

# CONFIDENTIAL

APPENDIX II

Vol. 1

Diamond Drill Hole Data

00110 (2)

## FOREWORD

The data contained within Volumes I and II represent the results of the diamond drilling program. Appendix II is arranged sequentially by drill hole, with header, core logs and geophysical logs contained in each section.

APPENDIX II  
Diamond Drill Holes  
and  
Geophysical Logs  
VOLUME I

Foreword

Logging Form - Descriptions, Input Procedures and Abbreviations

DDH82001

- Header data
- Location Map
- Generalized Strip Log
- Apparent and True Thickness Coal Seam Data
- Sample Summary
- Lithologic Description
- Drill Hole Strip Log 1:200

DDH82002

- Header data
- Location Map
- Generalized Strip Log
- Apparent and True Thickness Coal Seam Data
- Sample Summary
- Lithologic Description
- Drill Hole Strip Log 1:200
- Geophysical Logs (Deviation printout, Deviation plot, 1:40 expanded, 1:200)

DDH82003

- Header data
- Location Map
- Generalized Strip Log
- Apparent and True Thickness Coal Seam Data
- Sample Summary
- Lithologic Description
- Drill Hole Strip Log 1:200
- Geophysical Logs (Deviation printout, Deviation plot, 1:40 expanded, 1:200)

DDH82004

- Header data
- Location Map
- Generalized Strip Log
- Apparent and True Thickness Coal Seam Data
- Sample Summary
- Lithologic Description
- Drill Hole Strip Log 1:200
- Geophysical Logs (Deviation printout, Deviation plot, 1:40 expanded, 1:200)

IN POCKET

- 1:50 000 Drill Hole Location Map

APPENDIX II  
Diamond Drill Holes  
and  
Geophysical Logs  
VOLUME II

DDH82005

- Header data
- Location Map
- Generalized Strip Log
- Apparent and True Thickness Coal Seam Data
- Sample Summary
- Lithologic Description
- Drill Hole Strip Log 1:200
- Geophysical Logs (Deviation printout Deviation plot, 1:40 expanded 1:200)

DDH82006

- Header data
- Location Map
- Generalized Strip Log
- Apparent and True Thickness Coal Seam Data
- Sample Summary
- Lithologic Description
- Drill Hole Strip Log 1:200
- Geophysical Logs (Deviation printout, Deviation plot, 1:40 expanded, 1:200)

DDH82007

- Header data
- Location Map
- Generalized Strip Log
- Apparent and True Thickness Coal Seam Data
- Sample Summary
- Lithologic Description
- Drill Hole Strip Log 1:200
- Geophysical Logs (Deviation printout, Deviation plot, 1:40 expanded, 1:200)

IN POCKET

- 1:50 000 Drill Hole Location Map

LOGGING FORM  
DESCRIPTIONS AND INPUT PROCEDURES  
AND ABBREVIATIONS

PROJECT, BLOCK

- DESCRIPTION - The project denotes the exploration program to which the data source belongs. The block is a sub-division of the project and can be an arbitrary or geographical division.
- INPUT PROCEDURE - Each project has a three character code which is validated on data entry. The exact same code must be used for each data source on a project. Two characters are allowed for block designation. If there is no block designation required enter an "XX" for this field.

DATA SOURCE

- DESCRIPTION - All drill holes, adits, trenches and if desired outcrops are data sources. Any location from which data is obtained is a data source.
- INPUT PROCEDURE - Eight characters are allowed for the hole number. The first three are for drill hole or data source type (RDH, DDH, ADT, TRC, OTC). The next two characters record the year and the last three characters are for sequence number (e.g., the first hole is 001). This must be completed for every page.

SHEET NUMBER

- DESCRIPTION - This item essentially a page number should the various pages become disordered.
- INPUT PROCEDURE - The Sheet number is not actually entered into the computer. Enough space is provided to include the page number and total number of pages (e.g., 2 of 31).

## GROUP, FORMATION, MEMBER

- DESCRIPTION - These data items help to describe the stratigraphic position of the components on the sheet.
- INPUT PROCEDURE - Completion of these spaces is not necessary during the core logging procedure and may not even be possible at that time. Later, the spaces need to be completed only when one of the items changes since any previous entry is carried along. Should one of these items change, a new page must be started insuring that all components on any page belong to the same group, formation or member.

## SEAM

- DESCRIPTION - The name applied to a stratigraphic interval containing coal. The stratigraphic interval may be composed of one or any number of components.
- INPUT PROCEDURE - This space may or may not be completed during core logging, but should if possible, be completed before data entry. Seam splits can be labelled using letters.

NOTE: A new page must be started for each seam so that all components on the sheet apply to that seam designation.

## STRATIGRAPHIC UNIT

- DESCRIPTION - An arbitrary informal sub-division of a member or formation to facilitate correlation in any particular area.
- INPUT PROCEDURE - Indicating the stratigraphic unit is completely optional. If a new or different stratigraphic unit is added, a new page must be started since the stratigraphic unit applies to all components on the page and is carried on to succeeding pages unless changed.

## BCA

- DESCRIPTION - The bedding to core angle is the angle between the longitudinal core axis and the bedding. A vertical hole intersecting horizontal strata would produce a BCA of  $90^{\circ}$ .
- INPUT PROCEDURE - The BCA applies to a component or interval of core. It should be recorded to the nearest degree.

## BOX/MARK

- DESCRIPTION - These are two separate items entered into same column. The box is the number assigned to a box of core by the drillers and since all core is placed in a box, each component will have an associated box number. The mark or marker, is the drillers footage or "meterage" values found on tags with the box.
- INPUT PROCEDURE - Since the box pertains to a series of components rather than just one, an arrow down the edge of the column is necessary to illustrate this to the data entry personnel (see examples). The box number can be entered on a line to itself. In order to help distinguish drillers depth markers from box numbers, the markers must be labelled according to the units used. The drillers marker should be entered on the same line as the next component, therefore, where a marker exists, it immediately preceded the component described on the same line.

## INTERVAL THICKNESS

- DESCRIPTION - The length of a component as measured along the length of the drill core.
- INPUT PROCEDURE - Values should be entered in metres to the nearest centimetre.  
Enough space should be left between interval lines to enter lost core at a latter time.

#### DEPTH FROM, DEPTH TO

- DESCRIPTION - These are the depths of the start and end of each component. The difference between the two equals the interval thickness.
- INPUT PROCEDURE - The computer only needs the "depth from" of the first component to start with and will calculate all others if necessary. If a depth from is not provided for the first component, zero will be assumed. These columns can be used when adjusting the logs and determining lithology thickness.

#### LITHOLOGY THICKNESS

- DESCRIPTION - The thickness of a lithologic unit which may be the sum of several components.
- INPUT PROCEDURE - The lithology thickness must be entered on the same line as the last component which comprises it. Completion of this column is not necessary, as are not part of the formal report.

#### SAMPLE I.D.

- DESCRIPTION - Identification of the sample collected over one or several components.
- INPUT PROCEDURE - The sample ID must be entered on the line with the first component that comprises it and an arrow down that column to the last component that comprises the sample.

#### ROCK TYPE

- DESCRIPTION - The dominant type of lithology which comprises the component and generally is determined megascopically.
- INPUT PROCEDURE - Rock type can be written out in full or abbreviated, however consistency is important. Should two successive components have the same rock type, an arrow can be drawn down the column indicating that the same lithology applies to those components as well.



## MODIFIER

DESCRIPTION - A descriptive adjective which further defines the rock type.

INPUT PROCEDURE - Only the following codes are allowed in this column:

### For Rock

### For Coal

PBLY	(Pebbly)	C-1
SSY	(Sandy)	C-2
SLTY	(Silty)	C-3
CLYY	(Clayey)	C-4
CARB	(Carbonaceous)	C-5
GYP	(Gypsiferous)	C-6
FER	(Ferruginous)	
PYR	(Pyritic)	

## GRAIN SIZE

DESCRIPTION - A term categorizing the size of mineral particles that comprise a rock or sediment.

INPUT PROCEDURE - Only the following codes are allowed in the grain size column.

CBL	(Cobble)
PBL	(Pebble)
GRAN	(Granular)
VCG	(Very Coarse Grained)
CG	(Coarse Grained)
MG	(Medium Grained)
FG	(Fine Grained)
VFG	(Very Fine Grained)

NOTE: If one needs to state a range between two grain sizes (e.g., medium to coarse grained) then record a minus sign after the code to express the presence of the next coarsest grain size. (e.g., MG-).

## SORTING

- DESCRIPTION - Indicates the degree of similarity in grain size.
- INPUT PROCEDURE - Only the following codes are allowed in the sorting column:
- |      |             |
|------|-------------|
| VPR  | (Very Poor) |
| PR   | (Poor)      |
| MOD  | (Moderate)  |
| WEL  | (Well)      |
| VWEL | (Very Well) |

## COLOR

- DESCRIPTION - The color of the component.
- INPUT PROCEDURE - Only the following codes are allowed in the color column:
- |      |          |
|------|----------|
| 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 MODIFIER

- DESCRIPTION - Modifies or further defines the color of a component.
- INPUT PROCEDURE - Only the following codes are allowed in the color modifier column:
- |       |                   |
|-------|-------------------|
| DK    | (Dark)            |
| M     | (Medium)          |
| LT    | (Light)           |
| LT-M  | (Light to Medium) |
| M-DK  | (Medium to Dark)  |
| LT-DK | (Light to Dark)   |
| S-P   | (Salt and Pepper) |
| WEATH | (Weathered)       |

## BEDDING

DESCRIPTION - Planes dividing sedimentary rocks of the same of different lithology.

INPUT PROCEDURE - Only the following codes are allowed in the bedding column:

MAS	(Massive)
VTHKB	(Very Thick Bedded)
THKB	(Thick Bedded)
MB	(Medium Bedded)
THNB	(Thin Bedded)
VTHNB	(Very Thin Bedded)
LAM	(Laminated)

NOTE: See page 55 of Field Manual for criteria.

## SEDIMENTARY STRUCTURES

DESCRIPTION - Any structure in a sedimentary rock.

INPUT PROCEDURE - Only the following codes are allowed in the sedimentary structure column. (The column can only accommodate one of the codes, additional structures should be mentioned in the notes).

XBDG	(Cross Bedding)
WRMBUR	(Worm Burrow)
RIPMK	(Ripple Marks)
BIOTRB	(Bioturbated)
RTB	(Rootlet Bed)
SSD	(Soft Sediment Deformation)

## CORE STATE

DESCRIPTION - The condition or quality of the core for a given component.

INPUT PROCEDURE - Only the following codes are allowed in the core state column:

PWRD	(Powdered)
VSHRD	(Very Sheared)
SHRD	(Sheared)
VBRKN	(Very Broken)
BRKN	(Broken)
SLD	(Solid)

NOTES

- DESCRIPTION - Relevant additional comments on a particular component which add to the description.
- INPUT PROCEDURE - Abbreviations can be used but this is not necessary. A maximum of 250 characters is allowed for in the notes for each component. This should not limit the literary talent of most geologists.

KEY BED

- DESCRIPTION - An identifiable bed occurring at a particular stratigraphic position.
- INPUT PROCEDURE - Enter Y if it is a Key Bed.



gcri coal division history proj KPN blk HC ds DDH82001

dy mo yr  
start date 01/08/82  
end date 03/08/82

contractor J.T.THOMAS operator GCRI  
geologist SWANBERGSON surveyor \_\_\_\_\_

remarks VERTICAL HOLE, NO GEOPHYSICAL LOGS AS LOGGING UNIT  
WAS DESTROYED IN ACCIDENT, DRILLERS' MARKERS MEA  
SURED FROM GROUND LEVEL + APPROX. 0.6M

gcri coal division location proj KPN blk HC ds DDH82001

choose one location input number, 1 province BC  
then enter location elevation (M) 1400.00

\*-----\*  
1 utm: zone 09 northing 6343645.00 easting 0514375.00
2 lat-long: lat 571415 long 1284543
-----

gcri coal division orientation proj KPN blk HC ds DDH82001

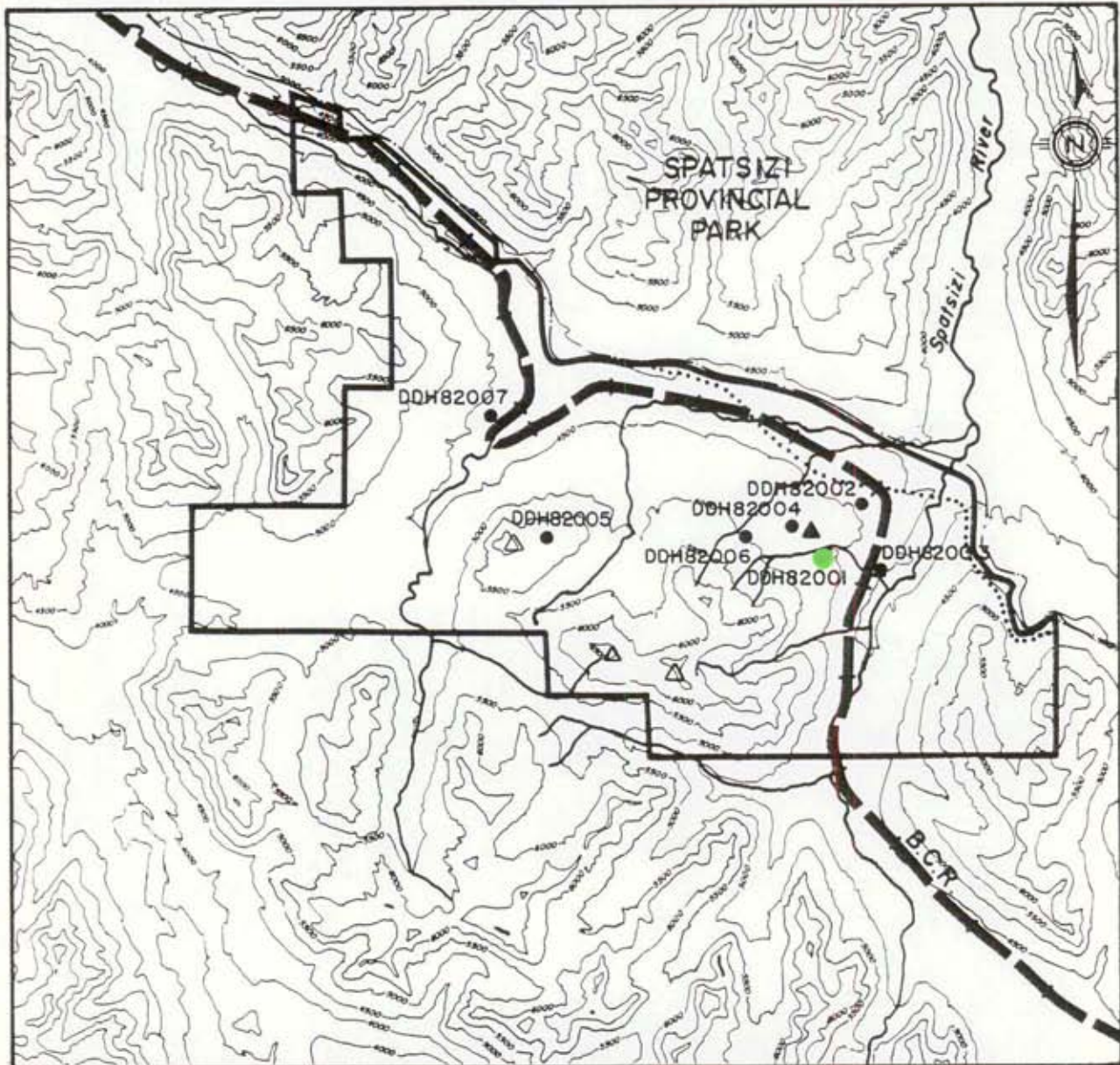
dimensions and orientation:

length (M) 124.05 inclination 90.0 azimuth 0.0  
size width 95.8 size height  
roof strike dip dir  
floor strike dip dir

casing depth (M) 12.19 cement(y,\_) \_ plug(Y,\_) Y piez(Y,\_) \_  
aquifer depths (M) ----.--- ----.---  
loss cir depths(M) ----.--- ----.---

# MT. KLAPPAN COAL PROPERTY

## DIAMOND DRILL HOLES



0 1 2 3 4 5 Km

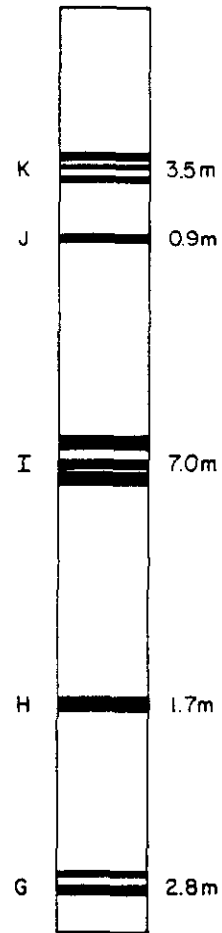


- Prepared Rail Bed
- Provincial Park Boundary
- Camp
- Diamond Drill Hole
- Redefined Property Boundary

# MT. KLAPPAN COAL PROPERTY

DDH82001

SEAM SEAM THICKNESS




SCALE - 1:1000



DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
19.39			No Geophysical Logs Obtained, Therefore Unable to Distinguish Core					
			0.38					
		0.01	(0.10) 0.06 0.23	79.8	04701			
20.38		0.01	(0.10) 0.11					
		0.02	(0.10) 0.05	78.3	04702			
		0.02	0.05 0.04					
20.84		0.19						
			0.09 (0.10) 0.11				1.63*/0.72*	1.63*/0.72*
		0.05	0.09	72.6	04703		3.45*	3.45*
		0.03	0.08 (0.10)					
21.57		0.03	0.05 (0.10)					
		0.02	(0.10) 0.05					
		0.03	0.05					
		0.06						
			(0.40)					
		0.03	0.05	52.8	04704			
		0.02	0.05 0.02					
		0.02	0.05 0.02					
		0.15						
22.84		0.01	0.03 (0.10) 0.07					

\* Does not include core loss.  
 \* Includes core loss; drillers markers were used to determine amount of core loss.

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY	ALBERTA	
<b>MT. KLAPPAN COAL PROJECT</b> <b>SEAM DETAIL</b> <b>TRUE THICKNESS</b> <b>DDH-82-001</b> <b>SEAM K</b>		
PREPARED BY: C. L.	SCALE 1:40	
APPROVED BY: J. M. D.	DATE: NOV '82	DRAWING No.

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
30.08			0.17					
		0.02	0.21	100	04705	2	0.85 / 0.08 0.93	0.85 / 0.08 0.93
		0.04	0.17					
		0.01	0.06					
		0.01	0.24					
31.02		0.41						
31.55		0.05	0.03 0.03					

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Coal Division		
CALGARY	ALBERTA	
<b>MT. KLAPPAN COAL PROJECT</b> <b>SEAM DETAIL</b> TRUE THICKNESS <b>DDH - 82-001</b> <b>SEAM J</b>		
PREPARED BY: C. L.	DATE: NOV '82	SCALE 1:40
APPROVED BY: J. M. D.		DRAWING No.

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
								* Does not include core loss. + Includes core loss; drillers markers were used to determine amount of core loss.
57.25 57.42		0.08	0.09	100	04706	↑		No Geophysical Logs Obtained, Therefore Unable to Distinguish Core Loss.
			0.91			3	1.55*/0.14* 1.84+	1.55*/0.14* 1.84+
		0.06		93.6	04707	↓		
			0.55 (0.10)					
59.18 59.50		0.30	(0.05)	86.5	04708	↑		
			0.14			4	0.38/0.54 0.92	
		0.10	0.08	100	04709	↓		
		0.07	0.06					
		0.02	0.02					
60.14		0.05	0.08					
		1.00		100	04725			
61.18			0.17 (0.05)			↑		
			0.37	91.9	04710			
61.80 61.91		0.11		100	04711			
			0.36					
			(0.29)	63	04712			
		0.02	0.05					
		0.02	0.05					
62.72		0.08	0.04	100	04713	5	2.41*/0.34* 3.21+	2.41*/0.34* 3.21+
		0.04	0.05					
62.97		0.04	0.05					
			(0.08)					
		0.03	0.08					
			0.14 (0.06)					
			1.05	92.2	04714	↓		
64.51								

**GULF CANADA RESOURCES INC.**  
Coal Division

CALGARY ALBERTA


**MT. KLAPPAN COAL PROJECT**  
**SEAM DETAIL**  
**TRUE THICKNESS**  
**DDH-82-001**  
**SEAM I**

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

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
		No Geological Logs Obtained, Therefore Unable to Distinguish Core Loss.						
93.95		0.07	0.04	57.1	04715			
94.16			(0.08)					
94.46			0.28	100	04716	6	↑ 0.90*0.59* 1.54+ ↓	↑ 0.90*0.59* 1.54+ ↓
	c-c-c-c	0.11	0.08					
	c-c-c-c	0.13	0.03	100	04717			
94.93		0.02	0.03					
		0.03	0.09					
		0.02	0.14	100	04718			
95.29		0.04	0.04					
			(0.05)	80	04719			
95.59		0.17						
		0.02	0.12	100	04720			
95.86		0.02	0.05					

\* Does not include core loss

+ Includes core loss; drillers markers were used to determine amount of core loss

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division	
<b>MT. KLAPPAN COAL PROJECT</b> <b>SEAM DETAIL</b> <b>TRUE THICKNESS</b> <b>DDH-82-001</b> <b>SEAM H</b>		
PREPARED BY: C. L.		SCALE 1:40
APPROVED BY: J. M. D.		DATE: NOV '82 DRAWING No.

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
		No Geological Logs Obtained, Therefore Unable to Distinguish Core Loss.						
117.35			0.16					
		0.30						
			(0.15)					
		0.48						
118.44			(0.09)					
		0.04	0.18					
			0.33	80	04721		↑	↑
			(0.14)					
119.18		0.12		100	04722	7	1.16*/0.26*	1.16*/0.26*
119.30			0.22				1.68 +	1.68 +
			(0.07)					
		0.05	0.10	91.5	04723		↓	↓
		0.03	0.12					
		0.02	0.14					
120.12			0.07					

\* Does not include core loss  
+ Includes core loss; drillers markers were used to determine amount of core loss

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division	
<b>MT. KLAPPAN COAL PROJECT</b> <b>SEAM DETAIL</b> <b>TRUE THICKNESS</b> <b>DDH- 82-001</b> <b>SEAM G</b>		
PREPARED BY: C. L.	DATE: NOV. '82	SCALE 1:40
APPROVED BY: J. M. D.	DRAWING No.	



COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

Apparent Thickness P-267 (12-80)

DENSITY RESISTIVITY

DRILL NO. DDH - 82 - 001 SEAM J SEAM INTERVAL  
SCALE 1:40

DENSITY SCALE															SEAM COMP.	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS									
RESISTIVITY SCALE																		ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	CAL. VAL. MJ/kg	FSI			
1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10	2.20	2.30	2.40																2.50	2.60	2.70
GEOPHYSICAL LOGS																	<p>30.08</p> <p>31.02</p> <p>31.55</p>		0.02 — 0.18		100	04705	2	1.13	22.07	9.05	67.75	26.03				
																			0.04 — 0.21													
																			0.01 — 0.17		0.06 — 0.24		0.42		0.03 — 0.03		Seam Interval (m) : 30.08 - 31.02 Seam True Thickness (Coal / Rock) : 0.85 / 0.08 Total 0.93					

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

Apparent Thickness P-267 (12-80)

DENSITY

RESISTIVITY

DRILL NO. DDH - 82 - 001  
SCALE 1:40

SEAM \_\_\_\_\_ SEAM INTERVAL \_\_\_\_\_

DENSITY SCALE										RESISTIVITY SCALE										SEAM COMP. 1 2 3 4 5 6	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC	SAMPLE		PROXIMATE ANALYSIS											
1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	No Geophysical Logs Obtained										ROCK	COAL	NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	CAL. VAL. MJ/kg	FSI
																						Seam Interval (m) : 57.25 - 64.51 Seam True Thickness (Coal/Rock) : 4.34*/2.02* Total 6.97 * does not include core loss																	
																					57.25																		
																					57.42		0.08	0.09	100	04706	↑												
																								0.96	93.6	04707	3	2.04	18.01	7.25	72.20							27.30	
																							0.06				↓												
																					59.18																		
																					59.50		0.32	(0.11) (0.05)	86.5	04708	↑												
																							0.11	0.15			4	1.93	50.42	7.78	39.87							14.32	
																							0.07 0.02 0.05	0.08 0.05 0.08	100	04709	↓												
																					60.14																		
																							1.04		100	04725													
																					61.18			0.18 (0.05)	91.9	04710	↑												
																					61.80			0.39															
																					61.91		0.11		100	04711													
																								0.37															
																								0.30	63	04712													
																					62.72		0.02 0.02 0.08 0.04	0.05 0.05 0.04 0.05	100	04713	5	1.63	16.91	6.99	74.47						28.73		
																					62.97		0.03	(0.05) (0.05)															
																								0.15 (0.06)															
																									92.9	04714	↓												
																					64.51																		

GEOPHYSICAL LOGS



COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

Apparent Thickness P-267 (12-80)

DENSITY

RESISTIVITY

DRILL NO. DDH - 82 - 001  
SCALE 1:40

SEAM H SEAM INTERVAL

DENSITY SCALE																		
1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80
RESISTIVITY SCALE																		
No Geophysical Logs Obtained																		

GEOPHYSICAL LOGS

SEAM COMP.	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS										
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S <sup>v</sup>	CAL VAL MJ/kg	FSI				
123456	93.95		0.08	0.04 (0.09)	57.1	04715												
	94.16			0.30	100	04716												
	94.46	c-c-c-c-	0.12	0.09	100	04717												
	94.93		0.15 0.03 0.03	0.03 0.10	100	04718												
	95.29		0.02 0.05	0.16 (0.06)	100	04719												
	95.59	c-c-c-c-	0.19		80	04720												
	95.86		0.02 0.02	0.13 8.81	100													

Seam Interval (m) : 93.95 - 95.86  
 Seam True Thickness (Coal/Rock) : 0.94\* 0.66\*  
 Total 1.73  
 \* does not include core loss



GULF CANADA RESOURCES INC. - COAL DIVISION  
 22/NOV/82 COMPOSITE SAMPLE SUMMARY

PAGE 1

DATA SOURCE	SEAM	SAMPLE ID	SAMPLE FROM	SAMPLE TO	DEPTH FROM	DEPTH TO	REC CORE	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK
DDH 82001												
	K	1	4701	4704	19.39	22.84	2.35	68.12	1.63	0.72	1.10	0.00
	J	2	4705	4705	30.08	31.02	0.94	100.00	0.86	0.08	0.00	0.00
	I UPPER	3	4706	4707	57.25	59.18	1.77	91.71	1.63	0.14	0.16	0.00
	I UPPER	4	4708	4709	59.18	60.14	0.96	100.00	0.39	0.57	0.00	0.00
	I LOWER	5	4710	4714	61.18	64.51	2.86	85.89	2.52	0.34	0.47	0.00
	H	6	4716	4720	94.16	95.86	1.64	96.47	0.99	0.65	0.06	0.00
	G	7	4721	4723	118.44	120.12	1.42	84.52	1.16	0.26	0.26	0.00
	K	4701			19.39	20.38	0.79	79.80	0.78	0.01	0.20	0.00
	K	4702			20.38	20.84	0.36	78.26	0.12	0.24	0.10	0.00
	K	4703			20.84	21.57	0.53	72.60	0.42	0.11	0.20	0.00
	K	4704			21.57	22.84	0.67	52.76	0.31	0.36	0.60	0.00
	J	4705			30.08	31.02	0.94	100.00	0.86	0.08	0.00	0.00
	I UPPER	4706			57.25	57.42	0.17	100.00	0.09	0.08	0.00	0.00
	I UPPER	4707			57.42	59.18	1.60	90.91	1.54	0.06	0.16	0.00
	I UPPER	4708			59.18	59.50	0.32	100.00	0.00	0.32	0.00	0.00
	I UPPER	4709			59.50	60.14	0.64	100.00	0.39	0.25	0.00	0.00
	I LOWER	4710			61.18	61.80	0.57	91.94	0.57	0.00	0.05	0.00
	I LOWER	4711			61.80	61.91	0.11	100.00	0.00	0.11	0.00	0.00
	I LOWER	4712			61.91	62.72	0.51	62.96	0.47	0.04	0.30	0.00
	I LOWER	4713			62.72	62.97	0.25	100.00	0.09	0.16	0.00	0.00
	I LOWER	4714			62.97	64.51	1.42	92.21	1.39	0.03	0.12	0.00
	H	4715			93.95	94.16	0.12	57.14	0.04	0.08	0.09	0.00
	H	4716			94.16	94.46	0.30	100.00	0.30	0.00	0.00	0.00
	H	4717			94.46	94.93	0.47	100.00	0.15	0.32	0.00	0.00
	H	4718			94.93	95.29	0.36	100.00	0.31	0.05	0.00	0.00
	H	4719			95.29	95.59	0.24	80.00	0.00	0.24	0.06	0.00
	H	4720			95.59	95.86	0.27	100.00	0.23	0.04	0.00	0.00
	G	4721			118.44	119.18	0.55	74.32	0.51	0.04	0.19	0.00
	G	4722			119.18	119.30	0.12	100.00	0.00	0.12	0.00	0.00
	G	4723			119.30	120.12	0.82	100.00	0.74	0.08	0.00	0.00

GULF CANADA RESOURCES INC. - COAL DIVISION  
 22/NOV/82 COMPOSITE SAMPLE SUMMARY PAGE 2

DATA SOURCE	SEAM	SAMPLE ID	SAMPLE FROM	SAMPLE TO	DEPTH FROM	DEPTH TO	REC CORE	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK
	I	4725			60.14	61.18	1.04	100.00	0.00	1.04	0.00	0.00

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 1

PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
69	0.00	9.37	9.37			OVERBURDEN	
69	9.37	9.48	0.11			SANDSTONE	MG.WEL.LT.GY.MAS.BRKN
69	9.48	9.54	0.06			SANDSTONE	MG.WEL.LT.GY.THNB.BRKN
69	9.54	9.58	0.04			MUDSTONE	SLTY.GY.BRKN
* 69	9.58	9.69	0.11			SANDSTONE	MG.WEL.LT.GY.MB.SLD MNR CALCT FRACTURE
70	9.69	9.71	0.02			MUDSTONE	DK.GY.MAS.BRKN
72	9.71	10.08	0.37			SANDSTONE	MG.WEL.LT.GY.THNB.SLD MNR SLTY BANDING
75	10.08	10.16	0.08			MUDSTONE	SLTY.GY.VTHNB.SLD INTBD WITH 3CM SS BED
* 77	10.16	10.52	0.36			SANDSTONE	MG.WEL.LT.GY.THNB.SLD MNR SHALE INTBS
77	10.52	10.57	0.05			MUDSTONE	SLTY.GY.MAS.SLD
77	10.57	10.67	0.10			SANDSTONE	MG.WEL.LT.GY.THNB.SLD MNR SHALE INTBS

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 2

PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
.77	10.67	10.72	0.05			CORE LOSS	
77	10.72	11.22	0.50			SANDSTONE	MG.WEL.LT.GY.THNB.SLD MNR CARB LAMS IN MIDDLE, CORE BRKN AT B ASE
77	11.22	11.31	0.09			SANDSTONE	MG.WEL.LT.GY.THNB.SLD
77	11.31	11.35	0.04			MUDSTONE	GY.MAS.SLD
77	11.35	11.49	0.14			SANDSTONE	MG.WEL.LT.GY.THNB.SLD
77	11.49	11.54	0.05			CORE LOSS	
77	11.54	11.59	0.05			MUDSTONE	SLTY.GY.MAS.BRKN
77	11.59	11.85	0.26			SANDSTONE	MG.WEL.LT.GY.THNB.SLD MNR SLTY BANDS, RARE CALCT
77	11.85	11.90	0.05			CORE LOSS	

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

BCA	DEPTH FROM	DEPTH INTRVAL TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	77	11.90	12.18	0.28		SANDSTONE	FG.WEL.LT.GY.THNB.BRKN MASSIVE IN BASAL HALF
	77	12.18	12.29	0.11		SANDSTONE	MG.WEL.LT.GY.THNB.SLD
	77	12.29	12.50	0.21		CORE LOSS	
	77	12.50	12.79	0.29		CORE LOSS	
	77	12.79	13.40	0.61		SANDSTONE	MG.WEL.LT.GY.THNB.SLD MNR SLTY INTBS, CORE VBRKN AT TOP
*	77	13.40	14.33	0.93		SANDSTONE	MG.WEL.LT.GY.THNB.SLD SLTY INTBS
	77	14.33	14.52	0.19		SANDSTONE	MG.WEL.LT.GY.THNB.SLD MNR SLTY INTBS
	78	14.52	14.61	0.09		MUDSTONE	SLTY.GY.MAS.SLD
*	78	14.61	15.41	0.80		SANDSTONE	MG.WEL.LT.GY.THNB.SLD SLTY BANDS
*	72	15.41	16.53	1.12		SANDSTONE	MG.WEL.LT.GY.THNB.SLD MNR SLTY INTBS

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
* 78	16.53	17.50	0.97			SILTSTONE	GY.THNB.SLD MNT SS INTBS
79	17.50	17.98	0.48			MUDSTONE	GY.VTHNB.SLD THIN SLTY INTBS
80	17.98	19.20	1.22			MUDSTONE	GY.VTHNB.SLD THIN SLTY INTBS, MNR SHALE NODULES TO 3 CM DIAMETER, MNR COAL LAMS TOWARDS BASE
80	19.20	19.23	0.03			MUDSTONE	M.GY.BRKN AS ABOVE
80	19.23	19.30	0.07			MUDSTONE	BLK.SLD MNR COAL STRGS, CORE VBRKN AT BOTTOM
80	19.30	19.35	0.05			CORE LOSS	
80	19.35	19.39	0.04			CLAYSTONE	CARB.BLK.SLD BRIGHT COAL BANDS
80	19.39	19.42	0.03	04701	K	COAL	C-1.BLK.SLD GOOD CLEAVAGE
80	19.42	19.46	0.04	04701	K	COAL	C-3.BLK.SLD GOOD CLEAVAGE
80	19.46	19.48	0.02	04701	K	COAL	C-4.BLK.SLD MNR ROCK SPLIT

\* DENOTES MEASURED BCA



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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
	80	19.48	19.52	0.04	04701 K	COAL	C-3.BLK.SLD
	81	19.52	19.64	0.12	04701 K	COAL	C-4.BLK.SLD MNR QTZ INFILLING PERPENDICULAR TO BDG
	81	19.64	19.70	0.06	04701 K	COAL	C-3.BLK.SLD 2 MNR SHALE PARTINGS
	81	19.70	19.77	0.07	04701 K	COAL	C-4.BLK.SLD
	81	19.77	19.87	0.10	04701 K	CORE LOSS	
	81	19.87	19.90	0.03	04701 K	COAL	C-4.BLK.VBRKN
	81	19.90	19.93	0.03	04701 K	COAL	C-4.BLK.SLD
	81	19.93	19.94	0.01	04701 K	MUDSTONE	DK.GY.MAS.SLD
	81	19.94	20.01	0.07	04701 K	COAL	C-4.BLK.SLD
	81	20.01	20.11	0.10	04701 K	COAL	C-3.BLK.SLD MNR SHALE PARTINGS

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
81	20.11	20.17	0.06	04701	K	COAL	C-4.BLK.SLD MNR SHALE PARTINGS LESS THAN 2MM
81	20.17	20.27	0.10	04701	K	CORE LOSS	
81	20.27	20.31	0.04	04701	K	COAL	C-3.BLK.VBRKN
81	20.31	20.33	0.02	04701	K	COAL	C-4.BLK.SLD
81	20.33	20.36	0.03	04701	K	COAL	C-3.BLK.SLD
81	20.36	20.38	0.02	04701	K	COAL	C-4.BLK.SLD
81	20.38	20.39	0.01	04702	K	MUDSTONE	BLK.VTHNB.SLD MNR COAL STRGS
81	20.39	20.42	0.03	04702	K	COAL	C-3.BLK.BRKN
81	20.42	20.52	0.10	04702	K	CORE LOSS	
81	20.52	20.54	0.02	04702	K	CLAYSTONE	CARB.BLK.BRKN

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID.</u>	<u>SEAM ID.</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
82	20.54	20.59	0.05	04702	K	COAL	C-2.BLK.SLD CORE BRKN AT BASE
82	20.59	20.61	0.02	04702	K	CLAYSTONE	CARB.BLK.SLD
82	20.61	20.65	0.04	04702	K	COAL	C-3.BLK.SLD CORE BRKN AT TOP
82	20.65	20.67	0.02	04702	K	CLAYSTONE	CARB.BLK.SLD
82	20.67	20.70	0.03	04702	K	MUDSTONE	DK.BN.MAS.SLD SOFT
82	20.70	20.77	0.07	04702	K	MUDSTONE	MAS.SLD DISSEMINATED PYR AT TOP, MNR COAL STRGS , HARD
82	20.77	20.84	0.07	04702	K	CLAYSTONE	CARB.SLD COAL STRGS MORE ABUNDANT
82	20.84	20.88	0.04	04703	K	COAL	C-2.BLK.SLD MNR LENTICULAR SHALE
82	20.88	20.93	0.05	04703	K	COAL	C-4.BLK.SLD
82	20.93	21.03	0.10	04703	K	CORE LOSS	

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
82	21.03	21.09	0.06	04703	K	COAL	C-3.BLK.VBRKN
82	21.09	21.14	0.05	04703	K	COAL	C-4.BLK.SLD
82	21.14	21.19	0.05	04703	K	MUDSTONE	BLK.THNB.SLD 0.5CM BRIGHT COAL BAND NEAR TOP, COAL S TRGS THROUGHOUT
82	21.19	21.28	0.09	04703	K	COAL	C-3.BLK.SLD
82	21.28	21.31	0.03	04703	K	MUDSTONE	BLK.MAS.SLD HARD, MNR COAL STRGS
82	21.31	21.39	0.08	04703	K	COAL	C-3.BLK.BRKN
82	21.39	21.49	0.10	04703	K	CORE LOSS	
82	21.49	21.52	0.03	04703	K	CLAYSTONE	CARB.BLK.VBRKN
82	21.52	21.57	0.05	04703	K	COAL	C-4.BLK.SLD
83	21.57	21.59	0.02	04704	K	CLAYSTONE	CARB.BLK.BRKN

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH INTRVAL TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
83	21.59	21.69	0.10	04704	K	CORE LOSS	
83	21.69	21.72	0.03	04704	K	CLAYSTONE	CARB.BLK.VBRKN
83	21.72	21.77	0.05	04704	K	COAL	C-4.BLK.BRKN
83	21.77	21.83	0.06	04704	K	CLAYSTONE	CARB.BLK.VBRKN
83	21.83	22.13	0.30	04704	K	CORE LOSS	
83	22.13	22.23	0.10	04704	K	CORE LOSS	
83	22.23	22.28	0.05	04704	K	COAL	C-3.BLK.VBRKN
83	22.28	22.31	0.03	04704	K	CLAYSTONE	CARB.BLK.SLD
83	22.31	22.33	0.02	04704	K	COAL	C-1.BLK.SLD
83	22.33	22.35	0.02	04704	K	CLAYSTONE	CARB.BLK.SLD
83	22.35	22.37	0.02	04704	K	COAL	C-2.BLK.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
83	22.37	22.39	0.02	04704	K	CLAYSTONE	CARB.BLK.SLD ABUNDANT COAL STRGS
83	22.39	22.44	0.05	04704	K	COAL	C-3.BLK.SLD
83	22.44	22.46	0.02	04704	K	MUDSTONE	DK.GY.MAS.SLD HARD
83	22.46	22.48	0.02	04704	K	COAL	C-4.BLK.SLD
83	22.48	22.58	0.10	04704	K	MUDSTONE	DK.GY.MAS.SLD
84	22.58	22.63	0.05	04704	K	CLAYSTONE	CARB.BLK.BRKN ABUNDANT COAL STRGS
84	22.63	22.66	0.03	04704	K	COAL	C-3.BLK.SLD
84	22.66	22.67	0.01	04704	K	MUDSTONE	DK.GY.MAS.SLD
84	22.67	22.77	0.10	04704	K	CORE LOSS	
84	22.77	22.84	0.07	04704	K	COAL	C-3.BLK.VBRKN

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
84	22.84	22.89	0.05			MUDSTONE	DK.GY.MAS.BRKN MNR COAL STRGS, IRREGULAR QTZ VEINING
84	22.89	23.06	0.17			MUDSTONE	SLTY.M.GY.BRKN
84	23.06	23.84	0.78			SANDSTONE	FG.WEL.M.GY.THNB.SLD COARSENING DOWNWARD, BROAD SLTY BANDS TOWARDS BASE
85	23.84	24.07	0.23			MUDSTONE	M.GY.THNB.SLD MNR COAL LENSES AT BASE
* 85	24.07	24.11	0.04			CLAYSTONE	CARB.THNB.SLD HARD, PYR XTALS AT BASE, MNR COAL STRGS
85	24.11	24.16	0.05			MUDSTONE	DK.GY.THNB.SLD SOFT
85	24.16	24.27	0.11			SILTSTONE	M.GY.SSD.SLD MINUTE FOSSIL FRAGS
85	24.27	24.72	0.45			MUDSTONE	M.GY.THNB.SLD CORE VBRKN AT BASE
84	24.72	24.85	0.13			CORE LOSS	
84	24.85	25.30	0.45			MUDSTONE	M.GY.THNB.SLD MNR BRIGHT COAL STRGS

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
84	25.30	25.42	0.12			CORE LOSS	
83	25.42	26.08	0.66			MUDSTONE	M.GY.THNB.SLD AS ABOVE, CORE VBRKN AT TOP
83	26.08	26.52	0.44			MUDSTONE	M.GY.VTHNB.SLD
82	26.52	27.04	0.52			MUDSTONE	M.GY.VTHNB.SLD AS ABOVE
82	27.04	27.26	0.22			MUDSTONE	LT.BN.VTHNB.SLD HARD, HAS A NODULAR CLAST WITHIN SHALE UNIT, LARGE COALIFIED FRAG (4CM) IN CEN TER OF CLAST
82	27.26	27.30	0.04			MUDSTONE	M.GY.MAS.SLD BRIGHT COAL BANDING, UPPER AND LOWER CU NTACTS
81	27.30	27.85	0.55			MUDSTONE	M.GY.VTHNB.SLD CORE VBRKN AT BASE
81	27.85	27.88	0.03			MUDSTONE	M.GY.VTHNB.VBRKN AS ABOVE
81	27.88	28.01	0.13			MUDSTONE	LT.BN.VTHNB.SLD NODULAR CLAST

\* DENOTES MEASURED BCA



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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
* 80	28.01	29.50	1.49			MUDSTONE	M.GY.THNB.SLD THIN COAL STRGS IN BASAL HALF
76	29.50	29.57	0.07			CLAYSTONE	CARB.BLK.BRKN MNR BRIGHT COAL
* 75	29.57	29.82	0.25			CLAYSTONE	CARB.BLK.SLD AS ABOVE, CORE BRKN IN MIDDLE
75	29.82	30.08	0.26			MUDSTONE	DK.GY.SLD MNR COAL STRGS
75	30.08	30.26	0.18	04705	J	COAL	C-4.BLK.VBRKN
76	30.26	30.28	0.02	04705	J	MUDSTONE	M.GY.MAS.SLD SILICEOUS, VERY HARD
76	30.28	30.38	0.10	04705	J	COAL	C-4.BLK.BRKN
76	30.38	30.49	0.11	04705	J	COAL	C-3.BLK.SLD MNR SHALE BANDS
76	30.49	30.53	0.04	04705	J	MUDSTONE	M.BN.MAS.SLD
76	30.53	30.55	0.02	04705	J	COAL	C-2.BLK.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
76	30.55	30.58	0.03	04705	J	COAL	C-4.BLK.SLD
76	30.58	30.62	0.04	04705	J	COAL	C-3.BLK.SLD MNR SHALE BANDS
76	30.62	30.70	0.08	04705	J	COAL	C-4.BLK.SLD MNR SHALE BANDS
76	30.70	30.71	0.01	04705	J	MUDSTONE	M.GY.SLD
76	30.71	30.74	0.03	04705	J	COAL	C-4.BLK.BRKN
76	30.74	30.77	0.03	04705	J	COAL	C-2.BLK.SLD MNR ROCK SPLIT
76	30.77	30.78	0.01	04705	J	MUDSTONE	BLK.SLD
76	30.78	30.83	0.05	04705	J	COAL	C-4.BLK.SLD CORE VBRKN AT TOP
76	30.83	30.86	0.03	04705	J	COAL	C-1.BLK.SLD
76	30.86	30.91	0.05	04705	J	COAL	C-3.BLK.SLD

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
76	30.91	30.97	0.06	04705	J	COAL	C-1.BLK.SLD
76	30.97	31.02	0.05	04705	J	COAL	C-3.BLK.SLD MNR SHALE SPLITS
76	31.02	31.09	0.07			MUDSTONE	DK.GY.MAS.SLD MNR COAL STRGS
77	31.09	31.39	0.30			MUDSTONE	DK.GY.MAS.SLD AS ABOVE
77	31.39	31.41	0.02			CLAYSTONE	CARB.BLK.VBRKN
77	31.41	31.44	0.03			MUDSTONE	M.GY.MAS.SLD
77	31.44	31.47	0.03			COAL	C-2.BLK.SLD
77	31.47	31.52	0.05			QUARTZ	WH.SLD INFILLING OF COALIFIED FRAG
77	31.52	31.55	0.03			COAL	C-2.BLK.SLD
* 77	31.55	31.89	0.34			MUDSTONE	DK.GY.SLD MNR COAL FRAGS

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
75	31.89	32.57	0.68			SANDSTONE	SLTY.FG.WEL.LT.GY.THNB.SSD.SLD SLTY AT TOP, SSD AT TOP
74	32.57	32.63	0.06			MUDSTONE	GY.MB.BRKN SLTY INTBS
74	32.63	32.75	0.12			SILTSTONE	GY.MB.BRKN DISTINCT PYR XTALS
71	32.75	34.44	1.69			MUDSTONE	DK.GY.MB.SLD MNR SLTY INTBS THROUGHOUT, MNR COAL STR GS IN MIDDLE SECTION, UNDULATING BDG
* 68	34.44	34.69	0.25			SANDSTONE	FG.LT.GY.MAS.SLD MNR SLTY INTB AT BASE, UNDULATING BDG
69	34.69	35.41	0.72			SANDSTONE	FG.LT.GY.MAS.SLD AS ABOVE, MNR IRREGULAR COAL STRGS, CO E BRKN AT BASE
70	35.41	35.87	0.46			MUDSTONE	DK.GY.VTHNB.SLD MNR COAL STRGS THROUGHOUT
71	35.87	36.44	0.57			MUDSTONE	DK.GY.VTHNB.SLD MNR COAL STRGS THROUGHOUT

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
73	36.44	38.16	1.72			MUDSTONE	GY.VTHNB.SLD SLTY AND FG SS INTBS, BIOTRUB IN PART, POSSIBLE SMALL SCALE RIP-UP AT BASE IND ICATING TOPS UP
75	38.16	38.40	0.24			SANDSTONE	FG.LT.GY.THNB.SLD WITH SLTY INTBS AT BASE, UNDULATING BDS
76	38.40	38.82	0.42			SANDSTONE	FG.GY.MB.SLD MNR DK SHALE INTBS, IRREGULAR BDG
78	38.82	40.28	1.46			SANDSTONE	CG.LT.GY.BRKN PBLY BANDS, PBLs LESS THAN 4CM, JOINT P LANE AT 20 DEGREES
79	40.28	40.52	0.24			SILTSTONE	DK.GY.MB.BRKN WAVY BEDS, MNR COAL STRGS
80	40.52	41.25	0.73			SANDSTONE	CG.LT.GY.SLD COAL LENSES AND NODULES TO 7.5CM IN LEN GTH, MNR SLTY INTB, PBLY AT BASE
81	41.25	41.26	0.01			CLAYSTONE	CARB.BLK.SLD
81	41.26	41.32	0.06			SANDSTONE	CG.LT.GY.MAS.SLD PBLY

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
81	41.32	41.41	0.09			SANDSTONE	CG.LT.GY.MAS.SLD AS ABOVE, LOWER GRADATIONAL CONTACT
81	41.41	41.48	0.07			MUDSTONE	GY.VTHNB.SLD SOMEWHAT CARB
* 82	41.48	42.04	0.56			SANDSTONE	CG.LT.GY.MB.SLD PBLY BANDS, MNR COAL CLASTS UP TO 3CM I N LENGTH
81	42.04	42.16	0.12			CLAYSTONE	CARB.BLK.BRKN MNR BRIGHT COAL BANDS
79	42.16	43.10	0.94			SANDSTONE	CG.LT.GY.MB.SLD MNR COAL STRGS AT TOP, FINING TO BASE, JOINT SURFACE AT 10 DEGREES
77	43.10	43.18	0.08			SILTSTONE	DK.BN.THNB.SLD MNR COAL STRGS, GRADING TO SS AT BASE
75	43.18	44.11	0.93			SANDSTONE	CG.LT.GY.MB.SLD FINING TO BASE, SHALE CLASTS AT BASE UP TO 2CM
74	44.11	44.18	0.07			SANDSTONE	FG.M.GY.THNB.SLD SLIGHTLY CARB
74	44.18	44.23	0.05			SANDSTONE	CG.LT.GY.MAS.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
73	44.23	44.50	0.27			SANDSTONE	CG.LT.GY.MB.SLD AS ABOVE
71	44.50	45.15	0.65			SANDSTONE	MG.LT.GY.MB.SLD CG INTBS
* 70	45.15	45.33	0.18			SANDSTONE	CG.LT.GY.MB.SLD SLTST INTBS, MNR CARB BAND AT BASE, RAR E SHALE CLASTS UP TO 1.5CM
70	45.33	46.90	1.57			SANDSTONE	MG.LT.GY.MB.SLD MNR SHALE INTBS, CG INTBS, PROBABLE JOI NT AT 20 DEGREES
70	46.90	49.47	2.57			SANDSTONE	MG.MOD.LT.GY.SLD MNR SHALE INTBS, CG INTBS
70	49.47	49.77	0.30			SANDSTONE	MG.WEL.LT.GY.MB.SLD
70	49.77	50.25	0.48			SANDSTONE	MG.WEL.LT.GY.MB.SLD AS ABOVE, BRKN AT BASE
70	50.25	50.29	0.04			CORE LOSS	
70	50.29	52.71	2.42			SANDSTONE	MG.MOD.LT.GY.MB.SLD CG INTBS, MNR SHALE INTBS, MNR SHALE CL ASTS IN MIDDLE SECTION

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

BCA	DEPTH FROM	DEPTH INTRVAL TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
70	52.71	53.46	0.75			SANDSTONE	MG.MOD.LT.GY.MB.BRKN AS ABOVE, JOINT AT 20 DEGREES, COARSENING TO BASE
70	53.46	54.20	0.74			SANDSTONE	MG.MOD.LT.GY.MB.SLD MNR SLTY INTBS
70	54.20	54.35	0.15			MUDSTONE	SLTY.PR.GY.MB.SLD SOFT
70	54.35	55.67	1.32			SANDSTONE	MG.MOD.LT.GY.THNB.SLD FG INTBS, MNR LENTICULAR SHALE BEDS
* 70	55.67	56.18	0.51			SANDSTONE	MG-.MOD.LT.GY.THNB.SLD COARSENING UPWARDS SEQUENCE, RARE SHALE CLASTS, MNR FAULT DISPLACEMENT AT BASE BEARING 45 DEGREES
70	56.18	56.43	0.25			SANDSTONE	FG.WEL.LT.GY.THNB.SLD CORE BRKN AT BASE
70	56.43	56.69	0.26			CORE LOSS	
71	56.69	56.84	0.15			SANDSTONE	FG.WEL.LT.GY.THNB.SLD AS ABOVE, FAULT AT BASE AT 45 DEGREES
71	56.84	57.07	0.23			SANDSTONE	MG.LT.GY.MAS.SLD QTZ VEINED

\* DENOTES MEASURED BCA



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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
71	57.07	57.25	0.18			MUDSTONE	LT.GY.MAS.SLD QTZ VEINED. SOFT
71	57.25	57.34	0.09	04706	I	COAL	C-3.BLK.VBRKN
71	57.34	57.40	0.06	04706	I	CLAYSTONE	CARB.BLK.SLD
71	57.40	57.42	0.02	04706	I	MUDSTONE	BLK.MAS.BRKN SOFT
71	57.42	58.38	0.96	04707	I	COAL	C-4.BLK.VBRKN LISTRIC SURFACES
72	58.38	58.44	0.06	04707	I	CLAYSTONE	CARB.BLK.BRKN SOFT
72	58.44	58.60	0.16	04707	I	COAL	C-4.BLK.VBRKN
72	58.60	59.02	0.42	04707	I	COAL	C-4.BLK.VBRKN CORE PULVERIZED AT BASE
72	59.02	59.13	0.11	04707	I	CORE LOSS	
72	59.13	59.18	0.05	04707	I	CORE LOSS	

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
72	59.18	59.50	0.32	04708	I	MUDSTONE	M.GY.MAS.BRKN SOFT, LISTRIC SURFACES
72	59.50	59.65	0.15	04709	I	COAL	C-4.BLK.VBRKN
72	59.65	59.76	0.11	04709	I	MUDSTONE	M.GY.MAS.SLD
72	59.76	59.84	0.08	04709	I	COAL	C-3.BLK.SLD CORE VBRKN AT BASE
72	59.84	59.86	0.02	04709	I	MUDSTONE	M.BN.BRKN SOFT
72	59.86	59.91	0.05	04709	I	CLAYSTONE	CARB.BLK.SLD BRIGHT COAL BANDS
73	59.91	59.97	0.06	04709	I	COAL	C-4.BLK.BRKN VBRKN IN PART
73	59.97	59.99	0.02	04709	I	CLAYSTONE	CARB.BLK.SLD HARD
73	59.99	60.01	0.02	04709	I	COAL	C-3.BLK.SLD
73	60.01	60.06	0.05	04709	I	CLAYSTONE	CARB.BLK.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
73	60.06	60.14	0.08	04709	I	COAL	C-4.BLK.VBRKN
73	60.14	60.21	0.07	04725	I	CLAYSTONE	CARB.BLK.SLD HARD, QTZ VEINED
* 73	60.21	61.18	0.97	04725	I	MUDSTONE	DK.GY.VTHNB.SLD
73	61.18	61.36	0.18	04710	I	COAL	C-4.BLK.VBRKN
73	61.36	61.41	0.05	04710	I	CORE LOSS	
73	61.41	61.80	0.39	04710	I	COAL	C-3.BLK.VBRKN
73	61.80	61.90	0.10	04711	I	CLAYSTONE	CARB.BLK.SLD MNR COAL STRGS
73	61.90	61.91	0.01	04711	I	CLAYSTONE	CARB.BLK.BRKN MNR COAL STRGS
72	61.91	62.02	0.11	04712	I	COAL	C-3.BLK.SLD
72	62.02	62.09	0.07	04712	I	COAL	C-4.BLK.SLD

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
72	62.09	62.14	0.05	04712	I	COAL	C-3.BLK.VBRKN
72	62.14	62.21	0.07	04712	I	COAL	C-4.BLK.VBRKN
72	62.21	62.28	0.07	04712	I	COAL	C-3.BLK.SLD
72	62.28	62.48	0.20	04712	I	CORE LOSS	
72	62.48	62.58	0.10	04712	I	CORE LOSS	
72	62.58	62.60	0.02	04712	I	CLAYSTONE	CARB.BLK.VBRKN
72	62.60	62.65	0.05	04712	I	COAL	C-1.BLK.SLD
72	62.65	62.67	0.02	04712	I	MUDSTONE	DK.GY.MAS.SLD SOFT
72	62.67	62.72	0.05	04712	I	COAL	C-1.BLK.BRKN
72	62.72	62.80	0.08	04713	I	CLAYSTONE	CARB.BLK.SLD

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
72	62.80	62.84	0.04	04713	I	COAL	C-3.BLK.SLD
72	62.84	62.88	0.04	04713	I	MUDSTONE	DK.GY.MAS.SLD
72	62.88	62.93	0.05	04713	I	COAL	C-3.BLK.SLD
72	62.93	62.97	0.04	04713	I	MUDSTONE	DK.GY.MAS.SLD
72	62.97	63.02	0.05	04714	I	COAL	C-4.BLK.SLD
72	63.02	63.08	0.06	04714	I	CORE LOSS	
72	63.08	63.11	0.03	04714	I	COAL	C-3.BLK.VBRKN
72	63.11	63.16	0.05	04714	I	COAL	C-3.BLK.SLD
72	63.16	63.19	0.03	04714	I	CLAYSTONE	CARB.BLK.SLD
72	63.19	63.34	0.15	04714	I	COAL	C-3.BLK.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
72	63.34	63.40	0.06	04714	I	CORE LOSS	
72	63.40	63.54	0.14	04714	I	COAL	C-4.BLK.VBRKN
72	63.54	63.56	0.02	04714	I	COAL	C-4.BLK.SLD
72	63.56	63.59	0.03	04714	I	COAL	C-1.BLK.SLD
72	63.59	64.39	0.80	04714	I	COAL	C-4.BLK.VBRKN
71	64.39	64.51	0.12	04714	I	COAL	C-4.BLK.VBRKN
71	64.51	64.57	0.06			CLAYSTONE	CARB.BLK.SLD QTZ VEINS PARALLEL BDS, MORE COALY AT TOP
71	64.57	65.40	0.83			MUDSTONE	M.GY.VTHNB.SLD SLTY INTBS, MNR DEFORMATION
71	65.40	67.21	1.81			MUDSTONE	DK.GY.THNB.SSD.SLD AS ABOVE, CONCRETIONARY NODULES UP TO 7 CM, SLTY INTBS, WM BURROWS, TOPS UP

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
70	67.21	67.91	0.70			SANDSTONE	MG.WEL.LT.GY.MB.SLD ROUNDED RIP-UP SHALE CLASTS AT TOP, UP TO 3CM IN LENGTH, CORE BRKN AT BASE, JU INTED AT 20 DEGREES
* 70	67.91	68.39	0.48			MUDSTONE	GY.VTHNB.WRMBU.SLD MNR SLTY INTBS, BIOTURB TOWARDS BASE, T QPS UP
69	68.39	68.58	0.19			SANDSTONE	MG.WEL.GY.MAS.BRKN
69	68.58	69.16	0.58			SANDSTONE	FG.GY.THNB.SLD SLTY INTBS, THINLY BEDDED, CORE ROTATED AT TOP
67	69.16	70.05	0.89			SANDSTONE	FG.WEL.GY.MB.SLD SMALL SCALE SLTY RIP-UPS TOWARDS BASE, SLTY TOWARDS BASE
66	70.05	71.32	1.27			SANDSTONE	FG.WEL.GY.THNB.SLD SLTY INTBS THROUGHOUT
64	71.32	71.63	0.31			MUDSTONE	DK.GY.VTHNB.BRKN
63	71.63	72.73	1.10			MUDSTONE	DK.GY.VTHNB.BRKN AS ABOVE

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
61	72.73	73.39	0.66			MUDSTONE	DK.GY.VTHNB.SLD
61	73.39	73.44	0.05			SANDSTONE	PR.GY MNR COAL AND SLTY LENSES
61	73.44	73.74	0.30			MUDSTONE	DK.GY.VTHNB.SLD
* 60	73.74	74.07	0.33			SANDSTONE	MG.MOD.GY.MB.SLD SHALY INTBS, UPPER GRADATIONAL CONTACT, MNR SHALE CLASTS, COARSENING GRAIN SIZE TO BASE
60	74.07	75.22	1.15			MUDSTONE	DK.GY.VTHNB.SLD JOINT AT 40 DEGREES, MNR COAL STRGS
60	75.22	75.52	0.30			MUDSTONE	DK.GY.VTHNB.SLD AS ABOVE
60	75.52	75.77	0.25			SILTSTONE	WEL.M.GY.THNB.BRKN
60	75.77	76.21	0.44			MUDSTONE	M.GY.VTHNB.SLD
60	76.21	76.37	0.16			MUDSTONE	SLTY.M.GY.VTHNB.BRKN

\* DENOTES MEASURED BCA



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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
60	76.37	77.38	1.01			SANDSTONE	FG.WEL.GY.MB.SLD MNR SHALY INTBS
* 60	77.38	78.09	0.71			MUDSTONE	DK.GY.VTHNB MNR COAL STRGS
61	78.09	78.33	0.24			SANDSTONE	MG.WEL.GY.MB.SLD SHALY AT TOP
62	78.33	78.87	0.54			SANDSTONE	FG.WEL.GY.THNB.SLD SHALE INTBS THROUGHOUT
63	78.87	79.22	0.35			SANDSTONE	MG.WEL.LT.GY.MB.SLD MNR IRREGULAR SHALE INTBS, CUT AND FILL INDICATED OPS UP
64	79.22	79.28	0.06			MUDSTONE	DK.GY.VTHNB.SLD MNR SS BDS
65	79.28	80.09	0.81			SANDSTONE	MG.MOD.LT.GY.MB.SLD MNR SHALE INTBS AND ROUNDED RIP-UP SHAL E CLASTS TO 4CM
67	80.09	80.70	0.61			SANDSTONE	CG.WEL.LT.GY.MAS.SLD MNR SHALE CLASTS , CORE BROKEN AT TOP
67	80.70	80.82	0.12			SANDSTONE	FG.WEL.GY.MAS.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
	68	80.82	80.94	0.12		SANDSTONE	MG.WEL.GY.MAS.SLD AS ABOVE
	68	80.94	81.28	0.34		SANDSTONE	FG.WEL.GY.THNB.SLD SHALE AND SLTY INTBS, IRREGULAR FRACTURES
	69	81.28	81.39	0.11		MUDSTONE	DK.GY.VTHNB.BRKN MNR SLTY INTBS
	69	81.39	81.54	0.15		SANDSTONE	MG.WEL.GY.THNB.SLD SLTY SHALE INTBS
	69	81.54	81.61	0.07		SANDSTONE	MG.WEL.GY.THNB.SLD AS ABOVE
*	70	81.61	82.04	0.43		SILTSTONE	GY.THNB.BIOTR.SLD MNR SHALY INTBS
	71	82.04	82.80	0.76		SANDSTONE	MG.MOD.LT.GY.MB.SLD ROUNDED SHALE CLASTS TOWARDS BASE, MNR SHALY INTBS
	72	82.80	83.56	0.76		SANDSTONE	FG.MOD.M.GY.THNB.SLD SLTY INTBS AT TOP, IRREGULAR FRACTURES
	73	83.56	84.14	0.58		SANDSTONE	FG.MOD.M.GY.THNB.SLD AS ABOVE

\* DENOTES MEASURED BCA

82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH INTRVAL TO</u>	<u>THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
74	84.14	84.42	0.28			SANDSTONE	CG.MOD.GY.MB.SLD FINING UPWARDS, MNR IRREGULAR SHALE BED
74	84.42	84.61	0.19			SANDSTONE	MG.WEL.LT.GY.MAS.SLD SUBROUNDED SHALE CLASTS AT BASE UP TO 5 CM IN LENGTH, MNR COAL CLASTS TOWARDS T OP
75	84.61	86.04	1.43			SANDSTONE	MG.WEL.LT.GY.MAS.SLD MNR SHALE CLASTS INCLUDES 4CM SHALE BAN D, JOINT AT 30 DEGREES
76	86.04	86.24	0.20			SANDSTONE	MG.WEL.LT.GY.MAS.SLD
* 77	86.24	87.17	0.93			SANDSTONE	FG.WEL.M.GY.THNB.BRKN SHALY INTBS, CORE SLD IN BASAL HALF
78	87.17	87.54	0.37			SANDSTONE	MG.WEL.LT.GY.MAS.SLD
78	87.54	87.60	0.06			BENTONITE	BF.MAS.BRKN SOAPY TEXTURE
78	87.60	87.65	0.05			SANDSTONE	MG.WEL.LT.GY.MAS.SLD MNR SHALE CLASTS

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
78	87.65	87.75	0.10			SANDSTONE	CG.MOD.LT.GY.MAS.VBRKN ROTATED CORE
78	87.75	88.35	0.60			SANDSTONE	FG-.WEL.LT.GY.THNB.SLD MNR SHALY INTBS
79	88.35	88.70	0.35			SANDSTONE	FG-.WEL.LT.GY.THNB.VBRKN AS ABOVE
* 80	88.70	90.53	1.83			SANDSTONE	FG-.WEL.LT.GY.THNB.SLD AS ABOVE, SHALY INTBS IN PART
77	90.53	90.79	0.26			SANDSTONE	FG-.WEL.LT.GY.THNB.SLD AS ABOVE
74	90.79	92.21	1.42			SANDSTONE	FG-.WEL.LT.GY.THNB.SLD AS ABOVE
71	92.21	92.74	0.53			MUDSTONE	DK.GY.VTHNB.SLD SLTY INTBS BECOMING SANDY TOWARDS BASE
70	92.74	93.10	0.36			SANDSTONE	MG.LT.GY.MB.SLD MNR SHALE CLASTS
69	93.10	93.55	0.45			MUDSTONE	BLK.VTHNB.SLD MNR COAL STRGS, PYRITIC AT BASE, CORE B RKN AT BASE

\* DENOTES MEASURED BCA

82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 33

PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH INTRVAL TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
68	93.55	93.88	0.33			CORE LOSS	
67	93.88	93.95	0.07			CORE LOSS	
67	93.95	93.99	0.04	04715	H	COAL	C-3.BLK.SLD
67	93.99	94.07	0.08	04715	H	CLAYSTONE	CARB.BLK.SLD CORE BRKN AT BOTTOM
66	94.07	94.16	0.09	04715	H	CORE LOSS	
66	94.16	94.20	0.04	04716	H	COAL	C-4.BLK.SLD
66	94.20	94.24	0.04	04716	H	COAL	C-2.BLK.SLD
66	94.24	94.35	0.11	04716	H	COAL	C-4.BLK.SLD
66	94.35	94.46	0.11	04716	H	COAL	C-3.BLK.SLD
65	94.46	94.58	0.12	04717	H	CLAYSTONE	CARB.BLK.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
65	94.58	94.64	0.06	04717	H	COAL	C-4.BLK.SLD
65	94.64	94.67	0.03	04717	H	COAL	C-1.BLK.SLD
65	94.67	94.70	0.03	04717	H	MUDSTONE	DK.GY.MAS.SLD
65	94.70	94.76	0.06	04717	H	CLAYSTONE	CARB.BLK.SLD
64	94.76	94.82	0.06	04717	H	MUDSTONE	DK.GY.MAS.SLD
64	94.82	94.85	0.03	04717	H	COAL	C-3.BLK.SLD
64	94.85	94.88	0.03	04717	H	CLAYSTONE	CARB.BLK.SLD
64	94.88	94.91	0.03	04717	H	COAL	C-2.BLK.SLD
64	94.91	94.93	0.02	04717	H	MUDSTONE	DK.GY.MAS.SLD
64	94.93	94.97	0.04	04718	H	COAL	C-2.BLK.SLD

\* DENOTES MEASURED BCA

82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
64	94.97	95.03	0.06	04718	H	COAL	C-3.BLK.SLD MNR SHALE SPLITS
64	95.03	95.06	0.03	04718	H	CLAYSTONE	CARB.BLK.SLD
63	95.06	95.22	0.16	04718	H	COAL	C-4.BLK.SLD
63	95.22	95.24	0.02	04718	H	CLAYSTONE	CARB.BLK.SLD
63	95.24	95.29	0.05	04718	H	COAL	C-4.BLK.SLD
63	95.29	95.34	0.05	04719	H	CLAYSTONE	CARB.BLK.SLD
63	95.34	95.40	0.06	04719	H	CORE LOSS	
62	95.40	95.55	0.15	04719	H	MUDSTONE	LT.BN.THNB.SLD SOFT
62	95.55	95.59	0.04	04719	H	CLAYSTONE	CARB.BLK.SLD ABUNDANT COAL STRGS
62	95.59	95.63	0.04	04720	H	COAL	C-2.BLK.SLD

\* DENOTES MEASURED BCA

82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 36

PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH INTRVAL ID</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
62	95.63	95.65	0.02	04720	H	COAL	C-4.BLK.SLD
62	95.65	95.72	0.07	04720	H	COAL	C-2.BLK.SLD
62	95.72	95.74	0.02	04720	H	CLAYSTONE	CARB.BLK.SLD
61	95.74	95.81	0.07	04720	H	COAL	C-2.BLK.SLD
61	95.81	95.83	0.02	04720	H	CLAYSTONE	CARB.BLK.BRKN
61	95.83	95.86	0.03	04720	H	COAL	C-3.BLK
* 60	95.86	96.62	0.76			MUDSTONE	M.GY.MAS.SLD
61	96.62	97.39	0.77			MUDSTONE	DK.GY.VTHNB.SLD MNR COAL
62	97.39	98.79	1.40			SANDSTONE	FG.WEL.M.GY.THNB.SLD SLTY INTBS. SLTY CLASTS AT TOP. MNR QTZ VEIN

\* DENOTES MEASURED BCA



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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
63	98.79	98.85	0.06			MUDSTONE	M.GY.MAS PYRITIC
63	98.85	99.47	0.62			SANDSTONE	MG.LT.GY.THNB.SLD SUBROUNDED SLTY CLASTS AT TOP, MNR SLTY INTBS
64	99.47	99.67	0.20			SANDSTONE	MG.LT.GY.THNB.SLD AS ABOVE
66	99.67	102.32	2.65			SANDSTONE	MG.MOD.LT.GY.MAS.SLD MNR SLTY INTBS AT TOP, MNR CG BAND IN M IDDLE, S&P TEXTURE, HIGH FELDSPAR CONTE NT
67	102.32	102.72	0.40			SANDSTONE	MG.MOD.LT.GY.MAS.SLD AS ABOVE
69	102.72	104.27	1.55			SANDSTONE	MG.MOD.LT.GY.MAS.SLD AS ABOVE
70	104.27	104.50	0.23			SANDSTONE	CG.MOD.LT.GY.MAS.SLD PPLY AT BASE
71	104.50	105.77	1.27			SANDSTONE	PPLY.MG-.PR.LT.GY.SLD SMALL ROUNDED PBLs THROUGHOUT, MNR QTZ A ND CALCT VEINS, WEAKLY BEDDED

\* DENOTES MEASURED BCA

82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 38

PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
71	105.77	105.90	0.13			SANDSTONE	PBLY.MG-.PR.LT.GY.SLD 2CM QTZ VEIN PARALLELING CORE
72	105.90	106.58	0.68			SANDSTONE	PBLY.MG-.PR.LT.GY.SLD AS ABOVE, MNR QTZ VEINING, CORE BRKN AT BASE
73	106.58	107.78	1.20			SANDSTONE	MG.PR.M.GY.SLD AS ABOVE, MNR COAL STRGS, SUBROUNDED PB LS, PBLs COMPRISE LESS THAN 5%, BDG IND INSTINCT
74	107.78	108.13	0.35			CONGLOMERATE	PBLY.PR.LT.GY.MAS.SLD COARSENING TO BASE, PBLs GREATER THAN 0 .5CM, COMPRISE 10%, SANDY MATRIX, PBLs SUBROUNDED
74	108.13	108.76	0.63			SANDSTONE	MG.WEL.LT.GY.MAS.SLD SHARP UPPER CONTACT, 5% MAFICS
75	108.76	109.42	0.66			SANDSTONE	MG.WEL.LT.GY.MAS.SLD AS ABOVE, MNR SLTY SPLIT AT TOP
76	109.42	110.03	0.61			SANDSTONE	MG.WEL.LT.GY.MAS.SLD AS ABOVE, MNR SUBROUNDED LENTICULAR SHA LE NODULES
77	110.03	111.55	1.52			SILTSTONE	M.GY.VTHNB.SLD MNR SHALY INTBS

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 39

PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
78	111.55	111.86	0.31			MUDSTONE	DK.GY.MAS.SLD SLTY
* 80	111.86	114.48	2.62			SILTSTONE	WEL.M.GY.VTHNB.SLD SHALY INTBS, CONCRETIONARY NODULE IN MI DDLE 15CM THICK
83	114.48	114.91	0.43			SILTSTONE	WEL.M.GY.VTHNB.SLD AS ABOVE
* 85	114.91	117.31	2.40			MUDSTONE	DK.GY.VTHNB.SLD SLTY INTBS, RARE COAL STRGS
84	117.31	117.35	0.04			CLAYSTONE	CARB.BLK.SLD ABUNDANT COAL STRGS
84	117.35	117.39	0.04		G	COAL	C-4.BLK.SLD SHALE STRGS THROUGHOUT
84	117.39	117.51	0.12		G	COAL	C-3.BLK.SLD SHALE STRGS THROUGHOUT
84	117.51	117.54	0.03		G	CLAYSTONE	CARB.BLK.SLD
84	117.54	117.81	0.27		G	MUDSTONE	BLK.MAS.SLD MNR COAL STRGS AT TOP, CORE BRKN AT BAS E

\* DENOTES MEASURED BCA

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82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
83	117.81	117.96	0.15		G	CORE LOSS	
83	117.96	118.44	0.48		G	MUDSTONE	BLK.MAS.BRKN
83	118.44	118.49	0.05	04721	G	CORE LOSS	
83	118.49	118.67	0.18	04721	G	COAL	C-3.BLK.VBRKN
83	118.67	118.71	0.04	04721	G	CLAYSTONE	CARB.BLK.VBRKN ABUNDANT COAL BANDS
83	118.71	118.79	0.08	04721	G	COAL	C-3.BLK.SLD
83	118.79	118.83	0.04	04721	G	COAL	C-2.BLK.SLD
83	118.83	118.91	0.08	04721	G	COAL	C-3.BLK.SLD
82	118.91	118.96	0.05	04721	G	COAL	C-2.BLK.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH INTRVAL ID</u>	<u>THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
82	118.96	119.04	0.08	04721	G	COAL	C-4.BLK.VBRKN
82	119.04	119.18	0.14	04721	G	CORE LOSS	
82	119.18	119.30	0.12	04722	G	MUDSTONE	DK.GY.MAS.SLD SOFT
82	119.30	119.33	0.03	04723	G	COAL	C-2.BLK.SLD
82	119.33	119.39	0.06	04723	G	COAL	C-3.BLK.SLD
82	119.39	119.52	0.13	04723	G	COAL	C-3.BLK.VBRKN
82	119.52	119.59	0.07	04723	G	CORE LOSS	
82	119.59	119.69	0.10	04723	G	COAL	C-2.BLK.BRKN CORE VBRKN AT BASE
82	119.69	119.71	0.02	04723	G	MUDSTONE	M.GY.MAS.SLD HARD, SILICEOUS
82	119.71	119.74	0.03	04723	G	MUDSTONE	M.GY.MAS.SLD SOFT

\* DENOTES MEASURED BCA

82/11/19

## GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
82	119.74	119.86	0.12	04723	G	COAL	C-4.BLK.SLD
82	119.86	119.89	0.03	04723	G	MUDSTONE	DK.GY.MAS.SLD
82	119.89	120.03	0.14	04723	G	COAL	C-4.BLK.SLD
82	120.03	120.05	0.02	04723	G	CLAYSTONE	CARB.BLK.BRKN
81	120.05	120.10	0.05	04723	G	COAL	C-5.BLK.SLD
81	120.10	120.12	0.02	04723	G	COAL	C-1.BLK.SLD
81	120.12	120.25	0.13			MUDSTONE	DK.GY.THNB.SLD
81	120.25	120.80	0.55			MUDSTONE	DK.GY.THNB.SLD AS ABOVE
81	120.80	120.90	0.10			MUDSTONE	DK.GY.THNB.SLD AS ABOVE
81	120.90	121.10	0.20			BENTONITE	LT.GY.BRKN

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

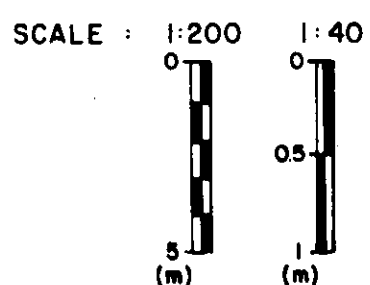
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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82001

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 80	121.10	122.40	1.30			SANDSTONE	FG.WEL.M.GY.THNB.SLD MNR SLTY INTBS
80	122.40	123.28	0.88			MUDSTONE	DK.GY.VTHNB.SLD SLTY INTBS
80	123.28	123.70	0.42			MUDSTONE	DK.GY.VTHNB.SLD AS ABOVE
80	123.70	124.05	0.35			SANDSTONE	FG.WEL.LT.GY.MAS.SLD MNR SHALE INTBS//////////END OF CORE, D RILLERS MARKER 124.05M//////////

\* DENOTES MEASURED BCA

# MOUNT KLAPPAN DRILL HOLE LOG DDH 82-001



NORTHING : 6343655 N  
EASTING : 514375 E

INCLINATION : 90°  
BEARING : -

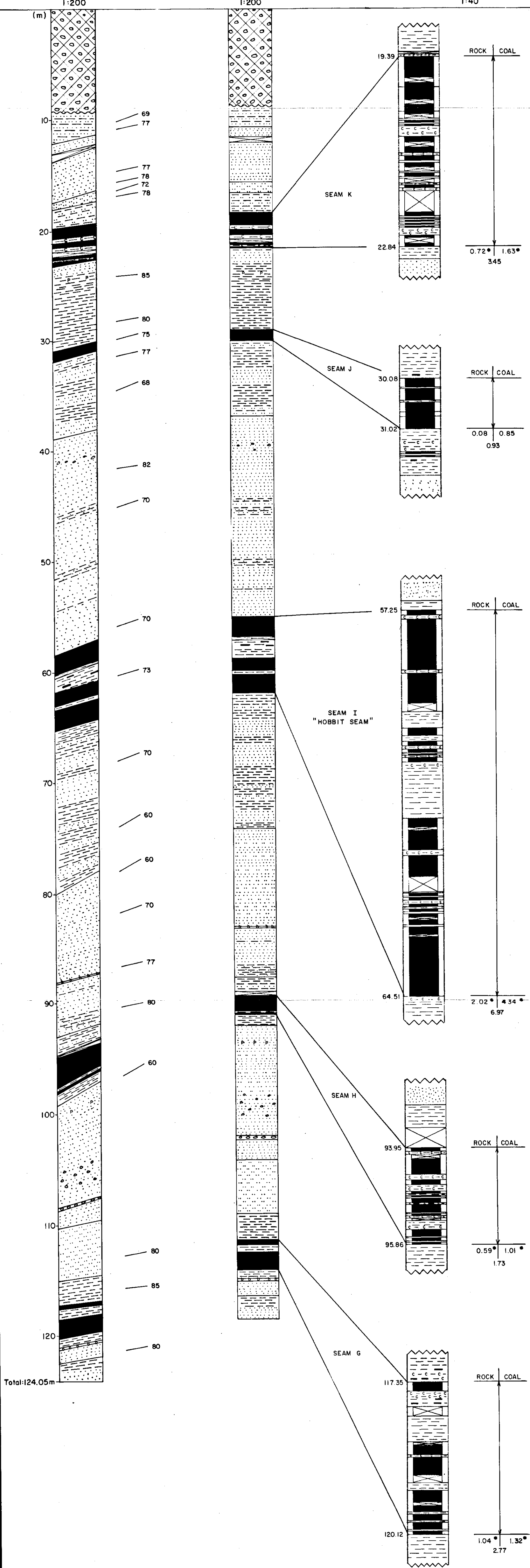
### LITHOLOGIC SYMBOLS

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

APPARENT THICKNESS  
1:200

TRUE THICKNESS  
1:200

SEAM DETAIL  
1:40



Total: 124.05m

\* DOES NOT INCLUDE CORE LOSS.



DDH82002

gcri coal division history proj KPN blk HC ds DDH82002

start date 05/08/82  
end date 08/08/82

contractor J.T.THOMAS operator GCRI  
geologist SWANBERGSON surveyor

remarks NEUTRON-GAMMA TOOL GAVE OFF SCALE READINGS IN BASAL PORTION OF HOLE AS A RESULT OF TOOL FAILURE- TO BE DETERMINED , GEOPHYSICAL LOG MEASURED FROM GROUND LEVEL + APPROX. 0.6m

gcri coal division location proj KPN blk HC ds DDH82002

choose one location input number, 1 province BC  
then enter location elevation (M) 1342.00

\*-----\*  
1 utm: zone 09 northing 6345134.00 easting 0515445.00
2 lat-long: lat 571503 long 1284439
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gcri coal division orientation proj KPN blk HC ds DDH82002

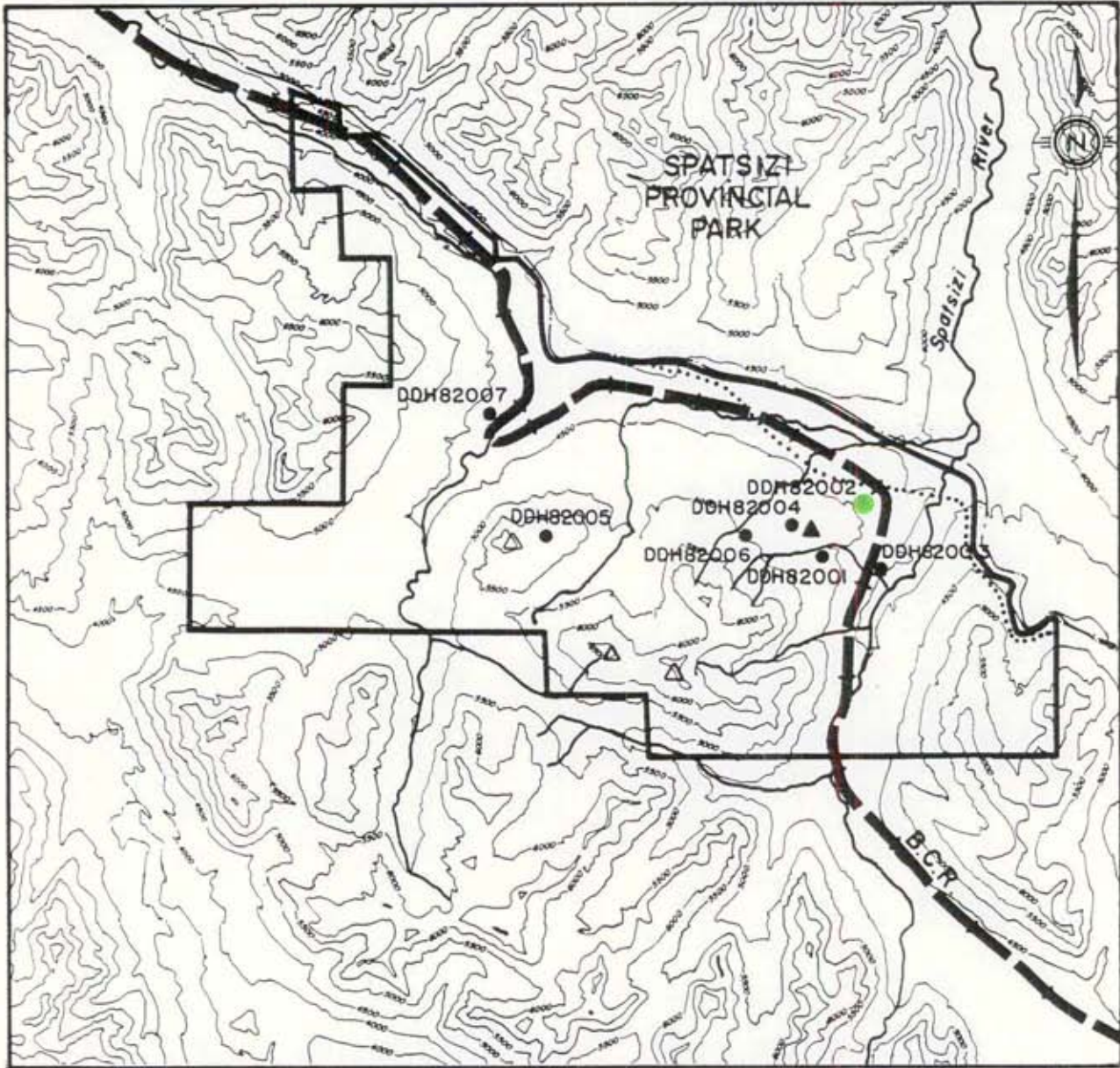
dimensions and orientation:

length (M) 178.96 inclination 90.0 azimuth 0.0  
size width 95.8 size height  
roof strike dip dir  
floor strike dip dir

casing depth (M) 0.61 cement(y,\_) Y plug(Y,\_) \_ piez(Y,\_) \_  
aquifer depths (M) \_\_\_\_\_  
loss cir depths(M) \_\_\_\_\_




# MT. KLAPPAN COAL PROPERTY

## DIAMOND DRILL HOLES



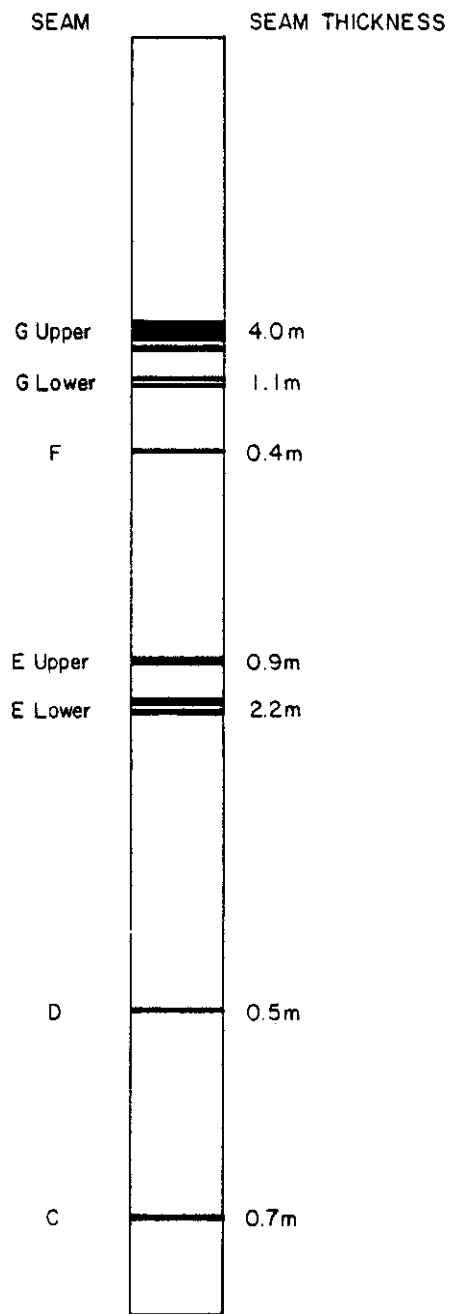
0 1 2 3 4 5 Km



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

# MT. KLAPPAN COAL PROPERTY

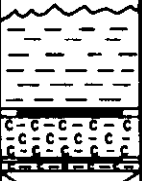
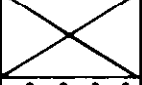
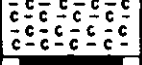

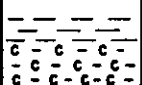

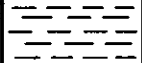
DDH82002




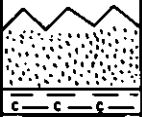
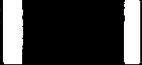

SCALE - 1:1000


DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE COAL/ROCK TOTAL	MINING SECTION COAL/ROCK TOTAL
		ROCK	COAL		NUMBER	COMPOS.		
35.68								
35.93		0.23		100	04852			
36.03		0.10						
36.19		0.11	0.05	100	04853			
36.59		(0.16)		60	04854	↑	↑	↑
		0.02						
		0.03	0.11					
			0.76	100	04855			
37.50		0.23						
			0.10	100	04856	8	2.31/0.68 2.99	2.31/0.68 2.99
38.04		0.21						
			0.69	100	04857			
		0.01						
			0.38					
39.20		0.02	0.05					
		0.24						
		(0.40)		37.5	04858	9	0.21/0.67 0.88	
39.84		0.03	0.02					
			0.05	41.6	04859			
40.08		(0.22)						
		0.18						
			0.06					
		0.71		86	04860			
		0.04	0.03					
		0.32	0.01					
41.65								
42.32								

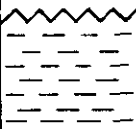

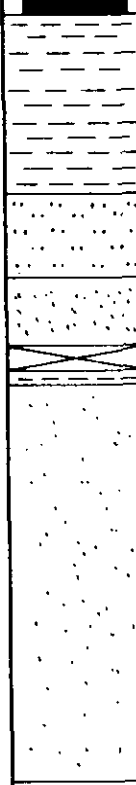
<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY	ALBERTA	
<b>MT. KLAPPAN COAL PROJECT</b> <b>SEAM DETAIL</b> TRUE THICKNESS DDH-82-002 <b>SEAM G UPPER</b>		
PREPARED BY: C. L.	SCALE 1:40	
APPROVED BY: J. M. D.	DATE: NOV. '82	DRAWING No.

