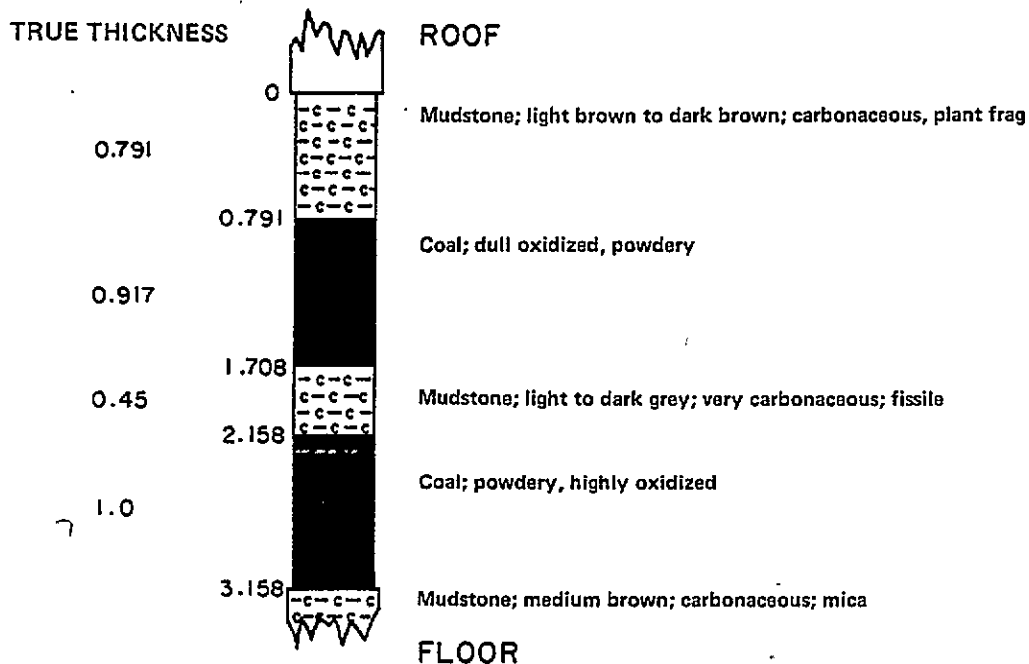


# OPEN FILE



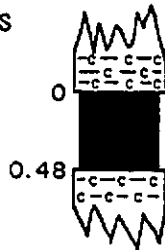
COAL/ROCK = 1.92 / 3.16

STRIKE - 344°  
 DIP - 44°W  
 TRENCH BEARING -

<b>GULF CANADA RESOURCES INC.</b>		
<small>Coal Division</small>		
<small>CALGARY</small>	<small>ALBERTA</small>	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>BRAZION CREEK</b>		
<b>BCT-80-B1</b>		
<small>DRAWN BY:</small> L. CHILD	<small>DATE:</small> 06-7-80	<small>SCALE:</small>
<small>PREPARED BY:</small> A. BIENIA	<small>DRAWING No.</small>	
<small>APPROVED BY:</small>	<small>DATE:</small>	

TRUE THICKNESS

0.48



ROOF

Mudstone; dark grey, carbonaceous

Coal; dull; powdery; oxidized

Mudstone; medium to dark brown; carbonaceous; plant fossils; Fe staining  
Clay band dipping 35°E - Very thin; 5 cm thick  
(filled in joint or root bed)

FLOOR

COAL/ROCK = 0.48 / 0.48

STRIKE - 339°  
DIP - 40°W  
TRENCH BEARING -

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

BRAZILION CREEK

BCT - 80 - 82

DRAWN BY: L. CHILD

DATE: 06-7-80

SCALE

PREPARED BY: A. BIENIA

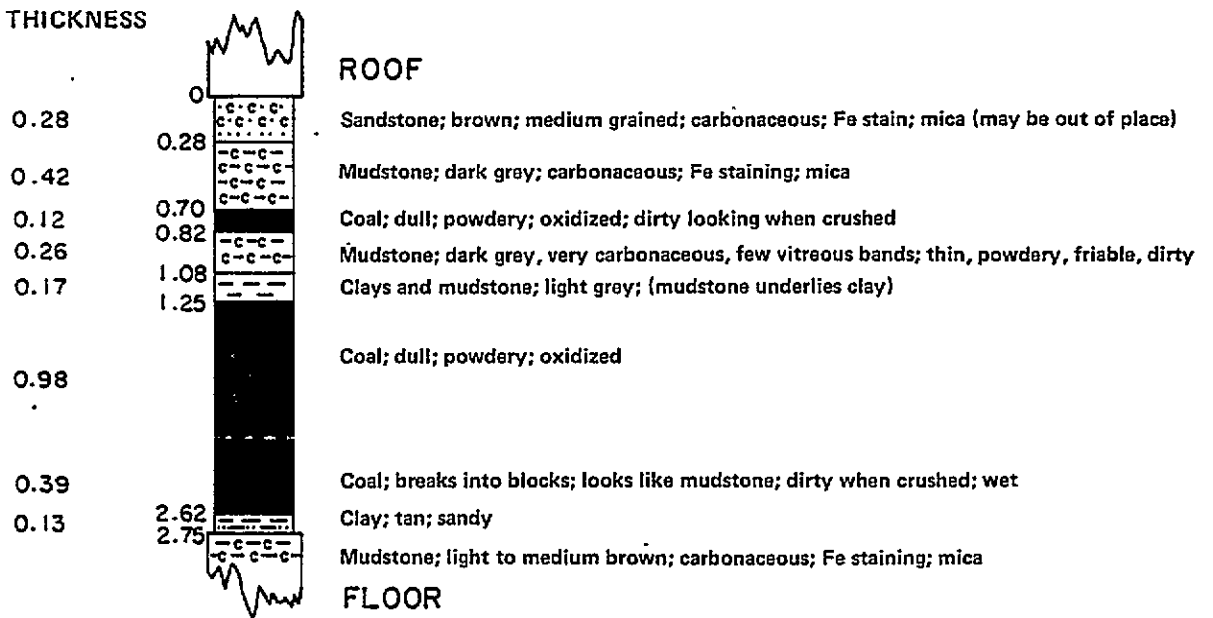
DRAWING No.

APPROVED BY:

DATE:

1

TRUE THICKNESS



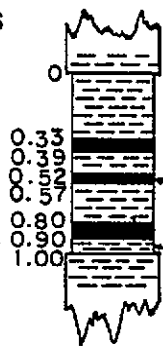
COAL/ROCK = 1.49/2.75

STRIKE - 315°  
 DIP - 51° S  
 TRENCH BEARING -

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>BRAZION CREEK</b>		
<b>BCT - 80 - B3</b>		
DRAWN BY: <b>L. CHILD</b>	DATE: <b>06-7-80</b>	SCALE
PREPARED BY: <b>A. BIENIA</b>		DRAWING No.
APPROVED BY:	DATE:	

TRUE THICKNESS

0.33  
0.06  
0.13  
0.05  
0.23  
0.10  
0.10



ROOF

Mudstone; very carbonaceous; medium grey; broken

Rock: Mudstone; very carbonaceous

Coal: Dull, soft, wet

Rock: Mudstone; light brown on surface, fresh breaks medium to dark grey, carbonaceous

Coal: Dull, soft, wet

Rock: Mudstone; medium grey, broken; carbonaceous

Coal: Coal: Dull, soft

Rock: Mudstone; brown, fissile, plant fossils

Mudstone: medium grey, hard, blocky, plant fossils

FLOOR

COAL/ROCK = 0.21/1.00

STRIKE - 330°  
DIP - 75° SW  
TRENCH BEARING -

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

BRAZION CREEK

BCT-80-Sp2-63

DRAWN BY: L. CHILD

DATE: 06-7-80 SCALE

PREPARED BY: A. BIENIA

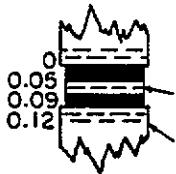
DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.05  
0.04  
0.03




ROOF

Mudstone; medium to light grey, fissile  
Coal: Dull, soft, wet  
Mudstone: dark grey, wet, breaks into blocks  
Mudstone: brown, fissile, slightly carbonaceous

FLOOR

COAL/ROCK = 0.08/0.12

STRIKE - 320°  
DIP - 35° SW  
TRENCH BEARING -

<b>GULF CANADA RESOURCES INC.</b> Coal Division		
CALGARY	ALBERTA	
<b>GOODRICH COAL PROJECT</b> <b>TRENCHING LOGS</b> <b>BRAZION CREEK</b> <b>BCT-80-Sp 2-64</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

TRUE THICKNESS

0.32

0.14



ROOF

Mudstone: grey to brown; blocky

Coal: Dull to bright; breaks into soft blocks

Rock: Mudstone; dark grey, coaly

Mudstone: dark grey, fissile, very carbonaceous

FLOOR

COAL/ROCK = 0.32/0.46

STRIKE - 330°  
DIP - 83° W  
TRENCH BEARING -

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

BRAZION CREEK

BCT - 80 - Sp2 - G5

DRAWN BY: L. CHILD

DATE: 06-7-80

SCALE

PREPARED BY: A. BIENIA

DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.12

0.32

0.44



ROOF


Mudstone; medium brown; fissile; carbonaceous  
Coal: Dull; blocky; soft

Coal; dull-bright, blocky, semihard  
Mudstone; Light grey; blocky; slightly carbonaceous

FLOOR

COAL/ROCK = 0.44/0.44

STRIKE - 338°  
DIP - 85°W  
TRENCH BEARING -

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division	ALBERTA	
CALGARY		
<b>GOODRICH COAL PROJECT</b>		
TRENCHING LOGS		
BRAZION CREEK		
BCT - 80 - Sp2 - G6		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

TRUE THICKNESS

1.12



ROOF

Sandstone; medium grey; salt and pepper, medium grained; sticken sides

Coal; dull to bright; blocky; soft to hard

Mudstone; dark grey; carbonaceous; fissile; weathers brown to grey

FLOOR

Note: Upper portion appears to be overturned

COAL/ROCK = 1.12 / 1.12

STRIKE - 335°  
DIP - 72°  
TRENCH BEARING -

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

BRAZION CREEK

BCT - 80 - Sp2 - G7

DRAWN BY: L. CHILD

DATE: 06-7-80 SCALE

PREPARED BY: A. BIENIA

DRAWING No.

APPROVED BY:

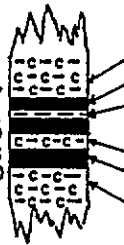
DATE:



**TRUE THICKNESS**

0.07  
0.05  
0.07  
0.09  
0.12

0.07  
0.12  
0.19  
0.28  
0.40



**ROOF**

Mudstone; dark grey; blocky; carbonaceous; weathered medium brown  
Coal: dull, powdery

Mudstone; dark grey, fissile

Coal; dull, powdery

Mudstone; dark grey; very carbonaceous

Coal: dull-bright; breaks into small pieces


Mudstone; medium to light grey; carbonaceous; plant fragment; blocky

**FLOOR**

Note: beds are slightly overturned

COAL/ROCK = 0.26/0.40

STRIKE - 335°  
DIP - 54°NE  
TRENCH BEARING -

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>BRAZION CREEK</b>		
<b>BCT - 80 - Sp 2 - G8</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80, SCALE	
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

TRUE THICKNESS

0.14



ROOF

Mudstone; medium grey; slightly carbonaceous blocky.

Coal; dull to bright; blocky; soft to hard

Mudstone; medium grey; blocky; slightly carbonaceous

FLOOR

Note: beds slightly overturned to east

COAL/ROCK = 0.14 / 0.14

STRIKE - 325°  
DIP - 72° NE  
TRENCH BEARING -

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

BRAZILION CREEK

BCT-80-Sp2-G9

DRAWN BY: L. CHILD

DATE: 06-7-80

SCALE

PREPARED BY: A. BIENIA

DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.12



ROOF

Mudstone; weathers light grey, fresh is medium grey

Coal: dull; blocky and soft

Silty; mudstone; weathers light grey;  
fresh is light brown; carbonaceous;  
micaceous; iron stained

FLOOR

COAL/ROCK = 0.12/0.12

STRIKE - 329°  
DIP - 65°NE  
TRENCH BEARING -

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

BRAZION CREEK

BCT-80-Sp2-GIO

DRAWN BY: L. CHILD

DATE: 06-7-80; SCALE

PREPARED BY: A. BIENIA

DRAWING No.

APPROVED BY:

DATE:

**TRUE THICKNESS**

0.2  
0.3  
0.24  
0.56  
0.10  
0.17



**ROOF**

Siltstone; light brown; carbonaceous; micaceous

Coal: dull; breaks into small blocks; soft

Coal: dull; breaks into large blocks; semi hard

Coal: dull to bright; hard; breaks into large blocks

Coal: dull to bright; hard grading to soft at lower end

Mudstone: light brown when wet; dark brown when dry


Coal: dull to bright; breaks into small pieces

Mudstone; medium grey; hard; carbonaceous iron staining in places; carbonaceous laminations

**FLOOR**

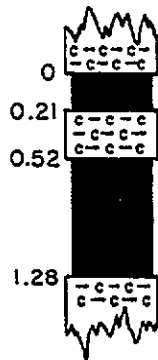
COAL/ROCK = 1.47 / 1.57

STRIKE - 310°  
DIP - 86°NE  
TRENCH BEARING -

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY	ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>BRAZION CREEK</b>		
<b>BCT-80-Sp2-G11</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

**TRUE THICKNESS**

0.21  
0.31  
0.76



**ROOF**

Mudstone; light grey to light brown; slightly carbonaceous  
Coal; dull-bright; soft, breaks into small pieces

Rock; Mudstone: medium gray, carbonaceous, fissile


Coal: dull-bright, semi-hard, breaks into large blocks

Mudstone; light-medium grey, highly carbonaceous, plant fossils micaceous

**FLOOR**

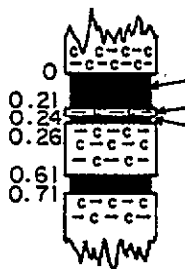
COAL/ROCK = 0.97 / 1.28

STRIKE - 317°  
DIP - 87°SW  
TRENCH BEARING -

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>BRAZION CREEK</b>		
<b>BCT - 80 - Sp2 - G12</b>		
DRAWN BY: L. CHILD		DATE: 06-7-80 SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:		DATE:

TRUE THICKNESS

0.21  
0.03  
0.02  
0.35  
0.10



ROOF


Mudstone; medium brown, carbonaceous, plant fossils  
Coal: dull-bright, hard  
Rock: mudstone: medium grey, carbonaceous, fissile  
Coal: vitreous, very hard  
Rock: mudstone; light to medium grey, carbonaceous, fissile  
Coal: dull-bright, breaks into small blocks, soft  
Mudstone: medium grey, fissile, carbonaceous

FLOOR

Note: looks like logged seam is beginning to overturn

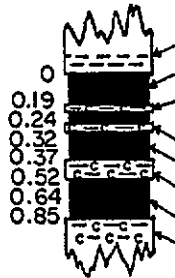
COAL/ROCK = 0.33 / 0.71

STRIKE - 324°  
DIP - 88' SW  
TRENCH BEARING -

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>BRAZION CREEK</b>		
<b>BCT - 80 - Sp2 - G13</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

TRUE THICKNESS

0.19  
0.05  
0.08  
0.05  
0.15  
0.12  
0.21




ROOF

Mudstone: dark grey – medium grey, fissile  
 Coal: dull-bright, semi-hard, breaks into pieces  
 Rock: mudstone: medium brown when wet, light grey when dry, carbonaceous, hard  
 Coal: dull-bright  
 Rock: mudstone, dark grey, very carbonaceous  
 Coal: dull-bright, soft  
 Rock: mudstone: medium to dark grey, hard, carbonaceous  
 Coal: dull, breaks into pieces of fair size, semi-hard  
 Mudstone: very carbonaceous (coaly)

FLOOR

COAL/ROCK = 0.63 / 0.85

STRIKE - 314°  
 DIP - 85° SW  
 TRENCH BEARING -

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
TRENCHING LOGS BRAZION CREEK BCT - 80 - Sp2 - G14		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

TRUE THICKNESS

0.14



ROOF

Mudstone: weathered light grey, fresh breaks dark grey, carbonaceous, mica  
Coal: dull-bright, soft, powdery

Mudstone: weathered light grey, fresh breaks dark grey, carbonaceous, mica

FLOOR

COAL/ROCK = 0.14 / 0.14

STRIKE - 319°  
DIP - 84°SW  
TRENCH BEARING -

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

BRAZION CREEK

BCT-80-Sp2-G15

DRAWN BY: L. CHILD

DATE: 06-7-80 SCALE

PREPARED BY: A. BIENIA

DRAWING No.

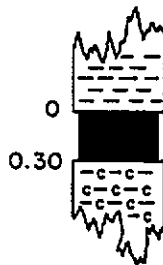
APPROVED BY:

DATE:



TRUE THICKNESS

0.30



ROOF

Mudstone; dark grey; very hard; silty

Coal: dull, soft

Mudstone; reddish brown; carbonaceous

FLOOR

COAL/ROCK = 0.30/0.30

STRIKE - 315°  
DIP - 84°SW  
TRENCH BEARING -

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

BRAZION CREEK

BCT - 80 - Sp2 - G16

DRAWN BY: L. CHILD

DATE: 06-7-80 SCALE

PREPARED BY: A. BIENIA

DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.03  
0.05  
0.05



ROOF

mudstone; medium brown  
Coal; dull-powdery  
Mudstone;  
Coal; dull, powdery  
mudstone; medium brown, carbonaceous

FLOOR

Note: difficult to measure due to overburden

COAL/ROCK = 0.08/0.13

STRIKE - 320°  
DIP - 74°SW  
TRENCH BEARING -

GULF CANADA RESOURCES INC.

CALGARY

Coal Division

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

BRAZILION CREEK

BCT-80-Sp2-G17

DRAWN BY: L. CHILD

DATE: 06-7-80 SCALE

PREPARED BY: A. BIENIA

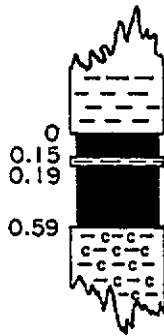
DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.15  
0.05  
0.40



ROOF

mudstone; medium grey; fissile

Coal: dull; soft

Rock: mudstone; reddish brown


Coal: dull; soft

mudstone; dark grey; carbonaceous

FLOOR

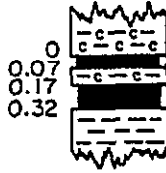
COAL/ROCK = 0.45 / 0.50

STRIKE - 320°  
DIP - 74°  
TRENCH BEARING -

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY	ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>BRAZION CREEK</b>		
<b>BCT-80-Sp2-G18</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

TRUE THICKNESS

0.07  
0.10  
0.15




ROOF

mudstone; dark grey; carbonaceous; fissile  
Coal; dull-bright  
mudstone; medium grey; carbonaceous  
Coal; dull, soft  
mudstone; dark grey

FLOOR

COAL/ROCK = 0.22 / 0.32

STRIKE - 315°  
DIP - 84°W  
TRENCH BEARING -

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY		ALBERTA
<b>GOODRICH COAL PROJECT</b>		
TRENCHING LOGS BRAZION CREEK BCT - 80 - Sp2 - G19		
DRAWN BY: L. CHILD	DATE: 06 7 80 SCALE	
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

TRUE THICKNESS

0.05

0.05

5.52

5.57

ROOF

Sandstone; weathers light to medium brown; Fresh breaks  
Light gray; Salt & pepper; fine grained; fine  
laminations, carbonaceous; Fe staining; abundant  
mica  
Mudstone; medium brown; finely laminated; like clay; mica;


Coal; dull-bright; hard; blocky; sheared

Mudstone; medium grey; carbonaceous; fissile

FLOOR

COAL/ROCK = 5.52/5.57

STRIKE - 261°  
DIP - 36°SW  
TRENCH BEARING -

GULF CANADA RESOURCES INC.		
Calgary	Coal Division	
ALBERTA		
GOODRICH COAL PROJECT		
TRENCHING LOGS		
BRAZION CREEK		
BCT-80-Sp3-B1		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

TRUE THICKNESS

2.18



ROOF

Sandstone: light grey, medium grained, cross bedding

Coal: dull-bright, semi-hard, breaks into small blocks, shearing evidence

Mudstone: medium grey, carbonaceous, fissile

FLOOR

COAL/ROCK = 2.18 / 2.18

STRIKE - 310°  
DIP - 58° NE  
TRENCH BEARING - 221°

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

BRAZION CREEK

BCT - 80 - Sp3 - B2

DRAWN BY: L. CHILD

DATE: 06 7 80 SCALE

PREPARED BY: A. BIENIA

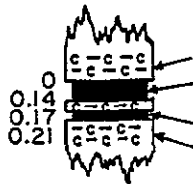
DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.14  
0.03  
0.04




ROOF

Mudstone: dark grey; carbonaceous  
Coal: dull; semi-hard  
Rock: mudstone: carbonaceous; dark grey  
Coal:  
Mudstone; medium grey; carbonaceous, plant fragments

FLOOR

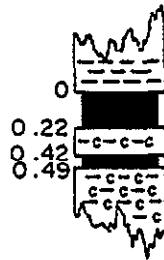
COAL/ROCK = 0.18/0.21

STRIKE - 312°  
DIP - 65°  
TRENCH BEARING -

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	ALBERTA	
Coal Division		
<b>GOODRICH COAL PROJECT</b>		
TRENCHING LOGS		
BRAZION CREEK		
BCT-80-Sp3-B3C		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

**TRUE THICKNESS**

0.22  
0.2  
0.07



**ROOF**

Mudstone; medium brown; fissile  
Coal; dull; powdery  
Rock: mudstone; carbonaceous; dark grey; fissile  
Coal; dull; powdery  
Mudstone; dark grey; carbonaceous; fissile

**FLOOR**

COAL/ROCK = 0.29 / 0.49

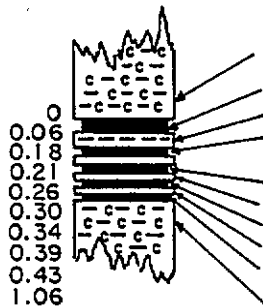
STRIKE - 312°  
DIP - 65° NE  
TRENCH BEARING -

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY	ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>BRAZION CREEK</b>		
<b>BCT-80-Sp3-B38</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80, SCALE	
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	



**TRUE THICKNESS**

0.06  
0.12  
0.03  
0.05  
0.04  
0.04  
0.06  
0.04  
0.63




**ROOF**

Mudstone; carbonaceous; fissile with plant material  
Coal: dull, hard  
Rock: mudstone; dark grey  
Coal: dull, hard  
Rock: dark grey; mudstone  
Coal: dull, hard  
Rock: mudstone  
Coal:  
Mudstone  
Coal  
Mudstone; dark grey; carbonaceous

**FLOOR**

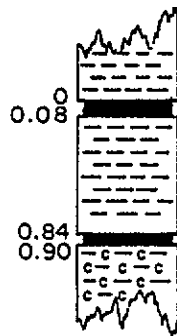
COAL/ROCK = 0.81 / 1.06

STRIKE - 312°  
DIP - 65°NE  
TRENCH BEARING -

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
TRENCHING LOGS BRAZION CREEK BCT-80-Sp3-B3A		
DRAWN BY: L. CHILD		DATE: 06-7-80 SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:		DATE:

**TRUE THICKNESS**

0.08  
0.28  
0.33  
0.15  
  
0.06



**ROOF**

Mudstone; dark grey; weathered light grey; thinly bedded

Coal: dull; soft; powdery

Mudstone: dark grey; weathered light grey

Mudstone: silty dark grey; very hard

Mudstone: dark grey; carbonaceous; fissile


Coal: dull; soft; powdery

Mudstone; silty; dark grey; carbonaceous abundant coaly lenses

**FLOOR**

COAL/ROCK = 0.14 / 0.90

STRIKE - 318°  
DIP - 60° SW  
TRENCH BEARING -

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
TRENCHING LOGS		
BRAZION CREEK		
BCT-80-Sp4-B1		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

TRUE THICKNESS

0.05



ROOF

Mudstone; dark grey; thin blocky pieces


Coal: dull; hard

Siltstone; dark grey; micaceous; blocky

FLOOR

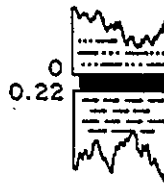
COAL/ROCK = 0.05 / 0.05

STRIKE - 318°  
DIP - 60°SW  
TRENCH BEARING -

<b>GULF CANADA RESOURCES INC.</b>		
Calgary	Coal Division	
<b>GOODRICH COAL PROJECT</b>		
TRENCHING LOGS BRAZION CREEK BCT-80-Sp4-B2		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

TRUE THICKNESS

0.22



ROOF

Siltstone: medium brown

Coal: dull; soft; powdery

Mudstone: medium grey; fissile

FLOOR

COAL/ROCK = 0.22 / 0.22

STRIKE - 324°  
DIP - 48° SW  
TRENCH BEARING - 235°

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

BRAZION CREEK

BCT-80-Sp4-B3

DRAWN BY: L. CHILD

DATE: 06-7-80 SCALE

PREPARED BY: A. BIENIA

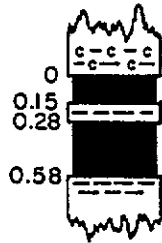
DRAWING No.

APPROVED BY:

DATE:

**TRUE THICKNESS**

0.15  
0.13  
0.30



**ROOF**

Mudstone: dark grey; carbonaceous, weathered laminations, thinly bedded

Coal: soft, dull, powdery, weathered

Rock: mudstone: medium grey, fissile, blocky


Coal: dull, semi-hard, wet

Mudstone: extremely well-weathered, medium brown-grey

**FLOOR**

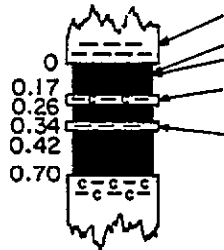
COAL/ROCK = 0.45 / 0.58

STRIKE - 328°  
DIP - 51° SW  
TRENCH BEARING - 238°

<b>GULF CANADA RESOURCES INC.</b>		
<small>Coal Division</small>		
CALGARY	ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>BRAZION CREEK</b>		
<b>BCT-80-Sp4-B4</b>		
DRAWN BY: L. CHILD		DATE: 06-7-80 SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:		DATE:

**TRUE THICKNESS**

0.09  
0.08  
0.09  
0.08  
0.08  
0.28




**ROOF**

Mudstone: dark grey, carbonaceous, hard, block, thinly bedded  
 Coal: dull; hard; weathered brown  
 Coal: dull, blocky  
 Rock: Mudstone: dark grey, carbonaceous, thinly bedded, fissile  
 Coal: hard, dull, some bright pieces  
 Rock: Mudstone: medium grey, thinly bedded  
 Coal: dull-bright, very hard  
 Mudstone: dark grey, thin coaly lenses

**FLOOR**

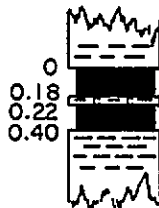
COAL/ROCK = 0.32 / 0.49

STRIKE - 315°  
 DIP - 50°SW  
 TRENCH BEARING - 225°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>BRAZION CREEK</b>		
<b>BCT-80-Sp4-B4</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

**TRUE THICKNESS**

0.18  
0.04  
0.18




**ROOF**

Mudstone; medium grey; hard  
Coal: dull; semi-hard  
Mudstone: dark grey; carbonaceous  
Coal: dull; semi-hard  
Mudstone; light grey; blocky

**FLOOR**

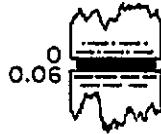
COAL/ROCK = 0.36 / 0.40

STRIKE - 322°  
DIP - 54° SW  
TRENCH BEARING - 230°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division	
<b>GOODRICH COAL PROJECT</b>		
TRENCHING LOGS BRAZILION CREEK BCT-80-Sp4-B6		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

TRUE THICKNESS

0.06



ROOF

Siltstone: medium brown, highly weathered, blocky

Coal: dull, very soft, with few bright bands

Mudstone: medium grey, hard, blocky

FLOOR

COAL/ROCK = 0.06 / 0.06

STRIKE - 320°  
DIP - 46° SW  
TRENCH BEARING - 230°

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

BRAZION CREEK

BCT-80-Sp4-B7

DRAWN BY: L. CHILD

DATE: 06-7-80

SCALE

PREPARED BY: A. BIENIA

DRAWING No.

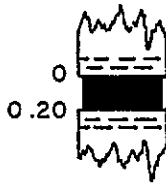
APPROVED BY:

DATE:



TRUE THICKNESS

0.20



ROOF

Mudstone: medium grey, fissile

Coal: dull, hard packed

Mudstone: medium grey, hard, blocky

FLOOR

COAL/ROCK = 0.20 / 0.20

STRIKE - 345°  
DIP - 50° SW  
TRENCH BEARING - 235°

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

BRAZION CREEK

BCT-80-Sp4-88

DRAWN BY: L. CHILD

DATE: 06-7-80 SCALE

PREPARED BY: A. BIENIA

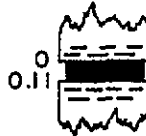
DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.11



ROOF

Mudstone: very dark grey, thinly bedded, blocky, hard


Coal: dull-bright; soft, well packed

Mudstone: well-weathered; light brown, hard, blocky

FLOOR

COAL/ROCK = 0.11 / 0.11

STRIKE - 328°  
DIP - 47° SW  
TRENCH BEARING - 235°

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY	ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
TRENCHING LOGS BRAZION CREEK BCT-80-Sp4-B9		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

TRUE THICKNESS

0.19



ROOF

Mudstone: dark grey; hard, blocky

Coal: soft; dull

Mudstone: dark grey; carbonaceous;  
thin coaly lenses

FLOOR

COAL/ROCK = 0.19 / 0.19

STRIKE - 304°  
DIP - 46° SW  
TRENCH BEARING - 250°

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY		ALBERTA
<b>GOODRICH COAL PROJECT</b>		
TRENCHING LOGS		
BRAZION CREEK		
BCT - 80 - Sp4 - B10		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

TRUE THICKNESS

0.07

0.07



ROOF

Mudstone: dark grey; carbonaceous; thin coaly lenses

Coal: dull; soft; powdery

Mudstone: extremely weathered, medium brown, thin coaly lenses

FLOOR

COAL/ROCK = 0.07 / 0.07

STRIKE - 322°  
DIP - 36° SW  
TRENCH BEARING - 230°

GULF CANADA RESOURCES INC.

CALGARY

Coal Division

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

BRAZION CREEK

BCT-80-Sp4-BII

DRAWN BY: L. CHILD

DATE: 06-7-80 SCALE

PREPARED BY: A. BIENIA

DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.20



ROOF

Mudstone: medium grey; blocky


Coal: dull; soft; powdery

Mudstone: well weathered; medium brown; laminated

FLOOR

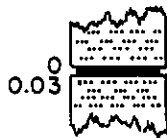
COAL/ROCK = 0.20 / 0.20

STRIKE - 275°  
DIP - 79° S  
TRENCH BEARING - 185°

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division	ALBERTA	
CALGARY		
<b>GOODRICH COAL PROJECT</b>		
TRENCHING LOGS		
BRAZION CREEK		
BCT - 80 - Sp4 - B12		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

TRUE THICKNESS

0.03



ROOF

Siltstone; dark grey; weathered laminations

Coal: dull, hard; packed blocky pieces

Siltstone; medium grey; weathered laminations

FLOOR

COAL/ROCK = 0.03 / 0.03

STRIKE - 315°  
DIP - 89° NE  
TRENCH BEARING - 225

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

BRAZION CREEK

BCT - 80 - Sp4 - B13

DRAWN BY: L. CHILD

DATE: 06-7-80; SCALE

PREPARED BY: A. BIENIA

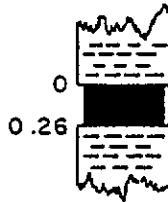
DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.26



ROOF

Mudstone; dark gray; thinly bedded

Coal: dull; soft

Mudstone; dark brown; weathered

FLOOR

COAL/ROCK = 0.26 / 0.26

STRIKE - 318°  
DIP - 65° SW  
TRENCH BEARING - 230°

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

BRAZION CREEK

BCT-80-Sp4-B14

DRAWN BY: L. CHILD

DATE: 06-7-80

SCALE

PREPARED BY: A. BIENIA

DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.64



ROOF

Mudstone; dark brown; carbonaceous

Coal: dull; soft; packed

Sandstone; laminated; medium brown

FLOOR

COAL/ROCK = 0.64/0.64

STRIKE - 322°  
DIP - 69°SW  
TRENCH BEARING - 230°

GULF CANADA RESOURCES INC.

CALGARY

Coal Division

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

BRAZION CREEK

BCT-80-Sp4-B15

DRAWN BY: L. CHILD

DATE: 06-7-80 SCALE

PREPARED BY: A. BIENIA

DRAWING No.

APPROVED BY:

DATE:



TRUE THICKNESS

0.16



ROOF

Mudstone; dark grey


Coal: soft; dull; weathered near contacts

Mudstone; micaceous; medium brown

FLOOR

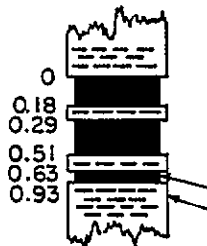
COAL/ROCK = 0.16 / 0.16

STRIKE - 322°  
DIP - 69°SW  
TRENCH BEARING - 230°

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY	ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
TRENCHING LOGS		
BRAZION CREEK		
BCT-80-Sp4-816		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

**TRUE THICKNESS**

0.18  
0.11  
0.22  
0.12  
0.30




**ROOF**

Mudstone; medium grey; well weathered  
Coal: dull; soft  
Mudstone; medium grey; blocky  
Coal: dull; soft  
Mudstone: medium grey; thinly bedded  
Coal: dull; soft  
Mudstone: brown; hard; thinly bedded

**FLOOR**

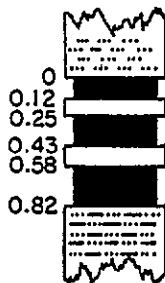
COAL/ROCK = 0.70/0.93

STRIKE - 322°  
DIP - 65° SW  
TRENCH BEARING - 230°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>BRAZION CREEK</b>		
<b>BCT-80-Sp4-B17</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

**TRUE THICKNESS**

0.12  
0.13  
0.18  
0.15  
0.24



**ROOF**


Sandstone; laminated; medium brown; blocky  
Coal: dull; packed  
Mudstone: medium grey fissile; thin  
Coal: dull, packed  
Siltstone: medium grey; hard; blocky  
Coal: dull; hard packed; rocky sections  
Siltstone: micaceous; medium grey

**FLOOR**

Note: seam shows evidence of shearing

COAL/ROCK = 0.54/0.82

STRIKE - 320°  
DIP - 80° SW  
TRENCH BEARING - 230°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>BRAZION CREEK</b>		
<b>BCT-80-Sp4-B18</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

TRUE THICKNESS

0.70




ROOF

Mudstone; medium grey; hard; blocky  
Coal: dull-bright; very hard; vitrious bands  
Sandstone: Fine grained

FLOOR

COAL/ROCK = 0.70/0.70

STRIKE - 320°  
DIP - 80° SW  
TRENCH BEARING - 230°

<b>GULF CANADA RESOURCES INC.</b> Coal Division		
CALGARY	ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
TRENCHING LOGS BRAZION CREEK BCT-80-Sp4-B19		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

TRUE THICKNESS

,0.80



ROOF

Siltstone; light brown; laminated; blocky

Coal: dull-bright; very well packed

Sandstone; medium grey; micaceous; blocky

FLOOR

COAL/ROCK = 0.80 / 0.80

STRIKE - 300°  
DIP - 86°NE  
TRENCH BEARING - 210°

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

BRAZION CREEK

BCT-80-Sp4-B20

DRAWN BY: L. CHILD

DATE: 06-7-80

SCALE

PREPARED BY: A. BIENIA

APPROVED BY:

DATE:

TRUE THICKNESS

0.19



ROOF

Sandstone; fine grained; medium brown

Coal: dull; soft; platy pieces

Mudstone; medium grey; carbonaceous

FLOOR

COAL/ROCK = 0.19/0.19

STRIKE - 267°  
DIP - 10° NW  
TRENCH BEARING - 175°

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY		ALBERTA
<b>GOODRICH COAL PROJECT</b>		
TRENCHING LOGS BRAZION CREEK BCT-80-Sp4-B21		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

TRUE THICKNESS

0.14



ROOF

Siltstone; medium brown; fractured


Coal: dull; soft; flakey

Mudstone; dark grey; carbonaceous

FLOOR

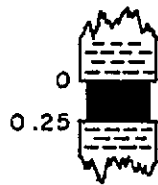
COAL/ROCK = 0.14 / 0.14

STRIKE -  
DIP -  
TRENCH BEARING -

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>BRAZION CREEK</b>		
<b>BCT 80 Sp4 B22</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

TRUE THICKNESS

0.25



ROOF

Mudstone; light grey; thinly bedded; fissile

Coal: dull with bright vitrain bands; very well packed


Mudstone; light grey; fractured

FLOOR

**Note:** This seam is exposed at road and shows both limbs of tightly closing syncline, seam appears to be continuous, trench is measured on south limb

COAL/ROCK = 0.25 / 0.25

STRIKE -  
DIP -  
TRENCH BEARING -

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division	ALBERTA	
CALGARY		
<b>GOODRICH COAL PROJECT</b>		
TRENCHING LOGS		
BRAZILIAN CREEK		
BCT-80-Sp4-B23		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	



TRUE THICKNESS

0.14



ROOF

Mudstone; dark grey; carbonaceous; fractured


Coal: dull; well packed

Mudstone; dark grey; thinly bedded; well weathered

FLOOR

COAL/ROCK = 0.14 / 0.14

STRIKE - 250°  
DIP - 38°NW  
TRENCH BEARING - 160°

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division	ALBERTA	
CALGARY		
<b>GOODRICH COAL PROJECT</b>		
TRENCHING LOGS		
BRAZION CREEK		
BCT-80-Sp4 - B24		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

TRUE THICKNESS

0.14



ROOF

Silt; dark brown; fractured

Coal: dull; very soft

Sandstone; light brown; laminated micaceous

FLOOR

COAL/ROCK = 0.14 / 0.14

STRIKE - 250°  
DIP - 38°NW  
TRENCH BEARING - 160°

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

BRAZION CREEK

BCT-80-Sp4 - B25

DRAWN BY: L. CHILD

DATE: 06-7-80

SCALE

PREPARED BY: A. BIENIA

DRAWING No.

APPROVED BY:

DATE:

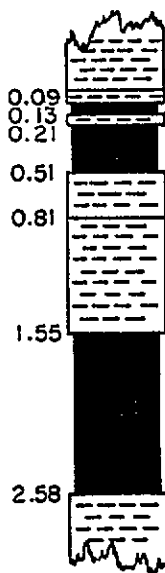
**TRUE THICKNESS**

0.09  
0.04  
0.08  
0.30

0.30

0.74

1.03



**ROOF**

Mudstone; light brown (wet)  
Mudstone; dark grey (wet); coaly  
Coal: dull; powdery (wet)  
Mudstone; dark grey (wet)  
Coal: dull; powdery (wet)  
Mudstone: reddish brown (wet)  
Covered believed as above mudstone  
Mudstone: light brown (wet)


Coal: dull; powdery; very wet

Mudstone: medium grey; fissile

**FLOOR**

COAL/ROCK = 1.37 / 2.58

STRIKE - 315°  
DIP - 85°W overturned up east  
TRENCH BEARING - 225°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>BRAZION CREEK</b>		
<b>BCT-80-GM29 - B1</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

**TRUE THICKNESS**

0.05  
0.38  
0.09



**ROOF**


Mudstone; medium brown  
Coal: dull; powder; wet  
Mudstone; light grey; wet  
Coal(?): dull; wet  
Mudstone: Reddish brown (wet)

**FLOOR**

Note: Trench full of water -- difficult to log

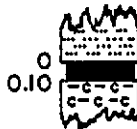
COAL/ROCK = 0.14 / 0.52

● STRIKE - 315°  
DIP - 85° W overturned  
TRENCH BEARING - 225°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
TRENCHING LOGS BRAZION CREEK BCT-80-GM29- B2		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

TRUE THICKNESS

0.10



ROOF

Siltstone; red brown (wat)

Coal: dull; wet

Mudstone; medium grey; slightly carbonaceous

FLOOR

Note: Trench full of H<sub>2</sub>O

COAL/ROCK = 0.10 / 0.10

STRIKE - 315°  
DIP - 85°W overturned  
TRENCH BEARING - 225°

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

BRAZION CREEK

BCT-80-GM29 - B3

DRAWN BY: L. CHILD

DATE: 06-7-80

SCALE

PREPARED BY: A. BIENIA

DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.05



ROOF

Mudstone; light grey

Coal: dull; wet

Mudstone; reddish brown; carbonaceous

FLOOR

Note: Full of H<sub>2</sub>O (Trench)

COAL/ROCK = 0.05/0.05

STRIKE - 315°  
DIP - 85°W overturned  
TRENCH BEARING - 225°

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

BRAZION CREEK

BCT-80-GM29-B4

DRAWN BY: L. CHILD

DATE: 06-7-80 SCALE

PREPARED BY: A. BIENIA

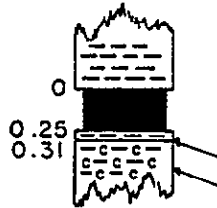
DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.04  
0.11  
0.10  
0.06




ROOF

Mudstone: light to dark grey; coal lenses  
 Coal: dull; soft-semi-hard; powdery to small blocks  
 Coal: dull-bright; hard; vitr in bands  
 Coal: dull; hard  
 Mudstone: dark grey; powdery  
 Mudstone: light-medium grey; carbonaceous

FLOOR

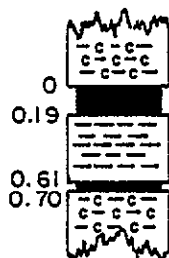
COAL/ROCK = 0.25 / 0.31

STRIKE - 315°  
 DIP - 85°W overturned  
 TRENCH BEARING - 230°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
TRENCHING LOGS		
BRAZION CREEK		
BCT-80-GM29 - B5		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

**TRUE THICKNESS**

0.19  
0.42  
0.09




**ROOF**

Mudstone: light to medium grey; carbonaceous plant fragments  
 Coal: dull; semi-hard; breaks into small pieces; (wet)  
 Mudstone: light grey at top to light brown at base; a few vitreous bands < 1 cm  
 Coal: dull; soft  
 Mudstone: light grey; carbonaceous lenses

**FLOOR**

COAL/ROCK = 0.25 / 0.70

STRIKE - 310°  
 DIP - 68°W overturned  
 TRENCH BEARING - 215°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
TRENCHING LOGS BRAZION CREEK BCT-80-GM29-B6		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	



**TRUE THICKNESS**

0.07  
0.55  
  
0.30  
0.28  
0.14  
  
0.04  
0.06  
0.27  
0.12  
0.19  
0.11



**ROOF**

Mudstone; light to medium grey; carbonaceous

Coal: dull; bright; hard; light; fresh breaks are vitreous  
Coal: dull; semi-hard

Mudstone; medium brown; hard  
Mudstone; reddish brown plant remains  
Mudstone; light brown

Coal: dull; powdery  
Mudstone: light brown  
Coal: dull; hard (wet)

Coal: dull-bright; hard  
Mudstone; dark grey; very carbonaceous  
Coal: dull; hard  
Mudstone; light-medium brown

**FLOOR**

COAL/ROCK = 1.15 / 2.12

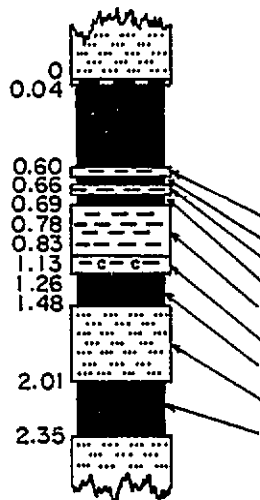
STRIKE - 310°  
DIP - 65°  
TRENCH BEARING - 230°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division	
<b>GOODRICH COAL PROJECT</b>		
TRENCHING LOGS BRAZION CREEK BCT-80-GM29-B7		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

**TRUE THICKNESS**

0.04  
 0.05  
 0.05  
 0.07  
 0.19  
 0.22  
 0.03  
 0.06  
 0.09  
 0.05  
 0.30  
 0.13  
 0.22  
 0.53

0.34




**ROOF**

Siltstone; dark grey; carbonaceous plant fragments  
 mudstone  
 Coal; dull; hard  
 Coal; hard; bright  
 Coal; dull; hard  
 Coal; dull-bright  
 Coal; dull; semi-hard  
 Mudstone; dark grey  
 Coal; bright  
 Mudstone; dark grey  
 Coal; dull; semi-hard  
 Mudstone; light to medium brown  
 Mudstone; dark grey; very carbonaceous  
 Coal; dull-bright  
 Siltstone; dark grey; very hard; silicious  
 Coal; dull; soft  
 Siltstone; reddish brown; very friable

**FLOOR**

COAL/ROCK = 1.12 / 2.23

STRIKE - 310°  
 DIP -  
 TRENCH BEARING - 230°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
TRENCHING LOGS BRAZION CREEK BCT-80-GM29-B8		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

TRUE THICKNESS

0.24



ROOF

Mudstone; silty; medium grey; coaly partings


Coal: semi-hard, vitreous

Mudstone; dark grey; carbonaceous; fissile

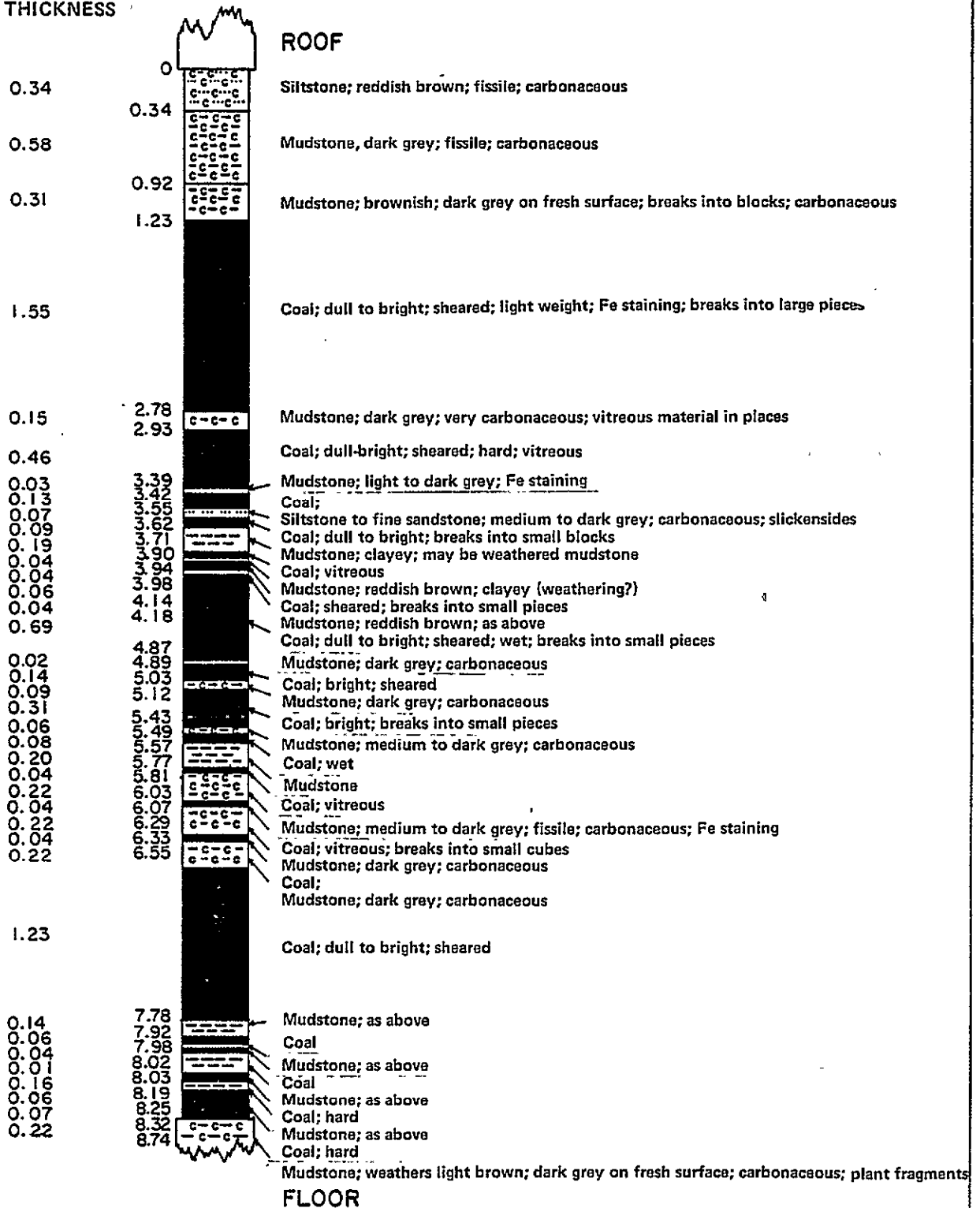
FLOOR

COAL/ROCK = 0.24 / 0.24

STRIKE - 326°  
DIP - 85° SW  
TRENCH BEARING - 56°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
TRENCHING LOGS BRAZION CREEK BCT-80 - MR - G1		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

TRUE THICKNESS



Note: Difficult to log due to water seeping through the trenched area.

COAL/ROCK = 5.25 / 8.24

STRIKE - 330°  
 DIP - 75°W  
 TRENCH BEARING -

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>AXES CREEK</b>		
<b>ACT - 80 - G1 - A</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

TRUE THICKNESS

1.35

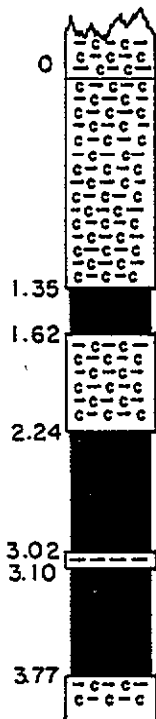
0.27

0.62

0.78

0.08

0.67



ROOF

Mudstone; reddish brown; carbonaceous; small crossbeds  
 Mudstone; dark grey to reddish brown; carbonaceous;  
 fissile; Fe concretions - small

Coal; dull-bright; breaks into small blocks

Mudstone; dark grey; fissile; carbonaceous; Fe staining

Coal; dull; sheared; breaks into blocks

Mudstone; light to dark grey

Mudstone; dark grey; carbonaceous; slickensides

FLOOR

Note: The whole coal seam appears to be heavily sheared. Maybe faulted?

COAL/ROCK = 1.72 / 3.77

STRIKE - 327°  
 DIP - 75°W  
 TRENCH BEARING -

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>AXES CREEK</b>		
<b>ACT - 80 - G2 - B</b>		
DRAWN BY: L. CHILD		DATE: 06-7-80 SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:		DATE:

**TRUE THICKNESS**

0.30

0.14

1.15

0.05

1.04

0.04

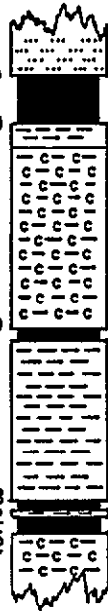
0.04

0.11

0.30  
0.44

1.59  
1.64

2.68  
2.72  
2.76  
2.87



**ROOF**

Siltstone; Light to dark grey; carbonaceous material  
Slickensides; calcite veining

Coal; dull; spring here

Mudstone; dark grey

Mudstone; interbedded; dark grey - carbonaceous &  
reddish brown

Coal; dull

Mudstone; dark grey; fissile

Coal; dull

Mudstone; As Above

Coal;


Mudstone; reddish brown to dark grey; plant fragments

**FLOOR**

Note: Slickensides abundant on the roof with calcite

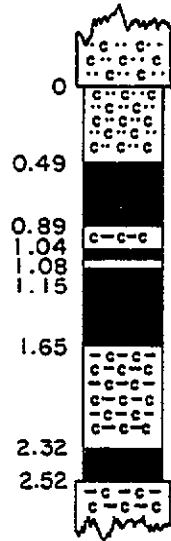
COAL/ROCK = 0.50 / 2.87

STRIKE - 324°  
DIP - 71° W  
TRENCH BEARING -

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
TRENCHING LOGS		
AXES CREEK		
ACT - 80 - G3 - C		
DRAWN BY: L. CHILD		DATE: 06-7-80 SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:		DATE:

**TRUE THICKNESS**

0.49  
0.40  
0.15  
0.04  
0.07  
0.50  
0.67  
0.20



**ROOF**

Sandstone; weathers light grey; medium grey on fresh surface; medium to fine grained; fossils (stems and pieces of wood); Fe staining

Siltstone; dark grey; carbonaceous; friable

Coal; dull to bright; breaks into various sized blocks; sheared

Mudstone; dark grey; carbonaceous; Fe staining

Mudstone; As Above

Coal; dull; powdery; oxidized; breaks into small pieces

Mudstone; light to medium grey; carbonaceous; Fe staining

Coal

Mudstone; medium grey; carbonaceous; Fe staining

**FLOOR**

Note: Dip changes drastically across section towards floor (i.e. dips towards West 90° to ≈ 70°). May be due to slumping.

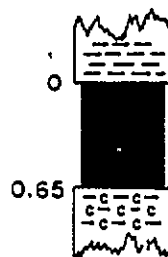
COAL/ROCK = 1.14 / 2.52

STRIKE - 315°  
DIP - 90°  
TRENCH BEARING -

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>AXES CREEK</b>		
<b>ACT-80-G4-D</b>		
DRAWN BY: L. CHILD		DATE: 06-7-80 SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:		DATE:

TRUE THICKNESS

0.57  
0.08



ROOF

Mudstone; light grey; fissile; thinly bedded

Coal; bright; blocky; hard vitreous


Coal; dull; packed powdery

Mudstone; dark gray; carbonaceous; fissile;  
thinly bedded

FLOOR

COAL/ROCK = 0.65 / 0.65

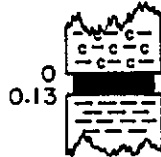
STRIKE - 165°  
DIP - 41° W  
TRENCH BEARING - 75°

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY	ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>AXES CREEK</b>		
<b>ACT - 80-G05</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	



TRUE THICKNESS

0.13



ROOF

Mudstone; dark grey; very carbonaceous; fissile

Coal; dull; soft; well packed

Mudstone; fissile; dark gray

FLOOR

COAL/ROCK = 0.13 / 0.13

STRIKE - 165°  
DIP - 40°W  
TRENCH BEARING - 75°

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

AXES CREEK

ACT - 80-606

DRAWN BY: L. CHILD

DATE: 06-7-80 SCALE

PREPARED BY: A. BIENIA

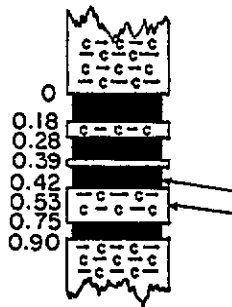
DRAWING No.

APPROVED BY:

DATE:

**TRUE THICKNESS**

0.18  
0.10  
0.11  
0.03  
0.11  
0.22  
0.15



**ROOF**

Mudstone; dark gray; very carbonaceous; coaly stringers (very small)

Coal; dull; semi-hard

Mudstone: As Above

Coal: dull; semi-hard

Mudstone: As Above

Coal: dull; soft

Mudstone: medium gray, carbonaceous


Coal: dull; soft

Mudstone: medium gray, carbonaceous

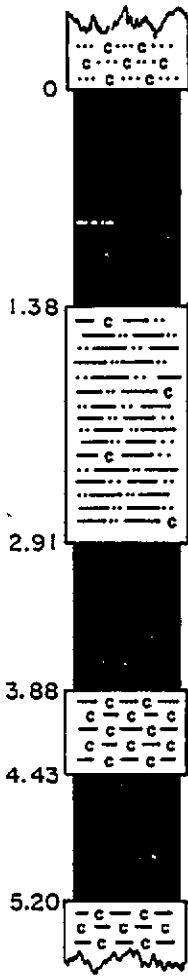
**FLOOR**

COAL/ROCK = 0.55 / 0.90

STRIKE - 311°  
DIP - 81° SW  
TRENCH BEARING - 221°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>AXES CREEK</b>		
<b>ACT - 80 - Spl- G1</b>		
DRAWN BY: L. CHILD		DATE: 06-7-80 SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:		DATE:

TRUE THICKNESS



ROOF

Siltstone; grey; carbonaceous partings;  
orange weathering, small scale cross bedding

Coal: soft to flakey, hard packed, wet, dull

Mudstone: silty, dark brown, carbonaceous partings,  
slight orange weathering

Coal: soft, wet, hard packed, dull

Mudstone: dark brown, carbonaceous


Coal: with occasional fissile, carbonaceous mudstone  
bands

Mudstone: medium brown; slightly carbonaceous

FLOOR

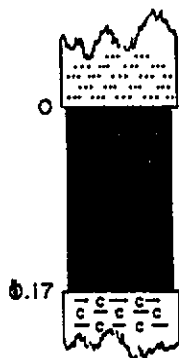
COAL/ROCK = 3.12 / 5.20

STRIKE - 328°  
DIP - 73°SW  
TRENCH BEARING - 58°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>AXES CREEK</b>		
<b>ACT - 80 - Spl - G2</b>		
DRAWN BY: L. CHILD		DATE: 06-7-80 SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:		DATE:

TRUE THICKNESS

0.17



ROOF

Sandstone; fine grained; medium grey; calcareous; laminated;  
small scale cross bedding

Coal: soft, hard packed, dull, occasional interbedded carbonaceous  
mudstone

Mudstone; black, carbonaceous, fissile

FLOOR

COAL/ROCK = 1.17 / 1.17

STRIKE - 326°  
DIP - 64°SW  
TRENCH BEARING - 56°

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

AXES CREEK

ACT-80-Spl-G3

DRAWN BY: L. CHILD

DATE: 06-7-80 SCALE

PREPARED BY: A. BIENIA

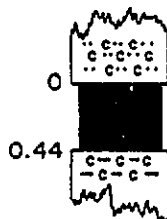
DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.44



ROOF

Siltstone; dark grey; carbonaceous;  
Laminated; slightly calcareous

Coal: dull; powdery, oxidized

Mudstone; dark grey; carbonaceous;  
plant remains

FLOOR

Note:

Trench GRT-80-B1 First coal seam found in S.W. of Goodrich peak, Found in orange to light brown weathering, flaggy sandstone.

Thickness of coal seam difficult to determine due to amount of scree slope.

- Retrenched on opposite side of ridge (North side) see GRT-80-B2

COAL/ROCK = 0.44 / 0.44

STRIKE - 302°  
DIP - 47° SW  
TRENCH BEARING -

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

GOODRICH PEAK

GRT-80-B1

DRAWN BY: L. CHILD

DATE: 06-7-80 SCALE

PREPARED BY: A. BIENIA

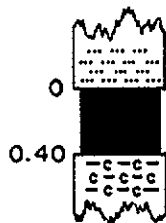
DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.40



ROOF

Siltstone; weathers tan; fresh light brown;  
thin laminations; slightly calcareous;  
Fe staining; mica

Coal: dull; powdery; oxidized


Mudstone; dark grey carbonaceous;  
plant fragments

FLOOR

Trench GRT-80-B2 - Seam is believed to be the same as GRT-80-B1  
GRT-80-B1 - Retrenched on Northside due to scree on south side

COAL/ROCK = 0.40 / 0.40

STRIKE - 290°  
DIP - 40° SW  
TRENCH BEARING - 200°

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY		ALBERTA
<b>GOODRICH COAL PROJECT</b>		
TRENCHING LOGS		
GOODRICH PEAK		
GRT-80-B2		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

**TRUE THICKNESS**

0.23  
0.37  
0.02  
0.68  
0.02  
0.68  
0.28

0.02



**ROOF**

Mudstone; dark brown; carbonaceous plant remains

- Coal: dull; powdery
- Coal: dull; breaks into very small pieces - pencil lead size
- Coal: dull; powdery
- Coal: dull; breaks into pieces — grease pencil lead size; when dry, looks dirty
- Coal: dull; powdery; lower portion appears to be sandy


Clay: dark grey to black; very carbonaceous; Thickness difficult to determine due to irregularity of floors surface

Quartzite: medium grained; friable; poorly cemented or weathered

**FLOOR**

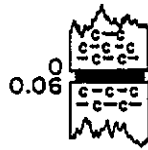
COAL/ROCK = 1.58 / 1.60

STRIKE - 280°  
DIP - 37°W  
TRENCH BEARING - 180°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-B3</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

TRUE THICKNESS

0.06



ROOF


Mudstone; Brown; carb;  
Coal: dull, powdery; oxid  
Mudstone; light brown; carbonaceous

FLOOR

Note: Wet. Difficult to measure.

COAL/ROCK = 0.06 / 0.06

STRIKE - 298°  
DIP - 45°  
TRENCH BEARING -

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-B4</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	



TRUE THICKNESS

1.70



ROOF

Mudstone; medium brown; micaceous; small blocks; carbonaceous


Coal: dull; powdery; frozen

Mudstone: dark gray, carbonaceous, thin bed

FLOOR

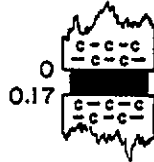
COAL/ROCK = 1.70 / 1.70

STRIKE - 295 °  
DIP - 40 ° SW  
TRENCH BEARING - 210 °

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-B5</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

TRUE THICKNESS

0.17



ROOF

Mudstone; grey; carbonaceous; micaceous

Coal: dull; powdery

Mudstone; medium grey; silty; carbonaceous

FLOOR

COAL/ROCK = 0.17 / 0.17

STRIKE - 300°  
DIP - 42° SW  
TRENCH BEARING -

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

GOODRICH PEAK

GRT-80-B6

DRAWN BY: L. CHILD

DATE: 06-7-80 SCALE

PREPARED BY: A. BIENIA

DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.12



ROOF

Mudstone; medium brown; carbonaceous

Coal: dull; powdery; wet


Mudstone; medium brown; wet

Below Floor: Sandstone; light brown fine grained, flaggy; very calcereous

FLOOR

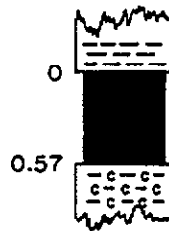
COAL/ROCK = 0.12 / 0.12

STRIKE - 299°  
DIP - 39° SW  
TRENCH BEARING -

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division	
<b>GOODRICH COAL PROJECT</b>		
TRENCHING LOGS		
GOODRICH PEAK		
GRT-80-B7		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

TRUE THICKNESS

0.57



ROOF

Mudstone; brown; thin-bedded; fissile;


Coal: dull to bright; blocky

Mudstone; light grey; carbonaceous; micaceous; blocky

FLOOR

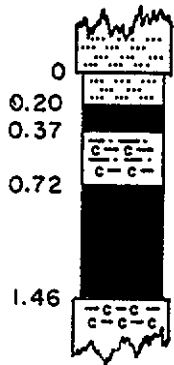
COAL/ROCK = 0.57 / 0.57

STRIKE - 298°  
DIP - 40° SW  
TRENCH BEARING -

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division	ALBERTA	
CALGARY		
<b>GOODRICH COAL PROJECT</b>		
TRENCHING LOGS		
GOODRICH PEAK		
GRT-80-B8		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

**TRUE THICKNESS**

0.20  
0.17  
0.35  
0.74



**ROOF**

Above Roof: Sandstone; quartzitic  
Sandstone; quartzitic; rusty brown; fine - medium grained; iron stained;  
Coal: dull; powdery  
Rock: Siltstone to fine sandstone; medium to dark gray; carbonaceous;  
micaceous; fine laminated; may not be in place

Coal: dull; powdery; blocky; frozen

Mudstone; medium gray; carbonaceous; some plant fossils

**FLOOR**

COAL/ROCK = 0.91 / 1.46

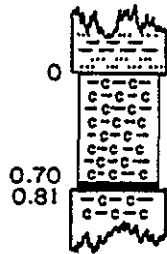
STRIKE - 310°  
DIP - 41° SW  
TRENCH BEARING - 217°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-89</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

**TRUE THICKNESS**

0.7

0.11



**ROOF**

Above Roof: Sandstone; quartzitic; interbedded mudstone & siltstone; light grey

Mudstone; carbonaceous; dark brown


Coal: dull; powdery; wet

Mudstone; dark brown; wet; carbonaceous

**FLOOR**

COAL/ROCK = 0.11 / 0.81

STRIKE - 299°  
 DIP - 44° SW  
 TRENCH BEARING -

<b>GULF CANADA RESOURCES INC.</b>		
<small>Coal Division</small>		
<small>CALGARY</small>	<small>ALBERTA</small>	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-B10</b>		
<small>DRAWN BY: L. CHILD</small>	<small>DATE: 06-7-80</small>	<small>SCALE</small>
<small>PREPARED BY: A. BIENIA</small>	<small>DRAWING No.</small>	
<small>APPROVED BY:</small>	<small>DATE:</small>	

TRUE THICKNESS

0.15



ROOF

Mudstone; very fissile

Coal: dull; powdery

Mudstone; dark; carbonaceous

FLOOR

Note: Seam is wet.

COAL/ROCK = 0.15 / 0.15

STRIKE - 295°  
DIP - 45° SW  
TRENCH BEARING -

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

GOODRICH PEAK

GRT 80 B11

DRAWN BY: L. CHILD

DATE: 06 7 80 SCALE

PREPARED BY: A. BIENIA

DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.30



ROOF

Siltstone; medium brown; laminated; blocky


Coal: dull; powdery; soft

Siltstone; medium grey; blocky; carbonaceous

FLOOR

COAL/ROCK = 0.30 / 0.30

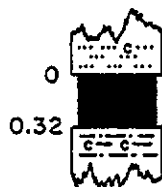
STRIKE - 307°  
DIP - 32° SW  
TRENCH BEARING - 224°

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY		ALBERTA
<b>GOODRICH COAL PROJECT</b>		
TRENCHING LOGS		
GOODRICH PEAK		
GRT-80-B12		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	



TRUE THICKNESS

0.32



ROOF

Sandstone; rusty brown; highly weathered; fine grained; slightly carbonaceous

Coal: dull to bright; powdery but breaks into blocks

Siltstone; medium grey; very carbonaceous

FLOOR

COAL/ROCK = 0.32/0.32

STRIKE - 311°  
DIP - 38° SW  
TRENCH BEARING -

GULF CANADA RESOURCES INC.

CALGARY Coal Division

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

GOODRICH PEAK

GRT-80-B13

DRAWN BY: L. CHILD

DATE: 06-7-80 SCALE

PREPARED BY: A. BIENIA

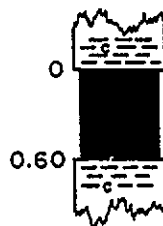
DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.60



ROOF

Mudstone; medium grey; slightly carbonaceous; blocky

Coal: dull; powdery; soft

Mudstone; dark grey; thin carbonaceous laminations

FLOOR

COAL/ROCK = 0.60 / 0.60

STRIKE - 320°  
DIP - 35° SW  
TRENCH BEARING -

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

GOODRICH PEAK

GRT-80-B14

DRAWN BY: L. CHILD

DATE: 06-7-80 SCALE

PREPARED BY: A. BIENIA

DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.25



ROOF

Siltstone; medium to dark grey; carbonaceous; laminated; blocky

Coal: dull; powdery; wet

Mudstone; medium grey; carbonaceous; fissile

FLOOR

COAL/ROCK = 0.25/0.25

STRIKE - 335°  
DIP - 48° SW  
TRENCH BEARING - 277°

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

GOODRICH PEAK

GRT-80-B15

DRAWN BY: L. CHILD

DATE: 06-7-80 SCALE

PREPARED BY: A. BIENIA

DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.44

0.44

3.16

3.60



ROOF

Sandstone; medium grey; salt & pepper; fine to medium grained; iron staining; carbonaceous

Rock: Mudstone; light grey; fissile; carbonaceous


Coal: dull; powdery to small blocks; frozen at base and with water seeping in places

Mudstone; medium brown to grey; very carbonaceous; fissile, mica

FLOOR

COAL/ROCK = 3.16 / 3.60

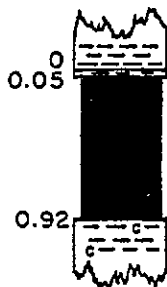
STRIKE - 337°  
 DIP - 73° W  
 TRENCH BEARING -

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-B16</b>		
<small>DRAWN BY:</small> L. CHILD	<small>DATE:</small> 06 7 80	<small>SCALE</small>
<small>PREPARED BY:</small> A. BIENIA	<small>DRAWING No.</small>	
<small>APPROVED BY:</small>	<small>DATE:</small>	

TRUE THICKNESS

0.05

0.87



ROOF

Mudstone: reddish brown; iron staining; breaks into pieces; plant fossils;

Rock: clay; grey to reddish brown on top


Coal: dull to bright; hard; breaks into large blocks

Mudstone; light grey; slightly carbonaceous; soft; fissile

FLOOR

COAL/ROCK = 0.87/0.92

STRIKE - 320°  
DIP - 44°W  
TRENCH BEARING -

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY	ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
TRENCHING LOGS		
GOODRICH PEAK		
GRT-80-B17		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

TRUE THICKNESS

1.34



ROOF

Siltstone; wet - dark brown; dry - light reddish brown;  
fine laminations

Coal: dull to bright; hard; breaks into large blocks

Mudstone; dark grey; carbonaceous

FLOOR

COAL/ROCK = 1.34 / 1.34

STRIKE - 322°  
DIP - 32° W  
TRENCH BEARING - 235°

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

GOODRICH PEAK

GRT-80-B18

DRAWN BY: L. CHILD

DATE: 06-7-80

SCALE

PREPARED BY: A. BIENIA

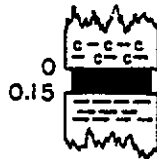
DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.15



ROOF

Mudstone: dark grey, very carbonaceous, fissile, infrequent bright bands


Coal: dull, soft, dirty

Mudstone: medium brown, blocky, plant fragments

FLOOR

COAL/ROCK = 0.15/0.15

STRIKE - 332°  
DIP - 40° SW  
TRENCH BEARING -

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-B19</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

**TRUE THICKNESS**

0.22



**ROOF**

Sandstone: medium brown, weathers orange brown


Coal: dull-bright, soft, wet

Mudstone: dark grey, very carbonaceous, dirty

**FLOOR**

COAL/ROCK = 0.22 / 0.22

STRIKE - 322°  
DIP - 42°SW  
TRENCH BEARING -

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-B20</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	



TRUE THICKNESS

0.48



ROOF

Sandstone: orange brown, well weathered, blocky

Coal: dull-bright, small blocks

Mudstone: medium grey, blocky, weathered medium brown

FLOOR

COAL/ROCK = 0.48 / 0.48

STRIKE - 322°  
DIP - 42° SW  
TRENCH BEARING -

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

GOODRICH PEAK

GRT · 80 · B2I

DRAWN BY: L. CHILD

DATE: 06-7-80

SCALE

PREPARED BY: A. BIENIA

DRAWING No.

APPROVED BY:

DATE:

**TRUE THICKNESS**

0.03  
0.21  
0.26  
0.12




**ROOF**

Mudstone: medium grey; fissile  
Coal: dull, soft, wet  
Coal: dull-bright, blocky pieces, semi-hard  
Coal: dull-bright; very hard, blocky  
Coal: dull-bright, small pieces, semi-hard  
Mudstone: dark grey, fissile, coaly lens

**FLOOR**

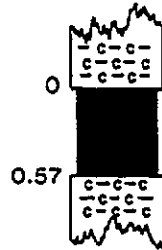
COAL/ROCK = 0.62 / 0.62

STRIKE - 322 °  
DIP - 42 ° SW  
TRENCH BEARING -

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT - 80 - B21A</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

TRUE THICKNESS

0.12  
0.17  
0.28



ROOF

Mudstone: medium to dark gray;  
carbonaceous; fissile

Coal: dull, hard

Coal: dull-bright; hard; some thin vitrain bands


Coal: dull; soft to hard

Mudstone: light brown; carbonaceous;  
micaceous

FLOOR

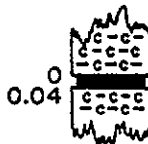
COAL/ROCK = 0.57 / 0.57

STRIKE - 320°  
DIP - 46°SW  
TRENCH BEARING -

<b>GULF CANADA RESOURCES INC.</b>		
<small>Coal Division</small>		
<small>CALGARY</small>	<small>ALBERTA</small>	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-B22</b>		
<small>DRAWN BY: L. CHILD</small>	<small>DATE: 06-7-80</small>	<small>SCALE</small>
<small>PREPARED BY: A. BIENIA</small>	<small>DATE:</small>	<small>DRAWING No.</small>
<small>APPROVED BY:</small>	<small>DATE:</small>	

TRUE THICKNESS

0.04



ROOF

Mudstone: medium brown; carbonaceous, fissile

Coal:

Mudstone: dark grey; very carbonaceous; hard

FLOOR

COAL/ROCK = 0.04/0.04

STRIKE - 320°  
DIP - 43° SW  
TRENCH BEARING - 215°

Note: Underneath north side of saddle

GULF CANADA RESOURCES INC.

Coal Division

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

GOODRICH PEAK

GRT-80-B23

DRAWN BY: L. CHILD

DATE: 06-7-80

SCALE

PREPARED BY: A. BIENIA

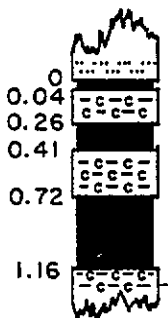
DRAWING No.

APPROVED BY:

DATE:

**TRUE THICKNESS**

0.04  
0.22  
0.15  
0.31  
0.25  
0.19



**ROOF**

Sandstone: medium to orange brown; fine to medium grained; micaceous  
 Coal: bright; vitreous  
 Rock: mudstone: dark grey, soft, fissile, very carbonaceous  
 Coal: dull, powdery, soft  
 Rock: Mudstone: dark grey, carbonaceous, fissile  
 Coal: dull, soft, hard  
 Coal: bright-dull, hard  
 Mudstone: brown, carbonaceous, plant debris, micaceous

**FLOOR**

COAL/ROCK = 0.63 / 1.16

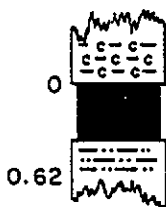
STRIKE - 317°  
 DIP - 53° SW  
 TRENCH BEARING - 210°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-B24</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

TRUE THICKNESS

0.34

0.29



ROOF

Mudstone: medium grey; carbonaceous; fissile


Coal: dull

Siltstone: medium grey; carbonaceous plant remains; hard

FLOOR

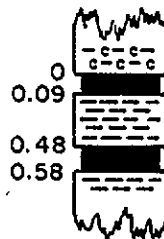
COAL/ROCK = 0.34/0.62

STRIKE - 317°  
DIP - 52°  
TRENCH BEARING - 197°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-B25</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

**TRUE THICKNESS**

0.09  
0.39  
0.10



**ROOF**

Mudstone: light medium grey, carbonaceous  
Coal: dull, soft

Rock: Mudstone: medium grey, fissile, soft

Coal:


Mudstone: light grey, soft, fissile

**FLOOR**

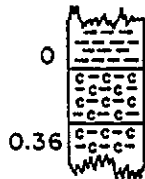
COAL/ROCK = 0.19 / 0.58

STRIKE - 317°  
DIP - 47° SW  
TRENCH BEARING - 215°

taken in trench, apparent dip

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-B26</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE -
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

TRUE THICKNESS



ROOF

Mudstone: light to medium brown; lower portion soft; upper hard; platy;


Mudstone: very-very carbonaceous; hard with some vitrain material

Mudstone: dark gray; carbonaceous

FLOOR

COAL/ROCK =

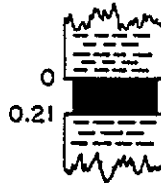
STRIKE - 315°  
DIP - 59° W  
TRENCH BEARING - 230°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-827</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	



TRUE THICKNESS

0.21



ROOF

Mudstone: medium grey; fissile; soft

Coal: dull; powdery; soft; some pieces break into very small blocks

Mudstone: light brown; soft; almost clay

FLOOR

Note: trenched underneath sandstone; grey; medium grained

COAL/ROCK = 0.21/0.21

STRIKE - 317°  
DIP - 61° SW  
TRENCH BEARING - 230°

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

GOODRICH PEAK

GRT-80-B28

DRAWN BY: L. CHILD

DATE: 06-7-80 SCALE

PREPARED BY: A. BIENIA

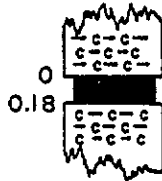
DRAWING No.

