUSIONS
* 50	133.22	135.13	1.91			SANDSTONE	BEDDING AT TOP; TOPS DOWN; AS ABOVE; BEDDING DISTURBED
51	135.13	135.38	0.25			SANDSTONE	FG.GY MINOR MEDIUM; MASSIVE; WHITE POWDERY ON FRACTURES; FRACTURE FILLINGS TRUNCATED
52	135.38	136.78	1.40			SANDSTONE	VBRKN AS ABOVE; ABUNDANT THIN CARBONATE STRINGERS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
54	136.78	138.11	1.33			SANDSTONE	BRKN AS ABOVE
55	138.11	138.61	0.50			SANDSTONE	BRKN AS ABOVE; APPEARS TO BE OXIDIZED (ROTTEN)
56	138.61	140.45	1.84			SANDSTONE	BRKN AS ABOVE
58	140.45	142.03	1.58			SANDSTONE	VBRKN WELL DEVELOPED CRYSTALLINE CARBONATE FRACTURE FILLING
* 60	142.03	143.73	1.70			SANDSTONE	VBRKN AS ABOVE; BECOMING SILTIER; DISTURBED FRACTURE FILL; MINOR BRECCIATION AT BASE
* 75	143.73	145.40	1.67			SILTSTONE	VBRKN INTERBEDDED VERY FINE GRAINED SANDSTONE ; MUCH SOFT WHITE SUBSTANCE (KAOLIN?)
76	145.40	145.85	0.45			SILTSTONE	VBRKN AS BEFORE; BADLY FRACTURED AT BASE
76	145.85	146.65	0.80			SILTSTONE	AS ABOVE
* 77	146.65	148.22	1.57			SILTSTONE	VBRKN AS ABOVE; BADLY FRACTURED AT TOP

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 75	148.22	149.01	0.79			SILTSTONE	SANDIER WITH INTERBEDDED SANDSTONE; FRACTURED; NOTICEABLE LACK OF VEINING
76	149.01	150.07	1.06			SILTSTONE	AS ABOVE; LISTRIC SURFACE; BEDDING SLIGHTLY DISTURBED - DEPOSITIONAL (?)
* 78	150.07	151.72	1.65			SILTSTONE	AS ABOVE; TOPS UP; GRADING INTO SILTY MUDSTONE AT BASE; MINOR FRACTURE FILL; LISTRIC SURFACES
74	151.72	153.73	2.01			MUDSTONE	DK.GY.SLD SLIGHTLY SILTY
71	153.73	154.77	1.04			MUDSTONE	AS ABOVE; LESS SILTY
70	154.77	155.48	0.71			MUDSTONE	VERTICAL BEDS TOWARDS BASE; SANDSTONE STRINGERS
* 67	155.48	157.43	1.95			SILTSTONE	TOPS DOWN; FRACTURED; GRADES INTO SILTY MUDSTONE (ie. SILTY INTERVAL AT TOP); MINOR VEINING
67	157.43	158.61	1.18			SILTSTONE	AS ABOVE; END OF HOLE
67	158.61	160.70	2.09			ROCK LOSS	DRILLERS' TOTAL DEPTH: 160.7 m LOGGER'S TOTAL DEPTH: 160.1 m

* DENOTES MEASURED BCA
NEWPAGE

RM 4001

GR Mount Klappan 84(3)A

709

GULF CANADA RESOURCES INC.
COAL DIVISION
KLAPPAN PROJECT
STRATIGRAPHIC LOG
KPN LR DDH84005

GEOLOGIST : V. DUFORD	DATE : DEC 04/84	DRAWING NO. :

SCALE : 1:200 1:40

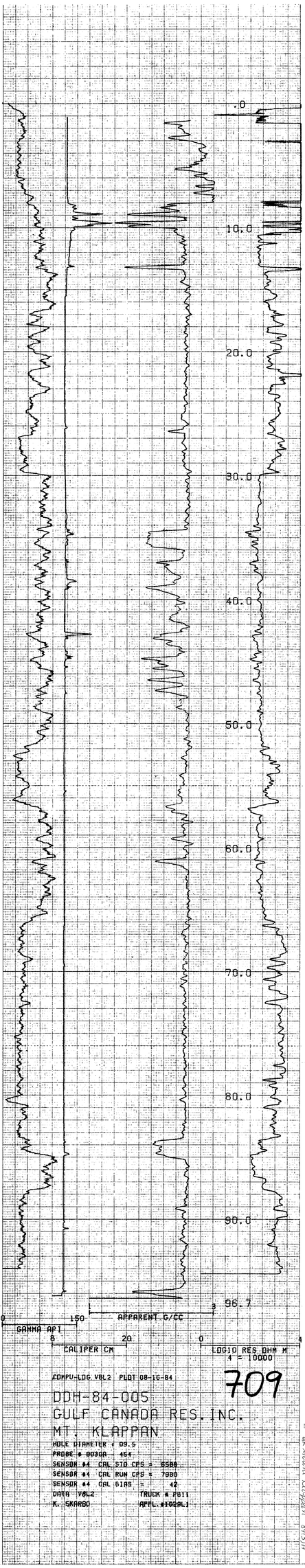
NORTHING: 6343938.0 N INCLINATION: 88.6°
EASTING: 506370.0 E BEARING: 304.4°

LITHOLOGIC SYMBOLS

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

DRILLED DEPTH {M}
BCA {DEG}
TRUE DEPTH {M}
1 : 200
SEAM DETAIL
DRILLED DEPTH {M}
1 : 40
TRUE THICKNESS {M}
80
10 -
10
76
75
62
20 -
80
20
79
74
30 -
30
60
35
40 -
70
42
50 -
40
45
45
60 -
63
50
62
70 -
55
60
70
80 -
20
SEAM G UPPER
83.40
84.78
ROCK COAL
0.00 0.78
0.78
55
70
90 -
70
63
68
100 -
80
77
60
110 -
80
90
74
53
120 -
100
1
130 -
50
110
140 -
60
77
120
150 -
78
67
160 -
130
TOTAL: 160.70
TOTAL: 132.56

PLOT 1 15.32.52 TUES 4 DEC, 1984 JOB-TSTCEGO GULF CANADA DISSPLA 9.0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CENTURY GEOPHYSICAL CORP. PART NO. 786-0040
CENTURY GEOPHYSICAL CORP. PART NO. 786-0040
CENTURY GEOPHYSICAL CORP. PART NO. 786-0040
.0
10.0
20.0
30.0
40.0
50.0
60.0
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GAMMA API
APPARENT G/CC
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8
20
CALIPER CM
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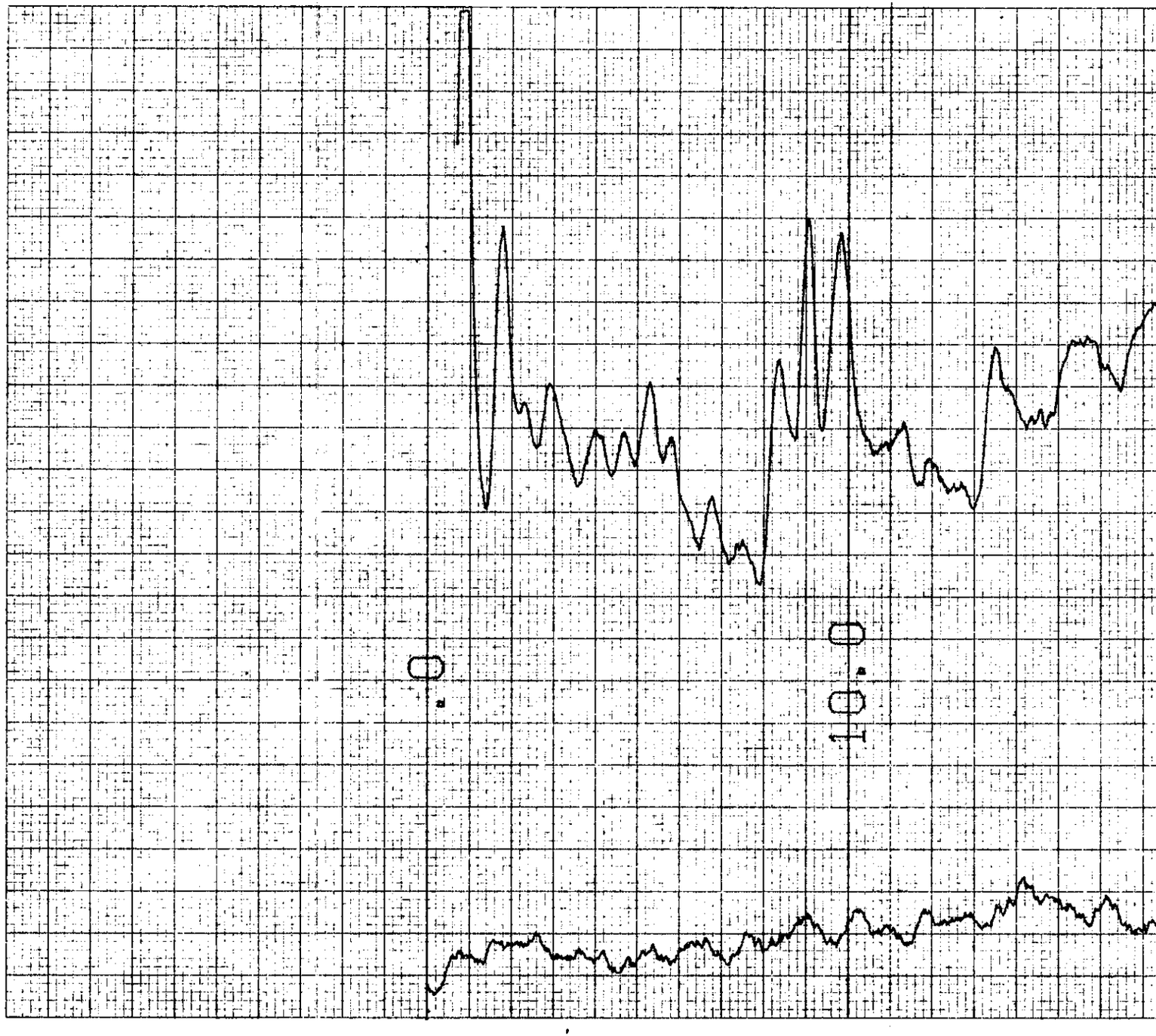
4
LOGIO RES OHM M
4 = 10000
COMPU-LOG VBL2 PLOT 08-16-84
709
DDH-84-005
GULF CANADA RES. INC.
MT. KLAPPAN
HOLE DIAMETER = 09.5
PROBE # 9030A - 454
SENSOR #4 CAL STD CPS = 6580
SENSOR #4 CAL RUN CPS = 7980
SENSOR #4 CAL GIAS = 42
DATA VBL2 TRUCK # P811
K. SKARBO APPL. #1029L1



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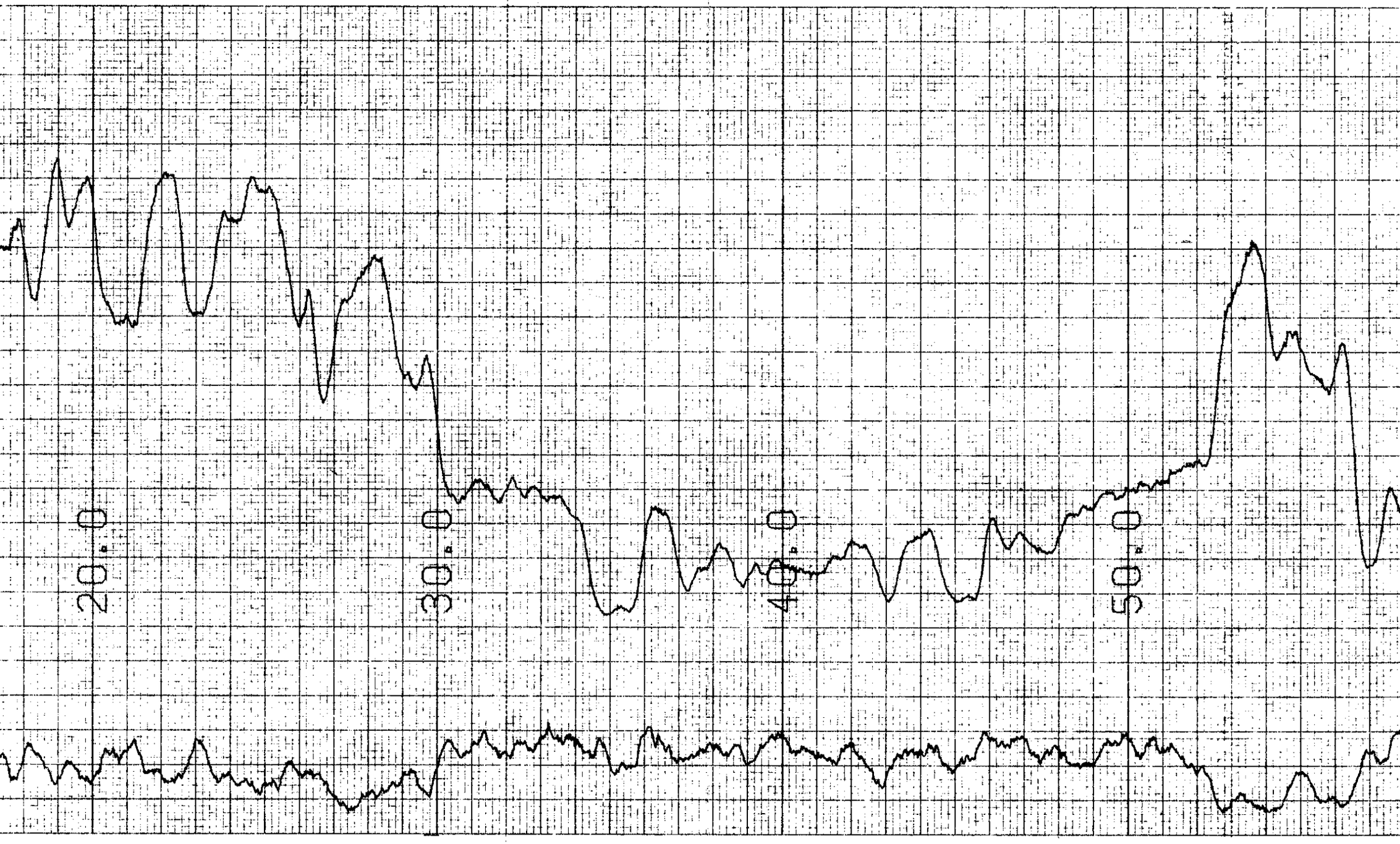

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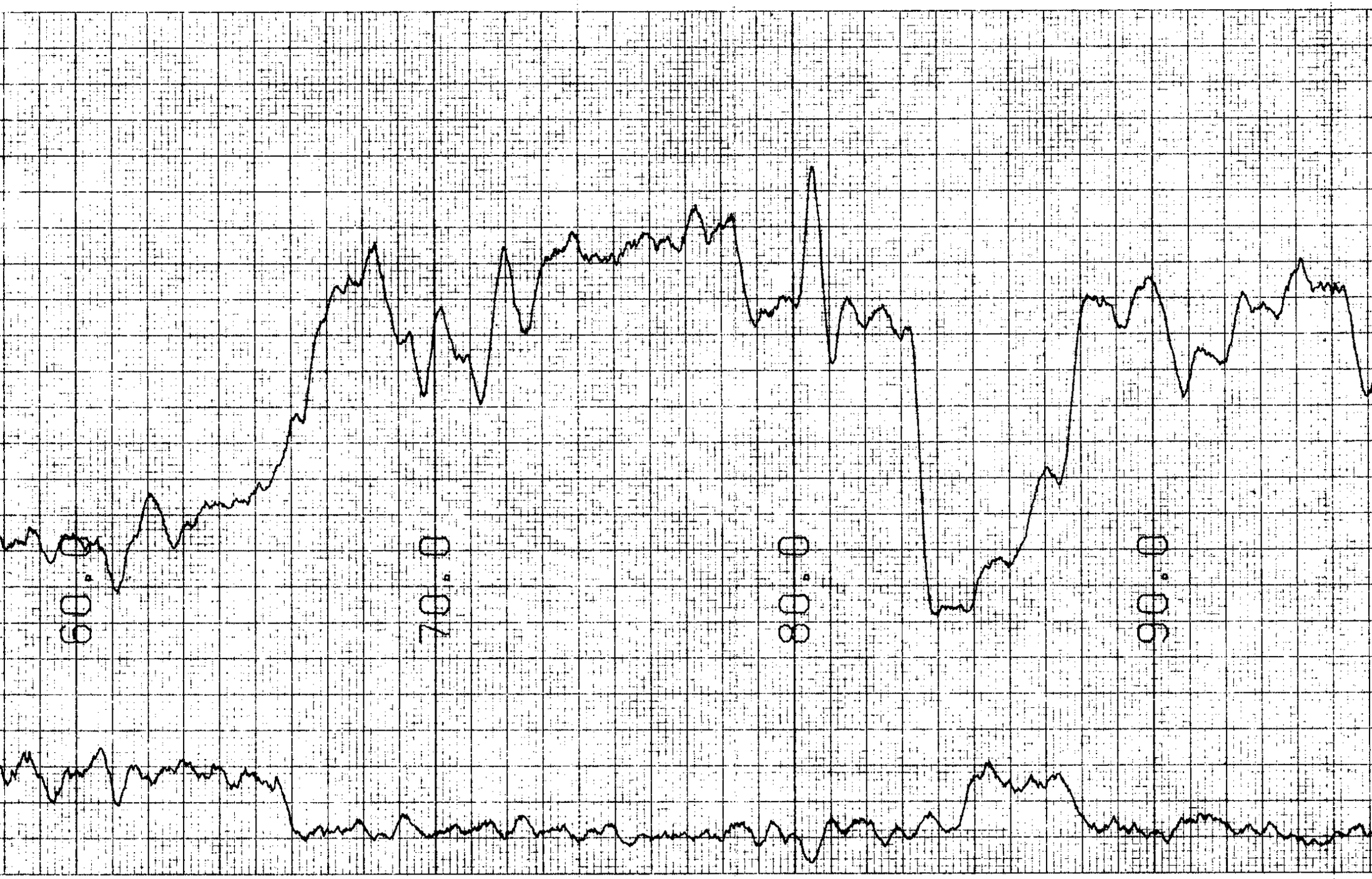

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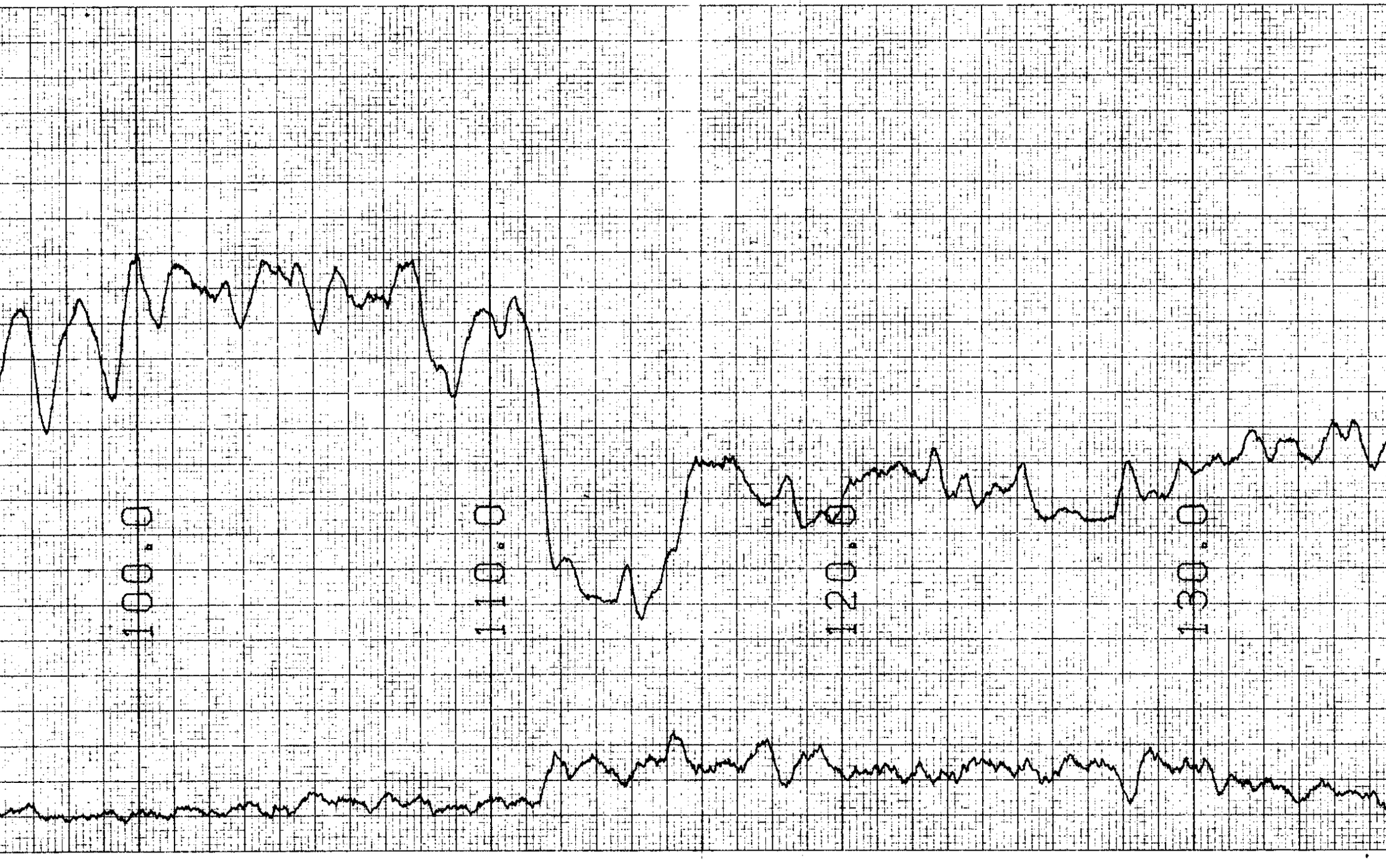

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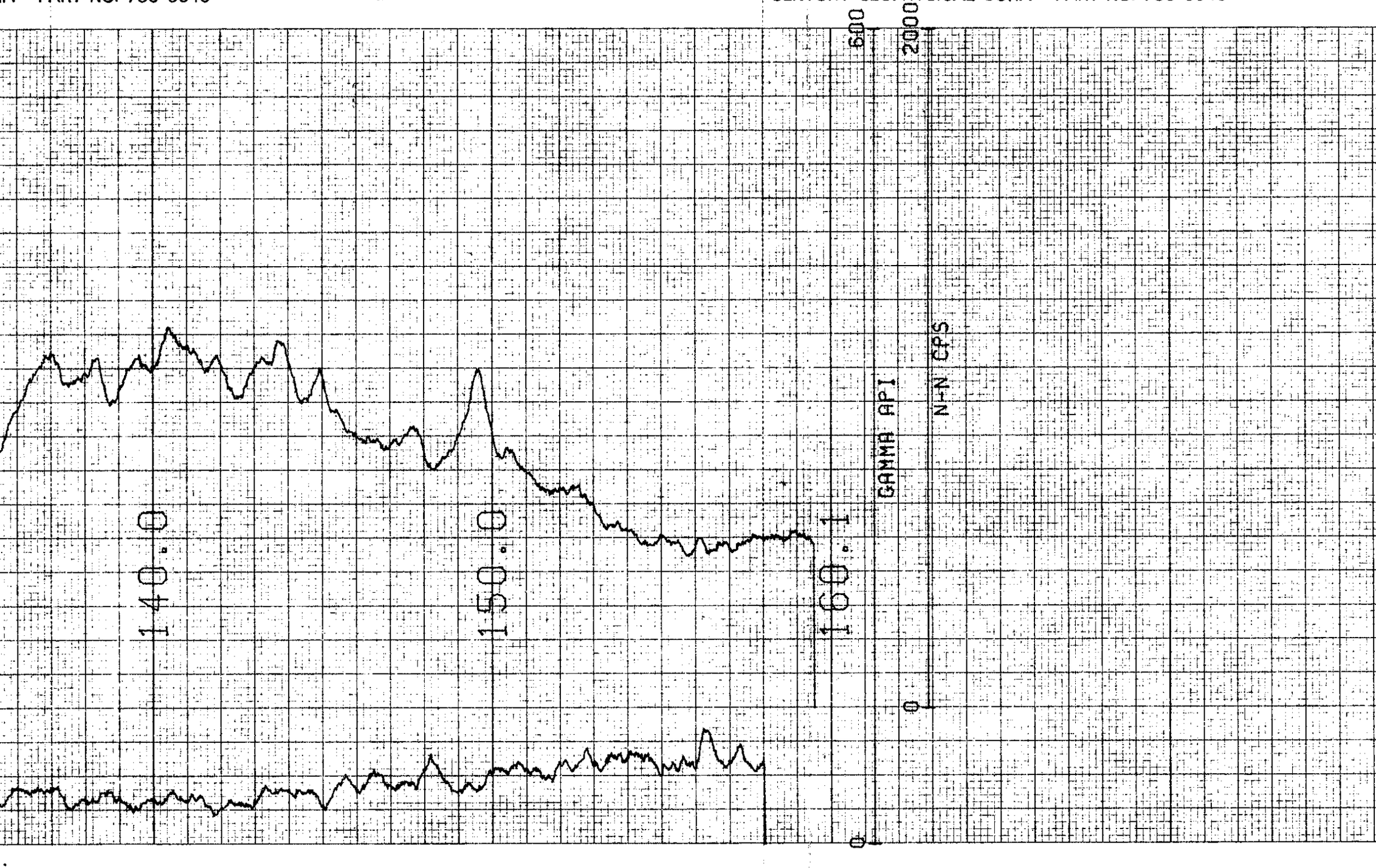


COMPU-LOG V8L2 PLOT 08-15-84

709

DDH-84-005

GULF CANADA RES. INC.

MT. KLAPPAN

HOLE DIAMETER : 07.6

PROBE # 9055A - 005

SCALE 1:100

SENSOR #4 CAL STD CPS = 152

SENSOR #4 CAL RUN CPS = 203

SENSOR #4 CAL BIAS = 0

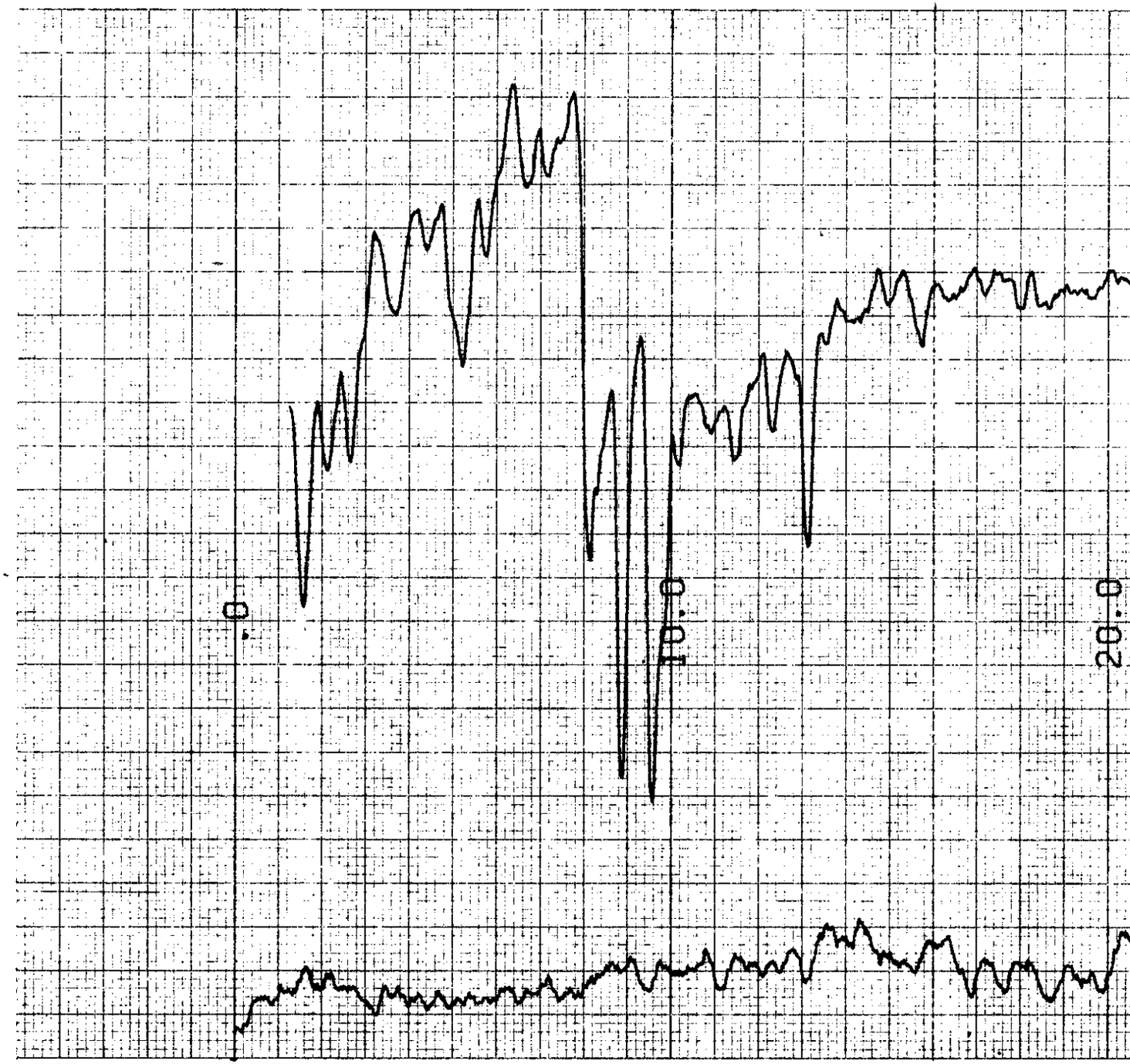
DATA V8L2 TRUCK # P811

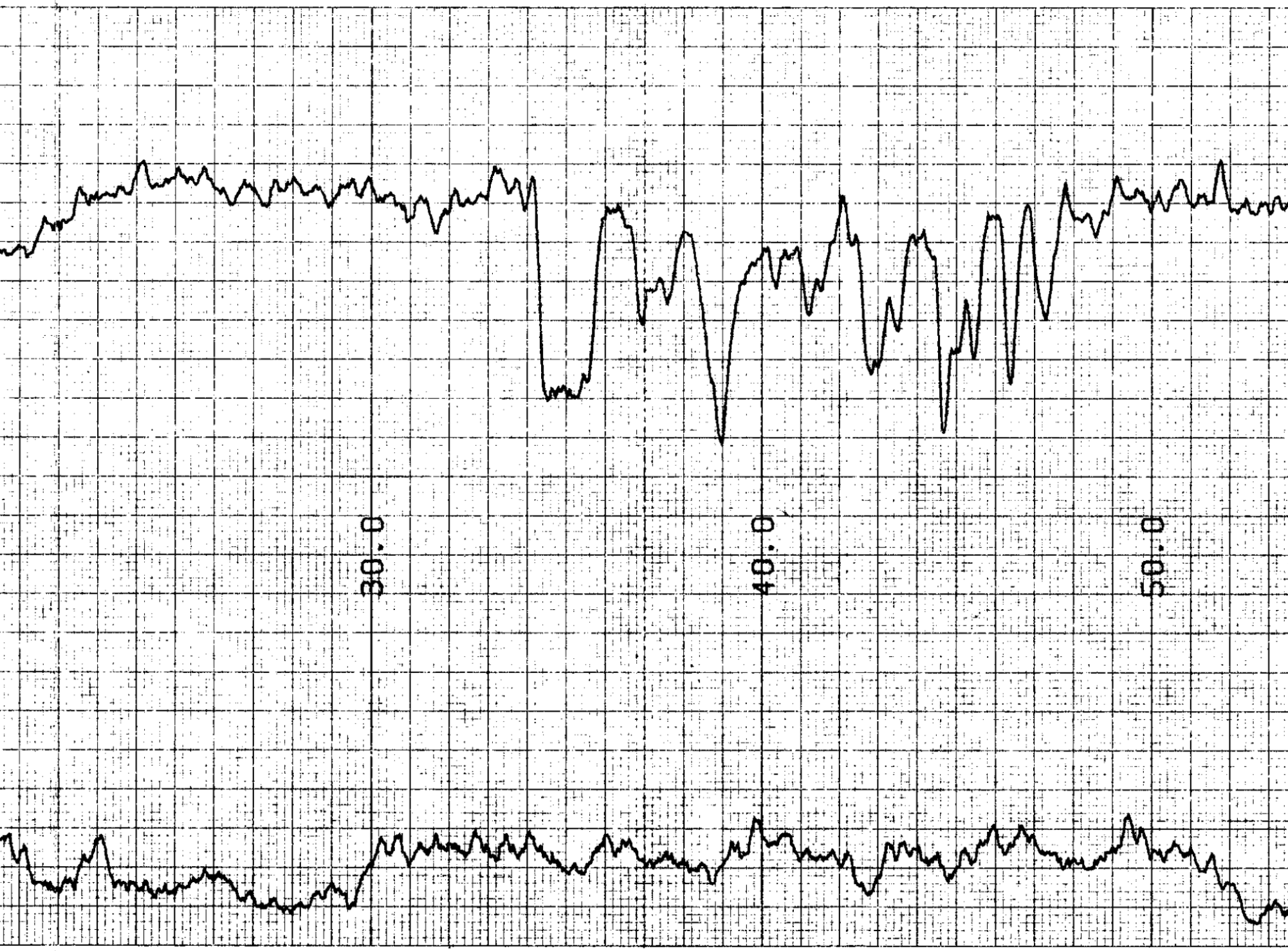
K. SKARBO APPL.#1007L1

GR/Mount Klappan 84(3)A

CENTURY GEOPHYSICAL CORP. PART NO. 78

CENTURY GEOPHYSICAL CORP. PART NO. 786-0040

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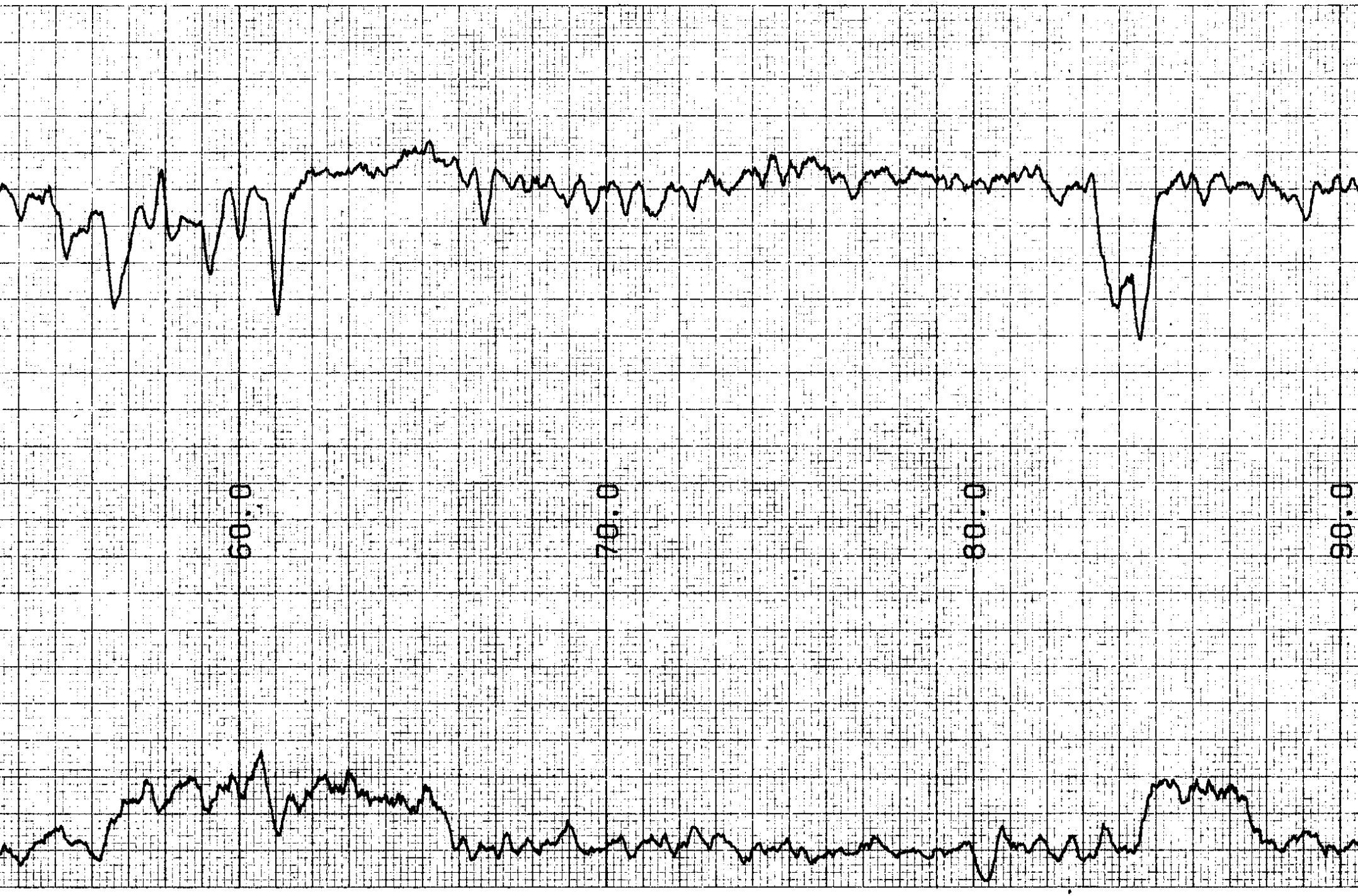
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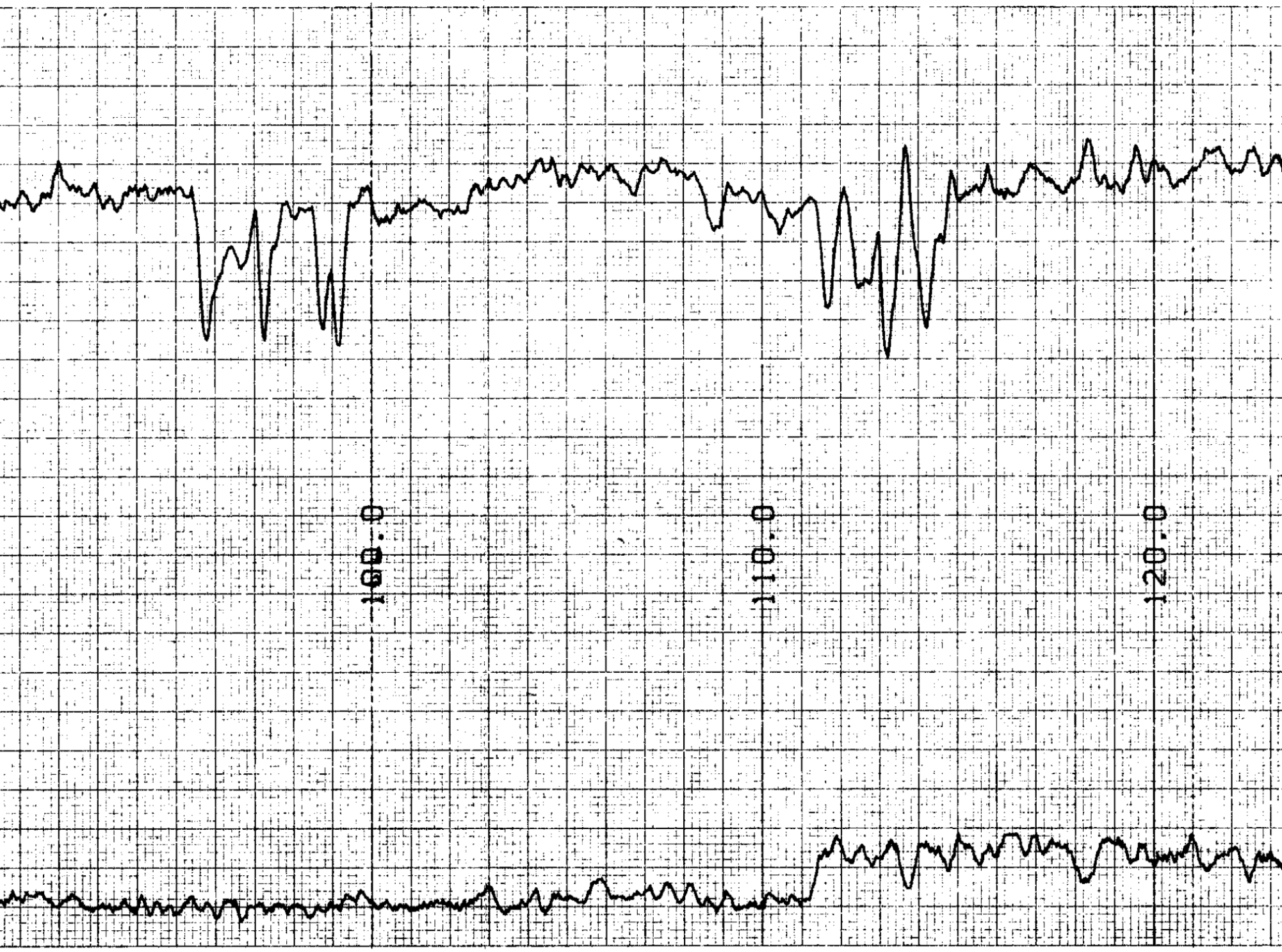
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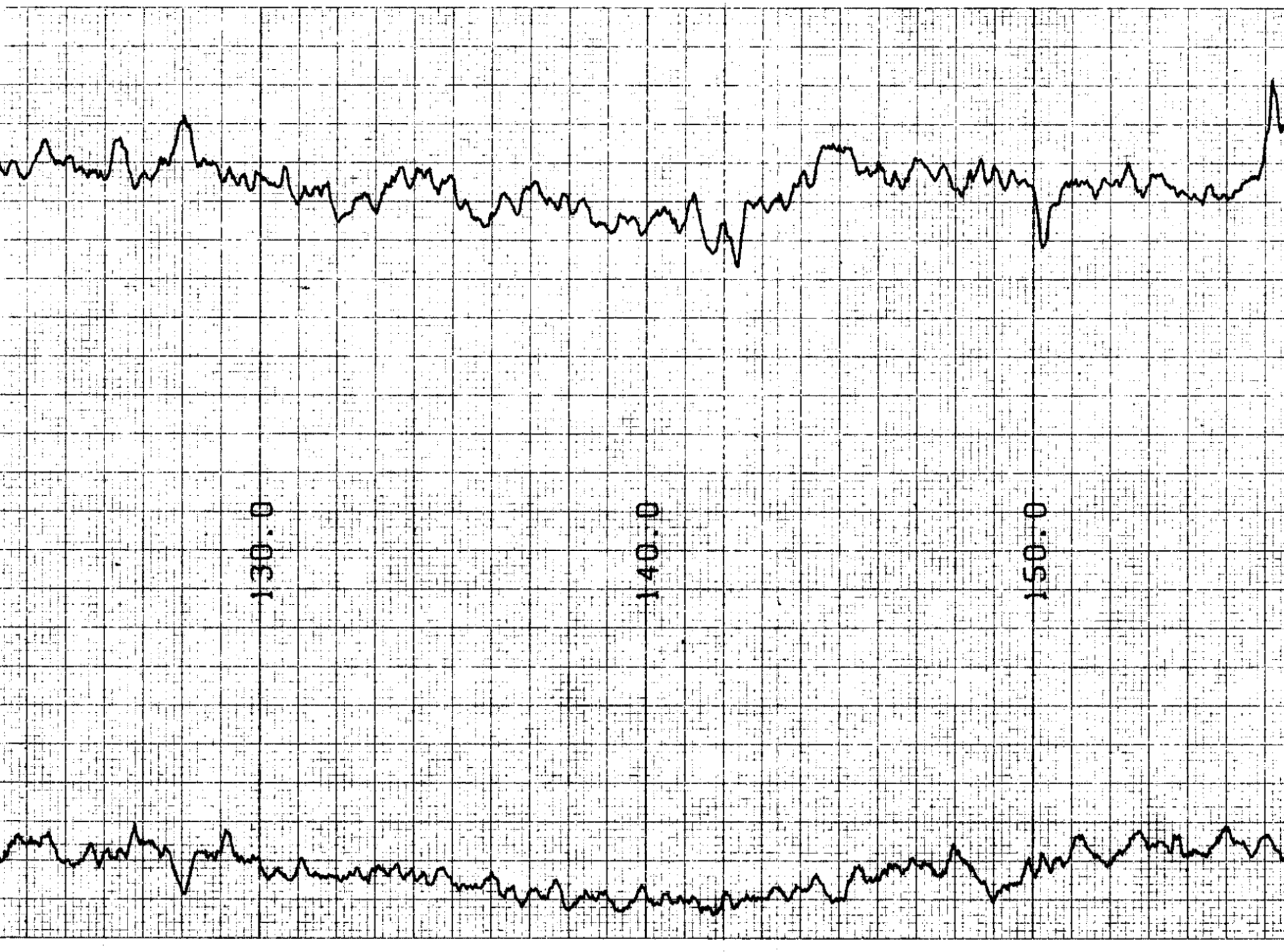
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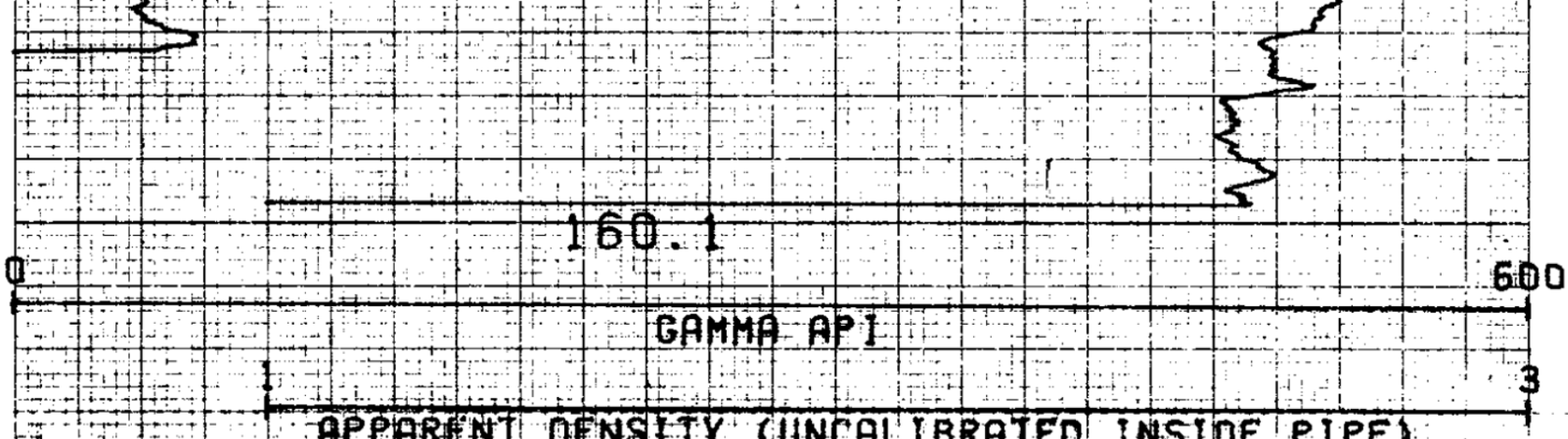

COMPU-LOG V8L2 PLOT 08-15-84

709

DDH-84-005
GULF CANADA RES. INC.
MT. KLAPPAN

HOLE DIAMETER : 07.6
PROBE # 903DA - 454
SENSOR #4 CAL STD CPS = 6588
SENSOR #4 CAL RUN CPS = 4000
SENSOR #4 CAL BIAS = 42
DATA V8L2 TRUCK # F811
K. SKARDO APPL. #2704L1

GR Mount Klappan 84C3 1A

PART NO. 786-0040

CENTURY GEOPHYSICA

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709

VERTICAL DEVIATION

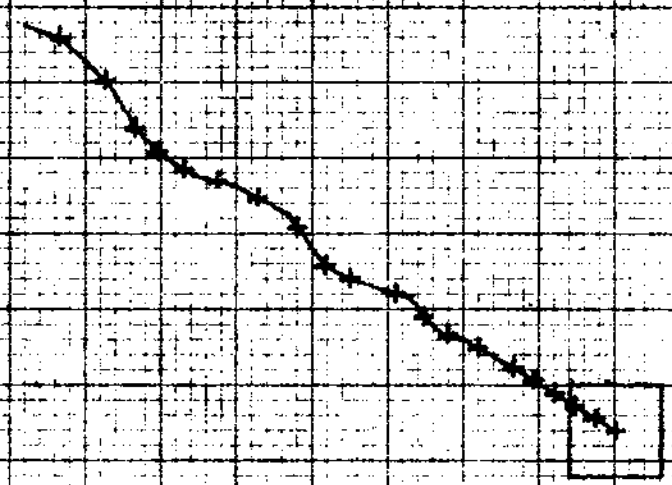
COMPU-LOG V8L1 DEVIATION
DATA FROM : V8L2

CLIENT : GULF CANADA RES.INC.
LOCATION : MT. KLAPPAN
HOLE ID : DDH-84-005
DATE OF LOG : 08-16-84
PROBE : 9055A 0005

SCALE: .25 M/DIV
MAG DECL: 29.5
TRUE DEPTH: 99.0 M
AZIMUTH: 304.4
DISTANCE: 2.37 M

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

TRUE NORTH ↑



CENTURY GEOPHYSICAL CORP. PART NO. 786-0040

GR-Mount Klappan 84(3)A

CENTURY GEOPHYSICA

CENTURY GEOPHYSICAL CORPORATION

Tulsa, Oklahoma

BOREHOLE	DATE
DDH-84-005	8/16/84
UNIT/OPERATOR	FIELD OFFICE
Phil K. Skarbo	Calgary

COMPANY: Gulf Canada Resources Inc.

BOREHOLE: DDH-84-005

AREA: Mt. Klappan

ELEVATION:

COUNTY:

STATE: British Columbia

SECTION | TOWNSHIP | RANGE

HOLE DATA

TOTAL DEPTH — DRILLER	160.7 m	BIT SIZE	7.6 cm
TOTAL DEPTH — LOGGER	160.1 m	CASING — TYPE & SIZE	Mw Steel
TOTAL FOOTAGE LOGGED	160.1 m	CASING DEPTH	
LOGGING SPEED	9m/min	BOREHOLE FLUID	H_2O
REFERENCE LEVEL	Drill Floor	FLUID RESISTIVITY	@ °F
PROBE NO.	9030A-454	SOFTWARE LEVEL	8.2*A
		SCALE SELECTION	☐ OPERATOR ☐ CLIENT
		Tape #3 TK #2	

REMARKS:

Format #704

N.G. 25 API

(Inside Pipe).

Drill floor 50 cm above ground.

EQUIPMENT DATA

		9010	[illegible]	9050/55	[illegible]
PROBE MODEL		9010	[illegible]	9050/55	[illegible]
PROBE DIAMETER		1.87"	[illegible]	1.87"	[illegible]
NATURAL GAMMA	DETECTOR TYPE	NaI	[illegible]	[illegible]	NaI
	DETECTOR SIZE	.875" x 1.25"	[illegible]	[illegible]	5" x 3.0"
	STD. K-FACTOR	1.59×10^{-5}	—	5.86×10^{-5}	3.62×10^{-5}
	STD. DEADTIME	1 μsec	—	[illegible] μsec	1 μsec
	CALIB. MODEL LOC.				
	CALIB DATE				
	K-FACTOR $\times 10^{-5}$				
	DEADTIME μsec				
	TEST READING				
	WATER FACTOR				
	CASING FACTOR				
DENSITY	DETECTOR TYPE	—	NaI	—	NaI
	DETECTOR SIZE	—	5" x 1.5"	—	5" x 3.0"
	SOURCE TYPE	—	Cs^{137}	—	Cs^{137}
	SOURCE NO.	—	289	—	
	SOURCE STRENGTH	—	125mCi	—	
	SOURCE SPACING	—	19 cm	—	
	Cal Std		6588		
	Cal Run		4000		
NEUTRON	DETECTOR TYPE	—	—	He³	—
	DETECTOR SIZE	—	—	1.0" x 6.0"	—
	SOURCE TYPE	—	—	AmBe	—
	SOURCE NO.	—	—		—
	SOURCE STRENGTH	—	—		—
	SOURCE SPACING	—	—		—
SNGL PT RESISTANCE		1.4"D x 2.5"L	—	1.4"D x 2.5"L	1.1"D x 2.5"L
RESISTIVITY		—	6" FOCUSED	—	—
SELF POTENTIAL		YES	—	YES	YES
TEMPERATURE		—	—	YES	—
DEVIATION		—	—	NO / YES	—
CALIPER		—	YES	—	—

CT-112 REV. 2/82/80

CENTURY GEOPHYSICAL CORPORATION

Tulsa, Oklahoma

BOREHOLE	DATE
DDH-84-005	8/15/84
UNIT/OPERATOR	FIELD OFFICE
P811 K. Skarbo	Calgary

COMPANY: Gulf Canada Resources Inc.

BOREHOLE: DDH-84-005

AREA: Mt. Klappan

ELEVATION:

COUNTY:

STATE: British Columbia

SECTION | TOWNSHIP | RANGE

HOLE DATA

TOTAL DEPTH — DRILLER	160.7 m	BIT SIZE	9.5 cm
TOTAL DEPTH — LOGGER	96.7 m	CASING — TYPE & SIZE	HW Steel
TOTAL FOOTAGE LOGGED	96.7 m	CASING DEPTH	8.0 m
LOGGING SPEED	9m/min	BOREHOLE FLUID	H_2O
REFERENCE LEVEL	Drill Floor	FLUID RESISTIVITY	@ °F
PROBE NO.	9030A-454	SOFTWARE LEVEL	8.2*A
		SCALE SELECTION	☐ OPERATOR ☐ CLIENT
		Tape #3 TK #4	

REMARKS:

Format #29
N.G. 25 API
Cal 2/-8
G.G. .21-1
Res Log
(Open Hole)
Drill floor 50 cm above ground.

EQUIPMENT DATA

		9010	9030	9050/55	9060
PROBE MODEL		9010	9030	9050/55	9060
PROBE DIAMETER		1.87"	2.0"	1.87"	1.4"
NATURAL GAMMA	DETECTOR TYPE	NaI	NaI	NaI	NaI
	DETECTOR SIZE	.875" x 1.25"	1.125" x 4.5"	.875" x 4.0"	.5" x 3.0"
	STD. K-FACTOR	1.59×10^{-5}	—	$.558 \times 10^{-5}$	1.62×10^{-5}
	STD. DEADTIME	1 μsec	—	1.18 μsec	1 μsec
	CALIB. MODEL LOC.		—		
	CALIB DATE		—		
	K-FACTOR $\times 10^{-5}$		—		
	DEADTIME μsec		—		
	TEST READING		—		
	WATER FACTOR		—		
	CASING FACTOR		—		
DENSITY	DETECTOR TYPE	—	NaI	—	NaI
	DETECTOR SIZE	—	.5" x 1.5"	—	.5" x 3.0"
	SOURCE TYPE	—	Cs^{137}	—	Cs^{137}
	SOURCE NO.	—	283	—	
	SOURCE STRENGTH	—	125mCi	—	
	SOURCE SPACING	—	19 cm	—	
	Cal Std		6588		
	Cal Run		7980		
NEUTRON	DETECTOR TYPE	—	—	He^3	—
	DETECTOR SIZE	—	—	1.0" x 6.0"	—
	SOURCE TYPE	—	—	AmBe	—
	SOURCE NO.	—	—		—
	SOURCE STRENGTH	—	—		—
	SOURCE SPACING	—	—		—
SNGL. PT RESISTANCE		1.4"D x 2.5"L	—	1.4"D x 2.5"L	1.1"D x 2.5"L
RESISTIVITY		—	6" FOCUSED	—	—
SELF POTENTIAL		YES	—	YES	YES
TEMPERATURE		—	—	YES	—
DEVIATION		—	—	NO / YES	—
CALIPER		—	YES	—	—

CENTURY GEOPHYSICAL CORPORATION

Tulsa, Oklahoma

BOREHOLE	DATE
DDH-84-005	8/15/84
UNIT/OPERATOR	FIELD OFFICE
P811 K. Skarbo	Calgary

COMPANY: Gulf Canada Resources Inc.

BOREHOLE: DDH-84-005

AREA: Mt. Klappan

ELEVATION:

COUNTY:

STATE: British Columbia

SECTION | TOWNSHIP | RANGE

HOLE DATA

TOTAL DEPTH — DRILLER	160.7 m	BIT SIZE	7.6 cm
TOTAL DEPTH — LOGGER	160.1 m	CASING — TYPE & SIZE	HW Steel
TOTAL FOOTAGE LOGGED	160.1 m	CASING DEPTH	
LOGGING SPEED	9m/min	BOREHOLE FLUID	H_2O
REFERENCE LEVEL	Drill floor	FLUID RESISTIVITY	@ °F
PROBE NO.	9055A-005	SOFTWARE LEVEL	8.2*A
		SCALE SELECTION	☐ OPERATOR ☐ CLIENT
		Tape #3 TK #1	

REMARKS:

Format #7

N.G. 25API

N.N. .1K/0

(Inside pipe)

Drill Floor 50 cm above ground.

EQUIPMENT DATA

		9010	9030	9050/55	9060
PROBE MODEL		9010	9030	9050/55	9060
PROBE DIAMETER		1.87"	2.0"	1.87"	1.4"
NATURAL GAMMA	DETECTOR TYPE	NaI	NaI	NaI	NaI
	DETECTOR SIZE	.875" x 1.25"	1.125" x 4.5"	.875" x 4.0"	.5" x 3.0"
	STD. K-FACTOR	1.58×10^{-5}	—	$.558 \times 10^{-5}$	1.62×10^{-5}
	STD. DEADTIME	1 μsec	—	1.18 μsec	1 μsec
	CALIB. MODEL LOC.		—		
	CALIB DATE		—		
	K-FACTOR x 10^{-5}		—		
	DEADTIME μsec		—		
	TEST READING		—		
	WATER FACTOR		—		
	CASING FACTOR		—		
DENSITY	DETECTOR TYPE	—	NaI	—	NaI
	DETECTOR SIZE	—	.5" x 1.5"	—	.5" x 3.0"
	SOURCE TYPE	—	Cs^{137}	—	Cs^{137}
	SOURCE NO.	—		—	
	SOURCE STRENGTH	—		—	
	SOURCE SPACING	—		—	
NEUTRON	DETECTOR TYPE	—	—	He^3	—
	DETECTOR SIZE	—	—	1.0" x 6.0"	—
	SOURCE TYPE	—	—	AmBe	—
	SOURCE NO.	—	4	264	—
	SOURCE STRENGTH	—	—	1Ci	—
	SOURCE SPACING	—	—	40 cm	—
	Cal Std			152	
	Cal Run			203	
SNGL. PT RESISTANCE		1.4"D x 2.5"L	—	1.4"D x 2.5"L	1.1"D x 2.5"L
RESISTIVITY		—	8" FOCUSED	—	—
SELF POTENTIAL		YES	—	YES	YES
TEMPERATURE		—	—	YES	—
DEVIATION		—	—	NO / YES	—
CALIPER		—	YES	—	—

CENTURY GEOPHYSICAL CORPORATION

Tulsa, Oklahoma

BOREHOLE	DATE
DDH-84-005	8/16/84
UNIT/OPERATOR	FIELD OFFICE
P811 K. Skarbo	Calgary

COMPANY: Gulf Canada Resources Inc.

BOREHOLE: DDH-84-005

AREA: Mt. Klappan

ELEVATION:

COUNTY:

STATE: British Columbia

SECTION | TOWNSHIP | RANGE

HOLE DATA

TOTAL DEPTH — DRILLER	160.7 m	BIT SIZE	9.5 cm
TOTAL DEPTH — LOGGER	99.1 m	CASING — TYPE & SIZE	HW Steel
TOTAL FOOTAGE LOGGED	99.1 m	CASING DEPTH	8.0 m
LOGGING SPEED	9m/min	BOREHOLE FLUID	H_2O
REFERENCE LEVEL	Drill floor	FLUID RESISTIVITY	@ °F
PROBE NO.	9055A-005	SOFTWARE LEVEL	8.2*A
		SCALE SELECTION	☐ OPERATOR ☐ CLIENT
		Tape #3 TK #3	

REMARKS:

(Format) Deviation only

Open Hole

Drill floor 50 cm above ground.

EQUIPMENT DATA

		9010	9030	9050/55	9060
PROBE MODEL		9010	9030	9050/55	9060
PROBE DIAMETER		1.87"	2.0"	1.87"	1.4"
NATURAL GAMMA	DETECTOR TYPE	NaI	NaI	NaI	NaI
	DETECTOR SIZE	.875" x 1.25"	1.125" x 4.5"	.875" x 4.0"	.5" x 3.0"
	STD. K-FACTOR	1.59×10^{-5}	—	$.558 \times 10^{-5}$	1.62×10^{-5}
	STD. DEADTIME	1 μsec	—	1.18 μsec	1 μsec
	CALIB. MODEL LOC.		—		
	CALIB DATE		—		
	K-FACTOR $\times 10^{-5}$		—		
	DEADTIME μsec		—		
	TEST READING		—		
	WATER FACTOR		—		
	CASING FACTOR		—		
DENSITY	DETECTOR TYPE	—	NaI	—	NaI
	DETECTOR SIZE	—	.5" x 1.5"	—	.5" x 3.0"
	SOURCE TYPE	—	Cs^{137}	—	Cs^{137}
	SOURCE NO.	—		—	
	SOURCE STRENGTH	—		—	
	SOURCE SPACING	—		—	
NEUTRON	DETECTOR TYPE	—	—	He^3	—
	DETECTOR SIZE	—	—	1.0" x 6.0"	—
	SOURCE TYPE	—	—	AmBe	—
	SOURCE NO.	—	—		—
	SOURCE STRENGTH	—	—		—
	SOURCE SPACING	—	—		—
SNGL. PT RESISTANCE		1.4"D x 2.5"L	—	1.4"D x 2.5"L	1.1"D x 2.5"L
RESISTIVITY		—	8" FOCUSED	—	—
SELF POTENTIAL		YES	—	YES	YES
TEMPERATURE		—	—	YES	—
DEVIATION		—	—	NO / YES	—
CALIPER		—	YES	—	—

CENTURY GEOPHYSICAL CORP. PART NO. 786-0040

CENTURY GEOPHYSICAL CORP. PART NO. 786-0040

CENTURY GEOPHYSICAL CORP. PART NO. 786-0040

COMPU-LOG V8L2 PLOT 08-16-84

709

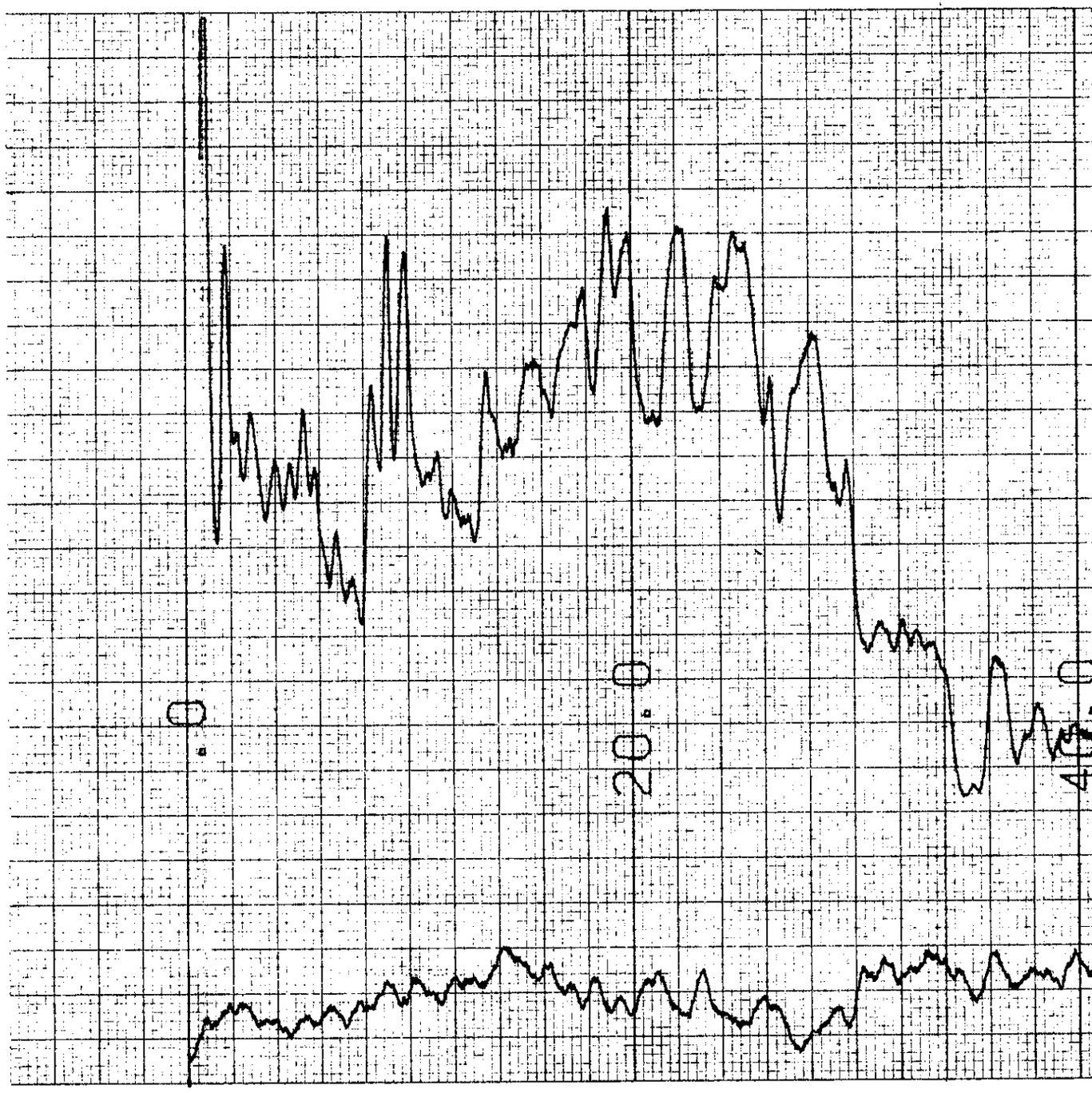
DDH-84-005
GULF CANADA RES. INC.
MT. KLAPPAN

HOLE DIAMETER : 09.5
PROBE # 9030A - 454
SENSOR #4 CAL STD CPS = 6588
SENSOR #4 CAL RUN CPS = 7980
SENSOR #4 CAL BIAS = 42
DATA V8L2 TRUCK # P811
K. SKARBO APPL. #1029L1

GR Mount Klappan 84/3/10

189

191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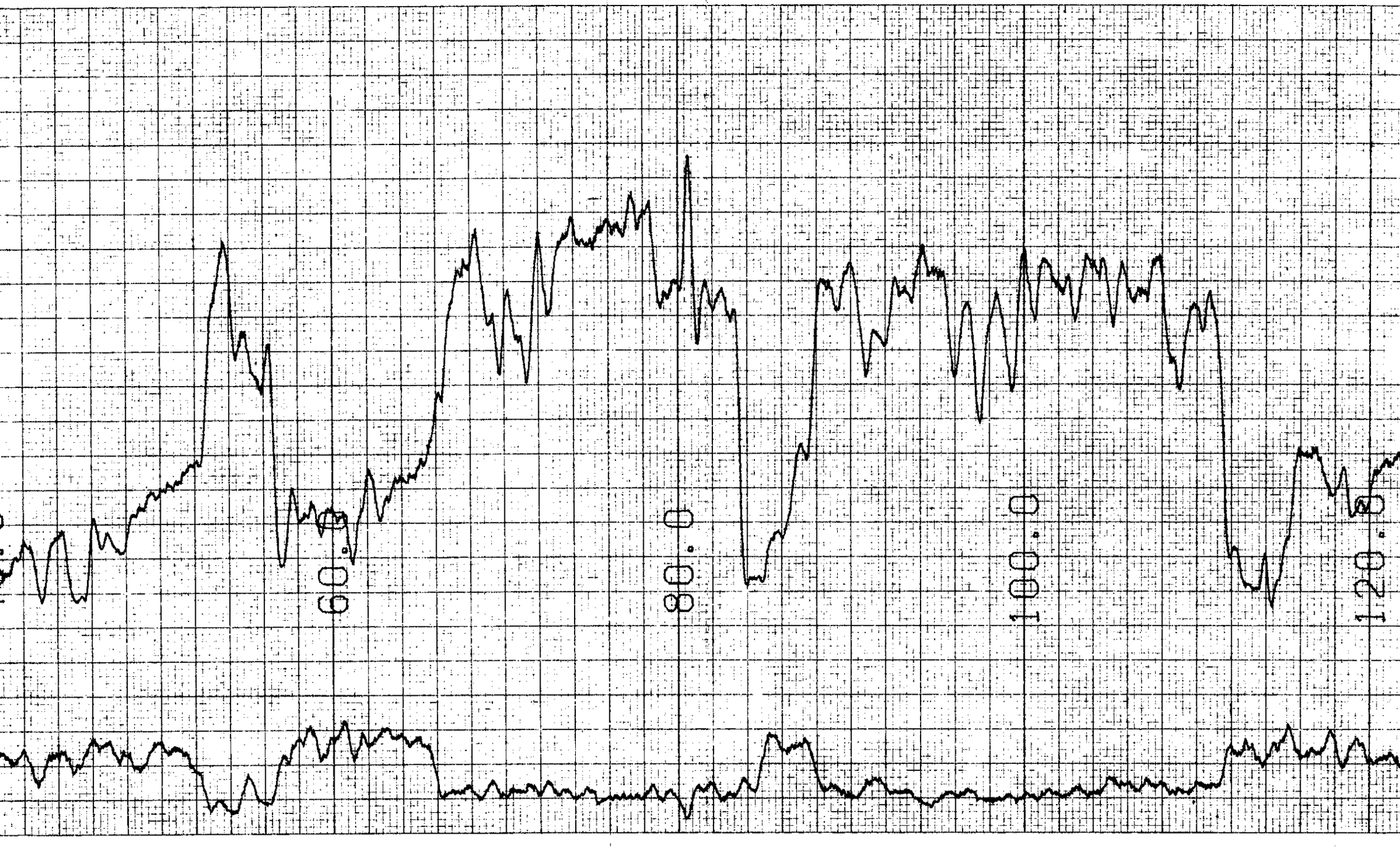
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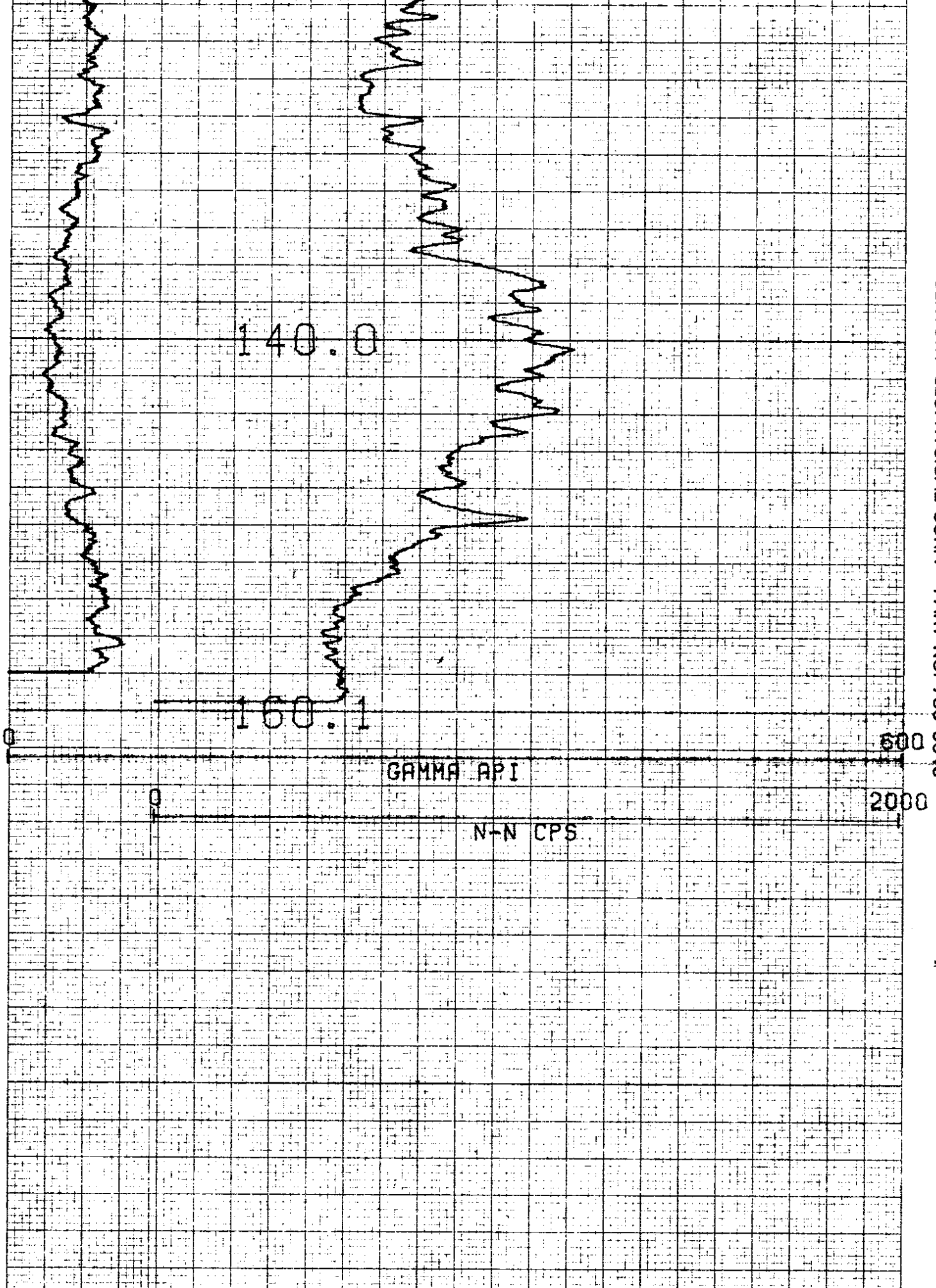


CENTURY GEOPHYSICAL CORP. PART NO. 786-0040

CENTURY GEOPHYSICAL CORP. PART NO. 786-0040

709

COMPU-LOG V8L2 PLOT 08-15-84

DDH-84-005

GULF CANADA RES. INC.