DRILLING DEPTH	COAL SEAM - LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE COAL/ROCK TOTAL	MINING SECTION COAL/ROCK TCTAL
		ROCK	COAL		NUMBER	COMPOS.		
42.32			0.04					
		0.22	0.02					
		(0.45)		59.1	04861			
43.42		0.32						
43.71			0.25	86.2	04862	↑	↑	
44.26		0.55	0.04	100	04863	↑	0.56/0.57	
44.55			0.20	100	04864	↓	1.13	
		0.02	0.07			↓	↓	

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY	ALBERTA	
<b>MT. KLAPPAN COAL PROJECT</b> <b>SEAM DETAIL</b> TRUE THICKNESS <b>DDH-82-002</b> <b>SEAM G LOWER</b>		
PREPARED BY: C. L.	SCALE 1:40	
APPROVED BY: J. M. D.	DATE: NOV. '82	DRAWING No.

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE		MINING SECTION	
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL		COAL/ROCK TOTAL	
52.54										
52.89		0.05 (0.32)	0.29 0.08	100	04724			0.35/0.00 0.35		
53.47		0.08	0.08 (0.08)							

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY	ALBERTA	
<b>MT. KLAPPAN COAL PROJECT</b> <b>SEAM DETAIL</b> TRUE THICKNESS <b>DDH-82-002</b> <b>SEAM F</b>		
PREPARED BY: C. L.	DATE: NOV. '82	SCALE 1:40
APPROVED BY: J. M. D.	DRAWING No.	

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		COAL/ROCK TOTAL	COAL/ROCK TOTAL		
81.07			0.51	78.8	04865		0.72/0.20 0.92	0.72/0.20 0.92
82.06		(0.20)	0.21					
86.51								

**GULF CANADA RESOURCES INC.**

Coal Division

CALGARY

ALBERTA



**MT. KLAPPAN COAL PROJECT**  
**SEAM DETAIL**  
 TRUE THICKNESS  
 DDH-82-002  
 SEAM E UPPER

PREPARED BY: C. L.

SCALE 1:40

APPROVED BY: J. M. L.

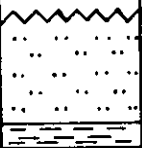

DATE: NOV. '82


DRAWING No.

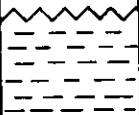

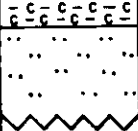


DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
86.51								
87.44			0.82	100	04866	12	0.82/0.00 0.82	
87.72		0.04 0.16 (0.04)	0.01 0.06 (0.06)	85.7	04867			
		0.03 0.09 (0.12)	0.05 0.05 (0.10)	69.8	04868			1.64/0.60 2.24
88.22			0.31			13	0.82/0.60 1.42	
		0.10 0.02	0.05 0.05	100	04869			
89.00			0.24					

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY	ALBERTA	
<b>MT. KLAPPAN COAL PROJECT</b> <b>SEAM DETAIL</b> <b>TRUE THICKNESS</b> <b>DDH-82-002</b> <b>SEAM E LOWER</b>		
PREPARED BY: C. L.		SCALE 1: 40
APPROVED BY: J. M. D.		DATE: NOV. 82 DRAWING No.


DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE COAL/ROCK TOTAL	MINING SECTION COAL/ROCK TOTAL
		ROCK	COAL		NUMBER	COMPOS.		
138.38			(0.08)					
138.92			0.45	86.8	04870	14	0.53/0.00 0.53	0.53/0.00 0.53

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY	ALBERTA	
<b>MT. KLAPPAN COAL PROJECT</b> <b>SEAM DETAIL</b> <b>TRUE THICKNESS</b> <b>DDH-82-002</b> <b>SEAM D</b>		
PREPARED BY: C. L.	SCALE 1 : 40	
APPROVED BY: J. M. D.	DATE: NOV. 82	DRAWING No.

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
165.97								
166.66			0.67	100	04871	15	0.67/0.00 0.67	0.67/0.00 0.67
								

**GULF CANADA RESOURCES INC.**  
Coal Division

CALGARY ALBERTA



**MT. KLAPPAN COAL PROJECT**  
**SEAM DETAIL**  
TRUE THICKNESS  
DDH-82-002  
**SEAM C**

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

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12.80)

Apparent Thickness

DENSITY

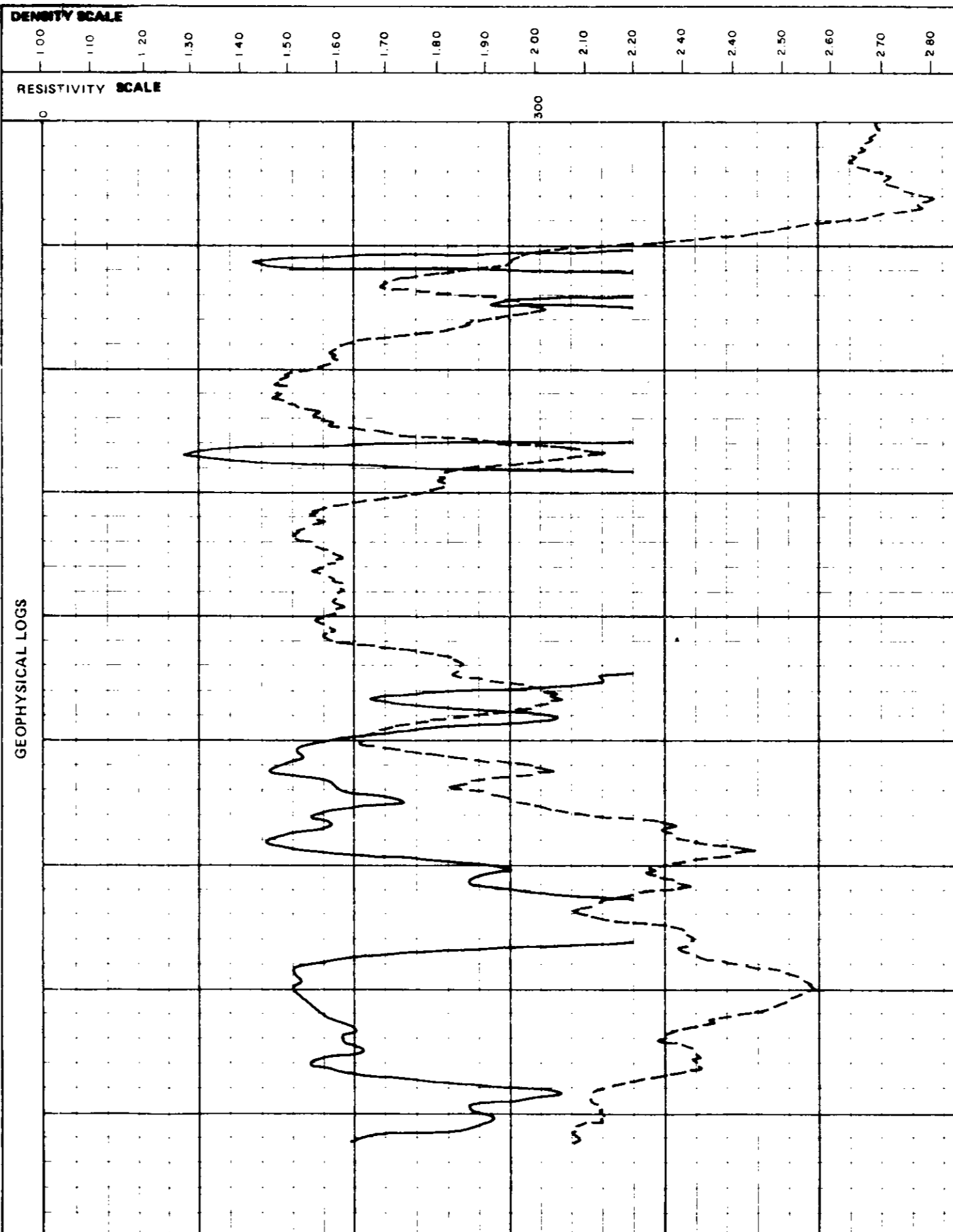
RESISTIVITY

DRILL NO: DDH-82-002

SEAM: G Upper

SEAM INTERVAL

SCALE: 1:40



GEOPHYSICAL LOGS

SEAM COMP	DEPTH metres	INTERVAL		REC	SAMPLE		PROXIMATE ANALYSIS								
		ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	CAL. VAL MJ/kg	FSI		
	35.68	0.25		100	04852										
	35.93	0.10		100	04853										
	36.03	0.11	0.05	100	04853										
	36.19		0.22	60	04854										
	36.59	(0.16)													
		0.03	0.11												
	36.59		0.77	100	04855										
	37.50	0.23		100	04856	8		1.43	25.59	7.75	65.23		24.09		
	38.04	0.21	0.10	100	04856										
			0.70	100	04857										
		0.01	0.38												
	39.20	0.02	0.05												
	39.20	0.24		37.5	04858	9		1.52	45.61	8.73	44.14		15.17		
	39.84	(0.40)													
		0.03	0.02 0.05	41.6	04859										
	40.08	(0.22)	(0.14)												
		0.18	0.06												
			0.71	86	04860										
		0.04	0.03												
	41.65	0.32	0.01												
	42.32														

Seam Interval (m): 36.03 - 40.08  
Seam True Thickness (Coal/Rock): 2.57/1.46  
Total 4.03

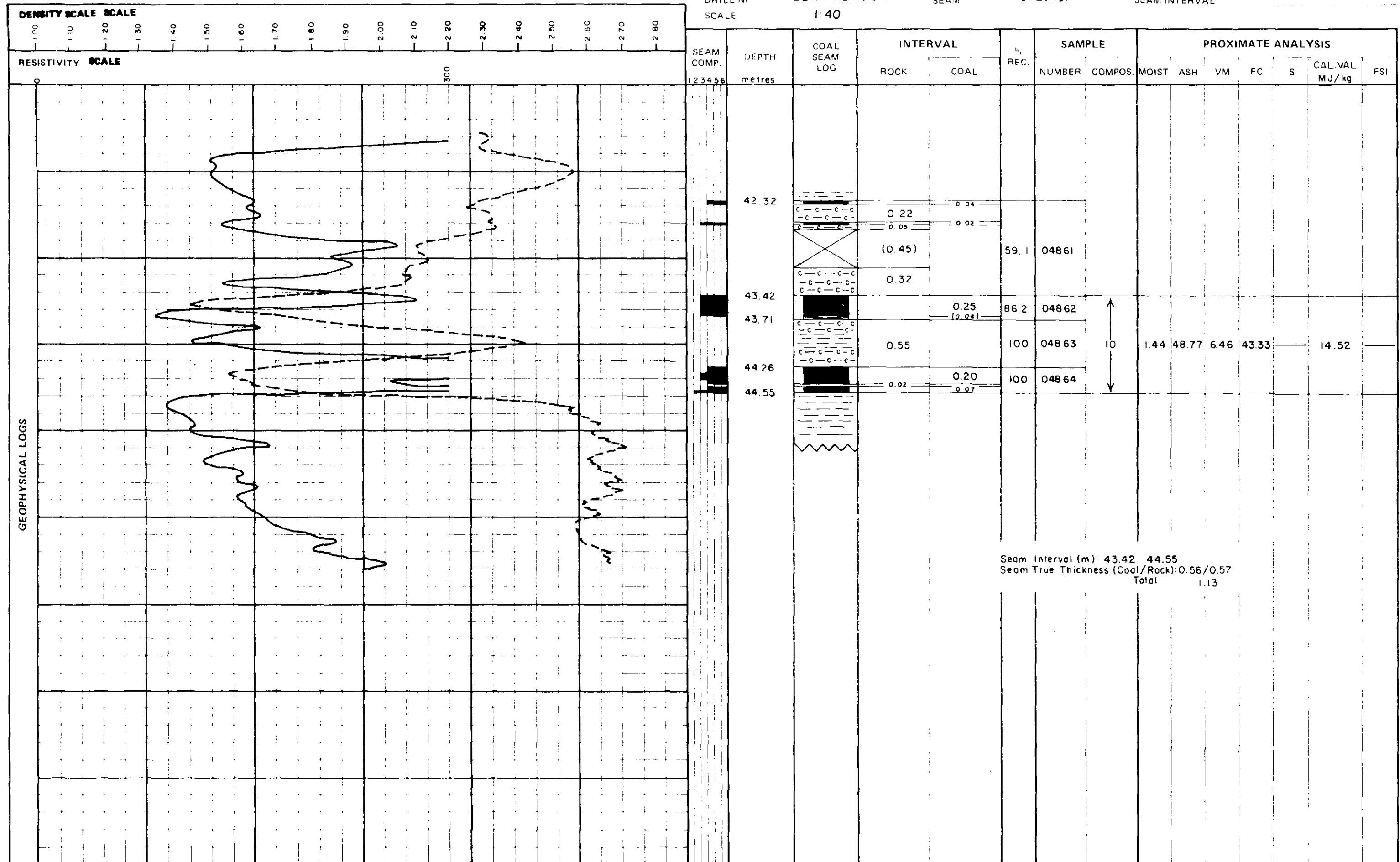
DENSITY ---

RESISTIVITY ———

DRILL NO. DDH - 82 - 002  
SCALE 1:40

SEAM G Lower

SEAM INTERVAL Apparent Thickness



DENSITY

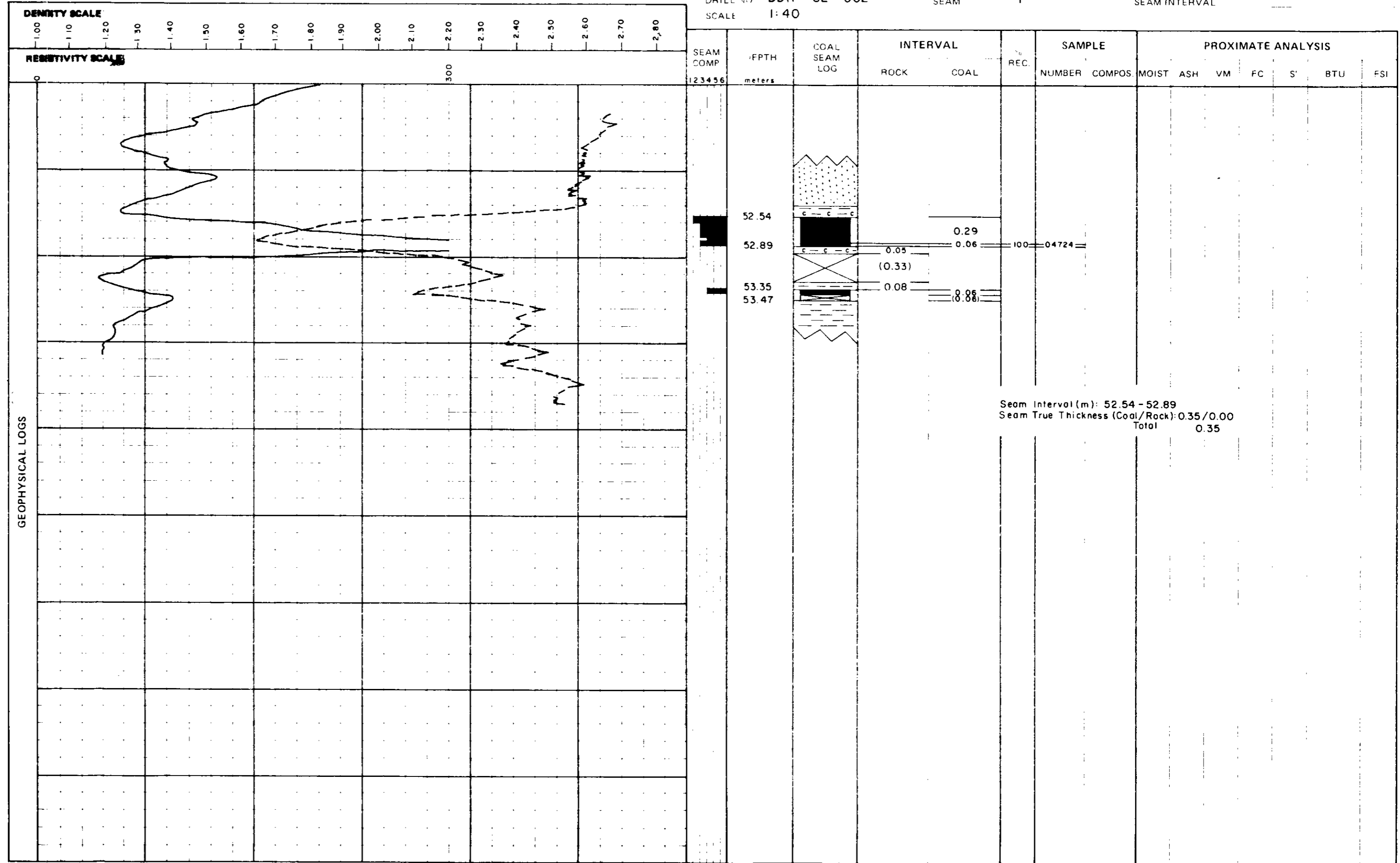
RESISTIVITY

DRILL NO DDH - 82 - 002  
SCALE 1:40

SEAM

F

SEAM INTERVAL



COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

DENSITY

RESISTIVITY

DRILL NO  
SCALE

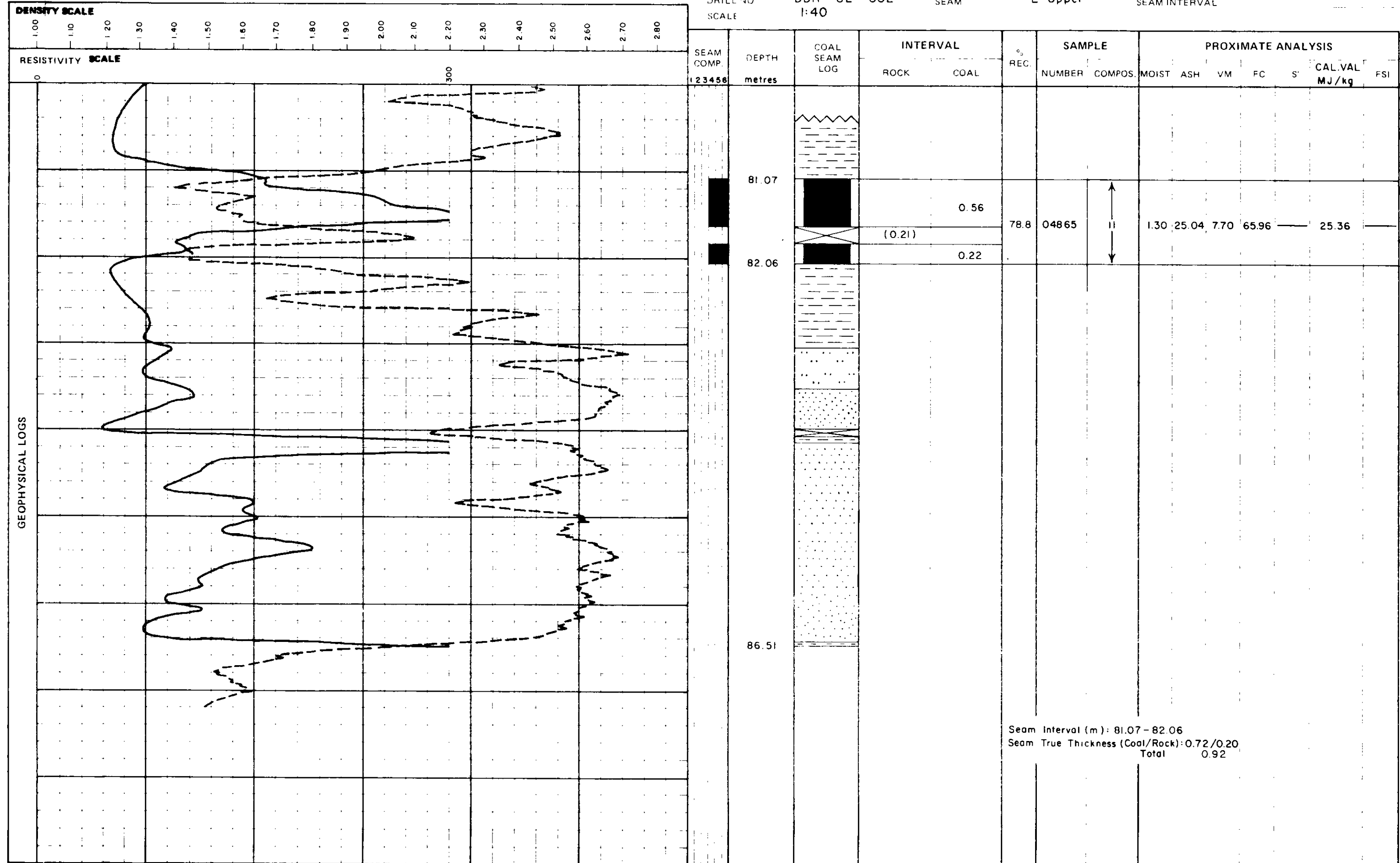
DDH - 82 - 002  
1:40

SEAM

E Upper

SEAM INTERVAL

Apparent Thickness



COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC. COAL DIVISION

DENSITY ---

RESISTIVITY ———

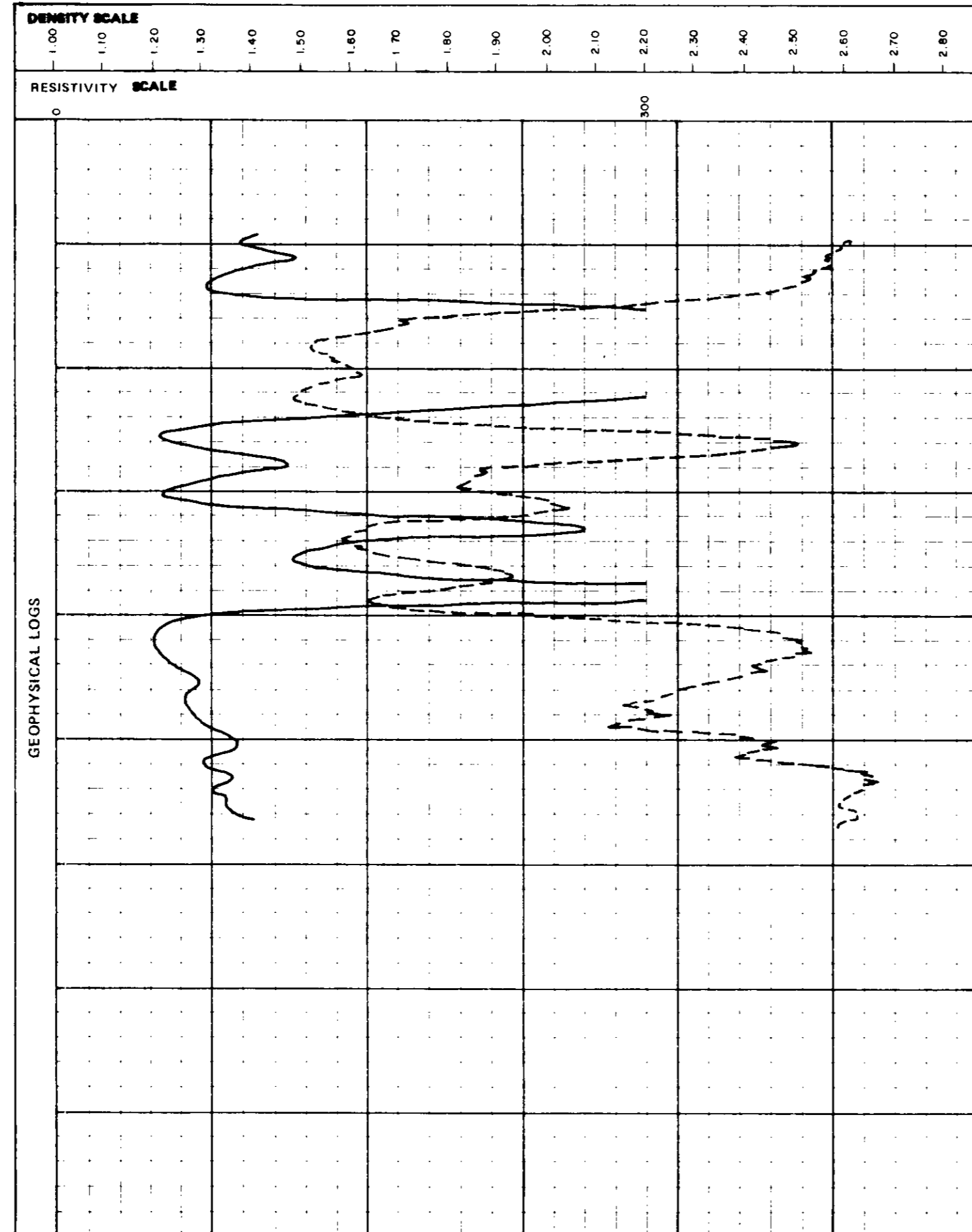
DRILL NO. DDH-82-002 SEAM

E Lower

SEAM INTERVAL

Apparent Thickness

SCALE 1:40



GEOPHYSICAL LOGS

SEAM COMP 1 2 3 4 5 6	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS						
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	CAL. VAL KJ/kg	FSI
	86.51			0.93	100	04866	12	1.06	23.43	10.44	65.07	25.18		
	87.44		0.05 0.18 (0.04)	0.01	85.7	04867								
	87.72		0.03 0.10 (0.13)	0.11 0.08	69.8	04868								
	88.22			0.34			13	1.57	52.33	7.76	38.34	13.70		
	89.00		0.11 0.02	0.05	100	04869								
				0.26										
								Seam Interval (m): 86.51-89.00 Seam True Thickness (Coal/Rock): 1.64/0.60 Total 2.24						



DENSITY

RESISTIVITY

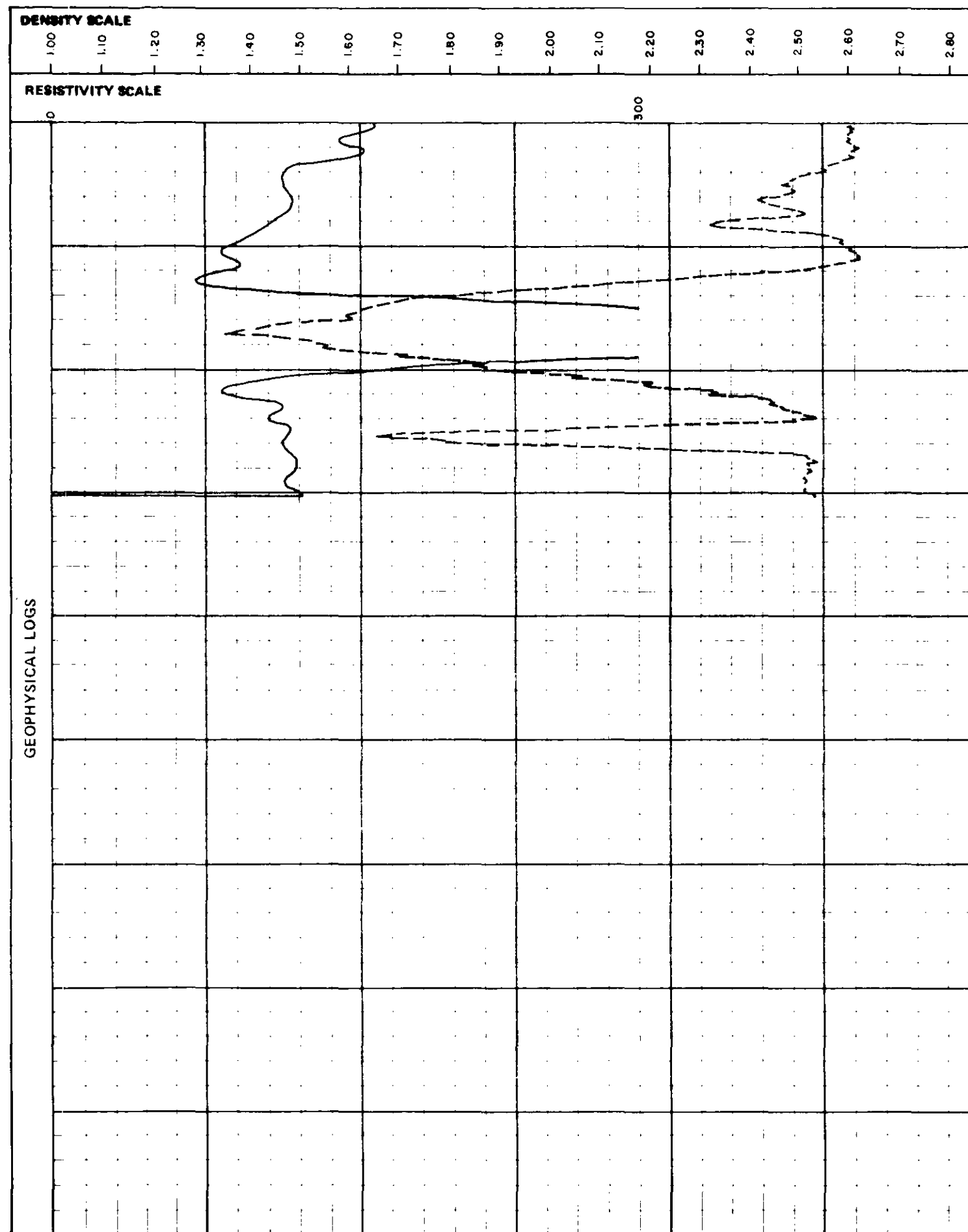
DRILL NO. DDH-82-002  
SCALE 1:40

SEAM

D

SEAM INTERVAL

Apparent Thickness



SEAM COMP.	DEPTH metres	COAL SEAM LOG	INTERVAL		REC.	SAMPLE		PROXIMATE ANALYSIS										
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	Cal. Val MJ/kg	FSI				
123456	138.38			0.08														
	138.92			0.46	85.2	04870	4	1.14	25.63	9.22	64.01		24.85					
			Seam Interval (m): 138.38-138.92 Seam True Thickness (Coal/Rock): 0.53/0.00 Total 0.53															

GEOPHYSICAL LOGS

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

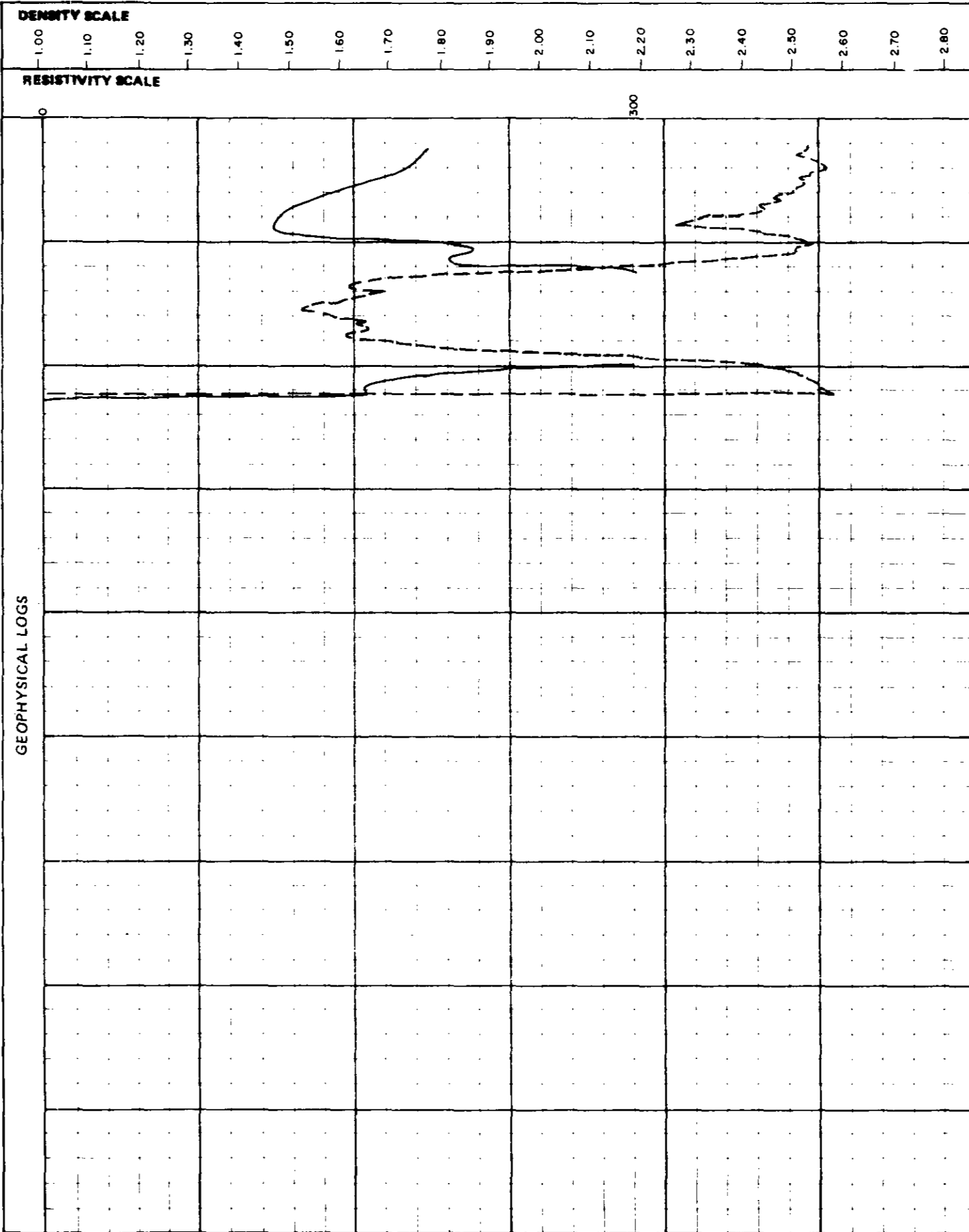
DENSITY

RESISTIVITY

DRILL NO. DDH-82-002  
SCALE 1:40

SEAM C

SEAM INTERVAL  
Apparent Thickness



GEOPHYSICAL LOGS

SEAM COMP.	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC	SAMPLE		PROXIMATE ANALYSIS						
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	Cal. Val MJ/kg	FSI
1	165.97			0.67	100	04871	15	1.48	25.67	7.77	65.08		24.66	
	166.66													
Seam Interval (m): 165.97-166.66 Seam True Thickness (Coal/Rock): 0.67/0.00 Total 0.67														

GULF CANADA RESOURCES INC. - COAL DIVISION  
 22/NOV/82 COMPOSITE SAMPLE SUMMARY PAGE 1

DATA SOURCE	SEAM	SAMPLE ID	SAMPLE FROM	SAMPLE TO	DEPTH FROM	DEPTH TO	REC CORE	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK
DDH82002												
	G UPPER	8	4854	4857	36.19	39.20	2.85	94.68	2.33	0.52	0.00	0.16
	G UPPER	9	4858	4859	39.20	40.08	0.34	38.64	0.07	0.27	0.14	0.40
	G LOWER	10	4862	4864	43.42	44.55	1.09	96.46	0.52	0.57	0.04	0.00
	E UPPER	11	4865	4865	81.07	82.06	0.78	78.79	0.78	0.00	0.00	0.21
	E LOWER	12	4866	4866	86.51	87.44	0.93	100.00	0.93	0.00	0.00	0.00
	E LOWER	13	4867	4869	87.44	89.00	1.32	84.62	0.83	0.49	0.07	0.17
	D	14	4870	4870	138.50	139.03	0.46	86.79	0.46	0.00	0.07	0.00
	C	15	4871	4871	166.20	166.89	0.69	100.00	0.69	0.00	0.00	0.00
	F	4724			52.83	52.89	0.06	100.00	0.06	0.00	0.00	0.00
		4852			35.68	35.93	0.25	100.00	0.00	0.25	0.00	0.00
	G UPPER	4853			35.93	36.19	0.26	100.00	0.05	0.21	0.00	0.00
	G UPPER	4854			36.19	36.59	0.24	60.00	0.22	0.02	0.00	0.16
	G UPPER	4855			36.59	37.50	0.91	100.00	0.88	0.03	0.00	0.00
	G UPPER	4856			37.50	38.04	0.54	100.00	0.10	0.44	0.00	0.00
	G UPPER	4857			38.04	39.20	1.16	100.00	1.13	0.03	0.00	0.00
	G UPPER	4858			39.20	39.84	0.24	37.50	0.00	0.24	0.00	0.40
	G UPPER	4859			39.84	40.08	0.10	41.67	0.03	0.07	0.14	0.00
		4860			40.08	41.65	1.35	85.99	0.10	1.25	0.00	0.22
		4861			42.32	43.42	0.65	59.09	0.06	0.59	0.00	0.45
	G LOWER	4862			43.42	43.71	0.25	86.21	0.25	0.00	0.04	0.00
	G LOWER	4863			43.71	44.26	0.55	100.00	0.00	0.55	0.00	0.00
	G LOWER	4864			44.26	44.55	0.29	100.00	0.27	0.02	0.00	0.00
	E UPPER	4865			81.07	82.06	0.78	78.79	0.78	0.00	0.00	0.21
	E LOWER	4866			86.51	87.44	0.93	100.00	0.93	0.00	0.00	0.00
	E LOWER	4867			87.44	87.72	0.24	85.71	0.01	0.23	0.04	0.00
	E LOWER	4868			87.72	88.22	0.30	60.00	0.17	0.13	0.07	0.13
	E LOWER	4869			88.22	89.00	0.78	100.00	0.65	0.13	0.00	0.00
	D	4870			138.38	138.92	0.46	85.19	0.46	0.00	0.08	0.00
	C	4871			165.97	166.66	0.69	100.00	0.69	0.00	0.00	0.00

82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 1

PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
85	0.00	0.61	0.61			OVERBURDEN	
85	0.61	0.91	0.30			ROCK LOSS	
85	0.91	1.73	0.82			SANDSTONE	MG.WEL.LT.GY.THB.BRKN SUBROUNDED CHERT CLASTS (DARK) AT TOP, UP TO 1.5CM DIAMETER
85	1.73	1.84	0.11			CONGLOMERATE	MG.MOD.LT.GY.MAS.SLD SUBROUNDED CHERT CLASTS UP TO 1CM DIAMETER
85	1.84	3.62	1.78			SANDSTONE	MG.MOD.LT.GY.MB.BRKN INFREQUENT CLASTS OF CHERT UP TO 0.5CM DIAMETER
85	3.62	3.82	0.20			SANDSTONE	MG.MOD.LT.GY.MB.BRKN AS ABOVE, MNR CHERT AND COAL CLASTS
85	3.82	4.06	0.24			ROCK LOSS	
85	4.06	5.84	1.78			SANDSTONE	MG.WEL.LT.GY.MB.BRKN MNR SUBROUNDED CHERT CLASTS UP TO 1CM D IAMETER, MNR CALCT VEINING
85	5.84	6.27	0.43			SANDSTONE	MG.WEL.LT.GY.MB.SLD AS ABOVE

\* DENOTES MEASURED BCA

82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 2

PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
85	6.27	6.44	0.17			SANDSTONE	FG-.MOD.LT.GY.MAS.SLD
85	6.44	7.91	1.47			SANDSTONE	FG-.MOD.LT.GY.MAS.SLD AS ABOVE, WITH 7CM SLTY BED. MNR QTZ VE INS IN MIDDLE OF SECTION
85	7.91	9.97	2.06			SANDSTONE	FG-.MOD.LT.GY.MAS.SLD AS ABOVE, RARE CHERT CLASTS
85	9.97	11.00	1.03			SANDSTONE	FG-.MOD.LT.GY.MAS.SLD AS ABOVE
85	11.00	12.03	1.03			SANDSTONE	FG-.MOD.LT.GY.MAS.SLD AS ABOVE
85	12.03	14.11	2.08			SANDSTONE	FG-.MOD.LT.GY.MAS.SLD AS ABOVE, CORE BRKN AT BASE, JOINT ATTI TUDE 10 DEGREES
85	14.11	16.21	2.10			SANDSTONE	FG-.MOD.LT.GY.MAS.SLD AS ABOVE
85	16.21	16.46	0.25			SANDSTONE	FG-.MOD.LT.GY.MAS.SLD AS ABOVE
* 85	16.46	17.21	0.75			SANDSTONE	FG-.WEL.LT.GY.THNB.SLD MNR SLTY INTBS, RARE ELONGATE SHALE CLA STS

\* DENOTES MEASURED BCA

82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 3

PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
84	17.21	19.13	1.92			SANDSTONE	FG-.WEL.LT.GY.THNB.SLD AS ABOVE
83	19.13	20.16	1.03			SANDSTONE	FG-.WEL.LT.GY.THNB.SLD AS ABOVE
82	20.16	21.89	1.73			SANDSTONE	FG-.WEL.LT.GY.THNB.SLD AS ABOVE, JOINT MEASUREMENT 5 DEGREES, CALCT INFILLING
81	21.89	23.17	1.28			SANDSTONE	FG-.WEL.LT.GY.THNB.SLD AS ABOVE, CORE VBRKN IN BASAL HALF
* 80	23.17	24.47	1.30			SANDSTONE	FG-.WEL.LT.GY.THNB.SLD AS ABOVE
81	24.47	25.93	1.46			SANDSTONE	FG.WEL.M.GY.THNB.VBRKN SLTY-SHALE INTBS
82	25.93	27.13	1.20			SANDSTONE	FG.WEL.M.GY.THNB.BRKN AS ABOVE
83	27.13	28.05	0.92			SANDSTONE	FG.WEL.M.GY.THNB.VBRKN AS ABOVE
83	28.05	28.31	0.26			SANDSTONE	FG.WEL.M.GY.THNB AS ABOVE

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
84	28.31	29.34	1.03			SILTSTONE	WEL.M.GY.VTHNB.XBDG.BRKN SHALE INTBS, TOPS UP
84	29.34	29.67	0.33			SILTSTONE	WEL.M.GY.VTHNB.XBDG.BRKN AS ABOVE
* 85	29.67	31.81	2.14			SILTSTONE	WEL.M.GY.VTHNB.XBDG.SLD AS ABOVE
82	31.81	32.50	0.69			SILTSTONE	WEL.M.GY.VTHNB.XBDG.SLD AS ABOVE
79	32.50	33.88	1.38			SILTSTONE	WEL.M.GY.VTHNB.XBDG.SLD AS ABOVE
77	33.88	34.33	0.45			MUDSTONE	DK.GY.BIOTR.SLD MNR COAL AND CALCT STRGS AT TOP
* 75	34.33	35.89	1.56	04852		MUDSTONE	DK.GY.VTHNB.SLD AS ABOVE, MNR PLANT FRAGS.//SAMPLE CONS ISTS OF 25CM OF ROOF ROCK FOR BELOW COA L SEAM//
79	35.89	35.93	0.04	04852		MUDSTONE	BLK.SLD AS ABOVE, BRIGHT COAL LENSES
79	35.93	36.03	0.10	04853		CLAYSTONE	CARB.BLK.SLD THIN COAL STRGS

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
79	36.03	36.06	0.03	04853	G UPPER	COAL	C-4.BLK.VBRKN
79	36.06	36.08	0.02	04853	G UPPER	COAL	C-4.BLK.BRKN
80	36.08	36.17	0.09	04853	G UPPER	MUDSTONE	DK.GY.SLD CORE BRKN AT TOP. SOFT
* 80	36.17	36.19	0.02	04853	G UPPER	CLAYSTONE	CARB.BLK.SLD THIN BRIGHT COAL BANDS
80	36.19	36.23	0.04	04854	G UPPER	COAL	C-4.BLK.SLD
80	36.23	36.28	0.05	04854	G UPPER	COAL	C-3.BLK.SLD
80	36.28	36.31	0.03	04854	G UPPER	COAL	C-3.BLK.VBRKN
* 80	36.31	36.39	0.08	04854	G UPPER	COAL	C-4.BLK.SLD
80	36.39	36.41	0.02	04854	G UPPER	COAL	C-5.BLK.SLD
80	36.41	36.57	0.16	04854	G UPPER	ROCK LOSS	

\* DENOTES MEASURED BCA



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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
80	36.57	36.59	0.02	04854	G UPPER	MUDSTONE	DK.GY.VBRKN SOFT
80	36.59	36.64	0.05	04855	G UPPER	COAL	C-4.BLK.SLD MNR BRIGHT BANDING
80	36.64	36.70	0.06	04855	G UPPER	COAL	C-3.BLK.SLD
80	36.70	36.73	0.03	04855	G UPPER	MUDSTONE	M.GY.SLD
80	36.73	36.76	0.03	04855	G UPPER	COAL	C-3.BLK.SLD
80	36.76	36.90	0.14	04855	G UPPER	COAL	C-4.BLK.BRKN
80	36.90	37.25	0.35	04855	G UPPER	COAL	C-4.BLK.VBRKN BRIGHT BANDED IN PART
80	37.25	37.40	0.15	04855	G UPPER	COAL	C-4.BLK.VBRKN
80	37.40	37.43	0.03	04855	G UPPER	COAL	C-3.BLK.VBRKN
80	37.43	37.46	0.03	04855	G UPPER	COAL	C-5.BLK.VBRKN

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
80	37.46	37.50	0.04	04855	G UPPER	COAL	C-3.BLK.VBRKN
80	37.50	37.52	0.02	04856	G UPPER	CLAYSTONE	CARB.BLK.SLD
* 80	37.52	37.62	0.10	04856	G UPPER	MUDSTONE	DK.GY.MAS.SLD SOFT
80	37.62	37.73	0.11	04856	G UPPER	CLAYSTONE	CARB.BLK.SLD BRIGHT COAL STGRS
80	37.73	37.83	0.10	04856	G UPPER	COAL	C-4.BLK.SLD
80	37.83	38.04	0.21	04856	G UPPER	CLAYSTONE	CARB.BLK.SLD
81	38.04	38.74	0.70	04857	G UPPER	COAL	C-3.BLK.SLD CORE VBRKN IN MIDDLE
81	38.74	38.75	0.01	04857	G UPPER	MUDSTONE	DK.GY.MAS.SLD
82	38.75	39.13	0.38	04857	G UPPER	COAL	C-3.BLK.SLD
82	39.13	39.15	0.02	04857	G UPPER	CLAYSTONE	CARB.BLK.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
82	39.15	39.18	0.03	04857	G UPPER	COAL	C-4.BLK.SLD
82	39.18	39.20	0.02	04857	G UPPER	COAL	C-6.BLK.SLD
82	39.20	39.37	0.17	04858	G UPPER	CLAYSTONE	CARB.BLK.BRKN
82	39.37	39.44	0.07	04858	G UPPER	CLAYSTONE	CARB.BLK.VBRKN CORE PULVERIZED
82	39.44	39.84	0.40	04858	G UPPER	ROCK LOSS	
83	39.84	39.86	0.02	04859	G UPPER	COAL	C-6.BLK
83	39.86	39.89	0.03	04859	G UPPER	CLAYSTONE	CARB.DK.GY.VBRKN CORE PULVERIZED
83	39.89	39.94	0.05	04859	G UPPER	COAL	C-3.BLK
83	39.94	40.08	0.14	04859	G UPPER	COAL LOSS	
83	40.08	40.30	0.22	04860		ROCK LOSS	
83	40.30	40.34	0.04	04860		MUDSTONE	DK.GY.MAS.BRKN

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
83	40.34	40.44	0.10	04860		CLAYSTONE	CARB.VBRKN
83	40.44	40.48	0.04	04860		MUDSTONE	DK.GY.MAS.SLD
83	40.48	40.54	0.06	04860		COAL	C-4.BLK.VBRKN
84	40.54	40.74	0.20	04860		CLAYSTONE	CARB.BLK.SLD CORE VBRKN AT BASE
84	40.74	40.91	0.17	04860		MUDSTONE	DK.GY.MAS.SLD BRIGHT COAL BAND AT BASE
84	40.91	41.25	0.34	04860		CLAYSTONE	CARB.BLK.SLD
84	41.25	41.28	0.03	04860		COAL	C-6.BLK.SLD
84	41.28	41.32	0.04	04860		CLAYSTONE	CARB.BLK.SLD
84	41.32	41.33	0.01	04860		COAL	C-6.BLK.SLD
84	41.33	41.47	0.14	04860		CLAYSTONE	CARB.BLK.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
84	41.47	41.52	0.05	04860		MUDSTONE	DK.GY.MAS.SLD
85	41.52	41.61	0.09	04860		CLAYSTONE	CARB.BLK.SLD
85	41.61	41.65	0.04	04860		CLAYSTONE	CARB.BLK.BRKN BRIGHT COAL STRGS, CALCT VEINING PARALL ELS BDG
* 85	41.65	42.22	0.57			MUDSTONE	DK.GY.MAS.SLD RARE COAL STRGS
84	42.22	42.25	0.03			CLAYSTONE	CARB.BLK.BRKN ABUNDANT COAL STRGS
84	42.25	42.32	0.07			MUDSTONE	DK.GY.MAS.SLD
84	42.32	42.36	0.04	04861		COAL	C-4.BLK.SLD
84	42.36	42.58	0.22	04861		CLAYSTONE	CARB.BLK.BRKN
83	42.58	42.60	0.02	04861		COAL	C-3.BLK.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
83	42.60	42.65	0.05	04861		CLAYSTONE	CARB.BLK.BRKN
83	42.65	43.10	0.45	04861		ROCK LOSS	
82	43.10	43.16	0.06	04861		CLAYSTONE	CARB.BLK.SLD
82	43.16	43.19	0.03	04861		MUDSTONE	DK.GY.MAS.SLD
82	43.19	43.42	0.23	04861		CLAYSTONE	CARB.BLK.SLD
81	43.42	43.67	0.25	04862	G LOWER	COAL	C-3.BLK.VBRKN
81	43.67	43.71	0.04	04862	G LOWER	COAL LOSS	
81	43.71	43.82	0.11	04863	G LOWER	MUDSTONE	DK.GY.MAS.BRKN
80	43.82	43.85	0.03	04863	G LOWER	CLAYSTONE	CARB.BLK.VBRKN
* 80	43.85	44.16	0.31	04863	G LOWER	MUDSTONE	DK.GY.MAS.SLD
80	44.16	44.26	0.10	04863	G LOWER	CLAYSTONE	CARB.BLK.SLD

\* DENOTES MEASURED BCA

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## GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
79	44.26	44.32	0.06	04864	G LOWER	COAL	C-4.BLK.SLD
79	44.32	44.41	0.09	04864	G LOWER	COAL	C-3.BLK.VBRKN
79	44.41	44.46	0.05	04864	G LOWER	COAL	C-4.BLK.SLD
79	44.46	44.48	0.02	04864	G LOWER	CLAYSTONE	CARB.BLK.BRKN
79	44.48	44.53	0.05	04864	G LOWER	COAL	C-4.BLK.BRKN
79	44.53	44.55	0.02	04864	G LOWER	COAL	C-2.BLK.SLD
78	44.55	45.20	0.65			MUDSTONE	DK.GY.THNB.SLD SLTY INTBS
77	45.20	45.44	0.24			MUDSTONE	DK.GY.THNB.SLD AS ABOVE
* 75	45.44	47.25	1.81			SANDSTONE	MG.WEL.M.GY.THNB.BRKN SLTST INTBS
77	47.25	47.55	0.30			SANDSTONE	MG.WEL.M.GY.THNB.BRKN AS ABOVE

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
77	47.55	47.66	0.11			SANDSTONE	MG.WEL.M.GY.THNB.BRKN AS ABOVE, SUBROUNDED PYR NODULE 1.5CM W IDE FOUND AT BASE
78	47.66	48.75	1.09			SANDSTONE	MG.WEL.M.GY.MAS.BRKN MNR SHALY INTBS AND RIP-UP CLASTS, QTZ VEIN 3CM WIDE IN MIDDLE SECTION
79	48.75	48.97	0.22			SANDSTONE	MG.WEL.M.GY.MAS.SLD AS ABOVE, NO QTZ VEINING
* 80	48.97	50.64	1.67			SANDSTONE	MG.WEL.M.GY.MAS.SLD AS ABOVE, CUT AND FILL INDICATE TOPS UP
78	50.64	50.66	0.02			CLAYSTONE	CARB.BLK.VBRKN
78	50.66	50.93	0.27			SANDSTONE	MG.WEL.M.GY.MAS.SLD AS ABOVE
77	50.93	51.74	0.81			SANDSTONE	FG-.WEL.M.GY.THNB.SLD SHALE INTBS
* 75	51.74	52.40	0.66			SANDSTONE	MG.WEL.GY.MAS.SLD MNR SLTY INTBS AT BASE
75	52.40	52.47	0.07			MUDSTONE	DK.GY.VTHNB.BRKN MNR BRIGHT COAL STRGS

\* DENOTES MEASURED BCA



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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
75	52.47	52.54	0.07			CLAYSTONE	CARB.BLK.SLD BRIGHT COAL STRGS THROUGHOUT
75	52.54	52.62	0.08		F	COAL	C-2.BLK.SLD
75	52.62	52.72	0.10		F	COAL	C-3.BLK.VBRKN
75	52.72	52.79	0.07		F	COAL	C-3.BLK.SLD MNR CALCT VEINLETS
75	52.79	52.83	0.04		F	COAL	C-4.BLK.SLD
75	52.83	52.89	0.06	04724	F	COAL	C-3.BLK.SLD SAMPLED FOR INITIAL ANALYSIS OF UNWEATH ERED COALS
75	52.89	52.94	0.05			CLAYSTONE	CARB.BLK.VBRKN
75	52.94	53.27	0.33			ROCK LOSS	
76	53.27	53.35	0.08			MUDSTONE	DK.GY.SLD MNR LENTICULAR COAL STRGS, LISTRIC SURF ACES

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
76	53.35	53.41	0.06			COAL	C-3.BLK.BRKN
76	53.41	53.47	0.06			COAL LOSS	
76	53.47	54.00	0.53			MUDSTONE	DK.GY.BRKN MNR COAL STRGS
76	54.00	54.74	0.74			MUDSTONE	DK.GY.BRKN AS ABOVE
76	54.74	55.27	0.53			MUDSTONE	DK.GY.BRKN CALCT INFILLING (IRREGULAR)
77	55.27	57.09	1.82			MUDSTONE	DK.GY.SLD AS ABOVE, COAL STRGS IN BASAL SECTION, ///2CM BRIGHT COAL SPLIT SENT FOR PETRO GRAPHIC ANALYSIS, SAMPLE #04851///
77	57.09	57.26	0.17			MUDSTONE	DK.GY.SLD AS ABOVE, MNR COAL STRGS
78	57.26	58.40	1.14			MUDSTONE	M.GY JOINT AT 40 DEGREES
78	58.40	59.52	1.12			MUDSTONE	M.GY AS ABOVE

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
79	59.52	60.04	0.52			SANDSTONE	FG-.WEL.M.GY.THNB.BIOTR SHALE INTBS
79	60.04	61.32	1.28			SANDSTONE	MG-.MOD.LT.GY.MAS.SLD
80	61.32	61.52	0.20			SANDSTONE	MG-.MOD.LT.GY.MAS.SLD AS ABOVE
* 80	61.52	63.32	1.80			SANDSTONE	MG-.MOD.LT.GY.MB.SLD MNR SHALY STRGS, SCM SHALE FRAGS AT BAS E
77	63.32	65.33	2.01			SANDSTONE	MG-.MOD.LT.GY.MB.SLD AS ABOVE, PBLY BANDS IN MIDDLE OF SECTI ON
74	65.33	66.32	0.99			SANDSTONE	MG-.MOD.LT.GY.MB.SLD AS ABOVE, MNR ELONGATE SHALE PBLs IN BA SAL SECTION
73	66.32	67.37	1.05			SANDSTONE	MG-.MOD.LT.GY.MB.SLD AS ABOVE, MNR SHALE PBLs
72	67.37	67.77	0.40			SANDSTONE	MG-.MOD.LT.GY.MB.SLD AS ABOVE

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

BCA	DEPTH FROM	DEPTH INTRVAL TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 70	67.77	69.36	1.59			SANDSTONE	FG-.MOD.LT.GY.THNB.SLD MNR SLTY INTBS, COAL STRGS AND THIN QTZ VEIN IN MIDDLE SECTION
72	69.36	71.51	2.15			SANDSTONE	FG-.MOD.LT.GY.THNB.SLD AS ABOVE, MNR QTZ VEINLETS IN MIDDLE SE CTION
74	71.51	71.91	0.40			SANDSTONE	FG-.MOD.LT.GY.THNB.SLD AS ABOVE, SHALE RIP-UP AT BASE, TOPS UP
74	71.91	72.23	0.32			SANDSTONE	FG.M.GY.THNB.SLD SHALY INTBS
* 75	72.23	73.59	1.36			SANDSTONE	FG.M.GY.THNB.SLD AS ABOVE
75	73.59	75.50	1.91			SANDSTONE	FG.M.GY.THNB.SLD AS ABOVE, MNR CALCT VEINING IN UPPER SE CTION, CORE BRKN IN MIDDLE
75	75.50	75.90	0.40			SANDSTONE	FG.M.GY.THNB.SLD AS ABOVE
75	75.90	77.66	1.76			SANDSTONE	FG-.MOD.LT.GY.THNB.SLD MNR SLTY INTBS

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
75	77.66	78.39	0.73			SANDSTONE	FG-.MOD.LT.GY.THNB.SLD AS ABOVE, MNR QTZ VEINLETS (PARALLEL TO BDG) AT TOP
75	78.39	78.75	0.36			SANDSTONE	FG-.MOD.LT.GY.THNB.BRKN AS ABOVE, COALY STRGS AT BASE
* 75	78.75	79.61	0.86			MUDSTONE	DK.GY.VTHNB.BRKN JOINT AT 15 DEGREES
* 60	79.61	81.07	1.46			MUDSTONE	DK.GY.VTHNB.SLD MNR QTZ VEINING AT BASE, LISTRIC SURFAC ES
65	81.07	81.27	0.20	04865	E UPPER	COAL	C-4.BLK.VBRKN LISTRIC SURFACES
67	81.27	81.63	0.36	04865	E UPPER	COAL	C-4.BLK.VBRKN LISTRIC SURFACES
68	81.63	81.84	0.21	04865	E UPPER	ROCK LOSS	
69	81.84	82.06	0.22	04865	E UPPER	COAL	C-4.BLK.VBRKN LISTRIC SURFACES
* 73	82.06	83.04	0.98			MUDSTONE	DK.GY.VTHNB.SLD CORE BRKN IN MIDDLE AND AT BASE

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
67	83.04	83.51	0.47			SILTSTONE	PR.M.GY.BIOTR.SLD
63	83.51	83.97	0.46			SANDSTONE	FG-.MOD.M.GY.SLD IRREGULAR SHALY INTBS
61	83.97	84.06	0.09			ROCK LOSS	
* 60	84.06	84.14	0.08			BENTONITE	M.GY.SLD SOAPY TEXTURE, CORE BRKN AT TOP, POSSIB LE BENTONITE
62	84.14	85.14	1.00			SANDSTONE	FG-.M.GY.MB.BIOTR.SLD JOINT AT 20 DEGREES, QTZ INFILLED, SLTY IN MIDDLE SECTION, DISSEMINATED PYR LA YER NEAR BASE
* 65	85.14	86.46	1.32			SANDSTONE	MG.WEL.M.GY.THNB.SLD SHALE INTBS THROUGHOUT
63	86.46	86.51	0.05			MUDSTONE	M.GY.MAS.VBRKN LISTRIC SURFACES
62	86.51	87.05	0.54	04866	E LOWER	COAL	C-4.BLK.VBRKN LISTRIC SURFACES
61	87.05	87.21	0.16	04866	E LOWER	COAL	C-3.BLK.VBRKN

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
60	87.21	87.38	0.17	04866	E LOWER	COAL	C-3.BLK.SLD MNR CALCT VEINLETS
* 60	87.38	87.44	0.06	04866	E LOWER	COAL	C-4.BLK.VBRKN
60	87.44	87.49	0.05	04867	E LOWER	CLAYSTONE	CARB.BLK MNR CLYST BANDS
61	87.49	87.50	0.01	04867	E LOWER	COAL	C-1.BLK.VBRKN
61	87.50	87.68	0.18	04867	E LOWER	MUDSTONE	M.GY LISTRIC SURFACES, MNR COAL STRGS
62	87.68	87.72	0.04	04867	E LOWER	ROCK LOSS	
62	87.72	87.79	0.07	04868	E LOWER	COAL LOSS	
63	87.79	87.90	0.11	04868	E LOWER	COAL	C-4.BLK.VBRKN LISTRIC SURFACES, MNR CLY INTBS
63	87.90	87.93	0.03	04868	E LOWER	CLAYSTONE	CARB.BLK
63	87.93	87.99	0.06	04868	E LOWER	COAL	C-3.BLK.BRKN

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
64	87.99	88.09	0.10	04868	E LOWER	MUDSTONE	SLD MNR COAL STRGS
65	88.09	88.22	0.13	04868	E LOWER	ROCK LOSS	
65	88.22	88.31	0.09	04869	E LOWER	COAL	C-4.BLK.BRKN
66	88.31	88.51	0.20	04869	E LOWER	COAL	C-3.BLK.SLD
67	88.51	88.56	0.05	04869	E LOWER	COAL	C-4.BLK.VBRKN
67	88.56	88.67	0.11	04869	E LOWER	CLAYSTONE	CARB.SLD
68	88.67	88.72	0.05	04869	E LOWER	COAL	C-3.BLK.SLD MNR SHALE BANDS
68	88.72	88.74	0.02	04869	E LOWER	MUDSTONE	SLD MNR COAL PARTINGS
68	88.74	88.84	0.10	04869	E LOWER	COAL	C-4.BLK.SLD MNR SHALE PARTING NEAR TOP
69	88.84	88.94	0.10	04869	E LOWER	COAL	C-3.BLK.VBRKN

\* DENOTES MEASURED BCA



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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	70	88.94	89.00	0.06	04869 E LOWER	COAL	C-4.BLK.SLD
*	70	89.00	89.09	0.09		CLAYSTONE	CARB.SLD MNR LENTICULAR CALCT PARALLEL TO SDG
	68	89.09	89.27	0.18		MUDSTONE	M.GY.BRKN LISTRIC SURFACE
*	60	89.27	90.37	1.10		MUDSTONE	M.GY.LAM.WRMBU MNR SLTY INTBS AT BASE, TOPS UP
	62	90.37	91.16	0.79		SANDSTONE	M.GY.THNB.SLD SHALE INTBS, SS RIP-UP AT TOP///////// ///DRILLERS ADDITION ERROR, 93.27M SHOU LD READ AS 90.22M, ALL MARKERS FROM HER E ON SHOULD READ 3.05M LESS///////// ///
	63	91.16	91.29	0.13		SANDSTONE	M.GY.THNB.SLD AS ABOVE, CORE BRKN AT BASE
	63	91.29	91.55	0.26		CLAYSTONE	LT.GY.SLD SOFT AND WAXY
*	65	91.55	93.25	1.70		SANDSTONE	MG.WEL.M.GY.THNB.WRMBU.SLD SLTST INTBS, TOPS UP

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
68	93.25	93.65	0.40			SANDSTONE	MG.WEL.M.GY.THNB.WRMBU.SLD AS ABOVE
* 70	93.65	95.25	1.60			SANDSTONE	MG.WEL.M.GY.THNB.WRMBU.SLD AS ABOVE
68	95.25	96.65	1.40			SANDSTONE	MG.WEL.M.GY.THNB.WRMBU.SLD AS ABOVE, CORE BRKN IN MIDDLE
66	96.65	97.39	0.74			SANDSTONE	FG-.WEL.GY.MB.SLD MNR SHALY BANDS
63	97.39	99.58	2.19			SANDSTONE	FG-.WEL.GY.MB.SLD AS ABOVE, SHARP CONTACT BETWEEN GRAIN SIZES, MNR CALCT VEINING SUBPARALLEL TO BDG
* 60	99.58	101.73	2.15			SANDSTONE	FG-.WEL.GY.MB.WRMBU.SLD AS ABOVE, MORE THIN SHALE INTBS IN BASAL SECTION, MNR CALCT VEINING
* 65	101.73	102.73	1.00			SILTSTONE	M.GY.THNB.SLD SLIGHTLY SANDY INTBS
63	102.73	103.70	0.97			SILTSTONE	M.GY.THNB.SLD AS ABOVE

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
62	103.70	103.85	0.15			SANDSTONE	FG.WEL.LT.GY.MAS.SLD CORE BRKN IN MIDDLE, UPPER GRADATIONAL CONTACT
61	103.85	104.15	0.30			SANDSTONE	FG.WEL.LT.GY.MAS.SLD AS ABOVE
59	104.15	105.75	1.60			SILTSTONE	M.GY.THNB.SLD SLIGHTLY SANDY INTBS
57	105.75	105.95	0.20			SILTSTONE	M.GY.THNB.SLD AS ABOVE
* 55	105.95	107.37	1.42			SILTSTONE	M.GY.THNB.SLD AS ABOVE, IRREGULAR QTZ VEINING THROUGH OUT
* 40	107.37	108.15	0.78			SILTSTONE	M.GY.THNB.SLD AS ABOVE, IRREGULAR QTZ VEINING THROUGH OUT
37	108.15	108.33	0.18			SILTSTONE	M.GY.THNB.SLD AS ABOVE
34	108.33	108.92	0.59			SANDSTONE	FG-.MOD.LT.GY.MAS.SLD
* 31	108.92	109.12	0.20			SANDSTONE	FG-.MOD.LT.GY.MAS.SLD AS ABOVE

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 30	109.12	109.34	0.22			SANDSTONE	FG-.MOD.LT.GY.MAS.SLD AS ABOVE, QTZ VEINED AT BASE
35	109.34	110.19	0.85			SANDSTONE	FG.WEL.M.GY.SLD QTZ VEINED THROUGHOUT, SHALY INTERVALS, CONTACTS HIGHLY CONTORTED, NO BDG APPA RENT
* 44	110.19	111.05	0.86			SANDSTONE	FG.WEL.M.GY.SLD AS ABOVE, SECTION QTZ VEINED AND FRACTU RED, CORE BRKN AT BASE
50	111.05	111.42	0.37			QUARTZ	QTZ VEIN, MNR SHALY BEDS AND BRECCIA, F RACTURE INFILLING, UNKNOWN IF FAULT
* 55	111.42	112.04	0.62			SANDSTONE	FG.WEL.LT.GY.THNB.SLD MNR SLTY INTBS, MNR QTZ VEINING
57	112.04	112.23	0.19			SANDSTONE	FG.WEL.LT.GY.THNB.SLD AS ABOVE
* 60	112.23	113.44	1.21			SANDSTONE	FG-.WEL.LT.GY.THNB.SLD CORE BRKN AT TOP, IRREGULAR QTZ VEINING AT BASE
* 30	113.44	114.26	0.82			SILTSTONE	M.GY.THNB.BRKN SHALY INTBS, MNR QTZ VEINING

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 45	114.26	115.18	0.92			SILTSTONE	M.GY.THNB.BRKN AS ABOVE
59	115.18	116.13	0.95			SANDSTONE	FG.WEL.M.GY.SLD MNR SLTY INTBS, IRREGULAR QTZ VEINING, INDISTINCT BDG
* 70	116.13	116.64	0.51			SANDSTONE	FG.WEL.M.GY.THNB.SLD AS ABOVE
72	116.64	116.88	0.24			SANDSTONE	FG.WEL.LT.GY.MAS.SLD SHELL FRAGS IN MIDDLE, HARD
* 75	116.88	118.02	1.14			SILTSTONE	M.GY.THNB.SLD QTZ VEIN, ATTITUDE 20 DEGREES, 4CM THIC K
72	118.02	118.21	0.19			SILTSTONE	M.GY.THNB.SLD AS ABOVE, SHALY INTBS TOWARDS BASE
72	118.21	118.27	0.06			SILTSTONE	M.GY.THNB.SLD AS ABOVE
* 70	118.27	119.18	0.91			SANDSTONE	FG.WEL.LT.GY.THNB.SLD SHALE INTBS, CORE BRKN AT TOP, MNR IRRE GULAR QTZ VEINING

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
67	119.18	119.48	0.30			SANDSTONE	FG.MOD.LT.GY SHELL FRAGS, HARD, FOSSILS ARE QTZ INFILLED
64	119.48	120.40	0.92			SILTSTONE	M.GY.SLD BDG INDISTINCT
* 60	120.40	120.91	0.51			SANDSTONE	FG.WEL.LT.GY.THNB.SLD GRADATIONAL FROM UPPER SECTION
53	120.91	121.13	0.22			SANDSTONE	FG.WEL.LT.GY.THNB.BRKN CORE VBRKN AT TOP, SHALY TOWARDS TOP
* 45	121.13	121.84	0.71			SANDSTONE	FG.WEL.LT.GY.THNB.VBRKN AS ABOVE, IRREGULAR QTZ VEINING THROUGHOUT
* 30	121.84	122.16	0.32			SANDSTONE	FG.WEL.LT.GY.THNB.SLD SLTY INTBS, QTZ VEINED
* 10	122.16	122.39	0.23			SANDSTONE	FG.WEL.LT.GY.THNB.SLD AS ABOVE
* 30	122.39	123.42	1.03			SANDSTONE	FG.WEL.LT.GY.THNB.SLD SHALY INTBS AT BASE, CORE BRKN AT BASE, IRREGULAR QTZ VEINING THROUGHOUT, LISTRIC SURFACES

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
* 35	123.42	124.12	0.70			SILTSTONE	M.GY.THNB.SLD MNR SANDY INTBS, MNR QTZ VEINING
30	124.12	124.30	0.18			SILTSTONE	M.GY.THNB.SLD AS ABOVE
* 20	124.30	126.00	1.70			SILTSTONE	M.GY.THNB.SLD AS ABOVE, CORE BRKN IN MIDDLE
14	126.00	126.17	0.17			SILTSTONE	M.GY.THNB.SLD AS ABOVE
* 10	126.17	127.37	1.20			SILTSTONE	M.GY.THNB.BRKN MNR FINE GRAINED SS INTBS, MNR EVIDENCE OF FOSSILS
10	127.37	127.47	0.10			SANDSTONE	FG.WEL.M.GY.MAS.SLD FOLD AXIS CUTS PERPENDICULAR TO CORE TH ROUGH CENTER OF UNIT, DISSEMINATED PYR, MNR FOSSILS
* 10	127.47	127.63	0.16			SILTSTONE	M.GY.THNB.SLD SHALY INTBS, QTZ VEINS
* 16	127.63	127.93	0.30			SILTSTONE	M.GY.THNB.SLD AS ABOVE

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 35	127.93	129.06	1.13			SILTSTONE	M.GY.THNB.SLD AS ABOVE. 3CM QTZ VEIN IN MIDDLE CUTS B DG
* 30	129.06	129.95	0.89			SILTSTONE	M.GY.THNB.SLD AS ABOVE. CORE BRKN AT TOP
* 20	129.95	130.88	0.93			SILTSTONE	M.GY.THNB.SLD AS ABOVE
* 31	130.88	131.71	0.83			SILTSTONE	M.GY.THNB.BRKN AS ABOVE. CORE VBRKN IN BASAL HALF
* 38	131.71	132.14	0.43			SILTSTONE	M.GY.THNB.BRKN AS ABOVE
* 45	132.14	132.80	0.66			SILTSTONE	M.GY.THNB.SLD AS ABOVE. CORE BRKN AT TOP
* 50	132.80	133.65	0.85			SILTSTONE	M.GY.THNB.SLD AS ABOVE
52	133.65	133.75	0.10			SILTSTONE	M.GY.THNB.SLD AS ABOVE
* 55	133.75	135.20	1.45			SANDSTONE	FG.VWEL.M.GY.THNB.SLD MNR SLTY INTBS, DISSEMINATED PYR IN PAR T

\* DENOTES MEASURED BCA



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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
* 60	135.20	135.61	0.41			SANDSTONE	M.GY.THNB.SLD SHALY INTBS, FOSSIL FRAGS
62	135.61	135.81	0.20			QUARTZ	VFG.BF.SLD POSSIBLE MNR FAULTING ZONE
* 70	135.81	137.68	1.87			SILTSTONE	WEL.M.GY.THNB.SLD
72	137.68	138.09	0.41			SILTSTONE	M.GY.THNB.SLD MNR SHELL FRAGS
73	138.09	138.29	0.20			SILTSTONE	M.GY.THNB.SLD AS ABOVE
73	138.29	138.32	0.03			MUDSTONE	M.GY.VBRKN SOFT
73	138.32	138.38	0.06			MUDSTONE	DK.GY.SLD QTZ VEINLETS COMMONLY CONTAINING PYR SU B PARALLEL TO BDG, MUDST COMMONLY PYRIT IZED
73	138.38	138.46	0.08	04870	D	COAL LOSS	
74	138.46	138.59	0.13	04870	D	COAL	C-4.BLK.VBRKN LISTRIC SURFACES

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
74	138.59	138.71	0.12	04870	D	COAL	C-4.BLK.BRKN
74	138.71	138.76	0.05	04870	D	COAL	C-2.BLK.SLD
74	138.76	138.83	0.07	04870	D	COAL	C-4.BLK.BRKN
74	138.83	138.88	0.05	04870	D	COAL	C-4.BLK.SLD IRREGULAR QTZ VEINING
74	138.88	138.92	0.04	04870	D	COAL	C-4.BLK.VBRKN
* 75	138.92	139.64	0.72			MUDSTONE	DK.GY.VTHNB.SLD SUBPARALLEL QTZ VEINLETS
* 60	139.64	141.24	1.60			MUDSTONE	BLK.SLD MNR LT GY SLTY INTBS, MNR QTZ VEINING
62	141.24	141.72	0.48			MUDSTONE	BLK.SLD AS ABOVE
63	141.72	141.93	0.21			MUDSTONE	BLK.SLD AS ABOVE
65	141.93	143.13	1.20			SANDSTONE	FG-M.GY.MAS.BIOTR.SLD MORE SLTY AT BASE

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
67	143.13	143.69	0.56			SILTSTONE	DK.GY.SLD MNR LT GY INTBS, MNR PYR
68	143.69	144.21	0.52			MUDSTONE	BLK.SLD MNR SHELL FRAGS THROUGHOUT
69	144.21	144.38	0.17			MUDSTONE	BLK.SLD AS ABOVE
69	144.38	144.56	0.18			BENTONITE	LT.GY.BRKN SOAPY TEXTURE
69	144.56	144.67	0.11			MUDSTONE	BLK.SLD SHELL FRAGS THROUGHOUT, DISSEMINATED PY R AT BASE
69	144.67	144.70	0.03			SILTSTONE	MOD.LT.GY.SLD
70	144.70	144.77	0.07			CLAYSTONE	CARB.DK.GY.SLD QTZ VEIN, MNR BRIGHT COAL BANDS
70	144.77	144.85	0.08			COAL	C-3.BLK.VBRKN MNR CLYST INTBS
71	144.85	145.82	0.97			MUDSTONE	M.GY.VTHNB.SLD QTZ VEINED AT TOP, MNR COAL STRGS AT TO P. CORE BRKN IN MIDDLE

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
73	145.82	147.05	1.23			SILTSTONE	M.GY.BIOTR.SLD IRREGULAR SHALY INTBS, WRMBURS INDICATE TOP UP
* 75	147.05	147.37	0.32			SANDSTONE	MG.WEL.M.GY.BRKN
75	147.37	147.70	0.33			SANDSTONE	MG.WEL.M.GY.BRKN AS ABOVE, MINUTE SHELL FRAGS DEFINE THI N LT GY INTBS
75	147.70	148.03	0.33			SANDSTONE	MG.WEL.M.GY.BRKN AS ABOVE
74	148.03	148.40	0.37			SANDSTONE	MG-.MOD.M.GY.MB.SLD MNR SHALY INTBS
74	148.40	148.96	0.56			MUDSTONE	DK.GY.VTHNB.BIOTR.SLD SANDY INTBS
73	148.96	149.85	0.89			SANDSTONE	MG.WEL FINING SLIGHTLY TO BASE, MNR SLTY PARTI NGS, MNR QTZ VEINLETS PARALLEL TO BDG
73	149.85	150.44	0.59			SANDSTONE	FG-.MOD.LT.GY.THNB.SLD MNR QTZ RIDDLED COAL NODULE, MNR QTZ VE INING PARALLEL TO BDG

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
73	150.44	150.48	0.04			SANDSTONE	FG-.MOD.LT.GY.THNB.SLD AS ABOVE
72	150.48	151.76	1.28			SANDSTONE	FG-.MOD.LT.GY.MB.SLD COARSE GRAINED BEDS UP TO 6CM WIDE INTE RSPERSED THROUGH SECTION
72	151.76	151.91	0.15			SANDSTONE	FG-.MOD.LT.GY.MAS.SLD COARSENING TOWARDS BASE
71	151.91	153.60	1.69			SANDSTONE	FG-.MOD.LT.GY.MAS.SLD AS ABOVE, MNR SHALE CLASTS, MNR QTZ VEI NING, CORE BRKN IN MIDDLE
70	153.60	154.05	0.45			SANDSTONE	FG-.MOD.LT.GY.MAS.SLD AS ABOVE
70	154.05	154.24	0.19			SANDSTONE	FG-.MOD.LT.GY.MAS.SLD AS ABOVE
* 70	154.24	154.70	0.46			SILTSTONE	WEL.M.GY.THNB.SLD SHALY INTBS, CUT AND FILL INDICATE TOPS UP, QTZ VEINLETS AT TOP PARALLEL TO BD G
70	154.70	155.68	0.98			SANDSTONE	FG.WEL.LT.GY.MAS.SLD MINUTE QTZ VEINING IN DISTINCT LAYERS

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
70	155.68	156.13	0.45			SILTSTONE	WEL.M.GY.THNB.SLD SHALY INTBS
70	156.13	156.68	0.55			SILTSTONE	WEL.M.GY.THNB.SLD AS ABOVE
70	156.68	157.41	0.73			SILTSTONE	WEL.M.GY.THNB.SLD AS ABOVE, JOINT AT 15 DEGREES, QTZ INFILLED
* 70	157.41	158.11	0.70			MUDSTONE	LT.GY.VTHNB.SLD MNR SLTY INTBS
71	158.11	158.83	0.72			MUDSTONE	LT.GY.VTHNB.SLD AS ABOVE, QTZ VEIN ALONG JOINT AT BASE RESULTING IN BRKN CORE
72	158.83	159.90	1.07			MUDSTONE	LT.GY.VTHNB.SLD AS ABOVE
73	159.90	160.29	0.39			MUDSTONE	LT.GY.VTHNB.SLD AS ABOVE, RARE SLTY INTBS, CORE BRKN AT TOP
75	160.29	162.51	2.22			MUDSTONE	LT.GY.VTHNB.SLD AS ABOVE, 3CM QTZ VEIN NEAR BASE
77	162.51	164.66	2.15			MUDSTONE	LT.GY.VTHNB.SLD AS ABOVE, CORE BRKN AT TOP AND MIDDLE

\* DENOTES MEASURED BCA

82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 36

PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
79	164.66	165.20	0.54			MUDSTONE	LT.GY.VTHNB.SLD AS ABOVE
* 80	165.20	165.97	0.77			MUDSTONE	LT.GY.VTHNB.SLD AS ABOVE, CORE BRKN IN TOP HALF, MNR SL TY INTBS TOWARDS BASE
78	165.97	166.00	0.03	04871	C	COAL	C-4.BLK.SLD QTZ VEINED
77	166.00	166.30	0.30	04871	C	COAL	C-3.BLK.BRKN
76	166.30	166.37	0.07	04871	C	COAL	C-4.BLK.SLD BDG FOLDED FROM HORIZONTAL TO NEAR VERT ICAL
76	166.37	166.45	0.08	04871	C	COAL	C-4.BLK.VBRKN ROCK BANDS PRESENT, POSSIBLE CORE LOSS
75	166.45	166.66	0.21	04871	C	COAL	C-3.BLK.SLD GOOD CLEAVAGE
74	166.66	166.77	0.11			CLAYSTONE	CARB.BLK.SLD QTZ STRGS PARALLEL TO BDG
74	166.77	166.83	0.06			CLAYSTONE	CARB.VBRKN MNR PYR

\* DENOTES MEASURED BCA

82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 37

PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 70	166.83	168.13	1.30			SILTSTONE	M.GY.THNB.SLD MNR SHELL FRAGS TOWARDS BASE
71	168.13	168.26	0.13			SILTSTONE	M.GY.THNB.SLD AS ABOVE, CORE BRKN AT TOP, PLANT FOSSILS
72	168.26	170.40	2.14			SILTSTONE	M.GY.THNB.SLD MNR SHALY INTBS, MNR SHELL FRAGS IN MIDDLE SECTION
74	170.40	171.29	0.89			SILTSTONE	M.GY.THNB.SLD AS ABOVE
* 75	171.29	172.24	0.95			SANDSTONE	FG.WEL.M.GY.THNB.SLD SHALE INTBS, GRADATIONAL FROM UPPER SECTION, SHALE BEDS UP TO 4CM THICK AT BASE
75	172.24	172.46	0.22			SANDSTONE	FG.WEL.M.GY.THNB.BIOTR.SLD RIP-UPS, TOP INDEFINITE
75	172.46	173.21	0.75			SANDSTONE	FG.WEL.M.GY.THNB.SLD AS ABOVE
75	173.21	173.43	0.22			SANDSTONE	FG.WEL.M.GY.THNB.SLD AS ABOVE

\* DENOTES MEASURED BCA



82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 38

PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82002

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
75	173.43	174.57	1.14			MUDSTONE	M.GY.VTHNB.SLD MNR SLTY INTBS AT TOP, GRADATIONAL INTO UPPER UNIT, MNR SLTY CLASTS
75	174.57	175.45	0.88			MUDSTONE	M.GY.VTHNB.SLD AS ABOVE
75	175.45	175.93	0.48			MUDSTONE	BLK.MAS.SLD
75	175.93	177.48	1.55			MUDSTONE	BLK.MAS.SLD AS ABOVE, ROTATED CORE AT BASE
75	177.48	178.96	1.48			MUDSTONE	BLK.MAS.SLD AS ABOVE, PYR NODULES IN MIDDLE///////// ///TD IS ACTUALLY 178.92M BUT DRILLERS MARKER READ 181.97 DUE TO THEIR ADDITIO N ERROR AT 90.22M//////////

\* DENOTES MEASURED BCA

CENTURY GEOPHYSICAL CORPORATION

GR-MT. KLAPPAN 82/3A

\*\*\*\*\* VERTICAL DEVIATION \*\*\*\*\*

110

COMPU-LOG V8L1 DEVIATION

CLIENT : GULF CANADA RES. INC

HOLE ID : DDH-82-002

LOCATION : KLAPPAN MTN.