APPROVED BY:

DATE:

**TRUE THICKNESS**

0.18



**ROOF**

Mudstone: medium brown; carbonaceous; plant fragments; micaceous; fissile

Coal: dull; powdery; soft

Mudstone: light to medium gray; carbonaceous fissile; micaceous

**FLOOR**

COAL/ROCK = 0.18/0.18

STRIKE - 312°  
DIP - 55° SW  
TRENCH BEARING - 205°

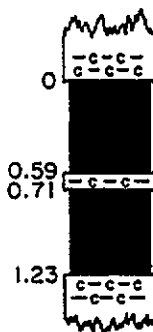
<b>GULF CANADA RESOURCES INC.</b>		
Coal Division	ALBERTA	
CALGARY		
<b>GOODRICH COAL PROJECT</b>		
TRENCHING LOGS		
GOODRICH PEAK		
GRT-80-B29		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

TRUE THICKNESS

0.59

0.12

0.52



ROOF

Mudstone: light grey; fissile; carbonaceous

Coal: dull; powdery, soft

Rock: Mudstone: medium grey; fissile; carbonaceous


Coal: dull; powdery, small blocks

Mudstone: light to medium grey; carbonaceous

FLOOR

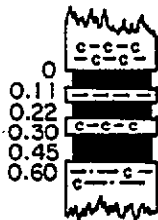
COAL/ROCK = 1.11 / 1.23

STRIKE - 312°  
DIP - 55°SW  
TRENCH BEARING - 215°

<b>GULF CANADA RESOURCES INC.</b>		
Calgary	Coal Division	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-B30</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

**TRUE THICKNESS**

0.11  
0.11  
0.08  
0.15  
0.15



**ROOF**

Mudstone: medium to light brown; carbonaceous; fissile  
 Coal: dull-bright; soft; small blocks  
 Rock: Mudstone; brown; blocky  
 Coal: dull-bright; very small blocks; soft; very dirty  
 Rock: Mudstone: dark grey; fissile; thin bright coaly lens  
 Coal: dull; crunchy, wet, few blocky  
 Siltstone: light brown; gritty; blocky; carbonaceous; plant fragments

**FLOOR**

COAL/ROCK = 0.39 / 0.60

STRIKE - 315°  
 DIP - 45° SW  
 TRENCH BEARING - 220°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80- B31</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

TRUE THICKNESS

0.23



ROOF

Siltstone: medium gray; blocky


Coal: dull-bright, soft

Siltstone: dark brown; carbonaceous; blocky

FLOOR

COAL/ROCK = 0.23/0.23

STRIKE - 304°  
DIP - 57° SW  
TRENCH BEARING - 212°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-B32</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	1

**TRUE THICKNESS**

0.03  
0.10




**ROOF**

Siltstone: orange brown; blocky; weathered  
Rock: Mudstone: dark grey; very carbonaceous; coaly  
Coal: dull, soft, wet, small blocky pieces  
Clay: light grey, soft

**FLOOR**

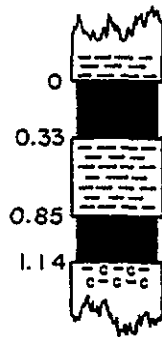
COAL/ROCK = 0.10 / 0.13

STRIKE - 304°  
DIP - 57°SW  
TRENCH BEARING - 209°

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY	ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT- 80-B33</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

**TRUE THICKNESS**

0.33  
0.52  
0.29  
1.14



**ROOF**

Mudstone: medium brown; well weathered; thinly bedded

Coal: dull, very soft, powdery

Rock: Mudstone: blocky pieces, medium brown, well weathered


Coal: dull-bright, soft but packed, frequent small blocks

Mudstone: dark grey, carbonaceous; prominent contact

**FLOOR**

COAL/ROCK = 0.62 / 1.14

STRIKE - 297°  
DIP - 56° SW  
TRENCH BEARING - 207°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	ALBERTA	
Coal Division		
<b>GOODRICH COAL PROJECT</b>		
TRENCHING LOGS		
GOODRICH PEAK		
GRT-80-B34		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

**TRUE THICKNESS**

0.13  
0.07  
0.37  
0.14  
0.41



**ROOF**

Mudstone; medium brown; weathered; blocky and broken; slightly carbonaceous


- Coal: dull; soft; powdery
- Coal: dull-bright; blocky pieces; semi-hard
- Coal: dull; frequent; small blocky pieces; soft
- Coal: dull-bright; very blocky; hard
- Coal: dull; soft; occasional blocks; small

Mudstone: medium brown; weathered; blocky

**FLOOR**

COAL/ROCK = 1.12 / 1.12

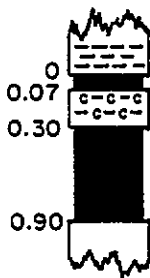
STRIKE - 302°  
DIP - 56° SW  
TRENCH BEARING - 205°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-B35</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	



**TRUE THICKNESS**

0.07  
0.23  
0.60



**ROOF**

medium brown, well weathered, fissile

Coal: dull; very soft

Rock: Mudstone and some soft coal; Mudstone: small blocky pieces; carbonaceous


Coal: dull to bright; frequent block pieces; soft

Clay and small mudstone pieces; light grey; wet

**FLOOR**

COAL/ROCK = 0.67 / 0.90

STRIKE - 305°  
DIP - 76° SW  
TRENCH BEARING - 215°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-B36</b>		
DRAWN BY: <b>L. CHILD</b>	DATE: <b>06-7-80</b>	SCALE
PREPARED BY: <b>A. BIENIA</b>		DRAWING No.
APPROVED BY:	DATE:	

TRUE THICKNESS

0.09



ROOF

Mudstone: medium grey; blocky

Coal: soft, dull-bright; intermittent rocky pieces

Mudstone: light grey; very small pieces; thinly bedded

FLOOR

Note: this seams shows a vertical dip; slumping and washing out may have occurred as well as perhaps the seam is overturned since immediately above is prominent dipping North east, also actual thickness is doubted due to variability of the seam.

COAL/ROCK = 0.09 / 0.09

STRIKE - 305°  
DIP - 76° SW  
TRENCH BEARING - 215°

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

GOODRICH PEAK

GRT-80-B37

DRAWN BY: L. CHILD

DATE: 06-7-80

SCALE

PREPARED BY: A. BIENIA

DRAWING No.

APPROVED BY:

DATE:

**TRUE THICKNESS**

0.37  
0.25



**ROOF**

Mudstone: medium brown; well weathered; blocky

Coal: dull-bright; very soft, small pieces

Coal: bright; abundant hard block pieces; crushes to brown dirt frequently but does not resemble mudstone


Mudstone: dark grey, very carbonaceous, blocky, contact obscure

**FLOOR**

Note: this seam as in GRT-80-B37 appears to be overturned and contacts and obvious attitude is generally obscure

COAL/ROCK = 0.62 / 0.62

STRIKE - 305°  
DIP - 76°SW  
TRENCH BEARING - 212°

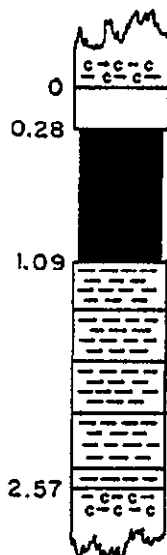
<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY	ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-B38</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

**TRUE THICKNESS**

0.28

0.81

1.48



**ROOF**

Mudstone: medium grey; slightly carbonaceous; fissile;

Dirt: mudstone fragments, coal

Coal: dull, soft, dirty


Rock: mudstone fragments, dirt, coal

Mudstone: dark grey, carbonaceous

**FLOOR**

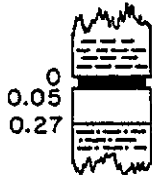
COAL/ROCK = 0.81 / 2.57

STRIKE - 305°  
 DIP - 58°SW  
 TRENCH BEARING - 215°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-G1</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

**TRUE THICKNESS**

0.05  
0.22



**ROOF**

Mudstone: yellow brown, well weathered, fissile

Coal: soft, powdery; dull to bright, with brighter hard pieces

Rock: Mudstone, dirt and coal

Siltstone: orange brown; blocky; prominent

**FLOOR**

COAL/ROCK = 0.05 / 0.27

STRIKE - 305°  
DIP - 56° SW  
TRENCH BEARING - 217°

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division	ALBERTA	
CALGARY		
<b>GOODRICH COAL PROJECT</b>		
TRENCHING LOGS		
GOODRICH PEAK		
GRT - 80 - G2		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

TRUE THICKNESS

0.55

0.70

1.25

0.53

1.78

0.16

1.94



ROOF

Mudstone: medium brown; very fissile; interbedded with dirt

Coal: dull, soft, occasional soft blocks

Coal: dull, very soft, powdery

Rock: Mudstone; medium brown; block pieces  
also dirt and coal

Coal: soft, dull

Mudstone: medium grey, blocky, lots of dirt, well weathered

FLOOR

COAL/ROCK = 1.41 / 1.94

STRIKE - 303°  
DIP - 56°SW  
TRENCH BEARING - 215°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-G3</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

TRUE THICKNESS

0.26



ROOF

Clay: dirt; mudstone pieces


Coal: dull, very soft; intermittent muddy pieces throughout

Siltstone: medium brown; well weathered; blocky

FLOOR

COAL/ROCK = 0.26/0.26

STRIKE - 300°  
DIP - 65° SW  
TRENCH BEARING - 215°

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY		ALBERTA
<b>GOODRICH COAL PROJECT</b>		
TRENCHING LOGS		
GOODRICH PEAK		
GRT-80-G4		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

TRUE THICKNESS

0.04  
0.22  
0.06



ROOF

Mudstone: medium — dark brown; fissile;  
thinly bedded

Coal: dull; soft; very small pieces

Mudstone: dark brown, thinly bedded


Coal: dull; very soft

Siltstone: well weathered; laminated  
medium brown

FLOOR

COAL/ROCK = 0.10 / 0.32

STRIKE - 300°  
DIP - 65°SW  
TRENCH BEARING -

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	ALBERTA	
Coal Division		
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT - 80 - G5</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	



TRUE THICKNESS

0.32



ROOF

Mudstone: medium grey; fissile


Coal: dull, soft, block pieces

Siltstone: medium brown, blocky

FLOOR

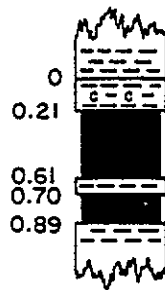
COAL/ROCK = 0.32 / 0.32

STRIKE - 300°  
DIP - 65° SW  
TRENCH BEARING - 205°

<b>GULF CANADA RESOURCES INC.</b> Coal Division		
CALGARY	ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
TRENCHING LOGS		
GOODRICH PEAK		
GRT-80-66		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

**TRUE THICKNESS**

0.21  
0.40  
0.09  
0.19



**ROOF**

Mudstone: very hard; extremely weathered; orange brown; blocky

Rock: Mudstone pieces and coal

Coal: dull, very soft

Rock: dirt and mudstone pieces


Coal: dull-bright, frequent small blocks

Clay & mudstone pieces, dirt

**FLOOR**

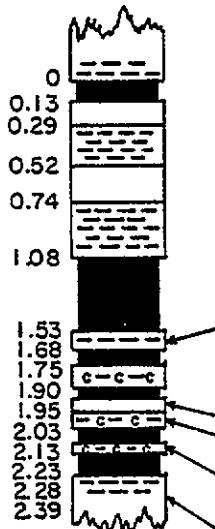
COAL/ROCK = 0.59 / 0.89

STRIKE - 300°  
DIP - 75° SW  
TRENCH BEARING - 210°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	ALBERTA	
Coal Division		
<b>GOODRICH COAL PROJECT</b>		
TRENCHING LOGS		
GOODRICH PEAK		
GRT-80-G7		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

**TRUE THICKNESS**

0.13  
 0.16  
 0.23  
 0.22  
 0.34  
 0.45  
 0.15  
 0.07  
 0.15  
 0.05  
 0.08  
 0.10  
 0.10  
 0.05  
 0.11



**ROOF**

Mudstone: medium brown; well weathered; blocky  
 Coal: soft, dull, powdery  
 Dirt: brown  
 Rock: mudstone: dark brown, blocky pieces  
 Dirt: with dark grey pieces of mudstone: intermittent  
 Rock: mudstone: dark grey, blocky  
 Coal: bright-dull; bright blocky pieces, occasional mudstone pieces  
 Rock: mudstone: medium grey; blocky  
 Coal: dull-bright, frequent bright blocky pieces  
 Rock: mudstone; dark grey; very carbonaceous, abundant coaly lenses  
 Coal: dull, powdery, soft  
 Dirt: brown, soft  
 Rock: mudstone: dark grey; carbonaceous; thin pieces  
 Coal: dull; soft; powdery  
 Rock: dark grey; carbonaceous; hard blocky pieces  
 Coal: dull, soft, powdery  
 Mudstone: medium to light grey; blocky

**FLOOR**

COAL/ROCK = 0.91 / 2.39

STRIKE - 307°  
 DIP - 75° SW  
 TRENCH BEARING - 219°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-G8</b>		
DRAWN BY: L. CHILD	DATE: 06 7 80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

**TRUE THICKNESS**

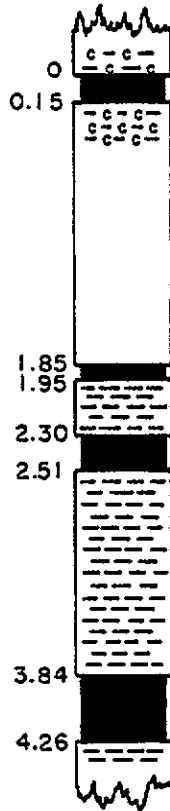
0.15  
0.30

1.40

0.10  
0.35  
0.21

1.33

0.42



**ROOF**

dirt and mudstone pieces; dark grey; carbonaceous  
Coal: dull, soft, small blocky  
Mudstone: coal; dark grey; carbonaceous

Mudstone: orange brown; dirt

Coal: dull, soft, powdery  
Mudstone: medium grey; dirt; orange brown; clay-dirt  
Coal: dull, soft, well packed

Mudstone: medium grey; dirt; well packed

Coal: dull, soft, small bright pieces

Mudstone: dark brown; well weathered; blocky

**FLOOR**

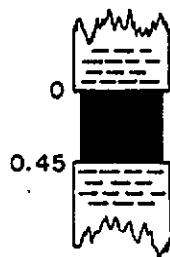
COAL/ROCK = 0.88 / 4.26

STRIKE - 305°  
DIP - 35° SW  
TRENCH BEARING - 212°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-G9</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

TRUE THICKNESS

0.45



ROOF

Dirt; brown; mudstone pieces

Coal: dull; soft; abundant small pieces

Mudstone: dark brown; dirt

FLOOR

COAL/ROCK = 0.45 / 0.45

STRIKE - 305°  
DIP - 85° SW  
TRENCH BEARING - 218°

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

GOODRICH PEAK

GRT-80-G10

DRAWN BY: L. CHILD

DATE: 06-7-80 SCALE

PREPARED BY: A. BIENIA

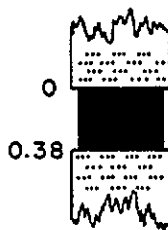
DRAWING No.

APPROVED BY:

DATE:

**TRUE THICKNESS**

0.18  
0.20



**ROOF**

Siltstone: orange brown; well weathered; blocky pieces; dirt

Coal: Dull; soft; prominent; mudstone pieces dark grey; carbonaceous

Coal: dull; soft


Siltstone: grey brown; blocky pieces

**FLOOR**

Note: seam appears to be overturned

COAL/ROCK = 0.38 / 0.38

STRIKE - 305°  
DIP - 63° NE  
TRENCH BEARING - 215°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80 - G11</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

TRUE THICKNESS

0.15  
0.08



ROOF

Mudstone: orange brown; highly weathered;  
blocky pieces and dirt

Coal: dull, soft; with thin mudstone flakes


Coal: dull, soft

Siltstone: medium grey: blocky

FLOOR

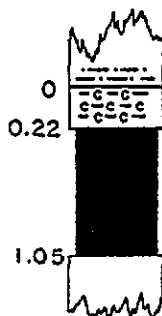
COAL/ROCK = 0.23 / 0.23

STRIKE - 305°  
DIP - 235°SW  
TRENCH BEARING - 218°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-G12</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

**TRUE THICKNESS**

0.22  
0.40  
0.23  
0.20



**ROOF**


Siltstone: orange brown; laminated; well weathered  
 Rock: Mudstone: pieces, thin and some coal  
 Coal: dull; soft and occasional mudstone pieces  
 Coal: dull, with layers of thin bright blocks  
 Coal: dull, soft

Dirt: orange brown

**FLOOR**

COAL/ROCK = 0.83/ 1.10

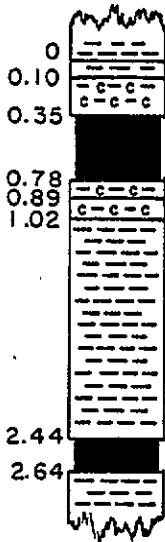
STRIKE - 305°  
 DIP - 72° SW  
 TRENCH BEARING - 215°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-G13</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	



**TRUE THICKNESS**

0.10  
 0.25  
 0.43  
 0.11  
 0.13  
  
 1.42  
  
 0.20



**ROOF**

Mudstone: light brown; very fissile; almost clay - \* Dip 38° E  
 Mudstone: coaly ?; dull; powdery  
 Mudstone: dark grey; carbonaceous; fissile  
 Coal: dull; breaks into small pieces + (when wet) (dry) → medium to dark grey - looks like mudstone  
 Mudstone: reddish brown; carbonaceous (wet)  
 Mudstone: dark grey; very carbonaceous; powdery; dirty looking when crushed

Mudstone: browns and greys

Coal: dull; blocky (wet) - possibly very carbonaceous mudstone

Mudstone: medium brown; carbonaceous

**FLOOR**

**Note:** Sandstone outcrop below seam (East) dips to west but coal and strata in both trenches dip to east at 38°. Possible slumping, overturning of beds or faulting?  
 Started logging at east end of trench (Floor) progressing west up section.

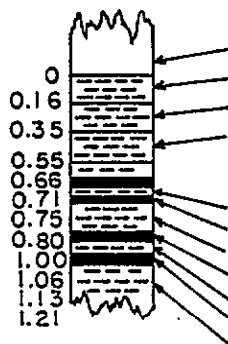
**COAL/ROCK = 0.63 / 2.64**

**STRIKE** - 307°  
**DIP** - 76°SW  
**TRENCH BEARING** -

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-G14</b>		
<b>DRAWN BY:</b> L. CHILD	<b>DATE:</b> 06-7-80	<b>SCALE</b>
<b>PREPARED BY:</b> A. BIENIA	<b>DRAWING No.</b>	
<b>APPROVED BY:</b>	<b>DATE:</b>	

**TRUE THICKNESS**

0.16  
0.19  
0.20  
0.11  
0.05  
0.04  
0.05  
0.20  
0.06  
0.07  
0.08




**ROOF**

Soil: - maybe mudstone - light brown  
Mudstone: light to medium grey; friable  
Mudstone: light to dark grey; very coaly; difficult to log; very weathered  
Mudstone: reddish brown with two coal bands  $\leq$  0.5 cm  
Mudstone: medium grey; friable  
Coal: dull; powdery  
Mudstone: medium grey; friable  
Coal: dull;  
Mudstone: medium grey; friable  
Coal: dull; pen size pieces  
Mudstone: dark grey; very friable; powdery  
Coal: dull; pen size pieces  
Mudstone: medium grey; friable

**FLOOR**

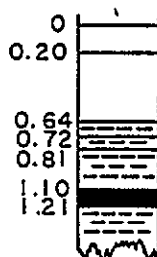
COAL/ROCK = 0.24 / 1.21

STRIKE - 310°  
DIP - 24°W  
TRENCH BEARING - 232°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-G15</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

**TRUE THICKNESS**

0.20  
0.44  
0.08  
0.09  
0.29  
0.11




**ROOF**

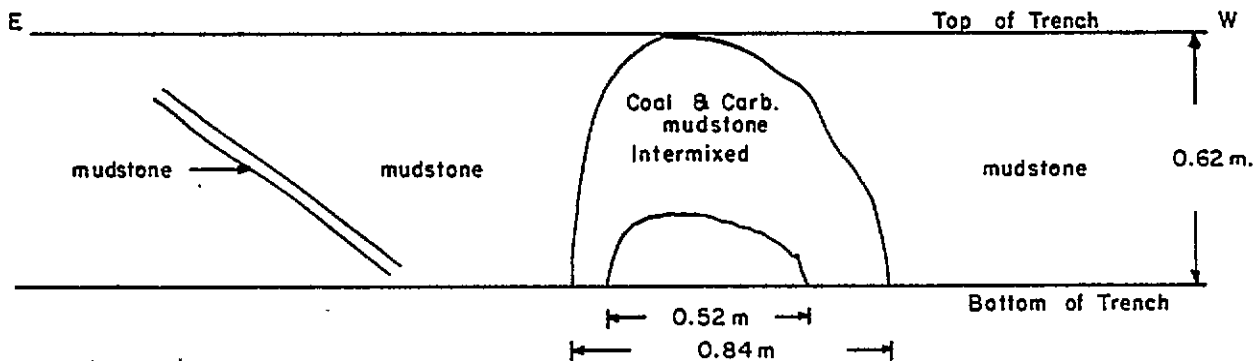
Soil and roots  
Coal: mudstone mixed; very oxidized  
Mudstone: light grey  
Mudstone: reddish brown  
Mudstone: light grey; coaly in places  
Coal: dull; powdery  
Mudstone: light reddish brown

**FLOOR**

COAL/ROCK = 0.11 / 1.21

STRIKE - 310°  
DIP - 24°  
TRENCH BEARING - 200°

<b>GULF CANADA RESOURCES INC.</b>		
<small>Coal Division</small>		
<small>CALGARY</small>	<small>ALBERTA</small>	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-G16</b>		
<small>DRAWN BY: L. CHILD</small>	<small>DATE: 06-7-80</small>	<small>SCALE</small>
<small>PREPARED BY: A. BIENIA</small>	<small>DRAWING No.</small>	
<small>APPROVED BY:</small>	<small>DATE:</small>	




Mudstone: reddish brown on either side with some coaly areas;  
 highly weathered — more like soil; base of trench is  
 mudstone except in indicated area.

COAL/ROCK =

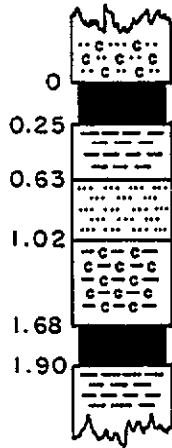
STRIKE - 310°  
 DIP - 24°  
 TRENCH BEARING - 215°

Note: Strata in trench appears to be highly disturbed

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY	ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-G17</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

**TRUE THICKNESS**

0.25  
0.38  
0.39  
0.66  
0.22



**ROOF**

Siltstone: reddish brown; carbonaceous plant remains

Coal: dull; powdery; highly oxidized

Mudstone: light brown; friable

Sandstone: weathers reddish brown; fresh salt & pepper grey; fine grained

Mudstone: reddish brown; some carbonaceous mudstone lenses

Coal: dull; powdery

Mudstone: reddish brown

**FLOOR**

Note: Coal and carbonaceous shale in places appears to be mixed.  
- disturbed ?

COAL/ROCK = 0.47 / 1.90

STRIKE - 315°  
DIP - 56° SW  
TRENCH BEARING - 218°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-G18</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

TRUE THICKNESS

0.27



ROOF

Sandstone: light brown; fine ground

Mudstone: dark grey; very carbonaceous

Mudstone: reddish brown

FLOOR

COAL/ROCK = 0.00 / 0.27

STRIKE - 315°  
DIP - 56° SW  
TRENCH BEARING -

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

GOODRICH PEAK

GRT-80-G19

DRAWN BY: L. CHILD

DATE: 06-7-80

SCALE

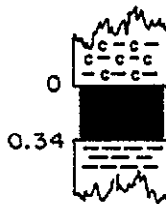
PREPARED BY: A. BIENIA

APPROVED BY:

DATE:

TRUE THICKNESS

0.34



ROOF

Mudstone: brown to light grey; carbonaceous  
coal; dull

Mudstone: light grey to reddish brown at base

FLOOR

COAL/ROCK = 0.34/0.34

STRIKE - 318°  
DIP - 78°SW  
TRENCH BEARING - 225°

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

GOODRICH PEAK

GRT-80-G20

DRAWN BY: L. CHILD

DATE: 06-7-80

SCALE

PREPARED BY: A. BIENIA

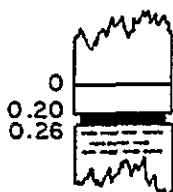
DRAWING No.

APPROVED BY:

DATE:

**TRUE THICKNESS**

0.20  
0.06



**ROOF**

Soil; roots, etc.

Coaly horizon; looks like coal & carbonaceous mudstone mixed


Coal: bright; small pieces

Mudstone: reddish brown

**FLOOR**

COAL/ROCK = 0.06/0.26

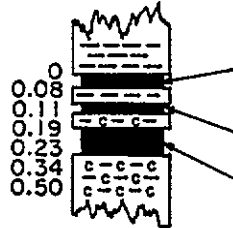
STRIKE -  
DIP -  
TRENCH BEARING -

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-G21</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	



**TRUE THICKNESS**

0.08  
0.03  
0.08  
0.04  
0.11  
0.16



**ROOF**

Scree? mostly mudstone: maybe oxidized mudstone

Coal: dull; soft; oxidized

Mudstone: medium gray

Mudstone: dark grey; carbonaceous

Coal: dull; bright; soft; powdery

Mudstone: dark grey; carbonaceous; soft

Coal: dull; soft; bright

Mudstone: light brown; carbonaceous; plant fragments;  
some limonite staining


**FLOOR**

**COAL/ROCK = 0.28 / 0.50**

Take on outcrop below

**GRT-80-G24**

**STRIKE - 314°**  
**DIP - 45°SW**  
**TRENCH BEARING - 240°**

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-G22</b>		
DRAWN BY: <b>L. CHILD</b>	DATE: <b>06-7-80</b>	SCALE
PREPARED BY: <b>A. BIENIA</b>	DRAWING No.	
APPROVED BY:	DATE:	

**TRUE THICKNESS**

0.05  
0.20  
0.05  
0.26  
0.08

0  
0.05  
0.25  
0.30  
0.56  
0.64




**ROOF**

Mudstone: medium gray; soft; very clayey  
Coal: dull; powdery oxidized; wet  
Mudstone: reddish brown; friable; carbonaceous; plant remains  
Mudstone: dark gray; very carbonaceous; soft  
Mudstone: light grey; friable and soft  
Coal: dull; soft  
Mudstone:

**FLOOR**

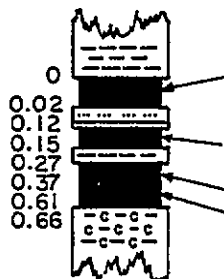
COAL/ROCK = 0.13 / 0.64

STRIKE - 314°  
DIP - 45°  
TRENCH BEARING - 257°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-623</b>		
DRAWN BY: <b>L. CHILD</b>	DATE: <b>06-7-80</b>	SCALE
PREPARED BY: <b>A. BIENIA</b>	DRAWING No.	
APPROVED BY:	DATE:	

**TRUE THICKNESS**

0.02  
0.10  
0.03  
0.12  
0.10  
0.24  
0.05



**ROOF**

Mudstone: grey; softly weathered  
Coal: soft  
Siltstone: medium grey; carbonaceous plant remains  
Mudstone: medium grey; soft  
Coal: dull-bright; soft  
Mudstone: light to medium grey; friable  
Coal: dull-bright; soft  
Coal: dull-bright; soft  
Mudstone: light to medium grey; carbonaceous

**FLOOR**

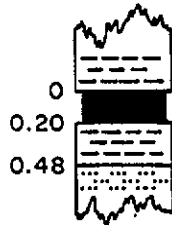
COAL/ROCK = 0.43 / 0.66

STRIKE - 314°  
DIP - 42° SW  
TRENCH BEARING - 190°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-G24</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

**TRUE THICKNESS**

0.20  
0.28




**ROOF**

Mudstone: medium brown; silty  
Coal: dull; soft; wet  
Clay: dark grey to light grey; wet  
Sandstone: medium to coarse grained  
Salt and pepper iron staining

**FLOOR**

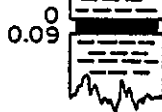
COAL/ROCK = 0.20 / 0.48

STRIKE - 318°  
DIP - 68°SW  
TRENCH BEARING - 207°

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division	ALBERTA	
CALGARY		
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-G25</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

TRUE THICKNESS

0.09



ROOF

Mudstone: reddish brown; clayey

Coal: dull; soft

Mudstone: light brown; silty

FLOOR

Note: difficult to log due to overburden,  
may be more coal than indicated.

COAL/ROCK = 0.09 / 0.09

STRIKE -  
DIP -  
TRENCH BEARING -

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

GOODRICH PEAK

GRT-80- G26

DRAWN BY: L. CHILD

DATE: 06-7-80

SCALE

PREPARED BY: A. BIENIA

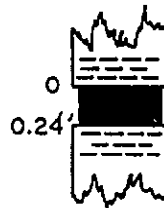
DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.24



ROOF

Mudstone: light grey

Coal: dull-bright; semi-hard

Mudstone: reddish brown

FLOOR

COAL/ROCK = 0.24/0.24

STRIKE - 314°  
DIP - 47° appears to be vertical  
TRENCH BEARING -

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

GOODRICH PEAK

GRT-80-G26A

DRAWN BY: L. CHILD

DATE: 06-7-80 SCALE

PREPARED BY: A. BIENIA

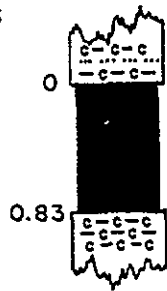
DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.28  
0.55



ROOF

Mudstone: medium grey; silty; carbonaceous plant remains; friable

Coal: dull-bright; hard; breaks into blocks  
Coal: bright-dull; very hard; large pieces

Mudstone: reddish brown; carbonaceous plant fossils;  
micaceous; Fe staining

FLOOR

COAL/ROCK = 0.83 / 0.83

STRIKE - 310°  
DIP - 66°  
TRENCH BEARING - 221°

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

GOODRICH PEAK

GRT-80-G27

DRAWN BY: L. CHILD DATE: 06-7-80 SCALE

PREPARED BY: A. BIENIA DRAWING No.

APPROVED BY: DATE:

**TRUE THICKNESS**

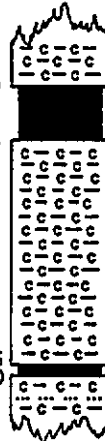
0.34

0.34

1.42

0.04

1.76  
1.80



**ROOF**

Mudstone: medium-dark grey; carbonaceous

Coal: dull-bright; hard

Mudstone: light brown — reddish brown; carbonaceous  
plant remains; Fe staining


Coal: dull-bright; hard

Mudstone: reddish brown; silty

**FLOOR**

COAL/ROCK = 0.38 / 1.80

STRIKE - 310°  
DIP - 69°  
TRENCH BEARING -

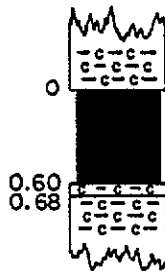
<b>GULF CANADA RESOURCES INC.</b>		
<small>Coal Division</small>		
<small>CALGARY</small>	<small>ALBERTA</small>	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-G28</b>		
<small>DRAWN BY:</small> L. CHILD	<small>DATE:</small> 06-7-80	<small>SCALE:</small>
<small>PREPARED BY:</small> A. BIENIA	<small>DRAWING No.:</small>	
<small>APPROVED BY:</small>	<small>DATE:</small>	



TRUE THICKNESS

0.60

0.08



ROOF

Mudstone: dark grey; very carbonaceous

Coal: dull-bright; hard


Mudstone: dark grey; very carbonaceous; coaly

Mudstone: medium grey; carbonaceous

FLOOR

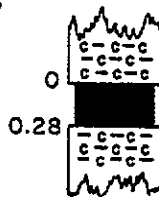
COAL/ROCK = 0.60 / 0.68

STRIKE - 325°  
 DIP - 86°SW  
 TRENCH BEARING - 235°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	ALBERTA	
Coal Division		
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-G29</b>		
DRAWN BY: L. CHILD	DATE 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

**TRUE THICKNESS**

0.19  
0.04  
0.05



**ROOF**

Mudstone: light to medium grey; carbonaceous

Coal: dull; semi-hard

Coal: dull-bright; hard


Coal: dull; soft; powdery

Mudstone: medium to dark grey; very carbonaceous

**FLOOR**

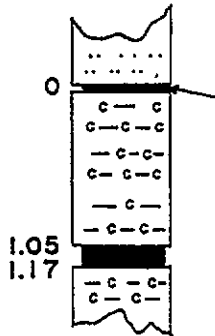
COAL/ROCK = 0.29 / 0.29

STRIKE - 312°  
DIP - 87° SW  
TRENCH BEARING - 220°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	ALBERTA	
Coal Division		
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>GOODRICH PEAK</b>		
<b>GRT-80-G30</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DATE:	DRAWING No.
APPROVED BY:	DATE:	

TRUE THICKNESS

0.03  
0.93  
0.09  
0.12



ROOF

Sandstone: weathers light to medium grey – fresh – grey; medium to coarse grained limonite staining; cross bedding

Coal: dull; semi-hard

Mudstone: reddish brown; carbonaceous plant remains roots? ; micaceous

Mudstone: light-medium grey; carbonaceous


Coal: dull; soft; powdery

Mudstone: dark grey carbonaceous

FLOOR

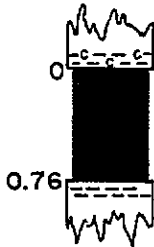
COAL/ROCK = 0.15/1.17

STRIKE - 345°  
DIP - 55° SW  
TRENCH BEARING - 255°

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY	ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>MT. GILLILAND</b>		
<b>GLT-80-B01</b>		
DRAWN BY: S. CRAIG	DATE: 06 7 80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

TRUE THICKNESS

0.76



ROOF

Mudstone: dark grey; carbonaceous

Coal: dull; powdery

Mudstone; very carbonaceous; dark grey; micaceous

FLOOR

COAL/ROCK = 0.76/0.76

STRIKE - 340°  
DIP - 56°SW  
TRENCH BEARING - 261°

GULF CANADA RESOURCES INC.

CALGARY

Coal Division

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

MT. GILLILAND

GLT-80-802

DRAWN BY: S. CRAIG

DATE: 06 7 80

SCALE

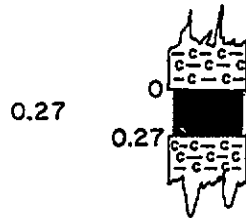
PREPARED BY: A. BIENIA

DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS



ROOF

Mudstone: medium grey; carbonaceous

Coal: dull; powdery

Mudstone: light gray to brown; wet

FLOOR

COAL/ROCK = 0.27/0.27

STRIKE - 347°  
DIP - 53°  
TRENCH BEARING - 250°

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

MT. GILLILAND

GLT-80-B03

DRAWN BY: S. CRAIG

DATE: 06 7 80 | SCALE

PREPARED BY: A. BIENIA

DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.5



ROOF

Mudstone: dark grey; carbonaceous; thin hard blocks

Coal: dull; soft, small pieces; gradually becoming brighter near floor

Siltstone: dark grey; carbonaceous; thinly bedded

FLOOR

COAL/ROCK = 0.5/0.5

STRIKE - 315°  
DIP - 41°SW  
TRENCH BEARING - 225°

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

MT. GILLILAND

GLT-80-804

DRAWN BY: S. CRAIG

DATE: 06 7 80 SCALE

PREPARED BY: A. BIENIA

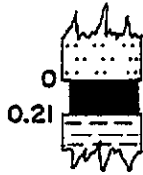
DRAWING No.

APPROVED BY:

DATE:

**TRUE THICKNESS**

0.21



**ROOF**

Sandstone: orange brown; well weathered; thinly bedded; laminated


Coal: dull; small pieces; relatively soft

Mudstone: dark brown; thinly bedded

**FLOOR**

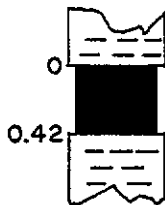
COAL/ROCK = 0.21/0.21

STRIKE - 300°  
DIP - 64°SW  
TRENCH BEARING - 210°

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY		ALBERTA
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>MT. GILLILAND</b>		
<b>GLT-80-805</b>		
DRAWN BY: S. CRAIG	DATE: 06 7 80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

TRUE THICKNESS

0.42



ROOF

Mudstone: medium gray; micaceous


Coal: dull; continuous very thin mudstone fragments

Mudstone: medium brown; micaceous

FLOOR

COAL/ROCK = 0.42/0.42

STRIKE - 306°  
DIP - 61° SW  
TRENCH BEARING - 215°

<b>GULF CANADA RESOURCES INC.</b> Coal Division		
CALGARY	ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
TRENCHING LOGS MT. GILLILAND GLT-80-806		
DRAWN BY: S. CRAIG	DATE: 06 7 80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	



**TRUE THICKNESS**

0.63

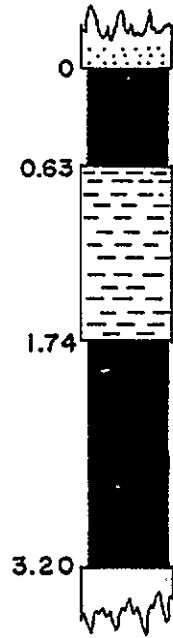
0.63

1.11

1.74

1.46

3.20



**ROOF**

Sandstone: well weathered; orange brown; blocky; fine grained

Coal: dull; soft; some blocky pieces

Rock: Mudstone: medium grey; blocky; also dirt


Coal: dull, very soft

Brown, dirt

**FLOOR**

COAL/ROCK = 2.09/3.20

STRIKE - 325°  
 DIP - 75° SW  
 TRENCH BEARING - 235°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>MT. GILLILAND</b>		
<b>GLT-80-807</b>		
DRAWN BY: S. CRAIG		DATE: 06 7 80 SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

**TRUE THICKNESS**

0.97

0.07  
0.18



**ROOF**

Sandstone: medium grey; hard; blocky; resistant outcrop

Coal: bright-dull, thin blocky pieces, frequent thin vitrain bands

Rock: Mudstone: dark brown; thinly bedded; well weathered


Coal: dull; soft

Mudstone: dark brown; well weathered

**FLOOR**

COAL/ROCK = 1.15/1.22

STRIKE - 275°  
DIP - 24° SW  
TRENCH BEARING - 135°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>MT. GILLILAND</b>		
<b>GLT-80-808</b>		
DRAWN BY: S. CRAIG		DATE: 06 7 80; SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:		DATE:

TRUE THICKNESS

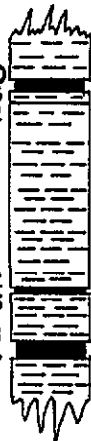
0.06  
0.06

1.20

0.04  
0.32  
0.09

0  
0.06  
0.12

1.32  
1.36  
1.68  
1.77



ROOF

Mudstone: medium grey; not bedding but block fractured pieces

Coal: dull; very soft

Mudstone: small pieces; light grey; small coaly bits

Mudstone: small pieces; light grey; small coaly bits

Coal: dull-bright; soft

Mudstone: medium grey; thinly bedded

Coal: bright-dull; soft

Mudstone: medium brown; blocky and bedded

FLOOR

COAL/ROCK = 0.19/1.77

STRIKE - 315°

DIP - 38°

TRENCH BEARING - 225°

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

MT. GILLILAND

GLT-80-B09

DRAWN BY: S. CRAIG

DATE: 06 7 80 SCALE

PREPARED BY: A. BIENIA

DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.9



ROOF

Mudstone: dark gray; carbonaceous fractured

Coal: dull; occasional small pieces


Mudstone: medium brown; blocky; fractured

FLOOR

Note: seams 09 and 10 are located near axis of a major anticline; fracturing is frequent. Inaccurate measuring may have been taken unavoidably.

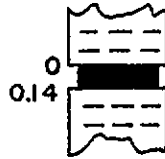
COAL/ROCK = 0.9/0.9

STRIKE - 320°  
DIP - 50°SW  
TRENCH BEARING - 230°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>MT. GILLILAND</b>		
<b>GLT-80-B10</b>		
DRAWN BY: S. CRAIG	DATE: 06 7 80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

TRUE THICKNESS

0.14



ROOF

Mudstone: medium brown blocky pieces  
no representative bedding

Coal: dull; soft

Mudstone: brown blocky weathered

FLOOR

Note: seam is in a fractured zone measured thickness is representative of a continuous seam, however immediately above, seam thickens but shows no continuity.

COAL/ROCK = 0.14/0.14

STRIKE - 325°  
DIP - 67°NE  
TRENCH BEARING - 235°

GULF CANADA RESOURCES INC.

CALGARY

Coal Division

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

MT. GILLILAND

GLT-80-B11

DRAWN BY: S. CRAIG DATE: 06 7 80 SCALE

PREPARED BY: A. BIENIA

DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.51



ROOF

Mudstone: dark grey; very carbonaceous

Coal: dull; soft; powdery; occasional mudstone

Siltstone: medium grey; blocky

FLOOR

COAL/ROCK = 0.51/0.51

STRIKE - 270°  
DIP - 320°N  
TRENCH BEARING - 180°

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

BEAUDETTE CREEK

BDCT-80-801

DRAWN BY: S. CRAIG

DATE: 05 7 80 SCALE

PREPARED BY: A. BIENIA

DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.29



ROOF

Mudstone: light grey; fissile thin pieces

Coal: dull; soft; frequent mudstone pieces

Mudstone: medium grey; blocky

FLOOR

COAL/ROCK = 0.29/0.29

STRIKE - 293°  
DIP - 33°S  
TRENCH BEARING - 203°

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

BEAUDETTE CREEK

BDCT-80-B02

DRAWN BY: S. CRAIG

DATE: 06 7 80 SCALE

PREPARED BY: A. BIENIA

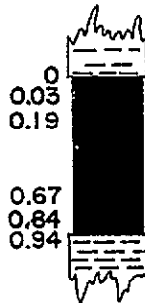
DRAWING No.

APPROVED BY:

DATE:

**TRUE THICKNESS**

0.03  
0.16  
0.48  
  
0.17  
0.10



**ROOF**

Mudstone: medium grey; fissile; thinly bedded


- Coal: bright; hard; blocky; vitreous
- Coal: vitrain; semi-hard
- Coal: bright-dull; semi-hard
- Coal: bright-dull; small pieces
- Coal: bright; blocky

Mudstone: medium brown; very resistant

**FLOOR**

COAL/ROCK = 0.94/0.94

STRIKE - 310°  
DIP - 24°  
TRENCH BEARING - 220°

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY	ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>BEAUDETTE CREEK</b>		
<b>BDCT-80-803</b>		
DRAWN BY: S. CRAIG	DATE: 06 7 80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	



**TRUE THICKNESS**

0.38  
0.13  
0.28



**ROOF**

Mudstone: dark grey carbonaceous; thinly bedded

Coal: dull; hard; block

Coal: dull; semi-hard


Coal: bright-dull; blocky

Mudstone: medium grey; resistant outcrop

**FLOOR**

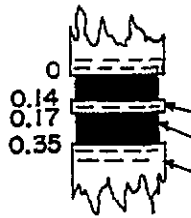
COAL/ROCK = 0.79/0.79

STRIKE - 275°  
DIP - 26° N  
TRENCH BEARING - 185°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>BEAUDETTE CREEK</b>		
<b>BDCT-80-804</b>		
DRAWN BY: S. CRAIG		DATE: 06 7 80, SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:		DATE:

TRUE THICKNESS

0.14  
0.03  
0.18



ROOF

Mudstone: dark grey; fissile; thinly bedded

Coal: bright, small pieces

Rock: Mudstone: thinly bedded


Coal: bright; black; vitreous

Mudstone: medium grey; resistant

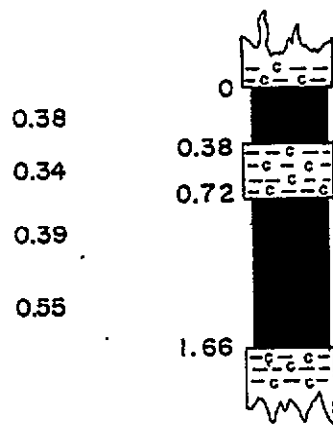
FLOOR

COAL/ROCK = 0.32/0.35

STRIKE - 275°  
DIP - 25°S  
TRENCH BEARING - 185°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>BEAUDETTE CREEK</b>		
<b>BDCT-80-805</b>		
DRAWN BY: S. CRAIG	DATE: 06 7 80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

TRUE THICKNESS



ROOF

Mudstone: dark gray; very carbonaceous; coaly lenses

Coal: bright; dull; hard

Rock: Mudstone: thin; fissile; carbonaceous

Coal: bright; hard

Coal: bright; small pieces; hard

Mudstone: dark gray; carbonaceous; coaly lenses

FLOOR

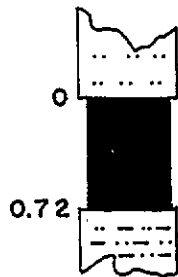
COAL/ROCK = 1.32/1.66

STRIKE - 275°  
 DIP - 25°S  
 TRENCH BEARING - 185°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>BEAUDETTE CREEK</b>		
<b>BDCT-80-806</b>		
DRAWN BY: S. CRAIG	DATE: 06 7 80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

**TRUE THICKNESS**

0.36  
0.36



**ROOF**

Sandstone: light brown; laminated; prominent outcrop

Coal: Blocky; bright; semi-hard


Coal: Vitrious; semi-hard; small pieces

Siltstone: medium grey; resistant; abundant calcite veining

**FLOOR**

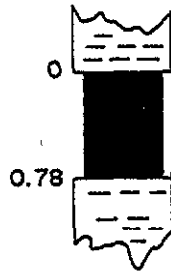
COAL/ROCK = 0.72/0.72

STRIKE - 280°  
DIP - 25° S  
TRENCH BEARING - 190°

<b>GULF CANADA RESOURCES INC.</b>		
Calgary	Coal Division	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>BEAUDETTE CREEK</b>		
<b>BDCT-80-807</b>		
DRAWN BY: S. CRAIG	DATE: 06 7 80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

TRUE THICKNESS

0.78



ROOF

Mudstone: medium grey; thin coaly lenses

Coal: dull; soft; powdery

Coal: dull-bright; hard; blocky

Coal: dull; soft

Coal: dull-bright; hard; blocky

Coal: dull; soft

Coal: bright; vitrious; blocky

Mudstone: medium grey; coaly lenses;  
thinly bedded


FLOOR

COAL/ROCK = 0.78/0.78

STRIKE - 275°

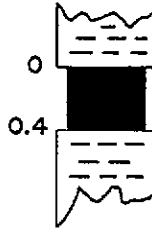
DIP - 45°S

TRENCH BEARING - 185°

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division	ALBERTA	
CALGARY		
<b>GOODRICH COAL PROJECT</b>		
TRENCHING LOGS		
BEAUDETTE CREEK		
BDCT-80-B08		
DRAWN BY: S. CRAIG	DATE: 06 7 80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

TRUE THICKNESS

0.19  
0.14  
0.07



ROOF

Mudstone; medium grey; fissile

Coal: dull; soft

Coal: dull; bright; semi-hard


Coal: dull; soft

Mudstone: dark gray; thinly bedded

FLOOR

COAL/ROCK = 0.4/0.4

STRIKE - 275°  
DIP - 45°S  
TRENCH BEARING - 185°

<b>GULF CANADA RESOURCES INC.</b>		
Calgary	Coal Division	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>BEAUDETTE CREEK</b>		
<b>BDCT-80-809</b>		
DRAWN BY: S. CRAIG	DATE: 06 7 80	SCALE
PREPARED BY: A. BHENIA	DRAWING No.	
APPROVED BY:	DATE:	

**TRUE THICKNESS**

0.20

0.58

0.26

0.57

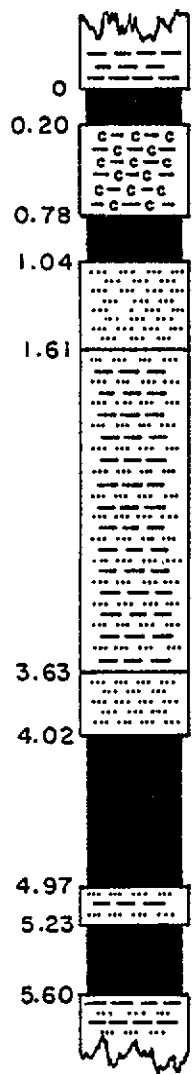
2.02

0.39

0.95

0.26

0.37



**ROOF**

Claystone: medium brown; laminated

Coal: hard packed, wet, dull to bright, soft

Mudstone: light brown to black; carbonaceous; laminated;

Coal: hard packed, wet, dull, soft

Sandstone: fine grained, calcareous, small scale cross-bedding  
iron oxide weathering

Mudstone: silty, dark brown

Dirt: with brown siltstone and coaly fragments

Coal: with interbedded black, carbonaceous shale

Mudstone: silty, dark brown

Coal: soft, hard packed, wet

Mudstone: silty, light brown

**FLOOR**

Note: BWT-RG is a series of trenches on a ridge  
6 km west of Mount Bickford.  
The formation is Gething

COAL/ROCK = 1.78 / 5.60

STRIKE - 318°  
DIP - 66° SW  
TRENCH BEARING - 39°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>MT. BICKFORD</b>		
<b>BWT-80-RG1</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

TRUE THICKNESS

0.56

0.56



ROOF

Siltstone: light brown

Coal: wet, soft packed, dull, soft

Siltstone: light brown, orange weathered,  
small scale cross-bedding

FLOOR

COAL/ROCK = 0.56 / 0.56

STRIKE - 326°  
DIP - 54° SW  
TRENCH BEARING - 55°

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

MT. BICKFORD

BWT-80-RG2

DRAWN BY: L. CHILD

DATE: 06-7-80 SCALE

PREPARED BY: A. BIENIA

DRAWING No.

APPROVED BY:

DATE:

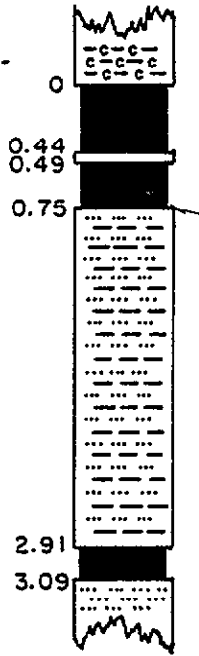


**TRUE THICKNESS**

0.44  
0.05  
0.26

2.16

0.18



**ROOF**

Mudstone: carbonaceous; dark grey;  
with coaly partings

Coal: wet, soft

Shale: carbonaceous; dark brown to dark grey; laminated

Coal: wet, soft

Mudstone: silty; dark grey; occasional coal partings


Coal: wet; soft; soft-packed

Sandstone: medium grained, salt and pepper,  
orange weathering

**FLOOR**

COAL/ROCK = 0.88 / 3.09

STRIKE - 328°  
DIP - 66° SW  
TRENCH BEARING - 42°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>MT. BICKFORD</b>		
<b>BWT-80-RG3</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

TRUE THICKNESS

1.62



ROOF

Siltstone: dark grey; carbonaceous partings;  
orange weathering

Coal: soft packed, wet, contains vitreous flakes

Mudstone: silty; medium brown; carbonaceous  
orange weathering

FLOOR

COAL/ROCK = 1.62 / 1.62

STRIKE - 322°  
DIP - 74° SW  
TRENCH BEARING - 51°

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

MT. BICKFORD

BWT -80-RG4

DRAWN BY L. CHILD

DATE: 06-7-80 SCALE

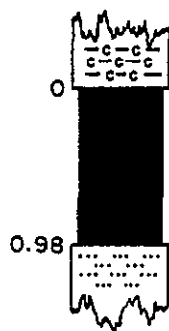
PREPARED BY: A. BIENIA

DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS



ROOF

Mudstone: black, carbonaceous, laminated


Coal: soft-packed, wet, dull to bright

Siltstone: medium brown; orange weathering  
fragmented

FLOOR

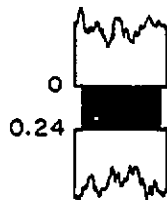
COAL/ROCK = 0.98 / 0.98

STRIKE - 322°  
DIP - 74° SW  
TRENCH BEARING - 50°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>MT. BICKFORD</b>		
<b>BWT-80-RG5</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

**TRUE THICKNESS**

0.24



**ROOF**

Siltstone: medium brown; carbonaceous partings;  
orange weathering; rubbly

Coal: dull; soft-packed; wet

Mudstone: silty; dark brown; carbonaceous partings

**FLOOR**

COAL/ROCK = 0.24 / 0.24

STRIKE - 322°  
DIP - 74° SW  
TRENCH BEARING - 52°

**GULF CANADA RESOURCES INC.**

Coal Division

CALGARY

ALBERTA



**GOODRICH COAL PROJECT**

**TRENCHING LOGS**

**MT. BICKFORD**

**BWT-80-RG6**

DRAWN BY: L. CHILD

DATE: 06-7-80

SCALE

PREPARED BY: A. BIENIA

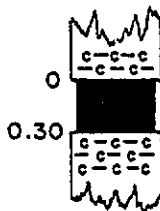
DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.30



ROOF

Mudstone: light brown; laminated; occasional carbonaceous partings

Coal: hard packed, dull, wet

Mudstone: silty, dark brown, carbonaceous partings

FLOOR

COAL/ROCK = 0.30 / 0.30

STRIKE - 318°  
DIP - 66°SW  
TRENCH BEARING - 52°

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

MT. BICKFORD

BWT-80-RG7

DRAWN BY: L. CHILD

DATE: 06-7-80 SCALE

PREPARED BY: A. BIENIA

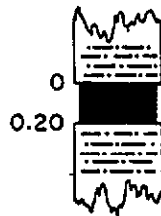
DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.20



ROOF

Mudstone: silty; dark brown; calcareous; laminated

Coal: wet, soft, soft packed


Mudstone: silty; dark brown; orange weathered

FLOOR

- Trenching was located to the NW of Mt. Bickford in the Gething Fm.

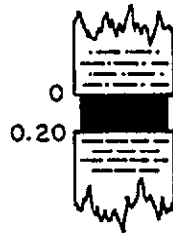
COAL/ROCK = 0.20 / 0.20

STRIKE - 301°  
DIP - 70° SW  
TRENCH BEARING - 211°

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY	ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>MT. BICKFORD</b>		
<b>BNW-80-61</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

TRUE THICKNESS

0.20



ROOF

Mudstone: silty; medium brown; plant fragments

Coal: soft packed, dull, soft

Mudstone: medium brown, rubbly, mica flecks

FLOOR

COAL/ROCK = 0.20 / 0.20

STRIKE - 320°  
DIP - 58° SW  
TRENCH BEARING - 230°

GULF CANADA RESOURCES INC.

CALGARY

Coal Division

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

MT. BICKFORD

BNW - 80 - G2

DRAWN BY: L. CHILD

DATE: 06-7-80

SCALE

PREPARED BY: A. BIENIA

DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.86



ROOF

Sandstone: fine grained, laminated, beds 1 → 4 cm,  
orange weathered

Coal: soft, hard packed, wet

Mudstone: medium brown; silty, carbonaceous  
partings

FLOOR

COAL/ROCK = 0.86 / 0.86

STRIKE - 316°  
DIP - 70° SW  
TRENCH BEARING - 226°

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

MT. BICKFORD

BNW-80-G3

DRAWN BY: L. CHILD

DATE: 06-7-80

SCALE

PREPARED BY: A. BIENIA

DRAWING No.

APPROVED BY:

DATE:



TRUE THICKNESS

0.35



ROOF

Mudstone; dark grey; carbonaceous

Coal: soft; soft packed

Mudstone: silty, medium brown

FLOOR

COAL/ROCK = 0.35 / 0.35

STRIKE - 129°  
DIP - 53° NE  
TRENCH BEARING - 39°

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

MT. BICKFORD

BNW - 80 - G4

DRAWN BY: L. CHILD

DATE: 06-7-80

SCALE

PREPARED BY: A. BIENIA

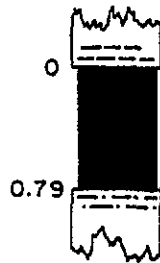
DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.79



ROOF

Mudstone: orange brown, highly weathered;  
fissile

Coal: dull to bright; soft, noncontinuous mudstone  
partings

Siltstone: muddy, dark grey, blocky

FLOOR

COAL/ROCK = 0.79 / 0.79

STRIKE - 324 °  
DIP - 86 °SW  
TRENCH BEARING - 235 °

GULF CANADA RESOURCES INC.

CALGARY

Coal Division

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

MT. STEPHENSON

MST -80 - B01

DRAWN BY: L. CHILD DATE: 06-7-80 SCALE

PREPARED BY: A. BIENIA DRAWING No.

APPROVED BY: DATE:

TRUE THICKNESS

0.46



ROOF

Mudstone: medium gray; fissile;


Coal: dull, soft

Siltstone: dark gray; slightly laminated;  
fractured

FLOOR

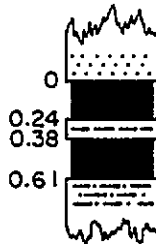
COAL/ROCK = 0.46 / 0.46

STRIKE - 325°  
DIP - 86°SW  
TRENCH BEARING - 235°

<b>GULF CANADA RESOURCES INC.</b>		
Calgary	Coal Division	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>MT. STEPHENSON</b>		
<b>MST - 80 - B02</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

**TRUE THICKNESS**

0.24  
0.14  
0.23



**ROOF**

Sandstone: medium grained; light brown

Coal: dull, soft

Rock: Mudstone: medium grey; fissile


Coal: dull, soft

Mudstone; siltstone: interbedded, fractured

**FLOOR**

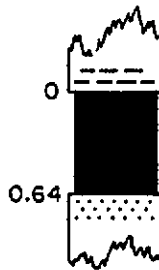
COAL/ROCK = 0.47 / 0.61

STRIKE - 320°  
DIP - 84° SW  
TRENCH BEARING - 230°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>MT. STEPHENSON</b>		
<b>MST - 80 - B03</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

TRUE THICKNESS

0.64



ROOF

Mudstone: slightly silty; fissile;

Coal: dull, soft

Sandstone: laminated; dark brown; fine grained

FLOOR

COAL/ROCK = 0.64 / 0.64

STRIKE - 314°  
DIP - 74° NE  
TRENCH BEARING - 224°

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

MT. STEPHENSON

MST - 80-B04

DRAWN BY: L. CHILD

DATE: 06-7-80

SCALE

PREPARED BY: A. BIENIA

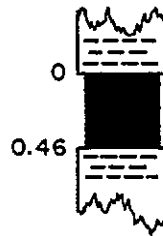
DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.46



ROOF

Mudstone; dark brown; broken pieces


Coal: dull, soft; occasional mudstone pieces

Mudstone: medium brown; well weathered  
broken pieces

FLOOR

COAL/ROCK = 0.46 / 0.46

STRIKE - 303°  
DIP - 62° NE  
TRENCH BEARING - 213°

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division	ALBERTA	
CALGARY		
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>MT. STEPHENSON</b>		
<b>MST - 80 - B05</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

TRUE THICKNESS

0.26

0.26



ROOF

Mudstone: medium brown; broken pieces

Coal: dull, soft

Mudstone: dark grey; very carbonaceous;  
fissile

FLOOR

COAL/ROCK = 0.26 / 0.26

STRIKE - 314°  
DIP - 81° SW  
TRENCH BEARING - 224°

GULF CANADA RESOURCES INC.

CALGARY

Coal Division

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

MT. STEPHENSON

MST - 80 - B06

DRAWN BY: L. CHILD

DATE: 06-7-80

SCALE

PREPARED BY: A. BIENIA

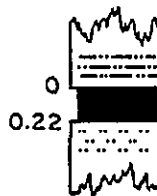
DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.22



ROOF

Siltstone: dark grey; fissile


Coal: dull, soft

Sandstone: well weathered  
dark brown

FLOOR

COAL/ROCK = 0.22 / 0.22

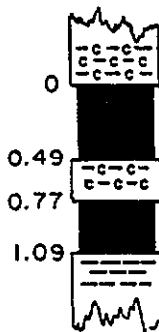
STRIKE - 315°  
DIP - 70° NE  
TRENCH BEARING - 225°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>MT. STEPHENSON</b>		
<b>MST - 80 - 807</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	



TRUE THICKNESS

0.24  
0.25  
  
0.28  
  
0.32



ROOF

Mudstone: dark grey; carbonaceous

Coal: dull, blocky pieces  
Coal: dull, soft

Rock: Mudstone: dark grey; carbonaceous


Coal: dull-bright; small blocky pieces

Mudstone: medium grey;  
well fractured

FLOOR

COAL/ROCK = 0.81 / 1.09

STRIKE            -    303°  
DIP                -    70° SW  
TRENCH BEARING -    213°

<b>GULF CANADA RESOURCES INC.</b>		
<small>Coal Division</small>		
<small>CANARY</small>	<small>SHIBITA</small>	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>MT. STEPHENSON</b>		
<b>MST-80-808</b>		
<small>DRAWN BY</small> L. CHILD	<small>DATE</small> 06-7-80	<small>SCALE</small>
<small>PREPARED BY</small> A. BIENIA	<small>DRAWING No.</small>	
<small>APPROVED BY</small>	<small>DATE</small>	

TRUE THICKNESS

0.21



ROOF

Mudstone: dark brown; fissile; fractured


Coal: dull; well packed

Siltstone: dark grey; fractured

FLOOR

COAL/ROCK = 0.21 / 0.21

STRIKE - 308°  
DIP - 64°NE  
TRENCH BEARING - 218°

<b>GULF CANADA RESOURCES INC.</b> Coal Division		
CALGARY	ALBERTA	
<b>GOODRICH COAL PROJECT</b> <b>TRENCHING LOGS</b> <b>MT. STEPHENSON</b> <b>MST - 80 - 809</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

TRUE THICKNESS

0.31

0.31



ROOF

Sandstone: fine grained; dark brown; blocky

Coal: dull bright; occasional mudstone pieces

Siltstone: medium grey; weathered; well fractured

FLOOR

COAL/ROCK = 0.31/0.31

STRIKE - 308°  
DIP - 64° NE  
TRENCH BEARING - 218°

GULF CANADA RESOURCES INC.

CALGARY

Coal Division

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

MT. STEPHENSON

MST - 80 - B10

DRAWN BY: L. CHILD

DATE: 06-7-80

SCALE

PREPARED BY: A. BIENIA

DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.23



ROOF

Mudstone: very carbonaceous; dark grey


Coal: dull; well packed bright pieces

Mudstone: medium grey; blocky

FLOOR

COAL/ROCK = 0.23 / 0.23

STRIKE - 300°  
DIP - 77° SW  
TRENCH BEARING - 210°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>MT. STEPHENSON</b>		
<b>MST - 80 - B11</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

TRUE THICKNESS

0.60  
0.80



ROOF

Mudstone: dark brown; hard; blocky

Coal: dull; well packed

Coal: semi-hard; bright; blocky

Siltstone: dark grey; blocky

FLOOR

COAL/ROCK = 1.40 / 1.40

STRIKE - 300°  
DIP - 67° SW  
TRENCH BEARING - 210°

GULF CANADA RESOURCES INC.

CALGARY

Coal Division

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

MT. STEPHENSON

MST - 80 - B12

DRAWN BY: L. CHILD

DATE: 06-7-80 SCALE

PREPARED BY: A. BIENIA

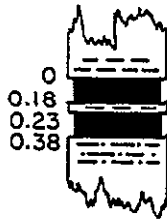
DRAWING No.

APPROVED BY:

DATE:

**TRUE THICKNESS**

0.18  
0.06  
0.15




**ROOF**

Mudstone pieces and dirt, dark brown  
Coal: dull, soft  
Rock: Mudstone parting, medium grey, in pieces  
Coal: dull, soft  
Siltstone: medium grey, laminated

**FLOOR**

COAL/ROCK = 0.33 / 0.38

STRIKE - 315°  
DIP - 89° SW  
TRENCH BEARING - 225°

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division	ALBERTA	
CALGARY		
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>MT. STEPHENSON</b>		
<b>MST - 80 - B13</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

**TRUE THICKNESS**

0.29  
0.08  
0.64



**ROOF**

Sandstone: very fine grained; light grey; coaly fragments

Coal: dull; well packed

Rock: Mudstone: very carbonaceous; dark grey


Coal: dull to bright; soft, in small blocky pieces

Mudstone: dark grey; very carbonaceous

**FLOOR**

COAL/ROCK = 0.93 / 1.01

STRIKE - 315°  
DIP - 12° NE  
TRENCH BEARING - 225°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>MT. Le HUDETTE</b>		
<b>MLHT - 80 - 601</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

TRUE THICKNESS

0.19



ROOF

Mudstone: medium grey; hard thin plates


Coal: dull, soft

Mudstone: dark grey; carbonaceous

FLOOR

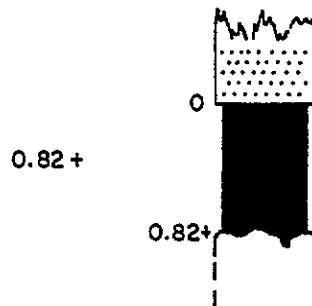
COAL/ROCK = 0.19 / 0.19

STRIKE -  
DIP -  
TRENCH BEARING -

<b>GULF CANADA RESOURCES INC.</b> Coal Division		
CALGARY	ALBERTA	
<b>GOODRICH COAL PROJECT</b> <b>TRENCHING LOGS</b> <b>MT. LeHUETTE</b> <b>MLHT - 80 - 602</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	



TRUE THICKNESS



ROOF

Sandstone: silty; light grey; some orange brown weathering with calcite veins

Coal: hard, weathers medium grey, sheared bright fresh

Not reached due to inclement weather and hardness of coal

FLOOR

Trench was south of Carbon Creek by 4 km and 10 km west of Mt. Monteith

COAL/ROCK = 0.82 / 0.82

STRIKE - 315°  
DIP - 40° SW  
TRENCH BEARING - 225°

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

CARBON CREEK SOUTH

CCS-80-MCT I

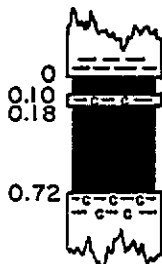
DRAWN BY: L. CHILD DATE: 06-7-80 SCALE

PREPARED BY: A. BIENIA DRAWING No.

APPROVED BY: DATE:

**TRUE THICKNESS**

0.10  
0.08  
0.54




**ROOF**

Mudstone: Mudstone: light brown; weathers light grey; rubbly  
 Coal: dull, soft, hard packed  
 Rock: Mudstone: lightly carbonaceous, soft, rubbly unconsolidated  
 Coal: dull, soft, hard-packed  
 Mudstone: silty, dark grey, coaly partings

**FLOOR**

COAL/ROCK = 0.64 / 0.72

STRIKE - 316°  
 DIP - 88° SW  
 TRENCH BEARING - 226°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	ALBERTA	
Coal Division <b>GOODRICH COAL PROJECT</b> TRENCHING LOGS JOHN HART HIGHWAY NORTH JHN-PLI-80-GT1		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

TRUE THICKNESS

0.10



ROOF

Fine grained sandstone; quartz veins; thickly bedded

Coal: soft, flakey, dull-bright

Mudstone: coaly partings, carbonaceous,  
dark brown

FLOOR

COAL/ROCK = 0.10 / 0.10

STRIKE - 324 °  
DIP - 74 ° NE  
TRENCH BEARING - 234 °

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

JOHN HART HIGHWAY NORTH

JHN-PLI-80-GT2

DRAWN BY: L. CHILD

DATE: 06-7-80

SCALE

PREPARED BY: A. BIENIA

DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.14



ROOF

Mudstone: laminated; dark brown; thinly bedded

Coal: soft, hard packed, flakey, dull-bright

Mudstone: dark grey, carbonaceous, thinly bedded

FLOOR

COAL/ROCK = 0.14 / 0.14

STRIKE - 324°  
DIP - 74° NE  
TRENCH BEARING - 234°

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

JOHN HART HIGHWAY NORTH

JHN-PLI-80-GT3

DRAWN BY: L. CHILD

DATE: 06-7-80

SCALE

PREPARED BY: A. BIENIA

DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.13



ROOF

Mudstone: carbonaceous; black, soft, thin layered

Coal: soft, dull, hard packed

Mudstone: medium gray, carbonaceous, slickensided

FLOOR

COAL/ROCK = 0.13 / 0.13

STRIKE -  
DIP -  
TRENCH BEARING -

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

JOHN HART HIGHWAY NORTH

JHN-PLI-80-GT 4

DRAWN BY: L. CHILD

DATE: 06-7-80 SCALE

PREPARED BY: A. BIENIA

DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.11



ROOF

Mudstone: silty; thinly laminated, medium grey

Coal: soft, hard packed, dull

Mudstone: same as roof

FLOOR

COAL/ROCK = 0.11 / 0.11

STRIKE - 306°  
DIP - 82° SW  
TRENCH BEARING - 216°

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

JOHN HART HIGHWAY NORTH

JHN-PLI-80-GT5

DRAWN BY: L. CHILD DATE: 06-7-80 SCALE

PREPARED BY: A. BIENIA

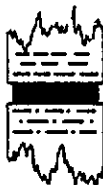
DRAWING No.

APPROVED BY: DATE:

TRUE THICKNESS

0.13

0  
0.13



ROOF

Mudstone: thinly laminated, medium brown

Coal: soft, packed, dull, bright, flex

Siltstone: medium grey, weathers light grey

FLOOR

COAL/ROCK = 0.13 / 0.13

STRIKE - 300°  
DIP - 74°SW  
TRENCH BEARING - 210°

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

JOHN HART HIGHWAY NORTH

JHN-PL1-80-GT6

DRAWN BY: L. CHILD

DATE: 06-7-80

SCALE

PREPARED BY: A. BIENIA

DRAWING No.

APPROVED BY:

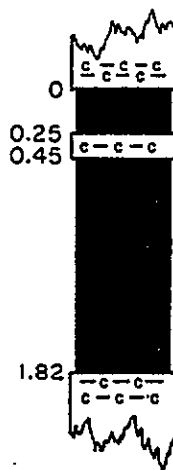
DATE:

**TRUE THICKNESS**

0.25

0.20

1.37



**ROOF**

Mudstone: carbonaceous; dark grey; finely flaked

Coal: soft, hard packed, dull, wet

Rock: Mudstone: as above, finely laminated


Coal: As Above

Mudstone: silty; dark brown; micaceous  
small coaly fragments

**FLOOR**

COAL/ROCK = 1.62 / 1.82

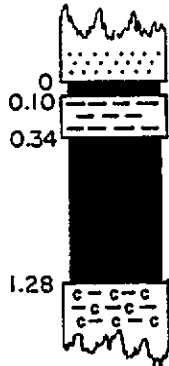
STRIKE -  
DIP -  
TRENCH BEARING -

<b>GULF CANADA RESOURCES INC.</b>		
<small>Coal Division</small>		
<small>CALGARY</small>	<small>ALBERTA</small>	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>JOHN HART HIGHWAY NORTH</b>		
<b>JHN-PLI-80-GT7</b>		
<small>DRAWN BY: L. CHILD</small>	<small>DATE: 06-7-80</small>	<small>SCALE</small>
<small>PREPARED BY: A. BIERIA</small>	<small>DRAWING No.</small>	
<small>APPROVED BY:</small>	<small>DATE:</small>	



**TRUE THICKNESS**

0.10  
0.24  
0.94



**ROOF**


Very fine grained sandstone; light brown micaceous; calcareous; coaly partings  
Coal: soft packed; dull; soft  
Mudstone: silty; medium brown; slight orange brown weathering

Mudstone: dark brown; carbonaceous; bedded 1-3 cm

**FLOOR**

COAL/ROCK = 1.04 / 1.28

STRIKE - 312°  
DIP - 86° SW  
TRENCH BEARING - 222°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>MT. BICKFORD</b>		
<b>MBT-80-GRI</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

TRUE THICKNESS

0.98

0.98



**ROOF**

Quartzite; light grey; ridge forming weathers light grey


Coal: soft, dull, soft pack

Mudstone with plant rootlets; dark brown slight orange weathering

**FLOOR**

COAL/ROCK = 0.98 / 0.98

STRIKE - 318°  
DIP - 74°SW  
TRENCH BEARING - 228°

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division		
CALGARY		ALBERTA
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>MT. BICKFORD</b>		
<b>MBT-80-GR2</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

**TRUE THICKNESS**

0.25  
0.03



**ROOF**

Mudstone; silty and carbonaceous with coaly partings; medium grey


Coal: hard, vitreous, slightly sheared, hard packed

Mudstone: .03 m thick, dark brown, orange weathering, contains coaly partings same as roof

**FLOOR**

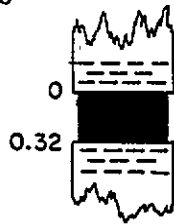
COAL/ROCK = 0.25 / 0.27

STRIKE - 308°  
DIP - 31° SW  
TRENCH BEARING - 218°

<b>GULF CANADA RESOURCES INC.</b>		
CALGARY	Coal Division ALBERTA	
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>MT. BICKFORD</b>		
<b>BNWT-80-G5</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA		DRAWING No.
APPROVED BY:	DATE:	

TRUE THICKNESS

0.32



ROOF

Mudstone: medium grey, rubbly, slightly calcareous, orange brown weathering

Coal: hard, vitreous, weathers dull grey, flakey

Mudstone: medium grey, rubbly, orange brown weathering, contains coaly partings

FLOOR

COAL/ROCK = 0.32 / 0.32

STRIKE - 308°  
DIP - 31° SW  
TRENCH BEARING - 218°

GULF CANADA RESOURCES INC.

CALGARY

Coal Division

ALBERTA



GOODRICH COAL PROJECT

TRENCHING LOGS

MT. BICKFORD

BNWT-80-G6

DRAWN BY: L. CHILD

DATE: 06-7-80

SCALE

PREPARED BY: A. BIENIA

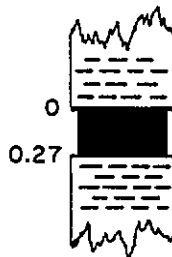
DRAWING No.

APPROVED BY:

DATE:

TRUE THICKNESS

0.27



ROOF

Mudstone: light brown, orange to red brown weathering, plant fragments, calcareous


Coal: semi-hard, flakey, dull to bright

Mudstone; medium grey, rubbly, slightly calcareous, orange brown weathering

FLOOR

COAL/ROCK = 0.27 / 0.27

STRIKE - 308°  
DIP - 31° SW  
TRENCH BEARING - 218°

<b>GULF CANADA RESOURCES INC.</b>		
Coal Division	ALBERTA	
CALGARY		
<b>GOODRICH COAL PROJECT</b>		
<b>TRENCHING LOGS</b>		
<b>MT. BICKFORD</b>		
<b>BNWT-80-G7</b>		
DRAWN BY: L. CHILD	DATE: 06-7-80	SCALE
PREPARED BY: A. BIENIA	DRAWING No.	
APPROVED BY:	DATE:	

E.M. ELECTROMAG EXPLORATION LTD.  
ELECTRICAL SURVEY FOR  
GULF CANADA RESOURCES INC.  
COAL DIVISION  
GOODRICH PROJECT  
OCT.1980

**OPEN FILE**



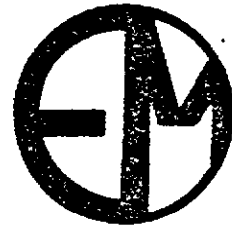
**ELECTROMAG  
EXPLORATION  
LTD.**

**ELECTRICAL  
SURVEY**

PROFILE

INTERPRETATION

ASSISTANCE



**ELECTROMAG  
EXPLORATION  
LTD.**

**ELECTRICAL  
SURVEY**



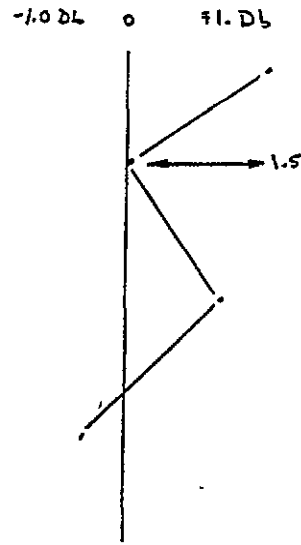
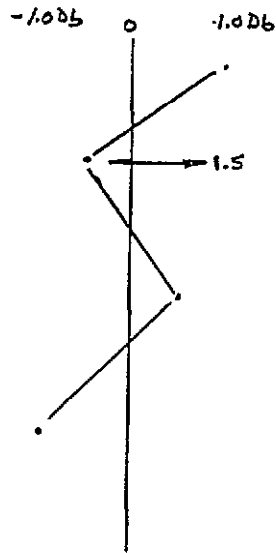
PROFILE INTERPRETATION ASSISTANCE

This guide is meant to provide assistance to clients in the interpretation of Electromag subsurface resistivity profiles. It is not a definitive treatment on the subject.

Median Line ("0" Db line)

This line is the least mean squares fit for the single profile data points. It is a reference line and can be equated to a homogeneous earth response. Although this line may shift because of anomalous subsurface response, it does not effect the absolute placement of points. The parameter one must look at is the absolute difference between data points.

eg.

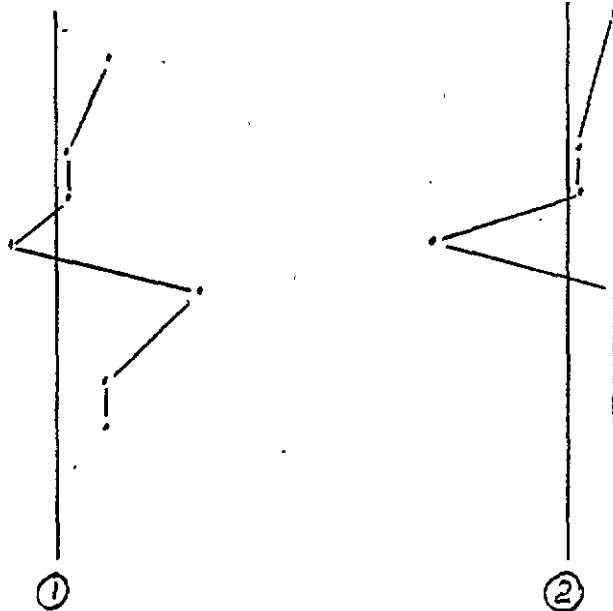


Slope of Line Between Data Points

The two important variables are the absolute amplitude of the difference and the vertical depth between the points.

.../...

Each slope must be used in conjunction with the slopes above the depth of interest. The reasoning behind this is as follows:



Although both profiles exhibit the same absolute amplitude and slope, they represent different subsurface conditions. In profile (1), there is only a small conductive zone above the area of interest. The curve is responding to a resistive zone that is more resistive than the above data points. In profile (2), there is a large conductive zone above the area of interest. The curve is responding to a more resistive response than the

.../...

conductive zone and is returning to an average resistive response on the profile.