MT. KLAPPAN

HOLE DIAMETER : 07.6

PROBE # 905SA - 005

SENSOR #4 CAL STD CPS = 152

SENSOR #4 CAL RUN CPS = 203

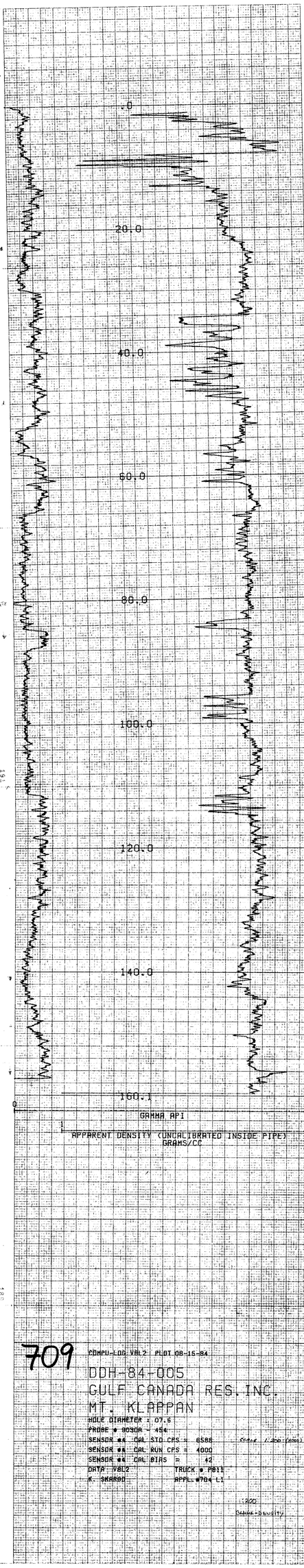
SENSOR #4 CAL BIAS = 0

DATA V8L2 TRUCK # P811

K. SKARBO APPL.#1007L1

Scale 1:200

GR Mount Klappan 84(3)A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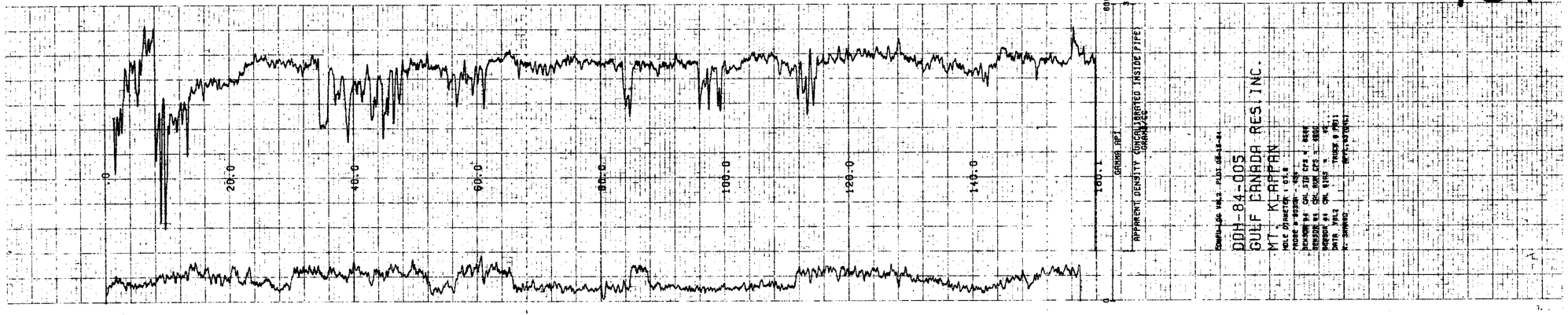
CENTURY GEOPHYSICAL CORP. PART NO. 786-0040
CENTURY GEOPHYSICAL CORP. PART NO. 786-0040
CENTURY GEOPHYSICAL CORP. PART NO. 786-0040
.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
160.1
0
600
GAMMA API
APPARENT DENSITY (UNCALIBRATED INSIDE PIPE)
GRAMS/CC
709
COMPU-LOG V8L2 PLOT 08-15-84
DDH-84-005
GULF CANADA RES. INC.
MT. KLAPPAN
HOLE DIAMETER : 07.6
PROBE # 9038A - 454
SENSOR #4 CAL STD CPS = 6588
SENSOR #4 CAL RUN CPS = 4000
SENSOR #4 CAL BIAS = 42
DATA V8L2 TRUCK # P811
K. SKARBO APPL. #704 L1
Scale 1:200 (mm)
GAMMA-Density

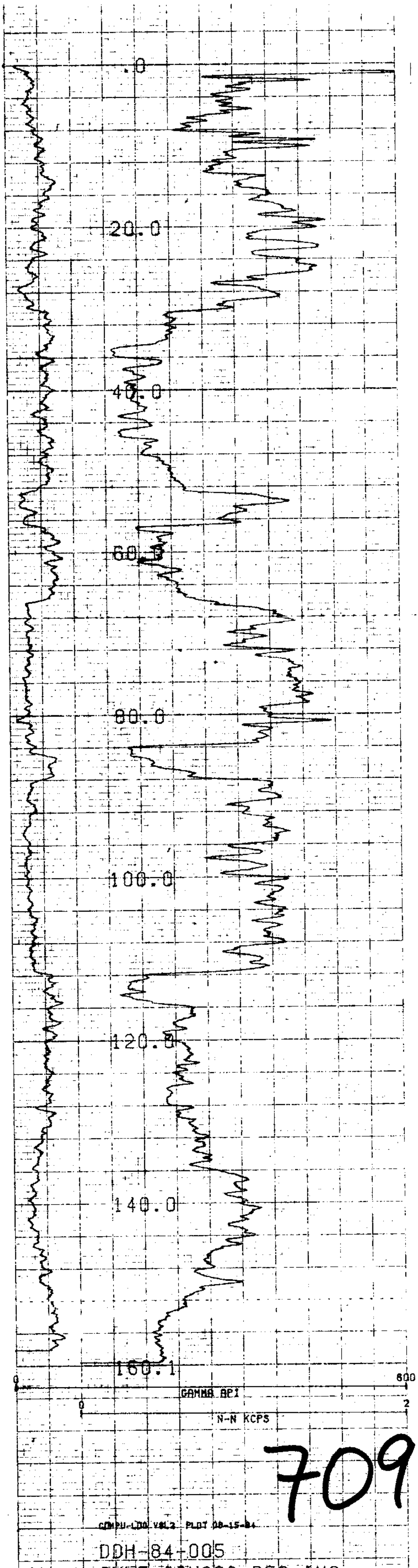
GR Mount Klappan 54(3)A

CENTURY GEOPHYSICAL CORP. PART NO. 786-0038

CENTURY GEOPHYSICAL CORP. PART NO. 786-0038

709



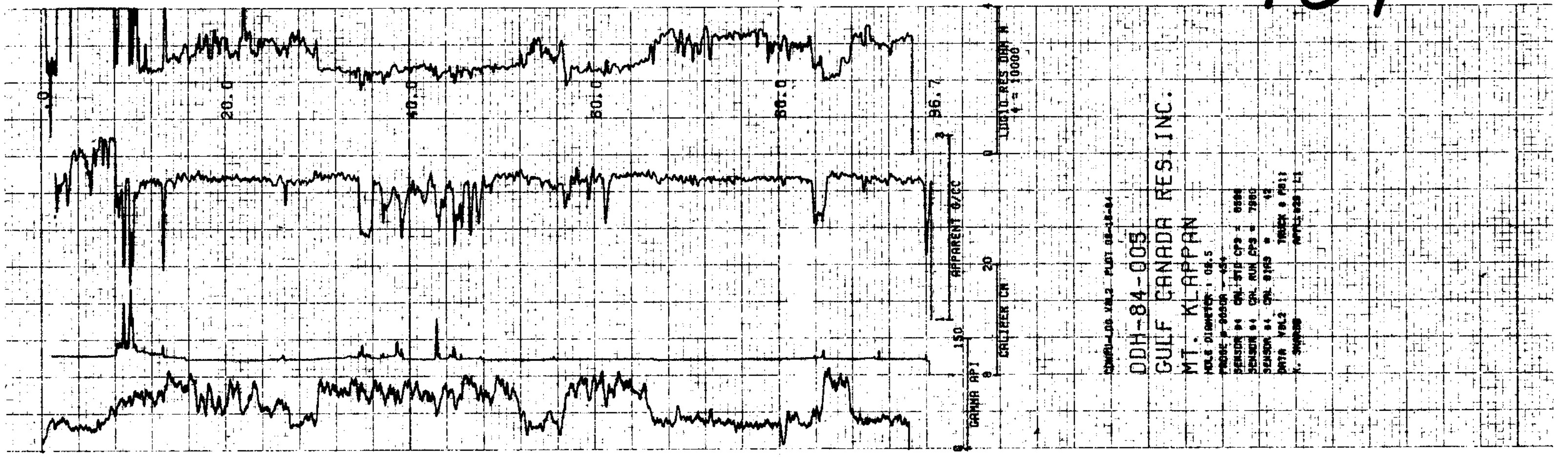


GK. Mountain Klappan 54(3)M

GK Mount Klappan 84(3)A

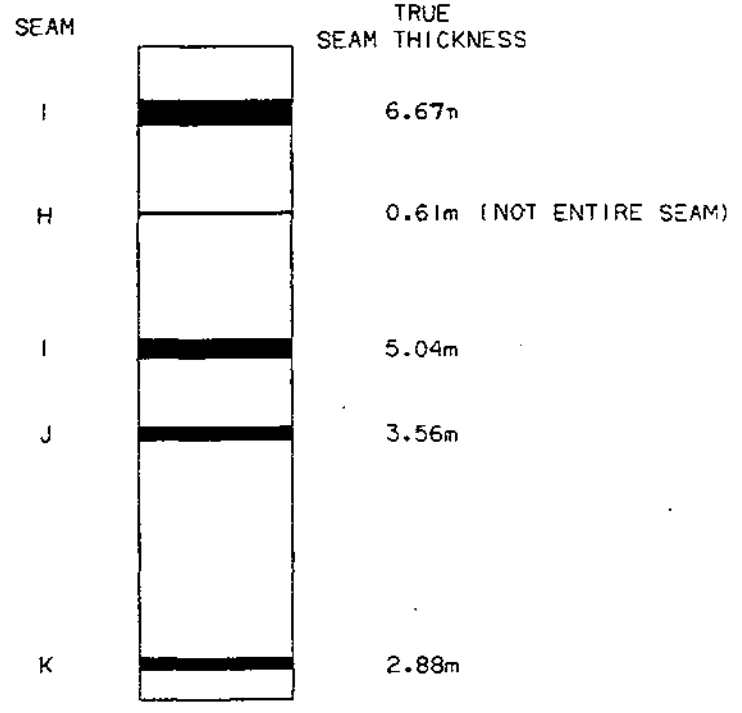
709

CENTURY GEOPHYSICAL CORP. PART NO. 786-0038



KPNLRDDH 84006

MOUNT KLAPPAN COAL PROPERTY
LOST-FOX AREA
DIAMOND DRILL HOLE
KPNLRDDH84006



SCALE 1:2000

GULF CANADA RESOURCES INC.
14/12/84

FILE NAME [205,057]841165031.CHT

GULF CANADA RESOURCES INC.

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

DATA SOURCE - KPNLRDDH84006 DATE - 12/04/84

- H I S T O R Y -

START DATE - 08/17/84
END DATE - 08/20/84

CONTRACTOR - JT THOMAS
GEOLOGIST - K. JENNER

OPERATOR - gcri
SURVEYOR -

REMARKS -

- L O C A T I O N -

PROVINCE - BC
ELEVATION - 1736.00

ZONE - 9
NORTHING - 6344008.00
EASTING - 506518.00

LICENCE/LEASE NUMBER - 7151

LATITUDE - 571428
LONGITUDE - 1285331

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

LENGTH - 270.36

INCLINATION - 58.4
AZIMUTH - 32.1

CORE SIZE - 63.5

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

KPNLRDDH 84006

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

(1)

86/12/06 GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
72	0.00	0.60	0.60			CASING	
72	0.60	15.24	14.64			OVERBURDEN	CASING SET
72	15.24	15.44	0.20			ROCK LOSS	ROCK LOSS
72	15.44	15.89	0.45		I	COAL LOSS	COAL LOSS
72	15.89	16.04	0.15		I	CLAY	DK.GY.SLD CALCITE PIECES (APPROXIMATELY 10 MM); P LIABLE
72	16.04	16.35	0.31	01508	I	COAL	C-2.BLK.SLD BEDDING NOT APPARENT; WEATHERED
72	16.35	16.50	0.15	01508	I	COAL LOSS	COAL LOSS
72	16.50	16.60	0.10	01508	I	ROCK LOSS	ROCK LOSS
72	16.60	16.80	0.20	01508	I	COAL LOSS	COAL LOSS
72	16.80	16.85	0.05	01508	I	COAL	C-2.BLK.VBRKN VERY WEATHERD; BEDDING APPARENT IN FRAC TURES
72	16.85	16.86	0.01	01508	I	COAL	C-2.BLK.VBRKN WEATHERD; BEDDING NOT APPARENT

* DENOTES MEASURED BCA

86/12/06 GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG PAGE 2

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
72	16.86	16.91	0.05	01508	I	CLAY	DK.BN.SLD WEATHERED
72	16.91	16.94	0.03	01508	I	COAL	C-3.BLK.VBRKN BEDDING APPARENT IN FRACTURED PIECES
72	16.94	16.95	0.01	01508	I	MUDSTONE	M.GY.VBRKN
72	16.95	17.01	0.06	01508	I	SILTSTONE	M.GY.BRKN FRACTURED PIECES HELD TOGETHER WITH CLA Y
72	17.01	18.02	1.01	01508	I	COAL LOSS	COAL LOSS
72	18.02	18.37	0.35	01508	I	ROCK LOSS	ROCK LOSS
72	18.37	18.83	0.46	01508	I	COAL LOSS	COAL LOSS
72	18.83	18.97	0.14	01508	I	ROCK LOSS	ROCK LOSS
72	18.97	19.12	0.15	01508	I	COAL	C-2.BLK.BRKN MINOR CALCITE (1MM) ON CLEAT SURFACES
72	19.12	19.21	0.09	01508	I	COAL	C-2.BLK.SLD
72	19.21	19.31	0.10	01508	I	COAL	C-2.BLK.VBRKN WEATHERED

* DENOTES MEASURED BCA

FORM 4001

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
72	19.31	19.37	0.06	01508	I	COAL	C-2.BLK.SLD VERY WEATHERED;BEDDING NOT APPARENT;CAR BONACEOUS CLAYSTONE FRAGMENTS
72	19.37	19.43	0.06	01508	I	MUD	DK.GY.SLD COALY STRINGERS (2MM);WEATHERED
* 72	19.43	19.50	0.07	01508	I	COAL	C-3.BLK.BRKN CALCITE VEINING (2MM) PARALLEL TO BEDDI NG
72	19.50	19.60	0.10	01508	I	SILTSTONE	M.BN.SLD CALCAREOUS; FRIABLE; WEATHERED
72	19.60	19.65	0.05	01508	I	COAL	C-2.BLK.VBRKN CALCITE VEIN (3CM) PARALLEL TO BEDDING
71	19.65	19.80	0.15	01508	I	ROCK LOSS	ROCK LOSS
71	19.80	19.84	0.04	01508	I	MUDSTONE	CARB.BLK.SLD COALY STRINGERS
71	19.84	19.85	0.01	01508	I	CLAY	M.GY.SLD PLIABLE; WET
* 71	19.85	19.89	0.04	01508	I	COAL	C-2.BLK.SLD CALCITE VEIN (1MM)

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
71	19.89	20.10	0.21	01508	I	COAL	C-2.BLK.VBRKN MINOR MUDSTONE LAMINAE
* 71	20.10	20.17	0.07	01508	I	COAL	C-2.BLK.BRKN
71	20.17	20.18	0.01	01508	I	MUDSTONE	BLK.SLD DRILL STEM SPIN-OFF
71	20.18	20.20	0.02	01508	I	COAL	C-3.BLK.SLD MINOR CALCITE VEINS (1MM) ALONG CLEAT S URFACES
71	20.20	20.29	0.09	01508	I	SILTSTONE	CLYY.M.BN.SLD WEATHERED; SOFT
70	20.29	20.47	0.18	01508	I	COAL	C-2.BLK.BRKN
69	20.47	20.55	0.08	01508	I	COAL	C-2.BLK.SLD WEATHERED; BEDDING NOT APPARENT; MINOR MUDSTONE LAMINAE
69	20.55	20.70	0.15	01508	I	COAL	C-2.BLK.VBRKN WEATHERED
68	20.70	20.72	0.02	01508	I	COAL	C-2.BLK.VBRKN VERY WEATHERED; NO APPARENT BEDDING

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
68	20.72	20.93	0.21	01508	I	COAL	C-2.BLK.BRKN MINOR MUDSTONE LAMINAE
67	20.93	21.00	0.07	01508	I	COAL	C-4.BLK.BRKN
67	21.00	21.16	0.16	01508	I	COAL	C-2.BLK.VBRKN WEATHERED
64	21.16	22.21	1.05	01508	I	COAL LOSS	COAL LOSS
62	22.21	22.30	0.09			SILTSTONE	M.BN.SLD PLIABLE
61	22.30	22.36	0.06			COAL	C-2.BLK.SLD
61	22.36	22.37	0.01			CLAY	DK.GY.SLD PLIABLE
61	22.37	22.39	0.02			MUDSTONE	DK.GY
61	22.39	22.56	0.17			COAL	C-2.BLK.SLD SOME C-3; MINOR CARBONACEOUS MUDSTONE; LAMINATED; VERY WEATHERED; MINOR CALCIT E ALONG CLEAT SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
60	22.56	22.66	0.10			MUDSTONE	DK.GY.SLD SOFT; EASILY BROKEN
59	22.66	22.84	0.18			SILTSTONE	M.GY.SLD COALY LENS (1 CM); VERY SOFT; EASILY BR OKEN
59	22.84	22.89	0.05			SILTSTONE	PYR.M.GY.SLD
59	22.89	23.01	0.12			SILTSTONE	M.GY.LAM.BRKN COAL INCLUSION (10 MM)
* 57	23.01	23.61	0.60			SILTSTONE	M.GY.LAM.SSD.BRKN EASILY WEATHERED
60	23.61	23.79	0.18			ROCK LOSS	ROCK LOSS
* 64	23.79	24.75	0.96			SANDSTONE	FG.WEL.LT.GY.LAM.SSD.SLD EASILY WEATHERED; HORIZONTAL WORM BURRO W
66	24.75	25.50	0.75			SANDSTONE	FG.M.GY.VTHNB.SSD.SLD MINOR CALCITE VEINS CROSS-CUTTING BEDDI NG

* DENOTES MEASURED BCA

FORM 4001

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
67	25.50	25.55	0.05			SANDSTONE	PYR.FG.YEL.VBRKN
68	25.55	26.00	0.45			ROCK LOSS	ROCK LOSS
69	26.00	26.04	0.04			SILTSTONE	DK.GY CALCITE VEINING (1 MM) PARALLEL TO BEDDING IN ZONE 2 CM THICK; COALY INCLUSIONS
69	26.04	26.38	0.34			MUDSTONE	DK.GY.BRKN COALY INCLUSIONS (1 MM)
69	26.38	26.40	0.02			CLAYSTONE	CARB.BLK.BRKN ABUNDANT COALY STRINGERS; LISTRIC SURFACES
* 70	26.40	26.78	0.38			SILTSTONE	DK.GY.LAM.BRKN COALY INCLUSIONS (2 MM); MINOR CALCITE VEINING (1 MM) ALONG FRACTURE
68	26.78	26.99	0.21			MUDSTONE	DK.GY.SLD
66	26.99	27.43	0.44			MUDSTONE	DK.GY.SLD COALY INCLUSION (1MM)

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
65	27.43	27.54	0.11			SILTSTONE	M.GY.SSD.BRKN DEWATERING STRUCTURES
64	27.54	27.63	0.09			CLAY	LT.GY.SLD FAIRLY HARD; PLIABLE
62	27.63	28.27	0.64			MUDSTONE	DK.GY.BRKN LISTRIC SURFACE; SLICKENSIDES WITH ANKERITE(?); MINOR CALCITE ALONG FRACTURE
* 59	28.27	28.64	0.37			SILTSTONE	M.GY.LAM.BIOTR.BRKN SOFT SEDIMENT DEFORMATION (MUD VOLCANOE) SHOWS TOPS OVERTURNED
63	28.64	28.90	0.26			SANDSTONE	SLTY.FG.WEL.M.GY.VTHNB.SSD.BRKN
65	28.90	29.00	0.10			SILTSTONE	M.GY.SSD.BRKN CALCITE ALONG FRACTURE SURFACE; MINOR SLICKENSIDES
* 69	29.00	29.60	0.60			SANDSTONE	SLTY.FG.WEL.M.GY.LAM.SSD.BRKN SOFT SEDIMENT DEFORMATION INDICATES TOPS UP?
72	29.60	29.89	0.29			ROCK LOSS	ROCK LOSS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 74	29.89	30.05	0.16			SANDSTONE	FG.WEL.M.GY.LAM.BRKN MINOR SILTSTONE LAMINAE
74	30.05	30.08	0.03			SANDSTONE	FG.WEL.M.GY.LAM.SLD
74	30.08	30.12	0.04			CLAY	M.GY.SLD PLIABLE; WET
74	30.12	30.19	0.07			SILTSTONE	DK.GY.BRKN CALCITE AND QUARTZ LENS (2 CM) PARALLEL TO BEDDING
* 74	30.19	30.71	0.52			SANDSTONE	MG.WEL.S-P.GY.THNB.BRKN EASILY WEATHERED; SUBROUNDED SILTSTONE RIP-UP CLASTS (5 MM LONG); POLYMICTIC
73	30.71	30.77	0.06			SILTSTONE	DK.GY.SLD
* 72	30.77	30.95	0.18			SANDSTONE	FG.WEL.M.GY.THNB.SSD.SLD COALY INCLUSION (7 MM); MINOR SILTSTONE INTERBEDS
79	30.95	30.98	0.03			SANDSTONE	MG.WEL.S-P.GY.THNB.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 81	30.98	31.02	0.04			SANDSTONE	FG.WEL.M.GY.LAM.SLD
* 80	31.02	31.21	0.19			SILTSTONE	M.GY.LAM.SLD
* 74	31.21	31.81	0.60			SANDSTONE	VFG.WEL.M.GY.THNB.SSD.SLD MINOR SILTSTONE INTERBEDS
73	31.81	31.88	0.07			SANDSTONE	FG.WEL.LT.GY.LAM.BRKN CALCAREOUS
73	31.88	32.05	0.17			ROCK LOSS	ROCK LOSS
* 71	32.05	32.80	0.75			SANDSTONE	FG.MOD.M.GY.THNB.SSD.BRKN MINOR SILTSTONE INTERBEDS
69	32.80	33.00	0.20			SANDSTONE	FG.MOD.M.GY.THNB.BRKN TALC AND SLICKENSIDES ON FRACTURE SURFACES; CALCITE VEINS (1 MM)
68	33.00	33.15	0.15			SANDSTONE	FG.MOD.M.GY.THNB.VBRKN ZONE CONTAINS QUARTZ AND CALCITE VEINS; SMALL ROSETTES (2-3 MM IN WIDTH) WITHIN VEINS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
68	33.15	33.19	0.04			SANDSTONE	FG.MOD.M.GY.THNB.SLD MINOR SILTSTONE INTERBEDS
67	33.19	33.47	0.28			SANDSTONE	MG.MOD.S-P.GY.THNB.BRKN POLYMICTIC; SILTSTONE RIP-UP CLASTS (5-10 MM); TALC(?) ON FRACTURE SURFACES
66	33.47	33.88	0.41			MUDSTONE	DK.GY.VBRKN QUARTZ VEIN (10 MM) ALONG FRACTURE; MIN OR CLAY INTERBEDS
64	33.88	33.97	0.09			MUDSTONE	DK.GY.VBRKN MINOR CALCITE VEINS
64	33.97	34.27	0.30			ROCK LOSS	ROCK LOSS
63	34.27	34.31	0.04			MUDSTONE	DK.GY.BRKN
63	34.31	34.41	0.10			QUARTZ	MM.VTHNB.VBRKN INTERBEDED MUDSTONE; MINOR BRECCIA; MIN OR CALCITE
* 62	34.41	34.58	0.17			MUDSTONE	DK.GY.THNB.BRKN QUARTZ VEIN CROSS-CUTTING BEDDING; SOME BEDDING PLANE SLIPPAGE CAUSING LISTRIC SURFACES
59	34.58	35.15	0.57			ROCK LOSS	ROCK LOSS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
56	35.15	35.52	0.37			SANDSTONE	VFG.M.GY.BRKN ANKERITE(?) ON FRACTURE AND SLICKENSIDE SURFACES
54	35.52	35.66	0.14			SILTSTONE	DK.GY.THNB.SLD MINOR SANDSTONE INTERBEDS
* 53	35.66	35.79	0.13			SANDSTONE	FG.M.GY.THNB.SLD
51	35.79	35.90	0.11			MUDSTONE	DK.GY.SLD
48	35.90	36.03	0.13			SILTSTONE	DK.GY.SLD FRACTURES DEVELOPED PARALLEL TO CORE AXIS
* 45	36.03	36.25	0.22			SANDSTONE	FG.M.GY.THNB.SLD MINOR SILTSTONE INTERBEDS
46	36.25	36.35	0.10			SILTSTONE	DK.GY.THNB.SLD
50	36.35	36.98	0.63			SANDSTONE	FG.MEL.M.GY.VTHNB.BRKN MINOR SILTSTONE INTERBEDS; LAMINATED ANKERITE(?) ZONE (10 MM) CROSS-CUTTING BEDDING

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
53	36.98	37.08	0.10			SILTSTONE	DK.GY.THNB.SLD
* 54	37.08	37.18	0.10			SANDSTONE	FG.M.GY.THNB.XBDG.SLD MINOR SILTSTONE INTERBEDS; CROSS-BEDDIN G INDICATES TOPS UP
54	37.18	37.20	0.02			QUARTZ	WH.VTHNB.SLD MINOR CALCITE AND ANKERITE(?); INTERBED DED FINE G RAINED SANDSTONE
54	37.20	37.49	0.29			SANDSTONE	FG.WEL.M.GY.THNB.SSD.BRKN MINOR SILTSTONE INTERBEDS
54	37.49	37.62	0.13			SILTSTONE	SSY.DK.GY.VTHNB.SSD.SLD
53	37.62	37.72	0.10			SANDSTONE	FG.WEL.M.GY.THNB.SLD
53	37.72	38.06	0.34			SANDSTONE	FG.WEL.M.GY.THNB.BRKN MINOR INTERBEDDED SILTSTONE; CALCITE IN TERBED (1MM)
53	38.06	38.13	0.07			QUARTZ	WH.THNB.BRKN INTERBEDDED SILTSTONE; MINOR ANKERITE(?)

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 52	38.13	39.55	1.42			SANDSTONE	FG.MOD.M.GY.THNB.XBDG.BRKN SOFT SEDIMENT DEFORMATION INDICATES TOP S UPRIGHT; VERTICAL AND HORIZONTAL BOR M BURROWS; MINOR CALCITE BAND (1 CM)
59	39.55	41.12	1.57			SILTSTONE	DK.GY.THNB.XBDG.BRKN SOFT SEDIMENT DEFORMATION
63	41.12	41.16	0.04			MUDSTONE	DK.GY.BRKN
63	41.16	41.25	0.09			QUARTZ	WH.SLD SECONDARY CALCITE AND ANKERITE(?); SILT STONE PODS (20 MM LONG, 5 MM WIDE)
* 64	41.25	41.61	0.36			SANDSTONE	SLTY.FG.WEL.M.GY.THNB.SSD.SLD INTERBEDDED SILTSTONE; FRACTURES PERPEN DICULAR TO BEDDING INFILLED BY CALCITE
* 71	41.61	41.75	0.14			SILTSTONE	SSY.DK.GY.THNB.SLD INTERBEDDED FINE GRAINED SANDSTONE
72	41.75	41.90	0.15			SANDSTONE	VFG.WEL.M.GY.THNB.BRKN MINOR SILTSTONE LAMINAE; CALCITE VEININ G (<= 10 MM) PERPENDICULAR TO BEDDING
74	41.90	42.10	0.20			ROCK LOSS	ROCK LOSS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	42.10	42.14	0.04			SILTSTONE	DK.GY.BRKN MINOR MUDSTONE INCLUSIONS
76	42.14	42.28	0.14			SANDSTONE	VFG.MEL.LT.GY.THNB.SLD
77	42.28	42.34	0.06			SILTSTONE	DK.GY.SLD MINOR FINE GRAINED SANDSTONE INTERBEDS
78	42.34	42.46	0.12			SANDSTONE	VFG.MEL.M.GY.THNB.BRKN MINOR SILTSTONE LAMINAE
79	42.46	42.52	0.06			SILTSTONE	DK.GY.SLD MINOR SANDSTONE LAMINAE
* 80	42.52	42.76	0.24			SANDSTONE	FG.MOD.M.GY.THNB.SLD MINOR SILTSTONE LAMINAE
80	42.76	42.87	0.11			SILTSTONE	DK.GY.BRKN MINOR SANDSTONE LAMINAE
80	42.87	42.95	0.08			SANDSTONE	FG.MOD.M.GY.THNB.SLD MINOR SILTSTONE LAMINAE
79	42.95	43.04	0.09			SILTSTONE	DK.GY.THNB.SSD.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 79	43.04	43.59	0.55			SANDSTONE	VFG.MOD.M.GY.THNB.SSD.BRKN SILTSTONE LAMINAE; CALCITE VEINING (1 M M) PERPENDICULAR TO BEDDING
78	43.59	43.62	0.03			MUDSTONE	CARB.DK.GY.SLD LISTRIC SURFACES; MODERATELY CARBONACEOUS
* 77	43.62	43.82	0.20			SILTSTONE	DK.GY.THNB.BRKN CALCITE VEINING (1 MM) PARALLEL TO BEDDING
75	43.82	43.96	0.14			SILTSTONE	DK.GY.SHRD POSSIBLE STRIKE-SLIP FAULT ZONE CONTAINS RIP-UP CLASTS OF HOST ROCK; EASILY WEATHERED; LISTRIC SURFACES; MINOR CALCITE LAMINAE PARALLEL TO BEDDING
74	43.96	44.08	0.12			SILTSTONE	DK.GY.THNB.SLD 23 DEGREE ANGLE OF SHEAR BETWEEN THIS AND NEXT UNIT, STILL WITHIN FAULT ZONE; MINOR SECONDARY QUARTZ VEIN PARALLEL TO BEDDING
71	44.08	44.55	0.47			SILTSTONE	DK.GY.SHRD FAULT ZONE CONTAINS RIP-UPCLASTS FROM HOST ROCK; EASILY WEATHERED; LISTIC SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
68	44.55	44.73	0.18			SILTSTONE	DK.GY.THNB.BRKN
67	44.73	44.84	0.11			ROCK LOSS	ROCK LOSS
67	44.84	44.86	0.02			SILTSTONE	DK.GY.SHRD 52 DEGREE ANGLE BETWEEN THIS AND NEXT U NIT; POSSIBLE STRIKE AND DIP-SLIP COMPO NENT
65	44.86	45.22	0.36			SILTSTONE	DK.GY.THNB.SSD.BRKN ANKERITE(?) VEIN (2 MM) PARALLEL TO BED DING; MINO R LISTRIC SURFACES
63	45.22	45.29	0.07			MUDSTONE	DK.GY.BRKN LISTRIC SURFACES CONTAIN TALC(?); ANKER ITE(?) VEIN (4 MM) CONTAINING ANGULAR M UDSTONE FRAGMENTS
* 60	45.29	45.81	0.52			SANDSTONE	FG.WEL.M.GY.THNB.SLD MINOR SILTSTONE LAMINAE; MINOR QUARTZ L AMINAE (2 MM) PARALLEL TO BEDDING
57	45.81	45.87	0.06			SANDSTONE	FG.MOD.M.GY.BRKN SOFT; WEATHERED EASILY

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 54	45.87	46.49	0.62			SANDSTONE	FG-.WEL.M.GY.THNB.SLD MINOR SILTSTONE LAMINAE; ANKERITE(?) LA MINAE
* 49	46.49	46.70	0.21			SANDSTONE	MG.WEL.LT.GY.THNB.SLD MINOR SILTSTONE LAMINAE
52	46.70	46.81	0.11			SANDSTONE	MG.MOD.S-P.GY.THNB.SLD SILTSTONE CLASTS WITHIN UNIT
53	46.81	46.87	0.06			SILTSTONE	DK.GY.BRKN EASILY WEATHERED; MINOR MUDSTONE LAMINA E CONTAINING LISTRIC SURFACES
* 56	46.87	47.12	0.25			SILTSTONE	DK.GY.SSD.SLD MINOR VERY FINE GRAINED SANDSTONE LAMIN AE
* 59	47.12	48.00	0.88			SANDSTONE	FG-.WEL.M.GY.THNB.SLD MINOR SILTSTONE LAMINAE; SANDSTONE INFI LLING FRACTURES; SOFT
* 56	48.00	48.94	0.94			SANDSTONE	MG.MOD.S-P.GY.THNB.SLD MINOR SILTSTONE LAMINAE
59	48.94	49.11	0.17			SANDSTONE	FG-.WEL.M.GY.THNB.SLD

* DENOTES MEASURED BCA

FORM 4001

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
59	49.11	49.31	0.20			SANDSTONE	FG.MEL.M.GY.BRKN SUSPENDED SILTSTONE CLASTS
* 60	49.31	49.38	0.07			SANDSTONE	FG.MOD.DK.GY.THNB.SLD SILTSTONE LAMINAE AND RIP-UP CLASTS
60	49.38	49.40	0.02			CALCITE	MM.VTHNB.SLD FINE GRAINED SANDSTONE LAMINAE
59	49.40	49.43	0.03			MUDSTONE	CARB.BLK.SLD
56	49.43	50.17	0.74	01514 H		COAL	C-2.BLK.SLD MINOR INTERBEDDED MUDSTONE LAMINAE WITH LISTRIC SURFACES
49	50.17	50.89	0.72			MUDSTONE	CARB.BLK.MAS.SLD LISTRIC SURFACES
46	50.89	50.92	0.03			MUDSTONE	DK.GY.BRKN
43	50.92	51.48	0.56			SILTSTONE	M.GY.SLD MINOR ANKERITE(?); MINOR LISTRIC SURFACES
40	51.48	51.66	0.18			MUDSTONE	CARB.DK.GY.BRKN MINOR CALCITE VEINS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
39	51.66	51.68	0.02			SILTSTONE	DK.GY.BRKN ANKERITE VEINING (2 MM) PARALLEL TO CORE
38	51.68	51.85	0.17			MUDSTONE	CARB.DK.GY.BRKN LISTRIC SURFACES
36	51.85	52.06	0.21			QUARTZ	MM.SLD INTERBEDDED SILTSTONE AND MUDSTONE
35	52.06	52.13	0.07			MUDSTONE	DK.GY.BRKN QUARTZ VEINS (2 MM); LISTRIC SURFACES
34	52.13	52.26	0.13			QUARTZ	MM.SLD INTERBEDDED SILTSTONE CONTORTED AND UNSTRUCTURED
33	52.26	52.38	0.12			SILTSTONE	DK.GY.SLD MINOR IRREGULAR QUARTZ VEINING (<2 MM)
32	52.38	52.53	0.15			MUDSTONE	DK.GY.SLD SLIGHTLY CARBONACEOUS; MINOR IRREGULAR QUARTZ VEINING (2 MM); LISTRIC SURFACES
30	52.53	52.76	0.23			SILTSTONE	DK.GY.BRKN MINOR IRREGULAR QUARTZ VEINING
26	52.76	53.33	0.57			ROCK LOSS	ROCK LOSS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
24	53.33	53.40	0.07			SILTSTONE	MINOR IRREGULAR QUARTZ VEINING
23	53.40	53.44	0.04			QUARTZ	MH.SLD MINOR SILTSTONE LAMINAE
21	53.44	53.75	0.31			MUDSTONE	DK.GY.MAS.SLD LISTRIC SURFACES; MINOR CALCITE
20	53.75	53.78	0.03			QUARTZ	MH.BRKN MINOR SILTSTONE LAMINAE
19	53.78	53.87	0.09			SILTSTONE	DK.GY.BRKN QUARTZ VEINING (5 MM) THROUGHOUT
19	53.87	53.94	0.07			SANDSTONE	VFG.WEL.DK.GY.THNB.BRKN
* 15	53.94	54.67	0.73			SANDSTONE	VFG.WEL.DK.GY.THNB.SSD.SLD MINOR SILTSTONE LAMINAE; VERY MINOR ANK ERITE(?) PARALLEL TO BEDDING
19	54.67	54.69	0.02			MUDSTONE	SSY.DK.GY.BRKN LISTRIC SURFACES; SLIGHTLY CARBONACEOUS
* 21	54.69	55.16	0.47			SANDSTONE	VFG.WEL.DK.GY.BRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 20	55.16	56.94	1.78			SANDSTONE	VFG.WEL.M.GY.THNB.WRMB.SLD MINOR SILTSTONE LAMINAE; MINOR ANKERITE (?) VEINS (1 MM) PERPENDICULAR TO BEDDI NG; SOFT SEDIMENT DEFORMATION
22	56.94	57.19	0.25			SANDSTONE	VFG.WEL.M.GY.THNB.SSD.BRKN INTERBEDDED SILSTONE
* 23	57.19	57.50	0.31			SILTSTONE	DK.GY.SSD.BRKN INTERBEDDED FINE GRAINED SANDSTONE; RIP PLE MARKS INDICATE TOPS UP
* 23	57.50	57.72	0.22			SANDSTONE	VFG.WEL.M.GY.THNB.SSD.SLD INTERBEDDED SILTSTONE; QUARTZ VEIN (10 MM) PARALLEL TO BEDDING AT BASE
22	57.72	58.48	0.76			SILTSTONE	DK.GY.SSD.BRKN MINOR SANDSTONE LAMINAE
* 22	58.48	58.69	0.21			SANDSTONE	VFG.WEL.DK.GY.SSD.BRKN
* 27	58.69	59.32	0.63			SANDSTONE	VFG.WEL.M.GY.THNB.RIPMK.SLD INTERBEDDED SILTSTONE; DEWATERING STRUC TURE INDICATES TOPS UPRIGHT

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 29	59.32	60.49	1.17			SANDSTONE	VFG.WEL.M.GY.THNB.SSD.SLD
* 24	60.49	62.24	1.75			SILTSTONE	SSY.DK.GY.VTHNB.SSD.SLD MINOR VERY FINE GRAINED SANDSTONE LAMIN AE; RIPPLE MARKS
* 23	62.24	62.31	0.07			SILTSTONE	DK.GY.MAS.SSD.SLD
21	62.31	62.43	0.12			SILTSTONE	DK.GY.MAS.SSD.BRKN
* 18	62.43	62.53	0.10			SANDSTONE	FG.WEL.M.GY.SLD POSSIBLE DIP-SLIP ZONE (10 MM TRUE) OF PULVERIZED SANDSTONE AND INTERMIXED QUA RTZ VEINING
* 18	62.53	64.11	1.58			SILTSTONE	DK.GY.MAS.SSD.BRKN PULVERIZED SANDSTONE AND INTERMIXED QUA RTZ VEINING
22	64.11	64.64	0.53			ROCK LOSS	ROCK LOSS
24	64.64	65.29	0.65			SILTSTONE	DK.GY.MAS.BRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
27	65.29	66.60	1.31			SILTSTONE	DK.GY.MAS.SLD
* 32	66.60	68.24	1.64			SILTSTONE	DK.GY.MAS.SLD MODERATE WEATHERING; COAL FRAGMENTS (1 MM)
36	68.24	68.56	0.32			SILTSTONE	DK.GY.MAS.SLD MODERATE WEATHERING; COAL FRAGMENTS (1 MM)
* 40	68.56	70.55	1.99			SILTSTONE	DK.GY.MAS.BRKN MODERATE WEATHERING; COAL FRAGMENTS (1 MM); VERY MINOR QUARTZ VEINING PARALLEL TO BEDDING; AT 62 CM SLIP ZONE (2 CM) TRUNCATES AND DISPLACES QUARTZ VEINS
34	70.55	70.67	0.12			ROCK LOSS	ROCK LOSS
32	70.67	71.29	0.62			SILTSTONE	DK.GY.MAS.SLD
30	71.29	71.40	0.11			SILTSTONE	DK.GY.MAS.SLD
* 28	71.40	72.16	0.76			SANDSTONE	FG.MOD.M.GY.THNB.SSD.SLD VERY MINOR SILTSTONE LAMINAE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 18	72.16	72.61	0.45			SILTSTONE	DK.GY.THNB.SSD.BRKN INTERBEDDED SANDSTONE
* 19	72.61	72.77	0.16			ROCK LOSS	ROCK LOSS
* 19	72.77	74.24	1.47			SILTSTONE	DK.GY.THNB.SSD.SLD INTERBEDDED VERY FINE GRAINED SANDSTONE ; SLICKENSIDES ON FRACTURE SURFACES
23	74.24	74.48	0.24			SILTSTONE	DK.GY.THNB.SSD.SLD INTERBEDDED VERY FINE GRAINED SANDSTONE ; SLICKENSIDES ON FRACTURE SURFACES
23	74.48	74.50	0.02			QUARTZ	MM.BRKN AT AN ANGLE TO BEDDING
23	74.50	74.61	0.11			SILTSTONE	DK.GY.THNB.SSD.SLD CALCITE VEIN (1 MM) ALONG CORE AXIS
24	74.61	74.67	0.06			SILTSTONE	DK.GY.THNB.SSD.SLD
* 24	74.67	74.68	0.01			SLTST/QUARTZ	BRKN APPARENT DIP-SLIP ZONE AS SILTSTONE IS PULVERIZED AND MIXED WITH QUARTZ
24	74.68	74.94	0.26			SILTSTONE	DK.GY.MAS.SLD RANDOM QUARTZ VEINS (2-3 MM)

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
22	74.94	76.57	1.63			SILTSTONE	DK.GY.SLD
21	76.57	76.86	0.29			SILTSTONE	DK.GY.SLD VERY MINOR SEDIMENTARY DEFORMATION; MIN OR SANDY INCLUSIONS
21	76.86	76.92	0.06			SILTSTONE	DK.GY.VBRKN MINOR ANKERITE(?) VEINING (2MM); SLICKE NSIDES ON FRACTURE SURFACES
21	76.92	77.11	0.19			SILTSTONE	DK.GY.MAS.SLD NO BEDDING APPARENT; MINOR INCLUSIONS O F FINE GRAINED SANDSTONE; SLICKENSIDES ALONG FRACTURES
20	77.11	77.75	0.64			SILTSTONE	DK.GY.MAS.SLD HIGHLY POLISHED SLICKENSIDE SURFACES
* 19	77.75	78.34	0.59			SANDSTONE	VFG.MOD.M.GY.BRKN SILTSTONE NODULES (6 CM); MINOR CARBONA CEOUS CLAYSTONE LENSES (2 CM IN LENGTH) PARALLEL TO CORE AXIS
21	78.34	78.88	0.54			SANDSTONE	VFG.WEL.M.GY.MAS.SLD NO APPARENT BEDDING
22	78.88	78.91	0.03			CALCITE	MM.SLD MINOR INTERMIXED SANDSTONE LAMINAE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
23	78.91	79.38	0.47			SANDSTONE	VFG.MEL.M.GY.MAS.SLD
24	79.38	79.45	0.07			SILTSTONE	M.GY.BRKN SLICKENSIDES ON FRACTURE SURFACES; MINO R INTERMIXED QUARTZ PODS; SOFT
25	79.45	80.01	0.56			SILTSTONE	SSY.DK.GY.MAS.SLD EASILY WEATHERED
27	80.01	80.15	0.14			SILTSTONE	SSY.DK.GY.MAS.SLD
* 31	80.15	82.24	2.09			SILTSTONE	SSY.DK.GY.MAS.SLD EASILY WEATHERED; VERY MINOR VERY FINE GRAINED SANDSTONE LAMINAE IN CENTER OF UNIT; SLICKENSIDES ON FACTURE SURFACES
* 38	82.24	83.09	0.85			SANDSTONE	VFG.MEL.DK.GY.THNB.SLD MINOR SILTSTONE LAMINAE; EASILY WEATHER ED; DRYING CRACKS ALONG BEDDING
39	83.09	83.65	0.56			SILTSTONE	DK.GY.MAS.SLD EASILY WEATHERED; DRYING CRACKS ALONG A PPARENT BEDDING
40	83.65	83.66	0.01			QUARTZ	WH.BRKN MINOR SILTSTONE LAMINAE APPEAR TO CROSS -CUT BEDDING

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
40	83.66	84.11	0.45			SILTSTONE	DK.GY.MAS.SLD EASILY WEATHERED; DRYING CRACKS ALONG B EDDING
* 41	84.11	84.22	0.11			SILTSTONE	DK.GY.SLD MINOR SILTSTONE LAMINAE
* 42	84.22	85.94	1.72			SILTSTONE	DK.GY.THNB.SSD.SLD MINOR SANDSTONE LAMINAE; SOME WEATHERIN G; DRYING CRACKS
* 40	85.94	86.22	0.28			SILTSTONE	DK.GY.THNB.SSD.SLD MINOR SANDSTONE LAMINAE; SOME WEATHERIN G; DRYING CRACKS
* 43	86.22	87.44	1.22			SILTSTONE	M.GY.SSD.SLD INTERBEDDED FINE GRAINED SANDSTONE; RIP PLE MARKS AND CROSS-BEDDING INDICATE TO PS DOWN
42	87.44	88.39	0.95			SANDSTONE	VFG.MEL.M.GY.THNB.SSD.SLD INTERBEDDED SILTSTONE; RIPPLE MARKS AND WORMB BURROWS INDICATE TOPS DOWN
42	88.39	88.79	0.40			ROCK LOSS	ROCK LOSS
41	88.79	88.94	0.15			SANDSTONE	VFG.MEL.LT.GY.THNB.SSD.BRKN BRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 41	88.94	89.64	0.70			SANDSTONE	FG.MOD.M.GY.SSD.SLD SILTSTONE LAMINAE
* 42	89.64	90.63	0.99			SANDSTONE	VFG.WEL.M.GY.THNB.SSD.SLD SILTSTONE LAMINAE THROUGHOUT; RIPPLE MA RKS INDICATE TOPS DOWN
* 46	90.63	91.16	0.53			SILTSTONE	DK.GY.THNB.SSD.SLD FINE GRAINED SANDSTONE LAMINAE; EASILY WEATHERED
47	91.16	91.66	0.50			ROCK LOSS	ROCK LOSS
* 47	91.66	91.81	0.15			SILTSTONE	DK.GY.THNB.SSD.BRKN CALCITE VEINS (5 MM) PARALLEL TO BEDDIN G; EASILY WEATHERED
* 42	91.81	92.98	1.17			SILTSTONE	M.GY.THNB.SSD.SLD EASILY WEATHERED; DRYING CRACKS; RIPPLE MARKS; SANDSTONE LAMINAE
42	92.98	93.09	0.11			SILTSTONE	M.GY.THNB.SSD.SLD EASILY WEATHERED; DRYING CRACKS; RIPPLE MARKS; SANDSTONE LAMINAE
* 41	93.09	94.34	1.25			SILTSTONE	FG.MOD.LT.GY.THNB.SSD.SLD INTERBEDDED SILTSTONE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
43	94.34	94.38	0.04			SILTSTONE	LT.GY.THNB.SSD.BRKN UNIT DISPLAYS BEDDING FRACTURES; CALCIT E INCLUSIONS
* 44	94.38	95.00	0.62			SANDSTONE	FG.MOD.LT.GY.THNB.SSD.SLD WORM BURROW INDICATES TOPS DOWN; INTERB EDDED SILTSTONE
46	95.00	95.03	0.03			SILTSTONE	FG.MOD.LT.GY.THNB.SSD.SLD
46	95.03	95.08	0.05			SILTSTONE	FG.MOD.LT.GY.THNB.SSD.SLD
* 48	95.08	95.85	0.77			SANDSTONE	FG-.MOD.LT.GY.THNB.SSD.BRKN MINOR SILTSTONE LAMINAE; CORE IS PREDOM INANTLY SANDSTONE SHOWING LITTLE BEDDIN G
47	95.85	95.97	0.12			SANDSTONE	FG.MOD.LT.GY.THNB.SSD.BRKN CALCITE VEIN (10 MM) AT BASE OF UNIT PA RALLEL TO BEDDING
47	95.97	96.20	0.23			ROCK LOSS	ROCK LOSS
* 46	96.20	96.57	0.37			SILTSTONE	LT.GY.VTHNB.SSD.SLD FINE GRAINED SANDSTONE LAMINAE

* DENOTES MEASURED BCA

FORM 4001

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
44	96.57	97.13	0.56			SANDSTONE	VFG-.MOD.LT.GY.MAS.SLD EASILY WEATHERED; DRYING CRACKS FORMING
43	97.13	97.36	0.23			SANDSTONE	VFG-.MOD.LT.GY.MAS.SLD EASILY WEATHERED
* 42	97.36	97.74	0.38			SANDSTONE	VFG-.MOD.M.GY.THNB.SSD.SLD EASILY WEATHERD; VERY MINOR SILTSTONE L AMINAE
44	97.74	99.02	1.28			SILTSTONE	DK.GY.MAS.SLD NO BEDDING APPARENT; EASILY WEATHERED; DRYING CRACKS (ALONG BEDDING?)
* 46	99.02	99.73	0.71			SILTSTONE	M.GY.VTHNB.SSD.SLD VERY MINOR VERY FINE GRAINED SANDSTONE LAMINAE; EASILY WEATHERED
* 45	99.73	101.14	1.41			SANDSTONE	VFG-.MOD.M.GY.THNB.SSD.SLD RIPPLE MARKS AND WORM BURROWS INDICATE TOPS DOWN; SILTSTONE LAMINAE
* 47	101.14	101.64	0.50			SANDSTONE	VFG-.MOD.M.GY.THNB.SSD.SLD SILTSTONE LAMINAE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
44	101.64	102.02	0.38			SANDSTONE	VFG.WEL.M.GY.VTHNB.SSD.BRKN SILTSTONE LAMINAE; QUARTZ VEIN (4 MM) P ARALLEL TO CORE AXIS; EASILY WEATHERED; BEDDING FRACTURES; CALCITE VEIN (2 MM) PARALLEL TO BEDDING AT TOP OF UNIT
* 42	102.02	102.42	0.40			SANDSTONE	FG.MOD.M.GY.VTHNB.SSD.BRKN MINOR SILTSTONE LAMINAE; EASILY WEATHER ED; SLICKENSIDES AT STRATAGRAPHIC TOP; CALCITE VEINS (1 MM) PERPENDICULAR TO B EDDING
* 40	102.42	102.88	0.46			SANDSTONE	MG.MOD.S-P.GY.THNB.SSD.BRKN SILTSTONE CLASTS; SILTSTONE LAMINAE; VE RY MINOR CALCITE VEINING
* 38	102.88	103.28	0.40			SANDSTONE	MG.MOD.S-P.GY.THNB.SLD VERY MINOR CALCITE VEINING; MINOR SILTS TONE LAMINAE
* 49	103.28	103.51	0.23			SILTSTONE	LT.GY.THNB.BRKN SOME LISTRIC SURFACES; MINOR SANDSTONE LAMINAE
* 52	103.51	104.83	1.32			SANDSTONE	FG-.MOD.S-P.GY.THNB.SSD.BRKN VERY MINOR SEDIMENTARY STRUCTURES; SCAT TERED SILTSTONE CLASTS ; CALCITE VEINS (<1 MM)

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
52	104.83	104.88	0.05			SANDSTONE	FG-.MOD.S-P.GY.THNB.SSD.BRKN VERY MINOR SEDIMENTARY STRUCTURES
* 52	104.88	106.65	1.77			SANDSTONE	FG-.MOD.S-P.GY.THNB.SSD.BRKN MINOR SOFT SEDIMENT DEFORMATION; CALCIT E VEINING; SILTSTONE CLASTS
44	106.65	106.96	0.31			ROCK LOSS	ROCK LOSS
* 42	106.96	107.06	0.10			SILTSTONE	LT.GY.THNB.SSD.BRKN MINOR SILTSTONE LAMINAE; LISTRIC SURFAC ES
* 44	107.06	107.89	0.83			SANDSTONE	VFG-.MOD.M.GY.THNB.SSD.SLD MINOR SILTSTONE LAMINAE; MINOR NORMAL F AULT; CALCITE VEINING
* 48	107.89	108.95	1.06			SANDSTONE	VFG-.MOD.M.GY.THNB.SSD.SLD MINOR SILTSTONE LAMINAE; WORM BURROWS; EASILY WEATHERED
* 52	108.95	109.99	1.04			SILTSTONE	DK.GY.THNB.SSD.BRKN LISTRIC SURFACES WITH TALC(?) DEPOSITS; WORM BURROWS VERY MINOR COALY STRINGER S; EASILY WEATHERED; MINOR SANDSTONE LA MINAE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 53	109.99	111.07	1.08	01509	I	COAL	C-2.VBRKN PULVERIZED (MEASUREMENT IMPRECISE); C-2 TO C-3; MINOR MUDSTONE STRINGERS
51	111.07	111.13	0.06	01509	I	COAL	C-2.BLK.VBRKN PULVERIZED
* 50	111.13	111.53	0.40	01509	I	COAL	C-2.BLK.SLD SOME C-1; VERY MINOR MUDSTONE LAMINAE (1-3 MM)
* 50	111.53	111.54	0.01	01509	I	SILTSTONE	DK.GY.THNB.SLD HARD; CONSOLIDATED
49	111.54	111.85	0.31	01509	I	COAL	C-2.BLK.SLD SOME C-1; VERY MINOR MUDSTONE LAMINAE (1-3 MM)
48	111.85	112.02	0.17	01509	I	COAL	C-2.BLK.VBRKN BEDDING NOT APPARENT; SOME C-1 FRAGMENT S
* 47	112.02	112.24	0.22	01509	I	COAL	C-2.BLK.BRKN VERY MINOR CARBONACEOUS MUDSTONE LAMINA E (1-3 MM); SOME C-1
47	112.24	112.26	0.02	01509	I	MUDSTONE	CARB.BLK.SLD PLIABLE; SOFT

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
47	112.26	112.34	0.08	01509	I	COAL	C-3.BLK.BRKN SOME C-4
47	112.34	112.36	0.02	01509	I	COAL	C-2.BLK.SLD
47	112.36	112.37	0.01	01509	I	MUDSTONE	CARB.BLK.BRKN SOFT; CLAYEY
47	112.37	112.65	0.28	01509	I	COAL	C-2.BLK.SLD SOME C-1; VERY MINOR MUDSTONE LAMINAE
47	112.65	112.95	0.30	01509	I	COAL	C-2.BLK.BRKN C-1 TO C-3; VERY MINOR CARBONACEOUS MUD STONE LAMINAE (1-3 MM); BEDDING NOT APP ARENT
48	112.95	112.98	0.03	01509	I	COAL	C-2.BLK.VBRKN BEDDING NOT APPARENT
48	112.98	113.03	0.05	01510	I	MUDSTONE	CARB.BLK.VBRKN PLIABLE; COAL CHIP INCLUSIONS
48	113.03	113.33	0.30	01510	I	COAL	C-2.BLK.BRKN BEDDING NOT APPARENT
48	113.33	113.34	0.01	01510	I	SILTSTONE	DK.GY.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 48	113.34	113.64	0.30	01510	I	COAL	C-2.BLK.BRKN VERY MINOR SILTSTONE LAMINAE (1-3 MM)
53	113.64	113.67	0.03	01510	I	SILTSTONE	DK.GY.SSD.SLD MINOR COAL LAMINAE (1-2MM)
* 54	113.67	113.74	0.07	01510	I	COAL	C-2.BLK.SLD MINOR SILTSTONE LAMINAE; SOME C-3
53	113.74	113.75	0.01	01510	I	MUDSTONE	CARB.BLK.VBRKN SOFT; MINOR COAL CHIPS
49	113.75	114.02	0.27	01510	I	COAL	C-2.BLK.VBRKN BEDDING NOT APPARENT
45	114.02	114.04	0.02	01510	I	SILTSTONE	DK.GY.SLD CALCITE LAMINAE; SOME COAL LAMINAE
44	114.04	114.14	0.10	01510	I	COAL	C-1.BLK.SLD
* 42	114.14	114.18	0.04	01510	I	SILTSTONE	DK.GY.VTHNB.SLD
43	114.18	114.32	0.14	01510	I	COAL	C-2.BLK.SLD SOME C-1
43	114.32	114.37	0.05	01510	I	SILTSTONE	DK.GY.VTHNB.SSD.SLD SOME MINOR COAL AND CALCITE LAMINAE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
44	114.37	114.45	0.08	01510 I		COAL	C-2.BLK.SLD VERY MINOR SILTSTONE LAMINAE (1-3 MM)
* 44	114.45	114.49	0.04	01510 I		SILTSTONE	DK.GY.SSD.SLD MINOR COAL LAMINAE (1-3 MM)
44	114.49	114.51	0.02	01510 I		COAL	C-2.BLK.SLD
44	114.51	114.53	0.02	01510 I		SILTSTONE	DK.GY.SSD.SLD MINOR QUARTZ VEIN
44	114.53	114.66	0.13	01510 I		MUDSTONE	DK.GY.BRKN MINOR COAL NODULES; EASILY WEATHERED; F RACTURES ALONG APPARENT BEDDING
43	114.66	114.70	0.04	01510 I		SILTSTONE	DK.GY.SLD MINOR QUARTZ VEINING; CALCITE VEIN (5 M M) AT ROOF
* 43	114.70	114.75	0.05	01511 I		COAL	C-2.BLK.SLD SOME C-1 ; VERY MINOR SILTSTONE LAMINAE
45	114.75	114.79	0.04	01511 I		COAL	C-2.BLK.SLD SUBCONCOIDAL FRACTURE
47	114.79	114.81	0.02	01511 I		COAL	C-1.BLK.SLD CONCOIDAL FRACTURE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 52	114.81	115.01	0.20	01511 I		COAL	C-2.BLK.SLD MINOR MUDSTONE PARTING (5 MM); SUBCONCO IDAL FRACTURE
50	115.01	115.05	0.04	01511 I		COAL	C-1.BLK.SLD CONCOIDAL FRACTURE
49	115.05	115.20	0.15	01511 I		COAL	C-2.BLK.VBRKN SOME C-1
46	115.20	115.48	0.28	01511 I		COAL	C-2.BLK.BRKN MINOR CALCITE ALONG FRACTURE SURFACE; S UBCONCOIDAL FRACTURE; SOME C-1 BANDS (1 0 MM)
43	115.48	115.56	0.08	01511 I		COAL	C-1.BLK.VBRKN CONCOIDAL FRACTURE
39	115.56	116.01	0.45	01511 I		COAL LOSS	COAL LOSS
36	116.01	116.09	0.08	01511 I		COAL	C-3.BLK.VBRKN
34	116.09	116.17	0.08	01511 I		COAL	C-2.BLK.SLD SUBCONCOIDAL FRACTURE
* 33	116.17	116.29	0.12	01511 I		COAL	C-2.BLK.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
36	116.29	116.30	0.01	01511 I		MUDSTONE	CARB.M.GY.SLD
* 43	116.30	116.55	0.25	01511 I		COAL	C-2.BLK.BRKN
41	116.55	116.58	0.03	01511 I		CLAY	DK.GY.SLD
40	116.58	116.73	0.15	01511 I		COAL	C-2.BLK.VBRKN WEATHERED; LISTRIC FRACTURE SURFACES; M INOR ANKERITE(?) (1 MM) ALONG BEDDING
39	116.73	116.74	0.01	01511 I		MUDSTONE	CARB.DK.GY.SLD LISTRIC FRACTURE SURFACES
38	116.74	116.94	0.20	01511 I		COAL	C-2.BLK.BRKN CALCITE VEINS (2 MM)
* 35	116.94	117.29	0.35			MUDSTONE	DK.GY.LAM.SSD.BRKN
36	117.29	117.36	0.07			SILTSTONE	M.GY.BRKN
37	117.36	117.41	0.05			COAL	C-1.BLK.VBRKN SUBCONCOIDAL FRACTURE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
37	117.41	117.57	0.16			SILTSTONE	M.GY.LAM.SLD DRILL SPIN-OFF
41	117.57	118.37	0.80			SILTSTONE	M.GY.LAM.VBRKN DRILL CORE SPIN-OFF
* 45	118.37	118.86	0.49			MUDSTONE	DK.GY.LAM.BRKN
43	118.86	118.91	0.05			CLAY	DK.GY.PHRD PLIABLE
43	118.91	119.00	0.09			MUDSTONE	M.GY.VBRKN
42	119.00	119.19	0.19			ROCK LOSS	ROCK LOSS
41	119.19	119.28	0.09			SILTSTONE	M.GY.LAM.VBRKN
41	119.28	119.38	0.10			SANDSTONE	MG.MEL.S-P.GY.VBRKN POLYMICTIC; CALCAREOUS; ANKERITE(?) AND CALCITE VEINING (2 MM) FORMING SMALL R OSETTES; DISSEMINATED PYRITE GRAINS IN SANDSTONE AND VEIN MATERIAL

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 39	119.38	119.89	0.51			SILTSTONE	DK.GY.LAM.BRKN
* 41	119.89	121.10	1.21			MUDSTONE	M.GY.LAM.SSD.BRKN MINOR ANKERITE INFILLING PERPENDICULAR TO FRACTURES (APPROXIMATELY 1 MM)
* 50	121.10	121.82	0.72			MUDSTONE	M.GY.LAM.SSD.BRKN CROSS-BEDDING INDICATES UNIT OVERTURNED
* 43	121.82	123.98	2.16			MUDSTONE	DK.GY.LAM.BRKN MINOR SILTSTONE LAMINAE
* 38	123.98	124.30	0.32			SILTSTONE	M.GY.LAM.BRKN LISTRIC SURFACES ; MINOR CALCITE (APPROXIMATELY 1 MM) ON LISTRIC SURFACE
* 37	124.30	125.62	1.32			SILTSTONE	DK.GY.LAM.BRKN INTERLAMINATED WITH MUDSHALE; DRILL CORE SPIN-OFF
37	125.62	126.01	0.39			ROCK LOSS	ROCK LOSS
36	126.01	126.08	0.07			SILTSTONE	DK.GY.LAM.BRKN DRILL CORE SPIN-OFF

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 36	126.08	128.00	1.92			SILTSTONE	M.GY.LAM.BRKN INTERLAMINATED MUD SHALE
* 37	128.00	129.13	1.13			SILTSTONE	DK.GY.LAM.BRKN INTERLAMINATED MUDSHALE; CALCITE VEININ G (APPROXIMATELY 1 MM) AND SLICKENSIDES ON FRACTURE SURFACES; LISTRIC SURFACES
* 34	129.13	129.83	0.70			SILTSTONE	DK.GY.LAM.VBRKN INTERLAMINATED MUDSHALE
36	129.83	130.21	0.38			SANDSTONE	VFG.MEL.M.GY.VBRKN ABUNDANT LISTRIC SURFACES CONTAINING SO ME CALCITE
36	130.21	130.35	0.14			ROCK LOSS	ROCK LOSS
37	130.35	130.67	0.32			ROCK LOSS	ROCK LOSS
* 38	130.67	130.97	0.30			CLAYSTONE	LT.GY.THNB.BRKN ASSUMPTION: UNIT OVERTURNED; STRATIGRAP HIC BOTTOM SHEARED FORMING LISTRIC SURF ACES; ABUNDANT CALCITE AND ANKERITE(?) VEINING

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
39	130.97	131.05	0.08			BENTONITE	LT.GY.SLD
* 40	131.05	132.07	1.02			SANDSTONE	VFG.MEL.LT.GY.LAM.BRKN CALCITE VEIN (APPROXIMATELY 2 MM) ALONG BEDDING; TALC(?) ALONG FRACTURE SURFACES
38	132.07	132.26	0.19			SANDSTONE	FG.MEL.LT.GY.BRKN CALCAREOUS
* 37	132.26	132.45	0.19			SANDSTONE	FG.MEL.LT.GY.BRKN CALCAREOUS
* 37	132.45	133.31	0.86			SANDSTONE	FG.MEL.LT.GY.LAM.BRKN LISTRIC SURFACES; CLAYEY APPEARANCE
* 38	133.31	133.44	0.13			SANDSTONE	VFG.MEL.M.GY.LAM.SLD
37	133.44	133.69	0.25			SILTSTONE	M.GY.LAM.BRKN CALCITE VEIN (1 MM) ALONG SLICKENSIDED SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
37	133.69	133.79	0.10			SANDSTONE	VFG.MEL.LT.GY.LAM.VBRKN
37	133.79	133.95	0.16			SANDSTONE	VFG.MEL.LT.GY.LAM.BRKN CALCAREOUS; CALCITE VEIN (1 MM) PERPENDICULAR TO BEDDING
36	133.95	133.99	0.04			CLAY	LT.GY.PWRD
* 35	133.99	134.94	0.95			SILTSTONE	M.GY.THNB.SSD.SLD CALCITE VEIN (2 MM) PARALLEL TO BEDDING ; MINOR SOFT SEDIMENT DEFORMATION
* 37	134.94	135.71	0.77			SANDSTONE	VFG.MEL.LT.GY.LAM.XBDG.SLD CROSS BEDDING INDICATES UNIT OVERTURNED ; FRACTURES PARALLEL TO BEDDING INFILLED WITH CALCITE
38	135.71	136.03	0.32			SANDSTONE	VFG.MEL.LT.GY.LAM.BRKN HEAVILY CALCITE VEINED FORMING BRECCIA ZONE (7 CM) TOWARDS STRATIGRAPHIC TOP
38	136.03	136.09	0.06			SANDSTONE	VFG.MEL.LT.GY.LAM.BRKN HEAVILY CALCITE VEINED FORMING BRECCIA ZONE (7 CM) TOWARDS STRATIGRAPHIC TOP

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
39	136.09	136.57	0.48			SANDSTONE	FG.MEL.LT.GY.LAM.BRKN
39	136.57	136.94	0.37			SANDSTONE	FG.MEL.LT.GY.LAM.BRKN CALCITE VEINING (1 MM) INFILLING FRACTURES
* 40	136.94	137.28	0.34			SILTSTONE	M.GY.LAM.BRKN LISTRIC SURFACES; CALCITE ALONG FRACTURES; MINOR SLICKENSIDES
* 38	137.28	137.76	0.48			SANDSTONE	VFG.MEL.LT.GY.LAM.XBDG.BRKN CALCITE VEINING (1 MM) PERPENDICULAR TO BEDDING; QUARTZ VEIN (5 CM); LISTRIC SURFACES; CROSS-BEDDING INDICATES INIT O VERTURNED
37	137.76	137.83	0.07			CALCITE	MH.SLD FORMS ROSETTES
37	137.83	138.06	0.23			SILTSTONE	M.GY.LAM.VBRKN CALCITE VEINING (1 MM) ALONG FRACTURE SURFACES
36	138.06	138.19	0.13			ROCK LOSS	ROCK LOSS
36	138.19	138.24	0.05			SANDSTONE	FG.MEL.LT.GY.SLD CALCITE BRECCIA

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 35	138.24	138.70	0.46			SANDSTONE	FG.MEL.LT.GY.LAM.XBOG.BRKN CROSSBEDDING INDICATES UNIT OVERTURNED; CALCITE VEINING (1 MM) PARALLEL TO BEDDING
* 31	138.70	139.24	0.54			SANDSTONE	FG.MEL.LT.GY.THNB.BRKN CALCITE ALONG FRACTURE SURFACES; MINOR SILTSTONE INTERBEDS
* 34	139.24	139.55	0.31			SANDSTONE	FG.MEL.LT.GY.LAM.XBDG.SLD MINOR DARK GRAY SILTSTONE LAMINAE; CROSS-BEDDING INDICATES UNIT OVERTURNED; ZONE EXTREMELY FRACTURED TOWARDS STRATIGRAPHIC TOP
* 20	139.55	140.17	0.62			SILTSTONE	M.GY.PWRD DRILL CORE SPIN-OFF; SILTSTONE FRAGMENTS CEMENTED BY CLAY; POSSIBLE FAULT GOUGE
* 20	140.17	141.29	1.12			SILTSTONE	DK.GY.LAM.SSD.BRKN MINOR SOFT SEDIMENT DEFORMATION
18	141.29	141.44	0.15			SILTSTONE	DK.GY.LAM.BRKN CALCITE VEIN (2 MM)
* 15	141.44	142.80	1.36			SILTSTONE	DK.GY.LAM.BRKN CALCITE VEIN (2 MM) PARALLEL TO BEDDING; LISTRIC SURFACES

* DENOTES MEASURED BCA

FORM 4001

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 10	142.80	143.48	0.68			SILTSTONE	M.GY.LAM.BRKN CALCITE ALONG FRACTURE SURFACE
10	143.48	144.13	0.65			SILTSTONE	M.GY.LAM.BRKN CALCITE ALONG FRACTURE SURFACES
10	144.13	144.37	0.24			SILTSTONE	M.GY.LAM.BRKN CALCITE ALONG FRACTURE SURFACES
* 10	144.37	145.87	1.50			SILTSTONE	M.GY.LAM.VBRKN CALCITE ALONG FRACTURE SURFACES
* 15	145.87	145.92	0.05			SANDSTONE	MG.MOD.S-P.GY.BRKN PEBBLES (15 MM LONG); CALCITE VEINING (2 MM); POLYMICTIC; DRILL CORE SPIN-OFF
15	145.92	146.10	0.18			SILTSTONE	M.GY.LAM.VBRKN DRILL CORE SPIN-OFF; HIGHLY FRACTURED A ND CEMENTE D WITH CLAY
* 15	146.10	147.79	1.69			SILTSTONE	M.GY.LAM.SSD.BRKN CALCITE VEINING PARALLEL TO BEDDING (4 MM)
08	147.79	147.98	0.19			SILTSTONE	M.GY.LAM.VBRKN CALCITE ALONG FRACTURE SURFACES; MINOR LISTRIC SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 06	147.98	148.26	0.28			SILTSTONE	M.GY.LAM.SSD.VBRKN QUARTZ VEINING WITH SECONDARY CALCITE I NFILLING (3 CM)
09	148.26	148.80	0.54			SILTSTONE	M.GY.LAM.VBRKN QUARTZ AND CALCITE VEINING ALONG FRACTU RE SURFACES; TALC(?) ALONG LISTRIC SURF ACES
* 12	148.80	149.00	0.20			MUDSTONE	DK.GY.LAM.SSD.BRKN CALCITE VEINING (1 MM) PARALLEL TO BEDD ING; MINOR LISTRIC SURFACES
11	149.00	149.19	0.19			SILTSTONE	M.GY.LAM.VBRKN LISTRIC SURFACES; CALCITE VEINING (2MM)
11	149.19	149.30	0.11			MUDSTONE	DK.GY.VBRKN ABUNDANT LISTRIC SURFACES; CALCITE BREC CIA
10	149.30	149.82	0.52			SILTSTONE	M.GY.SLD SILTSTONE INTENSELY FRACTURED AND INFIL LED BY CLAY; INTENSE FEATHER CALCITE VE INING (1 MM); FAULT GOUGE(?)
09	149.82	149.93	0.11			SILTSTONE	M.GY.VBRKN MINOR LISTRIC SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
08	149.93	150.45	0.52			SILTSTONE	M.GY.SLD CALCITE INCLUSION (4 CM) WITH MINOR TAL C(?); HIGHLY FRACTURED; LISTRIC SURFACE S ; TOWARDS STRATIGRAPHIC TOP FRACTURES BECOME CEMENTED WITH CLAY
06	150.45	151.01	0.56			SILTSTONE	M.GY.SLD HIGHLY FRACTURED AND CEMENTED BY CLAY; MANY FRACTURES CONTAIN CALCITE AND GROU ND TALC(?); FAULT GOUGE(?)
04	151.01	151.11	0.10			SILTSTONE	M.GY.BRKN CALCITE VEIN (5 CM); LISTRIC SURFACES
04	151.11	151.21	0.10			SILTSTONE	M.GY.LAM.VBRKN CALCITE BRECCIA
* 02	151.21	152.34	1.13			SANDSTONE	VFG.WEL.M.GY.LAM.BIOTR.BRKN WORM BURROWS; TALC(?) ALONG LISTRIC SUR FACES; MINOR CALCITE VEINING (2 MM) ALO NG SURFACES
* 04	152.34	152.90	0.56			SILTSTONE	M.GY.LAM.BRKN MINOR CALCITE VEINING (1 MM) PARALLEL T O BEDDING; TALC(?) ALONG LISTRIC SURFAC ES; HIGHLY FRACTURED

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 03	152.90	154.01	1.11			SILTSTONE	DK.GY.LAM.SSD.BRKN MINOR SOFT SEDIMENT DEFORMATION; CALCIT E VEINING (10 CM ZONE) FORMING BRECCIA; MINOR MUDSHALE LAMINAE
29	154.01	154.04	0.03			CLAY	M.GY.SLD
31	154.04	154.12	0.08	01512	J	COAL	C-3.BLK.BRKN ABUNDANT LISTRIC SURFACES; NO APPARENT BEDDING; MINOR MUDSTONE PARTING (2 MM)
35	154.12	154.21	0.09	01512	J	COAL	C-2.BLK.VBRKN ABUNDANT LISTRIC SURFACES; MINOR CALCIT E VEIN (2 MM) PERPENDICULAR TO BEDDING
38	154.21	154.22	0.01	01512	J	MUDSTONE	DK.GY.SLD
38	154.22	154.25	0.03	01512	J	COAL	C-2.BLK.SLD
* 40	154.25	154.29	0.04	01512	J	MUDSTONE	CARB.BLK.SLD MINOR COALY STRINGERS (1 MM); LISTRIC S URFACES; MODERATELY CARBONACEOUS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
42	154.29	154.33	0.04	01512 J		COAL	C-2.BLK.SLD SUBCONCOIDAL FRACTURE
43	154.33	154.34	0.01	01512 J		COAL	C-1.BLK.SLD CONCOIDAL FRACTURE
44	154.34	154.38	0.04	01512 J		COAL	C-2.BLK.SLD SUBCONCOIDAL FRACTURE
* 48	154.38	154.55	0.17	01512 J		COAL	C-2.BLK.BRKN MINOR MUDSTONE LAMINAE (3MM)
* 19	154.55	155.21	0.66	01512 J		COAL	C-2.BLK.VBRKN LISTRIC CLEAT SURFACES
25	155.21	155.37	0.16	01512 J		COAL	C-2.BLK.VBRKN
30	155.37	155.92	0.55	01512 J		COAL	C-2.BLK.VBRKN SOME C-3; MINOR CARBONACEOUS MUDSTONE P ARTINGS; NO APPARENT BEDDING; ABUNDANT LISTRIC SURFACES
35	155.92	156.19	0.27	01512 J		COAL	C-2.BLK.THNB.VBRKN ABUNDANT LISTRIC SURFACES
37	156.19	156.21	0.02	01512 J		MUDSTONE	CARB.DK.GY.VBRKN LISTRIC SURFACES; MODERATELY CARBONACEO US

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
38	156.21	156.29	0.08	01512 J		COAL	C-2.BLK.BRKN MINOR CALCITE (1 MM) ALONG CLEAT SURFAC ES
39	156.29	156.41	0.12	01512 J		MUDSTONE	DK.GY.BRKN LISTRIC SURFACES; COAL INCLUSION (3 CM) ; CALCITE VEINING (5 MM) WITHIN COAL
* 48	156.41	157.51	1.10	01512 J		COAL	C-2.BLK.BRKN MINOR CALCITE (1 MM) ALONG BEDDING
57	157.51	157.53	0.02	01512 J		COAL	C-1.BLK.SLD
58	157.53	157.70	0.17	01512 J		COAL	C-2.BLK.VBRKN LISTRIC SURFACES
60	157.70	157.75	0.05	01512 J		COAL	C-3.BLK.SLD
60	157.75	157.77	0.02	01512 J		COAL	C-5.BLK.SLD CARBONACEOUS MUDSTONE LAMINAE
* 61	157.77	157.84	0.07	01512 J		MUDSTONE	DK.GY.LAM.SLD LISTRIC SURFACES: MINOR COALY STRINGERS (2 MM); MINOR CALCITE VEINING (1 MM)
61	157.84	157.92	0.08	01512 J		MUDSTONE	DK.GY.SLD INTENSE FRACTURING WITH CLAY INFILLINGS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
60	157.92	158.05	0.13	01512	J	ROCK LOSS	ROCK LOSS
59	158.05	158.54	0.49	01512	J	COAL	C-2.BLK.VBRKN LISTRIC SURFACES
57	158.54	159.16	0.62	01512	J	COAL	C-2.BLK.VBRKN MINOR LISTRIC SURFACES
56	159.16	159.23	0.07	01512	J	COAL	C-4.BLK.VBRKN ABUNDANT LISTRIC SURFACES
56	159.23	159.35	0.12	01512	J	COAL LOSS	COAL LOSS
55	159.35	159.45	0.10			MUDSTONE	DK.GY.SLD
* 54	159.45	160.12	0.67			MUDSTONE	M.GY.LAM.BRKN
* 55	160.12	160.46	0.34			MUDSTONE	M.GY.LAM.BRKN DISTINCTIVE COLOR BANDING (M-DK); EASIL Y FRACTURED ALONG BEDDING SURFACES
56	160.46	161.47	1.01			MUDSTONE	M.GY.LAM.BRKN DISTINCTIVE COLOUR BANDING (M-DK); TALC (?) AND CALCITE ALONG FRACTURE SURFACES ; FISSILE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
57	161.47	162.26	0.79			MUDSTONE	M.GY.LAM.BRKN DISTINCTIVE COLOUR BANDING (M-DK); TALC (?) AND CALCITE ALONG FRACTURE SURFACES ; FISSILE
* 58	162.26	163.13	0.87			MUDSTONE	DK.GY.LAM.BRKN CALCITE VEIN (2 MM) ALONG BEDDING SURFA CE; DISTINCTIVE COLOR BANDING (M-DK); L ISTRIC SURFACES PARALLEL TO BEDDING
59	163.13	164.07	0.94			MUDSTONE	DK.GY.LAM.BRKN CALCITE VEIN (2 MM) ALONG BEDDING SURFA CE; DISTINCTIVE COLOUR BANDING (M-DK); MINOR LISTRIC SURFACES; FISSILE
60	164.07	164.39	0.32			MUDSTONE	DK.GY.LAM.VBRKN DISTINCTIVE COLOR BANDING; GREEN TALC(?) ON LISTRIC SURFACE PERPENDICULAR TO B EDDING
61	164.39	164.89	0.50			MUDSTONE	DK.GY.LAM.VBRKN DISTINCTIVE COLOR BANDING; VERY FISSILE ; CALCITE VEIN (10 MM)
62	164.89	165.54	0.65			MUDSTONE	DK.GY.LAM.VBRKN DISTINCTIVE COLOR BANDING; VERY FISSILE ; MINOR CALCITE VEIN (1 MM); GREEN TALC (?) ON LISTRIC SURFACES

* DENOTES MEASURED BCA

FORM 4001

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
63	165.54	165.64	0.10			MUDSTONE	DK.GY.LAM.VBRKN DISTINCTIVE COLOR BANDING; FISSILE; LISTRIC SURFACES
63	165.64	166.41	0.77			MUDSTONE	DK.GY.LAM.BRKN CALCITE BRECCIA; ANGULAR MUDSTONE FRAGMENTS; LISTRIC SURFACES; FISSILE; SOME FRACTURES CLAY INFILLED
64	166.41	166.83	0.42			MUDSTONE	DK.GY.LAM.VBRKN COLOR BANDING; FISSILE; CALCITE VEIN (5 MM); LISTRIC SURFACES
65	166.83	166.88	0.05			MUDSTONE	DK.GY.SLD ABUNDANT FRACTURES CEMENTED BY CLAY
* 65	166.88	167.30	0.42			MUDSTONE	DK.GY.LAM.BRKN COLOR BANDED; FISSILE; TALC(?) ALONG LISTRIC SURFACES; MINOR CALCITE VEINING (1 MM) PERPENDICULAR TO BEDDING
* 51	167.30	167.93	0.63			MUDSTONE	DK.GY.LAM.BRKN QUARTZ VEINING (3 MM) PERPENDICULAR TO BEDDING; LISTRIC SURFACES
* 29	167.93	168.39	0.46			MUDSTONE	M.GY.LAM.BRKN QUARTZ AND CALCITE VEINING (4 MM) OBLIQUE TO BEDDING; LISTRIC SURFACES CONTAINING TALC(?); SHALLOW FOLDING