DATE OF LOG : 08-09-82

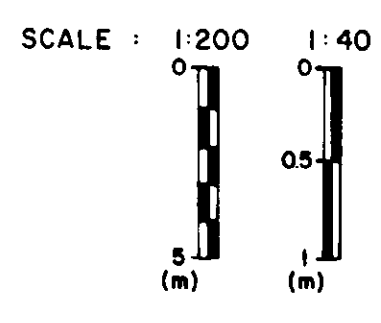
DATA FROM : V8L2\*A

PROBE : 9055A 0065

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

DEPTH	TRUE DEPTH	NORTH DEV	EAST DEV	DISTANCE	AZIMUTH	SA	SAB
00	00	00	00	00	0	0	0
5.00	4.99	.02	-.02	.04	317.7	.4	317.6
10.00	9.99	.05	-.04	.07	321.0	.4	324.7
15.00	14.99	.08	-.04	.09	334.4	.3	11.5
20.00	19.99	.12	-.03	.12	344.0	.3	13.2
25.00	24.99	.14	-.03	.15	346.7	.3	358.8
30.00	29.99	.16	-.04	.17	344.8	.2	328.9
35.00	34.99	.16	-.05	.17	342.1	.0	252.3
40.00	39.99	.16	-.06	.17	339.4	.0	269.5
45.00	44.99	.16	-.06	.17	338.0	.0	284.3
50.00	49.99	.16	-.06	.17	338.3	.0	351.9
55.00	54.99	.16	-.06	.17	339.5	.0	96.3
60.00	59.99	.16	-.05	.17	342.4	.1	71.8
65.00	64.99	.17	-.04	.18	345.9	.1	52.1
70.00	69.99	.18	-.02	.19	351.1	.2	48.1
75.00	74.99	.20	-.01	.20	356.9	.2	45.4
80.00	79.99	.23	.00	.23	1.7	.3	36.0
85.00	84.99	.26	.02	.26	5.7	.4	31.0
90.00	89.99	.30	.04	.30	8.4	.4	26.5
95.00	94.99	.33	.05	.34	10.0	.4	22.8
100.00	99.99	.38	.07	.39	11.6	.5	21.9
105.00	104.99	.44	.10	.45	13.0	.7	21.8
110.00	109.99	.50	.12	.51	13.8	.6	19.5
115.00	114.99	.55	.12	.56	12.7	.5	1.6
120.00	119.99	.60	.12	.61	11.8	.6	2.0
125.00	124.99	.66	.12	.68	10.8	.7	.9
130.00	129.99	.73	.12	.74	9.8	.7	359.2
135.00	134.99	.84	.14	.85	9.5	1.2	8.0
140.00	139.96	1.00	.05	1.00	3.4	2.0	332.4
D 144.00	143.96	1.07	.06	1.07	3.2	1.0	1.1

**MOUNT KLAPPAN  
DRILL HOLE LOG  
DDH 82-002**



NORTHING: 6345134 N    INCLINATION: 90°  
EASTING: 515445 E    BEARING: -

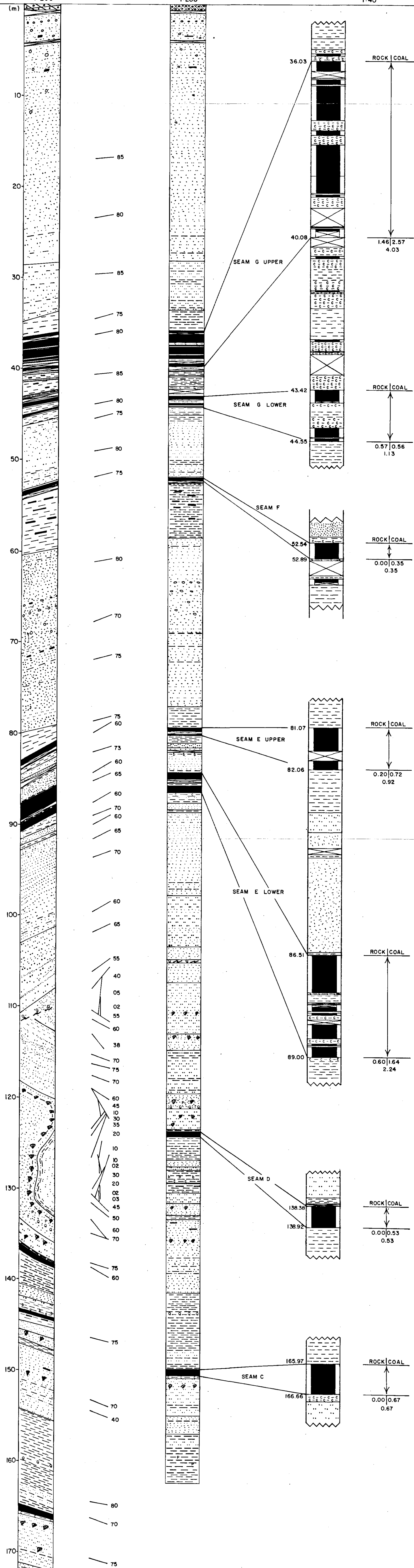
**LITHOLOGIC SYMBOLS**

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

**APPARENT THICKNESS  
1:200**

**TRUE THICKNESS  
1:200**

**SEAM DETAIL  
1:40**

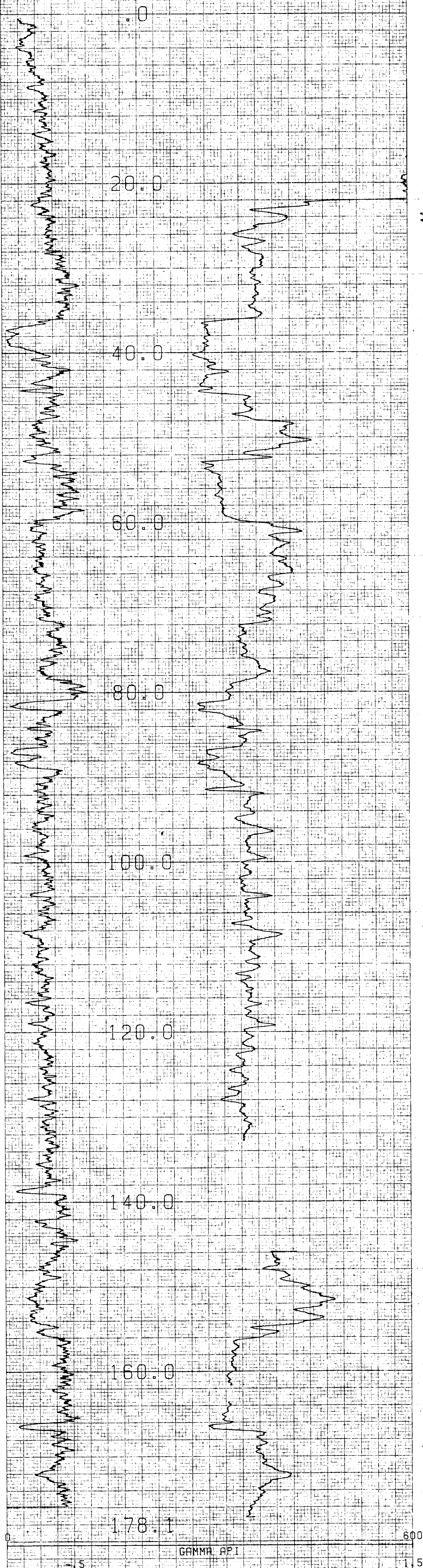


Total: 178.96m

GR-111 Klappan 82(3)A

110

COMPU-LOG V8L2 PLOT 08-09-82  
 DDH-82-002  
 GULF CANADA RES. INC  
 KLAPPAN MTN.  
 HOLE DIAMETER = 09.6  
 PROBE # 9055A - 065  
 SENSOR #4 CAL STD CPS = 152  
 SENSOR #4 CAL RUN CPS = 272  
 SENSOR #4 CAL BIAS = 0  
 DATA V8L2WA TRUCK # P823  
 K. SKARBO APPL. #2030L1



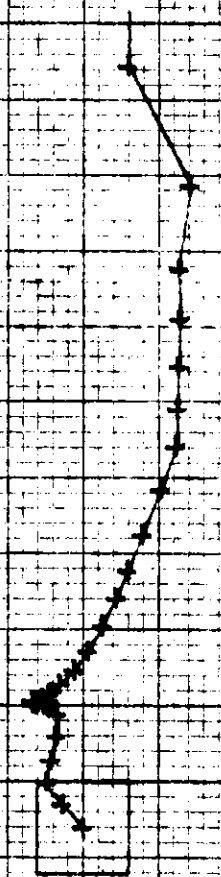
# VERTICAL DEVIATION

# 110

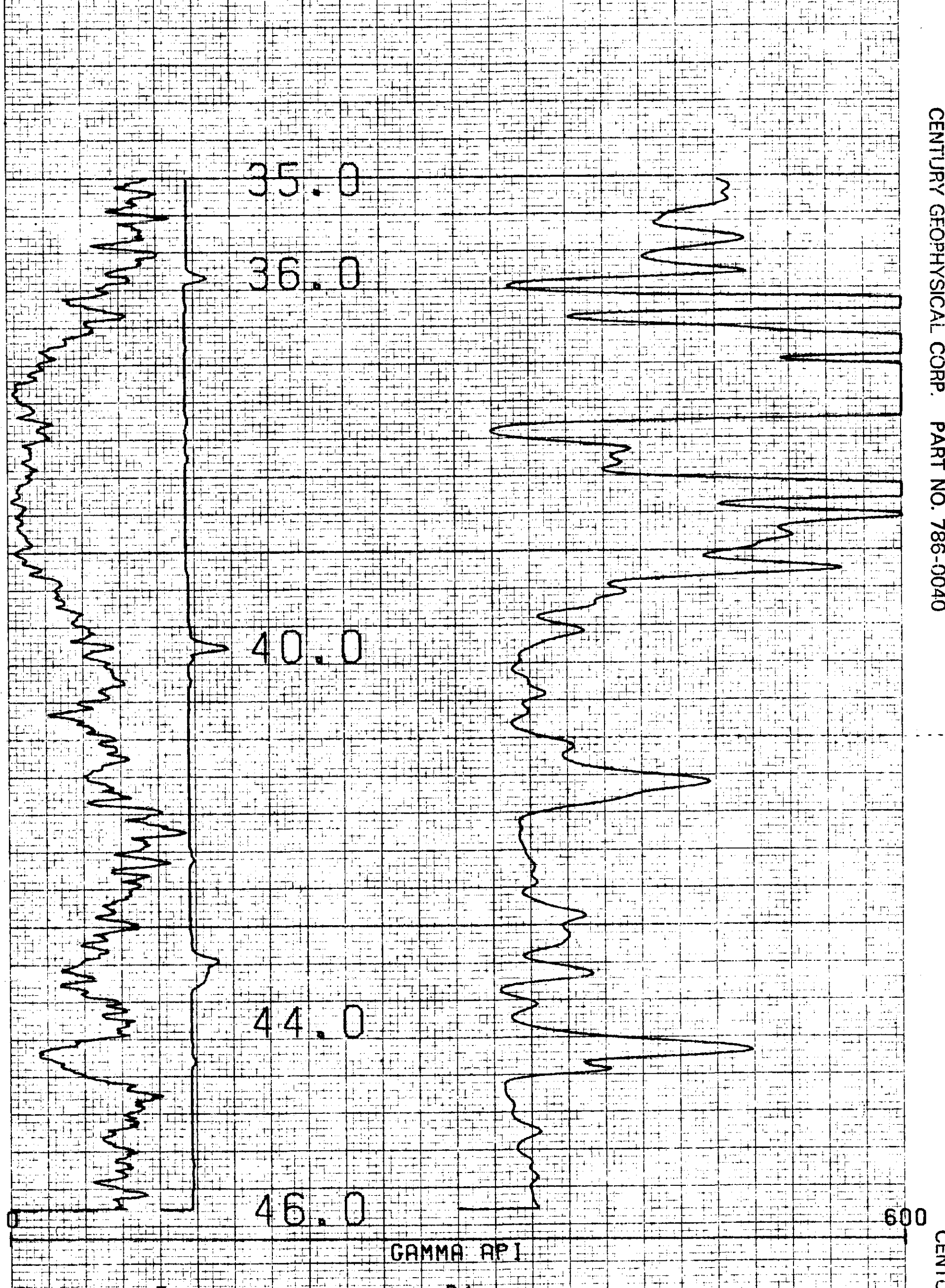
COMPU-LOG VBLV DEVIATION  
DATA FROM : VBL2WA

CLIENT : GULF CANADA RES. INC  
LOCATION : KLAPPAN MIN.  
HOLE ID : DDH-82-002  
DATE OF LOG : 08-09-82  
PROBE : 9055A 0065

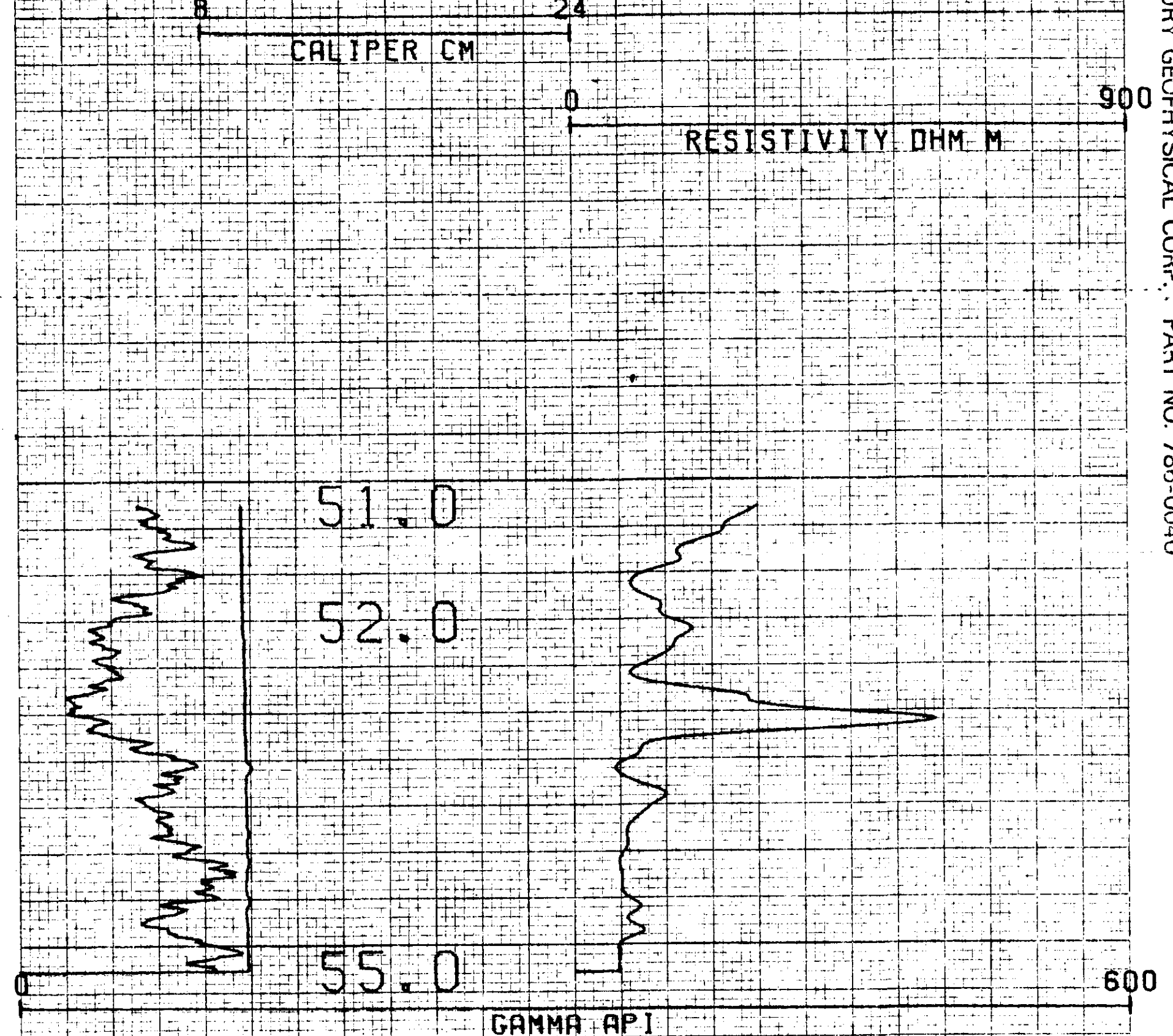
SCALE: 1.10 M/DIV	+ = 5.0 M INCR
MAG DECL: 29.5	Δ = TOP OF ZONE
TRUE DEPTH: 144.0 M	◇ = BOTTOM OF ZONE
AZIMUTH: 3.2	
DISTANCE: 1.07 M	TRUE NORTH ↑



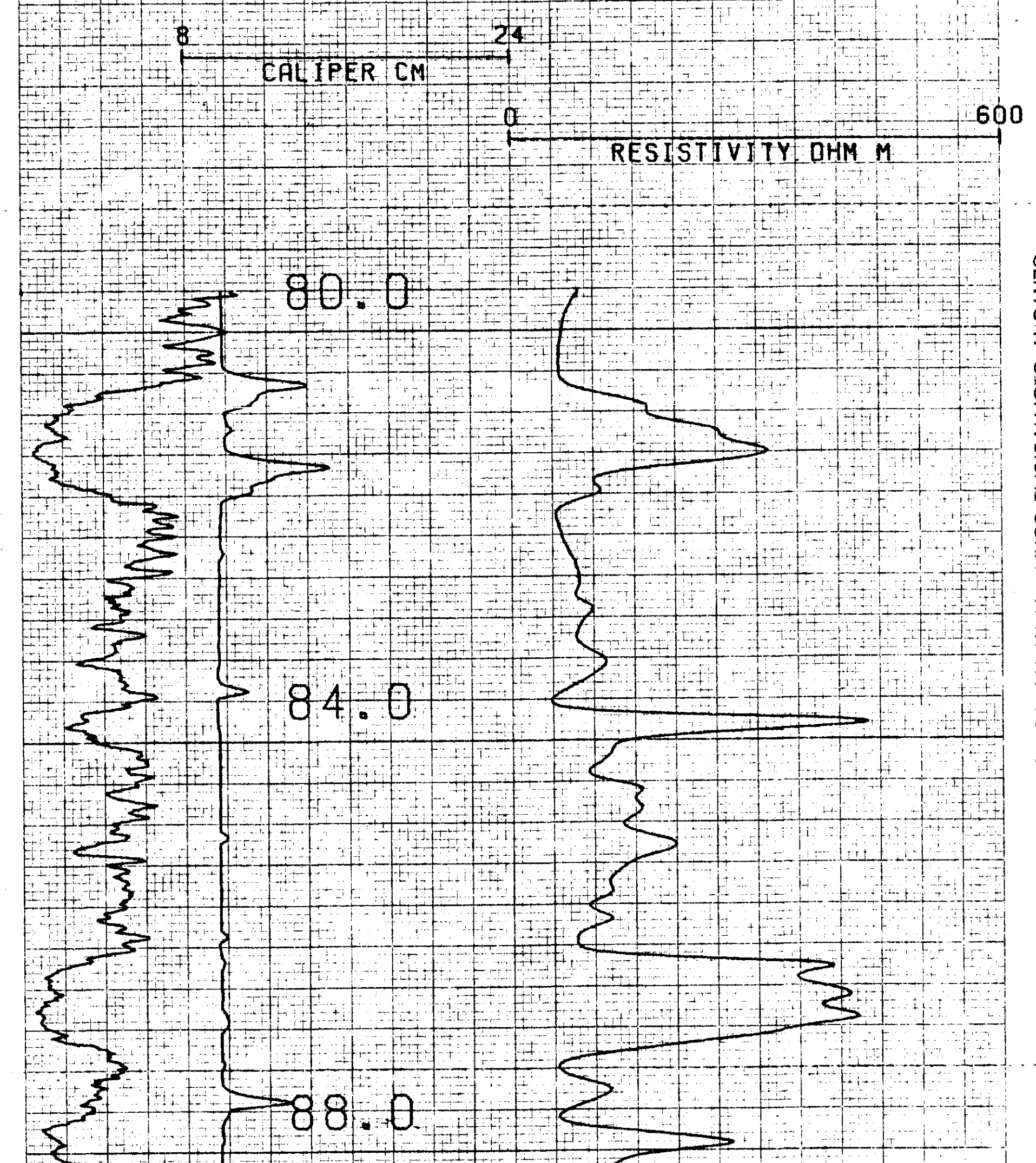
191



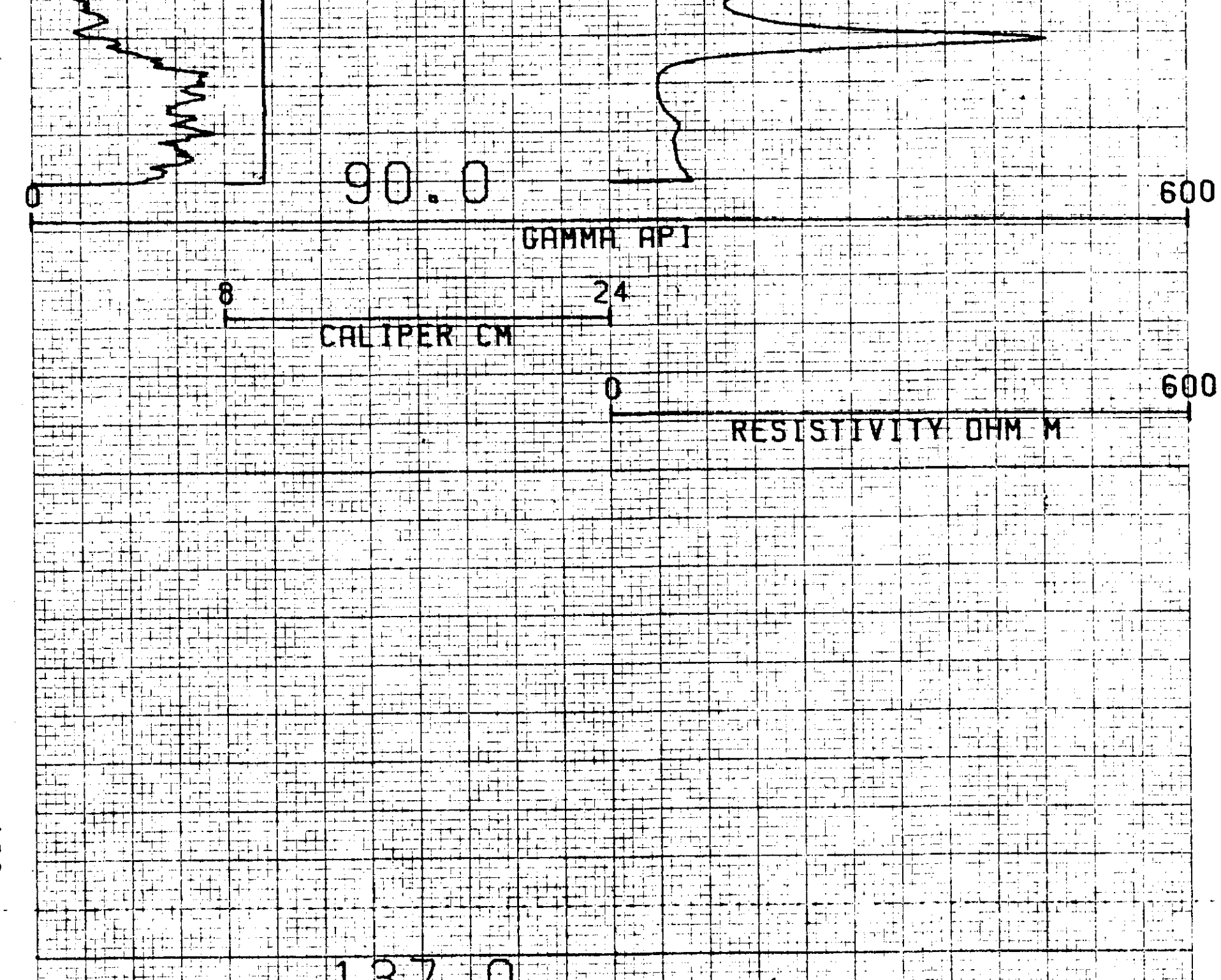
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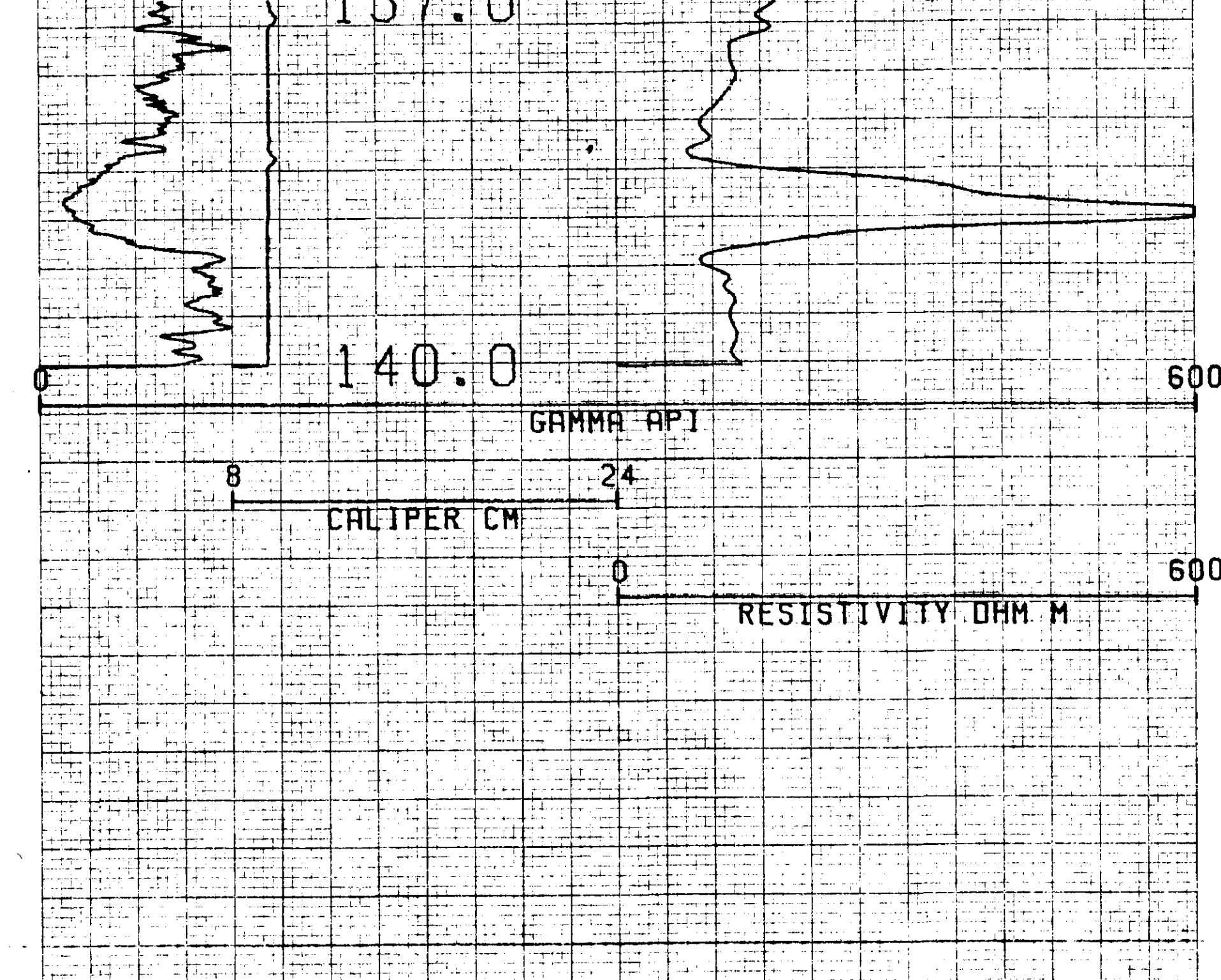
190



189



188



COMPU-LOG V8L2 PLOT 08-09-82

DDH-82-002  
GULF CANADA RES. INC  
KLAPPAN MTN.

WOLE DIAMETER : 09.6  
PROBE # 9030A - 456  
SENSOR #4 CAL STD CFS = 6588  
SENSOR #4 CAL RUN CFS = 6043  
SENSOR #4 CAL BIAS = 14  
DATA V8L2WA TRUCK # P823  
K. SKARBO APPL. #152-L1

187

CENTURY GEOPHYSICAL CORPORATION

110

\*\*\*\*\* VERTICAL DEVIATION \*\*\*\*\*

COMPU-LOG VSLI DEVIATION

CLIENT : GULF CANADA RES. INC

HOLE ID : DDH-82-004

LOCATION : KLAPPAN MTN.

DATE OF LOG : 08-19-82

DATA FROM : VSL2\*A

PROBE : 9055A 0011

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

DEPTH	TRUE DEPTH	NORTH DEV	EAST DEV	DISTANCE	AZIMUTH	SA	SAB
.00	.00	.00	.00	.00	0	0	0
2.00	1.75	.36	.98	.95	67.7	28.4	67.6
4.00	3.51	.72	1.76	1.90	67.7	28.4	67.6
6.00	5.27	1.08	2.64	2.85	67.7	28.4	67.6
8.00	7.03	1.44	3.52	3.81	67.7	28.4	67.6
10.00	8.79	1.81	4.40	4.76	67.7	28.4	67.6
12.00	10.54	2.17	5.29	5.71	67.7	28.4	67.6
14.00	12.30	2.53	6.17	6.67	67.7	28.4	67.6
16.00	14.06	2.89	7.05	7.62	67.7	28.4	67.6
18.00	15.82	3.25	7.93	8.57	67.7	28.4	67.6
20.00	17.58	3.62	8.81	9.53	67.7	28.4	67.6
22.00	19.34	3.98	9.69	10.48	67.7	28.4	67.6
24.00	21.09	4.33	10.59	11.44	67.8	28.7	68.7
26.00	22.84	4.72	11.46	12.40	67.6	28.7	65.6
28.00	24.58	5.24	12.28	13.35	66.9	29.0	57.7
30.00	26.33	5.49	13.22	14.32	67.5	29.1	75.2
32.00	28.07	5.66	14.18	15.27	68.8	29.2	79.5
34.00	29.82	5.84	15.13	16.22	68.9	28.7	79.6
TD 35.90	31.49	6.09	16.01	17.13	69.1	28.8	73.5

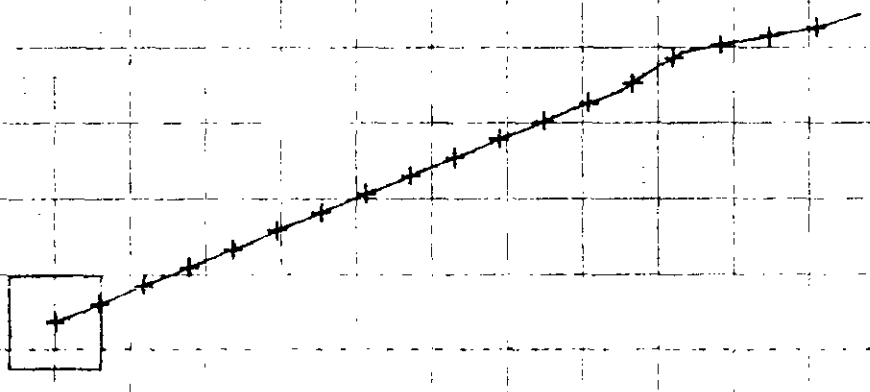
110

# VERTICAL DEVIATION

COMPU-LOG V8L1 DEVIATION  
DATA FROM : V8L2\*A

CLIENT : GULF CANADA RES. INC  
LOCATION : KLAPPAN MTN.  
HOLE ID : DDH-82-004  
DATE OF LOG : 08-19-82  
PROBE : 9055A 0011

SCALE: 1.50 M/DIV	+ = 2.0 M INCR
MAG DECL: 29.5	Δ = TOP OF ZONE
TRUE DEPTH: 31.5 M	◇ = BOTTOM OF ZONE
AZIMUTH: 69.1	
DISTANCE: 17.13 M	TRUE NORTH ↑



CENTURY GEOPHYSICAL CORP. PART NO. 788-0040

TAPE # 5 TRACK # 1 ENDS BELOW CASING

3-0040

PR. M. Klappan 82/01A

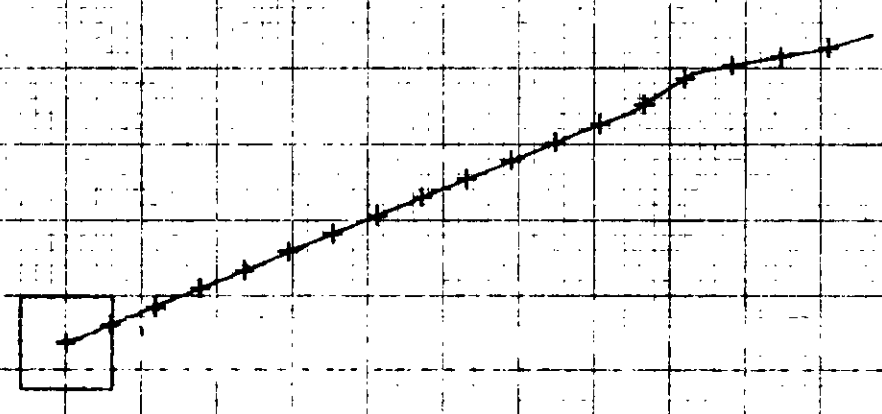


# VERTICAL DEVIATION

COMPU-LOG V8L1 DEVIATION  
DATA FROM : V8L2\*A

CLIENT : GULF CANADA RES. INC  
LOCATION : KLAPPAN MTN.  
HOLE ID : DDH-82-004  
DATE OF LOG : 08-19-82  
PROBE : 9055A 0011

SCALE: 1.50 M/DIV                                 + = 2.0 M INCR  
MAG DECL:    29.5                                 Δ = TOP OF ZONE  
TRUE DEPTH:   31.5 M                             ◇ = BOTTOM OF ZONE  
AZIMUTH:     69.1  
DISTANCE:     17.13 M                           TRUE NORTH ▲



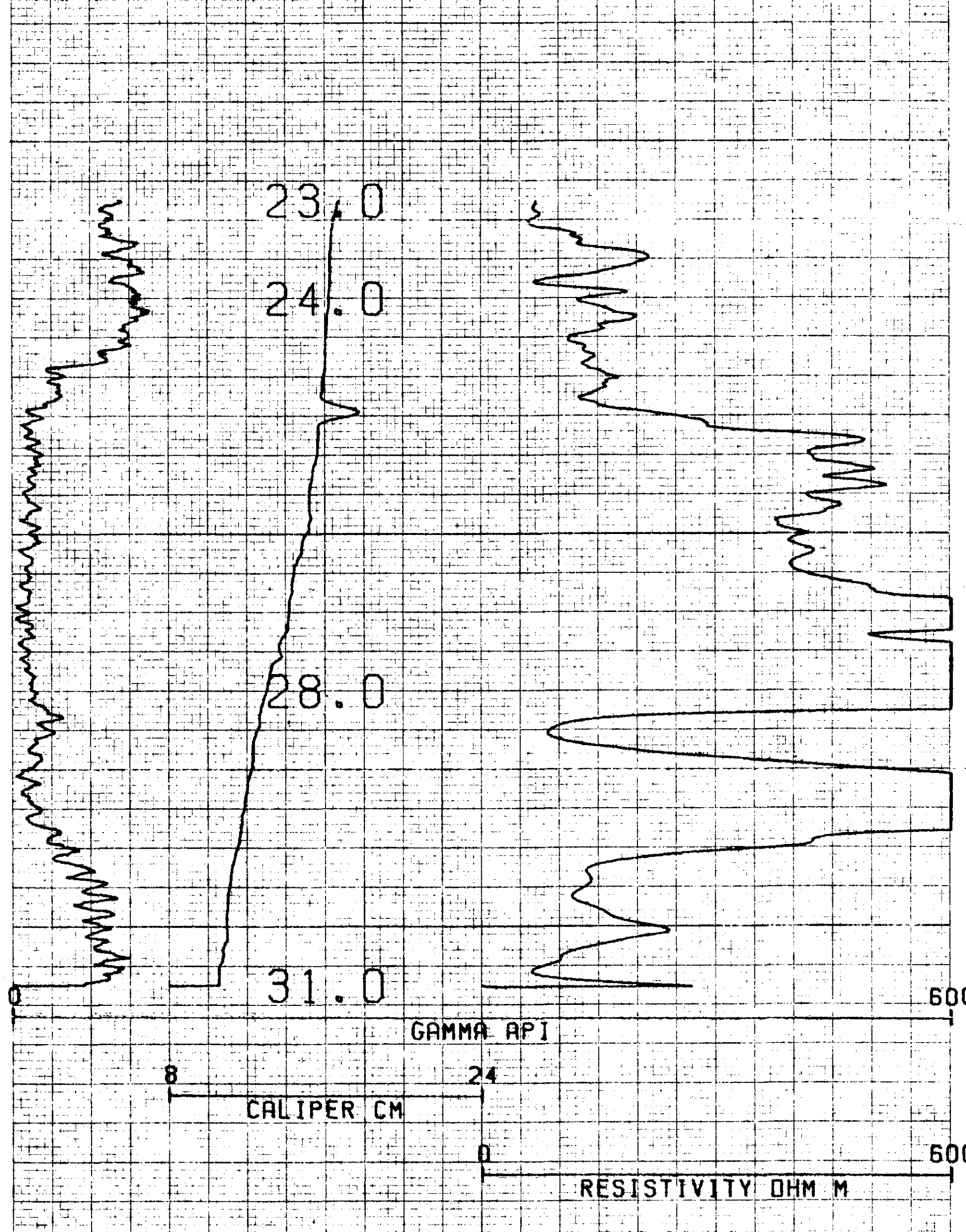
**110**

PR: 11 Klappan 82 (37) B

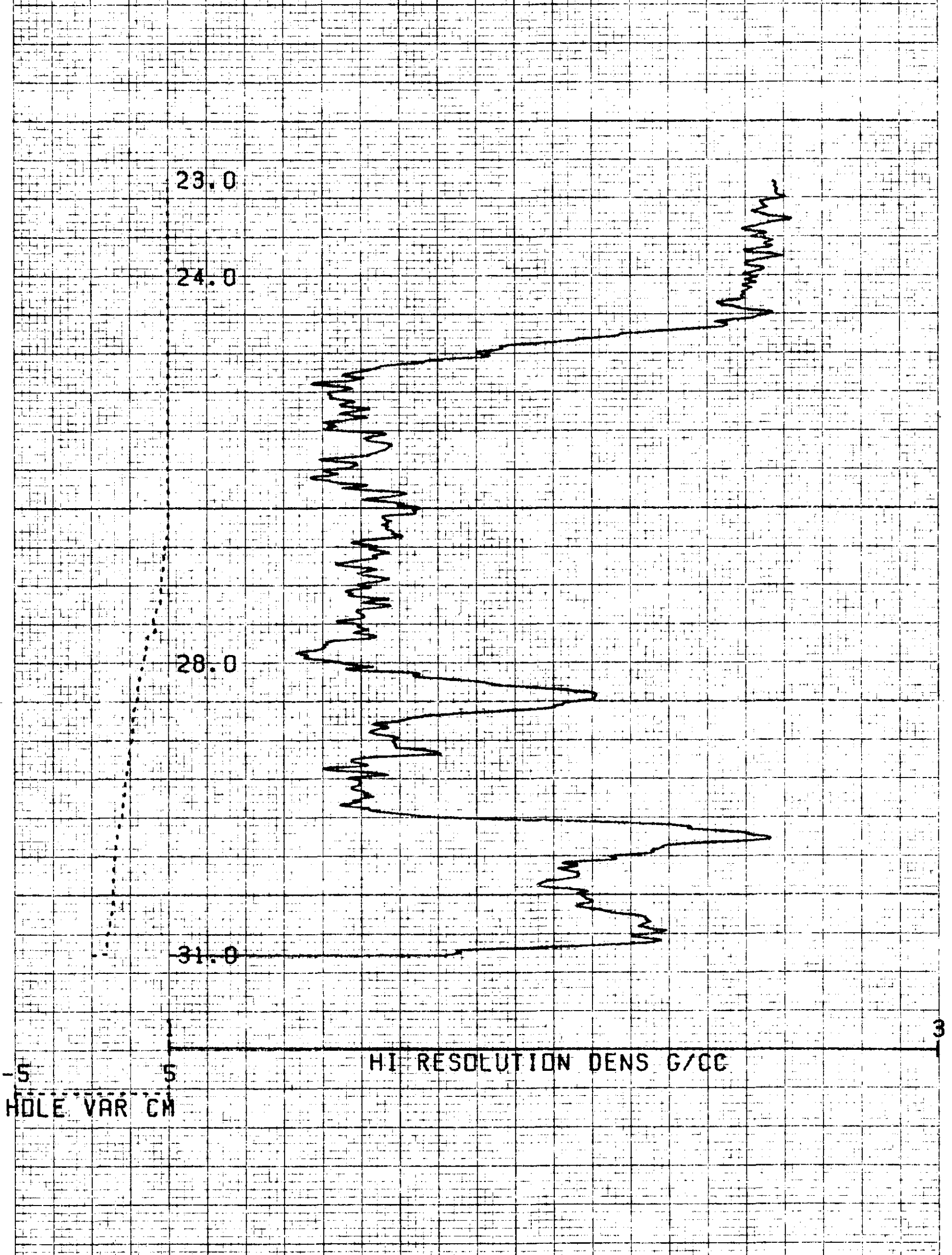
CENTURY GEOPHYSICAL CORP. PART NO. 786-0040

*TAPE # 5 TRACK # 1 ENDING BEING CORRECT*

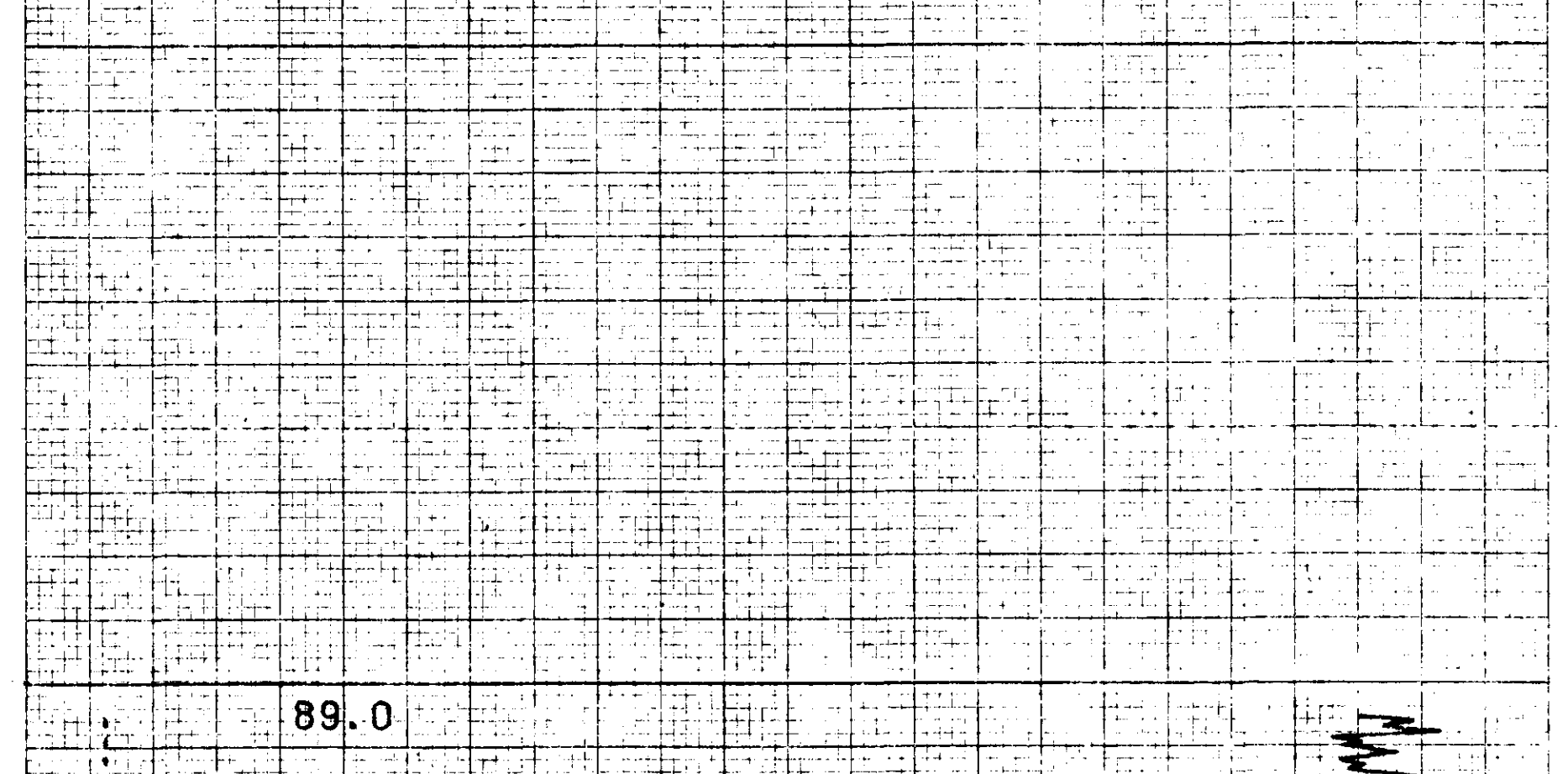
5-0040



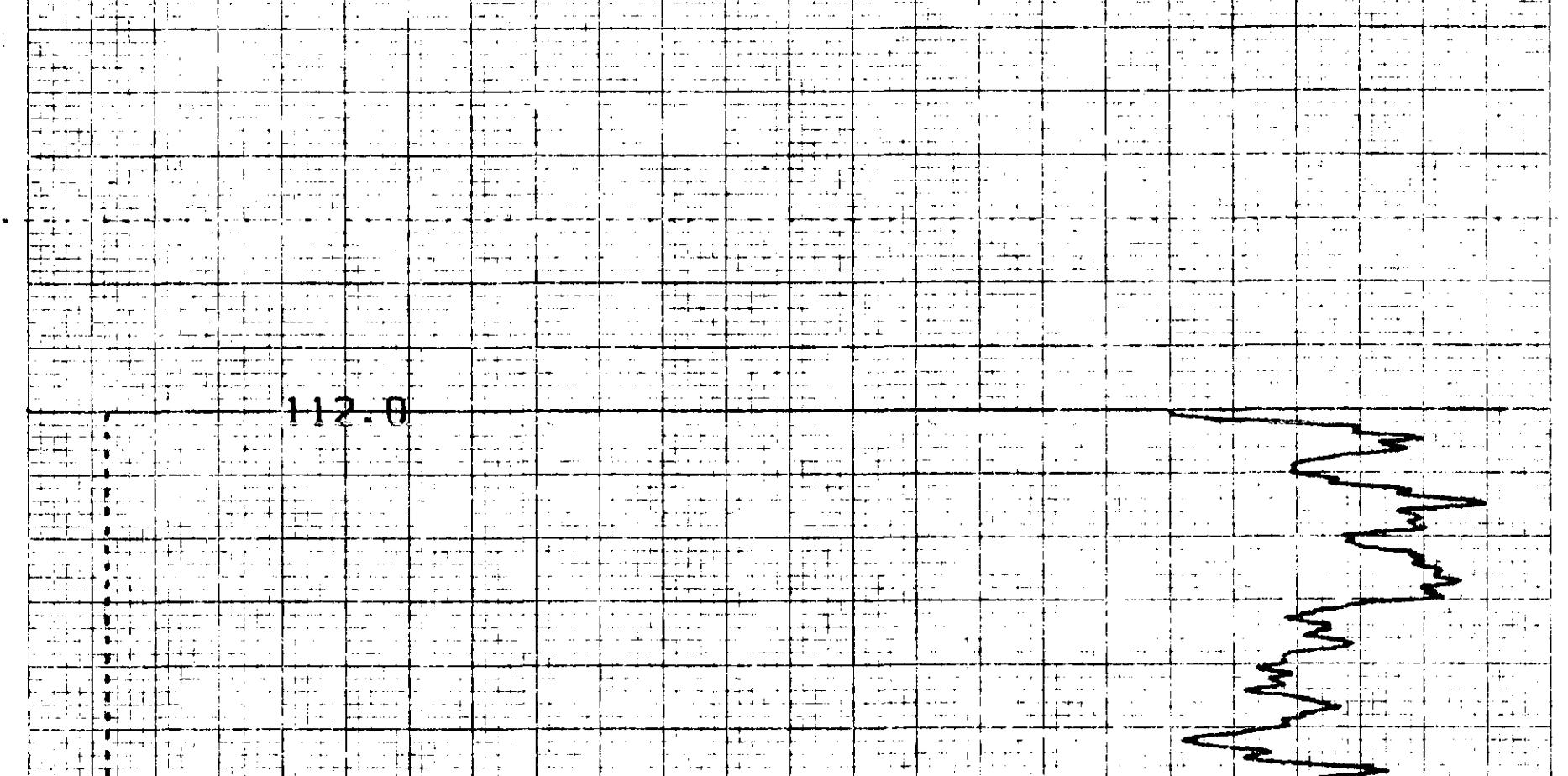
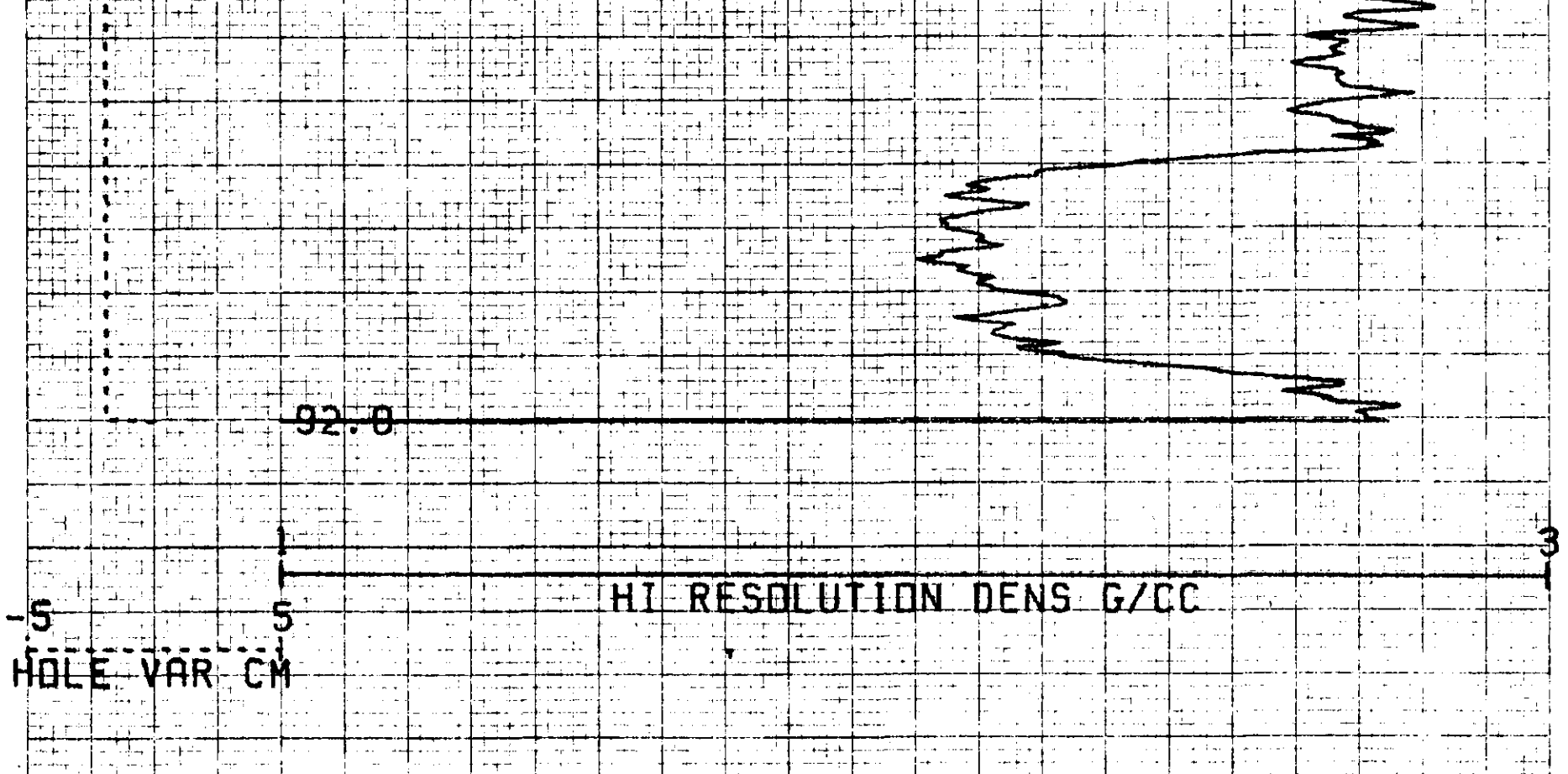
185



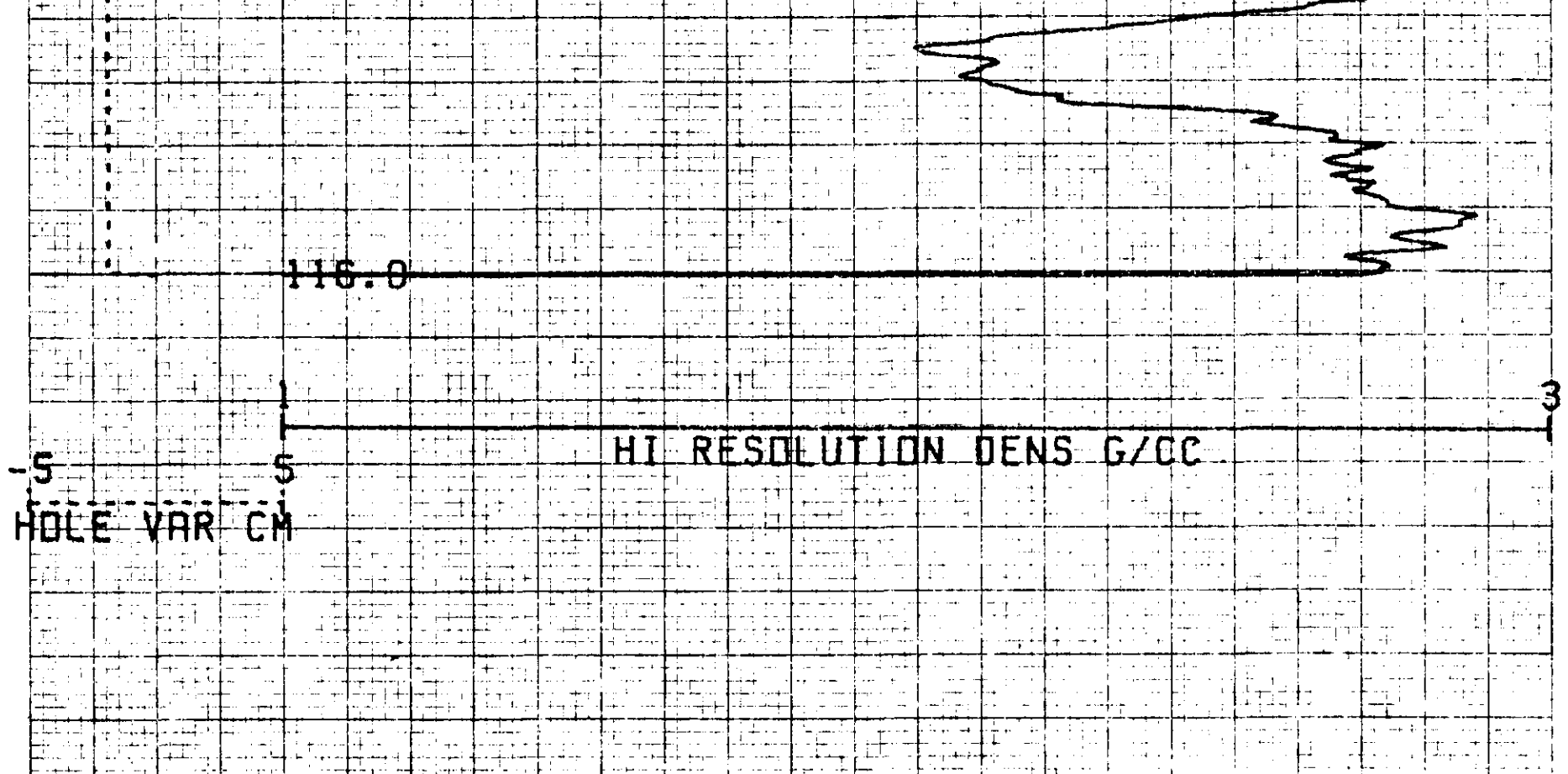
161



160



158



COMPU-LOG V8L3 PLOT 08-18-82

DDH-82-004  
GULF CANADA RES. INC  
KLAPPAN MTN.

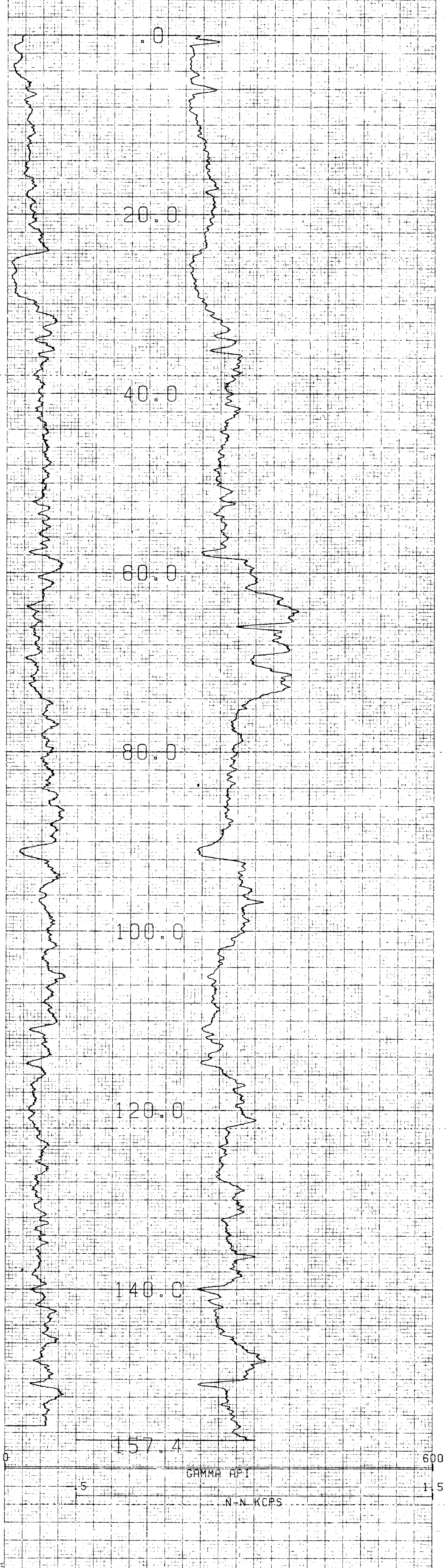
110

HOLE DIAMETER : 09.6  
 PROBE # 9090A - 420  
 SENSOR #4 CAL STD CPS = 6588  
 SENSOR #4 CAL RUN CPS = 4000  
 SENSOR #4 CAL BIAS = 31  
 DATA V8L2\*RA TRUCK # P823  
 K. SKARBO APPL. #1 TN

\* LOGGED TO SENE DRILLPIPE, EXCEPT TOP ZONE

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Ma



COMPU-LOG V8L2 PLOT 08-18-82

DDH-82-004

GULF CANADA RES. INC **110**

KLAPPAN MTN.

HOLE DIAMETER : 09.6

PROBE # 9055A - 011

SENSOR #4 CAL STD CPS = 152

SENSOR #4 CAL RUN CPS = 1272

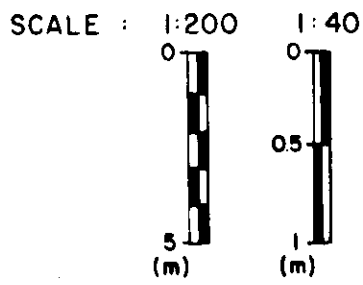
SENSOR #4 CAL BIAS = 0

DATA V8L2\*#A TRUCK # P823

K. SKARBE APPL. #1007L1

Page Klappan 82(3)A

MOUNT KLAPPAN  
DRILL HOLE LOG  
DDH 82-004



NORTHING: 6344510 N  
EASTING: 513515 E

INCLINATION: 60°  
BEARING: 040°

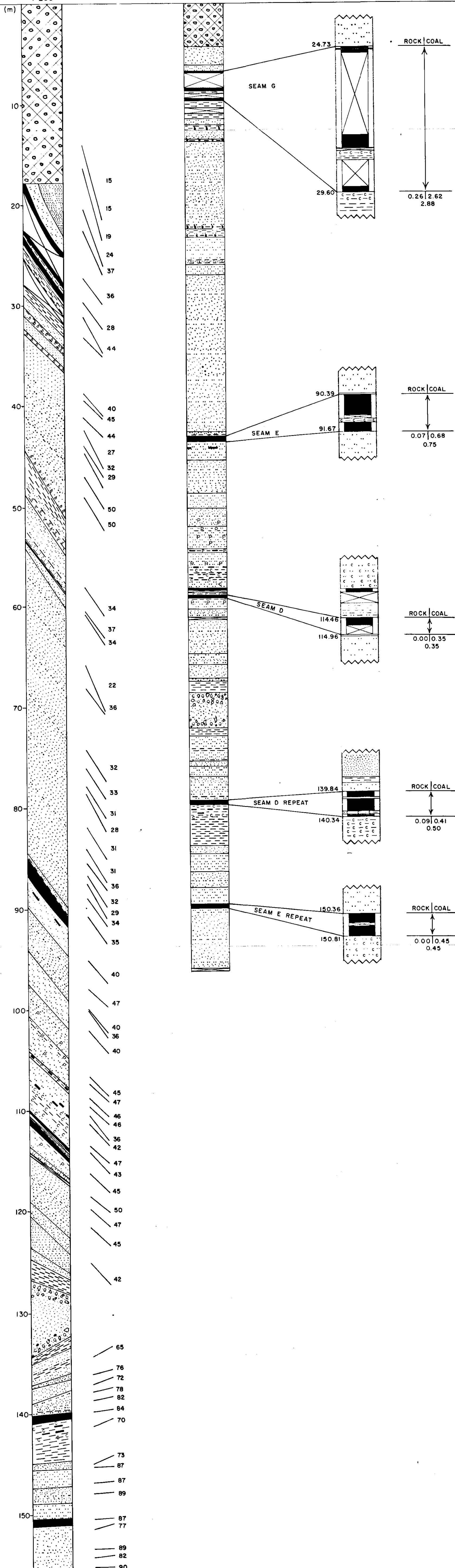
LITHOLOGIC SYMBOLS

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

APPARENT THICKNESS  
1:200

TRUE THICKNESS  
1:200

SEAM DETAIL  
1:40



Total: 157.60m

DDH82003

gcri coal division history proj KPN blk HC ds DDH82003

start date 20/08/82  
end date 20/08/82

contractor J.T.THOMAS operator GCRI  
geologist SEVE surveyor \_\_\_\_\_

remarks VERTICAL HOLE , GEOPHYSICAL LOG MEASURED FROM GROU  
ND LEVEL + APPROX. 0.6M

gcri coal division location proj KPN blk HC ds DDH82003

choose one location input number, 1 province BC  
then enter location elevation (M) 1271.00

\*-----\*  
| 1 utm: zone 09 northing 6343325.00 easting 0515540.00 |

| 2 lat-long: lat 571405 long 1284433 |

gcri coal division orientation proj KPN blk HC ds DDH82003

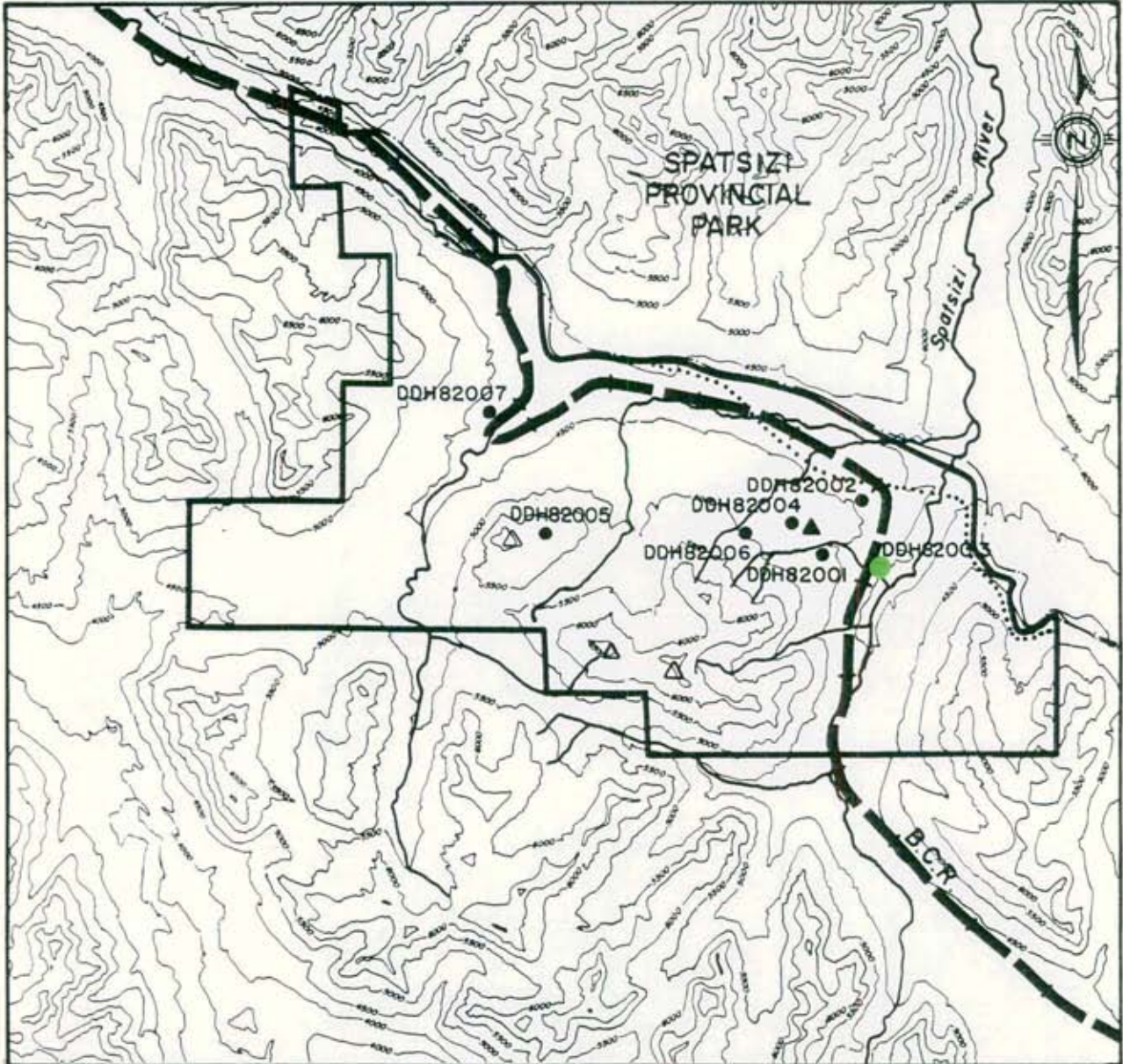
dimensions and orientation:

length (M) 215.48 inclination 90.0 azimuth 0.0  
size width 95.8 size height  
roof strike dip dir  
floor strike dip dir

casing depth (M) 19.51 cement(y,\_) \_ plug(Y,\_) Y piez(Y,\_) \_  
aquifer depths (M) \_\_\_\_\_  
loss cir depths(M) \_\_\_\_\_






# MT. KLAPPAN COAL PROPERTY

## DIAMOND DRILL HOLES



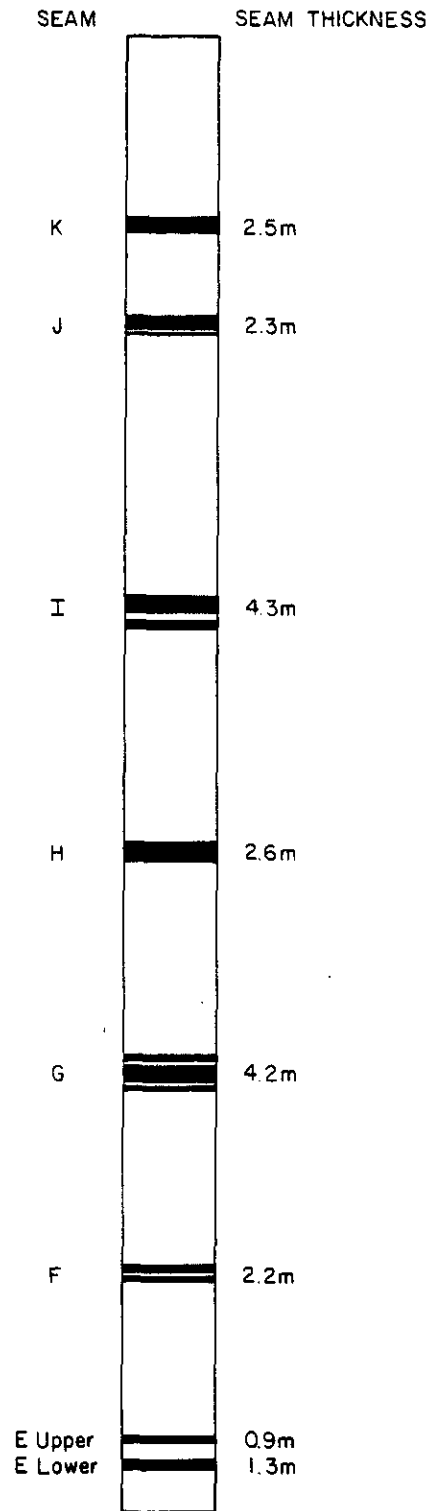
0 1 2 3 4 5 Km



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






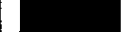





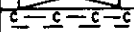
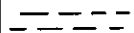
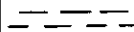
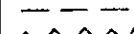

































# MT. KLAPPAN COAL PROPERTY


DDH82003



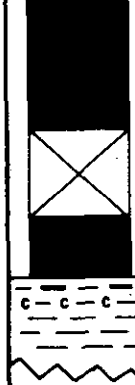


SCALE - 1:1000




DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE COAL/ROCK TOTAL	MINING SECTION COAL/ROCK TOTAL
		ROCK	COAL		NUMBER	COMPOS.		
27.87								
28.53								
28.90								
		(0.91)	0.12 (0.07)	59	04956			
		0.04	0.01	84	04957			
		0.03	(0.14)					
			0.27			↑	↑	↑
		0.02	(0.12)					
				76	04958	16	2.06 / 0.18 2.24	2.06 / 0.18 2.24
		0.08	0.02			↓	↓	↓
		0.03	0.08					
		(0.08)	(0.15)					
32.79								
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY	ALBERTA	
<b>MT. KLAPPAN COAL PROJECT</b> <b>SEAM DETAIL</b> <b>TRUE THICKNESS</b> <b>DDH-82-003</b> <b>SEAM K</b>		
PREPARED BY: C. L.	SCALE 1: 40	
APPROVED BY: J. M. D.	DATE: NOV. '82	DRAWING No.

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		COAL/ROCK TOTAL	COAL/ROCK TOTAL		
44.06								
44.78			0.44	71	04959	↑	↑	↑
45.07			(0.18)	100	04960			
46.62			0.68	68	04961	↓	↓	↓
			(0.47)					
			0.32					

**GULF CANADA RESOURCES INC.**  
Coal Division

CALGARY ALBERTA



**MT. KLAPPAN COAL PROJECT**  
**SEAM DETAIL**  
TRUE THICKNESS  
DDH-82-003  
**SEAM J**

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

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE COAL/ROCK TOTAL	MINING SECTION COAL/ROCK TOTAL
		ROCK	COAL		NUMBER	COMPOS.		
94.14								
94.31			0.16	100	04962			
94.57		0.24		100	04963			
			0.67			↑ ↑ ↑ 18 ↓ ↓ ↓	3.21 / 0.71 3.92	3.21 / 0.71 3.92
	0.05			82	04964			
	0.04	0.33						
		0.60						
	0.03	0.04						
	0.02	(0.40)						
97.16			0.14					
		0.47		100	04965			
97.69		(0.10)						
			(0.28)					
			0.75	66	04966			
98.94								

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY	ALBERTA	
<b>MT. KLAPPAN COAL PROJECT</b> <b>SEAM DETAIL</b> TRUE THICKNESS <b>DDH-82-003</b> <b>SEAM I</b>		
PREPARED BY: C. L.	SCALE 1:40	
APPROVED BY: J. M. D.	DATE: NOV. '82	DRAWING No.

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
127.24								
			0.32 (0.10) 0.46	87	04967	↑	↑	↑
128.12		0.05 0.02 0.03	0.04 0.06 0.29			19	2.23/0.34 2.57	2.23/0.34 2.57
		0.02	0.32	100	04968	↓	↓	↓
		0.03	0.45					
129.43		0.19	0.19	100	04969	↓	↓	↓
129.81								

**GULF CANADA RESOURCES INC.**

Coal Division

CALGARY

ALBERTA



**MT. KLAPPAN COAL PROJECT**  
**SEAM DETAIL**  
 TRUE THICKNESS  
 DDH-82-003  
 SEAM H

PREPARED BY: C. L.

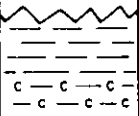


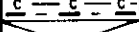


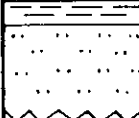
SCALE 1:40


APPROVED BY: J. M. D.

DATE: NOV. '82 DRAWING No.

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
155.24								
			0.27 (0.34)	62	04970	↑		↑
156.14		0.17	0.29	100	04971			
156.31			0.24					
		0.04	0.08					
		0.08	(0.15)			20	2.41/0.48 2.89	
			0.29					
		0.06	0.24	92	04972	↓		300/0.94 3.94
		0.06	0.18					
		0.07	0.33					
158.13								
		0.40		100	04973	↑		
158.53			0.33				0.59/0.46 1.05	
		0.06	0.21 (0.05)	92	04974	↓		
159.18		0.12	0.07					
159.46		0.05	0.04					

<b>GULF CANADA RESOURCES INC.</b>		
Calgary	Coal Division	
<b>MT. KLAPPAN COAL PROJECT</b> <b>SEAM DETAIL</b> TRUE THICKNESS <b>DDH-82-003</b> <b>SEAM G</b>		
PREPARED BY: C. L.	SCALE 1:40	
APPROVED BY: J. M. D.	DATE: NOV. 82	DRAWING No.

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
182.38								
183.07			0.69	100	04975	↑	↑	↑
183.70	  	0.04 0.06 0.12 (0.25)	0.05 0.11	60	04976	22	1.70 / 0.47 2.17	1.70 / 0.47 2.17
184.56	 		0.85	100	04977	↓	↓	↓

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY	ALBERTA	
<b>MT. KLAPPAN COAL PROJECT</b> <b>SEAM DETAIL</b> TRUE THICKNESS DDH - 82 - 003 <b>SEAM F</b>		
PREPARED BY: C. L.	SCALE 1:40	
APPROVED BY: J. M. D.	DATE: NOV. '82	DRAWING No.

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
205.28			0.24 (0.08)	91	04978	23	0.86/0.00 0.86	0.86/0.00 0.86
206.14			0.54					
208.17		2.01		87	04979	24	1.16/0.12 1.28	1.16/0.12 1.28
		0.02	0.07					
			0.60 (0.17) 0.09					
209.45								

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division	
<b>MT. KLAPPAN COAL PROJECT</b> <b>SEAM DETAIL</b> TRUE THICKNESS <b>DDH-82-003</b> <b>SEAM E</b>		
PREPARED BY: C. L.		SCALE 1 : 40
APPROVED BY: J. M. D.		DATE: NOV. '82 DRAWING No.

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12-80)  
Apparent Thickness

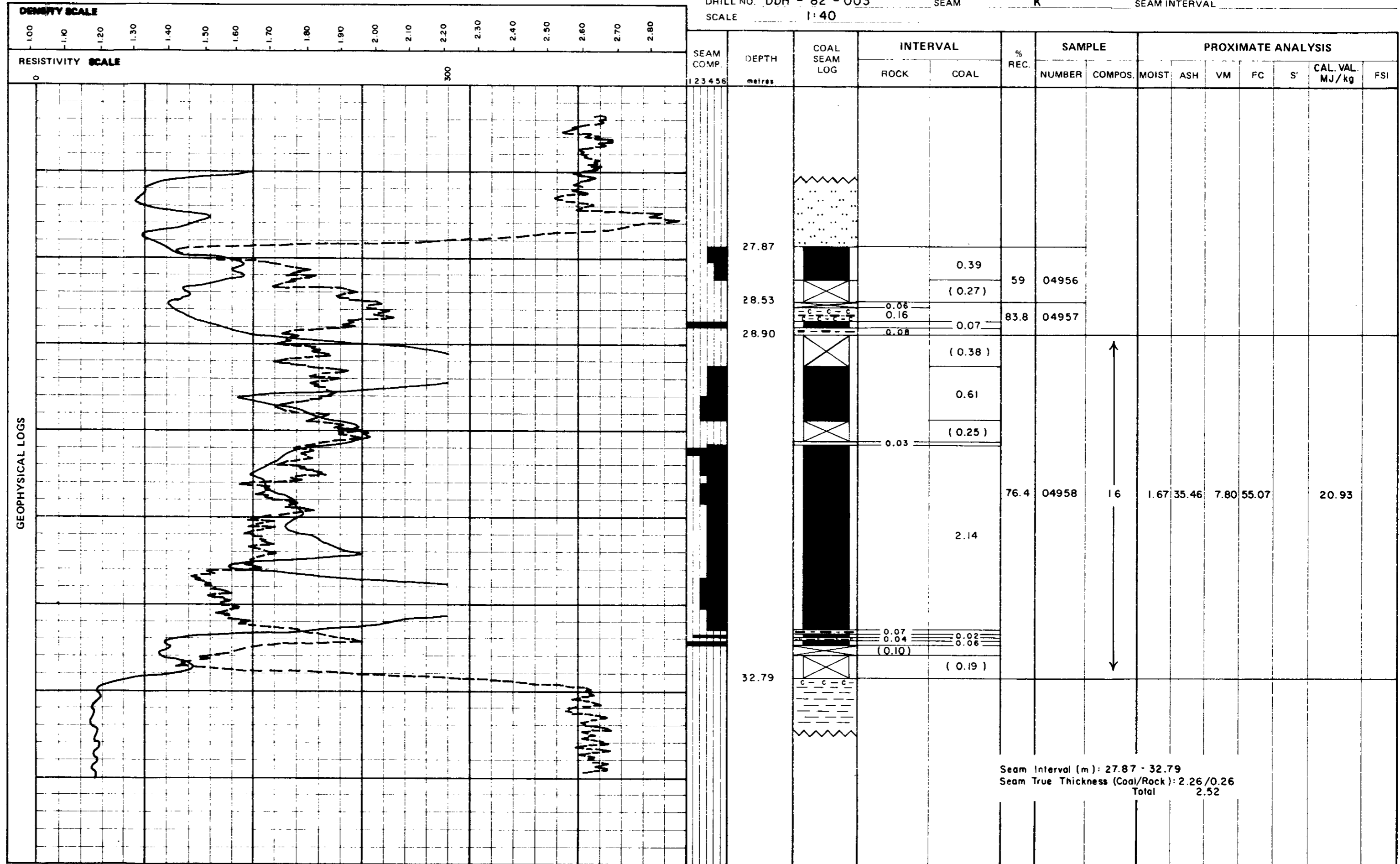
DENSITY ---

RESISTIVITY ———

DRILL NO. DDH - 82 - 003 SEAM K

SEAM INTERVAL

SCALE 1:40



GEOPHYSICAL LOGS

SEAM COMP.	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS									
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S'	CAL. VAL. MJ/kg	FSI			
1 2 3 4 5 6	27.87	[Symbol]		0.39													
	28.53	[Symbol]		(0.27)	59	04956											
	28.90	[Symbol]	0.06	0.16	83.8	04957											
		[Symbol]		0.07													
		[Symbol]		(0.38)													
		[Symbol]		0.61													
		[Symbol]	0.03	(0.25)													
		[Symbol]		2.14	76.4	04958	16	1.67	35.46	7.80	55.07		20.93				
		[Symbol]	0.07	0.02													
		[Symbol]	0.04	0.06													
		[Symbol]		(0.10)													
	32.79	[Symbol]		(0.19)													

Seam Interval (m): 27.87 - 32.79  
Seam True Thickness (Coal/Rock): 2.26/0.26  
Total 2.52



COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

Apparent Thickness P-267 (12-80)

DENSITY

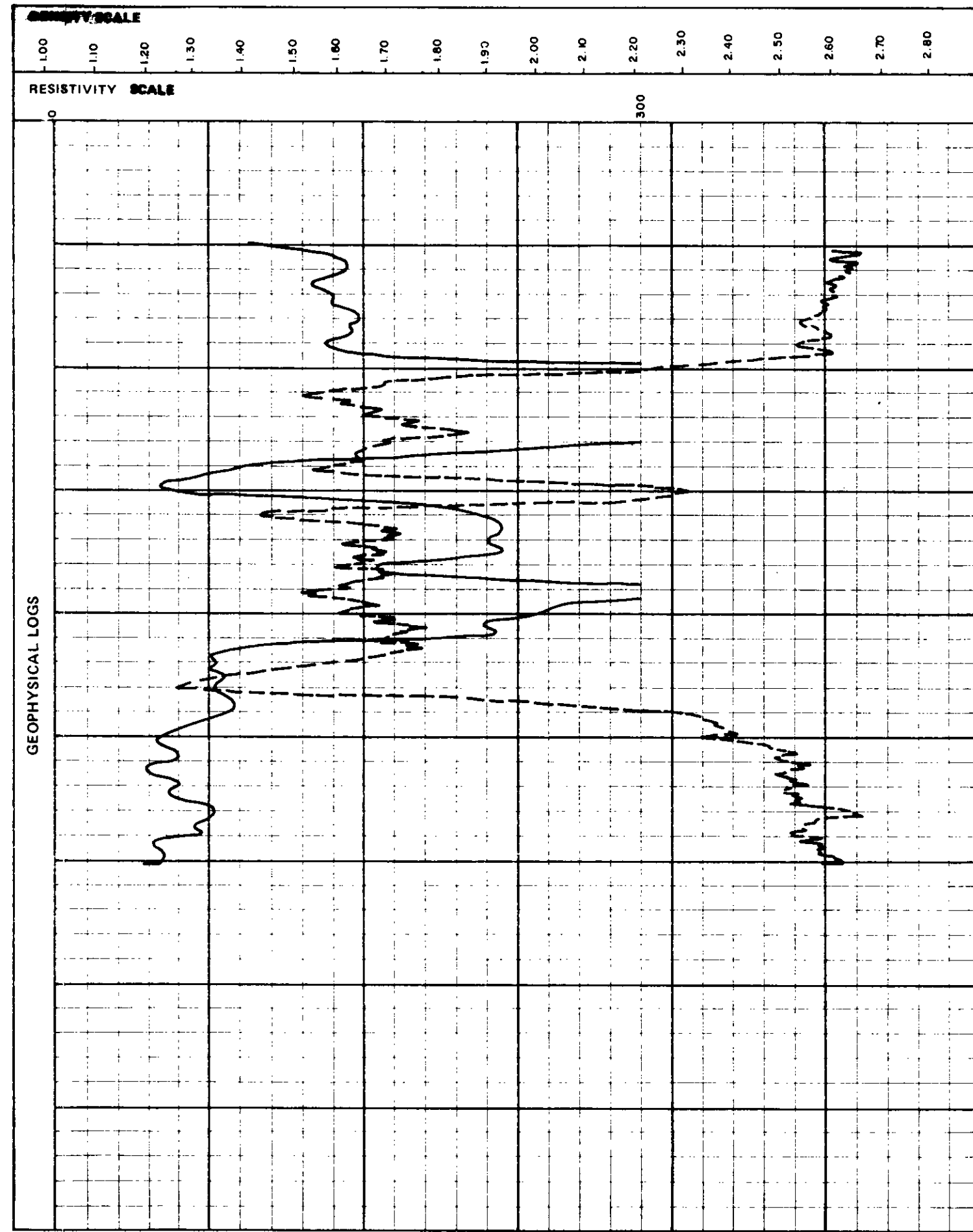
RESISTIVITY

DRILL NO. DDH - 82 - 003

SEAM J

SEAM INTERVAL

SCALE 1:40



GEOPHYSICAL LOGS

SEAM COMP	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS						
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	CAL. VAL. MJ/kg	FSI
	44.06			0.51	70.8	04959	↑ 1.7 ↓	1.31	26.53	8.64	63.52	24.90		
	44.78			(0.21)	100	04960								
	45.07		0.06	0.08										
	46.62		0.08	0.07										
				0.71										
				0.50	67.7	04961								
				0.34										

Seam Interval (m): 44.06 - 46.62  
 Seam True Thickness (Coal/Rock): 2.21/0.12  
 Total 2.33

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12-80)  
Apparent Thickness

DENSITY

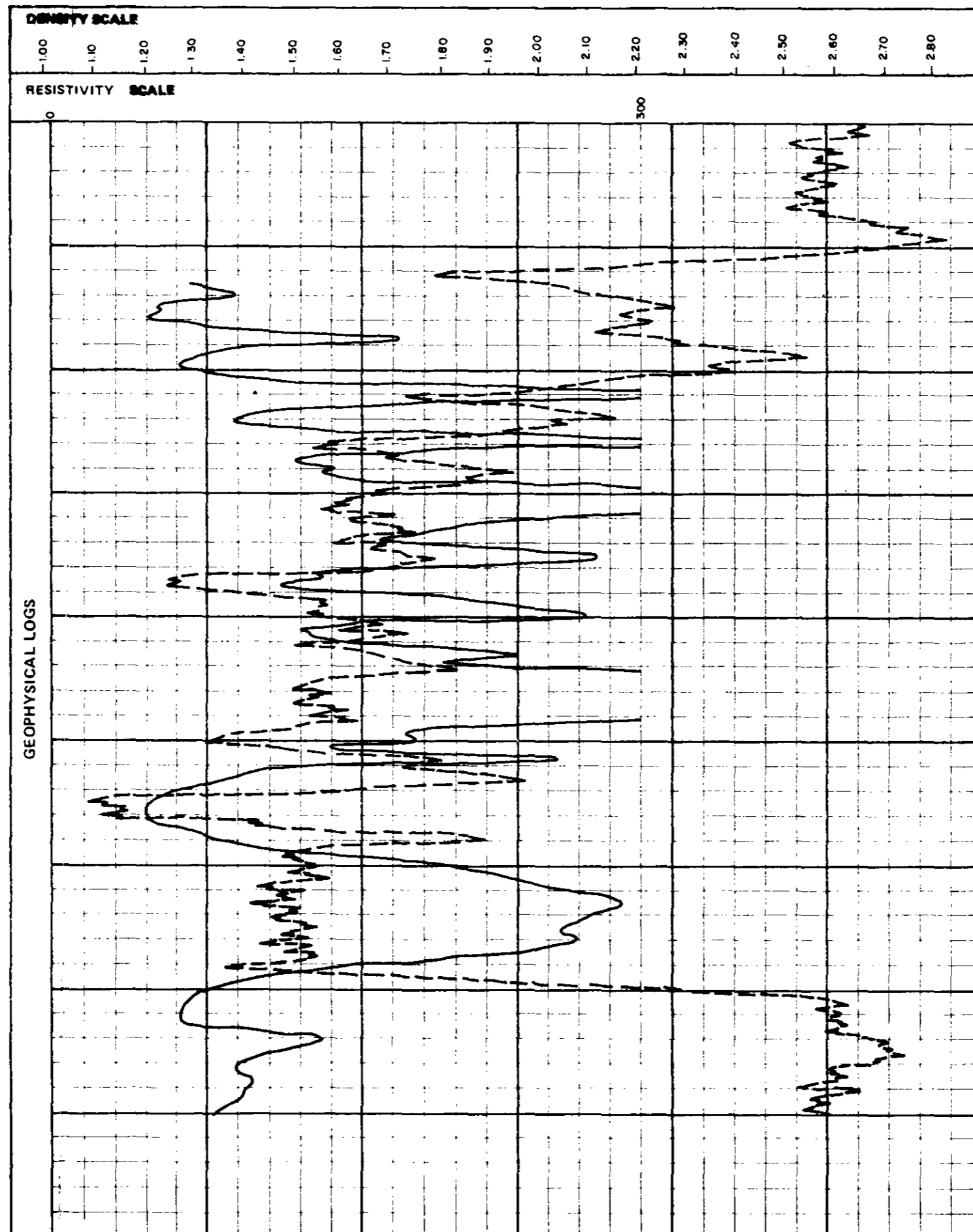
RESISTIVITY

DRILL NO. DDH - 82 - 003

SEAM

SEAM INTERVAL

SCALE 1:40



GEOPHYSICAL LOGS

SEAM COMP.	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS								
			ROCK	COAL		NUMBER	COMPOS.	MOIST.	ASH	VM	FC	S	CAL. VAL. MJ/kg	FSI		
	94.14			0.17	100	04962										
	94.31		0.26		100	04963										
	94.57			0.73												
			0.05													
			0.36		82.2	04964										
			0.05													
			0.69													
			0.03	0.05			1.8	1.50	34.27	7.82	56.41		21.60			
			0.02	0.15												
	97.16		0.53		100	04965										
	97.69		0.11	0.31												
				0.83	66.4	04966										
	98.94															

Seam Interval (m): 94.14 - 98.94  
Seam True Thickness (Coal/Rock): 3.37/0.95  
Total 4.32

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12-80)  
Apparent Thickness

DENSITY

RESISTIVITY

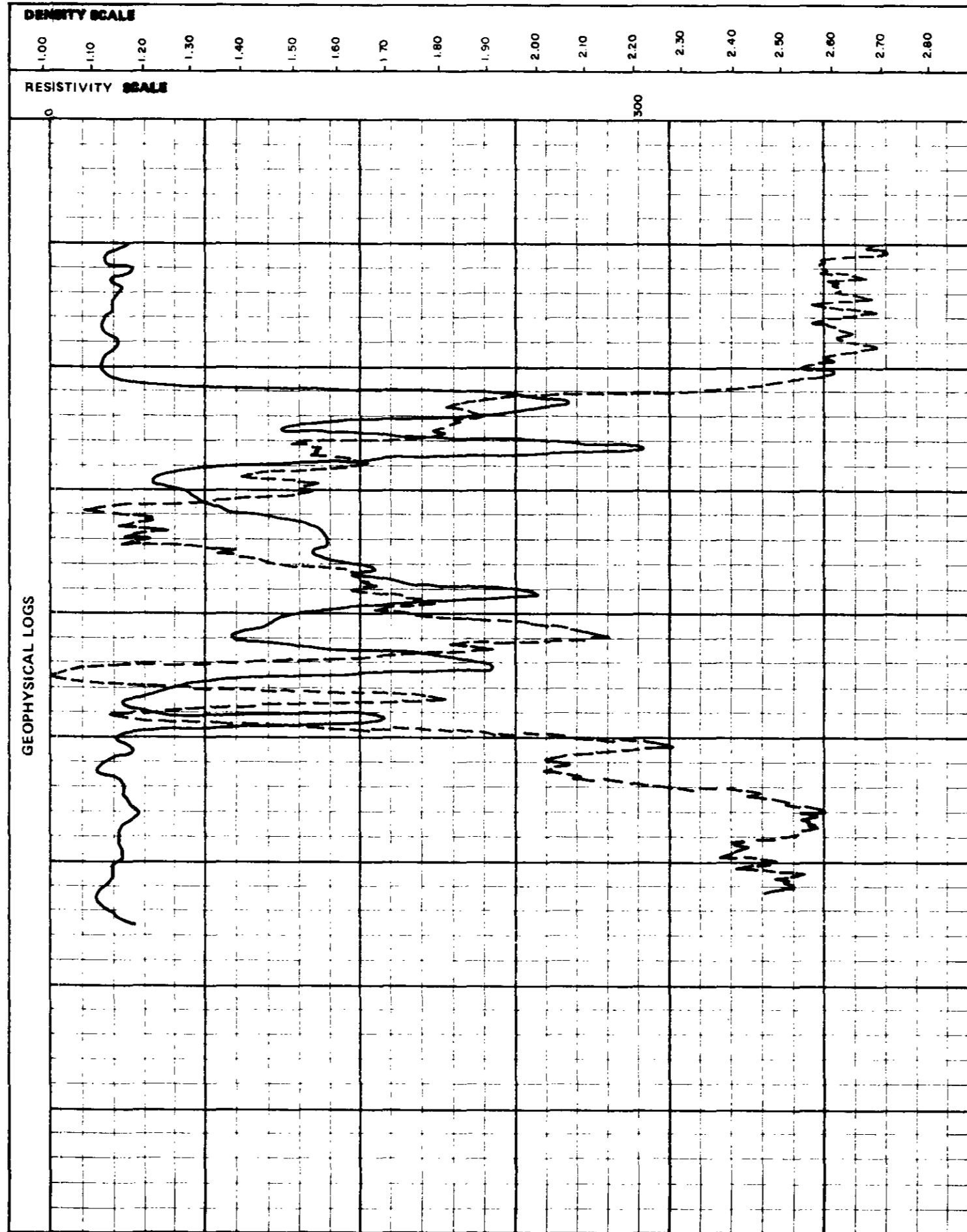
DRILL NO. DDH - 82 - 003

SEAM

H

SEAM INTERVAL

SCALE 1:40



GEOPHYSICAL LOGS

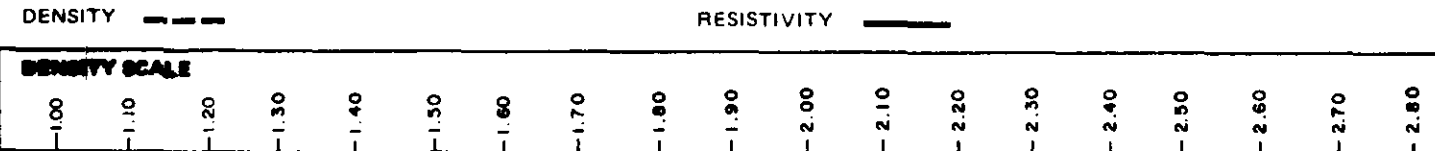
SEAM COMP 1 2 3 4 5 6	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS									
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	CAL. VAL MJ/kg	FSI			
	127.24			0.32 (0.10)													
	128.12			0.46													
	128.12		0.01 0.02 0.03	0.04 0.06													
	128.12		0.02	0.29				19	1.39	38.87	9.31	50.43		19.67			
	128.12		0.03	0.32		100	04968										
	129.43			0.45													
	129.81		0.19	0.19		100	04969										
	129.81																