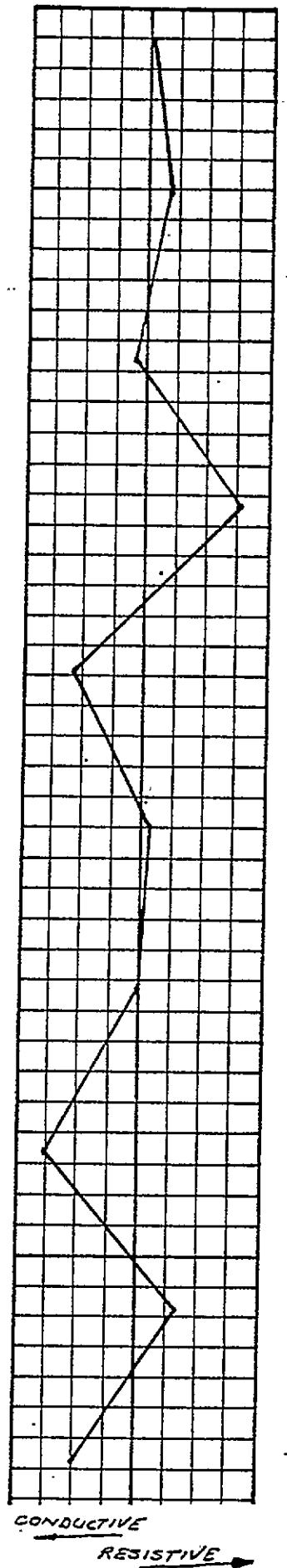
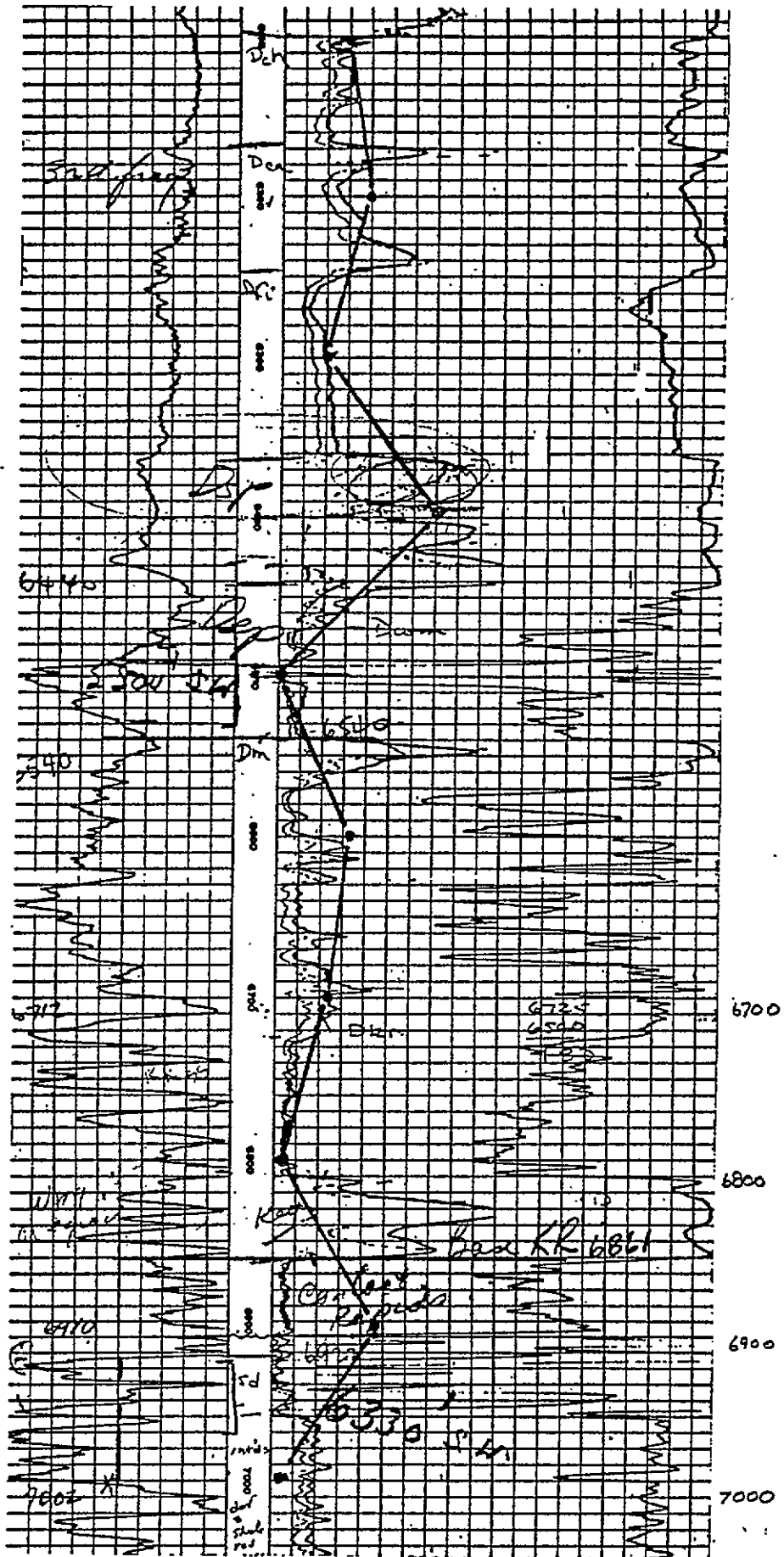
Comparison of Results with a Resistivity Log

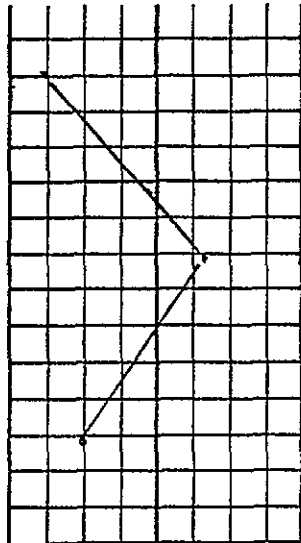
To properly evaluate the data produced over a profile where subsurface response is known, a pseudo profile should be drawn. This would delineate areas of higher resistivity or higher conductivity and can be used to test possible amplitude effects. It should be noted that unlike resistivity logs, Electromag profiles do not have a constraining line for conductivity therefore the conductivity slope appears much larger.

An example has been drawn on a resistivity log and compared with a profile. It is best to use the same depth points as the Electromag profile. This makes the results more consistent. Note that this is used for purposes of this comparison only as the results of an Electromag profile cover a much greater depth in real data acquisition.

The effects of depth resolution can be easily demonstrated using the resistivity log example between 6800 feet and 6900 feet. Part (1) below shows the averaging effect.

.../...

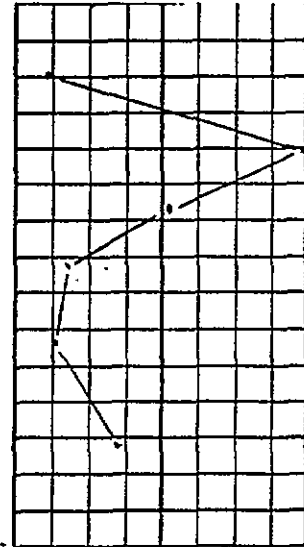




6800

6900

7000



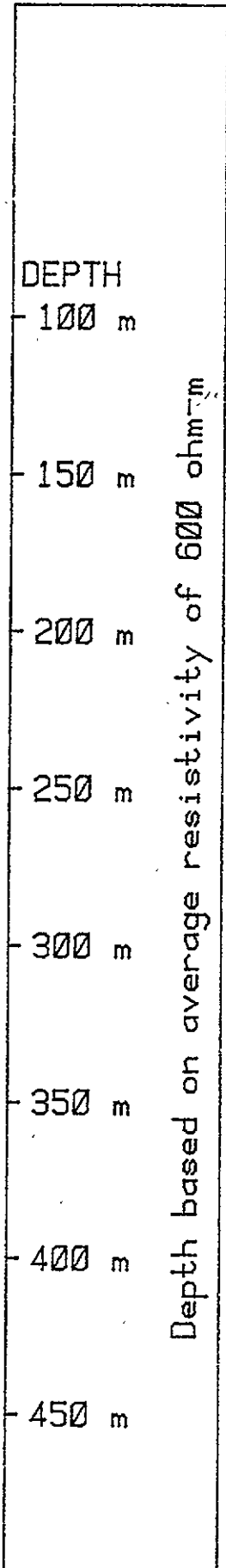
PART ①

### Depth Resolution

The resolution is a function of the background resistivity and the number of data points that can be taken. If one takes the frequency points 1 Hz and 2 Hz with the background of 10  $\Omega$  m, the depth difference between the points is 585 meters. One can only fit in a small number of data points between these two points. If one takes 10 Hz and 20 Hz, the difference between these points is 185 meters. Although the depth ratio factor is the same it is used on a shallower depth (i.e. 1 Hz comes

.../...

from 1.414 times the depth of 2 Hz, and 10 Hz comes from 1.414 times the depth of 20 Hz). However, it is possible to fit many more frequencies between 10 Hz and 20 Hz. Thus, resolution decreases with depth because of data point acquisition. It should also be mentioned that there are other variables that also decrease resolution with depth such as: subsurface geology, input/receiving power, signal-to-noise ratio, and ground contact.



EM ELECTROMAG EXPLORATION LTD.

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CALGARY, ALBERTA T2E 6P7

ELECTROMAGNETIC SURVEY FOR

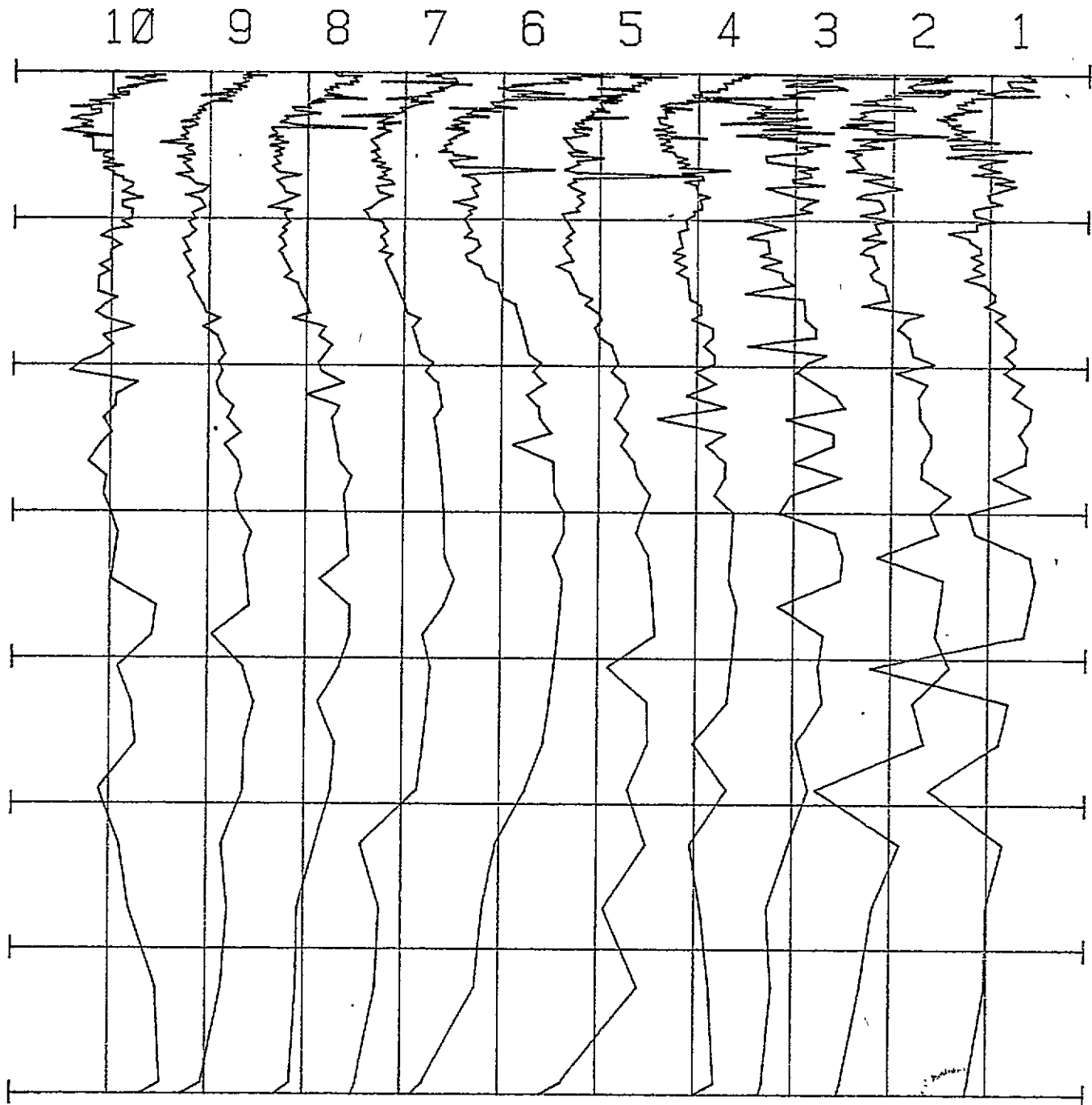
GULF CANADA RESOURCES INC.

Coal Division

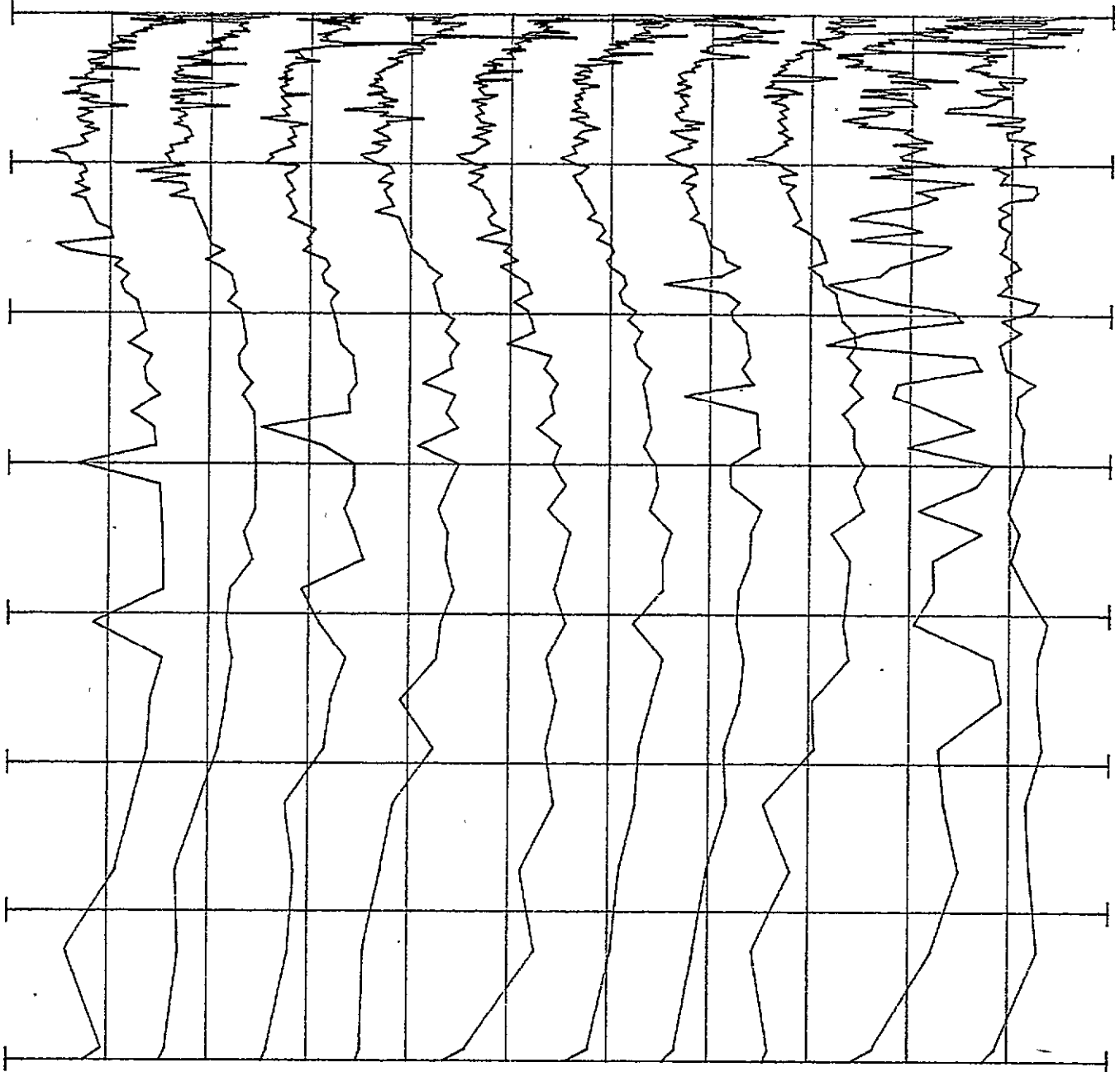
GOODRICH PROJECT, B. C.

October 1980

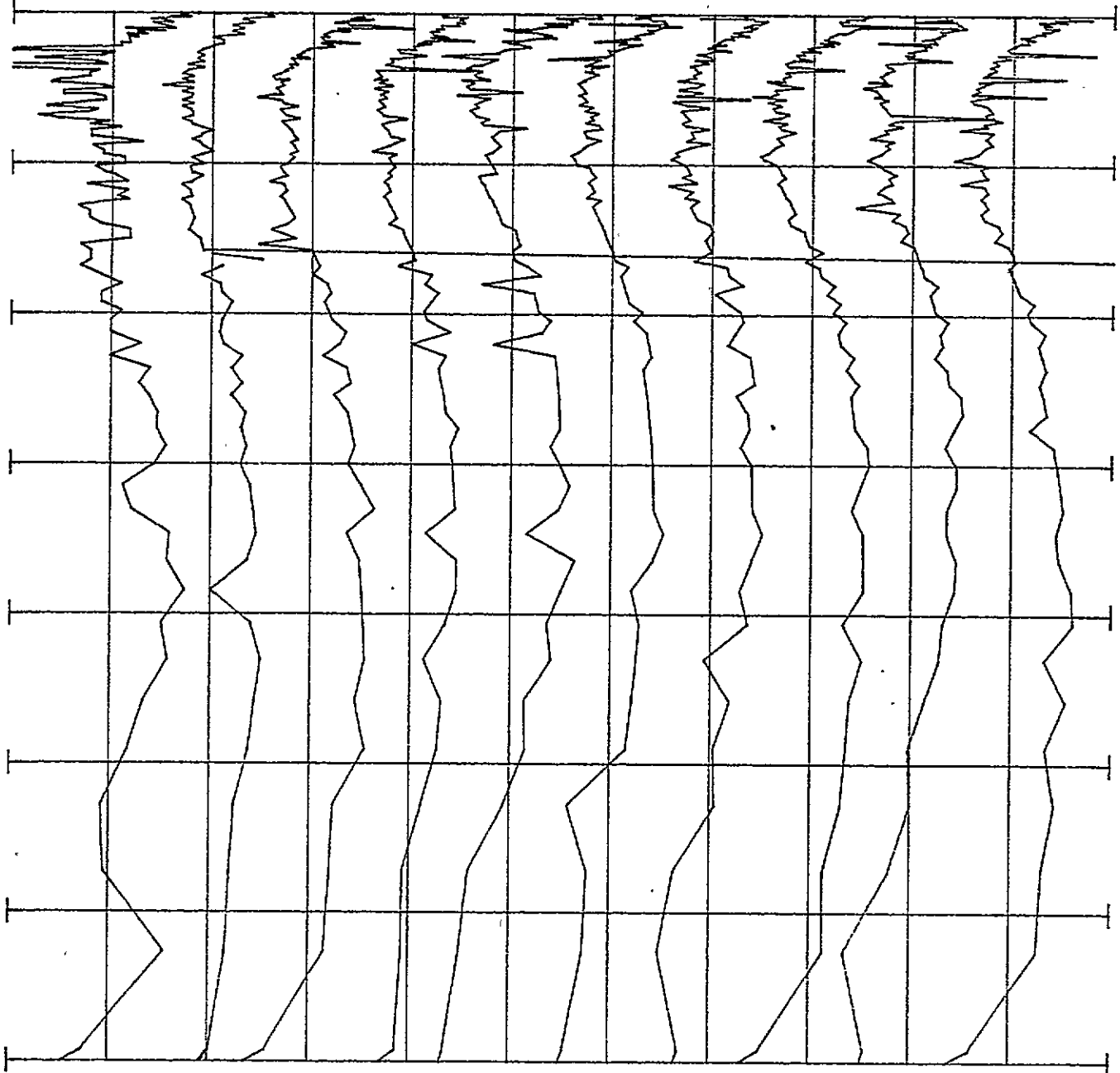




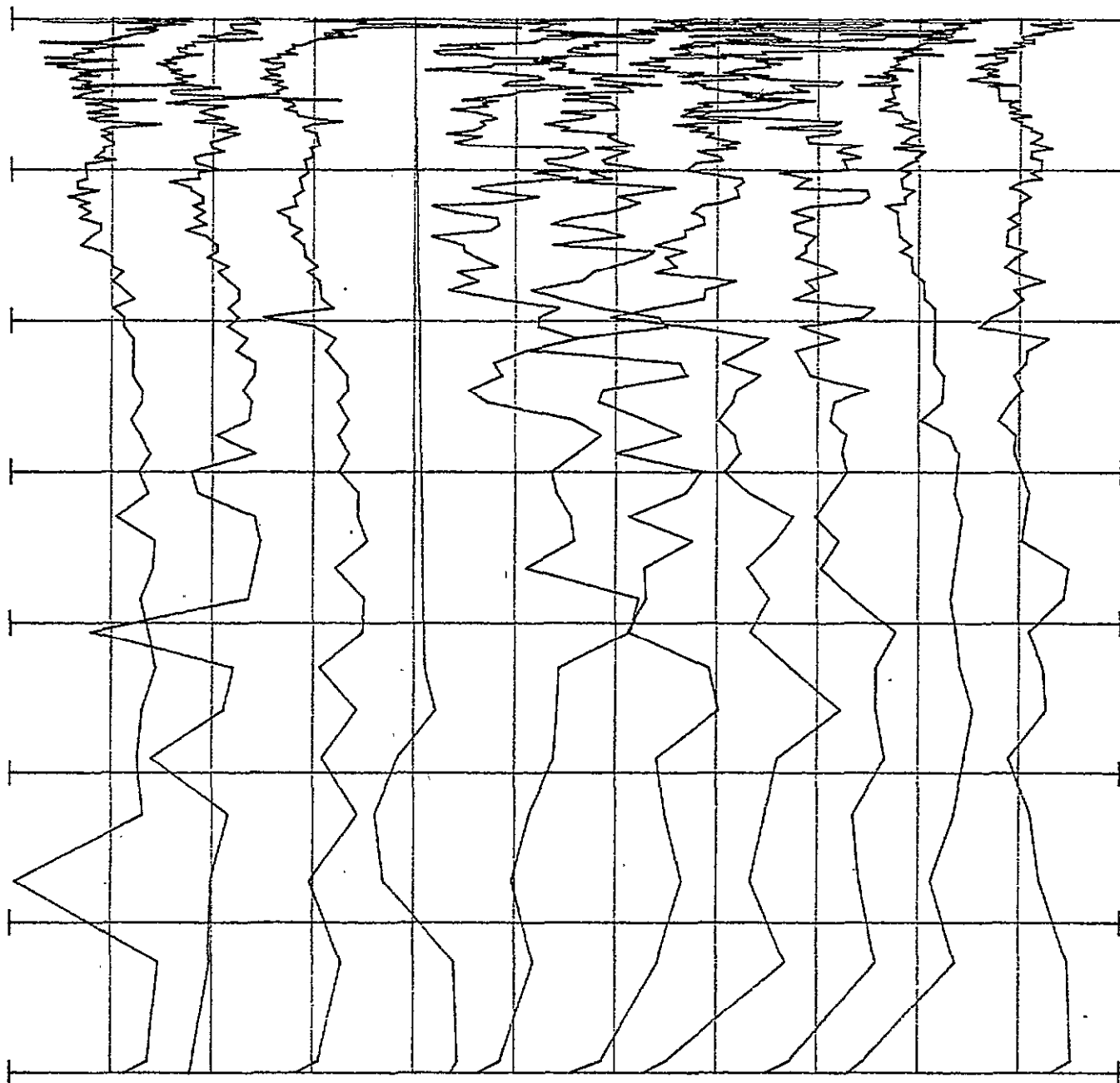
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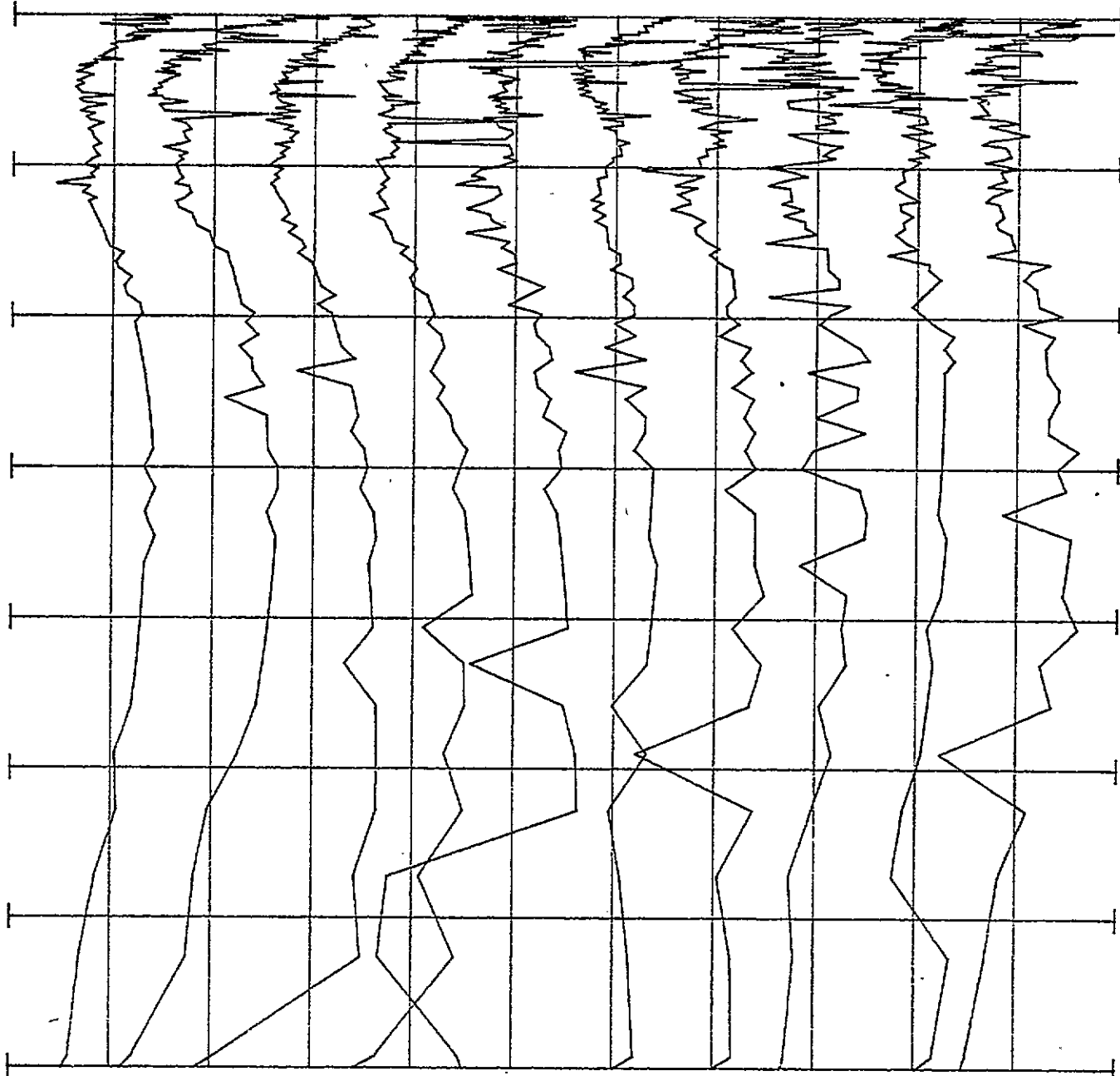
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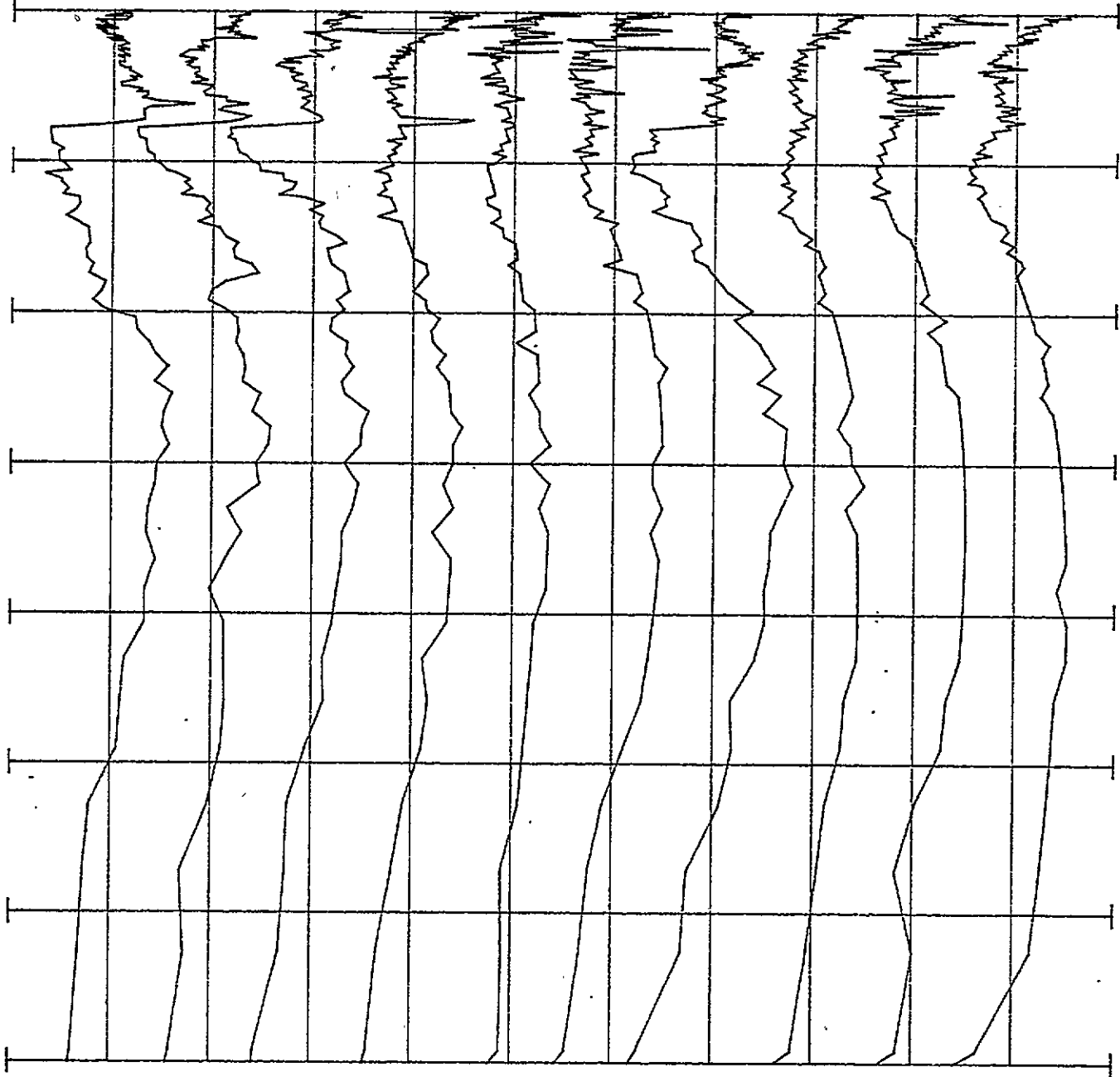
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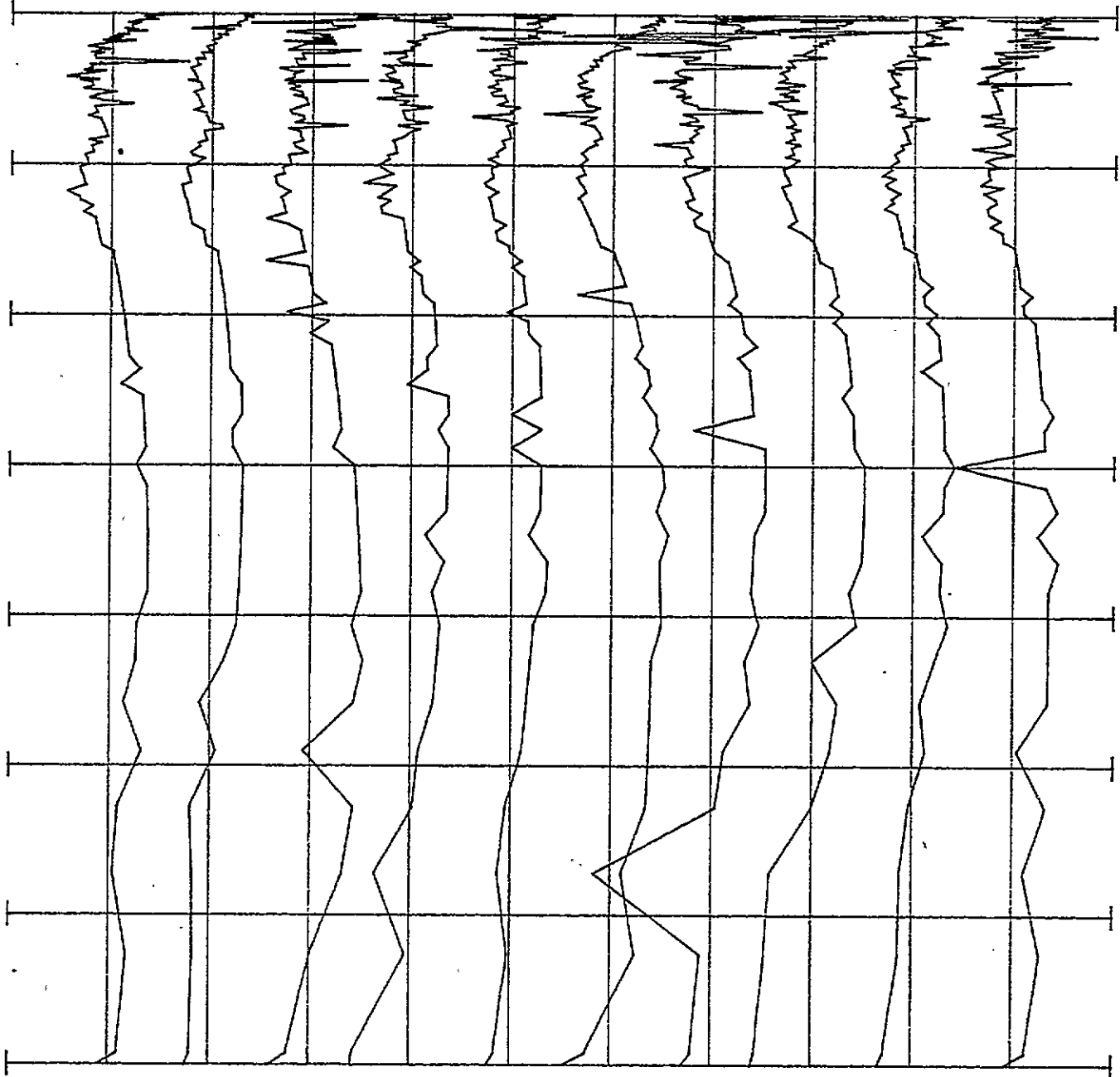
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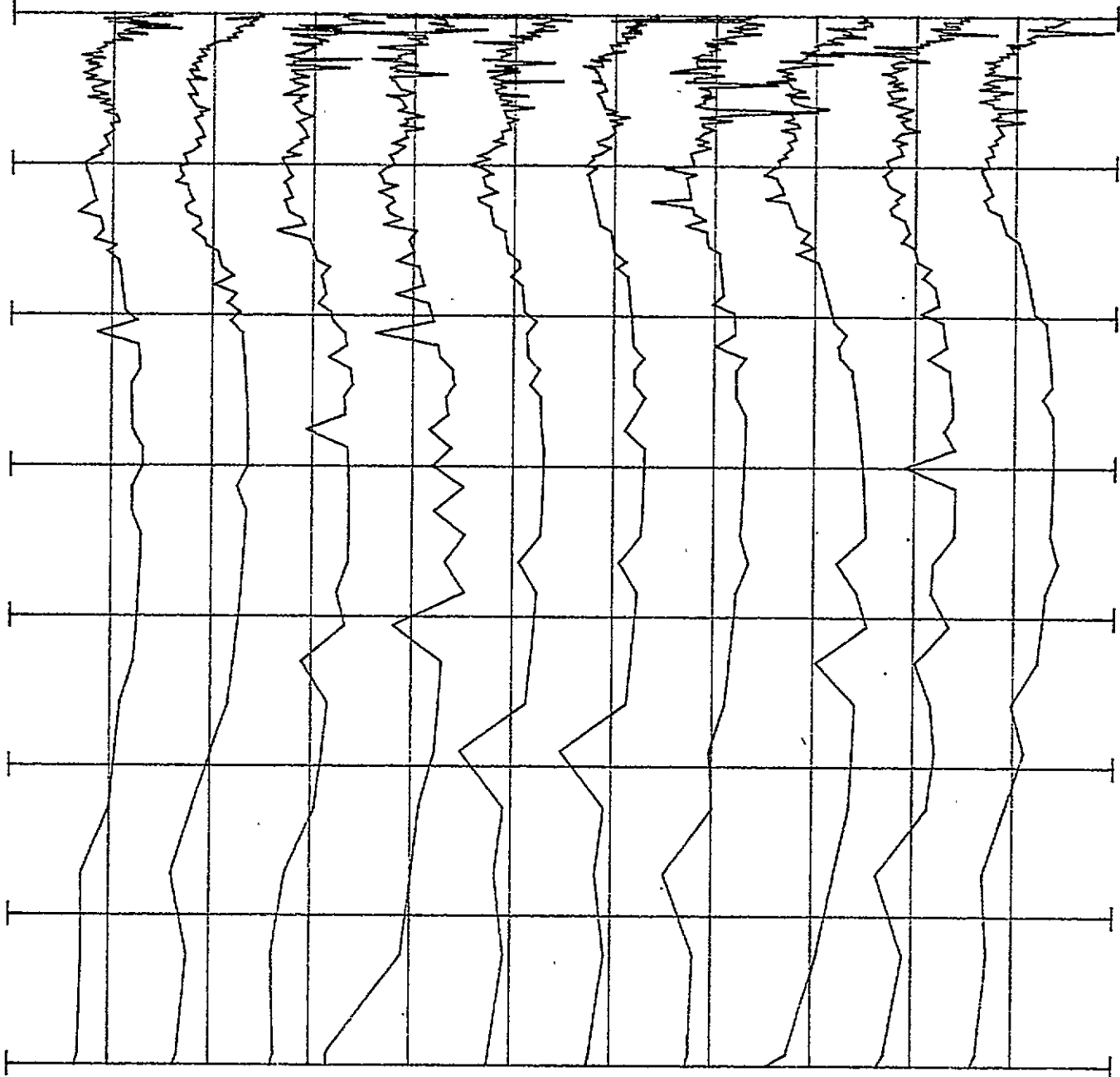
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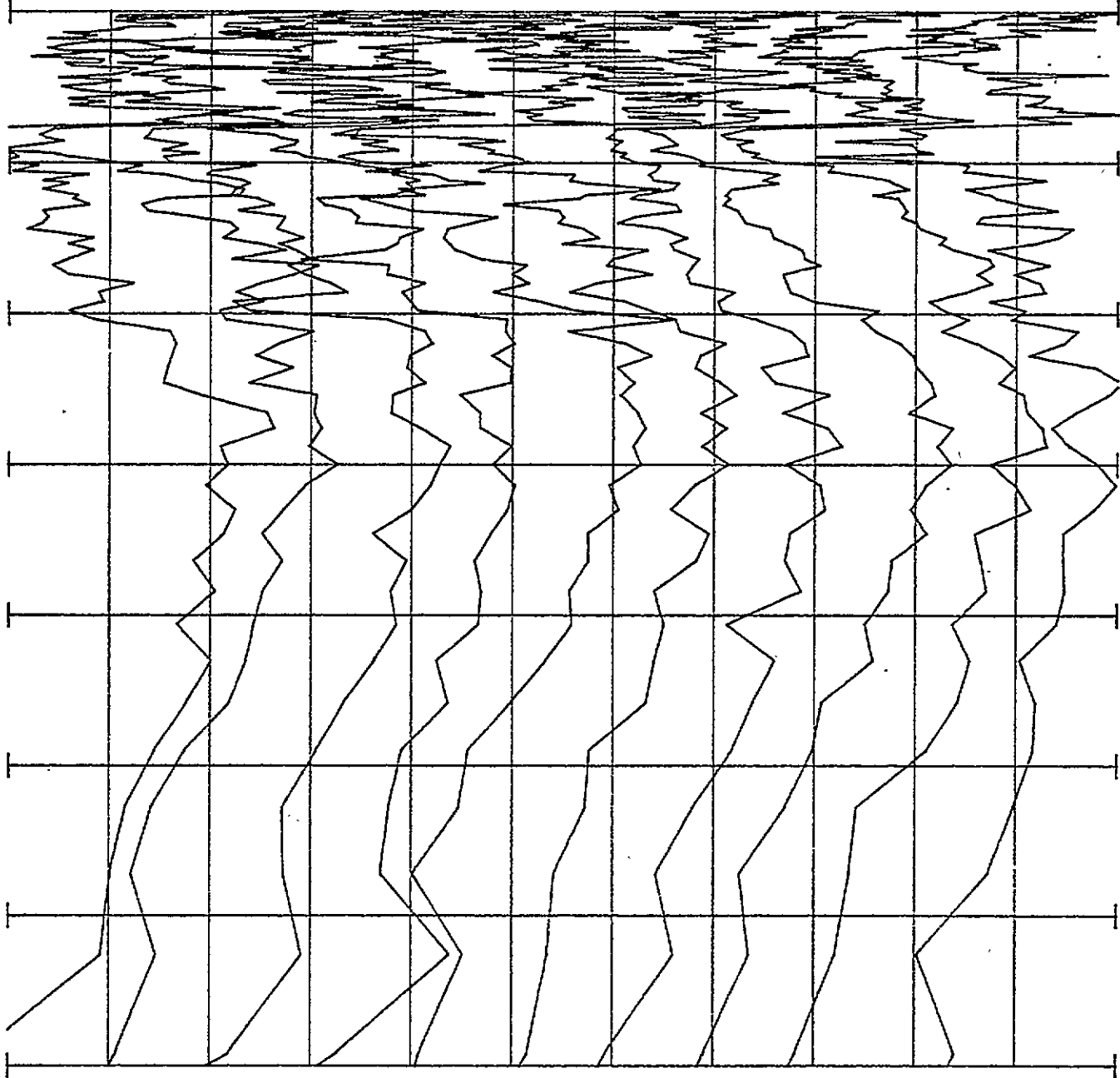


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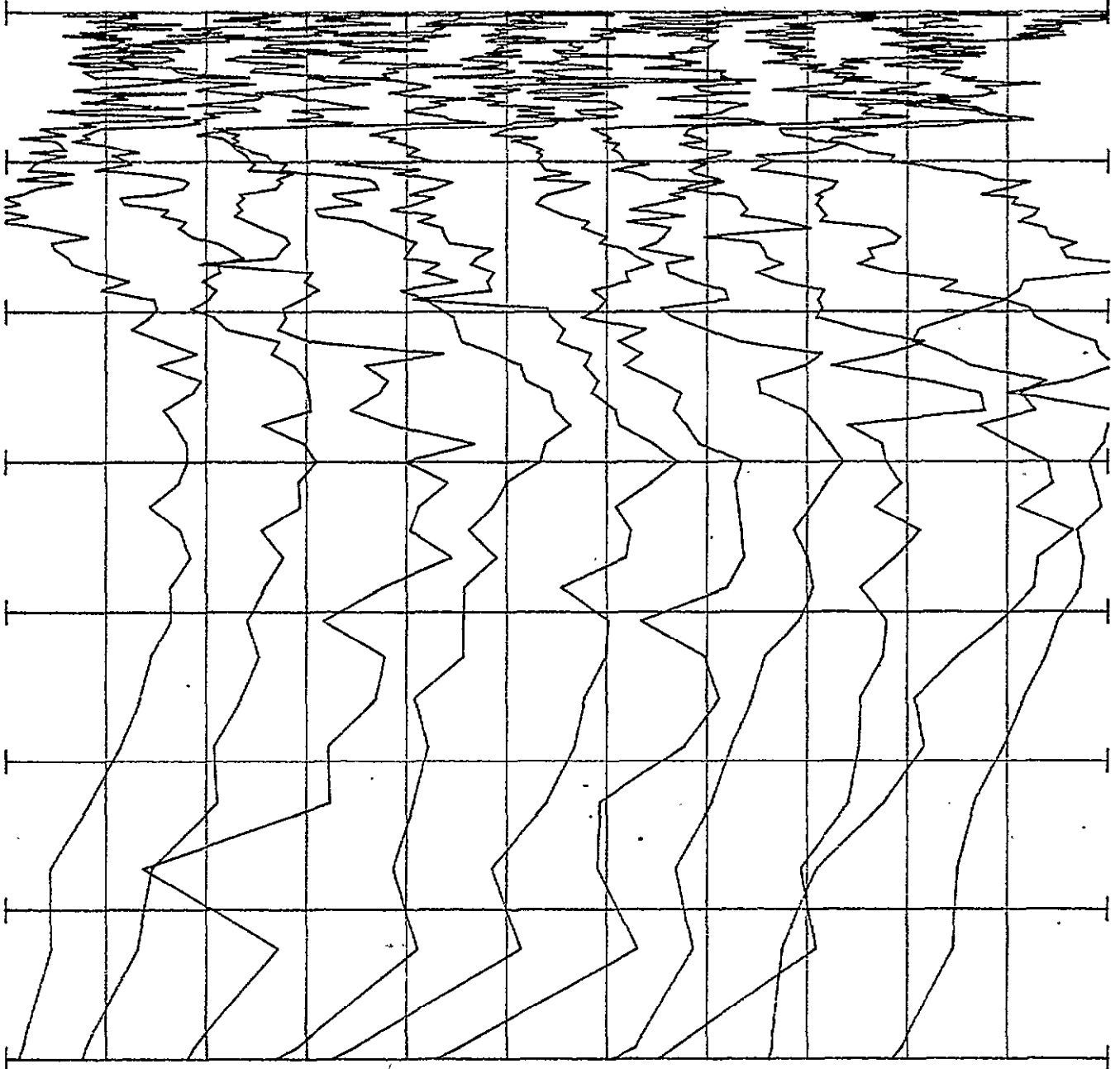




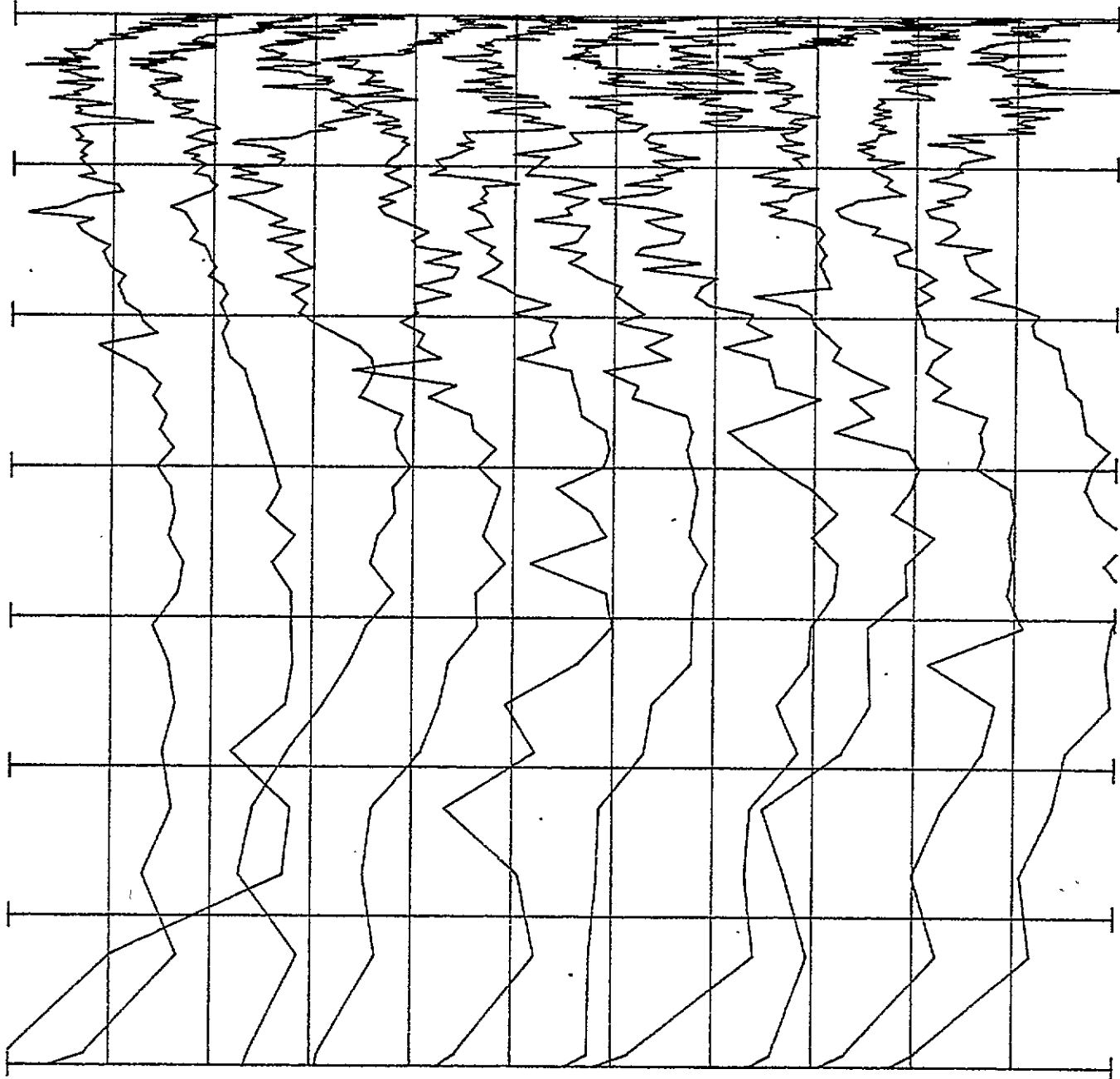
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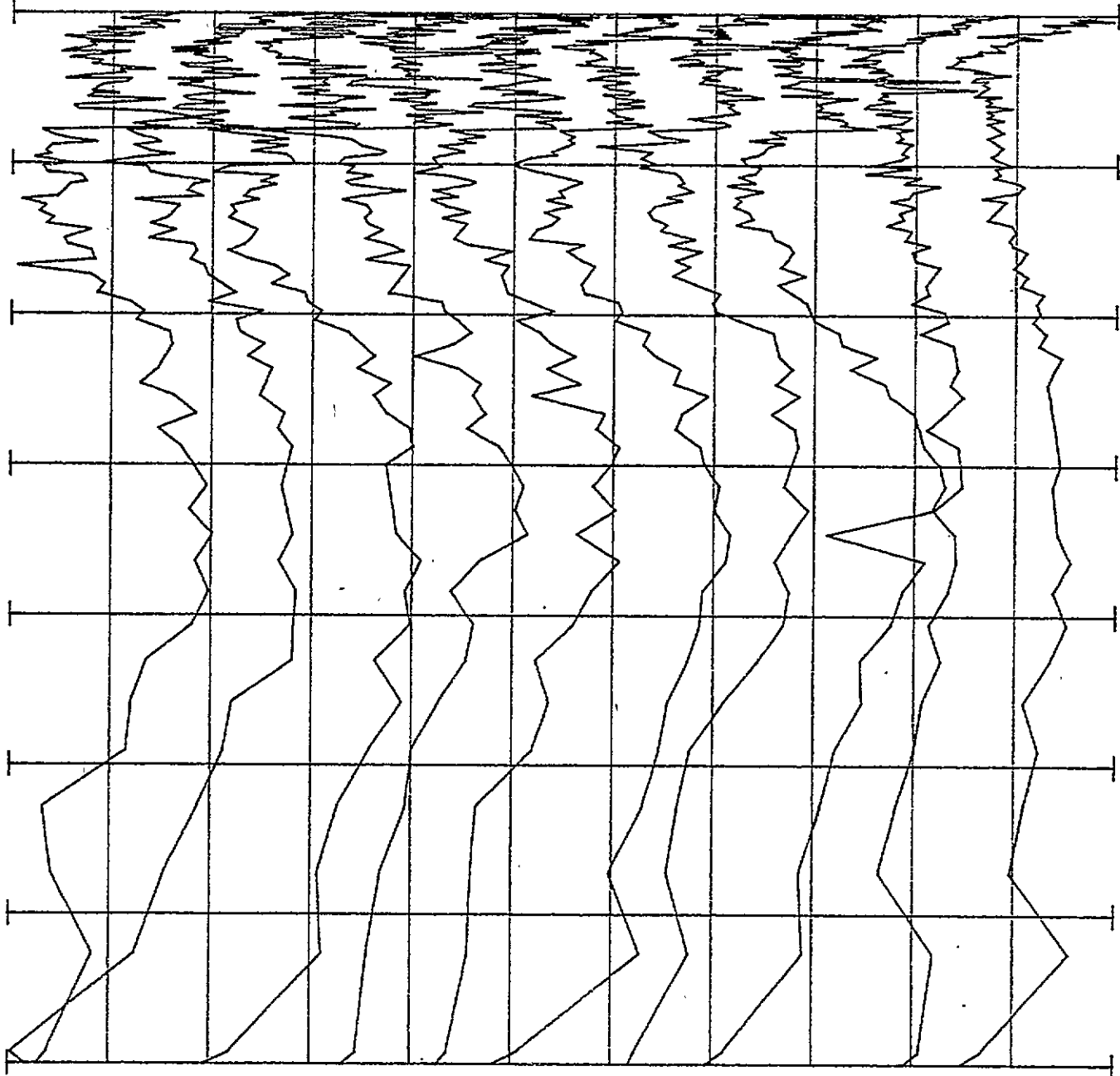
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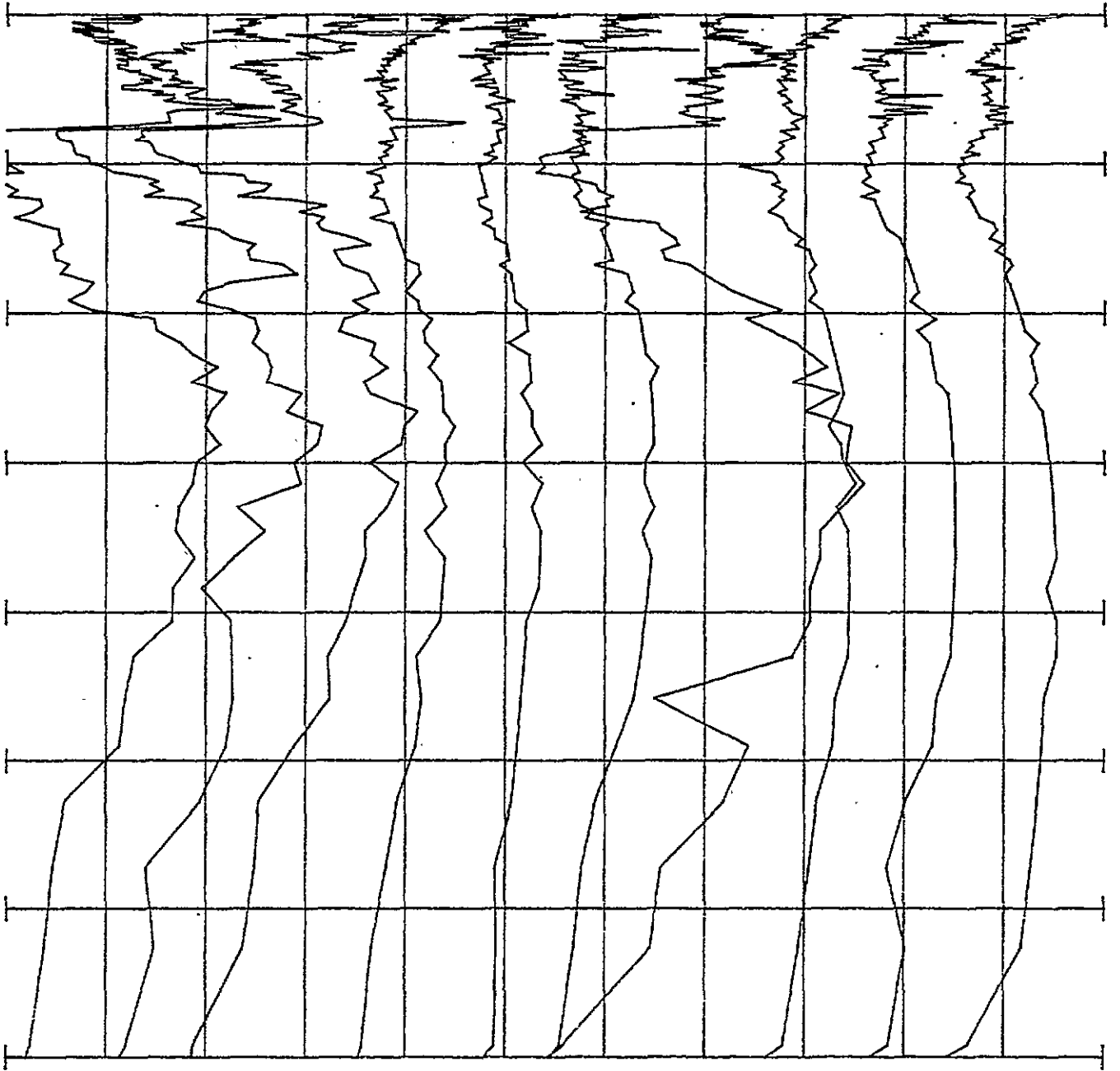
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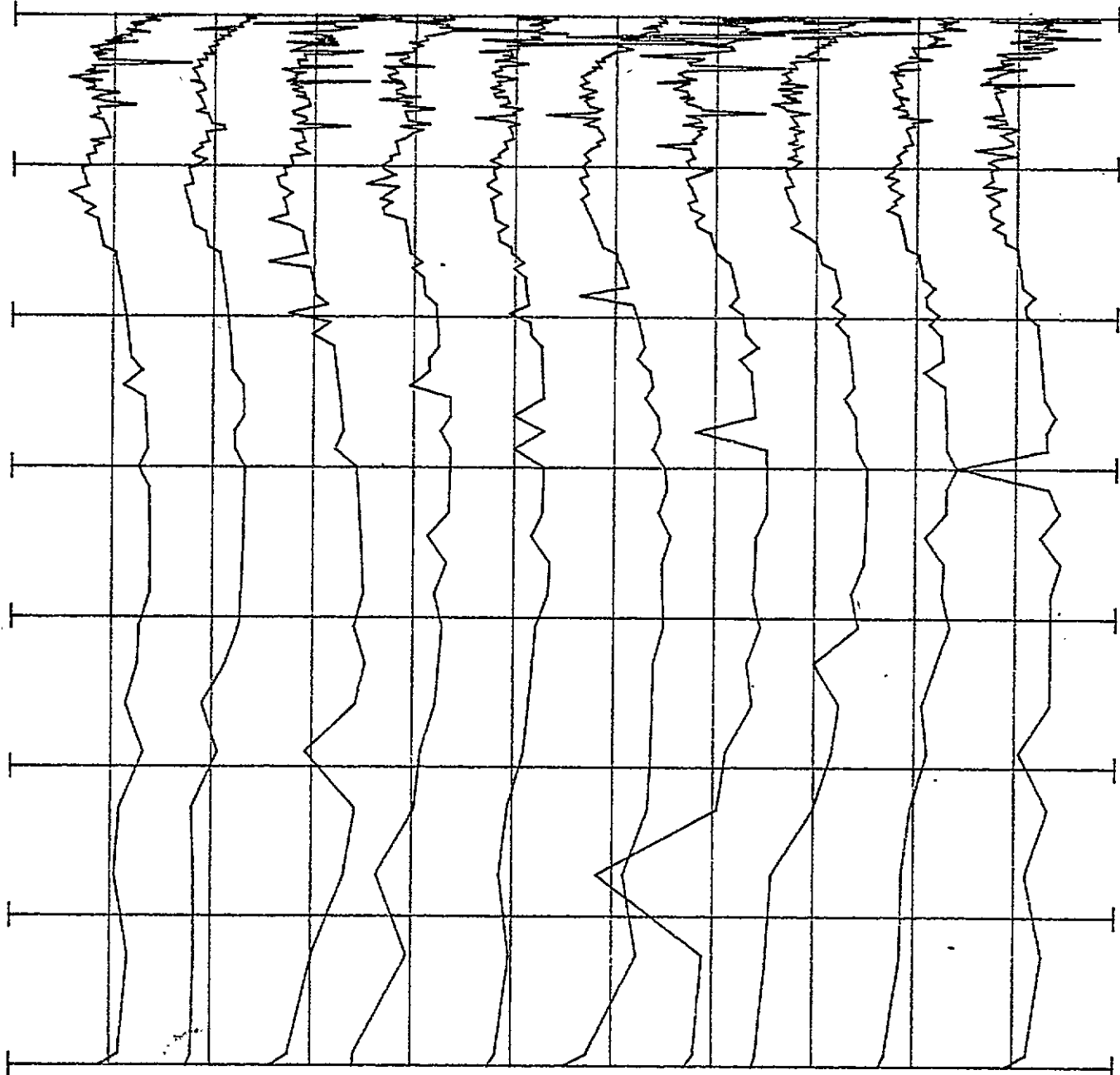
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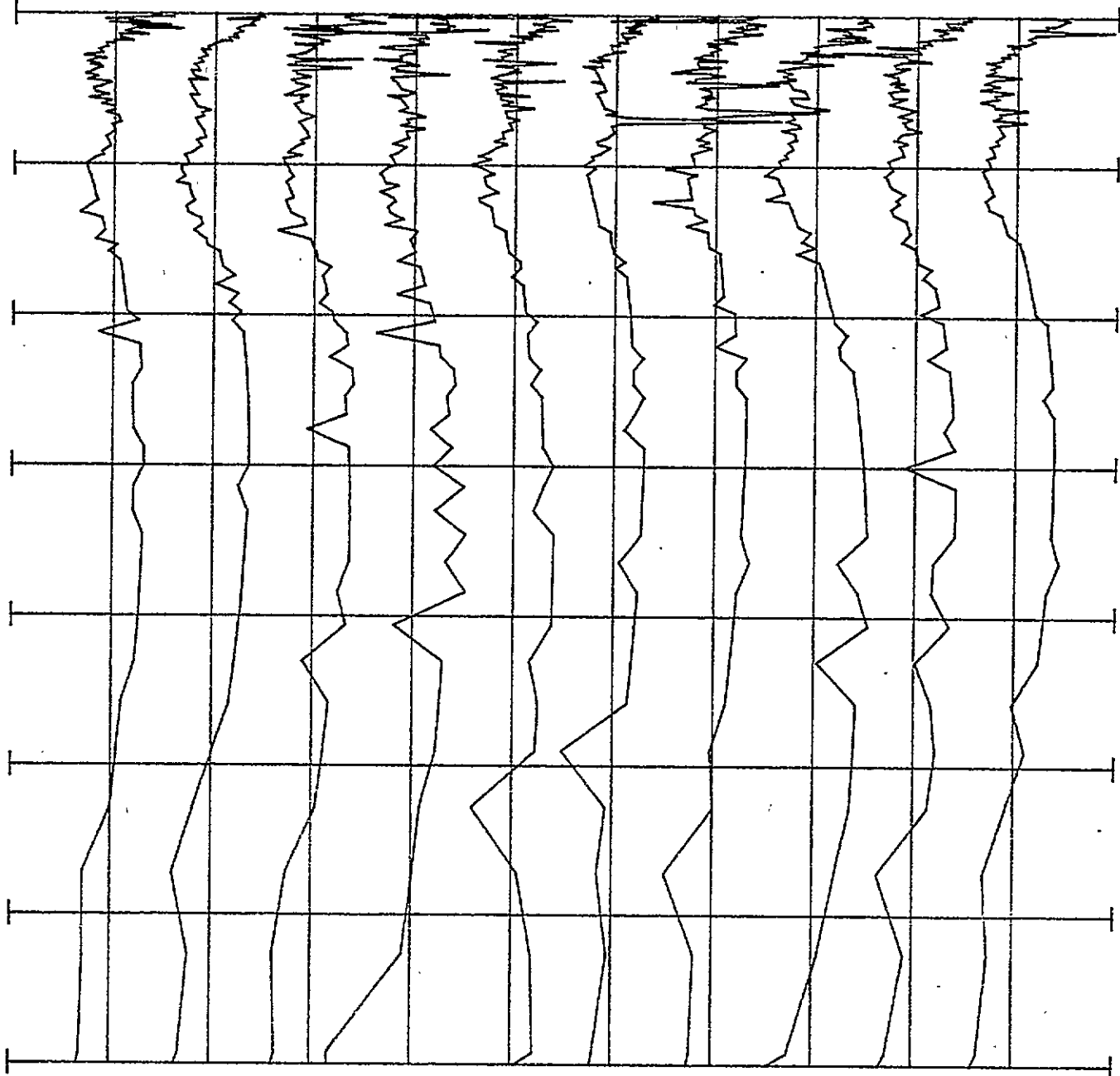
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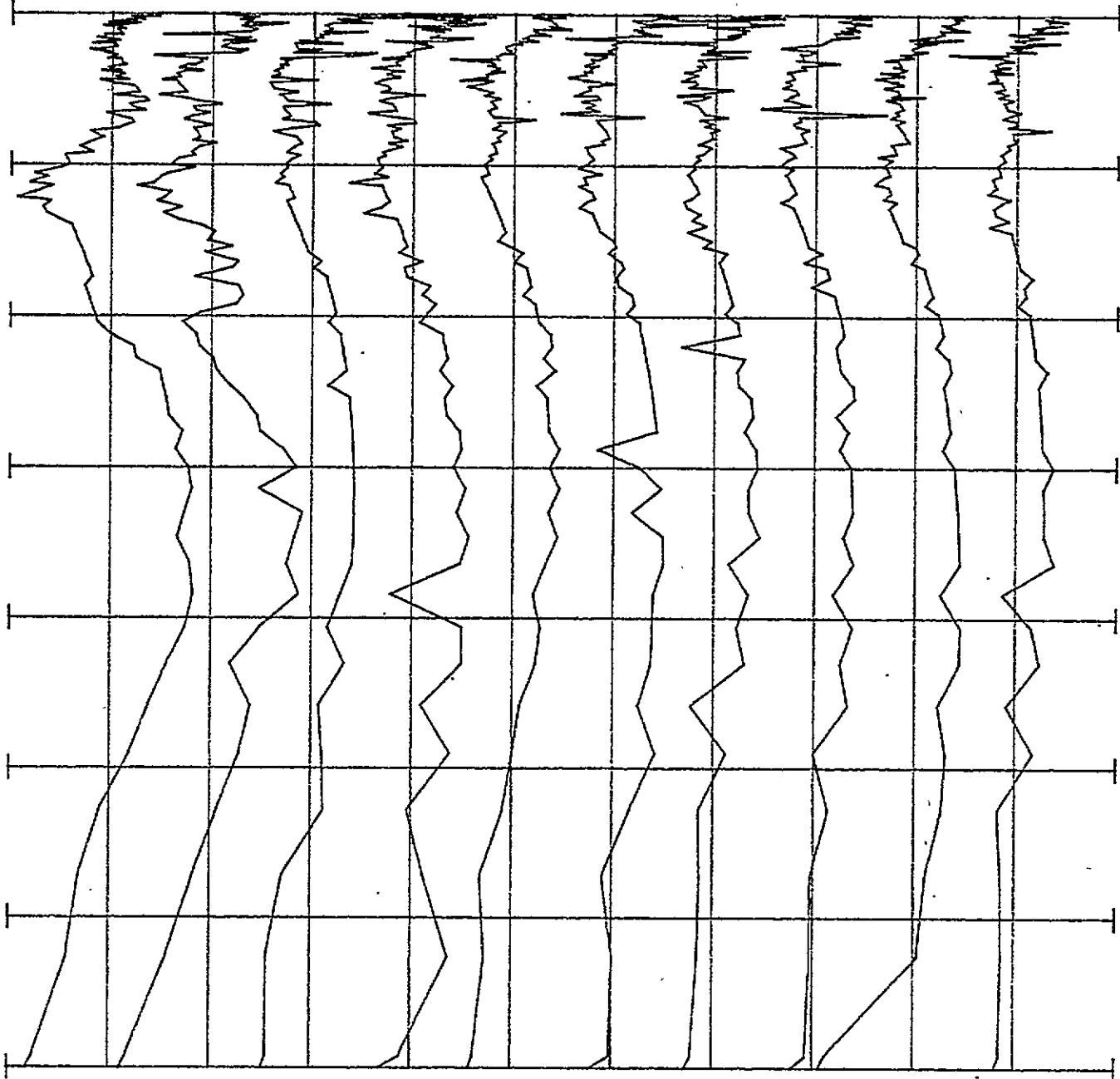
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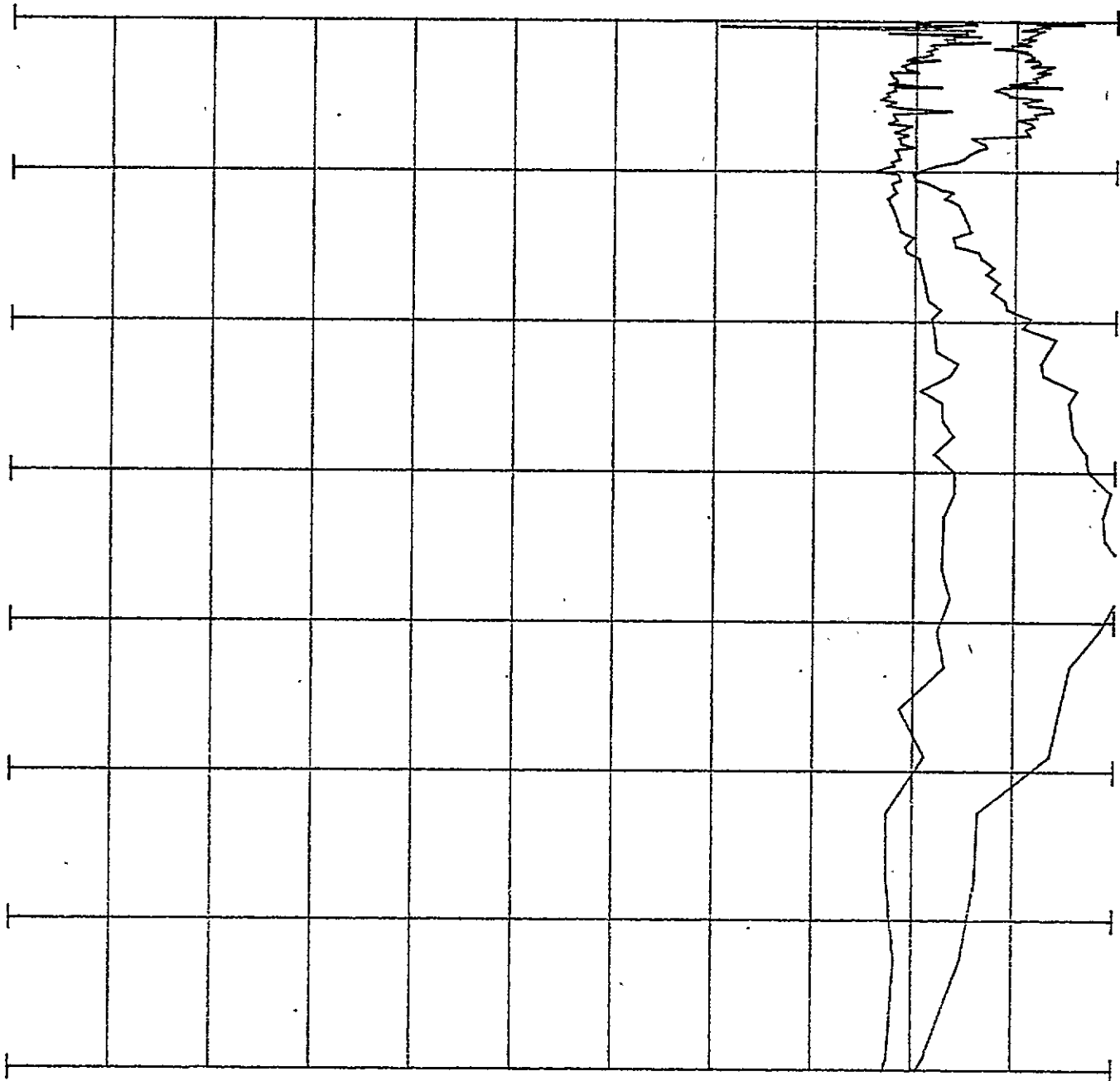


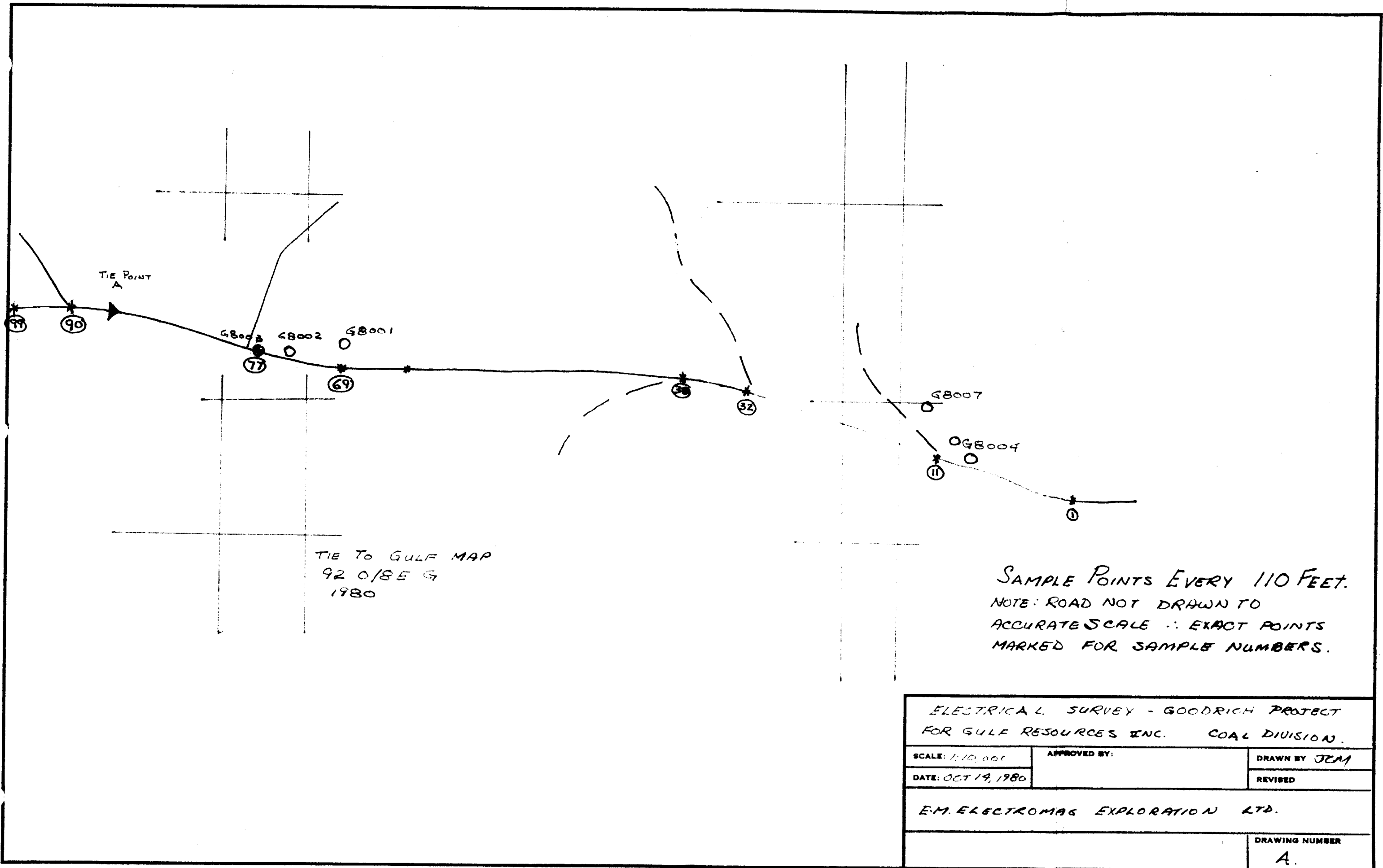
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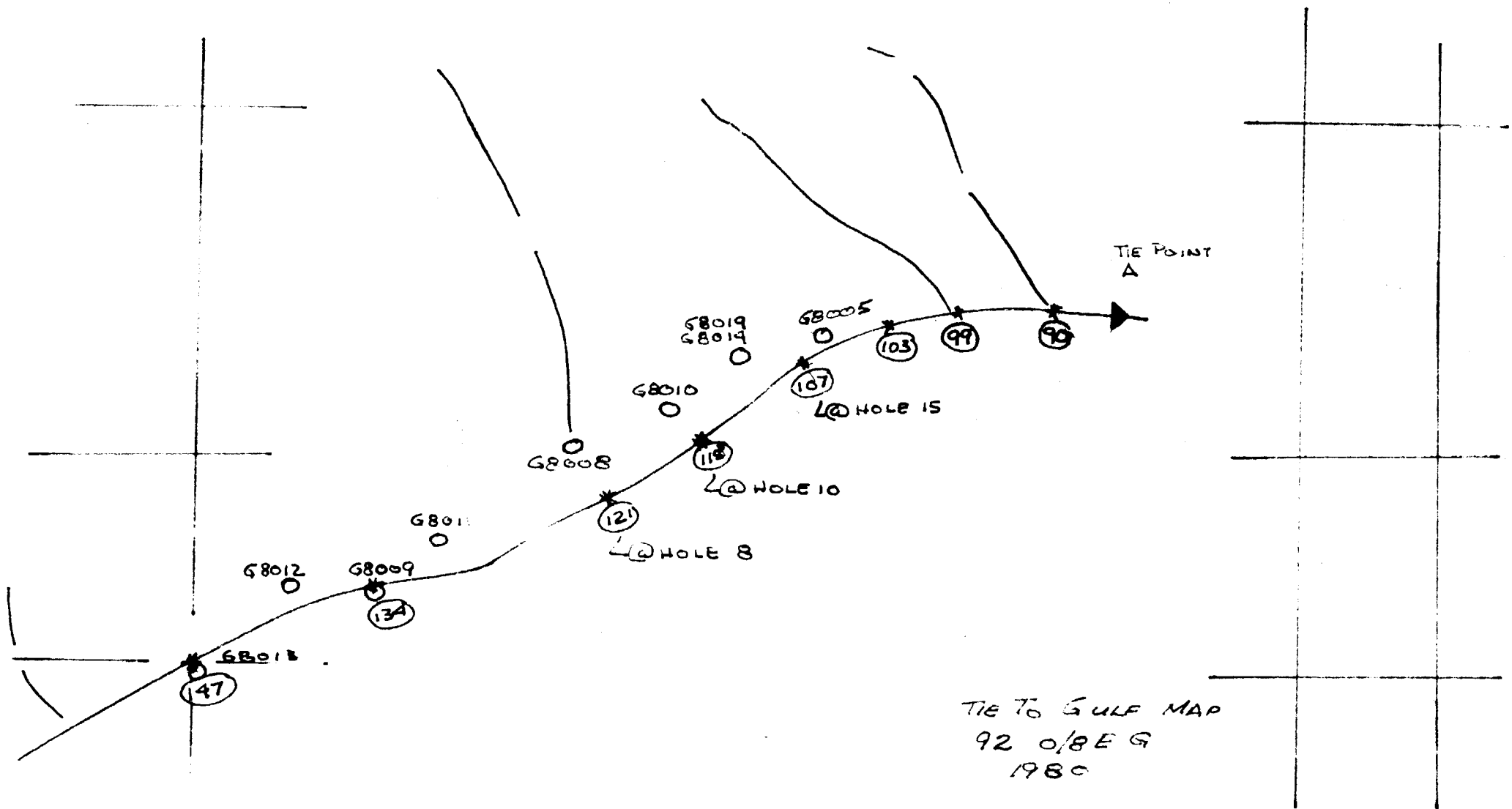




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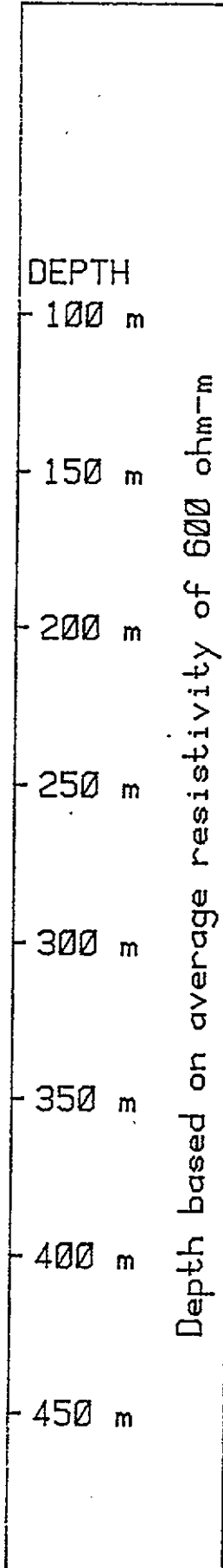






TIE TO GULF MAP  
 92 O/BEG  
 1980

PART B. GOODRICH (GULF)		
SCALE: 1:10,000	APPROVED BY:	DRAWN BY JCM.
DATE: OCT 14, 80		REVISED
		DRAWING NUMBER
		B.