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
44	168.39	169.17	0.78			MUDSTONE	DK.GY.BRKN INTENSE QUARTZ AND CALCITE BRECCIA; LISTRIC SURFACES; ANGULAR MUDSTONE FRAGMENTS
55	169.17	169.27	0.10			MUDSTONE	DK.GY.BRKN INTENSE QUARTZ AND CALCITE BRECCIA; LISTRIC SURFACES; ANGULAR MUDSTONE FRAGMENTS
58	169.27	169.38	0.11			MUDSTONE	DK.GY.BRKN INTENSE QUARTZ AND CALCITE BRECCIA; LISTRIC SURFACES; ANGULAR MUDSTONE FRAGMENTS
* 62	169.38	169.60	0.22			MUDSTONE	DK.GY.LAM.SLD MINOR FOLD; CALCITE VEINING (2 MM)
65	169.60	170.13	0.53			MUDSTONE	DK.GY.VBRKN INTENSE CALCITE BRECCIA; ANGULAR MUDSTONE FRAGMENTS; GREEN TALC(?) IN CALCITE; LISTRIC SURFACES
69	170.13	170.41	0.28			ROCK LOSS	ROCK LOSS
* 72	170.41	170.78	0.37			MUDSTONE	DK.GY.LAM.BRKN CALCITE VEIN (2 MM) PERPENDICULAR TO BEDDING; FISSILE; COLOUR BANDING; LISTRIC SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
69	170.78	170.85	0.07			MUDSTONE	M.GY.BRKN QUARTZ BRECCIA
* 65	170.85	171.42	0.57			MUDSTONE	DK.GY.LAM.BRKN QUARTZ VEIN OBLIQUE TO BEDDING (2 MM); COLOR BANDING; FISSILE; LISTRIC SURFACES
52	171.42	171.47	0.05			MUDSTONE	DK.GY.SLD QUARTZ AND CALCITE BRECCIA; LISTRIC SURFACES
50	171.47	171.53	0.06			MUDSTONE	M.GY.LAM.SLD FISSILE; COLOR BANDED; LISTRIC SURFACES
* 40	171.53	171.92	0.39			MUDSTONE	DK.GY.LAM.BRKN QUARTZ WITH CALCITE VEINING (3 CM) ALONG FRACTURES
* 01	171.92	172.78	0.86			MUDSTONE	DK.GY.LAM.VBRKN FISSILE; COLOR BANDED; QUARTZ AND CALCITE VEINING PARALLEL TO BEDDING; LISTRIC SURFACE; MINOR FOLDING
* 38	172.78	173.40	0.62			MUDSTONE	DK.GY.LAM.VBRKN FISSILE; COLOR BANDED; CALCITE AND QUARTZ VEINING (6 MM) PARALLEL TO BEDDING; MINOR FOLDING; LISTRIC SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 14	173.40	174.38	0.98			MUDSTONE	DK.GY.LAM.BRKN FISSILE; COLOR BANDED; MINOR FOLDING; CALCITE VEIN (15 MM) PERPENDICULAR TO BEDDING
* 34	174.38	175.00	0.62			MUDSTONE	DK.GY.LAM.SSD.BRKN MINOR SOFT SEDIMENT DEFORMATION; FISSILE; COLOUR BANDED; CALCITE STRINGERS (1 MM)
* 68	175.00	175.38	0.38			MUDSTONE	M.GY.LAM.BRKN CALCITE VEINING (9 MM); FISSILE
67	175.38	175.83	0.45			MUDSTONE	DK.GY.LAM.VBRKN CALCITE VEIN (5 MM) PARALLEL TO BEDDING; FISSILE
66	175.83	176.13	0.30			MUDSTONE	M.GY.LAM.BRKN HEAVY QUARTZ AND CALCITE VEINING
* 64	176.13	176.87	0.74			MUDSTONE	DK.GY.LAM.BRKN FISSILE; COLOR BANDING; 2 STAGES OF CALCITE VEINING (UP TO 2 CM) LISTRIC SURFACES
64	176.87	177.18	0.31			MUDSTONE	DK.GY.LAM.XBDG.BRKN AMBIGUOUS CROSSBEDDING; CALCITE VEINING (3 MM); LISTRIC SURFACES; FISSILE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
63	177.18	177.28	0.10			SILTSTONE	M.GY.LAM.BRKN CALCITE VEINING (1 MM); LISTRIC SURFACE S
63	177.28	177.98	0.70			QUARTZ	MM.BRKN SECONDARY CALCITE
63	177.98	178.28	0.30			SILTSTONE	M.GY.LAM.SLD HIGHLY FRACTURED; INFILLED WITH CALCITE (FORMING ROSETTES) AND CLAY
62	178.28	178.81	0.53			MUDSTONE	DK.GY.LAM.BRKN TALC(?) ALONG FRACTURE SURFACES
* 62	178.81	179.60	0.79			MUDSTONE	SLTY.DK.GY.LAM.BRKN CALCITE VEINING (3 MM); LISTRIC SURFACE S
54	179.60	179.88	0.28			MUDSTONE	SLTY.M.GY.LAM.BRKN CALCITE AND QUARTZ VEINING (2 MM EACH)
52	179.88	179.94	0.06			MUDSTONE	CARB.BLK.VBRKN ABUNDANT LISTRIC SURFACES; MINOR CALCIT E VEINING; SHEARED ZONE(?); MODERATELY CARBONACEOUS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
49	179.94	180.24	0.30			MUDSTONE	CARB.BLK.SHRD ABUNDANT LISTRIC SURFACES; CALCITE AN D QUARTZ VEINING (5 MM); MINOR FOLDING; STRUCTURALLY DISTURBED ZONE; MODERATELY CARBONACEOUS
39	180.24	181.34	1.10			MUDSTONE	CARB.DK.GY.BRKN CALCITE VEINING (6 MM); ABUNDANT LISTRI C SURFACES; STRUCTURALLY DISTURBED
* 27	181.34	181.95	0.61			MUDSTONE	DK.GY.BRKN CALCITE AND QUARTZ VEINING (7 MM) PARAL LEL TO BEDDING; MINOR FOLDING; ABUNDANT LISTRIC SURFACES; SHEARED
45	181.95	183.04	1.09			MUDSTONE	DK.GY.SSD.BRKN STRATIFORM PYRITE (7 MM); FLAME STRUCTU RE INDICATES TOPS ARE OVERTURNED; CALCI TE AND QUARTZ VEINING PARALLEL TO BEDDI NG; MINOR FOLDING; ABUNDANT LISTRIC SUR FACES; SHEARED
* 67	183.04	184.05	1.01			MUDSTONE	DK.BLK.LAM.BRKN CALCITE VEIN (12 MM) PARALLEL TO BEDDIN G; STRATIFORM PYRITE (4 MM); LISTRIC SU RFACES; FISSILE;

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
63	184.05	184.15	0.10			MUDSTONE	DK.GY.LAM.BRKN COLOR BANDING; FISSILE; LISTRIC SURFACES
* 61	184.15	184.81	0.66			MUDSTONE	DK.GY.LAM.BRKN FISSILE; COLOR BANDED
66	184.81	185.05	0.24			ROCK LOSS	ROCK LOSS
* 74	185.05	186.26	1.21			MUDSTONE	DK.GY.LAM.BRKN COLOR BANDED; FISSILE
* 73	186.26	187.08	0.82			MUDSTONE	DK.GY.LAM.BRKN QUARTZ AND CALCITE VEIN (1 MM); COLOUR BANDED; FISSILE
* 61	187.08	188.19	1.11			MUDSTONE	DK.GY.LAM.BRKN EASILY FRACTURED ALONG BEDDING SURFACE
* 62	188.19	189.12	0.93			MUDSTONE	DK.GY.LAM.BRKN MINOR TALC(?) ALONG BEDDING SURFACE; CALCITE VEIN (1 MM); FISSILE
* 44	189.12	189.77	0.65			MUDSTONE	DK.GY.LAM.BRKN FISSILE; COLOR BANDED; CALCITE VEIN (4 MM) PARALLEL TO BEDDING

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 39	189.77	190.81	1.04			MUDSTONE	DK.GY.LAM.BRKN MINOR FOLDING; FISSILE; COLOUR BANDED; CALCITE VEINING
* 44	190.81	191.56	0.75			MUDSTONE	DK.GY.LAM.BRKN FISSILE; COLOR BANDED; CALCITE VEIN (2 MM) PARALLEL TO BEDDING ; LISTRIC SURFACES
* 50	191.56	192.36	0.80			MUDSTONE	DK.GY.LAM.BRKN FISSILE; COLOR BANDED; CALCITE VEINING (2 MM) ALONG BEDDING SURFACE; TALC(?) ON LISTRIC SURFACES
* 50	192.36	193.23	0.87			MUDSTONE	DK.GY.LAM.BRKN CALCITE VEIN (2 MM); FISSILE; COLOR BANDED; LISTRIC SURFACES; MINOR FOLDING AT STRATIGRAPHIC BOTTOM
* 58	193.23	193.88	0.65			MUDSTONE	SLTY.M.GY.LAM.XBDG.BRKN TALC(?) ON LISTRIC SURFACES; CROSS-BEDDING INDICATES UNIT OVERTURNED; CALCITE VEIN (2 MM) ALONG BEDDING
* 56	193.88	194.67	0.79			SILTSTONE	M.GY.LAM.XBDG.BRKN CROSS-BEDDING INDICATES UNIT OVERTURNED ; CALCITE VEIN (3 MM); MINOR GREEN TALC (?); MUDSTONE LAMINAE

* DENOTES MEASURED BCA

FORM 4001

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 44	194.67	194.80	0.13			SILTSTONE	M.GY.LAM.XBDG.BRKN GREEN TALC(?) ON FRACTURE SURFACE; MUDSTONE LAMINAE
* 12	194.80	195.66	0.86			MUDSTONE	DK.GY.LAM.SSD.BRKN COLOR BANDED; LISTRIC SURFACES (SOME WITH GREEN TALC(?)); CALCITE VEIN (3 MM); MINOR SOFT SEDIMENT DEFORMATION
* 20	195.66	196.55	0.89			MUDSTONE	DK.GY.LAM.BRKN CALCITE AND QUARTZ VEINING (11 MM); MINOR FOLDING
17	196.55	196.77	0.22			MUDSTONE	M.GY.BRKN CALCITE BRECCIA; LISTRIC SURFACES
16	196.77	196.83	0.06			MUDSTONE	M.GY.BRKN CALCITE BRECCIA; LISTRIC SURFACES
14	196.83	197.46	0.63			MUDSTONE	DK.GY.BRKN CALCITE INCLUSION (3 CM); LISTRIC SURFACES; INTENSE FRACTURING INFILLED BY CLAY; STRUCTURALLY DISTURBED; MINOR TALC(?)
10	197.46	198.16	0.70			MUDSTONE	SLTY.DK.GY.BRKN CALCITE VEIN (5 MM); LISTRIC SURFACES CONTAINING MINOR TALC(?); INTENSE FRACTURING INFILLED BY CLAY

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
06	198.16	198.67	0.51			MUDSTONE	SLTY.DK.GY.BRKN LISTRIC SURFACES CONTAINING MINOR TALC(?); CALCITE VEIN (11 MM)
* 03	198.67	199.32	0.65			SILTSTONE	M.GY.LAM.SSD.BRKN MINOR LISTRIC SURFACES; CROSS-BEDDING
* 29	199.32	199.82	0.50			MUDSTONE	SLTY.DK.GY.LAM.BRKN MINOR TALC(?) ALONG FRACTURE SURFACES
* 29	199.82	201.37	1.55			MUDSTONE	SLTY.DK.GY.LAM.SLD CALCITE VEIN (7 MM); COLOR BANDING ; LISTRIC SURFACES; MINOR TALC(?); MINOR CALCITE ROSETTES
50	201.37	201.54	0.17			MUDSTONE	DK.GY.LAM.BRKN LISTRIC SURFACES; CALCITE VEIN (1MM)
* 54	201.54	201.68	0.14			SILTSTONE	DK.GY.LAM.SLD CALCITE VEIN (2 MM); TALC(?) ALONG LISTRIC SURFACES
57	201.68	202.71	1.03			MUDSTONE	SLTY.M.GY.LAM.BRKN INTENSE FRACTURING INFILLED BY CLAY AND SECONDARY QUARTZ AND CALCITE VEINING; ABUNDANT LISTRIC SURFACES
60	202.71	202.87	0.16			ROCK LOSS	ROCK LOSS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
61	202.87	203.18	0.31			MUDSTONE	M.GY.LAM.BRKN CALCITE VEIN PARALLEL TO BEDDING (4 MM) ; FRACTURES INFILLED BY CLAY; LISTRIC S URFACES CONTAINING TALC(?)
* 63	203.18	203.50	0.32			MUDSTONE	DK.GY.LAM.BRKN COLOR BANDED; FISSILE; LISTRIC SURFACES
* 10	203.50	204.76	1.26			MUDSTONE	DK.GY.LAM.BRKN QUARTZ AND CALCITE VEIN (4 MM); LISTRIC SURFACES CONTAINING MINOR TALC(?); MIN OR SLICKENSIDES; COLOUR BANDED
* 65	204.76	205.20	0.44			MUDSTONE	DK.GY.LAM.BRKN FISSILE; COLOR BANDED; MINOR DRAG FOLD; LISTRIC SURFACES CONTAINING TALC(?)
* 35	205.20	205.37	0.17			MUDSTONE	DK.GY.LAM.BRKN FISSILE; COLOR BANDED; LISTRIC SURFACES CONTAINING TALC(?)
25	205.37	205.86	0.49			MUDSTONE	DK.GY.LAM.VBRKN LISTRIC SURFACES; CALCITE VEINING (3 MM); SOME FRACTURES CLAY INFILLED
* 12	205.86	206.16	0.30			MUDSTONE	M.GY.LAM.BRKN CALCITE VEINING (1 MM); LISTRIC SURFACE S

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
11	206.16	206.71	0.55			MUDSTONE	M.GY.LAM.BRKN MINOR FOLDING; LISTRIC SURFACE CONTAINS MINOR TALC(?); DIHEDRAL FRACTURE SET (4 MM); DARK MUDSTONE INFILLING MINOR CA LCITE VEIN (1 MM)
10	206.71	207.17	0.46			MUDSTONE	DK.GY.LAM.BRKN LISTRIC SURFACES; CALCITE VEINING (1 MM)
08	207.17	207.60	0.43			MUDSTONE	M.GY.LAM.BRKN FISSILE; COLOR BANDED; CALCITE AND QUAR TZ VEIN (4 MM); LISTRIC SURFACES
08	207.60	207.80	0.20			MUDSTONE	DK.GY.LAM.SLD CLOSELY SPACED FRACTURES INFILLED BY CL AY; LISTRIC SURFACES CONTAINING TALC(?)
* 07	207.80	208.09	0.29			MUDSTONE	DK.GY.LAM.BRKN LISTRIC SURFACES CONTAINING TALC(?)
05	208.09	208.16	0.07			MUDSTONE	M.GY.LAM.SLD CLOSELY SPACED FRACTURES INFILLED BY CL AY; TALC(?) ALONG LISTRIC SURFACES
* 01	208.16	208.86	0.70			MUDSTONE	DK.GY.LAM.SLD CALCITE VEINING (5 MM); COLOR BANDED; F ISSILE; MINOR FOLDING

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
09	208.86	209.09	0.23			MUDSTONE	DK.GY.LAM.SLD CALCITE VEINING (5 MM); COLOUR BANDED; FISSILE; MINOR FOLDING
* 17	209.09	209.85	0.76			MUDSTONE	M.GY.LAM.BRKN CALCITE VEIN (2 MM); FEATHER CALCITE (4 CM); FISSILE; COLOR BANDED; LISTRIC SURFACES CONTAINING TALC(?)
17	209.85	209.99	0.14			MUDSTONE	DK.GY.LAM.SLD CALCITE VEIN (4 MM); INTENSE FRACTURING INFILLED BY CLAY
16	209.99	211.17	1.18			MUDSTONE	DK.GY.LAM.BRKN FISSILE; COLOR BANDED; MINOR STRIKE-SLIP FAULT (3 MM DISPLACEMENT); LISTRIC SURFACES CONTAINING MINOR TALC(?); CALCITE VEINING (2 MM)
* 16	211.17	211.65	0.48			MUDSTONE	DK.GY.LAM.BRKN LISTRIC SURFACES CONTAINING TALC(?); MINOR FOLDING; INFILLING OF FRACTURES BY CLAY; CALCITE VEINING (3 MM)
16	211.65	211.91	0.26			QUARTZ	WH.BRKN SECONDARY CALCITE AND LAMINATED MUDSTONE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 16	211.91	213.01	1.10			MUDSTONE	DK.GY.LAM.BRKN FISSILE; COLOR BANDED; LISTRIC SURFACES CONTAINING MINOR TALC(?); QUARTZ VEIN (4 MM); MINOR SLICKENSIDES; FAULT (DISPLACEMENT 3 MM)
* 07	213.01	214.90	1.89			MUDSTONE	DK.GY.LAM.BRKN COLOR BANDED; TWO CALCITE VEINS (3 MM); MINOR LISTRIC SURFACES CONTAINING TALC (?); QUARTZ VEIN (4MM)
* 11	214.90	216.21	1.31			MUDSTONE	DK.GY.LAM.SLD CALCITE VEIN (1 MM)
05	216.21	216.33	0.12			MUDSTONE	DK.GY.VBRKN LISTRIC SURFACES CONTAINING MINOR TALC(?)
* 01	216.33	217.02	0.69			MUDSTONE	DK.GY.LAM.SLD LISTRIC SURFACES CONTAINING TALC(?)
* 20	217.02	218.00	0.98			MUDSTONE	DK.GY.LAM.BRKN TALC(?) ON LISTRIC SURFACES; CALCITE VEIN (10 MM)
* 18	218.00	218.88	0.88			MUDSTONE	DK.GY.LAM.BRKN COLOR BANDED; CALCITE VEIN (8 MM); MINOR CALCITE VEIN (2 MM); MINOR LISTRIC SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
19	218.88	221.03	2.15			MUDSTONE	DK.GY.LAM.SSD.BRKN WAVY BEDDING; COLOR BANDED; TWO CALCITE VEINS (8 MM EACH); MINOR LISTRIC SURFACES
* 19	221.03	221.08	0.05			MUDSTONE	DK.GY.LAM.SSD.BRKN CALCITE AND ANKERITE(?) ALONG FRACTURE SURFACES
* 09	221.08	222.93	1.85			MUDSTONE	DK.GY.LAM.SSD.BRKN CALCITE AND MINOR TALC(?) ALONG FRACTURE SURFACE; SOME CALCITE FORMING CRYSTALS; WAVY BEDDING; MINOR LISTRIC SURFACES
* 13	222.93	223.51	0.58			MUDSTONE	DK.GY.LAM.BRKN MINOR LISTRIC SURFACES CONTAINING TALC(?)
16	223.51	224.73	1.22			MUDSTONE	DK.GY.LAM.SSD.BRKN QUARTZ AND CALCITE VEIN PARALLEL TO BEDDING (33 MM); SOFT SEDIMENT DEFORMATION IS WAVY BEDDING; MINOR TALC(?) ALONG LISTRIC SURFACES
17	224.73	224.83	0.10			MUDSTONE	DK.GY.LAM.SSD.BRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 20	224.83	226.64	1.81			MUDSTONE	DK.GY.LAM.SSD.BRKN MINOR FAULT DISPLACEMENT (3 MM); COMPRESSION FRACTURES; COLOR BANDED; CALCITE ALONG FRACTURE SURFACE; SOFT SEDIMENT DEFORMATION INDICATES UNIT OVERTURNED; QUARTZ VEIN (3 MM)
* 28	226.64	227.16	0.52			MUDSTONE	DK.GY.LAM.BRKN COLOR BANDED; ANKERITE(?) (1 MM) ALONG FRACTURE SURFACES
* 34	227.16	228.63	1.47			SILTSTONE	M.GY.LAM.XBDG.BRKN CROSS-BEDDING INDICATES UNIT UPRIGHT; MINOR DARK GRAY MUDSTONE LAMINAE (1 MM); CALCITE (1 MM) ALONG FRACTURE SURFACES
* 39	228.63	230.18	1.55			SILTSTONE	M.GY.LAM.XBDG.BRKN DARK GRAY MUDSTONE LAMINAE; CROSS-BEDDING INDICATES UNIT UPRIGHT; CALCITE VEIN (1 MM)
* 34	230.18	230.72	0.54			SILTSTONE	M.GY.LAM.BRKN DARK GRAY MUDSTONE LAMINAE; CALCITE VEIN (1 MM)
* 31	230.72	232.84	2.12			SILTSTONE	M.GY.LAM.SSD.BRKN DEWATERING STRUCTURE INDICATES TOPS UPRIGHT; MUDSTONE LAMINAE; COLOR BANDING; QUARTZ AND CALCITE VEIN (26 MM)

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
39	232.84	233.21	0.37			SILTSTONE	M.GY.LAM.BRKN COMPACTION FRACTURES; CALCITE VEIN (1 M M); LISTRIC SURACES
41	233.21	233.73	0.52			SILTSTONE	M.GY.LAM.BRKN COMPACTION FRACTURES; MINOR LISTRIC SUR FACES
43	233.73	233.83	0.10			SANDSTONE	FG.M.GY.THNB.SLD MINOR MUDSTONE LAMINAE
* 45	233.83	234.31	0.48			SILTSTONE	M.GY.LAM.SLD MUDSTONE LAMINAE
45	234.31	234.35	0.04			CALCITE	MM.LAM.SLD INTERLAMINATED QUARTZ AND MUDSTONE PARA LLEL TO BEDDING
45	234.35	234.86	0.51			SILTSTONE	M.GY.LAM.BRKN LISTRIC FRACTURE SURFACE; ANKERITE(?)
* 46	234.86	235.57	0.71			SANDSTONE	FG.M.GY.LAM.BRKN INTERLAMINATED SILTSTONE
46	235.57	236.07	0.50			ROCK LOSS	ROCK LOSS
46	236.07	236.23	0.16			SILTSTONE	DK.GY.LAM.XBDG.SLD CROSS-BEDDING INDICATES UNIT OVERTURNED ; INTERLAMINATED DARK GRAY MUDSTONE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
46	236.23	236.94	0.71			SILTSTONE	SSY.M.GY.LAM.BRKN MUDSTONE LAMINAE; CALCITE VEIN (1 MM) A LONG FRACTURE SURFACE
* 45	236.94	239.09	2.15			SANDSTONE	SLTY.M.GY.LAM.BRKN CROSS-BEDDING INDICATES UNIT OVERTURNED ; CALCITE VEIN (3 MM)
* 37	239.09	239.26	0.17			SANDSTONE	FG.M.GY.LAM.SLD
38	239.26	239.82	0.56			SANDSTONE	VFG.M.GY.LAM.SLD CALCITE VEIN (2 MM)
39	239.82	239.90	0.08			SANDSTONE	LT.GY.LAM.SLD CALCAREOUS
* 40	239.90	240.18	0.28			SILTSTONE	M.GY.LAM.SLD CROSS-BEDDING INDICATES UNIT OVERTURNED ; MUDSTONE LAMINAE
42	240.18	241.15	0.97			MUDSTONE	DK.GY.LAM.SSD.SLD COLOR BANDED; FISSILE; SLUMP INDICATES UNIT OVERTURNED; CALCITE AND QUARTZ VEI N (4 MM) PARALLEL TO BEDDING; COMPACTIO N FRACTURES; MINOR DRILL STEM SPIN-OFF

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 45	241.15	242.30	1.15			MUDSTONE	DK.GY.LAM.SSD.BRKN SOFT SEDIMENT DEFORMATION; FLAME STRUCTURE INDICATES UNIT OVERTURNED; COMPACTION FRACTURES; FISSILE; COLOR BANDED; QUARTZ AND CALCITE VEIN (5 MM); MINOR LISTRIC SURFACES CONTAINING TALC(?)
* 46	242.30	243.22	0.92			MUDSTONE	DK.GY.LAM.SLD COLOR BANDED
46	243.22	244.60	1.38			SILTSTONE	M.GY.LAM.XBDG.SLD CROSS-BEDDING AMBIGUOUS; COLOR BANDING
45	244.60	244.78	0.18			CALCITE	WH.LAM.SLD INTERLAMINATED WITH MUDSHALE
* 45	244.78	245.44	0.66			SILTSTONE	M.GY.LAM.SSD.SLD SOFT SEDIMENT DEFORMATION; DEWATERING STRUCTURE AND CROSS-BEDDING INDICATE UNIT OVERTURNED; MINOR LISTRIC SURFACES CONTAIN TALC(?)
* 48	245.44	246.35	0.91			SILTSTONE	DK.GY.LAM.WRMBU.BRKN WORM BURROWS; CALCITE VEIN (1 MM) ALONG FRACTURE SURFACE
48	246.35	246.65	0.30			MUDSTONE	LT.GY.LAM.SLD CALCAREOUS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
47	246.65	247.35	0.70			SANDSTONE	FG.WEL.LT.GY.SLD CALCAREOUS; GREEN TALC(?) ALONG FRACTURE SURFACES
47	247.35	247.50	0.15			SANDSTONE	FG.WEL.LT.GY.BRKN CALCITE VEIN (1 MM)
47	247.50	247.83	0.33			SANDSTONE	FG.WEL.LT.GY.SLD CALCAREOUS
46	247.83	248.58	0.75			SANDSTONE	FG.WEL.M.GY.BRKN CALCITE VEIN (1 MM)
45	248.58	249.58	1.00			SANDSTONE	FG.WEL.M.GY.BRKN GREEN TALC(?) ALONG FRACTURE SURFACES; CALCITE VEIN (3 MM)
* 45	249.58	249.74	0.16			SILTSTONE	M.GY.LAM.SLD
45	249.74	250.10	0.36			SANDSTONE	FG.WEL.M.GY.SLD
45	250.10	250.33	0.23			MUDSTONE	DK.GY.BIOTR.SLD MINOR BIOTURBATION

* DENOTES MEASURED BCA

FORM 4001

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
46	250.33	250.66	0.33			SANDSTONE	SLTY.VFG.HEL.M.GY.THNB.SSD.SLD SOFT SEDIMENT DEFORMATION; WAVY BEDDING
* 46	250.66	251.68	1.02			MUDSTONE	DK.GY.LAM.SSD.BRKN SOFT SEDIMENT DEFORMATION; TALC(?) ALON G FRACTURE SURFACE
48	251.68	251.75	0.07			SANDSTONE	FG.HEL.M.GY.SLD
49	251.75	251.99	0.24			SILTSTONE	M.GY.LAM.XBDG.SLD CROSSBEDDING INDICATES UNIT OVERTURNED
* 53	251.99	253.64	1.65			MUDSTONE	SLTY.DK.GY.LAM.SSD.SLD BIOTURBATION; CALCITE VEIN (7 MM); COAL INCLUSION (2 MM)
49	253.64	253.74	0.10			MUDSTONE	DK.GY.SLD
48	253.74	254.01	0.27			MUDSTONE	M.GY.SLD CALCAREOUS
47	254.01	254.47	0.46			MUDSTONE	DK.GY.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 45	254.47	254.90	0.43			SANDSTONE	FG.M.GY.SSD.SLD LISTRIC SURFACES CONTAIN TALC(?) AND CA LCITE; WAVY BEDDING
46	254.90	255.15	0.25			SILTSTONE	M.GY.LAM.BRKN
47	255.15	255.67	0.52			MUDSTONE	DK.GY.BIOTR.SLD
* 49	255.67	256.60	0.93			MUDSTONE	DK.GY.LAM.BIOTR.SLD SOFT SEDIMENT DEFORMATION; LISTRIC SURF ACES CONTAIN TALC(?); CALCITE VEIN (3 M M); SOFT SEDIMENT DEFORMATION INDICATES TOPS OVERTURNED
51	256.60	256.74	0.14			SILTSTONE	M.GY.LAM.XBDG.SLD CROSS-BEDDING INDICATES UNIT OVERTURNED
52	256.74	257.39	0.65			MUDSTONE	DK.GY.BRKN INTENSE FRACTURING INFILLED BY CLAY; LI STRIC SURFACES; MINOR QUARTZ VEIN (2 MM)
53	257.39	257.54	0.15			MUDSTONE	DK.GY.BRKN QUARTZ AND CALCITE VEIN (4 MM); COALY I NCLUSIONS (1 MM); LISTRIC SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
54	257.54	257.59	0.05	01513 K		COAL	C-5.BLK.BRKN LISTRIC SURFACES; PYRITE BLEB (4 MM) IN QUARTZ AND CALCITE VEIN; MUDSTONE LAMINAE
54	257.59	257.81	0.22	01513 K		COAL	C-2.BLK.BRKN MUDSTONE LAMINAE (3 MM); MINOR CALCITE BLEBS (2 MM); LISTRIC SURFACES
55	257.81	258.07	0.26	01513 K		COAL	C-2.BLK.VBRKN
56	258.07	258.18	0.11	01513 K		COAL LOSS	COAL LOSS
56	258.18	258.24	0.06	01513 K		COAL	C-5.BLK.BRKN CARBONACEOUS CONTAINING PLANT MATERIAL ; MINOR TALC(?) ON LISTRIC SURFACES
56	258.24	258.30	0.06	01513 K		ROCK LOSS	ROCK LOSS
57	258.30	258.61	0.31	01513 K		MUDSTONE	DK.GY.BRKN LISTRIC SURFACES
57	258.61	258.66	0.05	01513 K		QUARTZ	WH.SLD FORMS BRECCIA WITH MUDSTONE; SECONDARY CALCITE INFILLING

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
57	258.66	258.69	0.03	01513 K		COAL	C-3.BLK.SLD ANKERITE (?) ALONG CLEAT SURFACES (1 MM)
57	258.69	258.70	0.01	01513 K		ANKERITE	WH.SLD INTERLAMINATED MUDSTONE
57	258.70	258.75	0.05	01513 K		COAL	C-3.BLK.VBRKN LISTRIC SURFACES
58	258.75	258.82	0.07	01513 K		MUDSTONE	DK.GY.VBRKN CALCITE VEIN (3 MM)
58	258.82	258.86	0.04	01513 K		COAL	C-5.BLK.VBRKN
58	258.86	258.90	0.04	01513 K		COAL	C-2.BLK.VBRKN
58	258.90	258.96	0.06	01513 K		COAL	C-3.BLK.VBRKN
58	258.96	258.98	0.02	01513 K		COAL	C-2.BLK.VBRKN
58	258.98	258.99	0.01	01513 K		MUDSTONE	BLK.SLD COAL STRINGERS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
58	258.99	259.00	0.01	01513 K		COAL	C-2.BLK.SLD ANKERITE(?) (1 MM) ALONG CLEAT SURFACE
58	259.00	259.03	0.03	01513 K		COAL	C-5.BLK.SLD
59	259.03	259.07	0.04	01513 K		COAL	C-3.BLK.BRKN
59	259.07	259.08	0.01	01513 K		COAL	C-5.BLK.SLD
59	259.08	259.16	0.08	01513 K		MUDSTONE	DK.GY.SLD ABUNDANT LISTRIC SURFACES
* 59	259.16	259.21	0.05	01513 K		MUDSTONE	CARB.BLK.LAM.BRKN MINOR COALY STRINGERS
59	259.21	259.23	0.02	01513 K		COAL	C-3.BLK.SLD
59	259.23	259.24	0.01	01513 K		CLAYSTONE	CARB.BLK.SLD
59	259.24	259.28	0.04	01513 K		COAL	C-3.BLK.BRKN
59	259.28	259.35	0.07	01513 K		MUDSTONE	M.GY.BRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
59	259.35	259.38	0.03	01513 K		COAL	C-4.BLK.SLD ANKERITE (?) VEIN (3 MM)
59	259.38	259.57	0.19	01513 K		COAL	C-2.BLK.VBRKN
59	259.57	259.78	0.21	01513 K		COAL	C-3.BLK.BRKN CALCITE VEIN (2 MM)
59	259.78	259.87	0.09	01513 K		COAL	C-2.BLK.BRKN
59	259.87	259.88	0.01	01513 K		COAL	C-4.BLK.SLD
59	259.88	259.90	0.02	01513 K		COAL	C-3.BLK.SLD
59	259.90	259.93	0.03	01513 K		COAL	C-4.BLK.SLD CALCITE VEIN
59	259.93	259.95	0.02	01513 K		COAL	C-3.BLK.SLD
59	259.95	260.01	0.06	01513 K		COAL	C-4.BLK.SLD
58	260.01	260.09	0.08	01513 K		COAL	C-2.BLK.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
58	260.09	260.10	0.01	01513 K		COAL	C-3.BLK.SLD
58	260.10	260.42	0.32	01513 K		COAL	C-2.BLK.VBRKN
58	260.42	260.45	0.03	01513 K		COAL	C-3.BLK.SLD
58	260.45	260.64	0.19	01513 K		COAL	C-2.BLK.VBRKN MINOR MUDSTONE LAMINAE; LISTRIC SURFACE S; CALCITE VEIN (3 MM)
58	260.64	260.74	0.10	01513 K		COAL	C-3.BLK.BRKN CALCITE STRINGERS (3 MM)
58	260.74	260.93	0.19	01513 K		COAL	C-2.BLK.VBRKN ABUNDANT LISTRIC SURFACES
58	260.93	260.95	0.02	01513 K		COAL	C-5.BLK.BRKN CALCITE STRINGER (1 MM)
58	260.95	261.30	0.35			MUDSTONE	DK.GY.BRKN COALY STRINGERS (1 MM) THROUGHOUT; LISI RIC SURFACES
58	261.30	261.49	0.19			MUDSTONE	M.GY.BRKN CALCITE VEIN ALONG FRACTURE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 57	261.49	263.44	1.95			MUDSTONE	DK.GY.LAM.BRKN MINOR COAL INCLUSION (2 MM); MINOR LIST RIC SURFACES CONTAINING TALC(?); CALCII E AND QUARTZ VEIN (1 MM); CALCITE AND Q UARTZ VEIN (8 MM)
63	263.44	263.67	0.23			ROCK LOSS	ROCK LOSS
* 64	263.67	264.00	0.33			MUDSTONE	DK.GY.LAM.BRKN FEATHER QUARTZ VEINING (1 MM); LISTRIC SURFACES
62	264.00	265.59	1.59			SILTSTONE	DK.GY.LAM.BRKN QUARTZ AND CALCITE VEIN (13 MM) PARALLE L TO BEDDING
* 59	265.59	267.05	1.46			SILTSTONE	SSY.M.GY.LAM.BRKN LISTRIC SURFACES CONTAINING TALC(?)
59	267.05	267.49	0.44			SILTSTONE	SSY.M.GY.LAM.BRKN DRILL STEM SPIN-OFF; FRACTURE ZONE (5 C M) FILLED WITH CLAY
58	267.49	267.60	0.11			SILTSTONE	SSY.DK.GY.LAM.BRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
58	267.60	267.74	0.14			SILTSTONE	DK.GY.LAM.SLD FRACTURES INFILLED BY CLAY; CALCITE VEI N (8 MM) ALONG FRACTURES; CALCITE AND Q UARTZ VEIN (4 MM) ALONG BEDDING
* 58	267.74	269.44	1.70			SILTSTONE	SSY.DK.GY.LAM.BRKN LISTRIC SURFACES; COAL (4 MM) WITH ANKE RITE(?) BANDING ALONG CLEAT SURFACES
56	269.44	269.83	0.39			ROCK LOSS	ROCK LOSS
* 55	269.83	270.36	0.53			SILTSTONE	SSY.DK.GY.LAM.BRKN LISTRIC SURFACES CONTAINING MINOR TALC(?)

* DENOTES MEASURED BCA
NEWPAGE

KPNLRDDH 84006

SAMPLE SUMMARY

GULF CANADA RESOURCES INC. - COAL DIVISION

10/DEC/84 COMPOSITE SAMPLE SUMMARY PAGE 1

APPARENT THICKNESS

KLAPPAN PROJECT

DATA SOURCE	SEAM	COMP ID	SAMPLE FROM	SAMPLE TO	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK	TOTAL COAL	TOTAL ROCK
DDH84006													
	i	15	1508	1508	16.04	22.21	41.49	2.13	0.43	2.87	0.74	5.00	1.17
	I	16	1509	1511	109.99	116.94	93.52	5.97	0.53	0.45	0.00	6.42	0.53
	j	17	1512	1512	154.04	159.35	95.29	4.72	0.34	0.12	0.13	4.84	0.47
	k	18	1513	1513	257.54	260.95	95.01	2.58	0.66	0.11	0.06	2.69	0.72

GULF CANADA RESOURCES INC. - COAL DIVISION

10/DEC/84 SIMPLE SAMPLE SUMMARY PAGE 1

APPARENT THICKNESS

KLAPPAN PROJECT

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK	TOTAL COAL-ROCK
DDH84006										
	I UPRIGHT	1508	16.04	22.21	41.49	2.13	0.43	2.87	0.74	5.00- 1.17
	H IN AXIS	1514	49.43	50.17	100.00	0.74	0.00	0.00	0.00	0.74- 0.00
	I OVERTURNED	1509	109.99	112.98	100.00	2.95	0.04	0.00	0.00	2.95- 0.04
	I OVERTURNED	1510	112.98	114.70	100.00	1.28	0.44	0.00	0.00	1.28- 0.44
	I OVERTURNED	1511	114.70	116.94	79.91	1.74	0.05	0.45	0.00	2.19- 0.05
	J OVERTURNED	1512	154.04	159.35	95.29	4.72	0.34	0.12	0.13	4.84- 0.47
	K OVERTURNED	1513	257.54	260.95	95.01	2.58	0.66	0.11	0.06	2.69- 0.72

KPNLRDDH 84006

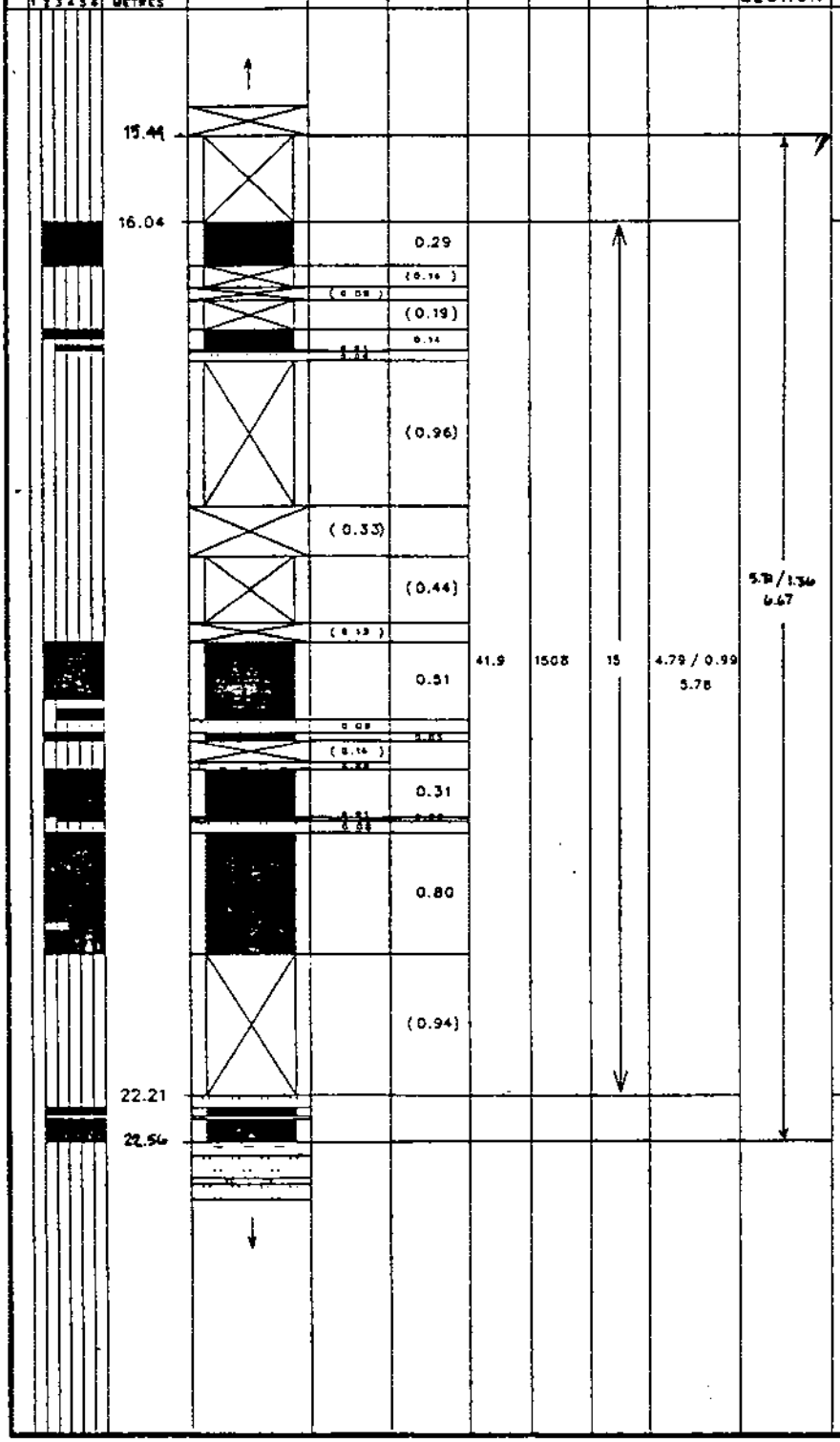
COAL SEAM DATA SHEETS

GULF CANADA RESOURCES INC.

SEAM DETAIL — COAL DIVISION, MOUNT KLAPPAN PROJECT — **TRUE THICKNESS**

DATA SOURCE: KPN LR DDH84006 SEAM : 1 INTERVAL(M) : 16.04 – 22.21 ELEVATION(M) : 1736.0

GEOLOGIST : K. JENNER DATE : DEC 06/84 DRAWING NO. :



SEAM COMP. 1 2 3 4 5 6	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES ROCK	INTERVAL METRES COAL	% REC.	SAMPLE ID SIMP	SAMPLE ID COMP	COAL/ROCK TOTAL COMPOS	COAL/ROCK TOTAL MINING SECTION	COAL QUALITY A.D.B. RES MOIST	ASH	VM	FC	TS	CAL.VAL MJ/KG
	15.44														
	16.04			0.29											
				(0.19)											
				(0.96)											
			(0.33)												
				(0.44)					5.78 / 1.36 6.67						
				0.51	41.9	1508	15	4.79 / 0.99 5.78		2.32	39.83	7.82	50.23	0.34	19.23
				0.31											
				0.80											
				(0.94)											
	22.21														
	22.56														

GULF CANADA RESOURCES INC.

SEAM DETAIL — COAL DIVISION, MOUNT KLAPPAN PROJECT — **TRUE THICKNESS**

DATA SOURCE: KPN LR DDH84006 SEAM : H INTERVAL(M) : 49.43 . – 50.17 ELEVATION(M) : 1736.0

GEOLOGIST : K. JENNER DATE : DEC 06/84 DRAWING NO. :

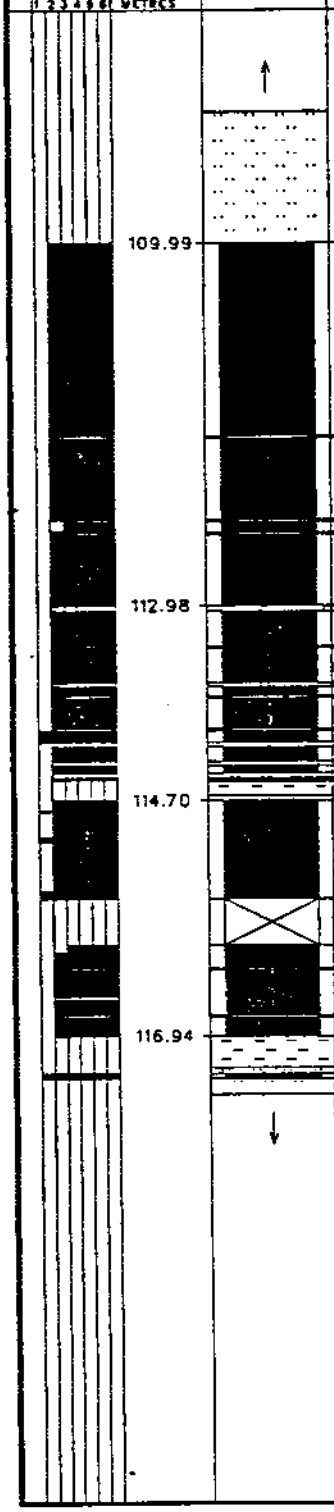
SEAM COMP. 1 2 3 4 5 6	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES ROCK	INTERVAL METRES COAL	% REC.	SAMPLE ID SIMP	SAMPLE ID COMP	COAL/ROCK TOTAL COMPOS	MINING SECTION	COAL QUALITY A.D.B. RES MOIST	ASH	VM	FC	TS	CAL.V AD MJ/KG
	49.43			0.61	100.0	1514		0.61/0.00 0.61							
	50.17														

GULF CANADA RESOURCES INC.

SEAM DETAIL — COAL DIVISION, MOUNT KLAPPAN PROJECT — **TRUE THICKNESS**

DATA SOURCE: KPN LR 00H84006 SEAM : 1 INTERVAL(M) : 109.99 - 116.94 ELEVATION(M) : 1736.0

GEOLOGIST : K. JENNER DATE : DEC 06/84 DRAWING NO. :



SEAM COMP. 1 2 3 4 5 6	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES ROCK	INTERVAL METRES COAL	% REC.	SAMPLE ID SIMP	SAMPLE ID COMP	COAL/ROCK TOTAL COMPOS	COAL/ROCK TOTAL MINING SECTION	COAL QUALITY A.D.B. RES MOIST	ASH	VM	FC	TS	CAL.VAL MJ/KG
	109.99			1.22	100.0	1509									
			0.01	0.52											
			0.01	0.07											
				0.45											
	112.98			0.22											
			0.01	0.22											
			0.07	0.04											
			0.01	0.20	100.0	1510	16	4.67 / 0.37 5.04		1.92	20.66	5.36	72.06	0.41	27.00
			0.01	0.07											
			0.03	0.09											
			0.01	0.15											
			0.01												
	114.70			0.62											
				(0.29)	80.5	1511									
			0.01	0.19											
				0.29											
			0.01	0.12											
	116.94														

GULF CANADA RESOURCES INC.

SEAM DETAIL — COAL DIVISION — MOUNT KLAPPAN PROJECT — **TRUE THICKNESS**

DATA SOURCE: KPN LR DDH84006 SEAM : J INTERVAL(M) : 154.04 – 159.35 ELEVATION(M) : 1736.0

GEOLOGIST : K. JENNER DATE : DEC 06/84 DRAWING NO. :

SEAM COMP. 1 2 3 4 5 6	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES ROCK	INTERVAL METRES COAL	% REC.	SAMPLE ID SIMP	SAMPLE ID COMP	COAL/ROCK TOTAL COMPOS	COAL/ROCK TOTAL MINING SECTION	COAL QUALITY A.D.B. RES MOIST	ASH	VM	FC	TS	CAL.Y AL MJ/KG	
	154.04			0.91												
			0.05	1.04	84.1	1512	17	3.20 / 0.34 3.56		1.37	26.85	7.76	62.02	0.29	23.54	—
			0.13 (0.13)	1.00												
	159.35			(0.10)												

GULF CANADA RESOURCES INC.

SEAM DETAIL — **COAL DIVISION** — **MOUNT KLAPPAN PROJECT** — **TRUE THICKNESS**

DATA SOURCE: KPN LR 00H84006 SEAM : K INTERVAL(M) : 257.54 – 260.95 ELEVATION(M) : 1736.0

GEOLOGIST : K. JENNER DATE : DEC 06/84 DRAWING NO. :

SEAM COMP. 1 2 3 4 5 6	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES ROCK	INTERVAL METRES COAL	% REC.	SAMPLE ID SIMP	SAMPLE ID COMP	COAL/ROCK TOTAL COMPOS	COAL/ROCK TOTAL MINING SECTION	COAL QUALITY A.D.B. RES MOIST	ASH	VM	FC	TS	CAL. V AL MJ/KG
	257.54			0.43											
				(0.06) 0.05											
			0.30												
				0.07											
				0.13											
				0.08											
				0.85	95.1	1513	18	2.27 / 0.61 2.88		0.95	45.98	9.08	44.01	0.34	17.04
				1.38											
	260.95														

GR Mount Klappan 31(3)A

709

GULF CANADA RESOURCES INC.
COAL DIVISION
KLAPPAN PROJECT
STRATIGRAPHIC LOG
KPN LR DDH84006

GEOLOGIST : K. JENNER	DATE : DEC 04/84	DRAWING NO. :

SCALE : 1:200 1:40

NORTHING: 8344008.0 N
EASTING: 506518.0 E

INCLINATION: 58.4°
BEARING: 33.1 °

LITHOLOGIC SYMBOLS

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

SEAM DETAIL

DRILLED DEPTH [m]	BCA [DCG]	TRUE DEPTH [m]	1 : 200
0		0	
		10	
20	72	20	
	57		
	70		
30	69		
	74	30	
	62		
	54		
40	64		
	77	40	
	54		
50	60		
	15		
60	24	50	
	32		
70	28		
	19		
80		60	
	41		
90	41		
	41		
	46	70	
100	45		
	38		
	42		
110	53		
	48	80	
	33		
120	39		
	38		
	37	90	
130	37		
	40		
140	15		
150	40	100	
	61		
160	58		
	65	110	
170	72		
	68		
180	62	120	
	67		
	73		
	44		
190	50	130	
	20		
200	63		
210	16		
220	19	140	
230	39		
	45		
	45		
240	40	150	
	45		
250	45		
	45	160	
260	59		
	64		
	58	170	
270			

TOTAL: 270.36 TOTAL: 173.55

SEAM I

DRILLED DEPTH [m]	
15.44	
22.56	

ROCK [m]	COAL [m]
1.35	5.31
6.66	

SEAM H

DRILLED DEPTH [m]	
49.43	
50.17	

ROCK [m]	COAL [m]
0.00	0.61
0.61	

SEAM I

DRILLED DEPTH [m]	
109.99	
116.94	

ROCK [m]	COAL [m]
0.38	4.63
5.01	

SEAM J

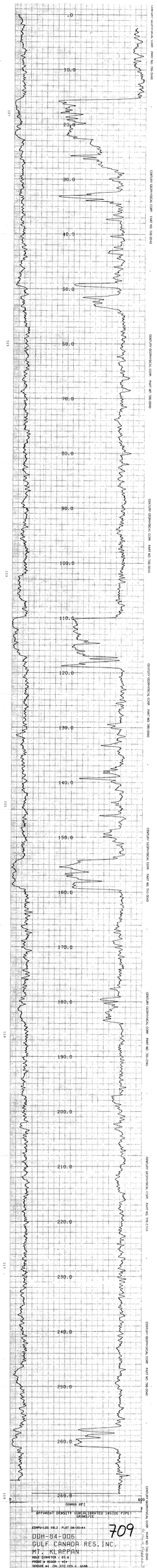
DRILLED DEPTH [m]	
154.96	
159.35	

ROCK [m]	COAL [m]
0.37	3.21
3.58	

SEAM K

DRILLED DEPTH [m]	
257.54	
260.95	

ROCK [m]	COAL [m]
0.61	2.27
2.88	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230.0
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250.0
269.9
GAMMA API
DIFFERENT DENSITY CONCALIBRATED INSIDE PIPE)
UNSHIELD
709
DDH-84-DOC
GULF CANADA RES. INC.
MT. KLAPPAN

L CORP. PART NO. 786-0040

CENTURY GEOPHYSICAL CORP. PART NO. 786-0040

CENTURY GEOPHYSICAL CORP. PART NO. 786-0040

291

289

709

COMPU-LOG V8L2 PLOT 08-20-84

DDH-84-006

GULF CANADA RES. INC.

MT. KLAPPAN

HOLE DIAMETER : 09.5

PROBE # 903GA - 454

SENSOR #4 CAL STD CPS = 6588

SENSOR #4 CAL RUN CPS = 7980

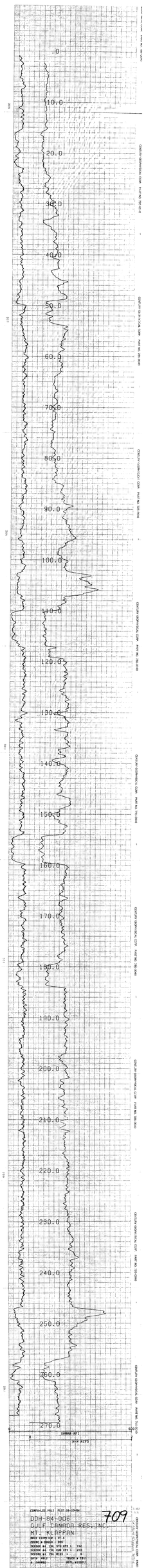
SENSOR #4 CAL BIAS = 42

DATA V8L2 TRUCK # P811

K. SKARBO APPL.#20 L1

OPEN HOLE,
1:100

GR Mount Klappan 84/3/18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240.0
250.0
260.0
270.0
GAMMA API
0
600
709
DDH-84-006
GULF CANADA RES.INC.
MT. KLAPPAN

VERTICAL DEVIATION

709

GR Mount Klappan 84(3)A

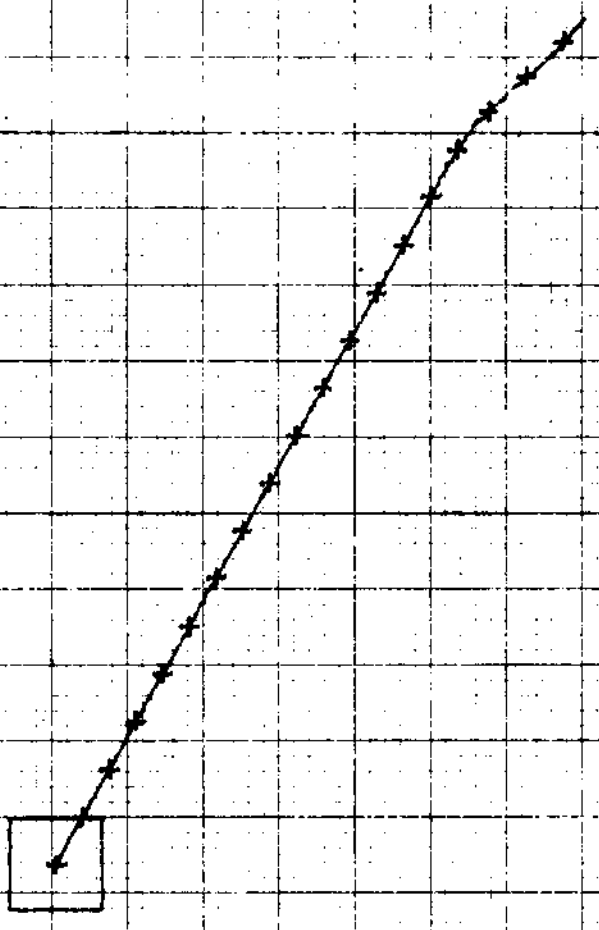
COMPU-LOG V8L1 DEVIATION
DATA FROM : V8L2

CLIENT : GULF CANADA RES.INC.
LOCATION : MT. KLAPPAN
HOLE ID : DDH-84-006
DATE OF LOG : 08-20-84
PROBE : 9055A 0005

SCALE: 1.50 M/DIV
MAG DECL: 29.5
TRUE DEPTH: 31.5 M
AZIMUTH: 32.1
DISTANCE: 19.74 M

+ = 2.0 M INCR
△ = TOP OF ZONE
◇ = BOTTOM OF ZONE

TRUE NORTH



CENTURY GEOPHYSICAL CORP. PART NO. 786-0040

CENTURY GEOPHYSICAL CORPORATION

Tulsa, Oklahoma

COMPANY	Gulf Canada Resources Inc.
BOREHOLE	DDH-84-006
AREA	Mt. Klappan
ELEVATION	
COUNTY	
STATE	British Columbia
SECTION	
TOWNSHIP	
RANGE	

HOLE DATA

TOTAL DEPTH — DRILLER	270.4 m	BIT SIZE	7.6 cm
TOTAL DEPTH — LOGGER	270.0 m	CASING — TYPE & SIZE	HW Steel
TOTAL FOOTAGE LOGGED	270.0 m	CASING DEPTH	15.2 m
LOGGING SPEED	9m/min	BOREHOLE FLUID	H_2O
REFERENCE LEVEL	Drill Floor	FLUID RESISTIVITY	@ °F
PROBE NO.	9055A-005	SOFTWARE LEVEL	8.2*A
		SCALE SELECTION	☐ OPERATOR ☐ CLIENT
		Tape #4 TK #1	

REMARKS:

Format #7

N.G. 25 API

N.N. 1K/0

(Logged inside pipe)

Deviation Run Tape #4 TK #8

T.D. of 37.4 m (open hole)

BOREHOLE	DATE
DDH-84-006	8/20/84
UNIT/OPERATOR: P811 K. Skarbo	FIELD OFFICE: Calgary

EQUIPMENT DATA

PROBE MODEL		9010	9030	9055/55	9060	
PROBE DIAMETER		1.87"	2.5"	1.87"	1.4"	
NATURAL GAMMA	DETECTOR TYPE	NaI	NaI	NaI	NaI	
	DETECTOR SIZE	.875" x 1.25"	1.05" x 4.5"	.875" x 4.0"	.5" x 3.0"	
	STD. K-FACTOR	1.59×10^{-5}	—	$.559 \times 10^{-4}$	1.52×10^{-5}	
	STD. DEADTIME	1 μsec	—	1.18 μsec	1 μsec	
	CALIB. MODEL LOC.		—			
	CALIB DATE		—			
	K-FACTOR x 10^{-5}		—			
	DEADTIME: μsec		—			
	TEST READING		—			
	WATER FACTOR		—			
	CASING FACTOR		—			
DENSITY	DETECTOR TYPE	—	NaI	—	NaI	
	DETECTOR SIZE	—	.5" x 1.5"	—	.5" x 3.0"	
	SOURCE TYPE	—	Cs^{137}	—	Cs^{137}	
	SOURCE NO.	—	—	—	—	
	SOURCE STRENGTH					
	SOURCE SPACING	—	—	—	—	
NEUTRON	DETECTOR TYPE	—	—	He^3	—	
	DETECTOR SIZE	—	—	1.0" x 8.0"	—	
	SOURCE TYPE	—	—	AmBe	—	
	SOURCE NO.	—	—	264	—	
	SOURCE STRENGTH	—	—	C1	—	
	SOURCE SPACING	—	—	40 cm	—	
	Cal Std			152		
	Cal Run			203		
SNGL PT RESISTANCE		1.4"D x 2.5"L	—	1.4"D x 2.5"L	1.1"D x 2.5"L	
RESISTIVITY		—	8" FOCUSED	—	—	
SELF POTENTIAL		YES	—	YES	YES	
TEMPERATURE		—	—	YES	—	
DEVIATION		—	—	NO / YES	—	
CALIPER		—	YES	—	—	

CENTURY GEOPHYSICAL CORPORATION

Tulsa, Oklahoma

BOREHOLE	DATE
DDH-84-006	8/20/84
UNIT/OPERATOR	FIELD OFFICE
P811 K. Skarbo	Calgary

COMPANY: Gulf Canada Resources Inc.

BOREHOLE: DDH-84-006

AREA: Mt. Klappan

ELEVATION:

COUNTY:

STATE:

SECTION | TOWNSHIP | RANGE

HOLE DATA

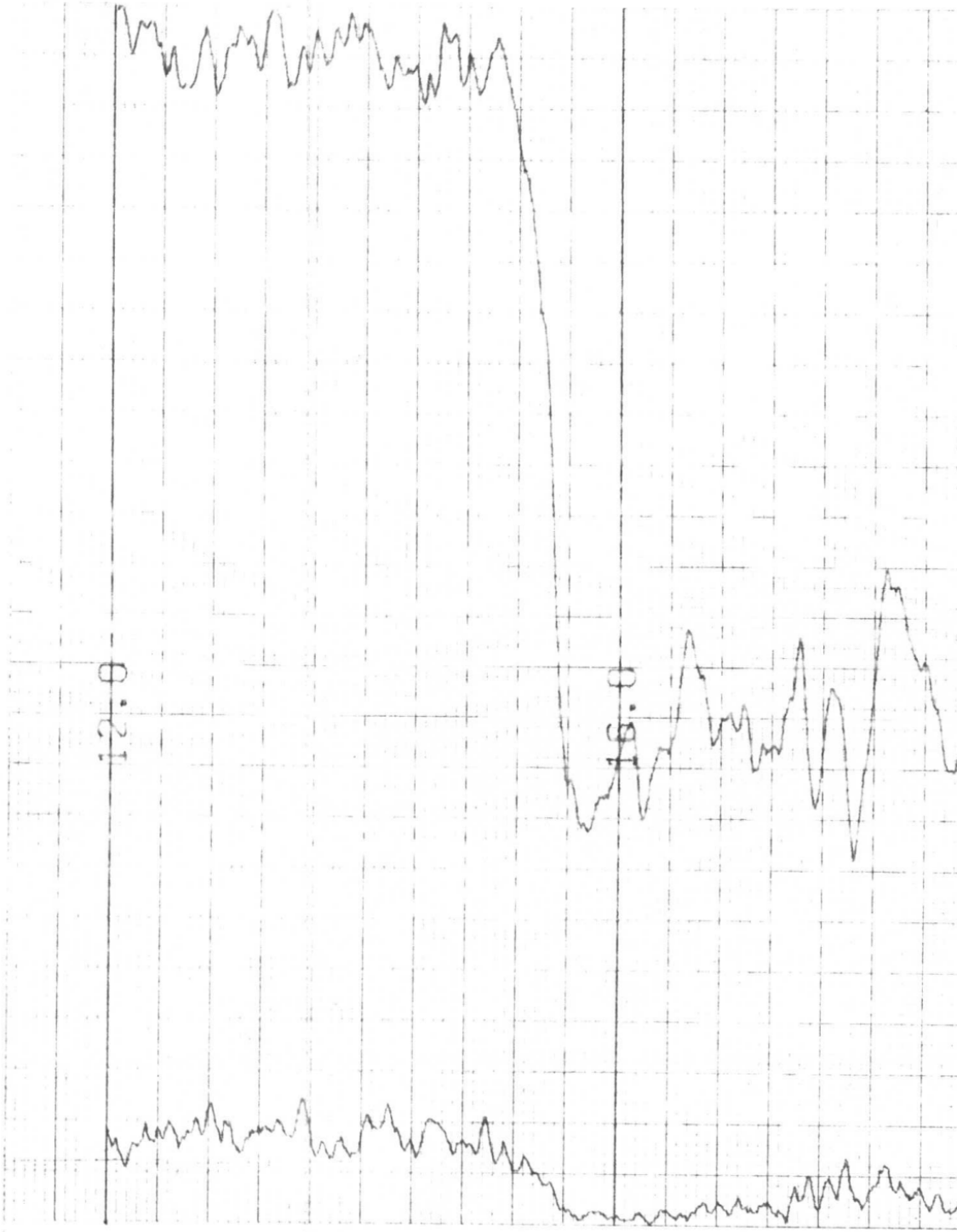
TOTAL DEPTH — DRILLER	270.4m	BIT SIZE	7.6 cm
TOTAL DEPTH — LOGGER	269.9m	CASING — TYPE & SIZE	HW Steel
TOTAL FOOTAGE LOGGED	269.9m	CASING DEPTH	15.2m
LOGGING SPEED	9m/min	BOREHOLE FLUID	H^2O
REFERENCE LEVEL	Drill floor	FLUID RESISTIVITY	@ °F
PROBE NO.	9030A-454	SOFTWARE LEVEL	8.2*A
		SCALE SELECTION	☐ OPERATOR ☐ CLIENT
		Tape #4 TK #4	

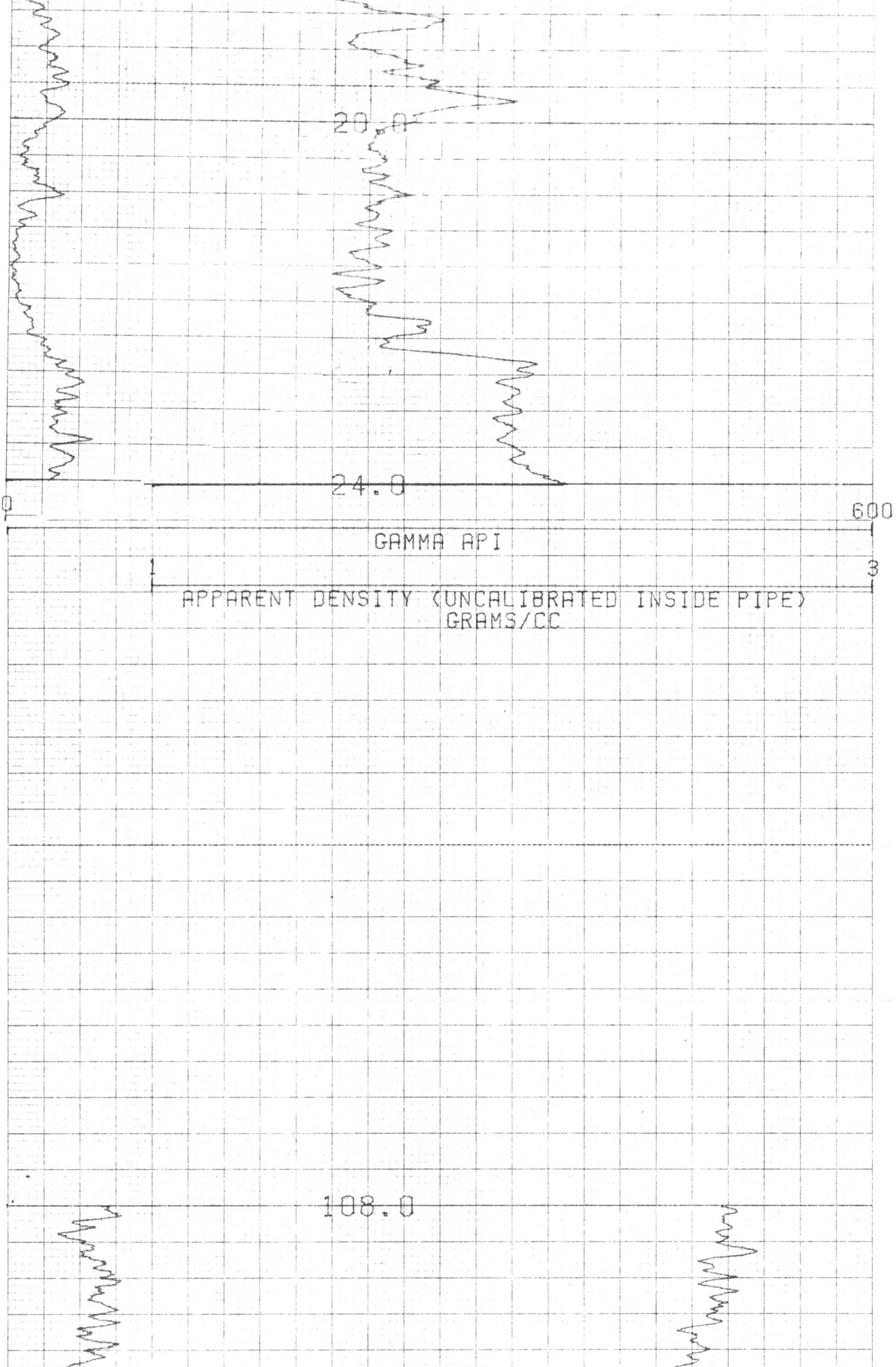
REMARKS:
Format #704
N.G. 25 API
*Logged inside pipe
Open Hole Log tape #4 Tk #4
T.D. of 37.3m
Drill floor 0.6m above ground.

EQUIPMENT DATA

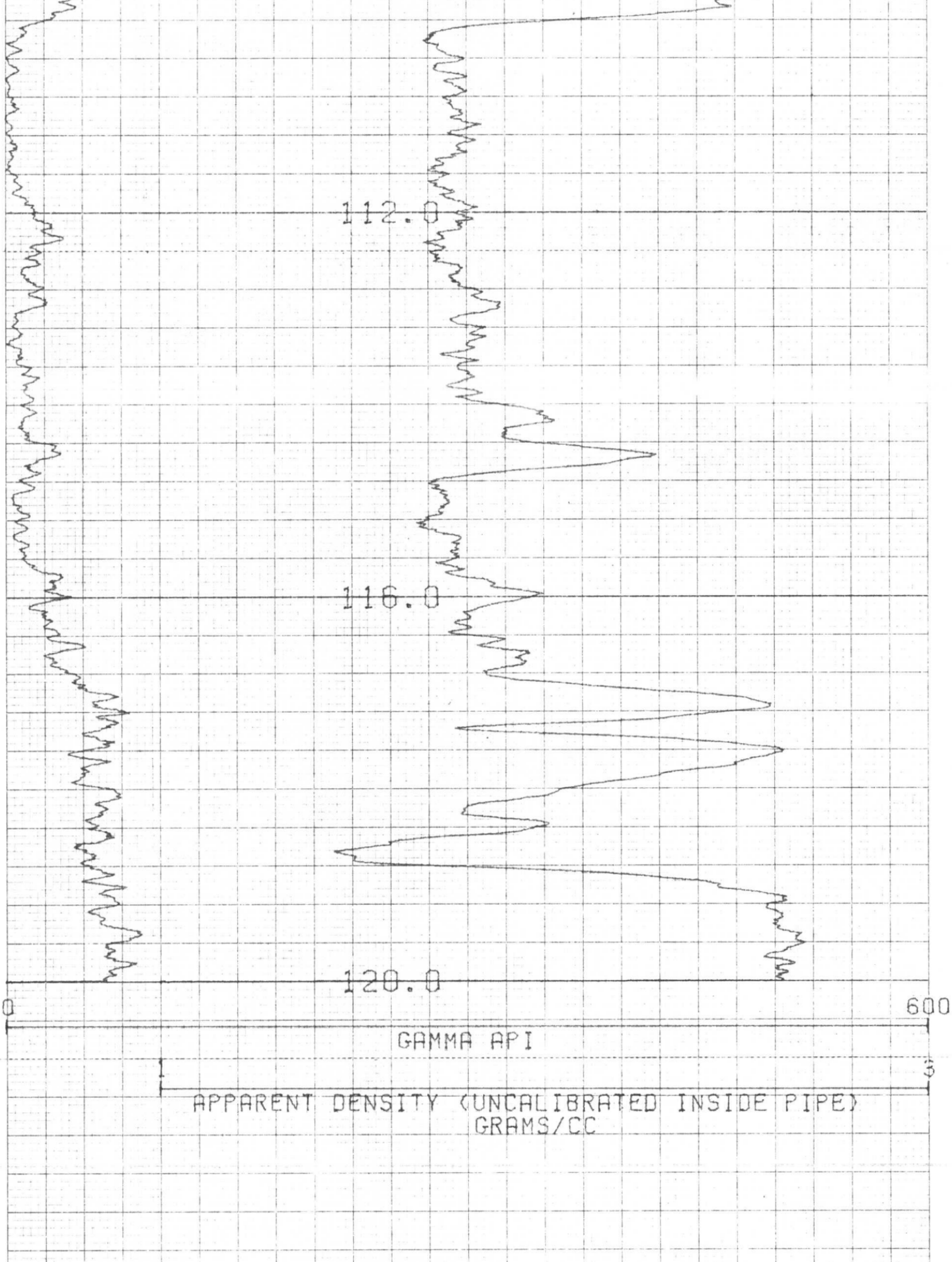
		9010	9030	9050/55	9060
PROBE MODEL		9010	9030	9050/55	9060
PROBE DIAMETER		1.87"	2.8"	1.87"	1.4"
NATURAL GAMMA	DETECTOR TYPE	NaI	NaI	NaI	NaI
	DETECTOR SIZE	.875" x 1.25"	1.125" x 4.5"	.875" x 4.0"	.5" x 3.0"
	STD. K-FACTOR	1.59×10^{-5}	—	$.558 \times 10^{-5}$	1.62×10^{-5}
	STD. DEADTIME	1 μsec	—	1.18 μsec	1 μsec
	CALIB. MODEL LOC.		—		
	CALIB DATE		—		
	K-FACTOR $\times 10^{-5}$		—		
	DEADTIME μsec		—		
	TEST READING		—		
	WATER FACTOR		—		
	CASING FACTOR		—		
DENSITY	DETECTOR TYPE	—	NaI	—	NaI
	DETECTOR SIZE	—	.5" x 1.5"	—	.5" x 3.0"
	SOURCE TYPE	—	Cs^{137}	—	Cs^{137}
	SOURCE NO.	—	283	—	
	SOURCE STRENGTH	—	125mCi	—	
	SOURCE SPACING	—	19cm	—	
	Cal Std		6588		
	Cal Run		4000		
NEUTRON	DETECTOR TYPE	—	—	He^3	—
	DETECTOR SIZE	—	—	1.0" x 6.0"	—
	SOURCE TYPE	—	—	AmBe	—
	SOURCE NO.	—	—		—
	SOURCE STRENGTH	—	—		—
	SOURCE SPACING	—	—		—
SNGL. PT RESISTANCE		1.4"D x 2.5"L	—	1.4"D x 2.5"L	1.1"D x 2.5"L
RESISTIVITY		—	8" FOCUSED	—	—
SELF POTENTIAL		YES	—	YES	YES
TEMPERATURE		—	—	YES	—
DEVIATION		—	—	NO / YES	—
CALIPER		—	YES	—	—

CENTURY GEOPHYSICAL CORP. PART NO. 786-0040





CENTURY GEOPHYSICAL CORP. PART NO. 786-0040



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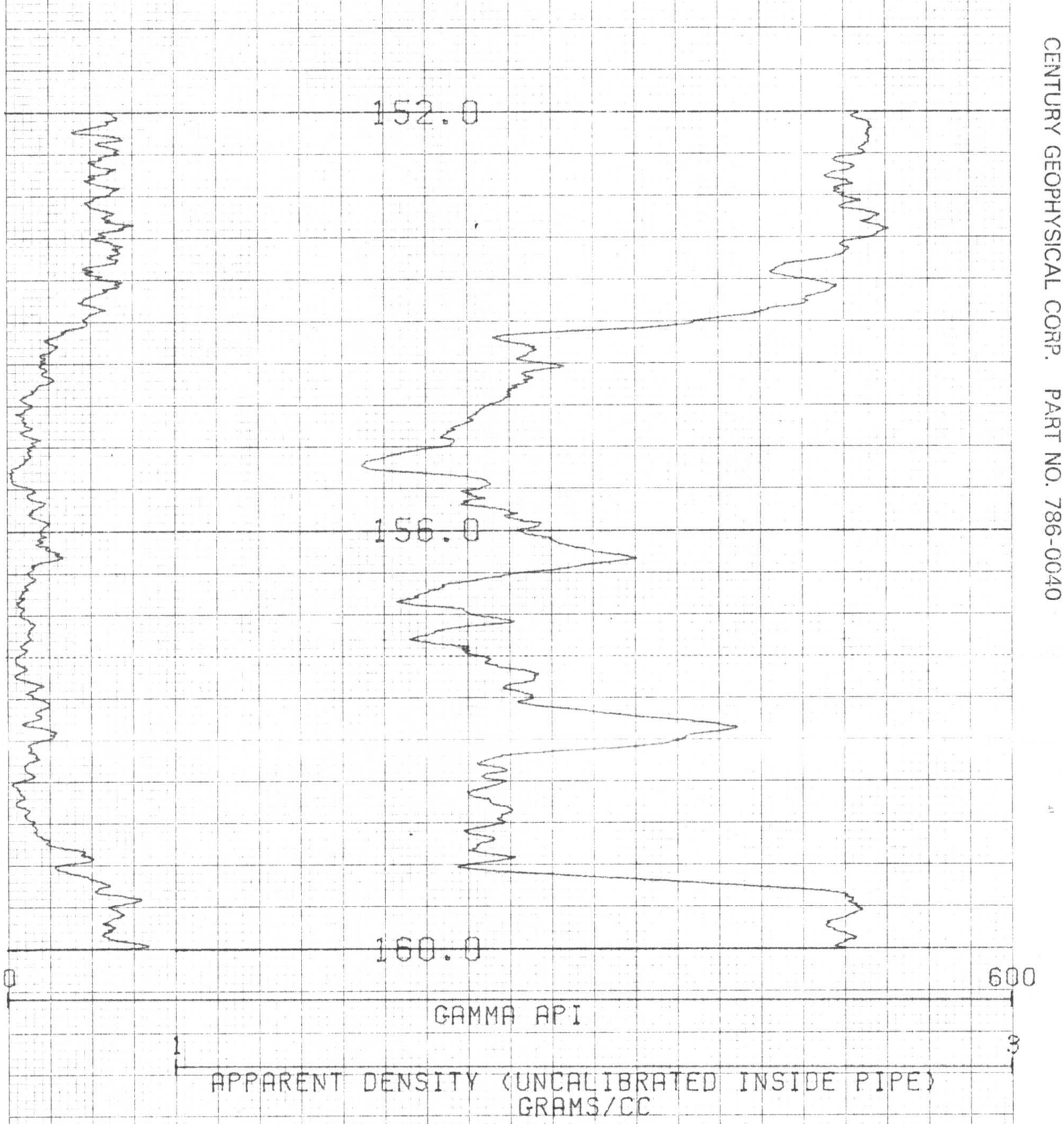
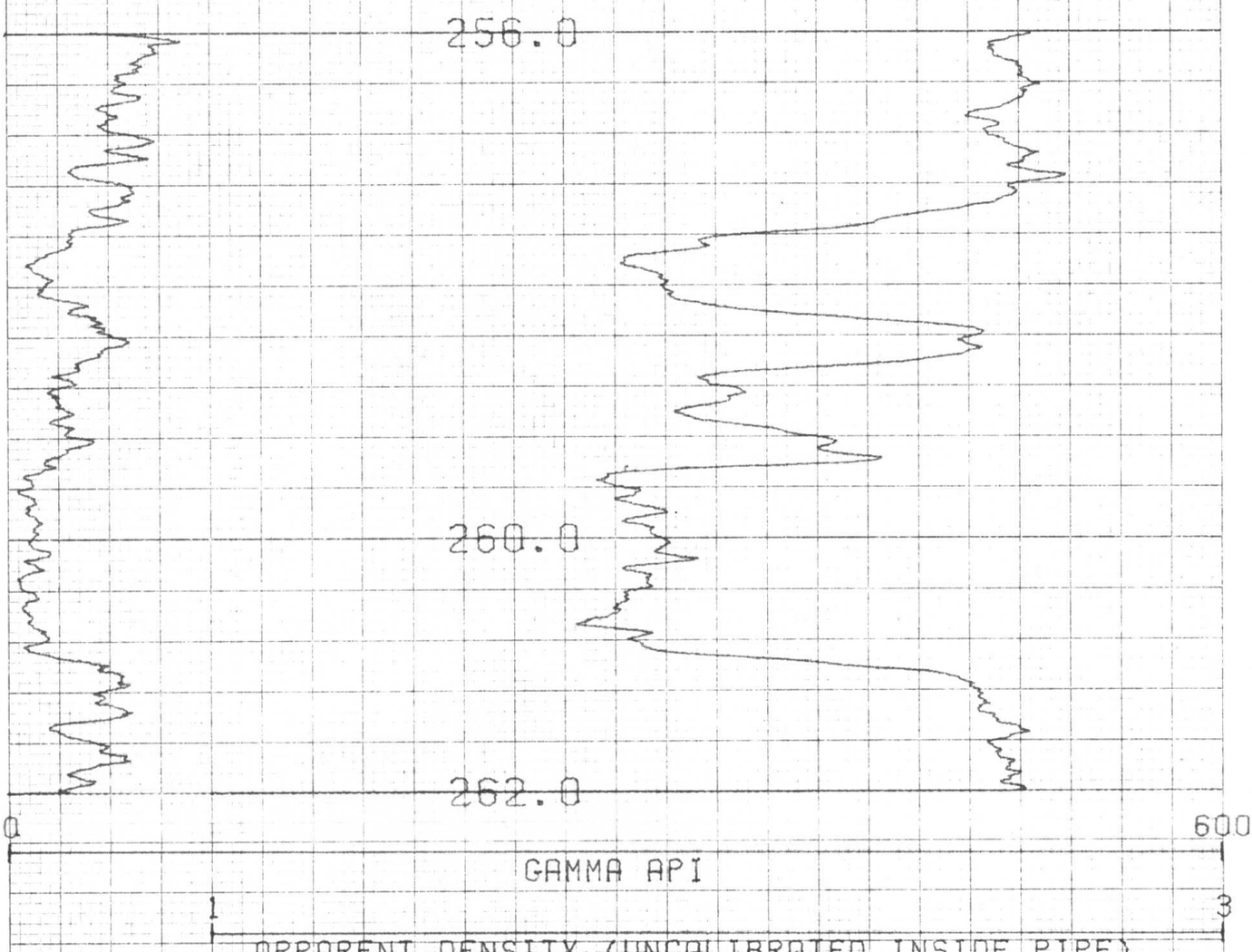


CENTURY GEOPHYSICAL CORP. PART NO. 786-0040

CENTURY GEOPHYSICAL CO



COMPU-LOG V8L2 PLOT 08-20-84

709

DDH-84-006

GULF CANADA RES. INC.