Seam Interval (m): 127.24 - 129.81  
 Seam True Thickness (Coal/Rock):  $\frac{2.23}{2.33} / 0.34$   
 Total: 2.57

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12-80)  
Apparent Thickness



DRILL NO. DDH - 82 - 003  
SCALE 1:40

SEAM G

SEAM INTERVAL

SEAM COMP.	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS									
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	CAL. VAL. MJ/kg	FSI			
	155.24			0.27													
				0.34	622	04970											
	156.14			0.29													
	156.31		0.17		100	04971											
			0.04	0.24			20	1.41	33.19	8.04	57.36		21.66				
			0.08	(0.15)													
				0.29													
			0.06		91.8	04972											
			0.06	0.24													
			0.06	0.18													
			0.07														
	158.13			0.33													
	158.53		0.40		100	04973											
				0.33			21	1.72	48.51	8.54	41.23		15.86				
			0.06	0.21 (0.09)	92.3	04974											
	159.18		0.12														
	159.46		0.05	0.07													
				0.04													

Seam Interval (m): 155.24 - 159.46  
Seam True Thickness (Coal/Rock): 3.11/1.11  
Total 4.22

GEOPHYSICAL LOGS

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12-80)

Apparent Thickness

DENSITY

RESISTIVITY

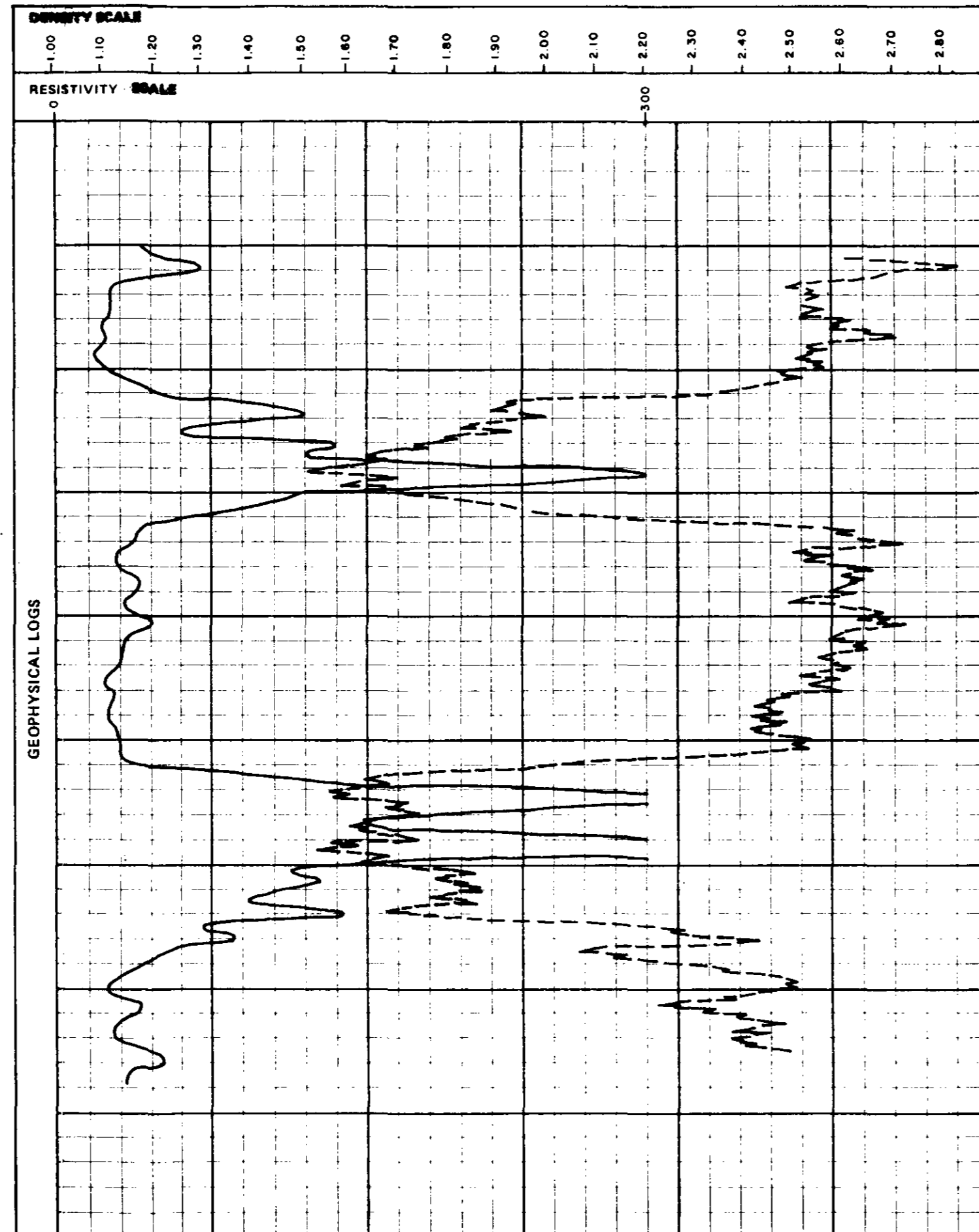
DRILL NO. DDH - 82 - 003

SEAM

E

SEAM INTERVAL

SCALE 1:40



SEAM COMP.	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS								
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S'	CAL. VAL. MJ/kg	FSI		
								Seam Interval (m): 205.28 - 206.14 Seam True Thickness (Coal/Rock) : 0.86/0.00 Total 0.86								
	205.28			0.24												
				0.08	90.7	04978	23	1.37	33.87	10.94	53.82		21.23			
	206.14			0.54												
			2.03													
	208.17			0.02												
				0.60	86.7	04979	24	1.23	23.11	10.98	64.68		25.67			
				0.17												
				0.09												
	209.45			0.10												
				0.23												
								Seam Interval (m) : 208.17 - 209.45 Seam True Thickness (Coal/Rock) : 1.16/0.12 Total 1.28								

## GULF CANADA RESOURCES INC. - COAL DIVISION

22/NOV/82

## COMPOSITE SAMPLE SUMMARY

PAGE 1

DATA SOURCE	SEAM	SAMPLE ID	SAMPLE FROM	SAMPLE TO	DEPTH FROM	DEPTH TO	REC CORE	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK
DDH82003												
	K	16	4958	4958	28.90	32.79	2.97	76.35	2.83	0.14	0.82	0.10
	J	17	4959	4961	44.06	46.62	1.85	72.27	1.71	0.14	0.71	0.00
	I	18	4964	4966	94.57	98.94	3.49	79.86	2.81	0.68	0.77	0.11
	H	19	4967	4969	127.24	129.81	2.47	96.11	2.13	0.34	0.10	0.00
	G	20	4970	4972	155.24	158.13	2.40	83.04	1.92	0.48	0.49	0.00
	G	21	4973	4974	158.13	159.18	1.00	95.24	0.54	0.46	0.05	0.00
	F	22	4975	4977	182.38	184.56	1.93	88.53	1.71	0.22	0.00	0.25
	E UPPER	23	4978	4978	205.28	206.14	0.78	90.70	0.78	0.00	0.08	0.00
	E LOWER	24	4979	4979	208.17	209.45	1.11	86.72	0.99	0.12	0.17	0.00
	K	4956			27.87	28.53	0.39	59.09	0.39	0.00	0.27	0.00
	K	4957			28.53	28.90	0.31	83.78	0.07	0.24	0.00	0.06
	K	4958			28.90	32.79	2.97	76.35	2.83	0.14	0.82	0.10
	J	4959			44.06	44.78	0.51	70.83	0.51	0.00	0.21	0.00
	J	4960			44.78	45.07	0.29	100.00	0.15	0.14	0.00	0.00
	J	4961			45.07	46.62	1.05	67.74	1.05	0.00	0.50	0.00
	I	4962			94.14	94.31	0.17	100.00	0.17	0.00	0.00	0.00
	I	4963			94.31	94.57	0.26	100.00	0.00	0.26	0.00	0.00
	I	4964			94.57	97.16	2.13	82.24	1.98	0.15	0.46	0.00
	I	4965			97.16	97.69	0.53	100.00	0.00	0.53	0.00	0.00
	I	4966			97.69	98.94	0.83	66.40	0.83	0.00	0.31	0.11
	H	4967			127.24	128.12	0.78	88.64	0.78	0.00	0.10	0.00
	H	4968			128.12	129.43	1.31	100.00	1.16	0.15	0.00	0.00
	H	4969			129.43	129.81	0.38	100.00	0.19	0.19	0.00	0.00
	G	4970			155.24	156.14	0.56	62.22	0.56	0.00	0.34	0.00
	G	4971			156.14	156.31	0.17	100.00	0.00	0.17	0.00	0.00
	G	4972			156.31	158.13	1.67	91.76	1.36	0.31	0.15	0.00
	G	4973			158.13	158.53	0.40	100.00	0.00	0.40	0.00	0.00
	G	4974			158.53	159.18	0.60	92.31	0.54	0.06	0.05	0.00
	F	4975			182.38	183.07	0.69	100.00	0.69	0.00	0.00	0.00
	F	4976			183.07	183.70	0.38	60.32	0.16	0.22	0.00	0.25

GULF CANADA RESOURCES INC. - COAL DIVISION  
 22/NOV/82 COMPOSITE SAMPLE SUMMARY PAGE 2

DATA SOURCE	SEAM	SAMPLE ID	SAMPLE FROM	SAMPLE TO	DEPTH FROM	DEPTH TO	REC CORE	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK
	F	4977			183.70	184.56	0.86	100.00	0.86	0.00	0.00	0.00
	E UPPER	4978			205.28	206.14	0.78	90.70	0.78	0.00	0.08	0.00
	E LOWER	4979			208.17	209.45	1.11	86.72	0.99	0.12	0.17	0.00

82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 1

PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH INTRVAL TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
65	0.00	6.71	6.71			OVERBURDEN	FIRST CASING DRIVEN TO 22°-6.7M//CASING DRIVEN TO FINAL DEPTH 64°-19.5M AFTER FIRST CORE RUN WAS ATTEMPTED
65	6.71	6.77	0.06			GRAVEL	
65	6.77	10.77	4.00			ROCK LOSS	
65	10.77	11.18	0.41			MUDSTONE	CARB.BLK.VBRKN
65	11.18	11.65	0.47			COAL	VBRKN
65	11.65	11.76	0.11			MUDSTONE	CARB.BLK.BRKN COALY STRGS
65	11.76	12.10	0.34			COAL	PWRD MNR CLYST FRAGS IN COAL

\* DENOTES MEASURED BCA



82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 2

PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
65	12.10	12.18	0.08			SANDSTONE	VFG-.WEL.M.GY.BRKN SLIGHTLY CALC. GRADING TO VERY FINE GRAINED, HEAVY QTZ VEINING
65	12.18	13.08	0.90			MUDSTONE	CARB.DK.GY.SLD MNR COAL STRGS, MNR SLTY STRGS
65	13.08	13.14	0.06			GRAVEL	
65	13.14	14.32	1.18			ROCK LOSS	
65	14.32	14.58	0.26			COAL	VBRKN MIXED WITH SS FRAGS
65	14.58	14.68	0.10			MUDSTONE	CARB.DK.GY.BRKN SLTST BANDS, COAL STRGS, MOD QTZ VEINING
65	14.68	15.55	0.87			MUDSTONE	CARB.VBRKN AS ABOVE, CORE DROPPED FROM BARREL ON D RILL FLOOR, NOT CONSIDERED TO BE IN PRO PER SEQUENCE.
65	15.55	17.37	1.82			ROCK LOSS	

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
* 65	17.37	18.46	1.09			SANDSTONE	FG.WEL.M.GY.BRKN INTBS SLTST TO 3CM, DECREASING IN THICK NESS DOWN SECTION, MODERATE QTZ VEINING , CORE VBRKN AT BASE
62	18.46	19.21	0.75			SANDSTONE	FG-.LT.GY.VBRKN HEAVY QTZ VEINING, NONCALC, NUMEROUS CO RED PIECES FROM OUT OF SECTION MIXED IN .
60	19.21	19.53	0.32			ROCK LOSS	
* 55	19.53	22.43	2.90			SANDSTONE	FG-.LT.GY.BRKN AS ABOVE
50	22.43	22.96	0.53			SANDSTONE	MG-.M.GY.BRKN MNR COAL INCLUSIONS, CLYST CLASTS IN PA RT.4 QTZ VEINING MODERATE
* 46	22.96	25.06	2.10			SANDSTONE	MG.MOD.S-P.GY.THKB.BRKN MOD QTZ VEINING, NONCALC
38	25.06	25.14	0.08			SANDSTONE	MG.MOD.S-P.GY.THKB.BRKN AS ABOVE

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 30	25.14	27.19	2.05			SANDSTONE	MG.M.GY.SLD GRIT FIRST 30CM AT TOP, MOD QTZ VEINING S, NONCALC SS, MNR COAL LAMINATIONS IN PART
21	27.19	27.79	0.60			SILTSTONE	CLYY.M-DK.GY.BRKN GRADES TOWARDS MUDST AT BASE, INCREASIN GLY CARB
* 19	27.79	27.87	0.08			MUDSTONE	BLK.VBRKN COALY
18	27.87	27.97	0.10	04956	K	COAL	C-4.BLK.SLD DULL AND BRIGHT, MUDST BAND
* 17	27.97	28.06	0.09	04956	K	COAL	C-4.BLK.SLD BRIGHT BANDED, MUDST BAND, BCA SWINGS C OMPLETLY AROUND, SAME BED FROM 27.79 T D 28.26
16	28.06	28.26	0.20	04956	K	COAL	C-5.BLK.SLD DULL AND BRIGHT, MUDST BAND
15	28.26	28.53	0.27	04956	K	COAL LOSS	
14	28.53	28.59	0.06	04957	K	ROCK LOSS	
13	28.59	28.75	0.16	04957	K	MUDSTONE	BLK.BRKN COALY

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
* 12	28.75	28.82	0.07	04957	K	COAL	C-1.BLK.BRKN INTBD WITH COALY MUDST
* 20	28.82	28.90	0.08	04957	K	MUDSTONE	BLK.VBRKN COALY
22	28.90	29.28	0.38	04958	K	COAL LOSS	
25	29.28	29.61	0.33	04958	K	COAL	C-4.BLK.BRKN MUDST BANDS THROUGHOUT
27	29.61	29.79	0.18	04958	K	COAL	C-3.BLK.BRKN
28	29.79	29.89	0.10	04958	K	COAL	C-3.BLK.BRKN
30	29.89	30.14	0.25	04958	K	COAL LOSS	
31	30.14	30.17	0.03	04958	K	MUDSTONE	BLK.BRKN COALY
* 31	30.17	30.20	0.03	04958	K	COAL	C-4.BLK.BRKN
* 36	30.20	30.29	0.09	04958	K	COAL	C-1.BLK.BRKN INTBD WITH MUDST

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
35	30.29	30.52	0.23	04958	K	COAL	C-3.BLK.VBRKN INTBD WITH MUDST, LISTRIC SURFACES THRO UGHOUT, CORE PULVERIZED
34	30.52	30.63	0.11	04958	K	COAL	C-4.BLK.VBRKN LISTRIC SURFACES THROUGHOUT
34	30.63	30.75	0.12	04958	K	COAL	C-3.BLK.VBRKN CORE PULVERIZED
32	30.75	31.21	0.46	04958	K	COAL	C-4.BLK.VBRKN MNR MUDST INTBS, COALY, CORE PULVERIZED
* 30	31.21	31.60	0.39	04958	K	COAL	C-4.BLK.VBRKN MNR PYRITIC INCLUSIONS, SOME BRIGHT BAN DS AND MNR MUDST STRGS, LISTRIC SURFACE S
40	31.60	31.72	0.12	04958	K	COAL	C-4.BLK.VBRKN MNR QTZT VEINING
* 50	31.72	32.08	0.36	04958	K	COAL	C-3.BLK.BRKN MNR PYR
50	32.08	32.31	0.23	04958	K	COAL	C-4.BLK.BRKN MNR PYR, MNR MUDST STRGS
50	32.31	32.38	0.07	04958	K	MUDSTONE	BLK.BRKN CARB, LISTRIC SURFACES

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
50	32.38	32.40	0.02	04958	K	COAL	C-2.BLK.BRKN
50	32.40	32.44	0.04	04958	K	MUDSTONE	BLK.BRKN LISTRIC SURFACES, MNR QTZ VEINING
50	32.44	32.50	0.06	04958	K	COAL	C-1.BLK.BRKN
50	32.50	32.60	0.10	04958	K	ROCK LOSS	
50	32.60	32.79	0.19	04958	K	COAL LOSS	CORE RECOVERY FOR ABOVE SEAM 75%
* 50	32.79	32.82	0.03			MUDSTONE	BLK.BRKN COALY
51	32.82	33.07	0.25			MUDSTONE	BLK.SLD COAL BANDS THROUGHOUT, LISTRIC SURFACES
54	33.07	33.95	0.88			MUDSTONE	BLK.SLD CARB. COLOUR RANGES BLK-DK GY
* 62	33.95	35.63	1.68			MUDSTONE	DK.GY.SLD CALC BANDS IN PART
62	35.63	36.64	1.01			MUDSTONE	DK.GY.SLD AS ABOVE

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
62	36.64	38.65	2.01			MUDSTONE	DK.GY.SLD AS ABOVE, MNR PYR INCLUSIONS, MNR CALCT VEINING, LISTRIC SURFACES
62	38.65	39.35	0.70			MUDSTONE	DK.GY.SLD AS ABOVE
62	39.35	41.81	2.46			MUDSTONE	DK.GY.SLD AS ABOVE, CALC BANDING NOT PRESENT, SLI GHTLY CARB
62	41.81	42.18	0.37			MUDSTONE	DK.GY.SLD AS ABOVE
62	42.18	44.01	1.83			MUDSTONE	DK.GY.SLD AS ABOVE
62	44.01	44.06	0.05			MUDSTONE	PYR.DK.GY.SLD DISSEMINATED PYR THROUGHOUT, MOD TO HEA VY QTZ VEINING, SLIGHTLY CALC
* 62	44.06	44.28	0.22	04959	J	COAL	C-3.BLK.BRKN DISSEMINATED PYR THROUGHOUT, LISTRIC SU RFACES, SOME SHEARING, LAMINATIONS OF P YR
60	44.28	44.52	0.24	04959	J	COAL	C-4.BLK.BRKN PYR LAMELLAE, SHEARED SURFACES

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
58	44.52	44.57	0.05	04959	J	COAL	C-1.BLK.VBRKN PULVERIZED CORE
57	44.57	44.78	0.21	04959	J	COAL LOSS	
* 56	44.78	44.83	0.05	04960	J	COAL	C-3.BLK.SLD
56	44.83	44.86	0.03	04960	J	COAL	C-1.BLK.SLD INTBS OF MUDST, COALY
55	44.86	44.92	0.06	04960	J	MUDSTONE	BLK.SLD COAL LAMINATIONS
* 55	44.92	44.99	0.07	04960	J	COAL	C-2.BLK.VBRKN CORE PULVERIZED
61	44.99	45.07	0.08	04960	J	MUDSTONE	PYR.BLK.SLD DISSEMINATED PYR THROUGHOUT. QTZ VEININ G THROUGHOUT
66	45.07	45.12	0.05	04961	J	COAL	C-4.BLK.SLD MUDST INTBS (MNR), MNR QTZ VEINING
* 75	45.12	45.29	0.17	04961	J	COAL	C-4.BLK.BRKN DULL BANDED, PYR INCLUSION, MNR PYR LAM INATION

\* DENOTES MEASURED BCA



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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
74	45.29	45.56	0.27	04961	J	COAL	C-3.BLK.BRKN
72	45.56	45.78	0.22	04961	J	COAL	C-4.BLK.VBRKN
70	45.78	46.28	0.50	04961	J	COAL LOSS	
67	46.28	46.52	0.24	04961	J	COAL	C-3.BLK.BRKN SOME MUDST BANDING TOWARD BASE
66	46.52	46.57	0.05	04961	J	COAL	C-1.BLK.VBRKN
* 66	46.57	46.62	0.05	04961	J	COAL	C-3.BLK.SLD CORE RECOVERY ON ABOVE SEAM 72%
66	46.62	47.84	1.22			MUDSTONE	DK.GY.LAM.SLD COAL LAMINATIONS INCREASING TOWARDS BAS E. MNR QTZ VEINING. MNR LISTRIC SURFACE S

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
66	47.84	48.32	0.48			MUDSTONE	DK.GY.LAM.SLD AS ABOVE, COAL LAMINATIONS INCREASING TOWARDS BASE, MNR QTZ VEINING, LISTRIC SURFACES /////DRILLERS ADDITION ERROR ON MARKERS, 50.90 SHOULD READ 47.85, ALL MARKERS FROM HERE ON SHOULD BE 3.05M LESS THAN AS READS/////
* 66	48.32	49.29	0.97			MUDSTONE	CARB.DK.GY.XBDG.SLD SLTY BANDS TOWARDS BASE, XBDG MNR
* 74	49.29	50.86	1.57			SANDSTONE	FG-.MOD.LT-M.GY.THNB.XBDG.BRKN INTBD WITH SLTST, COARSENS DOWN, LESS FREQUENT SLT BANDS, ABUNDANT QTZ VEINING NEAR TOP, MNR COAL INCLUSIONS IN PART, CORE BRKN AT TOP, XBDG MNR
73	50.86	51.16	0.30			SANDSTONE	FG-.MOD.LT-M.GY.THNB.XBDG.SLD AS ABOVE. XBDG MNR
73	51.16	53.31	2.15			SANDSTONE	FG-.MOD.LT-M.GY.THNB.SLD AS ABOVE, INCREASED COAL INCLUSIONS AND LAMINATIONS, THICK QTZ VEINING IN PART, SHALE RIP-UP CLASTS IN PART
* 72	53.31	53.89	0.58			SILTSTONE	CLYY.M.GY.THNB.XBDG.SLD SANDY IN PART, TOPS UP

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
	72	53.89	54.02	0.13		SANDSTONE	FG.MOD.M.GY.VTHNB.SLD NONCALC, MUDST INTBS
*	72	54.02	56.93	2.91		SANDSTONE	FG.MOD.M.GY.VTHNB.XBDG.SLD AS ABOVE, COAL INCLUSIONS IN PART, MNR QTZ VEINING, BECOMES FINER GRAINED TOWA RDS BASE, CORE BROKEN AT BASE, TOPS UP, MNR FAULT FEATURES, UP TO 1CM MOVEMENT , XBDG MNR, BEDDING RANGES VTHNB-THNB
	44	56.93	57.06	0.13		SILTSTONE	CLYY.DK.GY.VTHNB.BRKN MUDST INTBS, HEAVY QTZ VEINING, CARB, L ISTRIC SURFACE POSSIBLE AXIS OF MNR FUL D
*	40	57.06	57.36	0.30		SILTSTONE	DK.GY.VTHNB.BRKN AS ABOVE, MOD CALCT VEINING
*	63	57.36	59.40	2.04		SANDSTONE	MG.MOD.M.GY.THNB.SLD BRECCIATED IN PART, MOD QTZ VEINING, MN R ROCK CLASTS, QTZ BAND NEAR BASE
*	64	59.40	59.77	0.37		SILTSTONE	CLYY.M-DK.GY.VTHNB.SSD.SLD MUDST INTBS, TOPS UP, SANDY IN PART
*	61	59.77	60.06	0.29		SILTSTONE	M-DK.GY.VTHNB.BRKN AS ABOVE, LAMINATED BDG, QTZ VEINS IN P ART

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 69	60.06	62.44	2.38			SANDSTONE	VFG-.MOD.LT-M.GY.VTHNB.SSD.SLD SLTST INTBS, MNR MUDST BANDING, MNR COA LY STRGS TOWARDS BASE, MNR QTZ VEINIG, LITRIC SURFACES, MNR XBDG, BDG RANGES VTHNB-THNB
* 63	62.44	63.09	0.65			SANDSTONE	VFG-.MOD.M.GY.VTHNB.SSD.SLD AS ABOVE, MNR COAL LAMINATIONS, MUDST R IP-UP CLASTS, XBDG
* 57	63.09	65.11	2.02			SANDSTONE	VFG-.MOD.M.GY.VTHNB.SLD AS ABOVE, TOPS UP, MUDST RIP-UP CLASTS IN PART, MNR QTZ VEINING
61	65.11	66.04	0.93			SANDSTONE	VFG-.MOD.M.GY.VTHNB.SLD AS ABOVE, SLTST AND MUDST INTBS INCREAS ING TOWARDS BASE, MNR QTZ VEINING
* 65	66.04	67.86	1.82			SILTSTONE	M-DK.GY.VTHNB.XBDG.BRKN MUDST AND SS INTBS, MOD QTZ VEINING, TO PS UP, MNR FRACTURE DISPLACEMENT
* 75	67.86	69.19	1.33			SANDSTONE	VFG-.MOD.M.GY.VTHNB.XBDG.SLD INTBS OF SLTST AND MUDST, QTZ VEINING I N PART, TOPS UP

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
* 70	69.19	70.69	1.50			SANDSTONE	FG.PR.LT-M.GY.VTHNB.XBDG.SLD AS ABOVE, QTZ VEINING IN PART, TOPS UP, MNR COAL INCLUSIONS TOWARDS BASE, XBDG MNR, BDG RANGES VTHNB-THNB, GRAIN SIZE RANGES VFG-FG-MG
* 74	70.69	71.09	0.40			SILTSTONE	M-DK.GY.VTHNB.SLD SS INTBS, HEAVY QTZ VEINING AT BASE, 60 G RANGES VTHNB-THNB
* 11	71.09	72.16	1.07			SANDSTONE	FG.WEL.LT-M.GY.THNB.BRKN HEAVY QTZ VEINING AT TOP INDICATES AXIS OF FOLD, MNR MUDST LAMINATIONS
* 13	72.16	73.39	1.23			SANDSTONE	VFG-.MOD.LT-M.GY.VTHNB.XBDG.SLD AS ABOVE, MNR SLTST BANDS, XBDG MNR
* 15	73.39	75.14	1.75			SANDSTONE	VFG-.MOD.LT-M.GY.VTHNB.XBDG.SLD AS ABOVE, SLTST BANDS INCREASING TOWARD BASE, TOPS INDICATE OVERTURNED, MUDST RIP-UP CLASTS IN PART, (FINING DOWNWARD SEQUENCE), XBDG MNR
* 15	75.14	76.05	0.91			SILTSTONE	M-DK.GY.VTHNB.SLD INTBS OF MUDST AND SS

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 25	76.05	78.12	2.07			SILTSTONE	LT-M.GY.VTHNB.XBDG.SLD AS ABOVE, BECOMES SANDY TOWARDS BASE, BEDS INDICATE OVERTURNED, MNR BIOTURB, MNR FRACTURE DISPLACEMENT (2CM), SCOURS
* 30	78.12	78.75	0.63			SILTSTONE	M-DK.GY.VTHNB.XBDG.SLD MUDST INTBS, SS TOWARDS BASE, MNR QTZ VEINING, XBDG MNR
* 27	78.75	81.09	2.34			SILTSTONE	M-DK.GY.VTHNB.XBDG.SLD INTBS OF SS AND MUDST, BEDS INDICATE OVERTURNED, SCOURS, CONVOLUTED BDG
* 22	81.09	81.40	0.31			SILTSTONE	M-DK.GY.VTHNB.SLD AS ABOVE, CONVOLUTED BDG, SCOURS
* 22	81.40	84.00	2.60			MUDSTONE	DK.GY.LAM.SLD INTBS OF SLTST, SLIGHTLY CARB, BECOMES SANDY TOWARDS BASE, TOPS INDICATE OVERTURNED, SCOURS
22	84.00	84.12	0.12			SANDSTONE	FG-M.GY.VTHNB.SLD MUDST RIP-UP CLASTS, SLTST INTBS THINLY BEDDED
* 23	84.12	86.94	2.82			SANDSTONE	VFG-MOD.M.GY.VTHNB.XBDG.SLD MUDST RIP-UP CLASTS IN PART, MNR CARB LAMINATIONS, LISTRIC SURFACES

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
* 45	86.94	87.24	0.30			SILTSTONE	M-DK.GY.VTHNB.SLD AS ABOVE
* 51	87.24	88.36	1.12			SILTSTONE	M-DK.GY.VTHNB.SSD.SLD MUDST INTBS, SS IN PART, FINELY BEDDED, QTZ BAND AT TOP,MNR BIOTURB
* 42	88.36	89.26	0.90			SANDSTONE	FG-.MOD.M.GY.VTHNB.SLD MNR SLTST BANDS, CORE VBRKN AT TOP, HEA VY QTZ VEINING AT TOP, MUDST RIP-UP CLA STS
43	89.26	89.62	0.36			MUDSTONE	M-DK.GY.VTHNB.SSD.BRKN SSD MNR, SLTST INTBS, CARB, LISTRIC SUR FACES, MNR QTZ VEINING
* 44	89.62	90.32	0.70			SANDSTONE	VFG-.MOD.M-DK.GY.VTHNB.SLD COAL INCLUSIONS, LAMINATIONS, QTZ VEINS NEAR TOP, BDG RANGES VTHNB-THNB
* 51	90.32	90.92	0.60			SANDSTONE	VFG-.WEL.M-DK.GY.VTHNB.BRKN QTZ VEINING IN PART
52	90.92	91.85	0.93			MUDSTONE	M-DK.GY.LAM.SLD SLTST INTBS VERY FINELY BEDDED,QTZ VEIN ING IN PART, SLUMP FEATURES
52	91.85	92.22	0.37			MUDSTONE	DK.GY.LAM.BRKN CARB PLANT FRAGS

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
* 53	92.22	93.30	1.08			MUDSTONE	DK.GY.LAM.BRKN AS ABOVE, MOD QTZ VEINING, COAL STRGS I NCREASING TOWARDS BASE
62	93.30	94.14	0.84			MUDSTONE	DK.GY.LAM.BRKN AS ABOVE, 2CM CLY BAND AT TOP, COAL LAM TO COAL BANDS IN PART, COLOUR RANGES D K GY-BLK
* 66	94.14	94.18	0.04	04962	I	COAL	C-4.BLK.SLD QTZ VEINING
66	94.18	94.31	0.13	04962	I	COAL	C-3.BLK.SLD MNR MUDST LAM AT BASE
66	94.31	94.57	0.26	04963	I	MUDSTONE	BLK.SLD COAL LAM INCREASING TOWARDS BASE, MNR C ALCT VEINING
66	94.57	94.82	0.25	04964	I	COAL	C-4.BLK.SLD
66	94.82	94.92	0.10	04964	I	COAL	C-3.BLK.VBRKN

\* DENOTES MEASURED BCA



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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
65	94.92	95.08	0.16	04964	I	COAL	C-4.BLK.VBRKN LAM OF MUDST, PYR LAM, BAND OF BRIGHT AND DULL COAL
65	95.08	95.18	0.10	04964	I	COAL	C-4.BLK.SLD
65	95.18	95.26	0.08	04964	I	COAL	C-4.BLK.BRKN INTBD WITH MUDST
65	95.26	95.30	0.04	04964	I	COAL	C-2.BLK.VBRKN
65	95.30	95.35	0.05	04964	I	MUDSTONE	BLK.LAM.SLD COAL LAMINATIONS
65	95.35	95.47	0.12	04964	I	COAL	C-3.BLK.VBRKN CORE SHEARED AND PULVERIZED, LISTRIC SURFACES
* 65	95.47	95.71	0.24	04964	I	COAL	C-2.BLK.SLD
64	95.71	95.76	0.05	04964	I	MUDSTONE	BRKN MNR PYR

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
62	95.76	96.10	0.34	04964	I	COAL	C-4.BLK.VBRKN CORE PULVERIZED, PROBABLE C-4
* 60	96.10	96.31	0.21	04964	I	COAL	C-4.BLK.SLD
60	96.31	96.40	0.09	04964	I	COAL	C-5.BLK.SLD MUDST LAM
60	96.40	96.45	0.05	04964	I	COAL	C-3.BLK.BRKN
60	96.45	96.48	0.03	04964	I	MUDSTONE	BLK.BRKN
61	96.48	96.53	0.05	04964	I	COAL	C-3.BLK.VBRKN CORE PULVERIZED
61	96.53	96.99	0.46	04964	I	COAL LOSS	
61	96.99	97.01	0.02	04964	I	MUDSTONE	BLK.BRKN
62	97.01	97.12	0.11	04964	I	COAL	C-4.BLK.SLD
62	97.12	97.16	0.04	04964	I	COAL	C-4.BLK.SLD MNR MUDST BANDS TOWARDS BASE

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 62	97.16	97.39	0.23	04965	I	MUDSTONE	PYR.BLK.LAM.SLD COAL LAM
62	97.39	97.69	0.30	04965	I	MUDSTONE	BLK.LAM.VBRKN COAL LAM, SHEARED, LISTRIC SURFACES, CORE PULVERIZED
63	97.69	97.80	0.11	04966	I	ROCK LOSS	
63	97.80	98.11	0.31	04966	I	COAL LOSS	
64	98.11	98.34	0.23	04966	I	COAL	C-5.BLK.VBRKN SHEARED, MNR MUDST BANDS
64	98.34	98.94	0.60	04966	I	COAL	C-5.BLK.VBRKN CORE PULVERIZED AT BASE, DULL BANDED AT BOTTOM, CORE RECOVERY FOR ABOVE SEAM 8 2%
65	98.94	99.43	0.49			MUDSTONE	DK.GY.SLD
67	99.43	100.96	1.53			MUDSTONE	DK.GY.SLD AS ABOVE, BECOMING SLTY TOWARDS BASE, S LTST LAM

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 70	100.96	102.49	1.53			SILTSTONE	M-DK.GY.VTHNB.BIOTR.SLD MUDST INTBS, TOPS UP, XBDG
* 81	102.49	103.88	1.39			MUDSTONE	DK.GY.VTHNB.BIOTR.SLD SLTST INTBS, SLTY TOWARDS BASE
* 82	103.88	105.58	1.70			SILTSTONE	M-DK.GY.VTHNB.BIOTR.SLD MUDST INTBS, TOPS INDICATE UP, SSD FEAT URES, BRECCIATED QTZ INFILL ZONE TOWARD S BASE
84	105.58	106.76	1.18			SILTSTONE	M-DK.GY.VTHNB.SSD.SLD AS ABOVE, BIOTURB
* 85	106.76	107.57	0.81			SILTSTONE	M-DK.GY.VTHNB.BIOTR.SLD AS ABOVE, CORE BRKN AT BASE, MNR FRACTU RE DISPLACEMENT, BIOTURB MNR
83	107.57	107.75	0.18			SILTSTONE	LT.GY.VTHNB.SSD.SLD MUDST INTBS, CALCITIC
* 82	107.75	108.14	0.39			SILTSTONE	M-DK.GY.VTHNB.BIOTR.BRKN SLIGHTLY CALC IN PART, MUDST INTBS, BIO TURB MNR
80	108.14	108.50	0.36			SILTSTONE	M-DK.GY.VTHNB.BIOTR.VBRKN AS ABOVE

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 77	108.50	109.56	1.06			MUDSTONE	DK.GY.VTHNB.SLD MNR SLTST LAM, MNR CALCT VEINING
79	109.56	109.78	0.22			MUDSTONE	DK.GY.SLD FEATURELESS
79	109.78	109.86	0.08			BENTONITE	LT.GY.BRKN
81	109.86	110.91	1.05			MUDSTONE	DK.GY.SLD FEATURELESS
84	110.91	112.52	1.61			MUDSTONE	DK.GY.SLD AS ABOVE,CALC IN PART, MNR PYR INCLUSIO NS, MNR BENTONITE BAND NEAR MIDDLE
* 89	112.52	114.64	2.12			MUDSTONE	DK.GY.VTHNB.SLD AS ABOVE, CORE BRKN NEAR BASE
86	114.64	114.95	0.31			MUDSTONE	DK.GY.SLD AS ABOVE
86	114.95	115.22	0.27			BENTONITE	WH.SLD
85	115.22	115.36	0.14			MUDSTONE	DK.GY.BRKN FEATURELESS

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
83	115.36	117.04	1.68			MUDSTONE	DK.GY.SLD AS ABOVE
80	117.04	118.30	1.26			MUDSTONE	DK.GY.SLD AS ABOVE
76	118.30	120.21	1.91			MUDSTONE	DK.GY.SLD AS ABOVE, MNR PYR INCLUSIONS, SLIGHTLY CALC
* 73	120.21	121.28	1.07			MUDSTONE	DK.GY.SLD AS ABOVE
* 88	121.28	123.36	2.08			MUDSTONE	DK.GY.SLD AS ABOVE, PYR INCLUSIONS THROUGHOUT
87	123.36	124.25	0.89			MUDSTONE	DK.GY.LAM.SLD AS ABOVE, MNR PYR INCLUSIONS
86	124.25	126.52	2.27			MUDSTONE	DK.GY.LAM.SLD AS ABOVE, CORE BRKN IN PART
85	126.52	127.15	0.63			MUDSTONE	DK.GY.LAM.SLD AS ABOVE
85	127.15	127.24	0.09			MUDSTONE	DK.GY.LAM.SLD AS ABOVE

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
85	127.24	127.30	0.06	04967	H	COAL	C-6.BLK.SLD HEAVY QTZ VEINING, PYR INCLUSIONS
85	127.30	127.34	0.04	04967	H	COAL	C-5.BLK.SLD PYR INCLUSIONS
85	127.34	127.39	0.05	04967	H	COAL	C-3.BLK.SLD PYR INCLUSIONS
85	127.39	127.56	0.17	04967	H	COAL	C-3.BLK.VBRKN
85	127.56	127.66	0.10	04967	H	COAL LOSS	
85	127.66	127.80	0.14	04967	H	COAL	C-5.BLK.VBRKN CORE POWDERED, MNR PYR
85	127.80	127.95	0.15	04967	H	COAL	C-1.BLK.SLD MNR QTZ VEINING THROUGHOUT
84	127.95	128.12	0.17	04967	H	COAL	C-4.BLK.VBRKN CORE PULVERIZED, BECOMES MUDDY TOWARDS BASE
84	128.12	128.17	0.05	04968	H	MUDSTONE	CARB.BLK.VBRKN CORE PULVERIZED.
84	128.17	128.21	0.04	04968	H	COAL	C-6.BLK.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

<u>BCA</u>	<u>DEPTH</u> <u>FROM</u>	<u>DEPTH</u> <u>TO</u>	<u>INTRVAL</u> <u>THICK.</u>	<u>SAMP.</u> <u>ID</u>	<u>SEAM</u> <u>ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
84	128.21	128.23	0.02	04968	H	MUDSTONE	PYR.BLK.BRKN
84	128.23	128.29	0.06	04968	H	COAL	C-5.BLK.BRKN
84	128.29	128.32	0.03	04968	H	MUDSTONE	BLK.VBRKN CORE PULVERIZED
84	128.32	128.45	0.13	04968	H	COAL	C-5.BLK.VBRKN CORE PULVERIZED, MUDST LAM, PROBABLE C-5
84	128.45	128.48	0.03	04968	H	COAL	C-6.BLK.BRKN
84	128.48	128.61	0.13	04968	H	COAL	C-4.BLK.VBRKN CORE PULVERIZED, PROBABLE C-4, MNR QTZ VEINING
84	128.61	128.63	0.02	04968	H	MUDSTONE	BLK.SLD
* 84	128.63	128.73	0.10	04968	H	COAL	C-5.BLK.BRKN

\* DENOTES MEASURED BCA



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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
84	128.73	128.80	0.07	04968	H	COAL	C-4.BLK.SLD
84	128.80	128.90	0.10	04968	H	COAL	C-3.BLK.SLD
85	128.90	128.95	0.05	04968	H	COAL	C-5.BLK MUDST LAM
85	128.95	128.98	0.03	04968	H	MUDSTONE	DK.GY.SLD
85	128.98	129.09	0.11	04968	H	COAL	C-5.BLK.VBRKN SHEARED, LISTRIC SURFACES
85	129.09	129.31	0.22	04968	H	COAL	BLK.SLD MUDST INTBS
86	129.31	129.39	0.08	04968	H	COAL	C-3.BLK.SLD
86	129.39	129.43	0.04	04968	H	COAL	C-6.BLK.SLD
* 86	129.43	129.62	0.19	04969	H	MUDSTONE	BLK.SLD COAL LAM THROUGHOUT

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
86	129.62	129.67	0.05	04969	H	COAL	C-5.BLK.SLD MNR MUDST BANDS
86	129.67	129.75	0.08	04969	H	COAL	C-3.BLK.SLD
86	129.75	129.81	0.06	04969	H	COAL	C-6.BLK.SLD CORE RECOVERY FOR ABOVE SEAM 96%
86	129.81	129.91	0.10			MUDSTONE	CARB.DK.GY.SLD
86	129.91	130.00	0.09			MUDSTONE	DK.GY.SLD COAL LAM
86	130.00	130.03	0.03			MUDSTONE	BLK.BRKN COALY
87	130.03	130.14	0.11			MUDSTONE	M.GY.BRKN COAL LAM, COALY
88	130.14	132.19	2.05			MUDSTONE	DK.GY.SLD COAL LAM THROUGHOUT, DECREASING TOWARDS BASE, BECOMONG SLTY TOWARDS BASE
* 89	132.19	132.92	0.73			SILTSTONE	M.GY.VTHNB SS INTBS VERY FINELY BEDDED

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
	87	132.92	133.05	0.13		SILTSTONE	M.GY.VTHNB.SLD AS ABOVE
*	82	133.05	135.76	2.71		SANDSTONE	FG-.PR.LT-M.GY.THNB.SLD MUDST RIP-UP CLASTS, COAL INCLUSIONS TH ROUGHOUT, BECOMES PEBBLY TOWARDS BASE ( CHERT PEBBLES UP TO 0.5CM CLASTS)
	80	135.76	136.12	0.36		SANDSTONE	FG-.PR.LT-M.GY.THNB.SLD AS ABOVE, SCATTERED CHERT PEBBLES THROU GHOUT
	79	136.12	137.89	1.77		SANDSTONE	MG-.LT-M.GY.THNB.SLD AS ABOVE, SCATTERED CHERT PEBBLES THROU GHOUT, COAL INCLUSIONS IN PART, MUDST R IP-UP CLASTS
	77	137.89	138.46	0.57		CONGLOMERATE	LT.GY.THKB.SLD MATRIX SUPPORTED, CHERT PEBBLES, MAX CL AST SIZE 1.5CM
	76	138.46	138.63	0.17		SANDSTONE	MG-.PR.LT.GY.THNB.SLD MNR CHERT PBLs
*	76	138.63	139.20	0.57		SANDSTONE	MG-.MOD.LT.GY.THKB.SLD AS ABOVE, CHERT PBLs AT TOP ONLY

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
82	139.20	141.20	2.00			SANDSTONE	MG-.PR.LT.GY.THKB.SLD AS ABOVE, COAL STRGS IN PART, MNR CHERT PBLs IN PART
87	141.20	141.48	0.28			MUDSTONE	DK.GY.VTHNB.BRKN
87	141.48	141.58	0.10			ROCK LOSS	
* 89	141.58	142.25	0.67			MUDSTONE	DK.GY.LAM.BRKN AS ABOVE, MNR QTZ VEINS
* 78	142.25	144.39	2.14			MUDSTONE	DK.GY.LAM.XBDG.SLD AS ABOVE, MNR SLTY LAM, XBDG MNR
* 88	144.39	145.40	1.01			MUDSTONE	DK.GY.LAM.BIOTR.SLD AS ABOVE
84	145.40	147.26	1.86			MUDSTONE	DK.GY.LAM.SSD.SLD AS ABOVE
82	147.26	147.47	0.21			MUDSTONE	DK.GY.LAM.SLD SLTST LAM
81	147.47	147.52	0.05			BRECCIA	SLD MUDST CLASTS, INFILLED WITH QTZ, DISPLA CEMENT ALONG MNR FRACTURES

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 80	147.52	148.52	1.00			MUDSTONE	DK.GY.LAM.SLD MOD QTZ VEINING AT TOP, MNR SLTST LAM TH ROUGHOUT
* 88	148.52	150.15	1.63			MUDSTONE	DK.GY.LAM.SLD AS ABOVE, MNR SLTST BANDS, NO QTZ VEINI NG
* 85	150.15	151.54	1.39			MUDSTONE	DK.GY.LAM.XBDG.SLD AS ABOVE, TOPS INDICATE UP
86	151.54	153.04	1.50			MUDSTONE	DK.GY.LAM.SLD AS ABOVE
* 87	153.04	154.59	1.55			MUDSTONE	DK.GY.LAM.SLD AS ABOVE
86	154.59	155.24	0.65			MUDSTONE	PYR.DK.GY.LAM.SLD AS ABOVE, COAL LAM TOWARDS BASE. DISSEM INATED PYR AT BASE
86	155.24	155.29	0.05	04970	G	COAL	C-6.BLK.BRKN
86	155.29	155.51	0.22	04970	G	COAL	C-4.BLK.VBRKN CORE PULVERIZED, MNR MUDST LAM
85	155.51	155.85	0.34	04970	G	COAL LOSS	

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
85	155.85	156.14	0.29	04970	G	COAL	C-3.BLK.BRKN
85	156.14	156.31	0.17	04971	G	MUDSTONE	BLK.VBRKN CORE PULVERIZED, COAL LAM THROUGHOUT
85	156.31	156.33	0.02	04972	G	COAL	C-5.BLK.SLD
85	156.33	156.55	0.22	04972	G	COAL	C-3.BLK.SLD
85	156.55	156.59	0.04	04972	G	MUDSTONE	BLK.SLD COAL LAM THROUGHOUT
85	156.59	156.67	0.08	04972	G	COAL	C-3.BLK.SLD MNR MUDST LAM
85	156.67	156.75	0.08	04972	G	MUDSTONE	BLK.LAM.SLD COAL LAM
85	156.75	156.90	0.15	04972	G	COAL LOSS	
84	156.90	157.19	0.29	04972	G	COAL	C-5.BLK.SLD MUDST LAM THROUGHOUT
84	157.19	157.25	0.06	04972	G	MUDSTONE	BLK.LAM.SLD COAL LAM

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
84	157.25	157.49	0.24	04972	G	COAL	C-1.BLK.SLD
* 84	157.49	157.55	0.06	04972	G	MUDSTONE	BLK.LAM SLTST INTBS, COAL LAM
84	157.55	157.73	0.18	04972	G	COAL	C-5.BLK.SLD MUDDY TOWARDS BASE
84	157.73	157.80	0.07	04972	G	MUDSTONE	BLK.SLD COAL LAM
84	157.80	157.90	0.10	04972	G	COAL	C-1.BLK.SLD
84	157.90	157.99	0.09	04972	G	COAL	C-5.BLK.SLD
84	157.99	158.04	0.05	04972	G	COAL	C-4.BLK.SLD
84	158.04	158.13	0.09	04972	G	COAL	C-5.BLK.SLD FUSSIL PLANT REMAINS
83	158.13	158.53	0.40	04973	G	MUDSTONE	BLK.SLD COAL LAM, MNR QTZ VEINING
83	158.53	158.77	0.24	04974	G	COAL	C-3.BLK.SLD

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
83	158.77	158.86	0.09	04974	G	COAL	C-5.BLK.SLD MUDST LAM INCREASING TOWARDS BASE
83	158.86	158.92	0.06	04974	G	MUDSTONE	BLK.LAM.SLD COAL LAM
83	158.92	158.94	0.02	04974	G	COAL	C-2.BLK
83	158.94	159.13	0.19	04974	G	COAL	C-3.BLK.SLD MUDST INTBS
83	159.13	159.18	0.05	04974	G	COAL LOSS	CORE RECOVERY FOR ABOVE SEAM 86%
83	159.18	159.30	0.12		G	MUDSTONE	DK.GY.SLD COAL LAM
83	159.30	159.37	0.07		G	COAL	C-5.BLK.SLD MUDST LAM
83	159.37	159.42	0.05		G	MUDSTONE	BLK.LAM.SLD COAL LAM
83	159.42	159.46	0.04		G	COAL	C-1.BLK.SLD
83	159.46	159.64	0.18			MUDSTONE	BLK.LAM.SLD COALY

\* DENOTES MEASURED BCA



82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 82	159.64	161.22	1.58			MUDSTONE	DK.GY.LAM.SLD COAL INCLUSIONS AND LAM, CARB PLANT FRA GS
82	161.22	161.97	0.75			MUDSTONE	DK.GY.LAM.SLD AS ABOVE
82	161.97	163.06	1.09			MUDSTONE	DK.GY.LAM.SLD COAL LAM THROUGHOUT, SLTST BANDS IN PAR T
* 82	163.06	164.17	1.11			SANDSTONE	FG-.MOD.LT.GY.THNB.SLD SALT AND PEPPER, MNR MUDST LAM THROUGH UT
84	164.17	164.70	0.53			SANDSTONE	FG-.LT.GY.THNB.XBDG.SLD AS ABOVE, GRADES INTO SS AT BASE, XBDG MNR
* 86	164.70	166.11	1.41			SANDSTONE	FG-.LT.GY.THNB.XBDG.SLD AS ABOVE, MUDST LAM, XBDG MNR
85	166.11	166.38	0.27			SS GRIT	PR.LT.GY.SLD PBLY, CLASTS UP TO 2CM, COAL INCLUSIONS THROUGHOUT

\* DENOTES MEASURED BCA

82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 84	166.38	167.39	1.01			SANDSTONE	MG.PR.M.GY.THNB.XBDG.SLD COAL LAM THROUGHOUT, SHALE RIP-UP CLAST S TOWARDS BASE
82	167.39	167.44	0.05			SANDSTONE	PR.M.GY.THNB.SLD AS ABOVE
81	167.44	167.92	0.48			SANDSTONE	FG-.MOD.LT.GY.THNB.SLD CARB LAM, MUDST RIP-UP CLASTS
80	167.92	168.16	0.24			SANDSTONE	FG-.MOD.LT.GY.THNB.SLD NUMEROUS MUDST RIP-UP CLASTS, SLIGHTLY CALC, COALIFIED PLANT FRAGS
* 77	168.16	170.05	1.89			SANDSTONE	FG-.MOD.LT.GY.THNB.XBDG.SLD BANDS OF MUDST RIP-UP CLASTS, COAL INCL USIONS IN PART, XBDG MNR
80	170.05	170.23	0.18			SANDSTONE	FG.MOD.LT.GY.THNB.SLD AS ABOVE
* 84	170.23	173.01	2.78			SANDSTONE	MG-.PR.M.GY.THKB.SLD AS ABOVE, MNR CHERT-GRIT BANDS IN PART, MUDST RIP-UP CLASTS
86	173.01	173.11	0.10			SANDSTONE	MG-.PR.M.GY.THKB.SLD AS ABOVE

\* DENOTES MEASURED BCA

82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 36

PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
	86	173.11	173.67	0.56		SANDSTONE	MG-.PR.M.GY.THKB.SLD AS ABOVE, FINING TOWARDS BASE
*	88	173.67	175.74	2.07		SILTSTONE	DK.GY.LAM.XBDG.SLD SANDY IN PART, MUDST LAM, TOPS INDICATE UP, COAL LAM TOWARDS BASE
	88	175.74	175.98	0.24		MUDSTONE	DK.GY.SLD FEATURELESS
*	87	175.98	178.87	2.89		SILTSTONE	M-DK.GY.LAM.XBDG.SLD AS ABOVE, TOPS UP, INTBS OF MUDST AND SS , MUDST RIP-UP CLASTS IN PART
	84	178.87	179.02	0.15		SILTSTONE	M-DK.GY.LAM.XBDG.SLD AS ABOVE, XBDG MNR
*	81	179.02	181.80	2.78		SILTSTONE	M-DK.GY.LAM.XBDG.SLD AS ABOVE, COAL LAM IN PART, CORE BRKN N EAR BASE, UNIT FINES TOWARDS BASE, MNR SHALE RIP-UP CLASTS
*	88	181.80	182.08	0.28		MUDSTONE	DK.GY.LAM.SLD SLTY IN PART, MNR QTZ VEINING
	87	182.08	182.38	0.30		MUDSTONE	DK.GY.LAM.BRKN AS ABOVE, BECOMES COALY TOWARDS BASE, M NR QTZ VEINING

\* DENOTES MEASURED BCA

82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 37

PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
86	182.38	182.45	0.07	04975	F	COAL	C-5.BLK.VBRKN CORE PULVERIZED, MUDST INTBS
84	182.45	183.07	0.62	04975	F	COAL	C-3.BLK.SLD MNR MUDST LAMS THROUGHOUT
82	183.07	183.11	0.04	04976	F	MUDSTONE	BLK.BRKN
* 82	183.11	183.16	0.05	04976	F	COAL	C-5.BLK.SLD
82	183.16	183.22	0.06	04976	F	MUDSTONE	BLK.LAM.SLD COAL LAM
82	183.22	183.33	0.11	04976	F	COAL	C-4.BLK.SLD
81	183.33	183.45	0.12	04976	F	MUDSTONE	BLK.LAM.BRKN COAL LAM
81	183.45	183.70	0.25	04976	F	ROCK LOSS	
80	183.70	184.56	0.86	04977	F	COAL	C-4.BLK.VBRKN PROBABLE DULL BANDED, MUDST LAM THROUGH OUT, CORE PULVERIZED, CORE RECOVERY FOR ABOVE SEAM 88.5%

\* DENOTES MEASURED BCA

82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
78	184.56	184.70	0.14			MUDSTONE	DK.GY.BRKN
78	184.70	185.12	0.42			SILTSTONE	DK.GY.VTHNB.BRKN MUDST LAM
* 74	185.12	187.52	2.40			SILTSTONE	M-DK.GY.LAM.SSD.SLD AS ABOVE, MUDST INTBS, XBDG
75	187.52	187.67	0.15			SILTSTONE	M-DK.GY.LAM.SLD AS ABOVE
75	187.67	188.06	0.39			SANDSTONE	FG-.PR.M.GY.THNB.SLD COAL LAM AND INCLUSIONS IN PART
76	188.06	190.35	2.29			SANDSTONE	FG.WEL.LT-M.GY.THNB.SLD AS ABOVE, MUDST RIP-UP CLASTS, COARSENS DOWN
77	190.35	191.08	0.73			SANDSTONE	FG-.PR.M-DK.GY.VTHNB.SSD.SLD MUDST INTBS INCREASING TOWARDS BASE, CO AL LAM AND INCLUSIONS THROUGHOUT
78	191.08	191.72	0.64			SANDSTONE	MG-.PR.LT.GY.THKB.SLD MNR CHERT-GRIT FRAGS, SS VERY FRIABLE A T TOP

\* DENOTES MEASURED BCA

82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
79	191.72	193.25	1.53			CONGLOMERATE	PBLY.LT.GY.MAS.SLD MNR SS BEDS, CHERT PBLs UP TO 2CM, MAIN LY MATRIX SUPPORTED
80	193.25	194.09	0.84			CONGLOMERATE	PBLY.PR.LT.GY.MAS.SLD AS ABOVE, MNR QTZ VEINING
80	194.09	194.62	0.53			CONGLOMERATE	LT.GY.SLD AS ABOVE
* 81	194.62	196.15	1.53			SANDSTONE	CG.PR.LT.GY.THKB.SLD CHERT PBLs AND GRIT, BECOMING SPARSE TO WARDS BASE
80	196.15	196.65	0.50			SANDSTONE	MG-.PR.LT.GY.THKB.SLD AS ABOVE, SCATTERED CHERT PBLs
79	196.65	197.27	0.62			CONGLOMERATE	PBLY.LT.GY.BRKN CLASTS UP TO 2.5CM, MATRIX AND PBL SUPP ORTED, COAL BANDS IN PART
77	197.27	198.32	1.05			CONGLOMERATE	LT.GY.VBRKN AS ABOVE
76	198.32	198.64	0.32			SANDSTONE	MG.MOD.M.GY.THNB.SLD GRIT BANDS, COAL LAM, FINES TOWARDS BAS E

\* DENOTES MEASURED BCA

82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 76	198.64	198.96	0.32			SILTSTONE	M.GY.XBDG.SLD MUDST INTBS
80	198.96	200.20	1.24			SILTSTONE	M.GY.XBDG.SLD AS ABOVE, MNR XBDS
* 86	200.20	201.83	1.63			SILTSTONE	LT.GY.LAM.XBDG.SLD AS ABOVE, MUDST INTBS, COAL LAM AND INC LUSIONS IN PART, INCREASING MUDST CONTE NT, MNR XBDG
* 82	201.83	203.15	1.32			MUDSTONE	M.GY.LAM.SLD MNR SLTST LAM, COAL INCLUSIONS MNR, TOP S UP
82	203.15	204.67	1.52			MUDSTONE	M.GY.LAM.SLD AS ABOVE, BECOMING INCREASINGLY CARB, C OAL INCLUSIONS THROUGHOUT
82	204.67	205.28	0.61			MUDSTONE	M.GY.LAM.SLD AS ABOVE
82	205.28	205.52	0.24	04978	E UPPER	COAL	C-3.BLK.SLD
83	205.52	205.60	0.08	04978	E UPPER	COAL LOSS	
83	205.60	205.87	0.27	04978	E UPPER	COAL	BLK.VBRKN MUDST BANDS, OUT OF PLACE

\* DENOTES MEASURED BCA

82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
83	205.87	206.14	0.27	04978	E UPPER	COAL	C-4.BLK.VBRKN PROBABLE C-4. CORE RECOVERY FOR ABOVE SEAM 91%
83	206.14	206.22	0.08			MUDSTONE	SLD MNR COAL LAM
83	206.22	207.39	1.17			MUDSTONE	PYR.DK.GY.LAM.SLD AS ABOVE, MNR QTZ VEINING, PYR AT BOTTOM, COLOUR RANGES DK GY-BLK
83	207.39	208.14	0.75			MUDSTONE	DK.GY.LAM.SLD COAL LAM TOWARDS BASE
83	208.14	208.17	0.03			MUDSTONE	DK.GY.SLD AS ABOVE
83	208.17	208.24	0.07	04979	E LOWER	COAL	C-5.BLK.SLD
83	208.24	208.26	0.02	04979	E LOWER	MUDSTONE	DK.GY.BRKN
83	208.26	208.49	0.23	04979	E LOWER	COAL	C-4.BLK.BRKN
* 83	208.49	208.54	0.05	04979	E LOWER	COAL	C-5.BLK.SLD

\* DENOTES MEASURED BCA



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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
83	208.54	208.72	0.18	04979	E LOWER	COAL	C-4.BLK.BRKN
83	208.72	208.86	0.14	04979	E LOWER	COAL	C-3.BLK.VBRKN CORE PULVERIZED
83	208.86	209.03	0.17	04979	E LOWER	COAL LOSS	
83	209.03	209.12	0.09	04979	E LOWER	COAL	C-2.BLK.BRKN
83	209.12	209.22	0.10	04979	E LOWER	MUDSTONE	DK.GY.BRKN COAL BANDING, COLOUR RANGES DK GY-BLK
83	209.22	209.45	0.23	04979	E LOWER	COAL	C-3.BLK MNR MUDST LAMS, CORE RECOVERY FOR ABOVE SEAM 87%
83	209.45	209.47	0.02			MUDSTONE	BLK.BRKN COAL LAMS
83	209.47	209.67	0.20			MUDSTONE	BLK.BRKN COAL LAMS AND INCLUSIONS, QTZ VEINING T HROUGHOUT
83	209.67	210.00	0.33			MUDSTONE	BLK.SLD AS ABOVE, COAL LAMS

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: HC DATA SOURCE: DDH82003

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
83	210.00	210.02	0.02			CLAYSTONE	BN.SLD
83	210.02	211.84	1.82			MUDSTONE	DK.GY.BRKN COAL LAMS DECREASING TOWARDS BASE, LIST RIC SURFACES, COLOUR RANGES DK GY-BLK
83	211.84	213.61	1.77			SILTSTONE	M.GY.THNB.VBRKN MUDST INTBS, LISTRIC SURFACES, MOD QTZ VEINING
83	213.61	215.48	1.87			SILTSTONE	M.GY.THNB.VBRKN AS ABOVE, HEAVY QTZ VEINING, LISTRIC SU RFACES,//////////END OF CORE, DRIL LERS MARKERS 218.53, TD ACTUALLY 215.48 , 218.53 REPORTED BY DRILLERS PROPOGATE D ERROR FROM A 10* ADDITION ERROR AT 15 7*//////////

\* DENOTES MEASURED BCA

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CENTURY GEOPHYSICAL CORPORATION

\*\*\*\*\* VERTICAL DEVIATION \*\*\*\*\*

COMPU-LOG V8LI DEVIATION

CLIENT : GULF CANADA RES. INC

HOLE ID : DDH-82-003

LOCATION : KLAPPAN MTN.

DATE OF LOG : 08-14-82

DATA FROM : V8L2\*A

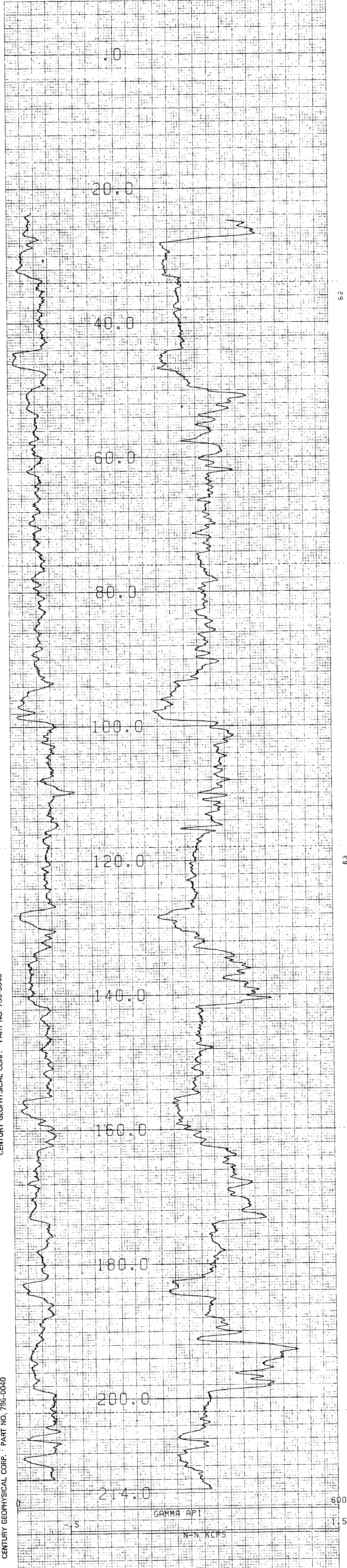
PROBE : 9055A 0065

TD = TOTAL DEPTH

T = TOP OF ZONE

B = BOTTOM OF ZONE

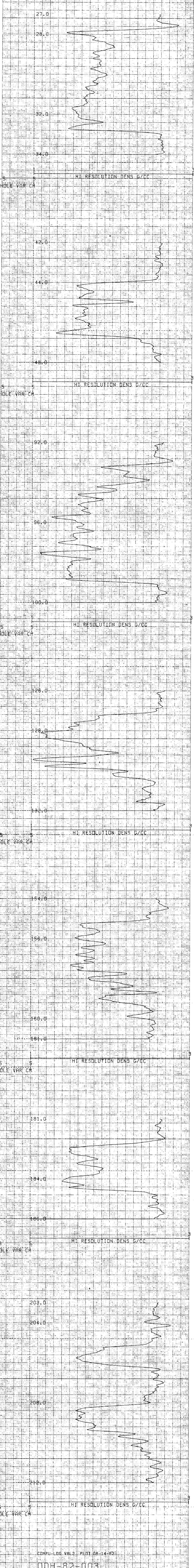
DEPTH	TRUE DEPTH	NORTH DEV	EAST DEV	DISTANCE	AZIMUTH	SA	SAB
00	00	00	00	00	0	0	0
10.00	9.99	.01	-.13	.13	277.1	.8	277.1
20.00	19.99	.03	-.27	.27	277.1	.8	277.1
30.00	29.99	.05	-.41	.41	277.1	.7	277.1
40.00	39.99	.06	-.51	.52	277.6	.6	279.4
50.00	49.99	.11	-.60	.61	280.8	.5	298.1
60.00	59.98	.21	-.71	.74	286.6	.8	310.8
70.00	69.89	.32	-.85	.91	290.9	1.0	308.7
80.00	79.99	.42	-1.03	1.12	292.3	1.1	298.8
90.00	89.98	.47	-1.22	1.30	291.1	1.0	283.5
100.00	99.98	.49	-1.39	1.48	289.6	1.0	279.1
110.00	109.98	.48	-1.54	1.62	287.3	.8	263.1
120.00	119.98	.48	-1.69	1.75	286.0	.8	271.9
130.00	129.98	.49	-1.81	1.88	285.2	.7	273.8
140.00	139.96	.49	-1.94	2.01	284.3	.7	271.0
150.00	149.98	.50	-2.07	2.13	283.6	.7	272.9
160.00	159.98	.51	-2.19	2.25	283.3	.6	277.0
170.00	169.98	.52	-2.29	2.35	282.9	.5	273.0
180.00	179.98	.52	-2.38	2.43	282.5	.5	273.9
190.00	189.98	.53	-2.46	2.52	282.3	.4	274.0
200.00	199.97	.54	-2.55	2.61	282.0	.5	274.8
210.00	209.97	.53	-2.64	2.70	281.4	.5	264.2
TD 214.00	213.97	.52	-2.69	2.74	281.0	.7	259.5



ICOMPU-LOG-V8L2 PLOT 08-14-82

DDH-82-003  
GULF CANADA RES. INC  
KLAPPAN MTN.

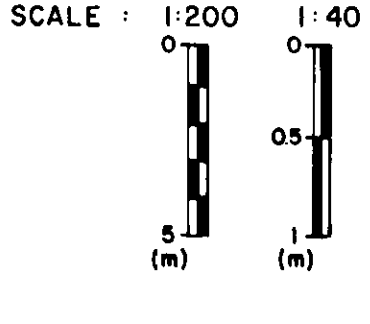
HOLE DIAMETER : 09.6  
 PROBE # 9055A - 065  
 SENSOR #4 CAL STD CPS = 152  
 SENSOR #4 CAL RUN CPS = 272  
 SENSOR #4 CAL BIAS = 0  
 DATA V8L2\*1A TRUCK # P823  
 K. SKARBO APPL #1007L1



COMPU LOG V8L2 PLOT 08-14-82E  
 DDH-82-003  
 GULF CANADA RES. INC  
 KLAPPAN MTN.  
 HOLE DIAMETER = 09.6  
 PROBE # 903DA - 456  
 SENSOR #4 CAL STD CFS = 6588  
 SENSOR #4 CAL RUN CFS = 6043  
 SENSOR #4 CAL BIAS = 14  
 DATA V8L2\*F TRUCK # P825  
 K. SKARBE APPL. #1 TN

110

MOUNT KLAPPAN  
DRILL HOLE LOG  
DDH 82-003



NORTHING : 6343267 N  
EASTING : 55540 E  
INCLINATION : 90°  
BEARING : -

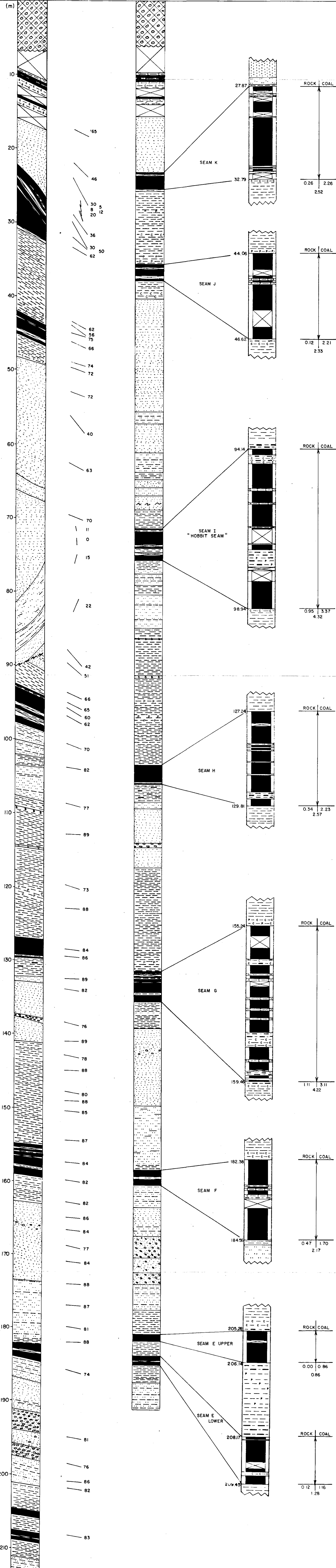
LITHOLOGIC SYMBOLS

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

APPARENT THICKNESS  
1:200

TRUE THICKNESS  
1:200

SEAM DETAIL  
1:40



Total: 215.48m

GULF CANADA RESOURCES INC. - COAL DIVISION  
 22/NOV/82 COMPOSITE SAMPLE SUMMARY PAGE 1

DATA SOURCE	SEAM	SAMPLE ID	SAMPLE FROM	SAMPLE TO	DEPTH FROM	DEPTH TO	REC CORE	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK
DDH82004												
G		25	3508	3508	24.73	29.60	1.13	23.20	0.77	0.36	3.64	0.10
E		26	3509	3509	90.39	91.67	1.14	89.06	1.02	0.12	0.14	0.00
D		27	3510	3510	114.46	114.96	0.21	42.00	0.21	0.00	0.29	0.00
D REPEAT		28	3511	3511	139.84	140.34	0.48	96.00	0.39	0.09	0.02	0.00
E REPEAT		29	3512	3512	150.36	150.81	0.37	82.22	0.37	0.00	0.08	0.00
G		3508			24.73	29.60	1.13	23.20	0.77	0.36	3.64	0.10
E		3509			90.39	91.67	1.14	89.06	1.02	0.12	0.14	0.00
D		3510			114.46	114.96	0.21	42.00	0.21	0.00	0.29	0.00
D REPEAT		3511			139.84	140.34	0.48	96.00	0.39	0.09	0.02	0.00
E REPEAT		3512			150.36	150.81	0.37	82.22	0.37	0.00	0.08	0.00

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 1

PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82004

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
15	0.00	16.70	16.70			OVERBURDEN	
* 15	16.70	17.69	0.99			SANDSTONE	MG.PR.M.GY.THNB.BRKN SLTST INTBS 1-5CM, FRIABLE
15	17.69	18.34	0.65			SANDSTONE	MG.PR.M.GY.THNB.BRKN AS ABOVE
15	18.34	18.63	0.29			SANDSTONE	MG.PR.M.GY.THNB.VBRKN AS ABOVE
15	18.63	18.79	0.16			SANDSTONE	MG.PR.M.GY.THNB.VBRKN AS ABOVE
* 15	18.79	20.42	1.63			SANDSTONE	MG.PR.M.GY.THNB.VBRKN AS ABOVE
16	20.42	20.68	0.26			SANDSTONE	MG.PR.M.GY.THNB.VBRKN AS ABOVE
17	20.68	21.66	0.98			SANDSTONE	MG.PR.M.GY.THNB.SLD AS ABOVE

\* DENOTES MEASURED BCA



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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 2

PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82004

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
* 18	21.66	22.85	1.19			SANDSTONE	FG.MOD.GY.VTHNB.VBRKN CORE STATE BRKN TO VBRKN, SLTST LAMS
* 20	22.85	23.08	0.23			SANDSTONE	FG.MOD.GY.THNB.SLD AS ABOVE
* 19	23.08	24.51	1.43			SILTSTONE	WEL.DK.GY.VTHNB.SLD FINE SS LAMS, COLOUR RANGES DK GY TO BL K
26	24.51	24.73	0.22			SILTSTONE	WEL.DK.GY.VTHNB.SLD AS ABOVE, QTZ AND CALCT VEINS, PYR VEIN S, THN MNR COAL STRGS LESS THAN 1CM, VE INS AND COAL STRGS ARE CONTORTED
27	24.73	24.82	0.09	03508	G	COAL	C-2.BLK.VTHNB.SLD MAINLY BRIGHT WITH SOME DULL BANDS AT T OP
* 28	24.82	24.87	0.05	03508	G	MUDSTONE	CARB.BLK.SLD C-2 COAL BANDS WITH QTZ VEINS ASSOCIATE D
28	24.87	24.99	0.12	03508	G	COAL	C-3.BLK.BRKN BRIGHT WITH DULL BANDS, MNR RUCK BANDS LESS THAN 1CM
33	24.99	26.51	1.52	03508	G	COAL LOSS	

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82004

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
41	26.51	27.74	1.23	03508	G	COAL LOSS	
* 45	27.74	28.07	0.33	03508	G	COAL	C-2.BLK.VBRKN MAINLY BRIGHT, SOME ROCK BANDS
* 22	28.07	28.15	0.08	03508	G	COAL	C-4.BLK.SLD MAINLY COALY ROCK
31	28.15	28.25	0.10	03508	G	ROCK LOSS	
* 45	28.25	28.41	0.16	03508	G	MUDSTONE	CARB.DK.GY.VBRKN MANY COAL STRGS WITH QTZ VEINS ASSOCIATED
* 33	28.41	28.56	0.15	03508	G	CLAYSTONE	DK.GY.SLD COAL LENSES, C-2; QTZ VEINING ASSOCIATED
36	28.56	29.45	0.89	03508	G	COAL LOSS	
* 40	29.45	29.60	0.15	03508	G	COAL	C-2.BLK.BRKN MAINLY COAL BANDS, MNR ROCK BANDS, QTZ VEINS ASSOCIATED
38	29.60	30.37	0.77			MUDSTONE	CARB.DK.GY.SLD MNY COAL STRGS, WARPED, QTZ VEINING ASSOC.

\* DENOTES MEASURED BCA

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## GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82004

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
* 36	30.37	30.41	0.04			MUDSTONE	CARB.DK.GY.SLD AS ABOVE
36	30.41	30.49	0.08			MUDSTONE	CARB.DK.GY.SLD AS ABOVE
37	30.49	30.78	0.29			MUDSTONE	DK.GY.SLD COAL BANDS, QTZ VEINING, VERY HARD
* 37	30.78	30.94	0.16			MUDSTONE	DK.GY.VTHNB.BRKN AS ABOVE
35	30.94	31.88	0.94			ROCK LOSS	
* 30	31.88	32.83	0.95			MUDSTONE	CARB.DK.GY.VTHNB.SLD CRUMBLY, ARG, SLTY AT BASE
28	32.83	32.96	0.13			ROCK LOSS	
33	32.96	33.40	0.44			SILTSTONE	DK.GY.VTHNB.SLD CRUMBLY, LESS SLTY AT BASE
* 44	33.40	34.08	0.68			SILTSTONE	DK.GY.THNB.SLD VMNR QTZ VEIN, VTHN LAM, CRSE ON TOP
44	34.08	34.17	0.09			MUDSTONE	CLYY.LT.GY.VTHNB.SLD SOFT, FRI, POWDERY, CRSE

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82004

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
44	34.17	34.50	0.33			BENTONITE	LT.GY.VTHNB.SLD SOFT, SLTST LAM LESS THAN 1CM, MNR WARP ING, UNCONSOLIDATED, POWDERY
43	34.50	34.67	0.17			MUDSTONE	CLYY.LT.GY.VTHNB.SLD SOFT
43	34.67	35.13	0.46			SANDSTONE	VFG.WEL.LT.GY.THKB.BIOTR.SLD YELLOW TINGE, VMNR QTZ VEINING
43	35.13	35.57	0.44			SANDSTONE	VFG.WEL.M.GY.THKB.SLD VMNR FRAC, VMNR QTZ VEINING, VMNR SLICK ENSLIDED, MNR BIOTURB, SOFT
42	35.57	36.04	0.47			SANDSTONE	FG.LT.GY.VTHNB.SLD BRKN IN PART, DK GY SLTST INTBS UP TO 5 CM
42	36.04	36.29	0.25			BENTONITE	LT.GY.VTHNB.BRKN CLY STRGS, POWDERED
42	36.29	36.37	0.08			BENTONITE	LT.GY.VTHNB.BRKN AS ABOVE
41	36.37	37.91	1.54			SANDSTONE	VFG.WEL.LT.GY.VTHNB.BIOTR VMNR QTZ VEINING, YELLOW TINGE, WRM BUR S, THN SLTST LAMS, CRACK INFILLING INDI CATE TOPS UP

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82004

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
* 40	37.91	39.89	1.98			SANDSTONE	FG-.WEL.M.GY.VTHNB.SLD BIOTURB AT TOP, MNR XBDS INDICATE TOPS UP, MNR QTZ AND CALCT VEINING, MNR CLY NODULES
44	39.89	40.09	0.20			SANDSTONE	FG-.WEL.M.GY.VTHNB.SLD AS ABOVE
* 45	40.09	40.42	0.33			SILTSTONE	M.GY.VTHNB.SLD FINE SS LAMS
* 44	40.42	42.13	1.71			SANDSTONE	FG.WEL.M.GY.VTHNB.SLD SLTST INTBS UP TO 1CM, MNR CLY NODS, MNR BIOTURB, MNR YELLOW TINGE, MNR QTZ VEINING, LITTLE TO NO LAMS AT BASE, THICKER TOWARDS BASE
36	42.13	42.34	0.21			SANDSTONE	CLYY.LT.GY.VTHNB.SLD AS ABOVE
* 27	42.34	44.27	1.93			SANDSTONE	FG.WEL.M.GY.VTHNB.SLD VMNR QTZ VEINS, VERY FINE LAMS, POSSIBLE XBDG, CUT AND FILL INDICATE TOPS UP, MNR BIOTURB
* 32	44.27	45.42	1.15			SANDSTONE	FG.WEL.M.GY.VTHNB.BIOTR.SLD AS ABOVE, SLTST INTBS UP TO 5CM

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82004

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 29	45.42	46.47	1.05			SANDSTONE	FG.WEL.M.GY.VTHNB.SLD AS ABOVE, VMNR CALCT AND QTZ VEINING, M ORE SLTY THAN ABOVE
* 32	46.47	48.22	1.75			SANDSTONE	FG.WEL.M.GY.VTHNB.SLD AS ABOVE, BRKN IN PART, BECOMING FG AT BASE
* 32	48.22	48.56	0.34			SANDSTONE	FG.WEL.DK.GY.VTHNB.SLD AS ABOVE
* 29	48.56	50.74	2.18			SANDSTONE	VFG-.WEL.DK.GY.VTHNB.SLD MNR CLY BANDS, VMNR BIOTRUB, SILTIER AT BASE
* 33	50.74	50.87	0.13			SILTSTONE	DK.GY.VTHNB.SLD BANDED, DK GY-BLK; MNR SS LAM
33	50.87	50.90	0.03			BENTONITE	CLYY.LT.GY.SLD
33	50.90	50.97	0.07			SILTSTONE	DK.GY.VTHNB.SLD AS ABOVE
33	50.97	51.78	0.81			SILTSTONE	DK.GY.THKB.SLD AS ABOVE, VERY FINE SS IN PART, VMNR BIU TURB

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LUG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82004

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
33	51.78	51.80	0.02			CLAYSTONE	LT.GY.SLD SOFT
33	51.80	51.87	0.07			CLAYSTONE	M.GY.THKB.SLD SOFT
33	51.87	52.71	0.84			SILTSTONE	DK.GY.THKB.SLD AS ABOVE, NO BANDS OR BIOTURB
34	52.71	53.06	0.35			CLAYSTONE	M.GY.THKB.SLD SOFT
34	53.06	53.26	0.20			SILTSTONE	M.GY.THNB MNR QTZ AND CALCT VEINING
34	53.26	53.32	0.06			SILTSTONE	M.GY.THNB.SLD AS ABOVE
34	53.32	53.34	0.02			CLAYSTONE	CARB.M.GY.SLD SOFT
34	53.34	54.18	0.84			SILTSTONE	CARB.DK.GY.THNB.BRKN MNR SLICKENSLIDES, VMNR QTZ VEINING, MN R CLY BANDS, THN COAL BANDS LESS THAN 1 CM
34	54.18	54.22	0.04			CLAYSTONE	M.GY.VTHNB.SLD VERY SOFT

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82004

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
34	54.22	54.43	0.21			SILTSTONE	M.GY.VTHNB.VBRKN LIGHTER COLOURED CLYST INTBS
34	54.43	54.51	0.08			SILTSTONE	M.GY.THNB.SLD HARD, MNR FRAC, MNR SLICKENSLIDES
34	54.51	55.35	0.84			SILTSTONE	CARB.DK.GY.THNB.SLD MNR CLY BANDS LESS THAN 1CM, MNR SLICKE NSLIDES, BRKN IN PART, CLEAVES WELL
34	55.35	57.04	1.69			SILTSTONE	DK.GY.THNB.SLD CLY BANDS APPEAR TO BE GREATER THAN 1 C M BUT NOT POSSIBLE TO DETERMINE DUE TO BRKN CORE STATE, PLANT FOSSILS
35	57.04	57.37	0.33			SILTSTONE	DK.GY.THNB.SLD AS ABOVE
35	57.37	57.42	0.05			SILTSTONE	DK.GY.THNB.SLD AS ABOVE
35	57.42	57.46	0.04			CLAYSTONE	WEL.GY.SLD SOFT, UNCON
35	57.46	57.70	0.24			SILTSTONE	DK.GY.THNB.SLD AS ABOVE
35	57.70	58.07	0.37			SANDSTONE	VFG.WEL.DK.GY.VTHNB.SLD MNR FRAC, MNR QTZ VEINING, MNR BIOTURB

\* DENOTES MEASURED BCA



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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82004

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
35	58.07	58.10	0.03			CLAYSTONE	CARB.BLK.SLD MNR COAL STRGS
35	58.10	58.12	0.02		F	COAL	C-2.BLK.SLD
35	58.12	58.17	0.05		F	COAL	C-3.BLK.SLD BRIGHT WITH DULL BANDS
35	58.17	58.25	0.08			CLAYSTONE	CARB.BLK.SLD VMNR QTZ VEINING, COAL STRGS
35	58.25	58.31	0.06			CLAYSTONE	GY.SLD VMNR QTZ VEINING, VMNR COAL STRGS, SLIGHTLY WARPED
35	58.31	58.40	0.09			SILTSTONE	CARB.WEL.DK.GY.VTHNB.SLD M-HD, COALY IN PARTS, MNR QTZ FRAC
* 35	58.40	59.42	1.02			SILTSTONE	M.GY.VTHNB.SLD VERY FINE LAM, MNR QTZ FRAC, HD, VMNR BIOTURB, CUT AND FILL INDICATE TOPS UP
* 33	59.42	59.79	0.37			SILTSTONE	M.GY.VTHNB.SLD LAM, MNR BIOTURB
35	59.79	60.82	1.03			SANDSTONE	FG.WEL.M.GY.VTHNB.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82004

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 37	60.82	61.54	0.72			SANDSTONE	FG.WEL.M.GY.VTHNB.SLD LAM, SLTY TOWARDS TOP, VMNR BIOTURB, CUT AND FILL INDICATE TOPS UP
* 34	61.54	62.39	0.85			SANDSTONE	FG.WEL.M.GY.VTHNB.SLD AS ABOVE,CUT AND FILL INDICATE TOPS UP, MNR QTZ AND CALCT VEINING, MNR BIOTURB
33	62.39	62.68	0.29			SANDSTONE	MG.WEL.LT.GY.THKB.SLD MNR BIOTURB, THN SLT BANDS
31	62.68	63.66	0.98			SANDSTONE	MG.WEL.LT.GY.THKB.WRMBU.SLD AS ABOVE, WRM BURS INDICATE TOPS UP
27	63.66	65.59	1.93			SANDSTONE	MG.MOD.GY.THKB.SLD SLIGHT BIOTURB, COARSENING AT BASE, S&P AT BASE, V HD
25	65.59	65.68	0.09			SANDSTONE	MG.MOD.GY.THKB.SLD AS ABOVE
* 22	65.68	67.66	1.98			SANDSTONE	MG.MOD.M.GY.THKB.WRMBU.SLD AS ABOVE, MNR QTZ VEINING, S&P, BIOTURB IN PART, WRM BURS INDICATE TOPS UP
30	67.66	67.81	0.15			SANDSTONE	MG.MOD.M.GY.THKB.SLD AS ABOVE

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82004

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 36	67.81	69.31	1.50			SANDSTONE	MG.MOD.M.GY.THKB.SLD AS ABOVE, MORE CG AT BASE, VMNR QTZ FRA C, V HD
35	69.31	69.66	0.35			SANDSTONE	CG.MOD.M.GY.THKB.SLD
35	69.66	71.60	1.94			SANDSTONE	MG.LT.GY.VTHKB.VBRKN MNR QTZ VEINING
34	71.60	71.97	0.37			SANDSTONE	MG.LT.GY.VTHKB.SLD AS ABOVE
33	71.97	73.79	1.82			SANDSTONE	MG.LT.GY.VTHKB.SLD AS ABOVE
* 32	73.79	75.87	2.08			SANDSTONE	MG.LT.GY.VTHKB.SLD AS ABOVE, FINING TOWARDS BASE, MNR LAM TOWARDS BASE, MNR QTZ VEINS PARALLEL TO BDG, QTZ STRGS INTERMINGLED WITH BDS A T BASE
* 33	75.87	77.69	1.82			SANDSTONE	FG.M.GY.VTHKB.SLD MNR QTZ VEINS, MNR FLOW FEATURES, VMNR PYR FLECKS, MNR SLICKENSLIDES

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82004

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 31	77.69	79.83	2.14			SANDSTONE	FG.M.GY.VTHKB.SLD AS ABOVE, CUT AND FILL INDICATE TOPS UP , MNR BIOTURB, VMNR QTZ STRGS PARALLEL TO BDG
* 28	79.83	80.82	0.99			SANDSTONE	FG.M.GY.VTHNB.SLD AS ABOVE, MNR CUT AND FILL FEATURES
29	80.82	81.91	1.09			SANDSTONE	FG.M.GY.VTHNB.SLD AS ABOVE
* 31	81.91	83.87	1.96			SANDSTONE	FG.WEL.M.GY.VTHNB.SLD AS ABOVE, CUT AND FILL FEATURES, TOPS U PRIGHT, LESS BIOTURB, SLT LAM UP TO 1CM
* 31	83.87	85.97	2.10			SANDSTONE	FG.WEL.M.GY.VTHNB.SLD AS ABOVE, WRMBUR, CRACK INFILLING, FLAM E FEATURES INDICATE TOPS UP, HARD SLTST INTBS
* 36	85.97	86.95	0.98			SANDSTONE	FG.WEL.M.GY.VTHNB.SLD AS ABOVE, MNR CRACK FILLS, MNR SCOUR FI LLS, WRMBUR INDICATE TOPS UP, MNR FLAME STRUCTURES, HARD
* 32	86.95	88.11	1.16			SANDSTONE	FG.WEL.M.GY.VTHNB.SLD AS ABOVE, QTZ VEIN 3 CM THICK PARALLEL TO BDG

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82004

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 29	88.11	89.68	1.57			SANDSTONE	FG.WEL.M.GY.VTHNB.SLD AS ABOVE, CUT AND FILL INDICATE TOPS UP , QTZ VEIN 1 CM THICK PARALLEL TO BDG, COAL STRIPS INVOLVED WITH QTZ
34	89.68	90.25	0.57			SILTSTONE	DK.GY.VTHNB.SLD V MNR SLICKENSLIDES, SSY TOWARDS TOP, B DS THICKEN TOWARDS BASE, M-HD, CLEAVES ALONG BDG
36	90.25	90.36	0.11			SILTSTONE	M.GY.THNB.SLD V HARD
36	90.36	90.39	0.03			CLAYSTONE	CARB.BLK.SLD V COALY, QTZ VEINS, CALCT VEINING
* 37	90.39	90.56	0.17	03509	E	COAL	C-5.BLK.SLD
37	90.56	91.06	0.50	03509	E	COAL	C-2.BLK.SLD CONTORTED, V ASHY, LIGHT, SOFT, MNR ROC K BANDS, CORE BRKN AT BOTTOM
36	91.06	91.20	0.14	03509	E	COAL LOSS	
36	91.20	91.32	0.12	03509	E	CLAYSTONE	CARB.DK.GY.SLD BRIGHT COAL STRGS