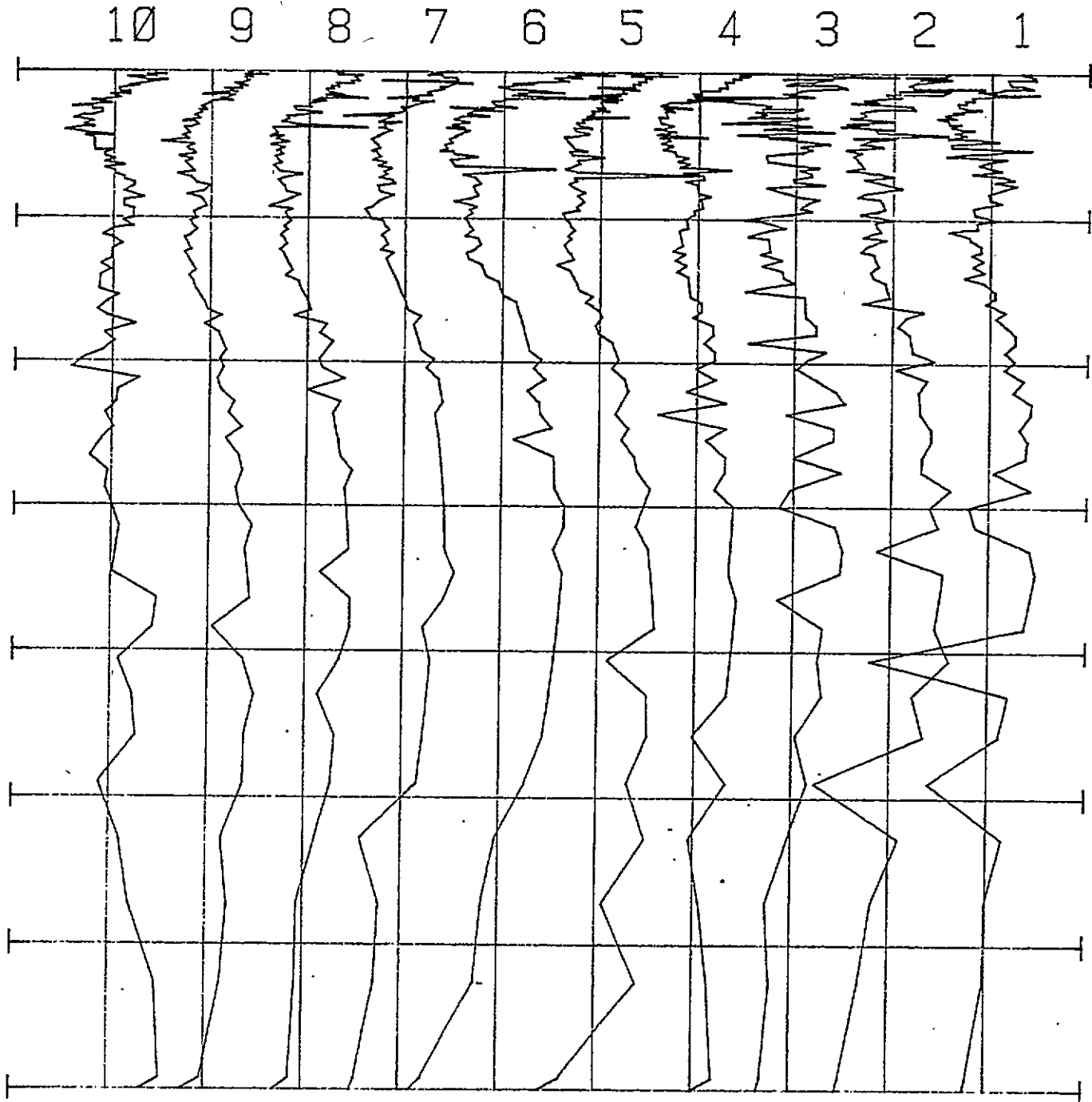


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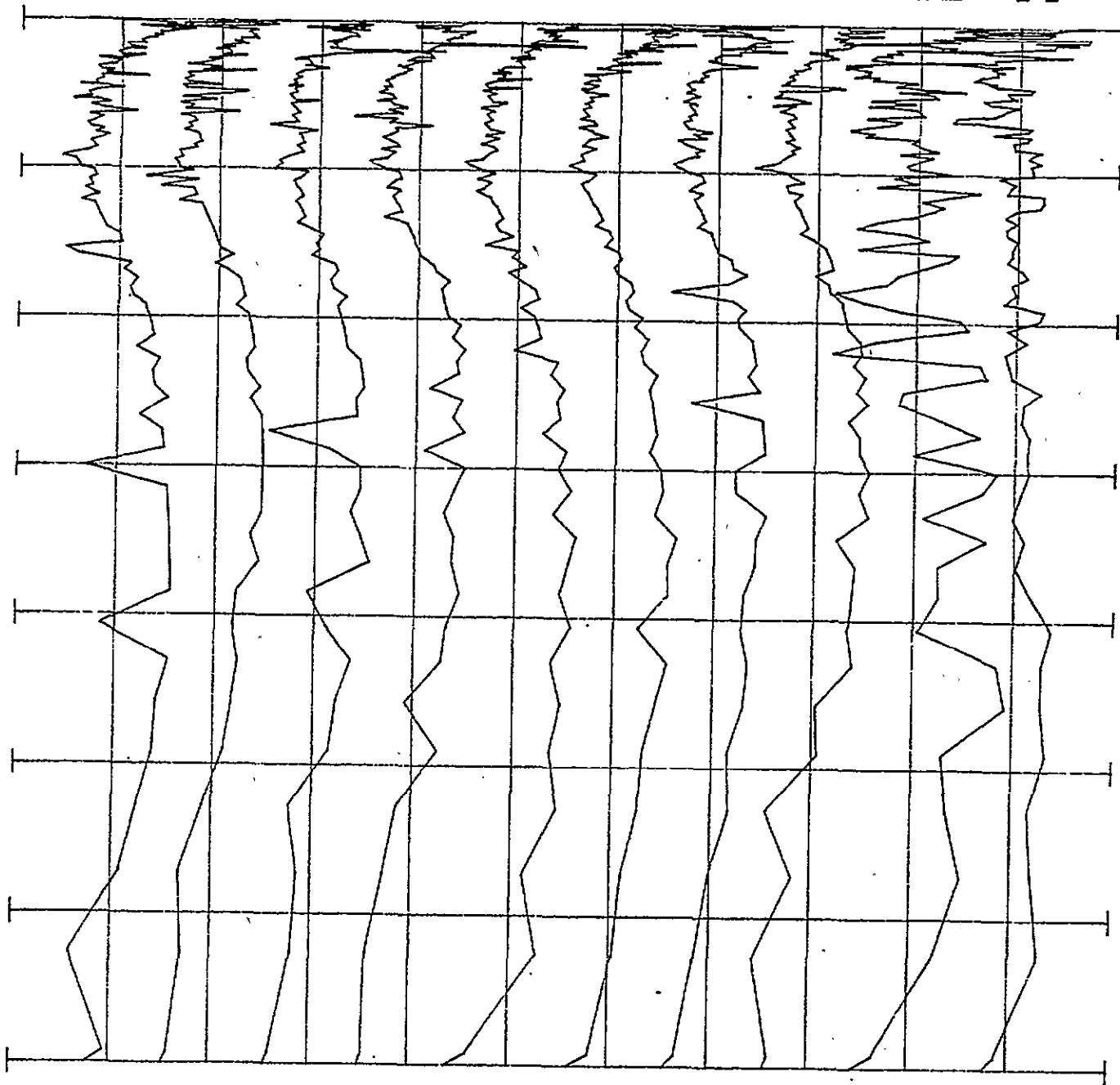
ELECTROMAGNETIC SURVEY FOR  
GULF CANADA RESOURCES INC.  
Coal Division

GOODRICH PROJECT, B. C.

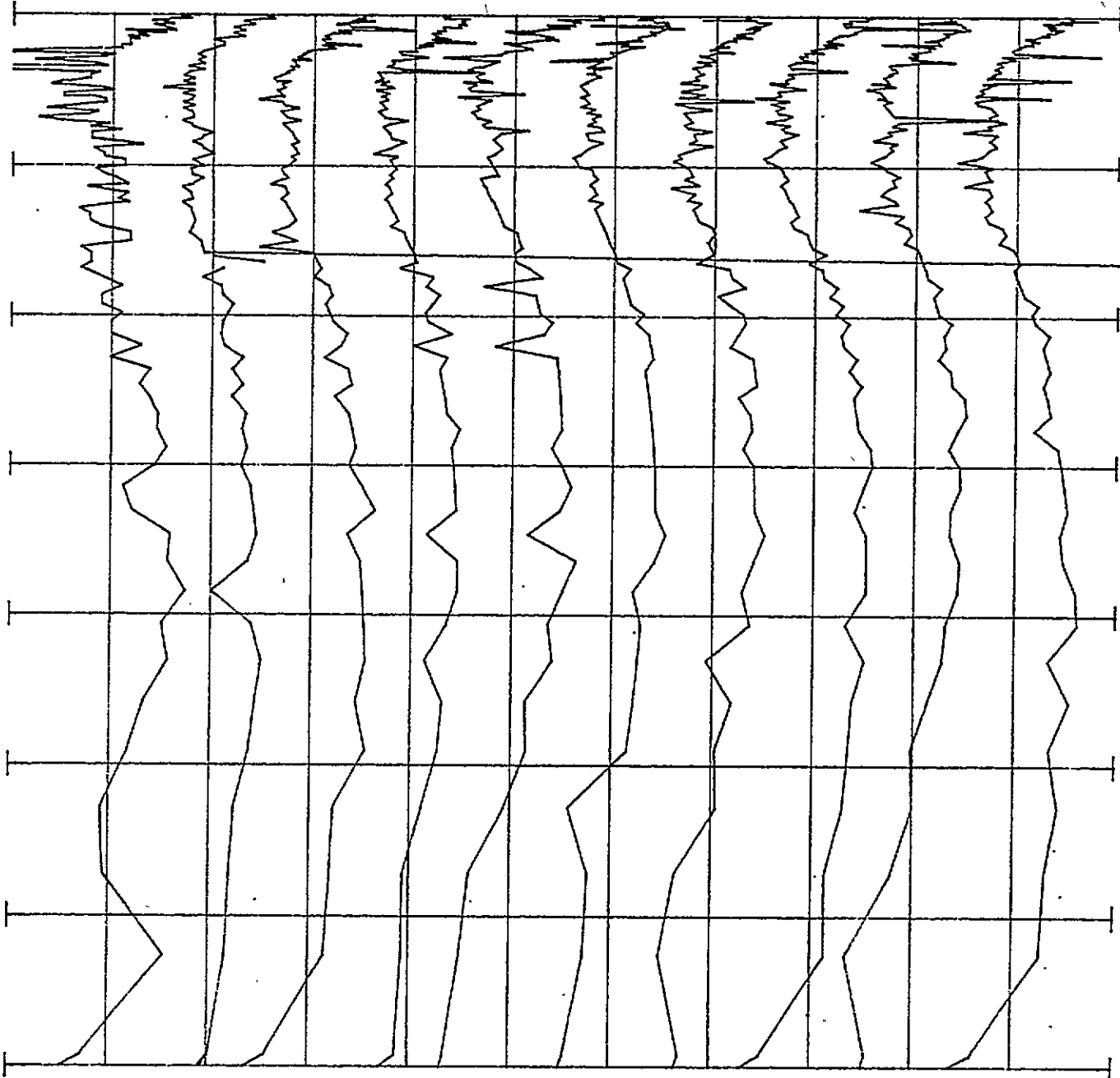
October 1980



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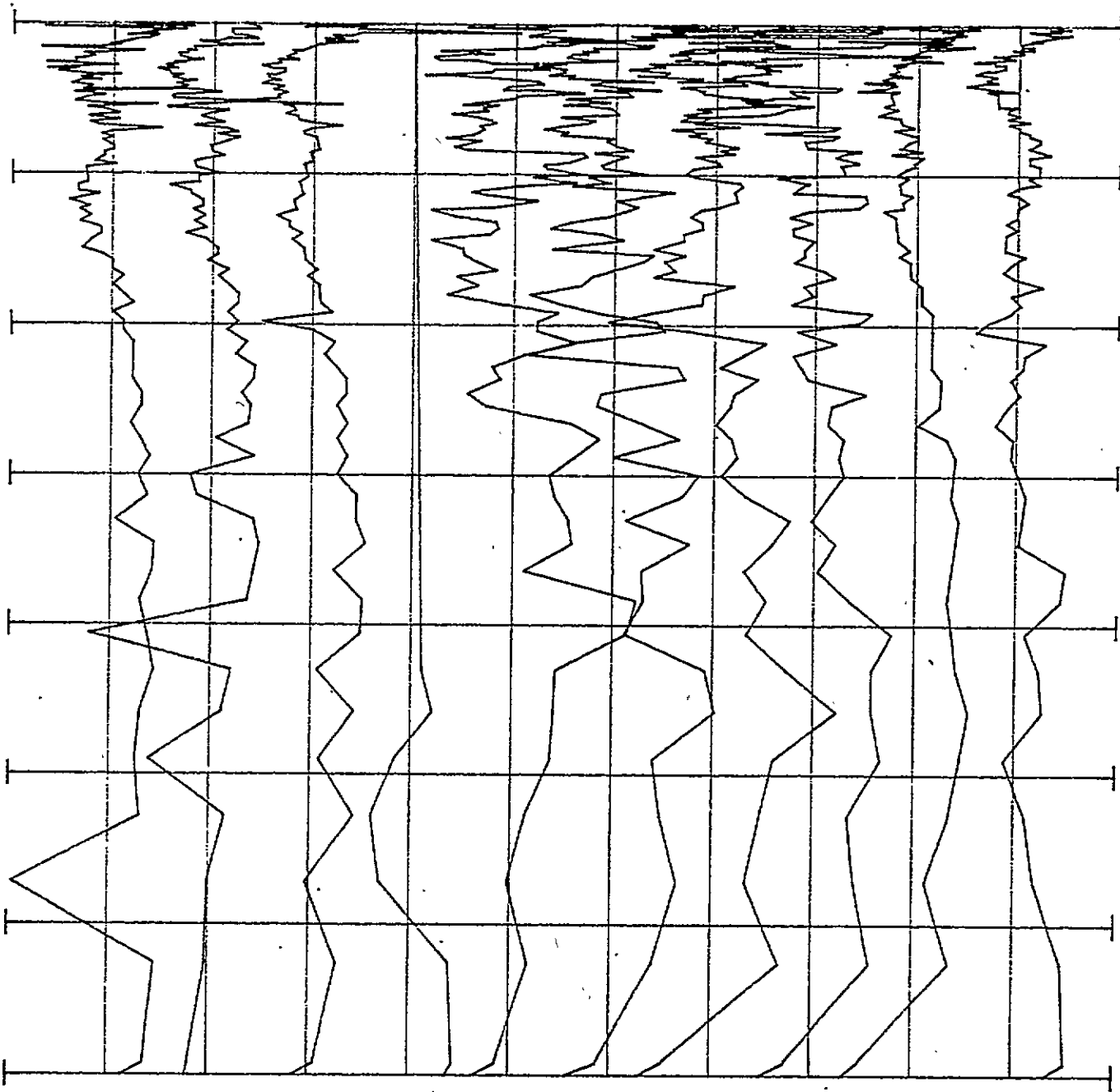


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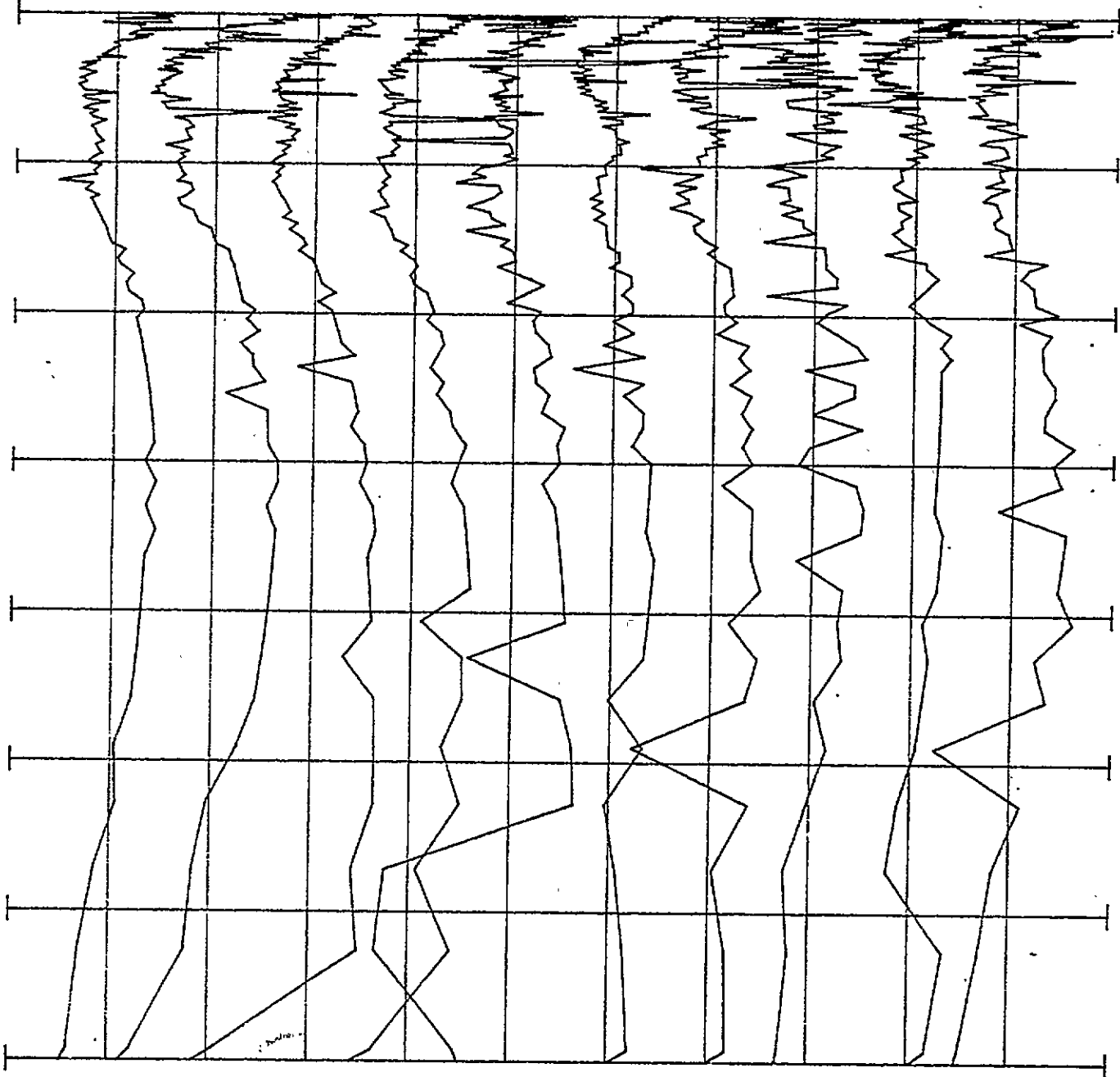
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PACKARD  
12

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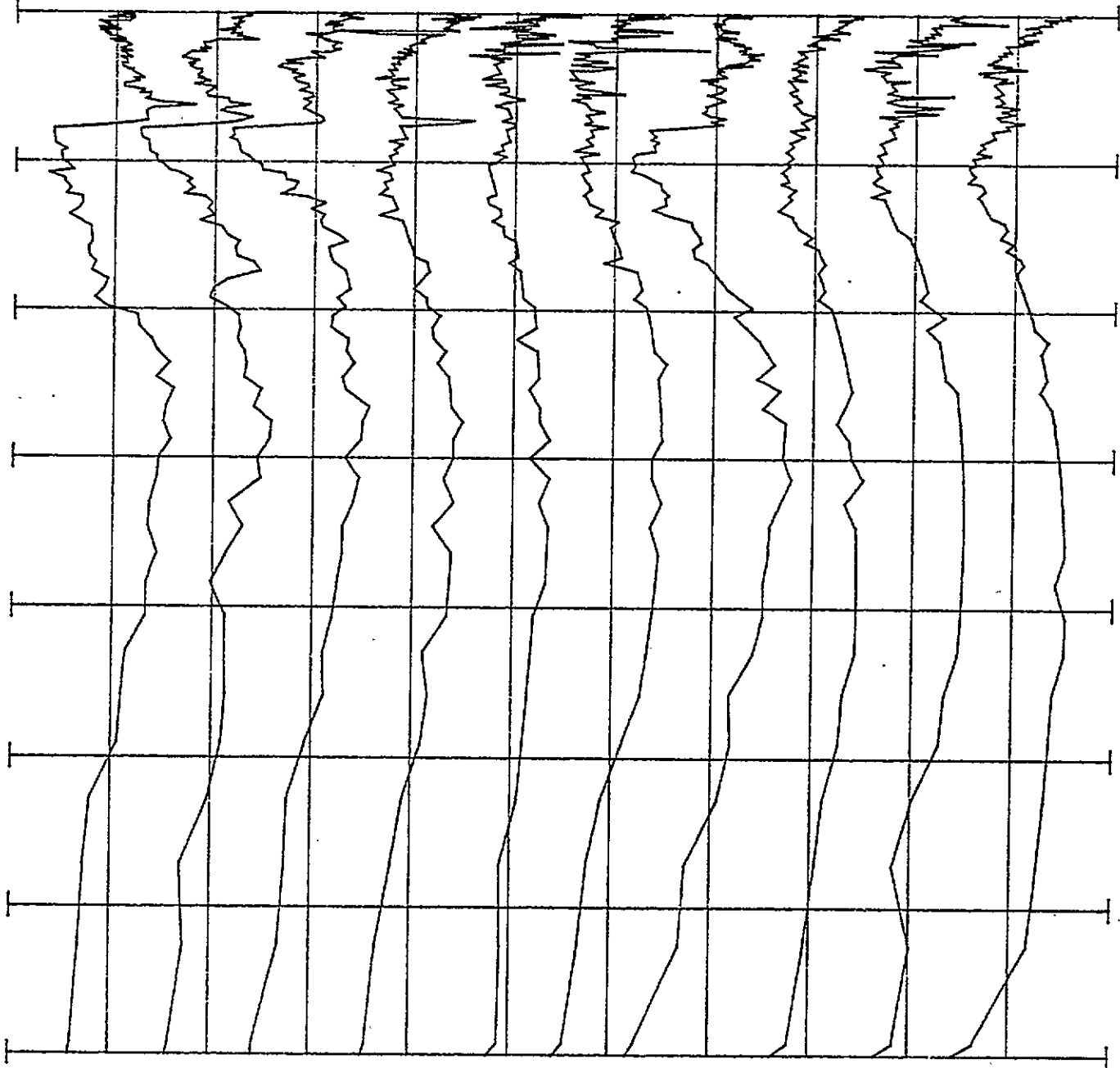




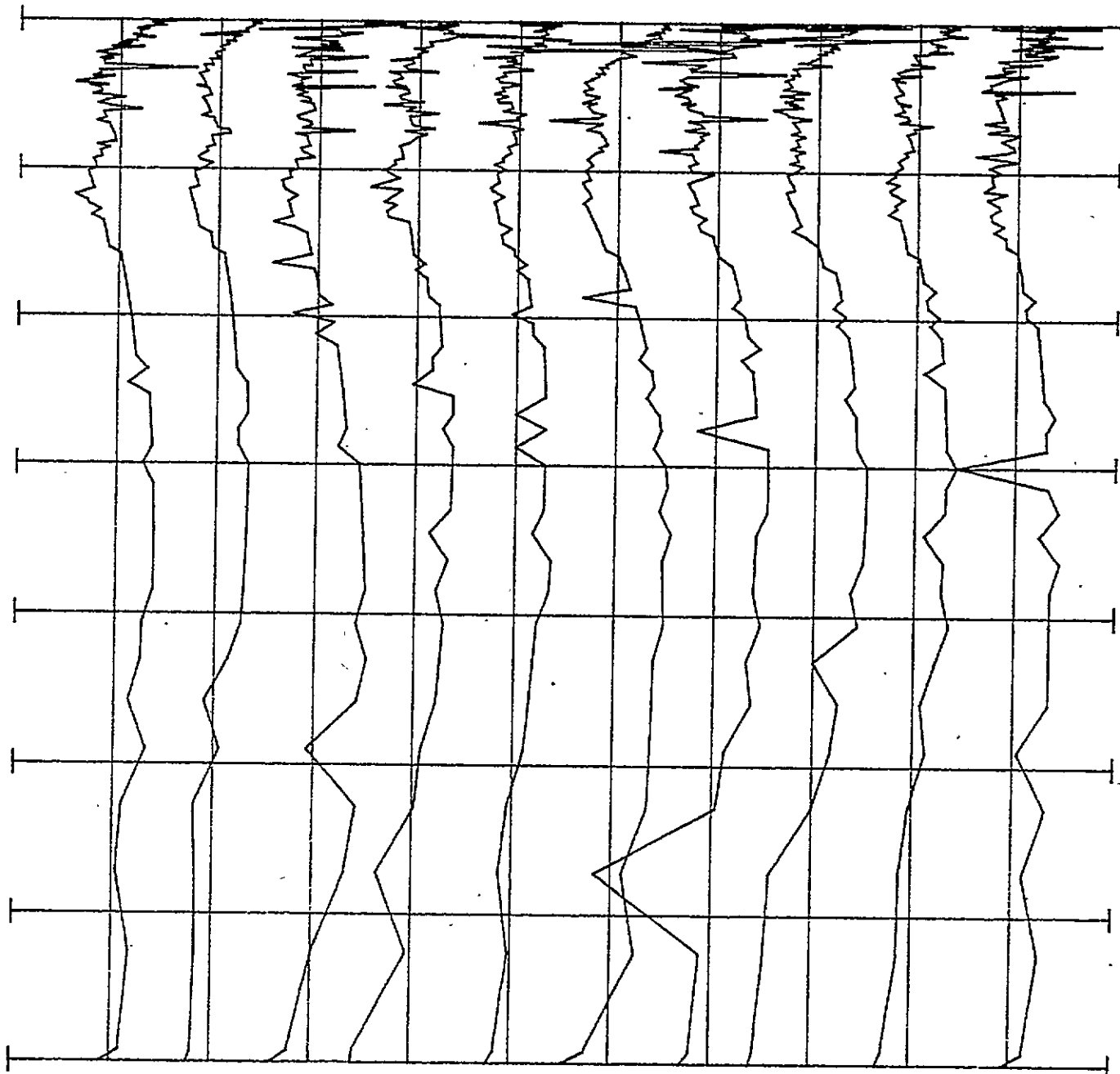
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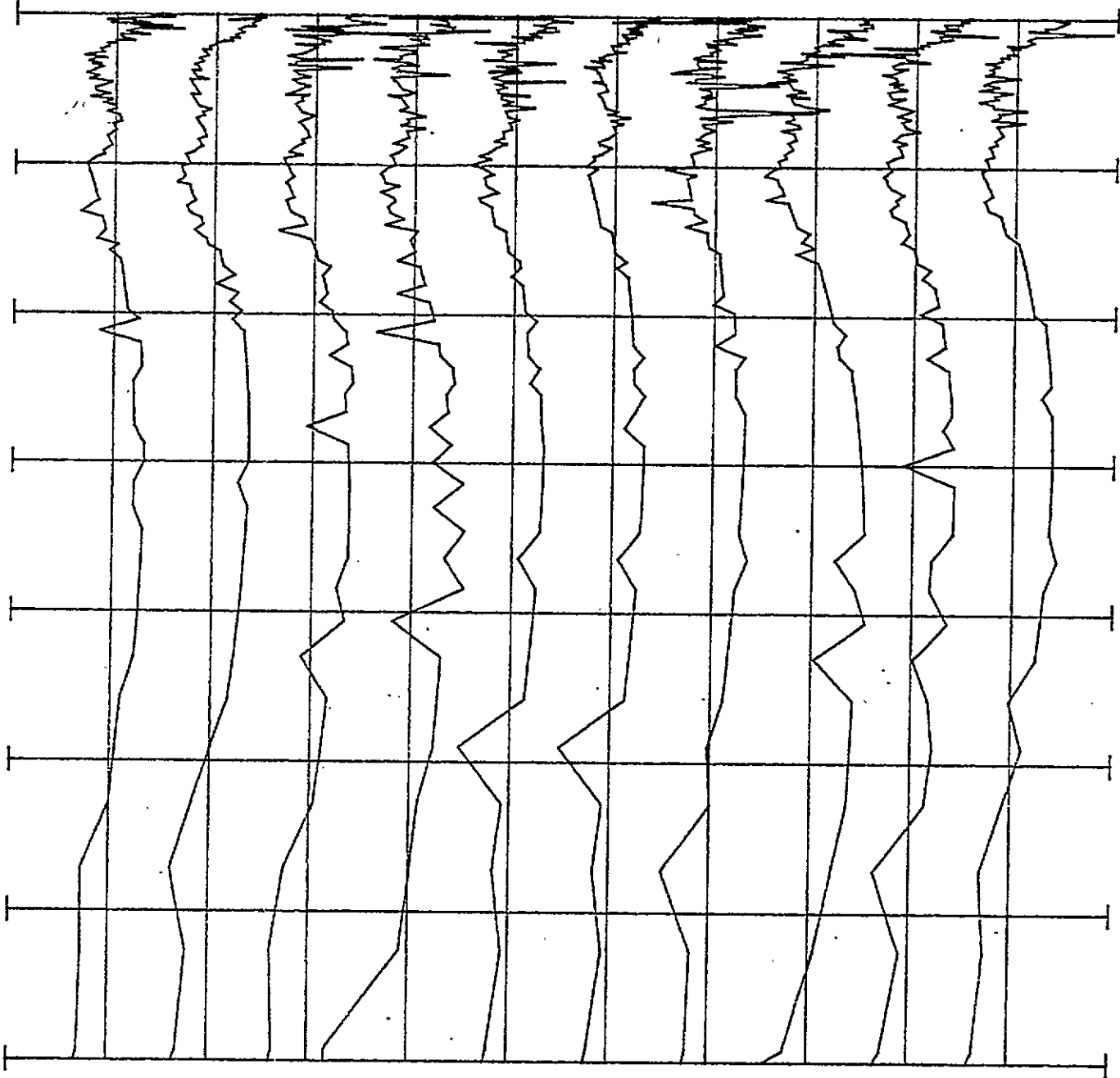
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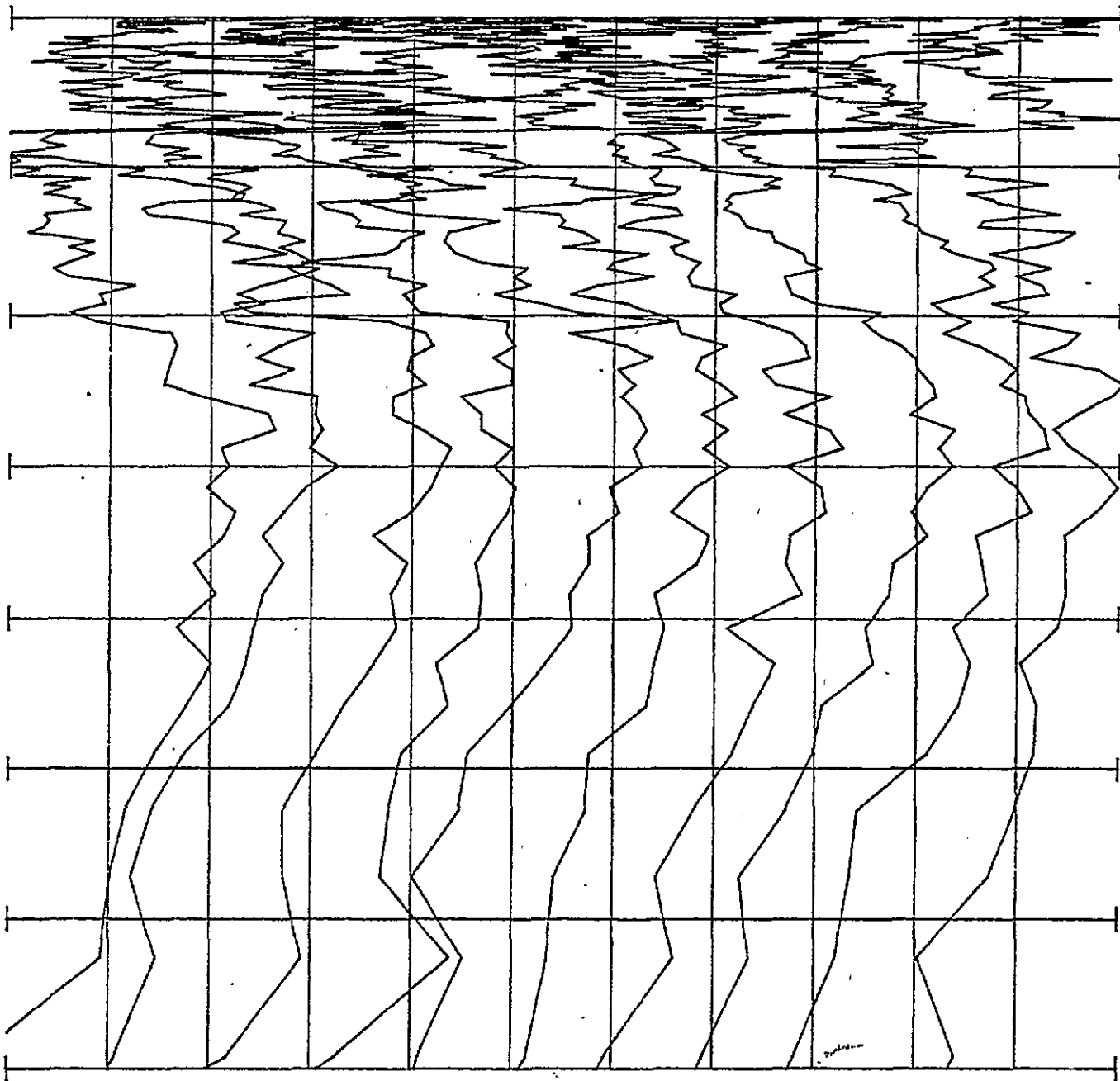
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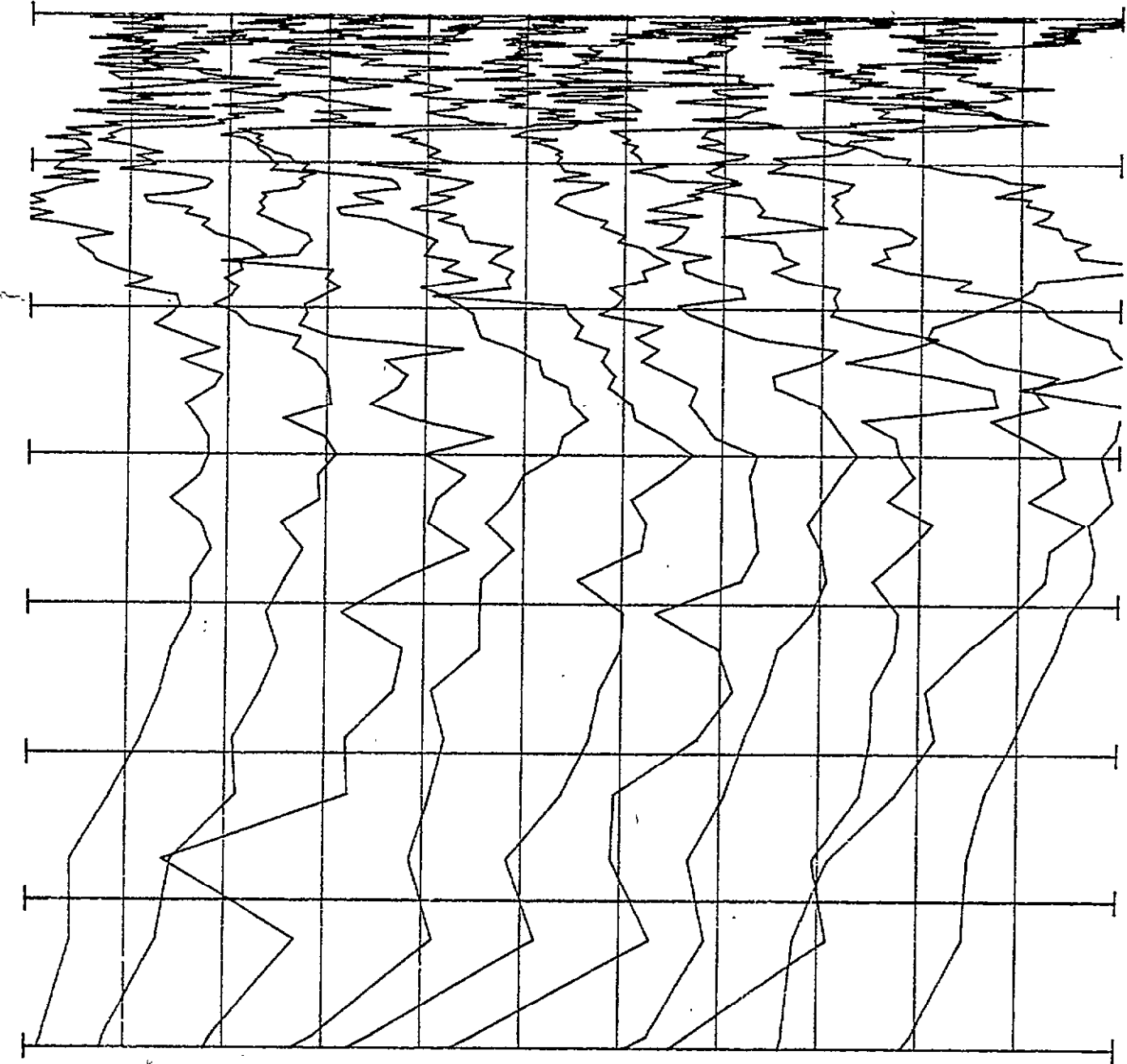
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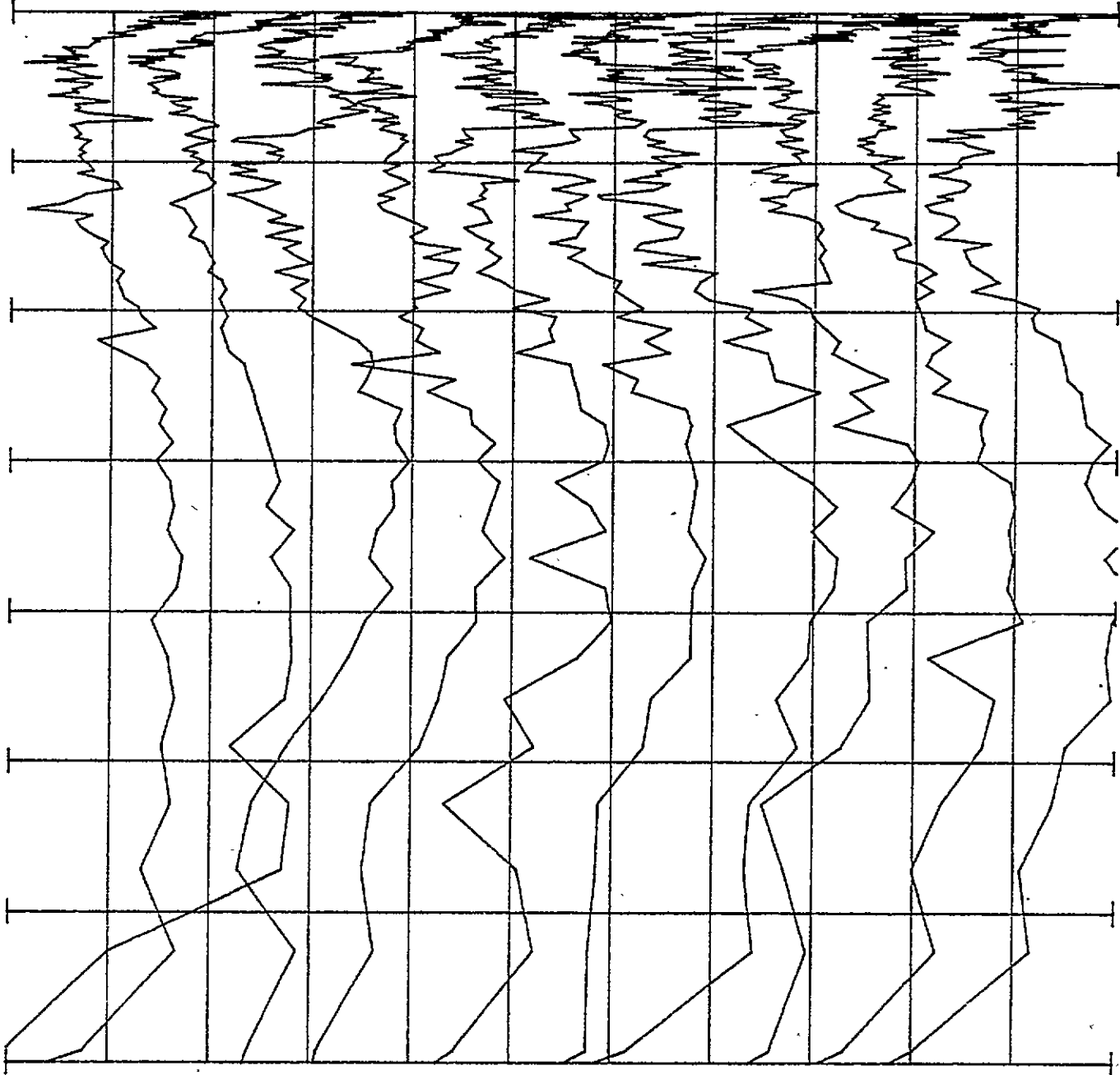
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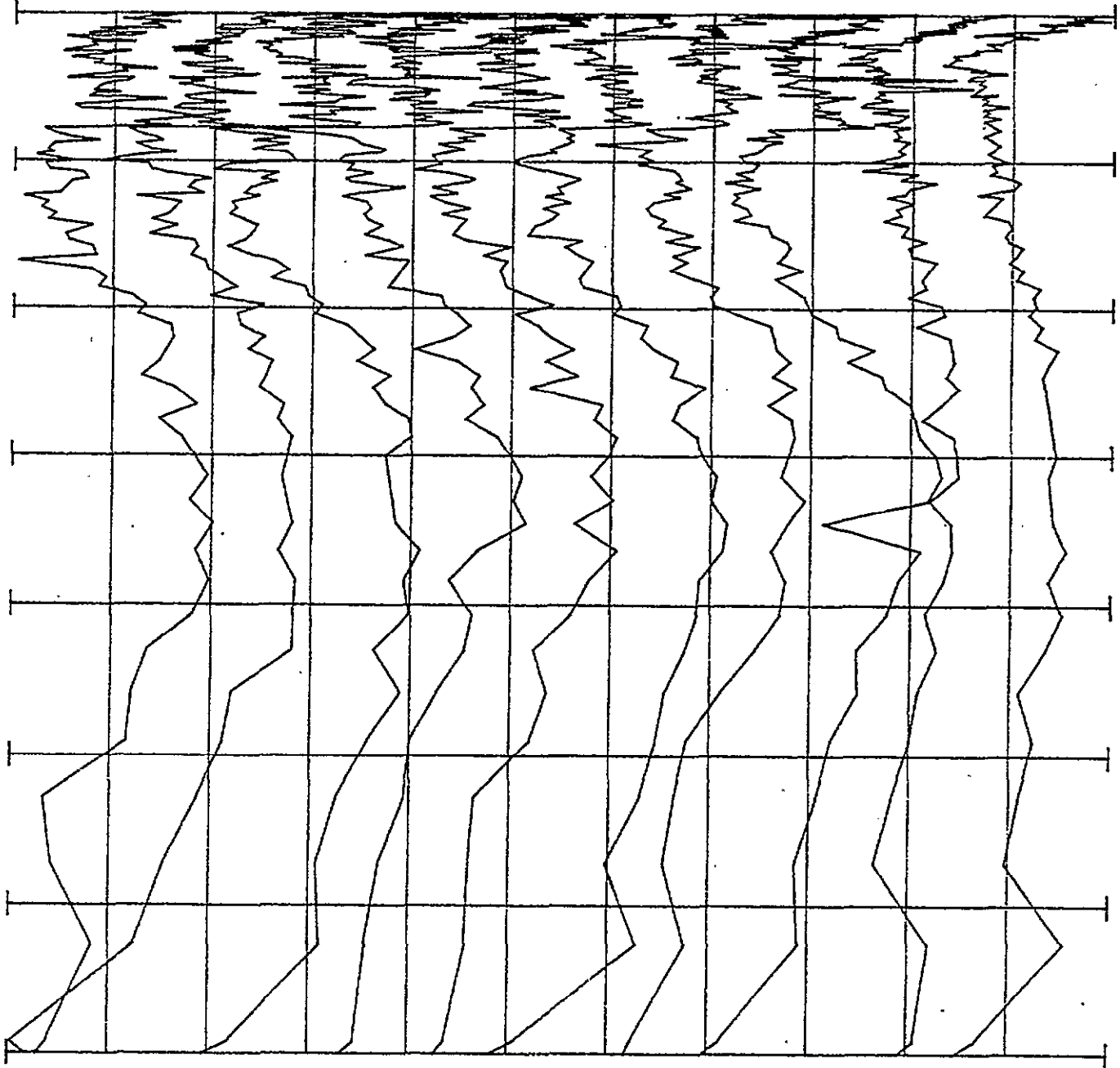
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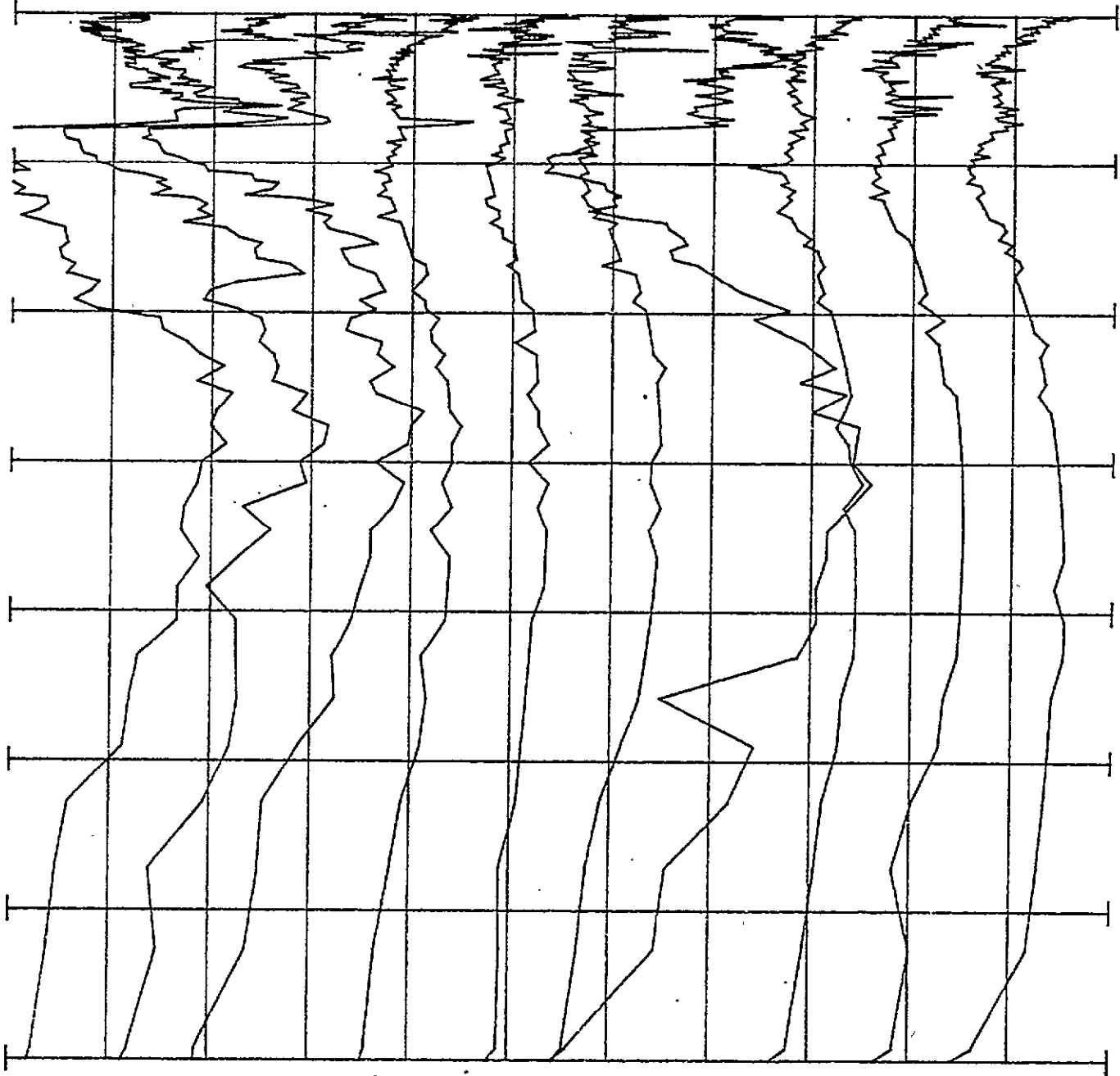


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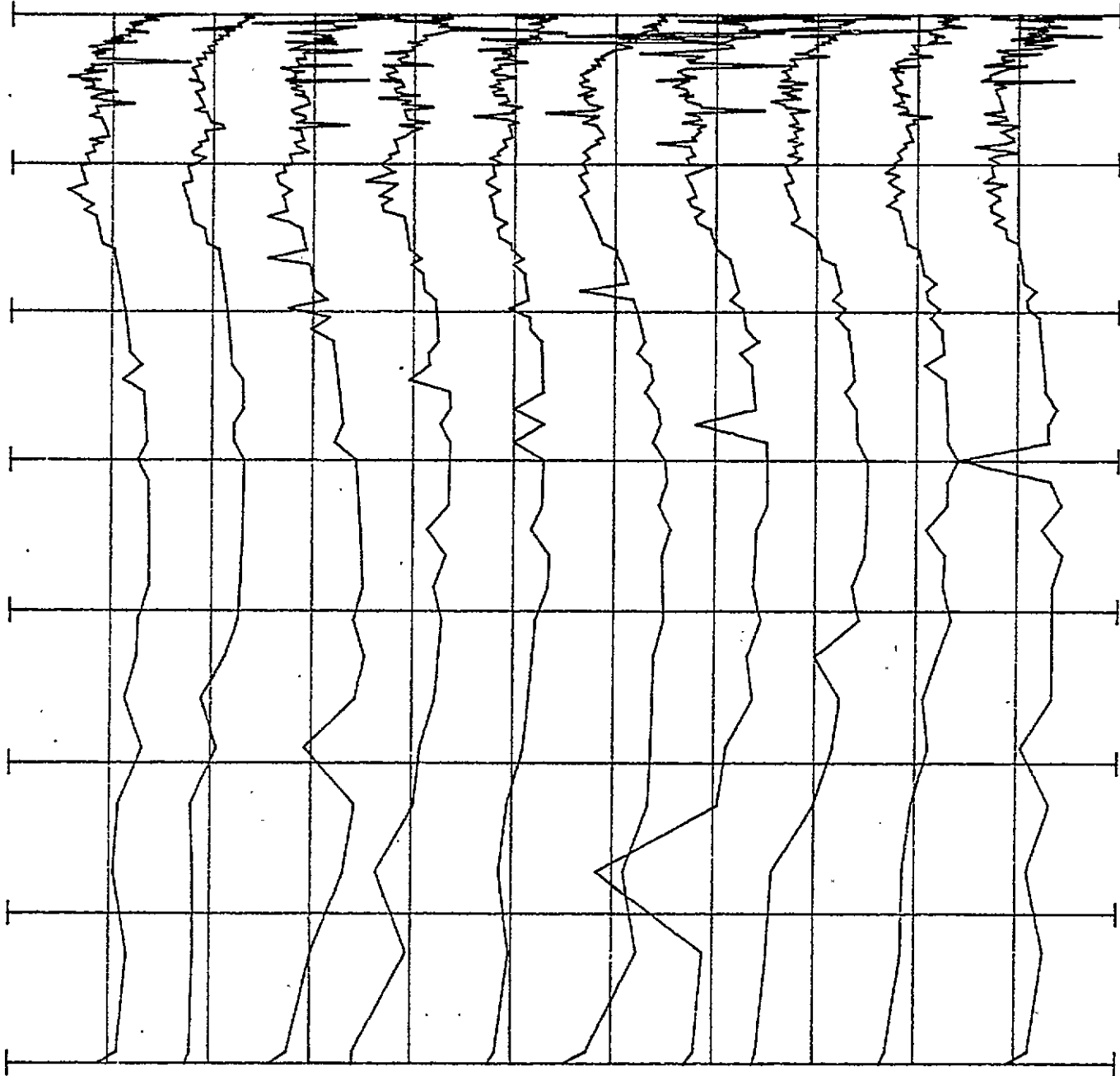




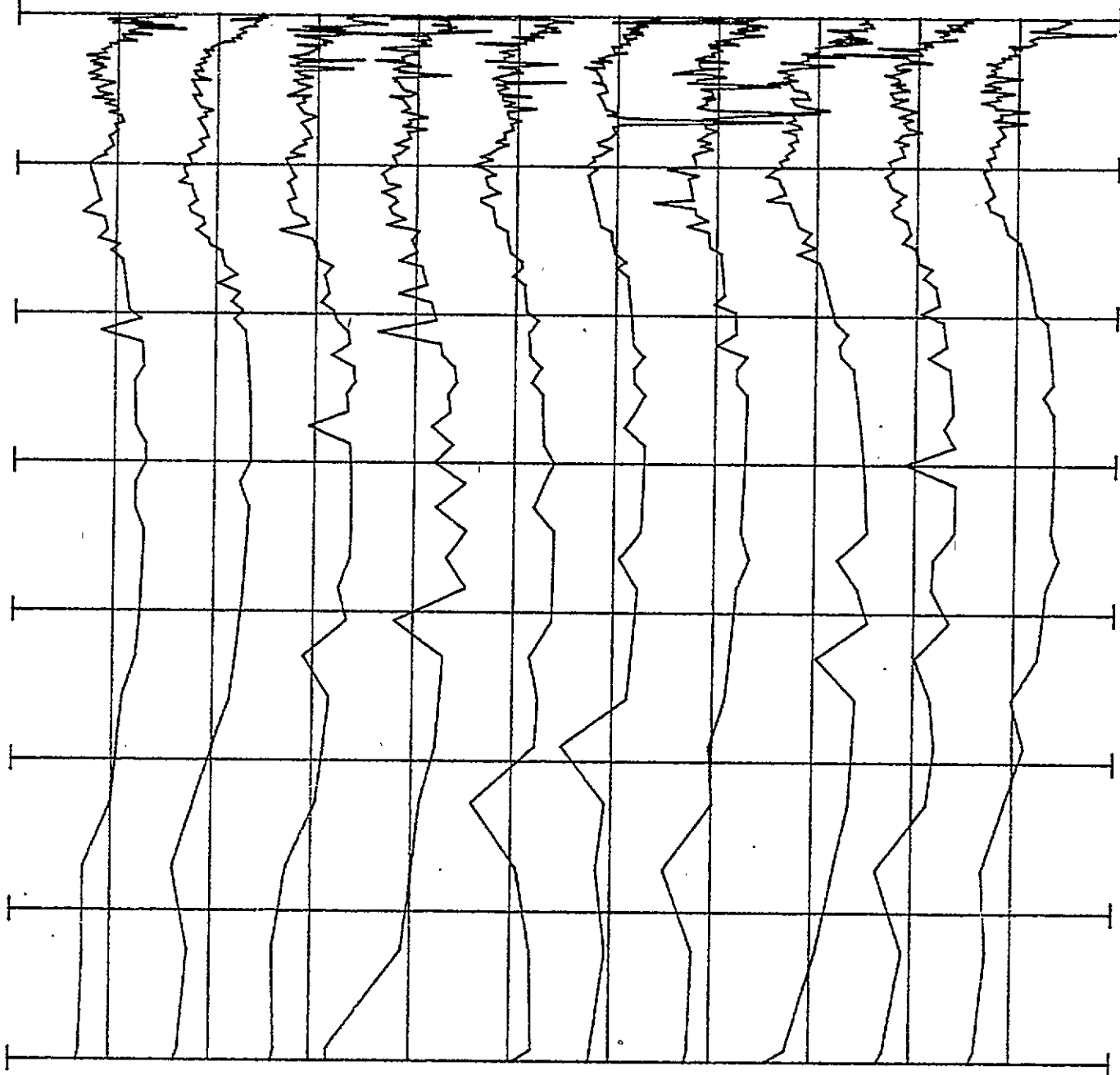
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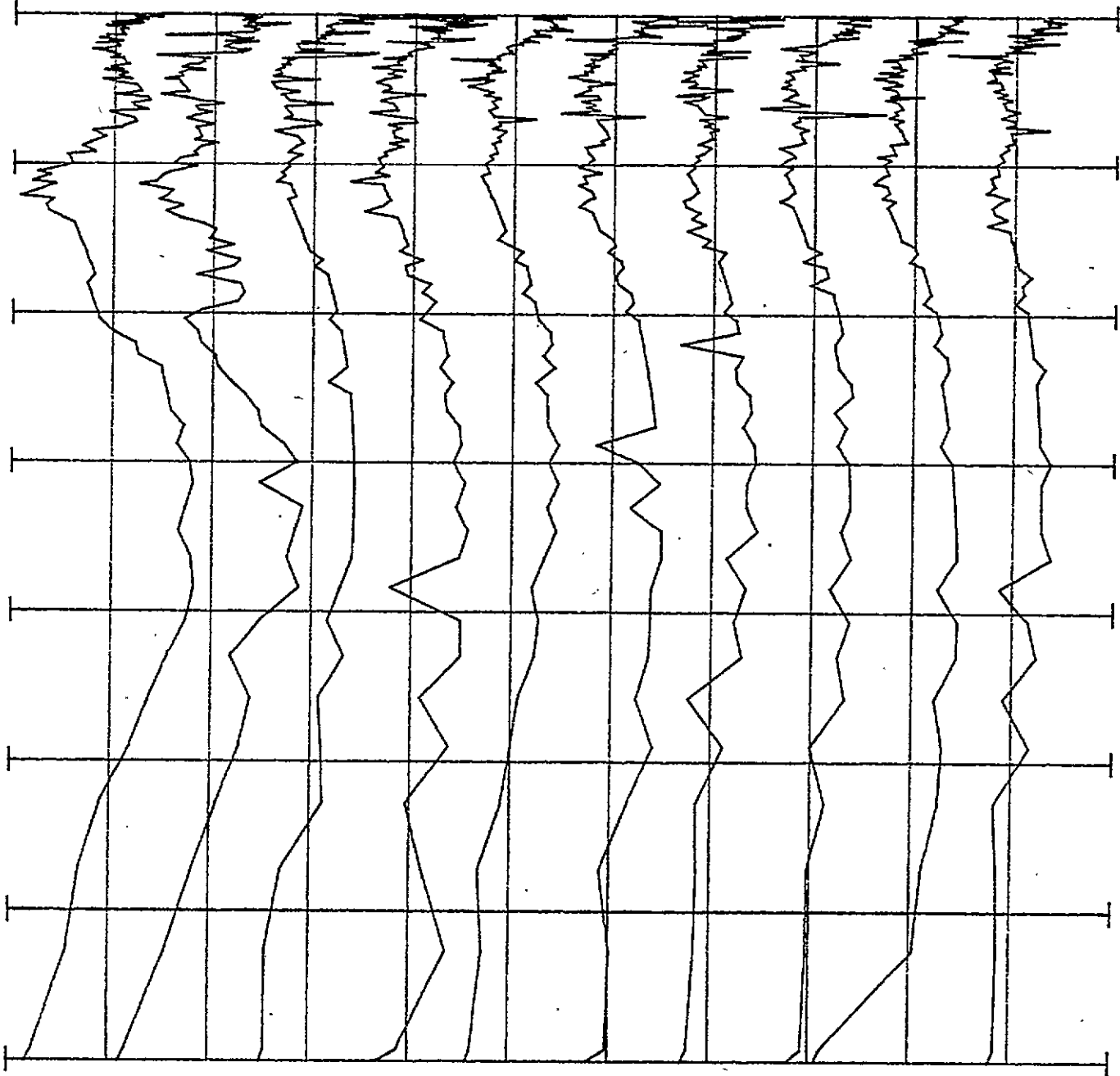
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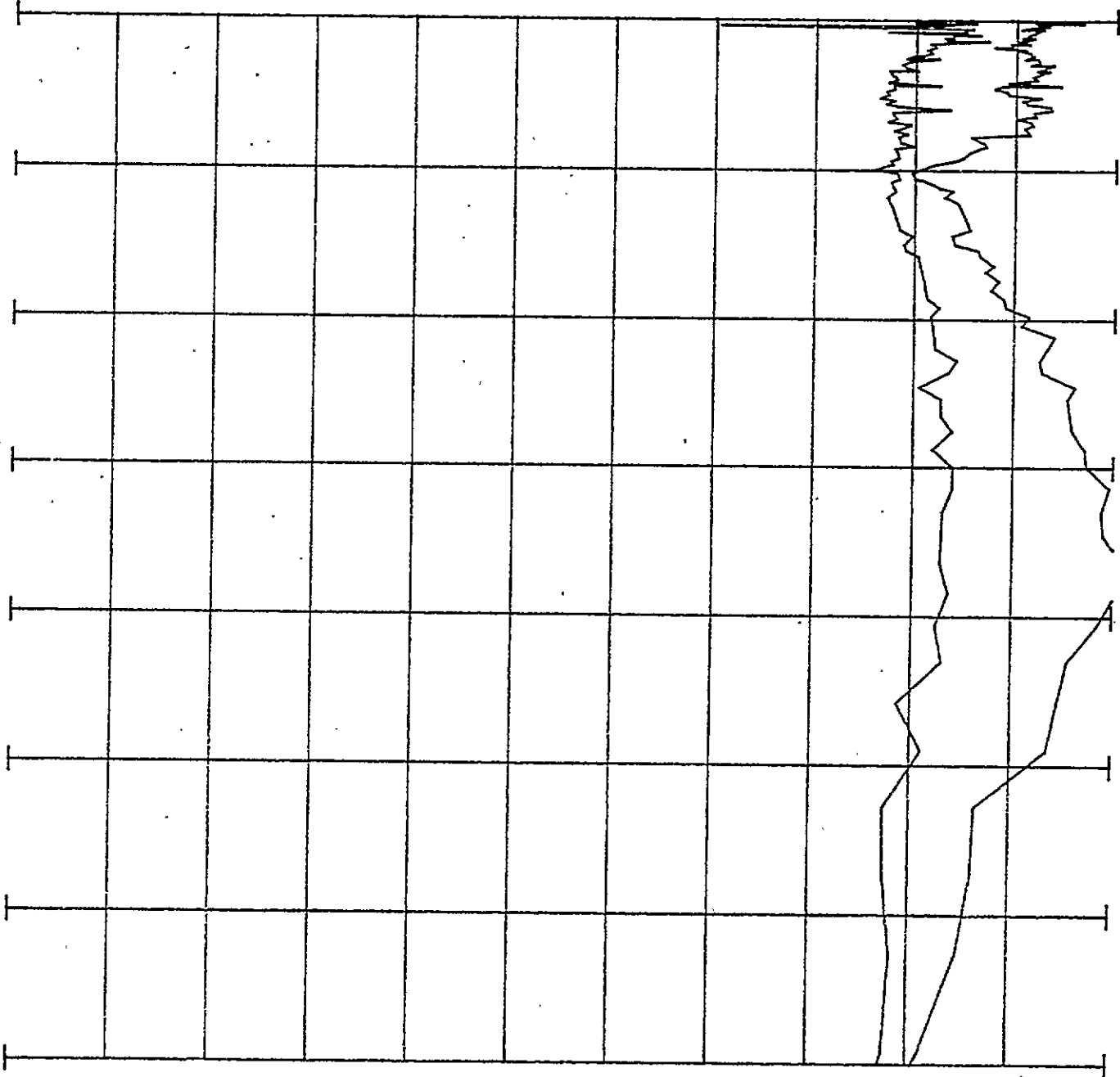
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162 161



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

P-141A(10-8)

SHEET NO.: 1

HOLE NO.: GDR-DDH-80-18 ELEV. COLLAR: 1047.50m TOTAL DEPTH: 291.7m DATE BEGUN: 16/8/80  
 PROJECT: Goodrich BEARING: HQ CORE SIZE: HQ DATE COMPL.: 25/8/80  
 CO. ORD.: 139 901.24N 550 634.78E HOLE ANGLE: Vertical LOGGED BY: GH/CW/JS CONTRACTOR: Acadia

BCA	BOX		INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER				FROM	TO	APPAR. THK.	TRUE THK.			
	30' / 9.14		0.16		0.00	9.14	9.14			TOP OF BOX 1	
					9.14	9.30	0.16			No Core 0.00 to 9.14m	
				0.92	9.30	10.22	0.92			Coal - dull banded, with about 3% disseminated pyrite	
40°			1.05		10.22	11.27	1.05			Core broken, fragments rounded	
										Core Loss - Coal	
55°	37' / 11.28		1.35		11.27	23.44	12.17			Mudstone - black to very dark grey, carbonaceous with plant fragments, closely spaced paper thin with laminations (?calcareous) Thin calcareous, coaly)perhaps up to 0.25"	
50°			1.65							- as above with disoriented coal inclusion 0.50 to 0.70m below 37' marker	
45°	47' / 14.33		1.25							TOP OF BOX 2	
			1.70							- As above, silty from 1.4 to 1.8 m below marker.	
	57' / 17.37		1.10							- As above	
			1.82							TOP OF BOX 3	
	67' / 20.42		1.00							-	
			1.62							TOP OF BOX 4	
	76' / 23.16		0.68							with coaly inclusion 1.40 to 1.90 below 57' marker	
50°			2.42		23.44	31.48	8.04			-	
										TOP OF BOX 5	
										with thin silt laminations	
										-	
										TOP OF BOX 6	
										Mudstone - grey; arenaceous, fining to top in beds varying from 0.50m to 1.00m apparent	

**OPEN FILE**

PR Goodrich 80131A

thickness, worm burrows noted in arenaceous section.

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

P-141A(10-B)

SHEET NO.: 2

HOLE NO.: GDR-DDH-80-18 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JS CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION	
				FROM	TO	APPAR. THK.	TRUE THK.				
42°	86' / 26.21	0.07								Mudstone - TOP OF BOX 7	
		2.44									
	96' / 29.26	0.41								TOP OF BOX 8	
		2.70									
	106' / 32.31	0.12		31.48	34.30	2.82				Mudstone - no longer arenaceous TOP OF BOX 9	
		2.20									
					34.30	35.00	0.70				with very thin box work calcite veinlets & Core Loss - Rock (slickenside surfaces at top broken (section, note: core badly broken
	116' / 35.36	0.05		35.00	35.05	0.05					
		2.36	0.70	35.05	35.75	0.70				Core Loss - Rock TOP OF BOX 10 with less frequent slickensided surfaces & veinlets	
	127' / 38.71	0.10		35.75	41.30	5.55					
		2.73									
		0.26									
	0.10										
		0.30	41.30	41.60					calcite cemented breccia in last 0.10m Core Loss - Rock		
137' / 41.76	1.05		41.60	42.65							
	0.55		42.65	43.20					- badly broken core, with boxwork calcite veinlets, slickensided breccia cemented by calcite, interval contains slickensided coaly partings		

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

P-141A(10-B)

SHEET NO.: 3

HOLE NO.: GDR-DDH-80-18 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JES CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
45°		1.20		43.20	46.13	2.93			Mudstone - black with occasional paper thin calcite laminations	
		0.25							TOP OF BOX 13	
	147/ 44.81	1.48								
	157' / 47.85		1.70	46.13	47.83	1.70			Core Loss - Rock	
		0.95		47.83	48.78	0.95			Sandstone; light grey, medium grained; calcite cement no porosity; grading upwards to fine grained at top; frequent coaly laminations from 0.3 cm to 5cm towards top, each lamination has a calcite enveloped around it.	
			0.42	48.78	49.10	0.42			TOP OF BOX 14	
	164' / 49.99	0.73		49.10	50.48	1.38			Core Loss - Rock	
		0.65							Sandstone -	
		1.17		50.48	52.30	1.82			Sandstone; light grey; fine to very fine grained; Thin coaly and mud laminations increasing with thickness and frequency towards middle of section; Fine cross-bedding; short gradational contact at base.	
	169' / 51.51								TOP OF BOX 15	
45°		0.65								
		0.42		52.30	53.12	0.82			Mudstone - grey brown, possible bioturbations	
	172' / 57.43	0.40							-gradational contact at base	
		0.98		53.12	54.10	0.98			Sandstone; light grey, fine grained; with medium grained subangular mudstone particles; coaly inclusions near base; rip up clasts at base contact, pyrite with coal	





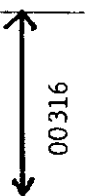
GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

P-141A(10.8

SHEET NO.: 5

HOLE NO.: GDR-DDH-80-29 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
45°	227' / 69.19	1.45		67.91	69.80	1.89				-slightly arenaceous
		0.47								
50°	232' / 70.71	1.06	0.29	69.95	70.24	0.29	0.34	34		Mudstone - Dark grey to black featureless
		0.83								
		0.15		69.80	69.95	0.15				- as above with coaly inclusions and thin white calcareous lamination from 0.6 to 0.83m below marker
		0.17		70.24	70.41	0.17				Coal - Dull banded, pyrtie smears on polished surfaces - core broken, fragments slickensided. Larger fragments and pieces of core are heavier with brown streak (not coal)
		0.56		70.41	70.97	0.56				Core Loss - probably in Coal - short gradational contact at base
		0.94	0.21	70.97	71.18	0.21				Claystone - brown-black, carbonaceous coal lenses
	237' / 72.24	1.15		71.18	72.12	2.19				Mudstone- Black, carbonaceous, a few disoriented inclusions of dull banded coal. Carbonaceous content increases toward base of interval, as does frequency of slickensided surfaces.
		1.15		72.12	73.27					TOP OF BOX 22
	242' / 73.76	0.10		72.12	73.27					-
		0.25		73.27	73.37	0.25				-
		0.50	0.50	73.37	73.62	0.25				Coal - dull, wet, intensely sheared, slickensided, broken
				73.62	74.12	0.50	0.58	33		Core Loss - Coal





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

P-141A(10-8)

SHEET NO.: 7

HOLE NO.: GDR-DDH-80-18 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JES CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION	
				FROM	TO	APPAR. THK.	TRUE THK.				
50°		0.24								with carbonaceous content and 0.2cm coal partings	
		0.24		83.70	83.94	0.24		00318	Coal - dull banded (?) badly broken, slickensided definite preferred cleavages in some larger pieces. Dull metallic lustre on broken surfaces. Core Loss Here.		
		0.02		83.94	83.96	.02		00319	Claystone = carbonaceous		
		281' / 85.65	0.49	0.63	83.96	84.59	0.63	1.03	48	00320	
			0.24	85.08	85.47	0.39					
		282' / 85.95	0.15	0.45	85.47	85.92	0.46			Coal	
			1.49	85.92	87.81	1.89					
		287' / 87.48	0.40								
			0.52	87.81	89.52	1.71			Mudstone - Medium brown, minor rip-up clasts tops up		
		292' / 89.00	0.26							TOP OF BOX 28	
			0.20							vague lower contact	
		297' / 90.53	0.73							Mudstone - Dark grey to black carbonaceous, occasional coal parting and polished slickensided surfaces	
			0.55	89.52	90.07	0.55					

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

P-141A(10-8)

SHEET NO.: 8

HOLE NO.: GDR-DDH-80-18 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JES CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
30°		1.33		90.07	99.13	9.06			- TOP OF BOX 29	
		0.24							Mudstone -	
55°	302/ 92.05	1.47							-	
	307' / 93.57	0.92							- TOP OF BOX 30	
		0.90							-	
42°	312' / 95.10	1.49							-	
	317' / 96.62	0.60							-	
52°		0.83							TOP OF BOX 31	
38°	322' / 98.15	1.51							with siltstone laminations	
	327' / 99.67	0.17	0.60	99.13	99.73	0.60			Core Loss Rock	
		1.14		99.73	105.11	5.38			TOP OF BOX 32	
	332' / 101.19	1.32							Colour varies to medium brown BCA varies 42° to 57° with 0.5m. Contacts between laminae are seldom parallel or on same strike	
	337' / 102.72	0.16								



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

P-141A(10-80)

SHEET NO.: 10

HOLE NO.: GDR-DDH-80-18 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
48°	372' / 113.39	0.85							TOP OF BOX 36	
		0.82							Sandstone -	
51°	377' / 114.91	0.80							-	
		0.63							with a few calcite coated fractures	
51°	382' / 116.43	0.63							TOP OF BOX 37	
		1.44							with a 2cm parting of bright coal and pyrite in the middle of <u>this</u> interval	
		0.30								
		0.19		116.96	119.85	2.89			Mudstone - Dark grey brown to black, slickensides join joints, at - 1m intervals, occasional coal partings (+ calcite) ; irregular calcite fractures.	
		0.69							TOP OF BOX 38	
	387' / 117.96	1.39								
	392' / 119.48	0.62								
			0.20	119.85	120.05	0.20			Core Loss - Rock	

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

P-141A(10-B)

SHEET NO.: 11

HOLE NO.: GDR-DDH-80-18 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JES CONTRACTOR: \_\_\_\_\_

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
43 <sup>0</sup>	397' / 121.01	0.57		120.05	126.30	6.25			TOP OF BOX 39 Mudstone -	
	402' / 122.53	1.46							-	
	407' / 124.05	0.45							-	
50 <sup>0</sup>	407' / 124.05	0.92							TOP OF BOX 40 )	
	412' / 125.58	1.45							with siltstone beds up to 4cm	
	417' / 127.10	0.43							-	
49 <sup>0</sup>	417' / 127.10	0.97							TOP OF BOX 41 with siltstone beds up to 4cm	
	422' / 128.63	1.45		126.30	128.65	2.35			Mudstone with fine silt laminations	
49 <sup>0</sup>	427' / 130.15	0.90							TOP OF BOX 42	
	427' / 130.15	1.42		128.65	131.33	2.68			Mudstone - nondescript	



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

P-141A(10-80)

SHEET NO.: 12

HOLE NO.: GDR-DDH-80-18 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	427' / 130.15	1.26								Mudstone - silty  TOP OF BOX 43
	432' / 131.67	0.14		131.33	132.64	1.31				
40°	437' / 133.20	1.17	0.33	132.64	132.97	0.33				with claystone beds up to 2cm and a few coal partings
	442' / 134.72	1.25		132.97	135.79	2.82				with short "splinter fractures" parallel to axis  TOP OF BOX 44
	447' / 136.25	0.25								
	447' / 136.25	1.32								with calcereous fractures in middle of this interval
51°		0.67	0.25	135.79	136.04	0.25				
		0.67		136.04	136.71	0.67				with coal partings and slickensides at centre of interval . <u>Total loss of Coal Core</u>
		0.85	0.85	136.71	137.56	0.85		No Sample		Coal
		0.91		137.56	138.47	0.91				TOP OF BOX 45 with 1 closed, spaced bright coal laminations at base.
48°		0.63		138.47	143.94	5.47				Mudstone - A/A with laminations and beds of silt, mudstone and occasional coal parting

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

P-141A(10.a.)

SHEET NO.: 13

HOLE NO.: GDR-DDH-80-18 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
	457' / 139.29	1.17								Mudstone -
		0.32								TOP OF BOX 46
	462' / 140.82	1.51								-
	467' / 142.34	0.85								-
		0.61								TOP OF BOX 47
	472' / 143.87	0.38								-
		1.06		143.94	145.00	1.06				Sandstone - Light grey, fine grained with frequent polished coal partings, interbedding upwards with grey - brown carbonaceous mudstone.
		0.30		145.00	145.30	0.30				Core Loss - Rock
	477' / 145.39	0.30		145.30	145.60	0.30				- as above
		0.35		145.60	145.95	0.35				Core Loss - Rock
		0.14		145.95	146.09	0.22				Coal - Dull coal, polished slickensides surfaces broken up.