MT. KLAPPAN

HOLE DIAMETER : 07.6

PROBE # 9030A - 454

SENSOR #4 CAL STD CPS = 6588

SENSOR #4 CAL RUN CPS = 4000

SENSOR #4 CAL BIAS = 42

DATA V8L2 TRUCK # P811

K. SKARBO APPL.#2704L1

GR Mount Klappan 84(3)A

1:40 expanded

CENTURY GEOPHYSICAL CORP. PART NO. 786-0040

Copy

709

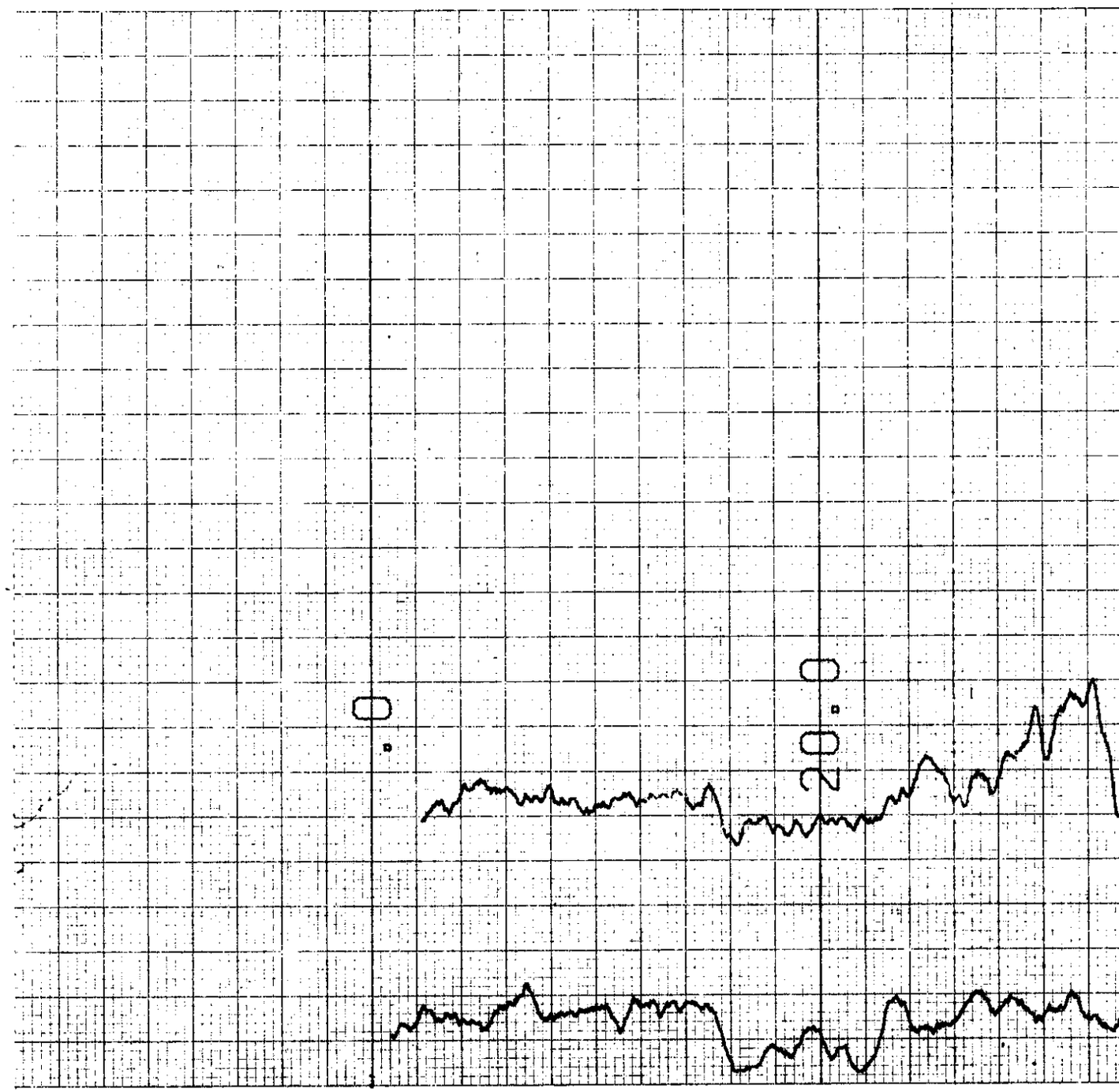
COMPU-LOG V8L2 PLOT 08-20-84

DDH-84-006
GULF CANADA RES. INC.
MT. KLAPPAN

HOLE DIAMETER = 07.6
PROBE # 9030A - 454
SENSOR #4 CAL STD CPS = 6588
SENSOR #4 CAL RUN CPS = 4000
SENSOR #4 CAL BIAS = 42
DATA V8L2 TRUCK # P811
K. SKARBO APPL.#2704L1

200

Groundhog Klappan 81(3)A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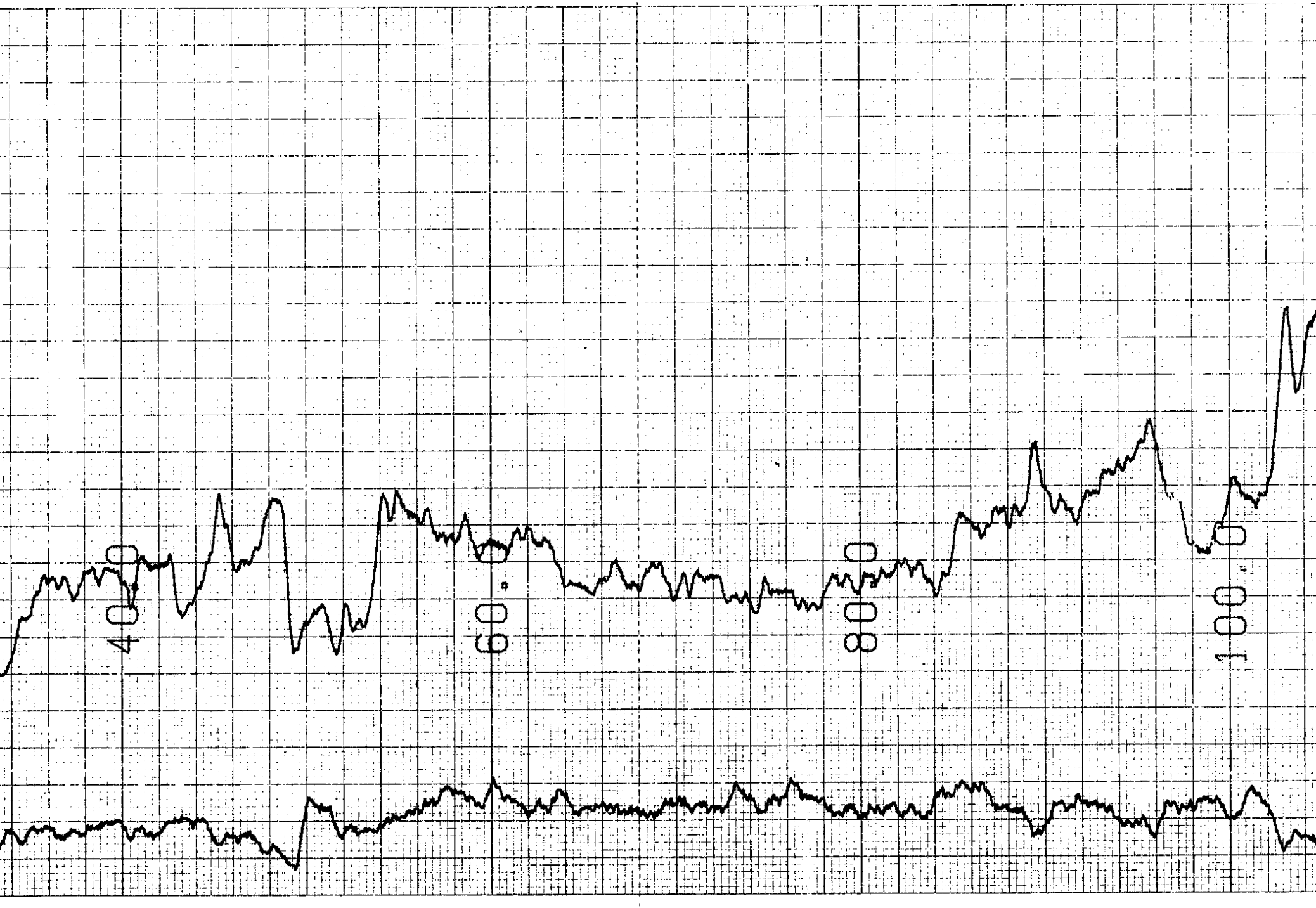
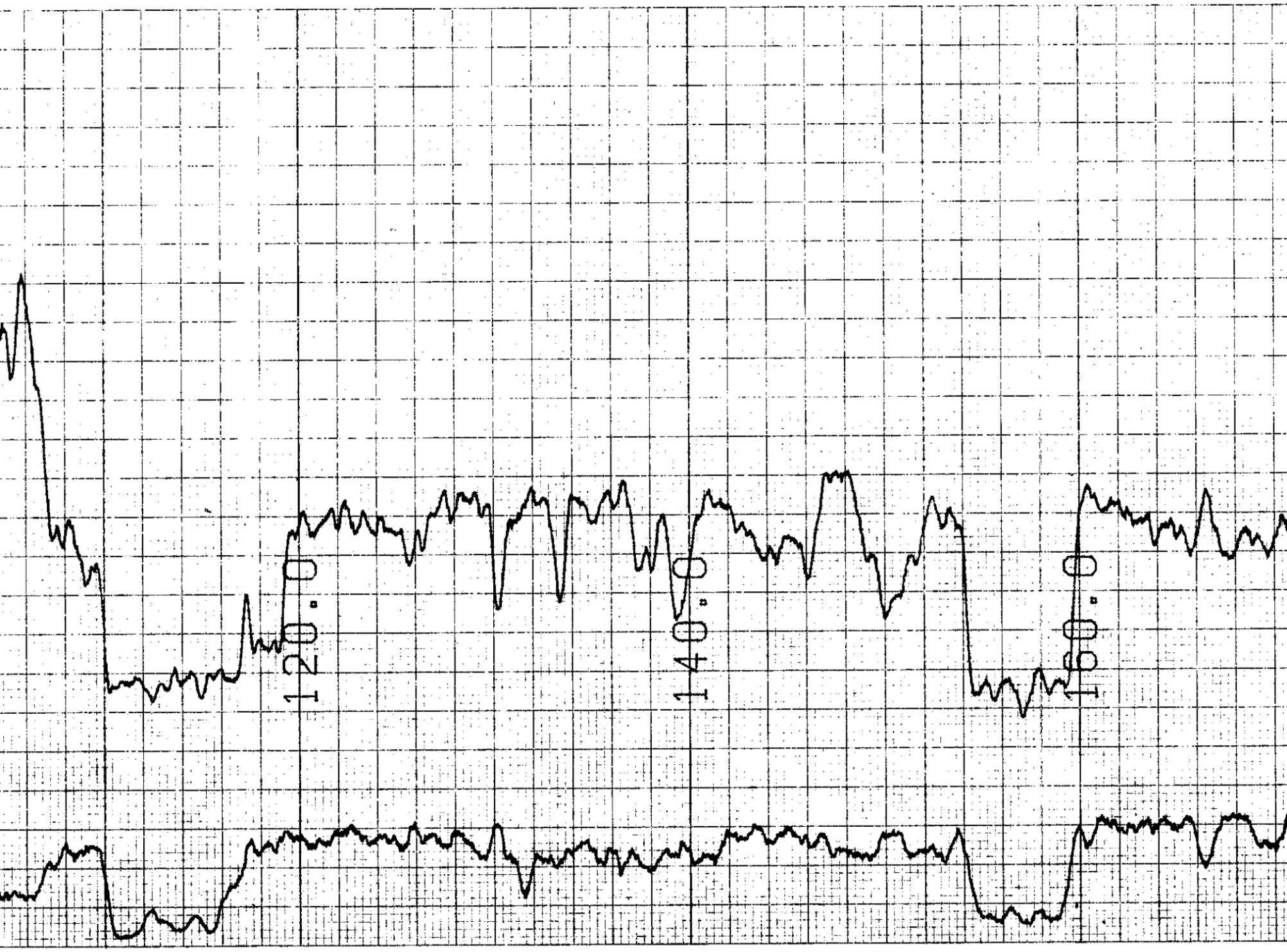
CENTURY GEOPHYSICAL CORP. PART NO. 786-0040

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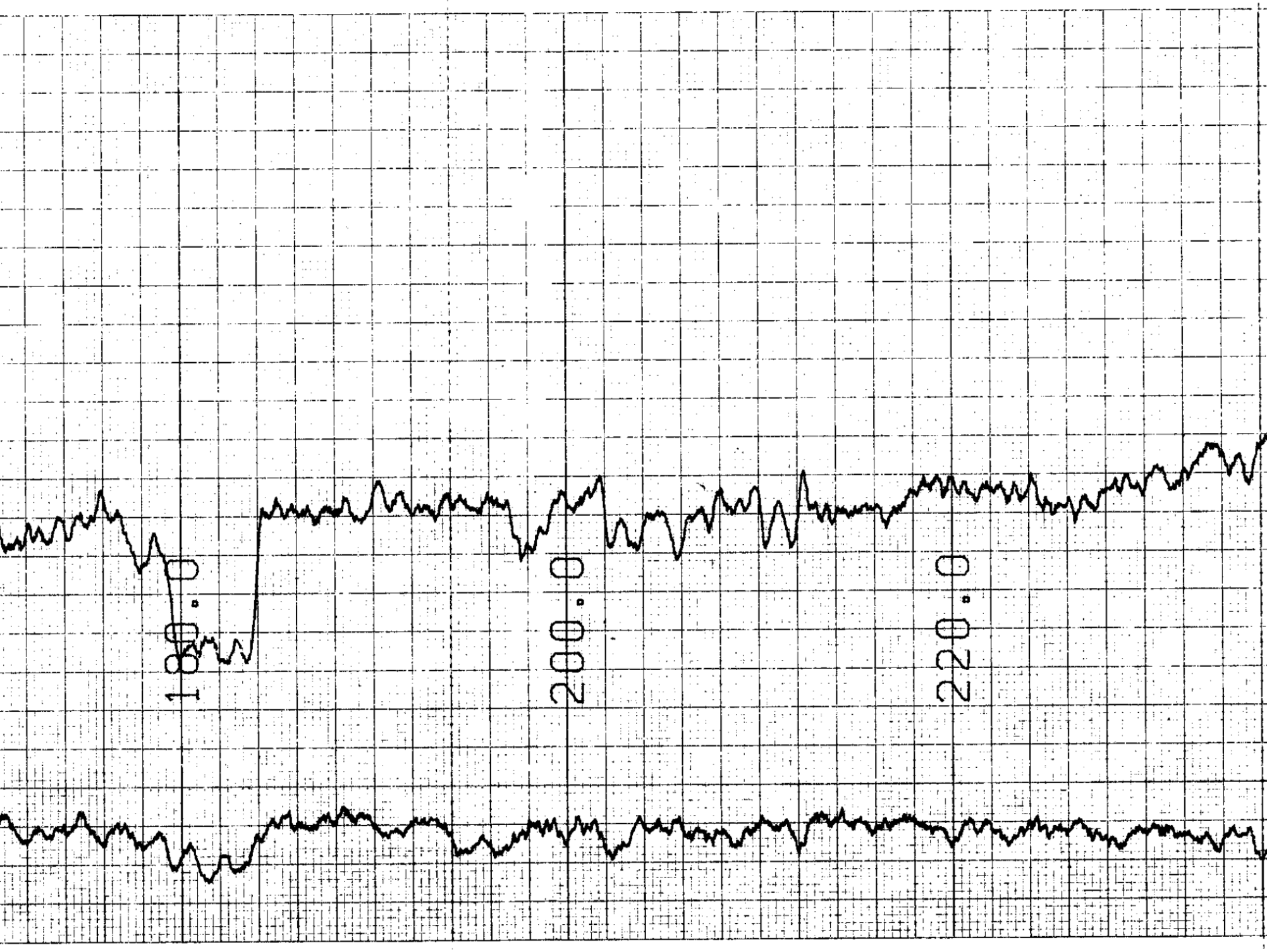
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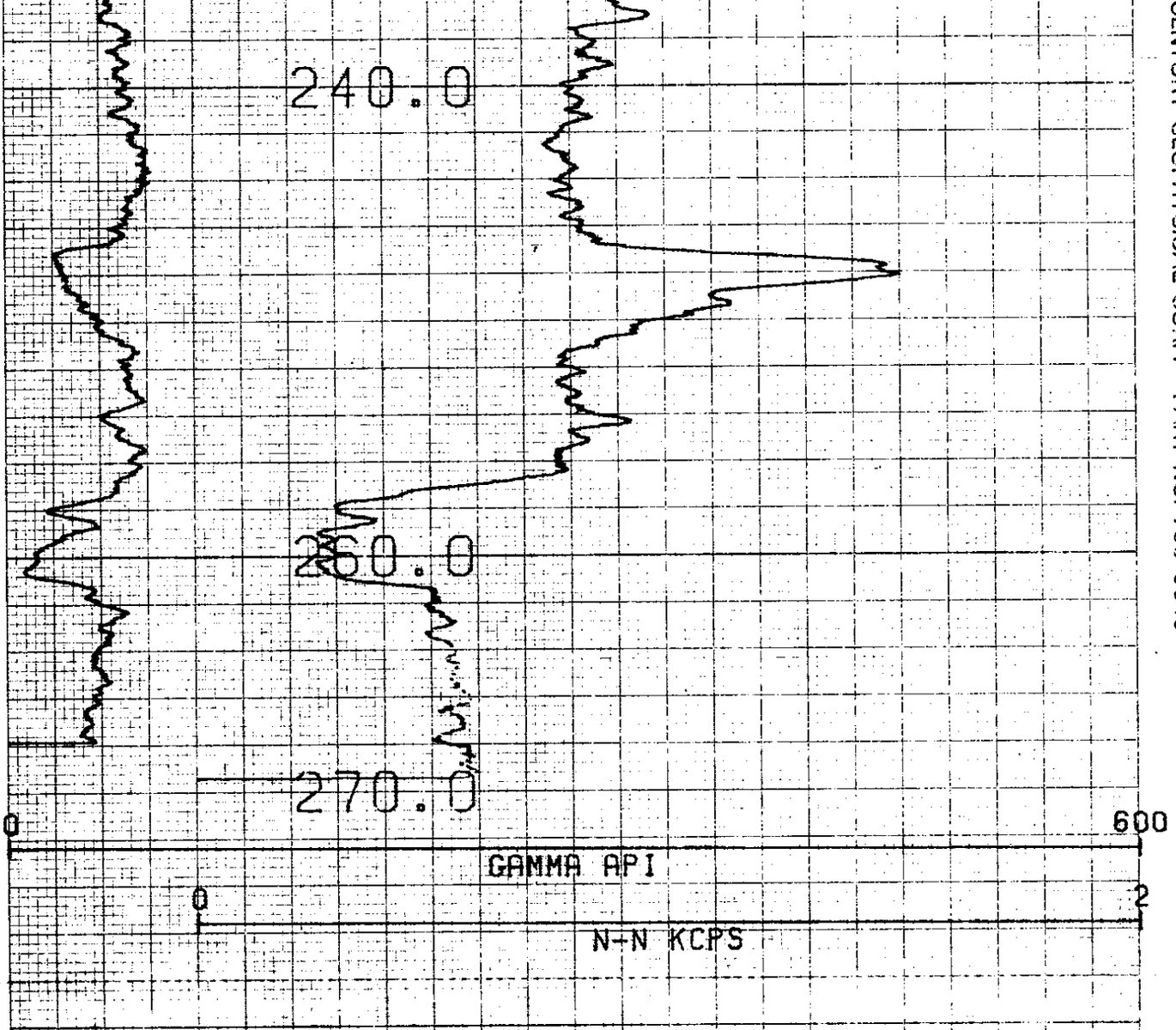


COMPU-LOG V8L2 PLOT 08-20-84

709

DDH-84-006

GULF CANADA RES. INC.

MT. KLAPPAN

HOLE DIAMETER : 07.6

PROBE # 8055A - 005

SENSOR #4 CAL STD CPS = 152

SENSOR #4 CAL RUN CPS = 203

SENSOR #4 CAL BIAS = 0

DATA V8L2 TRUCK # P811

K. SKARBO APPL. #2007L1

COPY

1:200

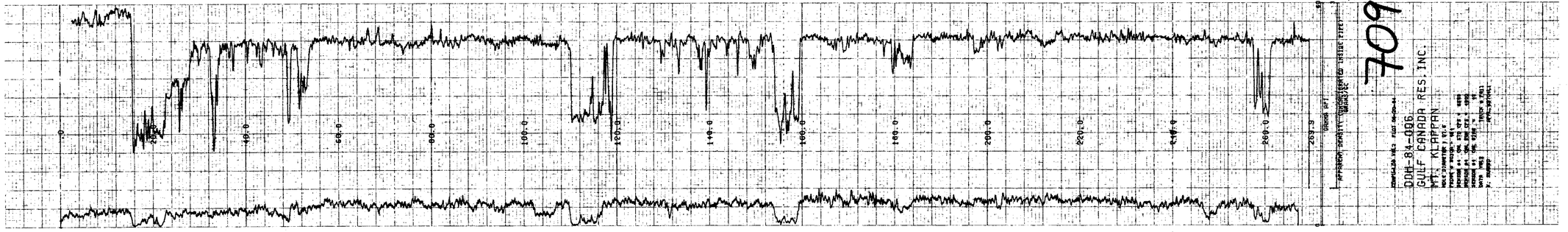
CENTURY GEOPHYSICAL CORP. PART NO. 786-0040

CENTURY GEOPHYSICAL CORP. PART NO. 78

GR Mount Klappan 84(3)17

COPY

ART NO. 786-0038 CENTURY GEOPHYSICAL CORP. PART NO. 786-0038 CENTURY GEOPHYSICAL CORP. PART NO. 786-0038 aK-Mount Klappan 84(3)A CENTURY



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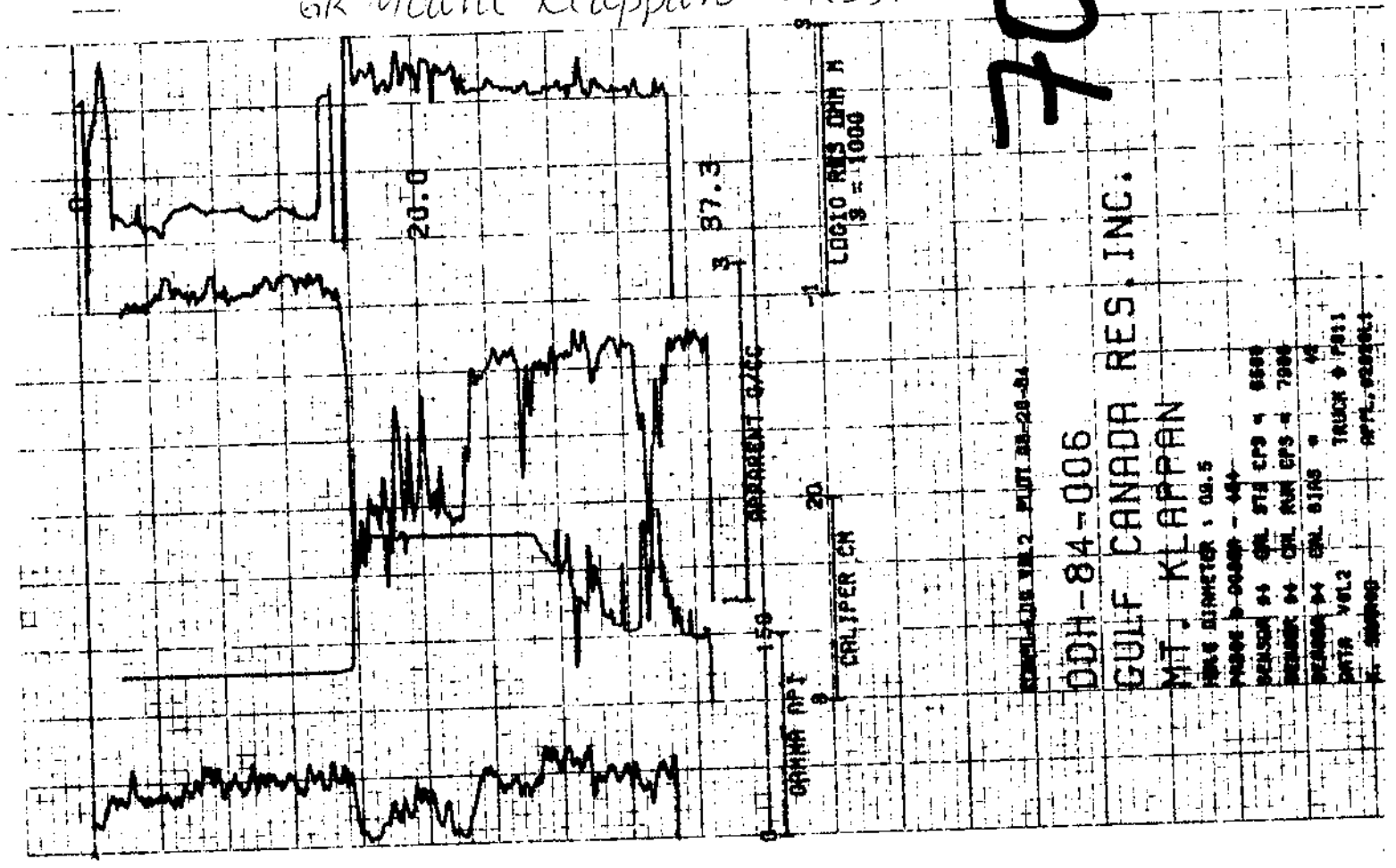
709

GR Mount Klappan 84(3)A



COMPU-LOG V8L2 PLOT 08-20-84

DDH-84-006
GULF CANADA RES. INC.
MT. KLAPPAN

HOLE DIAMETER : 07.6
PROBE # 9055A - 005
SENSOR #4 CAL STD CPS = 132
SENSOR #4 CAL RUN CPS = 203
SENSOR #4 CAL BIAS = 0
DATA V8L2 TRUCK # F011
K. SKARBO APPL. #1007L1

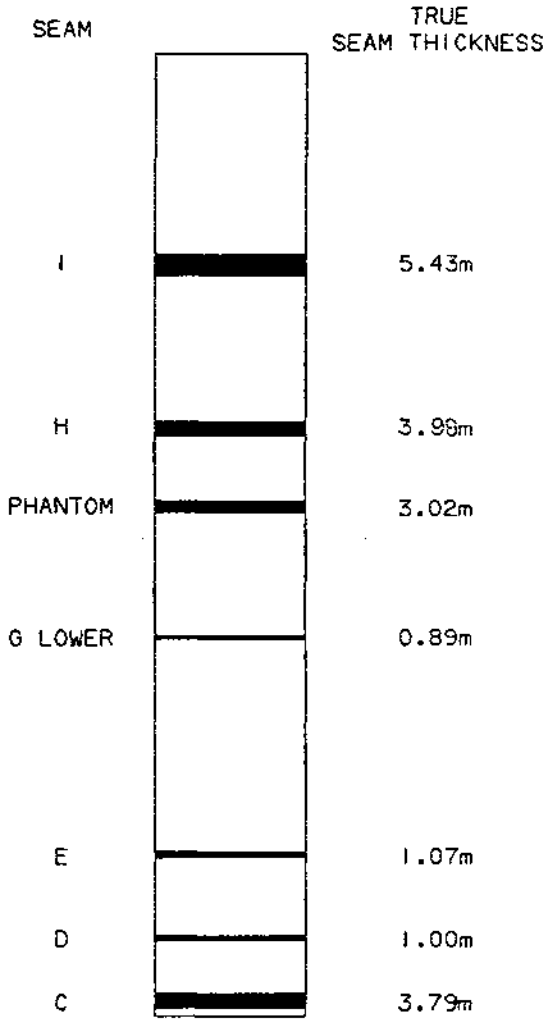
709

GR Neutron Klappan 84(3)H

Copy

KPNLRDDH 84007

MOUNT KLAPPAN COAL PROPERTY
LOST-FOX AREA
DIAMOND DRILL HOLE
KPNLRDDH84007



SCALE 1:2000

GULF CANADA RESOURCES INC.
14/12/84

FILE NAME (205,057)841165032.CHT

GULF CANADA RESOURCES INC.

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

DATA SOURCE - KPNLRDDH84007 DATE - 12/04/84

- H I S T O R Y -

START DATE - 08/21/84
END DATE - 08/26/84

CONTRACTOR - JT THOMAS
GEOLOGIST - B. GLOVER
OPERATOR - GCRI
SURVEYOR -

REMARKS -

- L O C A T I O N -

PROVINCE - BC
ELEVATION - 1590.00
ZONE - 9
NORTHING - 6345034.00
EASTING - 507378.00

LICENCE/LEASE NUMBER - 7169

LATITUDE - 571501
LONGITUDE - 1285240

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

LENGTH - 288.30
INCLINATION - 57.9
AZIMUTH - 322.2

CORE SIZE - 63.5

CEMENT - N
PLUG - N
PIEZ -

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

*** NOTE *** 0 INDICATES NO VALUE

KPNLRDDH 84007

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

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

84/12/06 GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
64	0.00	0.60	0.60			CASING	
64	0.60	4.57	3.97			OVERBURDEN	
64	4.57	4.76	0.19			SANDSTONE	FG.M.GY.VBRKN MINOR QUARTZ VEINING
64	4.76	6.06	1.30			ROCK LOSS	
* 64	6.06	6.96	0.90			SANDSTONE	FG.MOD.M.GY.THNB.SSD.VBRKN MINOR QUARTZ VEINING
61	6.96	7.50	0.54			SANDSTONE	PYR.FG.MOD.M.GY.THNB.VBRKN QUARTZ VEINING THROUGHOUT; VERY MINOR S ILTSTONE BLEBS
59	7.50	8.13	0.63			SANDSTONE	FG.MOD.M.GY.THNB.BRKN QUARTZ VEINING THROUGHOUT; MINOR IRON S TAINING
58	8.13	8.14	0.01			MUDSTONE	M.GY.VBRKN LISTRIC SURFACES; SOME IRON STAINING
57	8.14	8.44	0.30			SANDSTONE	FG.MOD.M.GY.THKB.BRKN QUARTZ VEINING THROUGHOUT; MINOR IRON S TAINING

* DENOTES MEASURED BCA

84/12/06 GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG PAGE 2

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
57	8.44	8.52	0.08			SANDSTONE	VFG.MOD.M.GY.THNB.VBRKN MINOR SILTSTONE LAMINAE; LISTRIC SURFAC ES
56	8.52	8.86	0.34			SANDSTONE	FG.MOD.M.GY.THKB.BRKN QUARTZ VEINING; IRON STAINING
55	8.86	8.88	0.02			MUDSTONE	DK.GY.BRKN LISTRIC SURFACES
55	8.88	8.94	0.06			SANDSTONE	FG.MOD.M.GY.VBRKN
55	8.94	9.06	0.12			ROCK LOSS	
54	9.06	9.30	0.24			SANDSTONE	FG.MOD.M.GY.THKB.BRKN MINOR QUARTZ VEINING
54	9.30	9.32	0.02			MUDSTONE	LT.GY.VBRKN
53	9.32	9.70	0.38			ROCK LOSS	
52	9.70	9.84	0.14			SANDSTONE	FG.MOD.M.GY.THKB.BRKN MINOR QUARTZ VEINING

* DENOTES MEASURED BCA

FORM 4001

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 51	9.84	10.12	0.28			SANDSTONE	FG.MOD.M.GY.THNB.SSD.VBRKN INTERBEDDED SILTSTONE LAMINAE WITH LISTRIC SURFACES; QUARTZ VEINING
64	10.12	10.14	0.02			MUDSTONE	CARB.BLK.VBRKN
* 72	10.14	10.32	0.18			SANDSTONE	FG.MOD.M.GY.THKB.BRKN INTERBEDDED SILTSTONE LAMINAE WITH LISTRIC SURFACES; QUARTZ VEINING
72	10.32	10.37	0.05			SANDSTONE	FG.M.GY.BRKN MUDSTONE VEIN (20.0 MM) RUNNING AT 38 DEGREES THROUGH CENTRE OF CORE; QUARTZ VEIN(3.0 MM)
* 72	10.37	10.87	0.50			SANDSTONE	FG.M.GY.THNB.VBRKN SILTSTONE LAMINAE; QUARTZ VEINING; IRON STAINED
70	10.87	11.06	0.19			SILTSTONE	M.GY.VBRKN
70	11.06	11.10	0.04			MUDSTONE	DK.GY.VBRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
69	11.10	11.30	0.20			SILTSTONE	VTHNB.VBRKN
67	11.30	11.92	0.62			MUDSTONE	M.GY.LAM.VBRKN FISSILE; COLOUR BANDED; SOME MINOR QUARTZ VEINING PERPENDICULAR AND PARALLEL TO BEDDING
65	11.92	12.20	0.28			SILTSTONE	LT.GY.VBRKN QUARTZ VEINING; MINOR MUDSTONE LAMINAE
64	12.20	12.25	0.05			SILTSTONE	LT.GY.VBRKN QUARTZ VEINING; MINOR MUDSTONE LAMINAE
64	12.25	12.36	0.11			SILTSTONE	M.GY.VBRKN
62	12.36	12.73	0.37			ROCK LOSS	
61	12.73	12.76	0.03			MUDSTONE	BLK.VTHNB.VBRKN
* 61	12.76	12.90	0.14			SILTSTONE	M.GY.VBRKN MINOR FAULT FRACTURE; NO APPARENT DISPLACEMENT
64	12.90	13.93	1.03			ROCK LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
66	13.93	14.20	0.27			MUDSTONE	SLTY.DK.GY.LAM.VBRKN FISSILE; MINOR QUARTZ STRINGERS
68	14.20	14.50	0.30			MUDSTONE	SLTY.DK.GY.LAM.VBRKN FISSILE; MINOR QUARTZ STRINGERS
70	14.50	15.15	0.65			ROCK LOSS	
* 72	15.15	15.60	0.45			SILISTONE	M.GY.THNB.VBRKN SLIGHTLY FISSILE; LISTRIC SURFACES
* 78	15.60	15.90	0.30			MUDSTONE	DK.GY.LAM.VBRKN FISSILE; COLOUR BANDED
73	15.90	16.53	0.63			MUDSTONE	DK.GY.LAM.VBRKN FISSILE; COLOUR BANDED
66	16.53	17.12	0.59			ROCK LOSS	
61	17.12	17.38	0.26			MUDSTONE	DK.GY.LAM.VBRKN QUARTZ VEIN (20.0 MM) AT 45 DEGREES TO CORE; FISSILE; COLOUR BANDED
58	17.38	17.61	0.23			MUDSTONE	DK.GY.LAM.VBRKN FISSILE; COLOUR BANDED
55	17.61	17.88	0.27			MUDSTONE	SLTY.DK.GY.LAM.VBRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
51	17.88	18.28	0.40			ROCK LOSS	
47	18.28	18.51	0.23			MUDSTONE	SLTY.DK.GY.THNB.BRKN LAMINATED; QUARTZ VEINING; APPARENT FRACTURE ZONE
46	18.51	18.55	0.04			MUDSTONE	DK.GY.LAM.BRKN FISSILE; COLOUR BANDED
45	18.55	18.64	0.09			MUDSTONE	DK.GY.LAM.VBRKN FISSILE
43	18.64	18.86	0.22			SILTSTONE	M.GY.VTHNB.BRKN MAJOR QUARTZ VEINING THROUGHOUT
41	18.86	19.01	0.15			MUDSTONE	DK.GY.LAM.VBRKN FISSILE; QUARTZ VEINING (10.0 MM)
38	19.01	19.36	0.35			ROCK LOSS	
* 35	19.36	19.57	0.21			MUDSTONE	DK.GY.LAM.BRKN FISSILE; COLOUR BANDED
43	19.57	19.58	0.01			QUARTZ	MM.BRKN
* 46	19.58	19.66	0.08			MUDSTONE	DK.GY.LAM.VBRKN FISSILE; COLOUR BANDED

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
47	19.66	19.69	0.03			MUDSTONE	DK.GY.VBRKN APPARENT FRACTURE ZONE; CORE PULVERIZED
50	19.69	20.05	0.36			ROCK LOSS	
54	20.05	20.28	0.23			MUDSTONE	DK.GY.LAM.VBRKN FISSILE; COLOUR BANDED
56	20.28	20.40	0.12			MUDSTONE	DK.GY.LAM.VBRKN FISSILE; COLOUR BANDED
58	20.40	20.49	0.09			MUDSTONE	DK.GY.VBRKN FISSILE; MINOR QUARTZ VEINING; UNIT PUL VERIZED
59	20.49	20.53	0.04			SILTSTONE	DK.GY.VTHNB.BRKN QUARTZ VEIN (5.0 MM); LISTRIC SURFACES
63	20.53	21.13	0.60			MUDSTONE	CARB.BLK.BRKN MINOR COAL LAMINAE
68	21.13	21.19	0.06			MUDSTONE	DK.GY.LAM.BRKN FISSILE; COLOUR BANDED
72	21.19	21.59	0.40			MUDSTONE	CARB.BLK.VBRKN LISTRIC SURFACES; MINOR QUARTZ INCLUSID NS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 82	21.59	22.64	1.05			SILTSTONE	M.GY.THNB.SLD MINOR COAL LAMINAE; QUARTZ VEINING (2.0 MM) PARALLEL TO BEDDING
79	22.64	23.09	0.45			SILTSTONE	M.GY.THNB.BRKN MINOR COAL LAMINAE; QUARTZ VEINING (2.0 MM) PARALLEL TO BEDDING
78	23.09	23.22	0.13			MUDSTONE	DK.GY.LAM MINOR QUARTZ BANDING; LISTRIC SURFACES; WEATHERING CRACKS
77	23.22	23.38	0.16			SANDSTONE	VFG.MOD.M.GY.VTHNB.SSD.SLD MINOR SILTSTONE LAMINAE
76	23.38	23.93	0.55			ROCK LOSS	
* 72	23.93	25.14	1.21			SANDSTONE	VFG.M.GY.VTHNB.WRMBU.SLD MINOR SILTSTONE LAMINAE; RIPPLE MARKS A ND SOFT SEDIMENT DEFORMATION; LISTRIC S URFACES; MINOR QUARTZ BANDING ALONG BED DING
* 82	25.14	26.66	1.52			SANDSTONE	FG.MOD.M.GY.SSD.BRKN SILTSTONE LAMINAE
86	26.66	27.13	0.47			MUDSTONE	M.GY.BRKN

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
87	27.13	27.15	0.02			SILTSTONE	M.GY.THNB.BRKN
87	27.15	27.16	0.01			QUARTZ	WH.BRKN BRKN
88	27.16	27.53	0.37			SANDSTONE	VFG.MOD.M.GY.VTHNB.SSD.SLD INTERBEDDED SILTSTONE LAMINAE
* 90	27.53	28.40	0.87			SANDSTONE	VFG.WEL.M.GY.VTHNB.SSD.SLD INTERBEDDED SILTSTONE LAMINAE
* 84	28.40	28.82	0.42			SANDSTONE	VFG.M.GY.VTHNB.SSD.SLD RIPPLE MARKS; TOPS UP
83	28.82	28.83	0.01			QUARTZ	WH.BRKN
* 82	28.83	29.57	0.74			SANDSTONE	VFG.MOD.M.GY.VTHNB.SSD.BRKN RIPPLE MARKS; TOPS UP
84	29.57	30.22	0.65			SANDSTONE	VFG.MOD.M.GY.VTHNB.SSD.BRKN WORM BURROWS; INTERBEDDED SILTSTONE
* 87	30.22	31.07	0.85			SANDSTONE	VFG.MOD.M.GY.VTHNB.SSD.BRKN WORM BURROWS; VERY MINOR QUARTZ VEINING (1.0 MM)

* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
86	31.07	31.08	0.01			QUARTZ	WH.SLD MINOR INTERBEDDED SILTSTONE LAMINAE
* 86	31.08	31.47	0.39			SANDSTONE	VFG.MOD.M.GY.VTHNB.SSD.SLD
* 88	31.47	31.73	0.26			SANDSTONE	VFG.MOD.M.GY.VTHNB.SSD.SLD LISTRIC SURFACES
87	31.73	31.74	0.01			QUARTZ	WH.SLD MINOR SILTSTONE STRINGERS
* 85	31.74	32.44	0.70			SANDSTONE	VFG.MOD.M.GY.VTHNB.SSD.BRKN CROSS-BEDDING; INTERBEDDED SILTSTONE LAMINAE
86	32.44	32.49	0.05			SILTSTONE	M.GY.LAM.SSD.BRKN MINOR INTERBEDDED SANDSTONE
87	32.49	32.81	0.32			ROCK LOSS	
87	32.81	33.00	0.19			SANDSTONE	VFG.MOD.M.GY.VTHNB.SSD.VBRKN QUARTZ VEIN (10.0-20.0 MM) 45 DEGREES TO CORE; MINOR TALC BLEB
88	33.00	33.13	0.13			SANDSTONE	VFG.MOD.M.GY.VTHNB.SSD.BRKN QUARTZ VEIN (3.0 MM) PARALLEL TO BEDDING

* DENOTES MEASURED BCA

FORM 4001

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
88	33.13	33.18	0.05			SILTSTONE	DK.GY.LAM.SSD.BRKN QUARTZ VEIN (5.0 MM) PARALLEL TO BEDDIN G; VERY FINE GRAIN INTERBEDDED SANDSTON E; LISTRIC SURFACES
88	33.18	33.23	0.05			SANDSTONE	FG.MOD.M.GY.THNB.SSD.BRKN INTERBEDDED SILTSTONE LAMINAE
* 89	33.23	33.59	0.36			SANDSTONE	VFG.MOD.M.GY.THNB.SSD.BRKN QUARTZ VEIN (5.0 MM) PARALLEL TO BEDDIN G; QUARTZ VEIN (1.0 MM) PERPENDICULAR T O BEDDING; VERY MINOR INTERBEDDED SILTS TONE LAMINAE
89	33.59	33.61	0.02			QUARTZ	MM.SLD
* 89	33.61	33.93	0.32			SANDSTONE	VFG.MOD.M.GY.SSD.BRKN WORM BURROWS; INTERBEDDED SILTSTONE LAM INAE; QUARTZ VEIN (5.0 MM) PERPENDICULA R AND PARALLEL TO BEDDING
88	33.93	33.96	0.03			MUDSTONE	M.GY.VBRKN QUARTZ AND TALC FRAGMENTS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
86	33.96	34.45	0.49			SANDSTONE	VFG.MOD.M.GY.THNB.SSD.BRKN QUARTZ VEINING INTERSPERSED THROUGHOUT
85	34.45	34.47	0.02			QUARTZ	MM.SLD
85	34.47	34.57	0.10			SANDSTONE	VFG.MOD.M.GY.THNB.SSD.BRKN
84	34.57	34.58	0.01			QUARTZ	MM.SLD HARD
* 84	34.58	34.65	0.07			SANDSTONE	VFG.MOD.M.GY.THNB.SSD.BRKN
83	34.65	34.69	0.04			SILTSTONE	M.GY.VBRKN QUARTZ VEIN (20.0 MM) PARALLEL TO BEDDI NG
* 78	34.69	35.58	0.89			SANDSTONE	VFG.MOD.M.GY.THNB.SSD.SLD INTERBEDDED SILTSTONE LAMINAE; MINOR QU ARTZ VEINING
78	35.58	36.17	0.59			SANDSTONE	VFG.MOD.M.GY.THNB.SSD.BRKN INTERBEDDED SILTSTONE LAMINAE; QUARTZ V EIN (20.0 MM) 20 DEGREES TO CORE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 78	36.17	36.97	0.80			SANDSTONE	VFG.MOD.M.GY.THNB.SSD.BRKN INTERBEDDED SILTSTONE LAMINAE; QUARTZ V EIN (20.0 MM) 20 DEGREES TO CORE
80	36.97	37.25	0.28			SANDSTONE	VFG.MOD.M.GY.THNB.SSD.BRKN VERY MINOR QUARTZ VEINING PERPENDICULAR TO BEDDING
82	37.25	38.53	1.28			SANDSTONE	FG.WEL.M.GY.THNB.SSD.SLD MINOR QUARTZ VEIN (2.0 MM) PERPENDICULA R TO BEDDING; MINOR SOFT SEDIMENT DEFOR MATION
* 84	38.53	38.78	0.25			SANDSTONE	VFG.MOD.M.GY.VTHNB.SSD.SLD INTERBEDDED SILTSTONE LAMINAE
* 78	38.78	38.95	0.17			SILTSTONE	DK.GY.LAM.SLD INTERBEDDED VERY FINE GRAIN SANDSTONE; QUARTZ VEIN(5.0 MM) PARALLEL TO BEDDING
78	38.95	39.08	0.13			SANDSTONE	VFG.MOD.M.GY.THNB.BRKN QUARTZ VEIN (4.0 MM) PERPENDICULAR TO B EDDING; MINOR SILTSTONE BLEBS
77	39.08	39.24	0.16			SILTSTONE	DK.GY.LAM.BRKN INTERBEDDED VERY FINE GRAIN SILTSTONE; QUARTZ FRACTURE ZONE 30 DEGREES TO BEDD ING

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
77	39.24	39.32	0.08			SANDSTONE	VFG.M.GY.THNB.SSD.BRKN MINOR SILTSTONE LAMINAE; SILTSTONE VEIN (2.0 MM) PERPENDICULAR TO BEDDING THROU GH THE CORE; FRACTURES THE CORE IN TWO; LISTRIC SURFACES
77	39.32	39.35	0.03			CLAY	CLYY.M.GY.SLD
* 75	39.35	40.30	0.95			SANDSTONE	VFG.MOD.M.GY.THNB.SSD.SLD CROSS-BEDDING; TOPS UP; MINOR QUARTZ VE IN (2.0 MM) PERPENDICULAR TO BEDDING; I NTERBEDDED SILTSTONE LAMINAE
* 60	40.30	40.48	0.18			SANDSTONE	VFG.MOD.M.GY.THNB.SSD.BRKN INTERBEDDED SILTSTONE LAMINAE; SILTSTON E VEIN (2.0 MM) PERPENDICULAR TO BEDDIN G THROUGH CORE AND FRACTURES CORE IN TW O
66	40.48	41.33	0.85			SANDSTONE	VFG.MOD.M.GY.THNB.SSD.BRKN MINOR SILTSTONE LAMINAE; CROSS-BEDDING; RIPPLE MARKS

* DENOTES MEASURED BCA

FORM 4001

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 83	41.33	43.21	1.88			SANDSTONE	VFG.MOD.M.GY.THNB.SSD.BRKN WORM BURROWS; MINOR INTERBEDDED SILTSTO NE LAMINAE; MINOR QUARTZ VEINING APPROX IMATELY PERPENDICULAR TO STRUCTURE
* 86	43.21	44.69	1.48			SANDSTONE	VFG.MOD.LT.GY.THNB.SSD.BRKN WORM BURROWS; MINOR INTERBEDDED SILTSTO NE LAMINAE
84	44.69	45.19	0.50			SANDSTONE	VFG.MOD.LT.GY.THNB.SSD.BRKN RIPPLE MARKS; TOPS UP; MINOR INTERBEDDE D SILTSTONE LAMINAE
84	45.19	45.24	0.05			SANDSTONE	VFG.MOD.LT.GY.THNB.SSD.BRKN
84	45.24	45.26	0.02			QUARTZ	WH.SLD
* 82	45.26	47.21	1.95			SANDSTONE	VFG.MOD.M.GY.THNB.SSD.BRKN RIPPLE MARKS; WORM BURROWS; MINOR INTER BEDDED SILTSTONE
* 78	47.21	47.72	0.51			SANDSTONE	VFG.MOD.M.GY.THNB.SSD.BRKN WORM BURROWS; INTERBEDDED SILTSTONE LAM INAE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 78	47.72	49.06	1.34			SANDSTONE	VFG.MOD.M.GY.THNB.SSD.BRKN WORM BURROWS; RIPPLE MARKS; TURBIDITES; QUARTZ VEIN (2.0 MM) PERPENDICULAR TO BEDDING
78	49.06	50.79	1.73			SANDSTONE	VFG.MOD.M.GY.THNB.SSD.BRKN RIPPLE MARKS; INTERBEDDED SILTSTONE LAM INAE
* 77	50.79	52.88	2.09			SANDSTONE	VFG.MOD.M.GY.THNB.SSD.BRKN INTERBEDDED SILTSTONE LAMINAE; MINOR CA LCITE VEIN (2.0 MM)
* 78	52.88	53.80	0.92			SANDSTONE	VFG.MOD.M.GY.THNB.SSD.SLD INTERBEDDED SILTSTONE LAMINAE
83	53.80	54.92	1.12			SANDSTONE	VFG.MOD.M.GY.THNB.SSD.BRKN
* 86	54.92	55.17	0.25			SANDSTONE	VFG.MOD.M.GY.THNB.SSD.SLD INTERBEDDED SILTSTONE LAMINAE
83	55.17	55.22	0.05			SANDSTONE	VFG.MEL.LT.GY.SSD.SLD VERY MINOR SILTSTONE LAMINAE
* 79	55.22	55.50	0.28			MUDSTONE	M.GY.LAM.SLD FISSILE; INTERBEDDED SILTSTONE LAMINAE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
80	55.50	55.58	0.08			CLAYSTONE	CLYY.LT.GY.THNB.SLD
* 82	55.58	56.57	0.99			SILTSTONE	DK.GY.VTHNB.SSD.SLD LISTRIC SURFACES; VERY MINOR INTERBEDDE D VERY FINE GRAINED SANDSTONE
82	56.57	56.83	0.26			SILTSTONE	DK.GY.VTHNB.SSD.SLD LISTRIC SURFACES; VERY MINOR INTERBEDDE D VERY FINE GRAINED SANDSTONE
83	56.83	56.86	0.03			SILTSTONE	DK.GY.VTHNB.SSD.SLD LISTRIC SURFACES; VERY MINOR INTERBEDDE D VERY FINE GRAINED SANDSTONE
83	56.86	56.87	0.01			QUARTZ	MM.SLD MINOR SILTSTONE LAMINAE
83	56.87	57.00	0.13	01515	I	COAL	C-2.BLK.VBRKN SEMI-CONCHOIDAL FRACTURE; MINOR QUARTZ VEINING
83	57.00	57.02	0.02	01515	I	COAL	C-3.BLK.BRKN
83	57.02	57.10	0.08	01515	I	COAL	C-2.BLK.BRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
83	57.10	57.13	0.03	01515	I	MUDSTONE	CARB.BLK.BRKN CLAYEY
83	57.13	57.14	0.01	01515	I	COAL	C-4.BLK.BRKN
83	57.14	57.19	0.05	01515	I	COAL	C-3.BLK.BRKN LISTRIC SURFACES
83	57.19	57.23	0.04	01515	I	COAL	C-2.BLK.BRKN SEMI-CONCHOIDAL FRACTURE
83	57.23	57.24	0.01	01515	I	MUDSTONE	CARB.BLK.VBRKN LISTRIC SURFACES
83	57.24	57.26	0.02	01515	I	COAL	C-2.BLK.VBRKN
83	57.26	57.37	0.11	01515	I	COAL	C-3.BLK.VBRKN
83	57.37	57.45	0.08	01515	I	COAL	C-2.BLK.BRKN SEMI-CONCHOIDAL FRACTURE; MINOR CALCITE VEINS
83	57.45	57.53	0.08	01515	I	COAL	C-3.BLK.VBRKN MINOR MUDSTONE LAMINAE (5.0 MM)

* DENOTES MEASURED BCA

FORM 4001

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
83	57.53	57.55	0.02	01515	I	COAL	C-1.BLK.VBRKN CONCHOIDAL FRACTURE
83	57.55	57.75	0.20	01515	I	COAL	C-2.BLK.SLD SEMI-CONCHOIDAL FRACTURE
83	57.75	57.83	0.08	01515	I	COAL	C-3.BLK.VBRKN
83	57.83	58.13	0.30	01515	I	COAL LOSS	
84	58.13	58.27	0.14	01515	I	COAL	C-1.BLK.VBRKN CONCHOIDAL FRACTURE
84	58.27	58.37	0.10	01515	I	COAL	C-2.BLK.VBRKN SEMI-CONCHOIDAL FRACTURE
84	58.37	58.38	0.01	01515	I	SILTSTONE	DK.GY.LAM.SLD
84	58.38	58.40	0.02	01515	I	COAL	C-2.BLK.SLD MINOR CALCITE VEINS
84	58.40	58.41	0.01	01515	I	SILTSTONE	DK.GY.SLD
84	58.41	58.49	0.08	01515	I	COAL	C-1.BLK.BRKN CONCHOIDAL FRACTURE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
84	58.49	58.62	0.13	01515	I	COAL	C-2.BLK.VBRKN
84	58.62	58.67	0.05	01515	I	COAL	C-1.BLK.SLD
84	58.67	58.73	0.06	01515	I	COAL	C-2.BLK.VBRKN MINOR CARBONACEOUS MUDSTONE LAMINAE (3.0 mm)
84	58.73	58.81	0.08	01515	I	MUDSTONE	CLYY.DK.GY.BRKN
84	58.81	58.87	0.06	01515	I	COAL	C-1.BLK.SLD CONCHOIDAL FRACTURE
84	58.87	58.93	0.06	01515	I	COAL	C-1.BLK.BRKN CONCHOIDAL FRACTURE
84	58.93	58.94	0.01	01515	I	MUDSTONE	CARB.BLK.SLD
84	58.94	58.99	0.05	01515	I	COAL	C-1.BLK.SLD
84	58.99	59.03	0.04	01515	I	SILTSTONE	DK.GY.LAM.BRKN LISTRIC SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
84	59.03	59.04	0.01	01515 I		MUDSTONE	CARB.BLK.BRKN
84	59.04	59.14	0.10	01515 I		COAL LOSS	
84	59.14	59.21	0.07	01515 I		COAL	C-2.BLK.VBRKN SEMI-CONCHOIDAL FRACTURE
84	59.21	59.61	0.40	01515 I		COAL	C-1.BLK.BRKN CONCHOIDAL FRACTURE; SOME C-2
85	59.61	59.75	0.14	01515 I		COAL	C-2.BLK.VBRKN SOME C-3 AND C-1
85	59.75	60.04	0.29	01515 I		COAL	C-2.BLK.VBRKN SOME C-1 AND C-3
85	60.04	60.19	0.15	01515 I		COAL	C-2.BLK.BRKN SOME C-1
85	60.19	60.23	0.04	01515 I		MUDSTONE	CARB.BLK.LAM.VBRKN
85	60.23	60.37	0.14	01515 I		COAL	C-1.BLK.BRKN CONCHOIDAL FRACTURE
85	60.37	60.40	0.03	01515 I		MUDSTONE	CARB.BLK.LAM.VBRKN MINOR COAL STRINGERS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
85	60.40	60.43	0.03	01515 I		COAL	C-1.BLK.VBRKN CONCHOIDAL FRACTURE
85	60.43	60.57	0.14	01515 I		COAL	C-2.BLK.VBRKN SOME C-1 AND C-3
85	60.57	60.59	0.02	01515 I		MUDSTONE	CARB.BLK.SLD
85	60.59	60.60	0.01	01515 I		COAL	C-3.BLK.BRKN
85	60.60	60.91	0.31	01515 I		COAL	C-2.BLK.VBRKN SOME C-3 AND C-1 WITH CONCHOIDAL FRACTU RE
86	60.91	60.95	0.04	01515 I		COAL	C-1.BLK.BRKN CONCHOIDAL FRACTURE
86	60.95	60.98	0.03	01515 I		SILTSTONE	DK.GY.LAM.SSD.SLD
86	60.98	61.00	0.02	01515 I		COAL	C-1.BLK.SLD CONCHOIDAL FRACTURE
86	61.00	61.15	0.15	01515 I		COAL	C-3.BLK.VBRKN SOME C-2 AND C-1

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
86	61.15	61.34	0.19	01515	I	COAL	C-2.BLK.VBRKN SOME C-3 AND C-1
86	61.34	61.56	0.22	01515	I	COAL	C-1.BLK.BRKN CONCHOIDAL FRACTURE; SOME C-2
86	61.56	61.64	0.08	01515	I	COAL	C-2.BLK.VBRKN
86	61.64	62.05	0.41	01515	I	COAL	C-2.BLK.VBRKN SOME C-1
86	62.05	62.21	0.16	01515	I	COAL	C-1.BLK.BRKN CONCHOIDAL FRACTURE; MINOR MUDSTONE LAM INAE (< 2.0 MM)
87	62.21	62.32	0.11	01515	I	COAL	C-3.BLK.VBRKN SOME C-4 AND MUDSTONE
87	62.32	62.44	0.12			MUDSTONE	CARB.BLK.VBRKN MINOR COAL STRINGERS
87	62.44	62.48	0.04			MUDSTONE	CLYY.M.GY.VBRKN CALCITE VEINING
* 87	62.48	63.36	0.88			MUDSTONE	DK.GY.SSD.BRKN VERY MINOR COALY LENSES; MINOR SILT INT ERBEDS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 86	63.36	64.01	0.65			SILTSTONE	M.GY.LAM.SSD.SLD HORM BURROWS; FINE GRAINED SANDSTONE LA MINAE
89	64.01	64.41	0.40			SILTSTONE	DK.GY.THNB.SSD.SLD EASILY WEATHERED; VERY MINOR SANDSTONE LAMINAE
* 90	64.41	64.46	0.05			MUDSTONE	CLYY.DK.GY.SLD
90	64.46	64.71	0.25			SILTSTONE	DK.GY.THNB.SSD.BRKN EASILY WEATHERED; VERY MINOR SANDSTONE LAMINAE
90	64.71	65.38	0.67			SANDSTONE	FG.MOD.M.GY.THKB.VBRKN QUARTZ VEIN (20.0 MM) PARALLEL TO CORE AXIS
89	65.38	66.18	0.80			ROCK LOSS	
89	66.18	66.82	0.64			SANDSTONE	FG.MOD.M.GY.THKB.SLD QUARTZ VEIN (1.0 MM) PARALLEL TO CORE A XIS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
89	66.82	67.47	0.65			SANDSTONE	MG.WEL.LT.GY.THKB.BRKN
89	67.47	67.89	0.42			SANDSTONE	MG.WEL.LT.GY.THKB.BRKN MINOR CALCITE VEINS; OCCASIONAL SILTSTO NE CLASTS
88	67.89	68.12	0.23			SANDSTONE	PBLY.MG.PR.LT.GY.THNB.BRKN RANDOMLY DISTRIBUTED CHERT CLASTS WITH MINOR CALCITE VEINING
88	68.12	68.72	0.60			SANDSTONE	MG.WEL.LT.GY.SLD VERY OCCASIONAL CHERT CLAST INCLUSIONS; VERY MINOR CALCITE VEINS PARALLEL TO C ORE AXIS
* 88	68.72	69.00	0.28			SANDSTONE	MG.WEL.LT.GY.SLD VERY OCCASIONAL CHERT CLAST INCLUSIONS; VERY MINOR CALCITE VEINS PARALLEL TO C ORE AXIS
87	69.00	69.08	0.08			SANDSTONE	FG.MOD.M.GY.SSD.SLD MINOR INTERBEDDED SILTSTONE LAMINAE
87	69.08	69.09	0.01			MUDSTONE	DK.GY.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
87	69.09	69.21	0.12			SILTSTONE	DK.GY.SSD.SLD INTERBEDDED FINE GRAIN SANDSTONE
86	69.21	69.34	0.13			SANDSTONE	VFG.MOD.LT.GY.SSD.SLD INTERBEDDED SILTSTONE LAMINAE
84	69.34	70.63	1.29			SILTSTONE	DK.GY.SSD.SLD INTERBEDDED FINE GRAIN SANDSTONE LAMINA E; EASILY WEATHERED
81	70.63	70.77	0.14			SILTSTONE	DK.GY.SSD.SLD INTERBEDDED FINE GRAIN SANDSTONE LAMINA E; EASILY WEATHERED
79	70.77	71.87	1.10			MUDSTONE	DK.GY.THKB.BRKN LISTRIC SURFACES; ANKERITE
76	71.87	72.10	0.23			MUDSTONE	DK.GY.THKB.BRKN LISTRIC SURFACES; ANKERITE
* 75	72.10	72.36	0.26			SANDSTONE	FG.MOD.M.GY.SSD.SLD VERY MINOR SILTSTONE LAMINAE
* 78	72.36	72.55	0.19			SILTSTONE	M.GY.LAM.SLD INTERBEDDED FINE GRAIN SANDSTONE LAMINA E

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 90	72.55	72.72	0.17			SILTSTONE	M.GY.LAM.SLD INTERBEDDED FINE GRAIN SANDSTONE LAMINA E
90	72.72	73.63	0.91			SANDSTONE	SLTY.VFG.MOD.M.GY.VTHN8.SSD.SLD LISTRIC SURFACES; MINOR INTERBEDDED SIL TSTONE LAMINAE
* 90	73.63	74.50	0.87			SILTSTONE	SSY.DK.GY.VTHN8.SSD.SLD EASILY WEATHERED
* 90	74.50	74.86	0.36			SILTSTONE	SSY.DK.GY.VTHN8.SSD.SLD EASILY WEATHERED
* 87	74.86	75.94	1.08			SILTSTONE	SSY.DK.GY.VTHN8.SSD.SLD EASILY WEATHERED
87	75.94	76.02	0.08			SANDSTONE	VFG.MOD.M.GY.THN8.SSD.SLD VERY MINOR SILTSTONE LAMINAE
87	76.02	76.03	0.01			ANKERITE	MM.SLD MINOR INTERBEDDED SILTSTONE LAMINAE
87	76.03	76.20	0.17			SANDSTONE	SLTY.VFG.MOD.M.GY.THN8.SSD.SLD MINOR SILTSTONE LAMINAE
87	76.20	76.23	0.03			MUDSTONE	CLYY.DK.GY.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
86	76.23	76.48	0.25			SANDSTONE	SLTY.VFG.MOD.M.GY.THN8.SSD.SLD MINOR SILTSTONE LAMINAE; MINOR ANKERITE VEIN (1.0 MM) AT MUDSTONE CONTACT
86	76.48	76.58	0.10			SANDSTONE	MG.MOD.LT.GY.THK8.SLD INTERSPERSED SILTSTONE CLASTS(10.0 MM)
86	76.58	76.88	0.30			SANDSTONE	FG.MOD.M.GY.THN8.SSD.SLD MINOR SILTSTONE LAMINAE
86	76.88	76.89	0.01			MUDSTONE	DK.GY.SLD SOFT
86	76.89	77.19	0.30			SANDSTONE	FG.MOD.M.GY.THN8.SSD.BRKN MINOR SILTSTONE LAMINAE
86	77.19	77.24	0.05			SILTSTONE	DK.GY.SSD.BRKN LISTRIC SURFACES; VERY MINOR INTERBEDDE D SANDSTONE
86	77.24	77.72	0.48			SANDSTONE	FG.MOD.M.GY.SSD.BRKN MINOR INTERBEDDED SILTSTONE LAMINAE; (2 0.0 MM) MUDSTONE FRACTURE PARALLEL TO C ORE
86	77.72	77.75	0.03			MUDSTONE	DK.GY.BRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
86	77.75	78.58	0.83			SANDSTONE	FG.MOD.M.GY.VTHN8.SSD.BRKN WORM BURROWS; INTERBEDDED SILTSTONE LAM INAE; SPORATIC CLAST INCLUSIONS
* 85	78.58	79.84	1.26			SANDSTONE	SLTY.FG.MOD.M.GY.THN8.SSD.BRKN WORM BURROWS; CROSS-BEDDING; MINOR ANKE RITE ON FRACTURE SURFACES; MINOR INTERB EDDED SILTSTONE
87	79.84	80.39	0.55			SILTSTONE	SSY.DK.GY.THN8.SSD.BRKN WORM BURROWS; INTERBEDDED SILTSTONE LAM INAE
87	80.39	80.81	0.42			ROCK LOSS	
88	80.81	81.02	0.21			SANDSTONE	SLTY.FG.MOD.M.GY.THN8.SSD.BRKN MINOR ANKERITE ON FRACTURE SURFACES; MI NOR INTERBEDDED SILTSTONE LAMINAE; SILT STONE CLAST INCLUSIONS
88	81.02	81.10	0.08			SANDSTONE	SLTY.FG.M.GY.SSD.BRKN TALC ON FRACTURE SURFACES; QUARTZ BLEBS (30.0 MM)
89	81.10	81.39	0.29			SANDSTONE	FG.MOD.M.GY.THN8.BRKN QUARTZ VEINING; MINOR INTERBEDDED SILTS TONE LAMINAE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 89	81.39	81.51	0.12			SANDSTONE	PBLY.FG.PR.M.GY.THK8.SLD
* 90	81.51	83.02	1.51			SANDSTONE	FG.MOD.M.GY.THN8.SSD.BRKN WORM BURROWS; SILTSTONE PEBBLE INCLUSIO NS; INTERBEDDED SILTSTONE LAMINAE; TALC VEINING PARALLEL TO BEDDING (1.0 MM)
* 85	83.02	84.01	0.99			SANDSTONE	FG.MOD.M.GY.SSD.BRKN TALC VEINS ON FRACTURE SURFACES; LISTRI C SURFACES; INTERBEDDED SILTSTONE LAMIN AE
* 80	84.01	84.95	0.94			SANDSTONE	FG.MOD.M.GY.SSD.BRKN (60.0 MM) LENSE OF SILTSTONE CLAST INCL USIONS; INTERBEDDED SILTSTONE LAMINAE; MINOR CALCITE VEINING
* 84	84.95	85.98	1.03			SANDSTONE	FG.MOD.M.GY.THK8.SSD.BRKN VERY MINOR INTERBEDDED SILTSTONE LAMINA E; SOME SILTSTONE CLAST INCLUSIONS
84	85.98	86.03	0.05			QUARTZ	WH.SLD INTERBEDDED SILTSTONE LAMINAE
84	86.03	86.15	0.12			MUDSTONE	BLK.LAM.VBRKN FISSILE; LISTRIC SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
84	86.15	86.17	0.02			SILTSTONE	DK.GY.LAM.SSD.SLD VERY MINOR INTERBEDDED SILTSTONE LAMINA E
84	86.17	86.21	0.04			MUDSTONE	BLK.LAM.VBRKN FISSILE; LISTRIC SURFACES
84	86.21	86.31	0.10			SILTSTONE	DK.GY.LAM.SSD.BRKN MINOR QUARTZ VEIN (2.0 MM) PARALLEL TO CORE
84	86.31	86.91	0.60			ROCK LOSS	
83	86.91	86.96	0.05			MUDSTONE	BLK.LAM.BRKN COAL VEIN (5.0 MM) PARALLEL TO BEDDING; LISTRIC SURFACES
83	86.96	87.23	0.27			SILTSTONE	DK.GY.THNB.BRKN MINOR MUDSTONE AND VERY FINE GRAINED SA NDSTONE INTERBEDDED LAMINAE
83	87.23	87.29	0.06			MUDSTONE	BLK.LAM.BRKN FISSILE; LISTRIC SURFACES
83	87.29	88.32	1.03			MUDSTONE	BLK.THNB.VBRKN MINOR FISSILITY; VERY MINOR COAL STRING ERS; (5.0 MM) QUARTZ VEINING WITH INTER BEDDED MUDSTONE; LISTRIC SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 83	88.32	88.37	0.05			SILTSTONE	DK.GY.LAM.SSD.BRKN SOFT SEDIMENT VERY MINOR
83	88.37	88.61	0.24			MUDSTONE	BLK.LAM.VBRKN QUARTZ VEINS AND MINOR COAL STRINGERS (2.0 MM); LISTRIC SURFACES
* 84	88.61	88.94	0.33			SILTSTONE	DK.GY.THNB.SSD.BRKN MINOR MUDSTONE LAMINAE; LISTRIC SURFACE S
84	88.94	89.03	0.09			MUDSTONE	BLK.LAM.VBRKN LISTRIC SURFACES
82	89.03	90.20	1.17			MUDSTONE	DK.GY.THNB.BRKN INTERBEDDED SILTSTONE LAMINAE; LISTRIC SURFACES; MINOR FISSILITY
80	90.20	90.81	0.61			MUDSTONE	DK.GY.THNB.BRKN INTERBEDDED SILTSTONE LAMINAE; LISTRIC SURFACES; MINOR FISSILITY
* 78	90.81	92.06	1.25			MUDSTONE	SLTY.DK.GY.THNB.SSD.BRKN LISTRIC SURFACES; MINOR ANKERITE VEINS; SOME FISSILITY; INTERBEDDED SILTSTONE LAMINAE

* DENOTES MEASURED BCA

PROJECT: KPH BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
79	92.06	92.11	0.05			SILTSTONE	DK.GY.LAM.BRKN ANKERITE VEIN (3.0 MM) PARALLEL TO BEDD ING; MINOR MUDSTONE LAMINAE
* 80	92.11	92.85	0.74			MUDSTONE	SLTY.DK.GY.THNB.SSD.BRKN INTERBEDDED SILTSTONE LAMINAE; MINOR FI SSILITY; LISTRIC SURFACES
78	92.85	92.93	0.08			SILTSTONE	DK.GY.THNB.SLD MINOR MUDSTONE LAMINAE; LISTRIC SURFACE S
77	92.93	92.95	0.02			MUDSTONE	SLTY.DK.GY.BRKN
77	92.95	93.07	0.12			SILTSTONE	DK.GY.THNB.SLD MINOR MUDSTONE LAMINAE; LISTRIC SURFACE S
* 73	93.07	94.34	1.27			SILTSTONE	DK.GY.THNB.SSD.BRKN MINOR INTERBEDDED VERY FINE GRAINED SAN DSTONE LAMINAE AND MUDSTONE; SOME LISTR IC SURFACES
64	94.34	94.83	0.49			ROCK LOSS	