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82004

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
36	91.32	91.67	0.35	03509	E	COAL	C-2.BLK.SLD MNR ROCK BANDS
* 35	91.67	92.40	0.73			SILTSTONE	DK.GY.THKB.SLD COALY STRGS AT TOP, V MNR QTZ VEINING, V HD, STRGS ARE CONTORTED, CARB AT TOP
36	92.40	93.07	0.67			SILTSTONE	DK.GY.VTHNB.SLD AS ABOVE, MNR QTZ AND CALCT VEINING, V MNR FRACTURE FEATURES
38	93.07	94.56	1.49			SILTSTONE	DK.GY.VTHNB.SLD AS ABOVE, COAL LENSES, VF LAMS
* 40	94.56	96.16	1.60			SANDSTONE	FG-.M.GY.VTHNB.BIOTR.SLD VF LAMS AT TOP, V MNR QTZ STRGS PARALLE L TO BDG, CRACK AND BURROW FILL INDICAT E TOPS UP
43	96.16	96.66	0.50			SANDSTONE	FG-.M.GY.VTHNB.SLD AS ABOVE, QTZ VEIN, VUGGY, V MNR FRAC, SLICKENSLIDES
* 47	96.66	98.78	2.12			SANDSTONE	FG-.M.GY.VTHNB.BIOTR.SLD AS ABOVE, BANDS SLIGHTLY CONTORTED AT T OP, TOPS UP, MNR QTZ VEINING, SILTIER A T BASE

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82004

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	44	98.78	99.08	0.30		SANDSTONE	FG-.M.GY.VTHNB.SLD AS ABOVE, FINER TOWARDS BASE
	43	99.08	99.26	0.18		SANDSTONE	FG-.M.GY.VTHNB.SLD AS ABOVE
*	40	99.26	101.13	1.87		SILTSTONE	DK.GY.VTHNB.SLD SSY AT TOP, SLIGHTLY BIOTURB INDICATE T OPS UP, PYR NODS, HD
	37	101.13	101.72	0.59		SILTSTONE	DK.GY.VTHNB.SLD AS ABOVE, HD
*	36	101.72	101.79	0.07		SANDSTONE	FG.WEL.GY.VTHNB.SLD SOFT, CRUMBLY
	37	101.79	102.26	0.47		SANDSTONE	VFG-.WEL.M-DK.GY.VTHNB.SLD MNR FLOW FEATURES, VFG SS INTBD WITH FG SS
*	40	102.26	103.31	1.05		SANDSTONE	VFG-.WEL.GY.VTHNB.SLD AS ABOVE, V MNR PYR STRGS AND LENSES, L ESS LAMS TOWRDS BASE, SOFT
	42	103.31	104.70	1.39		SANDSTONE	VFG.WEL.DK.GY.THNB.SLD CRUMBLY, FG SSY PATCHES, MNR PYR NODS F OUND THROUGHOUT, SOFT

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82004

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
43	104.70	104.82	0.12			SILTSTONE	DK.GY.THNB.SLD M-HD, PYR, OVERALL GREENISH TINGE
43	104.82	105.05	0.23			CLAYSTONE	CARB.BLK.THNB.SLD COALY IN PART, PYR NODS, MNR QTZ VEININ G, FISSILE
43	105.05	105.07	0.02			CLAYSTONE	GY SOFT
43	105.07	105.25	0.18			SILTSTONE	DK.GY.THNB.SLD CRUMBLY, PYR NODS
43	105.25	105.47	0.22			SILTSTONE	DK.GY.THNB.SLD AS ABOVE
* 45	105.47	107.68	2.21			SILTSTONE	DK.GY.VTHNB.SLD CRUMBLY, M-HD, PYR
* 47	107.68	108.25	0.57			MUDSTONE	CLYY.DK.GY.VTHNB.SLD PYR, M-HD, CRUMBLY
* 46	108.25	109.89	1.64			SILTSTONE	DK.GY.VTHNB.SLD V MNR CLY BANDS AND CLY NODS, GRADES FR OM AN ARG MDST TO SLTST, MNR QTZ VEININ G

\* DENOTES MEASURED BCA



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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82004

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 46	109.89	110.50	0.61			SILTSTONE	DK.GY.VTHNB.SLD M-HD, MORE FREQUENT QTZ VEINING WITH COAL STRGS INVOLVED, CLYY IN PART
41	110.50	111.23	0.73			SILTSTONE	CARB.DK.GY.SLD QTZ VEINING THROUGHOUT, PYR VEINS, HIGHLY CONTORTED, COALY, CONCHOIDAL FRAC, COAL STRGS, INVOLVED WITH QTZ VEINING, GREENISH TINGE
* 36	111.23	111.87	0.64			CLAYSTONE	CARB.BLK.VTHNB.SLD BRKN IN PARTS, MNR CLY BANDS, SOFT, QTZ VEINING THROUGHOUT, COAL BANDS UP TO 1 CM INVOLVED IN QTZ VEINING, WARPING
39	111.87	112.33	0.46			CLAYSTONE	GY.THKB.SLD MNR QTZ VEIN, MNR COAL STRGS, CARB IN PART, HARDER AT BASE
41	112.33	112.61	0.28			MUDSTONE	CARB.DK.GY.VTHNB.SLD MNR CLY BANDS
* 42	112.61	112.74	0.13			CLAYSTONE	GY.SLD VV MNR QTZ VEINS, V HD
44	112.74	113.62	0.88			SILTSTONE	CARB.DK.GY.VTHNB.SLD CLY BANDS UP TO 3 CM, COAL STRGS, C-3 BANDS

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82004

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
45	113.62	113.65	0.03			SILTSTONE	GY.VTHNB.SLD HD, COAL AND QTZ STRGS
45	113.65	113.75	0.10			COAL	C-3.BLK.BRKN INTBD THIN ROCK BANDS, DULL WITH BRIGHT BANDS
46	113.75	114.07	0.32			ROCK LOSS	
* 47	114.07	114.34	0.27			CLAYSTONE	DK.GY.SLD MNR COAL STRGS
46	114.34	114.43	0.09			MUDSTONE	CLYY.DK.GY.THNB.SLD MANY COAL STRGS WITH QTZ VEINS ASSOCIAT ED
46	114.43	114.46	0.03			MUDSTONE	CLYY.DK.GY.THNB.SLD AS ABOVE
45	114.46	114.67	0.21	03510	D	COAL	C-2.BLK.VBRKN MAINLY BRIGHT WITH DULL BANDS, MNR ROCK STRGS
44	114.67	114.96	0.29	03510	D	COAL LOSS	
* 43	114.96	115.01	0.05			CLAYSTONE	BRKN V COALY, MNR QTZ VEINS

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82004

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
44	115.01	116.52	1.51			SILTSTONE	M.GY.VTHNB.SLD BRKN IN PART, M HD, CLY IN PARTS, SSY T OWARDS BASE, PYR LENSES
45	116.52	116.64	0.12			SANDSTONE	MG.LT.GY.THNB.SLD
* 45	116.64	117.21	0.57			SANDSTONE	MG.MOD.LT.GY.VTHNB.SLD INTBD CLYY SS, V SOFT, UP TO 4CM THICK, SLTST BANDS, SS IS HD
46	117.21	117.56	0.35			SILTSTONE	DK.GY.VTHNB.SLD INTBD CLYY SS AS ABOVE, QTZ PARALLEL TO BDG 2CM THICK
48	117.56	118.00	0.44			ROCK LOSS	
* 50	118.00	119.18	1.18			SANDSTONE	CG.S-P.GY.VTHNB.SLD INTBD DK GY SLTST, HD, MNR CLY STRGS
* 47	119.18	120.97	1.79			SANDSTONE	CG.S-P.GY.THNB.SLD AS ABOVE, FEWER SLTST BANDS, MORE CLY-S S BANDS, UP TO .7CM, SLTIER AT BASE, V HD, CRACK INFILLING INDICATE TOPS UP

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82004

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
46	120.97	121.23	0.26			SANDSTONE	CG.S-P.GY.THNB.SLD AS ABOVE, CLY BANDS UP TO 4CM, MNR QTZ VEINING
46	121.23	122.09	0.86			SANDSTONE	CG.S-P.GY.THNB.SLD AS ABOVE, MNR QTZ VEINING
* 45	122.09	122.55	0.46			SANDSTONE	VFG-.M.GY.VTHNB.SLD V FINE DK GY BANDS, CUT AND FILL INDICATE TOPS UP, MNR QTZ VEINING PARALLEL TO BDG
44	122.55	123.48	0.93			SILTSTONE	DK.GY.VTHNB.SLD V FINE SS LAM, MNR CLY BANDS, MNR QTZ VEINING ALONG BDG, HD
44	123.48	123.52	0.04			SILTSTONE	DK.GY.VTHNB.SLD AS ABOVE
44	123.52	123.84	0.32			SANDSTONE	VFG.DK.GY.VTHNB.SLD SLIGHTLY LAM, M-HD
44	123.84	124.12	0.28			SILTSTONE	DK.GY.VTHNB V HD, SLIGHTLY LAM
43	124.12	124.37	0.25			SILTSTONE	DK.GY.VTHNB.SLD AS ABOVE, CRUMBLY, V MNR CLAY BANDS

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82004

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
43	124.37	124.51	0.14			SANDSTONE	FG.M.GY.VTHNB.BRKN QTZ VEINING PARALLEL TO BDG, MNR CARB S TRGS
43	124.51	125.56	1.05			SANDSTONE	VFG.DK.GY.THNB M HD, CRUMBLY
* 42	125.56	126.15	0.59			SANDSTONE	VFG.DK.GY.THNB
43	126.15	126.21	0.06			SILTSTONE	M.GY.THNB.SLD V HD
44	126.21	126.57	0.36			SILTSTONE	DK.GY.SLD CRUMBLY, M-HD, CLY BAND AT BASE 1CM THI CK
46	126.57	127.67	1.10			MUDSTONE	DK.GY.THKB.SLD CRUMBLY, M-HD, SLIGHTLY ARG
48	127.67	128.06	0.39			MUDSTONE	DK.GY.THKB.SLD AS ABOVE
49	128.06	128.51	0.45			SANDSTONE	VPR.DK.GY.VTHNB.SLD SPECKLED WITH QTZ, MORE TOWARDS BASE, S LT BANDS

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82004

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
51	128.51	129.04	0.53			SANDSTONE	MG.DK.GY.THNB.SLD GRAIN SIZE RANGES FG TO CG, V SPECKLED WITH QTZ AND PERHAPS FELDSPAR, V MNR FL OW STRUCTURES, MORE COARSE AT BASE
52	129.04	129.69	0.65			SANDSTONE	MG.LT.GY.THKB.SLD SLIGHTLY BIOTURB, COARSER IN PARTS
55	129.69	131.05	1.36			SANDSTONE	FG.LT.GY.THKB.SLD COARSENS TOWARDS BASE, MORE BIOTURB TOW ARDS BASE, MNR QTZ VEINING
58	131.05	131.28	0.23			SANDSTONE	MG.M.GY.VTHNB.SLD COARSE AT TOP, INTBD FINER SS WITH MNR QTZ VEINING, MNR SLICKENSLIDES, HD
59	131.28	131.74	0.46			SANDSTONE	MG.DK.GY GRAIN SIZE RANGES FG TO CG, V SPECKLED WITH QTZ AND PERHAPS FELDSPAR, V MNR FL OW STRUCTURES, MORE COARSE AT TOP
60	131.74	132.35	0.61			SANDSTONE	PBLY.PR.DK.GY.THNB.SLD SPECKLED WITH QTZ, MORE AT TOP-FINER BA NDS, VERGING CONGLOMERATIC
62	132.35	132.62	0.27			MUDSTONE	BLK CRUMBLY, M-HD, SLIGHTLY ARG, QTZ VEININ G

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82004

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
63	132.62	133.35	0.73			MUDSTONE	BLK.THKB.SLD AS ABOVE, M-HD, QTZ VEINING PARALLEL TO BDG, INTBD WITH HARDER SLTST BANDS, NO T CRUMBLY
64	133.35	133.43	0.08			SILTSTONE	DK.GY.SLD V HD
* 65	133.43	133.79	0.36			SILTSTONE	M.GY.VTHNB.SLD M-HD, MNR MDST BANDS, THINLY LAM
68	133.79	134.54	0.75			SILTSTONE	M.GY.VTHNB.SLD AS ABOVE, QTZ VEIN 2CM THICK, MNR QTZ V EINING, HD
70	134.54	134.61	0.07			MUDSTONE	CLYY.DK.GY.THKB.SLD V MNR QTZ VEINING
73	134.61	135.60	0.99			SILTSTONE	M.GY.VTHNB.SLD M-HD TO HD, SSY LAM
* 76	135.60	135.87	0.27			SILTSTONE	M.GY.VTHNB.SLD INTBD F-MG SS
75	135.87	135.94	0.07			SANDSTONE	FG.MGD.M.GY.VTHNB.SLD MNR QTZ VEINING WITH COAL STRGS ASSOCIA TED

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82004

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 72	135.94	136.50	0.56			SANDSTONE	MG-.WEL.LT.GY.VTHNB.SLD INTBD FINER SS AND SLTST, COARSER GRAIN ED AT BASE, V MNR QTZ VEINING, FEW COAL STRGS
* 78	136.50	137.62	1.12			SILTSTONE	M.GY.VTHNB.SLD INTBD CLYY SAND LESS THAN 1CM
80	137.62	137.96	0.34			SANDSTONE	MG.M.GY.VTHNB.SLD QTZ VEINED, INTBD DK GY SLTST, MNR CLAY BAND 2CM AT BASE, SOFT
81	137.96	138.06	0.10			SILTSTONE	M.GY.VTHNB.SLD INTBD CLYY SS
* 82	138.06	138.54	0.48			SANDSTONE	FG-.GY.VTHNB.SLD INTBD SLTST AND V FG SS, SS IS HD, SLTS T IS V HD
82	138.54	138.69	0.15			SANDSTONE	VCG.PR.LT.GY.VTHNB.SLD FG IN PARTS, INTBD SLTST, CUT AND FILL INDICATE TOPS OVERTURNED, SS V V HD
82	138.69	138.80	0.11			SILTSTONE	GY.VTHNB.SLD INTBD F-MG SS, SLTST IS HD, SS SLIGHTLY FRIABLE

\* DENOTES MEASURED BCA



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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82004

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 82	138.80	139.57	0.77			SANDSTONE	VFG.MOD.DK.GY.VTHNB.SLD THINLY LAM, FLAME STRUCTURES INDICATE T OPS OVERTURNED
84	139.57	139.68	0.11			CLAYSTONE	WEL.BLK.SLD SOFT, CRUMBLY, SLIGHTLY CARB
84	139.68	139.84	0.16			SILTSTONE	WEL.DK.GY.VTHNB.SLD INTBD MDST, BLK AND BN-GY AND CLYST STR GS; PYR LENSES AND FLECKS, V MNR QTZ ST RGS PARALLEL TO BDG, COAL STRGS
85	139.84	139.95	0.11	03511	D REPEAT	COAL	C-3.BLK.BRKN QTZ VEINED, V MNR CLY BANDS, BRIGHT WIT H DULL BANDS, CRUMBLY
* 85	139.95	139.98	0.03	03511	D REPEAT	CLAYSTONE	CARB.DK.BN.SLD V SOFT, MNR COAL STRGS
84	139.98	140.03	0.05	03511	D REPEAT	COAL	C-2.BLK.BRKN BRIGHT, CRUMBLY
83	140.03	140.18	0.15	03511	D REPEAT	COAL	C-2.BLK.SLD MAINLY BRIGHT WITH DULL BANDS, V MNR QT Z VEINING
81	140.18	140.24	0.06	03511	D REPEAT	COAL	C-2.BLK.SLD HD, BRIGHT WITH DULL BANDS

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82004

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
80	140.24	140.30	0.06	03511	D REPEAT	MUDSTONE	CARB.BLK.SLD V MNR COAL STRGS, MNR QTZ VEINS AND SLI CKENSIDES ASSOCIATED, BRKN AT BASE
79	140.30	140.32	0.02	03511	D REPEAT	COAL LOSS	
79	140.32	140.34	0.02	03511	D REPEAT	COAL	C-2.BLK.SLD BRIGHT WITH DULL BANDS
79	140.34	140.40	0.06			CLAYSTONE	CARB.DK.GY.SLD HD, COAL STRGS
77	140.40	140.48	0.08			CLAYSTONE	CARB.DK.GY.SLD V COALY, COAL BANDS UP TO 1.5CM THICK, QTZ VEINING
74	140.48	140.83	0.35			CLAYSTONE	CARB.BLK.SLD COAL STRGS, CLEAVES WELL, SOFT, VV MNR QTZ VEINING
* 70	140.83	140.97	0.14			MUDSTONE	DK.GY.VTHNB.SLD HD, INTBD VTHN CARB MDST.
70	140.97	141.37	0.40			CLAYSTONE	CARB.BLK.VTHNB.SLD LAM, MNR QTZ VEINING, V MNR LAM OF GY C LY, V COALY, CLEAVES

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82004

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
71	141.37	141.52	0.15			MUDSTONE	CARB.BLK.THNB.SLD MNR QTZ VEINING, MEDIUM HD
71	141.52	141.67	0.15			CLAYSTONE	CARB.BLK.VTHNB.SLD INTBD GY CLY, V MNR QTZ VEINING, BREAKS ALONG CLEAVAGE
71	141.67	141.98	0.31			MUDSTONE	CLYY.DK.GY.VTHNB.SLD ARG, M-HD, QTZ VEINED IN PART, CLEAVES
71	141.98	142.20	0.22			CLAYSTONE	DK.GY.THNB.SLD BREAKS ALONG CLEAVAGES, M-HD
* 73	142.20	144.44	2.24			MUDSTONE	CLYY.DK.GY.VTHNB.SLD ARG, BANDS OF HARDER CLYST CLEAVE DIFFE RENTLY FROM MUDST, MUDST CLEAVES ON BDG SURFACE, M-HD
84	144.44	144.49	0.05			MUDSTONE	CLYY.DK.GY.VTHNB.SLD ARG, AS ABOVE
* 87	144.49	145.09	0.60			SANDSTONE	VFG.DK.GY.VTHNB.SLD LAM, INTBD VFG SS AND FG SS, CRUMBLY
87	145.09	145.27	0.18			SANDSTONE	VFG.DK.GY.VTHNB.SLD AS ABOVE, CUT AND FILL INDICATE TOPS OV ERTURNED

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82004

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
* 87	145.27	146.62	1.35			SILTSTONE	DK.GY.VTHNB.SLD FINELY LAM, HD, DEFINITE GRIT
* 87	146.62	147.13	0.51			SILTSTONE	M.GY.VTHNB.SLD LAM, CUT AND FILL INDICATE TOPS OVERTURNED, LAMS OF FG SS AND SLTST
88	147.13	147.38	0.25			SANDSTONE	FG.LT.GY.THNB.SLD V SLIGHT BIOTURB
* 89	147.38	147.83	0.45			SANDSTONE	FG.LT.GY.VTHNB.BIOTR.SLD SLTST LAM, CUT AND FILL AND FLAME STRUCTURES INDICATE TOPS OVERTURNED, MORE SLTY AT BASE
89	147.83	148.15	0.32			SANDSTONE	FG.LT.GY.THNB.BIOTR.SLD
88	148.15	148.74	0.59			SANDSTONE	FG.LT.GY.THNB.SLD AS ABOVE, SLTY IN PART, V FINE LAM
88	148.74	150.32	1.58			SILTSTONE	M.GY.VTHNB.SLD VFG SS LAM, LESS SAND AT BASE, VF QTZ STRGS

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82004

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
* 87	150.32	150.36	0.04			SILTSTONE	M.GY.VTHNB.SLD QTZ VEINED WITH COAL STRGS. COAL IS BRIGHT
86	150.36	150.43	0.07	03512	E REPEAT	COAL	C-2.BLK.BRKN CRUMBLY
84	150.43	150.54	0.11	03512	E REPEAT	COAL	C-2.BLK.BRKN BRIGHT WITH DULL BANDS, V MNR QTZ VEINS
83	150.54	150.62	0.08	03512	E REPEAT	COAL LOSS	
80	150.62	150.81	0.19	03512	E REPEAT	COAL	C-3.BLK.SLD 50/50-DULL/BRIGHT, MNR QTZ VEIN
* 77	150.81	151.02	0.21			SILTSTONE	CARB.M.GY.VTHNB.SLD FINE LAM, V MNR COAL STRGS
78	151.02	151.12	0.10			SILTSTONE	CARB.M.GY.VTHNB.SLD AS ABOVE, F SS LAM
* 89	151.12	153.31	2.19			SANDSTONE	FG.M.GY.VTHNB.SLD CUT AND FILL AND FLAME STRUCTURES INDICATE TOPS OVERTURNED, F SLTST LAM
* 85	153.31	154.17	0.86			SANDSTONE	FG.M.GY.VTHNB.SLD AS ABOVE, TOPS OVERTURNED, MORE SANDY AT BASE

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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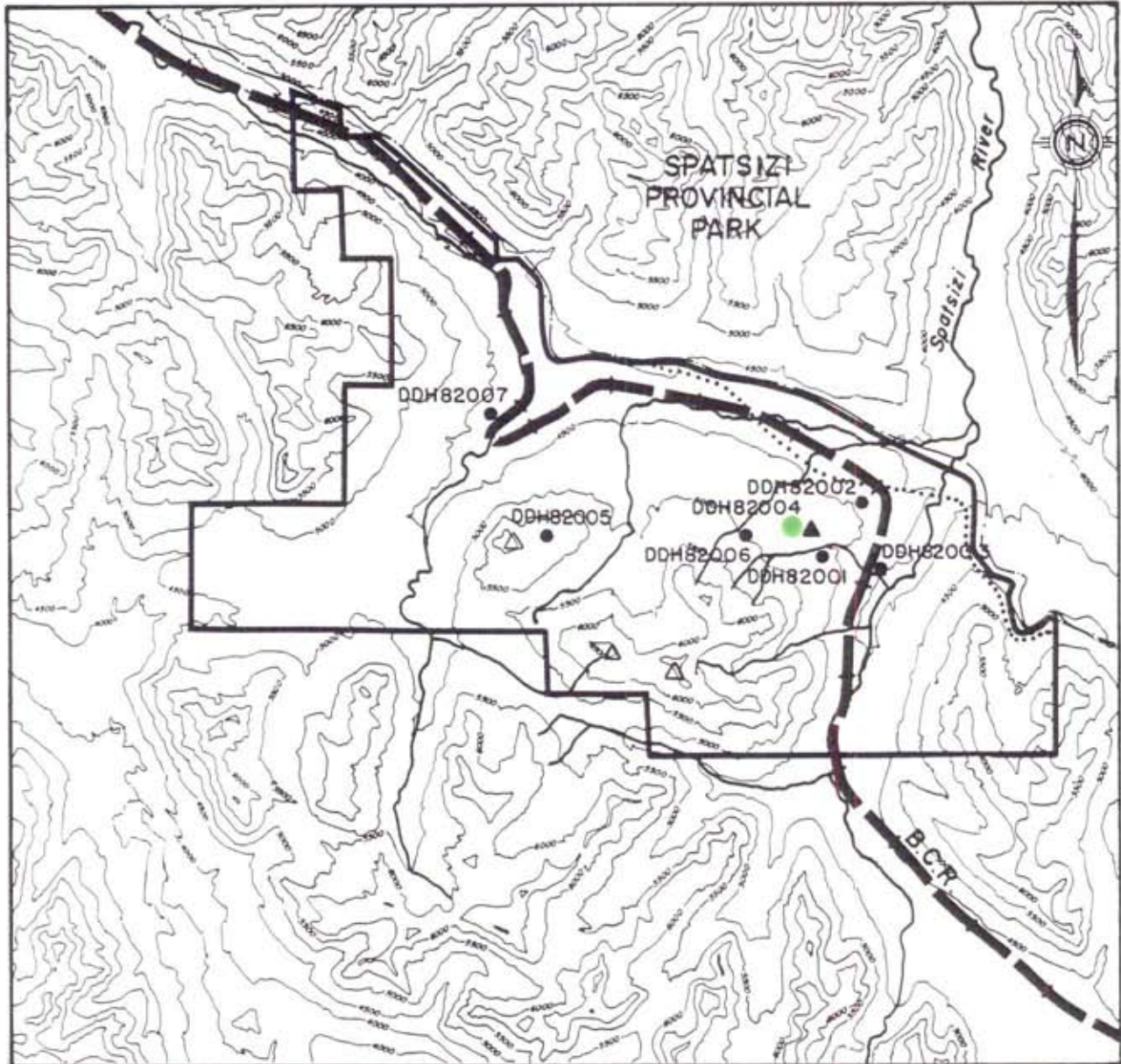
PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82004

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
87	154.17	154.27	0.10			SANDSTONE	FG.GY.VTHNB.SLD LAM NOT AS FREQUENT, TOPS OVERTURNED, M NR QTZ VEIN
* 90	154.27	155.58	1.31			SANDSTONE	FG.M.GY.VTHNB.SLD VF LAM OF SLTST AND VF SAND, CUT AND FI LL INDICATE TOPS OVERTURNED, M HD, FRIA BLE IN PARTS, V MNR QTZ VEIN
90	155.58	157.32	1.74			SANDSTONE	FG.M.GY.THKB.SLD LAM AT TOP, MNR FLOW FEATURES, COARSENS TOWARDS BASE, VV MNR QTZ FILL ALONG CR ACKS
90	157.32	157.60	0.28			ROCK LOSS	//////////END OF CORE, DRILLERS MARKE R 157.6M//////////

\* DENOTES MEASURED BCA

# MT. KLAPPAN COAL PROPERTY

## DIAMOND DRILL HOLES

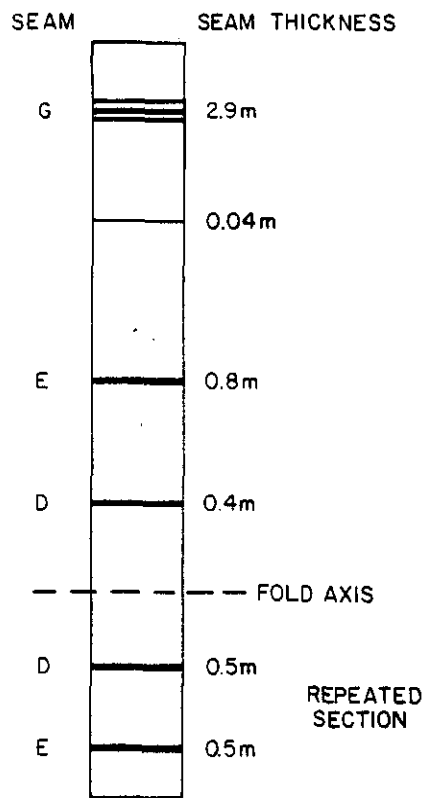


0 1 2 3 4 5 Km

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

# MT. KLAPPAN COAL PROPERTY

DDH82004



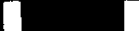





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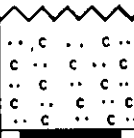

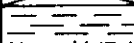





DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		COAL/ROCK TOTAL	COAL/ROCK TOTAL		
24.73		0.02	0.04 0.08					
			(1.63)	23.2	03508	25	2.62/0.26 2.88	2.62/0.26 2.88
		(0.05) 0.19						
29.60			(0.53) 0.10					

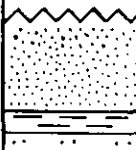

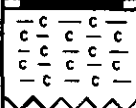

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY		ALBERTA
<b>MT. KLAPPAN COAL PROJECT</b> <b>SEAM DETAIL</b> TRUE THICKNESS <b>DDH-82-004</b> <b>SEAM G</b>		
PREPARED BY: C. L.		SCALE 1:40
APPROVED BY: J. M. D.	DATE: NOV. '82	DRAWING No.


DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
90.39								
			0.40	89.1	03509	↑ 26 ↓	↑ 0.68/0.07 0.75 ↓	↑ 0.68/0.07 0.75 ↓
		0.07	(0.08)					
91.67			0.20					
								

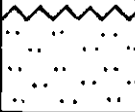
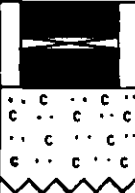
<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY	ALBERTA	
<b>MT. KLAPPAN COAL PROJECT</b> <b>SEAM DETAIL</b> TRUE THICKNESS <b>DDH-82-004</b> <b>SEAM E</b>		
PREPARED BY: C. L.	SCALE 1:40	
APPROVED BY: J. M. D.	DATE: NOV. '82	DRAWING No.

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		COAL/ROCK TOTAL	COAL/ROCK TOTAL		
113.65			0.07					
		(0.23)						
		0.28						
114.46			0.15	43.8	03510	27	0.35 / 0.00	0.35 / 0.00
114.96			(0.20)				0.35	0.35

<b>GULF CANADA RESOURCES INC.</b>		
<small>Coal Division</small>		
<small>CALGARY</small>	<small>ALBERTA</small>	
<b>MT. KLAPPAN COAL PROJECT</b> <b>SEAM DETAIL</b> TRUE THICKNESS <b>DDH-82-004</b> <b>SEAM D</b>		
<small>PREPARED BY: C. L.</small>	<small>SCALE 1:40</small>	
<small>APPROVED BY: J. M. D.</small>	<small>DATE: NOV. 82</small>	<small>DRAWING No.</small>

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
139.84								
		0.03	0.11					
			0.26	96	03511	28	0.41 / 0.09	0.41 / 0.09
140.34		0.06	(0.02) = 0.02				0.50	0.50
								

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY		ALBERTA
<b>MT. KLAPPAN COAL PROJECT</b> <b>SEAM DETAIL</b> TRUE THICKNESS DDH-82-004 <b>SEAM D REPEAT</b>		
PREPARED BY: C. L.		SCALE 1:40
APPROVED BY: J. M. D.	DATE: NOV. '82	DRAWING No.

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE COAL/ROCK TOTAL	MINING SECTION COAL/ROCK TOTAL
		ROCK	COAL		NUMBER	COMPOS.		
150.36								
150.81			0.18 0.19	82	03512	↑ 29 ↓	0.45/0.00 0.45	0.45/0.00 0.45

**GULF CANADA RESOURCES INC.**

CALGARY

Coal Division

ALBERTA



**MT. KLAPPAN COAL PROJECT**  
**SEAM DETAIL**  
 TRUE THICKNESS  
 DDH-82-004  
 SEAM E REPEAT

PREPARED BY: C. L.

SCALE 1:40

APPROVED BY: J. M. D.

DATE: NOV. '82 DRAWING No.

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12-80)  
Apparent Thickness

DENSITY

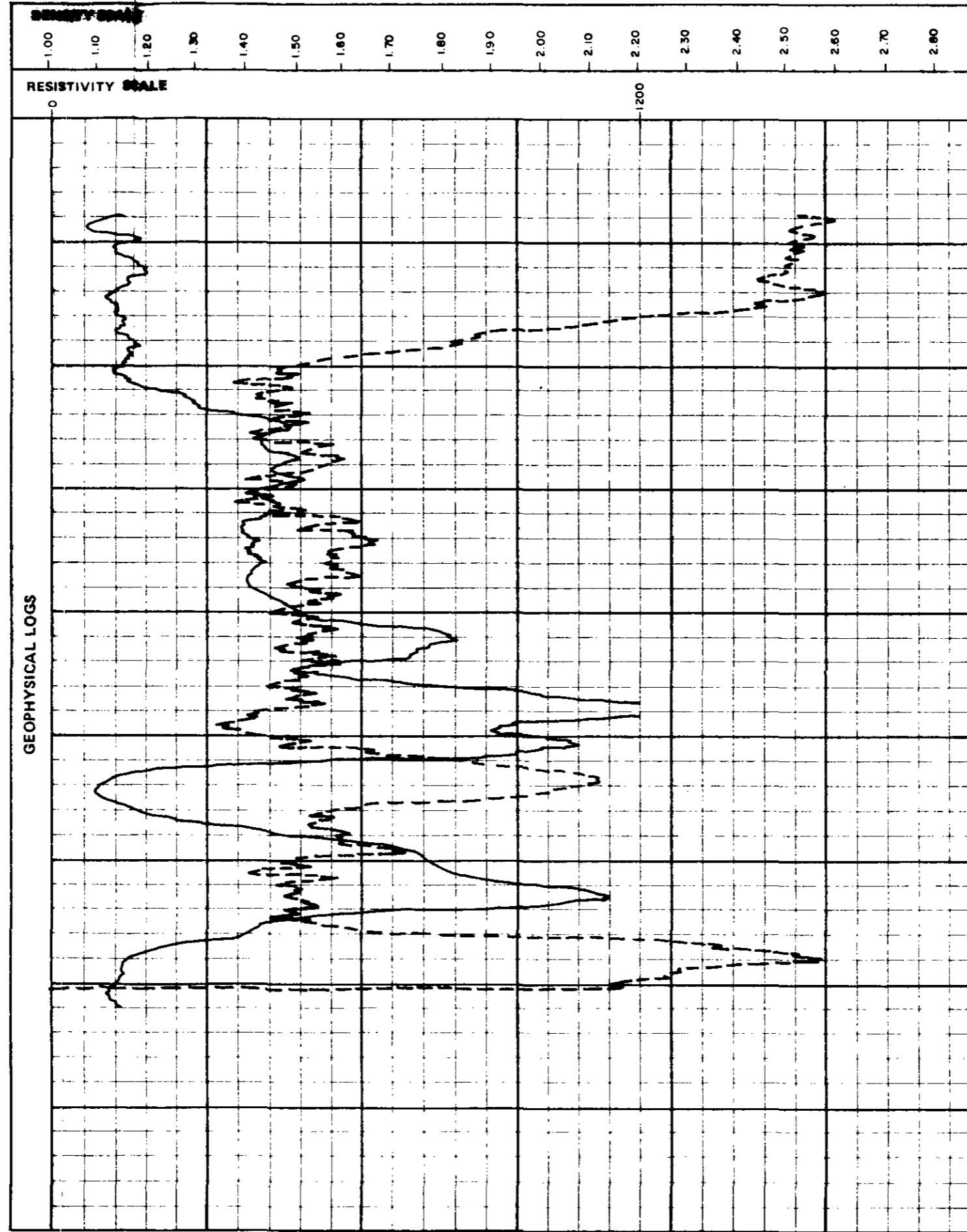
RESISTIVITY

DRILL NO. DDH-82-004

SEAM G

SEAM INTERVAL

SCALE 1:40



GEOPHYSICAL LOGS

SEAM COMP.	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS									
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	CAL. VAL. MJ/kg	FSI			
1 2 3 4 5 6	24.73		0.05	0.09 0.12													
				(2.75)	23.2	03508	25	1.63	42.48	12.65	43.24		15.59				
				0.41													
			(0.10)	0.31													
				(0.89)													
	29.60			0.15													
								Seam Interval (m): 24.73 - 29.60 Seam True Thickness (Coal/Rock) : 2.62/0.26 Total 2.88									

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12-80)  
Apparent Thickness

DENSITY

RESISTIVITY

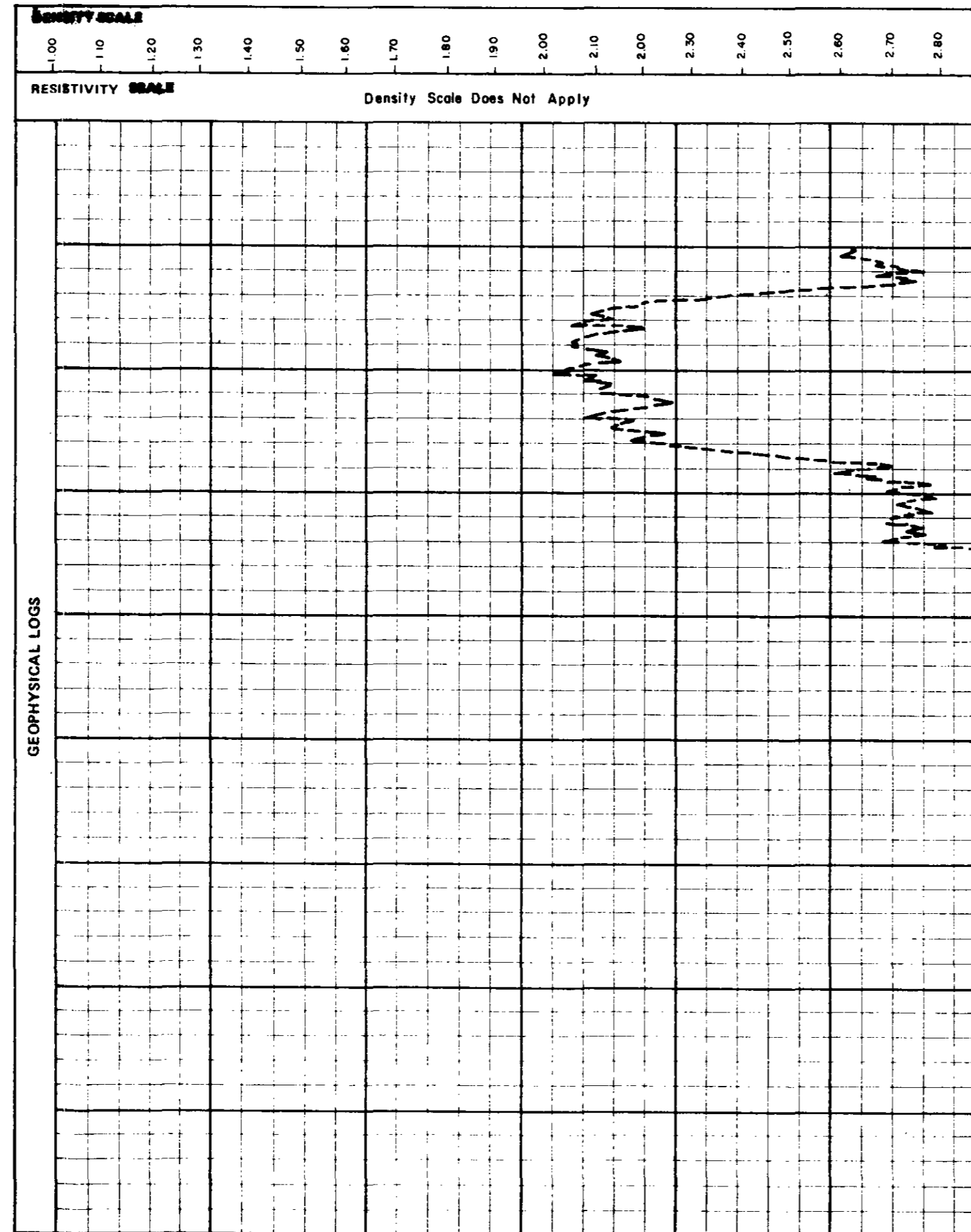
DRILL NO. DDH-82-004

SEAM E

SEAM INTERVAL

SCALE 1:40

Logged Through Drill Rods



SEAM COMP. 1 2 3 4 5 6	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS									
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S'	CAL. VAL. MJ/kg	FSI			
	90.39			0.67													
				(0.14)	89.1	03509	26	1.34	27.16	7.94	63.96			24.93			
	91.67		0.12	0.35													
GEOPHYSICAL LOGS																	
			Seam Interval (m): 90.39 - 91.67 Seam True Thickness (Coal/Rock): 0.68/0.07 Total 0.75														

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

Apparent Thickness P-267 (12-80)

DENSITY

RESISTIVITY

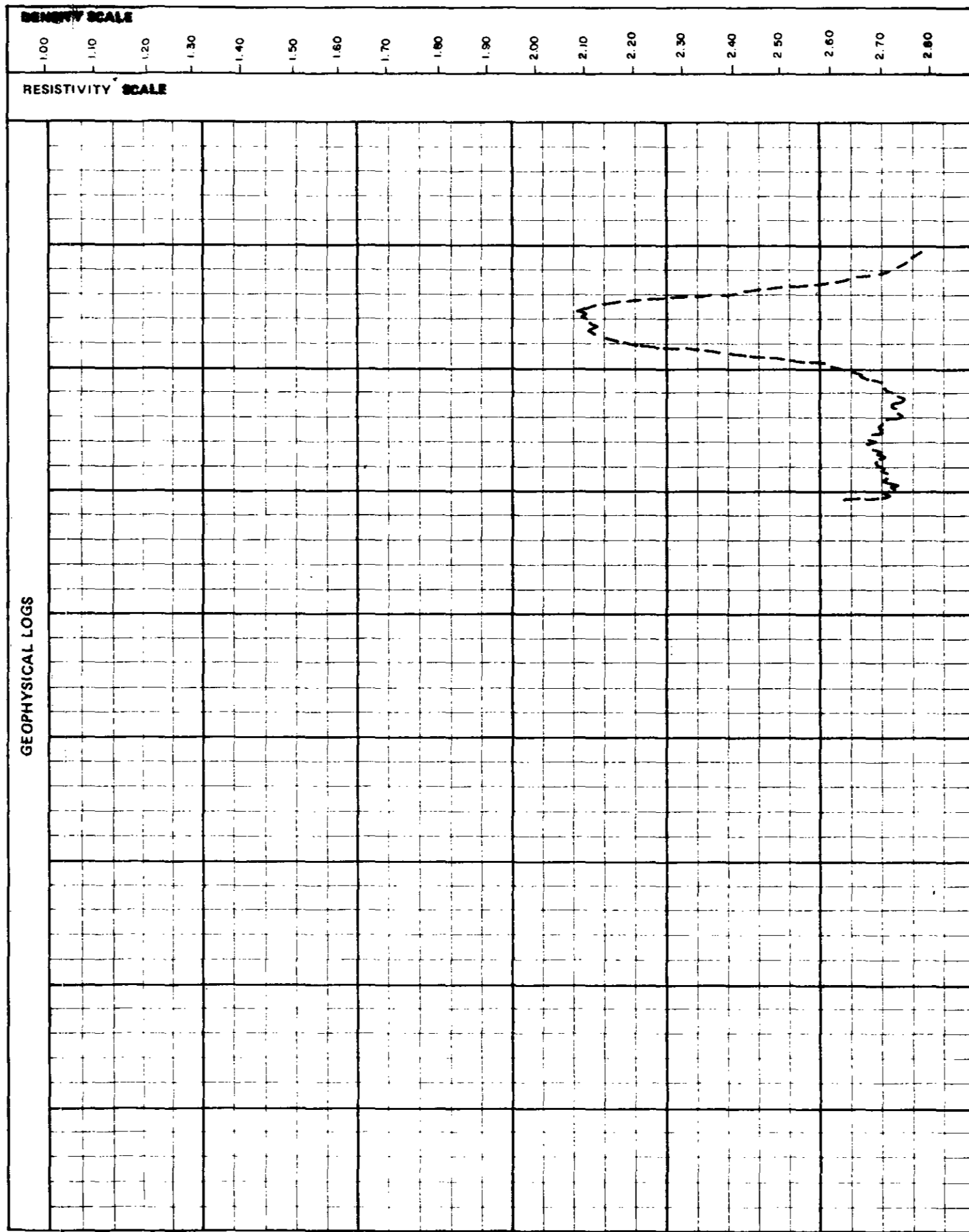
DRILL NO DDH-82-004

SEAM E Repeat

SEAM INTERVAL

SCALE 1:40

Logged Through Drill Rods



GEOPHYSICAL LOGS

SEAM COMP.	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS						
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	CAL. VAL MJ/kg	FSI
123456	150.36			0.18 (0.08)	82	03512	↑ 29 ↓	1.10	28.37	9.34	61.19		24.11	
	150.81			0.19										
Seam Interval (m): 150.36 - 150.81 Seam True Thickness (Coal/Rock): 0.45/0.00 Total 0.45														



COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12-80)

Apparent Thickness

DENSITY

RESISTIVITY

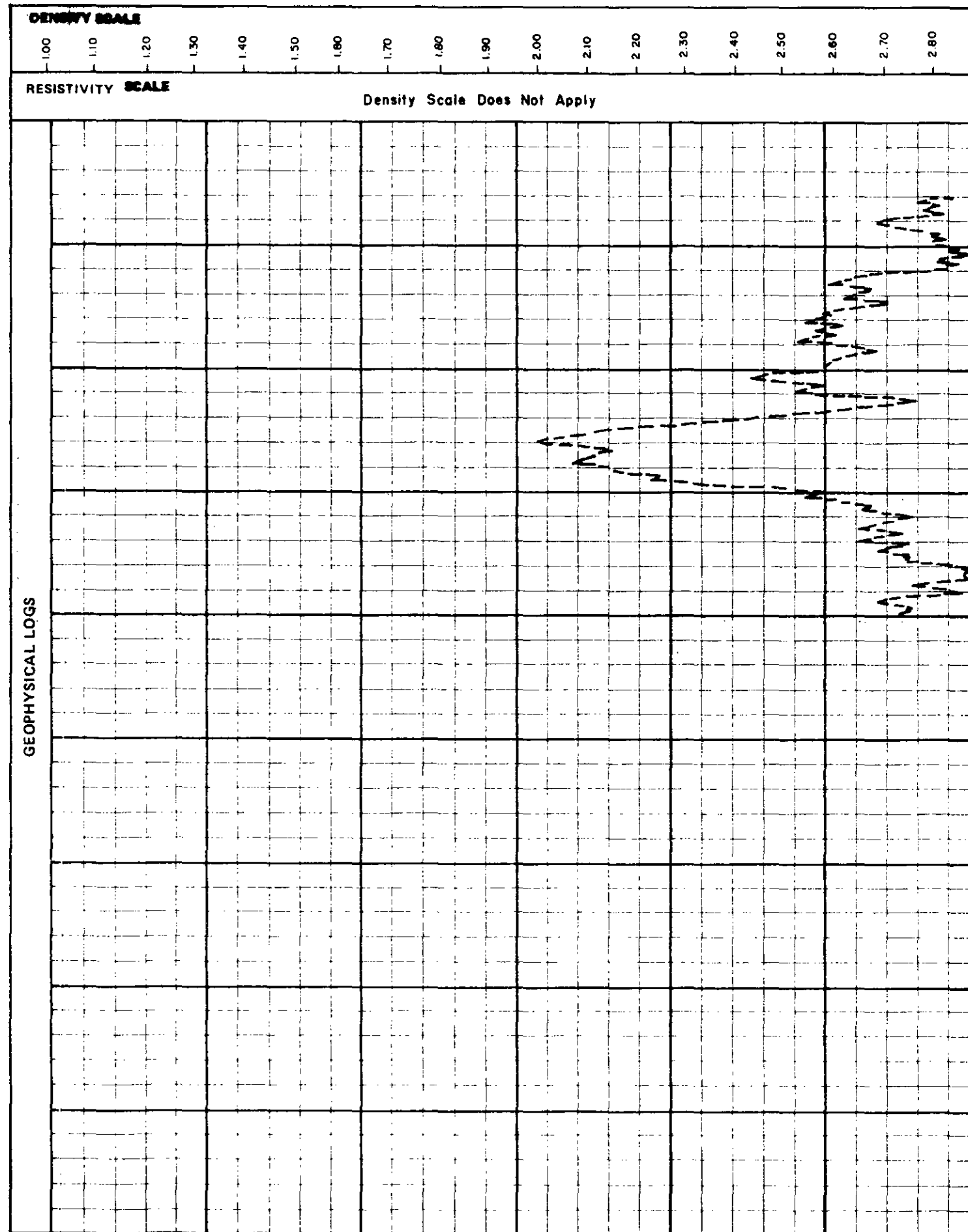
DRILL NO DDH-82-004

SEAM D

SEAM INTERVAL

SCALE 1:40

Logged Through Drill Rods



SEAM COMP. 1 2 3 4 5 6	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS								
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	CAL. VAL Mj/kg	FSI		
	113.65			0.10												
			(0.32)													
	114.46		0.39													
	114.96			0.21 (0.29)	44	03510	↑ 2.7 ↓	1.25	35.82	8.92	54.01		21.14			
			Seam Interval (m): 114.46 - 114.96 Seam True Thickness (Coal/Rock): 0.35 / 0.00 Total 0.35													

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12-80)  
Apparent Thickness

DENSITY ---

RESISTIVITY ———

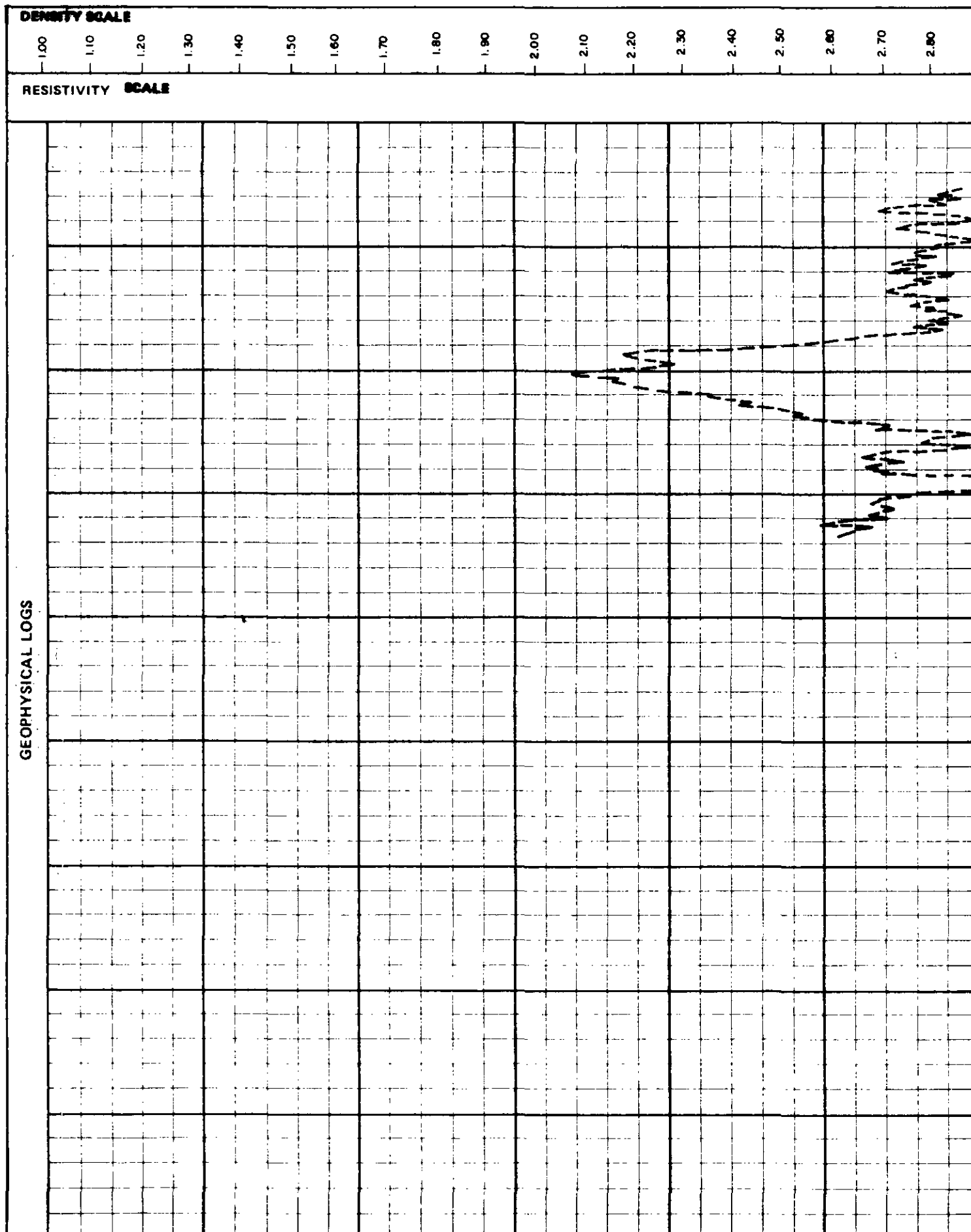
DRILL NO. DDH - 82 - 004

SEAM D Repeat

SEAM INTERVAL

SCALE 1:40

Logged Through Drill Rods



SEAM COMP.	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS									
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	CAL. VAL. MJ/kg	FSI			
1 2 3 4 5 6	139.84		0.03	0.11													
	140.34		0.06	0.26	96	03511	↑ 28 ↓	1.47	38.69	8.03	51.81			19.25			
				(0.02)													
			Seam Interval (m): 139.84 - 140.34														
			Seam True Thickness (Coal/Rock): 0.41/0.09														
			Total 0.50														

gcri coal division history proj KPN blk BC ds DDH82004

start date 15/08/82  
end date 18/08/82

contractor J.T.THOMAS  
geologist LOUIE

operator GCRI  
surveyor

remarks GEOPHYSICAL LOG MEASURED FROM GROUND LEVEL + APPRO  
X. 0.6M

gcri coal division location proj KPN blk BC ds DDH82004

choose one location input number, 1 province BC  
then enter location elevation (M) 1470.00

\*  
| 1 utm: zone 09 northing 6344510.00 easting 0513515.00 |  
| 2 lat-long: lat 571443 long 1284634 |

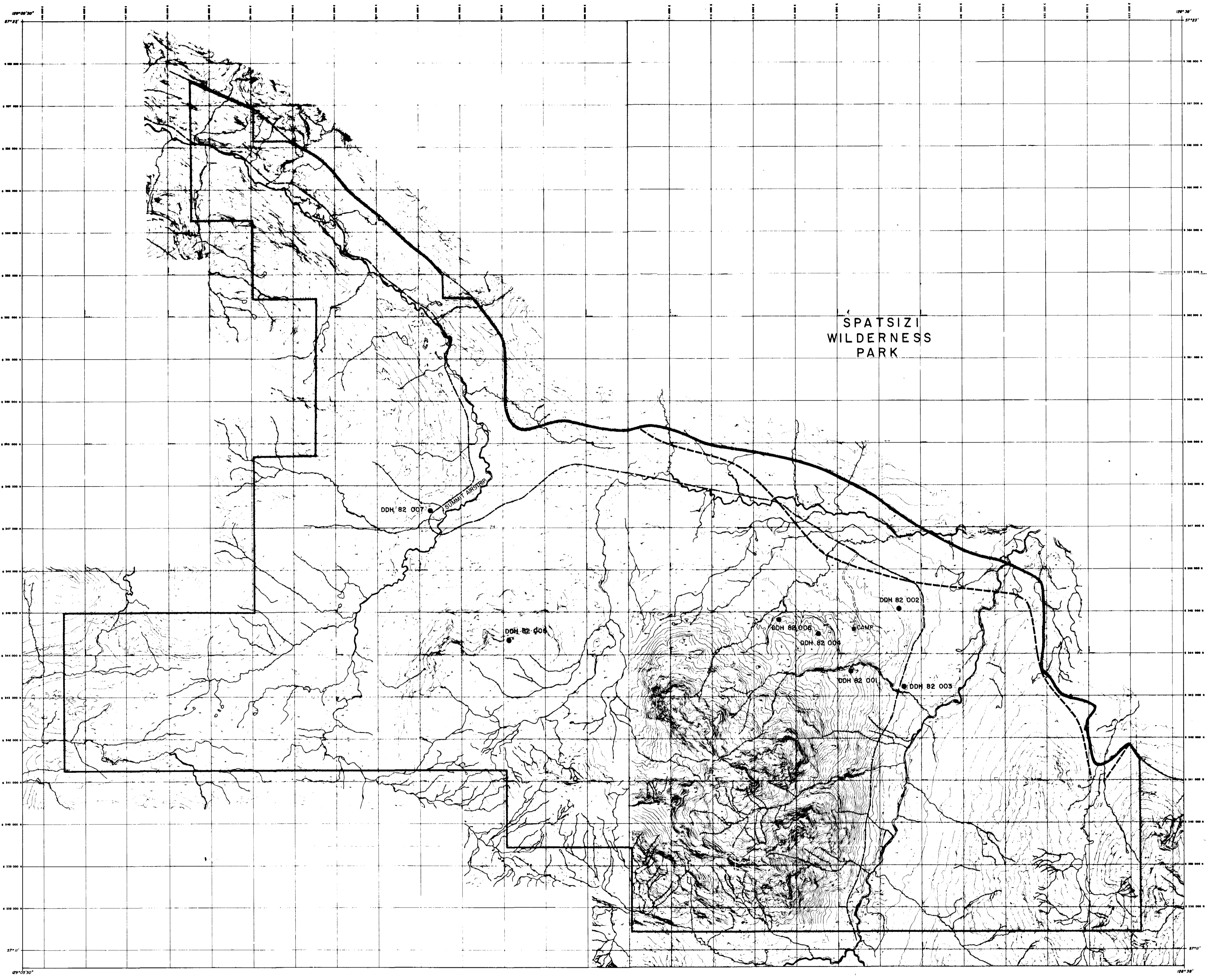
gcri coal division orientation proj KPN blk BC ds DDH82004

dimensions and orientation:

length (M) 157.58 inclination 60.0 azimuth 40.0  
size width 95.8 size height  
roof strike dip dir  
floor strike dip dir

casing depth (M) 13.65 cement(y,\_) \_ plug(Y,\_) Y piez(Y,\_) \_  
aquifer depths (M) ----.--- ----.---  
loss cir depths(M) ----.--- ----.---

DDH82004



**LEGEND**

BUILDING	---	[Symbol]
ROAD, HARD SURFACE	---	[Symbol]
LOOSE SURFACE	---	[Symbol]
CART TRACK	---	[Symbol]
TRAIL	---	[Symbol]
RAILROAD BED	---	[Symbol]
RIVER	---	[Symbol]
STREAM, DEFINITE	---	[Symbol]
APPROXIMATE	---	[Symbol]
SPLIT	---	[Symbol]
LAKE	---	[Symbol]
WATER LEVEL	---	[Symbol]
SWAMP	---	[Symbol]
BEAVER DAM	---	[Symbol]
TREE LINE	---	[Symbol]
CUT LINE	---	[Symbol]
CONTOURS, INDEX	---	[Symbol]
INTERMEDIATE	---	[Symbol]
DEPRESSION	---	[Symbol]
APPROXIMATE	---	[Symbol]
SPOT ELEVATION	---	[Symbol]
FIELD CONTROL POINT	---	[Symbol]
COAL PROPERTY BOUNDARY	---	[Symbol]
PARK BOUNDARY	---	[Symbol]
REDEFINED PROPERTY BOUNDARY	---	[Symbol]

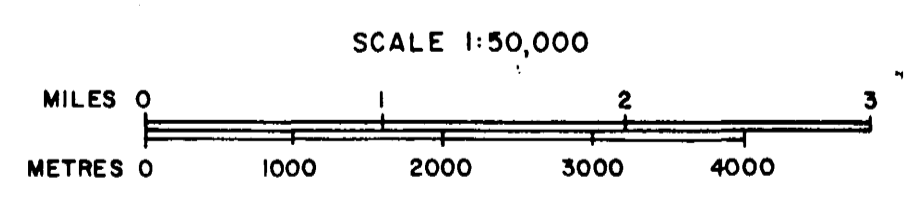
**NOTES**

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 1967  
AT A SCALE OF 1:60,000 (APPROXIMATE)



● DDH 82003 DRILL HOLE & DRILL HOLE NUMBER

PR Mt Klappan 82(2)A 4(3)

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division	
<b>MOUNT KLAPPAN COAL PROPERTY</b>		
<b>1982 DRILL HOLE LOCATIONS</b>		
PREPARED BY: E. SWANBERGSON		SCALE
APPROVED BY: B.P.F.		DATE: NOV 82 DRAWING No.

~~CONFIDENTIAL~~

DDH62005

gcri coal division history proj KPN blk LR ds DDH82005

start date 22/08/82  
end date 28/08/82

contractor J.T.THOMAS operator GCRI  
geologist JENNER surveyor \_\_\_\_\_

remarks CASING PLACED AT 7.9M BUT KEPT SLIPPING DOWN THE D  
RILL HOLE. TOTAL OF 34.4M CASING PLACED. ANGLE OF  
DRILL HOLE DEVIATED APPROXIMATELY 030 DEGREES. GEO  
PHYSICAL LOG MEASURED FROM GROUND LEVEL + APPROX.  
0.6m

gcri coal division location proj KPN blk LR ds DDH82005

choose one location input number, 1 province BC  
then enter location elevation (M) 1815.00

\*-----\*  
1 utm: zone 09 northing 6344340.00 easting 0506120.00
2 lat-long: lat 571438 long 1285355
-----

gcri coal division orientation proj KPN blk LR ds DDH82005

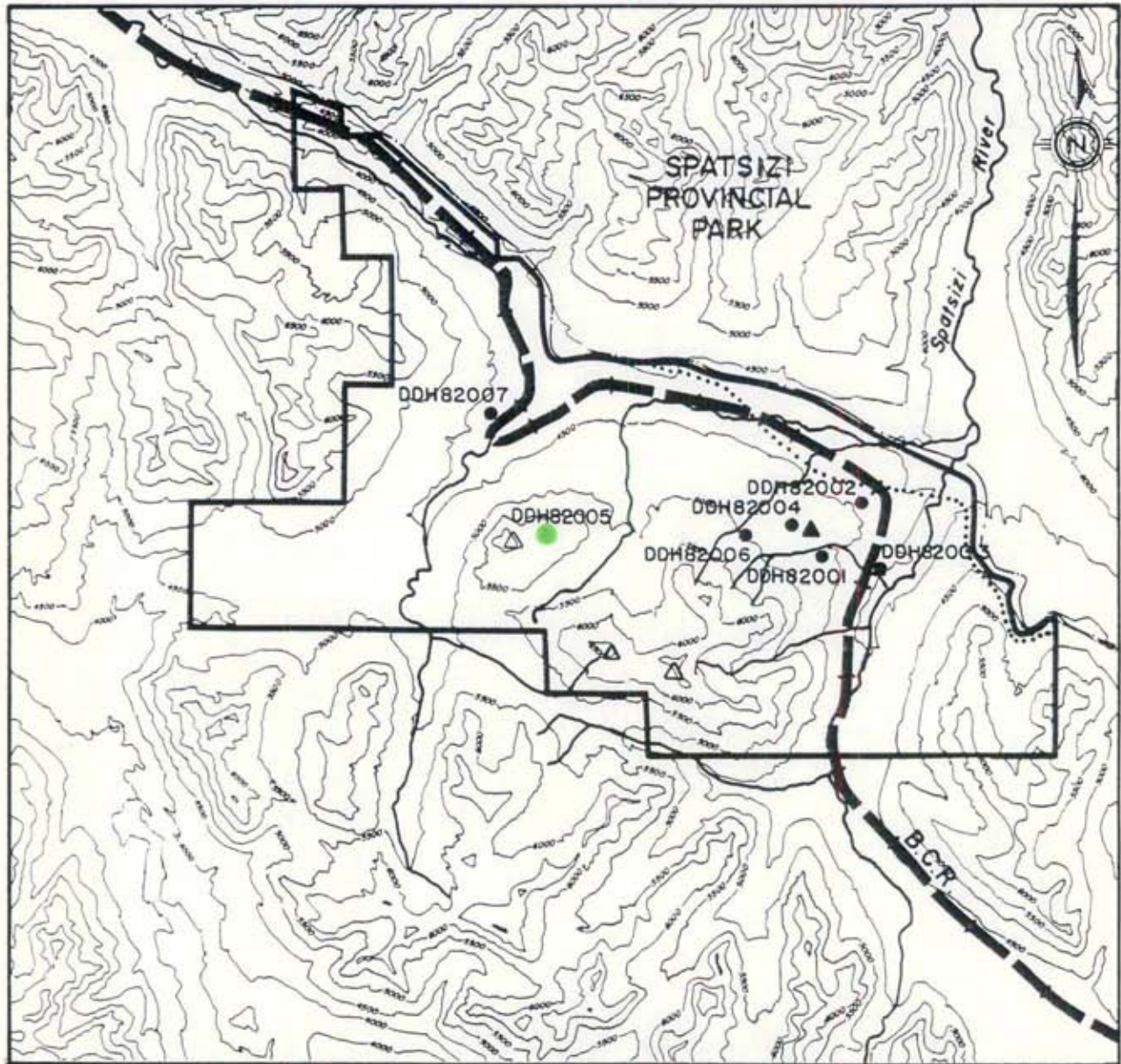
dimensions and orientation:

length (M) 243.59 inclination 60.0 azimuth 55.0  
size width 95.8 size height  
roof strike dip dir  
floor strike dip dir

casing depth (M) 34.40 cement(y,\_) \_ plug(Y,\_) \_ piez(Y,\_) \_  
aquifer depths (M) \_\_\_\_\_  
loss cir depths(M) \_\_\_\_\_




# MT. KLAPPAN COAL PROPERTY

## DIAMOND DRILL HOLES



0 1 2 3 4 5 Km

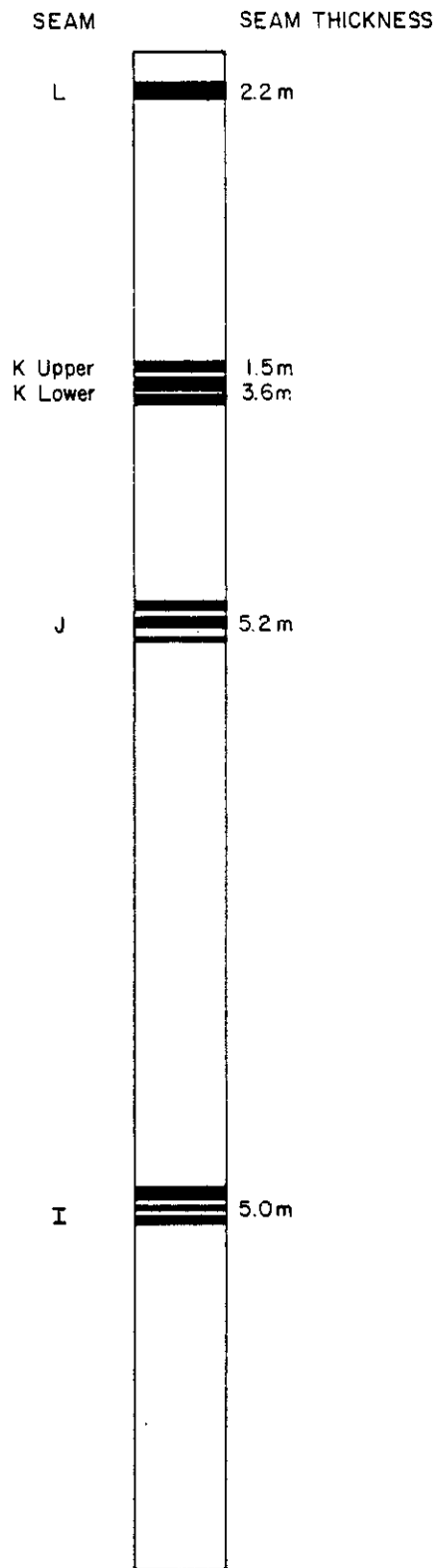


-  Prepared Rail Bed
-  Provincial Park Boundary
-  Camp
-  Diamond Drill Hole
-  Redefined Property Boundary



# MT. KLAPPAN COAL PROPERTY

DDH82005



SCALE - 1:1000

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE COAL/ROCK TOTAL	MINING SECTION COAL/ROCK TOTAL
		ROCK	COAL		NUMBER	COMPOS.		
54.02			0.65 (0.67) 0.21	70.3	04884	30	2.82/0.17 2.99	4.26/0.72 4.98
		0.02	0.56 (0.49)					
			(0.68) 0.08 0.13 0.45 (0.26)					
57.79		0.01	0.10 0.07 0.01 0.10 0.08					
58.53			0.19 (0.04) (0.08) 0.41 0.59	94.4	04886	31	1.44/0.55 1.99	
		0.01	0.12 0.08 0.10					
60.30								

SECTION OVERTURNED

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division	
<b>MT. KLAPPAN COAL PROJECT</b>		
<b>SEAM DETAIL</b>		
TRUE THICKNESS		
DDH-82-005		
<b>SEAM I</b>		
PREPARED BY: C. L.		SCALE 1:40
APPROVED BY: J. M. D.		DATE: NOV. 82 DRAWING No.

DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
148.09		0.01	0.03					
		(0.10)	0.26	82.2	04887	32	0.74/0.11 0.85	
149.10			0.40					
		0.28	(0.02)	76.1	04888			
149.56		(0.09)						
			(0.70)					
150.42		0.19	0.11	60.3	04889	33	0.21/0.34 0.55	
		(0.12)	(0.10)					
151.10		0.03	0.04					
		0.01	0.03					
			(0.17)					
		0.02	0.16					
		0.01	0.14					
			0.37					
		0.04						
		(0.17)		51.2	04890	34	2.34/0.35 2.86 2.69 ES	3.99/1.17 5.16
			(0.57)					
			0.33					
			(0.41)					
		0.10						
154.34			0.12					

SECTION OVERTURNED

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY	ALBERTA	
<b>MT. KLAPPAN COAL PROJECT</b> <b>SEAM DETAIL</b> <b>TRUE THICKNESS</b> <b>DDH-82-005</b> <b>SEAM J</b>		
PREPARED BY: C. L.	SCALE 1:40	
APPROVED BY: J. M. D.	DATE: NOV '82	DRAWING No.

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
186.89		0.02	0.02	69.4	04891	↑	↑	↑
		0.01	0.18					
		0.02	0.02	0.12				
187.74		(0.15)	(0.21)	71.9	04892			
		0.20	0.09					
		(0.17)	0.03	100	04893			
		0.08	0.02					
		0.11	0.27	100	04894			
189.09		0.27	0.35					
189.52		0.11	0.01	86.9	04895			
		0.06	0.12					
		0.34	(0.14)					
		0.06	0.06					
		(0.05)	0.11					
		0.15	0.24					
191.27		0.13	0.02	100	04896			
		0.07	0.01					
		0.46	0.10	87.5	04897			
192.09		(0.07)	0.05					
		0.06	0.02					
		0.12	0.08					
192.73		0.07	0.29	100	04897	36	0.97/0.49 1.46	
		0.02	0.03					
		0.02	0.04					
		0.02	0.05					
		0.02	0.27	100	04897			
193.81		0.01	0.06					

SECTION OVERTURNED

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY	ALBERTA	
<b>MT. KLAPPAN COAL PROJECT</b> <b>SEAM DETAIL</b> TRUE THICKNESS DDH-82-005 <b>SEAM K</b>		
PREPARED BY: C. L.	DATE: NOV. '82	SCALE 1: 40
APPROVED BY: J. M. D.	DRAWING No.	

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		COAL/ROCK TOTAL	COAL/ROCK TOTAL		
236.14								
236.62		0.07	0.06 (0.13) 0.08	66.7	04737	37	0.34/0.07 0.41	1.43/0.81 2.24
236.80		0.15	0.07	100	04898	39		
			0.44					
		0.08	0.32	100	04738	38	0.80/0.10 0.90	
237.95		0.02	0.04					
		0.22						
		(0.11)	(0.12)	51.5	04739	39	0.29/0.64 0.93	
238.92		0.09 (0.07)	0.10 (0.07)					

SECTION OVERTURNED

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY	ALBERTA	
<b>MT. KLAPPAN COAL PROJECT</b> <b>SEAM DETAIL</b> TRUE THICKNESS <b>DDH-82-005</b> <b>SEAM L</b>		
PREPARED BY: C. L.	SCALE 1:40	
APPROVED BY: J. M.D.	DATE: NOV. '82	DRAWING No.



COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

Apparent Thickness

P-267 (12-80)

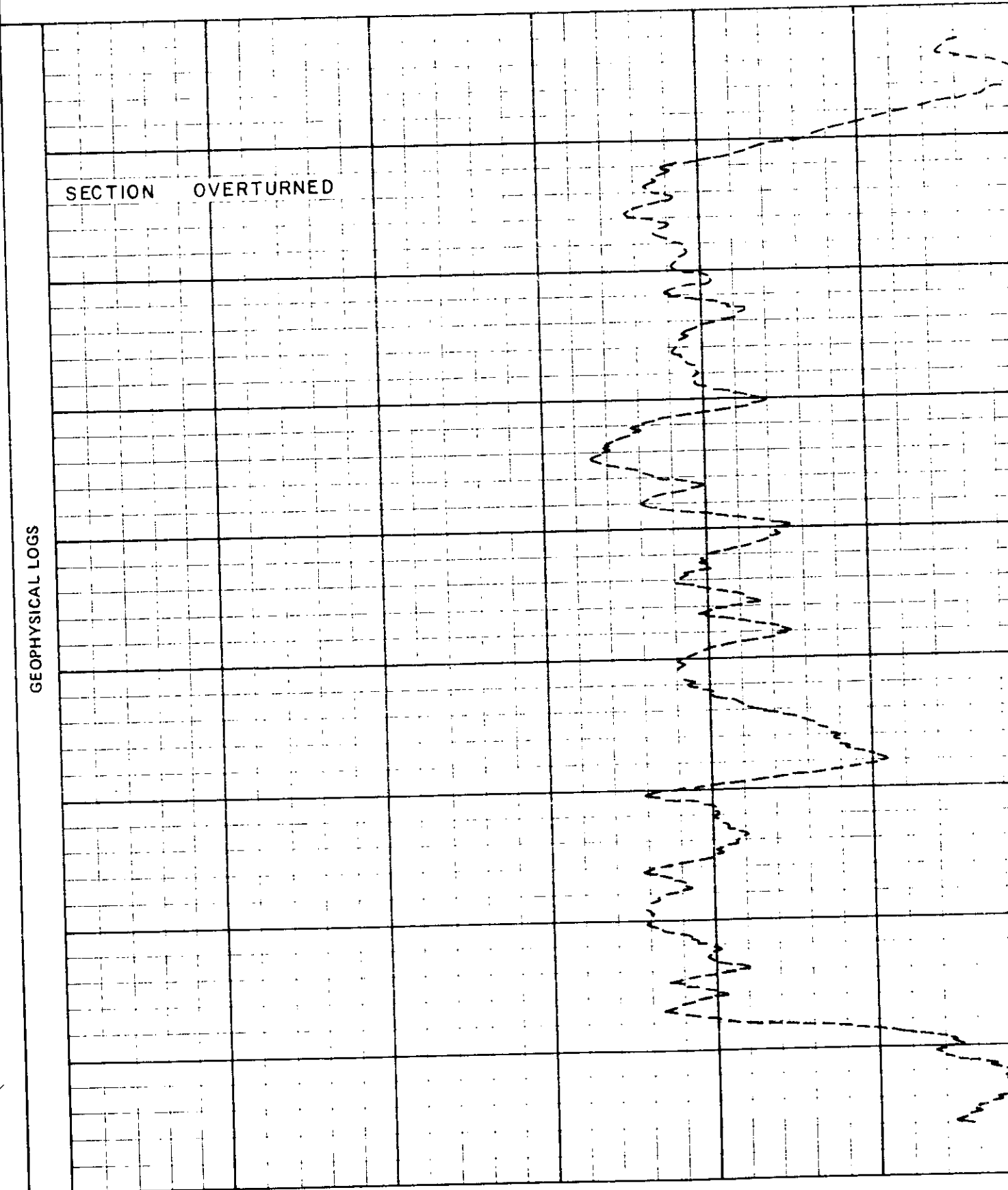
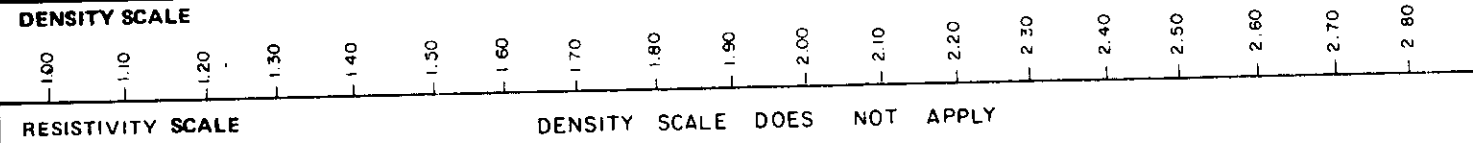
DENSITY

RESISTIVITY

DRILL NO. DDH - 82 - 005  
SCALE 1:40

SEAM K  
Logged Through Drill Rods

SEAM INTERVAL



GEOPHYSICAL LOGS

SEAM COMP.	DEPTH meters	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE NUMBER	COMPOS.	PROXIMATE ANALYSIS					FSI
			ROCK	COAL				MOIST	ASH	VM	FC	S	
								Seam Interval (m): 186.89 - 191.27					
								Seam True Thickness (Coal/Roal): 1.75/1.85					
								Total 3.60					
1	186.89		0.03	0.03									
			0.01	0.23	69.4	04891							
			0.06	0.04									
			0.02	0.03									
				0.14									
	187.74			(0.26)									
				(0.18)									
			0.23										
				0.11	71.9	04892							
				(0.20)									
			0.10	0.04									
			0.13	0.03									
	189.09		0.33										
				0.43	100	04893	35	1.81	52.75	7.47	37.97		13.68
	189.52		0.13	-0.01									
			0.07	0.15									
				0.40									
				(0.17)	86.9	04894							
			0.07	0.08									
				0.14									
				(0.06)									
			0.19										
	191.27			0.28									
			0.16	0.02									
			0.09	0.01	100	04895							
			0.54										
	192.09		0.01	0.10									
			0.08	0.05	87.5	04896							
			0.07	0.02									
			0.15	0.07									
	192.73		0.09										
				0.34									
			0.02	0.04									
			0.07	0.04	100	04897							
			0.06	0.06									
			0.03	0.06									
				0.33									
	193.81		0.01	0.08									
								Seam Interval (m): 192.09 - 193.81					
								Seam True Thickness (Coal/Rock): 0.97/0.49					
								Total 1.46					

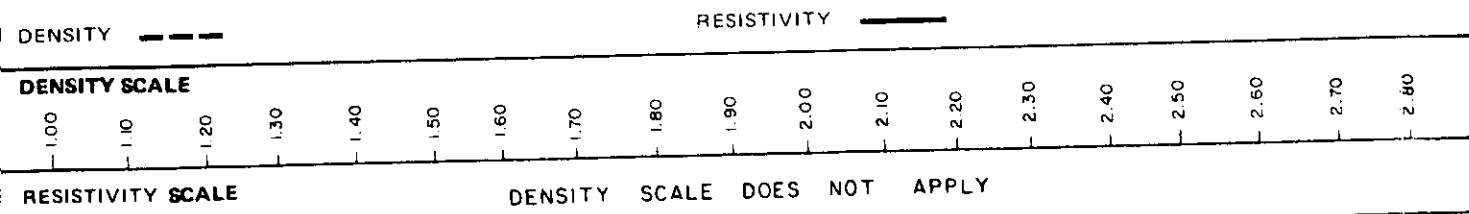




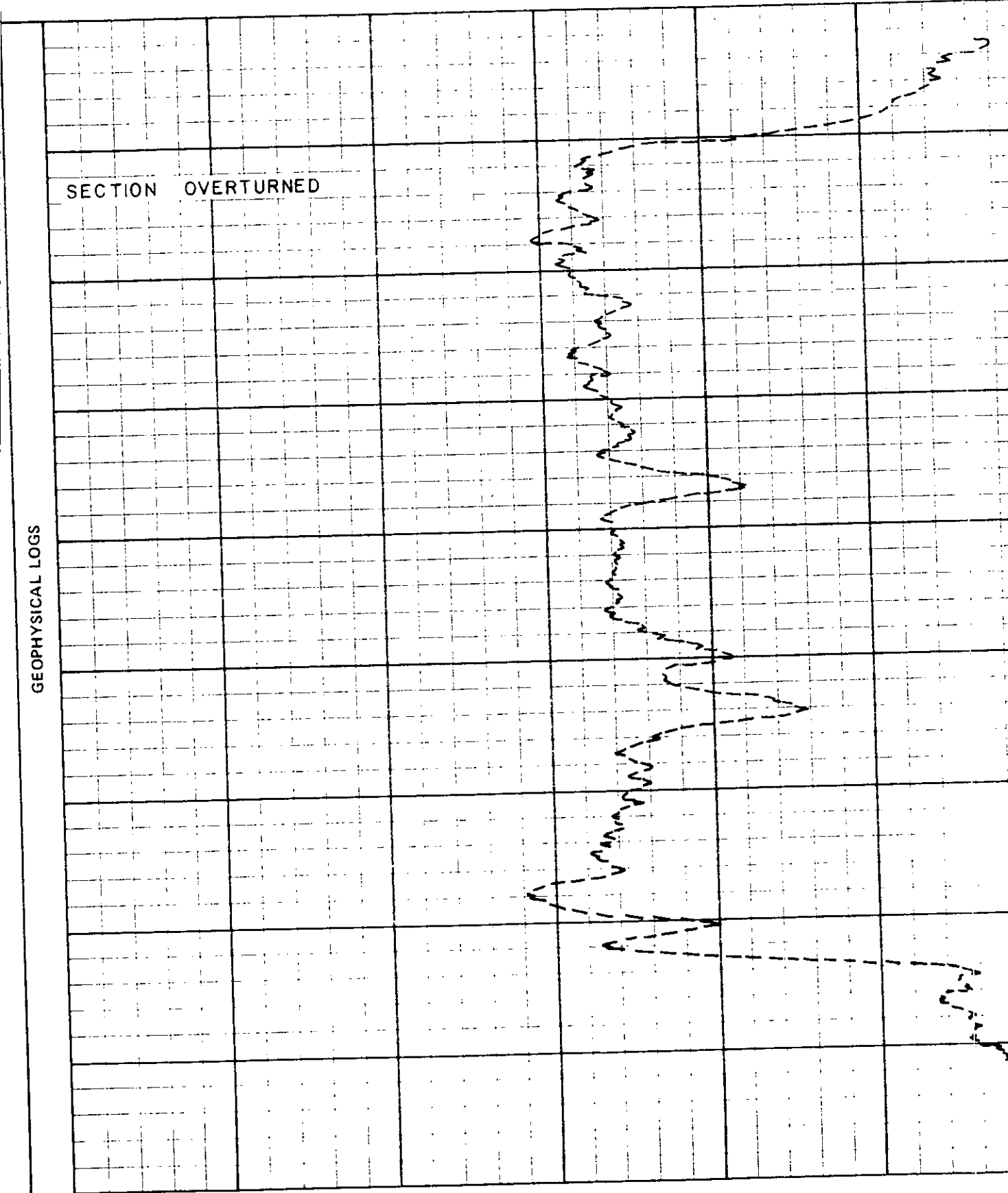
COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12-80) APPARENT THICKNESS



DRILL NO. DDH-82-005 SEAM I SEAM INTERVAL  
SCALE 1:40 Logged Through Drill Rods



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

Seam Interval (m): 54.02 - 60.30  
Seam True Thickness (Coal/Rock): 4.26/0.72  
Total 4.98

GULF CANADA RESOURCES INC. - COAL DIVISION  
 22/NOV/82 COMPOSITE SAMPLE SUMMARY PAGE 1

DATA SOURCE	SEAM	SAMPLE ID	SAMPLE FROM	SAMPLE TO	DEPTH FROM	DEPTH TO	REC CORE	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK
DDH82005												
	I	30	4884	4884	54.02	57.79	2.65	70.29	2.55	0.10	1.02	0.10
	I	31	4885	4886	57.79	60.30	2.23	88.84	1.72	0.51	0.10	0.18
	J	32	4887	4887	148.09	149.10	0.83	82.18	0.82	0.01	0.06	0.12
	J	33	4889	4889	150.42	151.10	0.41	60.29	0.14	0.27	0.12	0.15
	J	34	4890	4890	151.10	154.34	1.66	51.23	1.45	0.21	1.38	0.20
	K	35	4891	4895	186.89	192.09	4.33	83.27	1.77	2.56	0.43	0.44
	K	36	4896	4897	192.09	193.81	1.64	95.35	1.13	0.51	0.00	0.08
	L	37	4737	4737	236.14	236.62	0.32	66.67	0.24	0.08	0.16	0.00
	L	38	3738	3738	236.80	237.95	1.15	100.00	1.03	0.12	0.00	0.00
	L	39	4739	4898	237.95	238.92	0.50	51.55	0.12	0.38	0.24	0.23
	L	4737			236.14	236.62	0.32	66.67	0.24	0.08	0.16	0.00
	L	4738			236.80	237.95	1.15	100.00	1.03	0.12	0.00	0.00
	L	4739			237.95	238.92	0.50	51.55	0.12	0.38	0.24	0.23
	I	4884			54.02	57.79	2.65	70.29	2.58	0.07	1.02	0.10
	I	4885			57.79	58.53	0.56	75.68	0.22	0.34	0.00	0.18
	I	4886			58.53	60.30	1.67	94.35	1.50	0.17	0.10	0.00
	J	4887			148.09	149.10	0.83	82.18	0.82	0.01	0.06	0.12
	J	4888			149.10	149.56	0.35	76.09	0.00	0.35	0.00	0.11
	J	4889			150.42	151.10	0.41	60.29	0.14	0.27	0.12	0.15
	J	4890			151.10	154.34	1.66	51.23	1.45	0.21	1.38	0.20
	K LOWER	4891			186.89	187.74	0.59	69.41	0.47	0.12	0.26	0.00
	K LOWER	4892			187.74	189.09	0.97	71.85	0.18	0.79	0.00	0.38
	K LOWER	4893			189.09	189.52	0.43	100.00	0.43	0.00	0.00	0.00
	K LOWER	4894			189.52	191.27	1.52	86.86	0.66	0.86	0.17	0.06
	K	4895			191.27	192.09	0.82	100.00	0.03	0.79	0.00	0.00
	K UPPER	4896			192.09	192.73	0.56	87.50	0.24	0.32	0.00	0.08
	K UPPER	4897			192.73	193.81	1.08	100.00	0.89	0.19	0.00	0.00
	L	4898			236.62	236.80	0.18	100.00	0.00	0.18	0.00	0.00

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
54	0.00	6.10	6.10			OVERBURDEN	
54	6.10	6.51	0.41			SILTSTONE	SSY.DK.GY.LAM.VBRKN WEATHERED, CRUMBLY, UNCONSOLIDATED
54	6.51	8.06	1.55			SILTSTONE	SSY.DK.GY.LAM.VBRKN
54	8.06	9.27	1.21			ROCK LOSS	LOSS DUE TO PLACEMENT OF CASING
* 54	9.27	10.29	1.02			SANDSTONE	MG.MOD.BN.VTHNB.VBRKN WEATHERED ORANGE BROWN, SLTST INTBS, MN R QTZ VEINING
64	10.29	10.80	0.51			ROCK LOSS	
* 76	10.80	12.02	1.22			SANDSTONE	MG.MOD.BN.VTHNB.VBRKN
70	12.02	12.80	0.78			ROCK LOSS	
67	12.80	12.93	0.13			SANDSTONE	FG.WEL.DK.GY.VTHNB.VBRKN SLTST INTBS, CRUMBLY, WEATHERED

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
	58	26.47	26.75	0.28		CLAYSTONE	CARB.DK.GY.VBRKN
*	59	26.75	26.97	0.22		SANDSTONE	SLTY.FG.M.GY.LAM.BIOTR.BRKN BIOTURB MNR
	45	26.97	27.28	0.31		CLAYSTONE	CARB.DK.GY.LAM.VBRKN COALY FRAGS, QTZ VEINING, LISTRIC SURFACES
*	31	27.28	27.52	0.24		MUDSTONE	BLK.LAM.BRKN MNR FOLD, MNR SLTST INTBS
	39	27.52	28.47	0.95		SILTSTONE	DK.GY.LAM.BIOTR.BRKN SSY INTBS, BIOTURB MNR, UNCON IN PART
	46	28.47	28.64	0.17		ROCK LOSS	
*	50	28.64	29.16	0.52		SANDSTONE	FG.MOD.M.GY.LAM.BIOTR.BRKN SSD INDICATE TOPS OVERTURNED, WRMBUR, SLTST INTBS, QTZ VEINING
	52	29.16	29.91	0.75		SANDSTONE	MG.MOD.LT.GY.VTHNB.BIOTR.BRKN CALCT VEINING, MNR BRECCIATION, UNCON CLY WITHIN BRECCIA
	53	29.91	30.24	0.33		SANDSTONE	MG.MOD.M.GY.VTHNB.BRKN SLTST INTBS

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
63	37.12	37.63	0.51			SILTSTONE	DK.GY.LAM.BIOTR.SLD XBDG
* 68	37.63	38.03	0.40			SILTSTONE	SSY.M.GY.LAM.BIOTR.SLD SSY INTBS BECOMING MORE PROMINENT
65	38.03	38.61	0.58			SANDSTONE	MG.MOD.LT.GY.THNB.BIOTR.SLD SLTST LAM, MNR FE STN. XBDG INDICATES T OPS OVERTURNED
* 61	38.61	39.56	0.95			SILTSTONE	SSY.M.GY.VTHNB.BIOTR.SLD SS LAM
61	39.56	40.10	0.54			SANDSTONE	MG.MOD.M.GY.VTHNB.BIOTR.SLD SLTST LAM
61	40.10	40.79	0.69			SANDSTONE	MG.WEL.LT.GY.THNB.SLD MNR BIOTRB
* 61	40.79	41.70	0.91			SANDSTONE	MG.WEL.M.GY.VTHNB.BIOTR.SLD SLTST INTBS, SSD INDICATES TOPS OVERTUR NED
60	41.70	42.94	1.24			SANDSTONE	MG.WEL.LT.GY.THNB.BIOTR.SLD BIOTURB MNR, MNR SLTST LAM
* 59	42.94	43.36	0.42			SANDSTONE	MG.MOD.M.GY.THNB.SLD