00321

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

P-141A(10-B)

SHEET NO.: 14

HOLE NO.: GDR-DDH-80-18 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.08	0.22	146.09	146.17					Coal - Dull banded, broken up, slickensided Core Loss - Coal
				146.17	146.39	0.22				TOP OF BOX 48
		0.16		146.39	146.55	0.48				Core in good condition - pieces up to 0.10m long
		0.05		146.55	146.60					Coal - Dull and bright - good condition
		0.27		146.60	146.87					Coal - Dull banded - good condition
		0.09	0.12	146.87	146.99	0.12				Core Loss - Coal
				146.99	147.08	0.17				Coal - broken up slickensided polished
	480' / 146.91	0.08		147.08	147.16		0.90	72	00321	Coal - as above
		0.15	0.12	147.16	147.28	0.12				Core Loss - Coal
	484' / 147.52			147.28	147.43	0.15				Claystone - Carbonaceous, heavy brown streak
		0.16	0.41	147.43	147.84	0.41				Core Loss - Rock
				147.84	148.00	0.16	0.62	37	00322	Claystone - as above
		0.09	0.10	148.00	148.10	0.10				Core Loss - Coal
				148.10	148.19	0.09				Coal - Dull, broken up, slickensided wet?
		0.13	0.09	148.19	148.28	0.09				Core Loss - Coal
	487' / 148.44			148.28	148.41	0.13				Coal - Dull banded, good condition
		0.10	0.20	148.41	148.61	0.20			BAG A	Coal - dull banded, fairly broken up
		0.65		148.61	148.71	0.75			BAG B	Coal - dull, core condition good - pieces up to 0.1m long
			0.145	148.71	149.36					
				149.36	149.505	0.145				
	492' / 149.96	0.22		149.505	149.725	0.22				TOP OF BOX 49
			0.145	149.725	149.87	0.845	1.39	64		- core badly broken up Core Loss - coal



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

P-141A(10.8)

SHEET NO.: 16

HOLE NO.: GDR-DDH-80-18 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
53°	517/ 157.58	1.52	0.08	157.07	157.15	0.08			- silt content dies out Core Loss - Rock	
		0.36		157.15	157.51	0.36			Mudstone - Mudstone work with occasional coal inclusions	
		0.62		157.51	158.13	0.62			TOP OF BOX 52	
	522' / 159.11	0.95		158.13	160.73	2.60			-with 10cm dull banded coal bed containing 15% pyrite	
54°	527/ 160.63	1.45							-with 5cm dull banded coal seam at 0.60 below 522' marker. Silt content increases to 30 - 40% below coal seam.	
		0.20								
		0.41		160.73	161.14	0.41			Core loss - rock	
	532' / 162.15			161.14	167.69	6.55			TOP OF BOX 53 -BCA varies 45°-54°	
537/ 163.68		1.51							- with coal partings in middle of interval	
50°									- with silt beds up to 3cm thick	

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

P-141A(10-8)

SHEET NO.: 17

HOLE NO.: GDR-DDH-80-18 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
		1.16							TOP OF BOX 54	
	541' / 164.90								Mudstone -	
		1.58							- silt beds die out	
	546' / 166.42									
		0.03								
									TOP OF BOX 55	
		1.37								
	551' / 167.94									
		1.24		167.69	171.20	3.51			Mudstone - dark grey, nondescript	
		0.20							TOP OF BOX 56	
	556' / 169.47								-	
		1.36							-	
	561' / 170.99								- Silty toward base, short gradational contact at base.	
		0.43						No sample		
		0.28	0.77	171.20	171.97	0.77			Mudstone - Black carbonaceous with dull coal partings	
	564' / 171.91								(Total Core Loss of Coal)	
		0.17		171.97	173.33	1.36			-	

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

P-141A(10 a)

SHEET NO.: 18

HOLE NO.: GDR-DDH-80-18 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
									TOP OF BOX 57	
	569' / 173.43	1.19							-short gradational contact at base	
46 <sup>0</sup>		1.35		173.33	174.68	1.35			Mudstone - Dark grey to black with interbed siltstone	
									TOP OF BOX 58	
	574' / 174.96	0.22		174.68	176.08	1.40			Mudstone - Dark grey to black, very minor siltstone content	
		1.18							-with 3 cm dull banded coal seam 0.8m below 574' marker	
		0.80	0.95	176.08	177.03	0.95			Core Loss - Rock	
				177.03	177.83	0.80			Mudstone -	
(46 <sup>0</sup> )	587' / 176.48	0.15		177.83	177.98	0.15		00326	Coal - dull banded	
		0.40		177.98	178.38	0.40	0.40	27	Core Loss	
		0.09		178.38	178.47	0.09			00327	1. Coal - Dull heavy, clayey
									TOP OF BOX 59	
		0.64		178.47	179.11	0.64	0.53	7		Core Loss
		0.43		179.11	179.54	0.43			00328	2. ? Claystone
		0.26		179.54	179.80	0.28	0.57	54		Core Loss
		0.10		179.80	179.90	0.10				Core Loss
		0.09		179.90	179.99	0.09	0.14	47	00329	3. Coal - loose bits of core, siltstone in bottom of box

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

P-141A(10-80)

SHEET NO.: 19

HOLE NO.: GDR- DDH-80-18 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
			0.12	179.99	180.11	0.12				Core Loss
			0.16	180.11	180.27	0.16				Core Loss
		0.02		180.27	180.29	0.02			00330	4. Claystone - Carbonaceous siltstone ends
			0.10	180.29	180.39	0.10	0.29	5		Core Loss
			0.25	180.39	180.64	0.25	0.18	0		Not assigned to other samples
		0.15	0.16	180.64	180.80	0.16				Core Loss -
				180.80	180.95	0.15	0.22	47	00331	5. Claystone - Siltstone ends
			0.16	180.95	181.11	0.16				Total Core Loss
	592' / 180.44	0.05		181.11	181.16	0.05	0.15	24	00332	6. Claystone
		0.05	0.15	181.16	181.31	0.15				Core Loss
				181.31	181.36	0.05			00333	7. Coal
			0.10	181.36	181.46	0.10	0.22	17		Core Loss -
			0.05	181.46	181.51	0.05				Core Loss -
		0.15		181.51	181.66	0.15	0.14	75	00334	8. Claystone
			0.07	181.66	181.73	0.07				Core Loss -
		0.10		181.73	181.83	0.10			00335	9. Coal - dull to dull banded clayey
			0.18	181.83	182.01	0.18	0.25	4		Core Loss - Coal
		0.15		182.01	182.16	0.15			00336	10. Claystone
			0.12	182.16	182.28	0.22	0.19	56		Core Loss



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

P-141A(10 2

SHEET NO.: 20

HOLE NO.: GDR-DDH-80-18 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.17	0.09	182.28	182.37	0.09				Core Loss
		0.67		182.37	182.54	0.17	0.19	65	00337	11. Coal - Dull banded
				182.54	183.21	0.67				12. Claystone - grading to sandstone
										Core Loss 3.11 Apparent thickness 4.81 True thickness 3.47
										TOP OF BOX 60
		0.38		183.21	185.94	2.73				Claystone -
51°	602' / 183.49	1.44								-
	607' / 185.01	0.91								-
		0.45	0.12	185.94	186.06	0.12				Core Loss TOP OF BOX 61
	612' / 186.54	1.49		196.06	188.71	2.65				-
48°										-
	617' / 188.06	0.71								-
		0.73	0.15	188.71	188.86	0.15				Core Loss - TOP OF BOX 62
	622' / 189.59			188.86	191.67	2.81				



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

P-141A(10-8)

SHEET NO.: 22

HOLE NO.: GDR-DDH-80-18 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
65°	642' / 195.68	0.87		194.70	201.85	7.15			Mudstone with occasional celsite filled fracture	
		1.53							- silt content	
	647' / 197.21	0.60							- with coal parting	
		0.21							TOP OF BOX 65	
47°	649' / 197.82	0.77							- with coaly parting	
	652' / 198.73	1.56								
	657' / 200.25	0.17							- TOP OF BOX 66	
	662' / 201.78	1.17								
		0.27							-	
	1.11			201.85	207.44	5.59			Mudstone - Dark grey, silty, bioturbated, cross-bedded	
	0.12								TOP OF BOX 67	
	667' / 203.30	1.45							-	

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

P-141A(10-80)

SHEET NO.: 23

HOLE NO.: GDR-DDH-80-18 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JES CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
62°	672' / 204.83	1.06							-	
		0.53							- TOP OF BOX 68	
	677' / 206.35	1.32							- siltstone grades to fine grained sandstone at base	
50°	682' / 207.87		0.23	207.44	207.67	0.23			Sandstone - Light grey - fine grained with thin coaly laminations, grades in part to siltstone grades back to mudstone at base. Tops Up - rip up clasts	
		0.76		207.67	208.43	0.76			-	
	0.15	0.47	208.43	208.90	0.47			- TOP OF BOX 69		
	0.40		208.90	213.31	4.41			- Mudstone - Black becomes carbonaceous at base of <u>this</u> interval		
	687' / 209.40	1.52							- with occasional coal parting	
	692' / 210.92	0.44							-	
	697' / 212.45	1.08							- TOP OF BOX 70	

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

P-141A108

SHEET NO.: 24

HOLE NO.: GDR-DDH-80-18 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
50°		0.82								grading down into silty mudstone
	702' / 213.97	0.60		213.31	218.11	4.80				Mudstone - Very silty
		0.11								-
42°		1.44								TOP OF BOX 71
	707' / 215.49	1.31								very silty corss-bedded
		0.24								-
	712' / 217.02	1.10								TOP OF BOX 72
			0.42	218.11	218.53	0.42				- with boxwork calcite veinlets up to lcm thick at base. Tops Up - faulted bedding at 718.6' / 219.00m
	717' / 218.54	0.97		218.53	220.16	1.63				- with some calcite veinlets at top of section
		0.66								TOP OF BOX 73
	722' / 220.07									-
60°		1.55		220.16	227.46	7.30				with highly fractured, with calcite veining at 1.45m below 722' marker

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

P-141A(10-8)

SHEET NO.: 25

HOLE NO.: GDR-DDH-80-18 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
53°	727' / 221.59	0.54							- TOP OF BOX 74	
		1.03							-	
	732' / 223.11	1.48							-	
	737' / 224.64	0.19							Mudstone - Dark grey to black, very carbonaceous with occasional coaly parting	
		1.29							- TOP OF BOX 75	
	742' / 226.16	1.22	0.20	227.46	227.66	0.20			-	
	747' / 227.69	0.32		227.66	230.18	2.52			- with fossils and pyrite blebs	
		1.17							- TOP OF BOX 76	
	752' / 229.21	1.03							- very carbonaceous with dull coal partings	
	757' / 230.73	0.51	0.51	230.18	230.69	0.51			- frequent dull coal partings	

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

P-141A(108

SHEET NO.: 26

HOLE NO.: GDR-DDH-80-18 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
57°	762' / 232.26	0.43		230.69	232.57	1.88			Mudstone - very silty, light to medium grey	
		0.66							TOP OF BOX 77	
		0.35							- with coal stringer at top of box	
		0.44							Mudstone - minor silt content and dull coal partings	
(57°)	764' / 232.87		0.18	232.57	232.75	0.18				
		1.17		232.75	234.00	1.25			Mudstone - medium brown to black with carbonaceous flecks, slickensided partings	
		0.08							TOP OF BOX 78	
(57°)	768' / 234.09	0.22	0.12	234.00	234.22	0.34	0.29	65	00341	Coal - Dull banded
			0.26	234.22	234.34					
		0.05		234.34	234.60	0.31	1.26	16	00342	Claystone
		0.15		234.60	234.65	0.31	1.26	16	00342	Claystone
				234.65	234.80	0.15	0.13	100	00343	Coal - Dull banded
										Core loss 0.28m Apparent thickness 0.80 True thickness 0.68

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

P-141A(10-8)

SHEET NO.: 27

HOLE NO.: GDR-DDH-80-18 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JES CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
58°		0.17		234.80	234.97	0.17			Mudstone - Dark grey to black carbonaceous slickensided surfaces	
			0.25	234.97	235.22	0.25				
	772' / 235.31	1.55		235.22	237.01	1.79		- coaly partings		
	777' / 236.83	0.24						-		
		0.88		237.01	237.89	0.88		TOP OF BOX 79 Mudstone - Black carbonaceous slickensided dull banded coal partings		
		0.52		237.89	238.41	0.52				
	782' / 238.35	0.64		238.41	244.22	5.81		-		
		0.88						Mudstone - Medium grey, silty, crossbedded, interbedded with plain mudstone		
	787' / 239.88	0.23						-		
		1.17						TOP OF BOX 80		
60°	792' / 241.40	1.55						-		



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

P-141A(10-8)

SHEET NO.: 28

HOLE NO.: GDR-DDH-80-18 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
55°	797' / 242.93	1.34	0.52	244.22	244.74	0.52			TOP OF BOX 81	
	803' / 244.75	1.45							244.74	247.78
	807' / 245.97	0.14							TOP OF BOX 82	
62°	812' / 247.50	1.45	0.46	247.78	248.24	0.46			Mudstone - Dark grey to black occasional polished slickensided parting	
		1.12							248.24	249.36
(69°)	817' / 249.02	0.34		249.36	249.70	0.34			TOP OF BOX 83 - Dull coal partings at marker 817	
		0.16	0.16	249.70	249.86	0.16				
		0.07	0.22	249.86	249.93	0.07	0.42	16	00344	Coal - with thinly inter laminated claystone
		0.05	0.17	249.93	250.15	0.22			00345	Claystone
		0.17	0.17	250.15	250.32	0.17				
		0.17	0.17	250.32	250.37	0.05				
		0.17	0.17	250.37	250.54	0.17	0.36	13		

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

P-141A(10-8)

SHEET NO.: 29

HOLE NO.: GDR-DDH-80-18 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.02	0.22	250.54	250.76	0.22				
				250.76	250.78	0.02		00346	Coal - Dull banded tiny fragments in bottom of box	
			0.24	250.78	251.02	0.24	0.45	4		
	827' / 252.07								Core loss 1.18 Apparent thickness 1.32 True thickness 1.23	
		0.52		251.02	251.54	0.52			Mudstone, carbonaceous	
		0.23		251.54	254.41	2.87			TOP OF BOX 84	
	832' / 253.59	1.31								
		1.33							- with slickensided coal partings Core splintered sub-parallel to axis	
	837' / 255.12		0.15	254.41	254.56	0.15			TOP OF BOX 85	
		1.42		254.56	260.07	5.51			-	
38°	842' / 256.64	1.41							BCA much less - 38° and BCA appears to parallel the axis at base of this interval. Calcite/pyrite coated fractures parallel to core axis	
									TOP OF BOX 86	
	847' / 258.17	0.27							-	

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

P-141A(10.8)

SHEET NO.: 30

HOLE NO.: GDR-DDH-80-18 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.53							- with 5cm of brecciated calcite laminated mudstone right at 847' marker	
	852' / 259.69	0.88							- with a few poorly polished fractures (FCA 28 <sup>0</sup> )	
			0.35	260.07	260.42	0.35				
		0.26		260.42	262.85	2.43			- TOP OF BOX 87	
	857' / 261.21									
35 <sup>0</sup>		1.54							- frequent calcite filled fracture (FCA 30 <sup>0</sup> )	
	862' / 262.74	0.63								
20 <sup>0</sup>		0.91		262.85	267.93	5.08			- TOP OF BOX 88 Mudstone - with 2 ruggy calcite fractures at middle of <u>this</u> interval	
	867' / 264.26	1.44							- no calcite fractures	
	872' / 265.79	0.32								



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

P-141A(10 B.

SHEET NO.: 32

HOLE NO.: GDR-DDH-80-18 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
	902' / 274.98	1.29							Mudstone -	
	907' / 276.45	0.98	0.98						- TOP OF BOX 93	
		0.63							-	
35°	912 / 277.98	1.42		277.36	280.26	2.90			- silty laminations	
	917' / 279.50	0.52							-	
20°		0.96							TOP OF BOX 94	
90°		1.43	0.22	280.26	280.48	0.22			Fault - slickensided at 922' marker	
				280.48	287.92	7.44			- with silty lamination	
	927' / 287.55	0.26							- frequent irregular calcite fractures	
90°		1.25							- TOP OF BOX 95 silty laminations	

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

P-141A(10.8)

SHEET NO.: 33

HOLE NO.: GDR-DDH-80-18 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
50°	932' / 284.07	1.53							Mudstone -  TOP OF BOX 96	
65°	937' / 285.60	1.43							- silty laminations crossbedded grading to very fine grained sandstone	
	942' / 287.12	1.42							- silt dies out	
		0.12							- TOP OF BOX 97 calcite cemented breccia at 947' marker	
57°	947' / 288.65	1.50	0.15	287.92	288.07				- with occasional slickensided fractures	
	952' / 290.17	1.15	0.44	290.72	291.16				- No marker in Box	
	957' / 291.69								END OF HOLE.- GDR-DDH-80-18	

COAL SEAM DATA SHEET

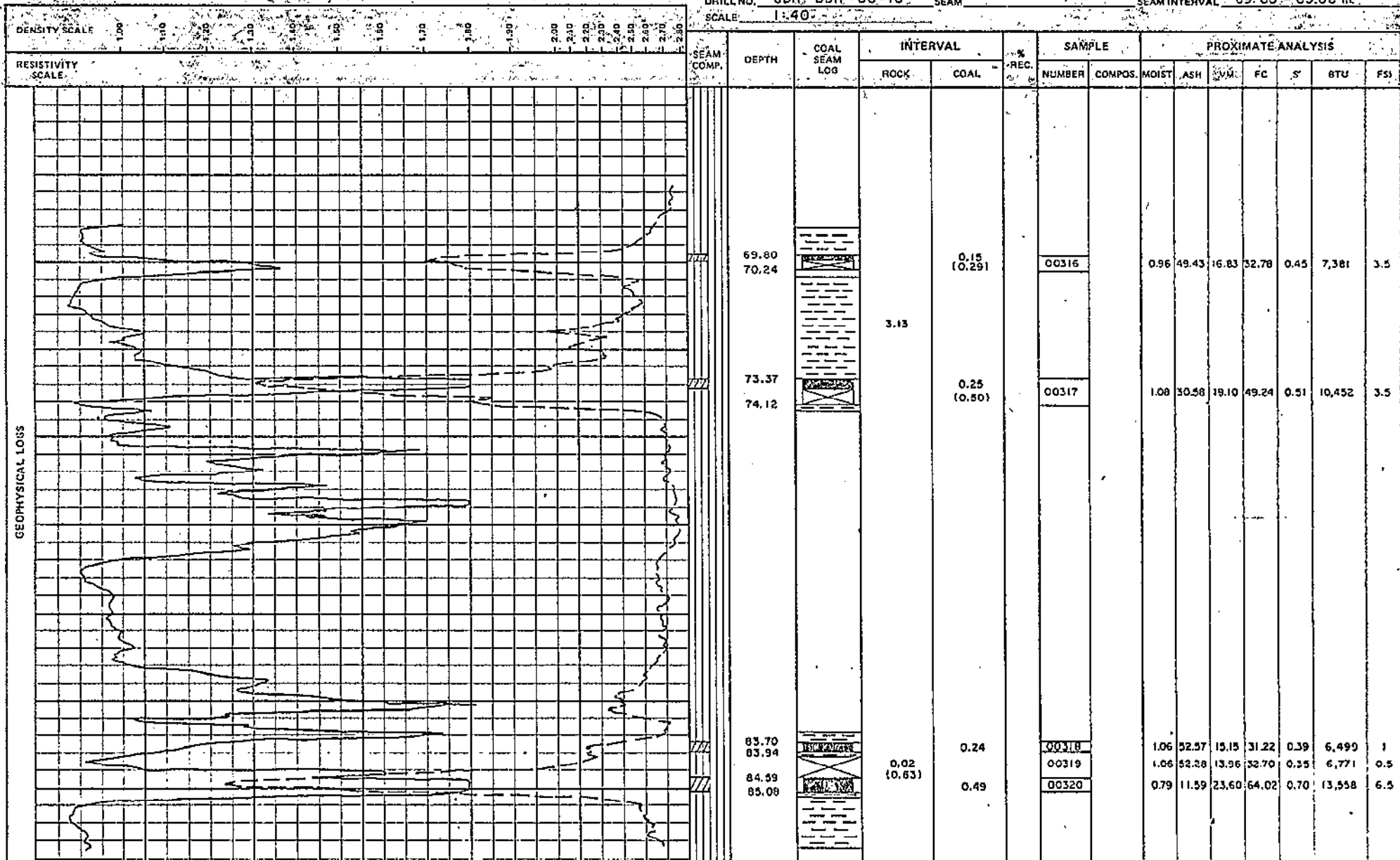
GULF CANADA RESOURCES INC.  
COAL DIVISION

P-207 (12-80)

DENSITY RESISTIVITY

DRILL NO. GDR-DDH-80-18 SEAM  
SCALE 1:40

APPARENT THICKNESS  
69.80 - 85.08 m



GEOPHYSICAL LOG





COAL SEAM DATA SHEET

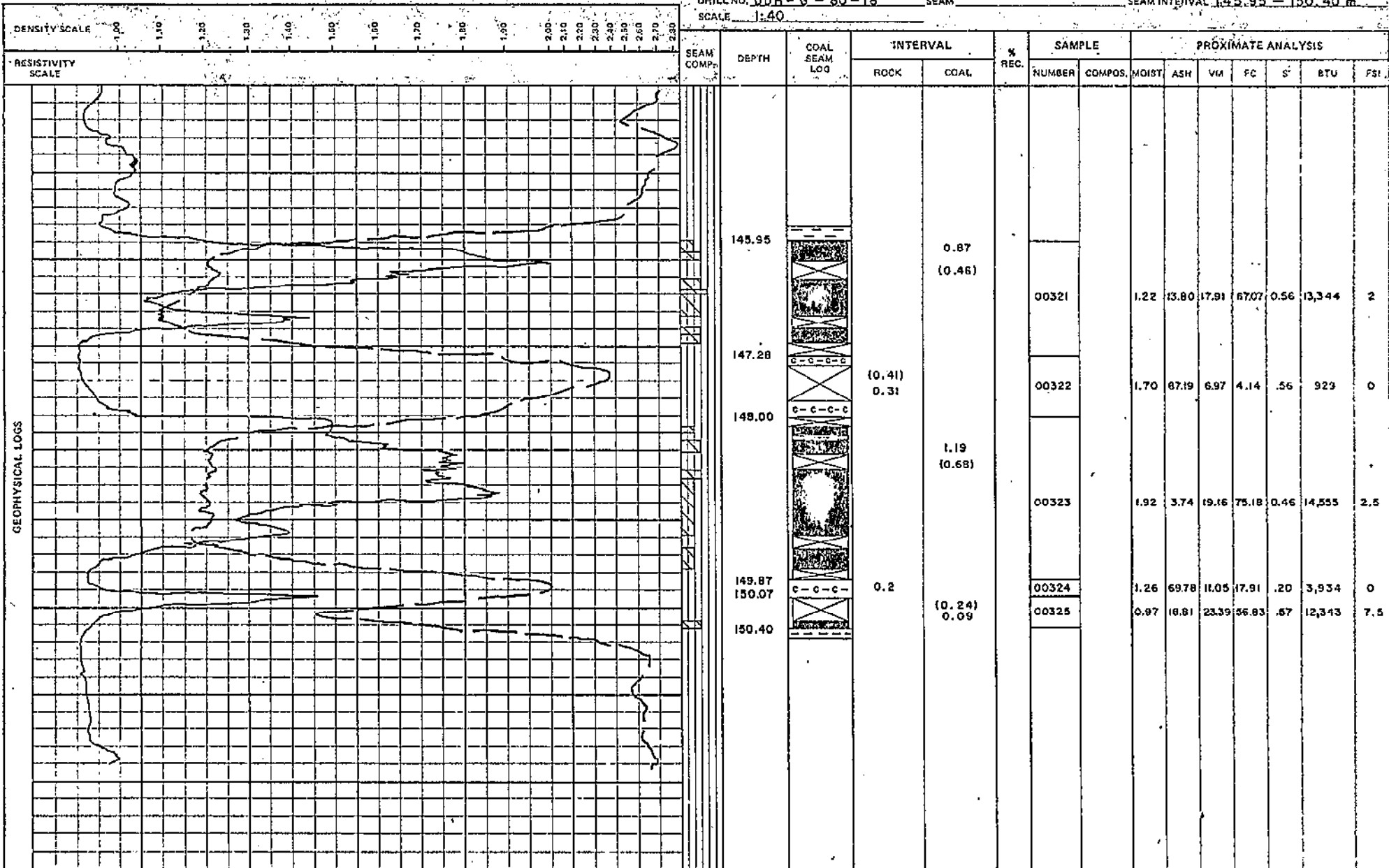
GULF CANADA RESOURCES INC.  
COAL DIVISION

F-257 (12-50)

DENSITY RESISTIVITY

DRILL NO. DDH-6-80-18 SEAM \_\_\_\_\_  
SCALE 1:40

APPARENT THICKNESS  
SEAM INTERVAL 145.95 - 150.40 m



GEOPHYSICAL LOGS

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12-80)

DENSITY RESISTIVITY

DRILL NO. DDH - G - 80 - 18 SEAM  
SCALE 1:40

APPARENT THICKNESS  
SEAM INTERVAL 176.34 - 182.54 m

DENSITY SCALE	RESISTIVITY SCALE	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		REC.	SAMPLE		PROXIMATE ANALYSIS								
					ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	FSH		
			176.34															
			176.64															
			177.83				0.15 (0.40)	00326		1.04	47.30	5.95	35.71	.44	7,714	2.5		
			178.38				0.09 (0.64)	00327		1.19	65.30	12.03	21.48	.27	4,760	1		
			179.11				0.43 (0.26)	00328		1.25	68.71	11.14	16.90	.25	4,128	.5		
			179.80				(0.10)	00329		1.17	58.83	13.46	26.54	.33	5,681	1		
			179.99				0.09 (0.38)	00330		1.14	62.62	12.42	23.82	.27	5,180	1		
			180.39				0.02 (0.25)											
			180.64				(0.16)	00331		1.15	62.62	8.01	8.58	.15	1,725	0		
			180.95				0.15 (0.16)	00332		1.08	79.89	8.63	10.40	.14	2,201	0		
			181.16				0.05 (0.25)	00333		1.06	52.91	17.02	29.01	.38	6,605	1.5		
			181.46				(0.05)	00334		2.95	78.63	6.98	11.44	.18	1,667	0		
			181.66				0.15 (0.25)											
			182.01				0.10	00335		0.73	54.54	14.15	30.58	.79	6,285	1		
			182.01				0.15 (0.12)	00336		1.09	76.79	9.20	12.93	.68	2,660	0		
			182.28				(0.09)	00337		0.72	22.23	19.44	57.61	.61	11,740	3		
			182.54				0.17											

GEOPHYSICAL LOGS

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

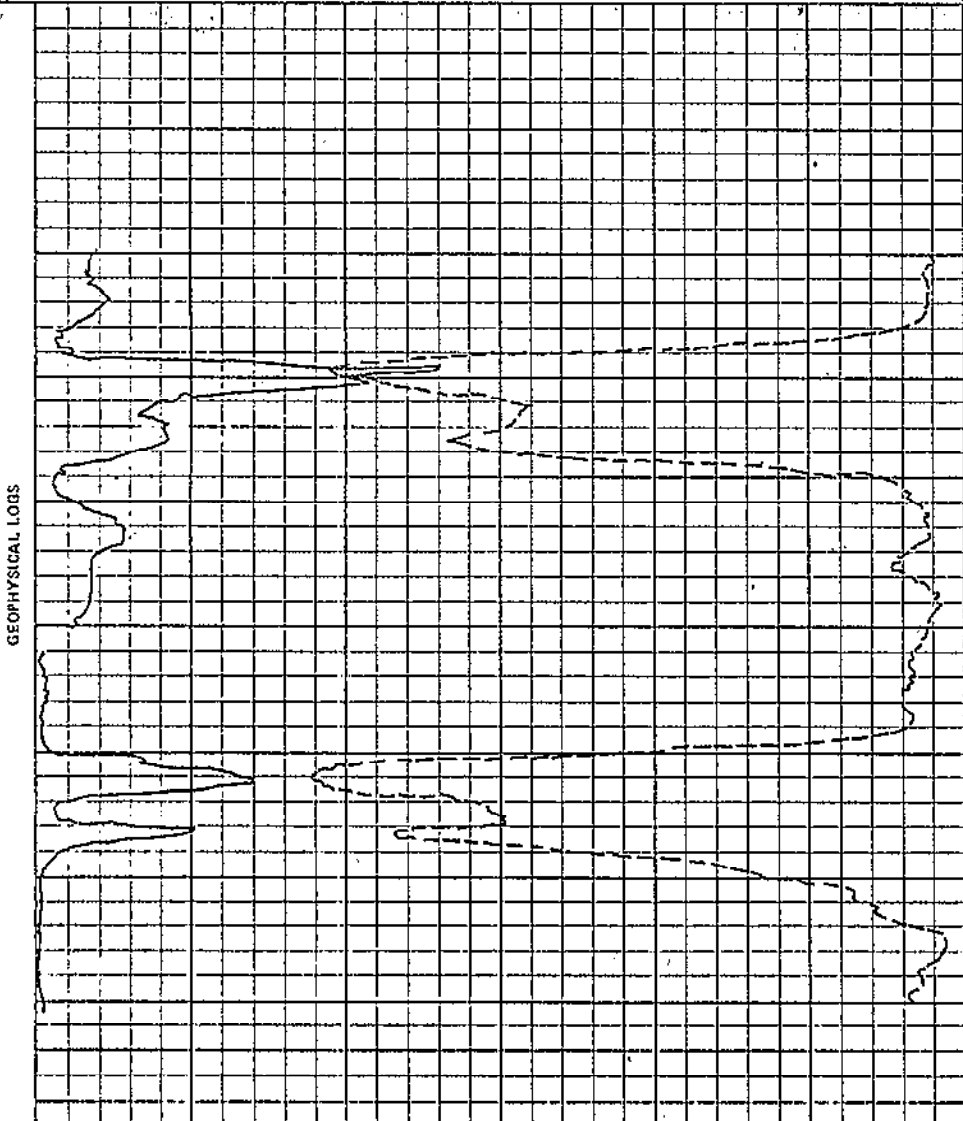
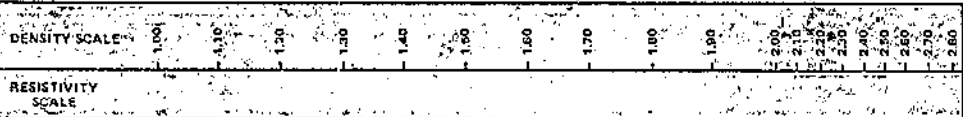
267 (12/84)

DENSITY

RESISTIVITY

DRILL NO. DDH-80-18 SEAM SCALE 1:40

APPARENT THICKNESS SEAM INTERVAL 192.78 - 234.80



GEOPHYSICAL LOGS

SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS									
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VIA	FC	S	BTU	FSI			
	192.78			0.38													
	193.16		(0.11)			00338		0.69	21.48	17.77	60.06	.73	11,630	1.5			
	193.42		0.15			00339		0.91	64.98	11.58	22.63	.33	4,755	.5			
	193.63			(0.11)		00340		0.80	15.32	20.60	63.28	.87	2,867	6			
	194.18		0.55														
	234.00																
	234.34			0.22		00341		0.92	7.50	24.97	66.61	2.15	14,267	9			
	234.65		(0.26)			00342		0.99	53.06	15.09	30.86	1.33	6,576	3.5			
	234.80		0.03			00343		1.30	89.66	6.28	2.76	.19	517	0			

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

9-207 (12-80)

DENSITY \_\_\_\_\_ RESISTIVITY \_\_\_\_\_

DRILL NO. DDH-80-18 SEAM  
SCALE 1:40

APPARENT THICKNESS  
SEAM INTERVAL 249.70 - 251.02 m

DENSITY SCALE	RESISTIVITY SCALE	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS							
					ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	FSI	
			249.70			(0.38) 0.07		00344		0.97	53.71	14.53	30.79	.42	6,406	1.5	
			250.15			(0.34) 0.05		00345		0.54	56.30	39.70	3.46	.14	2,374	0	
			250.54				(0.46) 0.02		00346		1.00	44.70	16.54	37.70	.51	7,950	4.5
			251.02														

GEOPHYSICAL LOGS

DIRECTIONAL SURVEY

ROKE OIL ENTERPRISES LIMITED

COMPANY: GULF CANADA RESOURCES INC.      GRID: \_\_\_\_\_      DATE SURVEYED: 24 AUG. 1980  
DRILL HOLE: G - 80 - 18      LATITUDE: \_\_\_\_\_      SURVEY BY: SIM  
LOCATION: \_\_\_\_\_      DEPARTURE: \_\_\_\_\_      WITNESSED BY: WILLIAMS  
FIELD: GOODRICH      ELEVATION: \_\_\_\_\_      CALCULATIONS BY: \_\_\_\_\_  
MAGNETIC DECLINATION: \_\_\_\_\_      CORRECTION OF: \_\_\_\_\_      FOR: \_\_\_\_\_      GRID: \_\_\_\_\_

Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing	Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing	Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing
0	0	2°		11	165	5°	N - 10 - E	22			
1	15	2°	N - 57 - E	12	180	6°	N - 5° - E	23			
2	30	2°	N - 60 - E	13	195	5°	N - 8 - E	24			
3	45	2°	N - 55 - E	14	210	6.5°	N - 5 - E	25			
4	60	2°	N - 47 - E	15	225	7°	N - 5 - E	26			
5	75	2°	N - 30 - E	16	240	8°	N	27			
6	90	3°	N - 22 - E	17	255	7°	N - 3 - W	28			
7	105	4°	N - 12 - E	18	270	7°	N	29			
8	120	4°	N - 27 - W	19	285	6°	N - 4 - E	30			
9	135	5°	N - 25 - W	20				31			
10	150	5°	N - 34 - W	21				32			

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

P-141A(10-B)

SHEET NO.: 1

HOLE NO.: GDR-DDH-80-19 ELEV. COLLAR: 1031.11m TOTAL DEPTH: 339.5m DATE BEGUN: \_\_\_\_\_  
 PROJECT: Goodrich BEARING: \_\_\_\_\_ CORE SIZE: HQ DATE COMPL.: August 30/80  
 CO. ORD.: 139 488.99N 550 960.49E HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JES CONTRACTOR: Coates

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
									0.00-33.32-No core recovered	
	110' / 33.53	0.21		33.32	33.53	0.21			Mudstone - dark grey to black, weathered to clay mush, almost soil	
			0.85	33.53	34.38	0.85			Core loss -	
	114.5' / 34.90	0.49		34.38	34.87	0.49			Mudstone - highly weathered	
			0.40	34.87	35.27	0.40			Core loss -	
	120' / 36.58	1.28		35.27	36.55	1.28			Mudstone - highly weathered TOP OF BOX 2	
			0.21	36.55	36.76	0.21			Core loss -	
		2.61		36.76	39.54	2.61			Mudstone - dark grey to black, widely spaced features, no apparent bedding TOP OF BOX 3	
	130' / 39.62		0.73	39.54	40.27	0.73			Core loss -	
	137' / 41.76	1.40		40.27	45.00	4.73			Mudstone -	
		0.69							-	









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

P-141A(10-8)

SHEET NO.: 5

HOLE NO.: GDR-DDH-80-19 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JES CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
20°	286.5/ 87.32	0.94							TOP OF BOX 21	
		1.66							Mudstone - - Apparent BCA of 20°	
20°	297' / 90.53	1.74							TOP OF BOX 22 - core may be reversed in box - measured as should be	
		0.76							TOP OF BOX 23 - widely spaced calcite fractures - 3 meters	
25°	317' / 96.62	0.61		93.87	94.48	0.61			TOP OF BOX 24 - core markers scrambled in 3,0.61boxes 22, 23 & 24; scattered pyrite blebs	
	319/ 97.23	0.21		94.48	97.37	2.89			TOP OF BOX 25 -	
		0.11							-	
		2.57							- with 3.5cm bed of mudstone medium brown, lies 0.84m below 327' marker	
	337' / 102.72	0.31	2.45	97.37 99.82	99.82 104.35	2.45 4.53			-	

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

P-141A(10-8)

SHEET NO.: 6

HOLE NO.: GDR-DDH-80-19 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JES CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
26 <sup>0</sup>		2.18							- calcite fracture 1.37m below 337' marker TOP OF BOX 28	
		0.79							-	
	347' / 05.77	1.25							- contact at base	
10 <sup>0</sup>		0.53		104.35	109.83	5.48			Sandstone - dark grey; pine grained, laminated by argillaceous partings, TOP OF BOX 29	
		0.32							-	
30 <sup>0</sup>	554' / 107.90	2.34							- with calcite filled fractures up to 2cm thick @ 356' ; 15' / 0.2m @ 359' TOP OF BOX 30	
		0.76							-	
32 <sup>0</sup>	364' / 110.95	1.53							- with 3cm argillaceous bed at 366' 27' / 0.1m @ 367' TOP OF BOX 31	

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

P-141A(10-a)

SHEET NO.: 7

HOLE NO.: GDR-DDH-80-19 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JES CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
26°		0.02		109.83	110.07	0.24			Sandstone - Dark grey to black interbedded with very argillaceous light grey, very fine grained sandstone grading to siltstone crossbedded. Core badly broken at 369' marker.  - with slickensided fractures at 373'  - with 5% disseminated pyrite from 374.3' to 375'  TOP OF BOX 32  TOP OF BOX 33  slickensided @ 384.6'  crossbedding and bioturbation indicate tops up  TOP OF BOX 34  -  -  - with slickensided bedding planes and occasional fractures not parallel to bedding	
		0.22								
	369' / 112.47	0.40	110.07	110.47	0.40					
	0.97	110.47	113.26	2.79						
	373' / 113.69	0.84								
	0.98	0.30	113.26	113.56	0.30					
27°		1.35		113.56	115.31	1.75				
		0.40								
	387' / 117.96	0.45	115.31	115.76	0.45					
	1.37	115.76	117.41	1.65						
23°	345' / 120.40	0.28								
		2.11	0.70	117.41	118.11	0.70				
				118.11	120.22	2.11				

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

P-141A(10 a

SHEET NO.: 8

HOLE NO.: GDR-DDH-80-19 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

9CA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
30°		0.73		120.22	122.56	2.34			TOP OF BOX 35	
	405' / 123.44	1.57							- bioturbation in mudstone	
									- bioturbation in mudstone	
	410' / 124.97	0.04							TOP OF BOX 36	
				0.25	122.56	122.87	0.25		410.3' slickensided	
30°		1.77		122.87	124.58	1.77			-	
	417' / 127.10		0.25	124.58	124.83	0.25			-	
		0.43		124.83	125.26	0.43			- bioturbation, occasional pyrite bleb	
				0.16	125.26	125.42	0.16		TOP OF BOX 37	
		2.47		125.42	136.79	11.37			- at 418.5' slickensided, + calcite	
30°	427' / 130.15	0.17							-	
		2.58							TOP OF BOX 38	
									- with finely disseminated pyrite in silt calcite filled fractures @ 434.0'	
30°		0.13							TOP OF BOX 39	
	437' / 133.20	2.38							- with bioturbation in mudstones	

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

P-141A(10-B)

SHEET NO.: 9

HOLE NO.: GDR-DDH-80-19 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: IES CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
40°	947' / 136.25	0.58							TOP OF BOX 40	
		2.10							Sandstone - @ 448.5' calcite filled	
32°	457' / 139.29	0.96							TOP OF BOX 41	
		1.65		136.79	148.44	11.65			- @ 454' calcite filled - @ 460' calcite filled	
		1.37							TOP OF BOX 42	
40°	467' / 142.34	1.08							- silt content digging out	
		1.98							TOP OF BOX 43 - silt graded out	
	477' / 145.39	0.75							Mudstone - dark grey to black, featureless	

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

P-141A(10)

SHEET NO.: 10

HOLE NO.: GDR-DDH-80-19 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		2.18							TOP OF BOX 44	
	487' / 148.44	0.25							-	
		2.39							TOP OF BOX 45	
			1.87	148.44	150.31	1.87			- Conjugate, lightly slickensided @ 490', core broken up at 495'	
		0.24		150.31	150.55	0.24			TOP OF BOX 46	
	497' / 151.49	0.16		150.55	150.71	0.31			Mudstone - Dark grey to black and carbonaceous slickensided	
		0.05		150.71	150.76				Coal - powdery	
			0.35	150.76	151.11	0.35			Claystone	
		0.12		151.11	151.23	0.12			Claystone	
			0.10	151.23	151.33	0.10			Core Loss	
		0.02		151.33	151.35	0.02			Coal	
		0.16		151.35	151.51	0.27			Claystone	
	501' / 152.70	0.07		151.51	151.58				-	
		0.02		151.58	151.60				Coal - very thin lamination - dull banded	
			0.38	151.60	151.96	0.38			Core Loss	
		0.12		151.96	152.08	0.12			Claystone	

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

P-141A(10 a)

SHEET NO.: 11

HOLE NO.: GDR-DDH-80-19 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
25°	507' / 154.53	0.02	0.31	152.08	152.39	0.31			Core Loss	
				152.39	152.41	0.02			Coal - Dull? powdered	
			0.41	152.41	152.82	0.41				
		0.27		152.82	153.09	0.27			Mudstone	
			0.18	153.09	153.27	0.18			Core Loss	
			0.39	153.27	153.66	0.39				
		0.01		153.66	153.67	0.01			Coal -powdered - dull banded?	
		0.82		153.67	154.49	0.82			Mudstone	
		0.10		154.49	154.59	0.10			- with carbonaceous laminations	
									TOP OF BOX 47	
		0.16			154.59	154.65	3.07		-	
		1.18			154.65	155.83			-	
		1.13			155.83	156.96			Mudstone - Dark grey to black, carbonaceous, minor coal laminations, minor silt wisps	
									TOP OF BOX 48	
		0.60			156.96	157.56			-	
			0.27		157.56	157.83	0.27		Core Loss	
		2.16			157.83	159.99	2.16		-	
									TOP OF BOX 49	
		0.09			159.99	160.08	0.09		Mudstone - Dark grey to black, silty laminations	
			0.22		160.08	160.30	0.22		Core Loss	
	0.02			160.30	160.32	0.02		Coal - bright		
		0.43		160.32	160.75	0.43				
	0.40			160.75	161.15	0.40		Mudstone - coal inclusions, carbonaceous partings'		
		0.13		161.15	161.28	0.13		Core Loss		
	0.02			161.28	161.30	0.02		Coal - Bright		



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

P-141A(10-8)

SHEET NO.: 12

HOLE NO.: GDR-DDH-80-19 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
35°	527' / 160.63	0.24		161.30	161.54	0.24			Mudstone  TOPS UP from silty mudstone below 527' marker	
		1.59		161.54	163.72	2.18			-  TOP OF BOX 50	
		0.29							-  ? Core loss	
		0.30							-  carbonaceous partings	
38°	535' / 163.07	1.87		163.72	165.59	1.87			Mudstone - Dark grey to black, interbedded with silty mudstone defined by 'irregular' wavy lens  TOP OF BOX 51	
	545' / 166.12	1.16		165.59	168.09	2.50			-  minor bioturbations - sand filled 1cm diameter at 548' slickensided calcite filled fracture subparallel to bedding	
		1.34							-  TOP OF BOX 52	
	555' / 169.164	1.63		168.09	171.00	2.91			Sandstone - dark grey brown to black, colourless; carbonaceous blecks and partings	



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

P-141A(10-8)

SHEET NO.: 14

HOLE NO.: GDR-DDH-80-19 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.85							- - at 590' calcite filled, slickensides  TOP OF BOX 57	
		.97							Mudstone - medium to dark grey, silty laminae, slickensides, calcite quartz filled @594'	
	595' / 181.36	.69 .54		182.05	182.59				1 00347 Coal - Dull Banded	
			0.10	182.59	182.69				TOP OF BOX 57A	
		.19 1.02		182.69 182.88	182.88 183.90	0.83 0.31	0.31 88	88	Coal - Mudstone - Dark grey to black, very carbonaceous, slickenside contact with coal above and on interval fractures @ 604'	
	605' / 184.40		0.54	183.90	184.44				2 00348	
		0.51		184.44	184.95	2.07	0.78	74		
		0.25		184.95	185.20				3 00349 Coal - dull banded	
	608.5 / 185.47	0.33		185.20 185.53	185.53 185.64				Coal - " "	
			0.11						-	

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

P-141A110 e.

SHEET NO.: 15

HOLE NO.: GDR-DDH-80-19 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION	
				FROM	TO	APPAR. THK.	TRUE THK.				
150	617' / 188.06	0.54		185.64	186.18	1.23	0.46	91		TOP OF BOX 58	
		1.50		186.18	187.68				4 00350	Coal - Bright Banded Mudstone - fine silt laminae, rip up clasts, bioturbations	
		0.53	0.14	187.68	188.21	2.17	0.81	94		-	
				188.21	188.35				5 00351	TOP OF BOX 59	
			0.39	188.35	188.74					Sandstone - light brown, very fine grained carbonaceous partings - slickenside	
			0.23	188.74	188.97	0.77	0.28	30			
	627' / 191.11		0.15		188.97	189.12					
			0.20		189.12	189.32					
			0.28		189.32	189.60	0.48	0.18	0		
			0.08		189.60	189.68				6 00352	Coal - dull banded, sheared, powdered in part
			0.40		189.68	190.08					
			0.54		190.08	190.62	1.02	0.26	39		
	0.25		190.62	190.87				7 00353	Mudstone - Dark grey to black, very carbonaceous, slikenside coal laminae		
	0.28		190.87	191.15	0.53	0.10	47				
	0.20		191.15	191.35	0.20	0.03	100	8 00354	Coal - Dull banded		
	0.07		191.35	191.42	0.07	0.12	100	9 00355	Claystone		

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

P-141A110 B

SHEET NO.: 16

HOLE NO.: GDR-DDH-80-19 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JES CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
10 <sup>0</sup>		0.20	0.24	191.42	191.62				11 00357	Coal - dull banded - almost parallel to core
0 <sup>0</sup>		0.77		191.62	191.86	0.44	1.08	45		Mudstone - very sandy, parallel to core axis 2cm coal band is 'sandwiched' in core
(10 <sup>0</sup> )		0.03		191.86	192.63	0.77	0.02	100		
				192.63	192.66				12 00358	Coal - dull banded, badly broken up
										TOP OF BOX 60
		0.03		192.66	192.69					Coal - almost powder
		0.04		192.69	192.73					Claystone
		0.04		192.73	192.77					Coal - dull banded? powdered
			0.22	192.77	192.99	0.36	0.06	39		
		0.13		192.99	193.12				13 00359	Mudstone - very silty
	634/ 193.24									
(10 <sup>0</sup> )		0.25		193.12	193.37					Claystone - Carbonaceous
			0.35	193.37	193.72	0.73	0.13	52		
			0.26	193.72	193.98				14 00360	Coal - Dull banded
		0.10		193.98	194.08					
			0.32	194.08	194.40	0.68	0.12	15		
		0.28		194.40	194.68	0.28	0.05	100	15 00361	Mudstone - Carbonaceous, coal laminae
			0.28	194.68	194.96				16	Coal - Dull banded
		0.15		194.96	195.11	0.43	0.07	35	00362	

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

P-141A(10)

SHEET NO.: 17

HOLE NO.: GDR-DDH-80-19 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
24°	641' / 195.38	0.14		195.11	195.25				17	Claystone
		0.01		195.25	195.26				00363	Coal - powder
		0.20		195.26	195.46					Mudstone - with fine coal laminae
		0.35		195.46	195.81				Mudstone - dark grey to black, carbonaceous	
		0.10		195.81	195.91				TOP OF BOX 61	
			0.02		195.91	195.93				Coal - few fragmenst in bottom of box, slickenside ends on mudstones above and below
			0.23		195.93	196.16				
			0.06		196.16	196.22				
			0.30		196.22	196.52	1.41	0.57	70	Mudstone - carbonaceous
			1.99		196.52	198.51				18
			0.09	198.51	198.60	2.08	0.85	96	00364	
									19	TOP OF BOX 62
	652/ 198.73	0.51		198.60	199.11	0.51	0.21	100	00365	Mudstone - dark grey to black, very carbonaceous
		0.43		199.11	199.54				20	
		0.73		199.54	200.27				00366	Coal - Dull and Bright
			0.13	200.27	200.40	1.29	0.52	57		
		0.19		200.40	200.61				21	
				200.61	200.80				00367	Claystone - carbonaceous
(24°)		0.22		200.80	201.02	0.62	0.25	31		

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

P-141A(10-2)

SHEET NO.: 18

HOLE NO.: GDR-DDH-80-19 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	661/ 201.47m	0.14		201.02	201.16				22 00368	Coal - dull banded
		0.25		201.16	201.41					
		0.10		201.41	201.51					
		0.34		201.51	201.85					
		0.15		201.85	202.00					
	667' / 203.30	0.26		202.00	202.26					Coal - dull
		0.88		202.26	203.14					Coal - dull banded
		1.50		203.14	204.64					Coal - dull banded to dull and bright
	677' / 206.35								23 00369	TOP OF BOX 64
		0.25		204.64	204.89	3.87	1.57	96		Coal -
		0.87		204.89	205.76					Coal - dull banded
		0.19		205.76	205.95					Coal - dull and bright
		0.95		205.95	206.90					Coal - dull and bright
	687' / 209.40	0.19		206.90	207.90					Coal - dull banded
		0.97		207.90	208.06					TOP OF BOX 65
			0.34		208.06	208.40				Coal - dull banded
		0.30		208.40	208.70					Coal - bright banded
		0.60		208.70	209.30					- dull banded
		0.15		209.30	209.45					Coal - dull banded
		0.34		209.45	209.79	4.90	1.99	90		

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

P-141A(10-8)

SHEET NO.: 19

HOLE NO.: GDR-DDH-80-19 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.20		209.79	209.99				24 00370	Claystone - very carbonaceous  TOP OF BOX 66
		0.34		209.99	210.33	0.54	0.22	100		-
	692' / 210.92m	0.17		210.33	210.50				25 00371	Coal - dull banded, slickenside surfaces
		0.99	0.43	210.50 210.93	210.93 211.92					Coal - dull banded
	697' / 212.45	0.65		211.92	212.57					Coal - dull banded
		1.62		212.57	214.19	3.86	1.57	89		TOP OF BOX 67 Coal - dull banded, slickensides lower contact
		0.22		214.19	214.41				26 00372	Claystone
		0.45		214.41	214.86					- carbonaceous
		0.10		214.86	214.96					-
			0.25	214.96	215.21					TOP OF BOX 68
		0.25		215.21	215.46					Claystone - dark brown- black, thin coal laminae
		0.32		215.46	215.78	1.59	0.41	84		- slickenside basal contact
		0.25		215.78	216.03	0.25	0.06	100	27 00373	Coal - dull and bright clay wisps
15°		0.40		216.03	216.43	0.40	0.10	100	28 00374	Claystone -



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

P-141A(10)

SHEET NO.: 20

HOLE NO.: GDR-DDH-80-19 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION	
				FROM	TO	APPAR. THK.	TRUE THK.				
(15°)	717' / 218.54m	0.07	0.11	216.43	216.50	0.18	0.05	64	29 00375	Coal - bright	
				216.50	216.61				30 00376		
		0.25	0.15	216.61	216.76						Claystone
				216.76	217.01						
		0.22	0.47	217.01	217.23	0.62	0.16	76			-
		0.14		217.23	217.70						31 00377
				217.70	217.84	0.61	0.16	23			
		0.39	0.23	217.84	218.23						32 00378
				218.23	218.46	0.62	0.16	63			
		0.17	0.16	218.46	218.62						33 00379
				218.62	218.79						
		0.14		218.79	218.93						
		0.28			218.93	219.21	0.28	0.07	100	34 00380	Mudstone
			0.38		219.21	219.59	0.38	0.10	0		
		0.60		0.21	219.59	219.80					
	219.80	220.40	0.81		0.21	74					
0.35		220.40		220.75						36 00382	- Coal - dull banded
0.35			220.75	221.10	0.70	0.18	100			Coal - broken up	
0.25	727' / 221.59		221.10	221.35						37 00383	Pelletstone - brown clay pellets (+ 4mm diam) with
0.13		221.35	221.48	0.38	0.10	100				coal cement DISTINCTIVE	

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

P-141A(10-8)

SHEET NO.: 21

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.32		221.48	221.80				38	Coal - dull banded
		1.04		221.80	222.84				00384	TOP OF BOX 70
		0.15		222.84	222.99					Coal - dull banded
	737' / 224.64									Coal - dull
			0.38	222.99	223.37					
			0.77	223.37	224.14					
			0.19	224.14	224.33					
		0.27		224.33	224.60	3.12	0.81	57		Coal - Dull
		0.60		224.60	225.20	0.60	0.12	100	39	Pelletstone - brown clay pellets (+ 3mm diameter)
									00385	with dull coal 'cement'
		0.35		225.20	225.55				40	Coal - dull banded
									00386	TOP OF BOX 71
		1.20		225.55	226.75					Coal - dull banded
		0.11	0.20	226.75	226.95					Coal - dull
				226.95	227.06					
	747' / 227.69	0.07		227.06	227.13					Coal - bright banded
			0.45	227.13	227.58	2.38	0.62	64		
		0.52		227.58	228.10	0.52	0.09	100	41	Claystone - carbonaceous, with coal laminae and
									00387	inclusions
		0.19		228.10	228.29				42	Coal - dull banded
			0.31	228.29	228.60				00388	
		0.05		228.60	228.65	0.55	0.10	44		TOP OF BOX 72
										Coal - dull banded

(10<sup>0</sup>)

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

P-141A(10.6)

SHEET NO.: 22

HOLE NO.: GDR-DDH-80-19 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
5 <sup>0</sup>	757' / 230.73	0.04	0.25	228.65	228.69	0.29	0.05	14	43	Claystone
				228.69	228.94				00389	
		0.30	0.96	228.94	229.94	1.26	0.22	24	44	Coal - dull banded
				229.94	230.20				00390	
		0.10	0.11	230.20	230.30				45	Claystone with coal laminae, black
				230.30	230.41				00391	
		1.99		230.41	232.40					Mudstone - medium grey, gradational contact at top
		0.27		232.40	232.67					TOP OF BOX 73
		.08		232.67	232.75	2.55	0.22	93		- thin (1cm) breccia cemented by quartz at base of interval - breccia at .27 below top of box
										Core Loss
0.21	0.40	232.75	232.96				46	Coal - dull banded		
		232.96	233.36				00392		Core Loss	
0.12	0.30	233.36	233.48					Claystone - medium brown, 1cm coal laminations		
		233.48	233.78					Coal - dull banded		
0.33	1	233.78	234.11	1.36	0.12	71		Coal - dull		
0.70		234.11	234.81					Claystone - medium brown, 15% bright laminations apparent bedding parallel axis of core		
		0.60	234.81				235.41		Core Loss	
0-5 <sup>0</sup>		0.07	235.41	235.48				TOP OF BOX 74		
		0.06	235.48	235.54				Core Loss		
			0.26	235.54	235.80				Claystone - with thin (1cm) coal laminations	

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

P-141A(10-8)

SHEET NO.: 23

HOLE NO.: GDR-DDH-80-19 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
			1.00	235.80	236.80					Core Loss
	777' / 236.8	0.12		236.80	236.92					Claystone - with thin (1cm) coal laminations
		0.04		236.92	237.06					-
			0.24	237.06	237.30	3.19	0.28	37		Core Loss
		0.50		237.30	237.80					Coal - Dull banded
		0.10		237.80	237.90	0.60	0.05	100	48 00394	Coal - dull and bright
	700.5' / 137.9	0.10		237.90	238.00				49 00395	Claystone - medium brown, very thin coal laminations
		0.58		238.00	238.58	0.68	0.06	100		-
0-5'		0.05		238.58	238.63				50 00396	Coal - Dull and bright
										TOP OF BOX 75
		0.06		238.63	238.69					-
(5')		0.39		238.69	239.08	0.50	0.04	100		Coal - dull clay laminae parallel
		0.23	0.17	239.08	239.25					- Core axis - "coal and rock" Core Loss
				239.25	239.48	0.40	0.03	58	51 00397	Claystone - black, carbonaceous coal laminations
	0.08	0.08		239.48	239.56				52 00398	Coal - Dull banded
	788' / 240.2		1.14	239.56	240.70					Core Loss
		0.43		240.70	241.13	1.65	0.14	32		Coal - dull banded

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

P-141A(10.6)

SHEET NO.: 24

HOLE NO.: GDR-DDH-80-19 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.33		241.13	241.46	0.33	0.03	100	53 00399	Claystone - medium brown coal laminations
		0.45		241.46	241.91				54 00400	Coal - dull banded
		0.84		241.91	242.75					TOP OF BOX 76
	797' / 242.9	0.17		242.75	242.92	1.76	0.15	100		Coal -
		0.20	0.21	242.92	243.12				55 00401	Claystone - medium brown
		0.06		243.12	243.33					- Core Loss
		0.22		243.33	243.39					Coal - dull banded
	799' / 243.5	0.43		243.39	243.61					Claystone - Medium Brown, coal laminations
		0.89		243.61	244.04					- grading to mudstone - No Distinct Bedding
		0.27		244.04	244.93	2.01	0.18	90		TOP OF BOX 77
(45°)		0.08	0.24	244.93	245.20				56 00402	Coal - dull, sheared
		0.08		245.20	245.28					Core Loss
		0.08		245.28	245.52					Coal - dull banded, sheared
		0.08	0.54	245.52	245.60					Core Loss
		0.08	0.24	245.60	246.14					Coal - dull banded
	807' / 246.0	0.05		246.14	246.22					Core Loss
(45°)		0.05	0.49	246.22	246.46					Coal - dull, sheared, occasional clay streak
				246.46	246.51					
				246.51	247.00					

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

P-141A(10)

SHEET NO.: 25

HOLE NO.: GDR-DDH-80-19 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	813' / 247.80	0.48	1.12	247.00	247.48				Coal - Dull banded, slickenside	
		0.21		247.48	248.60					Coal - dull and bright, slickenside, sheared
		0.32		248.60	248.81				TOP OF BOX 78	
	821' / 250.24		1.27	248.81	249.13				Coal - dull and bright	
		0.09		249.13	250.40	5.56	3.93	25	Coal - Dull and bright, sheared, slickenside	
		0.14		250.40	250.49			57 00403	Claystone - Very carbonaceous	
		0.13		250.49	250.63	0.14	0.10	100	Coal - dull and bright	
	825.5 / 251.61		0.96	250.63	250.76			58 00404		
		0.42		250.76	251.72				Coal - dull banded, gypsum flecks on fracture surfaces	
		0.05		251.72	252.14				Coal - powder	
		0.25		252.14	252.19				Coal - dull banded	
		0.01		252.19	252.44				Coal - dull banded	
			0.27	252.44	252.45					
				252.45	252.72					
			0.18	252.72	252.90					
				252.90	252.95					
		0.05		252.95	252.95				Claystone - light brown, sheared, slickenside	
			0.09	252.95	253.04					
				253.04	253.11					
		0.02		253.11	253.13				Coal - powder	
			0.10						TOP OF BOX 79	
		0.12		253.13	253.23				Coal - dull	
				253.23	253.35	2.72	1.92	42	Coal - dull, occasional clay laminae	

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

P-141A(10-8)

SHEET NO.: 26

HOLE NO.: GDR-DDH-80-19 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
45°	834.1' / 254.2	0.10	0.07	253.35	253.45				59	Claystone - carbonaceous
			0.20	253.45	253.52			00405		
		0.08	0.08	253.52	253.72					
			0.08	253.72	253.80					
			0.12	253.80	253.88					
	843' / 256.93	0.40	0.12	253.88	254.00	0.65	0.46	28	60	Claystone -  Coal - dull banded Coal - dull and bright Sandstone - Light brown very fine grained coal flecks and partings Coal - dull
			0.05	254.00	254.40				00406	
		0.35	0.40	254.40	254.45	0.90	0.64	56		
			0.15	254.45	254.90	0.35	0.25	100	61	
			0.15	254.90	255.25				00407	
	0.11	0.30	0.15	255.25	255.40	0.15	0.11	100	62	Claystone - coal laminae and partings  Coal - dull banded Claystone - coal laminae
			0.10	255.40	255.51				00408	
		0.10	0.10	255.51	255.61				63	
			0.15	255.61	255.76				00409	
			0.34	255.76	255.86					
0.10	0.30	0.10	255.86	256.20					-	
		0.10	256.20	256.50						
	0.10	256.50	256.60							
TOP OF BOX 80										
0.10	0.34	0.10	0.14	256.60	256.70	1.30	0.92	58		-
		0.14	256.70	257.04				64		
				257.04	257.18	0.48	0.34	71	00410	Coal - dull banded

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

P-141A(10-8)

SHEET NO.: 27

HOLE NO.: GDR-DDH-80-19 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.18	0.14	257.18	257.32				64 00411	Claystone - silty, mud clasts
				257.32	257.50	0.32	0.23	56		
		0.43		257.50	257.93				66	Coal - dull banded
		0.03		257.93	257.96				00412	Coal - powder
			1.59	257.96	259.55					
		0.24		259.55	259.79					Coal - dull
	850' / 259.08									
		0.33		259.79	260.12					Coal - bright
			0.16	260.12	260.28					
		0.15		260.28	260.43					Coal - dull
		0.20		260.43	260.63					Coal - dull banded
										TOP OF BOX 81
(45°)		0.15		260.63	260.78					Coal - dull banded
		0.20		260.78	260.98					Coal - dull banded, sheared
		0.25		260.98	261.23					Coal - dull banded
	857' / 261.21									
		0.43		261.23	261.66					Coal - dull banded
			0.40	261.66	262.06					
		0.02		262.06	262.08					Coal - dull
			0.38	262.08	262.46					
(45°)		0.59		262.46	263.05					Coal - dull
			0.20	263.05	263.25					Core Loss
		0.10		263.25	263.35					Coal - dull sheared
			0.65	263.35	264.00					Core Loss
		0.14		264.00	264.14					Coal - dull banded
	867' / 264.26									
		0.10		264.14	264.24					Coal - dull banded



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

P-141A(10-8)

SHEET NO.: 28

HOLE NO.: GDR-DDH-80-19 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION	
				FROM	TO	APPAR. THK.	TRUE THK.				
50°	867' / 264.26	0.10		264.14	264.24					Coal - dull banded	
		1.10		264.24	265.34					TOP OF BOX 82 Coal - dull banded	
	0.15	1.57	265.34	266.91	9.41	6.65	47		Core Loss		
			266.91	267.06	0.15	0.11	100	67	Claystone - silty		
	877' / 267.31	0.20	0.64	267.06	267.70					68	Core Loss
				267.70	267.90				00414	Coal - dull banded, sheared	
		0.20	0.58	267.90	268.48					Core Loss	
				268.48	268.68					Coal - dull banded, sheared	
		0.22	0.49	268.68	268.90						Coal - dull banded
				268.90	268.95						TOP OF BOX 83 Coal - dull banded
45°	883' / 269.14	0.12	0.49	268.95	269.44					Core Loss	
				269.44	269.56					Coal - dull, heavy	
	0.22	0.37	269.56	269.78	2.72	2.08	37		Coal - boney		
			269.78	270.26					Core Loss		
	0.13	0.37	270.26	270.39					69	Claystone - few coal laminae	
			270.39	270.76					00415	Core Loss	
50°		0.25	0.15	270.76	271.01					Mudstone - Dark grey to black, carbonaceous	
				271.01	271.16					Core Loss	
		0.49		271.16	271.65					Mudstone -	

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

P-141A(10.8)

SHEET NO.: 29

HOLE NO.: GDR-DDH-80-19 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
			0.25	271.65	271.90					Core Loss
		0.20		271.90	272.10					Mudstone -
			0.23	272.10	272.33					Core Loss
		0.15		272.33	272.48					
(45°)	894' / 272.49	0.42		272.48	272.90					Mudstone - Black, carbonaceous coal laminae
			0.26	272.90	273.16					
		0.72		273.16	273.88					TOP OF BOX 84
		0.30		273.88	274.18					Claystone - dark brown - black, carbonaceous coal partings
	899' / 274.02	1.22		274.18	275.40					Mudstone
			0.26	275.40	275.66					Mudstone - carbonaceous, coal partings
			0.07	275.66	275.74					
				275.74	275.81					TOP OF BOX 85
		0.12		275.81	275.93	6.15	4.35	65		
			0.30	275.93	276.23					
		0.40		276.23	276.63				70 00416	Coal - dull banded
	907' / 276.45	0.45		276.63	277.08	1.15	0.81	83		Coal - dull banded
		0.34		277.08	277.42				71 00417	Mudstone - Dark grey - black
			0.10	277.42	277.52					
			0.52	277.52	278.04					



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

P-141A(10-3)

SHEET NO.: 31

HOLE NO.: GDR-DDH-80-19 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
45°	941' / 286.82	0.16		284.92	285.08	0.38	0.27	74		Coal - dull banded
			0.27	285.08	285.35	0.27	0.19	0		Core Loss
			1.05	285.35	286.40	1.05	0.74	0		Core Loss
	947' / 288.65	0.54		286.40	286.94		76		76	Mudstone - black to dark grey
		1.10		286.94	288.04		00422		00472	Mudstone - grey
			0.51		288.04	288.55	2.15	1.52	100	
Apparent Thicknesses Total interval - 106.50m Core Loss 41.55 Core recovered 64.95 % Recover 61%										
True Thickness: Coal 27.38 Rock 17.12 Unassigned core loss 1.67 46.17										
Apparent Thicknesses Total of coal seam intervals 62.21 Total core loss from seams 24.63 Total recover, from seams 37.58 % Recovery in seams 60%										

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

P-141A(10)

SHEET NO.: 32

HOLE NO.: GDR-DDH-80-19 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
34°	957/ 291.69	1.83		288.55	292.21	3.66			TOP OF BOX 88 grading to silt at base at 950.2' fracture breccia approximately 0.1m wide 949' - 950' horsetailed gypsum filled fractures	
		0.67							Mudstone - medium dark grey brown, very silty, fine silt laminations, slickenside parting at 957' sup-parallel to bedding	
		0.89							TOP OF BOX 89 irregular spots of white soft? gypsum flowers along fracture surface (1-5mm diameter)	
		0.27							with small coal lenses sub-parallel to bedding slickenside polished surfaces at 961ft - possible core loss	
		1.05	1.13	292.21 293.34	293.34 294.39	1.13 1.05			no coal lenses at 965' parallel to bedding - slickenside 961' - 965' horsetail fractures	
24° 30°		1.12		294.39	303.09	8.70		TOP OF BOX 90 - silty with midly contacted bedding, frequent coal lenses and inclusions; slickenside bedding; core badly broken from 967' - 969' slickenside partings; good contact of 30° with next unit.		

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

P-141A(10.0)

SHEET NO.: 33

HOLE NO.: GDR-DDH-80-19 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
40°		1.27							Mudstone - dark brown to black, occasional silty whisps of bedding, slickenside bedding fracture sub-parallel at 974' - calcite filled.	
									TOP OF BOX 91	
	974' / 296.88	0.10							-	
		2.53							-	
									976' slickenside fractures sub-parallel to bedding 2nd set calcite filled - vuggy green in part	
									TOP OF BOX 92	
	984' / 299.97	0.41							-	
		2.24							- at 988	
									TOP OF BOX 93	
		0.63							- Calcite filled at 994'	
63°		0.40								
		1.20		303.09	304.48	1.39			Sandstone - gradational contact at top - very fine grained, argillaceous, finely cross-bedded; calcareous; tops up	
	1000' / 304.80	0.19							-	



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

P-141A(10)

SHEET NO.: 35

HOLE NO.: GDR-DDH-80-19 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	1037' 316.08	1.05	0.75	314.78	315.53	0.75			- high density	
	315.53			316.56	1.03					
	1041' 317.30	1.20	0.74	316.56	317.30	0.74			- high density - with conjugate fractures (fault?)	
	317.30			318.50	1.20					
45°	1046/ 318.82	0.81		318.50	319.31	0.81			TOP OF BOX 99	
		1.08	0.70	319.31	320.01	0.70			Mudstone - medium grey	
	1050/ 320.04	0.66		320.01	325.16	5.15			- few calcite veins	
55°	1055' 321.56	0.94							slightly grainy	
		1.47							TOP OF BOX 100	
35°	1064' 324.31	1.00							TOP OF BOX 101	
		0.12		325.16	326.02	0.86			-	
									Mudstone - medium grey, sandy, laminations	



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

P-141A(10)

SHEET NO.: 36

HOLE NO.: GDR-DDH-80-19 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JES CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
	1067' / 325.22	0.74							- few coal inclusions	
		0.44		362.02	332.12	6.10			Mudstone - medium grey TOP OF BOX 102	
		0.52							-	
	1070' / 316.14	2.04							- slightly carbonaceous; few calcite TOP OF BOX 103	
		1.08							-	
	1080' / 329.18	1.46							- TOP OF BOX 104	
35°		0.56							-	
	1089' / 331.32	1.85		332.12	333.97	1.85			Mudstone - calcite vein at 1090' TOP OF BOX 105	
60°		0.87		333.97	339.55	5.58			Mudstone - medium grey	

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

P-141A(10)

SHEET NO.: 37

HOLE NO.: GDR-DDH-80-19 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	1097' / 334.37	1.83								- slightly granular TOP OF BOX 106
	1103.5' / 336.35	0.35								-
45°	1114' / 339.55	2.53								Mudstone -  END OF HOLE

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12-80)

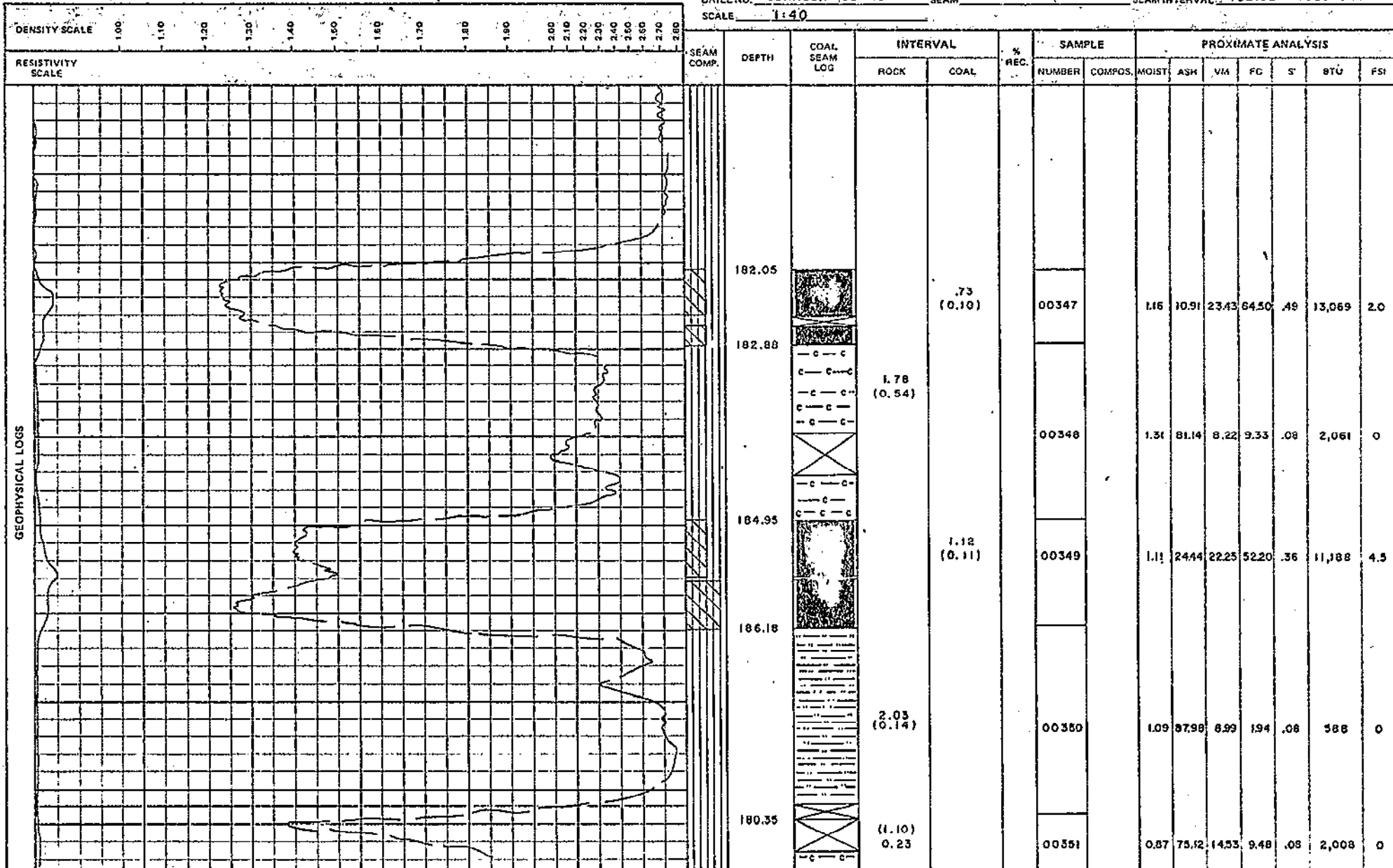
DENSITY

RESISTIVITY

DRILL NO. GDR-DDH-80-19 SEAM

APPARENT THICKNESS  
182.05 - 188.69 m

SCALE 1:40

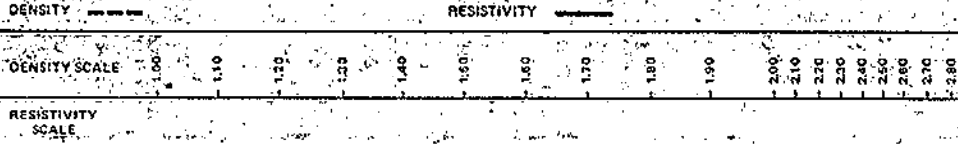


GEOPHYSICAL LOGS

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

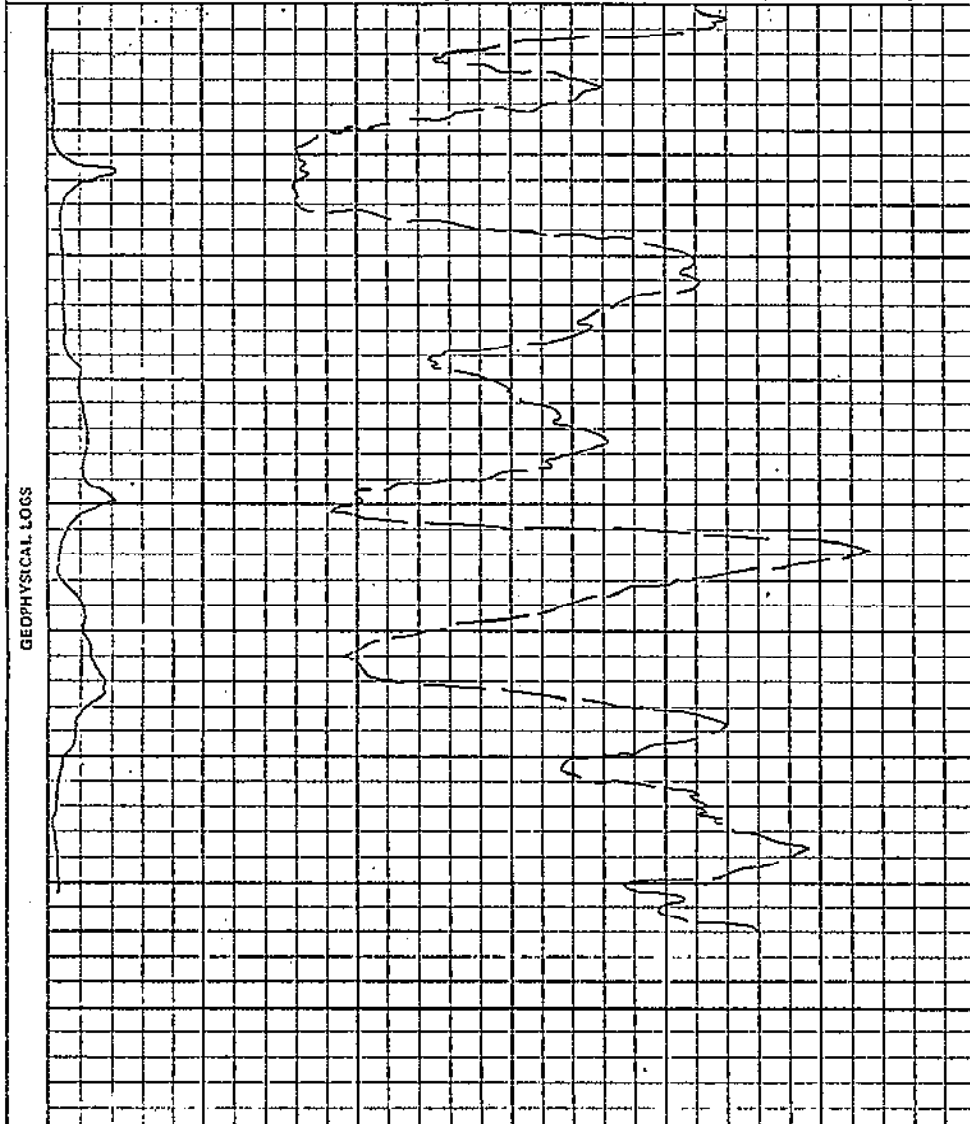
#-257 (12-85)



DRILL NO. GDR - ODH - 80 - 19  
SCALE 1:40

SEAM

APPARENT THICKNESS  
SEAM INTERVAL 188.69 - 196.52 m



GEOPHYSICAL LOGS

SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS						
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	FS
	189.68	c-c-c		0.40 (0.54)		00352		1.24	20.91	27.60	50.25	.29	11,690	6.5
	190.62	c-c-c	0.28 (0.28)			00353		1.37	60.57	15.04	23.02	.15	5,441	1.0
	191.15			0.20		00354		1.20	25.36	26.38	47.06	.25	11,144	4.5
	191.35		0.07	0.20		00355		1.15	56.12	14.00	28.67	.14	6,214	1.0
	191.42			0.20 (0.24)		00356		1.06	21.01	24.93	53.00	.27	11,858	4.5
	191.86		0.77			00357		0.89	70.16	17.07	11.88	.09	3,419	.5
	192.63			0.14 (0.22)		00358		0.90	24.70	29.16	45.24	.30	11,439	7.5
	192.99	c-c-c	0.38 (0.35)			00359		0.91	70.27	16.95	11.87	.10	2,885	.5
	193.72													
	194.40			(0.58) 0.10		00360		1.10	20.45	29.64	48.81	.31	11,897	8.0
	194.68	c-c-c	0.28			00361		0.86	43.90	29.68	25.56	.17	6,277	4.0
	195.25			(0.28) 0.15		00362		1.09	40.02	23.01	35.88	.21	8,622	4.0
	196.52			0.98 (0.29)		00363		1.12	67.94	13.00	17.94	.11	4,198	.5

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC. / COAL DIVISION

P-267 (12-80)