* DENOTES MEASURED BCA

PROJECT: KPH BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
61	94.83	94.88	0.05			MUDSTONE	SLTY.DK.GY.THNB MINOR INTERBEDDED SILTSTONE LAMINAE
* 60	94.88	95.06	0.18			SILTSTONE	DK.GY.THNB.SSD.BRKN MINOR INTERBEDDED VERY FINE GRAINED SAN DSTONE LAMINAE AND MUDSTONE; SOME LISTR IC SURFACES
61	95.06	95.16	0.10			MUDSTONE	SLTY.DK.GY.LAM.BRKN MINOR INTERBEDDED SILTSTONE LAMINAE
62	95.16	95.19	0.03			SILTSTONE	DK.GY.LAM.SSD.SLD INTERBEDDED VERY FINE GRAINED SANDSTONE AND MUDSTONE LAMINAE
62	95.19	95.21	0.02			MUDSTONE	DK.GY.LAM.VBRKN MINOR INTERBEDDED SILTSTONE LAMINAE
62	95.21	95.28	0.07			SILTSTONE	DK.GY.LAM.SSD.SLD INTERBEDDED VERY FINE GRAINED SANDSTONE AND MUDSTONE LAMINAE
63	95.28	95.32	0.04			MUDSTONE	SLTY.DK.GY.THNB.SSD.BRKN INTERBEDDED SILTSTONE LAMINAE; MINOR FI SSILITY; LISTRIC SURFACES
65	95.32	95.85	0.53			SILTSTONE	DK.GY.THNB.BRKN INTERBEDDED MUDSTONE LAMINAE; LISTRIC S URFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
70	95.85	96.55	0.70			SILTSTONE	DK.GY.THNB.BRKN LISTRIC SURFACES: ANKERITE VEIN (2.0 MM) PARALLEL TO CORE AXIS
73	96.55	96.59	0.04			MUDSTONE	DK.GY.VBRKN LISTRIC SURFACES; VERY SOFT
74	96.59	96.80	0.21			SILTSTONE	DK.GY.THNB.BRKN INTERBEDDED MUDSTONE LAMINAE; LISTRIC S URFACES
75	96.80	96.88	0.08			MUDSTONE	DK.GY.LAM.BRKN FISSILE; LISTRIC SURFACES
75	96.88	96.91	0.03			QUARTZ	MM.VBRKN INTERBEDDED SILTSTONE LAMINAE
77	96.91	97.17	0.26			QUARTZ	MM.VBRKN INTERBEDDED SILTSTONE LAMINAE
79	97.17	97.47	0.30			SILTSTONE	SSY.DK.GY.THNB.BRKN INTERBEDDED SANDSTONE LAMINAE
81	97.47	97.61	0.14			MUDSTONE	SLTY.DK.GY.LAM.BRKN FISSILE; LISTRIC SURFACES
82	97.61	97.68	0.07			ROCK LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
83	97.68	97.97	0.29			SILTSTONE	SSY.DK.GY.THNB.BRKN INTERBEDDED SANDSTONE LAMINAE
84	97.97	97.99	0.02			MUDSTONE	DK.GY.LAM.SLD
85	97.99	98.08	0.09			SILTSTONE	SSY.DK.GY.THNB.BRKN INTERBEDDED SILTSTONE LAMINAE; MINOR QU ARTZ VEINING
85	98.08	98.10	0.02			SANDSTONE	SLTY.VFG.M.GY.VBRKN MINOR QUARTZ VEIN
85	98.10	98.12	0.02			MUDSTONE	DK.GY.LAM.BRKN FISSILE; LISTRIC SURFACES
* 88	98.12	98.78	0.66			SILTSTONE	SSY.DK.GY.THNB.BRKN INTERBEDDED VERY FINE GRAINED SANDSTONE
83	98.78	98.87	0.09			MUDSTONE	SLTY.DK.GY.LAM.VBRKN LISTRIC SURFACES
82	98.87	98.95	0.08			SILTSTONE	SSY.DK.GY.THNB.XBDG.SLD INTERBEDDED SILTSTONE LAMINAE
* 80	98.95	99.28	0.33			SILTSTONE	SSY.DK.GY.THNB.BRKN INTERBEDDED SANDSTONE AND MUDSTONE LAMI NAE; QUARTZ VEIN (5.0 MM) 45 DEGREES TO CORE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
81	99.28	99.31	0.03			QUARTZ	WH.SLD INTERBEDDED SILTSTONE FRAGMENTS
81	99.31	99.59	0.28			SILTSTONE	SSY.DK.GY.THNB.BRKN INTERBEDDED SANDSTONE AND MUDSTONE LAMI NAE
82	99.59	99.78	0.19			MUDSTONE	SLTY.DK.GY.VBRKN LISTRIC SURFACES
82	99.78	99.94	0.16			SILTSTONE	SSY.DK.GY.THNB.BRKN INTERBEDDED VERY FINE GRAINED SANDSTONE AND MUDSTONE LAMINAE
83	99.94	100.00	0.06			MUDSTONE	DK.GY.VBRKN LISTRIC SURFACES
* 83	100.00	100.14	0.14			SILTSTONE	SSY.DK.GY.THNB.BRKN INTERBEDDED VERY FINE GRAINED SANDSTONE AND MUDSTONE; LISTRIC SURFACES
84	100.14	100.16	0.02			MUDSTONE	DK.GY.BRKN LISTRIC SURFACES
85	100.16	100.19	0.03			QUARTZ	WH.SLD MINOR ANKERITE LENSE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 90	100.19	100.71	0.52			SILTSTONE	SSY.DK.GY.SSD.VBRKN INTERBEDDED VERY FINE GRAINED SANDSTONE AND MUDSTONE LAMINAE; LISTRIC SURFACES
89	100.71	100.73	0.02			MUDSTONE	DK.GY.BRKN LISTRIC SURFACES
* 89	100.73	100.99	0.26			SILTSTONE	SSY.DK.GY.THNB.SSD.BRKN INTERBEDDED VERY FINE GRAINED SANDSTONE AND MUDSTONE LAMINAE
* 84	100.99	101.98	0.99			SILTSTONE	DK.GY.VTHNB.SSD.BRKN MINOR INTERBEDDED VERY FINE GRAINED SAN DSTONE AND MUDSTONE LAMINAE; FISSILE
81	101.98	102.62	0.64			SILTSTONE	DK.GY.VTHNB.SSD.BRKN MINOR INTERBEDDED VERY FINE GRAINED SAN DSTONE AND MUDSTONE LAMINAE; FISSILE
80	102.62	102.64	0.02			QUARTZ	WH.BRKN MINOR INTERBEDDED MUDSTONE
80	102.64	102.66	0.02			MUDSTONE	DK.GY.SLD
80	102.66	102.76	0.10			ANKERITE	WH.SLD INTERBEDDED SILTSTONE CLASTS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
80	102.76	102.85	0.09			MUDSTONE	DK.GY.BRKN MINOR ANKERITE INCLUSIONS; LISTRIC SURF ACES
80	102.85	102.87	0.02			SILTSTONE	DK.GY.THNB.SLD
79	102.87	103.00	0.13			MUDSTONE	DK.GY.THNB.BRKN VERY MINOR COAL STRINGERS; LISTRIC SURF ACES
79	103.00	103.08	0.08	01516 H		COAL	C-2.BLK.VBRKN INTERBEDDED MUDSTONE LAMINAE
79	103.08	103.10	0.02	01516 H		MUDSTONE	DK.GY.LAM.VBRKN
79	103.10	103.21	0.11	01516 H		COAL	C-3.BLK.VBRKN INTERBEDDED MUDSTONE LAMINAE
79	103.21	103.23	0.02	01516 H		SILTSTONE	DK.GY.THNB.SLD LISTRIC SURFACES
78	103.23	103.28	0.05	01516 H		COAL	C-2.BLK.VBRKN SOME C-3; INTERBEDDED MUDSTONE
78	103.28	103.32	0.04	01516 H		MUDSTONE	DK.GY.SLD WEATHERED; LISTRIC SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
78	103.32	103.39	0.07	01516 H		SILTSTONE	DK.GY.LAM.BRKN CALCITE AND QUARTZ VEINING
78	103.39	103.55	0.16	01516 H		COAL LOSS	
77	103.55	103.70	0.15	01516 H		COAL	C-2.BLK.BRKN SOME C-1
77	103.70	103.71	0.01	01516 H		SILTSTONE	DK.GY.LAM.SLD
77	103.71	103.77	0.06	01516 H		COAL	C-2.BLK.SLD
77	103.77	103.79	0.02	01516 H		SILTSTONE	DK.GY.LAM.BRKN
76	103.79	104.09	0.30	01516 H		COAL	C-2.BLK.VBRKN SOME C-3 AND C-1; SEMI-CONCHOIDAL FRACT URE; MINOR INTERBEDDED MUDSTONE LAMINAE
76	104.09	104.11	0.02	01516 H		SILTSTONE	DK.GY.LAM.BRKN LISTRIC SURFACES
75	104.11	104.31	0.20	01516 H		COAL	C-2.BLK.VBRKN SOME C-1 AND C-3
75	104.31	104.32	0.01	01516 H		MUDSTONE	CARB.DK.BN.LAM.BRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	104.32	104.36	0.04	01516	H	SILTSTONE	DK.GY.LAM.SLD MINOR CALCITE VEINING
75	104.36	104.43	0.07	01516	H	MUDSTONE	CARB.DK.GY.LAM.BRKN
74	104.43	104.68	0.25	01516	H	COAL	C-2.BLK.VBRKN MINOR ANKERITE VEIN; INTERBEDDED MUDSTO NE
74	104.68	104.74	0.06	01516	H	SILTSTONE	DK.GY.LAM.BRKN LISTRIC SURFACES
74	104.74	104.79	0.05	01516	H	COAL	C-1.BLK.SLD CONCHOIDAL FRACTURE
73	104.79	104.89	0.10	01516	H	SILTSTONE	DK.GY.LAM MINOR INTERBEDDED COAL LENSES AND CALCI TE VEINING
73	104.89	105.09	0.20	01516	H	COAL	C-2.BLK.VBRKN SOME C-1 AND C-3; MINOR INTERBEDDED SIL TSTONE LAMINAE; MINOR CALCITE VEINS
72	105.09	105.22	0.13	01516	H	COAL	C-2.BLK.VBRKN MINOR CONCHOIDAL FRACTURE
72	105.22	105.24	0.02	01516	H	SILTSTONE	DK.GY.LAM.VBRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
72	105.24	105.29	0.05	01516	H	COAL	C-3.BLK.BRKN LISTRIC SURFACES
72	105.29	105.33	0.04	01516	H	COAL	C-2.BLK.VBRKN
72	105.33	105.37	0.04	01516	H	SILTSTONE	DK.GY.LAM MINOR CALCITE VEINING
72	105.37	105.42	0.05	01516	H	COAL	C-3.BLK.BRKN
72	105.42	105.44	0.02	01516	H	SILTSTONE	DK.GY.LAM.SLD
72	105.44	105.48	0.04	01516	H	COAL	C-1.BLK.BRKN
71	105.48	105.50	0.02	01516	H	SILTSTONE	DK.GY.LAM.BRKN CALCITE LENSES
71	105.50	105.52	0.02	01516	H	COAL	C-1.BLK.VBRKN CONCHOIDAL FRACTURE
71	105.52	105.62	0.10	01516	H	COAL	C-2.BLK.VBRKN SEMI-CONCHOIDAL FRACTURE; SOME C-3
71	105.62	105.69	0.07	01516	H	COAL	C-1.BLK.VBRKN SOME C-3 AND C-2

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
71	105.69	105.70	0.01	01516 H		SILTSTONE	DK.GY.LAM LISTRIC SURFACES
71	105.70	105.73	0.03	01516 H		COAL	C-2.BLK.VBRKN MINOR CONCHOIDAL FRACTURE
71	105.73	105.77	0.04	01516 H		MUDSTONE	CARB.DK.GY.BRKN MINOR COAL LAMINAE
71	105.77	105.81	0.04	01516 H		COAL	C-1.BLK.BRKN CONCHOIDAL FRACTURE
70	105.81	106.26	0.45	01516 H		COAL	C-2.BLK.VBRKN SOME C-3; MINOR MUDSTONE PARTINGS UNABL E TO DISTINGUISH DUE TO FRACTURE OF COA L
69	106.26	106.31	0.05	01516 H		COAL	C-5.BLK.VBRKN MUDSTONE PARTINGS
69	106.31	106.55	0.24	01516 H		COAL	C-2.BLK.VBRKN SOME C-1 AND C-3 WITH MUDSTONE PARTINGS
68	106.55	106.58	0.03	01516 H		MUDSTONE	CARB.DK.GY.SLD LISTRIC SURFACES
68	106.58	106.63	0.05	01516 H		MUDSTONE	M.GY.BRKN CALCITE VEINING

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
67	106.63	106.89	0.26	01516 H		COAL	C-2.BLK.VBRKN SOME C-1 AND C-3; CONCHOIDAL FRACTURES; MINOR PARTINGS UNABLE TO DETERMINE EXI ENT
67	106.89	106.93	0.04	01516 H		MUDSTONE	CARB.DK.GY.SLD CALCITE VEINING; MINOR COAL STRINGERS
67	106.93	106.97	0.04	01516 H		COAL	C-1.BLK.VBRKN
66	106.97	107.18	0.21	01516 H		COAL	C-2.BLK.VBRKN SOME C-1 AND C-3
66	107.18	107.24	0.06			MUDSTONE	CARB.DK.GY.BRKN MINOR COAL STRINGERS AND CALCITE VEININ G
66	107.24	107.30	0.06			MUDSTONE	DK.GY.BRKN MINOR COAL LENSES
66	107.30	107.38	0.08			ROCK LOSS	
65	107.38	107.44	0.06			COAL	C-5.BLK.VBRKN
65	107.44	107.48	0.04			MUDSTONE	CARB.BLK.BRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
65	107.48	107.54	0.06			COAL	C-3.BLK.VBRKN SOME C-4 AND C-2
65	107.54	107.58	0.04			COAL	C-5.BLK.VBRKN
65	107.58	107.69	0.11			ROCK LOSS	
64	107.69	107.78	0.09			MUDSTONE	DK.GY.SLD MINOR COAL STRINGERS; LISTRIC SURFACES
64	107.78	107.85	0.07			COAL	C-5.BLK.VBRKN MINOR MUDSTONE AND CALCITE VEINS
64	107.85	107.90	0.05			MUDSTONE	DK.GY.SLD LISTRIC SURFACES; MINOR COAL LENSES
64	107.90	107.97	0.07			COAL	C-5.BLK.VBRKN MINOR CALCITE VEINS
63	107.97	108.14	0.17			ROCK LOSS	
63	108.14	108.32	0.18			SILTSTONE	DK.GY.SSD.BRKN CALCITE VEINS
62	108.32	108.37	0.05			COAL	C-3.BLK.VBRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
62	108.37	108.89	0.52			MUDSTONE	DK.GY.VBRKN LISTRIC SURFACES; MINOR TALC INTERBEDS
61	108.89	109.03	0.14			SANDSTONE	FG.MOD.M.GY.THNB.BRKN INTERBEDDED SILTSTONE CLASTS; ANKERITE VEINS THROUGHOUT
60	109.03	109.28	0.25			MUDSTONE	DK.GY.VBRKN LISTRIC SURFACES; MINOR CALCITE VEINING
56	109.28	111.30	2.02			MUDSTONE	DK.GY.BRKN CALCITE AND ANKERITE VEINS INTERSPERSED ; LISTRIC SURFACES; KAOLINITE (?) ON SL ICKENSIDE SURFACES; WEATHERED
* 52	111.30	112.09	0.79			MUDSTONE	DK.GY.THKB.BRKN LISTRIC SURFACES; MINOR ANKERITE VEINS; COALY STRINGERS (2.0 MM); KAOLINITE (?) ON SLICKENSIDE SURFACES
* 52	112.09	112.23	0.14			MUDSTONE	PYR.DK.GY.SSD.BRKN MINOR COAL STRINGERS; LISTRIC SURFACES
56	112.23	112.67	0.44			MUDSTONE	DK.GY.THKB.VBRKN LISTRIC SURFACES; MINOR ANKERITE VEININ G; COAL LAMINAE; KAOLINITE (?) ON SLICK ENSIDE SURFACES

* DENOTES MEASURED BCA

FORM 4001

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
65	112.67	113.33	0.66			SILTSTONE	DK.GY.THNB.BRKN EASILY WEATHERED
* 78	113.33	114.35	1.02			SILTSTONE	SSY.M.GY.THNB.SSD.BRKN INTERBEDDED VERY FINE GRAINED SANDSTONE LAMINAE; MINOR COAL STRINGERS (2.0 MM) ; FOSSILIFEROUS; EASILY WEATHERED
* 89	114.35	114.74	0.39			SILTSTONE	SSY.M.GY.THNB.SSD.BRKN INTERBEDDED VERY FINE GRAINED SANDSTONE LAMINAE; FOSSILIFEROUS (PLANTS); EASIL Y WEATHERED
* 79	114.74	115.60	0.86			SILTSTONE	SSY.M.GY.THNB.SSD.BRKN INTERBEDDED VERY FINE GRAINED SANDSTONE ; FOSSILIFEROUS
79	115.60	115.62	0.02			MUDSTONE	DK.GY.SLD
79	115.62	115.66	0.04			QUARTZ	WH.BRKN MINOR INTERBEDDED MUDSTONE
79	115.66	116.81	1.15			MUDSTONE	DK.GY.THKB.BRKN LISTRIC SURFACES; TALC ON SLICKENSIDES; EASILY WEATHERED; FOSSILIFEROUS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
78	116.81	117.35	0.54			MUDSTONE	DK.GY.THKB.VBRKN MINOR QUARTZ VEINING; LISTRIC SURFACES; TALC ON SLICKENSIDE SURFACES
78	117.35	118.75	1.40			SILTSTONE	SSY.M.GY.THNB.SSD.BRKN HORN BURROWS; TALC ON SLICKENSIDE SURFA CES; FOSSILIFEROUS (PLANTS)
* 77	118.75	120.49	1.74			SILTSTONE	SSY.M.GY.THNB.SSD.BRKN MINOR INTERBEDDED VERY FINE GRAINED SAN DSTONE AND MUDSTONE; LISTRIC SURFACES
* 71	120.49	120.79	0.30			SILTSTONE	SSY.DK.GY.SSD.BRKN INTERBEDDED VERY FINE GRAINED SANDSTONE AND MUDSTONE; LISTRIC SURFACES
* 87	120.79	120.99	0.20			SILTSTONE	SSY.DK.GY.THNB.SLD INTERBEDDED VERY FINE GRAINED AND FINE GRAINED SANDSTONE LAMINAE
* 88	120.99	122.22	1.23			SANDSTONE	SLTY.FG.MOD.M.GY.THNB.SSD.BRKN THIN INTERBEDDED SILTSTONE LENSES
84	122.22	122.57	0.35			SANDSTONE	MG.MOD.M.GY.THNB.SLD VERY MINOR INTERBEDDED SILTSTONE LAMINA E; SLICKENSIDE SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
82	122.57	122.88	0.31			SANDSTONE	SLTY.FG.MOD.M.GY.SSD.BRKN SLICKENSIDE SURFACES; THIN INTERBEDDED SILTSTONE LAMINAE
* 79	122.88	123.52	0.64			SANDSTONE	SLTY.MG.M.GY.THNB.SSD.BRKN CROSS-BEDDING; INTERBEDDED SILTSTONE LAMINAE
78	123.52	123.99	0.47			SANDSTONE	SLTY.MG.M.GY.THNB.SSD.BRKN CROSS-BEDDING; INTERBEDDED SILTSTONE LAMINAE
78	123.99	124.57	0.58			SILTSTONE	DK.GY.THNB.BRKN VERY MINOR COAL LENSES; LISTRIC SURFACES; FOSSILIFEROUS (PLANTS); MINOR INTERBEDDED MUDSTONE LAMINAE
77	124.57	124.73	0.16			MUDSTONE	DK.GY.SLD INTERBEDDED COAL AND QUARTZ LAMINAE
77	124.73	124.77	0.04			MUDSTONE	CARB.BLK.BRKN WITH C-4 COAL STRINGERS
77	124.77	125.08	0.31	01517	THE PHANTOM	COAL	C-2.BLK.VBRKN MINOR ANKERITE VEINS (<2.0 MM); SOME C-1 AND C-3

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
77	125.08	125.09	0.01	01517	THE PHANTOM	SILTSTONE	DK.GY.LAM.SLD
77	125.09	125.17	0.08	01517	THE PHANTOM	COAL	C-1.BLK.BRKN
76	125.17	125.27	0.10	01517	THE PHANTOM	COAL	C-2.BLK.VBRKN SOME C-1 AND C-3; MINOR MUDSTONE PARTINGS
76	125.27	125.28	0.01	01517	THE PHANTOM	SILTSTONE	DK.GY.SLD
76	125.28	125.34	0.06	01517	THE PHANTOM	COAL	C-3.BLK.VBRKN MINOR MUDSTONE PARTINGS
76	125.34	125.36	0.02	01517	THE PHANTOM	SILTSTONE	DK.GY.LAM.SLD
76	125.36	125.38	0.02	01517	THE PHANTOM	COAL	C-4.BLK.BRKN
76	125.38	125.39	0.01	01517	THE PHANTOM	SILTSTONE	DK.GY.LAM.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
76	125.39	125.53	0.14	01517	THE PHANTOM	COAL	C-2.BLK.VBRKN SEMI-CONCHOIDAL FRACTURE; SOME C-1 AND C-3
76	125.53	125.75	0.22	01517	THE PHANTOM	MUDSTONE	DK.GY.THNB.BRKN EASILY WEATHERED
76	125.75	125.78	0.03	01517	THE PHANTOM	COAL	C-1.BLK.BRKN CONCHOIDAL FRACTURE
76	125.78	126.05	0.27	01517	THE PHANTOM	COAL	C-2.BLK.VBRKN SEMI-CONCHOIDAL FRACTURE; SOME C-1 AND C-3
75	126.05	126.07	0.02	01517	THE PHANTOM	MUDSTONE	CARB.DK.GY.BRKN MINOR MUDSTONE LAMINAE
75	126.07	126.11	0.04	01517	THE PHANTOM	COAL	C-1.BLK.SLD
75	126.11	126.14	0.03	01517	THE PHANTOM	MUDSTONE	CARB.DK.GY.VBRKN MINOR COAL STRINGERS
75	126.14	126.33	0.19	01517	THE PHANTOM	COAL	C-2.BLK.VBRKN SOME C-1 AND C-3; SEMI-CONCHOIDAL FRACTURE; MINOR MUDSTONE PARTINGS
75	126.33	126.37	0.04	01517	THE PHANTOM	MUDSTONE	DK.GY.LAM.BRKN MINOR COAL STRINGERS; LISTRIC SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	126.37	126.48	0.11	01517	THE PHANTOM	COAL	C-2.BLK.VBRKN SOME C-1 AND C-3
75	126.48	126.49	0.01	01517	THE PHANTOM	SILTSTONE	DK.GY.LAM.SLD
75	126.49	126.57	0.08	01517	THE PHANTOM	COAL	C-3.BLK.VBRKN SOME C-2; MINOR MUDSTONE LAMINAE
75	126.57	126.60	0.03	01517	THE PHANTOM	MUDSTONE	DK.GY.LAM LISTRIC SURFACES; TALC ON SLICKENSIDE SURFACES
75	126.60	126.74	0.14	01517	THE PHANTOM	COAL	C-3.BLK.VBRKN SOME C-2; MINOR MUDSTONE LAMINAE
74	126.74	126.87	0.13	01517	THE PHANTOM	COAL	C-3.BLK.VBRKN SOME C-4; MINOR INTERBEDDED SILTSTONE LAMINAE
74	126.87	126.91	0.04	01517	THE PHANTOM	SILTSTONE	DK.GY.LAM.BRKN MINOR COAL STRINGERS
74	126.91	126.94	0.03	01517	THE PHANTOM	COAL	C-3.BLK.VBRKN
74	126.94	127.09	0.15	01517	THE PHANTOM	COAL	C-4.BLK.VBRKN INTERBEDDED MUDSTONE LAMINAE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
74	127.09	127.19	0.10	01517	THE PHANTOM	COAL	C-2.BLK.VBRKN SEMI-CONCHOIDAL FRACTURE; SOME C-1 AND C-3
* 74	127.19	127.21	0.02	01517	THE PHANTOM	SILTSTONE	M.GY.LAM.SSD.SLD INTERBEDDED COAL LAMINAE
74	127.21	127.34	0.13	01517	THE PHANTOM	COAL	C-2.BLK.VBRKN SOME CONCHOIDAL FRACTURE; SOME C-1 AND C-3
73	127.34	127.36	0.02	01517	THE PHANTOM	MUDSTONE	CARB.BLK.LAM
72	127.36	127.53	0.17	01517	THE PHANTOM	COAL	C-3.BLK.VBRKN SOME CONCHOIDAL FRACTURE; SOME C-4 AND C-2
72	127.53	127.54	0.01	01517	THE PHANTOM	SILTSTONE	DK.GY.LAM.SLD LISTRIC SURFACES; MINOR COAL LAMINAE
72	127.54	127.56	0.02	01517	THE PHANTOM	MUDSTONE	CARB.BLK.BRKN MINOR COAL LAMINAE
72	127.56	127.62	0.06	01517	THE PHANTOM	COAL	C-2.BLK.VBRKN SOME C-1 AND C-3

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
71	127.62	127.65	0.03	01517	THE PHANTOM	SILTSTONE	M.GY.LAM.SSD.SLD
71	127.65	127.72	0.07	01517	THE PHANTOM	COAL	C-3.BLK.VBRKN
71	127.72	127.73	0.01	01517	THE PHANTOM	SILTSTONE	DK.GY.LAM.SLD
70	127.73	127.86	0.13	01517	THE PHANTOM	COAL	C-3.BLK.VBRKN SOME C-2 AND C-4
68	127.86	128.30	0.44			MUDSTONE	DK.GY.THNB.BRKN MINOR QUARTZ VEINING; MINOR COAL LAMINAE
67	128.30	128.32	0.02			COAL	C-3.BLK.SLD
* 66	128.32	128.64	0.32			MUDSTONE	DK.GY.THNB INTERBEDDED COAL LAMINAE
66	128.64	128.68	0.04			COAL	C-3.BLK.SLD INTERBEDDED CALCITE LAMINAE
66	128.68	128.84	0.16			MUDSTONE	DK.GY.THKB.BRKN LISTRIC SURFACES; TALC ON SLICKENSIDE SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
65	128.84	129.14	0.30			ROCK LOSS	
64	129.14	129.78	0.64			SILTSTONE	M.GY.THKB.BRKN LISTRIC SURFACES; EASILY WEATHERED
64	129.78	129.83	0.05			MUDSTONE	DK.GY.BRKN LISTRIC SURFACES; TALC (?) ON SLICKENSI DE SURFACES
63	129.83	130.26	0.43			ROCK LOSS	
63	130.26	130.32	0.06			SILTSTONE	M.GY.THNB.BRKN
62	130.32	131.20	0.88			SANDSTONE	FG.MOD.LT.GY.THNB.SSD.BRKN INTERBEDDED SILTSTONE LAMINAE AND CLAST S
* 61	131.20	131.99	0.79			SANDSTONE	FG.MOD.M.GY.SSD.SLD VERY MINOR INTERBEDDED SILTSTONE LAMINA E

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 58	131.99	132.91	0.92			SILTSTONE	SSY.M.GY.SSD.BRKN QUARTZ VEIN (5.0 MM) PARALLEL TO BEDDIN G; LISIRIC SURFACES; SLIGHTLY FISSILE; INTERBEDDED FINE GRAINED SANDSTONE LAMI NAE
* 55	132.91	133.28	0.37			SANDSTONE	SLTY.FG.MOD.M.GY.SSD.BRKN
58	133.28	133.35	0.07			SANDSTONE	SLTY.FG.MOD.M.GY.SSD.BRKN
* 62	133.35	133.95	0.60			SILTSTONE	DK.GY.THKB.SLD EASILY WEATHERED; MINOR VERY FINE GRAIN ED SANDSTONE LAMINAE
54	133.95	135.31	1.36			SANDSTONE	SLTY.VFG.MOD.M.GY.SSD.BRKN WORM BURROWS; MINOR INTERBEDDED SILTSTO NE LAMINAE
* 46	135.31	135.98	0.67			SILTSTONE	DK.GY.THNB.SSD.BRKN TALC ON SLICKENSIDES SURFACES; LISTRIC SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
47	135.98	136.09	0.11			SANDSTONE	FG.MOD.M.GY.SLD
50	136.09	137.19	1.10			SANDSTONE	FG.M.GY.BRKN MINOR QUARTZITE VEINS (2.00 MM) THROUGH OUT; TALC ON FRACTURE SURFACES
52	137.19	137.58	0.39			SANDSTONE	FG.MOD.M.GY.THKB.SHRD TALC ON SLICKENSIDE SURFACES
53	137.58	137.59	0.01			CLAY	CLYY.LT.GY.SLD
55	137.59	138.72	1.13			SANDSTONE	FG.MOD.M.GY.THKB.BRKN QUARTZ VEINING (2.0 - 3.0 MM)
57	138.72	138.76	0.04			QUARTZ	WH.SLD
58	138.76	138.80	0.04			SANDSTONE	FG.MOD.M.GY.SLD MINOR QUARTZ VEINING
58	138.80	138.82	0.02			QUARTZ	WH.SLD MINOR SANDSTONE CLAST INCLUSIONS
* 58	138.82	138.95	0.13			SANDSTONE	FG.MOD.M.GY.BRKN MINOR QUARTZ VEINING; VERY MINOR INTERBEDDED SILTSTONE LAMINAE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
59	138.95	139.23	0.28			SANDSTONE	FG.MEL.M.GY.THKB.SLD VERY MINOR INTERBEDDED SILTSTONE LAMINAE
* 60	139.23	140.15	0.92			SANDSTONE	FG.MEL.M.GY.THKB.SLD CALCITE AND ANKERITE VEINS; MINOR MUDSTONE LENSE (2.0 MM) PARALLEL TO CORE; INTERBEDDED SILTSTONE LAMINAE
70	140.15	140.95	0.80			SANDSTONE	FG.MOD.M.GY.THNB.SSD.SLD VERY MINOR TALC VEINS; MINOR INTERBEDDED SILTSTONE LAMINAE
* 76	140.95	141.30	0.35			SANDSTONE	FG.MOD.M.GY.THNB.SLD ANKERITE VEIN (5.0 MM)
76	141.30	142.13	0.83			SILTSTONE	DK.GY.THKB.BRKN LISTRIC SURFACES; TALC ON SLICKENSIDES SURFACES; EASILY WEATHERED; MARINE FOSSIL INCLUSIONS
77	142.13	142.79	0.66			MUDSTONE	SLTY.DK.GY.THKB.BRKN LISTRIC SURFACES; TALC ON SLICKENSIDES SURFACES; EASILY WEATHERED; MARINE FOSSIL INCLUSIONS
77	142.79	143.19	0.40			ROCK LOSS	

* DENOTES MEASURED BCA

FORM 4001

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
78	143.19	143.21	0.02			SILTSTONE	DK.GY.THKB.BRKN LISTRIC SURFACES; TALC ON SLICKENSIDES SURFACES; EASILY WEATHERED; MARINE FOSSIL INCLUSIONS
78	143.21	143.40	0.19			SANDSTONE	SLTY.VFG.MOD.M.GY.SSD.BRKN
78	143.40	144.58	1.18			MUDSTONE	SLTY.DK.GY.THNB.BRKN MARINE FOSSIL INCLUSIONS; MINOR COAL LENSES; SOME PLANT FOSSILS
79	144.58	144.65	0.07			MUDSTONE	SLTY.DK.GY.THNB.BRKN
79	144.65	145.09	0.44			MUDSTONE	SLTY.DK.GY.THNB.BRKN MARINE FOSSIL INCLUSIONS; MINOR COAL LENSES (2.0 MM)
* 79	145.09	145.45	0.36			MUDSTONE	SLTY.DK.GY.THNB.SLD MINOR MARINE FOSSILS; MINOR VERY FINE GRAINED SANDSTONE LAMINAE
75	145.45	146.05	0.60			MUDSTONE	SLTY.DK.GY.THNB.SLD MARINE FOSSILS; TALC ON SLICKENSIDE SURFACES; PYRITE NODULES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 68	146.05	147.11	1.06			SILTSTONE	SSY.DK.GY.THNB.SSD.BRKN LISTRIC SURFACES; TALC ON SLICKENSIDE SURFACES
73	147.11	147.32	0.21			MUDSTONE	DK.GY.BRKN LISTRIC SURFACES; MARINE FOSSILS; TALC ON SLICKENSIDES
* 75	147.32	147.68	0.36			SILTSTONE	SSY.DK.GY.VTHNB.SSD MINOR INTERBEDDED VERY FINE GRAINED SANDSTONE LAMINAE; TALC ON SLICKENSIDE SURFACES
76	147.68	148.12	0.44			ROCK LOSS	
76	148.12	148.19	0.07			MUDSTONE	CARB.BLK.VBRKN PLIABLE WITH INTERMIXED COAL FRAGMENTS
77	148.19	148.27	0.08			MUDSTONE	DK.GY.THNB.BRKN MARINE FOSSIL INCLUSIONS; VERY MINOR INTERBEDDED COAL LAMINAE
77	148.27	148.43	0.16			MUDSTONE	CARB.BLK.VBRKN PLIABLE WITH INTERMIXED COAL FRAGMENTS
77	148.43	148.78	0.35			MUDSTONE	DK.GY.THNB.MRMBU.BRKN MARINE FOSSILS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
78	148.78	148.98	0.20		G UPPER	COAL LOSS	
78	148.98	149.05	0.07		G UPPER	COAL	C-4.BLK.VBRKN SOME C-3
79	149.05	149.16	0.11		G UPPER	MUDSTONE	DK.GY.THNB.BRKN C-1 COAL LENSE (7.0 MM) PARALLEL TO BED DING; (4.0 MM) QUARTZITE VEIN ON TOP OF COAL; LISTRIC AND SLICKENSIDES SURFACE S
79	149.16	149.18	0.02		G UPPER	MUDSTONE	CARB.BLK.VBRKN SOME COAL FRAGMENTS
79	149.18	149.41	0.23		G UPPER	MUDSTONE	DK.GY.THNB MARINE FOSSILS; TALC ON SLICKENSIDE SUR FACES
80	149.41	149.95	0.54		G UPPER	MUDSTONE	SLTY.DK.GY.SSD.BRKN MARINE FOSSILS; MINOR INTERBEDDED SILTS TONE LAMINAE
81	149.95	150.13	0.18		G UPPER	MUDSTONE	DK.GY.THNB.VBRKN MARINE FOSSILS
* 81	150.13	150.28	0.15		G UPPER	SILTSTONE	M.GY.SSD.SLD SOME MARINE FOSSILS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
80	150.28	150.33	0.05		G UPPER	MUDSTONE	DK.GY.WRMBU.VBRKN MARINE FOSSILS
80	150.33	150.35	0.02		G UPPER	MUDSTONE	CARB.BLK.VBRKN COAL INCLUSIONS
80	150.35	150.38	0.03		G UPPER	MUDSTONE	DK.GY.THKB.SLD MINOR PLANT FOSSILS
80	150.38	150.40	0.02		G UPPER	PYRITE	YEL.SLD YELLOW-GREEN COLOUR; VERY MINOR INTERBE DDED MUDSTONE LAMINAE
79	150.40	150.82	0.42		G UPPER	MUDSTONE	DK.GY.THKB.SLD VERY MINOR COAL LAMINAE; PLANT FOSSILS
77	150.82	150.83	0.01		G UPPER	CLAY	CLYY.LT.GY.VBRKN
76	150.83	151.17	0.34		G UPPER	MUDSTONE	DK.GY.THKB.SLD FRACTURE ZONE (10.0 MM) 45 DEGREES TO C ORE; ANKERITE ALONG FRACTURE; SLICKENSI DE SURFACES
75	151.17	151.30	0.13		G UPPER	MUDSTONE	DK.GY.THKB.BRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
74	151.30	151.33	0.03		G UPPER	PYRITE	YEL.SLD
74	151.33	151.43	0.10		G UPPER	MUDSTONE	CARB.BLK.BRKN COAL FRAGMENTS THROUGHOUT; MINOR QUARTZ VEINING
73	151.43	151.72	0.29	01521	G UPPER	COAL	C-3.BLK.VBRKN SOME C-4 AND C-2; MINOR MUDSTONE PARTINGS
71	151.72	151.90	0.18		G UPPER	MUDSTONE	CARB.BLK.VBRKN COAL FRAGMENTS
70	151.90	151.96	0.06		G UPPER	MUDSTONE	DK.GY.LAM.BRKN
70	151.96	152.04	0.08		G UPPER	MUDSTONE	CARB.BLK.LAM.VBRKN INTERBEDDED COAL LAMINAE
68	152.04	152.57	0.53		G UPPER	MUDSTONE	DK.GY.SHRD SLICKENSIDE SURFACES WITH TALC VENEER
66	152.57	152.60	0.03		G UPPER	MUDSTONE	CARB.BLK.VBRKN INTERBEDDED COAL LAMINAE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
65	152.60	153.19	0.59		G UPPER	MUDSTONE	DK.GY.THNB.SHRD INTERBEDDED COAL LAMINAE (2.0 MM); MINOR QUARTZ VEINS; TALC ON SLICKENSIDE SURFACES
62	153.19	153.30	0.11		G UPPER	MUDSTONE	CARB.BLK.VBRKN INTERBEDDED COAL STRINGERS
62	153.30	153.42	0.12		G UPPER	MUDSTONE	CARB.BLK.BRKN INTERBEDDED ANKERITE LAMINAE
61	153.42	153.52	0.10		G UPPER	COAL LOSS	
61	153.52	153.59	0.07			MUDSTONE	DK.GY.BRKN PLANT AND MARINE FOSSILS
* 60	153.59	153.69	0.10			MUDSTONE	DK.GY.THNB.BRKN MINOR INTERBEDDED COAL LAMINAE
60	153.69	153.72	0.03			COAL	C-3.BLK.SLD ANKERITE LENSE (3.0 MM) PARALLEL TO BEDDING
58	153.72	154.07	0.35			MUDSTONE	DK.GY.THKB.BRKN INTERBEDDED COAL LAMINAE; SLICKENSIDE SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
57	154.07	154.15	0.08			QUARTZ	MM.BRKN INTERBEDDED MUDSTONE LAMINAE; LISTRIC SURFACES
53	154.15	155.17	1.02			MUDSTONE	DK.GY.THNB MINOR CALCITE VEINS; TALC ON SLICKENSIDES SURFACES
* 46	155.17	156.16	0.99			SILTSTONE	SSY.M.GY.SSD.BRKN MINOR QUARTZ VEINS; INTERBEDDED VERY FINE GRAINED SANDSTONE LAMINAE; TALC ON SLICKENSIDES SURFACES
* 71	156.16	157.49	1.33			SANDSTONE	SLTY.VFG.M.GY.SSD.BRKN MINOR INTERBEDDED SILTSTONE LAMINAE; SLICKENSIDE SURFACES IN SILTSTONE; RIPPLE MARKS
* 60	157.49	157.93	0.44			SANDSTONE	SLTY.VFG.M.GY.SSD.BRKN MINOR INTERBEDDED SILTSTONE LAMINAE; MINOR QUARTZ VEINING; MINOR FAULT DISPLACEMENT ALONG QUARTZ VEIN 45 DEGREES TO CORE AXIS
61	157.93	158.11	0.18			SANDSTONE	VFG.WEL.M.GY.SSD.BRKN QUARTZ VEINING (5.0 MM); TALC ALONG SLICKENSIDE SURFACES; APPARENT FRACTURE DISTURBANCE IN SANDSTONE UNIT

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
62	158.11	158.86	0.75			SANDSTONE	SLTY.FG.MOD.M.GY.SSD.BRKN QUARTZ VEINING (<2.0 MM); INTERBEDDED SILTSTONELA MINAE AND CLAST INCLUSIONS
63	158.86	158.90	0.04			SILTSTONE	DK.GY.LAM.SLD MINOR INTERBEDDED SANDSTONE LAMINAE
64	158.90	159.34	0.44			SANDSTONE	FG.MOD.M.GY.SLD QUARTZ VEIN (10.0 MM) PARALLEL TO CORE; MINOR FAULT ALONG QUARTZ VEIN
64	159.34	159.45	0.11			SILTSTONE	DK.GY.THNB.BRKN LISTRIC SURFACES
* 65	159.45	159.72	0.27			SILTSTONE	SSY.DK.GY.THNB.SSD.SLD MINOR INTERBEDDED FINE GRAINED SANDSTONE LAMINAE
* 79	159.72	160.09	0.37			SILTSTONE	SSY.DK.GY.THNB.SSD.SLD MINOR INTERBEDDED FINE GRAINED SANDSTONE LAMINAE
78	160.09	161.27	1.18			SANDSTONE	FG.MOD.M.GY.SSD.BRKN INTERBEDDED SILTSTONE LAMINAE; MINOR QUARTZ VEINING; MINOR FAULTING ALONG QUARTZ VEINS; TALC ON SLICKENSIDE FRACTURE SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
77	161.27	161.59	0.32			SANDSTONE	FG.MOD.M.GY.SSD.BRKN INTERBEDDED SILTSTONE LAMINAE; MINOR QU ARTZ VEINING; MINOR FAULTING ALONG QUAR TZ VEINS; TALC ALONG SLICKENSIDE FRACTU RE
* 76	161.59	163.21	1.62			SANDSTONE	SLTY.FG.MOD.M.GY.SSD.SLD MINOR INTERBEDDED SILTSTONE LAMINAE
80	163.21	164.48	1.27			SANDSTONE	SLTY.FG.MOD.M.GY.SSD.BRKN ANKERITE VEIN (2.0 MM) PARALLEL TO CORE ; TALC ON SLICKENSIDE SURFACES
82	164.48	164.55	0.07			MUDSTONE	CLYY.DK.GY.SLD
82	164.55	164.60	0.05			SANDSTONE	SLTY.FG.MOD.M.GY.SSD.BRKN TALC ON SLICKENSIDE SURFACES
82	164.60	164.64	0.04			MUDSTONE	CARB.DK.GY.BRKN LISTRIC SURFACES
82	164.64	164.73	0.09		G LOWER	COAL	C-3.BLK.VBRKN
82	164.73	164.79	0.06		G LOWER	COAL	C-4.GY.VBRKN LISTRIC SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
83	164.79	164.81	0.02		G LOWER	COAL	C-2.BLK.BRKN
83	164.81	164.85	0.04		G LOWER	COAL	C-4.BLK.VBRKN LISTRIC SURFACES; MINOR MUDSTONE PARTIN G
83	164.85	164.88	0.03		G LOWER	MUDSTONE	DK.GY.BRKN LISTRIC SURFACES
83	164.88	165.05	0.17	01522	G LOWER	COAL	C-3.BLK.VBRKN SOME C-2 AND C-4; MINOR MUDSTONE PARTIN GS; SAMPLE DESIGNATION 01522A
83	165.05	165.10	0.05		G LOWER	MUDSTONE	DK.GY.THNB.SLD MINOR COAL LAMINAE PARALLEL TO BEDDING
83	165.10	165.14	0.04		G LOWER	COAL	C-4.BLK.SLD CALCITE VEIN (2.0 MM) PARALLEL TO BEDDI NG
83	165.14	165.15	0.01		G LOWER	MUDSTONE	CARB.DK.GY.LAM.BRKN
84	165.15	165.21	0.06		G LOWER	COAL	C-3.BLK.BRKN SOME C-2 AND C-4

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
84	165.21	165.22	0.01		G LOWER	MUDSTONE	DK.GY.LAM.BRKN LISTRIC SURFACES
84	165.22	165.25	0.03		G LOWER	MUDSTONE	DK.GY.LAM.BRKN LISTRIC SURFACES
84	165.25	165.43	0.18		G LOWER	COAL	C-3.BLK.VBRKN SOME C-2 AND C-4; MINOR INTERBEDDED MUD STONE LAMINAE
84	165.43	165.47	0.04		G LOWER	MUDSTONE	DK.GY.LAM.SLD MINOR COAL LAMINAE
84	165.47	165.53	0.06		G LOWER	COAL	C-5.GY.BRKN
85	165.53	165.54	0.01		G LOWER	ANKERITE	MH.SLD
* 85	165.54	165.88	0.34		G LOWER	MUDSTONE	DK.GY.THKB.SLD MINOR INTERBEDDED COAL LAMINAE
83	165.88	166.05	0.17		G LOWER	MUDSTONE	DK.GY.THNB.BRKN VERY MINOR INTERBEDDED COAL LAMINAE; LI STRIC SURFACES; TALC ON SLICKENSIDE SUR FACES
* 79	166.05	166.64	0.59		G LOWER	SANDSTONE	FG.M.GY.THNB.SSD.BRKN MINOR INTERBEDDED SILTSTONE LAMINAE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	166.64	167.03	0.39		G LOWER	SILTSTONE	SSY.DK.GY.THNB QUARTZ VEIN PARALLEL TO CORE; TALC ON S LICKENSIDE SURFACES
73	167.03	167.26	0.23		G LOWER	MUDSTONE	DK.GY.THNB.BRKN MINOR INTERBEDDED COAL LAMINAE
72	167.26	167.36	0.10		G LOWER	COAL	C-3.BLK.VBRKN SOME C-4 AND C-2; MUDSTONE PARTINGS
71	167.36	167.39	0.03		G LOWER	MUDSTONE	CARB.DK.GY.BRKN LISTRIC SURFACES
71	167.39	167.47	0.08		G LOWER	COAL	C-4.BLK.VBRKN SOME C-3 AND C-5
70	167.47	167.67	0.20		G LOWER	MUDSTONE	CARB.DK.GY.BRKN MINOR INTERBEDDED COAL LAMINAE
69	167.67	167.71	0.04		G LOWER	COAL	C-5.BLK.BRKN MINOR MUDSTONE PARTINGS
68	167.71	167.90	0.19	01534	G LOWER	COAL	C-3.BLK.VBRKN SOME C-4 AND C-2
65	167.90	168.32	0.42			MUDSTONE	DK.GY.THKB.BRKN MINOR QUARTZ LAMINAE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
61	168.32	169.13	0.81			SANDSTONE	SLTY.VFG.MOD.M.GY.THNB.SSD MINOR QUARTZ VEINS; SLICKENSIDE SURFACE S
* 57	169.13	169.25	0.12			SANDSTONE	SLTY.VFG.MOD.M.GY.THNB.SSD SLICKENSIDE SURFACES
* 64	169.25	171.08	1.83			SANDSTONE	SLTY.FG.M.GY.THNB.SSD.BRKN MINOR INTERBEDDED SILTSTONE LAMINAE; QU ARTZ VEINING; SILTSTONE CLAST INCLUSION S; SLICKENSIDE FRACTURE SURFACES
* 52	171.08	172.19	1.11			SANDSTONE	SLTY.FG.M.GY.THNB.SSD.BRKN MINOR INTERBEDDED SILTSTONE LAMINAE; QU ARTZ VEINING; SILTSTONE CLAST INCLUSION S; SLICKENSIDE FRACTURE SURFACES
* 68	172.19	173.20	1.01			SANDSTONE	SLTY.FG.M.GY.THNB.SSD.BRKN MINOR FAULT DISPLACEMENT ALONG QUARTZ V EIN; MINOR INTERBEDDED SILTSTONE LAMINA E; SILTSTONE CLAST INCLUSIONS
* 79	173.20	173.79	0.59			SANDSTONE	FG.MOD.M.GY.THNB.SSD.BRKN MINOR QUARTZ VEINING; SLICKENSIDE QUART Z VEIN FRACTURE
78	173.79	174.30	0.51			SILTSTONE	SSY.DK.GY.VTHNB.SSD.BRKN MINOR QUARTZ VEINING; SLICKENSIDE QUART Z VEIN FRACTURE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
78	174.30	174.43	0.13			ROCK LOSS	
78	174.43	174.60	0.17			SANDSTONE	MG.MEL.M.GY.SLD VERY MINOR INTERBEDDED SILTSTONE LAMINA E
77	174.60	175.33	0.73			SILTSTONE	SSY.DK.GY.THNB.SSD.BRKN INTERBEDDED SANDSTONE LAMINAE; TALC ON FRACTURE SURFACES
77	175.33	175.37	0.04			ANKERITE	MH.SLD INTERBEDDED SILTSTONE AND SANDSTONE LAM INAE
77	175.37	175.46	0.09			SANDSTONE	MG.M.GY.THNB.BRKN
76	175.46	175.61	0.15			SANDSTONE	MG.M.GY.THNB.BRKN
76	175.61	176.53	0.92			MUDSTONE	SLTY.DK.GY.THKB.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	176.53	176.56	0.03			QUARTZ	MM.BRKN
75	176.56	177.22	0.66			MUDSTONE	SLTY.DK.GY.THKB.SLD
74	177.22	177.83	0.61			MUDSTONE	SLTY.DK.GY.THKB.SHRD
73	177.83	178.00	0.17			ROCK LOSS	
* 73	178.00	178.56	0.56			MUDSTONE	SLTY.DK.GY.THKB.SLD
78	178.56	179.33	0.77			MUDSTONE	SLTY.DK.GY.THKB.SLD
84	179.33	180.10	0.77			MUDSTONE	SLTY.DK.GY.THKB.SLD
87	180.10	180.40	0.30			MUDSTONE	SLTY.DK.GY.THKB.SLD SANDSTONE INCLUSIONS THROUGHOUT

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
89	180.40	180.45	0.05			QUARTZ	MM.SLD INTERBEDDED SILTSTONE LAMINAE
* 90	180.45	180.74	0.29			SANDSTONE	MG.PR.LT.GY.THNB.SSD.SLD MINOR INTERBEDDED SILTSTONE LAMINAE
* 89	180.74	181.51	0.77			SANDSTONE	MG.PR.S-P.GY.THNB.BRKN MINOR FINE GRAINED SANDSTONE LAMINAE; Q UARTZ BLEBS
87	181.51	181.70	0.19			SANDSTONE	MG.PR.S-P.GY.THNB.SLD QUARTZ VEIN (2.0 MM) PARALLEL TO CORE
84	181.70	182.92	1.22			SANDSTONE	MG.PR.S-P.GY.THNB.RIPMK.SLD QUARTZ VEIN (2.0 MM) PARALLEL TO CORE; MINOR FINE GRAINED SANDSTONE INTERBEDS; MINOR FAULT DISPLACEMENT (10.0 MM)
79	182.92	183.60	0.68			SANDSTONE	MG.PR.S-P.GY.THKB.SLD
75	183.60	184.75	1.15			SANDSTONE	MG.PR.S-P.GY.THKB.SLD

* DENOTES MEASURED BCA

FORM 4001

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
72	184.75	185.00	0.25			SANDSTONE	MG.PR.S-P.GY.THNB.BRKN
* 71	185.00	185.23	0.23			SANDSTONE	FG.PR.M.GY.THNB.SSD.BRKN INTERBEDDED FINE GRAINED SANDSTONE LAMI NAE; QUARTZ VEIN (7.0 MM)
* 72	185.23	185.66	0.43			SANDSTONE	MG.PR.S-P.GY.THNB.SLD
81	185.66	186.04	0.38			SANDSTONE	FG.PR.LT.GY.THNB.SSD.SLD INTERBEDDED FINE GRAINED SANDSTONE
* 90	186.04	186.56	0.52			SANDSTONE	SLTY.FG.PR.M.GY.SSD.SLD RIPPLE MARKS; WORM BURROWS; MINOR INTER BEDDED SILTSTONE LAMINAE
86	186.56	186.65	0.09			SANDSTONE	MG.PR.S-P.GY.SLD
* 85	186.65	186.78	0.13			SANDSTONE	FG.PR.M.GY.SSD MINOR INTERBEDDED SILTSTONE LAMINAE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
85	186.78	187.04	0.26			SANDSTONE	SLTY.MG.PR.DK.GY.SSD.SLD INTERBEDDED SILTSTONE LAMINAE
85	187.04	187.72	0.68			SANDSTONE	FG.MOD.M.GY.THNB.SSD.SLD MINOR INTERBEDDED SILTSTONE LAMINAE
85	187.72	188.12	0.40			ROCK LOSS	
86	188.12	188.19	0.07			SANDSTONE	FG.MOD.M.GY.THNB.BRKN MINOR INTERBEDDED SILTSTONE LAMINAE
86	188.19	188.70	0.51			SANDSTONE	MG.MOD.LT.GY.THNB.BRKN
* 86	188.70	190.07	1.37			SANDSTONE	VFG.PR.M.GY.SSD.BRKN WORM BURROWS; MINOR INTERBEDDED SILTSTO NE LAMINAE
84	190.07	191.25	1.18			SANDSTONE	SLTY.VFG.MOD.M.GY.THNB.SSD.SLD WORM BURROWS; MINOR INTERBEDDED SILTSTO NE LAMINAE; PLANT FOSSILS IN SILTSTONE BEDS
83	191.25	191.30	0.05			SANDSTONE	SLTY.VFG.MOD.M.GY.THNB.SSD.SLD MINOR INTERBEDDED SILTSTONE LAMINAE
* 83	191.30	191.33	0.03			QUARTZ	WH.SLD CRYSTALLINE; MINOR CALCITE DEPOSITS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
78	191.33	192.10	0.77			SANDSTONE	SLTY.VFG.PR.M.GY.THNB.SSD.SLD WORM BURROWS; MINOR PLANT FRAGMENTS IN SILTSTONE AND INTERBEDDED SILTSTONE LAMINAE
* 72	192.10	192.28	0.18			SILTSTONE	SSY.DK.GY.VTHNB.SSD.SLD MINOR INTERBEDDED FINE GRAINED SANDSTONE LAMINAE
* 73	192.28	193.49	1.21			SANDSTONE	VFG.MOD.M.GY.THNB.BRKN INTERBEDDED SILTSTONE LAMINAE
81	193.49	193.51	0.02			QUARTZ	WH.BRKN SANDSTONE CLAST INCLUSIONS
81	193.51	193.53	0.02			MUDSTONE	CLYY.DK.GY.VBRKN PLIABLE
* 85	193.53	194.12	0.59			SANDSTONE	FG.MOD.M.GY.THNB.SSD.BRKN MINOR INTERBEDDED SILTSTONE LAMINAE
74	194.12	196.11	1.99			SANDSTONE	VFG.PR.M.GY.THNB.SSD.VBRKN RIPPLE MARKS; INTERBEDDED SILTSTONE LAMINAE
* 64	196.11	196.29	0.18			SANDSTONE	MG.WEL.M.GY.THNB.SLD MINOR INTERBEDDED FINE GRAINED SANDSTONE LAMINAE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
68	196.29	196.32	0.03			SANDSTONE	PBLY.MG.WEL.M.GY.SLD SILTSTONE PEBBLE CLASTS
* 78	196.32	196.75	0.43			SANDSTONE	MG.WEL.M.GY.THNB.SSD.SLD MINOR INTERBEDDED FINE GRAINED SANDSTONE LAMINAE
81	196.75	196.88	0.13			SANDSTONE	PBLY.MG.WEL.M.GY.SLD INTERBEDDED SILTSTONE CLASTS
* 88	196.88	198.09	1.21			SANDSTONE	MG.WEL.M.GY.THNB.SSD.BRKN MINOR INTERBEDDED FINE GRAINED SANDSTONE LAMINAE; MINOR SILTSTONE CLASTS
75	198.09	198.69	0.60			SANDSTONE	MG.MOD.M.GY.SSD.SLD RIPPLE MARKS; MINOR INTERBEDDED FINE GRAINED SANDSTONE LAMINAE
70	198.69	198.79	0.10			MUDSTONE	DK.GY.THNB.VBRKN LISTRIC SURFACES; QUARTZ VEINING
70	198.79	198.81	0.02			QUARTZ	WH.BRKN HARD; INTERBEDDED MUDSTONE LAMINAE
* 66	198.81	199.30	0.49			SANDSTONE	MG.PR.M.GY.SSD.SLD VERY MINOR INTERBEDDED SILTSTONE LAMINAE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
66	199.30	199.56	0.26			SANDSTONE	SLTY.FG.MOD.M.GY.THNB.BRKN INTERBEDDED SILTSTONE LAMINAE; SILTSTON E IS FISSILE
66	199.56	199.57	0.01			QUARTZ	MM.SLD INTERBEDDED SANDSTONE
66	199.57	199.84	0.27			SANDSTONE	MG.WEL.M.GY.THNB.SLD MINOR INTERBEDDED FINE GRAINED SANDSTON E LAMINAE
* 66	199.84	201.48	1.64			SANDSTONE	MG.WEL.M.GY.THNB.SLD MINOR INTERBEDDED FINE GRAINED SANDSTON E LAMINAE; QUARTZ VEINS (<2.0 MM)
69	201.48	201.80	0.32			SANDSTONE	MG.WEL.M.GY.THKB.SLD
* 72	201.80	203.33	1.53			SANDSTONE	MG.WEL.M.GY.THKB.SLD QUARTZ VEINS (2.0 MM) PARALLEL TO CORE AXIS AND BEDDING
72	203.33	203.41	0.08			QUARTZ	MM.SLD HARD; INTERBEDDED SANDSTONE
71	203.41	203.90	0.49			SANDSTONE	MG.WEL.M.GY.THKB.SLD QUARTZ VEINS (2.0 MM) PARALLEL TO CORE AXIS AND BEDDING

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
71	203.90	204.61	0.71			SANDSTONE	MG.WEL.M.GY.THKB.SLD QUARTZ VEIN (10.0 MM) RUNNING 19 DEGREE S TO CORE AXIS; MINOR QUARTZ VEINING
71	204.61	206.06	1.45			SANDSTONE	MG.WEL.M.GY.THKB.SLD QUARTZ VEINING (5.0 MM) MINOR SILTSTONE CLAST INCLUSIONS (20.0 MM)
70	206.06	206.24	0.18			SANDSTONE	MG.WEL.M.GY.THKB.SLD MINOR QUARTZ VEINING PARALLEL TO BEDDIN G
70	206.24	206.29	0.05			SANDSTONE	VFG.M.GY.THNB.SSD.SLD MINOR INTERBEDDED SILTSTONE LAMINAE
70	206.29	206.31	0.02			QUARTZ	MM.BRKN MINOR INTERBEDDED SANDSTONE LAMINAE
* 70	206.31	206.81	0.50			SANDSTONE	VFG.THNB.SSD.BRKN WORM BURROWS; MINOR QUARTZ VEINING (2.0 MM) PARALLEL TO BEDDING; QUARTZ ON SLI CKENSIDE FRACTURE SURFACES
69	206.81	207.21	0.40			SANDSTONE	SLTY.VFG.M.GY.THNB.SSD.VBRKN DISTURBED AREA; CONTORTED QUARTZ VEININ G AND FRACTURES
67	207.21	208.59	1.38			ROCK LOSS	

* DENOTES MEASURED BCA

ORM 4007

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
65	208.59	208.61	0.02			SANDSTONE	SLICKENSIDE FRACTURE SURFACES
65	208.61	208.63	0.02			MUDSTONE	CARB.DK.GY.BRKN LISTRIC SURFACES
65	208.63	209.23	0.60			ROCK LOSS	
64	209.23	209.49	0.26			SANDSTONE	MG.MOD.M.GY.BRKN MAJOR QUARTZ BLEBS UP TO 50.0 MM THROUG HOUT UNIT
63	209.49	209.57	0.08			SANDSTONE	MG.MOD.M.GY.BRKN MAJOR QUARTZ BLEBS UP TO 50.0 MM THROUG HOUTUNIT
* 63	209.57	209.77	0.20			SANDSTONE	MG.MOD.M.GY.THKB.BRKN QUARTZ VEINING (2.0 MM); SLICKENSIDE FR ACTURE SURFACES WITH MINOR TALC VENEER
66	209.77	210.99	1.22			SANDSTONE	MG.MOD.M.GY.BRKN MAJOR QUARTZ VEINING AND BLEBS THROUGHO UT; TALC ON QUARTZ FRACTURE SURFACES; D ISTURBANCE ZONE
68	210.99	211.09	0.10			QUARTZ	WH.SLD INTERBEDDED SANDSTONE FRAGMENTS; QUARTZ IS FRACTURED BUT INTACT; PEBBLY IN APP EARANCE; MAJOR DISTURBANCE ZONE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
69	211.09	211.82	0.73			SANDSTONE	MG.MOD.M.GY.THKB.BRKN QUARTZ VEINING (15.0 MM) PARALLEL TO CO RE
71	211.82	212.24	0.42			SANDSTONE	FG.MOD.M.GY.THNB.BRKN INTERBEDDED DARK GRAY FINE GRAINED SAND STONE; QUARTZ VEINING (2.0 mm)
73	212.24	212.51	0.27			QUARTZ	WH.VBRKN INTERBEDDED DARK GRAY FINE GRAINED SAND STONE; APPARENT FRACTURE ZONE; QUARTZ/S ANDSTONE FRACTURE 15 DEGREES TO CORE
74	212.51	212.77	0.26			QUARTZ	WH.VBRKN QUARTZ/SANDSTONE FRACTURE 15 DEGREES TO CORE
75	212.77	213.13	0.36			QUARTZ	WH.VBRKN INTERBEDDED DARK GRAY MUDSTONE; APPAREN T FRACTURE ZONE; QUARTZ/MUDSTONE FRACTU RE 50 DEGREES TO CORE
76	213.13	213.33	0.20			MUDSTONE	SLTY.DK.GY.THNB.SLD PLANT FOSSILS; VERY MINOR QUARTZ VEININ G (2.0 mm)
77	213.33	213.61	0.28			MUDSTONE	CARB.DK.GY.THNB.VBRKN MINOR COAL FRAGMENTS; LISTRIC SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
77	213.61	213.76	0.15			MUDSTONE	CARB.DK.GY.THNB.VBRKN MINOR COAL FRAGMENTS; LISTRIC SURFACES
78	213.76	213.83	0.07			MUDSTONE	SLTY.DK.GY.THNB.SLD LISTRIC SURFACES
78	213.83	214.03	0.20			SANDSTONE	SLTY.VFG.MOD.M.GY.THNB.SSD.BRKN MINOR QUARTZ VEINING (3.0 MM); INTERBED DED SILTSTONE LAMINAE
* 81	214.03	215.38	1.35			SANDSTONE	SLTY.VFG.MOD.M.GY.THNB.SSD.SLD CROSS-BEDDING; QUARTZ VEINING; VERY MIN OR INTERBEDDED SILTSTONE LAMINAE
81	215.38	215.39	0.01			MUDSTONE	CLYY.DK.GY.THNB.SLD
80	215.39	215.46	0.07			SILTSTONE	DK.GY.THNB.BRKN INTERBEDDED MUDSTONE LAMINAE (5.0 mm)
80	215.46	215.47	0.01			MUDSTONE	CLYY.DK.GY.THNB.BRKN
80	215.47	215.59	0.12			SILTSTONE	DK.GY.THNB.BRKN INTERBEDDED MUDSTONE LAMINAE (5.0 mm)
80	215.59	215.65	0.06			SILTSTONE	DK.GY.THNB.BRKN INTERBEDDED MUDSTONE LAMINAE (5.0 mm)

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
80	215.65	215.74	0.09			SANDSTONE	FG.WEL.M.GY.THKB.SLD MINOR INTERBEDDED SILTSTONE LAMINAE
* 80	215.74	216.48	0.74			SANDSTONE	FG.MOD.M.GY.THKB.SLD SINGLE QUARTZ VEIN (3.0 MM) 33 DEGREES TO CORE
77	216.48	216.72	0.24			SANDSTONE	SLTY.VFG.MOD.M.GY.THNB.SSD.SLD VERY MINOR QUARTZ AND PYRITE NODULES
74	216.72	217.41	0.69			SANDSTONE	FG.WEL.M.GY.THKB.SLD
71	217.41	217.70	0.29			SANDSTONE	FG.MOD.M.GY.THNB.SLD INTERBEDDED SILTSTONE CLASTS; CLAST UP TO 25.0 MM
69	217.70	217.80	0.10			SANDSTONE	FG.MOD.M.GY.THNB.SLD INTERBEDDED SILTSTONE CLASTS; CLASTS UP TO 25.0 MM
* 68	217.80	218.13	0.33			SANDSTONE	FG.WEL.M.GY.THKB.SLD MINOR SILTSTONE CLAST INCLUSIONS AND QU ARTZ VEINS (2.0 mm)
61	218.13	218.18	0.05			SANDSTONE	FG.WEL.M.GY.THKB.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
50	218.18	218.70	0.52			SANDSTONE	FG.MOD.M.GY.THNB.SSD.VBRKN MINOR INTERBEDDED SILTSTONE LAMINAE AND CLASTS; APPARENT DISTURBANCE ZONE; COR E SHATTERED; QUARTZ INJECTION
38	218.70	218.81	0.11			SILTSTONE	DK.GY.THNB.SSD.BRKN MINOR QUARTZ VEINING PERPENDICULAR TO C ORE; SLICKENSIDE FRACTURE SURFACES
* 33	218.81	218.96	0.15			SANDSTONE	VFG.MOD.M.GY.THNB.SSD.SLD MINOR INTERBEDDED SILTSTONE; QUARTZ VEI NING PARALLEL TO CORE DOMINANT
35	218.96	219.11	0.15			SANDSTONE	SLTY.VFG.DK.GY.VTHNB.SLD QUARTZ VEINING (3.0 MM) PARALLEL TO COR E
* 45	219.11	220.31	1.20			SANDSTONE	SLTY.VFG.PR.M.GY.SSD.VBRKN WORM BURROWS; SLICKENSIDE FRACTURE SURF ACES; TALC ON SURFACES; QUARTZ VEINING THROUGHOUT; FRACTURE ZONE SHOWS MINOR F AULT DISPLACEMENT IN BEDDING STRUCTURES
* 69	220.31	221.04	0.73			SANDSTONE	VFG.MOD.M.GY.THNB.SSD.BRKN VERY MINOR QUARTZ VEINING; INTERBEDDED SILTSTONE LAMINAE; SLICKENSIDE FRACTURE SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 68	221.04	221.70	0.66			SANDSTONE	VFG.MOD.M.GY.THNB.SSD.BRKN WORM BURROWS; MINOR QUARTZ VEINING; MIN OR FAULT DISPLACEMENT ALONG FRACTURE SU RFACES; SLICKENSIDES; INTERBEDDED SILTS TONE LAMINAE
* 36	221.70	222.95	1.25			SANDSTONE	VFG.MOD.M.GY.THNB.SSD.SHRD INTERBEDDED SILTSTONE LAMINAE; MINOR QU ARTZ VEINING; SLICKENSIDE FRACTURE SURF ACES; CORE VERY BROKEN; TALC ON SLICKEN SIDE SURFACES
* 64	222.95	223.72	0.77			SANDSTONE	VFG.MOD.M.GY.THNB.SSD.SHRD INTERBEDDED SILTSTONE LAMINAE; MINOR QU ARTZ VEINING; SLICKENSIDE FRACTURE SURF ACES; CORE VERY BROKEN; TALC ON SLICKEN SIDE SURFACES
* 69	223.72	223.90	0.18			SANDSTONE	VFG.MOD.M.GY.THNB.SSD.SLD MUDSTONE FRACTURE (10.0 MM) PARALLEL TO CORE WITH SANDSTONE CLAST INCLUSIONS; MINOR BEDDING DISPLACEMENT
* 84	223.90	224.09	0.19			SANDSTONE	VFG.MOD.M.GY.THNB.SLD 45 DEGREE SLICKENSIDES AT BASE AT CORE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 82	224.09	224.82	0.73			SANDSTONE	SLTY.VFG.MOD.M.GY.THNB.SSD.SHRD CROSS-BEDDING; SLICKENSIDE ALONG SHEAR SURFACES WITH TALC PRESENT; MINOR CALCITE VEINING; INTERBEDDED SILTSTONE LAMINAE
87	224.82	225.08	0.26			SANDSTONE	SLTY.VFG.MOD.M.GY.THNB.SSD.SHRD INTERBEDDED SILTSTONE LAMINAE; VERY MINOR FAULT DISPLACEMENT ALONG QUARTZ VEINS
89	225.08	225.19	0.11			SILTSTONE	DK.GY.VTHNB.SSD.SLD VERY MINOR INTERBEDDED FINE GRAINED SANDSTONE
* 90	225.19	225.32	0.13			SANDSTONE	VFG.MOD.M.GY.THNB.SSD.SLD CROSS-BEDDING; MINOR INTERBEDDED SILTSTONE LAMINAE; TOPS UP
90	225.32	225.61	0.29			SILTSTONE	SSY.DK.GY.THNB.SSD.BRKN VERY MINOR QUARTZ VEINING (2.0 MM); MINOR SLICKENSIDE SURFACES
* 89	225.61	226.15	0.54			SANDSTONE	VFG.MOD.M.GY.THNB.SSD.SLD WORM BURROWS; CROSS-BEDDING; MINOR INTERBEDDED SILTSTONE LAMINAE; TOPS UP

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 71	226.15	226.63	0.48			SANDSTONE	SLTY.VFG.HEL.M.GY.THNB.SLD INTERBEDDED SILTSTONE LAMINAE
79	226.63	226.80	0.17			SILTSTONE	SSY.DK.GY.VTHNB.SSD.SLD MINOR INTERBEDDED VERY FINE GRAINED SANDSTONE LAMINAE
83	226.80	226.87	0.07			QUARTZ	MM.SLD INTERBEDDED SILTSTONE; FAULT ZONE WITH (20.0 MM) DISPLACEMENT; FAULT ANGLE 48 DEGREES TO CORE AXIS
* 86	226.87	227.07	0.20			SANDSTONE	SLTY.VFG.MOD.M.GY.THNB.SSD.SLD INTERBEDDED SILTSTONE LAMINAE; SLICKENSIDE FRACTURE SURFACES
84	227.07	227.26	0.19			SANDSTONE	FG.MOD.M.GY.THNB.BRKN MINOR QUARTZ VEINING AT BASE OF UNIT
83	227.26	227.28	0.02	01518	E	COAL	C-3.BLK.VBRKN
82	227.28	227.31	0.03	01518	E	MUDSTONE	CARB.DK.GY.THNB.SLD MINOR COAL LAMINAE
81	227.31	227.43	0.12	01518	E	COAL	C-2.BLK.BRKN SOME C-3

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
81	227.43	227.45	0.02	01518	E	MUDSTONE	CARB.DK.GY.SLD MINOR COAL LAMINAE
80	227.45	227.48	0.03	01518	E	COAL	C-3.BLK.SLD
80	227.48	227.52	0.04	01518	E	MUDSTONE	CARB.DK.GY.SLD MINOR INTERBEDDED COAL LAMINAE; LISTRIC SURFACES
78	227.52	227.88	0.36	01518	E	COAL	C-2.BLK.BRKN SOME C-1 AND C-3; SEMI-CONCHOIDAL FRACTURE
75	227.88	227.95	0.07	01518	E	COAL	C-3.BLK.SLD INTERBEDDED QUARTZ VEINS
73	227.95	228.20	0.25	01518	E	COAL	C-2.BLK.VBRKN SOME C-3; SEMI-CONCHOIDAL FRACTURE; MINOR MUDSTONE AND QUARTZ VEINS
72	228.20	228.21	0.01	01518	E	QUARTZ	WH.BRKN MINOR COAL FRAGMENTS
71	228.21	228.27	0.06	01518	E	COAL	C-2.BLK.BRKN PYRITE VEINS THROUGHOUT
71	228.27	228.36	0.09	01518	E	COAL	C-3.BLK.BRKN SOME C-2 AND C-4; MINOR QUARTZ VEINS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 67	228.36	228.89	0.53			SILTSTONE	SSY.DK.GY.VTHNB.SSD.BRKN SLICKENSIDE FRACTURE SURFACES AND LISTRIC SURFACES
69	228.89	229.24	0.35			SILTSTONE	DK.GY.THNB.SLD MINOR QUARTZ AND COAL VEINS (3.0 MM) THROUGHOUT UNIT
* 71	229.24	229.50	0.26			SANDSTONE	SLTY.VFG.MOD.M.GY.VTHNB.SSD.SLD MINOR INTERBEDDED SILTSTONE LAMINAE
78	229.50	230.28	0.78			SANDSTONE	VFG.MOD.M.GY.THNB.SSD.SLD WORM BURROWS; MINOR INTERBEDDED SILTSTONE LAMINAE
* 87	230.28	230.98	0.70			SANDSTONE	VFG.MOD.M.GY.THNB.XBDG.SLD MINOR INTERBEDDED SILTSTONE; MINOR QUARTZ VEIN 45 DEGREES TO CORE; TOPS UP
* 76	230.98	233.03	2.05			SANDSTONE	FG.MOD.M.GY.THNB.SSD.SLD WORM BURROWS; MINOR INTERBEDDED SILTSTONE LAMINAE
73	233.03	233.45	0.42			SANDSTONE	SLTY.FG.MOD.M.GY.THNB.SSD.SLD MINOR INTERBEDDED SILTSTONE LAMINAE

* DENOTES MEASURED BCA

FORM 4001

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 71	233.45	235.05	1.60			SANDSTONE	SLTY.VFG.MOD.M.GY.THNB.SSD.BRKN WORM BURROWS; CROSS-BEDDING; INTERBEDDE D SILTSTONE LAMINAE; TOPS UP
* 77	235.05	235.30	0.25			SANDSTONE	SLTY.VFG.MOD.M.GY.THNB.SSD.BRKN INTERBEDDED SILTSTONE LAMINAE; VERY MIN OR QUARTZ VEINS (1.0 mm)
80	235.30	235.95	0.65			SANDSTONE	SLTY.VFG.MOD.M.GY.YTHNB.SSD.VBRKN CROSS-BEDDING; SLICKENSIDE FRACTURE SUR FACES; TOPS UP; TALC ON SLICKENSIDE SUR FACES
* 83	235.95	236.42	0.47			SILTSTONE	SSY.DK.GY.VTHNB.BRKN MINOR INTERBEDDED VERY FINE GRAINED SAN DSTONE LAMINAE; QUARTZ VEINING (3.0 MM) 20 DEGREES TO CORE; MINOR DRAGFOLD OCC URANCE APPROXIMATELY 5.0 MM
* 76	236.42	236.84	0.42			SILTSTONE	SSY.DK.GY.VTHNB.BRKN MINOR INTERBEDDED VERY FINE GRAINED SAN DSTONE LAMINAE; QUARTZ VEINING
* 74	236.84	237.01	0.17			SILTSTONE	SSY.DK.GY.VTHNB.BRKN MINOR INTERBEDDED VERY FINE GRAINED SAN DSTONE LAMINAE; QUARTZ VEINING

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
74	237.01	237.59	0.58			SILTSTONE	DK.GY.THNB.BRKN FAULT ZONE 25 DEGREES TO CORE; OPPOSING SIDE OF CORE SANDSTONE VERY FINE GRAIN ED; GRAY MEDIUM THIN BED; QUARTZ VEININ G THROUGHOUT; (NORMAL FAULT?); SLICKENS IDE SURFACES
* 75	237.59	238.63	1.04			SANDSTONE	SLTY.VFG.MOD.DK.GY.THNB.SSD.BRKN CROSS-BEDDING; QUARTZ VEINING (2.0-5.0 MM) THROUGHOUT PARALLEL TO CORE
* 81	238.63	239.26	0.63			SANDSTONE	SLTY.VFG.MOD.DK.GY.THNB.SSD.SLD BEDDING SHOWS FAULT DISPLACEMENT; QUART Z VEINING THROUGHOUT (2.0-5.0 MM) 40 DE GREES TO CORE
80	239.26	239.53	0.27			SANDSTONE	SLTY.VFG.MOD.DK.GY.THNB.SSD.SLD BEDDING SHOWS FAULT DISPLACEMENT; QUART Z VEINING THROUGHOUT (2.0-5.0 MM) 40 DE GREES TO CORE
78	239.53	240.59	1.06			SANDSTONE	VFG.MOD.M.GY.THNB.SSD.SLD MINOR DRAG FOLDS APPARENT; INTERBEDDED SILTSTONE LAMINAE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 73	240.59	242.52	1.93			SANDSTONE	SLTY.VFG.MOD.DK.GY.THNB.SSD.BRKN INTERBEDDED SILTSTONE LAMINAE; MINOR SLICKENSIDE SURFACES; MINOR QUARTZ VEINING (2.0-4.0 MM)
* 62	242.52	244.56	2.04			SANDSTONE	SLTY.VFG.MOD.DK.GY.THNB.SSD.BRKN CROSS-BEDDING; INTERBEDDED SILTSTONE LAMINAE; MINOR SLICKENSIDE SURFACES; TOPS UP; MINOR QUARTZ VEINING (2.0-4.0 MM)
* 70	244.56	246.49	1.93			SANDSTONE	SLTY.VFG.MOD.DK.GY.THNB.SSD.BRKN WORM BURROWS; INTERBEDDED SILTSTONE LAMINAE; MINOR SLICKENSIDE SURFACES; MINOR QUARTZ VEINING (2.0-4.0 MM); MINOR FAULT DISPLACEMENT 15.0 MM
* 71	246.49	247.59	1.10			SANDSTONE	SLTY.VFG.MOD.M.GY.THNB.SSD.SLD WORM BURROWS; VERY MINOR QUARTZ VEINING (1.0 MM)
71	247.59	248.23	0.64			SILTSTONE	DK.GY.VTHNB.SSD.SLD MINOR INTERBEDDED VERY FINE GRAINED SANDSTONE LAMINAE
72	248.23	248.55	0.32			SILTSTONE	DK.GY.VTHNB.SSD.SLD MINOR INTERBEDDED VERY FINE GRAINED SANDSTONE LAMINAE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 72	248.55	250.53	1.98			SILTSTONE	DK.GY.VTHNB.SSD.VBRKN MINOR SLICKENSIDE SURFACES; MINOR INTERBEDDED VERYFINE GRAINED SANDSTONE LAMINAE
70	250.53	251.12	0.59			SILTSTONE	DK.GY.THNB.SSD.VBRKN QUARTZ VEINING; SLICKENSIDE SURFACES WITH TALC VENEER
69	251.12	251.62	0.50			MUDSTONE	CARB.DK.GY.VTHNB.VBRKN LISTRIC SURFACES; MINOR INTERBEDDED COAL LAMINAE; MINOR QUARTZ VEINING; TALC LENSES
68	251.62	252.45	0.83	01519	D	COAL	C-2.BLK.VBRKN SOME C-3 AND C-4; COMPLETELY SHATTERED; LITHOLOGIES UNDETERMINABLE; INTERBEDDED SILTSTONE AND MUDSTONE PARTINGS
67	252.45	252.61	0.16	01519	D	COAL LOSS	
67	252.61	252.67	0.06	01519	D	COAL	C-2.BLK.VBRKN SOME C-3 AND C-4; COMPLETELY SHATTERED; LITHOLOGIES UNDETERMINABLE; INTERBEDDED SILTSTONE AND MUDSTONE PARTINGS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
67	252.67	252.70	0.03	01519	D	COAL	C-1.BLK.VBRKN MINOR QUARTZ VEINING
67	252.70	252.75	0.05			MUDSTONE	CARB.DK.GY.VBRKN SLICKENSIDE AND LISTRIC SURFACES
* 66	252.75	253.67	0.92			SANDSTONE	SLTY.VFG.MOD.M.GY.THNB.SSD.BRKN NORM BURROWS; RIPPLE MARKS; TOPS UP; IN TERBEDDED SILTSTONE LAMINAE; SLICKENSID E FRACTURE SURFACES WITH TALC VENEER
82	253.67	253.78	0.11			MUDSTONE	DK.GY.SLD LISTRIC SURFACES
* 88	253.78	254.06	0.28			SANDSTONE	SLTY.VFG.MOD.DK.GY.VTHNB.SSD SLICKENSIDE FRACTURE SURFACES; INTERBED DED SILTSTONE LAMINAE
83	254.06	254.09	0.03			MUDSTONE	DK.GY.THNB.VBRKN QUARTZ VEIN (3.0 MM) PARALLEL TO BEDDIN G; INTERBEDDED COAL LAMINAE
81	254.09	254.18	0.09			SILTSTONE	DK.GY.THNB.BRKN
79	254.18	254.21	0.03			MUDSTONE	DK.GY.THNB.SLD INTERBEDDED COAL LAMINAE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 76	254.21	254.40	0.19			SANDSTONE	SLTY.VFG.MOD.M.GY.THNB.SSD.SLD RIPPLE MARKS; INTERBEDDED SILTSTONE LAM INAE
76	254.40	254.61	0.21			SILTSTONE	SSY.DK.GY.THNB.SSD.BRKN QUARTZ VEINING (5.0 MM) PARALLEL TO COR E; TALC ON SLICKENSIDE SURFACES
76	254.61	254.73	0.12			SANDSTONE	SLTY.VFG.MOD.M.GY.THNB.SSD.BRKN MINOR INTERBEDDED SILTSTONE LAMINAE
76	254.73	254.78	0.05			MUDSTONE	CLYY.DK.GY.THNB.SLD SLICKENSIDE SURFACES; LISTRIC SURFACES
76	254.78	256.03	1.25			SANDSTONE	FG.MOD.LT.GY.BRKN QUARTZ VEINING PARALLEL AND PERPENDICUL AR TO BEDDING UP TO 5.0 MM; SILTSTONE C LAST INCLUSIONS (<3.0 MM); VERY MINOR I NTERBEDDED SILTSTONE LAMINAE
* 76	256.03	256.19	0.16			SILTSTONE	DK.GY.THNB.SSD.VBRKN QUARTZ VEINING THROUGHOUT; MINOR INTERB EDDED SANDSTONE LAMINAE; SLICKENSIDE SU RFACES
77	256.19	256.24	0.05			MUDSTONE	DK.GY.THNB.BRKN LISTRIC SURFACES; SLIGHTLY FISSILE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 81	256.24	257.16	0.92			SANDSTONE	SLTY.VFG.MOD.M.GY.THNB.BRKN MINOR INTERBEDDED SILTSTONE LAMINAE; LI STRIC SURFACES
70	257.16	257.23	0.07			SANDSTONE	SLTY.VFG.MOD.M.GY.THNB.VBRKN QUARTZITE VEINING APPROXIMATELY 5.0 MM; LISTRIC SURFACES
* 65	257.23	257.67	0.44			SANDSTONE	SLTY.VFG.MOD.M.GY.THNB.BRKN LISTRIC SURFACES
70	257.67	258.16	0.49			SANDSTONE	SLTY.VFG.MOD.M.GY.THNB.SSD.BRKN LISTRIC SURFACES
* 76	258.16	258.81	0.65			SANDSTONE	SLTY.VFG.WEL.M.GY.THNB.SLD SLICKENSIDE FRACTURE SURFACES
69	258.81	258.82	0.01			MUDSTONE	DK.GY.THNB.SLD
69	258.82	258.83	0.01			QUARTZ	MM.SLD INTERBEDDED SANDSTONE CLASTS
* 54	258.83	260.16	1.33			SANDSTONE	SLTY.VFG.MOD.M.GY.THNB.BRKN SLICKENSIDE FRACTURE SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
65	260.16	260.47	0.31			SANDSTONE	SLTY.VFG.MOD.M.GY.THNB.BRKN MINOR QUARTZ VEIN; SLICKENSIDE FRACTURE SURFACES WITH TALC VENEER
68	260.47	260.60	0.13			SANDSTONE	SLTY.VFG.MOD.M.GY.THNB.BRKN MINOR QUARTZ VEIN; SLICKENSIDE FRACTURE SURFACES WITH TALC VENEER
69	260.60	260.62	0.02			QUARTZ	MM.SLD INTERBEDDED SANDSTONE LAMINAE
* 73	260.62	261.24	0.62			SANDSTONE	FG.MOD.LT.GY.THNB.BRKN QUARTZ VEIN (2.0 MM) PERPENDICULAR TO B EDDING; SLICKENSIDE FRACTURE SURFACES; QUARTZ VEIN (2.0 MM) AT BASE OF UNIT
* 50	261.24	261.98	0.74			SILTSTONE	SSY.DK.GY.THNB.BRKN QUARTZ VEIN (1.0-3.0 MM); SLICKENSIDE F RACTURE SURFACES
42	261.98	262.00	0.02			QUARTZ	MM.VBRKN
42	262.00	262.03	0.03			MUDSTONE	DK.GY.LAM.VBRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 28	262.03	263.29	1.26			SANDSTONE	SLTY.VFG.MOD.M.GY.THNB.SSD.BRKN WORM BURROWS; SLICKENSIDE FRACTURE SURFACES WITH TALC VENEER
28	263.29	263.93	0.64			SANDSTONE	SLTY.VFG.MOD.M.GY.THNB.SSD.BRKN SLICKENSIDE FRACTURE SURFACES WITH TALC VENEER
* 27	263.93	265.80	1.87			SANDSTONE	SLTY.VFG.MOD.DK.GY.THNB.SSD.BRKN RIPPLE MARKS; INTERBEDDED SILTSTONE LAMINAE; MINOR SILTSTONE FRAGMENTS INTERSPERSED THROUGHOUT
* 19	265.80	265.97	0.17			SANDSTONE	SLTY.VFG.MOD.DK.GY.THNB.SSD.BRKN INTERBEDDED SILTSTONE LAMINAE; MINOR MUDSTONE PARTING (5.0 MM) PERPENDICULAR TO CORE; QUARTZ VEINING PERPENDICULAR TO CORE
18	265.97	265.98	0.01			QUARTZ	WH.BRKN PARALLEL TO BEDDING; INTERBEDDED SANDSTONE
17	265.98	266.17	0.19			SANDSTONE	VFG.MOD.LT.GY.BRKN DISTURBED UNIT WITH SILTSTONE BLEBS NEAR TOP OF UNIT