\* DENOTES MEASURED BCA



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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
	58.24	58.35	0.11	04885	I	CLAYSTONE	BLK.BRKN UNCON
*	58.35	58.43	0.08	04885	I	CLAYSTONE	DK.BN.PWRD UNCON
	58.43	58.48	0.05	04885	I	CLAYSTONE	CARB.BLK.BRKN COALY BANDS
	58.48	58.53	0.05	04885	I	ROCK LOSS	
	58.53	58.63	0.10	04886	I	COAL LOSS	
	58.63	58.76	0.13	04886	I	COAL	C-2.BLK.BRKN
	58.76	58.80	0.04	04886	I	COAL	C-1.BLK.BRKN
	58.80	58.88	0.08	04886	I	COAL	C-2.BLK.BRKN
*	58.88	58.92	0.04	04886	I	COAL	C-1.BLK.SLD
	58.92	58.97	0.05	04886	I	COAL	C-2.BLK.SLD
	58.97	58.99	0.02	04886	I	COAL	C-1.BLK.SLD

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA



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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA



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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA



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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
51	146.05	146.40	0.35			SILTSTONE	CLYY.DK.GY.LAM.BIOTR.BRKN OVAL SPHERES APPROX 1CM, CLYST LAMS, BD G GREATLY DISTURBED
52	146.40	146.94	0.54			MUDSTONE	DK.GY.LAM.BRKN
* 54	146.94	147.18	0.24			SILTSTONE	DK.GY.LAM.SLD SS LAMS
52	147.18	147.63	0.45			CLAYSTONE	CARB.BLK.BRKN LISTRIC SURFACES, COALY BANDS
* 50	147.63	148.09	0.46			CLAYSTONE	CARB.BLK.LAM.BRKN COALY BANDS BECOMING MORE FREQUENT TOWA RDS TOP
57	148.09	148.13	0.04	04887	J	COAL	C-3.BLK.BRKN
57	148.13	148.14	0.01	04887	J	CLAYSTONE	CARB.BLK.BRKN
* 59	148.14	148.26	0.12	04887	J	COAL	C-4.BLK.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
58	148.26	148.30	0.04	04887	J	COAL	C-2.BLK.BRKN
57	148.30	148.33	0.03	04887	J	COAL	C-4.BLK.BRKN
* 56	148.33	148.45	0.12	04887	J	COAL	C-2.BLK.SLD
57	148.45	148.57	0.12	04887	J	ROCK LOSS	
59	148.57	148.67	0.10	04887	J	COAL	C-1.BLK.SLD
* 60	148.67	148.80	0.13	04887	J	COAL	C-2.BLK.SLD
59	148.80	148.82	0.02	04887	J	COAL	C-2.BLK.BRKN
58	148.82	149.00	0.18	04887	J	COAL	C-2.BLK.BRKN

\* DENOTES MEASURED BCA

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## GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
56	153.28	153.29	0.01	04890	J	COAL	C-2.BLK.SLD
56	153.29	153.58	0.29	04890	J	COAL	C-3.BLK.BRKN
56	153.58	154.07	0.49	04890	J	COAL LOSS	
56	154.07	154.19	0.12	04890	J	CLAYSTONE	CARB.BLK.BRKN
* 56	154.19	154.34	0.15	04890	J	COAL	C-3.BLK.BRKN
57	154.34	155.00	0.66			CLAYSTONE	CARB.BLK.BRKN COALY BANDS THINING TOWARDS TOP, MNR CALCT VEINING
* 59	155.00	155.91	0.91			MUDSTONE	BLK.LAM.BRKN CLY BANDS AT BASE, SLTY TOWARDS TOP, MI NUTE CALCT FRACTURES
58	155.91	156.24	0.33			MUDSTONE	SLTY.BLK.LAM.SLD SLTST LAMS
* 57	156.24	157.46	1.22			SILTSTONE	SSY.DK.GY.LAM.SSD.SLD SSD INDICATES TOPS OVERTURNED, SS LAMS, MNR CLYST LAMS, EASILY WTHRD

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
55	164.02	164.25	0.23			SILTSTONE	SSY.DK.GY.LAM.SSD.SLD SS LAMS, SSD INDICATES TOPS OVERTURNED, EASILY WTHRD
* 56	164.25	164.88	0.63			SILTSTONE	SSY.DK.GY.LAM.SLD MICRO FAULT (3CM), SS LAMS INCREASING T OWARDS TOP
* 56	164.88	166.43	1.55			SANDSTONE	SLTY.DK.GY.VTHNB.XBDG.SLD BIOTURB, SSD, SLTST INTBS AND LAMS, SE D STRUCTURES INDICATE TOPS OVERTURNED, EASILY WTHRD
55	166.43	168.56	2.13			SILTSTONE	SSY.DK.GY.LAM.XBDG.SLD SS INTBS AND LAMS, SYN-SEDIMENTARY FAUL TING (3CM), SED STRUCTURES INDICATE TOP S OVERTURNED, EASILY WTHRD
54	168.56	169.49	0.93			SILTSTONE	SSY.DK.GY.LAM.BIOTR.SLD SSD, SS LAMS, TOPS OVERTURNED, MNR COAL Y BAND (0-5CM)
* 54	169.49	170.72	1.23			SILTSTONE	SSY.DK.GY.LAM.SSD.SLD SS INTBS, TOPS OVERTURNED, EASILY WTHRD
* 52	170.72	172.40	1.68			SILTSTONE	SSY.DK.GY.LAM.XBDG.SLD SSD, SS INTBS, EASILY WTHRD

\* DENOTES MEASURED BCA



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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 52	172.40	172.89	0.49			SILTSTONE	SSY.DK.GY.LAM.XBDG.SLD SS INTBS, BIOTURB
* 50	172.89	175.10	2.21			SILTSTONE	SSY.DK.GY.VTHNB.BIOTR.SLD SSD, SS INTBS, UNIT BIOLOGICALLY DISTUR BED, SED STRUC INDICATE TOPS OVERTURNED , EASILY WTHRD
* 46	175.10	175.49	0.39			SILTSTONE	SSY.DK.GY.LAM.SSD.SLD XBDG, SS INTBS, BDS DISTURBED, EASILY W THRD
46	175.49	176.11	0.62			SILTSTONE	SSY.DK.GY.LAM.BIOTR.SLD SSD
* 45	176.11	176.94	0.83			SANDSTONE	SLTY.VFG.WEL.DK.GY.VTHNB.BIOTR.SLD SLTST INTBS
47	176.94	178.10	1.16			SILTSTONE	SSY.DK.GY.LAM.BIOTR.SLD MNR SS LAMS
* 48	178.10	178.90	0.80			SILTSTONE	SSY.DK.GY.LAM.WRMBU.SLD SS LAMS
* 56	178.90	179.06	0.16			SANDSTONE	SLTY.VFG.WEL.DK.GY.LAM.SLD SLTST LAMS

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
* 48	179.06	179.48	0.42			SANDSTONE	SLTY.VFG.WEL.DK.GY.VTHNB.SSD.SLD SLTST INTBS, EASILY WTHRD
49	179.48	179.51	0.03			MUDSTONE	PYR.BLK.SLD CALCT VEINING, ABUNDANT PYR
* 54	179.51	181.19	1.68			SANDSTONE	SLTY.VFG.WEL.M.GY.VTHNB.BIOTR.SLD SLTST INTBS, LISTRIC SURFACES TOWARDS TOP
49	181.19	181.29	0.10			SANDSTONE	SLTY.VFG.WEL.M.GY.VTHNB.SLD SLTST INTBS
* 48	181.29	181.51	0.22			SILTSTONE	SSY.DK.GY.LAM.SSD.SLD LAM SLTST AND MUDST, MNR CALCT ALONG FRAC
* 46	181.51	182.89	1.38			SANDSTONE	SLTY.VFG.DK.GY.VTHNB.BIOTR.SLD SSD, SLTST INTBS, MNR COALY LENSES (2MM), LISTRIC SURFACES ALONG FRAC, CALCT VEINING, MNR CLYST ON MNR FRAC SURFACES, SSD INDICATES FOLDS OVERTURNED
50	182.89	183.29	0.40			SANDSTONE	SLTY.FG.MOD.DK.GY.THNB.BIOTR.BRKN SLTST LAM, MNR CLY ALONG FRAC

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 54	183.29	184.37	1.08			SANDSTONE	FG.WEL.GY.VTHNB.SSD.SLD WRMBUR, BIOTURB, SLTST INTBS, MNR COALY PARTICLES APPROX 3MM THK, CALCT ALONG FRAC SURFACES, MNR LISTRIC SURFACES, WR MBUR INDICATE TOPS OVERTURNED
* 49	184.37	185.40	1.03			SANDSTONE	SLTY.FG.WEL.DK.GY.VTHNB.WRMBU.BRKN COAL INCLUSIONS, CALCT VEINING, SLTST L AM
51	185.40	186.12	0.72			MUDSTONE	SLTY.DK.GY.LAM.SLD SLTST AND SS LAMS
52	186.12	186.49	0.37			MUDSTONE	CLYY.GY.BRKN LISTRIC FRACTURE SURFACES, MNR COAL INC LUSIONS TOWARDS TOP
53	186.49	186.78	0.29			MUDSTONE	BLK.SLD COAL INCLUSIONS
53	186.78	186.89	0.11			MUDSTONE	CARB.BLK.LAM.PWRD CALCT VEINING, VERY WTHRD, UNCONS, COAL Y TOWARDS TOP
53	186.89	186.92	0.03	04891 K	LOWER	COAL	C-2.BLK.SLD

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
53	186.92	186.95	0.03	04891	K LOWER	CLAYSTONE	CARB.BLK.SLD
53	186.95	187.03	0.08	04891	K LOWER	COAL	C-1.BLK.BRKN
54	187.03	187.10	0.07	04891	K LOWER	COAL	C-4.BLK.BRKN
54	187.10	187.18	0.08	04891	K LOWER	COAL	C-1.BLK.SLD
54	187.18	187.19	0.01	04891	K LOWER	CLAYSTONE	CARB.BLK.SLD
54	187.19	187.23	0.04	04891	K LOWER	COAL	C-4.BLK.BRKN
54	187.23	187.29	0.06	04891	K LOWER	CLAYSTONE	CARB.BLK.BRKN

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
54	190.50	190.53	0.03	04894	K LOWER	COAL	C-2.BLK.BRKN
54	190.53	190.60	0.07	04894	K LOWER	CLAYSTONE	CARB.BLK.BRKN COAL BANDS
53	190.60	190.64	0.04	04894	K LOWER	COAL	C-2.BLK.BRKN
* 52	190.64	190.74	0.10	04894	K LOWER	COAL	C-4.BLK
53	190.74	190.80	0.06	04894	K LOWER	ROCK LOSS	
53	190.80	190.89	0.09	04894	K LOWER	CLAYSTONE	CARB.BLK.SLD COAL BANDS
54	190.89	190.99	0.10	04894	K LOWER	CLAYSTONE	CARB.BLK.BRKN COAL BANDS
54	190.99	191.01	0.02	04894	K LOWER	COAL	C-2.BLK.SLD
55	191.01	191.03	0.02	04894	K LOWER	COAL	C-4.BLK.SLD
55	191.03	191.04	0.01	04894	K LOWER	COAL	C-1.BLK.SLD

\* DENOTES MEASURED BCA



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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
57	191.62	191.83	0.21	04895	K UPPER	CLAYSTONE	CARB.BLK.SLD COALY BANDS, LISTRIC SURFACES
* 58	191.83	192.09	0.26	04895	K UPPER	CLAYSTONE	CARB.BLK.SLD COAL BANDS
57	192.09	192.11	0.02	04896	K UPPER	COAL	C-3.BLK.BRKN
57	192.11	192.14	0.03	04896	K UPPER	COAL	C-1.BLK.BRKN
57	192.14	192.16	0.02	04896	K UPPER	COAL	C-4.BLK.BRKN
57	192.16	192.19	0.03	04896	K UPPER	COAL	C-1.BLK.BRKN
57	192.19	192.20	0.01	04896	K UPPER	CLAYSTONE	CARB.BLK.BRKN COAL BANDS
57	192.20	192.22	0.02	04896	K UPPER	COAL	C-4.BLK.BRKN
56	192.22	192.25	0.03	04896	K UPPER	COAL	C-1.BLK.SLD
56	192.25	192.33	0.08	04896	K UPPER	ROCK LOSS	

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
56	192.33	192.38	0.05	04896	K UPPER	CLAYSTONE	CARB.BLK.BRKN CALCT VEINING, COAL BANDS
56	192.38	192.40	0.02	04896	K UPPER	CLAYSTONE	CARB.BLK.SLD COAL BANDS, CALCT VEINING
56	192.40	192.42	0.02	04896	K UPPER	COAL	C-2.BLK.SLD CALCT VEINING
55	192.42	192.57	0.15	04896	K UPPER	CLAYSTONE	CARB.BLK.PWRD VERY CRUMBLY, LISTRIC SURFACES, COAL PA RTICLES
54	192.57	192.64	0.07	04896	K UPPER	COAL	C-3.BLK.VBRKN
* 54	192.64	192.73	0.09	04896	K UPPER	CLAYSTONE	CARB.BLK.BRKN V COALY BDS THROUGHOUT
57	192.73	192.85	0.12	04897	K UPPER	COAL	C-4.BLK.SLD
58	192.85	192.87	0.02	04897	K UPPER	COAL	C-1.BLK.SLD
* 59	192.87	192.90	0.03	04897	K UPPER	COAL	C-4.BLK.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA



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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 59

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 60

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 61

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
59	229.21	229.42	0.21			CLAYSTONE	LT.GY.LAM.BIOTR.SLD WRMBUR, LISTRIC FRAC SURFACES, COAL INCLUSIONS MNR, FOSSILIFEROUS, MOTTLED, PYR TOWARDS TOP
56	229.42	229.66	0.24			CLAYSTONE	CARB.BLK.LAM.BRKN LISTRIC FRAC SURFACES, COALY INCLUSIONS . MNR CALCT STRGS
52	229.66	229.90	0.24			SANDSTONE	MG.MOD.S-P.GY.THNB.BIOTR.BRKN BIOTURB MNR, MNR COAL INCLUSIONS, SLTST LAM, V EASILY WTHRD
50	229.90	230.00	0.10			CLAYSTONE	LT.GY.BIOTR.SLD COAL INCLUSIONS, MNR QTZ VEINING, FOSSILIFEROUS
48	230.00	230.16	0.16			SANDSTONE	MG.MOD.S-P.GY.THNB.SLD MNR SLTST INTBS
46	230.16	230.26	0.10			CLAYSTONE	GY.PWRD UNCONS, V EASILY WTHRD
45	230.26	230.29	0.03			SANDSTONE	MG.GY.PWRD V EASILY WTHRD, UNCONS
* 45	230.29	230.33	0.04			SILTSTONE	GY.LAM.SLD MUDST LAM, LARGE QTZ VEIN

\* DENOTES MEASURED BCA

82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 62

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
45	230.33	230.57	0.24			SANDSTONE	CG.MOD.S-P.GY.THNB.SLD SLTST RIP-UP CLASTS, MNR QTZ VEINING
45	230.57	230.95	0.38			SANDSTONE	FG.MOD.M.GY.THNB.SLD SLTST RIP-UP CLASTS COMMON, INTBD CG SS AND SLTST
* 45	230.95	231.32	0.37			SANDSTONE	FG.S-P.GY.VTHNB.SLD EASILY WTHRD, SLTST LAM, INTBD CLY
51	231.32	231.53	0.21			SILTSTONE	FG.DK.GY.VTHNB.SSD.SLD SSD INDICATES TOPS OVERTURNED, SS INTBS
* 58	231.53	231.93	0.40			SANDSTONE	FG.WEL.S-P.GY.VTHNB.BRKN MNR SLST LAM
57	231.93	231.99	0.06			SILTSTONE	DK.GY.LAM.SLD MNR SS LAM
54	231.99	232.85	0.86			SANDSTONE	FG.GY.VTHNB.VBRKN ABUNDANT CALCT SURROUNDING BRECCIATED S S, SS WTHRD AND BRKN IN PARTS, FAULT
* 50	232.85	233.25	0.40			SANDSTONE	FG.MOD.GY.VTHNB.XBDG.SLD XBDG INDICATES TOPS OVERTURNED, SLTST L AM, SLTST RIP-UP CLASTS, EASILY WTHRD
49	233.25	233.34	0.09			SANDSTONE	FG.MOD.GY.VTHNB.XBDG.SLD AS ABOVE

\* DENOTES MEASURED BCA



82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 63

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 64

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 65

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 58	236.57	236.62	0.05	04737	L	COAL	C-2.BLK.SLD CALCT VEINING
56	236.62	236.80	0.18	04898	L	MUDSTONE	DK.GY.BRKN FOSSILIZED TREE, CALCT VEINING
* 52	236.80	237.02	0.22	04738	L	COAL	C-3.BLK.BRKN
52	237.02	237.05	0.03	04738	L	COAL	C-1.BLK.SLD
52	237.05	237.15	0.10	04738	L	COAL	C-2.BLK.SLD
53	237.15	237.33	0.18	04738	L	COAL	C-2.BLK.VBRKN
53	237.33	237.37	0.04	04738	L	COAL	C-4.BLK.BRKN COAL BANDS, LISTRIC SURFACES
* 53	237.37	237.47	0.10	04738	L	CLAYSTONE	CARB.BLK.BRKN COAL BANDS, LISTRIC SURFACES
53	237.47	237.55	0.08	04738	L	COAL	C-1.BLK.BRKN
53	237.55	237.59	0.04	04738	L	COAL	C-3.BLK.SLD CALCT VEINING MNR

\* DENOTES MEASURED BCA

82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 66

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 67

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
	57	238.92	239.17	0.25		MUDSTONE	M.GY.LAM.BRKN
*	58	239.17	240.26	1.09		CLAYSTONE	DK.GY.LAM.BIOTR.SLD COALY BANDS, MNR CALCT VEINING, MNR SLT ST LAM
*	53	240.26	242.17	1.91		SILTSTONE	M.GY.LAM.SSD.BRKN XBDG, BIOTURB, WRMBUR, XBDG INDICATES T OPS OVERTURNED, SS INTBS, MNR CALCT VEI NING
	59	242.17	242.28	0.11		SILTSTONE	DK.GY.VBRKN CALCT CEMENTING BRECCIATED PIECES
	60	242.28	242.32	0.04		SANDSTONE	VFG.GY.VTHNB.SLD INTBD SLTST
	60	242.32	242.47	0.15		SANDSTONE	VFG.M.GY.SLD BRECCIATED SLTST CEMENTED IN SS MATRIX
*	61	242.47	242.60	0.13		SANDSTONE	FG.WEL.M.GY.THNB.SSD.SLD SSD INDICATES TOPS OVERTURNED

\* DENOTES MEASURED BCA

XXXXXX

82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 68

PROJECT: KPN BLOCK: LR DATA SOURCE: DDH82005

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

\* DENOTES MEASURED BCA

\*\*\*\*\* VERTICAL DEVIATION \*\*\*\*\*

## COMPU-LOG VSLI DEVIATION

110

CLIENT : GULF CANADA RES. INC

HOLE ID : DDH-82-005

LOCATION : KLAPPAN MTN.

DATE OF LOG : 88-25-82

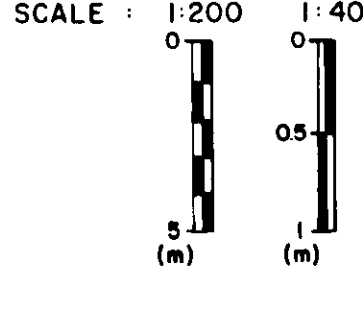
DATA FROM : VSL2\*A

PROBE : 9055A 0011

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

DEPTH	TRUE DEPTH	NORTH DEV	EAST DEV	DISTANCE	AZIMUTH	SA	SAB
.00	.00	.00	.00	.00	.0	.0	.0
5.00	4.36	.58	2.36	2.43	76.1	29.1	76.0
10.00	8.73	1.17	4.72	4.86	76.1	29.1	76.0
15.00	13.10	1.75	7.09	7.30	76.1	29.1	76.0
20.00	17.46	2.34	9.45	9.73	76.1	29.1	76.0
25.00	21.83	2.92	11.81	12.17	76.1	29.1	76.0
30.00	26.20	3.51	14.18	14.60	76.1	29.1	76.0
35.00	30.57	4.09	16.54	17.04	76.1	29.1	76.0
40.00	34.93	4.68	18.90	19.47	76.1	29.1	76.0
45.00	39.30	5.26	21.27	21.91	76.1	29.1	76.0
50.00	43.67	5.85	23.63	24.34	76.1	29.1	76.0
55.00	48.03	6.43	25.99	26.78	76.1	29.1	76.0
60.00	52.37	7.03	27.71	28.69	75.0	24.6	59.0
65.00	56.72	8.46	29.49	30.68	74.0	25.2	59.7
70.00	61.09	9.29	31.77	33.10	73.7	29.0	70.1
75.00	65.45	10.23	34.01	35.52	73.3	29.0	67.2
80.00	69.82	11.00	36.31	37.94	73.1	29.0	71.2
85.00	74.21	11.78	38.58	40.34	73.0	28.7	71.1
90.00	78.58	12.34	40.93	42.75	73.2	28.8	76.5
95.00	82.96	12.68	43.32	45.13	73.7	28.8	81.9
100.00	87.34	12.89	45.72	47.51	74.2	28.8	84.8
105.00	91.72	13.13	48.11	49.87	74.7	28.7	84.3
TD 108.30	94.61	13.28	49.69	51.44	75.0	28.7	84.4

MOUNT KLAPPAN  
DRILL HOLE LOG  
DDH 82-005



NORTHING : 6344375 N  
EASTING : 506120 E

INCLINATION : 60°  
BEARING : 055°

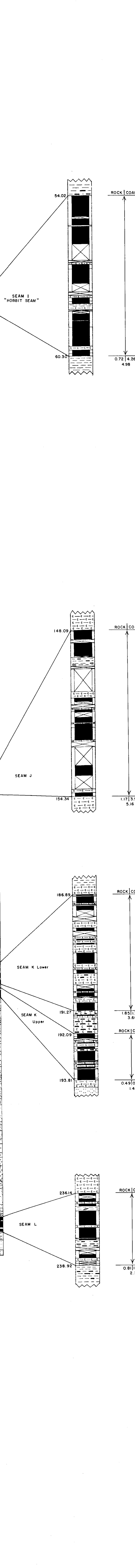
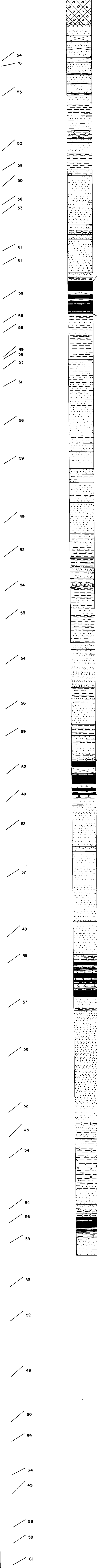
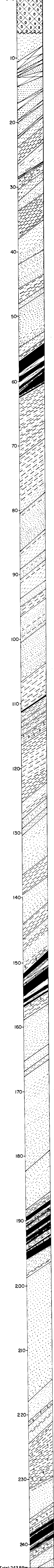
LITHOLOGIC SYMBOLS

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

APPARENT THICKNESS  
1:200

TRUE THICKNESS  
1:200

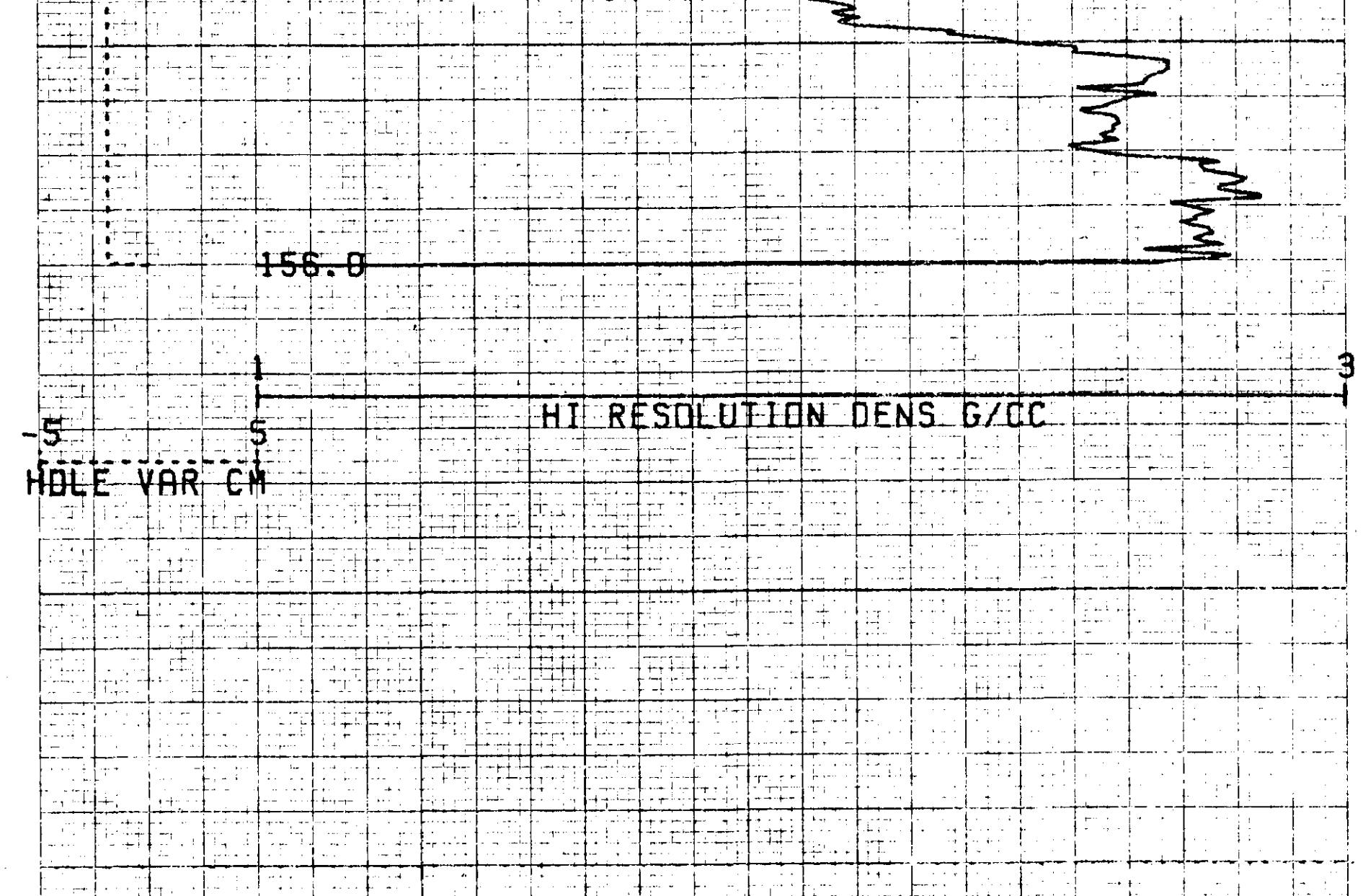
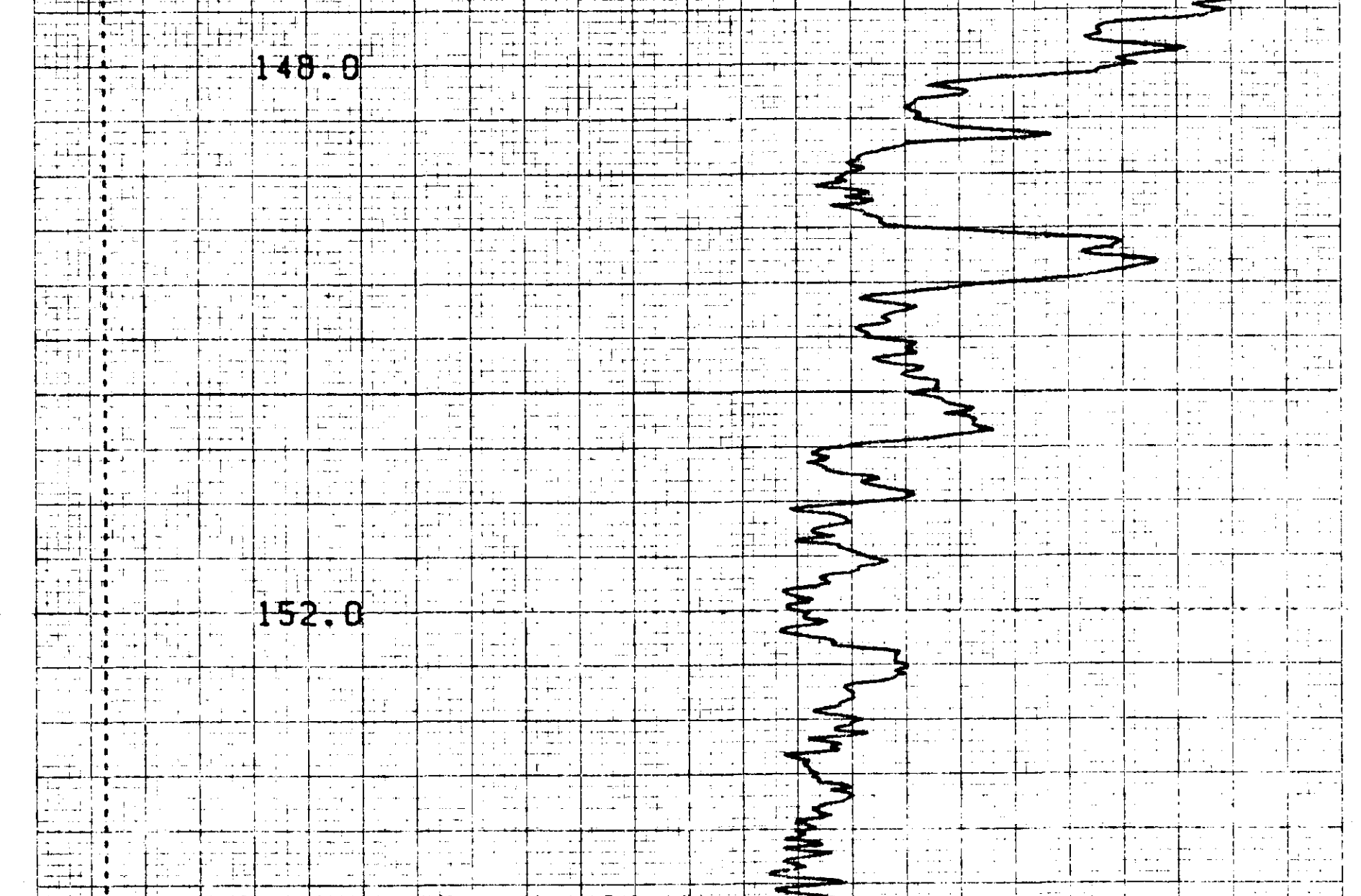
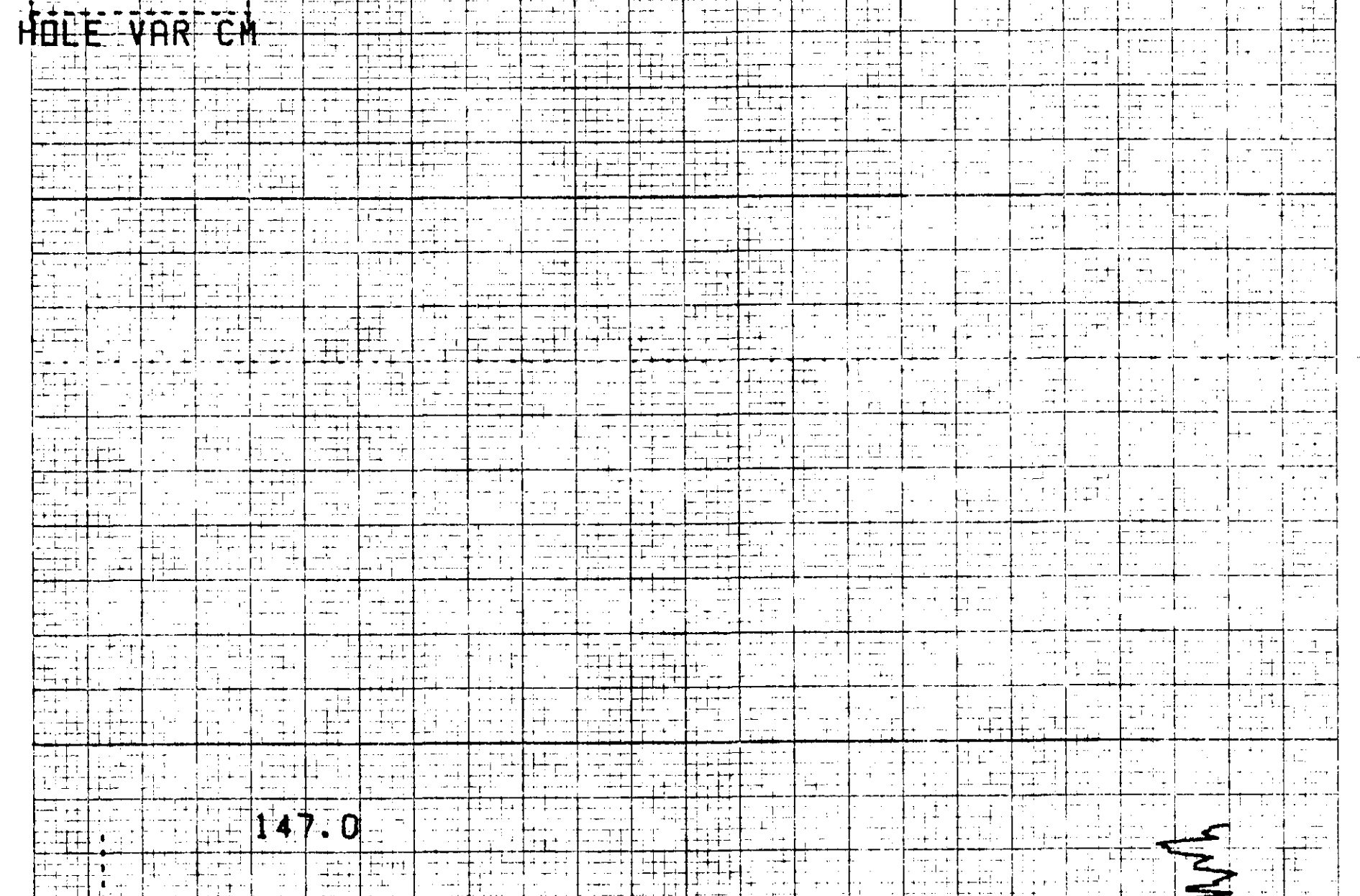
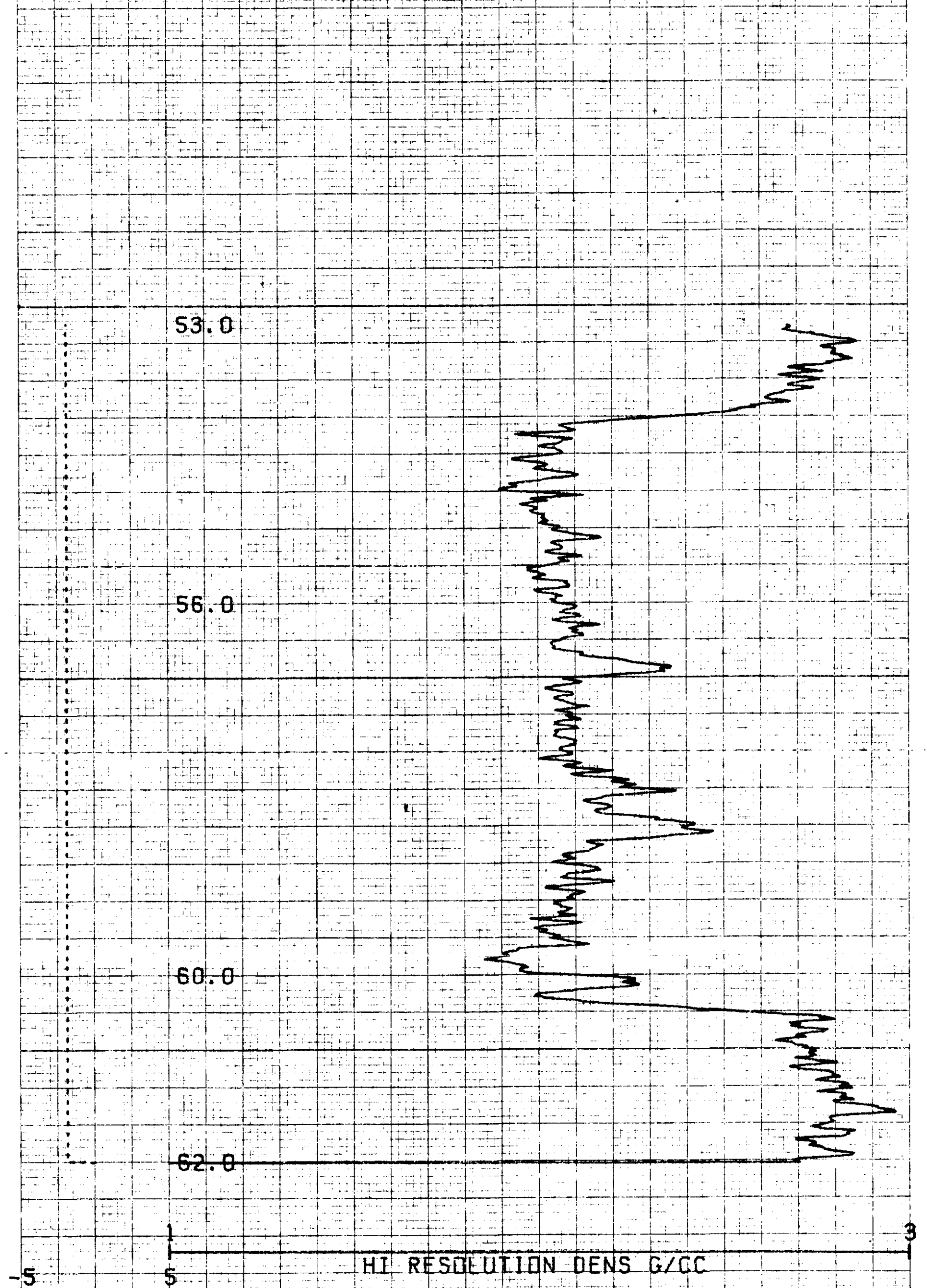
SEAM DETAIL  
1:40



Total: 243.59m

SECTION OVERTURNED





COMPU-LOG V8L3 PLOT 08-28-82

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

HOLE DIAMETER : 09.6  
 PROBE # 9030A 420  
 SENSOR #4 CAL STD CPS = 6588  
 SENSOR #4 CAL RUN CPS = 4000  
 SENSOR #4 CAL BIAS = 31  
 DATA V8L2#A TRUCK # P823  
 K. SKARBB APPL.#1 TN

\* LOGGED TO SDR NEIL PINE

110

151

152

153

154

GR-M Klappan 8a(3)A

110

# VERTICAL DEVIATION

COMPU-EDG VBLI DEVIATION  
DATA FROM : VBL2\*P

CLIENT : GULF CANADA RES. INC  
LOCATION : KLAPPAN MTN.  
HOLE ID : DDH-82-005  
DATE OF LOG : 08-25-82  
PROBE : 9055A 0011

SCALE: 5.00 M/DIV

MAG DECL: 29.5

TRUE DEPTH: 94.6 M

AZIMUTH: 75.0

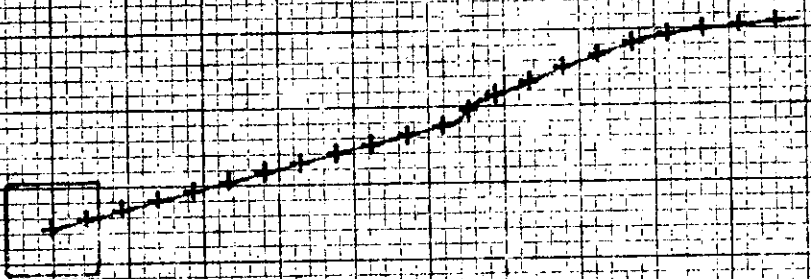
DISTANCE: 51.44 M

+ = 5.0 M INCR

Δ = TOP OF ZONE

◊ = BOTTOM OF ZONE

TRUE NORTH ↑



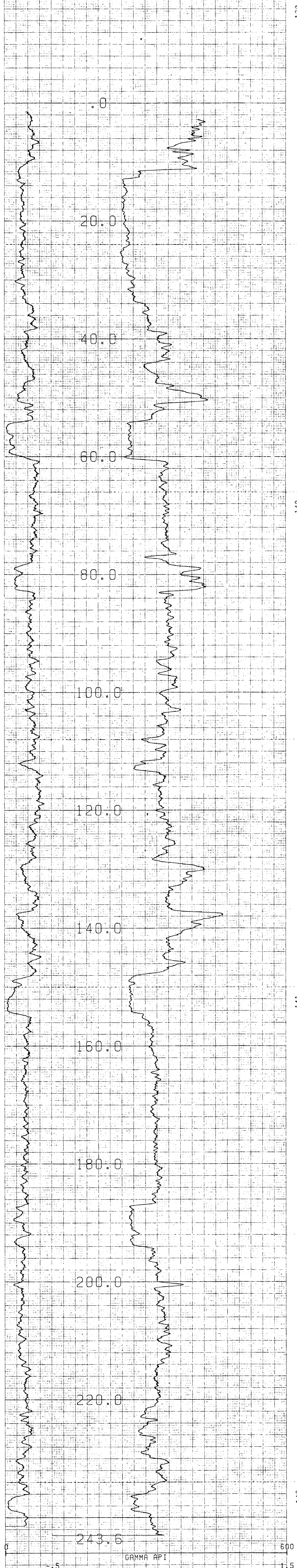
31

139

140

141

142



COMPU-LOG V8L2 PLOT 08-28-82  
 DDH-82-005  
 GULF CANADA RES. INC  
 KLAPPAN MTN.  
 HOLE DIAMETER : 09.6  
 PROBE # 9055A - 011  
 SENSOR #4 CAL STD CPS = 152  
 SENSOR #4 CAL RUN CPS = 272  
 SENSOR #4 CAL BIAS = 0  
 DATA V8L2\*H TRUCK # F823  
 K. SKARBE APPL. #1007L1

110

6R-PR-K1503X-HA-2/6

DDH62006

gcri coal division history proj KPN blk BC ds DDH82006

start date 30/08/82  
end date 01/09/82

contractor J.T.THOMAS operator GCRI  
geologist SWANBERGSON surveyor \_\_\_\_\_

remarks ANGLED HOLE AT 060

gcri coal division location proj KPN blk BC ds DDH82006

choose one location input number, 1 province BC  
then enter location elevation (M) 1489.00

\*-----\*  
1 utm: zone 09 northing 6344865.00 easting 0512650.00
2 lat-long: lat 571455 long 1284725
-----

gcri coal division orientation proj KPN blk BC ds DDH82006

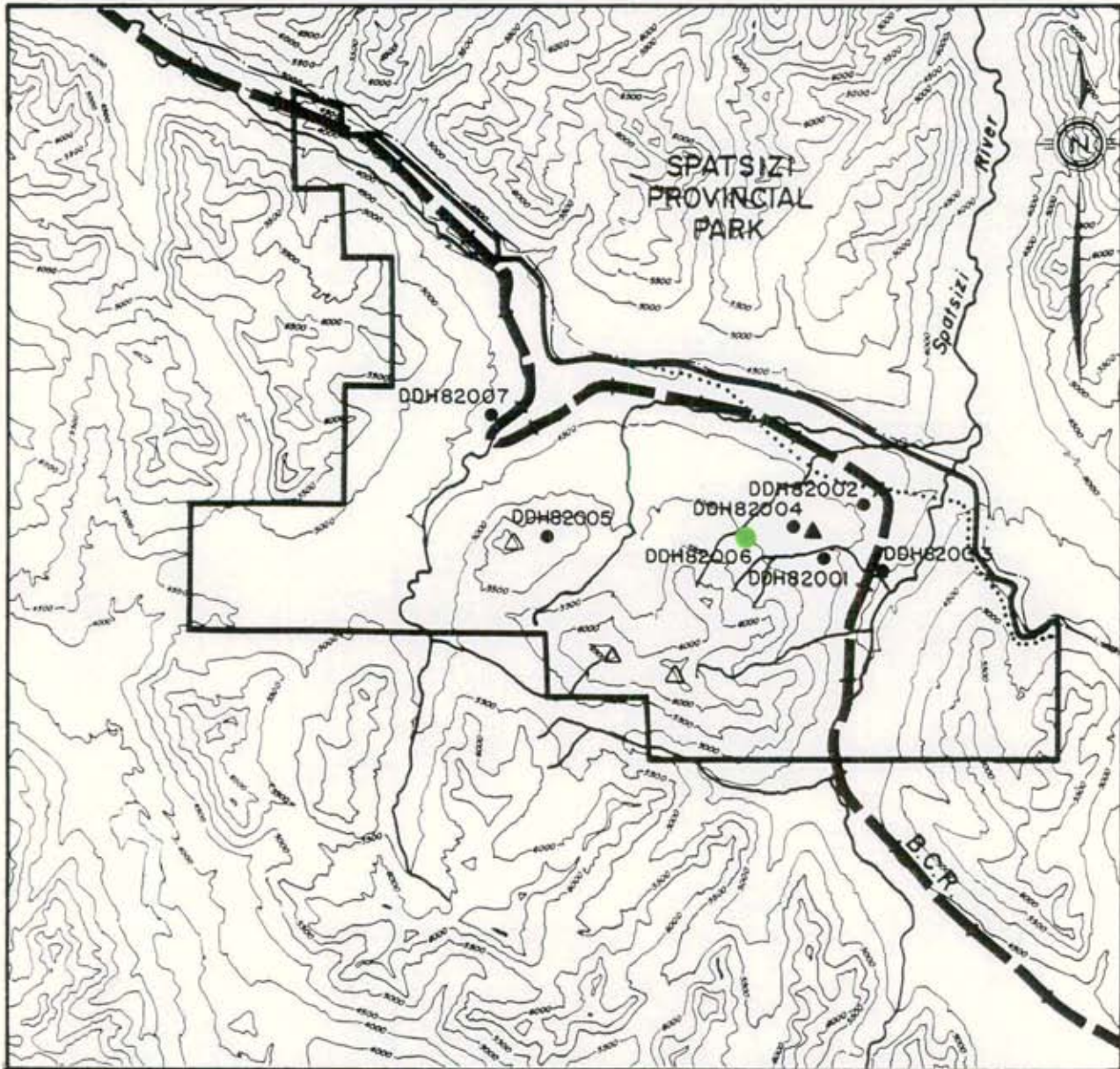
dimensions and orientation:

length (M) 172.98 inclination 60.0 azimuth 345.0  
size width 95.8 size height  
roof strike dip dir  
floor strike dip dir

casing depth (M) 3.66 cement(y,\_) \_ plug(Y,\_) Y piez(Y,\_) \_  
aquifer depths (M) ----.--- ----.---  
loss cir depths(M) ----.--- ----.---

# MT. KLAPPAN COAL PROPERTY

## DIAMOND DRILL HOLES



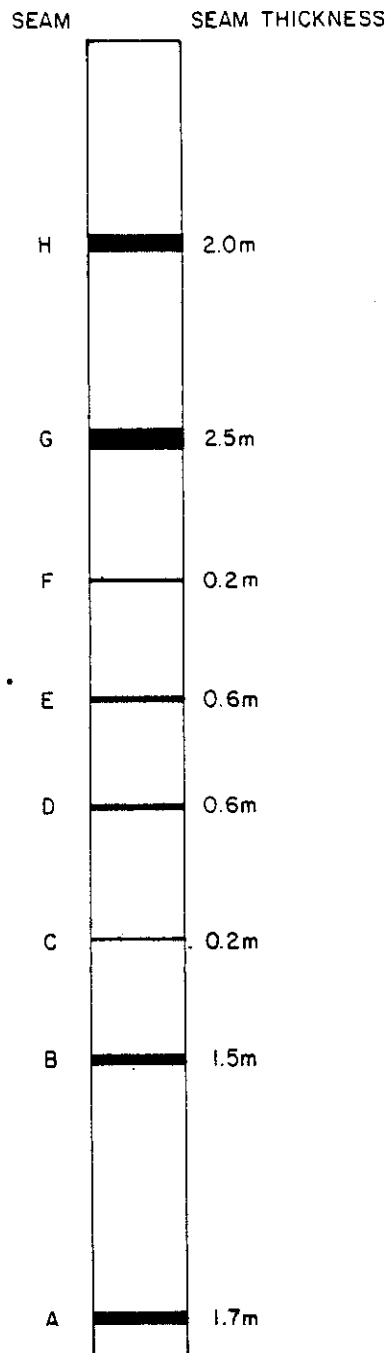
0 1 2 3 4 5 Km




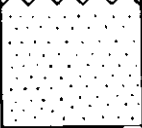



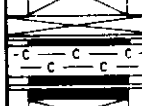
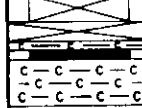
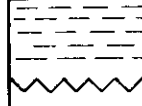






-  Prepared Rail Bed
-  Provincial Park Boundary
-  Camp
-  Diamond Drill Hole
-  Redefined Property Boundary


# MT. KLAPPAN COAL PROPERTY

DDH82006



SCALE-1:1000

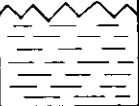

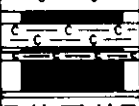
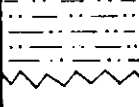


DRILLING DEPTH	COAL SEAM LOG	INTERVAL		REC	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		COAL/ROCK TOTAL	COAL/ROCK TOTAL		
					NUMBER	COMPOS		
25.54								
25.68								
		(0.07)	0.14					
26.09		0.31						
		0.02	0.14					
			(0.26)	69	04872			
		0.09	0.17					
26.93		(0.12)	0.12					
			(0.26)	67.7	04873	40	1.31/0.70 2.01	1.31/0.70 2.01
		(0.10) 0.02	0.02					
27.62		0.17	0.05 0.04 (0.15)	45.8	04874			
		(0.11) 0.04	0.06					
28.10								
								

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY		ALBERTA
<b>MT. KLAPPAN COAL PROJECT</b> <b>SEAM DETAIL</b> <b>TRUE THICKNESS</b> <b>DDH-82-006</b> <b>SEAM H</b>		
PREPARED BY: C. L.		SCALE 1:40
APPROVED BY: J. M. D.	DATE: NOV. 82	DRAWING No.



DEPTH	COAL SEAM LOG	INTERVAL		REC	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		COAL/ROCK TOTAL	COAL/ROCK TOTAL		
51.15			(0.16) 0.22					
				87.1	04875	41	1.16 / 0.08 1.24	
52.39			0.20 0.31					
			0.01 0.01					
52.67			0.15 (0.13)	53.6	04876			1.84 / 0.61 2.45
53.13			(0.11) 0.35	76.1	04877	42	0.68 / 0.53 1.21	
			0.12 0.09					
53.60			0.13 (0.04), 0.09	91.5	04878			

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY	ALBERTA	
<b>MT. KLAPPAN COAL PROJECT</b> <b>SEAM DETAIL</b> <b>TRUE THICKNESS</b> <b>DDH-82-006</b> <b>SEAM G</b>		
PREPARED BY: C. L.	SCALE 1:40	
APPROVED BY: J. M. D.	DATE: NOV '82	DRAWING No.

DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
69.75								
69.91			0.16	100	04746			0.16 / 0.00 0.16
		0.46						
		0.14	0.04					
		0.04	0.02					
70.76		(0.02)	0.14					

**GULF CANADA RESOURCES INC.**

Coal Division

CALGARY

ALBERTA



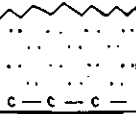

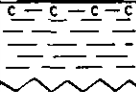

**MT. KLAPPAN COAL PROJECT**  
**SEAM DETAIL**  
 TRUE THICKNESS  
 DDH-82-006  
 SEAM F


PREPARED BY: C. L.

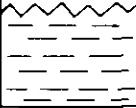
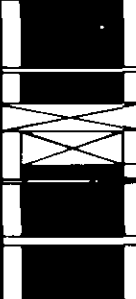
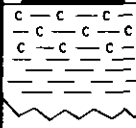
SCALE 1:40


APPROVED BY: J. M. D.

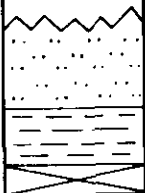
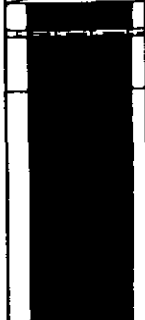

DATE: NOV. '82 DRAWING No.


DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
85.88								
			0.16 (0.11)	74.6	04879	43	↑ 0.61/0.02 0.63 ↓	↑ 0.61 / 0.02 0.63 ↓
86.51		0.02	0.21 (0.03) 0.08					
								

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY	ALBERTA	
<b>MT. KLAPPAN COAL PROJECT</b> <b>SEAM DETAIL</b> <b>TRUE THICKNESS</b> <b>DDH-82-006</b> <b>SEAM E</b>		
PREPARED BY: C. L.	SCALE 1:40	
APPROVED BY: J. M. D.	DATE: NOV. '82	DRAWING No.

DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE COAL/ROCK TOTAL	MINING SECTION COAL/ROCK TOTAL
		ROCK	COAL		NUMBER	COMPOS		
132.35								
132.90			0.37	100	04881	↑	↑	↑
			0.16					
		(0.15)	(0.18)			45	1.26 / 0.24	1.26 / 0.24
			0.06				1.50	1.50
			0.30	77.5	04882	↓	↓	↓
			0.19					
133.85								

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY		ALBERTA
<b>MT. KLAPPAN COAL PROJECT</b> <b>SEAM DETAIL</b> <b>TRUE THICKNESS</b> <b>DDH-82-006</b> <b>SEAM B</b>		
PREPARED BY: C. L.	SCALE 1:40	
APPROVED BY: J. M. D.	DATE: NOV. 82	DRAWING No.

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		COAL/ROCK TOTAL	COAL/ROCK TOTAL		
166.31			0.13					
		0.04	0.28					
		0.01		100	04883	46	1.62/0.05 1.67	1.62/0.05 1.67
168.37			1.21					

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY	ALBERTA	
<b>MT. KLAPPAN COAL PROJECT</b> <b>SEAM DETAIL</b> <b>TRUE THICKNESS</b> <b>DDH-82-006</b> <b>SEAM A</b>		
PREPARED BY: C.L.	SCALE 1:40	
APPROVED BY: J.M.D.	DATE: NOV. '82	DRAWING No.

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

Apparent Thickness

DENSITY

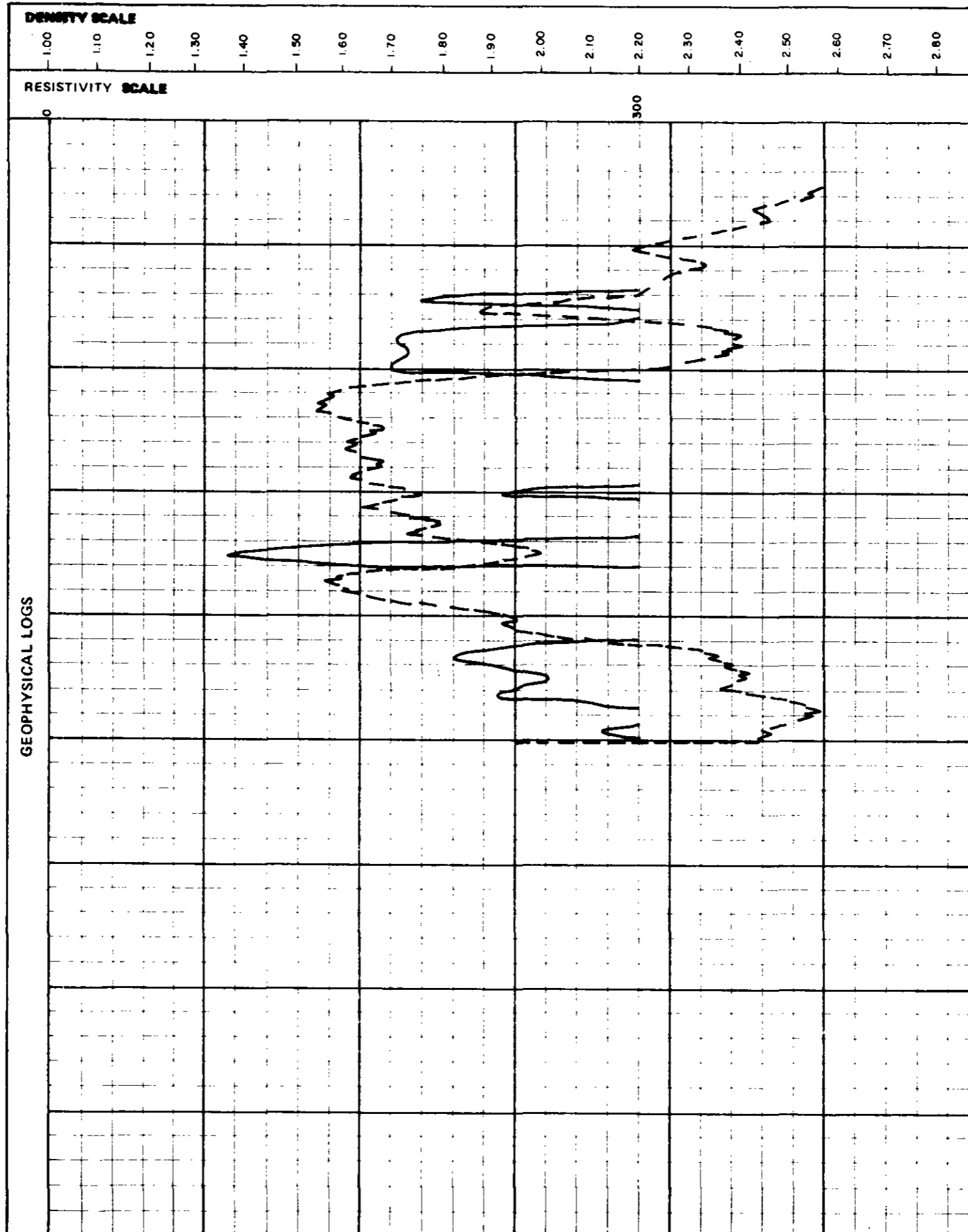
RESISTIVITY

DRILL NO DDH - 82 - 006

SEAM H

SEAM INTERVAL

SCALE 1:40



SEAM COMP	DEPTH meters	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS										
			ROCK	COAL		NUMBER	COMPOS	MOIST	ASH	VM	FC	S	Cal. Vol. MJ/kg	FSI				
	25.54		(0.07)	0.14														
	26.09		0.34															
	26.93		0.02	0.14	69	04782	40	0.71	45.68	9.46	44.15	17.16						
	27.62		0.09	0.12	67.7	04873												
	28.10		(0.12)	(0.26)	45.8	04874												
			0.10	0.02														
			0.17	0.02														
			0.03	0.05														
			(0.11)	(0.15)														
			0.04	0.06														

Seam Interval (m): 26.09 - 28.10  
Seam True Thickness (Coal/Rock): 1.31/0.70  
Total 2.01

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

Apparent Thickness

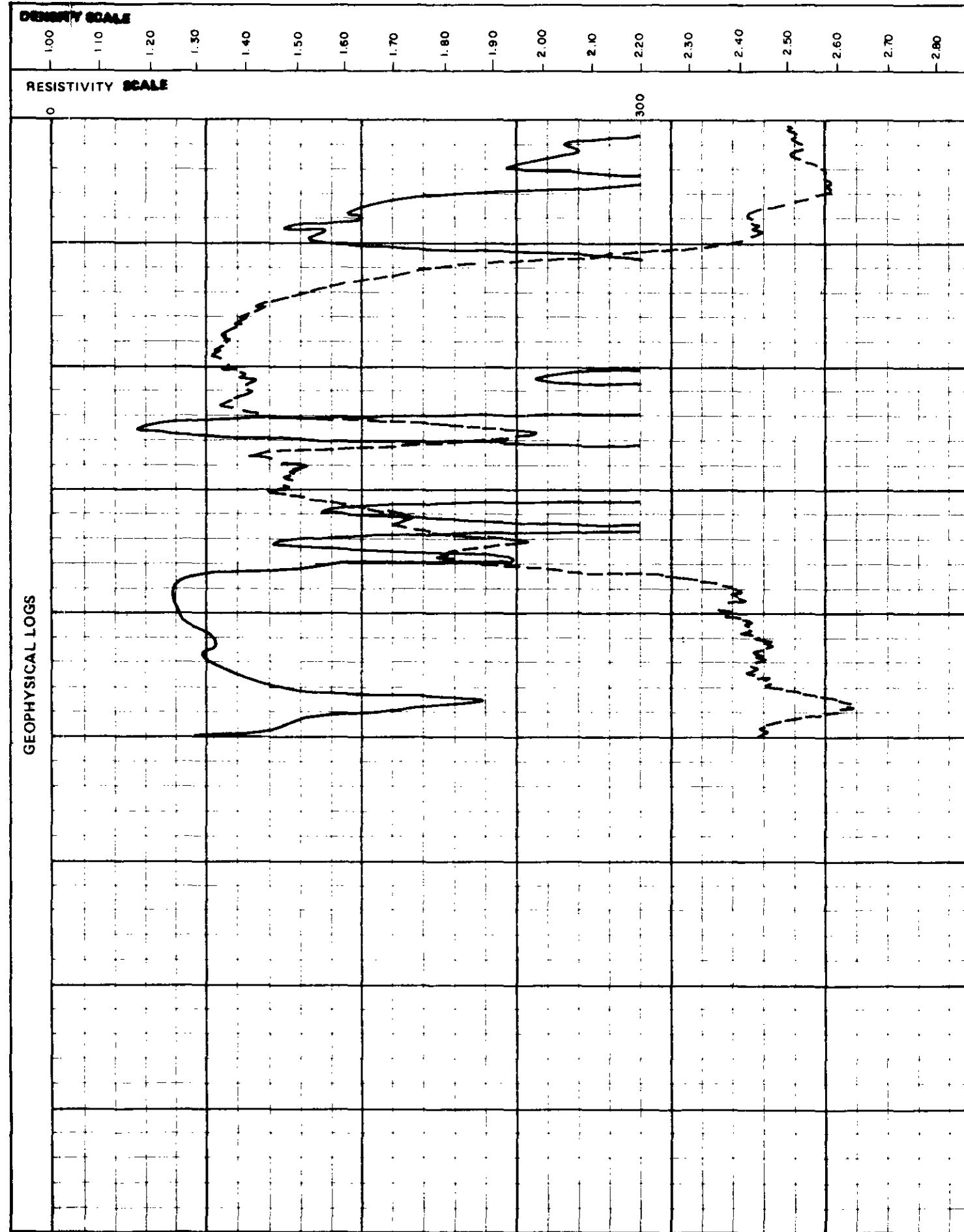
DENSITY

RESISTIVITY

DRILL NO DDH - 82 - 006  
SCALE 1:40

SEAM G

SEAM INTERVAL



SEAM COMP.	DEPTH meters	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS																
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	Cal. Val. MJ/kg	FSI										
1 2 3 4 5 6	51.15			(0.16)	87.1	04875	41	0.97	18.48	6.65	43.90			28.37										
			0.22																					
		0.05	0.20																					
		0.01	0.31																					
		0.01	0.10																					
		0.01	0.17																					
	52.39		0.15												53.6	04876								
	52.67		(0.13)	(0.11)																				
			0.35												76.1	04877	42	1.26	41.16	9.81	47.77			18.64
	53.13		0.12																					
			0.13	0.09											91.5	04878								
	53.60		0.09	(0.84)																				

Seam Interval (m): 51.15 - 53.60  
Seam True Thickness (Coal/Rock): 1.84/0.61  
Total 2.45

GEOPHYSICAL LOGS

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12-80)

Apparent Thickness

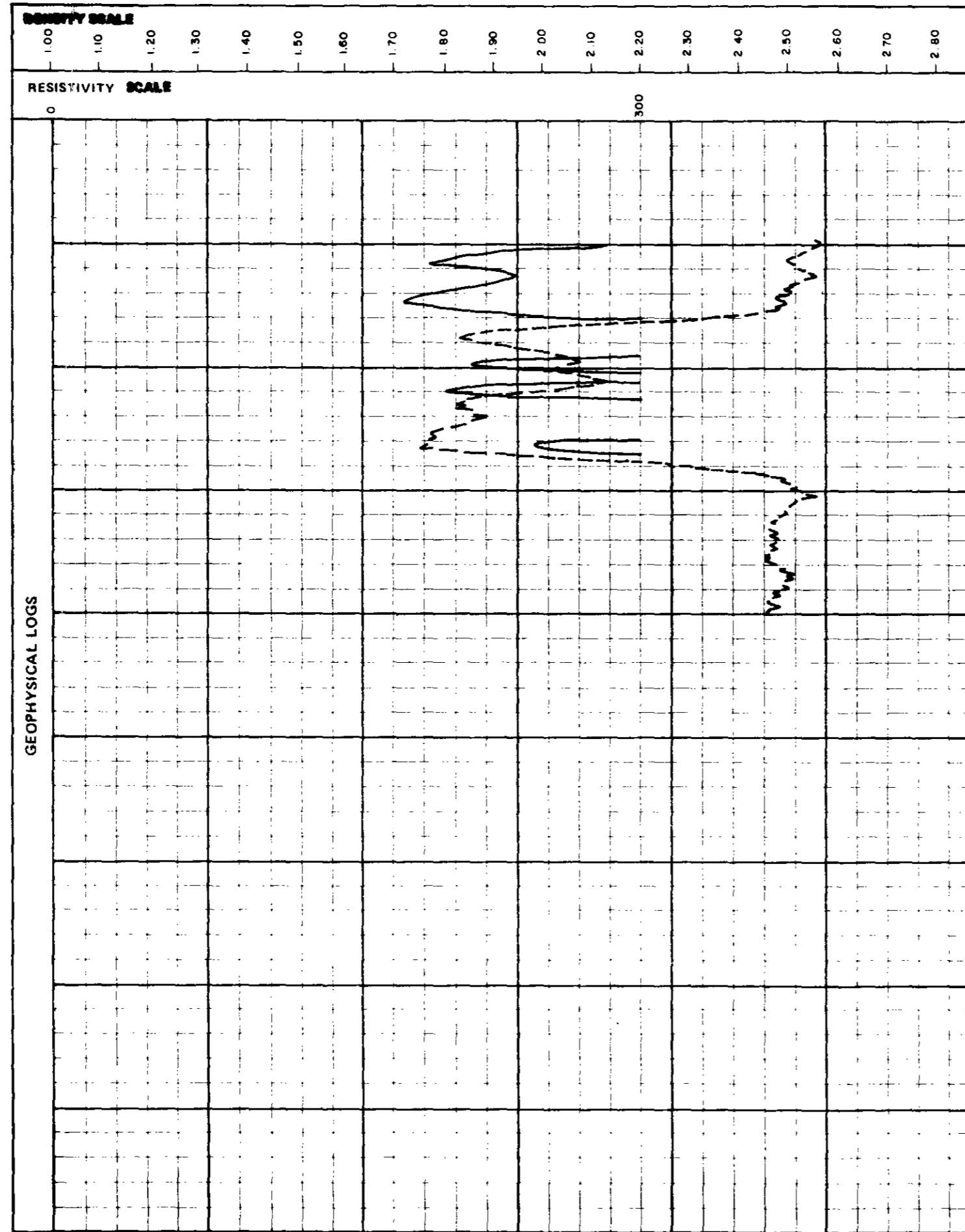
DENSITY

RESISTIVITY

DRILL NO DDH - 82 - 006

SEAM F

SEAM INTERVAL



SEAM COMP. 1 2 3 4 5 6	DEPTH meters	COAL SEAM LOG	INTERVAL		% REC	SAMPLE		PROXIMATE ANALYSIS									
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	Cal. Val. MJ/kg	FSI			
	69.75																
	69.91			0.16	100	04746											
			0.46														
			0.14	0.05													
	70.76		0.04	0.14													
			Seam Interval (m): 69.75 - 69.91 Seam True Thickness (Coal/Rock): 0.16/0.00 Total 0.16														



COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

Apparent Thickness

DENSITY

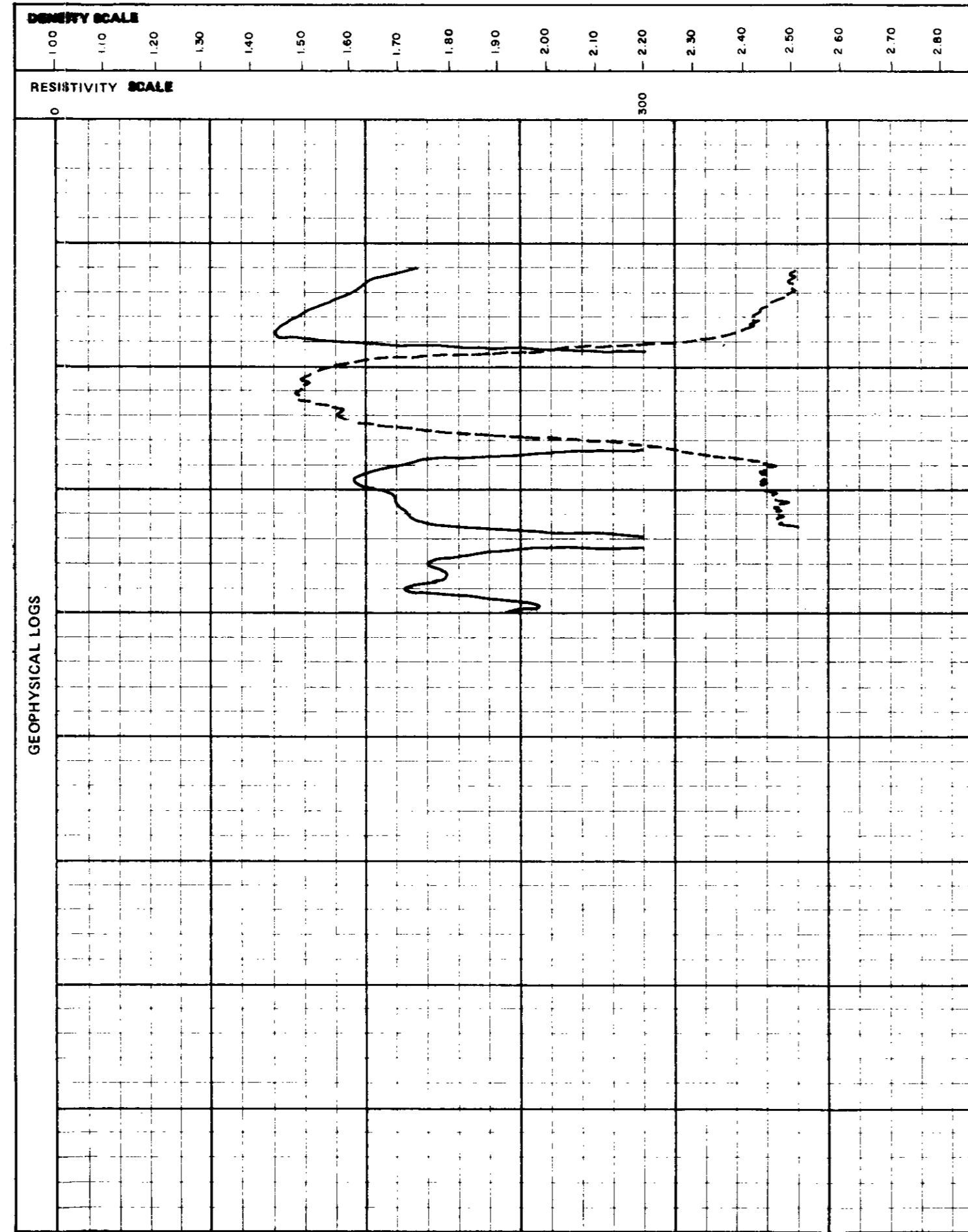
RESISTIVITY

DRILL NO. DDH - 82 - 006

SEAM E

SEAM INTERVAL

SCALE 1:40



SEAM COMP	DEPTH meters	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS						
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S'	Cal. Val. MJ/kg	FSI
123456	85.88			0.16 (0.11)	74.6	04879	43	0.96	30.94	8.62	59.48		23.17	
	86.51		0.02	0.21 0.05 0.08										
Seam Interval (m): 85.88 - 86.51 Seam True Thickness (Coal/Rock): 0.61/0.02 Total 0.63														

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

DENSITY

RESISTIVITY

Apparent Thickness

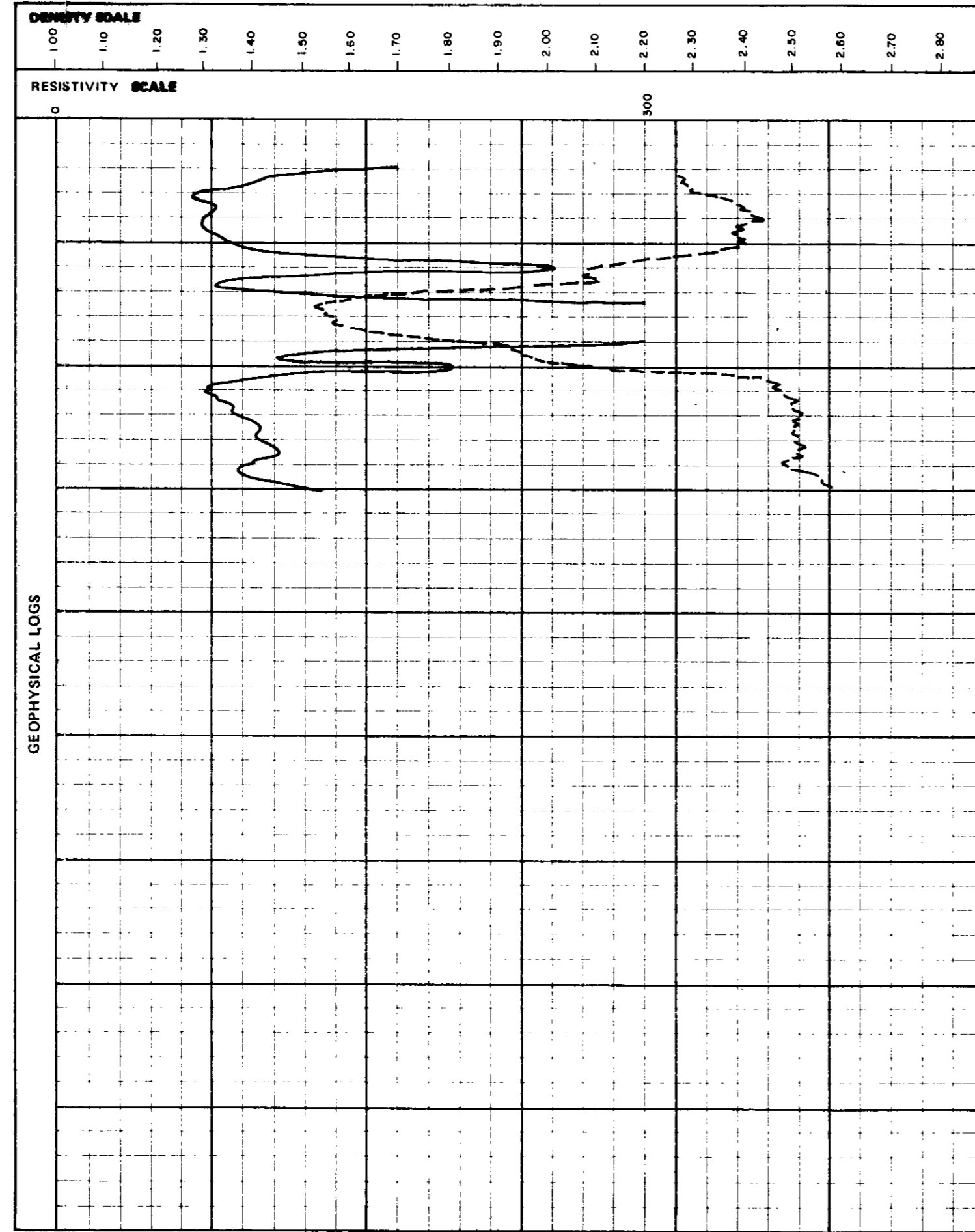
DRILL NO. DDH - 82 - 006

SEAM

D

SEAM INTERVAL

SCALE 1:40



SEAM COMP. 123456	DEPTH meters	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS						
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S'	Cal. Val. MJ/kg	FSI
	99.38			0.05 0.19	89.8	04880	↑ 44 ↓	1.57	35.78	7.40	55.25		21.06	
	99.97		0.03 8.87	0.21 8.87										
Seam Interval (m): 99.38 - 99.97 Seam True Thickness (Coal/Rock): 0.52/0.07 Total 0.59														

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

Apparent Thickness

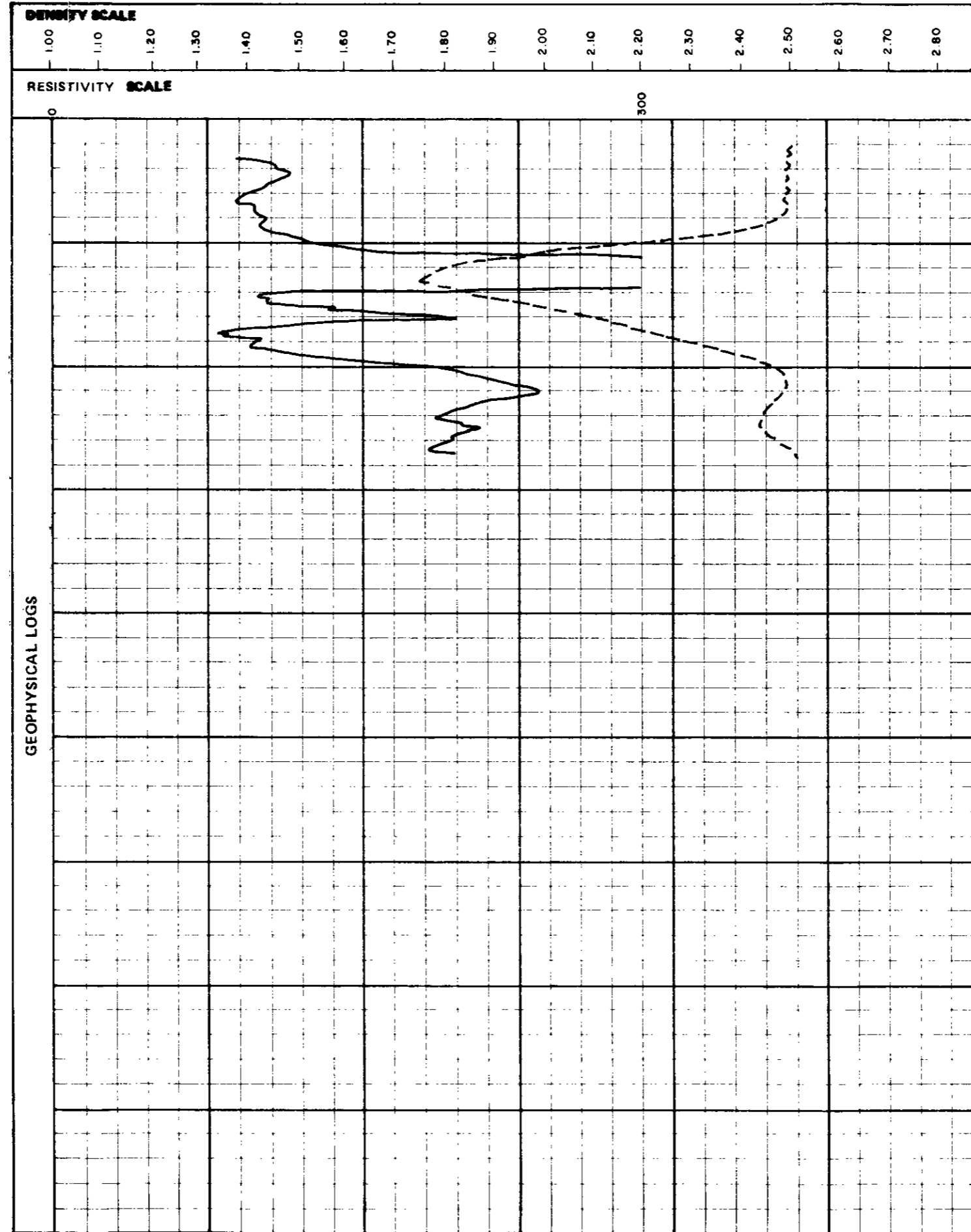
DENSITY

RESISTIVITY

DRILL NO DDH - 82 - 006  
SCALE 1:40

SEAM C

SEAM INTERVAL



GEOPHYSICAL LOGS

SEAM COMP.	DEPTH meters	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS								
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	Cal. Val. MJ/kg	FSI		
1 2 3 4 5 6	117.15 117.34			0.19	100	04747										
Seam Interval (m): 117.15 - 117.34 Seam True Thickness (Coal/Rock): 0.19/0.00 Total 0.19																

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

Apparent Thickness

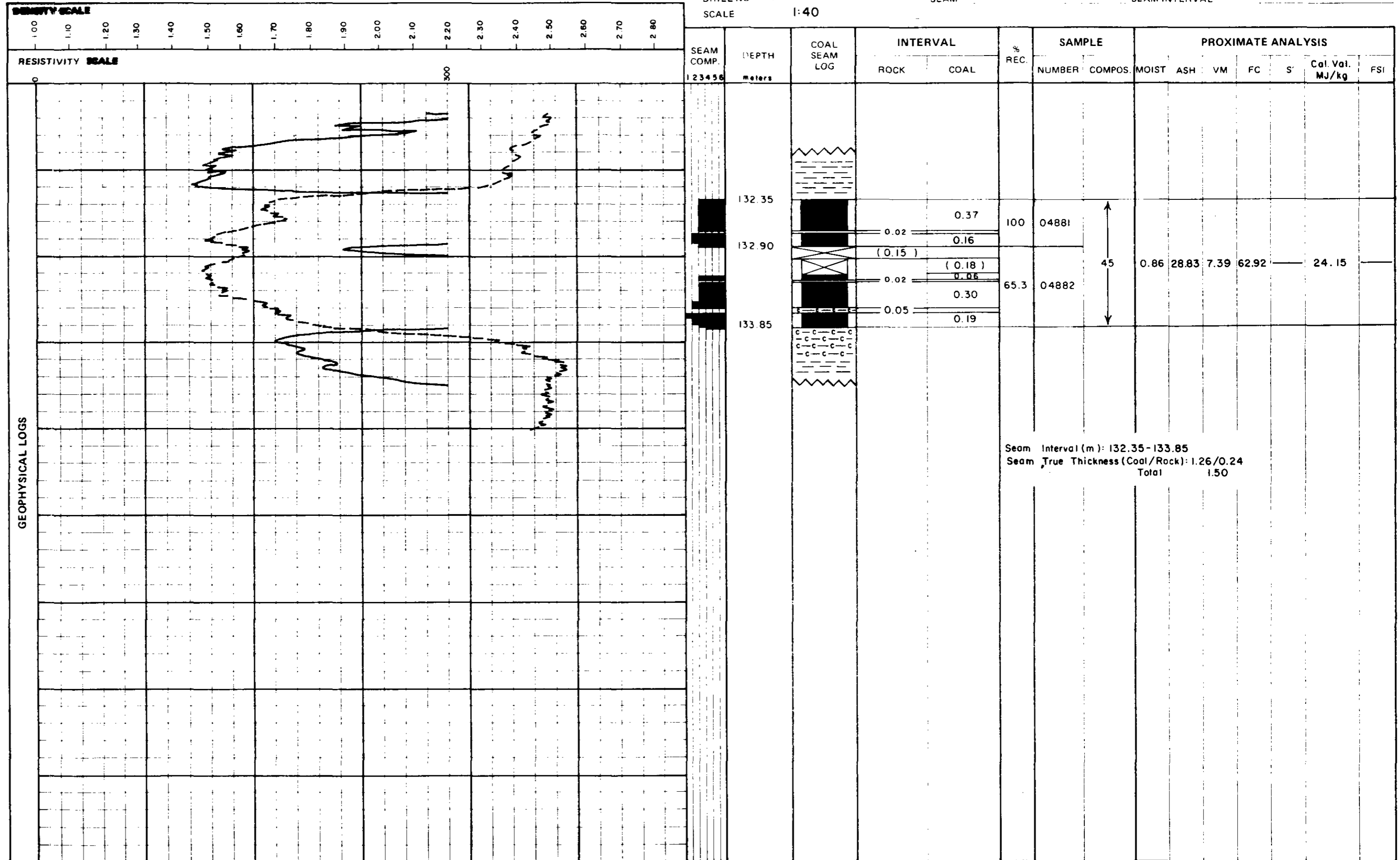
DENSITY

RESISTIVITY

DRILL NO DDH - 82 - 006  
SCALE 1:40

SEAM B

SEAM INTERVAL



COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

Apparent Thickness

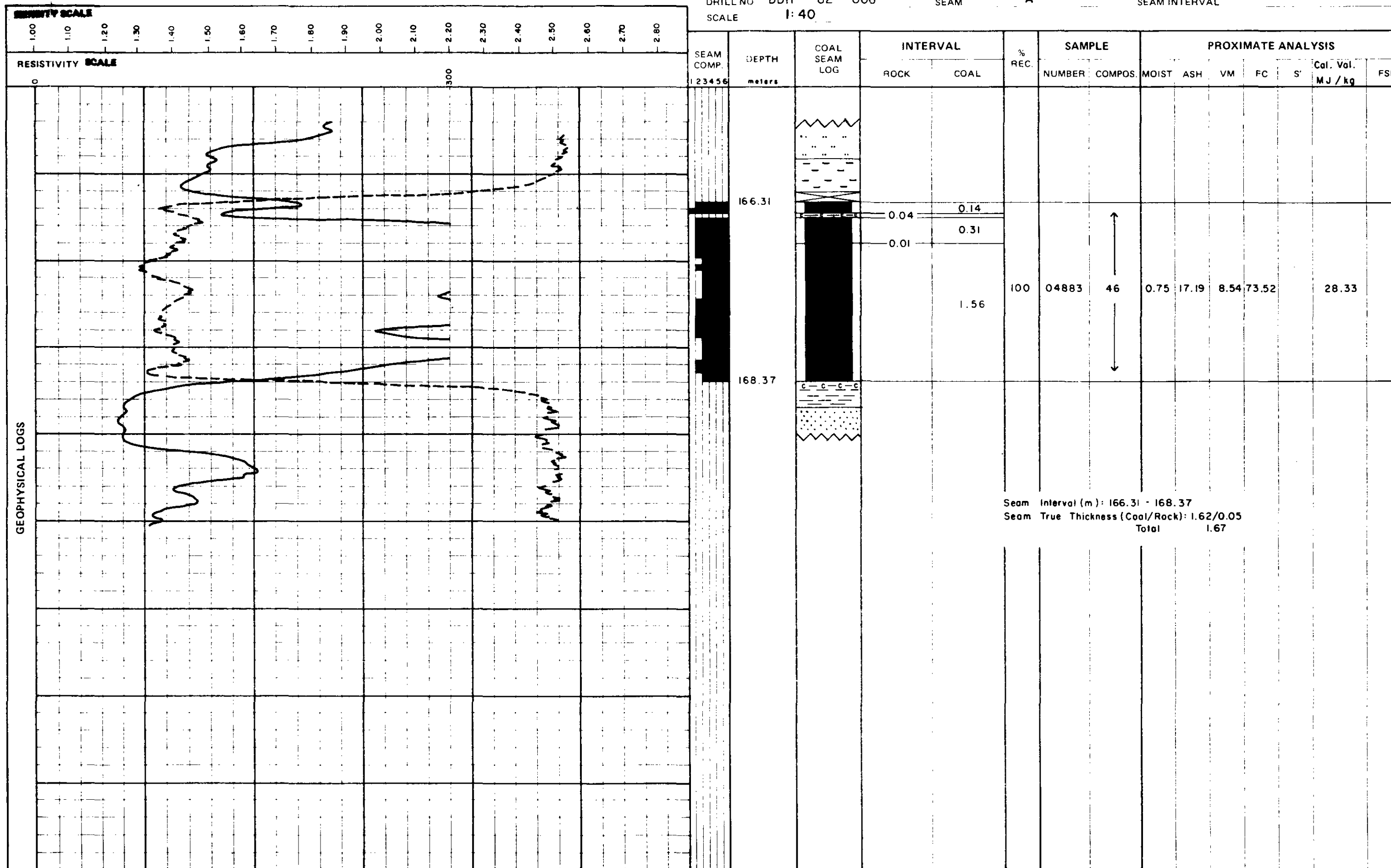
DENSITY

RESISTIVITY

DRILL NO DDH - 82 - 006  
SCALE 1:40

SEAM A

SEAM INTERVAL



GULF CANADA RESOURCES INC. - COAL DIVISION  
 22/NOV/82 COMPOSITE SAMPLE SUMMARY PAGE 1

DATA SOURCE	SEAM	SAMPLE ID	SAMPLE FROM	SAMPLE TO	DEPTH FROM	DEPTH TO	REC CORE	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK
DDH B2006												
	H	40	4872	4874	26.09	28.10	1.01	50.25	0.64	0.37	0.67	0.33
	G	41	4875	4875	51.15	52.39	1.08	87.10	1.00	0.08	0.16	0.00
	G	42	4876	4878	52.39	53.60	0.93	76.86	0.53	0.40	0.15	0.13
	E	43	4879	4879	85.88	86.51	0.47	74.60	0.45	0.02	0.16	0.00
	D	44	4880	4880	99.38	99.97	0.53	89.83	0.46	0.07	0.06	0.00
	B	45	4881	4882	132.35	133.85	1.17	78.00	1.08	0.09	0.18	0.15
	A	46	4883	4883	166.31	168.37	2.06	100.00	2.01	0.05	0.00	0.00
	H		4872		26.09	26.93	0.58	69.05	0.47	0.11	0.26	0.00
	H		4873		26.93	27.62	0.21	30.43	0.02	0.19	0.26	0.22
	H		4874		27.62	28.10	0.22	45.83	0.15	0.07	0.15	0.11
	G		4875		51.15	52.39	1.08	87.10	1.00	0.08	0.16	0.00
	G		4876		52.39	52.67	0.15	53.57	0.00	0.15	0.00	0.13
	G		4877		52.67	53.13	0.35	76.09	0.35	0.00	0.11	0.00
	G		4878		53.13	53.60	0.43	91.49	0.18	0.25	0.04	0.00
	E		4879		85.88	86.51	0.47	74.60	0.45	0.02	0.16	0.00
	D		4880		99.38	99.97	0.53	89.83	0.46	0.07	0.06	0.00
	B		4881		132.35	132.90	0.55	100.00	0.53	0.02	0.00	0.00
	B		4882		132.90	133.85	0.62	65.26	0.55	0.07	0.18	0.15
	A		4883		166.31	168.37	2.06	100.00	2.01	0.05	0.00	0.00