DENSITY RESISTIVITY

DRILL NO. DDH - G - 80 - 19  
SCALE 1:40

SEAM

SEAM INTERVAL 196.52 - 204.89 m  
APPARENT THICKNESS

DENSITY SCALE	RESISTIVITY SCALE	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS									
					ROCK	COAL		NUMBER	COMPOS.	MOIST.	ASH	VM	FC	S	BTU	FSI			
			198.60			1.99 (0.09)		00364		0.67	7.82	34.33	57.18	.23	13,890	6.5			
			199.11		0.51			00365		0.77	63.01	16.54	19.68	.07	4,211	0.5			
			200.40			0.73 (0.56)		00366		0.80	596	30.19	63.05	.19	14,014	7.5			
			201.02			0.19 (0.45)		00367		0.71	19.11	35.54	44.64	.14	10,597	7.5			
			204.89			3.73 (0.14)		00368		0.80	8.77	25.93	64.50	.19	13,646	2.5			

GEOPHYSICAL LOGS

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12-80)

DENSITY

RESISTIVITY

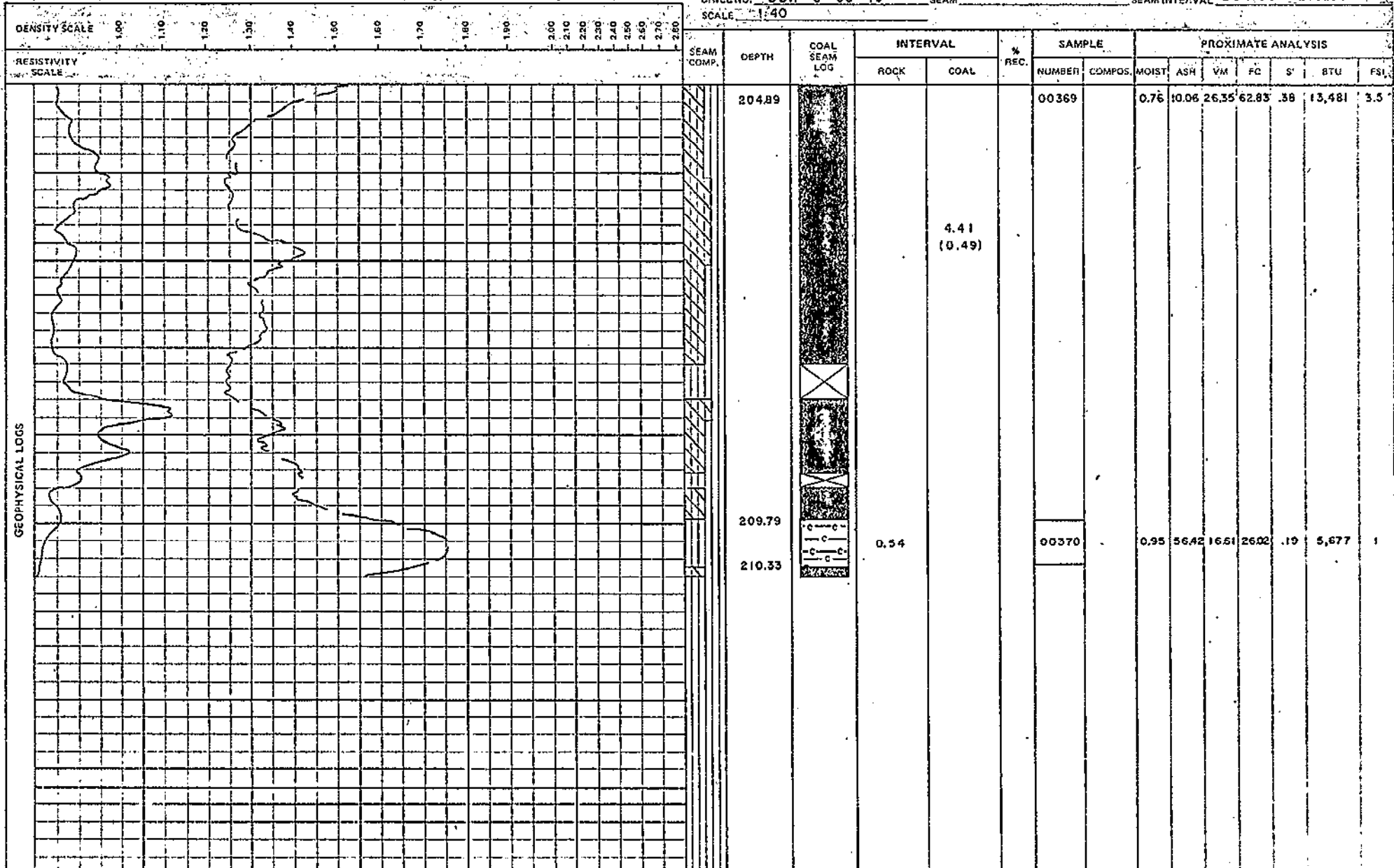
DRILL NO. 00H-G-90-19

SEAM

APPARENT THICKNESS  
204.89 - 210.50m

SCALE 1:40

SEAM INTERVAL



GEOPHYSICAL LOGS



COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

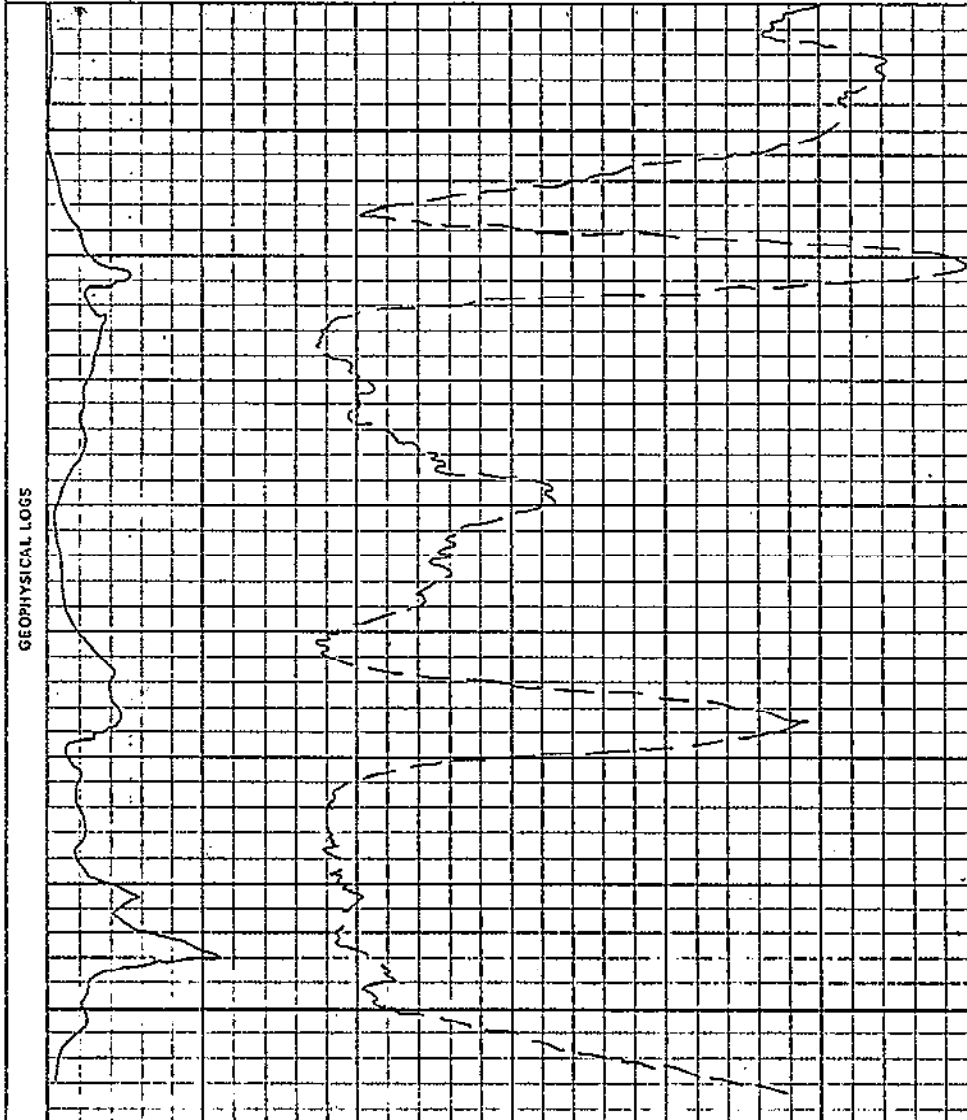
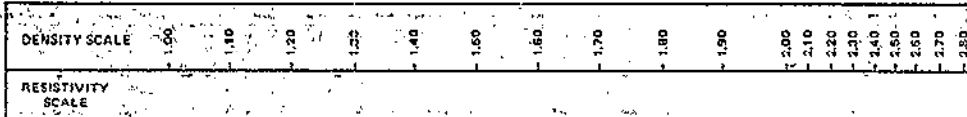
P-267 (12-80)

DENSITY RESISTIVITY

DRILL NO. **DDH - 80 - 19**  
SCALE **1:40**

SEAM

APPARENT THICKNESS  
SEAM INTERVAL **219.21 - 228.10 m**



GEOPHYSICAL LOGS

SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS									
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	Fst			
			(0.59) 0.60														
	220.40			0.70		00381		1.69	62.99	8.10	7.22	.06	1,657	0			
	221.10					00382		1.21	31.18	19.70	47.91	.23	9,928	1.0			
	221.48		0.38			00383		0.82	46.94	41.54	10.70	.06	4,097	0			
						00384		1.37	6.87	27.07	64.69	.30	14,021	5.0			
	224.60																
	225.20		0.60			00385		0.65	49.57	40.93	8.85	.06	3,407	0			
						00386		1.40	7.00	27.43	64.17	.30	13,922	7.0			
	227.58																
	228.10		0.52			00387		1.49	61.49	13.67	23.35	.16	5,183	1.0			



COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-207 (12-00)

DENSITY RESISTIVITY

DRILL NO. GDR - DDH - 80 - 19 SEAM  
SCALE 1:40

APPARENT THICKNESS  
SEAM INTERVAL 228.10 - 236.80

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	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS						
					ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	FSI
			228.10			0.24 (0.31)		00388		1.17	16.69	24.85	57.29	.37	12,544	5.0
			228.65		0.04			00389		1.12	39.78	20.60	38.50	.29	9,109	3.5
			228.94		0.25	(0.96) 0.30		00390		1.23	18.44	26.37	53.96	.41	12,209	6.5
			230.20													
					2.36 (0.19)			00391		0.63	95.73	2.89	.75	.02	133	0
			232.75			0.84 (0.40)		00392		1.13	24.93	21.08	52.86	.35	11,210	1.5
					0.12											
			234.11			1.29 (1.90)		00393		1.42	80.66	14.02	23.90	.18	5,291	1.0
			236.80													

GEOPHYSICAL LOGS

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

F-267 (12-80)

DENSITY RESISTIVITY

DRILL NO. DDH-80-19 SEAM  
SCALE 1:40

APPARENT THICKNESS  
SEAM INTERVAL 236.80 - 244.93 m

DENSITY SCALE	RESISTIVITY SCALE	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS						
					ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VIA	FC	S	STU	%
			237.30			0.60		00394		1.16	34.86	22.94	41.04	.29	9.681	5.5
			237.90		0.68			00395		1.13	58.30	15.97	24.60	.24	5.790	1.0
			238.58			0.50		00396		1.19	36.41	22.05	40.35	.25	9.273	6.5
			239.08		(0.17)			00397		1.18	52.08	16.70	30.04	.18	6.821	2.0
			239.48		0.23											
						0.51										
						(1.14)		00398		1.07	36.84	22.45	39.64	.28	9.325	5.0
			241.13		0.33			00399		1.17	50.07	16.90	31.86	.22	7.118	1.0
			241.46													
						1.76		00400		1.01	10.70	26.23	62.06	.45	13.497	4.0
			242.92													
						1.74										
					0.06	(0.21)		00401		0.03	90.55	6.11	2.51	.04	6.76	0
			244.93													

GEOPHYSICAL LOGS

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-287 (12-80)

DENSITY

RESISTIVITY

DRILL NO. **DCH-80-19**  
SCALE **1:40**

SEAM

APPARENT THICKNESS  
SEAM INTERVAL **244.93 - 253.45 m**

RESISTIVITY SCALE	DENSITY SCALE	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS						
					ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	BTU
			244.93			1.37 (4.19)		00402		1.11	15.90	25.60	57.39	22	12,665	6.0
			250.49 250.63		0.14											
						1.15 (1.57)		00404		1.11	13.84	25.89	59.16	20	12,648	2.0
			253.35													

GEOPHYSICAL LOGS

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (11-80)

DENSITY

RESISTIVITY

DRILL NO. GDR-0DH-90-19  
SCALE 1:40

SEAM

APPARENT THICKNESS  
SEAM INTERVAL 253.45 - 262.46 m

DENSITY SCALE	RESISTIVITY SCALE	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS								
					ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	FSI		
					(0.47)													
			254.00		0.18	(0.40)												
			254.90			0.50		00406		0.86	10.94	33.32	54.88	0.38	13,486	8.5		
			255.25			0.35		00407		0.68	75.28	19.57	4.47	0.06	836	0		
			255.40			0.15		00408		1.03	27.32	26.91	44.74	0.33	10,691	8.5		
						0.10												
			256.70			0.65		00409		1.29	69.16	13.86	15.63	0.13	4,608	1		
					(0.55)													
			257.18			0.34		00410		0.87	18.92	32.01	48.20	0.20	12,355	7.5		
			257.50			(0.14)		00411		0.93	68.01	14.98	16.08	0.05	3,280	0		
						2.43												
					(2.53)													
								00412		1.12	6.18	33.06	59.64	0.19	14,134	2.5		
			262.46															

GEOPHYSICAL LOGS

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-257 (12.50)

DENSITY

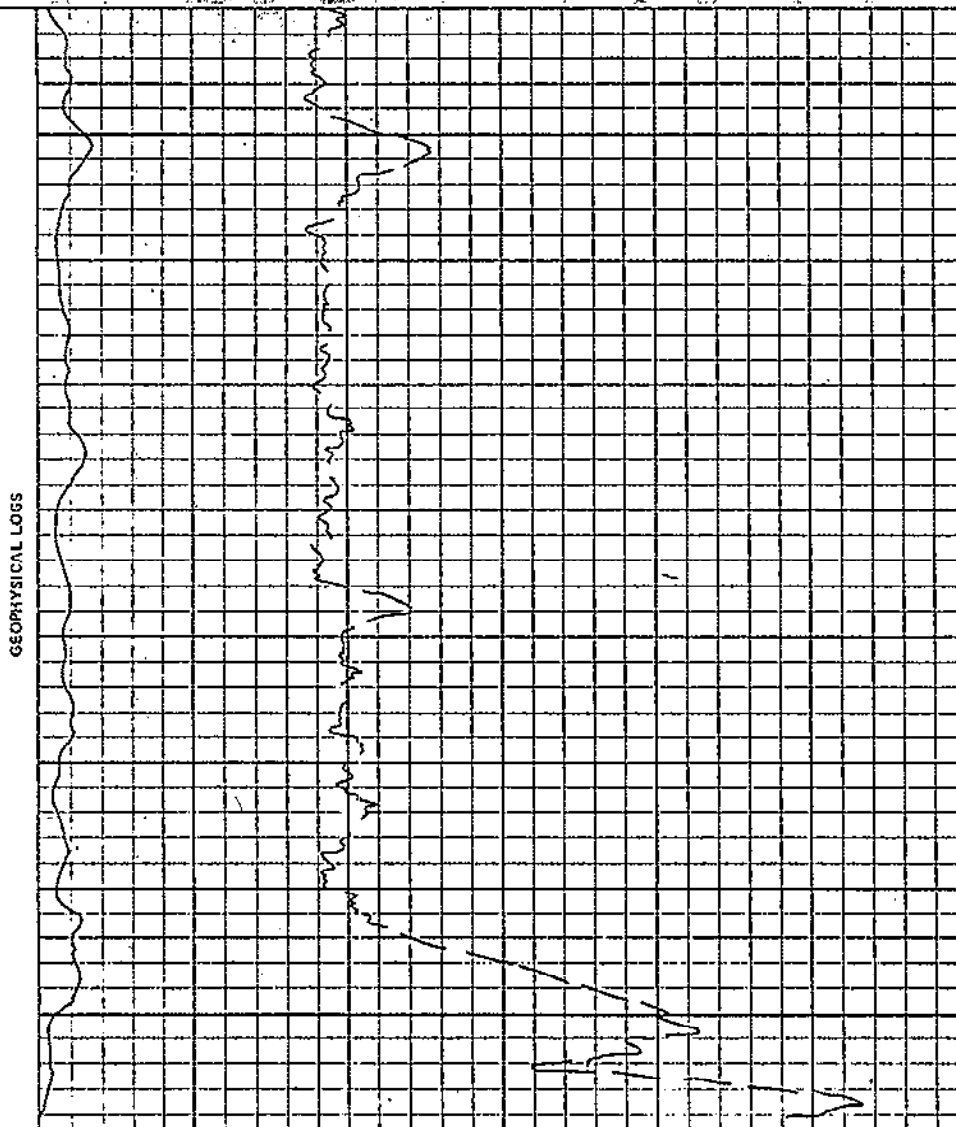
RESISTIVITY

DRILL NO. GDR-DDH-80-19 SEAM

APPARENT THICKNESS  
262.46 - 274.01 m

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



GEOPHYSICAL LOGS

SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		m REC.	SAMPLE		PROXIMATE ANALYSIS									
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	FSI			
	262.46	[Pattern]		2.03 (2.42)													
	266.91 267.06	[Pattern]	0.15	(1.71) 1.01		00412		1.12	6.18	33.06	59.64	19	14,134	2.5			
		[Pattern]				00413		0.89	31.82	26.90	40.39	15	9,305	6.5			
		[Pattern]				00414		1.10	16.45	25.04	56.61	23	12,533	4.0			
	269.78	[Pattern]		(2.15) 4.00		00415		1.34	03.19	0.12	7.35	.09	1,577	0			

COAL SEAM DATA SHEET

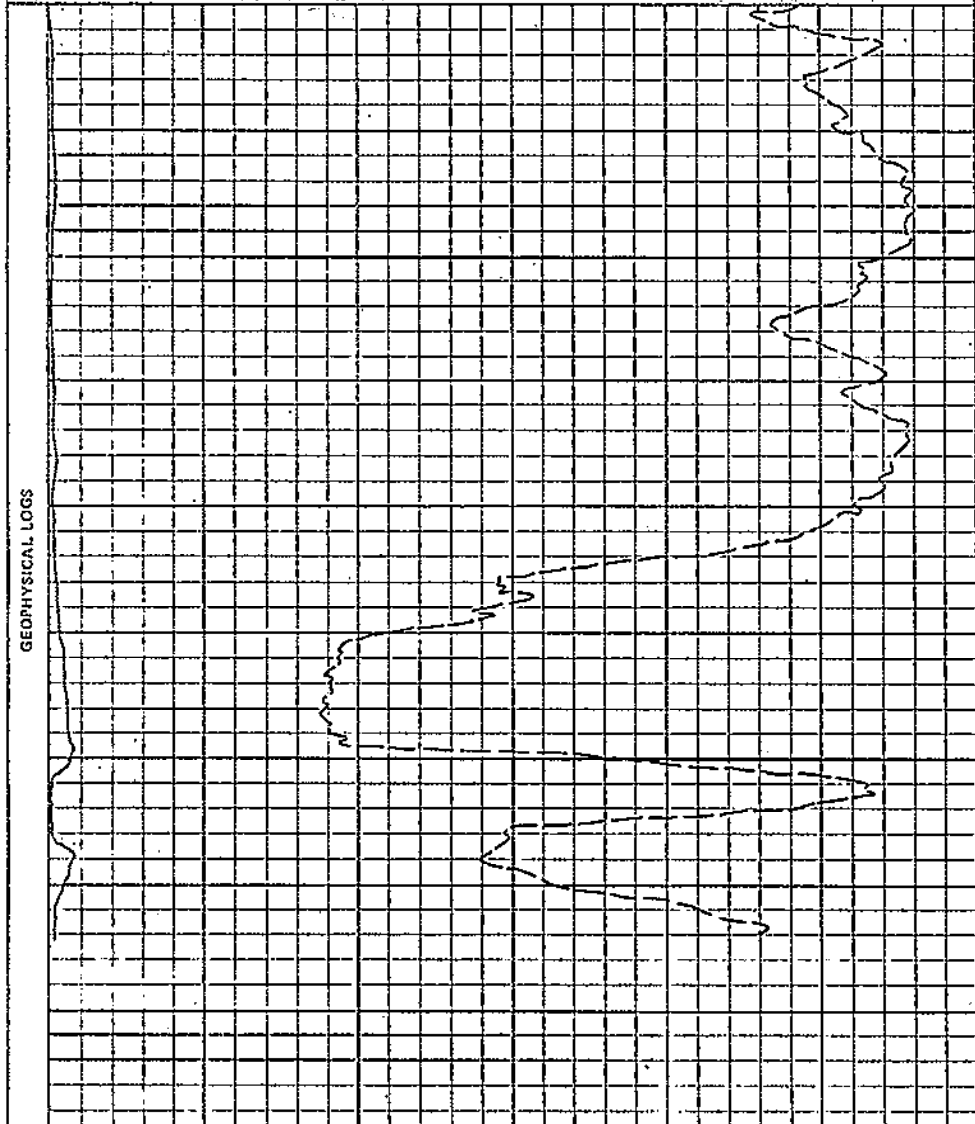
GULF CANADA RESOURCES INC.  
COAL DIVISION

P-257 (12.80)

DENSITY RESISTIVITY

DRILL NO. **DDH-80-19** SEAM \_\_\_\_\_ APPARENT THICKNESS  
SCALE **1:40** SEAM INTERVAL **271.01 - 276.36 m**

DENSITY SCALE	RESISTIVITY SCALE	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS						
					ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VIA	FC	S	BTU	FSIA



GEOPHYSICAL LOGS

			275.93															
			277.08		0.57 (0.94)	0.30 0.85		00416		1.37	15.13	21.87	61.63	.32	12,610			
								00417		1.59	77.87	8.88	11.66	.16	2,482	0		

COAL SEAM DATA SHEET

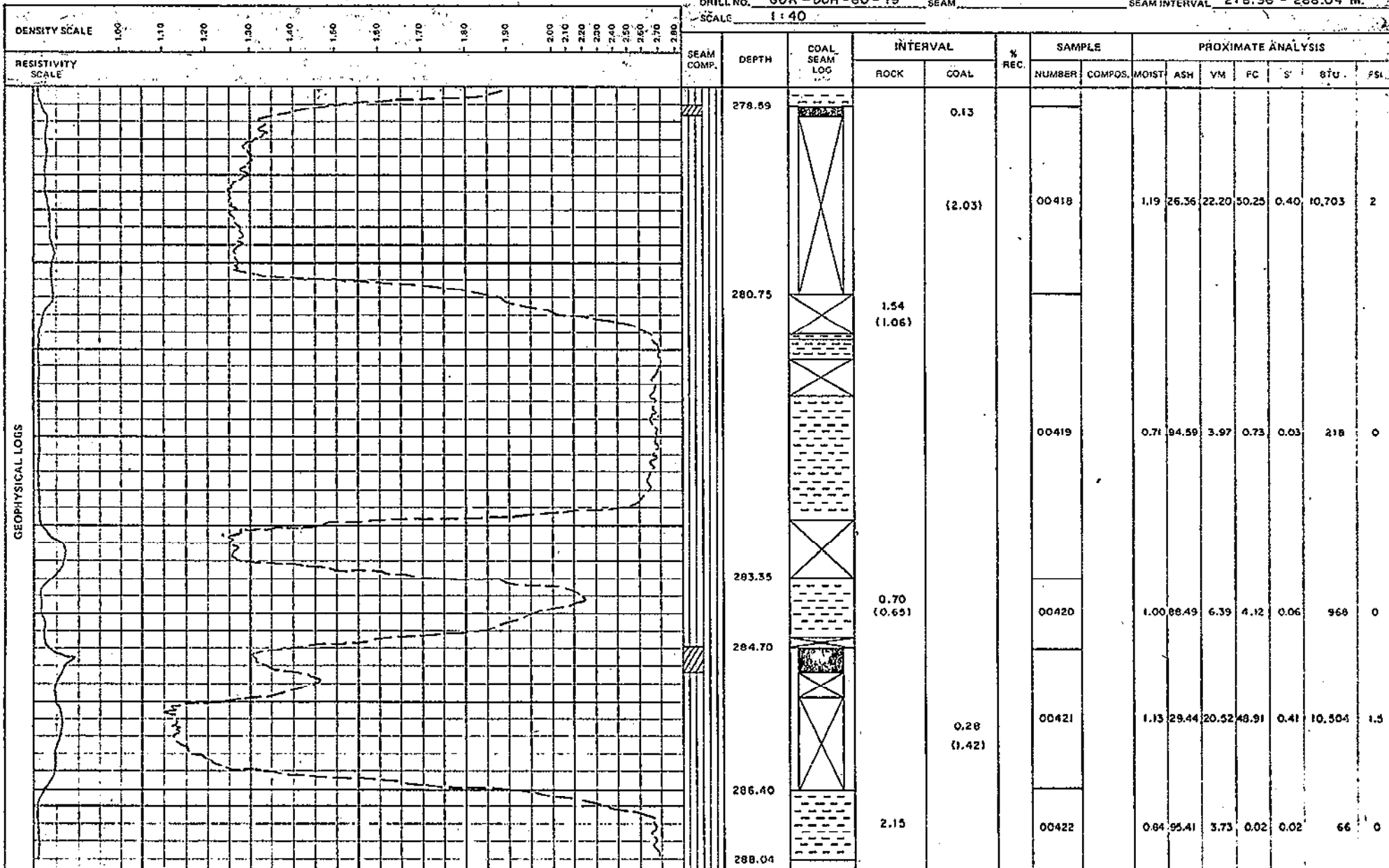
GULF CANADA RESOURCES INC.  
COAL DIVISION

P-287 (12-80)

DENSITY --- RESISTIVITY ---

DRILL NO. GDR-DDH-80-19 SEAM  
SCALE 1:40

APPARENT THICKNESS  
278.36 - 288.04 m.



GEOPHYSICAL LOGS

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12-80)

DENSITY

RESISTIVITY

DRILL NO. DDH - 80 - 19  
SCALE 1:40

SEAM

APPARENT THICKNESS  
SEAM INTERVAL 286.93 - 288.55 m

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	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS								
					ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	FSM		
			288.55					00422										

GEOPHYSICAL LOGS



DIRECTIONAL SURVEY

ROKE OIL ENTERPRISES LIMITED

COMPANY: GULF CANADA RESOURCES INC.      GRID: \_\_\_\_\_      DATE SURVEYED: 30 AUG. 1980  
DRILL HOLE: G - 80 - 19      LATITUDE: \_\_\_\_\_      SURVEY BY: SIM  
LOCATION: \_\_\_\_\_      DEPARTURE: \_\_\_\_\_      WITNESSED BY: ZSCHACH  
FIELD: GOODRICH      ELEVATION: \_\_\_\_\_      CALCULATIONS BY: \_\_\_\_\_  
MAGNETIC DECLINATION: \_\_\_\_\_      CORRECTION OF: \_\_\_\_\_      FOR: \_\_\_\_\_      GRID: \_\_\_\_\_

Number	Cable Depth	Slant Angle	Slant Angle Bearing	Number	Cable Depth	Slant Angle	Slant Angle Bearing	Number	Cable Depth	Slant Angle	Slant Angle Bearing
0	0	0	N - 19 - W	11	165	1°	-	22	330	2°	S - 33 - E
1	15	0	N - 26 - W	12	180	-	-	23	335	2°	S - 23 - E
2	30	0	N - 75 - W	13	195	-	-	24			
3	45	0	N - 75 - E	14	210	-	-	25			
4	60	0	N - 10 - E	15	225	-	-	26			
5	75	1	N - 12 - E	16	240	-	-	27			
6	90	1	N - 25 - E	17	255	-	-	28			
7	105	1	N - 15 - W	18	270	-	-	29			
8	120	-	-	19	285	2°	S - 16 - E	30			
9	135	-	-	20	300	2°	S - 18 - E	31			
10	150	1°	-	21	315	2°	S - 30 - E	32			

SOME SHOTS WERE IMPOSSIBLE TO READ

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

P-141A(10-B)

SHEET NO.: 1

HOLE NO.: GDR-DDH-80-21 ELEV. COLLAR: 1318.64m TOTAL DEPTH: 273.1m DATE BEGUN: \_\_\_\_\_  
 PROJECT: Goodrich BEARING: HQ CORE SIZE: \_\_\_\_\_ DATE COMPL.: September 2/80  
 CO. ORD.: 1413 496.70N 646.39E HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JP & LK & A.P. CONTRACTOR: Coates

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
										TOP OF BOX 1
				0	3.54					Casing - no core recovered
50°		0.73		3.54	10.04	6.50				Mudstone - dark to medium grey, silty laminations, well weathered at fractures, coaly laminations
	<u>14'</u> <u>4.27</u>									
		1.44								Mudstone - frequent thin calcite veining
50°		1.65								TOP OF BOX 2
	<u>24'</u> <u>7.32</u>									Mudstone - medium grey, silt laminations, thin calcite veining
		0.88								
		1.80								TOP OF BOX 3
	<u>34'</u> <u>10.36</u>									Mudstone - medium grey, laminated, coaly laminations 0.30m above marker

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

P-141A(10-80)

SHEET NO.: 10

HOLE NO.: GDR-DDH-80-21 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: J.P. & L.K. CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
50 <sup>0</sup>			0.14	10.04	10.18				Core loss - rock	
		0.52		10.18	11.15	0.97			Mudstone (as above)	
									TOP OF BOX 4	
		0.25 0.20							Mudstone - medium to dark grey - frequent thin bright coal bands	
		0.10			11.15	11.25	0.10		Coal - dull bright	
			0.25		11.25	11.50			Core loss - coal	
		1.78			11.50	13.28	1.78		Mudstone - medium grey, well weathered at fracture above marker	
	<u>45'</u> 13.72									
			0.42	13.28	13.70				Core loss - rock	

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

P-141A(10-8)

SHEET NO.: 2

HOLE NO.: GDR-DDH-80-21 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK/JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
50°		0.80	0.24	13.70	14.50	0.80			TOP OF BOX 5	
		0.06		14.50	14.74				Mudstone - dark grey and coaly laminations	
		1.70		14.74	14.80	0.06			Core loss coal Coal - dull and bright, dull banded	
				14.80	21.33	6.53			Siltstone - light to medium grey, argillaceous laminations, minor sandy cross-beds.	
50°		0.22							TOP OF BOX 6	
	55' 16.76	2.36							-	
		0.84							TOP OF BOX 7	
	66' 20.12	1.41							Siltstone - fine sandy intervals with cross-beds.	
50°		0.32		21.33	21.65	0.32			Mudstone - dark grey with coaly laminations for last .27m of the box	
			0.40	21.65	22.05				Core loss - rock	
60°		1.10		22.05	23.15	1.10			TOP OF BOX 8	
		0.09		23.15	23.24	0.28	100		Mudstone - as above	
	76' 23.16	0.19		23.24	23.43				Coal - dull	
									Coal - dull	

004523

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

P-141A(10)

SHEET NO.: 3

HOLE NO.: GDR-DDH-80-21 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J.P. CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION	
				FROM	TO	APPAR. THK.	TRUE THK.				
50°		0.31		23.43	23.74	0.31		57.41	B↑ 00453	Mudstone - dark grey, few thin coaly bands	
			0.23	23.74	23.97	0.23			↓	Core loss - rock	
			0.14	23.97	24.11	0.14				Core loss - coal	
			0.05	24.11	24.16	0.14		70.83	C	Coal - boney with ash bands	
			0.04	24.16	24.20					- bright	
			0.05	24.20	24.25					- dull	
			0.09	24.25	24.34	0.09			00454	Core loss - coal	
			0.08	24.34	24.42	0.11				Coal - dull and bright	
			0.03	24.42	24.45					- dull	
			0.06	24.45	24.51	0.06		100	00455D	Coal - stoney, with thin bright coal & ash bands	
50°	86' 26.21	0.64		24.51	25.15	0.64				Mudstone - dark grey, few laminations, few calcite veins, occasional coal stringers	
										<u>TOP OF BOX 9</u>	
			1.08	25.15	26.23	1.08				Siltstone - sandy and argillaceous laminations	
			1.38	26.23	27.98	1.75				Mudstone - medium grey, very silty	
										<u>TOP OF BOX 10</u>	
			0.24							-	
			0.13							Mudstone - dark grey, carbonaceous, coaly laminations and stringers	
				0.17	27.98	28.15	0.17			↑	Core loss - coal
			0.21	28.15	28.36	2.73		94.14		Coal - dull	
			0.29	28.36	28.65				E	- dull banded	
	0.13	28.65	28.78					- dull			
	0.11	28.78	28.89					- dull banded			
	0.10	28.89	28.99					- dull			

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

P-141A(10-8

SHEET NO.: 4

HOLE NO.: GDR-DDH-80-21 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J.P. CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	96 29.26	0.38		28.99	29.37				Coal - dull banded	
		0.18		29.37	29.55			E  00456	Coal - dull banded	
		0.12		29.55	29.67				- bright	
		0.04		29.67	29.71				- bright	
		0.08		29.71	29.79				- bright banded	
		0.06		29.79	29.85				- dull & bright	
		0.04		29.85	29.89				- dull banded	
		0.22		29.89	30.11				- sheared (probably dull banded)	
		0.20		30.11	30.31				- sheared (probably dull & bright)	
									TOP OF BOX 11	
		0.18		30.31	30.49				- sheared (probably dull banded)	
		0.29		30.49	30.78			- dull banded - sheared		
		0.10		30.78	30.88			- dull sheared		
		0.16		30.88	31.04	0.16	100	00457F	Coal and bands - sheared coal, possible bright, interbedded with coaly pellet mudstone or lcm bands, 50:50 but more coal bands at base	
								G		
		0.14		31.04	31.18	0.51	52.04	00458	Coal - dull sheared	
		0.06		31.18	31.24				- dull banded, sheared	
		0.06		31.24	31.30				- sheared (probably dull banded)	
		0.15		31.30	31.45				- dull sheared	
		0.10		31.45	31.55				- sheared (probably dull banded)	
			0.47	31.55	32.02	0.47			Core loss - coal	
		0.10		32.02	32.12	0.10	58.82	H	Carbonaceous Claystone - dark grey, highly sheared, coal laminations, broken	
	106 32.31		0.07	32.12	32.19	0.07		00459	Core loss - rock	
			0.21	32.19	32.40	0.21			I	Core loss - coal

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

P-141A(10-80)

SHEET NO.: 5

HOLE NO.: GDR-DDH-80-21 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP & L.K. CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
45°		0.07		32.40	32.47	0.29		58.0	I	Coal - dull
		0.10		32.47	32.57				J * 00460	- dull, banded
		0.05		32.57	32.62					- dull
		0.04		32.62	32.66					- boney
		0.15		32.66	32.81	0.15	100	00461		Carbonaceous claystone - dark grey, slickensided, listric surfaces, coal laminae
		0.16		32.81	32.97	0.42	100	K	Coal - dull banded, sheared	
		0.19		32.97	33.16				- sheared (probably dull & bright)	
		0.06		33.16	33.22				- sheared, highly broken have some sheared carbonaceous claystone mixed in (probably dull banded).	
		0.02		33.22	33.24	0.02		00462	Carbonaceous claystone - dark grey, sheared.	
		0.08		33.24	33.32	0.09			Coal - bright with thin ash bands and boney bands	
		0.01		33.32	33.33				- boney	
		0.15		33.33	33.48	0.15			Carbonaceous claystone - dark grey TOP OF BOX 12	
		0.14		33.48	33.62	0.14			Mudstone - medium dark grey, slickensides	
		0.03		33.62	33.65	0.03			Carbonaceous mudstone - broken mixed with some coal powder	
				0.27	33.65	33.92			Core loss - rock	
			0.15		33.92	34.07	0.15		Mudstone - dark grey, carbonaceous	
			0.05		34.07	34.12	0.05		Carbonaceous mudstone - broken, mixed with some coal powder.	
				0.26	34.12	34.38			Core loss - rock	

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

P-141A(10)

SHEET NO.: 6

HOLE NO.: GDR-DDH-80-21 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
50 <sup>o</sup>		0.12		34.38	34.50	0.12			Mudstone - broken, mixed with some coal powder.	
		0.06		34.50	34.56	0.06			Carbonaceous mudstone - broken mixed with some coal powder.	
			0.26	34.56	34.82				Core loss - rock	
		0.08		34.82	34.90	0.08			Mudstone - as above	
		0.10		34.90	35.00	0.10			Carbonaceous mudstone - broken, mixed with a small amount of coal powder.	
			0.28	35.00	35.28				Core loss - coal	
		0.12		35.28	37.78	2.50			Mudstone - as above	
		<u>116</u> 35.36								
		1.50							Mudstone - medium grey, a few 0.01m coal laminations <u>TOP OF BOX 13</u>	
		0.88							Mudstone - medium grey, silt laminations, coaly at base.	
			0.07		37.78	37.85			Core loss - coal	
		0.13			37.85	37.98	0.29		Coal - dull banded	
		0.13			37.98	38.11			- dull & bright	
		0.03			38.11	38.14			- bright banded	
	0.05			38.14	38.19	0.05		Mudstone - medium grey		
	<u>126</u> 38.41		0.25	38.19	38.44			Core loss - rock		



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

P-141A(10-80)

SHEET NO.: 6a

HOLE NO.: GDR-DDH-80-21 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
55°		0.23		38.44	39.86	1.42			Mudstone - medium grey	
		0.20							Mudstone - dark grey, carbonaceous, thin coal stringers	
		0.45							Mudstone - light-medium grey, abundant silty laminations small-scale cross-bedding.	
		0.18							Mudstone - dark grey, carbonaceous, thin coal stringers	
		0.36							TOP OF BOX 14	
		1.64			39.86	47.53	7.67			Mudstone - dark grey to black, numerous coaly laminations
	136 41.45								Siltstone - sandy and argillaceous laminae; minor cross- bedding	
45°		0.70								

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

P-141A(10-80)

SHEET NO.: 7

HOLE NO.: GDR-DDH-80-21 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		2.31							TOP OF BOX 15	
	146 44.50	0.16							Siltstone - sandy and argillaceous laminae; minor cross-bedding.	
		2.76							- TOP OF BOX 16	
		0.10							Siltstone - with numerous sandy laminae	
55°	156 47.55	2.66		47.53	50.19	2.66			TOP OF BOX 17 - Mudstone /siltstone - interbeds and interlaminations of silt and mud. Plant remains.	
45°		0.31		50.19	52.70	2.51			TOP OF BOX 18 Siltstone/mudstone - interbeds with minor sandy intervals with low-angle cross-bedding indicating "tops-up".	
	166 50.60	2.20							- TOP OF BOX 19	
45°		0.63		52.70	53.47	0.77			Mudstone - medium to dark grey with coaly laminations and inclusions.	
		0.14	0.20	53.47	53.67				- Core loss - rock	

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

F-141A(10-80)

SHEET NO.: 8

HOLE NO.: GDR-DDH-80-21 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK/JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
			0.17	53.67	53.84					Core loss - coal
		0.03		53.84	53.87	0.05				Coal - dull banded, broken
	176 53.65									
		0.02		53.87	53.89					Coal - bright
		0.44		53.89	54.33	0.44				Mudstone - medium to dark grey with coaly laminations and inclusions
		0.04		54.33	54.37	0.04				Carbonaceous mudstone - dark grey, coaly.
		0.08		54.37	54.45	0.76	100			Coal - dull banded, thin calcite veining at top.
		0.15		54.45	54.60			L		- dull and bright
		0.17		54.60	54.77					- dull banded
		0.10		54.77	54.87					- dull and bright
		0.11		54.87	54.98					- bright banded
		0.03		54.98	55.01					- dull banded
		0.12		55.01	55.13					- bright banded with thin ash band
		0.05		55.13	55.20	0.07	61.90	M		Carbonaceous mudstone - dark grey, coaly.
		0.02								Carbonaceous mudstone - pieces. Completely intermixed with coal below
			0.08	55.20	55.28	0.08				Core loss - coal
		0.06		55.28	55.34	0.06				Coal - powdered, possibly bright. Intermixed with rock above.
		0.34		55.34	55.68	0.34				Carbonaceous mudstone - dark grey with occasional coal laminae and stringers, coal powder and pieces 0.07m from base.
										TOP OF BOX 20
		0.38		55.68	56.06	0.38				Mudstone - carbonaceous with numerous coaly laminae (up to 0.01m)

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

P-141A(10-80)

SHEET NO.: 9

HOLE NO.: GDR-DDH-80-21 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J.P. CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
50°		0.05	0.12	56.06	56.18	0.12			Core loss - rock	
		0.05		56.18	56.23	0.05			Carbonaceous mudstone - powder & pieces. Mixed with coal below.	
		0.04		56.23	56.27	0.04			Coal - powder (possibly dull & bright) Mixed with rock above.	
		0.12		56.27	56.52	0.25			Carbonaceous mudstone - dark grey, coal stringers	
		0.08							Carbonaceous mudstone - powder, some coal powder	
		0.05							Carbonaceous mudstone - powder & pieces. Mixed with coal below.	
		0.05			56.52	56.57	0.05			Coal - powder (possibly dull banded). Mixed with rock above.
				0.05	56.57	56.62	0.05			Core loss - coal
			0.04		56.62	56.66	0.04			Coal - stoney
		186 56.69	0.44		56.66	57.10	0.44			Carbonaceous mudstone - dark grey, coal bands and laminations, (0.02m) thick coal band near top and base.
				0.34	57.10	57.44	0.34			Core loss - coal
			0.54		57.44	57.98	0.96			Mudstone - dark grey, slightly carbonaceous, coal laminations, regular bedding.
			0.42		57.98	58.40				Mudstone - carbonaceous, partially broken, listric surfaces and slickensides, tectonised, much calcite veining, shearing surfaces, sub-parallel to core axis (possible fault).
			0.05		58.40	58.45	0.37	82.22		Coal - dull
			0.07		58.45	58.52				- dull & bright
		0.05		58.52	58.57				- dull	
		0.05		58.57	58.62				- dull banded	

00465-N

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

P-141A(10-80)

SHEET NO.: 9a

HOLE NO.: GDR-DDH-80-21 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: J.P. CONTRACTOR: \_\_\_\_\_

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
		0.05		58.62	58.67			↑ N 00465 ↓	Coal - dull banded - dull & bright, powdered, broken	
		0.10		58.67	58.77					

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

P-141A(10-8C)

SHEET NO.: 10

WELL NO.: GDR-DDH-80-21      ELEV. COLLAR: \_\_\_\_\_      TOTAL DEPTH: \_\_\_\_\_      DATE BEGUN: \_\_\_\_\_  
 SUBJECT: \_\_\_\_\_      BEARING: \_\_\_\_\_      CORE SIZE: \_\_\_\_\_      DATE COMPLETED: \_\_\_\_\_  
 HOLE NO.: \_\_\_\_\_      HOLE ANGLE: \_\_\_\_\_      LOGGED BY: L.K.      CONTRACTOR: \_\_\_\_\_

BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
			FROM	TO	APPAR. THK.	TRUE THK.			
	0.02	0.08	58.77 58.85	58.85 58.87	0.08 0.02		↓ N	Core loss - coal Carbonaceous mudstone - coaly, broken TOP OF BOX 21	
	0.14	0.07	58.87 58.94	58.94 62.83	0.07 3.89			Core loss - rock Mudstone - medium grey, well weathered	
52°	2.14							Mudstone - dark grey, few thin coal inclusions	
	0.36							Mudstone - light grey, gradational to siltstone at base, silt laminations TOP OF BOX 22	
	0.60							Mudstone - dark grey, thin coal inclusions.	
67°	1.43		62.83	64.26	1.43			Siltstone - carbonaceous plant remains, fine sandy crossbeds. TOP OF BOX 23	
	1.21		64.26	66.00	1.74			Sandstone - gradational from siltstone at top, argillaceous laminations and coal stringers	
	0.53							Sandstone - rip up clasts from mudstone below, sharp contact with mudstone	
	0.45		66.00	66.45	0.45			Mudstone - medium to dark grey, coaly laminations	
	0.14	0.14	66.45	66.59	0.14		↑ O	Core loss - coal	

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

P-141A(10-80)

SHEET NO.: 11

WELL NO.: GDR-DDH-80-21 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 SUBJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPLETED: \_\_\_\_\_  
 HOLE NO.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
			FROM	TO	APPAR. THK.	TRUE THK.			
	0.22		66.59	66.81	0.49		00466 ↓	Coal - dull banded - dull & bright - bright banded  Core loss - coal  Coaly mudstone - bright coal band near top  Core loss - rock  Core loss - coal  Core loss - rock  Core loss - coal  <p style="text-align: center;">TOP OF BOX 24</p> Mudstone - dark grey, carbonaceous, bottom foot well weathered, lighter grey, thin coal strings, coal powder along base of box in top 30 cm.  Mudstone - light grey, abundant coal fragments  Siltstone - light to medium grey, near base, has a calcite vein 40° to core axis, bioturbation <p style="text-align: center;">TOP OF BOX 25</p> Sandstone - fine grained and silty at top, grading to medium grained through most of section. - argillaceous laminae, carbonaceous plant remains.  <p style="text-align: center;">TOP OF BOX 26</p> Sandstone - light to medium grey, well laminated, large scale cross-bedding, rip up clast in sand present	
	0.10		66.81	66.91					
	0.17		67.08	67.08					
		0.15	67.08	67.23	0.15				
	0.07		67.23	67.30	0.07				
		0.05	67.30	67.35	0.05				
		0.10	67.35	67.45	0.10				
		0.30	67.45	67.75	0.30				
		0.25	67.75	68.00	0.25				
45°	0.69		68.00	69.31	1.31				
	0.62								
	<u>226'</u> 68.89								
	1.25		69.31	70.56	1.25				
65°	1.89		70.56	78.47	7.91				
	0.91								
50°	1.33								

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

P-141A(10-80)

SHEET NO.: 12

HOLE NO.: GDR-DDH-80-21 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
35°	246 74.98	0.36							-	
		0.46							-	
		0.66							-	
		2.30							TOP BOX 27	
	256 78.03	0.05	78.47	79.42	0.95				- Medium grained with argillaceous laminations and rip up clasts. Some coaly laminations, large scale cross-bedding, sharp contact with mudstone and rip-up clast at base.	
		0.45							Mudstone - Medium Gray	
		0.45							- Carbonaceous flecks	
		0.21	79.42	79.63	0.21				TOP BOX 28	
1.95	79.63	83.65	4.02					-		
								Sandstone - as above		
								Mudstone - Dark to medium gray with silty and sandy inter-beds up to (.21m) thick, some rip-up clasts and numerous silty laminations.		





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

P-141A(10-80)

SHEET NO.: 14

HOLE NO.: GDR-DDH-80-21 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.65							Mudstone - medium gray, grading to darker gray TOP OF BOX 33	
		1.21							Mudstone - Dark grey, carbonaceous, coal inclusions	
	306 93.27	1.34							- Light to medium gray, few laminations TOP OF BOX 34	
	311 94.79	0.06	0.11	94.63	94.74	0.11			Core Loss - Rock	
55		1.12		94.74	96.30	1.56			Siltstone - Medium gray, argillaceous and coaly laminations, some sandy cross-beds.	
	316 96.32	0.44							-	
		0.68		96.30	97.62	1.32			Mudstone - Dark grey, carbonaceous, minor coal strings TOP BOX 35	
		0.64							-	
			1.70	97.62	99.32	1.70			Core Loss - Rock	
			0.38	99.32	99.70	0.38			Core Loss - coal	
	326 99.37		0.19	99.70	99.89	0.19			Core Loss - Rock	
		1.42		99.89	101.31	1.42			Mudstone - Carbonaceous, numerous coaly laminations and slickensides, as above.	

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

P-141A(10-80)

SHEET NO.: 15

HOLE NO.: GDR-DDH-80-21 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
		0.65		101.31	103.34	2.03			TOP BOX 36	
	336 102.41	1.38							Siltstone - Well laminated, occasional mudstone layers major calcite vein/fractures at 40 to C.A.	
		0.19		103.34	103.53	0.19			- Coaly laminations, minor small scale cross-bedding	
		0.21		103.53	104.10	0.57			Mudstone - Dark grey, carbonaceous	
		0.36							Siltstone - Medium - Light, well laminated, cross-bedding	
62°		0.99		104.10	105.90	1.80			TOP BOX 37	
	346 105.46	0.81							-	
		0.43		105.90	108.19	2.29			Mudstone - Dark grey, slightly carbonaceous, thin rock inclusions	
		1.75							-	
60°									Siltstone - Medium - light, well laminated	
									TOP BOX 38	
									- cross-beds, few coal stringers, sandy bands	

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

P-141A(10-80)

SHEET NO.: 16

HOLE NO.: GDR-DDH-80-21 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
	356									
	108.51	0.11								
		0.55		108.19	110.50	2.31				Mudstone - Dark grey, carbonaceous
		1.76								TOP BOX 39 - Frequent thin bright coal inclusions
	366									
	111.56	0.80	0.45	110.50	110.95	0.45				Core Loss-Coal
				110.95	111.75	0.80				Mudstone - as above
										TOP BOX 40
		1.04	0.46	111.75	112.21	0.46				Core Loss - Rock
				112.21	113.25	1.04				Mudstone - Dark grey, as above
		0.06	0.33	113.25	113.58	0.33				Core Loss - Coal
				113.58	113.64	0.06				Coal - Powder, dull-bright
		0.94		113.64	114.58	0.94				Mudstone - Medium- Light grey
	376									
	114.61	0.56		114.58	115.14	0.56				Siltstone - Medium grey, silt laminations, cross-bedding
		1.84		115.14	116.98	1.84				TOP BOX 41 Silty Mudstone - laminated
		0.55		116.98	120.68	3.70				Mudstone - Dark grey carbonaceous, thin coal inclusions.

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

P-141A(10-80)

SHEET NO.: 17

HOLE NO.: GDR-DDH-80-21 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	386 117.65	0.33							Mudstone - Medium grey, laminated, one small coal inclusion.	
60°		2.70							TOP BOX 42 - Minor calcite, silt laminations, occasional siltstone layers	
	396 120.70	0.12							-	
63°		1.38		120.68	122.06	1.38			TOP BOX 43 Silty Mudstone - as above	
		0.35		122.06	122.41	0.35			Mudstone - Dark grey, minor thin coal inclusions	
		1.16		122.41	123.57	1.16			Siltstone - Medium gray, silt laminations, calcite veins	
	406 123.75	0.50		123.57	124.34	0.77			TOP BOX 44 Mudstone - Dark Grey, frequent thin coal inclusions, calcite veining	
65°		0.27							- Medium gray non descript	
		0.49		124.34	128.40	4.06			Sandstone-Medium-light grey, fine to medium grained, coal, inclusions, matrix, becoming grainy, weakly bedded	

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

P-141A(10-80)

SHEET NO.: 18

HOLE NO.: GDR-DDH-80-21 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
50°	416 126.80	1.32							Sandstone - Medium grained, argillaceous, mud clasts. cross-bedding, coal inclusions  TOP BOX 45	
		0.41							-	
		1.84							-	
		0.41		128.40	130.67	1.15			Mudstone - Medium gray, laminated  TOP BOX 46 - Dark grey, coal inclusions	
70°	426 129.85	0.74							-	
		1.12	0.43	130.67	131.10	0.43			Core Loss - Coal	
		0.08		131.10	131.18	0.08			Coal - Powder and pieces, dull bright	
		0.32		131.18	131.50	0.32			Carbonaceous Mudstone - as above	
		0.10		131.50	131.60	0.10			Coal - boney with some dull banded layers	
		0.08		131.60	131.68	0.08			Carbonaceous Mudstone - as above	
		0.04		131.68	131.72	0.04			Coal - boney/stoney	
		0.08		131.72	131.80	0.08			Carbonaceous Mudstone - as above	
		0.62		131.80	132.42	0.62			Core Loss - Coal	
		0.02		132.42	132.44	0.02			TOP BOX 47 Coal - Powder (dull & bright) and a few rock pieces	
0.08		132.44	132.52	0.08			Carbonaceous Mudstone - as above			
0.06		132.52	132.58	0.06			Coal - boney			

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

P-141A(10-80)

SHEET NO.: 19

HOLE NO.: GDR-DDH-80-21 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX		INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER				FROM	TO	APPAR. THK.	TRUE THK.			
90°	436		0.18		132.58	134.71	2.13			Mudstone - Medium - dark grey	
	132.89		1.95							-	
			0.34		134.71	137.86	3.15			Siltstone - Irregular carby strings	
			0.68							TOP BOX 48 - Sandy bands, medium grey, calcite vein near centre.	
60°	446		2.13							- Becoming granular	
	135.94		0.44		137.86	141.38	3.52			TOP BOX 49 Sandstone - very fine grained, light grey, muddy laminations, carbonaceous inclusions	
			0.43							- Argillaceous bands in sand	
			0.75							Sandstone - Calcite vein near centre	
65°			1.10							TOP BOX 50 -	
	456		0.80								
	138.99		0.48		141.38	147.87	6.49			Siltstone - Medium to light grey, carby and silty laminations, argillaceous laminae	

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

P-141A(10-80)

SHEET NO.: 20

HOLE NO.: GDR-DDH-80-21 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
62°	466 142.04	1.48							Siltstone - Sandy crossbeds, coaly stringers	
		1.60							TOP BOX 51 - Light- medium gray, silt laminations, cross-beds, calcite veining, carbonaceous sections.	
64°	476 145.09	1.08							-	
		1.85							TOP BOX 52 - Argillaceous Bands	
66°	486 148.13	0.83		147.07	150.00	2.13			Mudstone - Dark grey, fewer laminations slightly carbonaceous	
		1.30							TOP BOX 53 -	
60°		0.95		150.00	151.49	1.49			Siltstone - Light - medium grey, silt lamination\$, cross-beds, argillaceous bands.	
	496 151.18	0.54							- Sandy cross-beds	
		0.57		151.49	157.03	5.54			TOP BOX 54 Mudstone - Silty laminae	



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

P-141A(10-80)

SHEET NO.: 21

HOLE NO.: GDR-DDH-80-21 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
60°	506 154.23	1.53							Mudstone - Dark Grey	
		0.50							Mudstone - Dark grey, carbonaceous, few coal strings	
		0.07							- Dark - medium grey	
		0.69							TOP OF BOX 55	
		0.98							- Carbonaceous, small coal near top	
65°	516 157.23	1.20							- few laminations, few coal inclusions	
		2.70	157.03	159.73	2.70			TOP BOX 56		
									Siltstone - Argillaceous Laminae, light - medium gray, few places sandy mostly silt laminations, earby veins.	
		0.30	159.73	160.75	1.02			TOP BOX 57		
	526 160.33	0.72							Mudstone - Medium grey	
		0.15	0.40	160.75	161.15	0.40			Core Loss - Coal	
				161.15	161.30	0.15			Coal - Boney	

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

P-141A(10-80)

SHEET NO.: 22

HOLE NO.: GDR-DDH-80-21 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
75°		0.37		161.30	161.67	0.41			Mudstone - Dark Grey, carbonaceous, thin bright coal inclusions	
		0.04							- Powdered Carbonaceous	
		1.06	0.17	161.67	161.88	0.17			Core Loss - Coal	
				161.88	162.94	1.06			Mudstone - Coaly Laminations, as above	
		536 163.37		0.58	162.94	163.52	0.58		Core Loss - Coal	
			0.28		163.52	163.80	0.28		TOP BOX 58 Mudstone - as above	
			0.27		163.80	164.07	0.27		Coal - Mainly Boney	
	55°		1.40		164.07	165.47	1.40			Mudstone - as above
			0.86		165.47	166.33	0.86			Siltstone - With argillaceous laminae, light medium grey silt laminations, calcite
				0.29	166.33	167.29	0.96			TOP BOX 59 Mudstone - Medium gray
		0.67							- Laminated	
	546 166.42		0.83	167.29	168.12	0.83			Sandstone - Light grey, very fine grained carby clasts, calcite veining, cross bedding	
		0.72		168.12	174.35	6.23			Mudstone - as above	

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

P-141A(10-80)

SHEET NO.: 23

HOLE NO.: GDR-DDH-80-21 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: KL CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.58							TOP BOX 60	
70°	556 169.47	2.24							-	
		0.81							TOP BOX 61	
	566 172.52	1.48							- Medium Grey	
		0.40							- Medium-Dark grey, carbonaceous, calcite veining at fractures, coal inclusions	
		0.04		174.35	174.39	0.08			- Medium grey, few laminations, few calcite.	
		0.04		174.39	174.43				TOP BOX 62	
		0.23	0.27	174.43	174.70	0.27			COAL - Dull Banded	
		0.23		174.70	175.59	0.89			- Dull & Bright, broken pieces of core	
58°	576 175.57	0.66							Core Loss - Coal	
		1.78	0.23	175.59	175.82	0.23			Mudstone - Dark Grey, carbonaceous, calcite veins, near base.	
				175.82	183.05	7.23			- medium grey, laminated, small calcite	
									Core Loss - Rock	
									Mudstone - Cross Bedding, as above	

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

P-141A(10)E

SHEET NO.: 24

HOLE NO.: GDR-DDH-80-21 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
58°	586 178.61	1.00							TOP BOX 63	
		1.70							- Sandy & silty interbeds	
		0.58							TOP BOX 64	
		1.22							- Dark grey, carbonaceous, calcite, slickensides, coaly inclusions.	
		0.07							- Medium grey, silt laminations	
76°		0.46							- Dark grey, carbonaceous	
		0.42							- Medium gray, silt laminations, fluctuates to siltstone	
		1.70							- Dark Grey	
	606 184.71	1.70		183.05	185.77	2.72			TOP BOX 65	
		1.02							Siltstone - Coaly Laminae, with muddy interbeds, bioturbation	

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

P-141A(10-E)

SHEET NO.: 25

HOLE NO.: GDR-DDH-80-21 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.35		185.77	191.52	5.75			TOP BOX 66	
		1.86							Sandstone - light grey, graining, cross-beds	
	<u>616</u> 187.76									
70°		0.62							- Fine to medium grained, light grey. calcite veins, mud clasts, silt laminations, coal inclusions.	
		1.50							TOP BOX 67	
		0.08							-	
	<u>623</u> 189.89									
		0.48							- Medium gray, few laminations with thin muddy inter-beds and cross-beds	
72°		0.54							-	
		0.32							TOP BOX 68	
		1.85		191.52	194.59	3.07			-	
	<u>634</u> 193.24								Siltstone - Small coal inclusions	

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

P-141A(10-80)

SHEET NO.: 26

HOLE NO.: GDR-DDH-80-21 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 HOLE ANGLE: LOGGED BY: LK/JP CONTRACTOR:

DEPTH	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
3 <sup>0</sup>		0.45							Siltstone - Medium - light grey, few laminations TOP BOX 69	
		0.77							- Sandy, lighter grey	
		1.42		194.59	197.20	2.61			Mudstone - medium gray, silty laminations, calcite veining - Dark grey, carbonaceous	
9 <sup>0</sup>		0.33							TOP BOX 70	
	644									
	196.29									
35 <sup>0</sup>		0.86							- Medium gray, calcite veins	
		0.02		197.20	197.22	0.69	100	↑ P ↓ 00467	Coal - Boney	
		0.25		197.22	197.47				- Dull Banded	
		0.04		197.47	197.51				- Dull & Bright	
		0.03		197.51	197.54				- Dull Banded	
		0.06		197.54	197.60				- Dull & Bright	
		0.22		197.60	197.82				- Dull Sheared	
		0.07		197.82	197.89				- Sheared	
40 <sup>0</sup>		0.45		197.89	198.34	0.45			Mudstone - Dark grey to light grey, carbonaceous at top but decreases to base, grades to siltstone at base, lots of calcite veining and laminae just below top.	

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

P-141A(10-80)

SHEET NO.: 27

HOLE NO.: GDR-DDH-80-21 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

GCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.37		198.34	198.71	0.37			Siltstone - Medium gray, massive, calcite, veining at base	
47°	Also 40° & 35°	0.49		198.71	208.71	10.00			Siltstone- medium grey, numerous argillaceous and sandy laminae, minor cross bedding, coal laminations, rootlets	
	654 199.34	1.95							-	
40°		1.35							TOP BOX 72	
	665 202.69	1.30							-	

STRUCTURE: Extensive calcite veining and fracture system in exceptionally irregular and varied patterns, thicknesses vary from (1mm - .01m) in places small crackle and rubble breccias are developed, fragments are generally angular but rarely rounded. minor faults along bedding planes and micro-fracturing.

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

P-141A(10-80)

SHEET NO.: 28

HOLE NO.: GDR-DDH-80-21 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: IK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
										TOP OF BOX 73
45°		0.34								-
	675	1.37								-
	205.74									
		0.75								-
										TOP OF BOX 74
		2.14								-
	685									
	208.79									
57°		0.31								-
										TOP OF BOX 75
20°		2.46	0.15	208.71	208.86					Core Loss - Rock
				208.86	212.02	3.16				Silstone - 0.70 meters at top of box is badly broken.
										As above
										TOP OF BOX 76
70°		0.28								-
	696									- 'Fault'
	212.14									
		0.42								
		1.86		212.02	213.88	1.86				Silstone / Mudstone - Gradational, laminated





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

P-141A(10-80)

SHEET NO.: 30

HOLE NO.: GDR-DDH-80-21 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.41							SILTSTONE - TOP OF BOX 81	
		1.68		225.12	226.80	1.68			SILTSTONE- Sandstone -	
	<u>746</u> 227.38	0.94		226.80	230.39	3.59			SILTSTONE - medium grey with increasing sandy interbeds TOP BOX 82	
		2.03							-	
	<u>756</u> 230.43								- with sandy cross-beds. A calcite vein at top TOP BOX 83	
		0.62								
		2.40		230.39	233.39	3.00			MUDSTONE- Carbonaceous coal inclusions, dark grey, laminated, calcite	
	<u>766</u> 233.48									
90°		0.20							- Dark grey, laminated, calcite	



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

P-141A(10-80)

SHEET NO.: 32

HOLE NO.: GDR-DDH-80-21 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK/JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	776 236.53	0.03		235.83	235.86	0.03			Carbonaceous Mudstone - dark grey	
		0.07		235.86	235.93	0.07			Coaly Mudstone - dark grey, highly carbonaceous	
			0.32	235.93	236.25				Core Loss - Coal	
			0.18	236.25	236.43				Core Loss - Rock	
			0.13	236.43	236.56	0.13			Core Loss - Coal	
		0.15		236.56	236.71	0.15	53.57	R 00469	Coal - bright	
									TOP OF BOX 85	
		1.13		236.71	240.46	3.75			MUDSTONE - dark to medium grey, slightly carbonaceous	
77°		1.31							MUDSTONE - medium to light grey, silt, laminated, mud clasts, slickensides	
	786 239.58								TOP OF BOX 86	
		0.82							-	
		0.49							MUDSTONE - dark grey, carbonaceous, coal inclusions	
			0.30	240.46	240.76				Core Loss - coal	
			0.18	240.76	240.94				Core Loss - Rock	
			0.23	240.94	241.17	0.23			Core Loss - Coal	
70°		0.10		241.17	241.27	0.34	59.65		Coal - dull bright, powder & pieces with some carbonaceous mudstone inter- mixed	



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

P-141A(10-80)

SHEET NO.: 34

HOLE NO.: GDR-DDH-80-21 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		2.00		245.63	247.63	2.00			Silstone/Sandstone - medium to light grey, silt laminations, occasionally grainy, some carbonaceous portions, calcite.	
50°		0.30		247.63	247.93	0.30			Mudstone - medium grey, calcite veining, slickensides TOP OF BOX 89	
65°		0.71		247.93	250.00	2.07			Mudstone - dark grey	
	816 248.71									
		1.36							- occasional sandy layers with laminae	
		0.56		250.00	250.56	0.56			Silstone/Sandstone- sandy and silty laminations, minor calcite veining TOP OF BOX 90	
		0.58		250.56	253.24	2.68			Silstone - argillaceous interbeds	
57°		0.50							-	
	826 251.75									
		1.60							- sandy interbeds	

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

P-141A(10-80)

SHEET NO.: 35

HOLE NO.: GDR-DDH-80-21 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
61°	836 254.80	1.28		253.24	261.32	8.08			TOP OF BOX 91 Mudstone - dark, carbonaceous	
		0.25							-	
		1.17							- Occasional, sandy, silty laminations	
		1.60							TOP OF BOX 92 - siltstone interbeds near base	
70°	846 257.85	0.14							MUDSTONE - light to medium grey, laminated siltstone interbeds throughout	
		1.00							- minor calcite veining, siltstone interbeds in upper half.	
60°		2.04							TOP OF BOX 93 - occasionally carbonaceous, silt and sandy interbeds, cross bedding and bioturbation	

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

P-141A(10-80)

SHEET NO.: 36

HOLE NO.: GDR-DDH-80-21 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
65°	856 260.90	0.60							Mudstone - dark grey, carbonaceous, calcite veins  TOP OF BOX 94	
		2.36		261.32	264.01	2.69			Siltstone - dark grey, mud and sandy interbeds up to 0.33 m thick, calcite veined.	
	866 263.94	0.33							-  TOP OF BOX 95	
65°		2.16		264.01	266.17	2.16			Mudstone - dark to medium grey, few laminations, calcite	
			0.08	266.17	266.25	0.08			CORE LOSS - COAL	
		0.13		266.25	266.38	0.13	59.09		Coal - dull banded	
		0.02		266.38	266.40	0.02			Carbonaceous Mudstone - dark grey	
		0.06		266.40	266.46	0.06			Coal - dull banded	
		0.04		266.46	266.50	0.04			Carbonaceous Mudstone - with 0.01m bands of bright coal	
		0.10		266.50	266.60	0.10			Coal - dull banded	

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COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-247 (12-80)

DENSITY

RESISTIVITY

DRILL NO. GDR-DDH-80-21

SEAM

APPARENT THICKNESS  
23.15 - 24.51 m.

SCALE 1:40

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	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS						
					ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	FSH
			-23.15				0.28	00452		37	28.47	15.70	55.46	50	10,851	1
			-23.43		0.31 (0.23)			00453		70	76.63	9.28	13.19	56	2,714	0
			-23.97				0.25 (0.23)	00454		38	18.34	18.13	63.15	20	12,312	0.5
			-24.51				0.06	00455		54	50.32	14.68	34.46	40	7,110	1

GEOPHYSICAL LOGS

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-257 (1)

DENSITY RESISTIVITY

DRILL NO. GDR-DDH-80-21 SEAM  
SCALE 1:40

SEAM INTERVAL 27.98 - 33.33m  
APPARENT THICKNESS

DENSITY SCALE	RESISTIVITY SCALE	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		REC.	SAMPLE		PROXIMATE ANALYSIS					
					ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU
			27.98			( 0.17 ) 2.73		00456		.55	3.17	22.14	74.14	.16	14,767
			30.88 31.04			0.16 0.51 ( 0.47 )		00457 00458		.43 .57	12.58 3.49	26.56 19.93	60.41 76.01	.35 .38	12,574 14,698
			32.02 32.19			0.10 ( 0.07 ) ( 0.21 )		00459 00460		.79 .53	67.83 17.85	11.12 21.68	20.25 59.94	.44 .41	4,151 12,178
			32.66 32.81			0.15 0.02 0.51		00461 00462		.73 .63	72.54 24.39	10.12 21.79	16.61 53.19	.15 .45	2,995 11,389
			33.33												

GEOPHYSICAL LOGS

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12-80)

DENSITY RESISTIVITY

DRILL NO. GDR-DDH-80-21 SEAM  
SCALE 1:40

APPARENT THICKNESS  
SEAM INTERVAL 54.37 - 58.85 m

DENSITY SCALE RESISTIVITY SCALE	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS						
				ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	FSI
		54.37			0.76		00463		.39	4.35	22.60	72.66	.78	14,729	4.5
		55.13 55.34		0.07	0.06 (0.08)		00464		.63	46.50	17.00	35.87	.50	7,670	3
		58.40 58.85			0.37 (0.08)		00465		.56	14.63	21.07	63.74	.70	13,188	6.5

GEOPHYSICAL LOGS

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12-80)

DENSITY --- RESISTIVITY ---

DRILL NO. GOR - DDH - 80 - 21 SEAM  
SCALE 1:40

APPARENT THICKNESS  
SEAM INTERVAL 66.45 - 68.00 m.

DENSITY SCALE RESISTIVITY SCALE	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS											
				ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	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 2.80																				
		-66.45			0.49 (0.29)		00466		.54	6.09	20.04	73.33	.87	14,405	3					
		-67.23																		

GEOPHYSICAL LOGS



COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12-5)

DENSITY

RESISTIVITY

APPARENT THICKNESS

DRILL NO. GDR-ODH-80-21 SEAM  
SCALE 1:40

SEAM INTERVAL 234.46 - 236.71 m

DENSITY SCALE	RESISTIVITY SCALE																SEAM COMP.	DEPTH	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	ROCK	COAL	NUMBER	COMPOS.	MOIST.	ASH	VIM	FC
																		234.46			COAL		00468		.31	16.83	18.32	64.54	.70	12,994	2
																		235.01													
																		235.65													
																		236.43													
																		236.71			{0.13} 0.15		00469		.42	5.52	23.67	70.39	.91	14,596	9

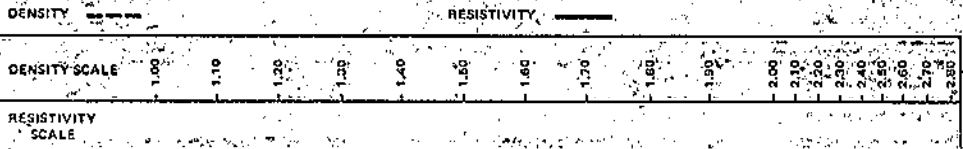
GEOPHYSICAL LOGS



COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

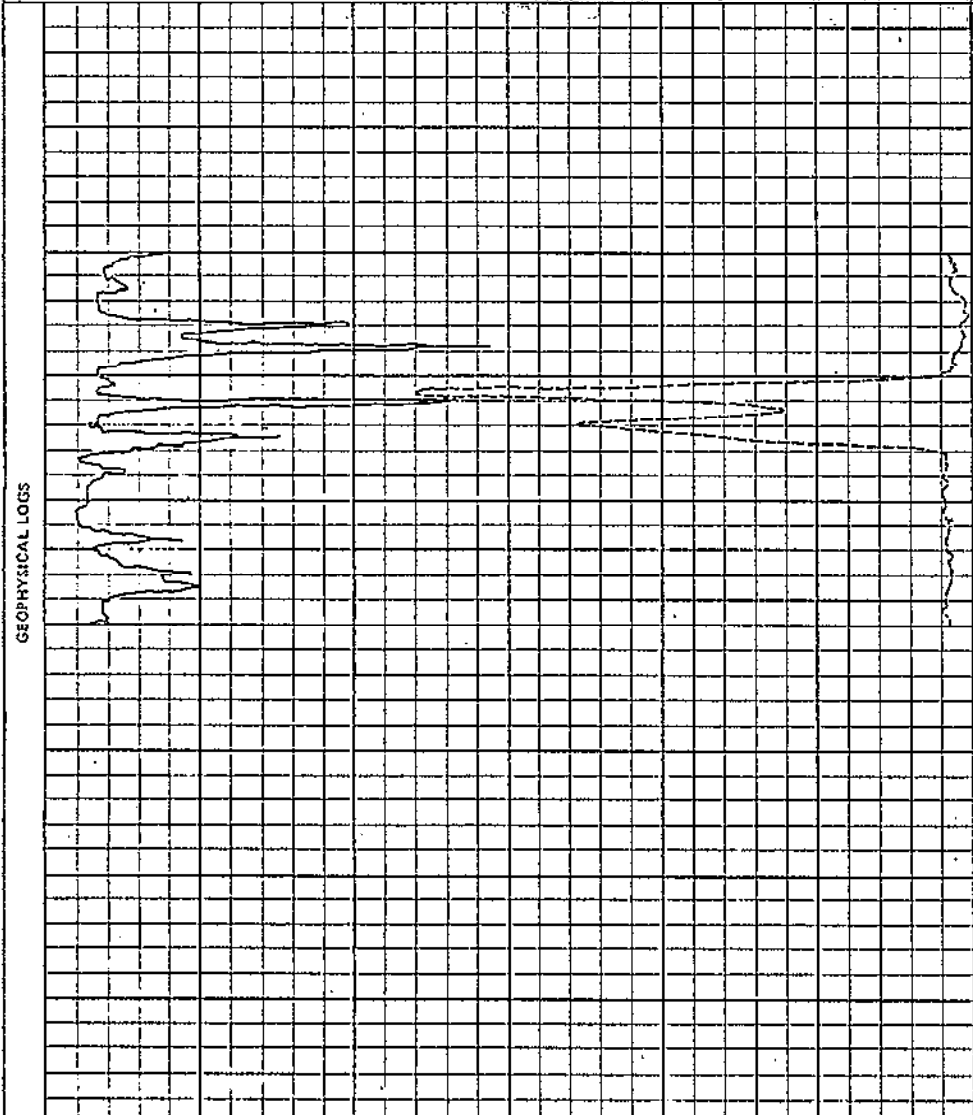
P-267 (12.0)



DRILL NO. GDR-DDH-80-21  
SCALE 1:100

SEAM

APPARENT THICKNESS  
SEAM INTERVAL 240.94 - 241.51m



SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS									
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	FS			
	240.94			(0.23)													
	241.51			0.34	00470	0.33	36.82	16.49	46.36	0.63	9,433	2					

COAL SEAM DATA SHEET

GULF CANADA RESOURCES (INC.)  
COAL DIVISION

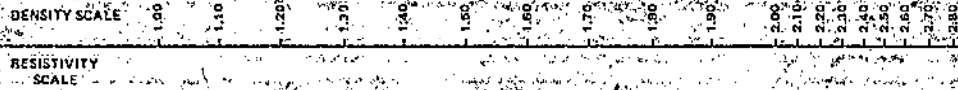
P-267 (12-82)

DENSITY

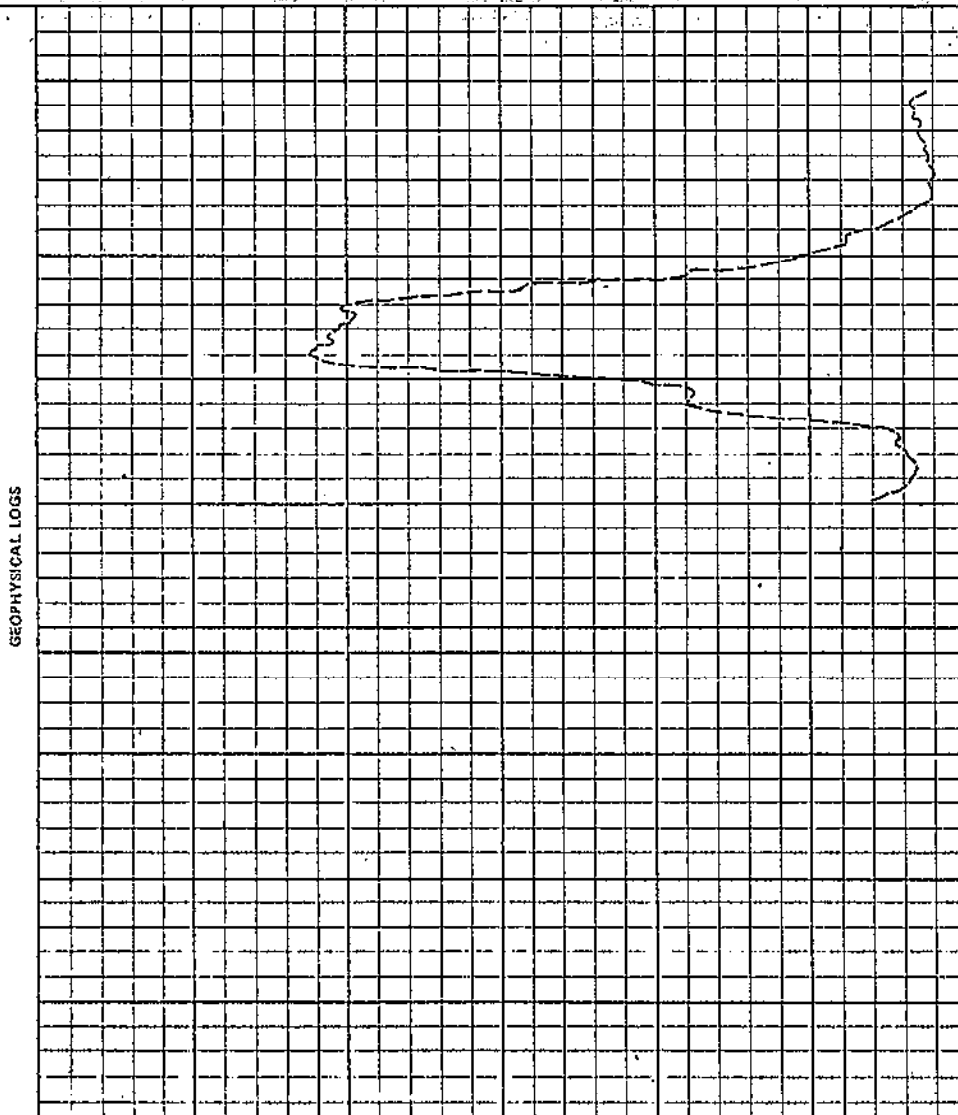
RESISTIVITY

DRILL NO. GDR-DDH-80-21 SEAM

APPARENT THICKNESS  
SEAM INTERVAL 266.17 - 267.05 m.