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 06	266.17	267.65	1.48			SANDSTONE	FG.WEL.M.GY SLICKENSIDE FRACTURE SURFACES; TALC VEENER; QUARTZ VEIN (5.0 MM) PERPENDICULAR TO CORE; MINOR INTERBEDDED SILTSTONE LAMINAE
12	267.65	268.62	0.97			SANDSTONE	FG.WEL.M.GY.THKB.SLD
* 15	268.62	269.10	0.48			SANDSTONE	FG.MOD.M.GY.THNB.SSD.SLD MINOR QUARTZ VEIN (5.0 MM) PERPENDICULAR TO CORE
18	269.10	269.36	0.26			SANDSTONE	SLTY.VFG.MOD.DK.GY.THNB.SLD MINOR QUARTZ VEINING PERPENDICULAR TO CORE
19	269.36	269.40	0.04			QUARTZ	WH.BRKN INTERBEDDED SANDSTONE LAMINAE
20	269.40	269.55	0.15			SANDSTONE	MG.MOD.M.GY.THNB.SSD.BRKN QUARTZ AND TALC VEINS; INTERBEDDED SILTSTONE AND VERY FINE GRAINED SANDSTONE LAMINAE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
20	269.55	269.57	0.02			MUDSTONE	DK.GY.BRKN LISTRIC SURFACES
21	269.57	269.62	0.05			SILTSTONE	DK.GY.THNB.BRKN MINOR QUARTZ VEINING
21	269.62	269.73	0.11			SANDSTONE	MG.MOD.M.GY.THNB.BRKN MINOR SILTSTONE CLAST INCLUSIONS
22	269.73	269.74	0.01			QUARTZ	WH.SLD MINOR SILTSTONE FRAGMENT INCLUSIONS
* 27	269.74	271.10	1.36			SILTSTONE	SSY.DK.GY.THNB.SSO.SLD WORM BURROWS; INTERBEDDED VERY FINE GRA INED SANDSTONE; SLICKENSIDE FRACTURE SU RFACES
22	271.10	271.13	0.03			MUDSTONE	CLYY.DK.GY.THNB.SLD MINOR QUARTZ CLAST INCLUSIONS
20	271.13	271.55	0.42			MUDSTONE	CARB.DK.GY.THKB.SLD SLICKENSIDE FRACTURE SURFACES; INTERBED DED COAL LENSES (1.0 MM)
* 17	271.55	272.00	0.45			MUDSTONE	CARB.DK.GY.THKB.SLD SLICKENSIDE FRACTURE SURFACES; INTERBED DED COAL LENSES (1.0 MM); PYRITE VEINS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
17	272.00	272.36	0.36	01520	C	COAL	C-3.BLK.VBRKN SOME C-2 AND C-4; MINOR MUDSTONE PARTIN GS; COAL SHATTERED
18	272.36	273.20	0.84	01520	C	COAL	C-2.BLK.VBRKN SEMI-CONCHOIDAL FRACTURE; SOME C-3 AND C-4; MUDSTONE PARTINGS; COAL SHATTERED
18	273.20	273.33	0.13	01520	C	COAL	C-4.BLK.VBRKN SHATTERED; SOME C-3; MINOR MUDSTONE LAM INAE
19	273.33	274.85	1.52	01520	C	COAL	C-2.BLK.VBRKN SOME C-1 AND C-3; MINOR MUDSTONE PARTIN GS; CORE TOTALLY SHATTERED
20	274.85	276.54	1.69	01520	C	COAL	C-2.BLK.VBRKN SOME C-1 AND C-3; INTERBEDDED MUDSTONE LAMINAE; CORE TOTALLY SHATTERED
21	276.54	278.19	1.65	01520	C	COAL	C-2.BLK.VBRKN SOME C-1 AND C-3; MUDSTONE LAMINAE PART INGS; SOME QUARTZ; CORE IS SHATTERED
22	278.19	278.29	0.10	01520	C	COAL	C-2.BLK.VBRKN SOME C-1 AND C-3; SOME MUDSTONE LAMINAE PARTINGS; CORE SHATTERED

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
22	278.29	278.96	0.67	01520	C	COAL	C-2.BLK.VBRKN SOME C-1 AND C-3; CORE SHATTERED; SOME MUDSTONE PARTINGS
23	278.96	279.00	0.04	01520	C	MUDSTONE	CARB.DK.GY.VBRKN
23	279.00	280.07	1.07	01520	C	COAL	C-2.BLK.VBRKN SOME C-1 AND C-3; CORE SHATTERED; SOME MUDSTONE PARTINGS
24	280.07	280.28	0.21	01520	C	COAL	C-2.BLK.VBRKN SOME C-1 AND C-3; CORE SHATTERED; MUDST ONE PARTINGS
24	280.28	280.30	0.02	01520	C	SILTSTONE	DK.GY.THNB.BRKN
24	280.30	281.08	0.78	01520	C	COAL	C-2.BLK.VBRKN SOME C-1 AND C-3; CORE SHATTERED; SOME MUDSTONE PARTINGS
24	281.08	281.12	0.04	01520	C	ANKERITE	MM.SLD HARD; COAL INTERBEDS
24	281.12	281.19	0.07	01520	C	COAL	C-3.BLK.BRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
25	281.19	282.18	0.99	01520	C	COAL	C-2.BLK.VBRKN SOME C-1,C-3 AND C-4; SOME MUDSTONE AND QUARTZ VEINING
25	282.18	282.45	0.27	01520	C	COAL	C-2.BLK.VBRKN SEMI-CONCHOIDAL FRACTURE; QUARTZ LAMINAE AND PYRITE BLEBS
25	282.45	282.54	0.09			MUDSTONE	CARB.DK.GY.VBRKN QUARTZ VEINING; INTERBEDDED COAL LAMINAE
26	282.54	283.98	1.44			SILTSTONE	DK.GY.THKB.SSD.BRKN QUARTZ VEINING UP TO 5.0 mm THROUGHOUT; MINOR INTERBEDDED COAL LAMINAE; MINOR PLANT FOSSILS
* 27	283.98	285.23	1.25			SILTSTONE	SSY.DK.GY.THNB.BRKN VERY MINOR QUARTZ VEINING; MINOR INTERBEDDED VERY FINE GRAINED SANDSTONE LAMINAE
* 17	285.23	286.04	0.81			SILTSTONE	SSY.DK.GY.THNB.BRKN VERY MINOR QUARTZ VEINING; MINOR INTERBEDDED VERY FINE GRAINED SANDSTONE LAMINAE; SLICKENSIDE SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 21	286.04	288.15	2.11			SILTSTONE	SSY.DK.GY.THNB.SSD.SLD SLICKENSIDE FRACTURE SURFACES; MINOR IN TERBEDDED VERY FINE GRAINED SANDSTONE L AMINAE; MINOR QUARTZ VEINING
* 27	288.15	288.30	0.15			SILTSTONE	SSY.DK.GY.THNB.SSD.SLD MINOR INTERBEDDED VERY FINE GRAINED SAN DSTONE LAMINAE ?????????????????????????? ????? END OF HOLE ?????????????????????? ?????????????????? TOTAL DEPTH = 288.30 M ETRES

* DENOTES MEASURED BCA

NEWPAGE

FORM 4091

KPNLRDDH 84007

SAMPLE SUMMARY

GULF CANADA RESOURCES INC. - COAL DIVISION

10/DEC/84 SIMPLE SAMPLE SUMMARY PAGE 1

APPARENT THICKNESS

KLAPPAN PROJECT

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK	TOTAL COAL-ROCK
DDH84007										
	I	1515	56.87	62.32	92.66	4.73	0.32	0.40	0.00	5.13- 0.32
	H	1516	103.00	107.18	96.17	3.27	0.75	0.16	0.00	3.43- 0.75
	THE PHANTOM	1517	124.77	127.86	100.00	2.54	0.55	0.00	0.00	2.54- 0.55
	G UPPER	1521	151.43	151.72	100.00	0.29	0.00	0.00	0.00	0.29- 0.00
	G LOWER	1522	167.71	167.90	100.00	0.19	0.00	0.00	0.00	0.19- 0.00
	E	1518	227.26	228.36	100.00	1.00	0.10	0.00	0.00	1.00- 0.10
	D	1519	251.62	252.70	85.18	0.92	0.00	0.16	0.00	1.08- 0.00
	C	1520	272.00	282.45	100.00	10.35	0.10	0.00	0.00	10.35- 0.10

GULF CANADA RESOURCES INC. - COAL DIVISION

10/DEC/84 COMPOSITE SAMPLE SUMMARY PAGE 1

APPARENT THICKNESS

KLAPPAN PROJECT

DATA SOURCE	SEAM	COMP ID	SAMPLE FROM	SAMPLE TO	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK	TOTAL COAL-ROCK
DDH84007												
	i	19	1515	1515	56.87	62.32	92.66	4.73	0.32	0.40	0.00	5.13- 0.32
	h	20	1516	1516	103.00	107.18	96.17	3.27	0.75	0.16	0.00	3.43- 0.75
		21	1517	1517	124.77	127.86	100.00	2.54	0.55	0.00	0.00	2.54- 0.55
	e	22	1518	1518	227.26	228.36	100.00	1.00	0.10	0.00	0.00	1.00- 0.10
	d	23	1519	1519	251.62	252.70	85.18	0.92	0.00	0.16	0.00	1.08- 0.00
	c	24	1520	1520	272.00	282.45	100.00	10.35	0.10	0.00	0.00	10.35- 0.10

KPNLRDDH 84007

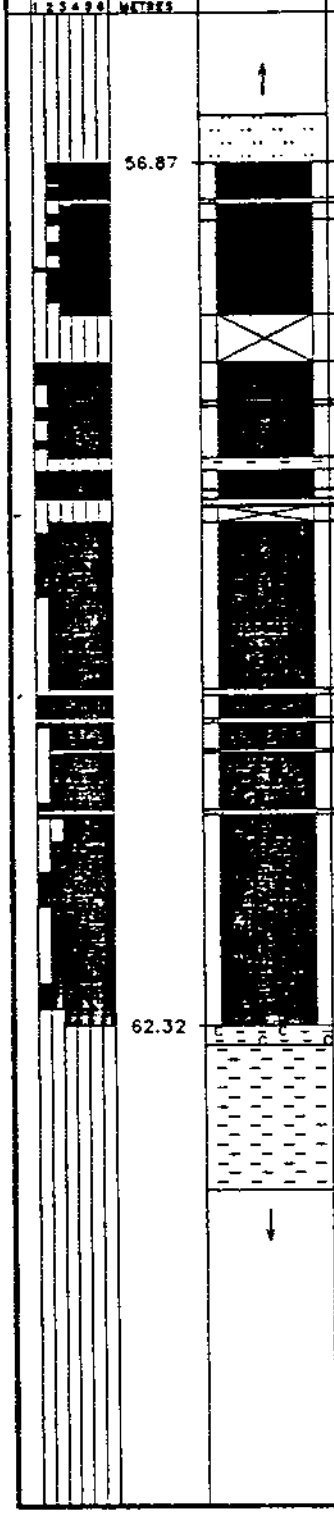
COAL SEAM DATA SHEETS

GULF CANADA RESOURCES INC.

SEAM DETAIL — COAL DIVISION, MOUNT KLAPPAN PROJECT — **TRUE THICKNESS**

DATA SOURCE: KPN LR DDH84007 SEAM : 1 INTERVAL(M) : 56.87 – 62.32 ELEVATION(M) : 1590.0

GEOLOGIST : B. GLOVER DATE : DEC 06/84 DRAWING NO. :



SEAM COMP. 1 2 3 4 5 6	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES ROCK	INTERVAL METRES COAL	% REC.	SAMPLE ID SIMP	SAMPLE ID COMP	COAL/ROCK TOTAL COMPOS	COAL/ROCK TOTAL MINING SECTION	COAL QUALITY A.D.B. RES MOIST	ASH	VM	FC	TS	CAL.VAL MJ/KG
	56.87			0.23											
				0.10											
				0.59											
				(0.30)											
				0.24											
				0.32											
				(0.10)											
				1.05	82.7	1515	19	5.11 / 0.32 5.43		1.40	21.27	6.80	70.53	0.39	27.14
				0.14											
				0.17											
				0.36											
				1.34											
	62.32														

GULF CANADA RESOURCES INC.

SEAM DETAIL — **COAL DIVISION** — **MOUNT KLAPPAN PROJECT** — **TRUE THICKNESS**

DATA SOURCE: KPN LR DDH84007 SEAM : H INTERVAL(M) : 103.00 – 107.18 ELEVATION(M) : 1590.0

GEOLOGIST : B. GLOVER DATE : DEC 08/84 DRAWING NO. :

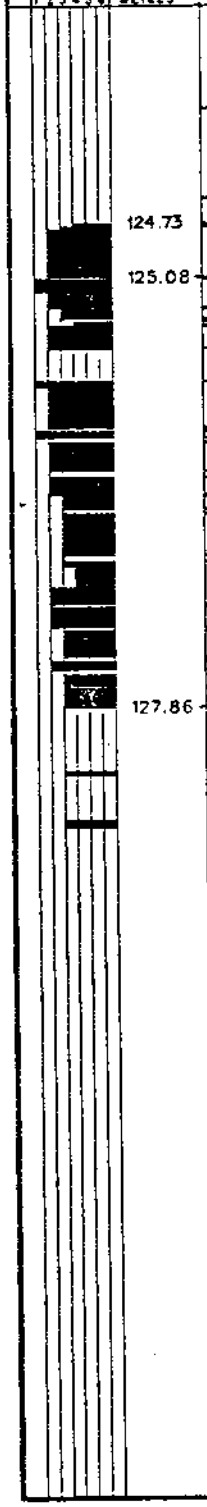
SEAM COMP. 1 2 3 4 5 6	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES ROCK	INTERVAL METRES COAL	% REC.	SAMPLE ID SIMP	SAMPLE ID COMP	COAL/ROCK TOTAL COMPOS	COAL/ROCK TOTAL MINING SECTION	COAL QUALITY A.D.B. RES MOIST	ASH	VM	FC	TS	CAL.V AL MJ/KG
	103.00			0.08											
				0.11											
				(0.16)											
				0.13											
				0.29											
				0.19											
				0.24											
				0.31	86.0	1516	20	3.24 / 0.72 3.48		1.81	35.73	8.01	54.45	0.35	21.08
				0.18											
				0.73											
				0.24											
				0.23											
	107.18														

GULF CANADA RESOURCES INC.

SEAM DETAIL — COAL DIVISION, MOUNT KLAPPAN PROJECT — **TRUE THICKNESS**

DATA SOURCE: KPN LR DDH84007 SEAM : PHANTOM INTERVAL(M) : 124.73 – 127.86 ELEVATION(M) : 1590.0

GEOLOGIST : B. GLOVER DATE : DEC 06/84 DRAWING NO. :



SEAM COMP. 1 2 3 4 5 6	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES ROCK	INTERVAL METRES COAL	% REC.	SAMPLE ID SIMP	SAMPLE ID COMP	COAL/ROCK TOTAL COMPOS	COAL/ROCK TOTAL MINING SECTION	COAL QUALITY A.D.B. RES MOIST	ASH	VM	FC	TS	CAL.VAL MJ/KG
	124.73			0.32											
	125.08			0.18											
				0.21											
				0.29											
				0.18											
				0.26	100.0	1517	21	2.46 / 0.51 3.02		0.75	33.06	7.52	58.67	0.27	22.80
				0.27											
				0.18											
	127.86														

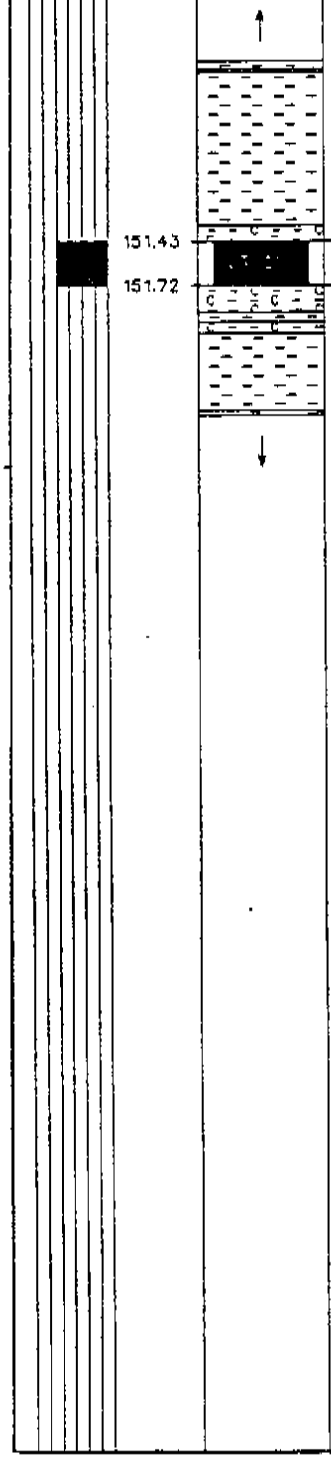
GULF CANADA RESOURCES INC.

SEAM DETAIL — COAL DIVISION, MOUNT KLAPPAN PROJECT — **TRUE THICKNESS**

DATA SOURCE: KPN LR DDH84007 SEAM : G UPPER INTERVAL(M) : 151.43 – 151.72 ELEVATION(M) : 1590.0

GEOLOGIST : B. GLOVER DATE : DEC 06/84 DRAWING NO. :

SEAM COMP. 1 2 3 4 5 6	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES ROCK	INTERVAL METRES COAL	% REC.	SAMPLE ID SIMP	SAMPLE ID COMP	COAL/ROCK TOTAL COMPOS	COAL/ROCK TOTAL MINING SECTION	COAL QUALITY A.D.B. RES MOIST	ASH	VM	FC	TS	CAL.VAL MJ/KG
	151.43			0.28	100.0	1521		0.28/3.00 0.22							
	151.72														

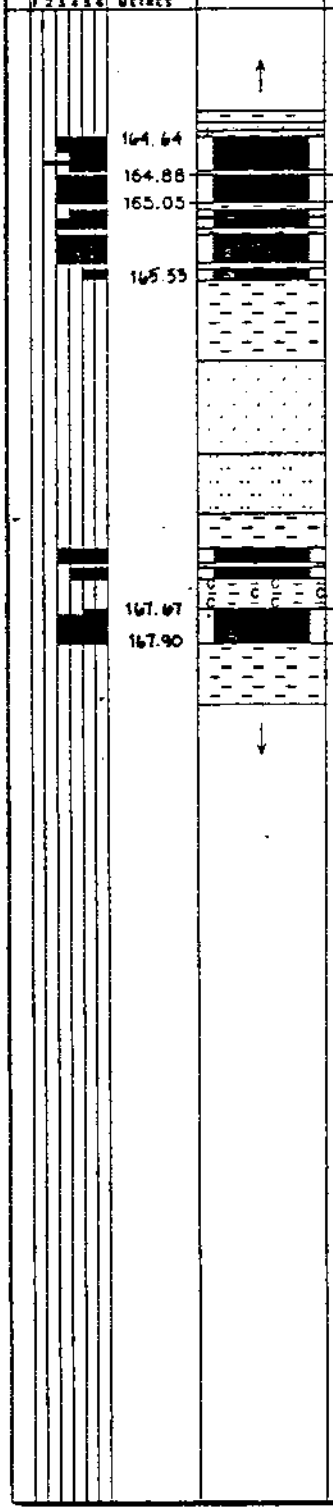


GULF CANADA RESOURCES INC.

SEAM DETAIL — COAL DIVISION — MOUNT KLAPPAN PROJECT — TRUE THICKNESS

DATA SOURCE: KPN LR 80H84007 SEAM - G LOWER INTERVAL(M) : 164.64 - 165.55 ELEVATION(M) : 1590.0

GEOLOGIST : B. GLOVER DATE : DEC 06/84 DRAWING NO. :



SEAM COMP. 1 2 3 4 5 6	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES ROCK	INTERVAL METRES COAL	% REC.	SAMPLE ID SIMP	SAMPLE ID COMP	COAL/ROCK TOTAL COMPOS	COAL/ROCK TOTAL MINING SECTION	COAL QUALITY A.D.B. RES MOIST	ASH	VM	FC	TS	CAL VAL MJ/KG
	164.64														
	164.88			0.17	100.0	1522									
	165.05														
	165.55														
	167.67			0.22	100.0	1554									
	167.90														

GULF CANADA RESOURCES INC.

SEAM DETAIL — COAL DIVISION, MOUNT KLAPPAN PROJECT — **TRUE THICKNESS**

DATA SOURCE: KPN LR D0H84007 SEAM : E INTERVAL(M) : 227.26 - 228.36 ELEVATION(M) : 1590.0

GEOLOGIST : B. GLOVER DATE : DEC 06/84 DRAWING NO. :

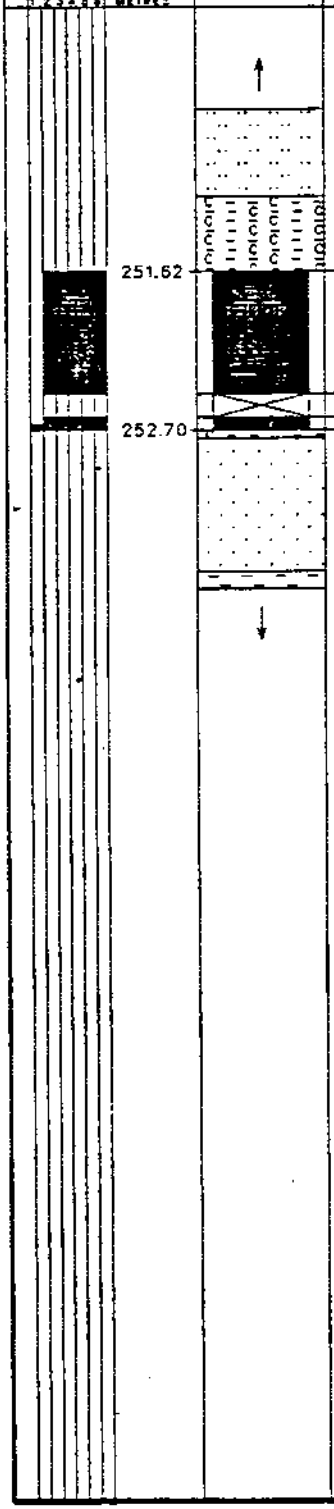
SEAM COMP. 1 2 3 4 5 6	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES ROCK	INTERVAL METRES COAL	% REC.	SAMPLE ID SIMP	SAMPLE ID COMP	COAL/ROCK TOTAL COMPOS	COAL/ROCK TOTAL MINING SECTION	COAL QUALITY A.D.B. RES MOIST	ASH	VM	FC	TS	CAL.V AL MJ/KG
	227.26			0.12											
				0.81	100.0	1618	22	3.33/ 0.00 .07		1.14	36.83	6.22	55.71	2.86	20.93
	228.36														

GULF CANADA RESOURCES INC.

SEAM DETAIL — COAL DIVISION, MOUNT KLAPPAN PROJECT — **TRUE THICKNESS**

DATA SOURCE: KPN LR DDH84007 SEAM : D INTERVAL(M) : 251.62 – 252.70 ELEVATION(M) : 1590.0

GEOLOGIST : B. GLOVER DATE : DEC 06/84 DRAWING NO. :



SEAM COMP. 1 2 3 4 5 6	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES ROCK	INTERVAL METRES COAL	% REC.	SAMPLE ID SIMP	SAMPLE ID COMP	COAL/ROCK TOTAL COMPOS	COAL/ROCK TOTAL MINING SECTION	COAL QUALITY A.D.B. RES MOIST	ASH	VM	FC	TS	CAL.VAL MJ/KG
	251.62			0.77	85.0	1519	23	1.00/0.00		0.99	17.75	5.51	75.75	0.53	28.38
				(0.15)				1.00							
	252.70			0.09											

GULF CANADA RESOURCES INC.

SEAM DETAIL

COAL DIVISION
MOUNT KLAPPAN PROJECT

TRUE THICKNESS

DATA SOURCE: KPN LR 00H84007 SEAM : C INTERVAL(M) : 272.00 – 282.46 ELEVATION(M) : 1590.0

GEOLOGIST : B. GLOVER DATE : DEC 06/84 DRAWING NO. :

SEAM COMP. 1 2 3 4 5 6	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES ROCK	INTERVAL METRES COAL	% REC.	SAMPLE ID SIMP	SAMPLE ID COMP	COAL/ROCK TOTAL COMPOS	COAL/ROCK TOTAL MINING SECTION	COAL QUALITY A.D.B. RES MOIST	ASH	VM	FC	TS	CAL.VAL MJ/KG
	272.00				100	1520	24	3.75/4.04 3.74							

GULF CANADA RESOURCES INC.

SEAM DETAIL — **COAL DIVISION** — **MOUNT KLAPPAN PROJECT** — **TRUE THICKNESS**

DATA SOURCE: KPN LR DDH84007 SEAM : C INTERVAL(M) : 272.00 - 282.45 ELEVATION(M) : 1590.0

GEOLOGIST : B. GLOVER DATE : DEC 06/84 DRAWING NO. :

SEAM COMP. 1 2 3 4 5 6	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES ROCK	INTERVAL METRES COAL	% REC.	SAMPLE ID SIMP	SAMPLE ID COMP	COAL/ROCK TOTAL COMPOS	COAL/ROCK TOTAL MINING SECTION	COAL QUALITY A.D.B. RES MOIST	ASH	VM	FC	TS	CAL.V AL MJ/KG	
	278.96			0.89				3.75/0.04								
				0.90				3.79								
				0.89	100	1520	24			1.18	17.92	8.43	74.47	0.37	28.17	
	282.45															

GR-Mount Klappan 84(3)A
84

709

GULF CANADA RESOURCES INC.
COAL DIVISION
KLAPPAN PROJECT
STRATIGRAPHIC LOG
KPN LR DDH84007

GEOLOGIST : B. GLOVER	DATE : DEC 04/84	DRAWING NO. :

SCALE : 1:200 1:40

NORTHING: 6345034.0 N INCLINATION: 57.9°
EASTING: 507378.0 E BEARING: 322.2°

LITHOLOGIC SYMBOLS

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

DRILLED DEPTH {M}
BCA {DEG}
TRUE DEPTH {M}
1:200
SEAM DETAIL
DRILLED DEPTH 1:40 {M}
TRUE THICKNESS {M}
SEAM I
56.87
62.32
ROCK | COAL
0.32 | 5.13
5.45
SEAM H
103.00
107.18
ROCK | COAL
0.75 | 3.28
4.03
SEAM THE PHANTOM
124.73
127.86
ROCK | COAL
0.55 | 2.50
3.05
SEAM G LOWER
164.64
165.53
ROCK | COAL
0.17 | 0.72
0.89
SEAM E
227.26
228.36
ROCK | COAL
0.10 | 0.97
1.07
SEAM D
251.62
252.70
ROCK | COAL
0.00 | 1.00
1.00
SEAM C
272.00
282.45
ROCK | COAL
0.04 | 3.74
3.78
TOTAL: 288.30
TOTAL: 257.09

PLOT 1 16.38.04 TUES 4 DEC, 1984 JOB-TSTCEGO GULF CANADA DISSPLA 9.0

COMPU-LOG V8L2 PLOT 08-26-84

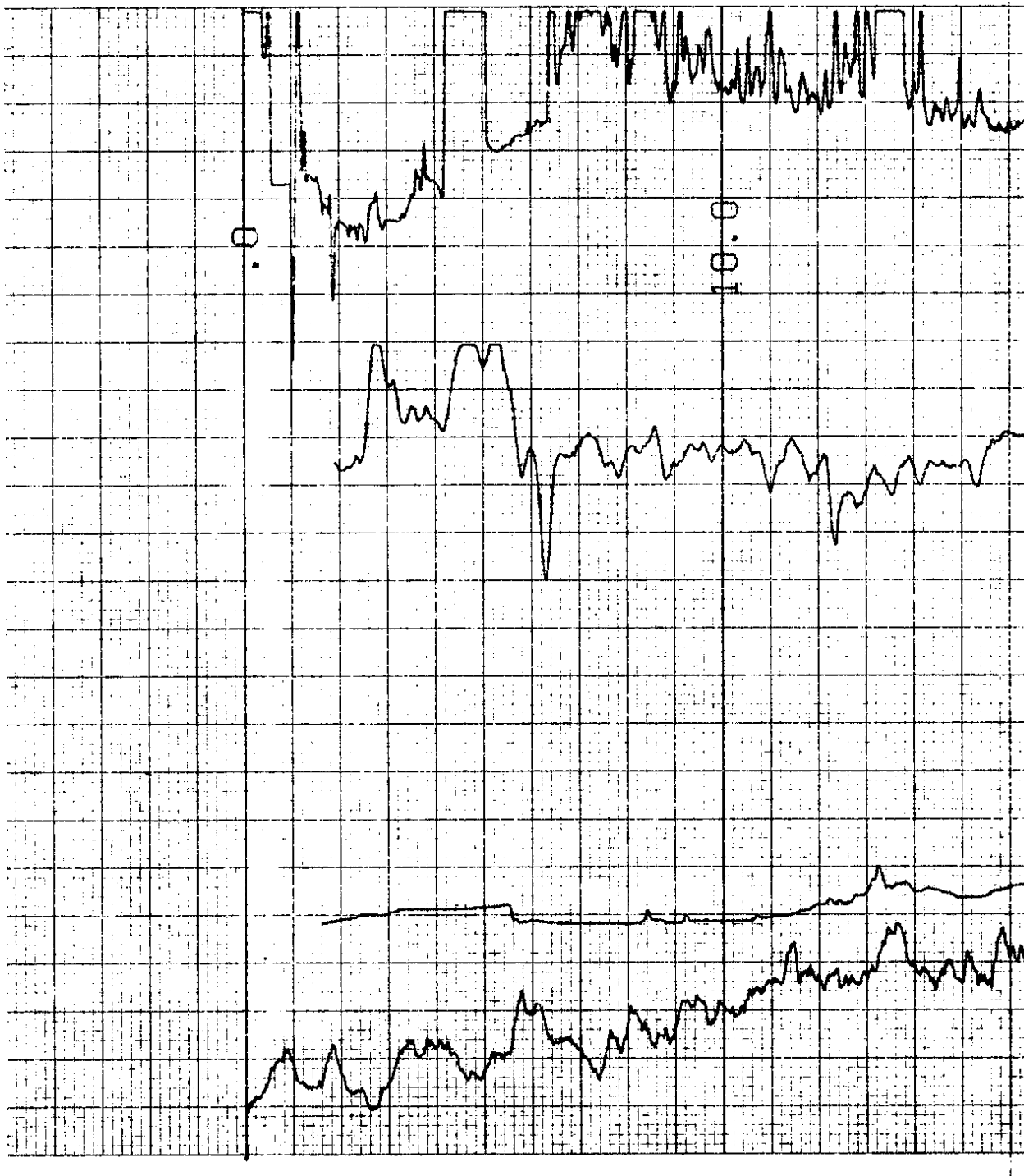
709

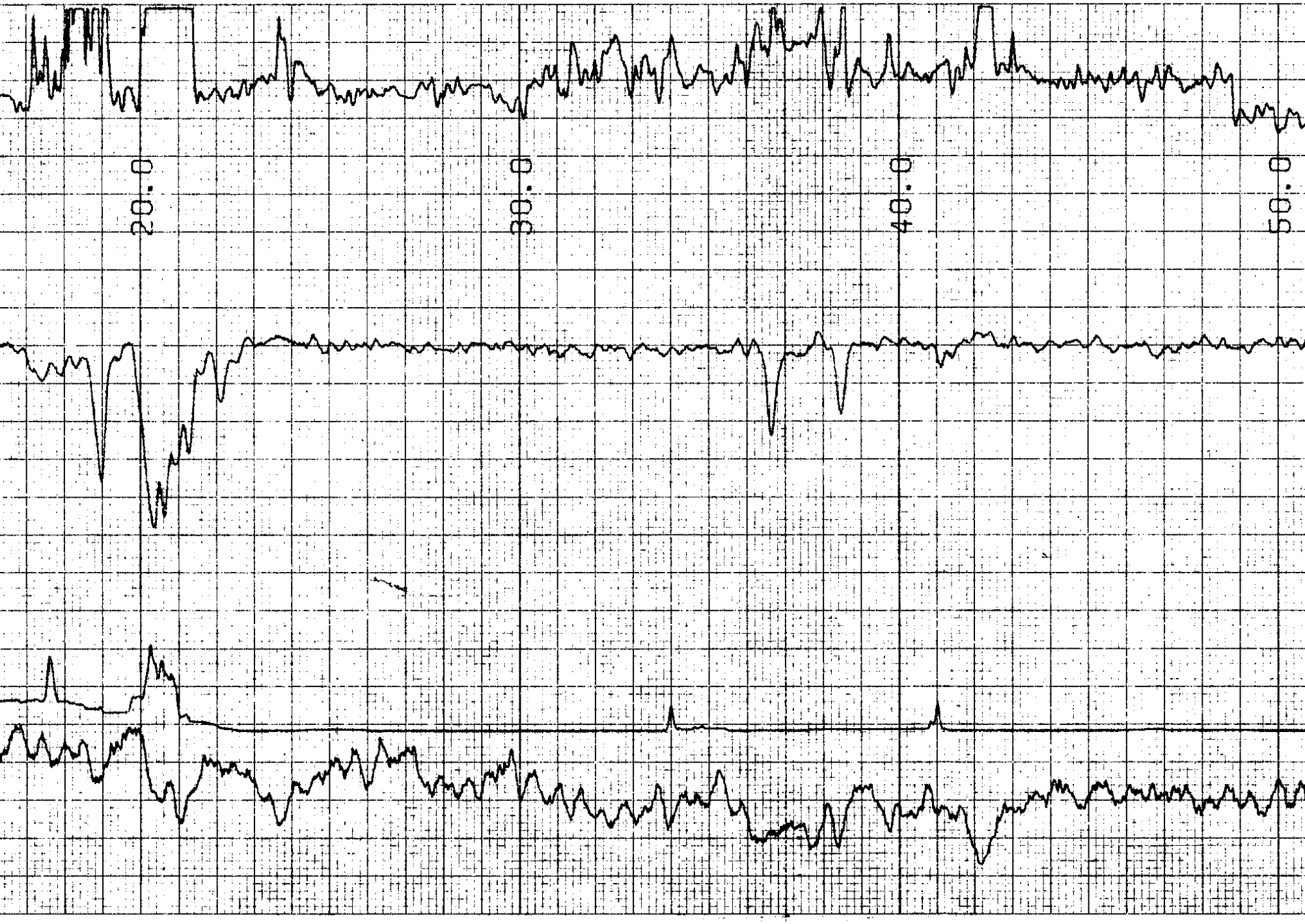
DDH-84-007
GULF CANADA RES. INC.
MT. KLAPPAN

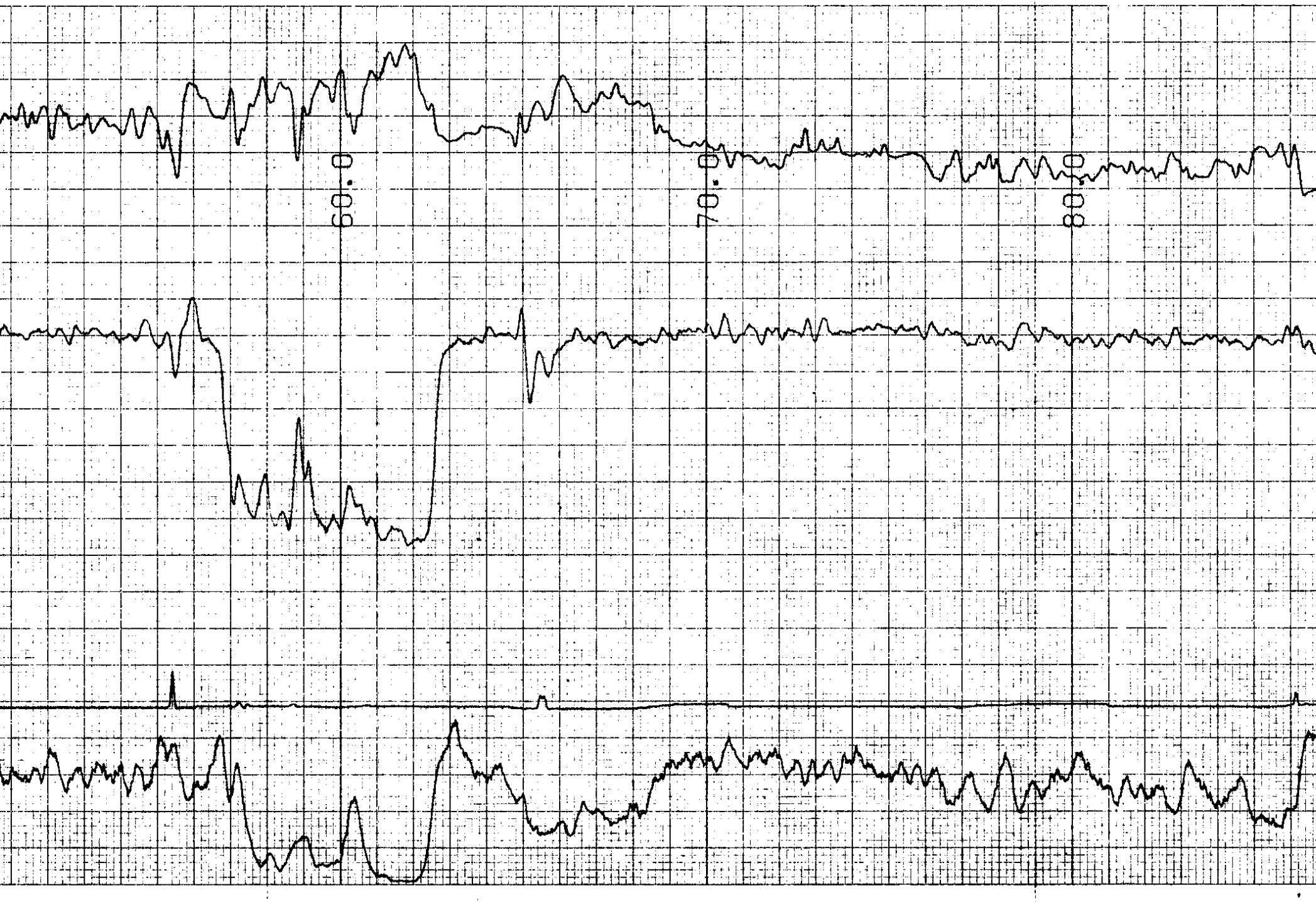
HOLE DIAMETER : 07.6
PROBE # 9330A - 410
SENSOR #4 CAL STD CPS = 6588
SENSOR #4 CAL RUN CPS = 4000
SENSOR #4 CAL BIAS = -24
DATA V8L2 TRUCK # PB11
K. SKARBO APPL.#3704L1

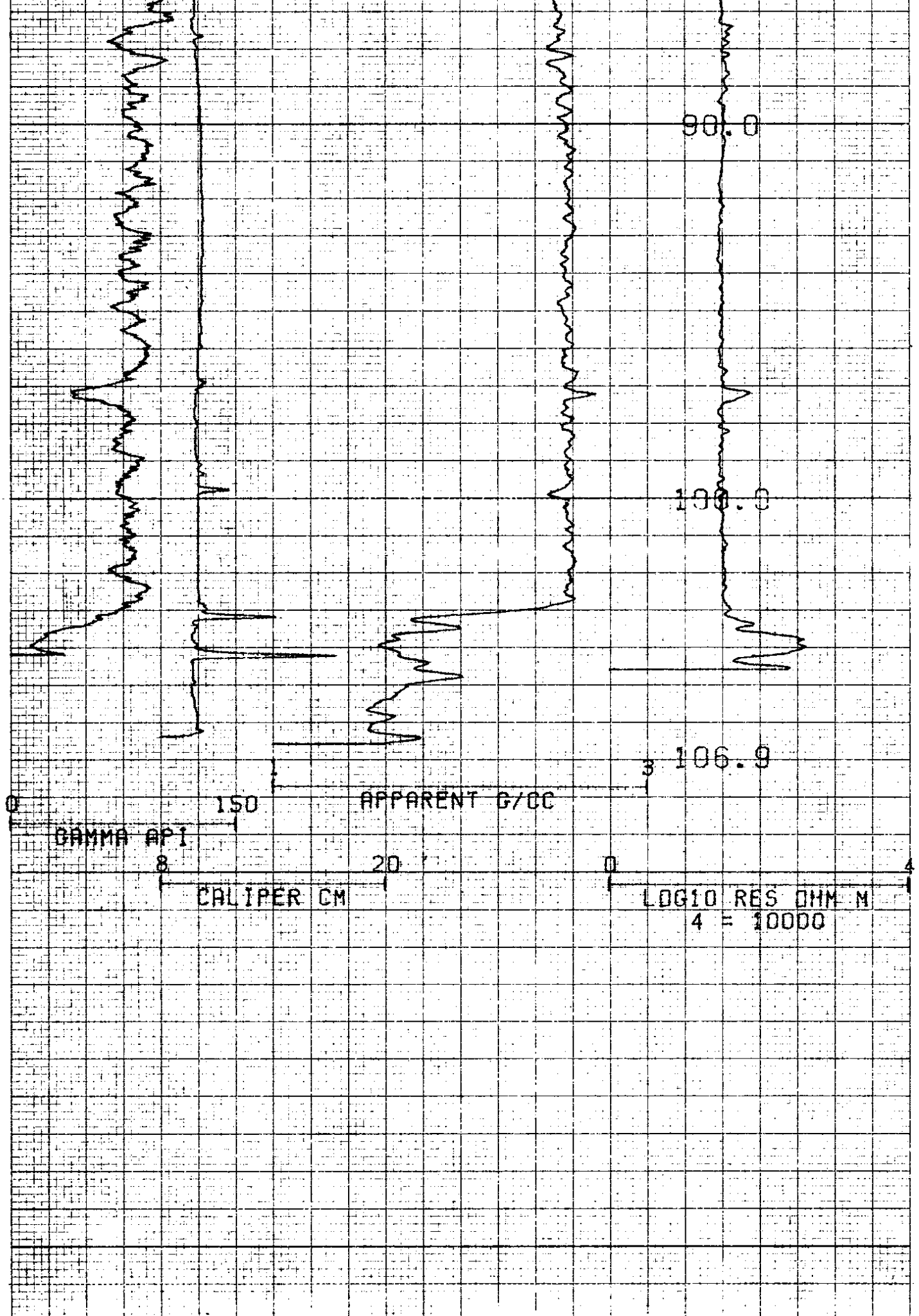
1:100
GAMMA-DENSITY

CENTURY GEOPHYSICAL CORP. PART NO. 786-0040




20.0
30.0
40.0
50.0


60.0
70.0
80.0



CENTURY GEOPHYSICAL CORP. PART NO. 786-0040

CENTURY GEO

PHYSICAL CORP. PART NO. 786-0040

709

COMPU-LOG V8L2 PLOT 08-26-84

DDH-84-007

GULF CANADA RES. INC.

MT. KLAPPAN

HOLE DIAMETER : 09.5

PROBE # 9030A - 418

SENSOR #4 CAL STD CPS = 6588

SENSOR #4 CAL RUN CPS = 7133

SENSOR #4 CAL BIAS = -24

DATA V8L2 TRUCK # P811

K. SKARBO APPL.#29 L1

GK Mount Klappan 84/3/A

1:100

GAMMA · CAL · DENS · RES

OPEN HOLE

CENTURY GEOPHYSICAL CORP. PART NO. 786-0040

268.0

272.0

276.0

280.0

284.0

0 GAMMA API 600

0 N-N CPS 1000

COMPU-LOG V8L2 PLOT 08-24-84

709

DDH-84-007

GULF CANADA RES. INC.

MT. KLAPPAN

HOLE DIAMETER = 07.6

PROBE # 9055A - 038

SENSOR #4 CAL STD CPS = 152

SENSOR #4 CAL RUN CPS = 242

SENSOR #4 CAL BIAS = 0

DATA V8L2 TRUCK # F811

K. SKARBO APPL.#7 L1

1:40

GAMMA-NEUTRON

THRU RODS

266-284 m

GR Mount Klappan 84/3/19

CENTURY GEOPHYSICAL CORP. PART NO. 786-0040

CENTURY


709
DDH-84-007
GULF CANADA RES. INC.
MT. KLAPPAN
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
100.0
110.0
120.0
130.0
140.0
150.0
160.0
170.0
180.0
190.0
200.0
210.0
220.0
230.0
240.0
250.0
260.0
270.0
280.0
288.3
GAMMA API
0
400
GAMMA CPS
0
2000

VERTICAL DEVIATION

709

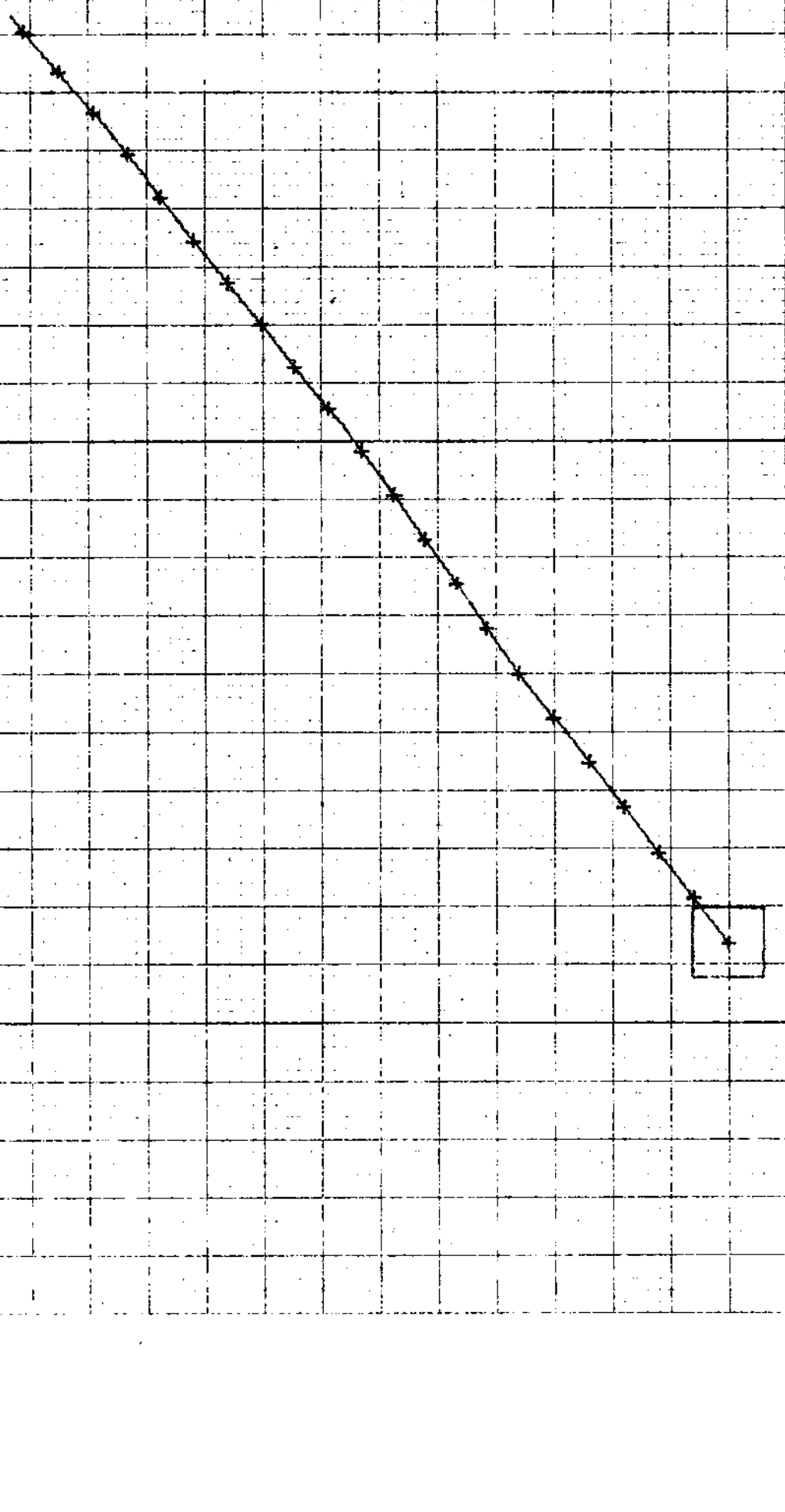
COMPU-LOG V8L1 DEVIATION
DATA FROM : V8L2

CLIENT : GULF CANADA RES.INC.
LOCATION : MT. KLAPPAN
HOLE ID : DDH-84-007
DATE OF LOG : 08-26-84
PROBE : 9055A 0039

SCALE: 2.50 M/DIV
MAG DECL: 29.5
TRUE DEPTH: 94.1 M
AZIMUTH: 322.2
DISTANCE: 50.33 M

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

TRUE NORTH ↑



GR Mount Klappan 84(3)A

CENTURY GEOPHYSICAL CORP. PART NO. 786-0040

CENTURY GEOPHYSICAL CORPORATION

Tulsa, Oklahoma

COMPANY	Gulf Canada Resources Inc.
BOREHOLE	DDH-84-007
AREA	Mt. Klappan
ELEVATION	
COUNTY	
STATE	British Columbia
SECTION	
TOWNSHIP	
RANGE	

HOLE DATA

TOTAL DEPTH — DRILLER	:	288.7m	BIT SIZE	:	7.6cm
TOTAL DEPTH — LOGGER	:	277.0m	CASING — TYPE & SIZE	:	HW Steel
TOTAL FOOTAGE LOGGED	:	277.0m	CASING DEPTH	:	4.6m
LOGGING SPEED	:	9m/min	BOREHOLE FLUID	:	H_2O
REFERENCE LEVEL	:	Drill Floor	FLUID RESISTIVITY	:	@ °F
PROBE NO.	:	9030A-418	SOFTWARE LEVEL	:	8.2*A
			SCALE SELECTION	:	☐ OPERATOR ☐ CLIENT
			Tape #5 TK #2		

REMARKS:

Format #704
N.G. 25 API
(Inside pipe)
Tape #5 TK #2 open hole to 106.9m
Format #29
-N.G. 25 API Cal 2/-8
.Drill floor 60 cm from ground level.

BOREHOLE	DATE
DDH-84-007	8/26/84
UNIT/OPERATOR	FIELD OFFICE
P811 K. Skarbo	Calgary

EQUIPMENT DATA

PROBE MODEL		9010	9030	9050/55	9060	
PROBE DIAMETER		1.97"	2.0"	1.97"	1.9"	
NATURAL GAMMA	DETECTOR TYPE	NaI	NaI	NaI	NaI	
	DETECTOR SIZE	.875" x 1.25"	1.125" x 4.5"	.875" x 4.0"	.5" x 3.0"	
	STD. K-FACTOR	1.59×10^{-5}	—	$.558 \times 10^{-5}$	1.82×10^{-5}	
	STD. DEADTIME	1 μsec	—	1.18 μsec	1 μsec	
	CALIB. MODEL LOC.		—			
	CALIB DATE		—			
	K-FACTOR x 10^{-5}		—			
	DEADTIME μsec		—			
	TEST READING		—			
	WATER FACTOR		—			
	CASING FACTOR		—			
DENSITY	DETECTOR TYPE	—	NaI	—	NaI	
	DETECTOR SIZE	—	.5" x 1.5"	—	.5" x 3.0"	
	SOURCE TYPE		Cs^{137}	—	Cs^{137}	
	SOURCE NO.	—	283			
	SOURCE STRENGTH	—	125mCi			
	SOURCE SPACING	—	19cm	—		
	Cal Std		6588			
	CAl Run		7133			
NEUTRON	DETECTOR TYPE	—	—	He^3	—	
	DETECTOR SIZE	—	—	1.0" x 6.0"	—	
	SOURCE TYPE	—	—	AmBe	—	
	SOURCE NO.	—	—			
	SOURCE STRENGTH	—	—		—	
	SOURCE SPACING	—	—		—	
SNGL. PT RESISTANCE		1.4"D x 2.5"L	—	1.4"D x 2.5"L	1.1"D x 2.5"L	
RESISTIVITY		—	8" FOCUSED	—	—	
SELF POTENTIAL		YES	—	YES	YES	
TEMPERATURE		—	—	YES	—	
DEVIATION		—	—	NO / YES	—	
CALIPER		—	YES	—	—	

CT-113 REV. 2/1/84

CENTURY GEOPHYSICAL CORPORATION

Tulsa, Oklahoma

BOREHOLE	DATE
DDH-84-007	8/24/84
UNIT/OPERATOR	FIELD OFFICE
P811- K. Skarbo	Calgary

COMPANY: Gulf Canada Resources Inc.

BOREHOLE: DDH-84-007

AREA: Mt. Klappan

ELEVATION:

COUNTY:

STATE: British Columbia

SECTION | TOWNSHIP | RANGE

HOLE DATA

TOTAL DEPTH — DRILLER	288.7m	BIT SIZE	7.6cm
TOTAL DEPTH — LOGGER	288.3m	CASING — TYPE & SIZE	HW Steel
TOTAL FOOTAGE LOGGED	288.3m	CASING DEPTH	4.6m
LOGGING SPEED	9m/min	BOREHOLE FLUID	H_2O
REFERENCE LEVEL	Drill Floor	FLUID RESISTIVITY	@ °F
PROBE NO.	9055A-039	SOFTWARE LEVEL	8.2*A
		SCALE SELECTION	☐ OPERATOR ☐ CLIENT
		Tape #5 TK #1	

REMARKS:

Format #7

N.G. 25 API

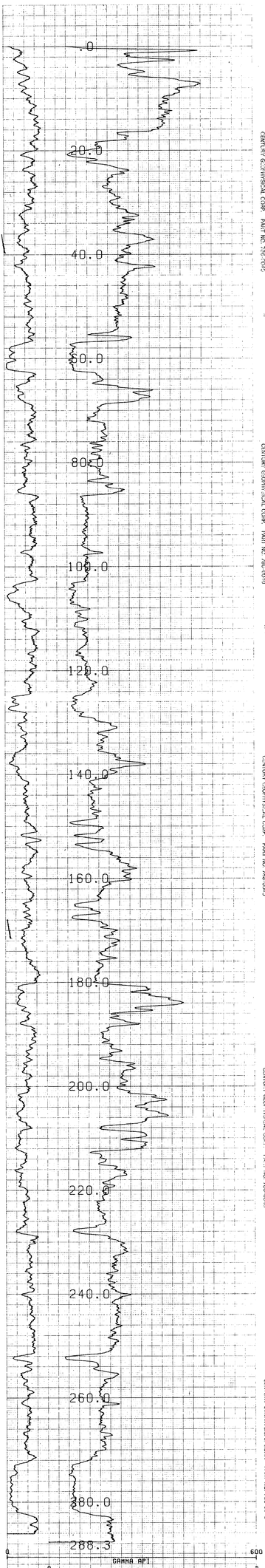
N.N. .1K/0

Tape #5 TK #4 Deviation Run (106.9m)

Drill Floor 60 cm above ground

EQUIPMENT DATA

		9010	9030	9050/55	9060
PROBE MODEL		9010	9030	9050/55	9060
PROBE DIAMETER		1.87"	2.0"	1.87"	1.4"
NATURAL GAMMA	DETECTOR TYPE	NaI	NaI	NaI	NaI
	DETECTOR SIZE	.875" x 1.25"	1.125" x 4.5"	.875" x 4.0"	.5" x 3.0"
	STD. K-FACTOR	1.59×10^{-5}	—	$.558 \times 10^{-5}$	1.62×10^{-5}
	STD. DEADTIME	1 μsec	—	1.18 μsec	1 μsec
	CALIB. MODEL LOC.		—		
	CALIB DATE		—		
	K-FACTOR x 10^{-5}		—		
	DEADTIME μsec		—		
	TEST READING		—		
	WATER FACTOR		—		
	CASING FACTOR		—		
DENSITY	DETECTOR TYPE	—	NaI	—	NaI
	DETECTOR SIZE	—	.5" x 1.5"	—	.5" x 3.0"
	SOURCE TYPE	—	Cs^{137}	—	Cs^{137}
	SOURCE NO.	—		—	
	SOURCE STRENGTH	—		—	
	SOURCE SPACING	—		—	
NEUTRON	DETECTOR TYPE	—	—	He^3	—
	DETECTOR SIZE	—	—	1.0" x 6.0"	—
	SOURCE TYPE	—	—	AmBe	—
	SOURCE NO.	—	—	264	—
	SOURCE STRENGTH	—	—	1Ci	—
	SOURCE SPACING	—	—	40 cm	—
	Cal Std			152	
	Cal Run			242	
SNGL. PT RESISTANCE		1.4"D x 2.5"L	—	1.4"D x 2.5"L	1.1"D x 2.5"L
RESISTIVITY		—	6" FOCUSED	—	—
SELF POTENTIAL		YES	—	YES	YES
TEMPERATURE		—	—	YES	—
DEVIATION		—	—	NO / YES	—
CALIPER		—	YES	—	—



CENTURY GEOPHYSICAL CORP. PART NO. 786-0040

93

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20.0

40.0

60.0

80.0

100.0

106.9

0 150 GAMMA API

3 APPARENT G/CC

8 20 CALIPER CM

0 4 LOG10 RES OHM M
4 = 10000

709

COMPU-LOG V8L2 PLOT 08-26-84

DDH-84-007

GULF CANADA RES. INC.

MT. KLAPPAN

HOLE DIAMETER : 09.5

PROBE # 903DA - 418

SENSOR #4 CAL STD CPS = 6588

SENSOR #4 CAL RUN CPS = 7133

SENSOR #4 CAL BIAS = -24

DATA V8L2 TRUCK # P811

K. SKARBO APPL. #29 L1

GK Mount Klappan 84(3)H

Copy

91

CENTURY GEOPHYSICAL CORP. PART NO. 786-0040

CENTURY GEOPHYSICAL CORP. PART NO. 786-0040

COMPU-LOG V8L2 PLOT 08-26-84

709

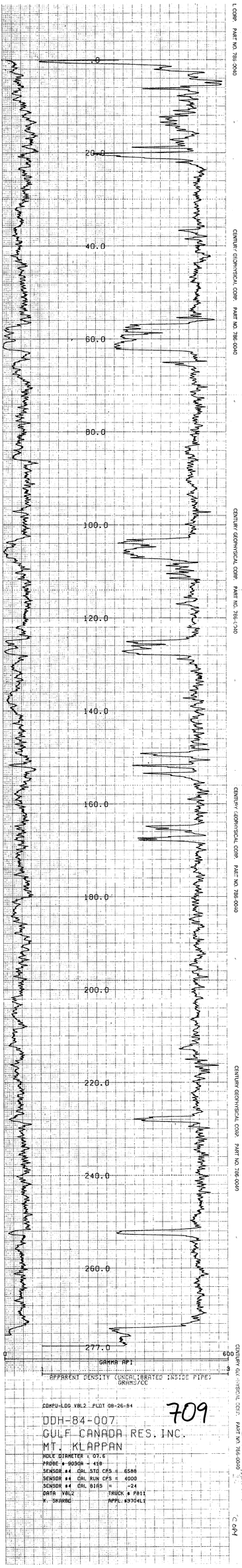
DDH-84-007
GULF CANADA RES. INC.
MT. KLAPPAN

HOLE DIAMETER : 07.6
PROBE # 9030A - 418
SENSOR #4 CAL STD CPS = 6588
SENSOR #4 CAL RUN CPS = 4000
SENSOR #4 CAL BIAS = -24
DATA V8L2 TRUCK # P811
K. SKARGO APPL.#3704L1

1:40
GAMMA - DENSITY
THRU RODS

CENTURY GEOPHYSICAL CORP. PART NO. 786-0040

COPY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80.0
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120.0
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160.0
180.0
200.0
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240.0
260.0
277.0
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600
GAMMA API
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3
APPARENT DENSITY (UNCALIBRATED INSIDE PIPE)
GRAMS/CC
COMPU-LOG V8L2 PLOT 08-26-94
709
DDH-84-007
GULF CANADA RES. INC.
MT. KLAPPAN
HOLE DIAMETER = 07.6
PROBE # 9030A = 410
SENSOR #4 CAL STD CPS = 6588
SENSOR #4 CAL RUN CPS = 4000
SENSOR #4 CAL BIAS = -24
DATA V8L2 TRUCK # P811
W. SNARBE APPL. #37044.1
CENTURY GEOPHYSICAL CORP. PART NO. 786-0040

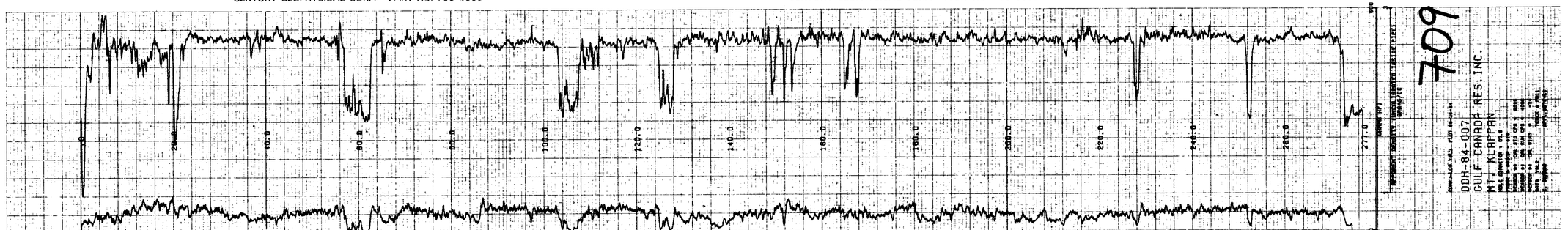
GR Mount Klappan 84(3)A

COPY

CENTURY GEOPHYSICAL CORP. PART NO. 786-0038

CENTURY GEOPHYSICAL CORP. PART NO. 786-0038

CENTURY GEOPHYSICAL CORP. PART NO. 78



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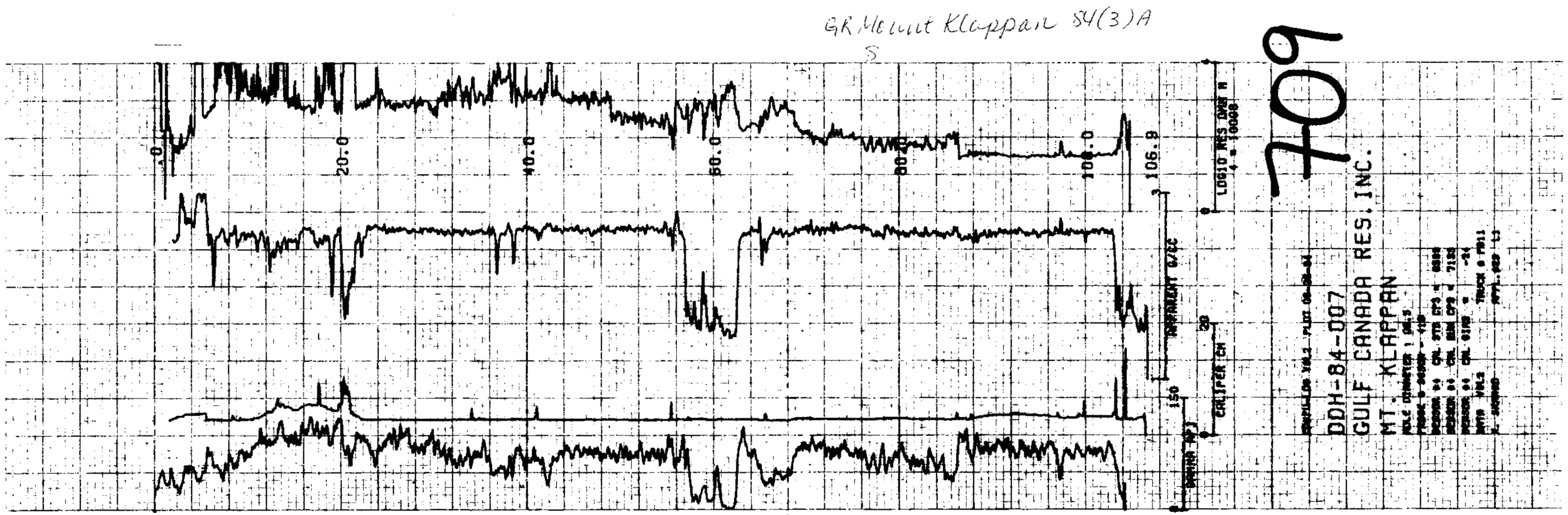
GR Mount Klappan 84(3)A



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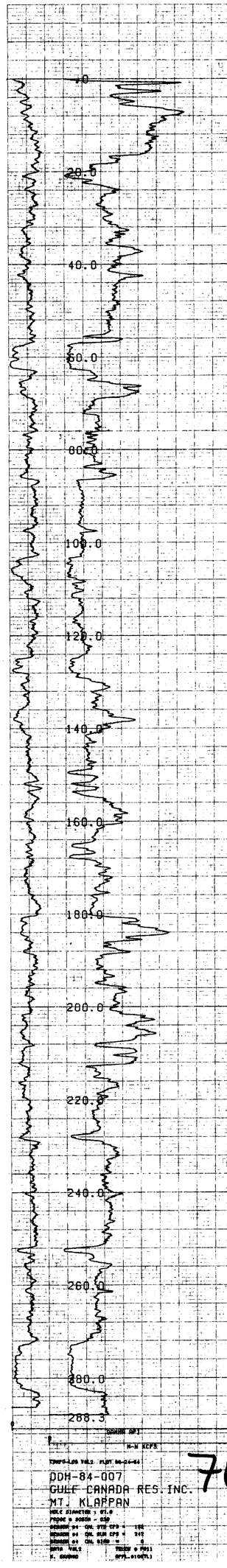
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180.0
200.0
220.0
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280.0
288.3
GAMMA API
N-M KCPS
DDH-84-007
GULF CANADA RES. INC.
MT. KLAPPAN

709

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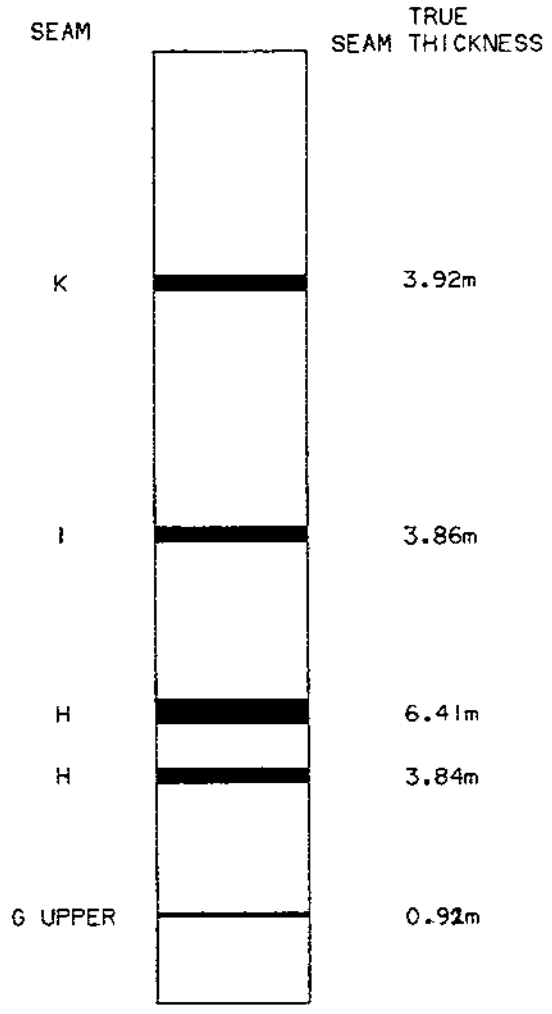
KPNLRDDH 84008

MOUNT KLAPPAN COAL PROPERTY

LOST-FOX AREA

DIAMOND DRILL HOLE

KPNLRDDH84008



SCALE 1:2000

GULF CANADA RESOURCES INC.
14/12/84

FILE NAME [205,057]841165033.CHT

GULF CANADA RESOURCES INC.