82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 1

PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
85	0.00	3.66	3.66			OVERBURDEN	
* 85	3.66	4.43	0.77			SILTSTONE	DK.GY.LAM.SSD.BRKN THN SSY INTBS, LOAD CASTS
* 85	4.43	5.23	0.80			MUDSTONE	DK.GY.LAM.VBRKN MNR SSY INTBS, CARB CLYST INTBS
86	5.23	5.72	0.49			SILTSTONE	DK.GY.LAM.VBRKN CLYST CLASTS
86	5.72	5.77	0.05			SILTSTONE	DK.GY.LAM.VBRKN AS ABOVE, CLYST CLASTS
87	5.77	6.52	0.75			SANDSTONE	FG.PR.DK.GY.BRKN MUDST RIP-UP CLASTS, SLTY INTBS
* 88	6.52	6.99	0.47			SANDSTONE	MG.MOD.S-P.GY.LAM.SLD CALC SS, CALCT IN FRACTURES, SLTY LAMS
87	6.99	7.11	0.12			SILTSTONE	DK.GY.VBRKN

\* DENOTES MEASURED BCA

82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 2

PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
84	7.11	7.83	0.72			SANDSTONE	MG.PR.S-P.GY.THB.SLD PBL SIZED LENTICULAR SHALE CLASTS, MNR COALY INCLUSIONS AND PARTINGS, MNR PYR INCLUSIONS
81	7.83	8.59	0.76			SANDSTONE	MG.PR.S-P.GY.LAM.BRKN SHALY CLASTS
79	8.59	8.65	0.06			SANDSTONE	VFG.DK.GY.VBRKN CLYST INTBS
* 75	8.65	10.06	1.41			SANDSTONE	MG.PR.S-P.GY.LAM.SLD SHALY RIP-UP CLASTS, MNR COAL FRAGS, GR ADED BDG
79	10.06	10.33	0.27			SANDSTONE	MG.PR.S-P.GY.LAM.BRKN
* 82	10.33	11.01	0.68			SANDSTONE	MG.PR.S-P.GY.LAM.SSD.SLD
83	11.01	11.86	0.85			SANDSTONE	FG.M-DK.GY.LAM.SLD SLTST STRGS, MNR SHALY CLASTS, GRANULE SIZE FRAGS

\* DENOTES MEASURED BCA



82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 3

PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
83	11.86	12.21	0.35			SANDSTONE	PBLY.MG.PR.GY.SLD SHALY INTBS, GRADED BDS, BANDED, CONGLO MERATIC, GRANULE TO PBL SIZE CLASTS
84	12.21	13.43	1.22			SANDSTONE	PBLY.MG.PR.GY.THNB.SLD GRANULE TO PBL SIZE CLASTS, MUDST INTBS , COALY FRAGS, CONGLOMERATE BANDS
85	13.43	14.25	0.82			SANDSTONE	PBLY.MG.PR.S-P.GY.THNB.SSD.BRKN AS ABOVE, CHERT PBLs, SUBANGULAR TO SUB ROUNDED
* 87	14.25	16.43	2.18			SANDSTONE	PBLY.MG.PR.S-P.GY.THNB.SSD.SLD SLT INTBS, GRANULE TO PBL SIZE CLASTS, MNR QTZ VEINING
81	16.43	17.72	1.29			SANDSTONE	PBLY.MG.PR.S-P.GY.THNB.SLD SLT INTBS, GRANULE TO PBL SIZE CLASTS, MNR QTZ VEINING
78	17.72	18.20	0.48			SANDSTONE	PBLY.MG.PR.S-P.GY.THNB.SLD AS ABOVE, GRANULE TO PBL SIZE CLASTS, C OAL INCLUSIONS
* 77	18.20	18.54	0.34			SANDSTONE	PBLY.MG.PR.S-P.GY.THNB.SLD AS ABOVE, GRANULE TO PBL SIZE CLASTS, C OAL INCLUSION

\* DENOTES MEASURED BCA

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## GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
82	18.54	19.89	1.35			SANDSTONE	PBLY.MG.PR.S-P.GY.THNB.SLD AS ABOVE, GRANULE TO PBL SIZE CLASTS, COAL INCLUSIONS
* 87	19.89	20.59	0.70			SANDSTONE	PBLY.MG.PR.S-P.GY.THNB.SLD CALC VEINING, COAL INCLUSIONS, GRANULE TO PBL SIZE CLASTS
86	20.59	20.73	0.14			SANDSTONE	PBLY.MG.PR.S-P.GY.THNB.SLD AS ABOVE, COAL INCLUSIONS
85	20.73	21.25	0.52			SANDSTONE	MG.PR.S-P.GY.SLD HOMOGENOUS, THN MUDST STRGS
82	21.25	22.73	1.48			SANDSTONE	PBLY.MG.PR.S-P.GY.THNB.SLD GRANULE TO PBL SIZE CLASTS, THN MUDST BANDS, BANDS OF NON PBLY SS, MNR COAL INCLUSIONS
80	22.73	23.08	0.35			SANDSTONE	FG.PR.S-P.GY.LAM.SLD
* 77	23.08	24.72	1.64			SANDSTONE	FG-.PR.S-P.GY.THNB.SSD.BRKN MUDST INTBS, CALCT VEINING, CGL SS BANDS, TOPS UPRIGHT, MNR COAL INCLUSIONS

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
77	24.72	24.87	0.15			SANDSTONE	PBLY.MG-.PR.S-P.GY.BRKN CHERT PBLs, SUBANGULAR, GRANULE TO PBL SIZE CLASTS
78	24.87	25.54	0.67			SANDSTONE	PBLY.MG.PR.S-P.GY.BRKN GRANULE TO PBLE SIZE CLASTS, CALCT VEIN ING, BRECCIATED
78	25.54	25.58	0.04			COAL	C-3.BLK.VBRKN MNR CARB CLYST BANDS
78	25.58	25.68	0.10			COAL	C-3.BLK.VBRKN MNR CARB CLYST BANDS
78	25.68	25.75	0.07			ROCK LOSS	
78	25.75	26.05	0.30			MUDSTONE	DK.GY.BRKN LISTRIC SURFACES, MNR COAL BANDS
78	26.05	26.09	0.04			CLAYSTONE	CARB.BLK.VBRKN
* 78	26.09	26.23	0.14	04872	H	COAL	C-4.BLK.VBRKN CARB CLYST BANDS, LISTRIC SURFACES
78	26.23	26.25	0.02	04872	H	CLAYSTONE	CARB.BLK.VBRKN COAL STRGS

\* DENOTES MEASURED BCA

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## GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
78	26.25	26.29	0.04	04872	H	COAL	C-3.BLK.VBRKN
79	26.29	26.55	0.26	04872	H	COAL LOSS	
* 80	26.55	26.72	0.17	04872	H	COAL	C-3.BLK.VBRKN MNR CARB CLYST INTBS
81	26.72	26.81	0.09	04872	H	CLAYSTONE	CARB.BLK.VBRKN LITRIC SURFACES, MNR COAL BANDS, PYRITI C
81	26.81	26.83	0.02	04872	H	COAL	C-3.BLK.VBRKN CARB CLYST INTBDS
82	26.83	26.93	0.10	04872	H	COAL	C-3.BLK.BRKN
83	26.93	27.05	0.12	04873	H	ROCK LOSS	
84	27.05	27.31	0.26	04873	H	COAL LOSS	
86	27.31	27.41	0.10	04873	H	ROCK LOSS	
86	27.41	27.43	0.02	04873	H	CLAYSTONE	CARB.DK.GY.SLD
86	27.43	27.45	0.02	04873	H	COAL	C-3.BLK.SLD

\* DENOTES MEASURED BCA

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## GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DM82006

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
86	27.45	27.49	0.04	04873	H	CLAYSTONE	CARB.DK.GY.SLD
* 87	27.49	27.60	0.11	04873	H	MUDSTONE	M.BN.SLD SOFT, CARB AT TOP
86	27.60	27.62	0.02	04873	H	CLAYSTONE	CARB.BLK.SLD
* 85	27.62	27.67	0.05	04874	H	COAL	C-3.BLK.SLD
85	27.67	27.70	0.03	04874	H	CLAYSTONE	CARB.BLK.SLD
84	27.70	27.74	0.04	04874	H	COAL	C-3.BLK.VBRKN MNR ROCK SPLIT
83	27.74	27.89	0.15	04874	H	COAL LOSS	
82	27.89	28.00	0.11	04874	H	ROCK LOSS	
82	28.00	28.04	0.04	04874	H	CLAYSTONE	CARB.BLK.SLD COALY AT BASE
81	28.04	28.10	0.06	04874	H	COAL	C-2.BLK.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
* 80	28.10	28.32	0.22			CLAYSTONE	CARB. BLK. VBRKN COALY AT TOP
80	28.32	29.12	0.80			MUDSTONE	DK. GY. BRKN
79	29.12	29.61	0.49			SILTSTONE	M. GY. BRKN
79	29.61	29.87	0.26			SANDSTONE	M. GY. LAM. XBDG. SLD SLTST INTBS
78	29.87	31.72	1.85			SANDSTONE	MG. MOD. S-P. GY. LAM. XBDG. SLD SLTST INTBS, SHALE RIP-UP CLASTS
77	31.72	31.95	0.23			SANDSTONE	MG. MOD. S-P. GY. LAM. XBDG. SLD AS ABOVE
77	31.95	32.68	0.73			SANDSTONE	MG-. MOD. M. GY. MB. SLD MNR PBLY BANDS IN PART
76	32.68	33.72	1.04			SANDSTONE	MG-. MOD. M. GY. MB. SLD AS ABOVE, COALY BANDS AT BASE, MNR PBLY BANDS, CORE BRKN IN MIDDLE
* 75	33.72	35.53	1.81			SANDSTONE	MG. WEL. M. GY. MB. SLD SUBROUNDED MUDST RIP-UP CLASTS TOWARDS BASE, QTZ VEIN AT TOP AT 5 DEGREES

\* DENOTES MEASURED BCA

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## GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
79	35.53	35.72	0.19			SANDSTONE	MG.WEL.M.GY.MB.SLD RIP-UP CLASTS MORE ABUNDANT
80	35.72	36.17	0.45			SANDSTONE	MG.WEL.M.GY.MB.SLD AS ABOVE
* 83	36.17	37.58	1.41			SANDSTONE	MG-.WEL.M.GY.THNB.SLD CORE BRKN IN MIDDLE, FINE SLTY INTBS, M NR COALIFIED FRAGS, CG AT TOP
82	37.58	38.43	0.85			SANDSTONE	MG-.WEL.M.GY.THNB.BRKN AS ABOVE, COALY BANDS AT BASE, MNR QTZ VEIN
81	38.43	39.61	1.18			SANDSTONE	MG.WEL.M.GY.THNB.SLD AS ABOVE, MNR SUBROUNDED MUDST RIP-UP C LASTS
81	39.61	39.74	0.13			SANDSTONE	MG.WEL.M.GY.MB.SLD
81	39.74	39.97	0.23			SANDSTONE	MG.WEL.M.GY.MB.SLD MUDST INTBS
* 80	39.97	41.33	1.36			SANDSTONE	FG.WEL.M.GY.THNB.WRMBU.SLD SLTST INTBS, TOPS UP

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH ID</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
78	41.33	41.71	0.38			SANDSTONE	MG.WEL.M.GY.THNB.SLD MUDST INTBS
77	41.71	42.23	0.52			SANDSTONE	MG.WEL.M.GY.MB.SLD MNR SLTY INTBS
75	42.23	43.17	0.94			SANDSTONE	MG.WEL.M.GY.THNB.SLD MUDST INTBS
73	43.17	43.91	0.74			SANDSTONE	MG.WEL.M.GY.THNB.SLD MNR SLTY INTBS
72	43.91	44.49	0.58			SANDSTONE	MG.WEL.M.GY.THNB.SLD AS ABOVE
* 70	44.49	45.60	1.11			SANDSTONE	MG.WEL.M.GY.THNB.SLD AS ABOVE, RARE ROUNDED MUDST RIP-UP CLASTS, MORE SLTY IN MIDDLE
* 80	45.60	46.10	0.50			SANDSTONE	MG.WEL.M.GY.THNB.BRKN SLTY AT TOP
81	46.10	47.46	1.36			SANDSTONE	MG.WEL.M.GY.MAS.SLD RARE SLTY INTBS
82	47.46	48.24	0.78			SANDSTONE	MG.WEL.M.GY.MAS.SLD AS ABOVE

\* DENOTES MEASURED BCA



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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	83	48.24	48.78	0.54		SANDSTONE	MG.WEL.M.GY.MAS.SLD AS ABOVE
	83	48.78	49.82	1.04		SANDSTONE	MG.WEL.LT.GY.MB.SLD SLTY INTBS, MNR RIP-UP CLASTS
	84	49.82	50.44	0.62		SILTSTONE	DK.GY.LAM.SLD SSY INTBS
	85	50.44	50.56	0.12		MUDSTONE	DK.GY.LAM.SLD SLTY INTBS
*	85	50.56	51.09	0.53		MUDSTONE	DK.GY.LAM.SLD AS ABOVE
	85	51.09	51.15	0.06		CLAYSTONE	CARB.BLK.VBRKN
	85	51.15	51.31	0.16	04875 G	COAL LOSS	
	85	51.31	51.53	0.22	04875 G	COAL	C-3.BLK.VBRKN
	85	51.53	51.58	0.05	04875 G	CLAYSTONE	CARB.BLK.SLD
	85	51.58	51.62	0.04	04875 G	COAL	C-3.BLK.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
85	51.62	51.66	0.04	04875	G	COAL	C-2.BLK.BRKN
85	51.66	51.75	0.09	04875	G	COAL	C-3.BLK.SLD
85	51.75	51.78	0.03	04875	G	COAL	C-3.BLK.SLD
85	51.78	51.79	0.01	04875	G	CLAYSTONE	CARB.BLK.SLD
85	51.79	51.82	0.03	04875	G	COAL	C-2.BLK.SLD
85	51.82	51.92	0.10	04875	G	COAL	C-3.BLK.SLD
85	51.92	51.97	0.05	04875	G	COAL	C-3.BLK.BRKN
85	51.97	52.01	0.04	04875	G	COAL	C-2.BLK.SLD
85	52.01	52.10	0.09	04875	G	COAL	C-3.BLK.SLD
* 85	52.10	52.11	0.01	04875	G	CLAYSTONE	CARB.BLK.SLD

\* DENOTES MEASURED BCA

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## GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
85	52.11	52.13	0.02	04875	G	COAL	C-1.BLK.SLD PYRITIC
85	52.13	52.18	0.05	04875	G	COAL	C-4.BLK.SLD
85	52.18	52.21	0.03	04875	G	COAL	C-3.BLK.SLD MNR ROCK SPLITS
85	52.21	52.22	0.01	04875	G	CLAYSTONE	CARB.BLK.SLD
85	52.22	52.30	0.08	04875	G	COAL	C-2.BLK.SLD PYRITIC AT TOP
85	52.30	52.32	0.02	04875	G	COAL	C-3.BLK.SLD
85	52.32	52.39	0.07	04875	G	COAL	C-3.BLK.VBRKN
85	52.39	52.51	0.12	04876	G	MUDSTONE	BLK.SLD SOFT
85	52.51	52.54	0.03	04876	G	CLAYSTONE	CARB.BLK.BRKN
85	52.54	52.67	0.13	04876	G	ROCK LOSS	

\* DENOTES MEASURED BCA

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## GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
85	52.67	52.78	0.11	04877	G	COAL LOSS	
85	52.78	52.84	0.06	04877	G	COAL	C-3.BLK.SLD
85	52.84	52.87	0.03	04877	G	COAL	C-2.BLK.SLD
85	52.87	53.06	0.19	04877	G	COAL	C-2.BLK.SLD
85	53.06	53.13	0.07	04877	G	COAL	C-3.BLK.SLD FRIABLE
85	53.13	53.25	0.12	04878	G	CLAYSTONE	CARB.BLK.SLD COAL BANDS AT BASE
85	53.25	53.34	0.09	04878	G	COAL	C-3.BLK.SLD MNR ROCK SPLITS
* 85	53.34	53.47	0.13	04878	G	CLAYSTONE	CARB.BLK.SLD
85	53.47	53.51	0.04	04878	G	COAL	C-3.BLK.SLD PYRITIC
85	53.51	53.53	0.02	04878	G	COAL	C-1.BLK.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
85	53.53	53.56	0.03	04878	G	COAL	C-3.BLK.BRKN
85	53.56	53.60	0.04	04878	G	COAL LOSS	
84	53.60	54.63	1.03			MUDSTONE	DK.GY.LAM.SLD MNR COAL STRGS AT TOP
83	54.63	55.07	0.44			SILTSTONE	M.GY.VTHNB.SLD MNR BIOTURB, JOINT AT 60 DEGREES
83	55.07	55.37	0.30			MUDSTONE	SLTY.M.GY.LAM.SLD MNR BENTONITE LAMS IN MIDDLE
83	55.37	55.52	0.15			BENTONITE	LT.GY SLTY AT TOP
* 82	55.52	56.34	0.82			SANDSTONE	FG-.M.GY.LAM.SLD MUDST INTBS, BIOTURB IN MIDDLE
83	56.34	56.62	0.28			SANDSTONE	FG-.M.GY.THNB MNR MUDST INTBS
84	56.62	57.29	0.67			SANDSTONE	FG-.M.GY.THNB.SLD AS ABOVE
86	57.29	58.32	1.03			SANDSTONE	FG-.M.GY.THNB.SLD AS ABOVE, CALC FOSSIL FRAGS IN MIDDLE 0 VER A 10CM INTERVAL

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
* 88	58.32	59.56	1.24			MUDSTONE	DK.GY.LAM.SLD SLTY INTBS, CUT AND FILL INDICATE TOPS UP
88	59.56	59.60	0.04			SANDSTONE	MG.WEL.LT.GY.MAS.SLD
88	59.60	59.76	0.16			SANDSTONE	MG.WEL.LT.GY.MAS.SLD AS ABOVE, MNR BIOTURB
87	59.76	60.41	0.65			SANDSTONE	FG-.WEL.LT.GY.MB.BIOTR.SLD
87	60.41	61.82	1.41			SANDSTONE	FG.WEL.LT.GY.VTHNB.WRMBU.SLD MUDST AND SLTY INTBS, TOPS UP, BIOTURB IN PART
86	61.82	62.81	0.99			SANDSTONE	FG.WEL.M.GY.VTHNB.SLD MNR MUDST INTBS, LAM IN PART
* 85	62.81	64.07	1.26			SANDSTONE	FG.WEL.M.GY.VTHNB.SLD AS ABOVE
85	64.07	64.45	0.38			SANDSTONE	FG.WEL.M.GY.VTHNB.SLD AS ABOVE
85	64.45	65.78	1.33			MUDSTONE	DK.GY.LAM.SLD COLOUR RANGES DK GY TO BLK, SLTY AT TOP

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
85	65.78	66.09	0.31			MUDSTONE	DK.GY.LAM.SLD AS ABOVE
85	66.09	66.32	0.23			SILTSTONE	LT.GY
85	66.32	66.37	0.05			SILTSTONE	LT.GY.SLD AS ABOVE
85	66.37	68.41	2.04			MUDSTONE	DK.GY.LAM.SLD CALC. FOSSIL FRAGS IN MIDDLE AND LOWER SECTION
85	68.41	68.53	0.12			SILTSTONE	M.GY.THNB.SLD
85	68.53	68.94	0.41			MUDSTONE	DK.GY.LAM.SLD
* 85	68.94	69.75	0.81			MUDSTONE	DK.GY.LAM.SLD AS ABOVE, PYRITIC AND PLANT ROOTLETS AT BASE, CARB IN BASAL 4CM
86	69.75	69.84	0.09	04746	F	COAL	C-3.BLK.SLD PYRITIC IN PART

\* DENOTES MEASURED BCA

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## GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
86	69.84	69.91	0.07	04746	F	COAL	C-3.BLK.VBRKN
86	69.91	70.02	0.11			MUDSTONE	DK.GY.VTHNB.SLD SOFT, THN COAL LAMS
87	70.02	70.37	0.35			MUDSTONE	BLK.SLD LENTICULAR PYRITIC LENSES AT BASE, BRIG HT COAL STRGS
87	70.37	70.39	0.02			COAL	C-4.BLK.SLD
87	70.39	70.42	0.03			COAL	C-1.BLK.SLD MNR ROCK PARTING
88	70.42	70.56	0.14			CLAYSTONE	CARB.BLK.BRKN FEWER COAL STRGS TOWARDS BASE
88	70.56	70.58	0.02			COAL	C-2.BLK.SLD
88	70.58	70.62	0.04			CLAYSTONE	CARB.BLK.SLD
88	70.62	70.64	0.02			COAL	C-1.BLK.SLD

\* DENOTES MEASURED BCA



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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
88	70.64	70.76	0.12			COAL	C-1.BLK.BRKN SOFT, LISTRIC SURFACES, MNR ROCK PARTIN GS
88	70.76	70.78	0.02			ROCK LOSS	
89	70.78	71.39	0.61			MUDSTONE	SLTY.M.GY.LAM.SLD
* 90	71.39	71.87	0.48			SANDSTONE	SLTY.FG.WEL.M.GY.LAM.SLD CUT AND FILL INDICATE TOPS UP
89	71.87	72.21	0.34			SANDSTONE	SLTY.FG.WEL.M.GY.LAM.SLD AS ABOVE
88	72.21	72.85	0.64			SANDSTONE	MG.WEL.LT.GY.THNB.SLD VBRKN AT BASE, SLTY INTBS
* 85	72.85	74.02	1.17			SANDSTONE	MG.WEL.LT.GY.THNB.BIOTR.SLD BRKN AT TOP, AS ABOVE, WRMBUR INDICATE TOPS UP
83	74.02	74.62	0.60			SANDSTONE	FG-.WEL.M.GY.MB.SLD COARSENING TOWARDS BASE, MAS IN PART
82	74.62	75.06	0.44			SANDSTONE	MG.WEL.M.GY.MB.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
* 80	75.06	77.01	1.95			SANDSTONE	MG.WEL.M.GY.MB.SLD AS ABOVE, BRKN AT BASE, JOINTING AT 5 D EGREES, RARE SLTY INTBS
81	77.01	77.16	0.15			SANDSTONE	MG.WEL.M.GY.MB.VBRKN AS ABOVE
81	77.16	77.69	0.53			SANDSTONE	MG.WEL.M.GY.MB.SLD AS ABOVE
82	77.69	79.39	1.70			SANDSTONE	FG-.WEL.M.GY.MB.SLD AS ABOVE, FINING TOWARDS BASE, MNR SLTY INTBS, CORE BRKN IN MIDDLE
83	79.39	80.06	0.67			SANDSTONE	FG-.WEL.M.GY.LAM.SLD AS ABOVE, COARSENING TOWARDS BASE
83	80.06	80.80	0.74			SANDSTONE	FG.WEL.M.GY.LAM.WRMBU.SLD MUDST INTBS, TOPS UP
* 84	80.80	81.54	0.74			SANDSTONE	FG.WEL.M.GY.THNB.SLD MNR SLTY INTBS, CUT AND FILL INDICATE T OPS UP
84	81.54	81.68	0.14			SANDSTONE	MG.WEL.M.GY.MB.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 84	81.68	83.78	2.10			SILTSTONE	M.GY.LAM.SLD MUDST INTBS, MNR BIOTURB AT TOP
85	83.78	83.93	0.15			SILTSTONE	M.GY.LAM.SLD AS ABOVE
* 85	83.93	85.85	1.92			SILTSTONE	M.GY.LAM.SLD AS ABOVE, CUT AND FILL INDICATE TOPS UP
82	85.85	85.88	0.03			CLAYSTONE	CARB.BLK.BRKN
81	85.88	85.94	0.06	04879	E	COAL	C-2.BLK.BRKN
81	85.94	86.01	0.07	04879	E	COAL	C-2.BLK.SLD
81	86.01	86.04	0.03	04879	E	COAL	C-2.BLK.VBRKN
81	86.04	86.15	0.11	04879	E	COAL LOSS	
80	86.15	86.20	0.05	04879	E	COAL	C-3.BLK.SLD
80	86.20	86.23	0.03	04879	E	COAL	C-1.BLK.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
80	86.23	86.30	0.07	04879	E	COAL	C-3.BLK.SLD
80	86.30	86.36	0.06	04879	E	COAL	C-2.BLK.BRKN
80	86.36	86.41	0.05	04879	E	COAL LOSS	
80	86.41	86.43	0.02	04879	E	CLAYSTONE	CARB.BLK.SLD
79	86.43	86.45	0.02	04879	E	COAL	C-1.BLK.SLD
79	86.45	86.51	0.06	04879	E	COAL	C-4.BLK.SLD
79	86.51	86.53	0.02			CLAYSTONE	CARB.BLK.SLD BRIGHT COAL STRGS
79	86.53	86.62	0.09			MUDSTONE	M.GY.MAS.SLD
79	86.62	86.64	0.02			CLAYSTONE	CARB.BLK.SLD
* 78	86.64	87.08	0.44			MUDSTONE	DK.GY.LAM.SLD SLTY INTBS, COALY STRGS AT TOP

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
* 77	87.08	88.23	1.15			MUDSTONE	DK.GY.LAM.SLD AS ABOVE
79	88.23	88.37	0.14			MUDSTONE	DK.GY.LAM.SLD AS ABOVE
80	88.37	88.93	0.56			SILTSTONE	M.GY.LAM.BIOTR.SLD
* 82	88.93	90.11	1.18			MUDSTONE	DK.GY.LAM.SLD CUT AND FILL INDICATE TOPS UP, SLTY INT BS
82	90.11	90.30	0.19			MUDSTONE	DK.GY.LAM.SLD AS ABOVE
82	90.30	90.78	0.48			MUDSTONE	DK.GY.LAM.BIOTR.SLD AS ABOVE
83	90.78	91.79	1.01			SANDSTONE	MG-.MOD.M.GY.MAS.SLD SLTY AT TOP, MNR SLTY BANDS AT BASE
83	91.79	92.29	0.50			SILTSTONE	DK.GY.LAM.BIOTR.SLD MUDST INTBS
83	92.29	92.63	0.34			MUDSTONE	DK.GY.LAM.SLD SLTY INTBS

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
83	92.63	93.29	0.66			MUDSTONE	DK.GY.LAM.SLD SLTY INTBS
84	93.29	94.77	1.48			MUDSTONE	BLK.LAM.SLD MNR PYR LENSES
84	94.77	95.01	0.24			MUDSTONE	BLK.LAM.SLD AS ABOVE
84	95.01	96.46	1.45			MUDSTONE	BLK.LAM.SLD AS ABOVE
85	96.46	96.83	0.37			MUDSTONE	BLK.LAM.SLD AS ABOVE
* 85	96.83	98.17	1.34			MUDSTONE	BLK.LAM.SLD AS ABOVE, 4CM QTZ VEIN NEAR BASE AT 67 DEGREES
85	98.17	99.01	0.84			MUDSTONE	BLK.LAM.SLD MNR COAL STRGS COMMON THROUGHOUT, COAL FIED FRAGS
84	99.01	99.38	0.37			MUDSTONE	BLK.LAM.BRKN AS ABOVE, COAL BANDING IN MIDDLE SECTIO N
84	99.38	99.44	0.06	04880	D	COAL LOSS	

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
84	99.44	99.49	0.05	04880	D	COAL	C-3.BLK.VBRKN
84	99.49	99.54	0.05	04880	D	COAL	C-3.BLK.SLD
84	99.54	99.57	0.03	04880	D	COAL	C-2.BLK.SLD
84	99.57	99.63	0.06	04880	D	COAL	C-3.BLK.SLD
84	99.63	99.66	0.03	04880	D	CLAYSTONE	CARB.BLK.SLD HARD
84	99.66	99.69	0.03	04880	D	COAL	C-3.BLK.VBRKN
84	99.69	99.87	0.18	04880	D	COAL	C-3.BLK.SLD
84	99.87	99.90	0.03	04880	D	MUDSTONE	BLK.MAS.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
84	99.90	99.92	0.02	04880	D	COAL	C-2.BLK.SLD
84	99.92	99.93	0.01	04880	D	MUDSTONE	BLK.MAS.SLD
84	99.93	99.97	0.04	04880	D	COAL	C-2.BLK.SLD
84	99.97	100.93	0.96			MUDSTONE	BLK.LAM.BIOTR.SLD MNR CALCT VEINING
84	100.93	101.04	0.11			SILTSTONE	LT.GY.MAS.SLD
84	101.04	101.55	0.51			SILTSTONE	M.GY.BIOTR.SLD MUDSTONE INTBS
83	101.55	102.38	0.83			SANDSTONE	FG-.M.GY.VTHNB.SLD SLTY INTBS, MNR PYR, BIOTURB IN PART, C ORE BRKN IN MIDDLE
* 83	102.38	103.11	0.73			SANDSTONE	FG-.M.GY.VTHNB.SLD AS ABOVE, BIOTURB IN PART
* 80	103.11	105.31	2.20			SANDSTONE	FG.WEL.M.GY.THNB.SLD MUDST INTBS, MUDST RIP-UP CLASTS IN MID DLE SECTION, RARE QTZ VEINLETS

\* DENOTES MEASURED BCA



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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
83	105.31	105.50	0.19			SILTSTONE	M.GY.BIOTR.SLD SANDSTONE INTBS
85	105.50	107.04	1.54			SILTSTONE	M.GY.BIOTR.SLD AS ABOVE
* 88	107.04	107.48	0.44			SANDSTONE	FG.WEL.M.GY.VTHNB.SLD SLTY INTBS
88	107.48	107.76	0.28			SANDSTONE	FG.WEL.M.GY.VTHNB.SLD MNR SLTY INTBS
87	107.76	108.35	0.59			SILTSTONE	DK.GY.LAM.SLD MUDST INTBS
87	108.35	108.50	0.15			MUDSTONE	BLK.MAS.SLD
87	108.50	109.50	1.00			MUDSTONE	BLK.MAS.SLD AS ABOVE
86	109.50	110.25	0.75			MUDSTONE	BLK.MAS.SLD AS ABOVE, SANDY GRANULES AT BASE
85	110.25	110.55	0.30			SANDSTONE	FG-.PR.SLD FINE TO COARSE GRAINED INTERMIXED WITH MUDST, SUBANGULAR GRAINS --- CORRELATAB LE TO DDH82004

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
* 85	110.55	111.08	0.53			SANDSTONE	FG.WEL.M.GY.VTHNB.SLD CUT AND FILL INDICATE TOPS UP
84	111.08	111.66	0.58			SANDSTONE	MG-.VPR.LT-M.GY.MAS.SLD PBLY IN MIDDLE SECTION, S-P TEXTURE, MN R QTZ VEINING
* 80	111.66	113.85	2.19			SANDSTONE	FG.WEL.M.GY.VTHNB.WRMBU.SLD MUDST INTBS, CUT AND FILL INDICATE TOPS UP, BIOTURB IN PART
80	113.85	114.19	0.34			SANDSTONE	MG.WEL.M.GY.MAS.SLD MNR MUDST INTBS
80	114.19	114.51	0.32			MUDSTONE	DK.GY.LAM.SLD SLTY INTBS, BRKN AT BASE
80	114.51	114.63	0.12			ROCK LOSS	
80	114.63	116.14	1.51			MUDSTONE	BLK.THNB.SLD MNR SLTY INTBS AT TOP
80	116.14	117.10	0.96			MUDSTONE	BLK.MAS.SLD COALIFIED FRAGS AT BASE
80	117.10	117.15	0.05			MUDSTONE	BLK.MAS.SLD DOMINANTLY PYRITIZED AND CUT BY QTZ VEIN LETS; GOLD, BUFF AND DK GY IN COLOUR

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
80	117.15	117.24	0.09	04747	C	COAL	C-3.BLK.SLD
80	117.24	117.28	0.04	04747	C	COAL	C-4.BLK.SLD
80	117.28	117.34	0.06	04747	C	COAL	C-3.BLK.SLD
80	117.34	117.49	0.15			CLAYSTONE	CARB.BLK.BRKN
80	117.49	117.53	0.04			MUDSTONE	BLK.MAS.SLD
* 80	117.53	117.68	0.15			CLAYSTONE	CARB.BLK.SLD BRIGHT COAL STRGS
80	117.68	117.74	0.06			CLAYSTONE	CARB.BLK.SLD
80	117.74	117.93	0.19			MUDSTONE	BLK.MAS.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
80	117.93	118.19	0.26			SANDSTONE	MG.WEL.M.GY.LAM.SLD MNR SLTY INTBS, BRKN AT TOP
80	118.19	118.91	0.72			SANDSTONE	MG.WEL.M.GY.LAM.SLD AS ABOVE, BIOTURB IN PART
81	118.91	120.41	1.50			SANDSTONE	MG.WEL.LT.GY.MAS.SLD PBLY BAND TOWARDS BASE, SLTY BANDS IN M IDDLE SECTION
81	120.41	120.60	0.19			SANDSTONE	MG.WEL.LT.GY.MAS.SLD
82	120.60	121.82	1.22			SANDSTONE	MG.WEL.LT.GY.MAS.SLD AS ABOVE, MNR QTZ VEINLETS AND ROUNDED RIP-UP MUDST CLASTS UP TO 5CM LONG
* 82	121.82	122.51	0.69			SANDSTONE	FG.WEL.M.GY.VTHNB.WRMBU.SLD SLTY INTBS
80	122.51	123.61	1.10			SANDSTONE	FG.WEL.M.GY.THNB.SLD SLTY INTBS
* 77	123.61	124.60	0.99			SANDSTONE	FG.WEL.M.GY.THNB.XBDG.SLD AS ABOVE, TOPS UP

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	-SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 72	124.60	126.60	2.00			SANDSTONE	FG.WEL.M.GY.THNB.SLD AS ABOVE, BRKN IN MIDDLE, SUBROUNDED MU DST RIP-UP IN MIDDLE UP TO 4CM LONG
* 60	126.60	128.72	2.12			SANDSTONE	FG.WEL.M.GY.THNB.SLD AS ABOVE
63	128.72	129.48	0.76			MUDSTONE	DK.GY.LAM.SLD SLTY INTBS, CUT AND FILL INDICATE TOPS UP
* 65	129.48	130.12	0.64			MUDSTONE	DK.GY.LAM.SLD AS ABOVE, FRAC AT 40 DEGREES, CALCT INF ILLING
75	130.12	130.25	0.13			SILTSTONE	LT.GY.LAM.SLD
* 82	130.25	130.67	0.42			SILTSTONE	LT.GY.LAM.SLD MUDST INTBS, BIOTURB IN PART, CUT AND F ILL INDICATE TOPS UP
* 90	130.67	131.34	0.67			MUDSTONE	DK.GY.LAM.SLD SLTY INTBS,
* 90	131.34	132.35	1.01			MUDSTONE	DK.GY.LAM.SLD AS ABOVE

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
90	132.35	132.63	0.28	04881	B	COAL	C-3.BLK.SLD PYRITE DEPOSITS ALONG CLEAVAGE
90	132.63	132.68	0.05	04881	B	COAL	C-3.BLK.VBRKN
90	132.68	132.72	0.04	04881	B	COAL	C-3.BLK.SLD
90	132.72	132.74	0.02	04881	B	MUDSTONE	DK.GY.SLD
90	132.74	132.83	0.09	04881	B	COAL	C-2.BLK.SLD
90	132.83	132.90	0.07	04881	B	COAL	C-3.BLK.BRKN
90	132.90	133.05	0.15	04882	B	ROCK LOSS	
90	133.05	133.12	0.07	04882	B	COAL LOSS	
90	133.12	133.23	0.11	04882	B	COAL LOSS	
90	133.23	133.29	0.06	04882	B	COAL	C-3.BLK.SLD
90	133.29	133.31	0.02	04882	B	CLAYSTONE	CARB.BLK.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
90	133.31	133.56	0.25	04882	B	COAL	C-3.BLK.SLD
90	133.56	133.61	0.05	04882	B	COAL	C-2.BLK.BRKN
90	133.61	133.66	0.05	04882	B	CLAYSTONE	CARB.BLK.SLD
90	133.66	133.70	0.04	04882	B	COAL	C-1.BLK.SLD
90	133.70	133.77	0.07	04882	B	COAL	C-2.BLK.SLD PYRITIZED
90	133.77	133.81	0.04	04882	B	COAL	C-3.BLK.SLD
90	133.81	133.85	0.04	04882	B	COAL	C-4.BLK.SLD ROCK SPLITS
90	133.85	134.17	0.32			CLAYSTONE	CARB.BLK.SLD
90	134.17	134.42	0.25			MUDSTONE	DK.GY.SLD THN COAL STRGS , PYRITE LENSES AND MNR QTZ VEINLETS AT TOP

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
90	134.42	135.86	1.44			SANDSTONE	FG.WEL.LT.GY.MB.SLD MORE SLTY AT TOP, MNR SLTY INTBS THROUGHOUT
90	135.86	136.17	0.31			SANDSTONE	FG.WEL.LT.GY.THNB.SLD MNR SLTY INTBS, MNR BIOTURB
90	136.17	138.04	1.87			SANDSTONE	FG.WEL.LT.GY.THNB.SLD AS ABOVE
90	138.04	138.11	0.07			SANDSTONE	FG.WEL.LT.GY.THNB.SLD AS ABOVE
* 90	138.11	139.22	1.11			SANDSTONE	FG-.WEL.LT.GY.MAS.SLD COARSENING NEAR BASE
90	139.22	139.73	0.51			SANDSTONE	MG.WEL.LT.GY.MAS.SLD
89	139.73	139.93	0.20			SANDSTONE	MG.WEL.LT.GY.MAS.VBRKN AS ABOVE
89	139.93	140.12	0.19			SANDSTONE	MG.WEL.LT.GY.MAS.BRKN AS ABOVE
89	140.12	140.41	0.29			SANDSTONE	MG.WEL.LT.GY.MAS.SLD AS ABOVE

\* DENOTES MEASURED BCA



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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
89	140.41	141.66	1.25			SANDSTONE	MG.WEL.LT.GY.MAS.BRKN AS ABOVE, VBRKN IN PART, RARE ROUNDED M UDST RIP-UP CLASTS AND QTZ VEINLETS
88	141.66	141.98	0.32			SANDSTONE	MG.WEL.LT.GY.MAS.BRKN AS ABOVE
88	141.98	142.13	0.15			ROCK LOSS	
88	142.13	142.26	0.13			SANDSTONE	FG-.WEL.LT.GY.MAS.VBRKN QTZ VEINLETS
88	142.26	142.56	0.30			SANDSTONE	FG-.WEL.LT.GY.MAS.SLD AS ABOVE
88	142.56	142.64	0.08			SANDSTONE	FG-.WEL.LT.GY.MAS.VBRKN AS ABOVE
88	142.64	142.74	0.10			ROCK LOSS	
88	142.74	143.17	0.43			SANDSTONE	FG-.WEL.LT.GY.MAS.SLD AS ABOVE, CORE BRKN AT TOP
87	143.17	143.27	0.10			SANDSTONE	FG-.WEL.LT.GY.MAS.VBRKN AS ABOVE
87	143.27	143.52	0.25			ROCK LOSS	

\* DENOTES MEASURED BCA

82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 36

PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
87	143.52	144.33	0.81			SANDSTONE	FG-.WEL.LT.GY.MAS.SLD CORE BRKN IN MIDDLE
87	144.33	145.40	1.07			SANDSTONE	FG-.WEL.LT.GY.MAS.SLD AS ABOVE
* 86	145.40	146.45	1.05			SANDSTONE	FG-.WEL.LT.GY.MAS.SLD AS ABOVE
84	146.45	146.65	0.20			MUDSTONE	SLTY.M.GY.SLD
* 80	146.65	148.49	1.84			SANDSTONE	MG.WEL.LT.GY.MAS.SLD RARE SLTY INTBS. CORE BRKN AT BASE
82	148.49	148.60	0.11			SANDSTONE	MG.WEL.LT.GY.MAS.SLD AS ABOVE
83	148.60	148.76	0.16			MUDSTONE	SLD
84	148.76	149.65	0.89			SANDSTONE	FG.WEL.LT.GY.MAS.SLD MNR MUDST INTBS
86	149.65	150.11	0.46			SANDSTONE	MG.MOD.LT.GY.MAS.SLD RARE PBLs
87	150.11	150.65	0.54			SANDSTONE	FG.WEL.LT.GY.MAS.SLD RARE MUDST

\* DENOTES MEASURED BCA

82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 37

PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
88	150.65	151.21	0.56			SANDSTONE	FG.WEL.LT.GY.MAS.SLD AS ABOVE
* 89	151.21	151.37	0.16			MUDSTONE	DK.GY.LAM.SLD
89	151.37	151.47	0.10			ROCK LOSS	
89	151.47	151.58	0.11			MUDSTONE	DK.GY.LAM.SLD AS ABOVE, CORE BRKN AT TOP
89	151.58	152.13	0.55			SANDSTONE	FG.MOD.LT.GY.MAS.SLD 2CM SUBANGULAR PBL BAND AT BASE AND RAR E ROUNDED MUDST CLASTS IN MIDDLE
88	152.13	152.32	0.19			MUDSTONE	DK.GY.SLD CUT BY 5CM QTZ VEIN
* 88	152.32	152.93	0.61			SANDSTONE	FG.WEL.LT.GY.MAS.SLD SLTY INTBS AT TOP
* 20	152.93	153.07	0.14			SANDSTONE	FG.WEL.LT.GY.MAS.SLD AS ABOVE, BUFF COLOUR IN BASAL HALF
* 33	153.07	153.43	0.36			SANDSTONE	FG.WEL.LT.GY.MAS.SLD AS ABOVE
* 60	153.43	154.13	0.70			SANDSTONE	FG.WEL.LT.GY.MAS.SLD AS ABOVE, WTHRS TO BUFF

\* DENOTES MEASURED BCA

82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 38

PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
* 60	154.13	154.37	0.24			SANDSTONE	FG.PR.LT.GY.BIOTR.SLD SUBROUNDED MUDST RIP-UP THROUGHOUT, COA LIFIED FRAGS
* 70	154.37	154.99	0.62			SANDSTONE	FG.WEL.LT.GY.SLD
70	154.99	157.10	2.11			SANDSTONE	FG.WEL.LT.GY.VTHNB.SLD AS ABOVE, MNR SLTY INTBS
70	157.10	157.18	0.08			SANDSTONE	FG.WEL.LT.GY.VTHNB.SLD AS ABOVE
* 70	157.18	159.07	1.89			SANDSTONE	FG.WEL.LT.GY.LAM.SLD AS ABOVE, PYRITIZED AT TOP
* 73	159.07	160.23	1.16			SANDSTONE	FG.WEL.M.GY.LAM.SLD SLTY INTBS, CORE VBRKN AT BASE
73	160.23	161.02	0.79			SANDSTONE	FG-.WEL.LT.GY.MAS.SLD SLTY LAMS IN UPPER PORTION
* 72	161.02	163.12	2.10			SANDSTONE	FG.WEL.LT.GY.MAS.SLD SLTY INTBS IN MIDDLE
73	163.12	163.28	0.16			SANDSTONE	FG.WEL.LT.GY.MAS.SLD AS ABOVE

\* DENOTES MEASURED BCA

82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 39

PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
74	163.28	163.97	0.69			SANDSTONE	FG.WEL.M.GY.LAM.SLD SLTY INTBS
* 75	163.97	165.11	1.14			SILTSTONE	M.GY.LAM.SLD SSY INTBS, JOINTING AT 25 DEGREES
* 80	165.11	165.82	0.71			SILTSTONE	M.GY.LAM.SLD MUDST INTBS
73	165.82	166.20	0.38			MUDSTONE	M.GY.LAM.VBRKN LISTRIC SURFACES
70	166.20	166.31	0.11			ROCK LOSS	
69	166.31	166.41	0.10	04883	A	COAL	C-2.BLK.VBRKN LISTRIC SURFACES
68	166.41	166.45	0.04	04883	A	COAL	C-1.BLK.SLD
67	166.45	166.49	0.04	04883	A	CLAYSTONE	CARB.BLK.BRKN ABUNDANT COAL FLECKS, VERY SOFT
66	166.49	166.69	0.20	04883	A	COAL	C-2.BLK.VBRKN
64	166.69	166.80	0.11	04883	A	COAL	C-2.BLK.SLD

\* DENOTES MEASURED BCA

82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 40

PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
63	166.80	166.81	0.01	04883	A	CLAYSTONE	CARB.BLK.SLD
63	166.81	166.90	0.09	04883	A	COAL	C-2.BLK.VBRKN
62	166.90	166.96	0.06	04883	A	COAL	C-2.BLK.SLD
61	166.96	167.05	0.09	04883	A	COAL	C-3.BLK.VBRKN
* 60	167.05	167.09	0.04	04883	A	COAL	C-2.BLK.SLD
* 12	167.09	167.34	0.25	04883	A	COAL	C-3.BLK.SLD CORE BRKN AT TOP AND BASE
* 65	167.34	167.44	0.10	04883	A	COAL	C-3.BLK.SLD CORE BRKN AT TOP
65	167.44	167.56	0.12	04883	A	COAL	C-2.BLK.VBRKN
64	167.56	167.88	0.32	04883	A	COAL	C-2.BLK.VBRKN
62	167.88	168.14	0.26	04883	A	COAL	C-3.BLK.VBRKN

\* DENOTES MEASURED BCA

82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

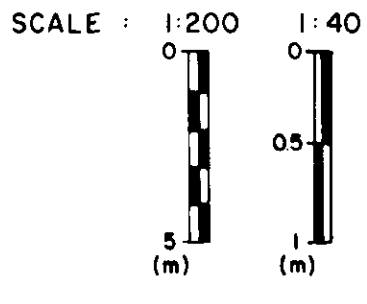
PAGE 41

PROJECT: KPN BLOCK: BC DATA SOURCE: DDH82006

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
61	168.14	168.29	0.15	04883	A	COAL	C-2.BLK.VBRKN
61	168.29	168.37	0.08	04883	A	COAL	C-3.BLK.BRKN
61	168.37	168.42	0.05			CLAYSTONE	CARB.BLK.BRKN
* 60	168.42	168.69	0.27			MUDSTONE	M.GY.LAM.BRKN
* 70	168.69	170.65	1.96			SANDSTONE	M.GY.VTHNB.BRKN SLTST INTBS, MNR QTZ VEINING
71	170.65	170.76	0.11			SANDSTONE	BF.BRKN AS ABOVE, QTZ VEINED CONTAINING BRECCIA TED HOST ROCK
* 71	170.76	171.46	0.70			SILTSTONE	M.GY.LAM.BRKN INTBD SS
65	171.46	172.82	1.36			SILTSTONE	M.GY.LAM.BRKN MNR MUDST INTBS
* 60	172.82	172.98	0.16			SILTSTONE	M.GY.LAM.SLD AS ABOVE ////////////////////////////////////END OF CORE, DRI LLERS MARKER 173.43M////////////////////////////////////

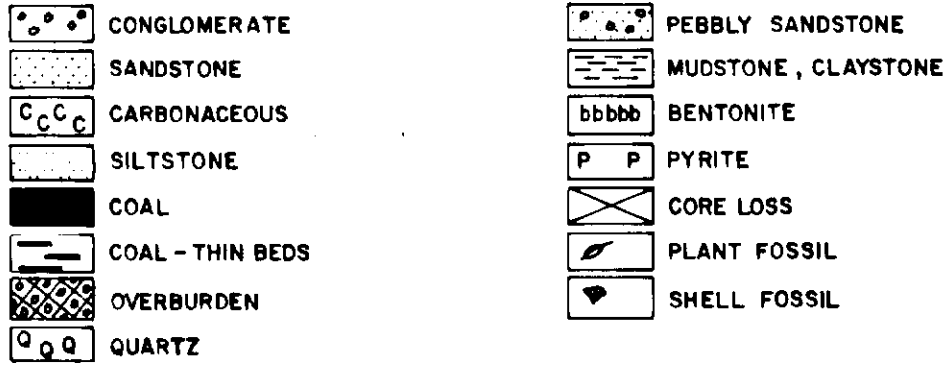
\* DENOTES MEASURED BCA

MOUNT KLAPPAN  
DRILL HOLE LOG  
DDH 82-006



NORTHING : 6344790 N INCLINATION : 60°  
EASTING : 512605 E BEARING : 345°

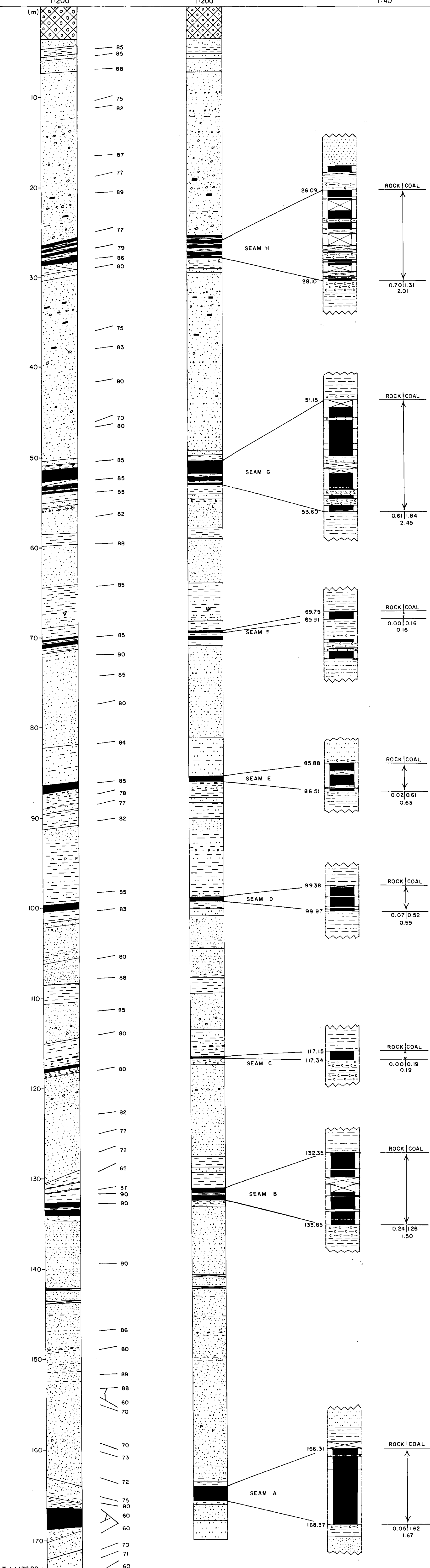
LITHOLOGIC SYMBOLS



APPARENT THICKNESS  
1:200

TRUE THICKNESS  
1:200

SEAM DETAIL  
1:40





110

## CENTURY GEOPHYSICAL CORPORATION

\*\*\*\*\* VERTICAL DEVIATION \*\*\*\*\*

## COMPU-LOG VSLI DEVIATION

CLIENT : GULF CANADA RES. INC

HOLE ID : DDH-82-006

LOCATION : KLAPPAN MTN.

DATE OF LOG : 09-01-82

DATA FROM : VSL2\*A

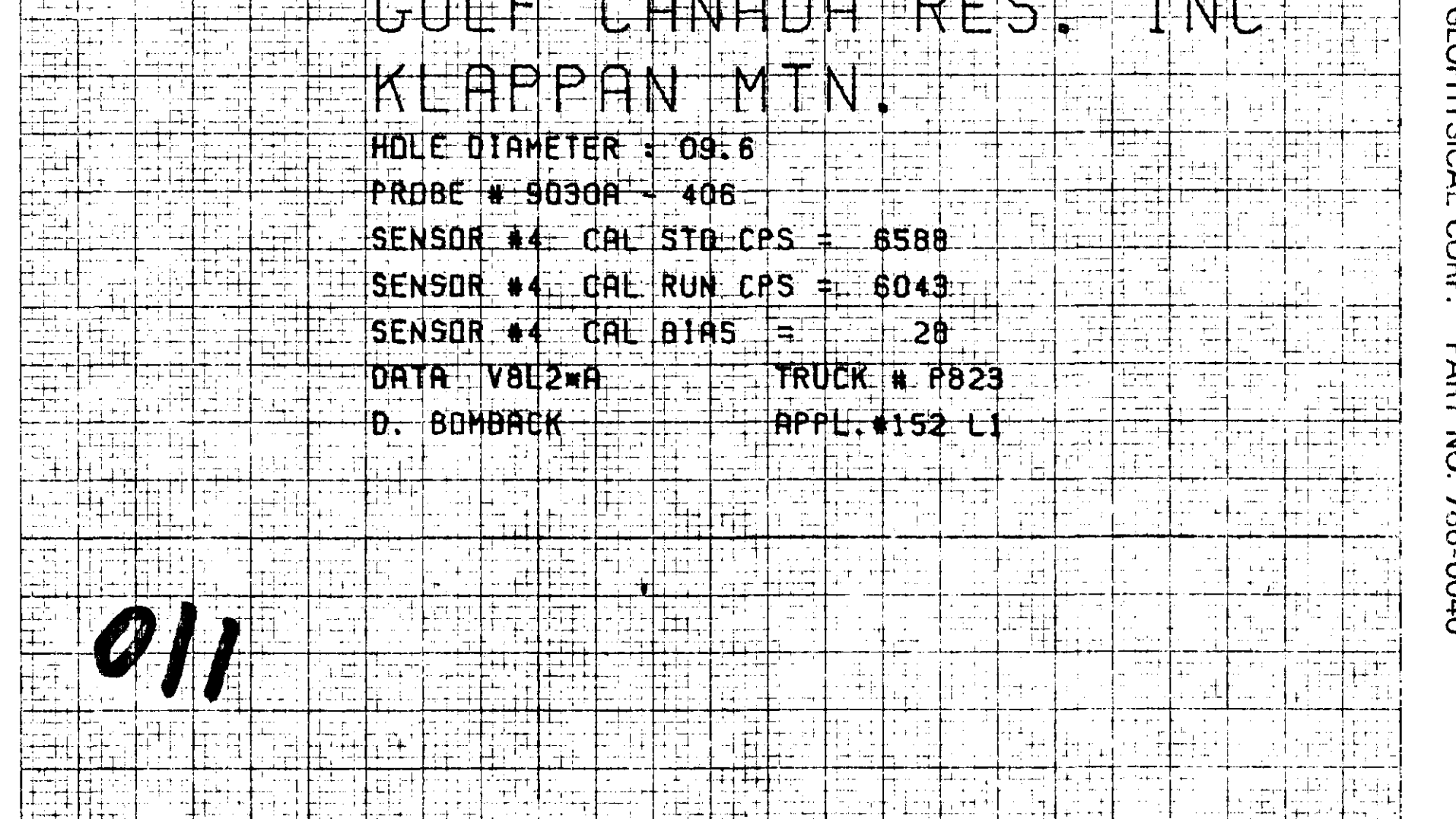
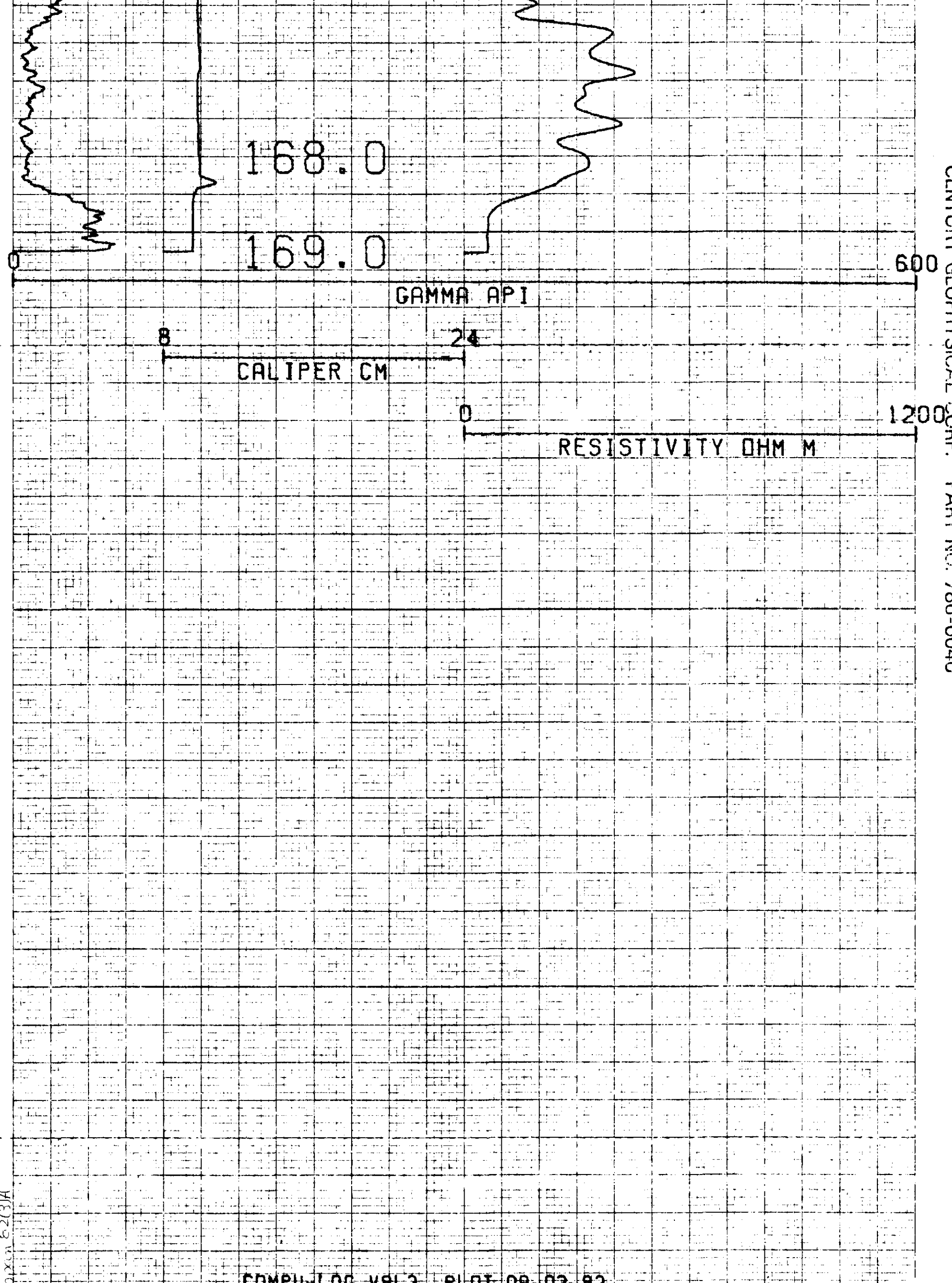
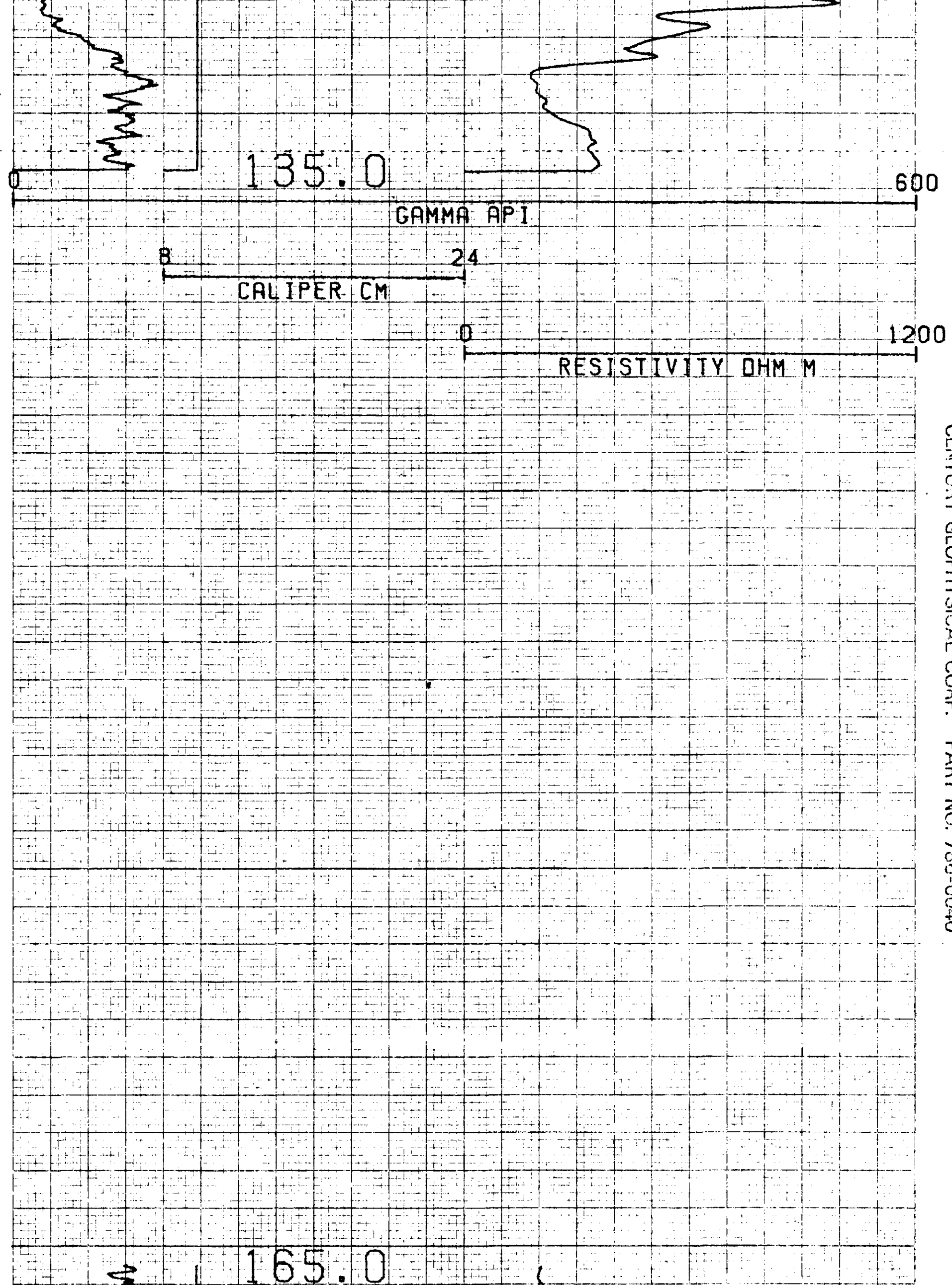
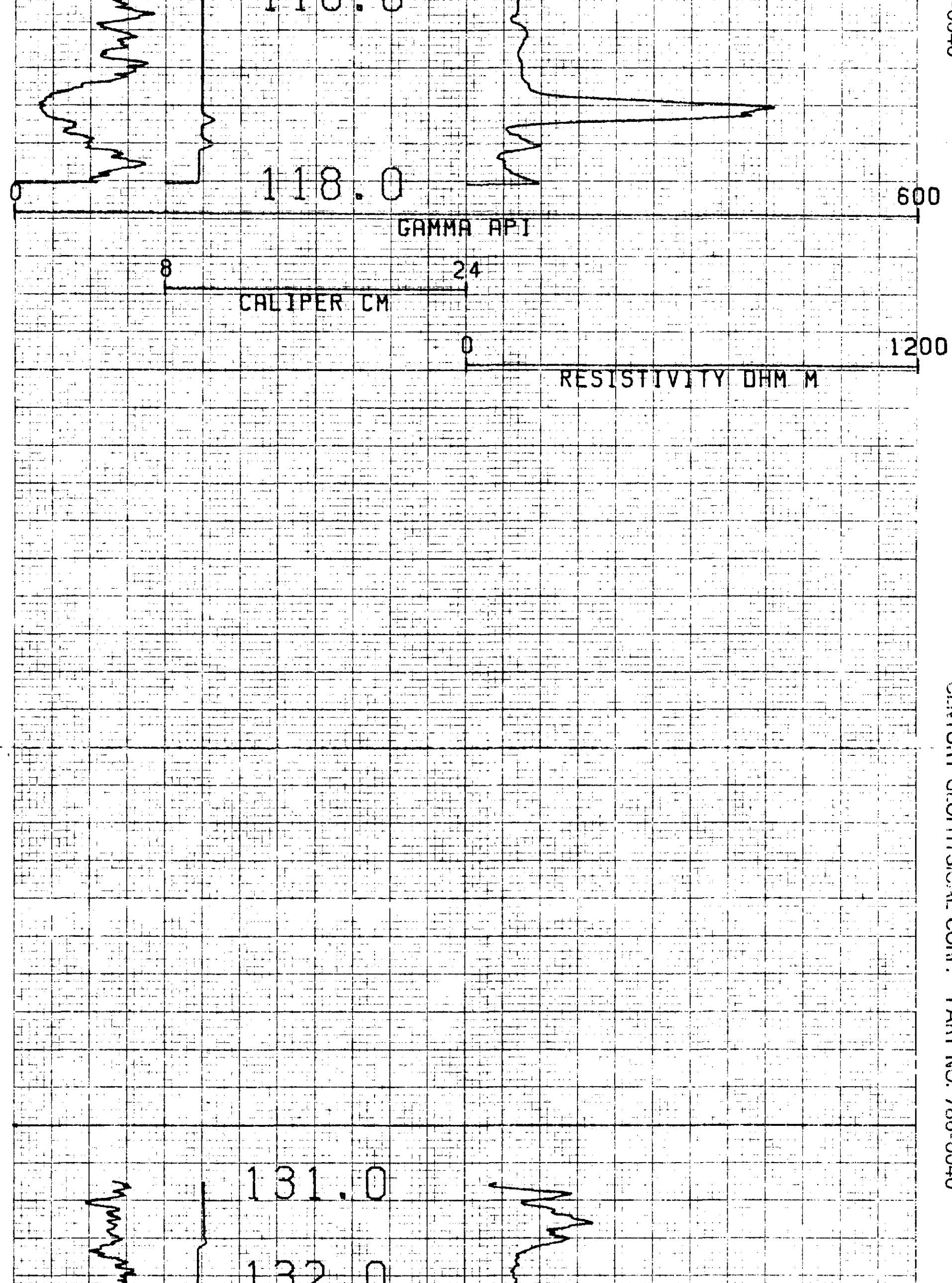
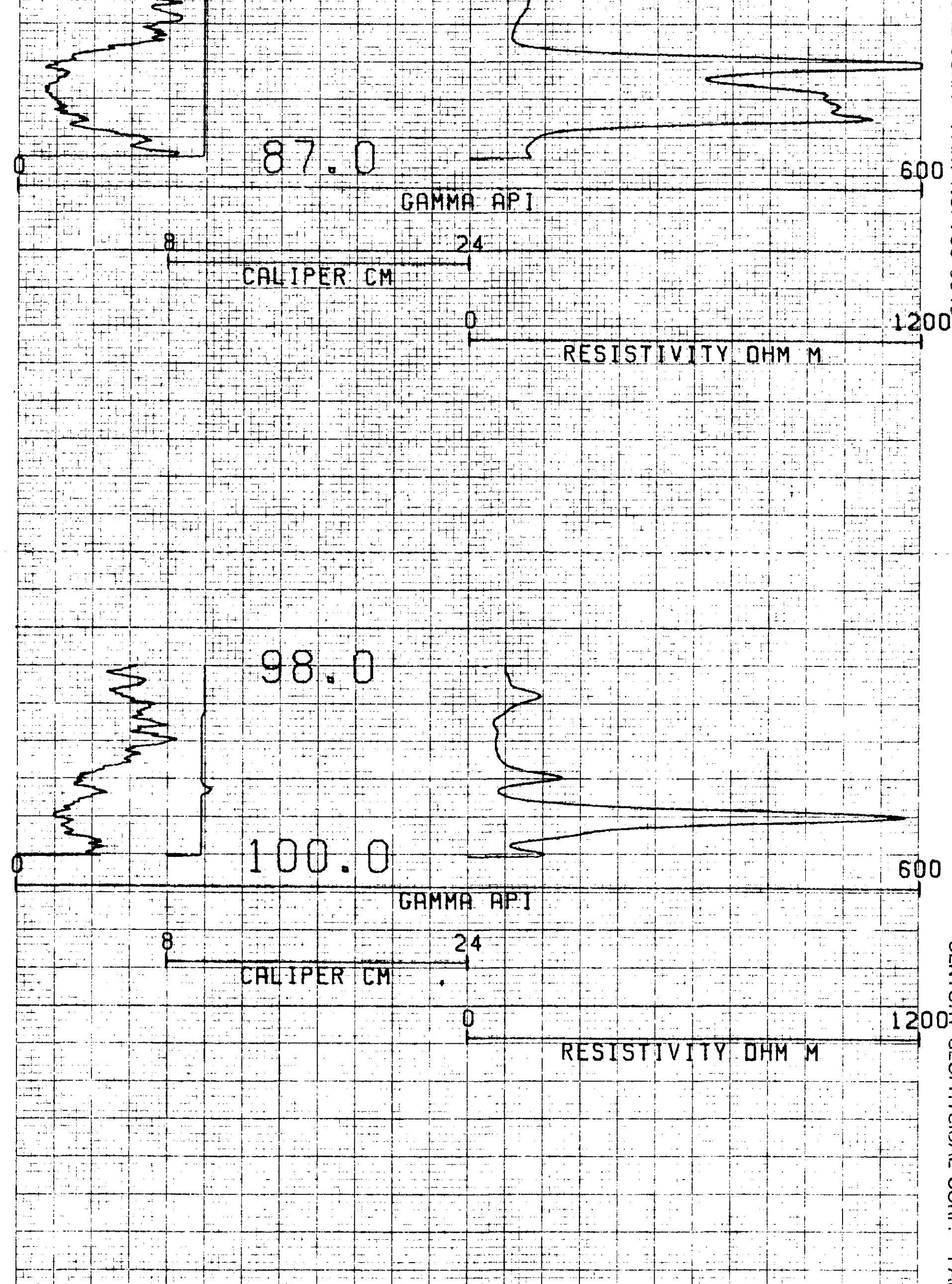
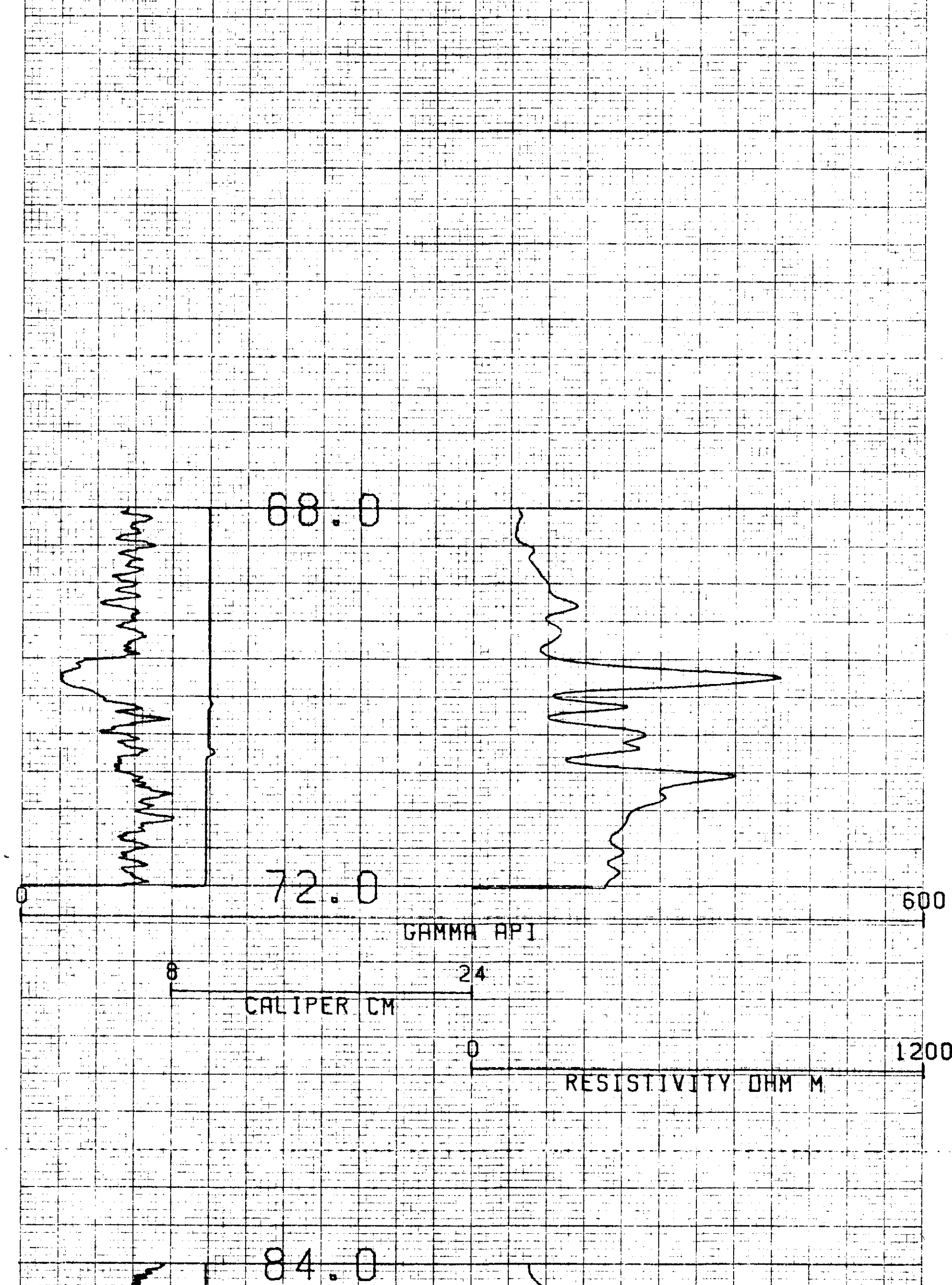
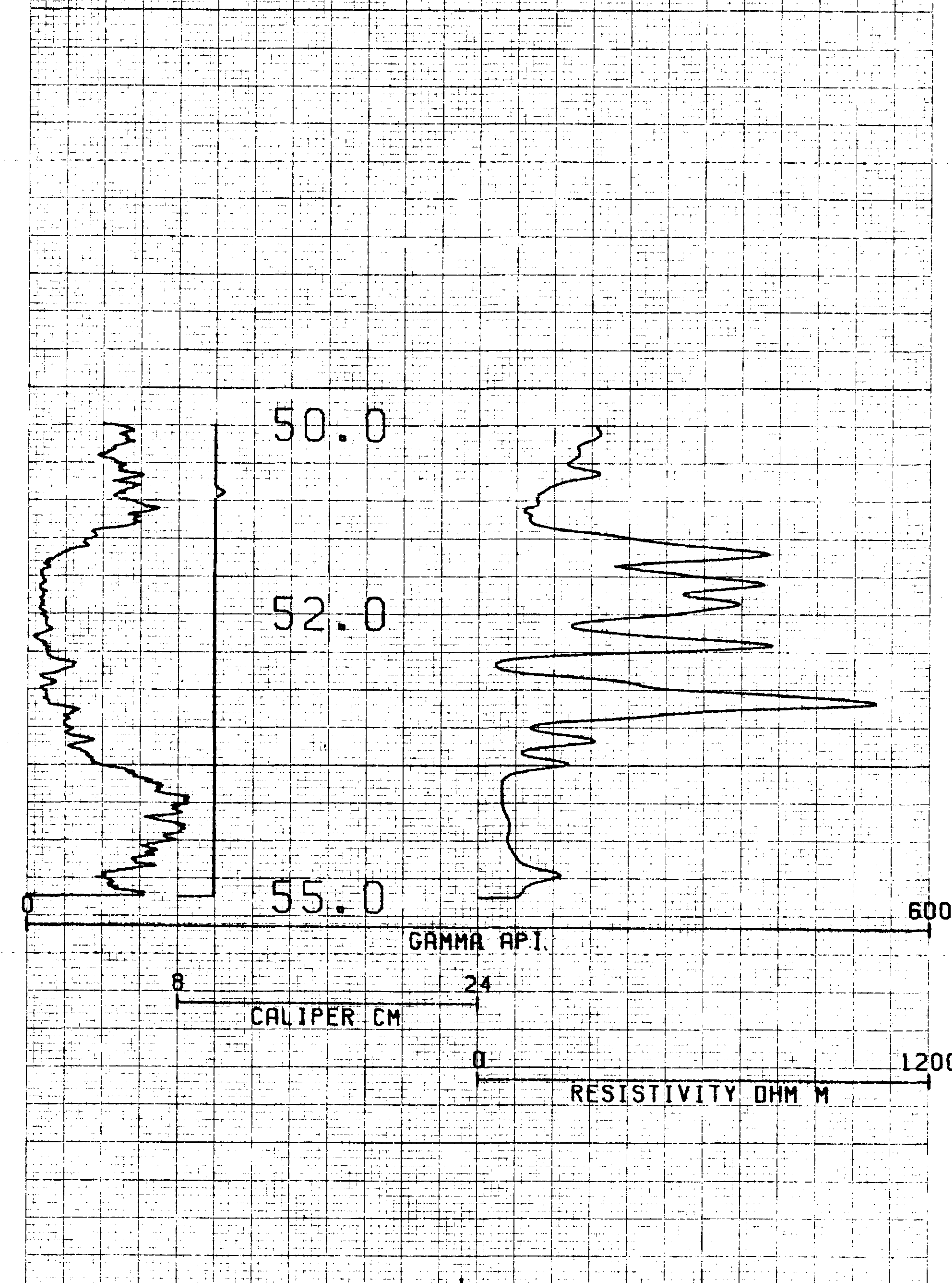
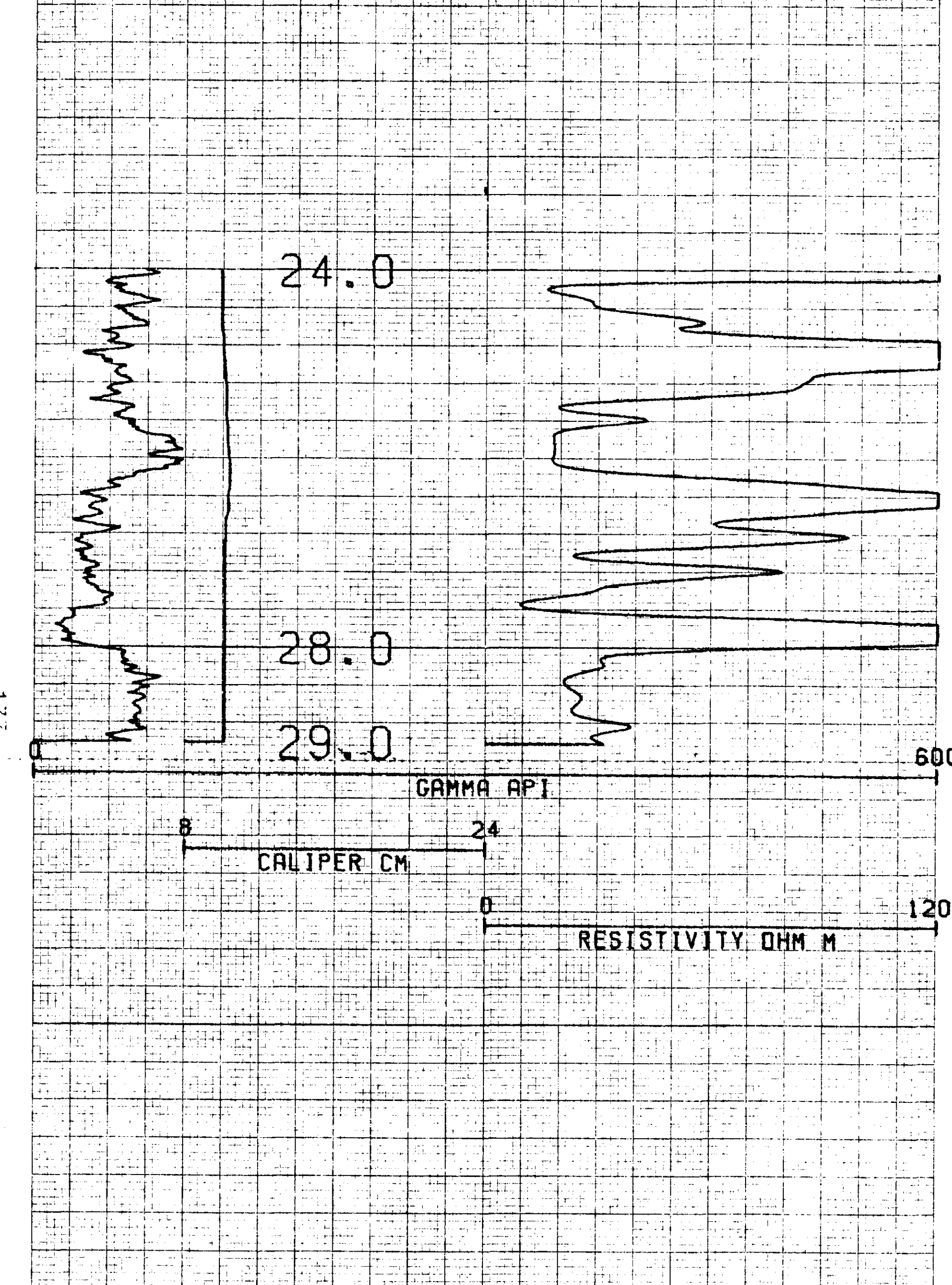
PROBE : 9055A 0008

TD = TOTAL DEPTH

T = TOP OF ZONE

B = BOTTOM OF ZONE

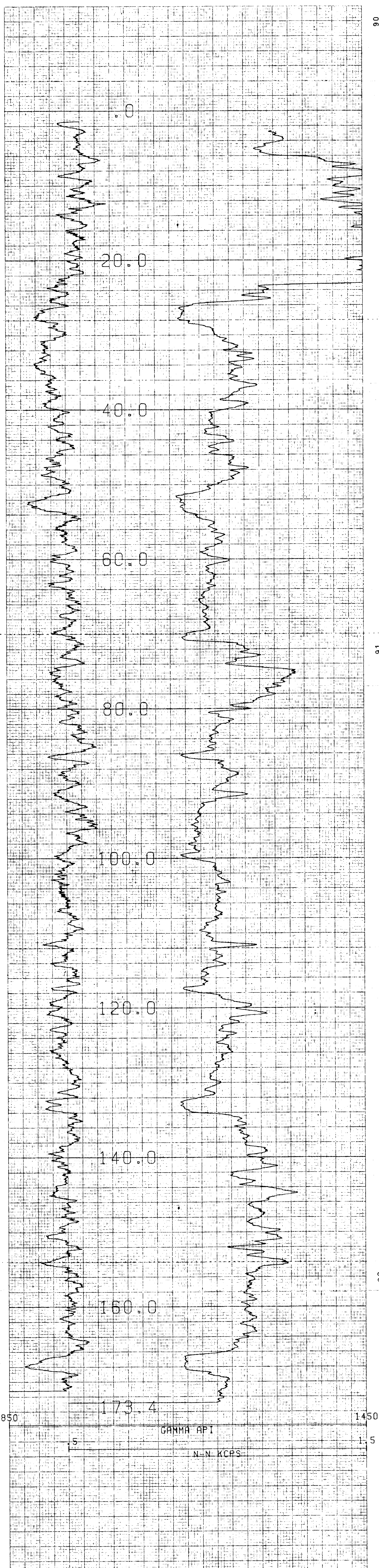
DEPTH	TRUE DEPTH	NORTH DEV	EAST DEV	DISTANCE	AZIMUTH	SA	SAB
00	00	00	00	00	0	0	0
10.00	8.53	3.33	-4.81	5.21	309.7	31.4	309.7
20.00	17.06	6.66	-8.02	10.43	309.7	31.4	309.7
30.00	25.58	10.23	-11.77	15.60	311.0	31.2	313.6
40.00	34.14	13.72	-15.55	20.74	311.4	30.9	312.6
50.00	42.75	17.10	-19.36	25.84	311.5	30.6	311.6
60.00	51.37	20.45	-23.16	30.90	311.4	30.4	311.3
70.00	60.01	23.76	-26.96	35.94	311.4	30.2	311.1
80.00	68.66	27.05	-30.74	40.95	311.4	30.0	310.9
90.00	77.33	30.31	-34.52	45.93	311.3	29.9	310.7
100.00	86.01	33.53	-38.29	50.90	311.2	29.7	310.4
110.00	94.70	36.72	-42.06	55.84	311.1	29.5	310.2
120.00	103.42	39.90	-45.80	60.74	311.1	29.3	310.3
130.00	112.14	43.09	-49.48	65.62	311.1	29.1	310.9
140.00	120.88	46.32	-53.09	70.46	311.1	28.9	311.8
150.00	129.63	49.42	-56.79	75.29	311.0	28.9	309.9
160.00	138.41	52.48	-60.46	80.06	311.0	28.5	309.8
170.00	147.13	55.91	-63.90	84.91	311.2	29.1	314.9
TD 173.10	149.85	56.91	-65.00	86.40	311.2	28.5	312.3



COMPU-LOG V8L2 PLOT 09-02-82  
 DDH-82-006  
 GULF CANADA RES. INC  
 KLAPPAN MTN.  
 HOLE DIAMETER = 09.6  
 PROBE # 9030A-406  
 SENSOR #1 CAL STD CPS = 6588  
 SENSOR #4 CAL RUN CPS = 6043  
 SENSOR #4 CAL BIAS = 28  
 DATA V8L2#A TRUCK # P029  
 D. BOMBACK APPL. #152 LI

011

112



90

91

92

GR 111100000 6-2-82

COMPU-LOG V8L2 PLOT 09-01-82  
 DDH-82-006  
 GULF CANADA RES. INC  
 KLAPPAN MTN.  
 HOLE DIAMETER = 09.6  
 PROBE # 9055A - 008  
 SENSOR #4 CAL STD CPS = 152  
 SENSOR #4 CAL RUN CPS = 272  
 SENSOR #4 CAL BIAS = 0  
 DATA V8L2\*F TRUCK # P823  
 D. BOMBACK APPL. #7 LI

110



DDH82007

gcri coal division history proj KPN blk SS ds DDH82007

dy mo yr  
 start date 04/09/82  
 end date 06/09/82

contractor J.T.THOMAS operator GCRI  
 geologist INNIS surveyor \_\_\_\_\_

remarks INCLINED HOLE

gcri coal division location proj KPN blk SS ds DDH82007

choose one location input number, 1 province BC  
 then enter location elevation (M) 1315.00

\*-----\*  
1 utm: zone 09 northing 6347475.00 easting 0504420.00
2 lat-long: lat 571620 long 1285536
-----

gcri coal division orientation proj KPN blk SS ds DDH82007

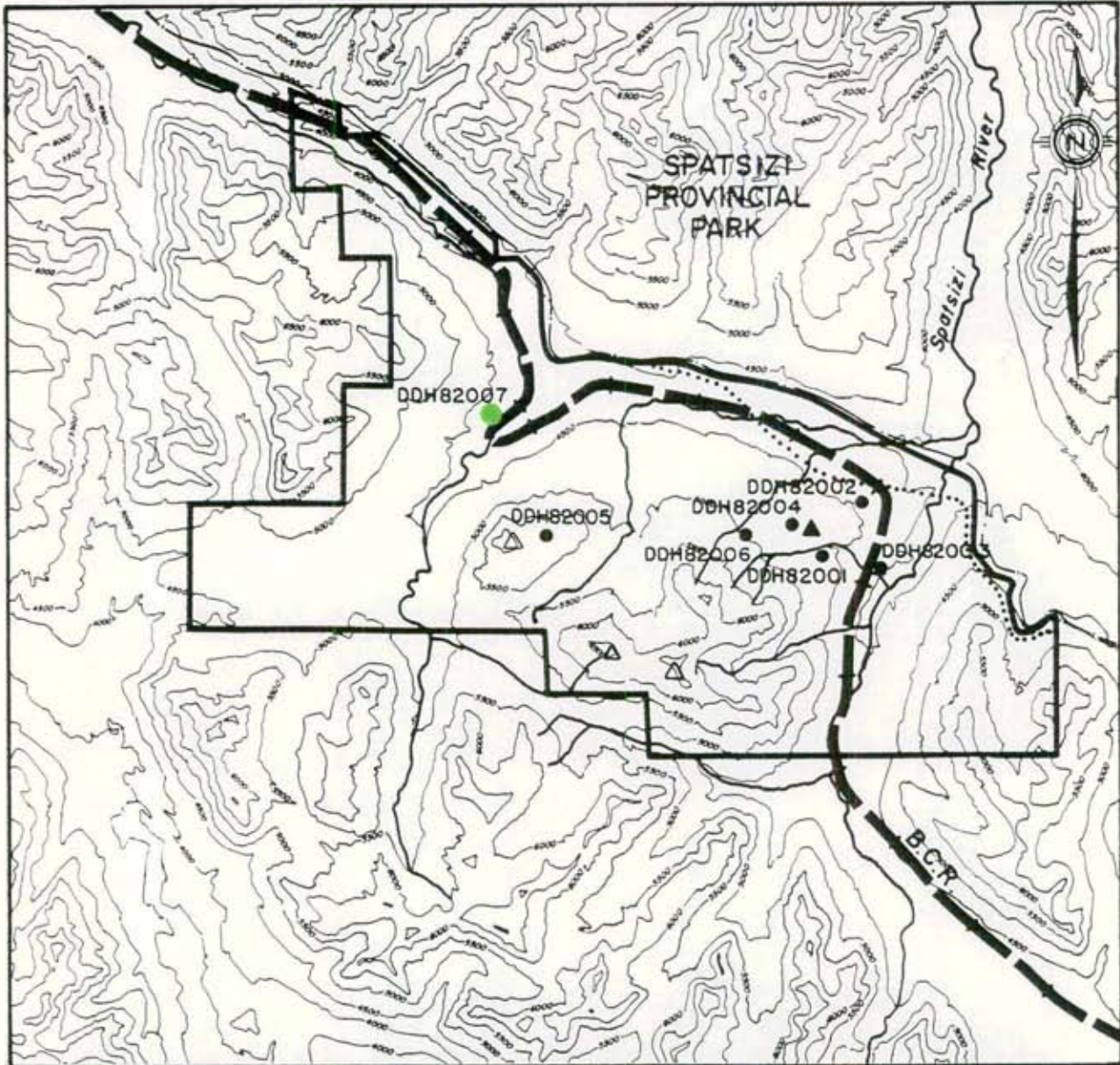
dimensions and orientation:

length (M) 130.15 inclination 70.0 azimuth 5.0  
 size width 95.8 size height  
 roof strike dip dir  
 floor strike dip dir






casing depth (M) 3.05 cement(y,\_) \_ plug(Y,\_) Y piez(Y,\_) \_  
 aquifer depths (M) -----  
 loss cir depths(M) -----

# MT. KLAPPAN COAL PROPERTY

## DIAMOND DRILL HOLES



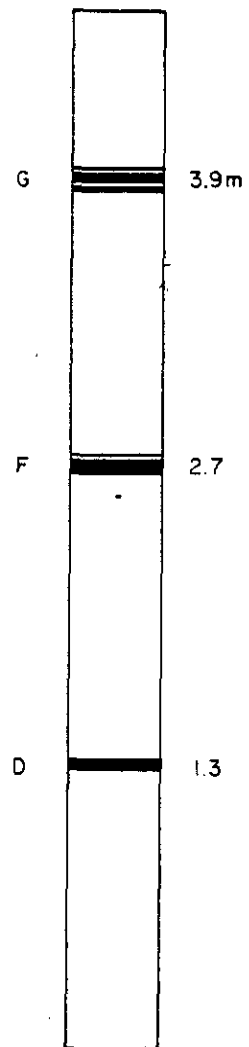
0 1 2 3 4 5 Km

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

# MT. KLAPPAN COAL PROPERTY

DDH82007

SEAM SEAM THICKNESS



SCALE - 1:1000



DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL
19.06			0.02					
19.19		0.11						
		0.04	0.03					
		0.04	0.06	100	04740	↑	↑	↑
19.55		0.14						
		0.02	0.18					
			0.31					
		0.03						
		0.01	0.10					
		0.01	0.14					
		0.02	0.16					
		0.06	0.02					
		0.02	0.03					
		(0.02)						
			0.44					
		0.01		65.1	04741	47	2.31/1.60	2.31/1.60
			(0.16)				3.91	3.91
		(0.17)						
		0.03	0.19					
		0.03	0.13					
			0.02					
		(0.30)						
			(0.17)					
		(0.37)						
		0.15						
		0.06	0.02					
			(0.06)					
23.10		0.19						
			0.03					
23.49		0.15						
			0.02					

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY	ALBERTA	
<b>MT. KLAPPAN COAL PROJECT</b> <b>SEAM DETAIL</b> <b>TRUE THICKNESS</b> <b>DDH-82-007</b> <b>SEAM G</b>		
PREPARED BY: C. L.	SCALE 1:40	
APPROVED BY: J. M. D.	DATE: NOV. '82	DRAWING No.