SCALE 1:40



SEAM COMP.	DEPTH	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS										
		ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	FSI				
	-266.17																
	-266.38																
	-266.40																
	-266.86																
	-267.05																
		0.06	0.46 (0.36)		00471 0074T			.51	11.23	18.60	69.66	.78	13,629	2.5			

DIRECTIONAL SURVEYROK OIL ENTERPRISES LIMITED

**COMPANY:** GULF CANADA RESOURCES INC.    **GRID:** \_\_\_\_\_    **DATE SURVEYED:** 6 SEPTEMBER 1980  
**DRILL HOLE:** GDR-DDH - 80-21    **LATITUDE:** \_\_\_\_\_    **SURVEY BY:** SCRIBNER  
**LOCATION:** \_\_\_\_\_    **DEPARTURE:** \_\_\_\_\_    **WITNESSED BY:** ZSCHACH  
**FIELD:** GOODRICH    **ELEVATION:** \_\_\_\_\_    **CALCULATIONS BY:** \_\_\_\_\_  
**MAGNETIC DECLINATION:** \_\_\_\_\_    **CORRECTION OF:** \_\_\_\_\_    **FOR:** \_\_\_\_\_    **GRID:** \_\_\_\_\_

Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing	Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing	Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing
0	0	1/2°	S - 51 - E	11	165	3-1/2°	N - 54 - W	22			
1	15	1°	S - 47 - W	12	180	4°	N - 54 - W	23			
2	30	1°	S - 60 - W	13	195	4°	N - 50 - W	24			
3	45	1°	S - 60 - W	14	210	4°	N - 54 - W	25			
4	60	1°	W - 0	15	225	4°	N - 45 - W	26			
5	75	1°	N - 75 - W	16	240	4°	N - 45 - W	27			
6	90	1-1/2°	N - 62 - W	17	255	4°	N - 40 - W	28			
7	105	2°	N - 62 - W	18	263	4°	N - 37 - W	29			
8	120	3°	N - 68 - W	19				30			
9	135	3°	N - 60 - W	20				31			
10	150	3°	N - 55 - W	21				32			

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

P-141A(10-80)

SHEET NO.: 1

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: 1066.74 TOTAL DEPTH: 312.4m DATE BEGUN: \_\_\_\_\_  
 PROJECT: Goodrich BEARING: \_\_\_\_\_ CORE SIZE: HQ DATE COMPL.: September 10/80  
 CO. ORD.: 37 733.42N 553 760.35E HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JP CONTRACTOR: COATES

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
0°		1.48		12.43	15.88	3.45			TOP OF BOX 1 Casing - (have 0.20m of cave material, mainly sandstone in top of Box 1)  Siltstone - light to dark grey, thin interbeds of mudstone and silty sandstone. Broken throughout particularly at top. Bedding is essentially parallel or at a small angle to the core axis.	
	47 14.33	1.09							-	
		0.88							- not as extensively broken. Occasional calcite veins. Joint surfaces smooth and regular CA=23°, surface smooth, curved (concave) CA=32°. Movement as indicated by slickensides along some bedding planes.	
		0.65		15.88	16.71	0.83			Sandstone - light grey, fine grained, slightly silty with carbonaceous and clay laminae throughout. Argillaceous at base. Broken in centre.	
	57/ 17.37	0.18	0.40	16.71	17.11	0.40			CORE LOSS  - heavily broken	

**OPEN FILE**

M. Goodrich 10/80

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

P-141A(10-8C)

SHEET NO.: 2

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JP CONTRACTOR: \_\_\_\_\_

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
		0.45		17.11	17.56	0.45			Gravel - Various pieces of rock ranging up to core diameter in size in a gritty, muddy matrix. Completely unconsolidated, probably core.	
		0.17		17.56	22.85	5.29			Sandstone - Polished, slickensided surfaces along clay laminae.	
10 <sup>b</sup>	<u>59.5</u> <u>18.14</u>	0.20							- Argillaceous in centre (0.05m of core at top), Joint surface rough fairly regular with calcite CA=30°	
									TOP OF BOX 3	
30 <sup>o</sup>		1.76							- With some silt bands. More argillaceous towards base. Calcite veining in centre at various angles to bedding.	
	<u>67</u> <u>20.42</u>	0.95							-	
									TOP OF BOX 4	
10 <sup>o</sup>		2.10							-	
	<u>77</u> <u>23.47</u>	0.11							-	
		0.06		22.85	22.91	0.06			Mud - Brown, soft	
		0.08		22.91	22.99	0.08			Sandstone - as above	

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

P-141A(10-8C)

SHEET NO.: 3

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

ECA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
20°		0.06	2.14	22.99	23.05	0.06			Mud - brown, soft	
		0.08		23.05	23.13	0.08			Sandstone - as above	
	<u>78</u> 23.77								Tricored from 78' - 85'	
	<u>85</u> 25.91			23.13	25.27	2.14			Core Loss-rock	
									(cave just below marker medium grade siltstone just like that thought to be cave at top of hole, 0.14m)	
									TOP OF BOX 5	
				0.40		25.27	25.67	0.40		-
				1.29		25.67	26.96	1.29		Siltstone - Medium to dark grey with mudstone bands and laminae.
				1.03		26.96	28.31	1.35		Sandstone - Light grey, fine grained, silty with argillaceous and carbonaceous laminae. Occasional siltstone bands
				0.32						TOP OF BOX 6
	<u>95</u> 28.96	0.79		28.31	29.10	0.79		Siltstone - Dark gray laminated with clay rich and sandy bands, gradational silt above.		

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

P-141A(10-80)

SHEET NO.: 4

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J.P. CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION	
				FROM	TO	APPAR. THK.	TRUE THK.				
15°	105 32.00	0.30		29.10	29.40	0.30				Mudstone - Dark grey, heavily broken, siltstone bands	
		1.34		29.40	33.42	4.02				Siltstone - Dark grey, sandy and argillaceous laminations.	
		0.70								TOP BOX 7	
		0.67								-	
		1.19								Carbonaceous Mudstone - Dark gray, several coal bands, calcite veining near base.	
		0.12								- Broken, Listric surfaces	
		0.11	0.11		33.42	33.53	0.11		63.16	A	Core Loss - Coal
		0.11			33.53	33.64	0.16				Coal - sheared, many intermixed pieces of sheared mudstone
		0.05			33.64	33.69					- dull banded
		0.10			33.69	33.79	0.10				TOP BOX 8
	0.12			33.79	33.91	0.20		00424	B	Core Loss - Coal	
	0.08			33.91	33.99					Coal - Heavily broken and mixed	
									- Dull banded } with some carbonaceous mudstone		
									- Dull and Bright } pieces mixed in		
1.18			33.99	35.60	1.61		100	B	Carbonaceous Mudstone - Heavily broken at top. Coal Stringers		

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

P-141A(10-80)

SHEET NO.: 5

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	117 35.66	0.43	0.97	35.60	36.57	0.97		00425 B C	Carbonaceous Mudstone - Broken at base	
		0.16		36.57	36.73	1.49	60.57		COAL-	- Dull Banded } Powdered and broken
		0.47		36.73	37.20					- Dull } Fair
		0.13		37.20	37.33					- Dull Banded }
		0.05		37.33	37.38			00426 D	TOP BOX 9	
		0.19		37.38	37.57				- Dull Banded } Fair but mixed pieces	
		0.07		37.57	37.64				- Dull Hard }	
		0.11		37.64	37.75				- Dull Banded Powder	
		0.22		37.75	37.97				- Dull Banded, Good	
		0.09		37.97	38.06				- Dull Banded, Good	
		0.17		38.06	38.23	0.75	94.49		- Dull Banded, Hard, Good	
		0.04		36.23	38.27				- Powder, pulverized, no pieces at all (possibly dull banded to dull bright)	
		0.05		38.27	38.32				- Dull & Bright Powder & pieces	
		0.05		38.32	38.37				- Dull	
		0.05		38.37	38.42			- Dull Banded Very hard, good core		
		0.11		38.42	38.53			- Dull		
									- Dull Banded	
	127 38.71	0.05		38.53	38.58			00427	- Dull Banded Hard	
		0.07		38.58	38.65				- Dull Hard	
		0.09		38.65	38.74				- Dull Banded,	
		0.07		38.74	38.81				- Dull Banded, broken	
		0.14	0.07	38.81	38.88	0.07			Core Loss - Coal	
				38.88	39.02	0.45			- Dull & Bright, Pieces & powder	



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

P-141A(10-80

SHEET NO.: 6

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JP CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
10 <sup>0</sup>		0.04		39.02	39.06			C ↓	Coal - Dull Banded, broken	
		0.06		39.06	39.12				- Dull & Bright, broken	
		0.05		39.12	39.17				- Dull, Hard	
		0.03		39.17	39.20				- Dull Banded	
		0.07		39.20	39.27				- Dull Banded, sheared	
		0.06		39.27	39.33				- Dull, sheared	
		0.57		39.33	40.00	0.67			Mudstone - Medium gray, plant fragments, slightly carbonaceous at very top, massive	
		0.10							TOP OF BOX 10	
		1.22		40.00	42.39	2.39			Carbonaceous Mudstone - Dark Grey, coal stringers and bands, broken extremely heavily broken in centre	
		1.17							- heavily broken	
	0.71		42.39	43.10	0.71			TOP OF BOX 11		
	0.81		43.10	49.10	6.00			Carbonaceous Mudstone - Dark Grey, mainly thin coal laminae, heavily broken above base where there is also coal powder, silty at base.		
								Siltstone - Medium gray, argillaceous at top, massive occasional coal inclusions, broken near base		

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

P-141A(10-80)

SHEET NO.: 7

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
10°	145 44.20	1.09							Siltstone - TOP OF BOX 12	
		1.87							-	
	155 47.24	0.87							-	
		1.36							TOP OF BOX 13 - Gradational with a silty mudstone	
		0.82		49.10	50.06	0.96			Sandstone - Light grey, fine grade, argillaceous bands and laminae. Some arsenopyrite mineralization	
	165 50.29	0.14							-	
		0.05		50.06	50.11	0.05			Mud-Brown soft, as before	
		0.31		50.11	51.64	1.53			Sandstone - as above	
		0.90							TOP OF BOX 14	
	169 51.51	0.32							-	
		1.37		51.64	53.30	1.66			Siltstone - Medium gray, argillaceous, massive	

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

P-141A(10-80)

SHEET NO.: 8

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.29							TOP OF BOX 15	
		0.56		53.30	54.54	1.24			Siltstone - sandy at base	
	<u>177</u> 53.95	0.68							-	
		0.53		54.54	55.07	0.53			Silty Sandstone - Medium grey, argillaceous laminae, occasional calcite veins.	
		0.44		55.07	56.22	1.15			Siltstone - No calcite veins	
		0.71							Silty Mudstone - Dark Grey, massive	
		0.61		56.22	59.62	3.40			TOP OF BOX 16	
	<u>187</u> 57.00	1.31							-	
10 <sup>0</sup>		1.48							Sandstone - Light to medium gray, fine grained, argillaceous laminations, small-scale cross-bedding, calcite veining particularly in top half. No movement suggested, regular veins (calcite & siderite) make large angle to bedding which is parallel or sub-parallel to core axis.	
									TOP OF BOX 17	
									- Argillaceous zone in centre	

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

P-141A(10-80)

SHEET NO.: 9

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JP CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.11		59.62	60.72	1.10			Silty Sandstone - Similar to above but more argillaceous bands and laminations.	
	<u>197</u> 60.05	0.81							- TOP OF BOX 18	
		0.18							-	
		2.17		60.72	63.16	2.44			Sandstone - Light grey, fine grade, quite argillaceous from top to centre but clearer in bottom half, occasional calcite veins.	
	<u>207</u> 63.09	0.27							-	
		0.06		63.16	63.22	0.06			Mud-Brown, soft as before small sandstone pieces	
		0.14		63.22	65.77	2.55			Sandstone - as above	
		2.41							TOP OF BOX 19 - Argillaceous in centre, extensive calcite veining throughout, not considered to be the site of any major tectonics.	
	<u>217</u> 66.14	0.13		65.77	66.68	.91			Sandy Siltstone - Dark grey, massive	
10°		0.78							TOP OF BOX 20 - Massive	
20°		1.84		66.68	68.52	1.84			Siltstone - Dark grey, laminated with argillaceous and sandy bands towards base. Faulted at contact with mudstone at base. No major calcite veining associated with this fault Just a 1cm thick zone of calcite veining at contact itself. B.C.A. taken near base.	

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

P-141A(10-80)

SHEET NO.: 10

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	227 69.19	0.11		68.52	68.63	0.11			Mudstone - medium grey	
		0.26		68.63	68.89	0.26			TOP OF BOX 21 Carbonaceous Mudstone - Dark grey, mainly carbonaceous, mudstone with many bright coal laminae, occasional pieces of boney/stoney coal also present. Very heavily broken and powdered.	
			0.52		68.89	69.41	0.52	30.67	↑ E	CORE LOSS - COAL
		0.05			69.41	69.46	0.05		↕ 00428	Coal - powder mixed with coaly mudstone below
		0.18			69.46	69.64	0.18			Coaly Mudstone - highly carbonaceous. Mixed with some coal pieces and powder
			0.37		69.64	70.01	0.37			CORE LOSS - COAL
		0.03			70.01	70.04	0.03	23.85	↑ F	Coal - powder mixed with carbonaceous mudstone below
		0.03			70.04	70.07	0.03			Carbonaceous Mudstone - mixed with coal above
		0.08			70.07	70.15	0.08			Carbonaceous Mudstone - dark grey, highly carbonaceous
			0.42		70.15	70.57	0.42		↕ 00429	CORE LOSS - ROCK

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

P-141A(10-80)

SHEET NO.: 10a

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
30 <sup>0</sup>	237 72.24	0.03		70.57	70.60	0.03		F ↓ 00429	Carbonaceous Mudstone - mixed with coal below	
		0.14		70.60	70.74	0.14			Coal - powdered, mixed with the carbonaceous mudstone	
			0.20	70.74	70.94	0.20			CORE LOSS - COAL	
		0.48		70.94	71.42	0.48			Siltstone - Medium to dark grey, carbonaceous at the top	
		0.30		71.42	71.72	0.30			Silty Mudstone - medium grey, laminated silt bands	
			0.36	71.72	72.08	0.36			CORE LOSS - ROCK	

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

P-141A(10 BC)

SHEET NO.: 11

HOLE NO.: CDR-DDH-80-22 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JP CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
40°		0.08		72.08	74.77	2.69			-	
		2.61							TOP OF BOX 22 - With occasional sandy bands as well. Some coal stringers and calcite veining. Carbonaceous in places.	
	<u>247</u> 75.29		0.19	74.77	74.96	0.19			CORE LOSS - ROCK	
		0.06		74.96	75.02	0.06			-	
		0.86		75.02	75.88	0.86			TOP OF BOX 23 Mudstone - Dark grey, carbonaceous in places with coal stringers particularly at base.	
	<u>253</u> 77.11		0.71	75.88	77.70	1.82			Silty Mudstone - Dark grey massive	
		1.11							-	
		0.53		77.70	78.23	0.53			TOP OF BOX 24 Siltstone - Medium grey, sandy bands, broken at base	
		0.42		78.23	78.65	0.42			Mudstone - Light grey, massive	
	<u>261</u> 79.55		0.55	78.65	79.20	0.55			Carbonaceous Mudstone - Dark grey, thin coal bands and stringers. Listric surfaces and slicken-sides. Broken	
		1.03		79.20	81.45	2.25			Siltstone - Medium grey, argillaceous at top, plant fragments, massive, monotonous	

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

P-141A(10)

SHEET NO.: 12

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.09							TOP OF BOX 25	
	<u>271</u> 82.60	0.13							- Slicks along fracture surface at base	
		1.48		81.45	83.16	1.71			Sandy Siltstone - Medium gray, massive. In abrupt contact with above. Small amount of calcite laminae and veins. Possible minor fault.	
		0.23							TOP OF BOX 26	
		0.24		83.16	83.74	0.58			- Sandier towards base	
		0.34							Sandstone - Medium gray, argillaceous, occasional calcite veins.	
		0.34							- Heavily veined with calcite fractures, broken in places. Abrupt terminations of some thin lithological bands. Possible fault zone. Slickensides on fracture surfaces.	
30°		0.79		83.74	84.79	1.05			Silty Sandstone - Medium gray, fine grained, considerably less calcite veining. Many argillaceous laminae.	
	<u>282</u> 85.95	0.26								
		0.61		84.79	87.67	2.88			Sandstone - Medium gray, fine grained, considerably less argillaceous bands. Some thick calcite veins.	



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

P-141A(10)

SHEET NO.: 13

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JP CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
40°		1.37							TOP BOX 27	
		0.61							- "Tops Up" - Core heavily broken. Occasional calcite veining	
	<u>291</u>									
	88.67								- Core heavily broken. Occasional calcite veining.	
		0.29								
		0.36	87.67	90.50	2.83				Mudstone - Dark grey, plant fragments	
		1.01							TOP BOX 28	
	<u>297</u>		1.20	90.50	91.70	1.20			- Broken throughout heavily just below top and above base CORE LOSS-ROCK	
	90.53	1.46							- Heavily broken near base	
		0.43	91.70	92.13	0.43				TOP BOX 29	
								Sandstone - Light grey, fine grained, heavy calcite veining in bottom half where it's also heavily broken.		
								"POSSIBLE FAULT"		
	0.25	92.13	92.38	0.25				Mudstone - Heavily broken, calcite veining		
	0.40	92.38	92.78	0.40				Sandstone - Broken		
	<u>304.5</u>									
	92.81									

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

P-141A(10)

SHEET NO.: 14

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
10 <sup>0</sup>		0.28		92.78	94.03	1.25			Mudstone - Medium grey, sandy beds, broken - Silty	
		0.97								
		0.27		94.03	94.30	0.27			Carbonaceous Mudstone - Dark grey, coaly inclusions and stringers	
		0.05		94.30	94.58	0.28			Coal - Dull Banded - Boney - Dull Banded - Dull, Hard	
		0.04								
		0.06								
		0.03								
		0.05							TOP OF BOX 30	
		0.05							Coal - Dull, Broken - Dull banded, broken	
		0.03		94.58	94.61	0.03			Carbonaceous Claystone - as above	
		0.08		94.61	94.80	0.19			Coal - Powder - Dull Banded - Dull Banded, Powder	
		0.04								
		0.07								
		0.16							Carbonaceous Mudstone - Dark Grey CORE LOSS - ROCK	
			.96	94.80	95.76	.96			- Broken - Not so heavily broken	
	313/ 95.40	0.21								
		0.27								
	314.50									
	95.86									
		0.24								

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

P-141A(10)

SHEET NO.: 15

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
25 <sup>0</sup>		0.12		95.76	95.88	0.12			Coal and Rock - Powdered coal and rock with rock pieces	
		1.01		95.88	96.89	1.01			Carbonaceous Mudstone - coal stringers	
		0.14		96.89	97.03	0.14			Coal and Rock - Heavily broken and powdered, mixed Mainly carbonaceous mudstone	
		0.20		97.03	97.70	0.67			Carbonaceous Mudstone - Heavily broken, some large pieces, some coal powder	
		0.47							TOP BOX 31  - Heavily broken, particularly at top and base	
		322 98.15	0.51	0.51	97.70	98.21	0.51		CORE LOSS ROCK	
		0.57		98.21	99.06	0.85			-	
		324 98.76	0.28						- Very heavily broken at top	
		0.05		99.06	99.11	0.05			Coal - Dull and Bright, pieces	
		0.37		99.11	99.48	0.37			Carbonaceous Mudstone - broken	
30 <sup>0</sup>		0.86		99.48	100.69	1.21			Siltstone - Argillaceous, however sandy at base  TOP OF BOX 32	
		0.35							- Medium grey laminated, argillaceous at base	

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

P-141A(10.1)

SHEET NO.: 16

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JP CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
20°	<u>330.5</u> 100.74	0.74		100.69	108.70	8.01			Mudstone - Dark grey, carbonaceous at top, coaly stringers throughout	
	<u>332.5</u> 101.35	1.63							- slightly carbonaceous with coaly stringers in top half, laminated in bottom half	
	<u>347</u> 105.77	2.57							TOP BOX 33 - Siltstone layer 0.50m thick in centre	
40°		0.11							-	
		2.89							TOP BOX 34 - Generally massive, siltier near base	
		0.07							TOP BOX 35	
23°	<u>357</u> 108.81	0.88		108.70	109.58	0.88			Sandy Siltstone - Medium gray, quite sandy in centre portion	
		1.01		109.58	110.59	1.01			Mudstone - Medium grey, occasional plant fragments	
		0.72		110.59	111.52	0.93			Siltstone - as above	

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

P-141A(10)

SHEET NO.: 17

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CONTRACTOR:

BCA	BOX		INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER				FROM	TO	APPAR. THK.	TRUE THK.			
25°			0.21							TOP BOX 36	
			0.29		111.52	111.98	.46			Sandstone - Medium grey, fine grained, silty laminations	
		367 111.86	0.17								
			2.06		111.98	123.55	11.57			Mudstone - Light to medium grey, has two 0.18m sand/silt layers in centre portion	
20°			0.72							TOP BOX 37	
		377 114.91	2.03								
			0.97							TOP BOX 38	
27°		387 117.96	1.78								
			1.36							TOP BOX 39	
			1.33							- Calcite veining in hard silty mudstone near top	
	397 121.01	1.32								TOP BOX 40	
			0.39		123.55	123.94	0.39			CORE LOSS - ROCK	



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

P-141A(10)

SHEET NO.: 19

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPLE.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JP CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
									TOP OF BOX 44	
		0.55								
		1.99		134.07	136.06	1.99			Siltstone - Medium grey, very abrupt contact with overlying mudstone although no veining or core disturbance is present. Could have lost the contact as core loss. "POSSIBLE FAULT".	
	447/ 136.25									
		0.20	0.62	136.06 136.68	136.68 137.07	0.62 0.39			CORE LOSS - ROCK	
									There are no boxes "45 - 48" Inclusive	
									TOP OF BOX 49	
		0.19								
		1.18		137.07	138.25	1.18			Sandstone - Light grey, fine grained with thin silt bands and argillaceous laminae. Thin carbonaceous mudstone near centre, occasional calcite veining.	
		0.71		138.25	139.55	1.30			Siltstone - Medium grey, very sandy towards base.	
									TOP BOX 50	
		0.14								
	457 139.29									
		0.45								

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

P-141A(10)

SHEET NO.: 20

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: .1P LOGGED BY: CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
22°		1.12		139.55	140.67	1.12			Silty Sandstone - Medium grey, fine grained, silty and argillaceous laminations.	
		0.20		140.67	141.45	0.78			Siltstone - Medium grey, sandy bands	
		0.58							TOP BOX 51	
			0.70		141.45	142.15	0.70		CORE LOSS - ROCK	
		467 142.34	1.54		142.15	143.69	1.54			
			0.59		143.69	146.47	2.78		Sandstone - Medium grey, fine grained, silty at top.	
									TOP BOX 52	
			1.01							
		477 145.39	1.18							
			0.40		146.47	147.24	.77		Siltstone - Sandy	
								TOP BOX 53		
		0.37						- Argillaceous		
		0.42		147.24	147.66	0.42		Sandstone - Light grey, fine grained, relatively clean		
30°		0.55		147.66	149.30	1.64		Siltstone - laminated at top		
								- Sandy and argillaceous bands		
	487 148.44	1.09								



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

P-141A(10-8C)

SHEET NO.: 21

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.31		149.30	149.61	0.31			Silty Sandstone - Medium grey, argillaceous laminae	
		0.60		149.61	150.21	0.60			TOP BOX 54 Sandstone - Light to medium grey, occasional argillaceous laminations	
		1.06		150.21	152.75	2.54			Sandy Siltstone - Medium grey	
	497 151.49	0.96							- Sandstone layer in centre, occasional calcite veins	
		0.52							TOP BOX 55 -	
		1.52		152.75	154.70	1.95			Sandstone - Light grey, fine grained, occasional argillaceous laminae	
	507 154.53	0.43							- Heavy calcite veining in centre	
		0.10		154.70	156.48	1.78			Mudstone - Medium grey, carbonaceous in places, occasional coal stringers.	
		1.68							TOP BOX 56 -	
		0.58		156.48	157.06	0.58			Carbonaceous Mudstone - Dark grey, occasional coal stringers	
	517 157.58	0.34	.26	157.06	157.32	0.26			CORE LOSS - ROCK	
		0.70		157.32	158.36	1.04			- TOP BOX 57	

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

P-141A(10-B)

SHEET NO.: 22

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
40°		1.89		158.36	160.25	1.89			Siltstone - Medium grey, laminated sequence of silts, sands and muds	
	<u>527</u> 160.63		0.12	160.25	160.37	0.12			CORE LOSS - ROCK  TOP BOX 58	
32°		1.28							-	
		1.42		160.37	161.91	1.54			Carbonaceous Mudstone - Dark Grey, not very carbonaceous in places.  TOP BOX 59	
		0.12							-	
	<u>537</u> 163.68		.23	161.91	162.14	0.23			CORE LOSS - ROCK  - Thin lamination of coal band at top	
25°		0.39		162.14	162.53	0.39				
		2.19		162.53	165.08	2.55			Mudstone - Medium grey laminated with more silty and more carbonaceous layers. Occasional coal stringers, particularly at base  TOP BOX 60	
		0.36		165.08	165.78	0.70			- CORE LOSS - ROCK	
	<u>547</u> 166.73			165.78	168.43	2.65			-.40 carbonaceous zone near top  TOP BOX 61	
		0.37						-		
	<u>557</u> 169.77		0.98	168.43	169.41				CORE LOSS - ROCK	

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

P-141A(10-80)

SHEET NO.: 23

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION	
				FROM	TO	APPAR. THK.	TRUE THK.				
		0.10		169.41	169.51	0.10		52.70	G	- With thin stoney coal band near top. Broken	
			0.12	169.51	169.63	0.12					CORE LOSS - COAL
		0.03		169.63	169.66	0.13					COAL - dull banded, lightly broken
		0.10		169.66	169.76						- boney, broken
			0.20	169.76	169.96	0.20					CORE LOSS - ROCK
		0.05		169.96	170.01	0.05					Carbonaceous Mudstone - Broken, coal bands
		0.04		170.01	170.05	0.04					Coal - Boney, broken
		0.06		170.05	170.11	0.06					Carbonaceous Mudstone - Dark grey, one large piece
		0.04		170.11	170.15	0.04					Coal - Boney, broken
											- Re: Above core in bracket ] is composed of large broken pieces, probably inter-mixed and not representing their true spacial distribution. Re: coal is very hard and probably boney.
									The section described below - ] is comprised of large pieces of boney coal and some minor carbonaceous mudstone which sits on top of crushed, powdered and small pieces of boney coal, dull banded coal and bright coal. It's all inter-mixed as above.		
			0.38	170.15	170.53	0.38		00430		CORE LOSS - COAL	
		0.17		170.53	170.70	0.17					Coal - boney, dull banded and bright
		0.06		170.70	170.76	0.06					Coal & Carbonaceous Mudstone - Intermixed
		0.05		170.76	170.81	0.05					Coal - Boney, dull banded and bright
		0.04		170.81	170.85	0.04					Carbonaceous Mudstone - with coal bands, one piece
		0.14		170.85	170.99	0.14					Coal - Boney with stoney bands at base, broken

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

P-141A(10-80)

SHEET NO.: 24

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
35°	562 171.30	0.14		170.99	171.13	0.36			Carbonaceous Mudstone - Dark grey, coal stringers. - Highly broken. Pieces of mudstone sit on smaller pieces and powder of mudstone, poor coal and good coal. Mainly mudstone.	
		0.22		171.13	171.35					
				0.31					CORE LOSS - COAL - Solid core	
	566 172.52	0.69		171.35	171.66	0.31			Mudstone - Medium gray, carbonaceous at top.	
				171.66	172.35	0.69				
			0.14		172.35	172.49	1.35			TOP BOX 62 - Slightly carbonaceous throughout and quite carbonaceous in places. Coal stringers.
			1.21		172.49	173.70				Carbonaceous Mudstone - Dark grey, coal bands, silty layers.
			0.55		173.70	174.25	0.55			
				0.13	174.25	174.38	0.13	57.89		CORE LOSS - COAL
			0.07		174.38	174.45	0.28			COAL - dull, ash, hard
			0.05		174.45	174.50				- dull, banded
			0.11		174.50	174.61				- boney ( could be dull hard)
			0.05		174.61	174.66				- Stony
				0.11	174.66	174.77	0.11			CORE LOSS - COAL
			0.05		174.77	174.82	0.05			Carbonaceous Mudstone - Dark grey, broken
			0.21	174.82	175.03	0.21			CORE LOSS - COAL	
		0.21		174.03	175.24	0.21			Coal - Stony - most of big pieces lie on a powder or better quality coal. Heavily broken.	



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

P-141A(10-80)

SHEET NO.: 25

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JP CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION	
				FROM	TO	APPAR. THK.	TRUE THK.				
40°		0.20		175.24	175.44	0.20		100.	J 00433	Carbonaceous Mudstone - not broken	
		0.04		175.44	175.48	0.13		100.	K 00434	Coal - Boney, broken - Dull ) - Dull banded ) - extremely broken	
		0.04		175.48	175.52						
		0.05		175.52	175.57						
			575.5 175.41								TOP OF BOX 63
					0.25			0.25			CORE LOSS - ROCK
				0.32		175.57	175.89	0.32			Carbonaceous Mudstone - broken at base
				0.55		175.89	176.44	0.55			Siltstone - Medium grey, sandy and argillaceous laminations.
				0.98		176.44	177.42	0.98			Silty Sandstone - Medium grey, Argillaceous laminations
				0.82		177.42	179.34	1.92			Siltstone -
											TOP BOX 64
			586 178.61								
		0.82									
		0.67		179.34	180.01	0.67			Sandstone - Light grey, fine grained with silty and argillaceous laminations		
		1.01		180.01	181.58	1.57			Siltstone - Sandy layer near centre. Argillaceous at top and base, also carbonaceous at top coal stringers.		

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

P-141A(10-80)

SHEET NO.: 26

WELL NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 HOLE NO.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

CA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
30 <sup>0</sup>		0.56							TOP OF BOX 65	
	596.5 181.81								Siltstone - sandy layer near centre, argillaceous at top and base, also carbonaceous at top, coal stringers.	
		0.70		181.58	182.59	1.01			Mudstone - medium grey, silty bands, broken throughout, especially at top centre and base. Mud present in broken zones along with chips of mudstone with listric surfaces. Coal stringers.	
		0.31							Mudstone - Not so heavily broken	
		0.40		182.59	182.99	0.40			Coal and rock - heavily broken, intermixed, pieces of mudstone in a powder of sheared mudstone and coal. Core loss.	
	601.5 183.34								Siltstone - argillaceous	
		0.62		182.99	184.54	1.55			TOP OF BOX 66	
		0.93							Siltstone - argillaceous	
		1.57		184.54	187.38	2.84			Silty mudstone - medium grey, occasional sandy bands	
	611 186.23								Silty mudstone - medium grey, occasional sandy bands	
		0.22							TOP OF BOX 67	
		1.05							Silty mudstone - thin sandstone in centre	

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

P-141A(10 F

SHEET NO.: 27

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J.P. CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
20°		0.64		187.38	190.68	3.30			Mudstone - medium grey, thin siltstone in centre, calcite veinlets at base. Coaly stringers.	
	617 188.06	1.14							Mudstone - thin siltstone at base TOP OF BOX 68	
20°		1.52								
	627 191.11	0.37		190.68	192.38	1.70			Carbonaceous mudstone - dark grey, plant fragments	
		0.67							Carbonaceous mudstone - highly carbonaceous in places, listric surfaces on fractures. Coal stringers. TOP OF BOX 69	
		0.66								
	635.5 193.70	0.91		192.38	193.29	0.91			Mudstone - medium grey, silty bands	
		1.19		193.29	195.32	2.03			Siltstone - with sandstone band in centre. Argillaceous at base. TOP OF BOX 70	
		0.84							Siltstone - siltier towards base. Much veining by thin wavy calcite veins in a mass over a true thickness of 0.07m at base. Possibly indicating slippage along bedding. Some slickensides.	

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

P-141A(10)

SHEET NO.: 28

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JP CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.23		195.32	195.55	0.23			Silty sandstone - medium grey, fine grained, laminated, could be in faulty contact at base. There we have a mudstone in abrupt contact with this lithology, with calcite veining near the contact. However, the core does not fit together and considering the way the core has been mistreated it is questionable if the pieces of core are in the right place.	
		0.94		195.55	198.96	3.41			Carbonaceous mudstone - dark grey, coal stringers. Broken near base.	
	646 196.90	0.65							Carbonaceous mudstone - broken at top TOP OF BOX 71	
		1.22							Carbonaceous mudstone - with thin coal band. Some coal powder at top, broken throughout, heavily broken in bottom half.	
	650.5 198.27	0.60							Carbonaceous mudstone - heavily broken throughout, silt bands.	
	652 198.73	0.11		198.96	199.07	0.11			Sandstone - light grey, fine grained, silty	
		0.51		199.07	199.58	0.51			Silty sandstone - medium grey, mudstone bands.	



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

P-141A(10-80)

SHEET NO.: 29

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
									TOP OF BOX 72	
10°	657 200.25	0.40		199.58	200.16	0.58			Siltstone - medium grey, sandy bands	
		0.18							-	
		1.16		200.16	201.32	1.16			Silty sandstone - irregular bedding, calcite veins in centre and base	
		0.68		201.32	202.07	0.75			Siltstone - calcite veins	
								TOP OF BOX 73		
15°	667 203.30	0.07							-	
		1.76		202.07	203.83	1.76			Sandstone - light to medium grey, fine grained, silty and silt bands in top half. Carbonaceous laminations in bottom half. Calcite veins.	
		0.37		203.83	204.20	0.37			Siltstone	
		0.44		204.20	205.20	1.00			Mudstone - dark grey. Slightly carbonaceous. Many thin zones of wavy calcite veining.	
		0.38							TOP OF BOX 74	
								Mudstone - veinlets throughout especially at base		

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

P-141A(10-80)

SHEET NO.: 30

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION	
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.				
25°	677										
	206.35	0.18								Mudstone - veinlets throughout especially at base	
		0.68		205.20	206.86	1.66				Carbonaceous mudstone - few calcite veins	
		0.17								Carbonaceous mudstone - heavily broken. A few stoney coal pieces and some powdered coal.	
		0.11								Carbonaceous mudstone - solid	
		0.38								Carbonaceous mudstone - heavily broken. Listric surfaces.	
		684		0.61	206.86	207.47	0.61				Core loss - rock.
		208.48	0.32								Carbonaceous mudstone - listric fracture surfaces. Solid.
											TOP OF BOX 75
			0.51		207.47	207.98	0.51				Mudstone - dark grey, less carbonaceous than above. Coal stringers.
		2.14		207.98	210.12	2.14				Siltstone - medium to dark grey with mudstone and sandstone bands.	
										TOP OF BOX 76	
		0.29		210.12	210.81	0.69				Silty sandstone - argillaceous bands	
	694										
	211.53	0.40								Silty sandstone - several mudstone bands.	

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

P-141A(10)

SHEET NO.: 31

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
15°		1.05		210.81	211.86	1.05			Sandstone - light grey, fine grained, carbonaceous laminations, calcite veins, clean siltstone.	
		0.35		211.86	212.21	0.35			Mudstone - medium grey, abrupt contact in steeply dipping section.	
		0.44		212.21	212.65	0.44			Silty sandstone - very steep dips	
		0.18		212.65	214.85	2.20			Mudstone - laminated with thin silts. TOP OF BOX 77	
		2.02							Mudstone - silty laminations with silty bands	
		0.74		214.85	215.89	1.04			Siltstone - medium grey, generally massive TOP OF BOX 78	
		0.30							Siltstone - laminated	
		0.65		215.89	216.71	0.82			Silty mudstone - slightly carbonaceous at top.	
		714 217.63								
		0.17								
		0.72		216.71	217.43	0.72			Siltstone - dark grey	
	0.56		217.43	218.88	1.45			Silty mudstone - calcite veins, wavy at top		

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

P-141A(10)

SHEET NO.: 32

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
20°		0.89							TOP OF BOX 79	
			0.40	218.88	219.28	0.40			Silty mudstone - broken at base, coal stringers Core loss - rock	
		0.31		219.28	219.59	0.31			Carbonaceous mudstone - coal stringers	
		724								
		220.68								
			1.25	0.51	219.59	220.10	0.51			Core loss - rock
					220.10	221.43	1.33			Carbonaceous mudstone - broken at base, listric surfaces.
			0.08							TOP OF BOX 80
			0.66		221.43	222.09	0.66			Carbonaceous mudstone - with coal & rock powder. Siltstone - interlaminated bands of siltstone, fine grained, sandstone and mudstone.
			0.54		222.09	231.78	9.69			Sandstone - light grey, fine grained, with thin interbeds of mudstone and siltstone decreasing in thickness and frequency towards base.
20°										
		734								
		223.72								
			1.33							
			1.37							
	745									
	227.08									
		1.18								
		2.03								
	755									
	230.12									
		0.61								

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

P-141A(10)

SHEET NO.: 33

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		2.63								TOP OF BOX 83 Sandstone - light grey, fine grained, with thin interbeds of mudstone and siltstone, decreasing in thickness and frequency towards base.
	766 233.48									
		2.68		231.78	234.85	3.07				TOP OF BOX 84 Siltstone - occasional sandy bands, carbonaceous mudstone, band near top. Has a coal band (broken at base), laminated towards base of unit.
		0.39								TOP OF BOX 85
	776 336.52									
7°		2.32		234.85	238.13	3.28				Silty sandstone - very fine grained, medium grey, laminated with silt and mudstone bands. Occasional calcite veining, bedding flattens off in bottom 0.20m, very quickly.
		0.55								TOP OF BOX 86 Silty sandstone - bedding is shallow compared to normal Core is broken throughout but very heavily broken (gravel) at base. Have calcite veining though not heavy Immediately under this unit is a similar lithology with near vertical dips.
45°		0.41								"POSSIBLE FAULT HERE"
5°			0.28	238.13	238.41	0.28				Core loss - rock

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

P-141A(10)

SHEET NO.: 34

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
0°	787 239.88	1.63		238.41	241.10	2.69			Siltstone - sandy, has sandstone and mudstone laminae TOP OF BOX 87	
10°		1.06							Siltstone - mudstone bands towards base.	
		0.52		241.10	242.69	1.59			Silty mudstone - occasional coal stringer and calcite veins.	
	797 242.93	1.07							TOP OF BOX 88	
		1.16		242.69	243.85	1.16			Mudstone - dark grey, carbonaceous in places, broken heavily at base, calcite veining and listric surfaces.	
			0.20	243.85	244.05	0.20			Core loss - rock.	
	805 245.36	0.28		244.05	244.33	0.28			Mudstone - broken	
		0.90		244.33	245.93	1.60			Silty mudstone - as above.	
		0.70							TOP OF BOX 89	
		0.80		245.93	246.73	0.80			Siltstone - laminated with argillaceous bands.	
		0.45		246.73	247.47	0.74			Mudstone - dark grey, slightly carbonaceous, coal stringers.	

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

P-141A(10)

SHEET NO.: 35

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

3CA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
28°	815 248.41	0.29								Mudstone - dark grey, slightly carbonaceous, coal stringers
		0.27		247.47	247.74	0.27				Sandstone - with carbonaceous mudstone layers, heavy calcite veining, irregular contact at base, - sedimentary.
		0.12		247.74	248.50	0.76				Carbonaceous mudstone - dark grey, coal stringers, listric surfaces.
		0.64								TOP BOX OF BOX 90
		0.09		248.50	248.59	0.09				Carbonaceous mudstone - broken
		1.38		248.59	250.58	1.99				Coal - dull banded
		824 251.16	0.61							Carbonaceous mudstone - broken
			0.70		250.58	251.28	0.70			TOP OF BOX 91
										Silty mudstone - 0.08m from top have a soft fibrous white mineral along fracture.

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

P-141A(10)

SHEET NO.: 36

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.49		251.28	252.77	1.49			Siltstone - calcite veins	
		0.43		252.77	253.26	0.49			Carbonaceous mudstone - listric surfaces, coal stringers, broken, some coal fragments.	
	834 254.20	0.06							TOP OF BOX 92	
		2.72		253.26	260.14	6.88			Mudstone - carbonaceous in places, very steeply bedded.	
		0.52							TOP OF BOX 93	
	844 257.25	2.11							Mudstone - broken, particularly at base (heavily)	
	850 259.08	1.43							Mudstone - broken throughout, some coal powder mixed with mudstone powder just below top.	
		0.10							- heavily broken	
		0.20		260.14	260.34	0.20			Coal and rock - pieces of carbonaceous mudstone set in a powder of coal and carbonaceous mudstone.	
		0.25		260.34	263.92	3.58			Carbonaceous mudstone - heavily broken.	



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

P-141A(10)

SHEET NO.: 37

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
	856.5 261.06	0.73							Carbonaceous mudstone - broken, heavily at base, coal fragments near base. TOP OF BOX 95	
	860 262.13	0.57							Carbonaceous mudstone - heavily broken	
	865 263.65	1.35							Carbonaceous mudstone - heavily broken towards base.	
		0.36	0.70	263.92	264.62	0.70			Core loss - rock TOP OF BOX 96	
		0.32							Carbonaceous mudstone - heavily broken	
		0.34		264.62	264.96	0.34			Coal & rock - large pieces of carbonaceous mudstone set in powder and small pieces of coal and carbonaceous mudstone	
		0.11		264.96	265.07	0.11			Carbonaceous mudstone - one larger piece	
		0.11		265.07	265.18	0.11			Coal & rock - small pieces and powder of coal and carbonaceous mudstone.	
	871 265.48	0.50		265.18	266.34	1.16			Carbonaceous mudstone - solid, bedding is not easily detected, but where evidence of bedding is seen, it is very steep.	

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

P-141A(10-E)

SHEET NO.: 38

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.66							TOP OF BOX 97	
		0.94		266.34	267.28	0.94			Carbonaceous mudstone - broken heavily at base, coal fragments near base.	
			1.05	267.28	268.33	1.05			Mudstone - blue grey, coal laminae, slightly laminated.	
									Core loss - rock	
3°	881 268.53	0.95		268.33	279.75	11.42			-	
		0.92							TOP OF BOX 98	
									Mudstone - broken at base	
	887 270.36	1.77							-	
5°		1.33							TOP OF BOX 99	
	897 273.41	1.35							-	
		1.76							TOP OF BOX 100	
	907 276.45	0.90							-	
									Mudstone - somewhat carbonaceous, occasional coal bands, listric surfaces, broken.	

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

P-141A(10-80)

SHEET NO.: 39

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.34							TOP OF BOX 101	
	914.5 278.74								Mudstone - somewhat carbonaceous, occasional coal bands, listric surfaces, broken.	
			0.15	279.75	279.90	0.15			Core loss - rock	
		1.10							Mudstone - very carbonaceous at base	
		0.07		279.90	279.97	0.13	100	L	Coal - boney	
									TOP OF BOX 102	
		0.06		279.97	280.03				Coal - boney	
		0.05		280.03	280.08	0.05			Carbonaceous mudstone - coaly	
		0.02		280.08	280.10	0.02			Coal and bands	
		0.09		280.10	280.19	0.23	100	M	Coal - dull, hard, heavily broken	
		0.09		280.19	280.28				- dull banded, heavily broken	
		0.05		280.28	280.33		100	N	Coal - stoney	
		0.11		280.33	280.44	0.11			Carbonaceous mudstone - dark grey	
		0.05		280.44	280.49	0.05			Coal - stoney	
		0.06		280.49	280.55	0.06			Carbonaceous mudstone - dark grey	
		0.33		280.55	280.88	0.33			Coal & rock - coal, poor coal and carbonaceous mudstone, often heavily sheared as small pieces and powder. Very heavily broken.	
		0.24	0.24	280.88	281.42	0.54			Carbonaceous mudstone - coal stringers.	

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

P-141A(10-80)

SHEET NO.: 40

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
50°	921.5 280.87	0.30							Carbonaceous mudstone - coal stringers	
		0.35		281.42	281.77	0.35			Silty mudstone - dark grey	
		0.49		281.77	282.26	0.49			Silty sandstone - medium grey, argillaceous bands, calcite veining.	
	40°		0.13		282.26	282.71	0.45			Mudstone - laminated
			0.32							TOP OF BOX 103
40°		1.20		282.71	285.01	2.30			Mudstone - laminated	
									Interbedded siltstone & mudstone - in the order of 5-20cm thick beds with frequent bands of fine grained sandstone.	
		932 284.07	1.10						TOP OF BOX 104	
		1.60		285.01	286.61	1.60			Interbedded carbonaceous mudstone - siltstone and fine grained sandstone on a scale of up to 0.30m, calcite veining in carbon- aceous mudstone at top.	
	43°		0.20		286.61	287.21	0.60			Carbonaceous mudstone - as above.
942 287.12		0.40							Carbonaceous mudstone - coal bands at base (0.06m)	

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

P-141A(10)

SHEET NO.: 40a

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
			0.19	287.21	287.40	0.19		00438 ↑ 0"	Core loss - coal	
			0.12	287.40	287.52	0.12			Core loss - rock	
			0.29	287.52	287.81	0.29			Core loss - coal	

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

P-141A(10-80)

SHEET NO.: 41

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
40°	949 289.26	0.11		287.81	287.92	0.11		15.49	"0"	Coal - Dull Banded, big pieces
		0.12		287.92	289.63	1.71				Carbonaceous Mudstone - as above
		0.65								TOP BOX 105
		0.94								Carbonaceous Mudstone - Thick coaly stringers
		0.90		289.63	292.57	2.94				- Becoming less carbonaceous towards base. Also becomes laminated and siltier towards base.
45°	957 291.69	0.71							Silty Sandstone - Fine grained, laminated with silt and clay bands and laminations.	
		1.33						TOP BOX 106		
		0.29		292.57	293.78	1.21		- Silty at base, B C A at base		
		0.14						Carbonaceous Mudstone - Coal Stringers		
	962 293.22							- Very broken		
			0.53	293.78	294.31	0.53			TOP BOX 107	
		0.78							CORE LOSS - ROCK	
									- Broken throughout	

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

P-141A(10-80)

SHEET NO.: 42

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
40°	968 295.05	0.07		294.31	294.38	0.07			Coal & Rock - Powder and small pieces	
		0.10		294.38	294.48	0.10			Carbonaceous Mudstone - as above	
		0.06		294.48	294.54	0.06			Coal & Rock - as above	
		0.20		294.54	294.74	0.20			Carbonaceous Mustone - as above	
		1.35		294.74	297.09	2.35			Mudstone - Carbonaceous at top, laminated	
45°	977 297.79	1.00							TOP BOX 108 - Carbonaceous in centre	
		0.29		297.09	298.03	0.94			Sandstone - Fine grained silt and argillaceous laminae and bands	
		0.65							-	
		0.68		298.03	299.09	1.06			Carbonaceous Mudstone - Coal Stringers, broken at centre and base	
		0.38							TOP BOX 109	
		0.14	0.05	299.09	299.14	0.05			CORE LOSS - COAL	
		299.14	299.28	0.14		28.57	P	Coal & Rock - Pieces of dull banded coal and carbonaceous mudstone in powder of coal		
	0.60	299.28	299.88	0.60				CORE LOSS - COAL		
	0.06	299.88	299.94	0.06		38.78	Q	Coal - Dull & Bright, pieces in coal powder		

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

P-141A(10-80)

SHEET NO.: 43

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
35°	985/ 300.23	0.13	0.11	299.94	300.07	0.13		100	Q ↓	Coal & Rock - Mainly coal powder (quite a lot of bright) and a few pieces of carbonaceous mudstone (50:50)
		0.78		300.07	300.18	0.11			CORE LOSS - ROCK	
		0.84		300.18	300.96	0.78			Carbonaceous Mudstone - Many plant fragments (coaly)	
	991 302.06	0.13	300.96	301.93	0.97		Mudstone - Blue - Grey			
		0.21	301.93	302.14	0.21		TOP BOX 110 Carbonaceous Mudstone - as above			
		1.77	302.14	303.91	1.77		Siltstone - with sandy bands			
	999 304.50	0.08	303.91	303.99	0.08		Carbonaceous Mudstone - coal stringers			
		0.09	303.99	304.08	0.92		COAL - Dull Banded			
		0.13	304.08	304.21			- Dull Banded ) Highly Broken			
		0.13	304.21	304.34			- Dull Banded ) Mixed Pieces			
		0.12	304.34	304.46			- Bright Banded			
		0.07	304.46	304.53			- Dull & Bright			
							TOP BOX 111			
			0.08	304.53	304.61				- Dull Banded ) Heavily broken	
			0.06	304.61	304.67				- Dull ) Mixed pieces	
		0.12	304.67	304.79			- Dull & Bright			
		0.12	304.79	304.91			- Dull & Bright - Heavily broken and powdered			

00441



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

P-141A(10-80)

SHEET NO.: 44

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JP CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION		
				FROM	TO	APPAR. THK.	TRUE THK.					
33°		0.09		304.91	305.00	0.09		41.46 ↑ 00442 ↓	S	Carbonaceous Mudstone - dark grey		
	<u>1002</u>		0.04	305.00	305.04	0.04					CORE LOSS - ROCK	
	<u>305.41</u>	0.08		305.04	305.12	0.08					Carbonaceous Mudstone - dark grey, heavily broken; the pieces are completely intermixed with coal below	
		0.17	0.20	305.12	305.32	0.20					CORE LOSS - COAL	
				305.32	305.49						Coal - Very heavily broken and powdered, dull and bright Completely intermixed with the carbonaceous mudstone above.	
		0.76		305.49	306.25	0.76					Carbonaceous Mudstone - Decreases in carbon content towards base.	
		0.48		306.25	307.17	0.92					Mudstone - Blue - Grey	
	<u>1007</u>											
	<u>306.93</u>	0.44										
		0.20		307.17	307.37	0.20					TOP BOX 112	
		0.10		307.37	307.47	0.10					Carbonaceous Mudstone - Plant fragments, broken	
			0.30	307.47	307.77	0.30					Coal - Very heavily broken, Dull & Bright with some boney and mudstone pieces	
		0.50		307.77	308.27	0.50					CORE LOSS	
<u>1014</u>	0.43		308.27	308.70	0.43				Carbonaceous Mudstone - broken			
<u>309.07</u>									Carbonaceous Mudstone - broken			

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

P-141A(10-80)

SHEET NO.: 45

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
40°		1.11		308.70	313.98	5.28			Siltstone - With mudstone bands  TOP BOX 113  - Interbedded with up to 0.30m thick mudstone layers	
	1025 312.42	2.02								
		2.15							TOP BOX 114 - Sandstone bands show cross-bedding (small- scale) which indicates that the strata is the right way up. Argillaceous bands decrease and sandy bands increase in frequency towards base.	
		0.53		313.98	314.91	0.93			Silty Sandstone - Fine grained  TOP BOX 115	
	1035 315.47	0.40							-	
37°		2.10		314.91	318.02	3.11			Siltstone - With sandy and argillaceous bands and laminaes.  TOP BOX 116	
	1045 318.52	0.86							-	
		0.15	0.05	318.02 318.17	318.17 318.22	0.05			- Carbonaceous at base	
								T 00443	CORE LOSS	

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

P-141A(10.80)

SHEET NO.: 46

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION	
				FROM	TO	APPAR. THK.	TRUE THK.				
		0.12		318.22	318.34	1.40		96.55	T	COAL - Dull with some thin boney bands ) Very heavily - Dull )-broken - Dull Banded, sheared ) throughout - Dull Banded, Lots of powdered coal - Dull Banded - Fair - Dull - Fair - Dull Banded - Fair - Dull Banded - Very heavily broken - Dull Banded - Fair - Dull Banded - Fair - Dull Banded Very heavily broken - Dull Banded - Heavily broken - Dull Banded - Mainly powder and small pieces - Dull and Bright - Mainly powder and small pieces - Dull Banded - Mainly powder and small pieces plus a few carbonaceous claystone pieces	
		0.04		318.34	318.38				00443		
		0.05		318.38	318.43						
		0.13		318.43	318.56						
		0.04		318.56	318.60						
		0.04		318.60	318.64						
		0.19		318.64	318.83						
		0.12		318.83	318.95						
		0.18		318.95	319.13						
		0.09		319.13	319.22						
		0.07		319.22	319.29						
		0.11		319.29	319.40						
		0.09		319.40	319.49						
		0.05		319.49	319.54						
		0.08		319.54	319.62						
			0.03	319.62	319.65	0.03					
		0.11		319.65	319.76	0.11	47.92	U			CORE LOSS - ROCK
			0.22	319.76	319.98	0.22				Carbonaceous Mudstone - Heavily broken	
		0.03		319.98	320.01	0.03			CORE LOSS - COAL		
									COAL - Dull Banded		
	1051										
	320.34										
		0.09		320.01	320.10	0.09				COAL - Dull & Bright - Heavily broken	
		0.08		320.10	320.18	0.08				Carbonaceous Mudstone -as above	
		0.05		320.18	320.23	0.05				COAL - Dull & Bright	

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

P-141A(10-80)

SHEET NO.: 47

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JP CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
35°		0.02		320.23	320.71	0.48			Carbonaceous Mudstone - broken  TOP BOX 117	
		0.46							Carbonaceous Mudstone - Dark Grey, coal stringers	
		2.19		320.71	323.16	2.45			Siltstone - With sandstone bands and argillaceous laminations  TOP BOX 118	
		0.26							-	
	1061.5									
	323.55									
		2.20		323.16	326.65	3.49			Sandy Siltstone - very sandy, almost a fine grained sandstone some sandstone bands and argillaceous laminations  TOP BOX 119	
		0.81							- Small scale cross-bedding shows "Tops Up"	
	1072									
	326.75									
		0.48							- Less sandy more argillaceous towards base	
35°		1.37		326.65	328.02	1.37			Silty Mudstone - With occasional sandstone bands carbonaceous at base.	
		0.91		328.02	328.93	0.91			TOP BOX 120 Carbonaceous Mudstone - as above	

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

P-141A(10-80)

SHEET NO.: 48

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.43		328.93	329.36	0.43			Siltstone - as above	
	1082.5									
30°	329.95	1.34		329.36	331.14	1.78			Silty Sandstone - Fine grained with some many silt bands and argillaceous bands and laminae	
									TOP BOX 121	
		0.44							- With carbonaceous laminae	
37°		1.34		331.14	332.89	1.75			Siltstone - Argillaceous laminations	
	1093									
	333.15	0.41							- Coal stringers	
		0.45		332.89	334.88	1.99			Sandstone - fine grained	
									TOP BOX 122	
		1.54							- Argillaceous laminations throughout, especially towards base, "tops up"	
		0.80		334.88	335.68	0.80			Siltstone - With thin sandstone bands and mudstone bands	
	1103.5									
	336.35	0.23		335.68	335.91	0.23			Silty Mudstone - Dark grey slightly carbonaceous	
		1.39		335.91	337.30	1.39			Siltstone - with argillaceous and sandy laminae and bands	

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

P-141A(10-80)

SHEET NO.: 49

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
33°		1.28		337.30	338.87	1.57			Silty Sandstone - Very fine grained, almost a silt. Carbonaceous laminae and argillaceous bands in top half.  TOP BOX 124	
		0.29							- Broken at top, marcasite mineralization at some fracture surfaces.	
	1114									
	339.55									
		0.33			338.87	339.20	0.33		Mudstone - Blue-grey, laminated	
		0.66			339.20	339.86	0.66		Carbonaceous Mudstone - Dark grey, generally massive, coal stringers and stoney coal bands.	
		0.08			339.86	339.94	0.08		Coal - Stoney with much marcasite	
		0.48			339.94	340.42	0.48		Carbonaceous Mudstone - as above, broken	
		0.70			340.42	341.12	0.70		Mudstone - Blue-grey, massive, slightly silty especially at base	
		0.90			341.12	342.02	0.90		TOP BOX 125 Siltstone - Sandy in places	
	1124.5									
	342.75									
	1.06			342.02	343.08	1.06		Silty Sandstone - Very fine grained, argillaceous laminae		

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

P-141A(10-80)

SHEET NO.: 50

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
20°		0.79		343.08	347.76	4.68			Siltstone - Argillaceous TOP BOX 126	
		1.25								
	1135									
30°	345.95	1.29							- Generally massive TOP BOX 127	
40°		1.35								
		0.25		347.76	348.01	0.25			Carbonaceous Siltstone - Dark grey with plant fragments	
		0.21		348.01	348.22	0.21			Carbonaceous Mudstone - Dark grey , silty	
	1145.5									
	349.15	0.10		348.22	348.32	0.13	100	V <sub>5</sub> 00445	Coal - Stoney	
		0.03		348.32	348.35			X	Coal - Stoney	
		0.21		348.35	348.56	0.36	49.32	W 00446	- Dull Banded, heavily sheared - Fair	
		0.15		348.56	348.71			X	- Dull Banded, sheared in Top Half, broken	
		0.20	0.37	348.71	349.08	0.37		X	CORE LOSS - COAL	
		0.20		349.08	349.28	0.20	100	X 00447	Carbonaceous Mudstone - Highly carbonaceous sheared, some sheared, thin coal bands Listric surfaces	
		0.11	0.11	349.28	349.39	0.11		X	CORE LOSS - COAL	
		0.04		349.39	349.43	0.50	81.97	Y	Coal - Dull Banded, sheared, broken	
		0.23		349.43	349.66				Coal - Dull Banded - Fair	
		0.15		349.66	349.81				- Dull Banded - Heavily broken	
		0.08		349.81	349.89			00448	- Dull - Fair	

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

P-141A(10-80)

SHEET NO.: 51

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
30°		0.14		349.89	350.03	0.14			TOP BOX 128 Carbonaceous Mudstone - Plant fragments	
		1.50		350.03	352.07	2.04			Siltstone - Argillaceous in top half, sandy in lower half	
	1155.5								- Argillaceous	
	352.20								TOP BOX 129	
		0.54							Siltstone - Laminated with sandy and argillaceous bands	
30°		1.11		352.07	353.18	1.11			Silty Mudstone - Slightly laminated	
		0.81		353.18	353.99	0.81			Mudstone - Dark Grey , generally massive	
		0.17		353.99	356.18	2.19				
	1166									
	355.40									
		0.51								
		1.51							TOP BOX 130 - Silt layer near centre. Some coal powder in broken core just above base. Broken in bottom half	
			0.22	356.18	356.40	0.22			CORE LOSS	



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

P-141A(10-80)

SHEET NO.: 52

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
40°	1174	0.50		356.40	356.90	0.50			Siltstone - laminated	
	357.84	0.65		356.90	357.55	0.65			Sandstone - light grey, fine grained, much silt, mud and carbonaceous laminations in top half. TOP OF BOX 131	
30°		0.50		357.55	358.05	0.50			Carbonaceous mudstone - dark grey, coal stringers.	
			0.32	358.05	358.37	0.32			Core loss - coal	
		0.14		358.37	358.51	0.47	38.84	Z1	Coal - dull banded, hard, highly broken - dull banded, broken - boney, heavily broken - dull banded, pieces and powder.	
		0.13		358.51	358.64					
		0.05		358.64	358.69					
		0.15		358.69	358.84					
		0.42		358.84	359.26	0.42				
		0.11		359.26	359.37	0.11				
		0.09		359.37	359.46		45.00	Z2	Core loss - rock	
		0.06		359.46	359.52	0.06	60.00	450	Carbonaceous mudstone - broken	
		0.09		359.52	359.61	0.09		Z3	Core loss - coal	
		0.18		359.61	359.79	0.18		451	Coal - coal powder with small pieces of carbonaceous mudstone	
								Carbonaceous mudstone - very heavily broken in top 0.08m. Pieces of carbonaceous mudstone in a predominantly rock powder, but with substantial amounts of coal powder intermixed. The lithology is as above.		
			0.59	359.79	360.38	0.59			Core loss	
		0.25		360.38	361.73	1.35			Silty mudstone - dark grey, massive.	



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

P-141A(10-80)

SHEET NO.: 54

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
	1215	2.35								Siltstone - thick sandstone layer near base. (0.50m) thick. TOP OF BOX 136
	370.33									
33°	1225	0.51								-
	373.38									
		0.23		373.13	374.65	1.52				Mudstone - faintly laminated with sand and silt layers in lower half, coal stringers and carbonaceous zones.
35°		0.59		374.65	375.89	1.24				Siltstone - dark grey, generally massive. TOP OF BOX 137
28°	1235	0.65								-
		0.56		375.89	378.10	2.21				Mudstone - blue grey to dark grey, silty laminations and bands particularly in lower half.
		1.55								Mudstone - blue grey to dark grey, silty laminations and bands particularly in lower half.

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

P-141A(10-80)

SHEET NO.: 55

HOLE NO.: GDR-DDH-80-22 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
27°		0.10							TOP OF BOX 138	
		1.52		378.10	380.64	2.54			Mudstone - blue grey to dark grey, silty laminations and bands particularly in lower half.	
									Carbonaceous silty mudstone - dark grey "gritty". Plant fragments, some non-carbonaceous zones. Massive.	
		1245								
		379.48								
		1.02							- Quite silty towards base.	
		0.81			380.64	381.45	0.81		TOP OF BOX 139	
		1.33			381.45	385.61	4.16		Siltstone - very argillaceous, slightly carbonaceous with plant fragments at top. Dark grey.	
		1255							Siltstone - light grey, sandy, massive.	
		382.52							Siltstone - sandstone, fine grained at base.	
	0.57							TOP OF BOX 140		
	2.26							Siltstone - sandstone, fine grained at base.		
	0.34			385.61	391.06	5.45		Sandstone - light grey, medium gray, occasional calcite veins.		
	1266									
	385.88									



COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

F-257 (12-00)

DENSITY

RESISTIVITY

DRILL NO. GDR-DDH-80-22

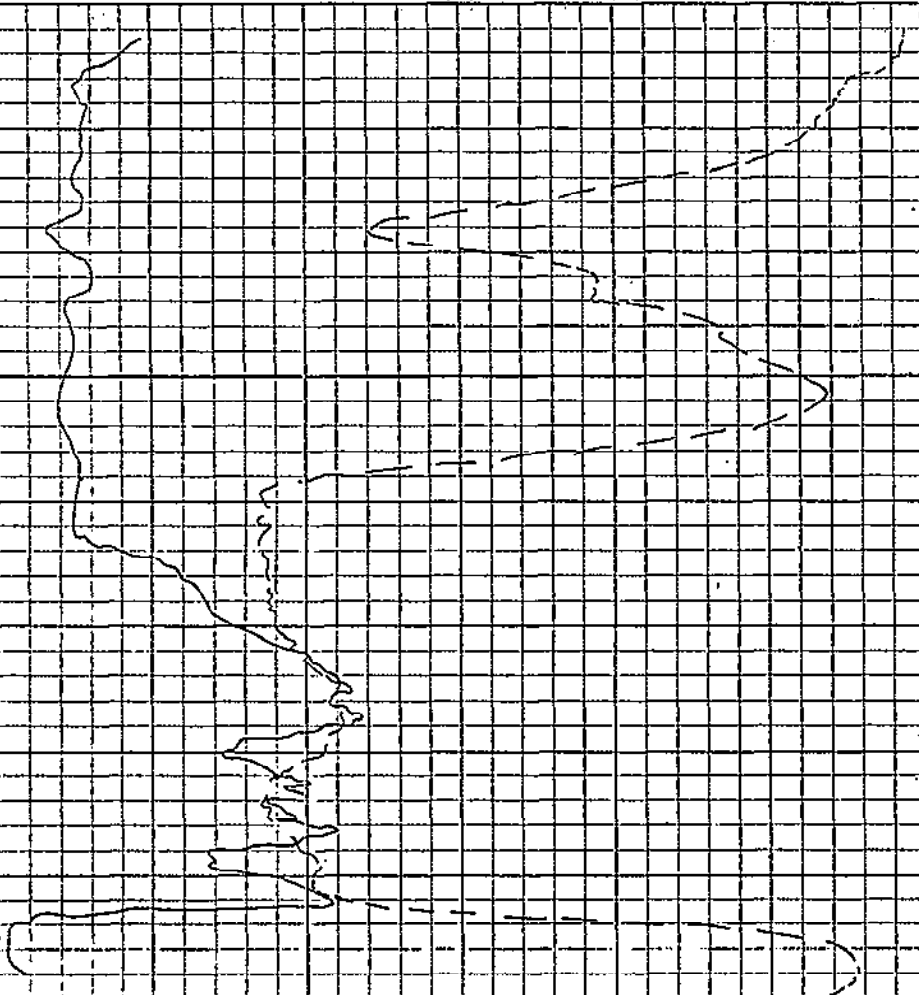
SEAM

APPARENT THICKNESS  
33.42 - 39.33 m

SCALE 1:40

DENSITY SCALE	RESISTIVITY SCALE	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS						
					ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	Psi.
1.00	1.00		-33.42			0.36 (0.21)		00424	.60	30.04	22.57	46.79	1.25	10,500	8	
1.10	1.10		-33.99		1.61			00425	.98	77.31	9.88	9.83	.55	2,304	0	
1.20	1.20		-35.60			(0.97) 1.49		00426	.73	5.15	27.57	66.55	1.28	18,460	8	
1.30	1.30		-38.06			0.75 (0.07)		00427	.71	5.72	27.66	65.91	.89	14,395	8	
1.40	1.40		-39.33													

GEOPHYSICAL LOGS



COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

DENSITY

RESISTIVITY

DRILL NO. GDR-DDH-180-22

SEAM

SEAM INTERVAL

APPARENT THICKNESS  
68.89 - 70.94m

DENSITY SCALE  
1.0 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

SEAM COMP.

DEPTH

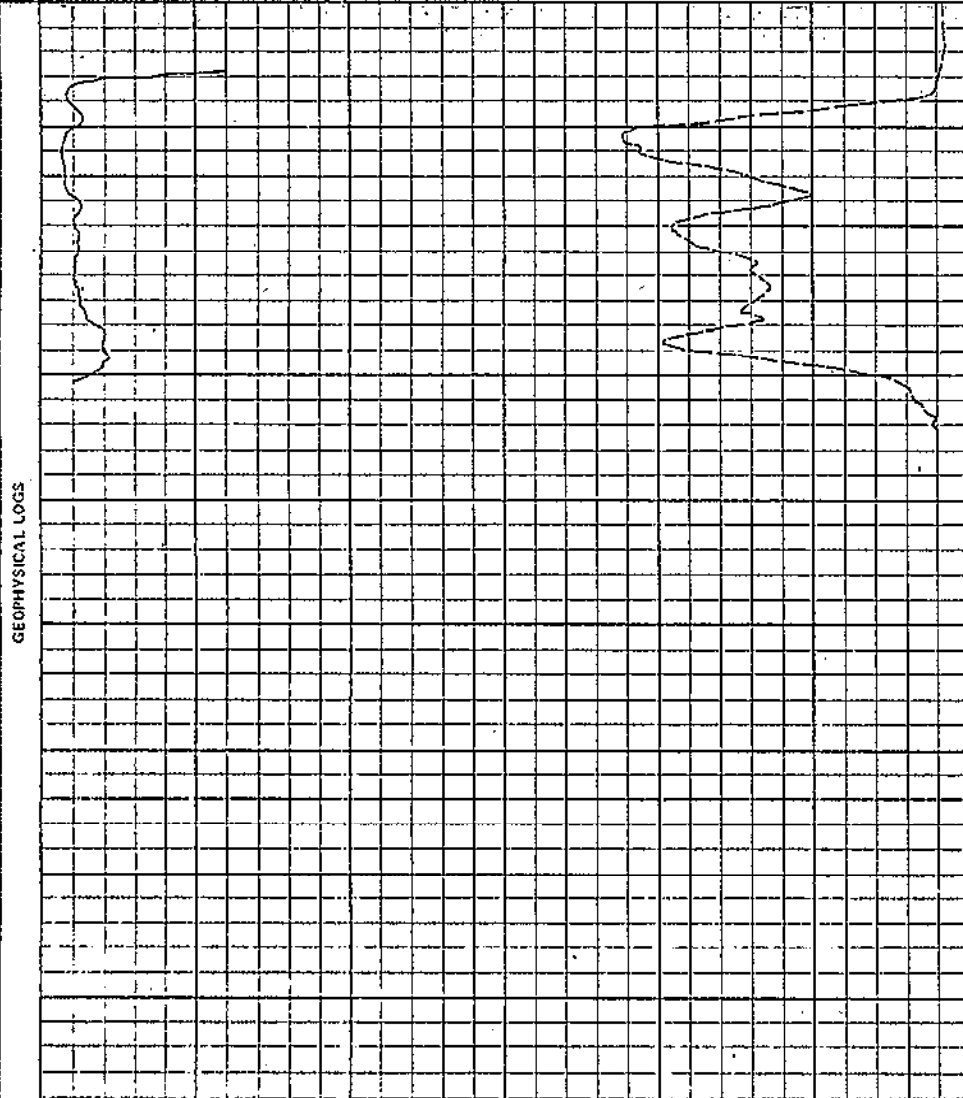
COAL SEAM LOG

INTERVAL

REC.

SAMPLE

PROXIMATE ANALYSIS



68.89  
69.64  
70.94



ROCK	COAL
0.18	0.05 (0.52)
0.14 (0.42)	0.17 (0.57)

NUMBER	COMPOS.
00428	
00429	

MOIST	ASH	VM	FC	S	BTU	FS
.89	80.01	9.74	9.36	.48	2,185	0
.79	73.05	11.81	14.35	.67	2,780	0.5

GEOPHYSICAL LOGS

COAL SEAM DATA SHEET

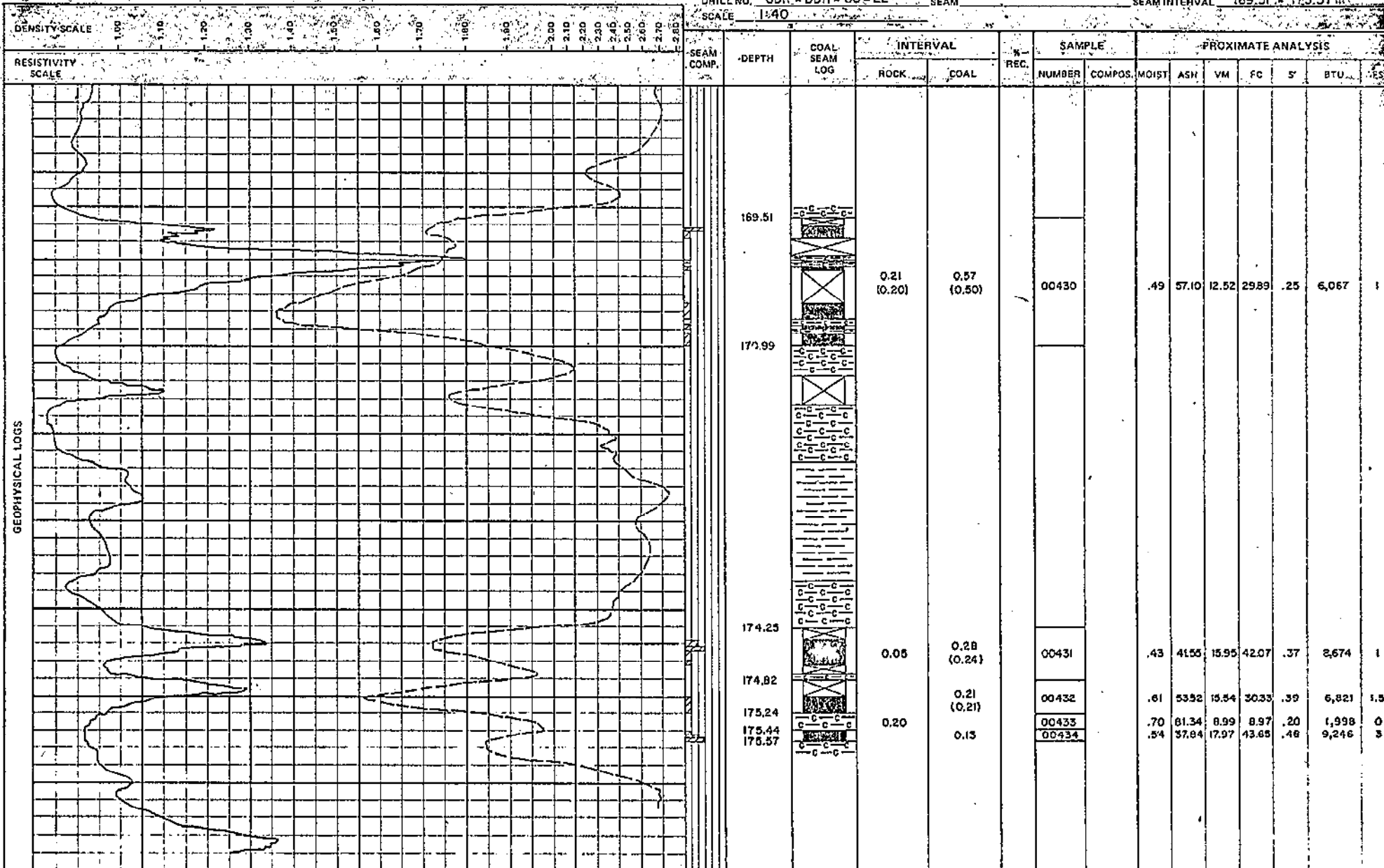
GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 11-2

DENSITY --- RESISTIVITY ---

DRILL NO. GDR-DDH-80-22 SEAM

SEAM INTERVAL APPARENT THICKNESS  
169.51 - 175.57 m



GEOPHYSICAL LOGS





COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12-80)

DENSITY \_\_\_\_\_ RESISTIVITY \_\_\_\_\_

DRILL NO. GDR-DDH-80-22 SEAM

APPARENT THICKNESS  
SEAM INTERVAL 303.99 - 305.49m

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	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS								
					ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	FSI		
			303.99															
			304.91		0.17 (0.04)	0.17 (0.20)	00441		.75	6.64	25.47	67.14	.99	14,569	8.5			
			305.49				00442		.89	49.86	15.62	33.53	.56	7,235	2			

GEOPHYSICAL LOGS

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-257 (12-85)

DENSITY ----- RESISTIVITY -----

DRILL NO. **GDR - DDH - 80 - 22** SEAM  
SCALE **1:40**

SEAM INTERVAL **318.17 - 320.10 m**  
APPARENT THICKNESS

DENSITY SCALE 1.00 1.10 1.20 1.30 1.40 1.50 1.60 1.70 1.80 1.90 2.00 2.10 2.20 2.30 2.40 2.50 2.60 2.70 2.80	RESISTIVITY SCALE	SEAM COMP.	DEPTH	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS									
				ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	FSI			
			318.17			1.40 (0.05)	00443		.65	10.15	22.54	66.66	.92	13,724	5.5			
			319.62		0.11 (0.03)	0.12 (0.22)	00444		.70	50.47	16.25	32.58	.76	7,087	3.0			
			320.10															








GEOPHYSICAL LOGS

# COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

DRILL NO. **GDR-DDH-80-22** SEAM \_\_\_\_\_ APPARENT THICKNESS **348.22 - 349.89 m.**

SCALE **1:40** SEAM INTERVAL **348.22 - 349.89 m.**

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	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS								
					ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	FSI		
			348.22															
			348.35							0.51	64.32	11.50	23.67	0.29	4,512	0		
						0.13			00445	0.21	6.51	22.91	70.37	0.79	14,330	4		
						0.36 (0.37)			00446	0.44	30.23	20.32	49.01	0.62	10,473	4		
			349.08			0.20			00447	0.29	12.22	25.47	62.02	0.61	13,300	8.5		
			349.28						00448									
																		
			349.89															

GEOPHYSICAL LOGS



DIRECTIONAL SURVEY

ROKE OIL ENTERPRISES LIMITED

**COMPANY:** GULF CANADA RESOURCES INC.      **GRID:** \_\_\_\_\_      **DATE SURVEYED:** 4 SEPTEMBER 1980  
**DRILL HOLE:** GDR - DDH - 80 - 22      **LATITUDE:** \_\_\_\_\_      **SURVEY BY:** SIM  
**LOCATION:** \_\_\_\_\_      **DEPARTURE:** \_\_\_\_\_      **WITNESSED BY:** ZSCHACH  
**FIELD:** GOODRICH      **ELEVATION:** \_\_\_\_\_      **CALCULATIONS BY:** \_\_\_\_\_  
**MAGNETIC DECLINATION:** \_\_\_\_\_      **CORRECTION OF:** \_\_\_\_\_      **FOR:** \_\_\_\_\_ **GRID:** \_\_\_\_\_

Number	Cable Depth	Slant Angle	Slant Angle Bearing	Number	Cable Depth	Slant Angle	Slant Angle Bearing	Number	Cable Depth	Slant Angle	Slant Angle Bearing
0	0	0	35.2	11	165	2.72	84.8	22			
1	15	3.17	276.4	12	180	2.74	101.3	23			
2	30	3.16	195.2	13	195 *	3.76 3.77	97.8 124.8	24			
3	45	3.80	189.0	14	210	4.21	143.7	25			
4	60	3.80	195.2	15	225 *	4.78 4.62	156.5 151.1	26			
5	* 75	3.59 3.60	106.3 195.1	16	240	4.84	156.4	27			
6	90	3.80	194.6	17	255	4.85	135.1	28			
7	105	2.72	194.0	18	270	5.24	149.7	29			
8	120	2.72	196.5	19	285	4.61	156.4	30			
9	135	2.24	173.5	20	300	5.11	144.1	31			
10	* 150	2.88 2.71	154.3 170.2	21				32			

\* REPEAT READINGS

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

P-141A110 83

SHEET NO.: 1

HOLE NO.: GDR-DDH-80-23 ELEV. COLLAR: 1187.89m TOTAL DEPTH: 187.1 DATE BEGUN: \_\_\_\_\_  
 PROJECT: Goodrich BEARING: \_\_\_\_\_ CORE SIZE: HQ DATE COMPL.: September 11/80  
 CO. ORD.: 140 680.42N 549 629.13E HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JS CONTRACTOR: Acadia

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				° REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
30 <sup>0</sup>		1.07		15.50	16.57	1.07			TOP OF BOX 1 Sandstone - medium grey, fine grained, calcareous cement, no porosity, lithic grains, very muddy, contains rip up clasts of arenaceous mudstone. Very short gradational lower contact. Rip up clasts indicate "tops up". Calcite filled fractures (CA 70 <sup>0</sup> /0.5m), (CA 30 <sup>0</sup> /0.3m) with apparent slippage (? fault of minor significance).	
	54' 16.45m								Core loss - rock	
		.06		16.57	16.63	0.06				
		0.78		16.63	17.55	0.92			Mudstone - dark grey to black, arenaceous wisps, parallel bedding. Calcite filled fractures (CA 75 <sup>0</sup> /0.3m).	
37 <sup>0</sup>		0.14							TOP OF BOX 2	
	58' 17.69m		0.29	17.55	17.84	0.29			Core loss - rock	
	61' 18.59m		.87	17.84	19.22	1.38				
	65' 19.81m		.51						Core loss - rock	
		.55		19.22	19.80	0.58			Calcite filled fractures (CA 70 <sup>0</sup> /1.0m)	
		.88		19.80	21.23	1.43			TOP OF BOX 3 Calcite, filled fractures (CA 70 <sup>0</sup> /0.6m)	

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

P-141A702

SHEET NO.: 2

HOLE NO.: gdr-DDH-80-23 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL: \_\_\_\_\_  
 CO. ORD: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JS CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT			S, REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.			
37°	71' 21.64m	1.28	.40	21.23	21.63	0.40			Core loss - rock
				21.63	22.91	1.28			
	77' 23.47m	.30	0.55	22.91	23.46	0.55			Core loss - rock
				23.46	23.76	0.30			
			0.84	23.76	24.60	0.84			TOP OF BOX 4 Core loss - rock
			.40	24.60	25.00	0.40			
			.90	25.00	25.90	0.90			Sandstone - light grey, fine grained, calcite cement, no porosity, gradational contacts, very muddy to finely laminated, crossbedding indicates "tops" are up. Calcite filled fractures (CA50°/0.6m). Smaller core pieces have thin envelopes of oxidation bounding fractures (CA 50°/.08m)
	85' 25.91m	.50		25.90	27.24	0.50			Core loss - rock
				27.24	28.33	1.09			Sandstone - light grey, medium grained, gradational upper contact, muddy to finely laminated TOP OF BOX 5
			0.19						Oxidized fractures just above 27.43m marker Core loss - rock
90' 27.43m	0.45	0.18	28.33	30.70	2.37			Sandstone - light grey, medium to coarse grained, calcareous cement, no porosity, distorted coal stringers, minor coal clasts.	
			.08						Coal powder in bottom of box. Probable cor loss
20°		.62						Oxidized fractures (CA 70°-80°/0.15m)	



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

P-141A(100)

SHEET NO.: 3

HOLE NO.: GDR-DDH-80-23 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPLE:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JS CONTRACTOR:

BCA	BOX		INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				REC	SAMPLE NO.	DESCRIPTION		
	MARKER				FROM	TO	APPAR. THK.	TRUE THK.					
25°	93'		.71							Sandstone - TOP OF BOX 6 calcite fractures (CA 15°/0.5m; CA 60°/.3m) truncated by slippage along coal laminations, vuggy in part. - coal laminae of approximate thickness 5mm, slickensided, possible core loss Core loss - rock - calcite fractures (CA 45°/.2m)			
	28.35m												
	97'		.10										
	29.57m												
			.61										
			.07										
			.91								30.70	32.04	1.34
	103f		.43								0.28		
	31.39m												
			.25										
		.21											
		.05	32.04	32.09	.05	Mudstone - dark grey, gradational contact at base. TOP OF BOX 7 Sandstone? - light grey, finely laminated, calcareous cement, grading to very sandy mudstone.							
			32.09	32.37	0.28								
107f		.36											
32.61m													
			32.37	32.73	0.36	Core loss - rock							





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

P-141A

SHEET NO. 6

HOLE NO. GDR-DDH-80-23 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
15 <sup>0</sup>		1.10		42.66	43.76	1.10			Sandstone - medium grey, fine grained, calcareous, finely laminated, muddy, oxidized fracture (CA ?/-) .57m below top of box	
		.31		43.76	44.07	.31			Sandstone) - vuggy calcite cement, breccia fragments Breccia ) .07m or smaller, angular, disoriented.	
	146F/ 44.50m	.08		44.07	44.15	.08			Mudstone) - calcite veinlets, limonite oxidations Breccia ) (CA 25 <sup>0</sup> -50 <sup>0</sup> /-)	
			0.46	44.15	44.61	0.46			Core loss	
		.94		44.61	46.13	1.52			Mudstone - black, slickensided calcite fractures (CA 30 <sup>0</sup> /.35) silty laminations. TOP OF BOX 12	
		.58							calcite fractures (CA 35 <sup>0</sup> /-); slickensided, open fractures, curving, oxidized.	
			0.31	46.13	46.44	0.31			Core loss	
	152F 46.33m		0.09	46.44	46.53	0.09			Core loss	
		1.43		46.53	48.31	1.78			- open oxidized fractures (CA 20 <sup>0</sup> /.5)	
	157F 47.85m	.35							TOP OF BOX 13	
		.20		48.31	48.51	.20			FAULT - mudstone breccia, calcite cement, yellow-brown oxidation	
			0.44	48.51	48.95	0.44			Core loss	
		.38		48.95	49.33	0.38			Mudstone - as above. Yellow brown oxidized fractures (CA 30/05m). Minor calcite fracture filling	





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

P-141A110 80

SHEET NO.: 9

HOLE NO.: GDR-DDH-80-23 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				S REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
35°		.14		68.73	71.04	2.31			Mudstone - possible small fault - calcite veinlets (CA 60'/? ) and broken up core	
		1.47							Open fractures (CA 15°/.15m)	
		.52							TOP OF BOX 21	
		.18							Core broken up, surfaces coaly, slickensided with pyrite smears, minor calcite veinlets (CA ?/.02)	
		0.74	71.04	71.78	0.74					
0-15°	237' 72.24m	.89		71.78	74.66	2.88			Mudstone - dark brown to black, carbonaceous, faint silt laminae, irregular coal inclusions are smeared and slickensided, producing possible minor core losses in top half of interval. Some coal laminae are parallel to bedding.	
		.69							No apparent coal inclusions or core loss.	
		.72							TOP OF BOX 22	
		.58							Sharp lower contact	
								Sandstone - medium to dark grey, fine grained, finely laminated by mud/silt. Slickensided coal partings with pyrite smears at 75.29m marker.		