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

DATA SOURCE - KPNLRDDH84008 DATE - 12/04/84

- H I S T O R Y -

START DATE - 08/27/84
END DATE - 08/30/84

CONTRACTOR - J.T. THOMAS
GEOLOGIST - V. DUFORD

OPERATOR - gcri
SURVEYOR -

REMARKS -

- L O C A T I O N -

PROVINCE - BC
ELEVATION - 1654.50

LICENCE/LEASE NUMBER - 7151

ZONE - 9
NORTHING - 6344710.00
EASTING - 506520.00

LATITUDE - 571450
LONGITUDE - 1285331

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

LENGTH - 297.50

CORE SIZE - 63.5

INCLINATION - 78.7
AZIMUTH - 349.6

CEMENT - N
PLUG - N
PIEZ -

CASING DEPTH (M) - 18.30
AQUIFER DEPTHS (M) - 0.00
0.00
LOST CIRC. DEPTHS (M) - 0.00
0.00

*** NOTE *** 0 INDICATES NO VALUE

KPNLRDDH 84008

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
(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: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
83	0.00	0.50	0.50			CASING	DRILL FLOOR TO GROUND LEVEL
83	0.50	18.30	17.80			OVERBURDEN	CASED; NO CORE
83	18.30	19.32	1.02			MUDSTONE	SLTY.M.GY.BRKN UNCONSOLIDATED WITH SILTY MUDSTONE PIECES THROUGHOUT; CARBONACEOUS MUD WITH BRIGHT COAL PIECES CONTAINED THROUGHOUT
83	19.32	19.59	0.27			MUDSTONE	CARB.BLK.VBRKN ABUNDANT < 1MM BRIGHT COAL STRINGERS; OFTEN SHALEY SOFT; PLANT IMPRESSIONS ON BEDDING SURFACES; LISTRIC SURFACES IN THE SHALEY ZONE
83	19.59	23.13	3.54			ROCK LOSS	
83	23.13	23.20	0.07			SILTSTONE	DK.GY.VBRKN RUBBLE WITH MUDSTONE PIECES; CALCAREOUS STRINGERS IN THE RUBBLE; COALY STRINGERS
83	23.20	23.70	0.50		L	COAL LOSS	HOLE BADLY CAVED; GAMMA COUNT LOW THOUGH
83	23.70	23.80	0.10		L	ROCK LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
83	23.80	24.05	0.25		L	MUDSTONE	SLTY.DK.GY.BRKN GRADATIONAL CALCAREOUS BANDS WITHIN; 0.5 CM QUARTZ AND CARBONATE VEIN RUNNING PARALLEL TO CORE AXIS; RANDOM ORIENTATION OF VEINING TOWARDS BASE (<5 MM); DISSEMINATED PYRITE
83	24.05	24.50	0.45		L	COAL LOSS	HOLE BADLY CAVED; GAMMA COUNT VERY LOW THOUGH
83	24.50	25.15	0.65			ROCK LOSS	PROBABLY CARBONACEOUS MUDSTONE LOSS
83	25.15	25.32	0.17			MUDSTONE	CARB.BLK.BRKN ABUNDANT BRIGHT COALY STRINGERS (THIN); QUARTZ VEINING < 3 MM PARALLEL TO BEDDING; SHALEY TOWARDS BASE WITH LISTRIC SURFACES
* 83	25.32	25.94	0.62			MUDSTONE	BLK.VBRKN SILTY; DISSEMINATED PYRITE THROUGHOUT; ABUNDANT LISTRIC SURFACES AND ABUNDANT COALY STRINGERS WHICH FORM PODS; COAL FRAGMENTS C-1 THROUGHOUT; DARK BROWN MUD LENS; COAL INCREASES TOWARDS THE BASE OF THIS UNIT; PLANT IMPRESSIONS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
83	25.94	26.53	0.59			ROCK LOSS	
83	26.53	27.31	0.78			MUDSTONE	CARB.BLK.BRKN GROUND CORE; COAL (BRIGHT) STRINGERS TH ROUGHOUT WITH A 5 CM BAND AT THE TOP
83	27.31	27.62	0.31			MUDSTONE	SLTY.GY.SLD DARK; TWO THIN BRIGHT COALY STRINGERS; MINOR LISTRIC SURFACES
83	27.62	29.15	1.53			MUDSTONE	GY.BRKN SLIGHTLY SILTY; DARK; WITH MINOR BRIGHT COALY WISPS AND STRINGERS THROUGHOUT (<1 MM); MINOR QUARTZ VEINING OF NO PARTICULAR ORIENTATION; LISTRIC SURFACES
82	29.15	29.26	0.11			MUDSTONE	GY.VBRKN AS ABOVE
82	29.26	29.85	0.59			ROCK LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
82	29.85	30.63	0.78			MUDSTONE	SLTY.GY.VBRKN PLANT IMPRESSIONS; CARBONACEOUS RESIDUE ON PLANT FRAGMENTS; CARBONACEOUS TOWARDS BASE OF RUBBLE; MINOR BRIGHT COAL STRINGERS (< 1/2 CM THICK); LISTRIC SURFACES
82	30.63	31.14	0.51			MUDSTONE	GY.BRKN SLIGHTLY SILTY; ABSENCE OF CARBONACEOUS MATERIAL OVER THIS INTERVAL
82	31.14	31.32	0.18			SILTSTONE	M.GY.BRKN LISTRIC SURFACES
* 82	31.32	32.24	0.92			SILTSTONE	SSD.SLD INTERBEDDED WITH SANDSTONE; FINING DOWN SEQUENCES; POSSIBLY BIOTURBATION; NO DEFINITIVE TOPS
80	32.24	32.88	0.64			SANDSTONE	VFG.MOD.LT-M.GY.SSD.SLD WITH DARK GRAY SILTY MUDSTONE INTERBEDS; SOFT SEDIMENT DEFORMATION; NO DEFINITE TOPS INDICATORS; MASSIVE SAND TO THE BASE; CALCAREOUS NOT WELL INDURATED; VERY POROUS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 79	32.88	33.35	0.47			SANDSTONE	FG-.PR.M.GY.SLD POORLY INDURATED; IMMATURE SAND; TOPS U P AS INDICATED BY TRUNCATION OF BEDDING BY A COARSER SAND; SLIGHTLY SALT AND P EPPER
* 80	33.35	34.14	0.79			SANDSTONE	FG.LT-M.GY.SLD FAINT THIN DARK-GRAY SILTY LAMINAE; A 5 CM SILTSTONE CLAST AT THE STRATIGRAPHI C BASE; POORLY INDURATED
79	34.14	35.34	1.20			SANDSTONE	FG-.PR.M.GY.BRKN < 1 CM SILTSTONE RIP UP CLASTS; 0.5 CM QUARTZ VEIN LOCATED 20 CM FROM TOP (PAR ALLEL TO BEDDING); AT 0.7 M FROM TOP, E NCOUNTER A 20 CM GRIT ZONE WITH LIGHT B ROWN MUDSTONE CLASTS UP TO 4 MM; EROSIO NAL BASE INDICATES TOPS UP
79	35.34	35.60	0.26			SANDSTONE	VFG.WEL.M.GY.VBRKN SALT AND PEPPER (SLIGHT); THIN QUARTZ S TRINGERS
79	35.60	35.90	0.30			ROCK LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 78	35.90	37.02	1.12			SANDSTONE	FG-.GY.BRKN MINOR MUDSTONE RIP UP CLASTS (ANGULAR); CARBONACEOUS MUDSTONE LAMINATIONS (VER Y THIN) WHICH CREATE LISTRIC SURFACES; MORE WELL INDURATED THAN SANDSTONE MENT IONED PREVIOUSLY; QUARTZ AND KAOLIN INF ILLED FRACTURES (< 1 CM)
* 65	37.02	37.79	0.77			SANDSTONE	MG.MOD.M.GY.SLD SALT AND PEPPER; TRACES OF ANGULAR BLAC K CHERT (?) GRITS; FAINT BEDDING BROKEN AT BASE; NO APPARENT TOPS INDICATORS; MINOR QUARTZ STRINGERS WITH THE BROKEN BASE
67	37.79	38.00	0.21			ROCK LOSS	
69	38.00	39.13	1.13			SANDSTONE	FG.MOD.M.GY.BRKN SALT AND PEPPER; NO APPARENT TOPS; FROM 0.84-1.01 HAVE A SANDSTONE WITH BLACK SILTY WISPS AND RIP UP CLASTS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 74	39.13	41.00	1.87			SANDSTONE	FG-.LT.GY.SLD SALT AND PEPPER; POROUS; FAINTLY BEDDED ; BLACK SILTY WISPS; MODERATELY WELL IN DURATED
* 71	41.00	42.95	1.95			SANDSTONE	MG-.M.GY.SLD DETRITAL C-I FRAGMENTS ON BEDDING SURFA CES; POROUS; POORLY SORTED WHERE COARSE GRAINED; ANGULAR GRAINS; BLK SILTY WIS PS; FAINTLY BEDDED; CORE BROKEN IN MIDD LE
68	42.95	42.99	0.04			SILTSTONE	DK.GY.SLD APPEARS TO HAVE AN EROSIONAL CONTACT WI TH OVERLYING SAND; POTENTIALLY TOPS UP; COAL FRAGMENTS AT CONTACT
68	42.99	43.17	0.18			MUDSTONE	SLTY.DK.GY.SLD SMOOTH PARTING ALONG BEDDING
* 67	43.17	43.89	0.72			MUDSTONE	DK.GY.SSD.SLD SILTY LAMINATIONS AND PODS (BOTH LIGHT GRAY); SOFT SEDIMENT DEFORMATION (NO AP PARENT TOPS INDICATORS)

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
69	43.89	44.19	0.30			MUDSTONE	LT.GY.BRKN GROUND CORE AT TOP; SILTY LAMINAE (LIGH T.GRAY); TOPS UP AS INDICATED BY FLAME STRUCTURE AND BEDDING TRUNCATION; MAY B E BENTONITIC (?)
69	44.19	44.43	0.24			MUDSTONE	LT.GY.SLD SILTY LAMINATIONS (LIGHTER GRAY)
* 71	44.43	45.15	0.72			MUDSTONE	SLTY.M-DK.GY.BRKN FAINTLY LAMINATED
* 72	45.15	47.24	2.09			MUDSTONE	SLTY.DK.GY.SLD FAINTLY LAMINATED; FROM 0.58-0.6 HAVE A PLIABLE WHITE LAYER POSSIBLY KAOLIN; L ISTRIC SURFACE NEAR BASE
71	47.24	47.35	0.11			ROCK LOSS	
* 71	47.35	48.62	1.27			MUDSTONE	DK.GY.SLD FAINTLY BEDDED; SILT CONTENT INCREASES TOWARDS BASE WHERE MORE INTERBEDDED

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 74	48.62	49.31	0.69			SILTSTONE	M-DK.GY.BRKN WITH FINE GRAIN SANDSTONE INTERBEDS; LA MINATED;TOPS UP AS INDICATED BY SOFT SE DIMENT DEFORMATION (LOCATED 15 CM FROM BOTTOM)
* 80	49.31	50.27	0.96			MUDSTONE	SLTY.DK.GY.LAM.SSD.BRKN INTERBEDDED WITH LIGHT GRAY SILTSTONE (LAMINAE); SOME CARBONACEOUS RESIDUE ON BEDDING (PARTING) SURFACES; TOPS UP
79	50.27	51.29	1.02			MUDSTONE	SLTY.DK.GY.LAM.SSD.BRKN AS ABOVE WITH PLANT LEAF/BLADE IMPRESSI ONS ON BEDDING PARTING SURFACES; SLIGHT LY SANDY LAMINATIONS AS WELL; TOPS UP; OCCASIONALLY SLIGHTLY CARBONACEOUS;SIGN S OF BIT WEAR
78	51.29	51.68	0.39			MUDSTONE	SLTY.DK.GY.LAM.SSD.VBRKN AS ABOVE; CORE VERY GROUND; SANDY BED E RODED UNDERLYING MUDSTONE INDICATES TOP S UP; BIT WEARING OUT; CORE VERY BAD
77	51.68	52.35	0.67			MUD	MIXED WITH PIECES OF MUDSTONE SANDSTONE AND SILTSTONE; CORE GROUND UP

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 77	52.35	52.49	0.14			SILTSTONE	DK.GY.LAM.SSD.BRKN INTERBEDDED WITH MUDSTONE AND FINE GRAI N SANDSTONE; EROSIONAL CONTACT INDICATE S TOPS UP
76	52.49	53.93	1.44			ROCK LOSS	
75	53.93	53.99	0.06			MUD	DK.GY MIXED WITH PEBBLES AND SAND GRAINS
* 74	53.99	54.60	0.61			SILTSTONE	DK.GY.BRKN INTERBEDDED WITH MUDSTONE AND SANDSTONE ;CARBONACEOUS RESIDUE ON PARTING SURFAC ES; TRACES OF PLANT IMPRESSIONS; LOAD F EATURES; TOPS UP
* 74	54.60	56.67	2.07			SILTSTONE	DK.GY.LAM.SSD.SLD AMOUNT OF SANDSTONE INCREASING TO BASE WITH 20 CM FINE GRAIN SANDSTONE ABOVE B ASE OF UNIT; NON-CALCAREOUS; LOADING IN DICATES TOPS UP
81	56.67	56.76	0.09			SILTSTONE	DK.GY.LAM.SLD LAMINATED WITH MUDSTONE AND VERY FINE G RAIN SANDSTONE; LISTRIC CARBONACEOUS SU RFACES; THIN QUARTZ VEIN PARALLEL TO BE DDING

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 83	56.76	57.35	0.59			SILTSTONE	DK.GY.LAM.BRKN LISTRIC PARTING SURFACES
* 82	57.35	58.06	0.71			SANDSTONE	VFG.M-DK.GY.THNB.SSD.SLD INTERBEDDED WITH MUDSTONE AND SILTSTONE LOADING; GREAT TOPS UP INDICATORS
80	58.06	58.74	0.68			SILTSTONE	DK.GY.LAM.BRKN CARBONACEOUS RESIDUE ON SOME SURFACES; MINOR PLANT DEBRIS
* 78	58.74	59.76	1.02			SILTSTONE	DK.GY.LAM.SLD AS ABOVE; GOOD TOPS UP
79	59.76	60.82	1.06			SILTSTONE	DK.GY.LAM.SLD AS ABOVE; NOTE; ALL THIS SILTSTONE IS D EVOID OF QUARTZ STRINGERS/VEINS; NON-CA LCAREOUS
80	60.82	61.30	0.48			MUDSTONE	DK.GY.BRKN SLIGHTLY CARBONACEOUS; SLIGHTLY SILTY; SOME MINOR THIN BRIGHT COAL STRINGERS; GROUND CORE
80	61.30	61.40	0.10			ROCK LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
80	61.40	61.46	0.06	01523 K		COAL	C-3.SLD VERY HARD
80	61.46	61.48	0.02	01523 K		COAL	C-2.BRKN
80	61.48	61.53	0.05	01523 K		COAL	C-2.SLD
80	61.53	61.64	0.11	01523 K		COAL	C-5.BRKN WITH DARK GRAY/BROWN MUDSTONE LENSES
80	61.64	61.71	0.07	01523 K		ROCK LOSS	
80	61.71	61.80	0.09	01523 K		TUFF?	LT.BN.SLD SOFT BENTONITIC MUDSTONE (?); CARBONACE OUS PARTINGS
80	61.80	62.29	0.49	01523 K		COAL	C-2.VBRKN TO PULVERIZED; PREDOMINANTLY BRIGHT COA L
81	62.29	62.78	0.49	01523 K		COAL LOSS	
81	62.78	62.90	0.12	01523 K		MUDSTONE	CARB.BLK.VBRKN SOME BRIGHT COAL STRINGERS; PERHAPS BEN TONITIC; PROBABLE CORE LOSS ABOVE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
81	62.90	62.98	0.08	01523 K		ROCK LOSS	
81	62.98	63.09	0.11	01523 K		COAL	C-3.BRKN BRIGHT BAND UP TO 2 CM THICK
82	63.09	63.37	0.28	01523 K		COAL	C-2.VBRKN ABUNDANT C-1 BANDS; SHEARED; LISTRIC SU RFACES
82	63.37	63.85	0.48	01523 K		COAL	C-2.BRKN PREDOMINANTLY C-1; VERY BROKEN IN PLACE S; BREAKS GENERALLY INTO CUBES NOT CONC OIDALLY
82	63.85	63.87	0.02	01523 K		MUDSTONE	CARB.BLK.SLD SOFT
82	63.87	63.99	0.12	01523 K		COAL	C-1.BRKN
82	63.99	64.01	0.02	01523 K		MUDSTONE	CARB.BLK.SLD COALY
83	64.01	64.87	0.86	01523 K		COAL	C-2.BRKN PREDOMINANTLY C-1 COAL
83	64.87	64.96	0.09	01523 K		COAL LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
83	64.96	65.02	0.06	01523 K		MUDSTONE	BN.SLD SOFT
83	65.02	65.13	0.11	01523 K		ROCK LOSS	
83	65.13	65.25	0.12	01523 K		COAL	C-3
83	65.25	65.28	0.03	01523 K		MUDSTONE	BN.SLD SOFT
83	65.28	65.37	0.09	01523 K		COAL	C-2.BRKN TRACE DISSEMINATED PYRITE
84	65.37	65.64	0.27			MUDSTONE	CARB.BLK.SHRD VERY BROKEN; ABUNDANT BRIGHT COAL STRIN GERS
84	65.64	65.72	0.08			SILTSTONE	LT-M.GY.SSD COALY WISPS
84	65.72	65.74	0.02			ROCK LOSS	
84	65.74	65.92	0.18			COAL	C-2.VBRKN PULVERIZED
84	65.92	66.21	0.29			COAL LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
84	66.21	66.31	0.10			MUD	COALY MUD MIXED WITH BROKEN SILTY MUDST ONE
85	66.31	66.94	0.63			MUDSTONE	SLTY.DK.GY MASSIVE; NO APPARENT BEDDING; SLIGHTLY CARBONACEOUS; MINUTE CARBONACEOUS PLANT DEBRIS THROUGHOUT
* 85	66.94	67.42	0.48			SILTSTONE	SSY.M.GY.VBRKN SOME QUARTZ AND CARBONATE VEIN FILLING; SLIGHTLY CARBONACEOUS IN PLACES
76	67.42	68.29	0.87			SANDSTONE	SLTY.M.GY.SSD.VBRKN MINOR SOFT SEDIMENT DEFORMATION; QUARTZ WITH CARBONATE INCLUSIONS;SLIGHTLY FRI ABLE SANDSTONE; LISTRIC SURFACES; SILTI ER TOWARD BASE OF UNIT
70	68.29	68.47	0.18			ROCK LOSS	
68	68.47	68.54	0.07			MUD	BN WET
64	68.54	69.12	0.58			MUDSTONE	SLTY.M.GY.VBRKN LISTRIC SURFACES; SOME KAOLIN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 58	69.12	69.50	0.38			MUDSTONE	SLTY.M.GY.BIOTR.VBRKN GRADING TO SILTSTONE; LISTRIC SURFACES
60	69.50	70.70	1.20			SANDSTONE	SLTY.LT-M.GY.VBRKN TO VERY FINE GRAINED AT BASE; MNR THIN QUARTZ STRINGERS; NON-CALCAREOUS SANDSI ONE; NO APPARENT BEDDING
62	70.70	70.91	0.21			SANDSTONE	SLTY.LT-M.GY.BRKN AS ABOVE
64	70.91	72.48	1.57			SILTSTONE	DK.GY.BIOTR.VBRKN SANDY AND MUDDY INTERBEDS; KAOLIN ON SL ICKENSIDED SURFACES; LISTRIC SURFACES; CARBONACEOUS RESIDUE ON SOME PARTING SU RFACES
67	72.48	72.73	0.25			SANDSTONE	VFG.M.GY.VBRKN SLIGHTLY SALT AND PEPPER; KAOLIN ON FRA CTURE SURFACES
67	72.73	72.85	0.12			SANDSTONE	VFG.M.GY.VBRKN AS ABOVE
* 69	72.85	74.17	1.32			SILTSTONE	M-DK.GY.BIOTR.VBRKN INTERBEDDED WITH SILTY SANDSTONE AND MU DSTONE; LISTRIC SURFACES; NO QUARTZ; NO N-CALCAREOUS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
71	74.17	74.41	0.24			SILTSTONE	AS ABOVE
71	74.41	74.62	0.21			SANDSTONE	FG.M.GY.BRKN MINOR THIN QUARTZ STRINGERS; MINOR KAOLIN
72	74.62	74.86	0.24			ROCK LOSS	
72	74.86	75.21	0.35			SANDSTONE	AND SILTSTONE RUBBLE; GROUND CORE
73	75.21	75.46	0.25			SANDSTONE	FG.M.GY.BRKN
73	75.46	75.51	0.05			MUD	
73	75.51	75.72	0.21			SANDSTONE	VFG.M-DK.GY.BRKN MINOR MUDSTONE/SILTSTONE RIP UP CLASTS
74	75.72	75.85	0.13			SILTSTONE	DK.GY.VBRKN MINOR THIN QUARTZ AND KAOLIN STRINGERS
75	75.85	76.64	0.79			SILTSTONE	DK.GY.BRKN SLIGHTLY SANDY; VERY DISTURBED BEDDING (STRUCTURAL ?); LISTRIC SURFACES; SOME KAOLIN COATING FRACTURE AND SLICKENSIDE SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
77	76.64	77.49	0.85			MUDSTONE	SLTY.DK.GY.LAM.BRKN 'MUDSHALE'; SMOOTH REGULAR PARTING ALONG BEDDING; MINOR THIN QUARTZ AND CALCITE VEINS PERPENDICULAR AND OBLIQUE TO CORE AXIS; HAS SIMILAR APPEARANCES TO UPPER GETHING 'ZEBRA' UNIT OF GOODRICH PROPERTY
* 78	77.49	78.01	0.52			SILTSTONE	LT-DK.GY.THNB.BRKN GRADING TO MUDSTONE; ALMOST VARVED BEDDING APPEARANCE IN PLACES; SOME VERY LIGHT GRAY BANDS; POSSIBLE VOLCANIC ASH CONTENT
77	78.01	79.41	1.40			SILTSTONE	LT-DK.GY.THNB.BRKN TO LAMINATED; SANDSTONE LAMINATIONS AND BEDS; OTHERWISE SAME VARVED APPEARANCE AS ABOVE
76	79.41	80.64	1.23			SILTSTONE	SOME SLICKENSIDE SURFACES WITH MINOR KAOLIN
75	80.64	80.80	0.16			ROCK LOSS	
* 75	80.80	81.32	0.52			SILTSTONE	
74	81.32	81.56	0.24			SILTSTONE	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
73	81.56	81.74	0.18			SILTSTONE	
* 71	81.74	83.25	1.51			SANDSTONE	SLTY.VFG.M-DK.GY.THNB.BRKN THIN BEDDED TO LAMINATED; GRADING UP SE QUENCES; INTERBEDDED WITH SILTSTONE AND DARK GRAY MUDSTONE; BED TRUNCATION AS WELL AS LOADING INDICATE TOPS UP
* 74	83.25	84.02	0.77			SILTSTONE	SSY.M-DK.GY.THNB.BRKN INTERBEDDED WITH VERY FINE GRAIN SANDST ONE; LAMINATED TO THIN BEDDED; VARVED A PPEARANCE IN PLACES
* 68	84.02	84.66	0.64			SILTSTONE	BRKN
* 72	84.66	86.18	1.52			MUDSTONE	SLTY.DK.GY.LAM.VBRKN LIGHT AND DARK GRAY LAMINATIONS
72	86.18	86.86	0.68			ROCK LOSS	
71	86.86	87.06	0.20			MUDSTONE	SLTY.DK.GY.LAM.BRKN AS ABOVE; SMOOTH SURFACE AT BEDDING SEP ARATION

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
71	87.06	87.44	0.38			ROCK LOSS	
* 71	87.44	88.59	1.15			MUDSTONE	SLTY.DK.GY.LAM.BRKN AS ABOVE; MINOR VERY THIN QUARTZ STRING ERS
71	88.59	88.82	0.23			MUDSTONE	BRKN
70	88.82	89.20	0.38			ROCK LOSS	
70	89.20	90.11	0.91			MUDSTONE	BRKN 'MUD-SHALE COASTERS'
69	90.11	90.62	0.51			MUDSTONE	BRKN DECREASING SILT CONTENT; QUARTZ/CARBONA TE STRINGERS AT BASE
69	90.62	90.82	0.20			MUDSTONE	CARB.BLK.BRKN ABUNDANT BRIGHT COALY BANDS; LISTRIC SU RFACES; 2 CM BENTONITE (?) BAND AT BASE OF UNIT.

* DENOTES MEASURED BCA

FORM 4001

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
69	90.82	92.24	1.42			MUDSTONE	SLTY.DK.GY.SSD.BRKN CARBONACEOUS; MINOR BRIGHT COAL STRINGERS; THINBEDDED TO LAMINATED; CARB PLANT REMAINS ON BDG SURFACES; 1 CM PYRITE B AND AT 50 CM FROM TOP OF UNIT.
* 68	92.24	92.35	0.11			MUDSTONE	AS ABOVE.
68	92.35	93.24	0.89			ROCK LOSS	
69	93.24	93.39	0.15	01529 J		COAL	C-1.VBRKN PULVERIZED.
69	93.39	93.58	0.19			MUDSTONE	CARB.BLK.BRKN SLIGHTLY SILTY; BRIGHT COAL STRINGERS.
69	93.58	95.16	1.58			MUDSTONE	SLTY.DK.GY.BRKN SLIGHTLY CARBONACEOUS; LISTRIC SURFACES ; MINOR VEINING; FAINT BEDDING--SSD OR BIOTURB?
70	95.16	96.35	1.19			MUDSTONE	SLTY.DK.GY.SLD OCCASIONAL BRIGHT COAL STRINGERS UP TO 2 CM THICK; SLIGHTLY CARBONACEOUS; COAL Y AND CARB PLANT REMAINS; TRACE QUARTZ STRINGERS; LISTRIC SURFACES; FAINT BEDD ING--SSD.

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
71	96.35	97.14	0.79			MUDSTONE	SLTY AS ABOVE.
* 71	97.14	97.30	0.16			SILTSTONE	DK.GY.SLD INTERBEDDED WITH MUDSTONE; LAMINATED TO THINBEDDED; TOPS UP.
74	97.30	99.35	2.05			SILTSTONE	M-DK.GY.THNB.SSD.SLD TO LAMINATED; INTERBEDDED WITH DK GY MU DST AND M GY VFG SS; MAY BE EVIDENCE OF BIOTURBATION—BURROWING? CARB PLANT DE BRIS AND MUDST; BECOMES SANDIER TOWARDS BASE OF UNIT.
* 77	99.35	99.66	0.31			SILTSTONE	SSY.M.GY.THNB.BRKN THINLY BEDDED TO LAMINATED WITH VFG SS AND DK GY MUDST. SOME SMOOTH PARTING SU RFACES.
77	99.66	101.27	1.61			SANDSTONE	VFG-.M.GY.BRKN BECOMING FG TOWARD BASE AND MORE MASSIV E WITH SOME QUARTZ/CARBONATE STRINGERS; SOME KAOLIN ALONG FRACTURE SURFACES; S S HAS SALT AND PEPPER OUTSIDE APPEARANC E; QUARTZ VEINING APPROXIMATELY PERPEND ICULAR TO BEDDING.

* DENOTES MEASURED BCA

FORM 4001

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
76	101.27	102.12	0.85			SANDSTONE	VBRKN VEINING INCREASING; SOME CARBONACEOUS R ESIDUE ON SOME BEDDING SURFACES
76	102.12	102.41	0.29			ROCK LOSS	
76	102.41	103.41	1.00			SANDSTONE	VBRKN
* 75	103.41	104.95	1.54			SANDSTONE	VFG.M-DK.GY.VBRKN TO SILTY; FAINT BEDDING; MINOR MUDSTONE STRINGERS AND LENSES; LISTRIC SURFACES ;QUARTZ & CARBONATE THIN VEINING TOWARD S TOP; LISTRIC CARBONACEOUS SURFACES TH ROUGHOUT WHERE BROKEN
75	104.95	105.29	0.34			SANDSTONE	BRKN
75	105.29	106.52	1.23			SANDSTONE	BRKN BEDDING INDETERMINATE
75	106.52	106.83	0.31			ROCK LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	106.83	107.46	0.63			SANDSTONE	BRKN TO SILTY ; GROUND CORE AT TOP OF RUN
* 75	107.46	108.35	0.89			SANDSTONE	BRKN MINOR THIN QUARTZ/CARBONATE VEINING
71	108.35	108.50	0.15			SILTSTONE	DK.GY.SSD.SLD STRINGERS "INJECTION ?" FEATURE
* 68	108.50	109.29	0.79			SANDSTONE	VFG.GY.SLD INTERBEDDED WITH SILTSTONE; MUDSTONE CL AST; THIN BEDDED; BECOMING SILTIER TOWA RDS BASE
* 70	109.29	110.10	0.81			SANDSTONE	VFG.M-DK.GY.BRKN AS ABOVE
71	110.10	111.22	1.12			SANDSTONE	SLTY.M.GY.BRKN WELL DEVELOPED FAN-SHAPED CARBONATE CRY STALS ALONG FRACTURES PARALLEL TO CORE AXIS;NO APPARENT BEDDING ; VARIES FROM VFG TO SILTY ; SOME CARBONACEOUS RESIDU E ON PARTING SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
71	111.22	111.52	0.30			SANDSTONE	SLD
72	111.52	113.37	1.85			SANDSTONE	SLD
73	113.37	114.61	1.24			SANDSTONE	SLTY,M-DK.GY,BRKN TO VERY FINE GRAINED ; CRYSTALS ON FRACTURE SURFACES AS ABOVE ; LISTRIC SURFACES ; SCATTERED DK GY ROUNDED & ELONGATE MUDSTONE RIP-UP CLASTS OR "CLAY GALLS" ; BEDDING GENERALLY INDETERMINATE;ZONE OF THINBEDDED AND LAMINATED SANDSTONE
74	114.61	114.81	0.20			ROCK LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 74	114.81	115.63	0.82			SILTSTONE	SSY,M-DK.GY,LAM.BRKN TO THINBEDDED; INTERBEDDED WITH VERY FINE GRAINED SANDSTONE AND DARK GRAY MUDSTONE; TOPS UP
* 71	115.63	117.79	2.16			SILTSTONE	M-DK.GY,SSD.SLD INTERBEDDED VFG SANDSTONE, MUDSTONE AND SILTSTONE; LAMINATED TO THINBEDDED; VERY SMALL MUDSTONE RIP UP CLASTS INDICATE TOPS UP; SAND CONTENT INCREASING TO BASE ; SOME VARVED-TYPE BEDDING ABOVE SANDY UNIT AT BASE
70	117.79	117.86	0.07			SILTSTONE	SSY,M-DK.GY,SLD SOME CARBONACEOUS PLANT DEBRIS ASSOCIATED WITH MUDSTONE LAMS AND BEDS; BECOMING MOSTLY SANDY TOWARD BASE WITH VERY FAINT BEDDING;
* 69	117.86	119.83	1.97			SILTSTONE	SLD
70	119.83	120.84	1.01			SANDSTONE	SLTY,M-DK.GY,SLD FAINT BEDDING AND DK-GY MUDSTONE LAMS & WISPS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
71	120.84	121.74	0.90			SANDSTONE	SLD CARBONACEOUS PLANT REMAINS ON PARTING SURFACES ; NON-CALCAREOUS
72	121.74	123.69	1.95			SANDSTONE	SLTY.M-DK.GY.BRKN CARBONACEOUS PARTING SURFACES - CARBONACEOUS MUDSTONE WISPS AND STRINGERS ; TRACE QUARTZ, CARBONATE AND KAOLIN VEINS
73	123.69	123.84	0.15			SANDSTONE	SLTY.M-DK.GY.BRKN CARBONACEOUS PARTING SURFACES - CARBONACEOUS MUD- STONE WISPS AND STRINGERS ; TRACE QUARTZ , CARBONATE AND KAOLIN VEINS
* 74	123.84	125.69	1.85			SANDSTONE	SLTY.M-DK.GY.SLD CARBONACEOUS PARTING SURFACES - CARBONACEOUS MUD- STONE WISPS AND STRINGERS ; TRACE QUARTZ , CARBONATE AND KAOLIN VEINS
* 75	125.69	126.96	1.27			SANDSTONE	SLTY.M-DK.GY.SLD TOPS UP:CARBONACEOUS PARTING, SURFACES - CARBONAC-EOUS MUDSTONE WISPS AND STRINGERS ; TRACE QUARTZ, CARBONATE AND KAOLIN VEINS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
71	126.96	127.74	0.78			SANDSTONE	SLTY.M-DK.GY.SSD.SLD TOPS UP:CARBONACEOUS PARTING SURFACES - CARBONACE-OUS MUDSTONE WISPS AND STRINGERS; TRACE QUARTZ, CARBONATE AND KAOLIN VEINS
* 66	127.74	129.74	2.00			SANDSTONE	SLTY.M-DK.GY.THKB.SLD TRACE MUDSTONE PARTINGS ONLY
69	129.74	129.94	0.20			SANDSTONE	SLTY.M-DK.GY.BRKN CARBONACEOUS PARTINGS
70	129.94	130.62	0.68			SANDSTONE	SLTY.M-DK.GY.SLD CLAY GALLS AT BASE; SHARP CONTACT WITH UNDERLYING MUDSTONE
* 72	130.62	131.84	1.22			MUDSTONE	DK.GY.SLD MINOR CARBONACEOUS PLANT DEBRIS; SLIGHTLY SILTY; VERY THIN QUARTZ VEIN AT BASE
68	131.84	132.98	1.14			MUDSTONE	SLTY.DK.GY.BRKN CARBONACEOUS PLANT FRAGMENTS AT BASE
* 65	132.98	133.60	0.62			MUDSTONE	SLTY.DK.GY AS ABOVE, FAINTLY BEDDED; QUARTZ/CARBONATE VEIN AT LOWER CONTACT

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
66	133.60	133.75	0.15	01524	I	COAL	C-2.BLK.VBRKN
66	133.75	133.80	0.05	01524	I	MUDSTONE	DK.GY.SLD
66	133.80	133.90	0.10	01524	I	COAL	C-2.BLK.SLD
66	133.90	133.95	0.05	01524	I	COAL	C-3.BLK.VBRKN WET; SOFT
67	133.95	133.98	0.03	01524	I	COAL LOSS	
67	133.98	134.03	0.05	01524	I	COAL	C-2.BLK.BRKN
67	134.03	134.16	0.13	01524	I	COAL	C-1.BLK.VBRKN
67	134.16	134.19	0.03	01524	I	COAL	C-2.BLK.VBRKN
67	134.19	134.21	0.02	01524	I	MUDSTONE	CARB.DK.BN.VBRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
68	134.21	135.12	0.91	01524	I	COAL	C-2.BLK.VBRKN RARE DULL BANDS
70	135.12	135.41	0.29	01524	I	ROCK LOSS	
70	135.41	135.42	0.01	01524	I	MUDSTONE	SLTY.DK.BN.SLD
71	135.42	136.09	0.67	01524	I	COAL	C-1.BLK.SLD MINOR DULL BANDS
71	136.09	136.16	0.07	01524	I	COAL	C-1.BLK.VBRKN
* 72	136.16	136.54	0.38	01524	I	COAL	C-1.BLK.BRKN CONCHOIDAL FRACTURES
72	136.54	136.59	0.05	01524	I	MUDSTONE	CARB.BLK.VBRKN COALY LAMINATIONS
72	136.59	136.67	0.08	01524	I	COAL	C-2.BLK.VBRKN SOME C1/C3, MINOR MUDSTONE LAMINATIONS
72	136.67	137.58	0.91	01524	I	COAL	C-2.BLK.VBRKN SOME C1/C3
71	137.58	137.65	0.07	01524	I	MUDSTONE	CARB.DK.GY.VBRKN INTERBEDDED COALY LAMINATIONS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
71	137.65	137.71	0.06	01524	I	COAL	C-2.BLK.VBRKN QUARTZ VEINING (5MM)
71	137.71	138.04	0.33			MUDSTONE	DK.GY.SLD MINOR COALY LAMINATIONS; QUARTZ VEINING (3 MM)
71	138.04	138.20	0.16			MUDSTONE	DK.GY.SLD
* 71	138.20	139.37	1.17			SILTSTONE	SSY.M.GY.SSD.SLD MINOR INTERLAMINATIONS OF VERY FINE GRAINED SANDSTONE
* 79	139.37	140.17	0.80			SANDSTONE	SLTY.VFG.MOD.M.GY.THNB.SSD.SLD MINOR INTERLAMINATIONS OF SILTSTONE
* 86	140.17	142.07	1.90			SANDSTONE	FG.MOD.M.GY.THNB.SSD.BRKN MINOR INTERLAMINATIONS OF SILTSTONE
* 80	142.07	142.20	0.13			SANDSTONE	FG.MOD.M.GY.THNB.SSD.SLD
* 77	142.20	142.36	0.16			SILTSTONE	SSY.DK.GY.SSD.SLD MINOR INTERLAMINATIONS OF VERY FINE GRAINED SANDSTONE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 80	142.36	144.01	1.65			SILTSTONE	SSY.DK.GY.SSD.SLD MINOR INTERLAMINATIONS OF VERY FINE GRAINED SANDSTONE
80	144.01	144.64	0.63			SILTSTONE	SSY.DK.GY.SSD.SLD AS ABOVE
81	144.64	145.34	0.70			MUDSTONE	M.GY.VBRKN LISTRIC FRACTURE SURFACES;TALC LAYERED
* 81	145.34	145.66	0.32			SANDSTONE	SLTY.FG.PR.DK.GY.THNB.SSD.SLD TALC ON LISTRIC FRACTURE SURFACES; INTERLAMINATIONS OF SILTSTONE
* 71	145.66	145.89	0.23			SANDSTONE	FG.PR.LT.GY.THNB.SSD.BRKN MINOR QUARTZ FRAGMENT INCLUSIONS;INTERLAMINATED SILTSTONE; LISTRIC FRACTURE SURFACES ON SILTSTONE; RIPPLEMARKS
75	145.89	146.06	0.17			SANDSTONE	SLTY.VFG.PR.M.GY.THNB.SSD.BRKN TALC ON LISTRIC FRACTURE SURFACES; MINOR SILTSTONE INTERLAMINATIONS; COALY FRAGMENTS; RIPPLEMARKS
81	146.06	146.48	0.42			SANDSTONE	SLTY.VFG.PR.M.GY.THNB.SSD.VBRKN MINOR QUARTZ VEINING;MINOR FAULT ZONE;TALC ON LISTRIC FRACTURE SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 90	146.48	146.91	0.43			SILTSTONE	SSY.DK.GY.VTHNB.SSD.SLD MINOR INTERLAMINATED FINE GRAINED SANDSTONE
87	146.91	148.11	1.20			SANDSTONE	MG.PR.M.GY.SSD.BRKN MINOR QUARTZ VEINING 45 DEGREES TO CORE AXIS
* 84	148.11	148.36	0.25			SANDSTONE	FG.MOD.M.GY.WRMBU.BRKN MINOR SILTSTONE LAMINAE; MUDSTONE PARTINGS; SOFT SEDIMENT DEFORMATION
* 85	148.36	150.10	1.74			SANDSTONE	FG.MOD.M.GY AS ABOVE; VERY MINOR INTERBEDDED MUDSTONE LAMINAE (4MM); MINOR QUARTZ VEINING PARALLEL TO BEDDING AND AT 45 DEGREES TO CORE AXIS; BCA'S 85 DEGREES AND 76 DEGREES
83	150.10	150.63	0.53			SANDSTONE	FG.MOD.M.GY.VTHNB.WRMBU.SLD SSD(SOME); MINOR SILTSTONE INTERBEDS; BIOTURBATED (BURROWING?)
* 82	150.63	151.27	0.64			SANDSTONE	SLTY.FG.MOD.M.GY.SSD.SLD WORM BURROW; INTERBEDDED WITH SILTSTONE BCA'S 82 DEGREES , 87 DEGREES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
81	151.27	151.77	0.50			MUDSTONE	DK.GY.THNB.BRKN MINOR QUARTZ VEINING; TALC ON LISTRIC FRACTURE SURFACES
80	151.77	151.88	0.11			SANDSTONE	SLTY.FG.MOD.M-DK.GY.VTHNB.VBRKN BIT SCOUR; MINOR THIN QUARTZ VEINING
80	151.88	151.98	0.10			SANDSTONE	MG.MOD.LT.GY.THNB.SLD MINOR QUARTZ VEINING; SILTSTONE LAMINAE
79	151.98	152.44	0.46			SANDSTONE	SLTY.VFG.M.GY.SSD.BRKN MINOR QUARTZ VEINING(2MM); SILTSTONE LAMINAE; LISTRIC FRACTURE SURFACES WITH MINOR TALC
* 78	152.44	152.62	0.18			SANDSTONE	SLTY.FG.M.GY.THNB.SSD.BRKN MINOR QUARTZ VEINING AND SILTSTONE LAMINAE
* 78	152.62	153.62	1.00			SANDSTONE	SLTY.FG.M.GY.THNB.SSD.BRKN AS ABOVE, MINOR FAULT ZONE
78	153.62	153.97	0.35			SILTSTONE	SSY.M.GY.THNB.SSD.BRKN MINOR QUARTZ VEINING; LISTRIC FRACTURE SURFACES
78	153.97	154.06	0.09			SANDSTONE	MG.MEL.LT.GY.THKB.SLD

* DENOTES MEASURED BCA

FORM 4001

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
78	154.06	154.10	0.04			QUARTZ	MH.SLD VERY HARD/SOLID QUARTZ VEIN
78	154.10	154.74	0.64			SANDSTONE	MG.WEL.LT.GY.THKB.BRKN MINOR DARK-GRAY CLAY GALLS (ROUNDED)
78	154.74	154.88	0.14			SANDSTONE	MG.WEL.LT.GY.THKB.SLD
* 78	154.88	155.38	0.50			SANDSTONE	MG.WEL.M.GY.THNB.SLD MINOR ELONGATED CLAY GALLS
78	155.38	156.41	1.03			SANDSTONE	SLTY.FG.MOD.M.GY.THNB.SSD.BRKN MINOR INTERBEDDED SILTSTONE AND MUDSTON E LAMINAE; LISTRIC FRACTURE SURFACES; F AULT ZONE AT BASE OF UNIT
78	156.41	156.75	0.34			SILTSTONE	SSY.M.GY.THNB.SSD.BRKN WORM BURROW; MINOR FAULT ZONE; INTERLAM INATED FINE GRAINED SANDSTONE
* 78	156.75	157.86	1.11			SANDSTONE	FG.MOD.M.GY.THNB.SSD.SLD BIOTURBATED; TALC ON FRACTURE SURFACES (LISTRIC)
* 80	157.86	158.34	0.48			SANDSTONE	FG.MOD.M.GY.THNB.SSD.SLD AS ABOVE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
78	158.34	158.63	0.29			SANDSTONE	FG.WEL.M.GY.THKB.SLD PYRITE NODULES UP TO 2CM X 5CM;VERY MIN OR THIN QUARTZ VEIN (1MM)
76	158.63	158.82	0.19			SANDSTONE	FG.MOD.M.GY.THNB.SSD.SLD
* 72	158.82	159.87	1.05			SANDSTONE	FG.MOD.M.GY.THNB.SSD.SLD
74	159.87	160.24	0.37			SANDSTONE	MG.WEL.M.GY.THKB.SLD MINOR DARK GRAY SILTSTONE LAMINAE
* 76	160.24	160.89	0.65			SANDSTONE	FG.MOD.M.GY.THNB.SSD.SLD PYRITE NODULE 15MM ; MINOR 5MM QUARTZ V EIN PARALLEL TO BEDDING
* 83	160.89	162.45	1.56			SANDSTONE	FG.MOD.M.GY.BIOTR.SLD INTERBEDDING DARK GRAY MUDSTONE, SILTST ONE; TALC ON LISTRIC FRACTURE SURFACES
* 72	162.45	162.96	0.51			SILTSTONE	DK.GY.SSD.BRKN SANDY LAM AND LENSES/TALC ON LISTRIC FR ACTURE SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 76	162.96	163.87	0.91			SANDSTONE	SLTY.VFG.DK.GY.SSD.BRKN INTERLAMINATED DARK GRAY SILTSTONE AND MUDSTONE
80	163.87	165.02	1.15			SILTSTONE	DK.GY.BRKN MINOR SS LAMINAE AND LENSES DECREASE TOWARDS BASE-GRADE TO MUDDY;CARBONACEOUS ON FRACTURE SURFACES AND PLANT DEBRIS ON BEDDING SURFACES;QUARTZ/CARBONATE FRACTURE FILL (4CM); TRACES COAL STRINGERS
* 84	165.02	166.38	1.36			SILTSTONE	DK.GY.THNB.SSD.BRKN INTERBEDDED DARK GRAY MUDSTONE /MEDIUM GREY FINE GRAINED SS LAMINAE;TALC ON LISTRIC SURFACES AND SLICKENSIDE SURFACES
81	166.38	166.99	0.61			MUDSTONE	SLTY.M-DK.GY.VBRKN LISTRIC SURFACES; MINOR SANDY LAMINAE TOWARDS BASE; QUARTZ VEINING TOWARDS BASE WITH ANGULAR SILTSTONE FRAGMENTS IN QUARTZ
* 76	166.99	169.05	2.06			SILTSTONE	SSY.DK.GY.SSD.BRKN INTERBEDDED FINE GRAINED SANDSTONE AND DARK GRAY MUDSTONE; LISTRIC FRACTURE SURFACES; PYRITE BLEBS AND NODULES (1-3 CM); MINOR QUARTZ VEINING (20 MM)

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
77	169.05	169.15	0.10			MUDSTONE	CARB.DK.GY.BRKN CARBONACEOUS PLANT FRAGMENTS
77	169.15	169.49	0.34	01528		COAL	C-2.BLK.VBRKN SOME C1/C3;SEMI-CONCHOIDAL FRACTURE, MINOR QUARTZ AT BASE
77	169.49	169.64	0.15			MUDSTONE	CARB.GY.VBRKN CARBONACEOUS PLANT FRAGMENTS;LISTRIC FRACTURE SURFACES
77	169.64	169.67	0.03			COAL	C-3.BLK.VBRKN SOME C-2, MINOR QUARTZ VEINING
77	169.67	169.96	0.29			MUDSTONE	CARB.GY.THKB.VBRKN CARBONACEOUS PLANT FRAGMENTS; QUARTZ VEINING; LISTRIC FRACTURE SURFACES
77	169.96	170.98	1.02			MUDSTONE	DK.GY.THKB.VBRKN LISTRIC FRACTURE SURFACES;MINOR COALY LAMINAE; MINOR TALC ON FRACTURES
* 78	170.98	171.67	0.69			MUDSTONE	SLTY.DK.GY.THNB.BRKN MINOR QUARTZ VEIN (10 MM) // TO BEDDING, LISTRIC FRACTURE SURFACES

* DENOTES MEASURED BCA

FORM 4001

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 72	171.67	172.32	0.65			SANDSTONE	VFG.MOD.M.GY.THNB.SSD.BRKN MINOR QUARTZ VEINING, PYRITE BLEB (15 M M)
69	172.32	172.56	0.24			MUDSTONE	SLTY.DK.GY.THKB.BRKN EASILY WEATHERED, LISTRIC SURFACES, SLICKENSIDE SURFACES WITH TALC
66	172.56	173.13	0.57			MUDSTONE	SLTY.DK.GY.THKB.BRKN MINOR TALC ON SLICKENSIDE FRACTURE SURFACES
* 62	173.13	173.54	0.41			SILTSTONE	SSY.M.GY.THNB.SSD.SLD INTERLAMINATED VERY FINE GRAINED SANDSTONE
70	173.54	173.94	0.40			QUARTZ	MM.BRKN INTERLAMINATED MUDSTONE
* 83	173.94	174.74	0.80			SANDSTONE	SLTY.VFG.MOD.M.GY.THNB.SSD.BRKN MINOR SILTSTONE AND MUDSTONE INTERLAMINATIONS
* 73	174.74	174.84	0.10			MUDSTONE	SLTY.M.GY.VTHNB.SSD.SLD PLANT FOSSILS; SLICKENSIDE SURFACES; MINOR QUARTZ VEINING; MINOR INTERLAMINATED SILTSTONE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
77	174.84	175.49	0.65			MUDSTONE	DK.GY.MAS.SLD LISTRIC FRACTURE SURFACES; PLANT FOSSILS;MINOR COALY LAMINAE
* 81	175.49	175.61	0.12			MUDSTONE	CARB.DK.GY.THNB.SLD MINOR COAL LAMINAE, SOME SILTSTONE LAMINAE
77	175.61	176.91	1.30			MUDSTONE	DK.GY.MAS.SLD PLANT FOSSILS, VERY MINOR SILTSTONE LAMINAE AND PYRITE NODULES (3 CM)
71	176.91	177.84	0.93			MUDSTONE	DK.GY.MAS.SLD PLANT FOSSILS, PYRITE NODULES
67	177.84	178.52	0.68			MUDSTONE	CARB.DK.GY.MAS.SLD COALY PLANT FRAGMENTS; MINOR PYRITE LAMINAE
65	178.52	178.71	0.19			MUDSTONE	DK.GY.THKB.SLD QUARTZ INTERLAMINATED WITH MUDSTONE; RIP UP CLASTS
64	178.71	178.92	0.21			MUDSTONE	DK.GY.THNB.BRKN EASILY WEATHERED, QUARTZ VEIN (3 CM) 45 DEGREES TO CORE, LISTRIC FRACTURE SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
62	178.92	179.44	0.52			MUDSTONE	DK.GY.THKB.SLD EASILY WEATHERED; PLANT FOSSILS;PYRITE NODULES ANDLAMINAE (1-3 CM)
59	179.44	180.03	0.59			MUDSTONE	CARB.DK.GY.MAS.SLD INTERLAMINATED COAL
57	180.03	180.08	0.05			MUDSTONE	PYR.DK.GY.THKB.SLD CARBONACEOUS, WITH QUARTZ VEINS (3 MM)
56	180.08	180.44	0.36	01525	H	COAL	C-2.BLK.VBRKN SOME C-1/C-3; MINOR QUARTZ VEIN NEAR TOP OF UNIT; INTERLAMINATED SILTSTONE/MUDSTONE
53	180.44	181.13	0.69	01525	H	COAL LOSS	
52	181.13	181.15	0.02	01525	H	MUDSTONE	CARB.BLK.SLD MINOR COAL LAMINAE
51	181.15	181.23	0.08	01525	H	COAL	C-3.BLK.BRKN SOME C-2; INTERLAMINATED SILTSTONE/MUDSTONE
51	181.23	181.34	0.11	01525	H	COAL	C-2.BLK.BRKN QUARTZ VEINING

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
50	181.34	181.46	0.12	01525	H	COAL	C-2.BLK.VBRKN SOME C-1/C-3; LISTRIC SURFACES;MINOR MUDSTONE LAMINAE
50	181.46	181.52	0.06	01525	H	COAL	C-2.BLK.SLD MINOR QUARTZ VEIN INTRUSIONS
49	181.52	181.83	0.31	01525	H	COAL LOSS	
48	181.83	181.95	0.12	01525	H	MUDSTONE	DK.GY.BRKN LISTRIC FRACTURE SURFACES;VERY MINOR COAL LAMINAE
46	181.95	182.41	0.46	01525	H	COAL	C-2.BLK.VBRKN SOME C1/C3, MINOR MUDSTONE LAMINAE
45	182.41	182.49	0.08	01525	H	MUDSTONE	CARB.GY.BRKN LISTRIC FRACTURE SURFACES;MINOR COAL LAMINAE
44	182.49	182.60	0.11	01525	H	COAL	C-3.BLK.VBRKN SOME C-2;MINOR MUDSTONE LAMINAE
44	182.60	182.69	0.09	01525	H	MUDSTONE	CARB.GY.VBRKN LISTRIC FRACTURE SURFACES; COAL LAMINAE
42	182.69	183.17	0.48	01525	H	COAL	C-1.BLK.BRKN SOME C-2;CONCHOIDAL FRACTURE;VERY MINOR MUDSTONE LAMINAE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
41	183.17	183.19	0.02	01525	H	MUDSTONE	CARB.BLK.VBRKN VERY WEATHERED;SOFT; COAL INCLUSIONS
41	183.19	183.22	0.03	01525	H	COAL	C-3.BLK.VBRKN MINOR MUDSTONE LAMINAE
40	183.22	183.26	0.04	01525	H	SILTSTONE	CARB.DK.GY.BRKN LISTRIC FRACTURE SURFACES, MINOR QUARTZ VEINING, INTERLAMINATED COAL
40	183.26	183.38	0.12	01525	H	COAL	C-2.BLK.VBRKN SAME C-1, CONCHOIDAL FRACTURES; MINOR INTERLAMINATED MUDSTONE
39	183.38	183.65	0.27	01525	H	COAL	C-1.BLK.VBRKN SOME C-2, MINOR MUDSTONE LAMINAE
38	183.65	183.71	0.06	01525	H	MUDSTONE	CARB.BLK.BRKN MINOR CALCITE VEIN AT BASE
37	183.71	184.24	0.53	01525	H	COAL	C-2.BLK.VBRKN SOME C1/C3, MINOR MUDSTONE LAMINAE
35	184.24	184.29	0.05	01525	H	SILTSTONE	CARB.BLK.BRKN MINOR INTERLAMINATED COAL; MINOR CALCITE VEINING; HARD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
33	184.29	184.95	0.66	01525	H	COAL	C-1.BLK.VBRKN SOME C2/C3;MINOR MUDSTONE LAMINAE, CALCITE VEINS (3 MM)
31	184.95	185.13	0.18	01525	H	COAL	C-1.BLK.VBRKN MINOR C-2 INCLUSIONS;CONCHOIDAL FRACTURE
29	185.13	185.61	0.48	01525	H	COAL	C-2.BLK.VBRKN MINOR INTERLAMINATED SILTSTONE (LESS THAN 1.00 CM); SOME C1/C3
28	185.61	185.63	0.02	01525	H	SILTSTONE	CARB.BLK.SLD MINOR COAL LAMINAE, HARD
27	185.63	185.91	0.28	01525	H	COAL	C-1.BLK.VBRKN MINOR CALCITE VEINS; SOME C2; MINOR MUDSTONE LAMINAE
25	185.91	186.24	0.33	01525	H	COAL LOSS	
* 24	186.24	186.47	0.23	01525	H	MUDSTONE	DK.GY.BRKN MINOR LISTRIC SURFACES
28	186.47	186.54	0.07	01525	H	SILTSTONE	M.GY.SLD MINOR COAL LENSES (5 MM); CALCITE VEINING

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
31	186.54	186.64	0.10	01525	H	COAL	C-1.BRKN MINOR MUDSTONE PARTINGS
34	186.64	186.74	0.10	01525	H	COAL	PWRD PULVERIZED
44	186.74	187.28	0.54	01525	H	COAL	C-2.PWRD PULVERIZED - BUT LOOKS GENERALLY C1-C2
* 52	187.28	187.31	0.03	01525	H	COAL	C-5.VBRKN
53	187.31	187.79	0.48	01525	H	COAL	C-2.VBRKN TO PONDERED IN PLACES;BCS'S ABOUT 70 DE GREES, STEEPENING IN NEXT BOX
54	187.79	188.33	0.54	01525	H	COAL	C-1.VBRKN QUARTZ VEINS TOWARDS BASE;TRACE MUDSTON E LENSES TOWARDS BASE; C-1 TO C-2 COAL
54	188.33	188.43	0.10	01525	H	COAL	C-2.SLD GRADING TO CARBONACEOUS / COALY MUDSTON E AT BASE
55	188.43	188.50	0.07	01525	H	MUDSTONE	CARB.BLK.SLD TO DARK BROWN; SOFT
55	188.50	188.63	0.13	01525	H	COAL LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
55	188.63	188.89	0.26	01525	H	COAL	C-3.VBRKN
56	188.89	188.98	0.09	01525	H	COAL	C-1.VBRKN
56	188.98	189.20	0.22	01525	H	COAL LOSS	
57	189.20	189.53	0.33	01525	H	COAL	C-2.VBRKN TO PONDERED; SOME MINOR QUARTZ VEINING AT BASE, GENERALLY PERPENDICULAR TO BED DING
* 58	189.53	190.49	0.96			MUDSTONE	CARB.BLK.BRKN SILTY, MINOR BRIGHT COAL STRINGERS AND LENSES; LISTRIC FRACTURE SURFACES WITH KAOLIN COATINGS; GRADES TO DARK GREY SI LTSTONE AT BASE.
53	190.49	191.00	0.51			ROCK LOSS	

* DENOTES MEASURED BCA

FORM 4001

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 45	191.00	192.84	1.84			SILTSTONE	SSY.DK.GY.THNB.SSD.BRKN INTERBEDDED SILTSTONE, VERY FINE GRAINE D SS, AND DK GREY MUDSTONE WITH OCCASIO NAL BRIGHT COAL LENSES AND QUARTZ WISPS PERPENDICULAR TO BEDDING; ALSO < 1 CM PYRITIC MUDSTONE BAND HALF WAY THROUGH UNIT
* 52	192.84	193.98	1.14			SANDSTONE	SLTY.DK.GY.THNB.SSD.BRKN TO LAMINATED; BEDDING VERY DISTURBED; B CA'S STEEPENING TOWARD BASE OF UNIT; IN TERBEDDED SILTSTONE, SANDSTONE, WITH MU DSTONE LENSES
41	193.98	194.55	0.57			SANDSTONE	AS ABOVE
37	194.55	194.61	0.06			MUDSTONE	CARB.DK.GY.BRKN LISTRIC SURFACES; PYRITIC WISPS
* 36	194.61	194.71	0.10			MUDSTONE	DK.GY.THNB.SSD.BRKN SLIGHTLY CARBONACEOUS ; SILTY; LENSES O F VERY FINEGRAINED SS AND SILTSTONE; TR ACE PYRITE BLEBS;BEDDING BECOMING VERY DISTURBED; ABUNDANT KAOLIN- COATED LIST RIC FRACTURE SURFACES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
29	194.71	196.59	1.88			ROCK LOSS	
21	196.59	197.13	0.54			SILTSTONE	DK.GY.SSD.BRKN RATHER MONOTONOUS; FAINT COLOURATION / GRAIN SIZE ALTERATION INDICATE VERY DIS TURBED BEDDING; BCA UNOBTAINABLE; LISTR IC FRACTURE SURFACES AS ABOVE WITH ORIE NTATION APPROXIMATELY PARALLEL TO CORE AXIS
14	197.13	198.48	1.35			SILTSTONE	BRKN AS ABOVE
08	198.48	198.77	0.29			SILTSTONE	M-DK.GY.LAM.SSD.SLD INTERBEDDED WITH VERY FINE GRAINED LIGH T GREY SS AND DARK GREY MUDSTONE; BEDS ARE WAVERING BACK ANDFORTH; DRILLING DO WN BEDDING OBVIOUSLY
* 01	198.77	200.57	1.80			SILTSTONE	BRKN AS ABOVE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 01	200.57	201.90	1.33			SILTSTONE	M-DK.GY.LAM.SSD.BRKN INTERBEDDED WITH VERY FINE GRAINED SS A ND DARK GREY MUDSTONE; DRILLING DOWN DI P; BEDS WAVERING BACK AND FORTH - CREAT ES INTERESTING PATTERN IN CORE
01	201.90	202.59	0.69			SILTSTONE	SLD DRILLING DOWN A SANDY BED IN THIS PIECE OF CORE
* 01	202.59	204.60	2.01			SANDSTONE	SLTY.VFG.M.GY.SSD.BRKN MINOR DARK GREY MUDSTONE & SILTSTONE LE NSES AND LAMINAE; STILL DRILLING DOWN B EDDING
* 01	204.60	205.06	0.46			SANDSTONE	SLD AS ABOVE; STILL DRILLING DOWN DIP
01	205.06	206.53	1.47			SANDSTONE	SLD AS ABOVE
* 01	206.53	206.69	0.16			SANDSTONE	SLD AS ABOVE; STILL DRILLING DOWN DIP
* 01	206.69	208.86	2.17			SANDSTONE	SLD STILL DOWN DIP; APPARENT THAT SS IS ERO DING UNDERLYING DARK GREY MUDSTONE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
11	208.86	209.59	0.73			SANDSTONE	SLD MUDSTONE CONTENT (LAMINAE) INCREASING
16	209.59	210.24	0.65			SANDSTONE	BRKN AS ABOVE
25	210.24	212.03	1.79			SILTSTONE	M-DK.GY.THNB.SSD.SLD SAND CONTENT DECREASING; INTERBEDDED SS ,SILTSTONEAND MUDSTONE; VERY FAINT BED DING; DISTURBED ; STILL CLOSE TO BEING DOWN DIP DRILLING
33	212.03	212.31	0.28			SILTSTONE	SLD AS ABOVE
41	212.31	214.25	1.94			SILTSTONE	CLYY.DK.GY.SSD.BRKN MINOR QUARTZ VEINING < 4 MM; BEDDING OR IENTATION STILL WAVERING; ABUNDANT BRIG HT COAL STRINGERS UP TO 2 CM WIDE TOWAR D BASE; ABUNDANT QUARTZ WISPS ASSOCIATE D WITH THE COAL;SHEARED WITH LISTRIC SU RFACE TOWARD BASE
49	214.25	214.48	0.23			SILTSTONE	CLYY.DK.GY.SLD SLI. CARBONACEOUS;ABUNDANT CARBONATE VE INING; PYRITE BANDS THROUGHOUT;MINOR LI STRIC SURFACES WITH KAOLIN;BRIGHT COAL STRINGERS AND LENSES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
51	214.48	215.04	0.56			SILTSTONE	SSY.DK.GY.LAM.SSD.BRKN TRACE BRIGHT COAL STRINGERS
* 58	215.04	216.30	1.26			SILTSTONE	SSY.DK.GY.LAM.SSD.SLD INTERBEDDED WITH VERY FINE GRAINED M-GR EY SS AND DARK GREY MUDSTONE
54	216.30	217.30	1.00			ROCK LOSS	
50	217.30	218.82	1.52			MUDSTONE	SLTY.DK.GY.VBRKN A LOT OF GROUND CORE; LISTRIC SURFACES; BRIGHT COALPIECES MIXED IN WITH BROKEN MUDSTONE, ESPECIALLY TOWARD BASE; QUART Z VEINING TOWARD BASE AS WELL
47	218.82	218.92	0.10	01526	H	COAL	C-2.VBRKN MINOR MUDSTONE LENSES; MINOR QUARTZ
47	218.92	219.12	0.20	01526	H	COAL	C-1.PWRD VERY BADLY BROKEN;APPEARS TO BE PREDOMI NANTLY C1 ??NOTE?? REFLECTANCE SAMPLE T AKEN: NO. 01532
46	219.12	219.42	0.30	01526	H	COAL	C-2.VBRKN SHEARED;ABUNDANT LISTRIC SURFACES, MINO R MUDSTONE LENSES

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 45	219.42	219.54	0.12	01526	H	MUDSTONE	CARB.DK.BN.VBRKN SLIGHTLY SILTY
* 10	219.54	219.84	0.30	01526	H	COAL	C-2.VBRKN SHEARED; BEDDING VERY STEEP; COAL SEAM APPEARS TO BE FOLDED THROUGHOUT
* 01	219.84	220.26	0.42	01526	H	MUDSTONE	CARB.DK.BN.BRKN SOFT, MUSH; MAY BE BENTONITIC;TRACE QUA RTZ STRINGERS
* 05	220.26	220.46	0.20	01526	H	COAL	C-1.SHRD VERY BROKEN; ABUNDANT LISTRIC SURFACES
05	220.46	221.22	0.76	01526	H	COAL	C-1.PWRD SHEARED; BADLY BROKEN; VERY WET; MAKES CONSTANT CRACKLING NOISE -- IT APPEARS TO BE RELEASING GAS (NO APPARENT ODOUR)
05	221.22	222.01	0.79	01526	H	COAL	C-1.PWRD SHEARED - BEDDING HERE APPARENTLY NEAR HORIZONTAL;LISTRIC SURFACES?
05	222.01	222.12	0.11	01526	H	COAL	C-2.PWRD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
05	222.12	222.16	0.04	01526	H	SILTSTONE	CARB.M.GY.SLD CLAST ?
05	222.16	222.32	0.16	01526	H	COAL	C-4.VBRKN ABUNDANT LISTRIC SURFACES
05	222.32	222.39	0.07	01526	H	COAL	C-1.VBRKN
05	222.39	222.61	0.22	01526	H	COAL LOSS	
05	222.61	222.99	0.38	01526	H	COAL	C-2.VBRKN
05	222.99	223.01	0.02	01526	H	SILTSTONE	M.GY.SLD CLAST?
05	223.01	223.88	0.87	01526	H	COAL	C-1.VBRKN SHEARED; MINOR DULL BANDS
05	223.88	225.28	1.40	01526	H	COAL	SHRD BADLY BROKEN AND MIXED; OCCASIONAL VERY HARD CARBONACEOUS SILTSTONE FRAGMENTS; TRACE QUARTZ VEINING ASSOCIATED WITH SILTSTONE; SOME C-1 TO C-4 COAL
05	225.28	226.43	1.15	01526	H	COAL	C-2.VBRKN VERY BROKEN;NO APPARENT MAJOR ROCK PARTINGS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 05	226.43	226.74	0.31	01526	H	COAL	C-2.VBRKN BANDING IN COAL ALMOST PARALLEL TO CORE AXIS; TRACE CARBONACEOUS MUDSTONE IN MELANGE AT BOTTOM OF BOX; LISTRIC SURFACES EVIDENT
* 17	226.74	228.43	1.69	01526	H	COAL	C-2.VBRKN THIN CARBONACEOUS MUDSTONE AT TOP (< 1/2 CM) TRACEQUARTZ WISPS; MINOR THIN CARBONACEOUS MUDSTONE LENSES THROUGHOUT; VERY SHEARED; LISTRIC SURFACES
08	228.43	228.63	0.20	01526	H	COAL	C-2.BRKN MINOR QUARTZ WISPS
06	228.63	228.70	0.07	01526	H	SILTSTONE	CARB.BLK.BRKN HARD, ABUNDANT QUARTZ
05	228.70	228.88	0.18	01526	H	COAL LOSS	
03	228.88	229.12	0.24	01526	H	COAL	C-2.BRKN
* 01	229.12	229.33	0.21	01526	H	SILTSTONE	CARB.BLK.VBRKN WITH QUARTZ AND BRIGHT COAL STRINGERS; SOME CARBONACEOUS MUDSTONE LENSES; BEDDING ALMOST PARALLEL TO CORE AXIS

* DENOTES MEASURED BCA

FORM 4001

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
05	229.33	229.99	0.66	01526	H	COAL LOSS	
09	229.99	230.26	0.27	01526	H	COAL	C-3
13	230.26	230.98	0.72	01526	H	COAL	C-3.VBRKN MINOR CARBONACEOUS AND SILTY MUDSTONE L ENSES;QUARTZ WISPS TOWARDS BASE; LISTRI C SURFACES
18	230.98	231.30	0.32	01526	H	COAL	C-2.VBRKN ABUNDANT QUARTZ VEINS AND WISPS TOWARDS BASE; LISTRIC SURFACES
22	231.30	231.85	0.55	01526	H	COAL LOSS	
* 25	231.85	232.07	0.22	01526	H	MUDSTONE	CARB.BLK.SLD COAL (BRIGHT) AND QUARTZ STRINGERS TOWA RDS BASE OF UNIT
34	232.07	233.31	1.24	01526	H	COAL	C-2.VBRKN TO PULVERIZED AT BASE WITH ABUNDANT LIS TRIC SURFACES; VERY MINOR THIN QUARTZ W ISPS THROUGHOUT

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
44	233.31	233.69	0.38	01526	H	COAL LOSS	
48	233.69	233.97	0.28	01526	H	COAL	C-2.VBRKN SOME SILTY AND COALY MUDSTONE PIECES IN THE MELANGE;ABUNDANT LISTRIC SURFACES
51	233.97	234.18	0.21	01526	H	COAL	C-3.VBRKN SHEARED; ABUNDANT LISTRIC SURFACES;CARB ONACEOUS MUDSTONE LENSES INCREASING TO BASE OF UNIT;??NOTE?? REFLECTANCE SAMPL E TAKEN: NO. 01533
54	234.18	234.37	0.19	01526	H	COAL	C-4.VBRKN QUARTZ STRINGERS; MINOR CARBONACEOUS MU DSTONE PARTINGS; LISTRIC SURFACES
56	234.37	234.58	0.21			MUDSTONE	CARB.DK.GY.BRKN WITH COALY STRINGERS; SLIGHTLY SILTY
59	234.58	234.83	0.25			ROCK LOSS	
61	234.83	234.88	0.05			MUDSTONE	DK.GY.SLD ABUNDANT QUARTZ VEINING (LOOKS AS THOUG H ANGULAR FRAGMENTS OF UNDERLYING SILTS TONE ARE INCLUDED IN IT)

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 65	234.88	235.46	0.58			SANDSTONE	SLTY.DK.GY.LAM.SSD.SLD PYRITIC LENSES; INTERBEDDED WITH DARK G REY SILTY MUDSTONE
66	235.46	237.02	1.56			SANDSTONE	SLTY.M-DK.GY.THNB.SSD.BRKN TO LAMINATED, SOME BIOTURBATION ? INDIC ATES TOPS UP (BURROWS...); INTERBEDDED SS.SILTSTONE & DARK GREY MUDSTONE AS AB OVE; PYRITIC BLEB HALF WAY THROUGH BOX JUST ABOVE ZONE (0.06 M) OF CARBONACE OUS MUDSTONE WITH COALY STRINGERS
66	237.02	237.49	0.47			SANDSTONE	SLTY.SLD
66	237.49	238.69	1.20			SANDSTONE	SLTY,M-DK.GY,SSD.BRKN WORM BURROW 1CM X 9CM; TOPS UP; MASSIVE AT TOP, BECOMING LAMINATED TOWARDS BAS E; BEDDING DISTURBED; KAOLIN ON LISTRIC AND SLICKENSIDE SURFACES
67	238.69	238.79	0.10			SILTSTONE	DK.GY.BRKN SLIGHTLY CARBONACEOUS WITH TRACE BRIGHT COAL STRINGERS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
67	238.79	238.89	0.10			SILTSTONE	LT.GY.BRKN WITH ABUNDANT QUARTZ, CARBONATE AND BRI GHT COALST RINGERS
67	238.89	239.37	0.48			MUDSTONE	CARB.BLK.MAS.BRKN COALY AT TOP WITH BRIGHT COAL STRINGERS ; REST MASSIVE; MINOR LISTRIC SURFACES; GROUND CORE AT TOP
67	239.37	239.85	0.48			MUDSTONE	M.GY.MAS.BRKN SLIGHTLY SILTY, TRACE SILTSTONE TOWARD BASE
67	239.85	240.05	0.20			ROCK LOSS	
68	240.05	241.44	1.39			MUDSTONE	SLTY.M.GY.MAS.BRKN TRACE BEDDING/SILTSTONE TOWARD BASE IN FORM OF LARGE INCLUSIONS OF SILTY MATER IAL
* 68	241.44	241.66	0.22			SANDSTONE	VFG.M.GY.LAM.WRMBU.SLD SOME SOFT SEDIMENT DEFORMATION; TOPS UP ; INTERBEDDED WITH DARK GRAY SILTSTONE AND MUDSTONE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 76	241.66	243.13	1.47			SANDSTONE	VFG.M.GY.LAM.SSD.BRKN SOME MEDIUM GRAINED SANDSTONE LAMINATIO NS;TRACE CARBONACEOUS LAMINAE; CLASSIC FINING UPWARD SEQUENCE AS MARKED ON COR E; GOOD SS EROSIONAL CONTACTS WITH UNDE RLYING DARK GREY SILTY MUDSTONE; TOPS U P
76	243.13	243.71	0.58			SANDSTONE	VFG.M.GY.THNB.SLD SILTSTONE LAMINATIONS DECREASING TOWARD BASE; BECOMING MORE MASSIVE
* 76	243.71	245.72	2.01			SANDSTONE	FG.M.GY.THKB.RIPMK.BRKN DARK GRAY MUDSTONE, SILTSTONE,& FINE GR AINED DARKER GRAY SANDSTONE ROUNDED AND ELONGATE RIP UP CLASTS-SHOW IMBRICATIO N ; TRACE QUARTZ VEINING; BCA'S 69 DEGR EES, 76 DEGREES (CROSS BEDDING?) -SS BR EAKS AROUND CLASTS, NOT THROUGH THEM
* 78	245.72	246.12	0.40			SANDSTONE	FG.M.GY.THNB.SLD MINOR THIN DARK GREY SILTY MUDSTONE LEN SES; SANDSTONE EROSIONAL CONTACT INDICA TES TOPS UP
80	246.12	246.72	0.60			SANDSTONE	FG.M.GY.THNB.SLD TO LAMINATED; TRACE ROUND MUDSTONE RIP-UP CLASTS (CLAY GALLS)

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
81	246.72	246.80	0.08			SANDSTONE	FG.PR.LT-M.GY.SLD ABUNDANT WELL ROUNDED SILTY CLAY GALLS (UP TO 3 CM); WHITE QUARTZ GRIT; POORLY SORTED
* 82	246.80	247.53	0.73			SANDSTONE	FG.M.GY.THNB.BRKN TO LAMINATED; OCCASIONAL MEDIUM TO COAR SE GRAINED LENSES
77	247.53	247.57	0.04			SANDSTONE	FG.PR.LT-M.GY.SLD ABUNDANT WELLROUNDED SILTY AND SLIGHTLY CARBONACEOUS MUDSTONE RIP-UP CLASTS
* 75	247.57	247.80	0.23			SANDSTONE	FG.M-DK.GY.LAM.SLD INTERBEDDED WITH DARK GREY SILTY MUDSTO NE LAMINAE
76	247.80	249.14	1.34			SILTSTONE	DK.GY.THNB.SSD.BRKN INTERBEDDED WITH VERY FINE GRAINED MED-GREY SS ANDDKER-GREY SILTY MUDSTONE BCA 'S 72 DEGREES, 75 DEGREES; PREDOMINANTL Y DARK GREY SILTSTONE;MINOR <1 CM QUART Z AND CARBONATE VEIN
* 78	249.14	249.90	0.76			SILTSTONE	AS ABOVE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 80	249.90	250.40	0.50			SANDSTONE	SLTY.M-DK.GY.THNB.SSD.SLD INTERBEDDED WITH DARK GREY SILTSTONE;SO ME LAMINATIONS; BECOMING PREDOMINANTLY SANDY TOWARD BASE
* 85	250.40	252.03	1.63			SANDSTONE	VFG.M-DK.GY.THNB.BRKN TO MASSIVE AT BASE; TRACE THIN MUDSTONE BANDS AND WISPS
81	252.03	252.16	0.13			SANDSTONE	VFG.M-DK.GY.THNB.SSD.BRKN TO LAMINATED; DARK GREY SILTSTONE INTER BEDS ; SS SCOUR; TRACE CARBONACEOUS RES IDUE ON PARTING SURFACES
* 77	252.16	253.92	1.76			SANDSTONE	AS ABOVE; MUDSTONE INTERBEDS INCREASING TO BASE; TOP UP; BCA'S 77 DEGREES, 78 DEGREES
82	253.92	253.98	0.06			MUDSTONE	SLTY.DK.GY.BRKN
83	253.98	254.05	0.07			MUDSTONE	SLTY.DK.GY.SLD

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 86	254.05	255.18	1.13			SILTSTONE	SSY.M-DK.GY.LAM.BRKN INTERLAMINATED WITH SILTY MUDSTONE AND VERY FINE GRAINED SANDSTONE; TRACE CARB ONACEOUS RESIDUE
76	255.18	256.01	0.83			SILTSTONE	SSY.M-DK.GY.LAM.BRKN INTER LAMINATED WITH SILTY MUDSTONE AND VERY FINE GRAINED SANDSTONE; TRACE CAR BONACEOUS RESIDUE
* 68	256.01	256.80	0.79			SILTSTONE	SSY.M-DK.GY.LAM.SSD.BRKN INTERBEDDED WITH VERY FINE GRAINED SAND STONE AND DARK GRAY MUDSTONE
* 75	256.80	258.01	1.21			SILTSTONE	DK.GY.THNB.BRKN TO LAMINATED WITH VERY FINE GRAINED SAN DSTONE; MINOR THIN QUARTZ VEIN APPROXIM ATELY PERPENDICULAR TO BEDDING
* 67	258.01	260.14	2.13			MUDSTONE	SLTY.DK.GY.THNB.SSD.BRKN TO LAMINATED WITH MEDIUM GRAY SANDY SIL TSTONE; POSSIBLE WORM BURROWS; TOPS UP; TRACES CARBONACEOUS PLANT DEBRIS THROU GHOUT
69	260.14	261.09	0.95			MUDSTONE	DK.GY.MAS.BRKN SLIGHTLY CARBONACEOUS WITH MINUTE CARBO NACEOUS PLANT DEBRIS; SILTY TOWARD TOP OF UNIT

* DENOTES MEASURED BCA

FORM 4001

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
70	261.09	262.05	0.96			MUDSTONE	CARB.DK.GY.MAS.BRKN ABUNDANT CARBONACEOUS PLANT DEBRIS; VER Y SLIGHILY SILTY
71	262.05	262.36	0.31			ROCK LOSS	
71	262.36	262.58	0.22			MUDSTONE	DK.GY.MAS.BRKN WITH SHELLS (BIVALVES) AND ABUNDANT CAR BONACEOUS PLANT DEBRIS;BIVALVES <I CM W IDE
72	262.58	264.02	1.44			MUDSTONE	DK.GY.MAS.BRKN WITH BIVALVES AND ABUNDANT CARBONACEOUS PLANT DEBRIS; BIVALVES ABSENT TOWARDS BASE OF UNIT
73	264.02	264.39	0.37			ROCK LOSS	
* 75	264.39	266.53	2.14			MUDSTONE	SLTY.DK.GY.THNB.SSD.BRKN TRACES SMALL BIVALVES; SILTY INTERBEDS; MINOR CARBONACEOUS PLANT DEBRIS
* 74	266.53	267.00	0.47			MUDSTONE	SLTY.DK.GY.THNB.SSD.BRKN POSSIBLE LARGE BURROW; TRACES SHELL FRA GMENTS; SLIGHTLY CARBONACEOUS PLANT DEB RIS

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 76	267.00	268.48	1.48			MUDSTONE	SLTY.DK.GY.THNB.SSD.BRKN TRACES SHELL FRAGMENTS; CARBONACEOUS PL ANT DEBRIS;SANDY INTERBEDS; PYRITE BLEB S ASSOCIATED WITH ONE LARGE SHELL FRAGM ENT
* 80	268.48	270.03	1.55			MUDSTONE	SLTY.DK.GY.THNB.BRKN VERY FRACTURED; LARGE (3CM) PELECYPOD F OSSIL HALF WAY THROUGH UNIT; BECOMING V ERY SILTY TOWARD BASE WITH VERY FINE GR AINED SANDSTONE BEDS
75	270.03	270.12	0.09			SILTSTONE	DK.GY.SLD LARGE SHELL FRAGMENT ON TOP SURFACE OF CORE
* 74	270.12	270.54	0.42			MUDSTONE	SLTY.DK.GY.SLD SLIGHTLY CARBONACEOUS; PLANT DEBRIS; FA INT BEDDINGAPPARENT
74	270.54	270.59	0.05		G(UPPER)	COAL	C-2.SLD
74	270.59	270.72	0.13		G(UPPER)	COAL LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
74	270.72	271.11	0.39		G(UPPER)	MUDSTONE	CARB.BLK.THNB.BRKN ABUNDANT BRIGHT COAL BANDS; LISTRIC SUR FACES;TRACE VERY THIN QUARTZ WISPS
74	271.11	271.14	0.03	01527	G(UPPER)	COAL	C-2.SLD WITH THIN QUARTZ VEINS PARALLEL TO BAND ING
74	271.14	271.23	0.09	01527	G(UPPER)	MUDSTONE	CARB.BN.BRKN VERY SOFT
73	271.23	271.58	0.35	01527	G(UPPER)	COAL	C-3.BRKN MINOR MUDSTONE LENSES
73	271.58	271.62	0.04	01527	G(UPPER)	MUDSTONE	SLTY.DK.BN.SLD
73	271.62	272.07	0.45	01527	G(UPPER)	COAL	C-2.BRKN VERY MINOR MUDSTONE LENSES; ABUNDANT LI STRIC SURFACES; GASSY COAL-STILL BUBBLI NG
73	272.07	272.67	0.60	01527	G(UPPER)	MUDSTONE	CARB.BLK.BRKN ABUNDANT BRIGHT COAL BANDS; TRACE QUART Z
73	272.67	272.85	0.18	01527	G(UPPER)	ROCK LOSS	

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
72	272.85	273.24	0.39	01527	G(UPPER)	COAL	C-1.BRKN MINOR DULL BANDS; TRACE MUDSTONE LENSES ;LARGE PYRITE BLEBS TOWARD BASE; STILL EMITTING GAS
72	273.24	273.50	0.26	01527	G(UPPER)	COAL LOSS	
72	273.50	273.60	0.10	01527	G(UPPER)	ROCK LOSS	
72	273.60	274.00	0.40	01527	G(UPPER)	MUDSTONE	CARB.BLK.VBRKN ABUNDANT BRIGHT COAL STRINGERS AND BAND S
72	274.00	274.15	0.15	01527	G(UPPER)	COAL	C-2.BRKN MINOR MUDSTONE
72	274.15	274.22	0.07	01527	G(UPPER)	COAL	C-2.SLD
72	274.22	274.28	0.06	01527	G(UPPER)	MUDSTONE	CARB.BLK.SLD LISTRIC SURFACES
72	274.28	274.55	0.27	01527	G(UPPER)	COAL	C-2.BRKN MINOR MUDSTONE LENSES

* DENOTES MEASURED BCA

FORM 4001

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
71	274.55	276.11	1.56			MUDSTONE	DK.GY.BRKN CARBONACEOUS/COALY AT TOP GRADING TO MO RE SILTY AND LESS CARBONACEOUS AT BASE; BRIGHT COAL STRINGERS; SOFT SEDIMENT DE FORMATION TOWARD BASE; ABUNDANT CARBONA CEOUS PLANT DEBRIS; SILTY TOWARD BASE
71	276.11	276.54	0.43			SILTSTONE	DK.GY.THNB.BRKN FAINT BEDDING
* 70	276.54	278.15	1.61			SILTSTONE	M-DK.GY.LAM.SSD.BRKN TOPS UP ? INTERBEDDED WITH VERY FINE GR AINED MEDIUM GRAY SANDSTONE AND DARKER GRAY SILTY MUDSTONE; CARBONACEOUS AND C OALY PLANT DEBRIS ALONG BEDDING PARTING SURFACES
73	278.15	278.23	0.08			ROCK LOSS	
* 75	278.23	279.32	1.09			SILTSTONE	SSY.M-DK.GY.LAM.SSD.BRKN LAMINAE OF DARKER GRAY SILTY MUDSTONE A ND MEDIUM GRAY SANDSTONE AND SILTSTONE; "VARVED" APPEARANCE IN FINING UPWARD S EQUENCES (FEW MM PER SEQUENCE); BCA'S 7 5,64

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
74	279.32	280.20	0.88			SILTSTONE	SSY.M-DK.GY.LAM.SSD.BRKN AS ABOVE; TRACE CARBONACEOUS PLANT DEBR IS
* 73	280.20	282.23	2.03			SILTSTONE	SSY.M-DK.GY.LAM.SSD.BRKN INTERLAMINATED WITH VERY FINE GRAINED S ANDSTONE AND SILTY MUDSTONE; BIOTURBATI ON EVIDENCE INDICATES TOPS UP --BURROWS ?; TRACES CARBONACEOUS RESIDUE ON SOME BEDDING SURFACES
76	282.23	282.37	0.14			ROCK LOSS	
* 78	282.37	284.29	1.92			SILTSTONE	SSY.M-DK.GY.LAM.SSD.BRKN AS ABOVE; NO APPARENT BURROWING
74	284.29	284.37	0.08			ROCK LOSS	
* 73	284.37	284.90	0.53			SILTSTONE	SSY.M-DK.GY.LAM.SSD.SLD INTERBEDDED VERY FINE GRAINED MEDIUM GR AY SANDSTONE AND DARK GRAY SILTSTONE; M INOR BED OF TINY RIP-UP CLASTS TOWARD B ASE

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
74	284.90	285.41	0.51			SANDSTONE	VFG.M-DK.GY.MAS.SLD SLIGHTLY SILTY
74	285.41	285.84	0.43			SANDSTONE	VFG.M-DK.GY.MAS.BRKN
75	285.84	285.95	0.11			SANDSTONE	VFG.M.GY.BRKN ABUNDANT DARK GREY SILTY MUDSTONE RIP-U P CLASTS (WELL ROUNDED); SOME MINOR QUA RTZ VEINING; GROUND CORE
75	285.95	286.19	0.24			SANDSTONE	VFG.M-DK.GY.MAS.SLD SILTY; MINOR VERY SMALL (<1MM) DARK GRE Y ELONGATE CLASTSS
75	286.19	286.52	0.33			ROCK LOSS	
* 77	286.52	288.33	1.81			SANDSTONE	VFG.LT-M.GY.MAS.BRKN DARK GREY SILTY MUDSTONE AT TOP; REST M ASSIVE; FAINT BEDDING TOWARD BASE; MINO R WELL ROUNDED DARK GRAY SILTY MUDSTONE RIP-UP CLASTS
75	288.33	288.57	0.24			SANDSTONE	VFG.M.GY.SLD SLIGHTLY SILTY

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
74	288.57	290.62	2.05			SANDSTONE	VFG.M.GY.MAS.BRKN TRACE RIP UP CLASTS TOWARDS TOP OF UNIT ; VERY MINOR THIN QUARTZ VEINING 40 CM FROM BASE
* 72	290.62	290.90	0.28			SANDSTONE	VFG.M.GY.MAS.SLD
71	290.90	291.21	0.31	01531 G(LOWER)		COAL	C-2.BRKN 2MM QUARTZ VEIN AT CONTACT WITH OVERLYI NG SANDSTONE
70	291.21	291.28	0.07			MUDSTONE	CARB.BLK.BRKN COALY STRINGERS; MINOR QUARTZ / CARBONA TE VEINING
* 69	291.28	291.81	0.53			MUDSTONE	DK.BN.BRKN SLIGHTLY SILTY; CARBONACEOUS PLANT FRAG MENTS AND DEBRIS; SILTSTONE INTERBEDS
67	291.81	292.00	0.19			ROCK LOSS	
67	292.00	292.06	0.06			COAL	C-4.BRKN

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
66	292.06	292.36	0.30			MUDSTONE	CARB.BLK.BRKN ABUNDANT C1 COAL STRINGERS; KAOLIN ON L ISTRIC SURFACES
65	292.36	292.44	0.08			COAL	C-3.BRKN
65	292.44	292.51	0.07			MUDSTONE	CARB.BLK.SLD ABUNDANT BRIGHT COAL STRINGERS
64	292.51	292.72	0.21			MUDSTONE	CARB.BLK.BRKN BRIGHT COAL STRINGERS; BECOMING SILTY T OWARD BASE
* 60	292.72	294.18	1.46			SILTSTONE	DK.GY.LAM.SSD.BRKN INTERBEDDED VERY FINE GRAINED MEDIUM GR AY SANDSTONE, DARKER GRAY SILTSTONE, & MUDSTONE; COALY FRAGMENTS,CARBONACEOUS PLANT DEBRIS ON BEDDING PARTING SURFACE S; MINOR THIN QUARTZ/CARBONATE VEIN IN BROKEN MATERIAL
* 70	294.18	295.13	0.95			SILTSTONE	DK.GY.LAM.BRKN AS ABOVE
70	295.13	296.03	0.90			MUDSTONE	SLTY.DK.GY.MAS.BRKN SLIGHTLY CARBONACEOUS; COALY AND CARBON ACEOUS PLANT DEBRIS THROUGHOUT

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH84008

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
70	296.03	296.08	0.05			COAL	C-2.SLD
70	296.08	296.16	0.08			MUDSTONE	SLTY.DK.GY.MAS.SLD CARBONACEOUS WITH PLANT DEBRIS
70	296.16	296.74	0.58			MUDSTONE	SLTY.DK.GY.MAS.BRKN MINOR CARBONACEOUS DEBRIS; TRACE BRIGHT COAL WISPS
70	296.74	297.50	0.76			ROCK LOSS	END OF HOLE. DRILLERS T.D.: 976 FT/297. 47 METRES.