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		COMPOSITE	MINING SECTION
		ROCK	COAL		NUMBER	COMPOS.	COAL / ROCK TOTAL	COAL / ROCK TOTAL
57.14		(0.16)						
			(0.30)	23	04742	↑	↑	↑
	(0.18)							
58.09		0.03						
		(0.24)						
58.62		0.01	8.81	55	04743	48	1.95/0.76 2.71	1.95/0.76 2.71
		0.14	8.81					
59.85		0.03						
		(0.19)						
59.85		0.05	0.02	69	04744	↓	↓	↓
		0.13	0.13					
		(0.19)						
		0.22						

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division	
<b>MT. KLAPPAN COAL PROJECT</b> <b>SEAM DETAIL</b> <b>TRUE THICKNESS</b> <b>DDH-82-007</b> <b>SEAM F</b>		
PREPARED BY: C. L.		SCALE 1:40
APPROVED BY: J. M. D.		DATE: NOV. '82 DRAWING No.

DRILLING DEPTH	COAL SEAM LOG	INTERVAL		REC	SAMPLE		COMPOSITE	MINING SECTION	
		ROCK	COAL		NUMBER	COMPOS.	COAL/ROCK TOTAL	COAL/ROCK TOTAL	
94.85			0.02						
		0.22							
		0.19							
		0.07	0.01						
			0.02						
96.56									
			0.15						
		0.10							
		0.02	0.19	95	04745	49		0.80/0.49	0.80/0.49
		0.05	0.11						
		(0.03)	0.10						
		0.09	0.01						
		0.03	0.02						
		0.02	0.02						
		(0.03)	0.15						
0.10	0.08								
0.24									
0.01	0.02 0.02								
97.85		0.06	0.10						
		(0.06)							
		0.17	0.01						
			0.29						
			0.01						
			0.21						
		0.06	0.01						
		0.03	0.07						
		0.01	0.10						
			0.01						
99.35									

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	ALBERTA	
Coal Division <b>MT. KLAPPAN COAL PROJECT</b> <b>SEAM DETAIL</b> TRUE THICKNESS DDH-82-007 <b>SEAM D</b>		
PREPARED BY: C. L.		SCALE 1:40
APPROVED BY: J. M. D.		DATE: NOV. '82 DRAWING No.



COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

Apparent Thickness

DENSITY

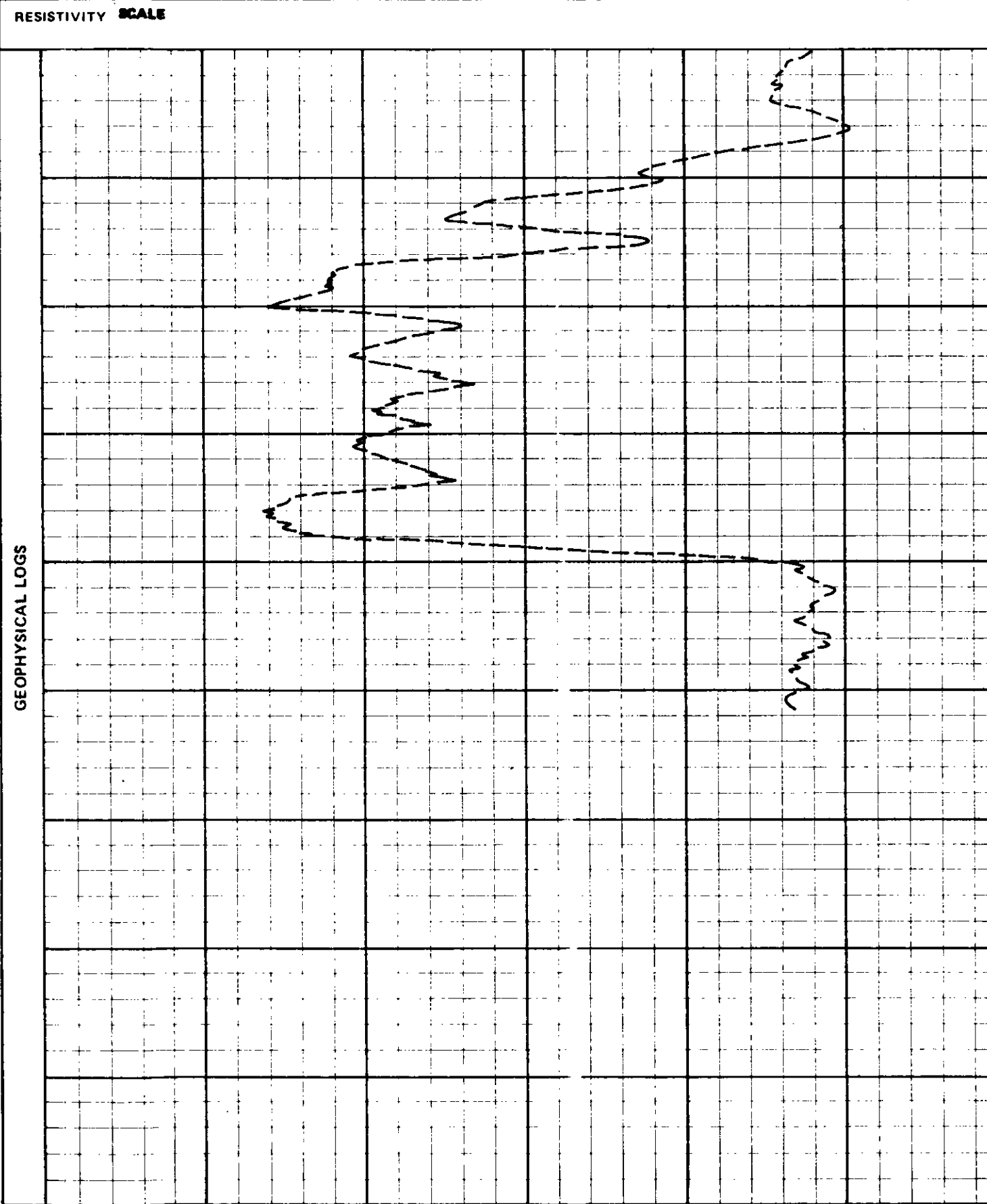
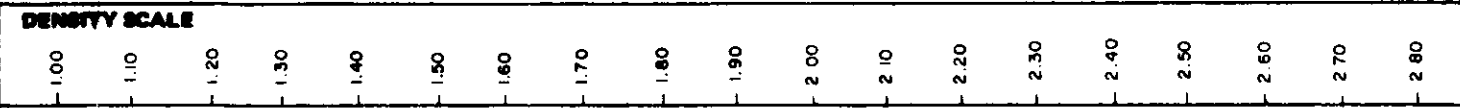
RESISTIVITY

DRILL NO. DDH - 82 - 007

SEAM F

SEAM INTERVAL

SCALE 1:40



GEOPHYSICAL LOGS

SEAM COMP.	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS									
			ROCK	COAL		NUMBER	COMPOS.	MOIST.	ASH	VM	FC	S'	CAL. VAL. MJ/kg	FSI			
1 2 3 4 5 6	57.14		( 0.16 )														
			( 0.18 )	( 0.30 )	23	04742											
	58.09		0.03	0.22													
	58.62		( 0.24 )	0.22	55	04743	48	1.28	37.67	5.96	55.09		20.36				
			0.14	0.22													
			0.05	0.17	69	04744											
			0.02	( 0.19 )													
	59.85			0.24													
				0.13													
				( 0.19 )													
				0.22													
Seam Interval(m): 57.14 - 59.85 Seam True Thickness (Coal/Rock): 1.95/0.76 Total 2.71																	

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

Apparent Thickness P-267 (12-80)

DENSITY ---

RESISTIVITY ---

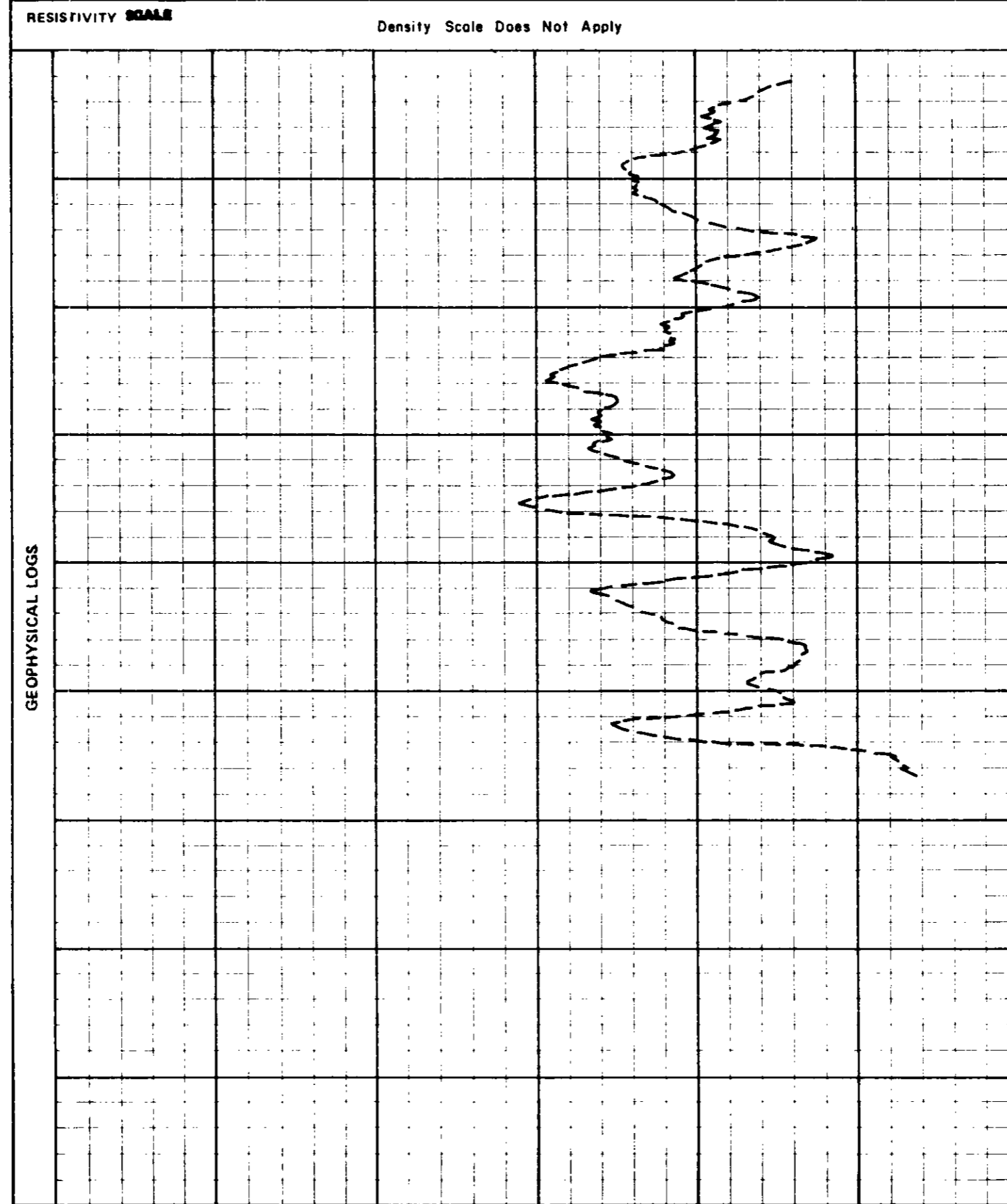
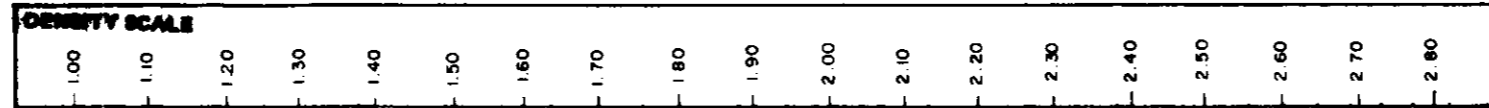
DRILL NO DDH - 82 - 007

SEAM

D

SEAM INTERVAL

Logged Through Drill Rods



SEAM COMP. 1 2 3 4 5 6	DEPTH metres	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS								
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	CAL VAL MJ/kg	FSI		
	94.85	-c-c-c-c c-c-c-c c-c-c-c c-c-c-c	0.22	0.02												
		-c-c-c-c c-c-c-c c-c-c-c c-c-c-c	0.19	0.02												
		-c-c-c-c c-c-c-c c-c-c-c c-c-c-c	0.07	0.02												
		-c-c-c-c c-c-c-c c-c-c-c c-c-c-c	1.16													
	96.56	-c-c-c-c c-c-c-c c-c-c-c c-c-c-c	0.10	0.15												
		-c-c-c-c c-c-c-c c-c-c-c c-c-c-c	0.02	0.19												
		-c-c-c-c c-c-c-c c-c-c-c c-c-c-c	0.05	0.11												
		-c-c-c-c c-c-c-c c-c-c-c c-c-c-c	0.03	0.10	95	04745	49	1.68	36.39	6.66	55.27	20.55				
		-c-c-c-c c-c-c-c c-c-c-c c-c-c-c	0.08	0.02												
		-c-c-c-c c-c-c-c c-c-c-c c-c-c-c	0.02	0.15												
	97.85	-c-c-c-c c-c-c-c c-c-c-c c-c-c-c	0.24	0.08												
		-c-c-c-c c-c-c-c c-c-c-c c-c-c-c	0.01	0.08												
		-c-c-c-c c-c-c-c c-c-c-c c-c-c-c	0.07	0.10												
		-c-c-c-c c-c-c-c c-c-c-c c-c-c-c	0.06	0.10												
		-c-c-c-c c-c-c-c c-c-c-c c-c-c-c	0.17													
		-c-c-c-c c-c-c-c c-c-c-c c-c-c-c	0.29	0.01												
		-c-c-c-c c-c-c-c c-c-c-c c-c-c-c	0.21	0.01												
		-c-c-c-c c-c-c-c c-c-c-c c-c-c-c	0.08	0.01												
		-c-c-c-c c-c-c-c c-c-c-c c-c-c-c	0.03	0.07												
	99.35	-c-c-c-c c-c-c-c c-c-c-c c-c-c-c	0.01	0.01												
		-c-c-c-c c-c-c-c c-c-c-c c-c-c-c	0.10	0.01												
			Seam interval (m) : 96.56 - 97.85													
			Seam True Thickness (Coal/Rock) : 0.80 / 0.49													
			Total 1.29													

GULF CANADA RESOURCES INC. - COAL DIVISION  
 22/NOV/82 COMPOSITE SAMPLE SUMMARY

PAGE 1

DATA SOURCE	SEAM	SAMPLE ID	SAMPLE FROM	SAMPLE TO	DEPTH FROM	DEPTH TO	REC CORE	PERCENT REC	RECOVERED COAL	RECOVERED ROCK	MISSING COAL	MISSING ROCK
DDH82007												
G		47	4740	4741	19.19	23.10	2.66	68.03	1.92	0.74	0.39	0.86
F		48	4742	4744	57.14	59.85	1.39	51.29	1.05	0.34	0.90	0.42
D		49	4745	4745	96.56	97.85	1.23	95.35	0.80	0.43	0.00	0.06
G		4740			19.19	19.55	0.36	100.00	0.14	0.22	0.00	0.00
G		4741			19.55	23.10	2.30	64.79	1.78	0.52	0.39	0.86
F		4742			57.14	58.09	0.25	26.32	0.22	0.03	0.52	0.18
F		4743			58.09	58.62	0.29	54.72	0.05	0.24	0.00	0.24
F		4744			58.62	59.85	0.85	69.11	0.78	0.07	0.38	0.00
D		4745			96.56	97.85	1.23	95.35	0.80	0.43	0.00	0.06

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 1

PROJECT: KPN BLOCK: SS DATA SOURCE: DDH82007

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
90	0.00	3.45	3.45			OVERBURDEN	
* 90	3.45	4.57	1.12			SANDSTONE	MG.WEL.S-P.GY.MAS.BRKN WEATHERED
87	4.57	4.70	0.13			SANDSTONE	MG.WEL.S-P.GY.MAS.BRKN
85	4.70	5.43	0.73			SANDSTONE	MG.WEL.S-P.GY.MAS.SLD
81	5.43	6.01	0.58			SANDSTONE	MG.WEL.S-P.GY.MAS.VBRKN
77	6.01	7.10	1.09			SANDSTONE	MG.WEL.S-P.GY.MAS.BRKN FEW QTZ VEINS
73	7.10	7.42	0.32			SANDSTONE	SLTY.FG-.MOD.S-P.GY.MB.BRKN SLTST STRKS
* 72	7.42	7.67	0.25			SANDSTONE	SLTY.FG-.MOD.S-P.GY.MB.BRKN
71	7.67	7.87	0.20			SANDSTONE	SLTY.FG-.MOD.S-P.GY.MB.BRKN

\* DENOTES MEASURED BCA



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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 2

PROJECT: KPN BLOCK: SS DATA SOURCE: DDH82007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
* 70	7.87	8.31	0.44			SANDSTONE	CLYY.FG.MOD.S-P.GY.LAM.WRMBU.SLD INTBD SS AND SLTST
* 74	8.31	8.95	0.64			CLAYSTONE	SSY.DK.GY.LAM.WRMBU.SLD
72	8.95	9.56	0.61			CLAYSTONE	SSY.DK.GY.LAM.WRMBU.BRKN
70	9.56	10.16	0.60			CLAYSTONE	SSY.DK.GY.LAM.WRMBU.SLD
68	10.16	10.97	0.81			CLAYSTONE	SSY.DK.GY.LAM.WRMBU.VBRKN
66	10.97	11.08	0.11			CLAYSTONE	SSY.DK.GY.LAM.WRMBU.SLD
* 65	11.08	11.59	0.51			CLAYSTONE	SSY.DK.GY.LAM.WRMBU.SLD
67	11.59	11.81	0.22			SANDSTONE	CLYY.FG.MOD.S-P.GY.LAM.WRMBU.SLD
68	11.81	12.08	0.27			SANDSTONE	CLYY.FG.MOD.S-P.GY.LAM.WRMBU.SLD
* 72	12.08	13.77	1.69			CLAYSTONE	SSY.DK.GY.LAM.WRMBU.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 3

PROJECT: KPN BLOCK: SS DATA SOURCE: DDH82007

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
71	13.77	13.91	0.14			CLAYSTONE	SSY.DK.GY.LAM.WRMBU.VBRKN
71	13.91	14.14	0.23			CLAYSTONE	SSY.DK.GY.LAM.WRMBU.SLD
* 70	14.14	16.06	1.92			CLAYSTONE	SSY.DK.GY.LAM.WRMBU.SLD
72	16.06	16.98	0.92			CLAYSTONE	SSY.DK.GY.LAM.WRMBU.SLD
73	16.98	17.27	0.29			CLAYSTONE	SSY.DK.GY.LAM.WRMBU.SLD
74	17.27	17.92	0.65			CLAYSTONE	SLTY.DK.GY.LAM.SLD V FEW WRMBUR
75	17.92	18.16	0.24			CLAYSTONE	DK.GY.LAM.SLD COALY STREAKS
76	18.16	18.84	0.68			CLAYSTONE	DK.GY.LAM.SLD COALY STREAKS AND PLANT FOSSILS
76	18.84	19.03	0.19			CLAYSTONE	PYR.DK.GY.LAM.SLD
77	19.03	19.06	0.03			CLAYSTONE	DK.GY.LAM.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: SS DATA SOURCE: DDH82007

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
77	19.06	19.08	0.02			COAL	C-1.BLK.BRKN RECOVERY ON FOLLOWING SEAM IS 68%
77	19.08	19.13	0.05			CLAYSTONE	CARB.BLK.BRKN V FINE COALY STREAKS
77	19.13	19.19	0.06			CLAYSTONE	CARB.BLK.BRKN BANDED WITH C-1 UP TO 0.5CM
77	19.19	19.24	0.05	04740	G	COAL	C-1.BLK.SLD
77	19.24	19.28	0.04	04740	G	CLAYSTONE	CARB.BLK.BRKN COALY STREAKS OF C-1
77	19.28	19.31	0.03	04740	G	COAL	C-1.BLK.SLD
* 77	19.31	19.35	0.04	04740	G	CLAYSTONE	CARB.BLK.BRKN
78	19.35	19.41	0.06	04740	G	COAL	C-3.BLK.SLD BANDED C-1
79	19.41	19.50	0.09	04740	G	CLAYSTONE	CARB.BLK.BRKN STREAKED WITH C-1. QTZ VEINING
80	19.50	19.55	0.05	04740	G	CLAYSTONE	CARB.BLK.SLD STREAKED C-2. QTZ VEINING

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: SS DATA SOURCE: DDH82007

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
81	19.55	19.59	0.04	04741	G	COAL	C-2.BLK.SLD
* 82	19.59	19.73	0.14	04741	G	COAL	C-1.BLK.SLD MNR CLYST, STREAKS 4%
82	19.73	19.75	0.02	04741	G	CLAYSTONE	CARB.BLK.SLD STREAKED C-1
82	19.75	19.82	0.07	04741	G	COAL	C-1.BLK.SLD
82	19.82	20.06	0.24	04741	G	COAL	C-1.BLK.SLD CLYST STREAKS 10%
82	20.06	20.11	0.05	04741	G	CLAYSTONE	CARB.BLK.SLD
82	20.11	20.21	0.10	04741	G	COAL	C-1.BLK.SLD
82	20.21	20.22	0.01	04741	G	CLAYSTONE	CARB.BLK.SLD
82	20.22	20.36	0.14	04741	G	COAL	C-1.BLK.SLD
82	20.36	20.37	0.01	04741	G	CLAYSTONE	CARB.BLK.SLD

\* DENOTES MEASURED BCA

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## GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: SS DATA SOURCE: DDH82007

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
82	20.37	20.53	0.16	04741	G	COAL	C-1.BLK.SLD
82	20.53	20.55	0.02	04741	G	CLAYSTONE	CARB.BLK.SLD
82	20.55	20.57	0.02	04741	G	COAL	C-1.BLK.SLD
82	20.57	20.59	0.02	04741	G	CLAYSTONE	CARB.BLK.SLD C-1 STREAKS
82	20.59	20.63	0.04	04741	G	CLAYSTONE	CARB.BLK.SLD
82	20.63	20.66	0.03	04741	G	COAL	C-1.BLK.SLD
82	20.66	20.71	0.05	04741	G	CLAYSTONE	CARB.BLK.SLD C-1 STREAKS
82	20.71	20.73	0.02	04741	G	ROCK LOSS	
82	20.73	21.17	0.44	04741	G	COAL	C-1.BLK.SLD
82	21.17	21.18	0.01	04741	G	CLAYSTONE	CARB.BLK.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: SS DATA SOURCE: DDH82007

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
82	21.18	21.34	0.16	04741	G	COAL LOSS	
82	21.34	21.51	0.17	04741	G	ROCK LOSS	
82	21.51	21.56	0.05	04741	G	COAL	C-1.BLK.SLD
82	21.56	21.59	0.03	04741	G	COAL	C-1.BLK.SLD
82	21.59	21.63	0.04	04741	G	COAL	C-2.BLK.SLD CLYST STREAKS
82	21.63	21.70	0.07	04741	G	COAL	C-2.BLK.VBRKN
82	21.70	21.73	0.03	04741	G	CLAYSTONE	CARB.BLK.BRKN
82	21.73	21.86	0.13	04741	G	COAL	C-2.BLK.BRKN
82	21.86	21.91	0.05	04741	G	CLAYSTONE	CARB.BLK.SLD C-1 STREAKS
82	21.91	21.93	0.02	04741	G	COAL	C-1.BLK.SLD
82	21.93	22.23	0.30	04741	G	ROCK LOSS	

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 8

PROJECT: KPN BLOCK: SS DATA SOURCE: DDH82007

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
82	22.23	22.40	0.17	04741	G	COAL LOSS	
82	22.40	22.77	0.37	04741	G	ROCK LOSS	
82	22.77	22.92	0.15	04741	G	CLAYSTONE	CARB.BLK.VBRKN SOME C-1 STREAKS
82	22.92	22.94	0.02	04741	G	COAL	C-1.BLK.BRKN PYRITIC
82	22.94	22.97	0.03	04741	G	CLAYSTONE	CARB.BLK.SLD
82	22.97	23.00	0.03	04741	G	CLAYSTONE	CARB.BLK.SLD C-1 BANDS 50%
82	23.00	23.06	0.06	04741	G	COAL LOSS	
82	23.06	23.10	0.04	04741	G	COAL	C-1.BLK.SLD
82	23.10	23.11	0.01			CLAYSTONE	CARB.BLK.SLD
82	23.11	23.29	0.18			CLAYSTONE	CARB.BLK.BRKN C-1 BANDS
82	23.29	23.32	0.03			COAL	C-2.BLK.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: SS DATA SOURCE: DDHB2007

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
* 82	23.32	23.47	0.15			CLAYSTONE	CARB.BLK.BRKN C-1 STREAKS
82	23.47	23.49	0.02			COAL	C-1.BLK.SLD
82	23.49	23.50	0.01			CLAYSTONE	CARB.BLK.SLD C-1 STREAKS
82	23.50	23.62	0.12			CLAYSTONE	DK.GY.SLD CARB PLANT FOSSILS
82	23.62	23.74	0.12			CLAYSTONE	DK.GY.BRKN CARB PLANT FOSSILS
83	23.74	24.23	0.49			CLAYSTONE	SLTY.DK.GY.SLD CARB PLANT FOSSILS
* 83	24.23	24.73	0.50			SANDSTONE	SLTY.FG.WEL.M.GY.VTHNB.SSD.SLD
84	24.73	24.95	0.22			SANDSTONE	MG.WEL.S-P.GY.MB.SLD
84	24.95	25.09	0.14			SANDSTONE	SLTY.FG.WEL.M.GY.LAM.XBDG.SLD
84	25.09	25.11	0.02			SANDSTONE	MG.WEL.S-P.GY.MAS.SLD

\* DENOTES MEASURED BCA



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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 10

PROJECT: KPN BLOCK: SS DATA SOURCE: DDH82007

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
86	25.11	26.78	1.67			SANDSTONE	MG.WEL.S-P.GY.MAS.SLD
88	26.78	27.12	0.34			SANDSTONE	MG.WEL.S-P.GY.MAS.SLD
88	27.12	27.35	0.23			SANDSTONE	MG.WEL.S-P.GY.MAS.SLD
* 90	27.35	28.81	1.46			SANDSTONE	MG.WEL.S-P.GY.MAS.BRKN MNR SLTST CLAST BANDS
* 75	28.81	29.29	0.48			SANDSTONE	MG.WEL.S-P.GY.MAS.BRKN ROUNDED CLYST CLASTS 1-2CM
79	29.29	29.38	0.09			SANDSTONE	MG.WEL.S-P.GY.MAS.BRKN
* 82	29.38	29.67	0.29			SANDSTONE	SLTY.FG.MOD.S-P.GY.VTHNB.BRKN CLYST STREAKS
78	29.67	30.93	1.26			SANDSTONE	MG.WEL.S-P.GY.MAS.SLD ROUNDED CLYST CLASTS
* 75	30.93	31.21	0.28			SANDSTONE	MG.WEL.S-P.GY.MAS.SLD CARB SLTST LAMS
76	31.21	31.41	0.20			SANDSTONE	MG.WEL.S-P.GY.MAS.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: 55 DATA SOURCE: DDH82007

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
78	31.41	32.64	1.23			SANDSTONE	MG.WEL.S-P.GY.MAS.SLD
82	32.64	33.36	0.72			SANDSTONE	MG.WEL.S-P.GY.MAS.SLD
83	33.36	33.55	0.19			SANDSTONE	MG.WEL.S-P.GY.MAS.SLD
* 87	33.55	35.44	1.89			SANDSTONE	SLTY.FG.MOD.S-P.GY.THNB.SSD.SLD XBDG
88	35.44	35.54	0.10			SILTSTONE	CLYY.PR.M.GY.LAM.BIOTR.SLD
88	35.54	35.70	0.16			SILTSTONE	CLYY.MOD.DK.GY.VTHNB.WRMBU.SLD
* 89	35.70	37.66	1.96			SILTSTONE	CLYY.MOD.DK.GY.VTHNB.WRMBU.BRKN
90	37.66	38.73	1.07			SILTSTONE	CLYY.MOD.DK.GY.VTHNB.WRMBU.BRKN
* 90	38.73	39.80	1.07			SILTSTONE	CLYY.MOD.DK.GY.VTHNB.WRMBU.BRKN

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: SS DATA SOURCE: DDH82007

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
* 90	39.80	41.73	1.93			SILTSTONE	CLYY.MOD.DK.GY.VTHNB.WRMBU.BRKN BRKN IN LAST 8 CM
89	41.73	41.94	0.21			SILTSTONE	CLYY.MOD.DK.GY.VTHNB.WRMBU.BRKN
88	41.94	43.21	1.27			SILTSTONE	CLYY.MOD.DK.GY.VTHNB.WRMBU.BRKN
87	43.21	43.44	0.23			SILTSTONE	BLK.VTHNB.SLD BAND OF GASTROPODS
86	43.44	43.88	0.44			SILTSTONE	SSY.BLK.VTHNB.SLD GRADING DOWNWARDS TO SS
86	43.88	44.16	0.28			SANDSTONE	SLTY.FG.MOD.M.GY.BIOTR.SLD
85	44.16	44.58	0.42			SANDSTONE	SLTY.FG.MOD.M.GY.BIOTR.SLD
* 85	44.58	44.82	0.24			SANDSTONE	SLTY.FG.MOD.M.GY.BIOTR.SLD BIOTRB IN PART
84	44.82	46.18	1.36			SANDSTONE	SLTY.FG.MOD.M.GY.BIOTR.BRKN

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: SS DATA SOURCE: DDH82007

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
	82 46.18	47.61	1.43			SANDSTONE	SLTY.FG.MOD.M.GY.BIOTR.BRKN
*	81 47.61	48.26	0.65			SANDSTONE	SLTY.FG.MOD.M.GY.BIOTR.BRKN
	81 48.26	50.33	2.07			SANDSTONE	SLTY.FG.MOD.M.GY.BIOTR.BRKN
	82 50.33	50.67	0.34			SANDSTONE	SLTY.FG.MOD.M.GY.BIOTR.BRKN
	82 50.67	50.90	0.23			SANDSTONE	SLTY.FG.MOD.M.GY.BIOTR.BRKN
*	82 50.90	52.55	1.65			SANDSTONE	SLTY.FG-MOD.M.GY.THNB.XBDG.BRKN LAM, COARSENING DOWN
	85 52.55	53.70	1.15			SANDSTONE	SLTY.FG.MOD.DK.GY.LAM.XBDG.BRKN SSD
	86 53.70	54.54	0.84			SANDSTONE	SLTY.FG.MOD.DK.GY.LAM.WRMBU.BRKN
*	89 54.54	56.53	1.99			SANDSTONE	SLTY.FG.MOD.M.GY.LAM.XBDG.BRKN WRMBUR IN PART
	88 56.53	56.64	0.11			CLAYSTONE	CARB.BLK.LAM.SSD.SLD COALY BANDS, PYRITIC

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: SS DATA SOURCE: DDH82007

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
88	56.64	56.76	0.12			CLAYSTONE	CARB.BLK.LAM.SSD.BRKN NON PYR
87	56.76	56.90	0.14			CLAYSTONE	CARB.BLK.LAM.SSD.VBRKN C-1 BANDS
87	56.90	56.98	0.08			CLAYSTONE	CARB.BLK.LAM.SSD.BRKN C-1 BANDS
87	56.98	57.14	0.16			ROCK LOSS	RECOVERY ON FOLLOWING SEAM IS 48%
87	57.14	57.44	0.30	04742	F	COAL LOSS	
87	57.44	57.62	0.18	04742	F	ROCK LOSS	
86	57.62	57.84	0.22	04742	F	COAL LOSS	
86	57.84	57.89	0.05	04742	F	COAL	C-1.BLK.SLD C-2 BANDED
86	57.89	58.06	0.17	04742	F	COAL	C-1.BLK.SLD C-2 BANDED. MNR CLYST
86	58.06	58.09	0.03	04742	F	CLAYSTONE	CARB.BLK.SLD
86	58.09	58.33	0.24	04743	F	ROCK LOSS	
86	58.33	58.34	0.01	04743	F	COAL	C-1.BLK.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: SS DATA SOURCE: DDH82007

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
86	58.34	58.35	0.01	04743	F	CLAYSTONE	CARB.BLK.SLD
86	58.35	58.37	0.02	04743	F	COAL	C-1.BLK.SLD
85	58.37	58.51	0.14	04743	F	CLAYSTONE	CARB.BLK.BRKN
85	58.51	58.52	0.01	04743	F	COAL	C-1.BLK.SLD
85	58.52	58.55	0.03	04743	F	CLAYSTONE	CARB.BLK.SLD
85	58.55	58.56	0.01	04743	F	COAL	C-1.BLK.SLD
85	58.56	58.62	0.06	04743	F	CLAYSTONE	CARB.BLK.BRKN C-1 BANDED
85	58.62	58.66	0.04	04744	F	COAL	C-1.BLK.SLD
85	58.66	58.74	0.08	04744	F	COAL	C-1.BLK.SLD BANDED CLYST
85	58.74	58.79	0.05	04744	F	COAL	C-1.BLK.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: SS DATA SOURCE: DDH82007

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
85	58.79	58.98	0.19	04744	F	COAL LOSS	
85	58.98	59.22	0.24	04744	F	COAL	C-2.BLK.BRKN FLAKY
85	59.22	59.27	0.05	04744	F	CLAYSTONE	CARB.BLK.BRKN
84	59.27	59.29	0.02	04744	F	COAL	C-2.BLK.SLD
84	59.29	59.31	0.02	04744	F	CLAYSTONE	CARB.BLK.SLD
84	59.31	59.34	0.03	04744	F	COAL	C-1.BLK.SLD
84	59.34	59.44	0.10	04744	F	COAL	C-2.BLK.PWRD
84	59.44	59.63	0.19	04744	F	COAL LOSS	
* 84	59.63	59.74	0.11	04744	F	COAL	C-1.BLK.SLD
84	59.74	59.84	0.10	04744	F	COAL	C-1.BLK.SLD MNR CLYST BANDS

\* DENOTES MEASURED BCA

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## GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: SS DATA SOURCE: DDH82007

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
84	59.84	59.85	0.01	04744	F	COAL	C-1.BLK.SLD
84	59.85	59.93	0.08			CLAYSTONE	CARB.BLK.SLD C-1 STREAKS
84	59.93	60.18	0.25			CLAYSTONE	PYR.BLK.SLD NO COALY STREAKS
84	60.18	60.76	0.58			CLAYSTONE	PYR.BLK.SLD QTZ VEINING AND COALY STREAKS
84	60.76	61.88	1.12			CLAYSTONE	PYR.BLK.SLD NO COALY STREAKS
83	61.88	61.91	0.03			CLAYSTONE	PYR.BLK.SLD C-1 BANDS
83	61.91	62.14	0.23			SANDSTONE	FG-.WEL.M.GY.MAS.SLD
83	62.14	62.20	0.06			SANDSTONE	FG-.WEL.M.GY.MAS.SLD QTZ VEINING, PYR STREAKS
83	62.20	62.94	0.74			SANDSTONE	FG-.WEL.M.GY.MAS.SLD FRACTURE AT 8 DEGREES TO BCA
* 83	62.94	64.32	1.38			SANDSTONE	FG-.WEL.M.GY.MAS.SLD QTZ FILLED FRACTURES AND PYR VEINS

\* DENOTES MEASURED BCA



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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: SS DATA SOURCE: DDH82007

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
	83	64.32	65.05	0.73		SANDSTONE	FG-.WEL.M.GY.MAS.SLD
	84	65.05	65.55	0.50		SANDSTONE	FG-.WEL.M.GY.MAS.BRKN
*	84	65.55	65.93	0.38		SANDSTONE	FG-.WEL.M.GY.MAS.BRKN
	84	65.93	66.47	0.54		SANDSTONE	FG.WEL.M.GY.MAS.SLD FINING DOWN TO THIS POINT
	83	66.47	68.56	2.09		SANDSTONE	SLTY.FG.MOD.DK.GY.LAM.SLD
*	83	68.56	68.66	0.10		SANDSTONE	SLTY.FG.MOD.M.GY.LAM.SLD SHARP CONTACT
	83	68.66	69.19	0.53		SANDSTONE	SLTY.FG.MOD.DK.GY.LAM.SLD FRESH SURFACE IS DK GY, WEATH IS LT GY
	82	69.19	69.39	0.20		SANDSTONE	SLTY.FG.MOD.DK.GY.LAM.SLD
*	81	69.39	70.87	1.48		SILTSTONE	SSY.MOD.DK.GY.LAM.WRMBU.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: SS DATA SOURCE: DDH82007

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
	83	70.87	71.77	0.90		SILTSTONE	SSY.MOD.DK.GY.LAM.WRMBU.SLD
*	84	71.77	73.08	1.31		SANDSTONE	SLTY.FG.MOD.DK.GY.THNB.WRMBU.SLD
	82	73.08	73.73	0.65		SILTSTONE	SSY.MOD.DK.GY.THNB.WRMBU.SLD
	81	73.73	73.81	0.08		SILTSTONE	SSY.MOD.DK.GY.THNB.WRMBU.VBRKN
	81	73.81	73.93	0.12		SILTSTONE	SSY.MOD.DK.GY.THNB.WRMBU.BRKN
	81	73.93	74.50	0.57		SILTSTONE	SSY.MOD.DK.GY.THNB.WRMBU.SLD
	80	74.50	74.94	0.44		SILTSTONE	SSY.MOD.DK.GY.THNB.WRMBU.SLD
*	79	74.94	75.19	0.25		SANDSTONE	SLTY.FG.MOD.DK.GY.THNB.WRMBU.BRKN
	80	75.19	75.32	0.13		SANDSTONE	SLTY.FG.MOD.DK.GY.THNB.WRMBU.BRKN

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: SS DATA SOURCE: DDH82007

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
83	75.32	77.40	2.08			SILTSTONE	SSY.MOD.DK.GY.VTHNB.WRMBU.SLD GRADING BACK TO SLTST, SOME CARB PARTIN GS
87	77.40	77.72	0.32			SILTSTONE	SSY.MOD.DK.GY.VTHNB.WRMBU.SLD
88	77.72	77.88	0.16			SILTSTONE	SSY.MOD.DK.GY.VTHNB.WRMBU.BRKN
88	77.88	78.09	0.21			SILTSTONE	SSY.MOD.DK.GY.VTHNB.WRMBU.SLD
* 90	78.09	78.81	0.72			SILTSTONE	SSY.MOD.DK.GY.VTHNB.WRMBU.SLD
88	78.81	79.53	0.72			SILTSTONE	SSY.MOD.DK.GY.VTHNB.WRMBU.SLD
87	79.53	80.48	0.95			SILTSTONE	PYR.MOD.DK.GY.VTHNB.WRMBU.BRKN COAL AND QTZ VEIN

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: SS DATA SOURCE: DDH82007

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
* 85	80.48	80.92	0.44			SILTSTONE	PYR.MOD.DK.GY.VTHNB.WRMBU.SLD
85	80.92	81.19	0.27			SILTSTONE	PYR.MOD.DK.GY.VTHNB.WRMBU.VBRKN
85	81.19	81.26	0.07			SILTSTONE	PYR.MOD.DK.GY.VTHNB.WRMBU.VBRKN
85	81.26	81.71	0.45			ROCK LOSS	
84	81.71	81.93	0.22			SILTSTONE	PYR.MOD.DK.GY.VTHNB.WRMBU.VBRKN
84	81.93	82.38	0.45			ROCK LOSS	
84	82.38	82.69	0.31			CLAYSTONE	SLTY.MOD.DK.GY.LAM.VBRKN PYR BLEBS
84	82.69	83.07	0.38			CLAYSTONE	SLTY.MOD.DK.GY.LAM.SLD
84	83.07	83.34	0.27			CLAYSTONE	SLTY.MOD.DK.GY.LAM.VBRKN
83	83.34	83.68	0.34			CLAYSTONE	SLTY.MOD.DK.GY.LAM.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: SS DATA SOURCE: DDH82007

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
83	83.68	83.81	0.13			CLAYSTONE	SLTY.LT.GY.LAM.WRMBU.SLD
* 83	83.81	84.52	0.71			CLAYSTONE	PYR.WEL.DK.GY.LAM.SLD
84	84.52	84.78	0.26			CLAYSTONE	PYR.WEL.DK.GY.LAM.SLD
84	84.78	85.12	0.34			CLAYSTONE	PYR.WEL.DK.GY.LAM.SLD
84	85.12	85.16	0.04			CLAYSTONE	PYR.WEL.DK.GY.LAM.BRKN
84	85.16	85.46	0.30			CLAYSTONE	PYR.WEL.DK.GY.LAM.BRKN
85	85.46	85.83	0.37			CLAYSTONE	SSY.FG.MOD.M.GY.LAM.SLD GRADING DOWN INTO SSY UNIT, PELECYPOD L AYER AT THIS POINT
85	85.83	85.96	0.13			SILTSTONE	SSY.FG.MOD.M.GY.LAM.SLD
* 85	85.96	86.06	0.10			SILTSTONE	SSY.FG.MOD.M.GY.LAM.SLD VERY FOSSILIFEROUS

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: SS DATA SOURCE: DDH82007

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
85	86.06	86.22	0.16			SILTSTONE	SSY.FG.MOD.M.GY.LAM.SLD COALY PARTINGS
85	86.22	86.32	0.10			SILTSTONE	PYR.FG.MOD.M.GY.LAM.SLD
84	86.32	86.37	0.05			SILTSTONE	PYR.FG.MOD.M.GY.LAM.SLD VERY FOSSILIFEROUS
84	86.37	86.64	0.27			SILTSTONE	PYR.FG.MOD.M.GY.LAM.SLD
84	86.64	86.99	0.35			SILTSTONE	PYR.FG.MOD.M.GY.LAM.SLD COALY BAND
83	86.99	87.36	0.37			SILTSTONE	PYR.FG.MOD.M.GY.LAM.SLD
83	87.36	87.39	0.03			SILTSTONE	FG.MOD.M.GY.LAM.SLD MNR FOSSIL LAYER
82	87.39	87.78	0.39			SILTSTONE	PYR.FG.MOD.M.GY.LAM.SLD
* 82	87.78	88.00	0.22			SILTSTONE	PYR.FG.MOD.M.GY.LAM.SLD

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: SS DATA SOURCE: DDH82007

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
83	88.00	88.75	0.75			SILTSTONE	PYR.FG.MOD.M.GY.LAM.SLD SCATTERED FOSSILS
83	88.75	88.80	0.05			SILTSTONE	PYR.FG.MOD.M.GY.LAM.SLD
* 84	88.80	90.71	1.91			SILTSTONE	CLYY.MOD.M-DK.GY.LAM.WRMBU.SLD FEW FOSSIL BANDS
84	90.71	90.78	0.07			SILTSTONE	CLYY.MOD.M-DK.GY.LAM.WRMBU.SLD
84	90.78	90.90	0.12			SANDSTONE	SLTY.VFG-.MOD.LT-M.GY.LAM.WRMBU.SLD
83	90.90	91.51	0.61			SANDSTONE	SLTY.VFG-.MOD.LT-M.GY.LAM.WRMBU.SLD
83	91.51	91.74	0.23			SANDSTONE	SLTY.FG.MOD.M.GY.BIDTR.SLD PYRITIC
* 83	91.74	92.96	1.22			SANDSTONE	CLYY.FG.MOD.M.GY.THNB.WRMBU.SLD MNR FOSSIL BANDS
83	92.96	93.51	0.55			SANDSTONE	CLYY.FG.MOD.M.GY.THNB.WRMBU.SLD V PYR AT BASE

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: SS DATA SOURCE: DDH82007

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
84	93.51	93.59	0.08			SANDSTONE	CLYY.FG.MOD.M.GY.THNB.WRMBU.BRKN V CARB, QTZ VEIN
84	93.59	93.73	0.14			SANDSTONE	CLYY.FG.MOD.M.GY.THNB.WRMBU.BRKN
84	93.73	93.83	0.10			SANDSTONE	CLYY.FG.MOD.M.GY.THNB.WRMBU.VBRKN
84	93.83	93.85	0.02			SANDSTONE	CLYY.FG.MOD.M.GY.THNB.WRMBU.BRKN QTZ VEIN
84	93.85	94.27	0.42			SANDSTONE	PYR.FG.MOD.M.GY.THNB.WRMBU.SLD DISSEMINATED PYR
84	94.27	94.37	0.10			CLAYSTONE	CARB.BLK.BRKN C-1 STREAKS, RECOVERY ON FOLLOWING SEAM IS 98%
84	94.37	94.42	0.05			CLAYSTONE	PYR.M.GY.LAM.SLD
84	94.42	94.51	0.09			CLAYSTONE	CARB.BLK.SLD C-1 STREAKS
84	94.51	94.55	0.04			CLAYSTONE	M.GY.SLD SOFT (WEATH)

\* DENOTES MEASURED BCA



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<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
84	94.55	94.85	0.30			CLAYSTONE	CARB. DK. GY. SLD C-1 BANDS, PYR BLEBS
84	94.85	94.87	0.02			COAL	C-1. BLK. SLD
84	94.87	94.98	0.11			CLAYSTONE	CARB. DK. GY. SLD FEW C-1 STREAKS, PYR
84	94.98	95.09	0.11			CLAYSTONE	CARB. DK. GY. SLD NON PYR
84	95.09	95.11	0.02			COAL	C-2. BLK. SLD CLYY
84	95.11	95.30	0.19			CLAYSTONE	CARB. BLK. BRKN COALY
84	95.30	95.31	0.01			COAL	C-1. BLK. SLD
84	95.31	95.38	0.07			CLAYSTONE	CARB. BLK. SLD
84	95.38	95.40	0.02			COAL	C-3. BLK. SLD
84	95.40	95.47	0.07			CLAYSTONE	CARB. BLK. SLD COALY STREAKS

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: SS DATA SOURCE: DDH82007

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
84	95.47	95.49	0.02			CLAYSTONE	M.GY.BRKN
84	95.49	95.62	0.13			CLAYSTONE	CARB.BLK.SLD COALY BANDS
85	95.62	96.22	0.60			CLAYSTONE	CARB.BLK.SLD
85	96.22	96.56	0.34			CLAYSTONE	CARB.BLK.SLD
85	96.56	96.71	0.15	04745	D	COAL	C-1.BLK.SLD C-2 BANDED, CLYST STREAKS
85	96.71	96.81	0.10	04745	D	CLAYSTONE	CARB.BLK.SLD COALY C-1 BANDS
85	96.81	96.96	0.15	04745	D	COAL	C-1.BLK.SLD HEAVILY QTZ VEINED, CLYST STREAKS
85	96.96	97.00	0.04	04745	D	COAL	C-1.BLK.SLD
85	97.00	97.02	0.02	04745	D	CLAYSTONE	CARB.DK.GY.SLD
85	97.02	97.13	0.11	04745	D	COAL	C-1.BLK.SLD MNR CLYST STREAKS

\* DENOTES MEASURED BCA

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PROJECT: KPN BLOCK: SS DATA SOURCE: DDH82007

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
85	97.13	97.18	0.05	04745	D	CLAYSTONE	CARB.BLK.BRKN C-1 STREAKS AND BANDS
85	97.18	97.28	0.10	04745	D	COAL	C-1.BLK.SLD MNR CLYST
85	97.28	97.31	0.03	04745	D	ROCK LOSS	
85	97.31	97.40	0.09	04745	D	CLAYSTONE	CARB.BLK.BRKN MNR C-1 BANDS
85	97.40	97.41	0.01	04745	D	COAL	C-1.BLK.SLD
85	97.41	97.44	0.03	04745	D	CLAYSTONE	CARB.BLK.SLD
85	97.44	97.46	0.02	04745	D	COAL	C-1.BLK.SLD
85	97.46	97.48	0.02	04745	D	CLAYSTONE	CARB.BLK.BRKN
85	97.48	97.49	0.01	04745	D	COAL	C-1.BLK.BRKN
85	97.49	97.51	0.02	04745	D	CLAYSTONE	CARB.BLK.SLD

\* DENOTES MEASURED BCA

82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 29

PROJECT: KPN BLOCK: SS DATA SOURCE: DDH82007

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
85	97.51	97.66	0.15	04745	D	COAL	C-1.BLK.SLD CLYST STREAKS
85	97.66	97.69	0.03	04745	D	ROCK LOSS	
85	97.69	97.72	0.03	04745	D	CLAYSTONE	CARB.BLK.BRKN C-1 BAND
85	97.72	97.79	0.07	04745	D	CLAYSTONE	CARB.DK.GY.SLD
85	97.79	97.85	0.06	04745	D	COAL	C-1.BLK.SLD CLYST STREAKS
86	97.85	98.09	0.24			CLAYSTONE	CARB.BLK.SLD MNR C-1 STREAKS
86	98.09	98.11	0.02			COAL	C-1.BLK.SLD CLYY
86	98.11	98.12	0.01			CLAYSTONE	CARB.BLK.SLD
86	98.12	98.14	0.02			COAL	C-1.BLK.SLD V CLYY
86	98.14	98.17	0.03			CLAYSTONE	CARB.BLK.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 30

PROJECT: KPN BLOCK: SS DATA SOURCE: DDH82007

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
86	98.17	98.20	0.03			CLAYSTONE	CARB.BLK.SLD COALY
86	98.20	98.21	0.01			CLAYSTONE	CARB.BLK.SLD
86	98.21	98.31	0.10			COAL	C-1.BLK.SLD MANY CLYST STREAKS
86	98.31	98.37	0.06			ROCK LOSS	
86	98.37	98.54	0.17			CLAYSTONE	CARB.BLK.SLD V COALY
86	98.54	98.55	0.01			COAL	C-1.BLK.SLD
86	98.55	98.57	0.02			CLAYSTONE	CARB.BLK.SLD
86	98.57	98.84	0.27			CLAYSTONE	CARB.BLK.SLD V MNR COAL STREAKS
86	98.84	98.85	0.01			COAL	C-1.BLK.SLD
* 86	98.85	98.99	0.14			CLAYSTONE	CARB.BLK.SLD COALY STREAKS

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: SS DATA SOURCE: DDH82007

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
86	98.99	99.06	0.07			CLAYSTONE	CARB.DK.GY.SLD
86	99.06	99.07	0.01			COAL	C-1.BLK.SLD
86	99.07	99.08	0.01			CLAYSTONE	CARB.BLK.SLD
86	99.08	99.13	0.05			CLAYSTONE	CARB.BLK.SLD C-1 STREAKS
86	99.13	99.20	0.07			COAL	C-1.BLK.SLD ABUNDANT QTZ VEINS
86	99.20	99.23	0.03			CLAYSTONE	CARB.BLK.SLD COALY
86	99.23	99.33	0.10			COAL	C-1.BLK.SLD CLYY
86	99.33	99.34	0.01			CLAYSTONE	CARB.BLK.SLD
86	99.34	99.35	0.01			COAL	C-1.BLK.SLD
86	99.35	99.47	0.12			CLAYSTONE	CARB.BLK.LAM.SLD PYR, NON-COALY

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

PAGE 32

PROJECT: KPN BLOCK: SS DATA SOURCE: DDH82007

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
86	99.47	99.76	0.29			CLAYSTONE	CARB.BLK.LAM.SLD
* 86	99.76	101.15	1.39			SANDSTONE	FG.WEL.M.GY.MAS.BRKN PYR AT TOP, COARSENING DOWNWARD
87	101.15	102.50	1.35			SANDSTONE	FG.WEL.M.GY.MAS.SSD.SLD LARGE WRMBUR (MNR)
87	102.50	103.27	0.77			SANDSTONE	FG.WEL.M.GY.MAS.SSD.SLD
87	103.27	103.75	0.48			SANDSTONE	FG.WEL.M.GY.MAS.SSD.SLD
88	103.75	104.37	0.62			SANDSTONE	FG.MOD.M.GY.LAM.XBDG.SLD INTBD DK GY CLYST
88	104.37	104.88	0.51			SANDSTONE	FG.WEL.M.GY.MAS.SLD
* 88	104.88	105.48	0.60			SILTSTONE	CLYY.MOD.DK.GY.LAM.WRMBU.SLD
87	105.48	105.57	0.09			SILTSTONE	CLYY.MOD.DK.GY.LAM.WRMBU.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: SS DATA SOURCE: DDH82007

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
86	105.57	106.19	0.62			SILTSTONE	CLYY.MOD.DK.GY.LAM.WRMBU.SLD
84	106.19	107.51	1.32			SANDSTONE	MG.WEL.M.GY.MAS.SLD BRKN AT TOP
82	107.51	107.56	0.05			ROCK LOSS	
81	107.56	108.57	1.01			SANDSTONE	MG.WEL.M.GY.MAS.SLD
* 78	108.57	109.61	1.04			SANDSTONE	MG.WEL.M.GY.MAS.BRKN FEW ROUNDED SLTST CLASTS
80	109.61	109.65	0.04			ROCK LOSS	
81	109.65	109.95	0.30			SANDSTONE	MG.WEL.M.GY.MAS.SLD CLYST BANDS BELOW THIS POINT
* 85	109.95	111.68	1.73			SANDSTONE	MG.WEL.M.GY.MAS.SLD
85	111.68	111.83	0.15			SANDSTONE	MG.WEL.M.GY.MAS.SLD
85	111.83	111.94	0.11			SANDSTONE	MG.WEL.M.GY.MAS.SLD QTZ VEIN, COALY PARTING

\* DENOTES MEASURED BCA



82/11/19

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: SS DATA SOURCE: DDH82007

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
85	111.94	112.02	0.08			SANDSTONE	MG.WEL.M.GY.MAS.SLD COALY PARTING
85	112.02	113.94	1.92			SANDSTONE	MG.WEL.M.GY.MAS.SLD
84	113.94	114.04	0.10			SANDSTONE	MG.WEL.M.GY.MAS.SLD
84	114.04	114.72	0.68			SANDSTONE	FG.WEL.M.GY.MAS.SLD
84	114.72	114.82	0.10			ROCK LOSS	//////////RODS PULLED AT THIS POINT TO R ETRIEVE CORE BARREL, 40CM OF RUBBLE FRO M UP HOLE INCLUDED IN BOX AT THIS POINT //////////
84	114.82	115.67	0.85			SANDSTONE	FG.WEL.M.GY.MAS.SLD
* 84	115.67	117.55	1.88			SANDSTONE	FG.WEL.M.GY.MAS.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: SS DATA SOURCE: DDH82007

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
83	117.55	117.81	0.26			SANDSTONE	FG.WEL.M.GY.MAS.SLD
* 81	117.81	120.02	2.21			SANDSTONE	FG.WEL.M.GY.MAS.SLD MNR CLYST BANDS
* 79	120.02	120.76	0.74			SANDSTONE	FG.WEL.M.GY.MAS.SLD MNR WRMBUR
80	120.76	122.23	1.47			SANDSTONE	FG.WEL.M.GY.MAS.SLD
81	122.23	122.56	0.33			SANDSTONE	FG.WEL.M.GY.MAS.SLD
82	122.56	122.96	0.40			SANDSTONE	FG.WEL.M.GY.MAS.VBRKN
82	122.96	123.01	0.05			ROCK LOSS	
83	123.01	124.01	1.00			SANDSTONE	FG.WEL.M.GY.MAS
83	124.01	124.39	0.38			SANDSTONE	SLTY.FG.WEL.LT-M.GY.MAS.SLD

\* DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: SS DATA SOURCE: DDH82007

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
84	124.39	124.66	0.27			SANDSTONE	SLTY.FG.WEL.LT-M.GY.MAS.SLD
85	124.66	126.13	1.47			SANDSTONE	FG.WEL.DK.GY.MAS.SLD
86	126.13	126.50	0.37			SILTSTONE	CLYY.DK.GY.LAM.WRMBU.SLD
* 86	126.50	126.64	0.14			SANDSTONE	FG.WEL.DK.GY.MAS.SLD
86	126.64	127.07	0.43			CLAYSTONE	SLTY.DK.GY.LAM.WRMBU.SLD PYRITIC
86	127.07	127.35	0.28			CLAYSTONE	SLTY.DK.GY.LAM.WRMBU.SLD QTZ VEIN
86	127.35	128.82	1.47			CLAYSTONE	SLTY.DK.GY.LAM.WRMBU.SLD
86	128.82	129.18	0.36			CLAYSTONE	SLTY.DK.GY.LAM.WRMBU.SLD
86	129.18	129.23	0.05			CLAYSTONE	SLTY.DK.GY.LAM.WRMBU.SLD QTZ VEIN, PYR

\* DENOTES MEASURED BCA

XXXXXX

82/11/19

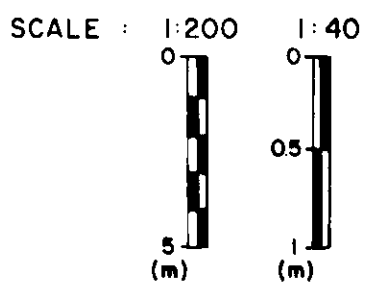
GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

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PROJECT: KPN BLOCK: SS DATA SOURCE: DDH82007

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
86	129.23	130.15	0.92			CLAYSTONE	SLTY.DK.GY.LAM.WRMBU.SLD //////////END OF CORE, DRILLERS MARK ER 130.15M//////////

MOUNT KLAPPAN  
DRILL HOLE LOG  
DDH 82-007



NORTHING : 6347475 N  
EASTING : 504420 E

INCLINATION : 70°  
BEARING : 005°

LITHOLOGIC SYMBOLS

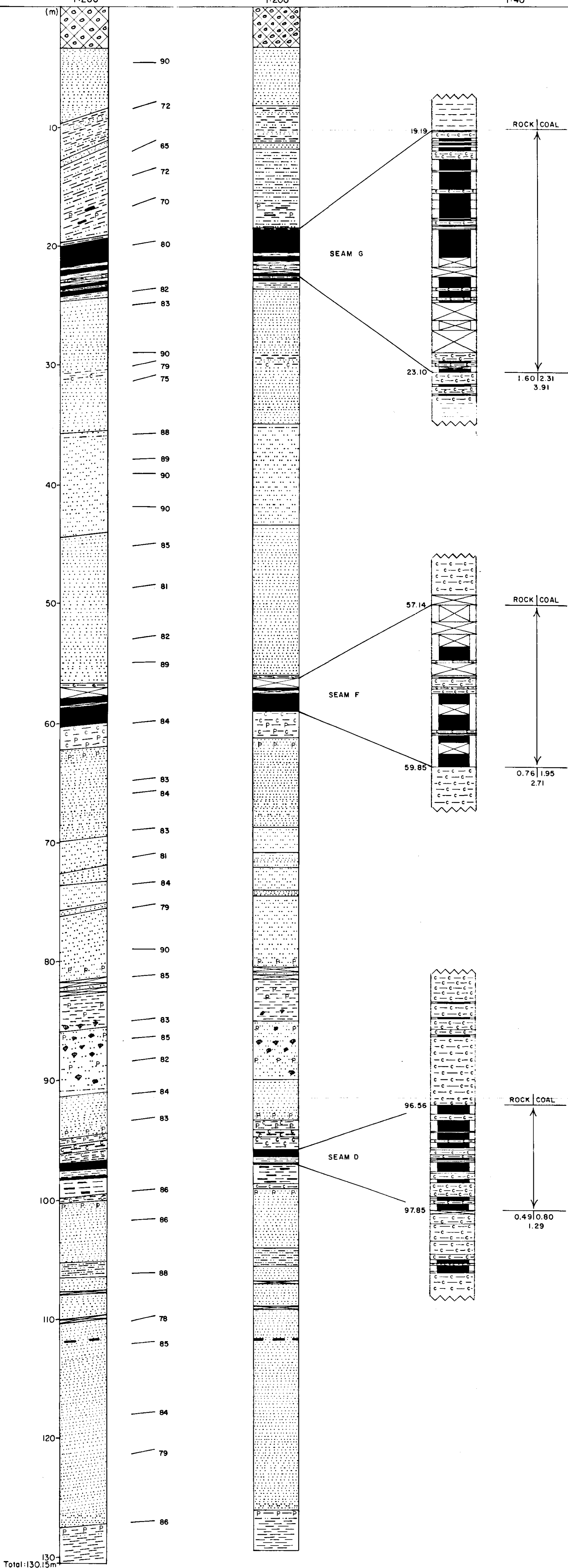
	CONGLOMERATE		PEBBLY SANDSTONE
	SANDSTONE		MUDSTONE, CLAYSTONE
	CARBONACEOUS		BENTONITE
	SILTSTONE		PYRITE
	COAL		CORE LOSS
	COAL - THIN BEDS		PLANT FOSSIL
	OVERBURDEN		SHELL FOSSIL
	QUARTZ		

(M)

APPARENT THICKNESS  
1:200

TRUE THICKNESS  
1:200

SEAM DETAIL  
1:40



110

## CENTURY GEOPHYSICAL CORPORATION

\*\*\*\*\* VERTICAL DEVIATION \*\*\*\*\*

## COMPU-LOG V8LI DEVIATION

CLIENT : GULF CANADA RES. INC

HOLE ID : DDH-82-007

LOCATION : KLAPPAN MTN.

DATE OF LOG : 09-06-82

DATA FROM : V8L2\*A

PROBE : 9055A 0008

TD = TOTAL DEPTH

T = TOP OF ZONE

B = BOTTOM OF ZONE

DEPTH	TRUE DEPTH	NORTH DEV	EAST DEV	DISTANCE	AZIMUTH	SA	SAB
00	00	00	00	00	0	0	0
5.00	4.67	1.77	-.09	1.77	357.0	20.7	357.0
10.00	9.34	3.53	-.27	3.54	355.6	20.7	354.2
15.00	14.02	5.26	-.63	5.29	353.2	20.6	348.2
20.00	18.71	6.95	-.97	7.02	352.0	20.2	348.5
25.00	23.41	8.63	-1.28	8.72	351.6	19.8	349.5
30.00	28.11	10.30	-1.55	10.42	351.4	19.8	350.6
35.00	32.81	12.00	-1.84	12.14	351.2	20.1	350.3
40.00	37.49	13.71	-2.16	13.82	351.0	20.3	349.3
45.00	42.18	15.43	-2.50	15.63	350.8	20.4	348.9
50.00	46.87	17.13	-2.79	17.35	350.7	20.1	350.2
55.00	51.57	18.80	-3.12	19.06	350.6	19.9	348.9
60.00	56.27	20.48	-3.42	20.77	350.5	19.9	349.7
65.00	60.96	22.19	-3.72	22.50	350.5	20.2	350.0
70.00	65.65	23.90	-4.02	24.24	350.4	20.3	350.1
75.00	70.34	25.61	-4.31	25.97	350.4	20.3	350.3
80.00	75.03	27.31	-4.61	27.70	350.4	20.2	350.0
TD 81.90	76.81	27.95	-4.73	28.35	350.4	20.0	349.7

GR. MT. Klappan 62(S)A

TRAC # 9 TRAC # 1 OPEN HOLE

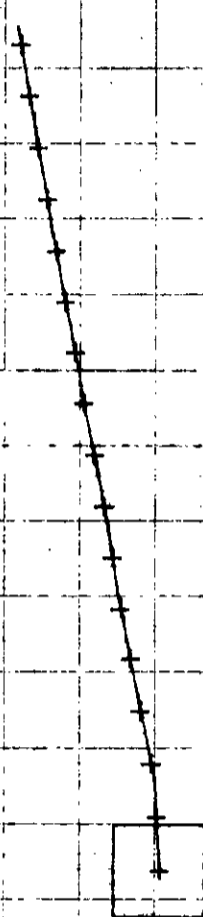
110

# VERTICAL DEVIATION

COMPU-LOG V8L1 DEVIATION  
DATA FROM: V8L2\*A

CLIENT : GULF CANADA RES. INC  
LOCATION : KLAPPAN MIN.  
HOLE ID : DDH-82-007  
DATE OF LOG : 88-06-82  
PROBE : 9055A 0008

SCALE: 2.50 M/DIV	+ = 5.0 M INCR
MAG DECL: 29.5	Δ = TOP OF ZONE
TRUE DEPTH: 76.8 M	◇ = BOTTOM OF ZONE
AZIMUTH: 350.4	
DISTANCE: 28.35 M	TRUE NORTH ↑

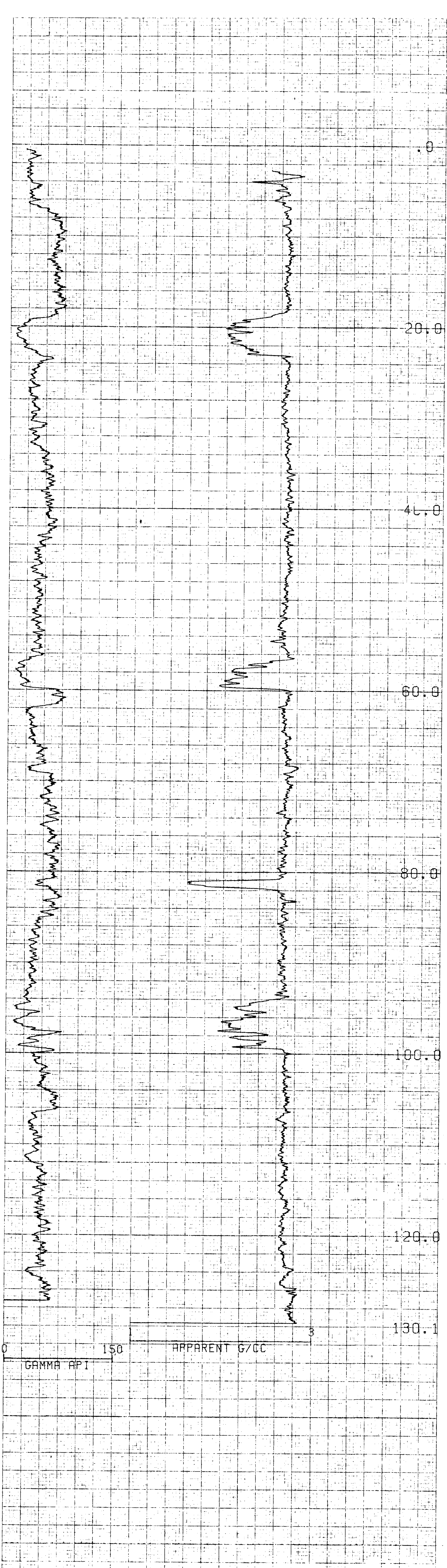


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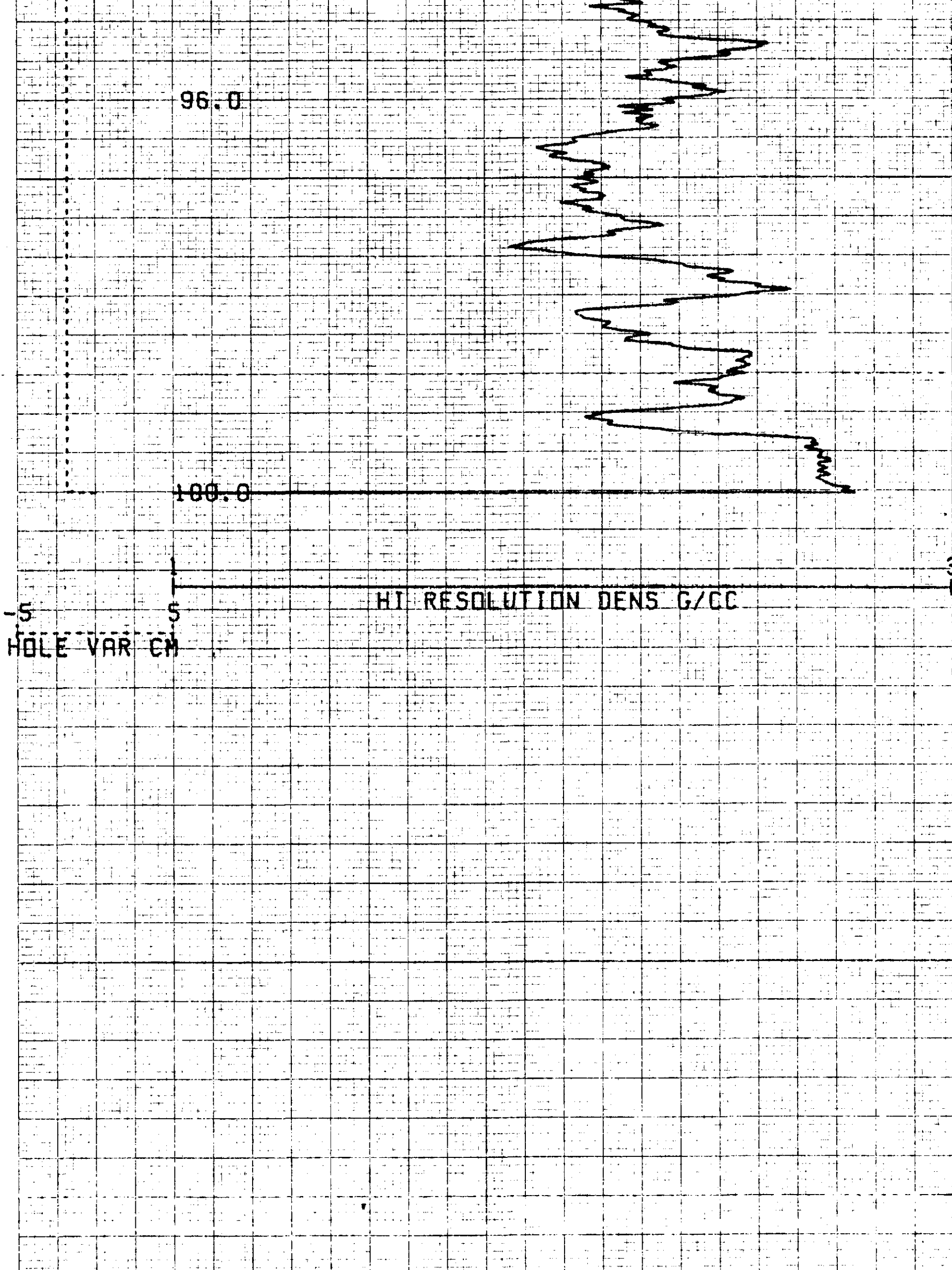
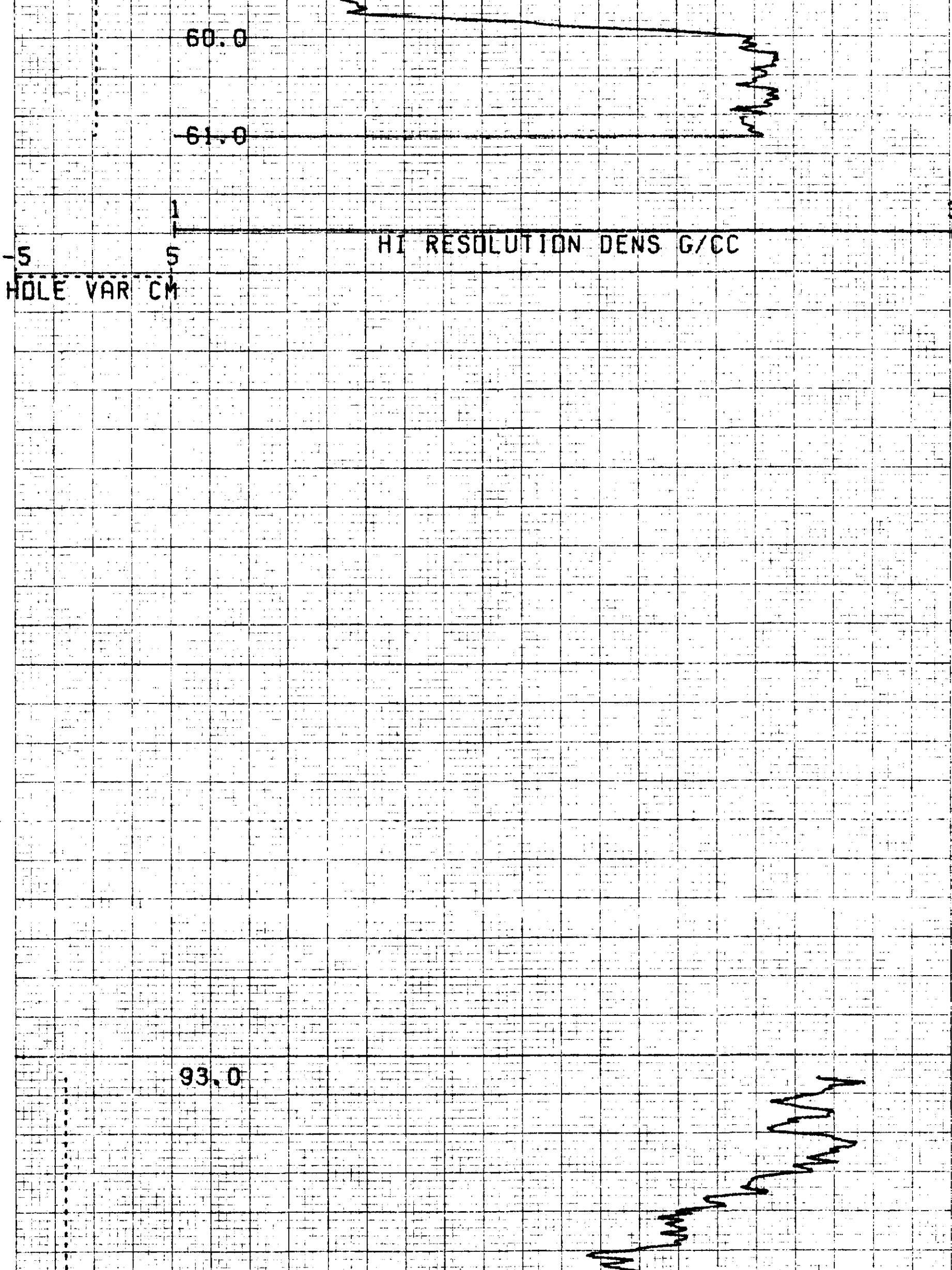
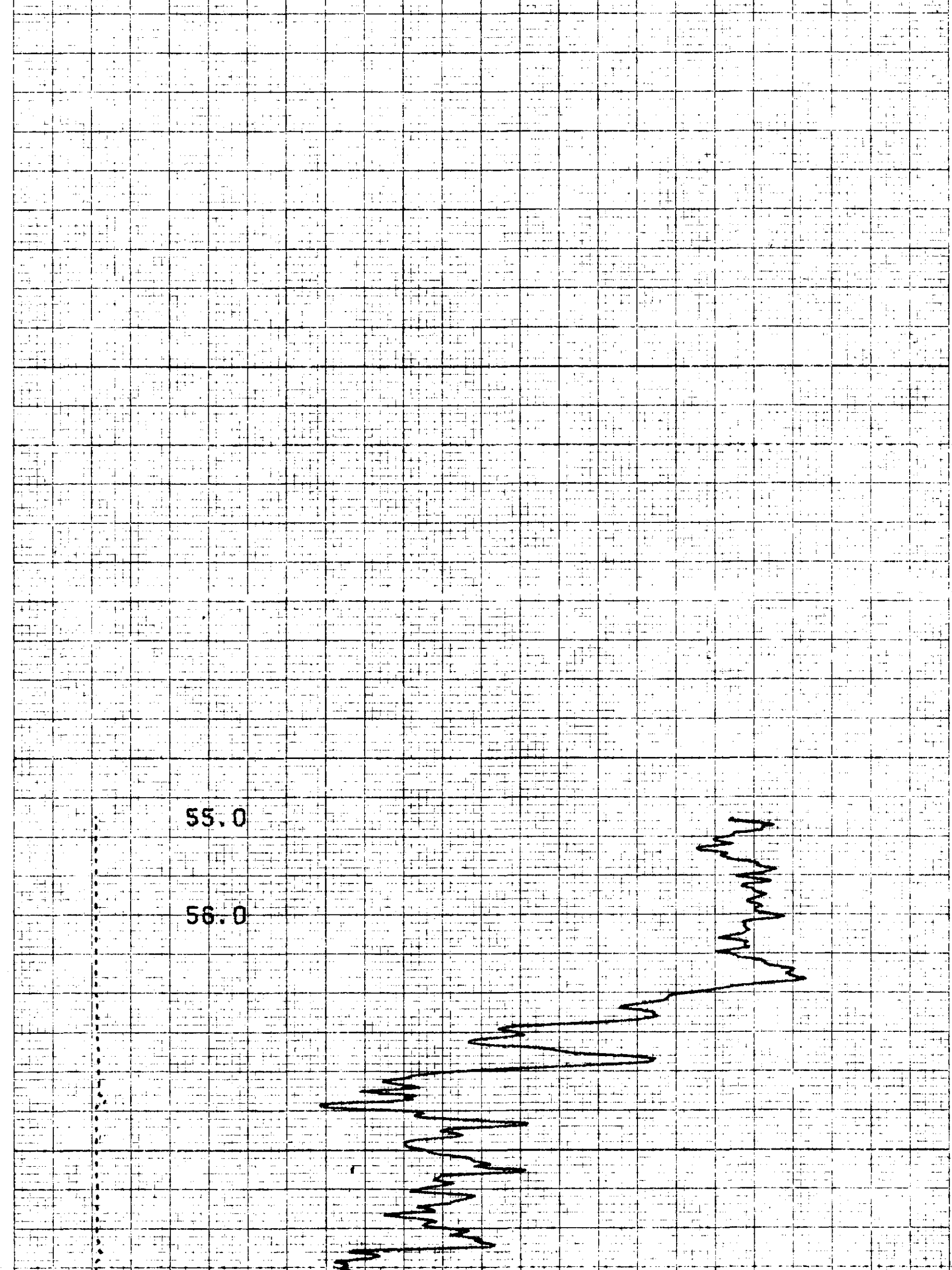
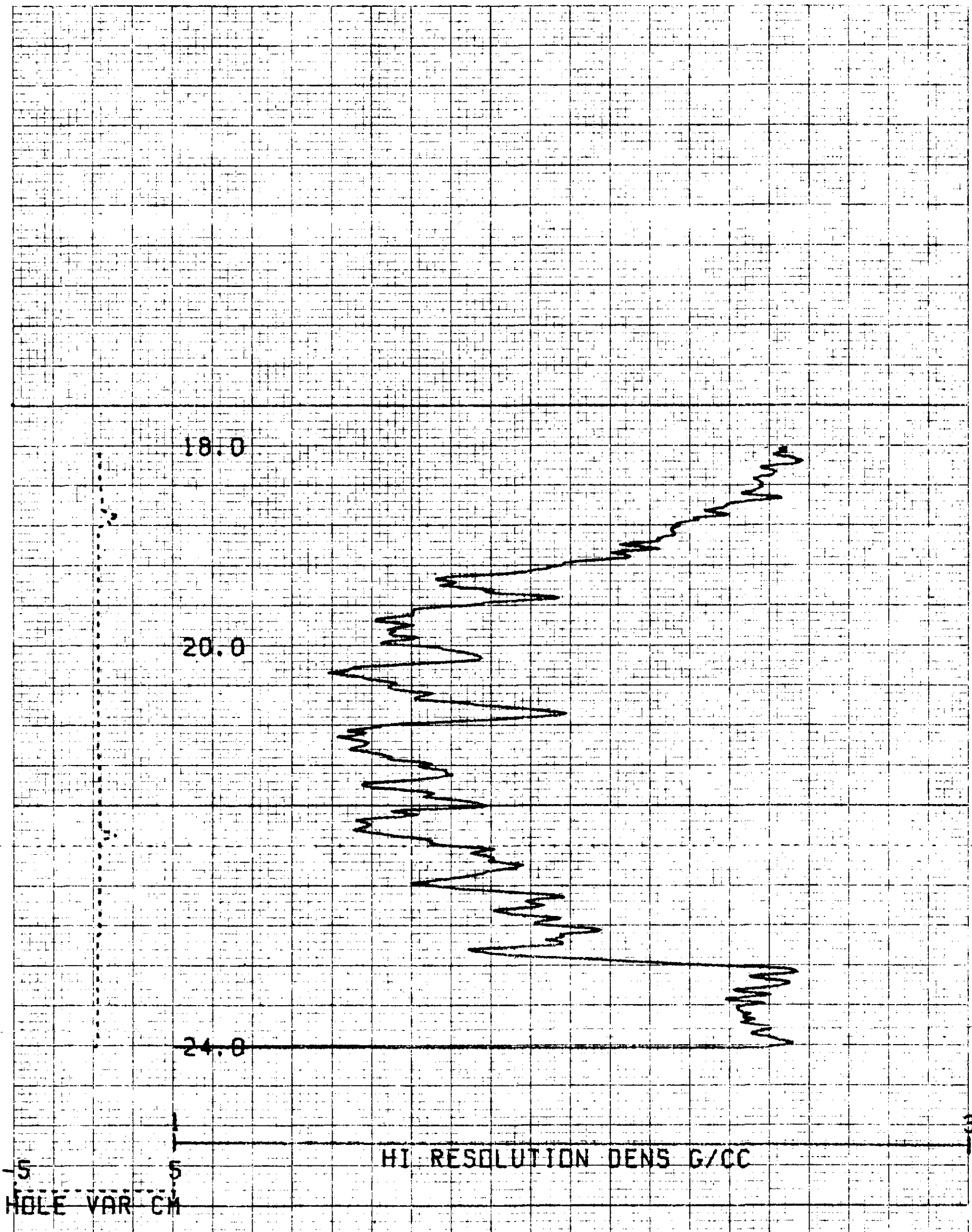
COMPU-LOG VBL2 - PLOT 09-06-82

DDH-82-007  
GULF CANADA RES. INC  
KLAPPAN MTN.

HOLE DIAMETER : 09.6  
PROBE # 9030A - 406  
SENSOR #4 CAL STD CPS = 6588  
SENSOR #4 CAL RUN CPS = 4000  
SENSOR #4 CAL BIAS = 28  
DATA VBL2\*F TRUCK # P823  
D. BOMBACK APPL.#2030L1







011

COMPU-LOG V8L3 PLOT 09-06-82

DDH-82-007

GULF CANADA RES. INC

KLAPPAN MTN.

HOLE DIAMETER = 09.6

PROBE # 9030A = 406

SENSOR #4 CAL STD CPS = 8588

SENSOR #4 CAL RUN CPS = 4000

SENSOR #4 CAL ØIAS = 28

DATA V8L2#A TRUCK # F823

D. BOMBACK APPL #1 TN

Bottom Zone Logged Inside Open Pipe

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