KPNLRDDH 84008

SAMPLE SUMMARY

GULF CANADA RESOURCES INC. - COAL DIVISION

10/DEC/84 SIMPLE SAMPLE SUMMARY PAGE 1

APPARENT THICKNESS

KLAPPAN PROJECT

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK	TOTAL COAL-ROCK
DDH84008										
	K	1523	61.40	65.37	78.84	2.79	0.34	0.58	0.26	3.37- 0.60
		1529	93.24	93.39	100.00	0.15	0.00	0.00	0.00	0.15- 0.00
	I	1524	133.60	137.71	92.21	3.59	0.20	0.03	0.29	3.62- 0.49
		1528	169.15	169.49	100.00	0.34	0.00	0.00	0.00	0.34- 0.00
	H	1525	180.08	189.53	82.22	6.90	0.87	1.68	0.00	8.58- 0.87
	H	1526	218.82	234.37	87.20	12.46	1.10	1.99	0.00	14.45- 1.10
		1527	271.11	274.55	84.30	1.71	1.19	0.26	0.28	1.97- 1.47
		1531	290.90	291.21	100.00	0.31	0.00	0.00	0.00	0.31- 0.00

GULF CANADA RESOURCES INC. - COAL DIVISION

10/DEC/84 COMPOSITE SAMPLE SUMMARY PAGE 1

APPARENT THICKNESS

KLAPPAN PROJECT

DATA SOURCE	SEAM	COMP ID	SAMPLE FROM	SAMPLE TO	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK	TOTAL COAL	TOTAL ROCK
DDH84008													
	k	25	1523	1523	61.40	65.37	78.84	2.79	0.34	0.58	0.26	3.37	0.60
	l	26	1524	1524	133.60	137.71	92.21	3.59	0.20	0.03	0.29	3.62	0.49
	h	27	1525	1525	180.08	189.53	82.22	6.90	0.87	1.68	0.00	8.58	0.87
	h	28	1526	1526	218.82	234.37	87.20	12.46	1.10	1.99	0.00	14.45	1.10
	G UPPER	29	1527	1527	271.11	274.55	84.30	1.71	1.19	0.26	0.28	1.97	1.47

KPNLRDDH 84008

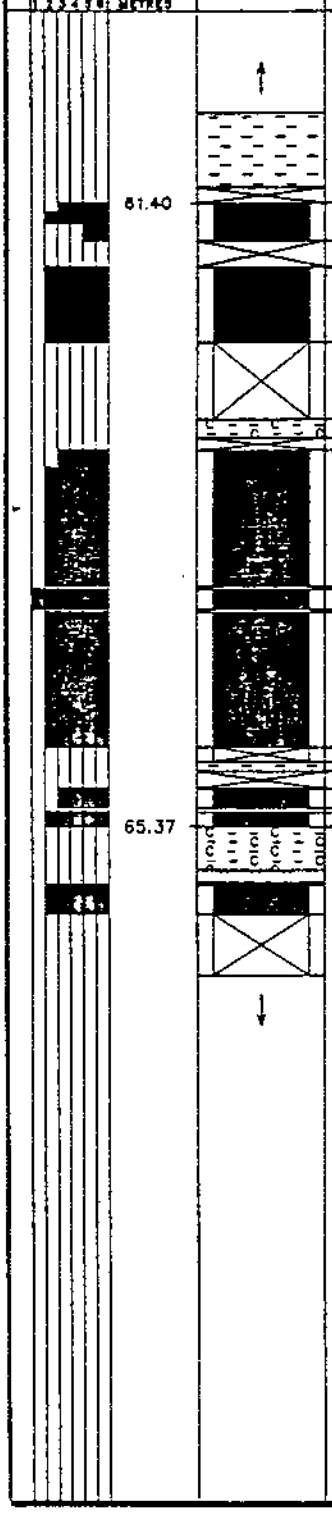
COAL SEAM DATA SHEETS

GULF CANADA RESOURCES INC.

SEAM DETAIL — COAL DIVISION, MOUNT KLAPPAN PROJECT — **TRUE THICKNESS**

DATA SOURCE: KPN LR DDH84008 SEAM : K INTERVAL(M) : 61.40 - 65.37 ELEVATION(M) : 1654.5

GEOLOGIST : V. DUFORD DATE : DEC 08/84 DRAWING NO. :



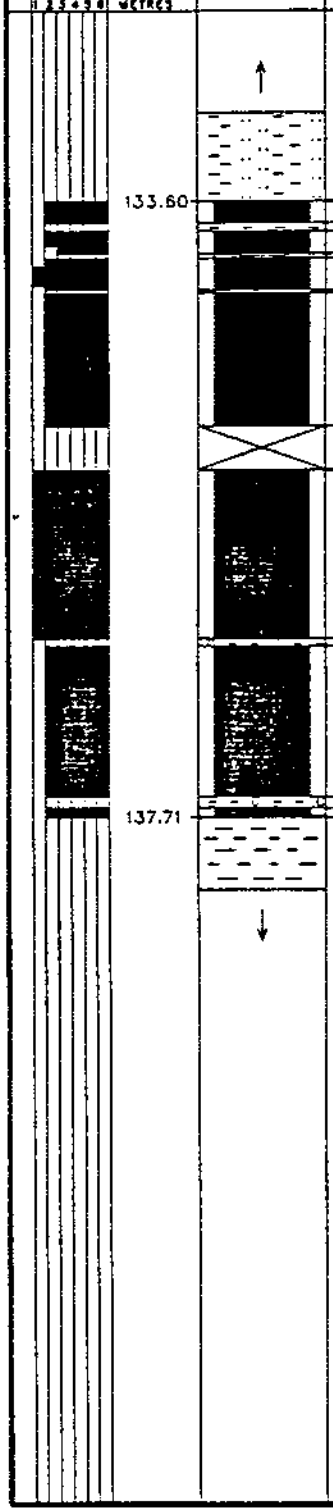
SEAM COMP. 1 2 3 4 5 6	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES ROCK	INTERVAL METRES COAL	% REC.	SAMPLE ID SIMP	SAMPLE ID COMP	COAL/ROCK TOTAL COMPOS	COAL/ROCK TOTAL MINING SECTION	COAL QUALITY A.D.B. RES MOIST	ASH	VM	FC	TS	CAL.VAL MJ/KG
	61.40			0.24											
			(0.16)												
				0.48											
				(0.48)											
			0.18												
			(0.09)												
				0.86	76.6	1523	25	3.33/0.59 3.92		1.95	27.63	7.31	83.11	0.40	24.56
			0.02	0.12											
			0.02												
				0.85											
				(0.09)											
			0.48												
			(0.11)												
				0.12											
			0.02	0.89											
	65.37														

GULF CANADA RESOURCES INC.

SEAM DETAIL — **COAL DIVISION** — **MOUNT KLAPPAN PROJECT** — **TRUE THICKNESS**

DATA SOURCE: KPN LR DDH84008 SEAM : 1 INTERVAL(M) : 133.60 – 137.71 ELEVATION(M) : 1654.5

GEOLOGIST : V. DUFORD DATE : DEC 06/84 DRAWING NO. :



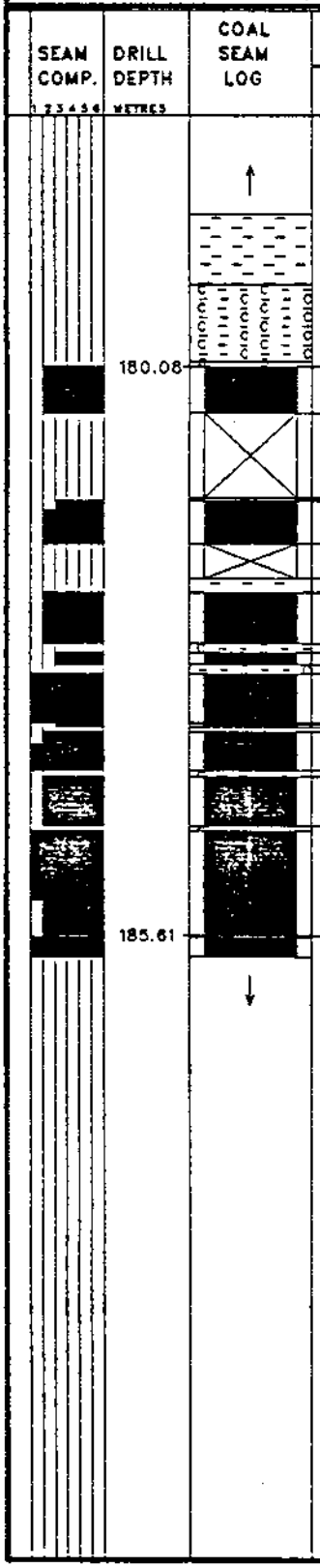
SEAM COMP. 1 2 3 4 5 6	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES ROCK	INTERVAL METRES COAL	% REC.	SAMPLE ID SIMP	SAMPLE ID COMP	COAL/ROCK TOTAL COMPOS	COAL/ROCK TOTAL MINING SECTION	COAL QUALITY A.D.B. RES MOIST	ASH	VM	FC	TS	CAL.VAL MJ/KG
	133.60			0.14											
				0.20											
				0.84											
			(0.27)												
				1.06	92.3	1524	28	3.40 / 0.47 3.86		1.43	21.07	6.32	71.18	0.29	27.18
				0.94											
	137.71														

GULF CANADA RESOURCES INC.

SEAM DETAIL — **COAL DIVISION** — **MOUNT KLAPPAN PROJECT** — **TRUE THICKNESS**

DATA SOURCE: KPN LR D0H84008 SEAM : M INTERVAL(M) : 180.08 – 185.61 ELEVATION(M) : 1654.5

GEOLOGIST : V. DUFORD DATE : DEC 08/84 DRAWING NO. :



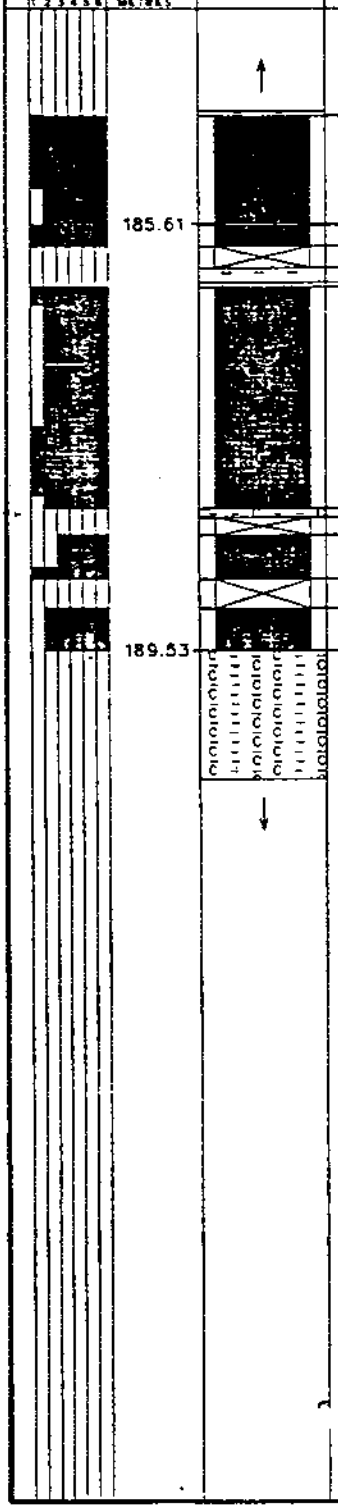
SEAM COMP. 1 2 3 4 5 6	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES ROCK	INTERVAL METRES COAL	% REC.	SAMPLE ID SIMP	SAMPLE ID COMP	COAL/ROCK TOTAL COMPOS	COAL/ROCK TOTAL MINING SECTION	COAL QUALITY A.D.B. RES MOIST	ASH	VM	FC	TS	CAL.VAL MJ/KG
	180.08			0.30											
				(0.55)											
				0.28											
				(0.23)											
				0.33											
				0.04											
				0.32											
				0.25											
				0.32											
	185.61						27	5.84/0.52 6.91							

GULF CANADA RESOURCES INC.

SEAM DETAIL — COAL DIVISION, MOUNT KLAPPAN PROJECT — **TRUE THICKNESS**

DATA SOURCE: KPN LR DDH84008 SEAM : N INTERVAL(M) : 185.61 – 189.53 ELEVATION(M) : 1654.5

GEOLOGIST : V. DUFORD DATE : DEC 06/84 DRAWING NO. :



SEAM COMP. 1 2 3 4 5 6	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES ROCK	INTERVAL METRES COAL	% REC.	SAMPLE ID SIMP	SAMPLE ID COMP	COAL/ROCK TOTAL COMPOS	COAL/ROCK TOTAL MINING SECTION	COAL QUALITY A.D.B. RES MOIST	ASH	VM	FC	TS	CAL.VAL MJ/KG
	185.61			0.68	81.1	1525	27	5.84 / 0.57 6.41		1.12	31.57	7.37	59.94	0.38	22.98
	189.53			1.39											

GULF CANADA RESOURCES INC.

SEAM DETAIL — COAL DIVISION — MOUNT KLAPPAN PROJECT — TRUE THICKNESS

DATA SOURCE: KPN LR 00H84008 SEAM : H INTERVAL(M) : 218.82 – 234.37 ELEVATION(M) : 1654.5

GEOLOGIST : V. DUFORD DATE : DEC 06/84 DRAWING NO. :

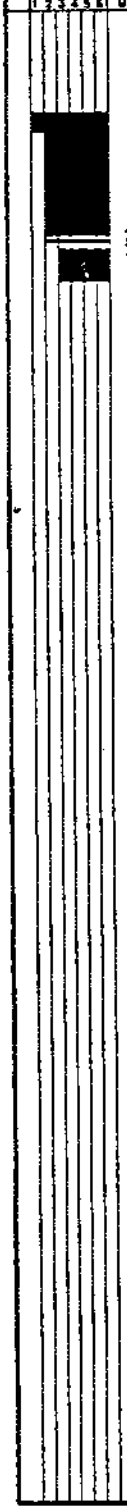
SEAM COMP. 1 2 3 4 5 6	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES ROCK	INTERVAL METRES COAL	% REC.	SAMPLE ID SIMP	SAMPLE ID COMP	COAL/ROCK TOTAL COMPOS	COAL/ROCK TOTAL MINING SECTION	COAL QUALITY A.D.B. RES MOIST	ASH	VM	FC	TS	CAL.V AD MJ/KG
	218.82			0.42											
			0.08		97.20	1526	28	3.64/0.20		1.03	31.34	9.60	59.03	0.37	22.40
	222.24			0.19				3.84							

GULF CANADA RESOURCES INC.

SEAM DETAIL — COAL DIVISION, MOUNT KLAPPAN PROJECT — **TRUE THICKNESS**

DATA SOURCE: KPN LR DDH84008 SEAM : N INTERVAL(M) : 218.02 - 234.37 ELEVATION(M) : 1654.5

GEOLOGIST : V. DUFORD DATE : DEC 06/84 DRAWING NO. :



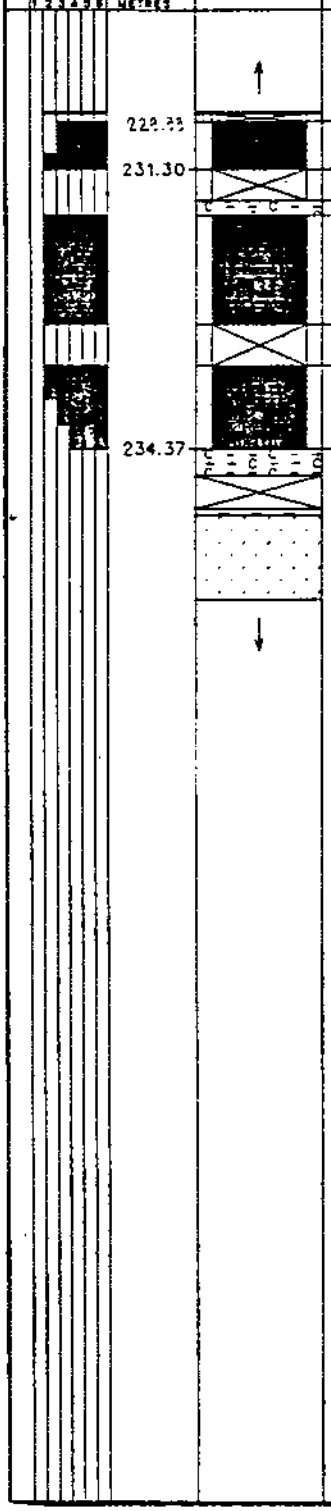
SEAM COMP. 1 2 3 4 5 6	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES ROCK	INTERVAL METRES COAL	% REC.	SAMPLE ID SIMP	SAMPLE ID COMP	COAL/ROCK TOTAL COMPOS	COAL/ROCK TOTAL MINING SECTION	COAL QUALITY A.D.B. RES MOIST	ASH	VM	FC	TS	CAL.VAL MJ/KG
				0.77											
	228.63														
	229.99														

GULF CANADA RESOURCES INC.

SEAM DETAIL — COAL DIVISION, MOUNT KLAPPAN PROJECT — **TRUE THICKNESS**

DATA SOURCE: KPN LR DDH84008 SEAM : M INTERVAL(M) : 218.82 – 234.37 ELEVATION(M) : 1654.5

GEOLOGIST : V. DUFORD DATE : DEC 06/84 DRAWING NO. :



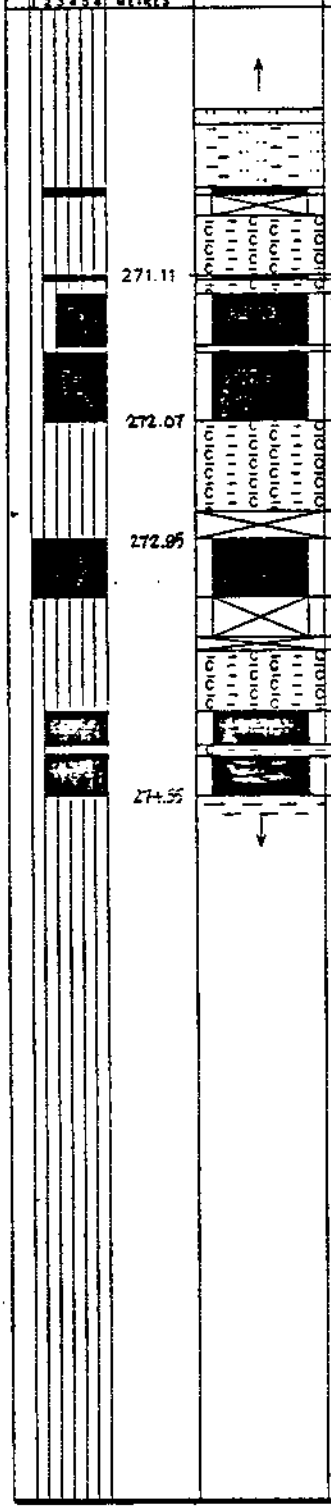
SEAM COMP. 1 2 3 4 5 6	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES ROCK	INTERVAL METRES COAL	% REC.	SAMPLE ID SIMP	SAMPLE ID COMP	COAL/ROCK TOTAL COMPOS	COAL/ROCK TOTAL MINING SECTION	COAL QUALITY A.D.B. RES MOIST	ASH	VM	FC	TS	CAL.VAL MJ/KG
	229.33														
	231.30			0.30											
			6.09	(0.20)											
				0.69				3.64/0.20 3.84							
				(0.28)	67.20	1526	26			1.93	31.34	9.60	58.03	0.37	22.40
				0.52											
	234.37														

GULF CANADA RESOURCES INC.

SEAM DETAIL — COAL DIVISION, MOUNT KLAPPAN PROJECT — **TRUE THICKNESS**

DATA SOURCE: KPN LR 00HB4008 SEAM : G UPPER INTERVAL(M) : 271.11 - 274.66 ELEVATION(M) : 1654.5

GEOLOGIST : V. DUFORD DATE : DEC 06/84 DRAWING NO. :



SEAM COMP. 1 2 3 4 5 6	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES ROCK	INTERVAL METRES COAL	% REC.	SAMPLE ID SIMP	SAMPLE ID COMP	COAL/ROCK TOTAL COMPOS	COAL/ROCK TOTAL MINING SECTION	COAL QUALITY A.D.B. RES MOIST	ASH	VM	FC	TS	CAL.VAL MJ/KG
	271.11			0.33											
				0.43											
	272.07		0.57												
			(0.17)		84.50	016271	29	1.68/1.40 3.28		1.09	41.71	6.53	31.67	0.82	11.92
	272.85			0.37											
				(0.25)											
			(0.05) 0.38												
				0.21											
			0.04												
	274.55														

709

GULF CANADA RESOURCES INC.
COAL DIVISION
KLAPPAN PROJECT
STRATIGRAPHIC LOG
KPN LR DDH84008

GEOLOGIST : V. DUFORD	DATE : DEC 04/84	DRAWING NO. :

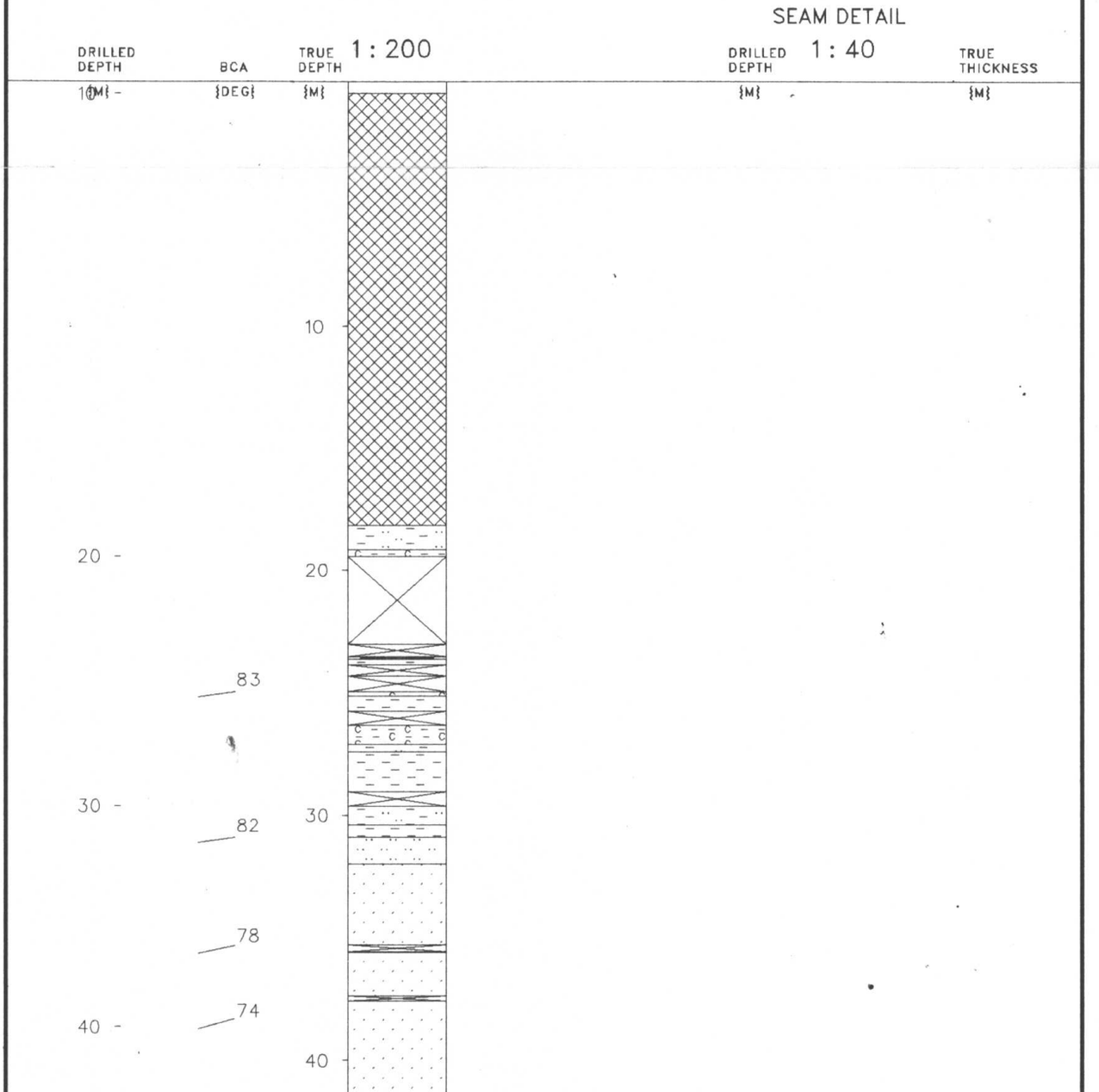
SCALE : 1:200 (0 – 5 {M}) 1:40 (0 – .5 – 1 {M})

NORTHING: 6344710.0 N
EASTING: 506520.0 E

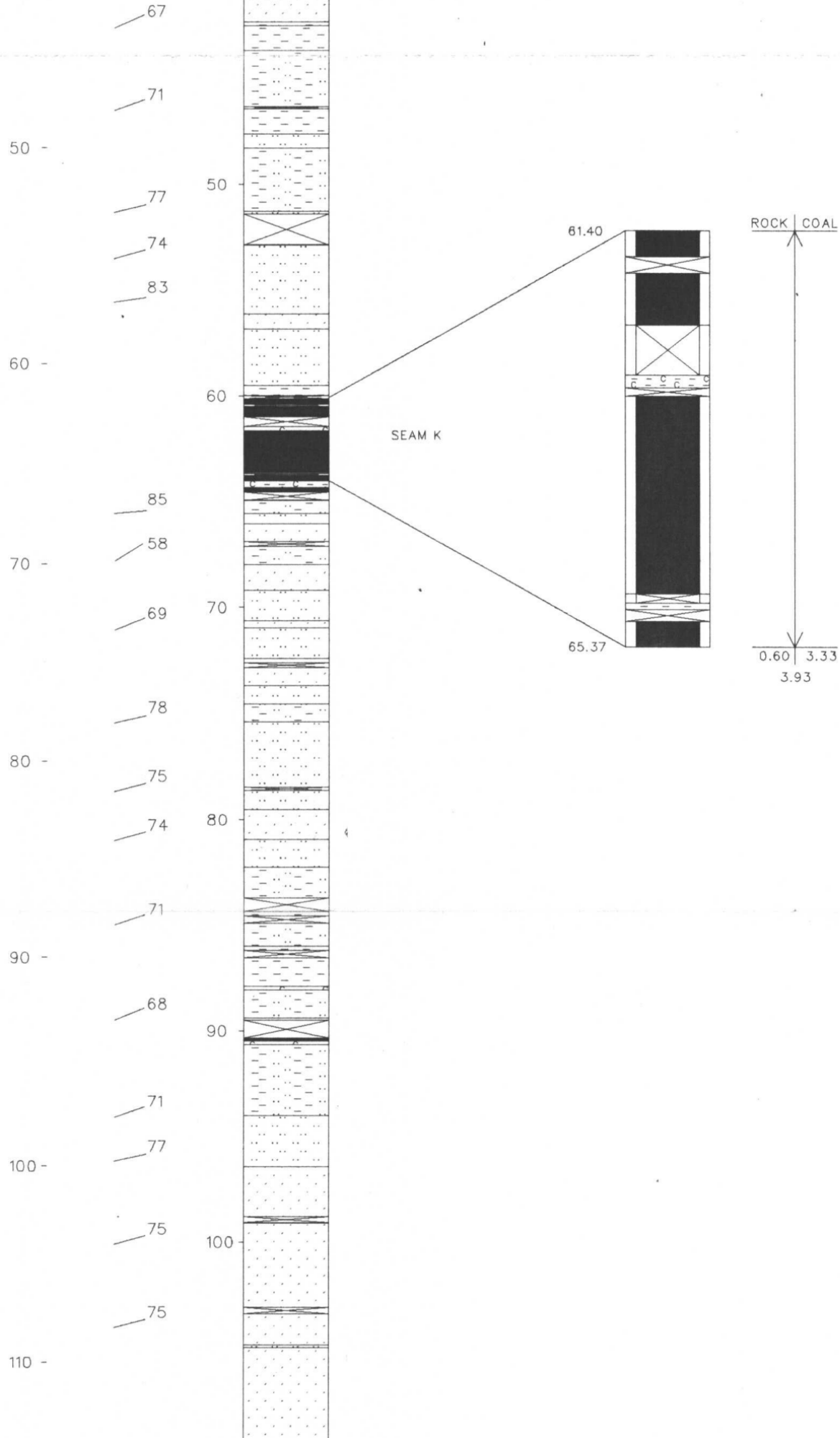
INCLINATION: 78.7°
BEARING: 349.6°

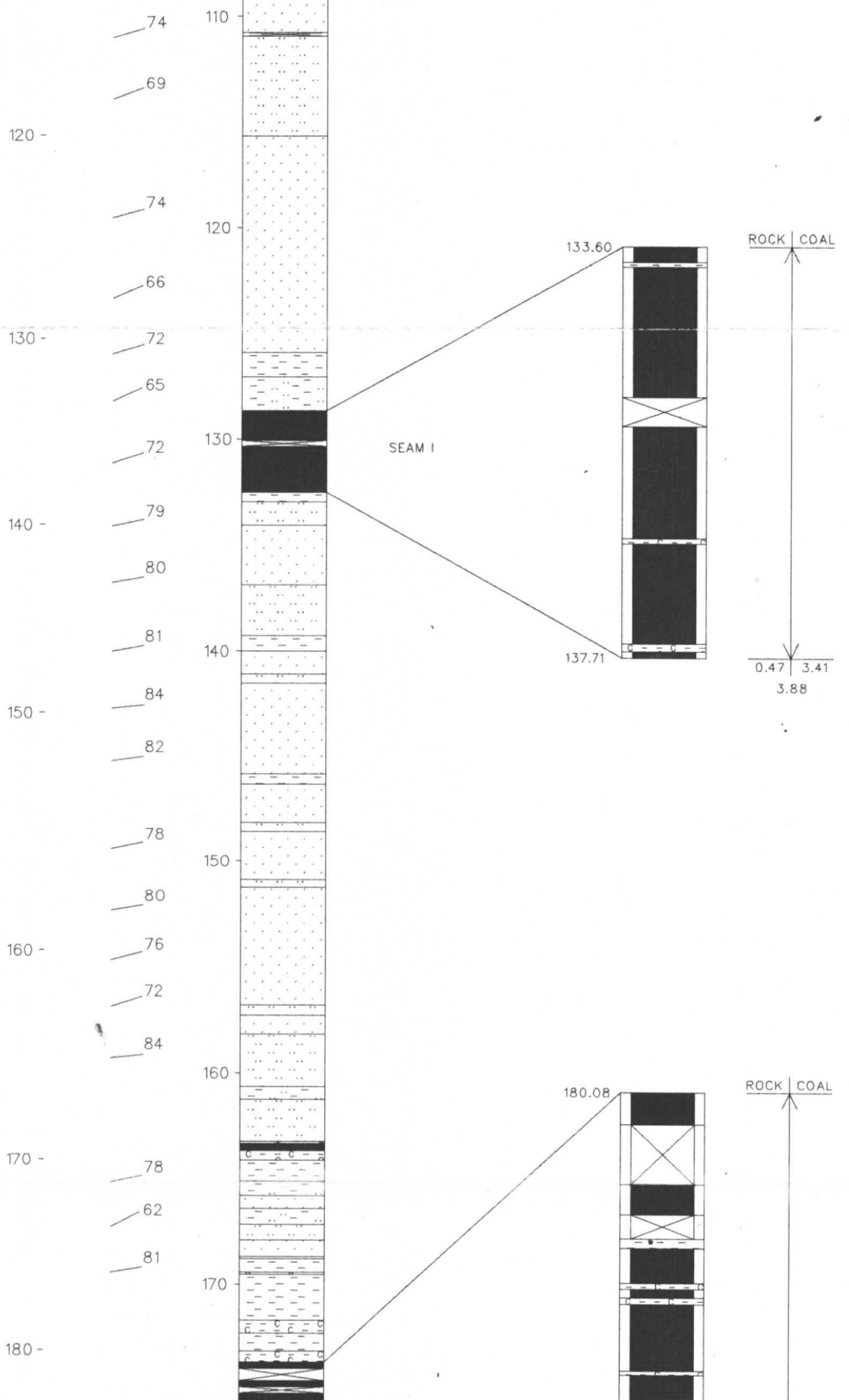
LITHOLOGIC SYMBOLS

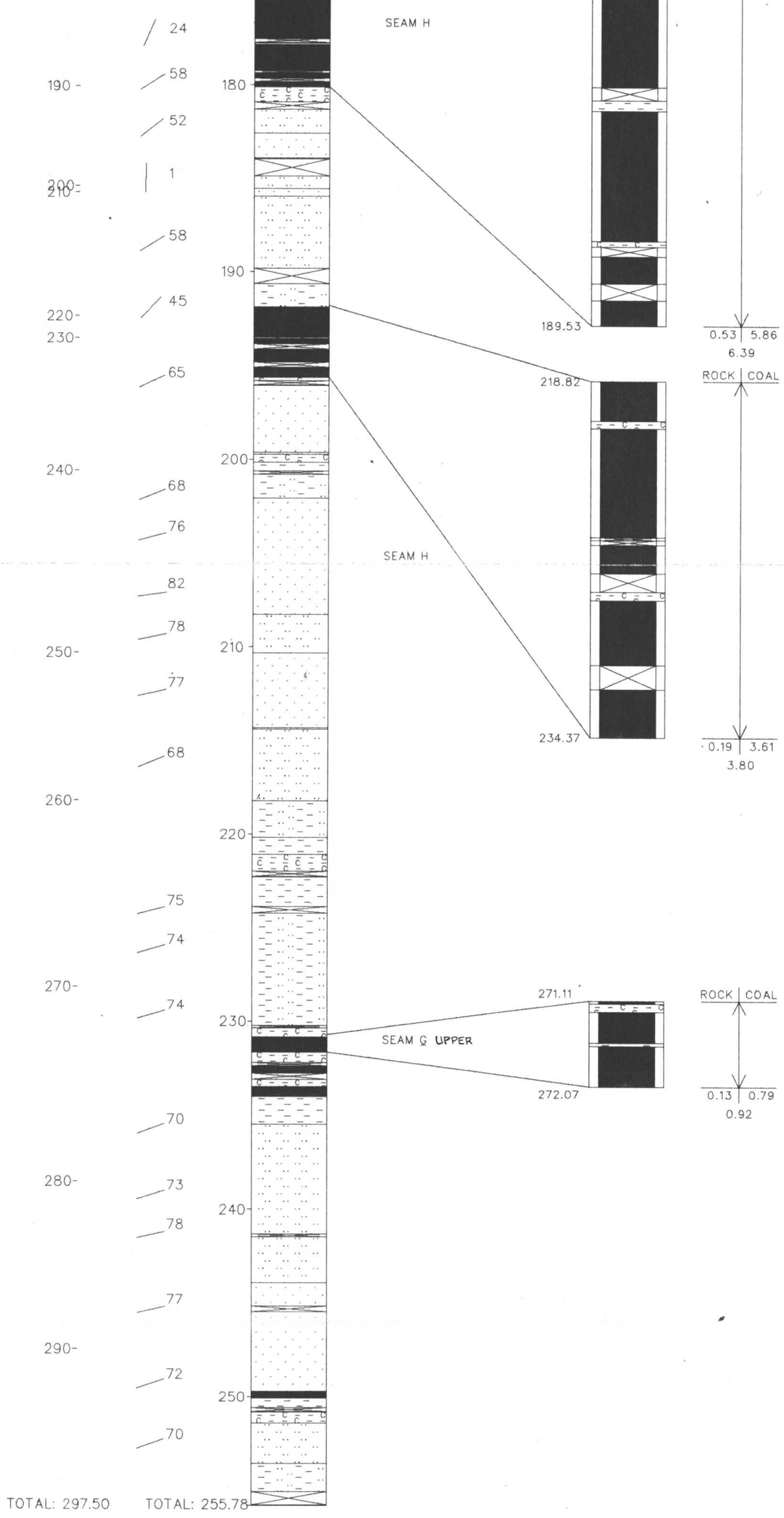
	SANDSTONE		BENTONITE
	SILTSTONE		BRECCIA
	COAL	C C C	CARBONACEOUS
	OVERBURDEN	Q Q Q	QUARTZ
	MUDSTONE, CLAYSTONE	P P P	PYRITE
	TUFF	FE FE FE	FERRUGINOUS
	LIMESTONE	O O O	CONGLOMERATE
	CORE LOSS	F	FOSSIL BED



GR Mount Klappan 84(3)A


67
71
50
77
74
83
60
85
58
70
69
78
80
75
74
71
90
68
71
77
100
75
75
110
50
60
70
80
90
100
SEAM K
61.40
65.37
ROCK
COAL
0.60
3.33
3.93


74
69
120 -
74
66
130 -
72
65
72
140 -
79
80
81
84
150 -
82
78
80
160 -
76
72
84
170 -
78
62
81
180 -
110
120
130
140
150
160
170
SEAM I
133.60
137.71
ROCK
COAL
0.47
3.41
3.88
180.08
ROCK
COAL


SEAM H
24
58
52
1
58
45
65
68
76
82
78
77
68
75
74
74
70
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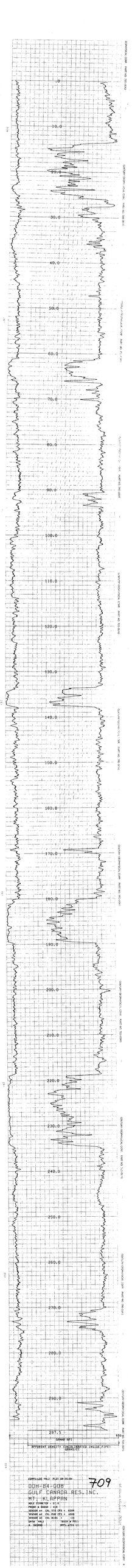
78
77
72
70
190
200
210
220
230
240
250
260
270
280
290
180
190
200
210
220
230
240
250
189.53
218.82
234.37
271.11
272.07
0.53
5.86
6.39
ROCK
COAL
0.19
3.61
3.80
0.13
0.79
0.92
SEAM H
SEAM G UPPER
TOTAL: 297.50
TOTAL: 255.78

PLOT 1 17.53.44 TUES 4 DEC, 1984 JOB-TSTCEGO GULF CANADA DISSPLA 9.0


0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
100.0
110.0
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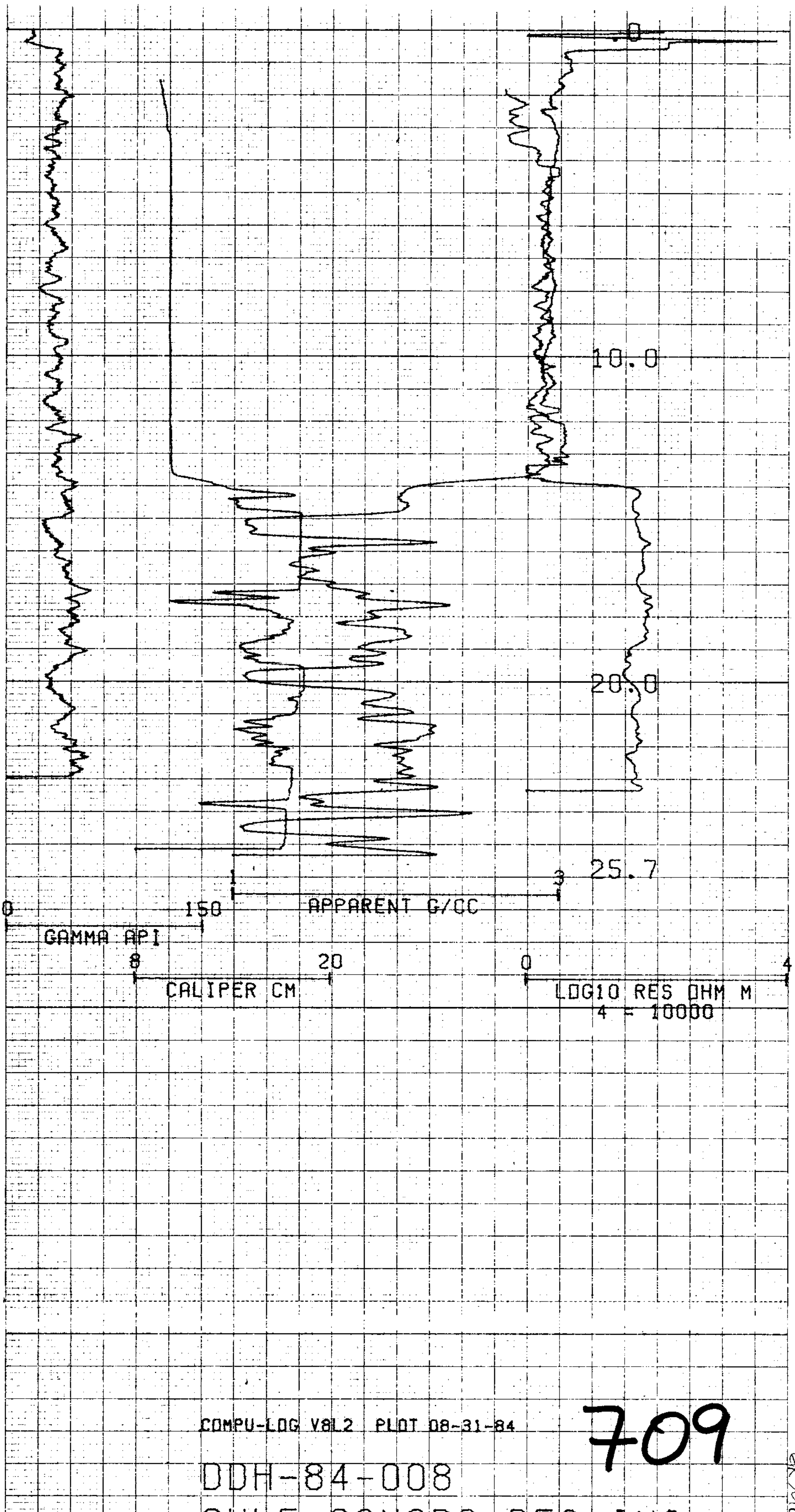
130.0
140.0
150.0
160.0
170.0
180.0
190.0
200.0
210.0
220.0
230.0
240.0
250.0
260.0
270.0
280.0
290.0
297.5
DEPTH (FT)
APPARENT DENSITY (UNCALIBRATED INSIDE PIPE) GRAMS/CC
709
DDH-84-Q08
GULF CANADA RES. INC.
MT. KLAPPAN

COMPU-LOG V8L2 PLOT 08-30-84

709

DDH-84-008
GULF CANADA RES. INC.
MT. KLAPPAN
HOLE DIAMETER : 07.6
PROBE # 9055A - 039
SENSOR #4 CAL STD CPS = 152
SENSOR #4 CAL RUN CPS = 242
SENSOR #4 CAL BIAS = 0
DATA V8L2 TRUCK # PB11
K. SKARBO APPL. #1007L1



COMPU-LOG V8L2 PLOT 08-31-84

709

DDH-84-008

GULF CANADA RES. INC.

MT. KLAPPAN

HOLE DIAMETER : 09.5
PROBE # 9030A - 418
SENSOR #4 CAL STD CPS = 6588
SENSOR #4 CAL RUN CPS = 7133
SENSOR #4 CAL BIAS = -24
DATA V8L2 TRUCK # P811
K. SKARBO APPL.#1029L1

Mount Klappan 84(3)A

1-150
5pen

709

VERTICAL DEVIATION

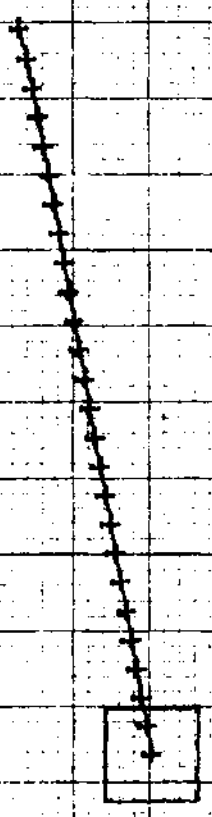
COMPU-LOG V8L1 DEVIATION
DATA FROM : V8L2

CLIENT : GULF CANADA RES.INC.
LOCATION : MT. KLAPPAN
HOLE ID : DDH-84-008
DATE OF LOG : 08-31-84
PROBE : 9055A 0039

SCALE: .50 M/DIV
MAG DECL: 29.5
TRUE DEPTH: 24.8 M
AZIMUTH: 349.6
DISTANCE: 4.91 M

+ = 1.0 M INCR
Δ = TOP OF ZONE
◇ = BOTTOM OF ZONE

TRUE NORTH ↑



GR Mount Klappan 84(3)B

CENTURY GEOPHYSICAL CORP. PART NO. 786-0040

CENTURY GEOPHYSICAL CORP. P

239

CENTURY GEOPHYSICAL CORPORATION

Tulsa, Oklahoma

BOREHOLE	DATE
DDH-84-008	8/30/84
UNIT/OPERATOR	FIELD OFFICE
P811 K Skarbo	Calgary

COMPANY: Gulf Canada Resources Inc.

BOREHOLE: DDH-84-008

AREA: Mt. Klappan

ELEVATION:

COUNTY:

STATE: British Columbia

SECTION | TOWNSHIP | RANGE

HOLE DATA

TOTAL DEPTH — DRILLER	297.6m	BIT SIZE	7.6 cm
TOTAL DEPTH — LOGGER	297.5m	CASING — TYPE & SIZE	H W Steel
TOTAL FOOTAGE LOGGED	297.5m	CASING DEPTH	18.3m
LOGGING SPEED	9m/min	BOREHOLE FLUID	H_2O
REFERENCE LEVEL	Drill Floor	FLUID RESISTIVITY	@ °F
PROBE NO.	9030A-418	SOFTWARE LEVEL	8.2*A
		SCALE SELECTION	☐ OPERATOR ☐ CLIENT
			Tape #6 TK #2

REMARKS: Format #704

-N.G. 24 API

Run inside pipe

Tape #6 TK #3 open hole to 25.7m.

Drill floor 65 cm above ground.

EQUIPMENT DATA

PROBE MODEL		9016	9030	9050/55	9090
PROBE DIAMETER		1.87"	2.0"	1.87"	1.0"
NATURAL GAMMA	DETECTOR TYPE	NaI	NaI	NaI	NaI
	DETECTOR SIZE	.875" x 1.25"	1.125" x 4.5"	.875" x 4.0"	.5" x 3.0"
	STD. K-FACTOR	1.59×10^{-5}	—	$.568 \times 10^{-5}$	1.62×10^{-5}
	STD. DEADTIME	1 μsec	—	1.16 μsec	1 μsec
	CALIB. MODEL LOC.		—		
	CALIB DATE		—		
	K-FACTOR x 10^{-5}		—		
	DEADTIME μsec		—		
	TEST READING		—		
	WATER FACTOR		—		
	CASING FACTOR		—		
DENSITY	DETECTOR TYPE	—	NaI	—	NaI
	DETECTOR SIZE	—	3" x 1.5"	—	.5" x 3.0"
	SOURCE TYPE	—	Cs^{137}	—	Cs^{137}
	SOURCE NO.	—	283	—	
	SOURCE STRENGTH	—	125mCi	—	
	SOURCE SPACING	—	19cm		
	Cal Std		6588		
	Cal Run		7133		
NEUTRON	DETECTOR TYPE	—	—	He^3	—
	DETECTOR SIZE	—	—	1.0" x 6.0"	—
	SOURCE TYPE	—	—	AmBe	—
	SOURCE NO.	—	—		—
	SOURCE STRENGTH	—	—		—
	SOURCE SPACING	—	—		—
SNGL PT RESISTANCE		1.4"D x 2.5"L	—	1.4"D x 2.5"L	1.1"D x 2.5"L
RESISTIVITY		—	6" FOCUSED	—	—
SELF POTENTIAL		YES	—	YES	YES
TEMPERATURE		—	—	YES	—
DEVIATION		—	—	NO / YES	—
CALIPER		—	YES	—	—

CENTURY GEOPHYSICAL CORPORATION

Tulsa, Oklahoma

BOREHOLE	DDH-84-008
DATE	8/30/84
UNIT/OPERATOR	P811 K. Skarbo
FIELD OFFICE	Calgary

COMPANY: Gulf Canada Resources Inc.

BOREHOLE: DDH-84-008

AREA: Mt. Klappan

ELEVATION:

COUNTY:

STATE: British Columbia

SECTION | TOWNSHIP | RANGE

HOLE DATA

TOTAL DEPTH — DRILLER	297.6m	BIT SIZE	7.6 cm
TOTAL DEPTH — LOGGER	297.5m	CASING — TYPE & SIZE	H W Steel
TOTAL FOOTAGE LOGGED	297.5m	CASING DEPTH	18.3m
LOGGING SPEED	9m/min	BOREHOLE FLUID	H_2O
REFERENCE LEVEL	Drill Floor	FLUID RESISTIVITY	@ °F
PROBE NO.	9055A-039	SOFTWARE LEVEL	8.2*A
		SCALE SELECTION	☐ OPERATOR ☐ CLIENT
	Tape #6 TK #1		

REMARKS: Foramt #7

N.G. 25 API

N.N. .1K/O

Tape #6 TK #4 Open hole deviation (25.5m)

Drill floor 65 cm from ground.

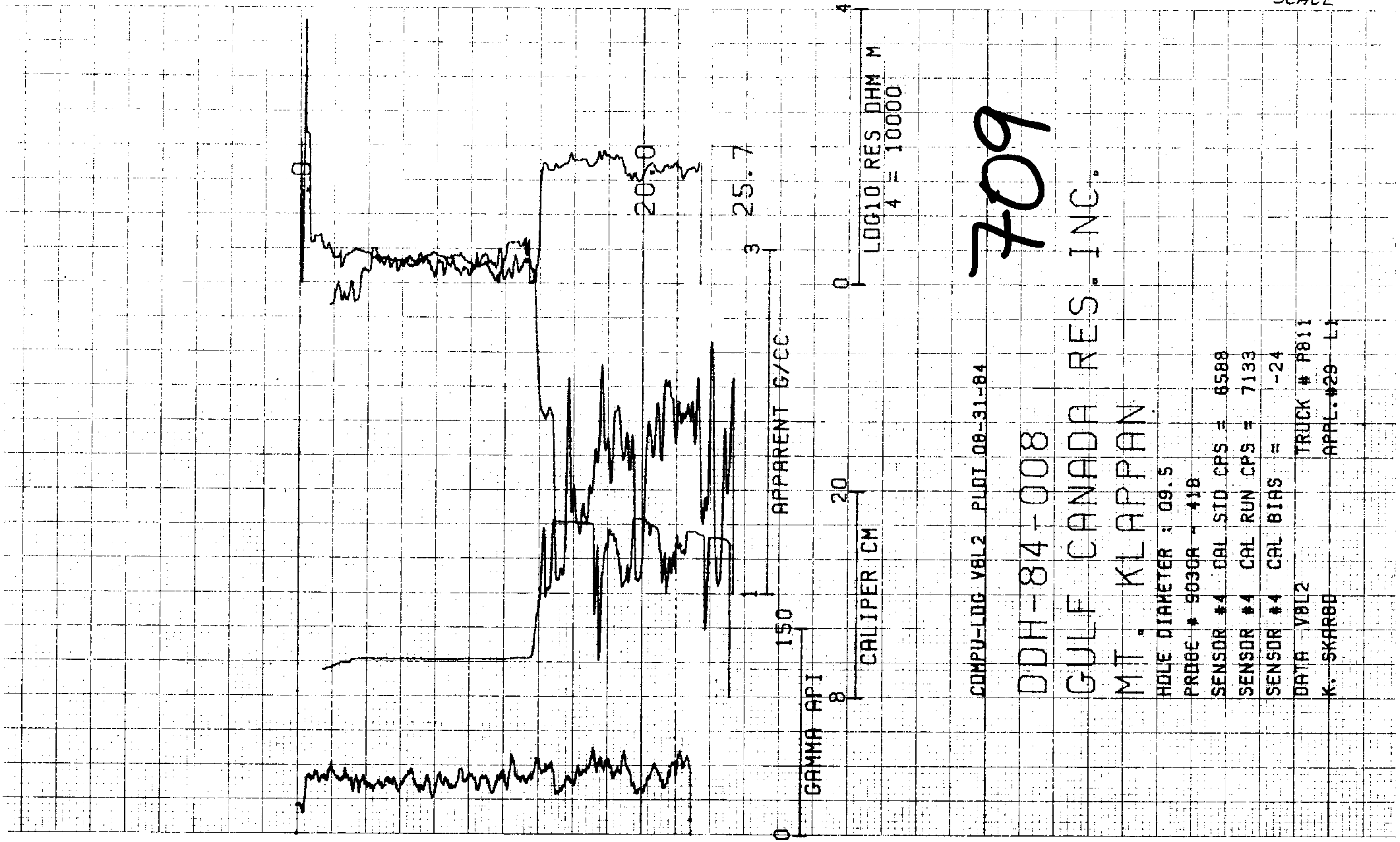
EQUIPMENT DATA

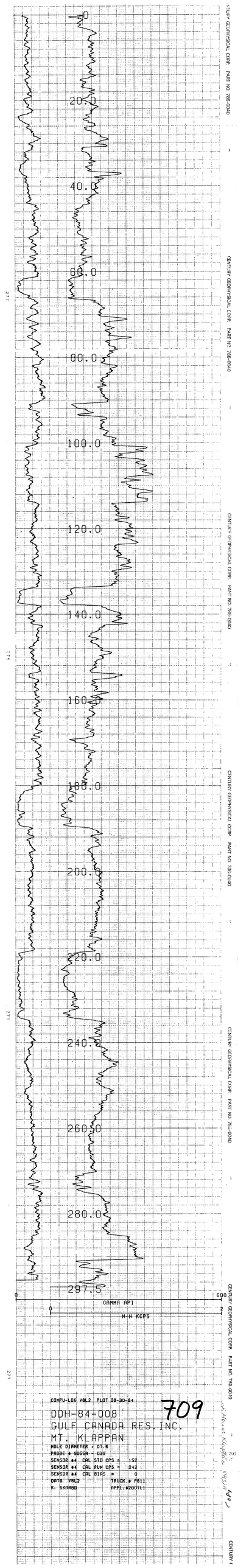
		9010	9030	9050/55	9060
PROBE MODEL		9010	9030	9050/55	9060
PROBE DIAMETER		1.87"	2.0"	1.87"	1.4"
NATURAL GAMMA	DETECTOR TYPE	NaI	NaI	NaI	NaI
	DETECTOR SIZE	.675" x 1.25"	1.125" x 4.5"	.875" x 4.0"	.5" x 3.0"
	STD. K-FACTOR	1.59×10^{-5}	—	$.558 \times 10^{-5}$	1.62×10^{-5}
	STD. DEADTIME	1 μsec	—	1.18 μsec	1 μsec
	CALIB. MODEL LOC.		—		
	CALIB DATE		—		
	K-FACTOR $\times 10^{-5}$		—		
	DEADTIME μsec		—		
	TEST READING		—		
	WATER FACTOR		—		
	CASING FACTOR		—		
DENSITY	DETECTOR TYPE	—	NaI	—	NaI
	DETECTOR SIZE	—	.5" x 1.5"	—	.5" x 3.0"
	SOURCE TYPE	—	Cs^{137}	—	Cs^{137}
	SOURCE NO.	—		—	
	SOURCE STRENGTH	—		—	
	SOURCE SPACING	—		—	
NEUTRON	DETECTOR TYPE	—	—	He^3	—
	DETECTOR SIZE	—	—	1.0" x 6.0"	—
	SOURCE TYPE	—	—	AmBe	—
	SOURCE NO.	—	—	264	—
	SOURCE STRENGTH	—	—	1Ci	—
	SOURCE SPACING	—	—	40cm	—
	Cal Std.			152	
	Cal Run			242	
SNGL. PT RESISTANCE		1.4"D x 2.5"L	—	1.4"D x 2.5"L	1.1"D x 2.5"L
RESISTIVITY		—	8" FOCUSED	—	—
SELF POTENTIAL		YES	—	YES	YES
TEMPERATURE		—	—	YES	—
DEVIATION		—	—	NO? YES	—
CALIPER		—	YES	—	—

GR Mount Klappan 84(3)19

CENTURY GEOPHYSICAL CORP. PART NO. 786-0040

COPY
REDUCED
SCALE



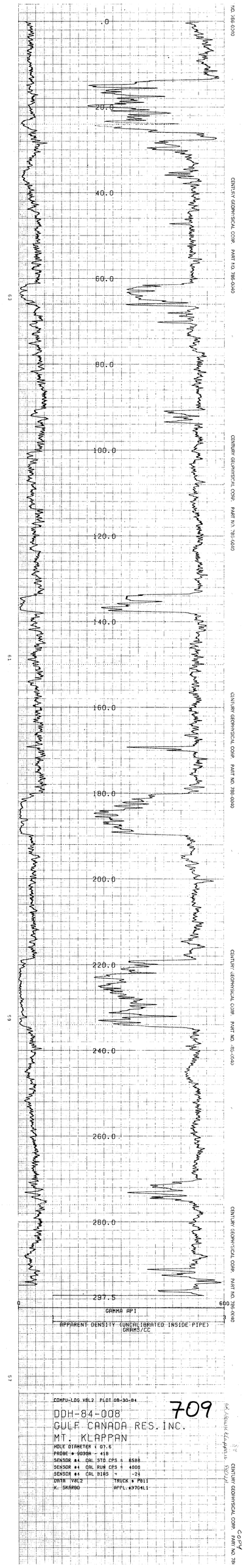

0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
160.0
180.0
200.0
220.0
240.0
260.0
280.0
297.5
0
600
GAMMA API
0
2
N-N KCPS
COMPU-LOG V6L2 PLOT 08-30-84
DDH-84-008
709
GULF CANADA RES. INC.
MT. KLAPPAN
HOLE DIAMETER = 07.6
PROBE # 9055A - 039
SENSOR #4 CAL STD CPS = 152
SENSOR #4 CAL RUN CPS = 242
SENSOR #4 CAL BIAS = 0
DATA V6L2 TRUCK # P811
K. SKARBO APPL. #20071
CENTURY GEOPHYSICAL CORP. PART NO. 786-0040

COMPU-LOG VBL2 PLOT 08-30-84

709

DDH-84-008
GULF CANADA RES. INC.
MT. KLAPPAN
HOLE DIAMETER : 07.6
PROBE # 9030A - 410
SENSOR #4 CAL STD CPS = 6588
SENSOR #4 CAL RUN CPS = 4000
SENSOR #4 CAL BIAS = -24
DATA VBL2 TRUCK # P811
K. SKARBO APPL.#2704L1

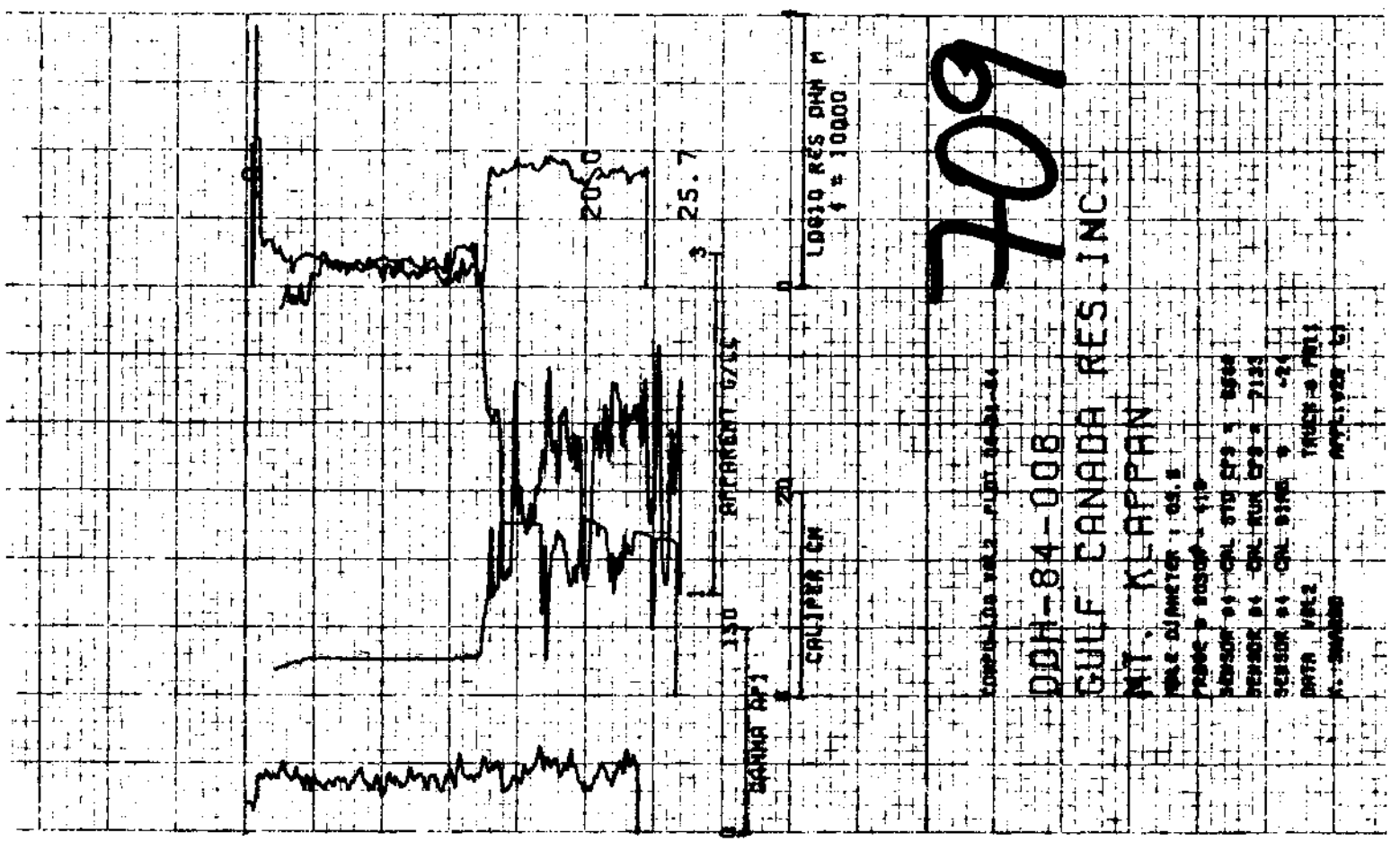
COPY

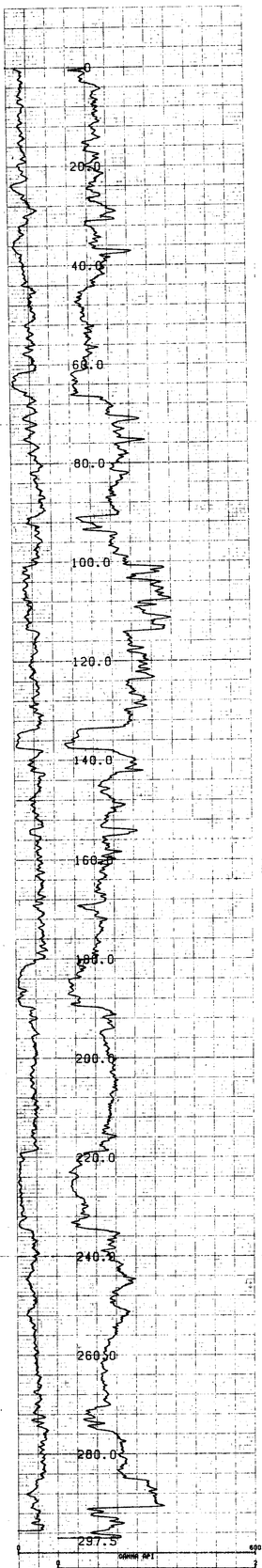

.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
160.0
180.0
200.0
220.0
240.0
260.0
280.0
297.5
0
600
GAMMA API
APPARENT DENSITY (UNCALIBRATED INSIDE PIPE) GRAMS/CC
COMPU-LOG V8L2 PLOT 08-30-84
709
DDH-84-008
GULF CANADA RES. INC.
MT. KLAPPAN
HOLE DIAMETER (07.6
PROBE # 9030R - 418
SENSOR #4 CAL STD CPS = 6588
SENSOR #4 CAL RUN CPS = 4000
SENSOR #4 CAL BIAS = -24
DATA V8L2 TRUCK # 7911
K. SKARBO APPL.#9704L1
CENTURY GEOPHYSICAL CORP. PART NO. 786-0040
COPY

COPY
REDUCED
SCALE

GR Mount Klappan 84(3)H

CENTURY GEOPHYSICAL CORP.





709

DDH-84-Q08
GULF CANADA RES. INC.
MT. KLAPPAN

COPY

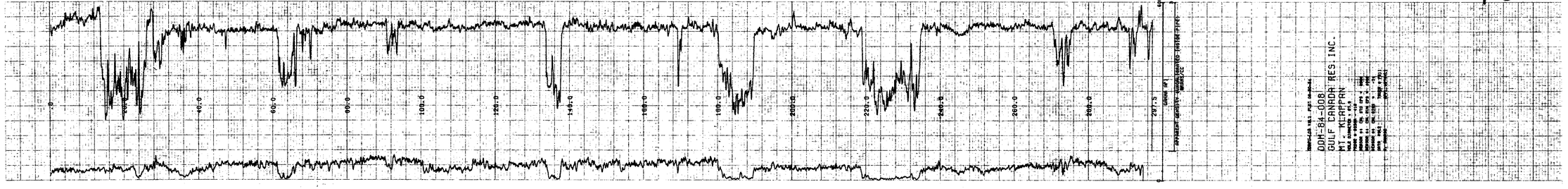
COPY

GR Mount Klappan 84(3)M

COPY

ART NO. 786-0038 " CENTURY GEOPHYSICAL CORP. PART NO. 786-0038 " CENTURY GEOPHYSICAL CORP. PART NO. 786-0038 " CENTURY GEOPHYSICAL CORP. PART NO. 786-0038 "

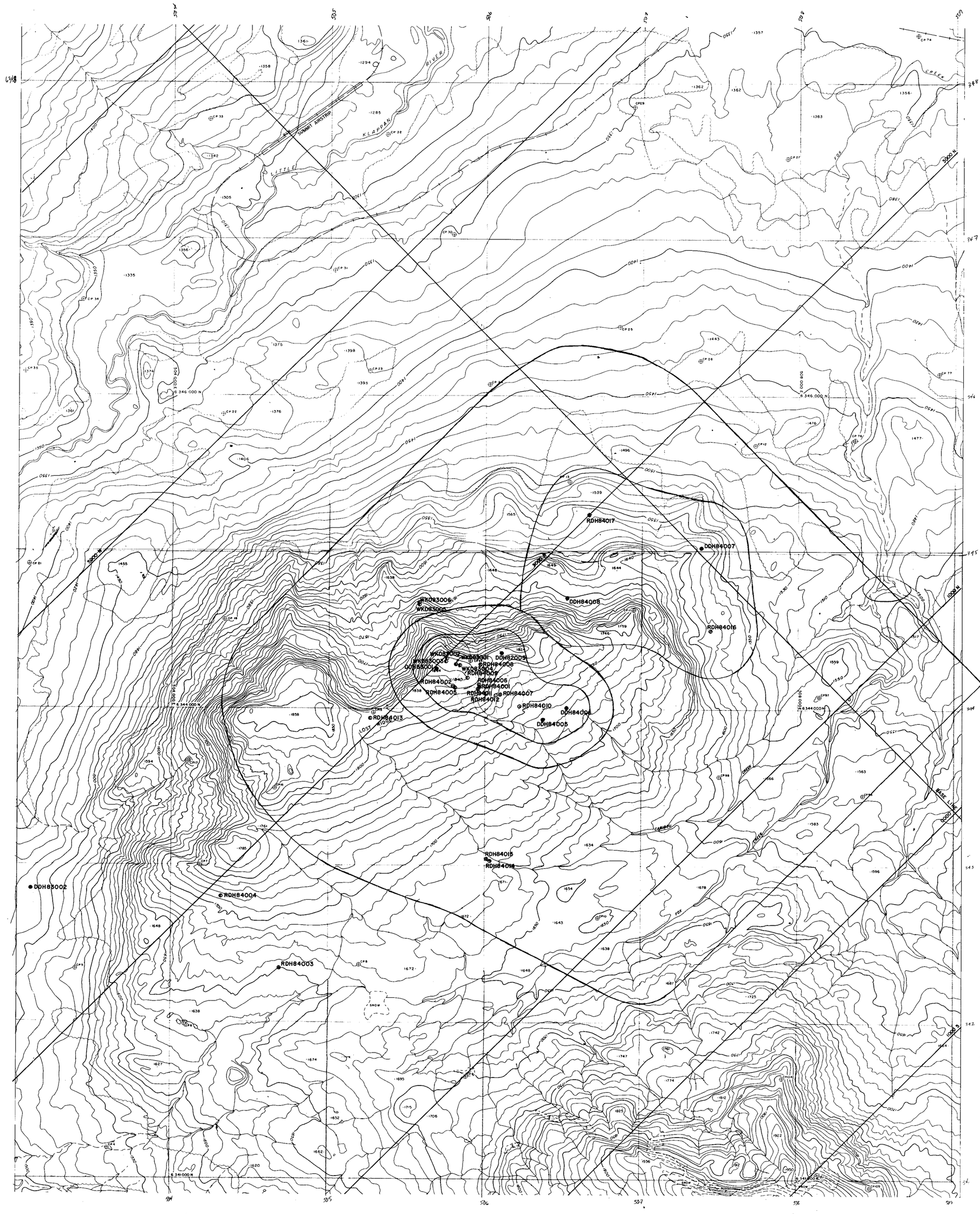
709



LOST-FOX AREA

DRILL HOLE LOCATION MAP

1:10 000



LEGEND

- BUILDING
- ROAD, HARD SURFACE
- LOOSE SURFACE
- CART TRACK
- TRAIL
- RAILROAD BED
- RIVER
- STREAM, DEFINITE
- APPROXIMATE
- SPLIT
- LAKE
- WATER LEVEL — EL 505 ft
- SWAMP
- BEAVER DAM — B.D. B.D.
- TREE LINE
- CUT LINE
- CONTOURS, INDEX — 1750
- INTERMEDIATE
- DEPRESSION
- APPROXIMATE
- SPOT ELEVATION — 1654
- FIELD CONTROL POINT — CP 121
- COAL LICENCE

NOTES

CONTOUR INTERVAL 10 METERS

SURVEY CONTROL TAKEN FROM EXISTING PHOTO IDENTIFIABLE GOVERNMENT SURVEY MONUMENTS AND N.T.S. MAPS. MAPPING IS BASED ON UNIVERSAL TRANSVERSE MERCATOR GRID AND GEODETIC DATUM.

RAILROAD BED LOCATION BASED ON DATA SUPPLIED BY B.C. RAIL

COMPILED BY
WESTERN PHOTOGRAMMETRY, A DIVISION OF UNDERWOOD McLELLAN LTD., FROM FEDERAL GOVERNMENT AERIAL PHOTOGRAPHY FLOWN IN AUGUST/67 AT A SCALE OF 1:60 000 (APPROXIMATE)

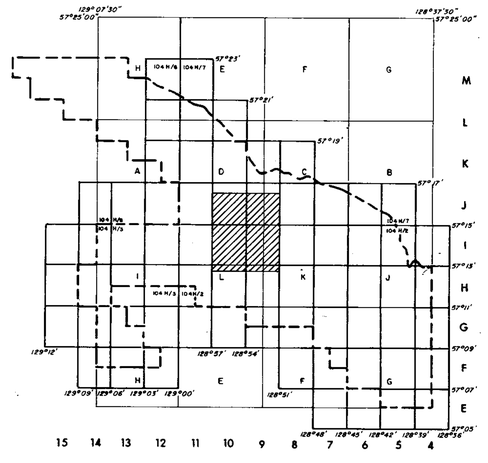
SCALE 1:10 000

0 0.25 0.5 0.75 1.00 MILES

100 0 100 200 300 400 500 600 700 800 900 1KM METERS

MT. KLAPPAN AREA

INDEX MAP



LEASE BOUNDARY

GK Mount Klappan 84(3)A 709

GULF CANADA RESOURCES INC.
Coal Division
CALGARY ALBERTA

MOUNT KLAPPAN COAL PROPERTY
1984
LOST - FOX AREA
DRILL HOLE LOCATION MAP

PREPARED BY: V.L.D.	DRAWING No.
APPROVED BY: V.L.D. DATE: JAN. 1985	KPN84LF-C05

Maps are based on.