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

P-141A:10.60

SHEET NO: 10

HOLE NO.: GDR-DDH-80-23 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSSES	LITHOLOGICAL UNIT				F, REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	247' 75.29m	0.17	74.66	74.83	0.17				Core loss finely crossbedded (indicating "tops up")	
		1.20	74.83	77.19	2.36				Core axis approximately parallel to bedding - figure 8's created by intersection of crossbedded or convolute bedded sandstone, calcite veinlets parallel the curve of bedding and are truncated. Also occurs in fractures (CA 75°/.10m) throughout interval.	
		1.16							TOP OF BOX 23 grades to a dark brown sandy mudstone, calcite fractures as above. Open coaly parting parallels and splits last 0.3m of core	
	257' 78.33	0.68	77.19	77.87	0.68				Core loss	
		.37	77.87	78.24	0.37				grades quickly to mudstone	
		1.04	78.24	79.28	1.04				Mudstone - dark grey, featureless, calcite filled fractures (CA 45°/.15m)	
		.17	79.28	79.45	.17				TOP OF BOX 24 Mudstone - black rapid gradational contact at top, carbonaceous.	
		.20	79.45	79.65	0.20				Mudstone - with closely spaced thin coal laminae, slickensided.	
	262' 79.86m	0.57	79.65	80.22	0.57				Core loss 3 cm pieces of carbonaceous claystone (brown streak)	



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

P-121A, 10 80

SHEET NO. 11

HOLE NO.: GDR-DDH-80-23 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				S REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		.32		80.22	80.54	0.32				
20°		.23		80.54	81.17	.63			Mudstone - black, carbonaceous, with 2mm thick laminae of coal (2cm spacings) and slickensided coal partings parallel to bedding.	
		.40							tiny coal inclusions	
20°	267' 81.38m	1.1		81.17	84.33	3.16			Mudstone/ - Black mudstone interlaminated with lighter Claystone) brown claystone and thin (2mm) coal laminae, with undulating bedding	
15°		1.30							TOP OF BOX 25	
		.76								
		.43		84.33	84.98	.65			Mudstone - black, carbonaceous, tiny bright coal flecks in parallel orientation, dark brown streak. Grades to silt or very fine sand sized texture.	
		.22							TOP OF BOX 26	
			0.93	84.98	85.91	0.93			Core loss rock	
0-5°		.30		85.91	86.21	.30		00501	Coal and bands - interbedded dull banded, sheared coal and claystone. Beds up to 2cm thick, BCA 0° or BCA < 5°. Coal very friable and fragile.	

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

P-141A(10) 60

SHEET NO.: 12

HOLE NO.: GDR-DDH-80-23 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				S REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
5°	283' 86.26m	.05		86.21	86.26	.05			Coal and bands, pulverized	
		.16		86.26	86.42	.38			Coal and bands, pulverized	
		.22		86.42	86.64				dull banded, friable	
		.51		86.64	87.15	.51		00502		
		.08		87.15	87.23	.08			Claystone with coal powder, mixed in box	
		.34		87.23	87.57	.34			Mudstone - black, carbonaceous, with 2mm coal laminae and slickensided coal partings	
		.04		87.57	87.61	.04				
		.76		87.61	88.37	.92			Mudstone - few coal laminae, bedding almost parallel to coal axis TOP OF BOX 27	
		.16		88.37	88.53					
		.07		88.53	88.60	.07			Coal - dull and bright. Possibly just a large inclusion.	
5°	287' 87.48m	.12		88.60	88.72	.45			Mudstone - black, carbonaceous, thin coal laminae with a scatter of dull banded coal in box	
		.08		88.72	88.80				with slickensided coal partings	
		.25		88.80	89.05					
			0.89	89.05	89.94	.89				

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

P-141A(10-80)

SHEET NO. 13

HOLE NO.: GDR-DDH-80-23 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JS CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				S REC	SAMPLE NO.	DESCRIPTION			
				FROM	TO	APPAR. THK.	TRUE THK.						
30 <sup>0</sup>		.67	0.14	89.94	90.51	.67			Coal - bright banded, sheared				
		.01		90.51	90.52	.01							
		.09		90.52	90.61	.38							
		297'		90.53m	.29	90.61				90.90	.29		
		.25			90.90	91.04				.14			
					.05	91.04				91.29	.36		
					.06	91.29				91.34			
					.06	91.34				91.40			
					0.87	91.40				92.27	.87	.34	Coal - dull
												.16	dull and bright
							dull banded						
							TOP OF BOX 28						
25 <sup>0</sup>		307'	0.85	.12	92.27	92.39	.36			dull, sheared			
		93.53		.08	92.39	92.48				dull banded			
		.16		92.48	92.64		dull banded, sheared						
		.56		92.64	93.49	0.85	Claystone - carbonaceous, with bright coal laminae up to 5mm thick						
		.15		93.49	94.05	.56	Coal and bands - bright coal laminae 1mm to 1cm thick with black carbonaceous claystone laminae, slickensided contacts						









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

P-141A(10-80)

SHEET NO.: 18

HOLE NO.: GDR-DDH-80-23 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
33 <sup>0</sup>		.28 2.34		120.61	123.08	2.47			Mudstone - medium grey, silty laminae TOP OF BOX 39	
		.13 2.75		123.08	125.95	2.87			Mudstone/) - grey to black mudstone, grading into and Siltstone) out of muddy siltstone, which grades in part to very fine grained sandstone. TOP OF BOX 40	
		.12	0.35	125.95	126.30	0.35			Core loss	
	417' 127.19m	.52		126.30	126.82	0.52				
		.58		126.82	127.40	.58			Mudstone - dark grey to black, carbonaceous, with minor silt content, occasional slickensided coal parting.	
		.01		127.40	127.41	.01			Coal - dull banded. Mixed with carbonaceous claystone fragments.	
		.52		127.41	127.93	.52			Mudstone - dark grey to black, silty, short gradational contact at base	
		.69		127.93	128.62	0.69			Mudstone - dull yellow brown, contains floating angular dark mudstone fragments with calcite veins, and has one patch of brecciated fragments.	



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

P-141A(10-80)

SHEET NO.: 19

HOLE NO.: GDR-DDH-80-23 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
22°	426.5' 130.00m	.05	0.44	128.62	129.06	0.44			Mudstone - cemented by calcite (patch is 0.1m in diameter)	
				129.06	129.11	0.05			Core loss TOP OF BOX 41	
	430.5' 131.22m	1.16	0.06	129.11	130.27	1.16			Mudstone - black, silty, occasional coal laminae (2mm thick), carbonaceous	
				130.27	130.33	0.06			Core loss TOP OF BOX 42	
	437' 133.20	1.14	0.46	130.33	131.47	1.14				
				131.47	131.93	0.46				
				131.93	137.34	5.41				
	57°	447' 136.25	1.79							
		.21						Mudstone - with slickensided coal laminae		
		.99						TOP OF BOX 43		
		.05						open conchoidal fractures		
		.10								
		1.59						Single sand lamination (1cm thick) .1m below 136.25m marker		

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

P-141A(10.80)

SHEET NO.: 20

HOLE NO.: GDR-DDH-80-23 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
30 <sup>0</sup>		1.68		137.34	139.93	2.59			TOP OF BOX 44	
		0.91							Mudstone - no change, BCA 30 <sup>0</sup> from faint silt laminae, 1.15m below top of box	
	463'		0.69	139.93	140.62	0.69			Core loss	
	141.12									
25 <sup>0</sup>		.08		140.62	142.50	1.88			TOP OF BOX 45	
		1.80							Mudstone - grading to muddy siltstone at base	
		1.12		142.50	146.07	3.57			Siltstone - grey, very muddy, grading to very fine grained muddy sandstone	
	473'									
	144.17									
		1.55							TOP OF BOX 46	
	477'									
	145.39								Siltstone - grades back to silty mudstone	
		.90							Mudstone - grey-black silty	
		.30		146.07	147.94	1.87			TOP OF BOX 47	
	481'									
	146.61									
		1.57								
		.19		147.94	148.13	0.19			Sandstone - light grey, fine to medium grained, calcareous, muddy, no porosity. Contains abundant angular rip up clasts from underlying mudstone. Clasts indicate "tops up".	

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

P-141A(10-80)

SHEET NO.: 21

HOLE NO.: GDR-DDH-80-23 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
			0.07	148.13	148.20	0.07			Core loss	
	481' 148.44m									
		.13		148.20	148.33	0.13				
		.80		148.33	149.13	.80			Mudstone - dark grey to black silty. Short gradational contact at base.	
30°		.08		149.13	149.55	.42			Sandstone - light grey to salt/pepper, fine to medium grained, carbonaceous partings (slickensided) finely laminated.  TOP OF BOX 48	
		.34								
		.89		149.55	152.93	3.38			Sandstone - grey-white salt/pepper, medium grained to coarse grained, dolomitic, contains irregular coal lenses and inclusions - all disoriented. No porosity.	
	495' 150.88m									
		1.27							TOP OF BOX 49	
0-10°		1.22							Bedding almost parallel to core axis	
		.20		152.93	153.71	.78			Breccia - angular fragments of sandstone cemented by calcite veinlets (CA 70°/-)	
		.25							core split along carbonaceous parting, parallel to core.	



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

P-141A(10-8)

SHEET NO.: 23

HOLE NO.: GDR-DDH-80-23 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
25°		.26							Pebbly sandstone - mud clasts indicate "tops up"	
		.14		157.04	157.18	.14			Mudstone - thin bed of mudstone with short gradational contacts	
		1.8		157.18	158.98	1.8			Sandstone - grey to salt/pepper, fine to medium grained, muddy, crossbedded with indicated "tops up". Contains many brown mud clasts, and occasional coal inclusions. Lower contact grades quickly to finer grain size.	
25°		.40		158.98	159.38	0.40			Sandstone - grey to salt/pepper, fine to very fine grained, finely laminated, silica cement	
			0.64	159.38	160.02	0.64			Core loss in part, slickensided, carbonaceous partings	
	526' 160.52								TOP OF BOX 52	
	530' 161.15m	1.12		160.02	161.24	1.22				
		.10								
		.38		161.24	161.62	.38			Pebbly sandstone, as above	
		.40		161.62	162.02	.40			Sandstone - grey to salt/pepper, medium to coarse grained, approaching pebbly texture in part	

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

P-141A(110-80

SHEET NO.: 24

HOLE NO.: GDR-DDH-80-23 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		.25		162.02	162.27	.25			Sandstone - grey, fine to very fine grained, finely laminated by carbonaceous partings.	
			0.58	162.27	162.85	0.58			Core loss TOP OF BOX 53	
	535'	.21		162.85	163.36	.51				
	163.07m	.30							Crossbedding indicates "tops up"	
		.23		163.36	164.45	1.09			Sandstone - grey to salt/pepper, medium grained to coarse grained, grading to pebbly grain size at base where it grades quickly into the underlying conglomerate.	
	537'									
	163.68m	.86	0.10	164.45	164.55	0.10			Core loss	
		.35		164.55	164.90	.35			Conglomerate-grey, large pebble sized grains of mudstone (minor quartz) and siltstone with occasional coal fragments cemented by grey-white silica. Hairline quartz fractures (CA 50°/.02m). Core parted along single mud lamination. Matrix formed by fine grained sand. Maximum grain size -1.5cm diam., Average grain size about 7mm diam.	
30°		.51		164.90	165.41	.51			Sandstone - grey to salt/pepper, fine to medium grained. TOP OF BOX 54	
		1.24		165.41	166.65	1.24			Sandstone - grey, fine grained, grading to silt in part, muddy laminations, crossbedded, tops not distinct.	



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

P-141A(10-80)

SHEET NO.: 26

HOLE NO.: GDR-DDH-80-23 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JS CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
15°	575'	.86		174.25	177.68	3.43			Sandstone - with abundant rip-up clasts and a thin bed of mudstone (.04m). Clasts indicate "tops up". Maximum clast size (5mm x 40mm)  TOP OF BOX 58	
	175.26m	.73								
		.10								
		.36								
		1.38						Possible core loss at a slickensided joint.		
		.02		177.68	179.70	.02				
		.23		179.70	180.51	.81				
	585'	.58						Slickensided partings at 178.31m marker and large (2cm x 3cm) mud clasts at base  TOP OF BOX 59		
	178.31m									
	587'	.14								
178.92m	1.71		180.51	182.22	1.71		Siltstone - dark grey-brown, interbedded with very fine grained muddy sandstone. Bedding is convoluted, interfingering. Lower contact is short gradational.			





COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12-84)

DENSITY RESISTIVITY

DRILL NO. **GDR - DDH - 80 - 23** SEAM \_\_\_\_\_  
SCALE **1:40**

APPARENT THICKNESS  
SEAM INTERVAL **85.91 - 87.15 m.**

DENSITY SCALE	RESISTIVITY SCALE	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS									
					ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S <sup>1</sup>	BTU	%S			
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																			
			85.91																
			86.42		0.51		00501		0.85	34.67	25.02	39.71	0.40	9,286	5.5				
			87.15		0.22 (0.51)		00502		0.96	16.72	30.12	52.20	0.56	12,516	8				

GEOPHYSICAL LOGS

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-207 1124

DENSITY

RESISTIVITY

DRILL NO. GDR-DDH-80-23 SEAM \_\_\_\_\_  
SCALE 1:40

APPARENT THICKNESS  
SEAM INTERVAL 90.90 - 93.49 m.

RESISTIVITY SCALE	DENSITY SCALE	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS										
					ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	F51				
	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																			
			90.90			.36		3		0.96	12.16	22.91	63.97	0.29	13,126	1.5				
			91.74			(.48)														
			92.11			(.37)														
			93.49			(1.01)		.36		4	0.95	9.67	31.29	58.09	0.30	13,681	8			

GEOPHYSICAL LOGS

DIRECTIONAL SURVEY

ROKE OIL ENTERPRISES LIMITED

COMPANY: GULF CANADA RESOURCES INC. GRID: \_\_\_\_\_ DATE SURVEYED: 24 SEPTEMBER 1980  
DRILL HOLE: GDR-DDH - 80-23 LATITUDE: \_\_\_\_\_ SURVEY BY: SIM  
LOCATION: \_\_\_\_\_ DEPARTURE: \_\_\_\_\_ WITNESSED BY: ZSCHACH  
FIELD: GOODRICH ELEVATION: \_\_\_\_\_ CALCULATIONS BY: \_\_\_\_\_  
MAGNETIC DECLINATION: \_\_\_\_\_ CORRECTION OF: \_\_\_\_\_ FOR: \_\_\_\_\_ GRID: \_\_\_\_\_

Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing	Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing	Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing
0	0	0.95	344.1	11	165	1.62	92.6	22			
1	15	2.73	89.0	12	180	2.40	344.8	23			
2	30	2.25	24.1	13				24			
3	45	2.72	254.6	14				25			
4	60 *	2.24 2.29	248.6 252.0	15				26			
5	75	1.44	21.9	16				27			
6	90	2.50	267.3	17				28			
7	105	2.28	287.7	18				29			
8	120 *	2.24 2.49	317.2 332.0	19				30			
9	135	2.48	310.4	20				31			
10	150	2.69	342.2	21				32			

\* REPEAT READINGS

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

P-141A(10-)

SHEET NO.: 1

HOLE NO.: GDR-DDH-80-24 ELEV. COLLAR: 1333.18m TOTAL DEPTH: 303.6m DATE BEGUN: \_\_\_\_\_  
 PROJECT: Goodrich BEARING: \_\_\_\_\_ CORE SIZE: HQ DATE COMPL.: September 8/80  
 CO. ORD.: 143 146.67N 548 022.55E HOLE ANGLE: \_\_\_\_\_ LOGGED BY: CW CONTRACTOR: Coates

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
27°				0.00	3.66	3.66			TOP OF BOX 1	
		1.22		3.66	6.08	2.42			Casing - no core recovered	
									Mudstone - dark grey, black, silty laminations, coaly inclusions, bioturbations, calcite veins.	
		<u>16</u> 4.88	1.20						- few carbonaceous plant fossils	
				0.28	6.08	6.36	0.28		Core loss - rock	
				0.30	6.36	6.66	0.30		Core loss - coal	
				0.30	6.66	6.96	0.30		Core loss - rock	
				0.30	6.96	7.26	0.30		Core loss - coal	
			0.80		7.26	10.01	2.75		TOP OF BOX 2	
		<u>26</u> 7.92							- very carbonaceous, coaly inclusions and laminations, pyrite smears.	
49°		1.24							-	
									TOP OF BOX 3	
				0.86	10.01	10.87	0.86		Core loss - rock	
					10.87	11.07	0.20		- with coaly fragments, broken to crumbled.	
		<u>36</u> 10.97	0.10						- dark grey, black, silty, coaly inclusions	
				0.12	11.07	11.19	0.12		Core loss - rock	
				0.79	11.19	12.13	0.94		- with plant fossils	
								- very carbonaceous, vitrain laminations.		
			0.45	12.13	12.58	0.45		Core loss - coal		
		0.10		12.58	12.68	0.47	51.09	↑A 00472	Coal - dull banded	

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

P-141A104

SHEET NO.: 2

HOLE NO.: GDR-DDH-80-24 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: CW CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION	
				FROM	TO	APPAR. THK.	TRUE THK.				
52 <sup>0</sup>		0.37		12.68	13.05				00472	Coal - dull banded, several lcm ash bands in centre	
			0.29	13.05	13.34	0.29			*	Core loss - rock	
		0.04		13.34	13.38	0.14	32.56	B	00473	Mudstone - dark grey, very broken	
											TOP OF BOX 4
		0.06		13.38	13.44						Mudstone - badly broken, some coal pieces.
		0.04		13.44	13.48				*	C	Mudstone - dark grey, carbonaceous
			46								
			14.02								
		0.08		13.48	13.56	0.28	25.69	00474			Coal - dull banded, sheared
		0.20		13.56	13.76						- dull bright, sheared
				0.81	13.76	14.57	0.81				Core loss - coal
				0.20	14.57	14.77	0.20				Core loss - rock
				0.24	14.77	15.01	0.24				Core loss - coal
				1.99	15.01	17.68	2.67				Sandstone - light to medium grey, fine - medium grained, silt & coaly laminations, few coaly inclusions, calcite vein vugs.
	56										
	17.07								TOP OF BOX 5		
		0.68							- increased carbonaceous inclusions		
		0.96	17.68	22.99	5.31				Mudstone - medium dark grey, carbonaceous plant remains, calcite veins, becoming silty at base.		
		0.82							- light to medium, grained, silty, coaly laminations & inclusions, silty laminations		

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

P-141A10-8

SHEET NO.: 3

HOLE NO.: GDR-DDH-80-24 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: CW CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
55°	66 20.12	0.52							TOP OF BOX 6 Mudstone - medium dark grey, carbonaceous plant remains, calcite veins, becoming silty at base. - light to medium, grained, silty, coaly laminations & inclusions, silty laminations.	
		2.07							-	
	0.18							TOP OF BOX 7 - contact		
	0.71							- medium to dark grey, coaly laminations, calcite veins, carbonaceous plant remains		
	76 23.16	0.05						- very carbonaceous, core broken.		
	0.10	22.99	23.09	0.10				Core loss - rock		
	0.11	23.09	23.20	0.11				Core loss - coal		
	0.18	23.20	23.38	0.46	80.70		00475	Coal - dull banded - dull bright banded		
	0.28	23.38	23.66							
	0.44	23.66	27.64	3.98				Mudstone - medium dark grey, silty & coaly laminations, coaly inclusions, carbonaceous plant remains, pyrite specks, calcite veins. - medium dark grey, badly broken core, slickensides,		
51°		0.21								
		0.20								
	62°	1.22						TOP OF BOX 8		
0.18								- interbedded coal & mudstone, 0.05m thick, 0.13m above 86' marker		

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

P-141A(10)&

SHEET NO.: 4

HOLE NO.: GDR-DDH-80-24 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: CW CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
50°	<u>86</u> 26.21	1.22							Mudstone - dark grey TOP OF BOX 9	
		0.51							-	
			0.34	27.64	27.98	0.34			Core loss - coal	
			0.07	27.98	28.05	0.12			Coal - dull banded, contains several small mudstone laminations.	
			0.05	28.05	28.10				- powder with broken rock	
			0.35	28.10	28.45	0.35			Core loss - rock	
			0.08	28.45	32.57	4.12			Mudstone - dark grey, carbonaceous coaly laminations, badly broken, plant fossils.	
			0.05						-	
			0.08						- very carbonaceous with coaly laminations, badly broken	
			0.58						- large coaly inclusions present,	
		<u>96</u> 29.26	1.01						- little or no bedding, massive TOP OF BOX 10	
			1.26						- NOTE - ends on run do not match possible core loss, otherwise good core.	
		0.42						- badly broken		
	<u>106</u> 32.31	0.64						- badly broken, slickensides & listric surfaces.		
			0.35	32.57	32.92	0.35			Core loss - rock	



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

P-141A(10-8)

SHEET NO.: 5

HOLE NO.: GDR-DDH-80-24 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: C.W. CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
55°	116 35.35	1.33		32.92	36.40	3.48			TOP OF BOX 11	
		0.36							Mudstone - light to medium grey, silty, coaly inclusions, calcite veins. - badly broken, slickensides	
		0.58							Mudstone - core fair to good	
		0.16							- medium to dark grey, carbonaceous inclusions & laminations, calcite veining, listric surfaces with calcite smears.	
			1.05						TOP OF BOX 12	
				0.16	36.40	36.56	0.16			- Core loss - coal
			0.09		36.56	36.65	0.09			Coal - broken and powdery, rock fragments present
			0.12		36.65	37.81	1.16			Mudstone -
			0.04							- with coal fragments
			0.13							-
			0.40							- very badly broken
		126 38.40	0.47							-
				0.18	37.81	37.66	0.18			Core loss - coal
			0.03		37.66	38.05	0.06			Coal - dull banded, badly broken
		0.03							TOP OF BOX 13 - dull banded	

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

P-141A(10-8)

SHEET NO.: 6

HOLE NO.: GDR-DDH-80-24 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: C.W. CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
54°		0.75		38.05	38.80	0.75			Mudstone - broken	
			0.45	38.80	39.25	0.45			Core loss - coal	
		0.08		39.25	43.63	4.38			Mudstone - badly broken with coal in tray, listric surfaces with calcite smears.	
		1.58							- silty	
		<u>136</u>							TOP OF BOX 14	
		41.45							- fairly massive	
		0.21							- badly broken	
		0.08							-	
		0.71							- badly broken	
		0.05							-	
		1.67								
					0.31	43.63	43.94	0.31		Core loss - rock
										TOP OF BOX 15
		<u>146</u>		0.27		43.94	45.70	1.76		Mudstone -
44.50		1.30						-		
		0.19						- very carbonaceous, badly broken		
			0.25	45.70	45.95	0.25		Core loss - coal		
		0.10		45.95	46.05	0.10		Coal - dull banded, powdery & broken, with rock fragments		
		0.43		46.05	46.48	0.43		Mudstone - medium dark grey, calcite veins, few carbonaceous inclusions		

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

P-141A(10-8)

SHEET NO.: 7

HOLE NO.: DGR-DDH-80-24 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: C.W. CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
									TOP OF BOX 16	
30°	<u>156</u> 47.55	0.75	0.30	46.48	46.78	0.30			Core loss - rock	
		0.11							-	
		0.20							- dark grey, very carbonaceous, coaly laminations	
		0.01		47.84	47.85	0.01			Coal - dull banded, badly broken	
40°		1.05		47.85	51.20	3.35			Mudstone - light grey, coal laminations, inclusions calcite veins, cross beds, very silty	
52°	<u>166</u> 50.59	0.30							TOP OF BOX 17	
		0.30							-	
		0.25							- very carbonaceous	
		0.06							- badly broken	
		0.12							- very badly broken	
		0.30							- medium grey, carbonaceous inclusions, laminations, listric surfaces, very badly broken	
		0.10							-	
		0.87							- very badly broken	
			1.45	51.20	52.65	1.45			Core loss	
		0.68		52.65	54.76	2.11			TOP OF BOX 18	
									Mudstone - with quartz crystals & calcide on sheared surface, becoming very carbonaceous.	

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

P-141A(10-8)

SHEET NO.: 8

HOLE NO.: GDR-DDH-80-24 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: C.W. CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
11 <sup>0</sup>	176									
	53.64	0.45							Mudstone - core badly broken	
		0.46							- listric & slickensided surfaces on all breaks.	
		0.52							- silty laminations, badly broken with quartz crystals, calcite smears on slickensides and listric surfaces, BCA very steep. (possible fold or fault?).	
									TOP OF BOX 19	
				1.45	54.76	56.21	1.45			Core loss
			0.55							Mudstone - badly broken core
			0.41		56.21	58.19	1.98			- very badly broken core, coaly fragments in tray.
			0.22							- badly broken, large pyrite chunks - 25¢ piece.
		186								
	56.69	0.80							- very badly broken, calcite veins, increasing in number, still in fault zone, contains coaly fragments above footage block.	
	194		1.45	58.19	59.64	1.45			Core loss	
	59.13	0.25		59.64	61.95	2.31			Mudstone -	
		0.44							TOP OF BOX 20	
									- medium grey, mottled appearance, calcite veining, smears on listric & slickenside surfaces	

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

P-141A(10)

SHEET NO.: 9

HOLE NO.: GDR-DDH-80-24 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: CW CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
29°	198 60.35	0.47							Mudstone - very badly broken, some coaly material in tray.	
		1.15							- with coaly inclusions & laminations becoming more carbonaceous, silty in mottled areas. TOP OF BOX 21	
10°	206 62.79		1.44	61.95	63.39	1.44			Core loss	
		0.45		63.39	70.85	7.46			Mudstone - less mottled, more carbonaceous, broken core	
		0.46							-	
		0.87							- dark grey to black, very carbonaceous, coal inclusions, large laminations & specks, listric surface, calcite smears, specks TOP OF BOX 22	
		1.65							- becoming more mottled & silty above footage block.	
		0.48							- TOP OF BOX 23	
	216 65.83	0.95						-		
0.99								-		

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

P-141A(10-E)

SHEET NO.: 10

HOLE NO.: GDR-DDH-80-24 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	226 68.89	0.07							Mudstone - becoming more mottled and silty above footage block. TOP OF BOX 24	
		1.54							-	
			0.32	70.85	71.17	0.32			Core loss - coal	
		0.22		71.17	71.39	0.22			Mudstone - core very badly broken, few coaly pieces in tray.	
	238 72.54		1.94	71.39	73.33	1.94			Core loss - rock TOP OF BOX 25	
		1.04		73.33	74.37	1.04			Mudstone -	
		0.14		74.37	74.51	0.14	21.21	00476E	Coal - dull banded, broken & powdery, rock fragments.	
			0.52	74.51	75.03	0.52			Core loss - coal	
		0.58		75.03	75.86	0.83			Mudstone - dark grey, black, very carbonaceous, coaly laminations & inclusions, calcite veins, few silt laminations sheared.	
		0.25							- abundant listric surfaces, core badly broken, pieces in bottom of tray TOP OF BOX 26	
			0.18	75.86	76.04	0.18			Core loss - rock	
		0.42		76.04	76.46	0.42			Mudstone - coaly pieces in bottom, core badly broken.	



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

P-141A(10 80)

SHEET NO.: 12

HOLE NO.: GDR-DDH-80-24 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION	
				FROM	TO	APPAR. THK.	TRUE THK.				
22°		1.94								Mudstone - dark grey, black, calcite spots, coaly inclusions. TOP OF BOX 29	
		0.61								- with silty section at 0.30m, calcite veins at base.	
		0.04								- very badly broken	
		0.32								-	
		0.07								- very badly broken	
		0.20								-	
		<u>285</u> 86.86		0.65	86.28	86.93	0.65				Core loss - rock
		0.53			86.93	88.08	1.15				Mudstone -
		0.07									- very badly broken
		0.55									- broken core
											TOP OF BOX 30
			0.20		88.08	88.99	0.91				Mudstone - badly broken with listric surfaces, calcite smears & veins
			0.39								- core fair contact
			0.32								- light to medium grey, silty, abundant horsetail calcite veining, coaly inclusions
	<u>293</u> 89.30										
		0.01		88.99	89.00	0.01				Coal - powdery with broken rock	
		0.30		89.00	89.30	0.30				Mudstone - medium grey, carbonaceous, coaly inclusions and laminations, calcite veining	
			0.16	89.30	89.46	0.16				Core loss - coal	
		0.16		89.46	89.62	0.16				Coal - powdery and broken rock	



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

P-141A(10-80)

SHEET NO.: 13

HOLE NO.: GDR-DDH-80-24 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
62°		0.80		89.62	92.49	2.87			Mudstone - light medium grey, mottled appearance, horsetail calcite veining, silty coaly inclusions. TOP OF BOX 31	
		1.00							-	
		0.62							- medium, dark grey, becoming more carbonaceous	
	303									
	92.35									
		0.45							- little or no horsetail, calcite veining, listric surfaces, core badly broken	
		0.47		92.49	92.96	0.47			Core loss - rock	
	0.23		92.96	95.30	2.34			Siltstone - light to medium grey, coaly inclusions, calcite veining. Carbonaceous laminations, mottled appearance, very silty carbonaceous. TOP OF BOX 32		
	2.11							- mottled appearance in places.		
	313									
	95.40									
	0.37		95.30	95.67	0.37			Mudstone - medium dark grey, carbonaceous. Coaly inclusions & laminations, calcite veins and smears on listric surfaces.		

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

P-141A(10-80)

SHEET NO.: 14

HOLE NO.: GDR-DDH-80-24 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
			0.48	95.67	96.15	0.48			TOP OF BOX 33	
		0.02		96.15	97.99	1.84			Core loss - rock	
		0.52							Mudstone - very badly broken	
		0.22							- silty laminations	
		0.40							- very badly broken	
		0.68							- marcasite filled bioturbations, pyrite.	
									- without bioturbations	
53°	323 98.44	0.49		97.99	98.48	0.49			Siltstone - light grey, carbonaceous and very fine grained sandstone, laminations, few calcite veins, coaly inclusions	
		0.22		98.48	98.70	0.22			TOP OF BOX 34	
		0.15		98.70	98.85	0.15			Mudstone - medium, dark grey, calcite veins, silty coal laminations, 0.02m thick band of marcasite pyrite.	
51°		0.56		98.85	99.41	0.56			Sandstone - light grey, very fine grained, fractured with calcite veining, carbonaceous lamination.	
		0.48		99.41	99.89	0.48			Mudstone - medium dark grey, silty laminations, calcite filled horsetail fractures, coal inclusions.	
		0.22		99.89	100.45	0.56			Core loss - rock	
		0.34							Mudstone - very carbonaceous with coal in tray. Core broken.	
		0.22		100.45	100.67	0.22			Core loss - coal	

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

P-141A(10)

SHEET NO.: 15

HOLE NO.: GDR-DDH-80-24 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: CW CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.10		100.67	100.77	0.10			Coal - powder with broken rock	
		0.60		100.77	104.85	4.08			Siltstone - light to medium grey, very argillaceous, thin carbonaceous laminations, bioturbation calcite filled fractures, coaly inclusions TOP OF BOX 35	
	335 102.01	1.08							- becoming more argillaceous at 0.62m, calcite filled breccia, slickensides. note:- piece of core missing at end.	
64°		1.50							- vugs filled with calcite & quartz & pyrite marcasite spears. Note:- smoky calcite at 0.80m in highly fracture rock. Note: yellow staining in calcite veins from 1.35m to 1.52m, green staining at 0.90m in calcite TOP OF BOX 36	
	344 104.85	0.42							- with yellow staining on calcite vein	
		0.48							- becoming more argillaceous and darker.	
		0.35	0.35	104.85	105.20	0.35			Core loss - coal	
		0.70		105.20	110.60	5.40			Mudstone - dark grey, coaly inclusions, carbonaceous plant fossils, few listric surfaces.	
		0.94							- light to medium grey, horsetail calcite fractures throughout, becoming silt.	

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

P-141A(10.80)

SHEET NO.: 16

HOLE NO.: GDR-DDH-80-24 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
65°		0.62							TOP OF BOX 37	
	354								Mudstone - very silty, small cross bedding, top is up, horsetail calcite, filling at 0.50m, very carbonaceous, interval coaly, from 0.52m to .0.59m, bioturbations core appears to be missing at base.	
54°	107.89	1.01							- core appears to be missing at base	
		0.90							- carbonaceous laminations in greater abundance, horsetail calcite veining at base, listric surfacing on fresh breaks.	
		0.38							TOP OF BOX 38	
		0.30							- bioturbations, horsetail calcite veining at base	
		0.55							- core badly broken	
	364		0.33	110.60	110.93	0.33			-	
64°	110.94	1.32		110.93	113.49	2.56			Core loss - rock	
		1.24							Mudstone - becoming more silty, thin horsetail calcite veins.	
									TOP OF BOX 39	
									- becoming less silty and more carbonaceous, fine horesetail calcite filling, plant fossils.	

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

P-141A(10-80)

SHEET NO.: 17

HOLE NO.: GDR DDH-80-24 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: C W CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.10		113.49	113.59			↑ F 00477 ↓	Coal - dull banded, sheared.	
		0.06		113.59	113.65				- powdery with rock fragments	
			0.20	113.65	113.85				Core loss - rock	
			0.11	113.85	113.96				Core loss - coal	
	375	0.05		113.96	117.86	3.90			Mudstone - as above	
	114.29	0.49							- dark grey, black, carbonaceous, plant fragments	
		0.05							- badly broken	
		0.19							-	
		0.10							- very badly broken, calcite smears on listric surfaces.	
		0.31							-	
		1.93						TOP OF BOX 40		
	385							-		
	117.34	0.78						- 0.36m below marker, calcite horse tail fillings with iron stone concretions		
			0.36	117.86	118.22	0.36		TOP OF BOX 41		
								Core loss - rock		
		0.62		118.22	119.86	1.64		Mudstone -		
		0.20						- badly broken, listric surfaces present in interval.		
		0.82						- becoming more carbonaceous towards end of measurement.		

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

P-141A(10-80)

SHEET NO.: 18

HOLE NO.: GDR-DDH-80-24 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
57 <sup>0</sup>	395 120.39		0.56	119.86	120.42	0.56		↑ G 00478	Core loss - coal	
		0.22		120.42	120.64	0.22	28.21		* H	Coal - dull banded, badly broken, sheared
			0.17		120.64	120.81	0.17		* H 00479	Core loss - rock
			0.05		120.81	120.86	0.05	22.73	* I	Mudstone - dark grey, black, carbonaceous coaly laminations
			0.16		120.86	121.02	0.16		00480	Core loss - coal
			0.62		121.02	121.64	0.62	79.49	↓	Coal - dull banded, sheared
			0.09		121.64	125.99	4.35			Mudstone - dark grey, black, carbonaceous, coaly laminations, gypsum smears on listric surfaces.
			1.37							TOP OF BOX 42 - dark grey, black, carbonaceous, coaly laminations & inclusions
		405 123.44								- increase calcite, horsetail fractures
			1.15							TOP OF BOX 43
		1.54							- with iron stone concretions in upper 0.40m, becoming more carbonaceous	
		0.20							-	
	416 126.79		0.46	125.99	126.45	0.46			Core loss - coal	
		0.28		126.45	128.47	2.02			Mudstone	

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

P-141A(10-8)

SHEET NO.: 19

HOLE NO.: GDR-DDH-80-24 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: CW CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
52°		0.24							Mudstone - light grey, very silty, with silty laminations.	
		0.16							- medium to dark grey, carbonaceous TOP OF BOX 44	
		0.28							- bioturbation, very carbonaceous	
		0.93							- light to medium grey, horsetail calcite veins, silty laminations	
		0.13							- with coal fragments in tray, very badly broken core	
			0.11	128.47	128.58	0.11			Core loss - rock	
			0.44	128.58	129.38	0.80			Mudstone - dark grey, very carbonaceous	
			0.23						- light to medium grey, silty	
			0.13						- dark grey, listric surfaces, carbonaceous	
		426 129.84		0.40	129.38	129.78	0.40		Core loss - coal	
50°		0.06		129.78	130.24	0.46			Mudstone - medium grey, carbonaceous, coaly pieces in tray	
		0.30							- TOP OF BOX 45	
		0.10							-	
		1.37		130.24	132.31	2.07			Siltstone - light to medium grey, laminated appearance. calcite veining, bioturbations, pyrite smeared at 0.52m	
		0.70							- badly broken, calcite veining, slickensides breccia, fault field?	
		436 132.89		0.21	132.31	132.52	0.21		Core loss - rock	

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

P-141A(10-80)

SHEET NO.: 20

HOLE NO.: GDR-DDH-80-24 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
50°		1.10		132.52	133.62	1.10			TOP OF BOX 46	
				133.62	135.63	2.01			Siltstone - with coaly inclusions at 0.87m, breccia in calcite	
		1.66							Sandstone - light grey, silty, muddy & coaly laminations, calcite vein at 1.50m, calcite vein with iron crystals.	
		0.35							TOP OF BOX 47 - core missing, pieces do not match	
48°	446 135.93	2.26		135.63	140.53	4.90			Mudstone)- light to medium grey, interbedded, bioturb- Siltstone) ation, tops up, fault along bedding plane at 1.61m pieces, angular calcite veins.	
	456 138.98	0.68							TOP OF BOX 48	
		1.96							- becoming more carbonaceous and muddy, calcite filled bedding fault at 0.16m, coaly bits at end of box.	







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

P-141A(10-80)

SHEET NO.: 23

HOLE NO.: GDR-DDH-80-24 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
20°		1.78							TOP OF BOX 55	
	526								Mudstone - calcite veining, carbonaceous	
	160.32	0.15							-	
		0.65	159.74	160.39	0.65				Siltstone - light grey, fine laminations, pyrite nodules, breccia at end of measurements, calcareous.	
17°		2.37		160.39	163.18	2.79			TOP OF BOX 56	
									Mudstone - medium to dark grey, silty with coaly laminations, some calcite veining, ironstone smears.	
		0.42							TOP OF BOX 57	
			0.26	163.18	163.44	0.26			- dark grey, very carbonaceous	
		0.40		163.44	168.13	4.69			Core loss - coal	
		541	0.46						Mudstone - dark grey, very carbonaceous	
	164.89							- medium grey		
		0.43						-		
		0.40						- light grey, silty		
		0.37						TOP OF BOX 58		
	546							-		
	166.41									

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

P-141A(10-80)

SHEET NO.: 24

HOLE NO.: GDR-DDH-80-24 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.41 1.64 0.58								Mudstone - light grey, silty - medium grey, mottled - with calcite strings, quartz crystals  TOP OF BOX 59
			0.05	168.13	168.18	0.05				Core loss - rock
		0.20		168.18	169.43	1.25				Sandstone Sandstone)- interbedded, light to medium grey, very Siltstone) fine grain, carbonaceous bioturbations pyrite. Blebs carbonaceous, laminations, badly broken. - core fair.
	555	0.31								-
	169.15	0.74								
		0.78		169.43	170.28	0.85				Siltstone)- interbedded, medium to dark grey, becoming Mudstone ) darker towards base, bioturbations, coaly laminations with inclusions, listric surfaces - badly broken
		0.07	0.12	170.28	170.40	0.12				Core loss - coal
		0.10		170.40	170.50	0.10	45.45	00483		Coal - dull banded sheared
		0.10		170.50	170.60	0.10	100	M 00484	*	Mudstone
		0.20		170.60	170.80	0.20	59.15	N 00485	*	Coal - dull banded, sheared
			0.29	170.80	171.09	0.29				Core loss - coal



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

P-141A(10)

SHEET NO.: 25

HOLE NO.: GDR-DDH-80-24 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.40							Mudstone ) - becoming darker with less silt. Siltstone)	
		0.06		176.90	176.96	0.06			Coal - powdery, mixed with rock	
		0.14		176.96	177.30	0.34			Mudstone - dark grey, very carbonaceous	
		0.20							- dark grey, very carbonaceous, with coal in tray (powdered)	
	586		0.10	177.30	177.40	0.10			Core loss - coal	
	178.60									
			0.10	177.40	177.50	0.10			Core loss - rock	
			0.46	177.50	177.96	0.46			Core loss - coal	
		0.07		177.96	178.03	0.35	36.84			
		0.04		178.03	178.07				Mudstone - dull bright, sheared	
		0.15		178.07	178.22				Coal - dull bright, sheared	
		0.01		178.22	178.23			00486	Mudstone -	
		0.08		178.23	178.31				Coal - powdery with rock fragments, dull bright	
			0.14	178.31	178.45	0.14			Core loss - coal	
30°		1.25		178.45	182.03	3.58			Mudstone - light medium grey, carbonaceous, with silty laminations, horsetail calcite veining. TOP OF BOX 63	
		0.12							Mudstone - very badly broken	
	591									
	180.13									
17°		1.10							- silty laminations	



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

P-141A(10-8)

SHEET NO.: 27

HOLE NO.: GDR-DDH-80-24 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
44		0.72		186.21	186.93	0.72			Mudstone - dark grey and black, coaly laminations and inclusions, horsetail calcite veining, listric surfaces, very carbonaceous, powdered rock at 0.22 from marker.	
	615 187.44		0.45	186.93	187.38	0.45			Core loss - rock	
		0.42		187.38	188.50	1.12			Mudstone - slickensides TOP OF BOX 66	
		0.70							- very coaly at 0.30m to 0.50m from top.	
		1.78		188.50	194.27	5.77			Mudstone ) Siltstone) - interbedded light medium grey, laminated mottled in places, coaly inclusions	
	626 190.79								TOP OF BOX 67	
		2.71							- mainly mudstone, silty zone 0.75m in from base, plant remains.	
		0.22							TOP OF BOX 68	
	636 193.84		1.06						- becoming very silty towards base	
				0.38	194.27	194.65	0.38			Core loss - coal
		0.09		194.65	194.74	0.09			Coal - dull banded, sheared	





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

P-141A(10-80)

SHEET NO.: 29

HOLE NO.: GDR-DDH-80-24 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
55°		0.70							TOP OF BOX 71	
									Mudstone - with thin siltstone laminations from 0.49m to 0.60m	
	666								-	
	202.99	0.80	0.05	203.77	203.82	0.05			Core loss - coal	
		0.79		203.82	204.61	0.79			Mudstone - becoming more carbonaceous, pyrite nodules	
		0.40		204.61	212.93	8.32			Mudstone ) Siltstone) - interbedded, light medium grey, coal laminations	
		0.75							TOP OF BOX 72	
	676								-	
	206.03	1.91							TOP OF BOX 73	
		1.16							-	
46°	686								Mudstone )	
	209.08	1.55							Siltstone) - carbonaceous interval from 0.07m to 0.37m	
		1.43							TOP OF BOX 74	
									- with pyrite nodules 0.11m above base, very sandy section from 1.30m to 1.43m	

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

P-141A(10-80)

SHEET NO.: 30

HOLE NO.: GDR-DDH-80-24 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
59°	696 212.13	1.12							Mudstone ) Siltstone) - with pyrite nodules 0.11m above base, very sandy section from 1.30m to 1.43m	
		0.10		212.93	213.03	0.10			Sandstone - light grey, very fine grain, thin laminations TOP OF BOX 75	
		0.67		213.03	213.70	0.67			Siltstone) Sandstone) - interbedded, light grey, bioturbations, top is up, very fine grain. TOP OF BOX 76	
		0.96		213.70	214.66	0.96			Mudstone ) Siltstone) - interbedded, light medium grey, bioturbations, yellow staining on calcite veining.	
		706 215.18	0.30		214.66	214.96	0.30			Sandstone - light grey, very fine grain, carbonaceous laminations, worm burrows
			0.81		214.96	215.77	0.81			Mudstone ) Siltstone) - interbedded, light medium grey, coaly laminations, calcite veining, becoming more carbonaceous towards base.



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

P-141A(10-80)

SHEET NO.: 32

HOLE NO.: GDR-DDH-80-24 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
50°	726 221.27	0.73	0.20	220.71	220.91	0.20			Core loss - rock	
				220.91	221.99	1.08			Siltstone) Mudstone) - interbedded, light grey, worm burrows TOP OF BOX 78	
		0.35						-		
		1.20		221.99	223.19	1.20		Sandstone) Siltstone) - interbedded, light grey, very fine grain, worm burrows		
		0.75		223.19	227.21	4.02		Siltstone) Mudstone ) - interbedded, light medium grey, coaly and carbonaceous, laminations, top is up.		
50°	736 224.32	2.54							-	
								TOP OF BOX 79 - few fine grain sandstone interbedded from 1.10m to 1.25m		
	746 227.37	0.29						- top 0.07m carbonaceous		

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

P-141A(10-80)

SHEET NO.: 33

HOLE NO.: GDR-DDH-80-24 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
60°			0.15	227.21	227.36	0.15			TOP OF BOX 80	
		0.78		227.36	228.14	0.78			Core loss - rock	
			0.23	228.14	228.37	0.23			Mudstone/Siltstone - interbedded	
		0.42		228.37	228.79	0.42	64.62	490	Core loss - coal	
		0.17		228.79	231.45	2.66			Coal - dull banded, sheared	
		1.07							Mudstone - very carbonaceous, coaly laminations, sheared.	
									- medium dark grey, coal inclusions, few horsetail calcite veins, ironstone band at top of measurement 0.05m thick	
		756 230.42	0.25						- contains silty inclusions near top	
			1.17						TOP OF BOX 81	
			1.57		231.45	233.68	2.23		Siltstone) Mudstone ) - interbedded with some sandy interbeds light to medium grey, bioturbation	
52°	766 233.46	0.66							TOP OF BOX 82	
		1.13		233.68	234.81	1.13			-	
			0.09	234.81	234.90	0.09			Mudstone - dark grey, carbonaceous, plant remains, horsetail calcite veins.	
			0.20	234.90	235.10	0.20			Core loss - coal	
			0.05	235.10	235.15	0.05			Core loss - rock	
			0.15	235.15	235.30	0.15			Core loss - coal	
								Coal - dull banded		

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

P-141A(10-80)

SHEET NO.: 34

HOLE NO.: GDR-DDH-80-24 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.79		235.30	236.09	0.79			Mudstone - dull banded with internal slickensides. TOP OF BOX 83	
	776 236.51	0.64		236.09	236.73	0.64			Mudstone ) Siltstone) - interbedded, medium grey to brown grey, carbonaceous laminations, coaly inclusions calcite horsetail veinlets and fractures.	
		0.70		236.73	237.43	0.70			Mudstone - dark grey, carbonaceous plant remains.	
		0.75		237.43	238.18	0.75			Siltstone) Mudstone ) - interbedded, light to medium grey, fine laminations, rootlets	
		0.50		238.18	242.52	4.34			Mudstone - dark grey, reddish brown ironstone bands, contains slickensides and listric surfaces. TOP OF BOX 83	
	786' 239.56m	0.25							-	
44°		1.52							- coaly laminations, horsetail fractures	

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

P-141A(10-80)

SHEET NO.: 35

HOLE NO.: GDR-DDH-80-24 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
48 <sup>0</sup>		0.62							Mudstone - dark grey to black, very carbonaceous, numerous coaly laminations, horsetail fractures TOP OF BOX 84	
		0.62							-	
		<u>796'</u> 424.61								
		0.83							Mudstone - medium to dark grey, carbonaceous and coaly laminations, slickensides, horsetail calcite veins	
		1.29	242.52	243.81	1.29				Sandy ) Siltstone) - light grey, distinct laminations, heavily bioturbated, gradually muddier towards base, carbonaceous laminations and plant remains. TOP OF BOX 84A	
		0.52	243.81	244.33	0.52				Mudstone - medium to dark grey, carbonaceous plant remains, horsetail calcite veins	
	0.40	244.33	246.74	2.41				Siltstone) Mudstone) - interbedded - light to medium grey, coaly laminations and inclusions, few fine sandstone laminations.		





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

P-141A(10-80)

SHEET NO.: 37

HOLE NO.: GDR-DDH-80-24 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
51 <sup>0</sup>	826' 251.75	1.15							Mudstone - ironstone nodule at 1.16m	
		0.05		251.29	256.04	4.75			Siltstone and ) Mudstone interbedded) - light to medium grey, few sandy interbeds, carbonaceous laminations, worm burrows, fine crossbedding indicating top is up.	
		1.76							TOP OF BOX 87 -	
	836 254.80	0.61							- badly broken	
		2.33							- a piece of core missing	
	846' 257.85	0.23		256.04	257.18	1.14			Mudstone ) Siltstone) - medium grey to dark grey	



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

P-141A(10-80)

SHEET NO.: 39

HOLE NO.: GDR-80-24 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
51°		1.30		263.86	265.16	1.30			TOP OF BOX 91 Mudstone - medium to dark grey, coaly laminations, carbonaceous plant remains, 0.63 - 0.72 from top - numerous thin vitrain bands 0.80 - 0.90 numerous thin vitrain bands	
		0.07		265.16	265.23	0.07			Coal and) Rock ) - badly broken, bone coal and dull banded coal intermixed with rock	
		0.31		265.23	265.54	0.31			Mudstone and) Coal ) - interbedded, vitrain bands	
		0.38		265.54	265.92	0.38			Mudstone - dark grey, carbonaceous with a few coaly bands.	
		0.53		265.92	267.02	1.10			Mudstone ) Siltstone) - interbedded, carbonaceous plant remains, light to medium grey, mottled laminations.	
		0.57							TOP OF BOX 92 - few thin ironstone bands, rootlets	
		1.58			267.02	268.95	1.93			Mudstone - dark grey, carbonaceous laminations at 0.43m - 0.70m, possible core loss, plant remains, shearing; 0.98m - 0.70m, many bright coaly bands, from 1.16m - 1.32m very badly broken, coaly laminations



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

P-141A(10-80)

SHEET NO.: 41

HOLE NO.: GDR-DDH-80-24 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: CW CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
45°		2.29		271.76	274.05	2.29			Mudstone - medium grey; minor silty interbeds; carbonaceous plant fragments; slickensides	
		0.30		274.05	275.64	1.59			Sandstone - light grey; very fine grained to fine grained; silty interbeds, numerous calcite veins in unit.  TOP OF BOX 95	
		0.47							-	
	906' 276.13								- few silty interbeds; faint crossbedding	
55°		0.82								
		0.69		275.64	276.33	0.69			Siltstone - light to dark grey; becoming muddier at base, few ironstone bands	
		0.72		276.33	277.55	1.22			Mudstone - dark grey; coaly laminations towards base; slickensides, becoming more carbona- ceous  TOP OF BOX 96	
	916' 279.18	0.30							- becoming more carbonaceous, listric surfaces	

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

P-141A(10-80)

SHEET NO.: 42

HOLE NO.: GDR-DDH-80-24 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.20							Mudstone - becoming more carbonaceous; listric surfaces.	
		0.09		277.55	277.64	0.09			Coal - dull banded; broken; mixed with rock fragments; sheared	
		0.12		277.64	277.76	0.12			Carbonaceous) Mudstone ) - black	
		0.04		277.76	277.80	0.04			Coal - broken and powdery, mixed with rock fragments. Dull bright banded.	
		0.58		277.80	278.38	0.58			Mudstone - dark grey	
		1.36		278.38	283.52	5.14			Mudstone - medium to light grey, heavy calcite veining at 0.15 and 1.00; slickensides TOP OF BOX 97	
		0.22							Mudstone - medium grey, highly fractured with abundant calcite veining, coaly inclusions	
	926' 282.23	2.41							- mottled appearance in places	
		0.69							-	

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

P-141A(10-80)

SHEET NO.: 43

HOLE NO.: GDR-DDH-80-24 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	936'									
	285.28	0.46							Mudstone - mottled appearance in places	
		1.23		283.52	284.75	1.23			Siltstone - light to medium grey, muddy intervals throughout, calcite veining at 0.73	
		0.37		284.75	288.63	3.88			Mudstone - medium to dark grey, few silty laminations, coaly inclusions, bioturbation, horsetail calcite	
		0.95							TOP OF BOX 99 - few silty interbeds, with horsetail calcite veining throughout, bioturbations	
	946'									
	288.33	1.72							- becoming more carbonaceous towards base TOP OF BOX 100	
		0.84							- carbonaceous	
		0.07		288.63	288.86	0.23			Coal - dull banded	
		0.08							- dull - bright banded	



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

P-141A(10-80)

SHEET NO.: 44

HOLE NO.: GDR-DDH-80-24 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.08							Coal - dull banded - badly broken and powdery with rock fragments	
		0.21		288.86	290.43	1.57			Mudstone - dark grey, plant remains	
	956'									
	291.37									
		0.71							- occasionally silty	
		0.65							- becoming more carbonaceous, listric surfaces, numerous coaly laminations and inclusions; possible coal loss	
		0.02		290.43	290.45	0.02			Coal - broken and powdery mixed with rock, bright banded inclusion	
		0.04		290.45	291.08	0.63			Mudstone - medium grey, becoming more carbonaceous near base	
									TOP OF BOX 101	
		0.07							- gradually more carbonaceous	
		0.07							Mudstone - (as above); very badly broken with powdery coal in tray	
		0.45							Mudstone - medium to dark grey, carbonaceous laminations and inclusions, horsetail veins	

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

P-141A(10-80

SHEET NO.: 45

HOLE NO.: GDR-DDH-80-24 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.13		291.08	291.21	0.13			Pyrite band - in very carbonaceous mudstone, powdery coal in tray	
		0.16		291.21	291.37	0.16			Coal - dull bright banded, sheared, badly broken; rock fragments in tray.	
		0.42		291.37	293.04	1.67			Mudstone - black, coaly inclusions, carbonaceous	
	966' 294.42	1.18							Mudstone - dark grey to black, coaly and carbonaceous laminations; a few silty intervals; slickensides; listric surfaces TOP OF BOX 102	
		0.07							-	
		0.08		293.04	293.29	0.25			Coal - dull, hard	
		0.08							Coal - boney	
		0.09							Coal - stoney	
		0.65		293.29	293.94	0.65			Carbonaceous) Mudstone ) - coaly laminations abundant in upper half, a few bright coal laminations, listric surfaces; probable core loss	

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

P-141A(10-80)

SHEET NO.: 46

HOLE NO.: GDR-DDH-80-24 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	976' 297.47									
		0.80		293.94	294.81	0.87				Mudstone - dark grey, numerous coal laminations carbonaceous plant remains, minor silty laminations
		0.07								-
		0.28		294.81	295.09	0.28				Coal - stoney
		0.40		295.09	295.49	0.40				Carbonaceous) Mudstone ) - abundant coal laminations; black to dark grey; slickensides, listric surfaces
		1.39		295.49	299.82	4.33				TOP OF BOX 103 Mudstone - with silty interbeds, medium grey to light grey; bioturbation; cross-bedding rootlets; horsetail calcite veins; carbonaceous plant remains, coaly laminations
	986' 300.52									
		1.19								- silt content decrease, medium grey, carbonaceous plant remains, slickensides, ironstone bands, coaly laminations



COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-257 (12.80)

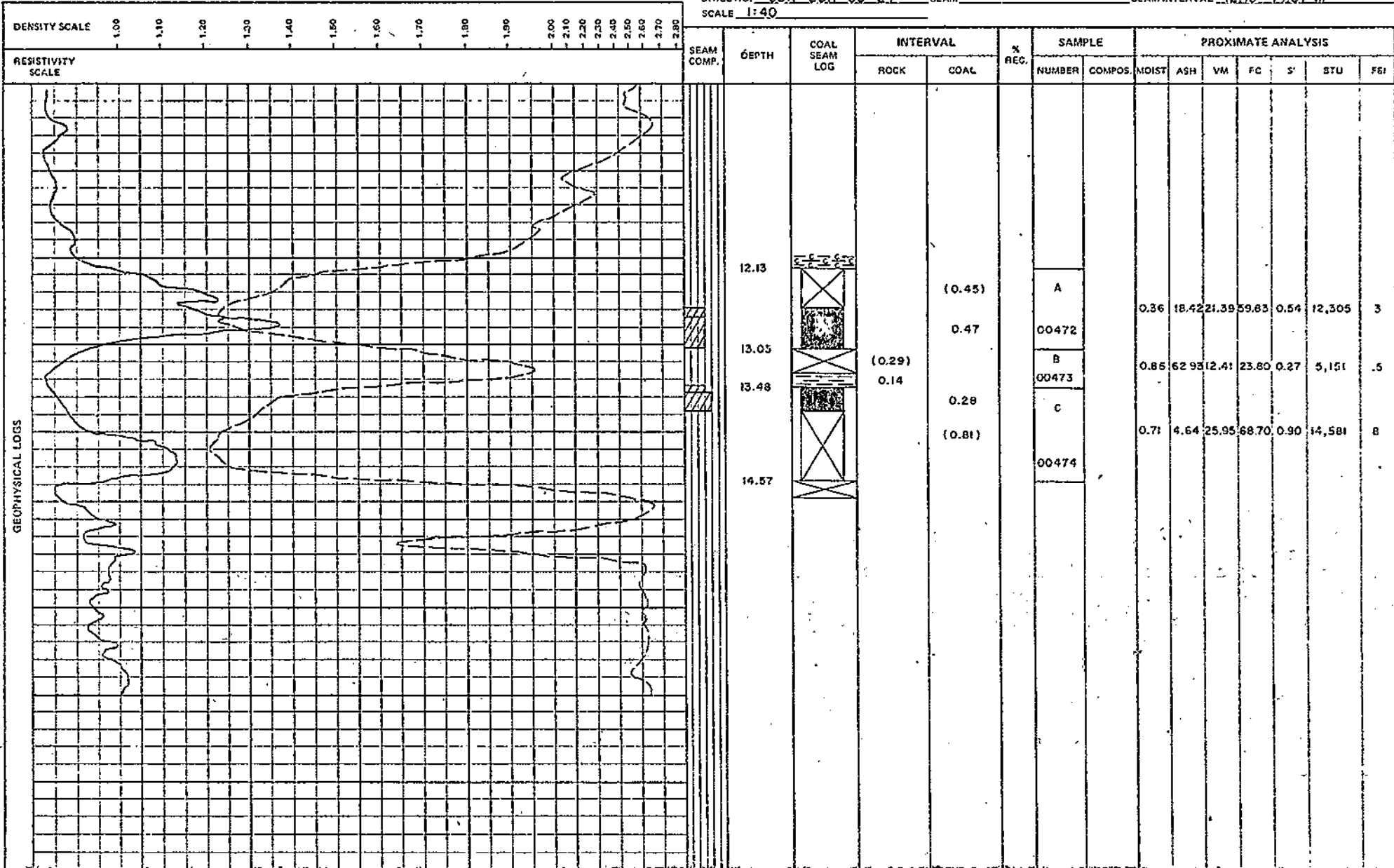
DENSITY

RESISTIVITY

DRILL NO. GDR-DDH-80-24 SEAM

APPARENT THICKNESS  
SEAM INTERVAL 12.13-14.57 m

SCALE 1:40



GEOPHYSICAL LOGS

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-287 (12-80)

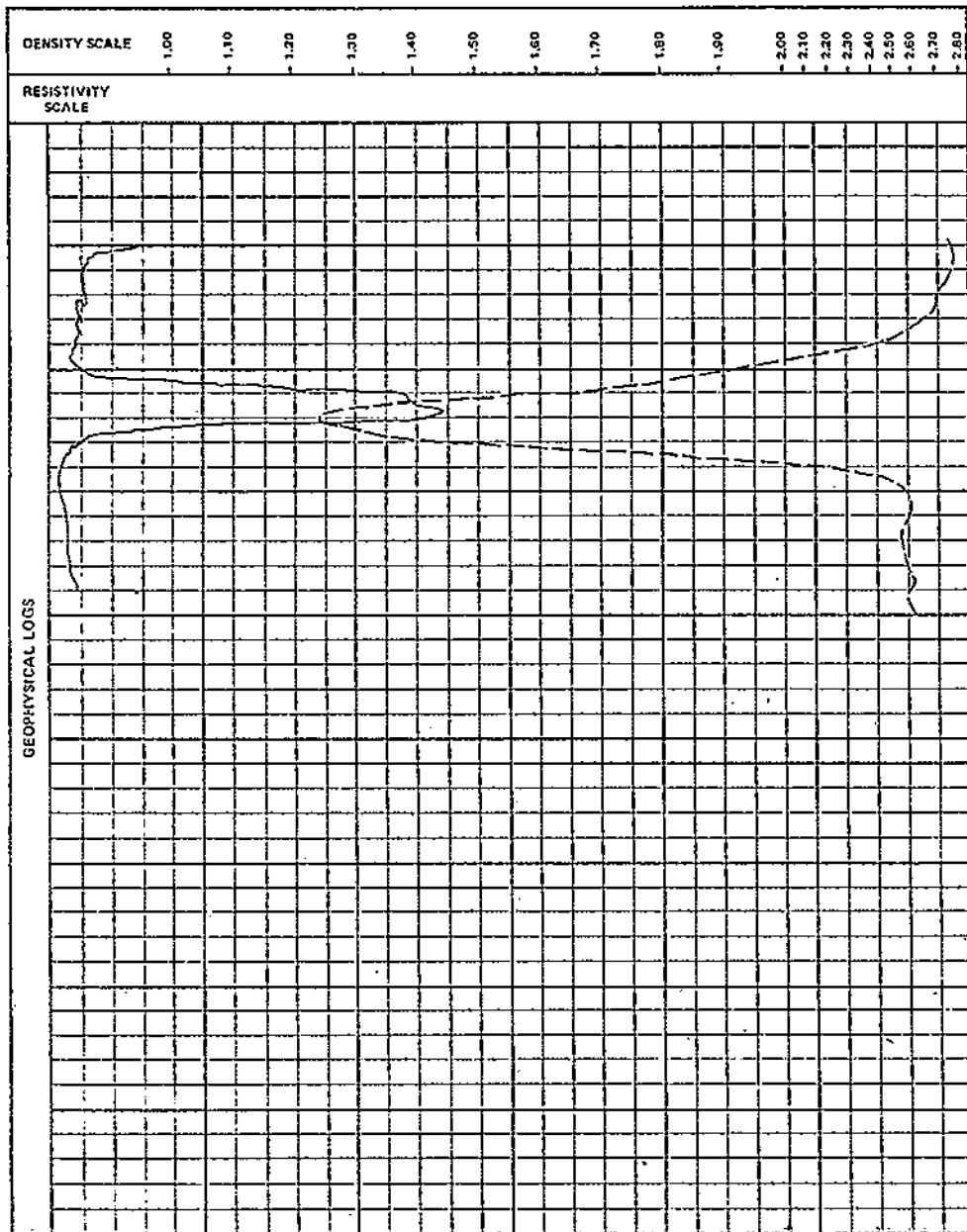
DENSITY -----

RESISTIVITY -----

DRILL NO. GDR-DDH-80-24 SEAM

APPARENT THICKNESS  
SEAM INTERVAL 23.09 - 23.66

SCALE 1:40



GEOPHYSICAL LOGS

SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS									
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	RSI			
	23.09			(0.11)													
	23.66			0.46		D 00475		0.77	7.12	24.18	67.93	0.85	14,308	7			

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-257 (12-80)

DENSITY

RESISTIVITY

APPARENT THICKNESS

DRILL NO. GOR-DDH-80-24 SEAM  
SCALE 1:40

SEAM INTERVAL 74.37-75.03 m.

DENSITY SCALE	RESISTIVITY SCALE	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS						
					ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	FSI
1.00	1.00		74.37			0.14 (0.42)		E 00476		0.88	25.95	27.71	50.46	0.51	10,933	8
1.10			75.03													

GEOPHYSICAL LOGS

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (1250)

DENSITY

RESISTIVITY

DRILL NO. QR-DDH-80-24 SEAM

APPARENT THICKNESS  
SEAM INTERVAL 113.49 - 113.96 m

SCALE 1:40

DENSITY SCALE	RESISTIVITY SCALE	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS									
					ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	FSI			
1.0			113.46			0.16													
1.10			113.65		(0.20)			F-00477		0.60	23.65	18.39	57.36	0.76	11,580	2			
1.20			113.96		(0.11)														
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																			

GEOPHYSICAL LOGS



COAL SEAM DATA SHEET

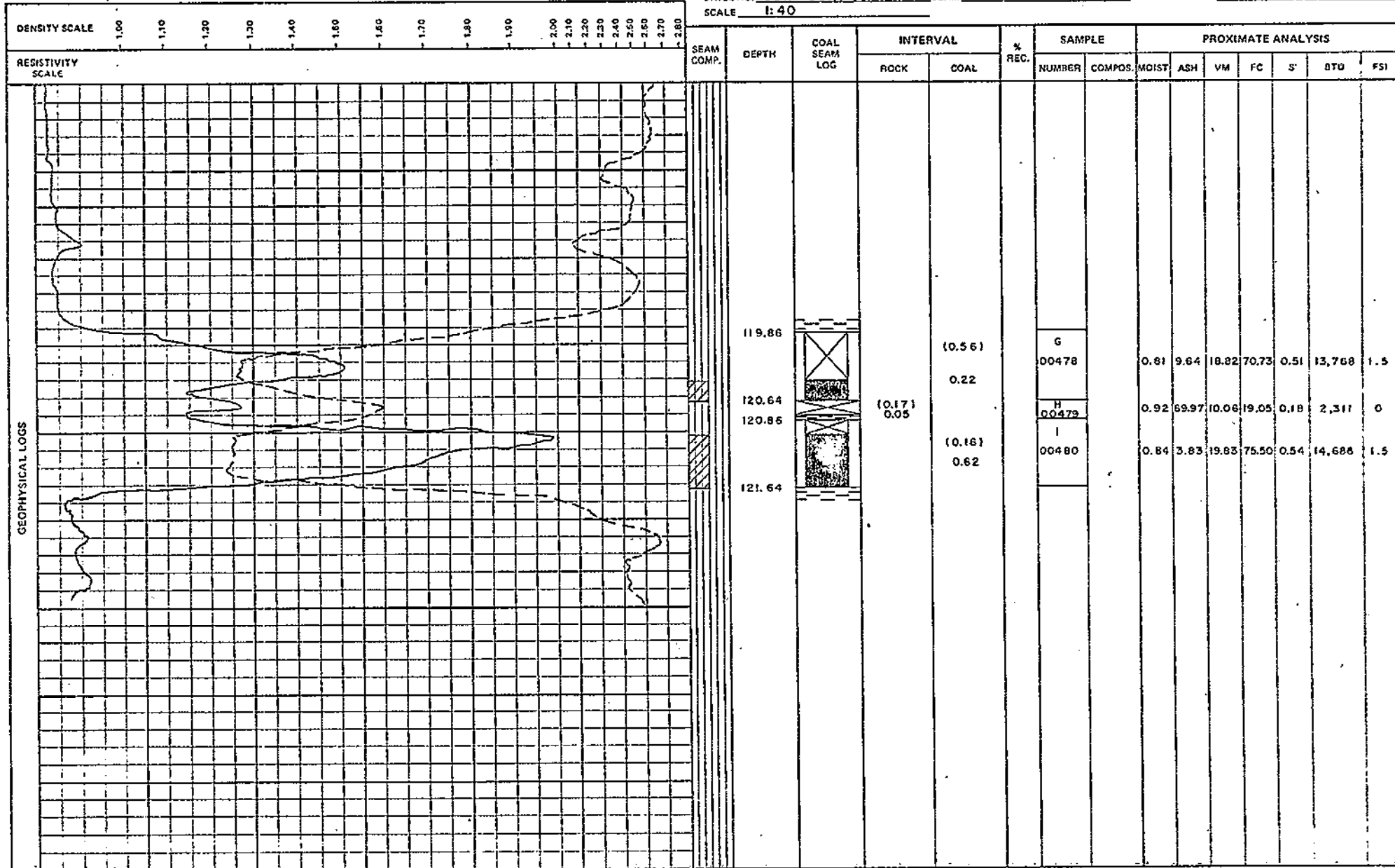
GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12-80)

DENSITY RESISTIVITY

DRILL NO. GDR-DDH-80-24 SEAM \_\_\_\_\_  
SCALE 1:40

APPARENT THICKNESS  
119.86-121.64 m



GEOPHYSICAL LOGS

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12/81)

DENSITY

RESISTIVITY

DRILL NO. **GDR-DDH-80-24** SEAM  
SCALE **1:40**

APPARENT THICKNESS  
SEAM INTERVAL **140.53 - 143.28 m.**

DENSITY SCALE	RESISTIVITY SCALE	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS									
					ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VIA	FC	S	BTU	%S			
1.00	1.00																		
1.10	1.10		140.53		(0.18)			J											
1.20	1.20		140.92		0.21			00481		0.87	9.12	20.13	69.68	0.96	13,950				
1.30	1.30		143.00																
1.40	1.40		143.28		0.28			K		0.80	4.62	21.73	72.85	0.97	14,734				
1.50	1.50																		
1.60	1.60																		
1.70	1.70																		
1.80	1.80																		
1.90	1.90																		
2.00	2.00																		
2.10	2.10																		
2.20	2.20																		
2.30	2.30																		
2.40	2.40																		
2.50	2.50																		
2.60	2.60																		
2.70	2.70																		
2.80	2.80																		

GEOPHYSICAL LOGS





COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-207 (12-80)

DENSITY

RESISTIVITY

DRILL NO. GDR-DDH-80-24 SEAM

APPARENT THICKNESS  
SEAM INTERVAL 217.74 - 218.90

SCALE 1:40

DENSITY SCALE	RESISTIVITY SCALE	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS									
					ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	STU	FSI			
1.00			217.74			(0.35)		P											
1.10			218.14		0.15	0.05		00487		0.85	8.99	24.62	65.54	0.87	13,936	9			
1.20			218.29					0-00488		0.88	78.00	8.85	12.27	0.84	2,550	0			
1.30			218.90			0.61		R											
1.40								00489		0.72	12.08	22.20	65.00	0.96	13,454	7			
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																			

GEOPHYSICAL LOGS

COAL SEAM DATA SHEET

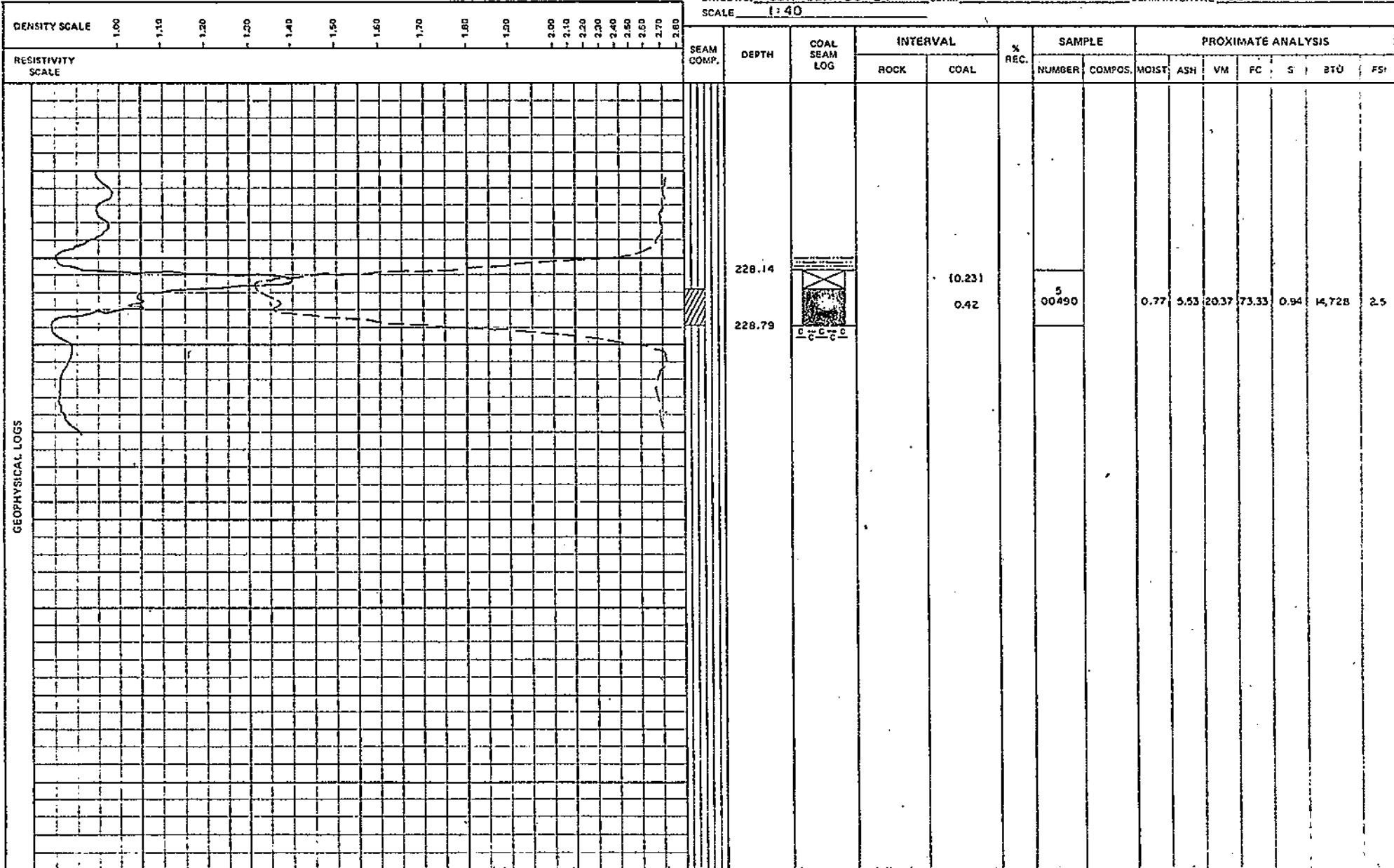
GULF CANADA RESOURCES INC.  
COAL DIVISION

F-267 (12-80)

DENSITY RESISTIVITY

DRILL NO. GDR-DDH-80-24 SEAM \_\_\_\_\_  
SCALE 1:40

APPARENT THICKNESS  
228.14 - 228.79 m.



GEOPHYSICAL LOGS

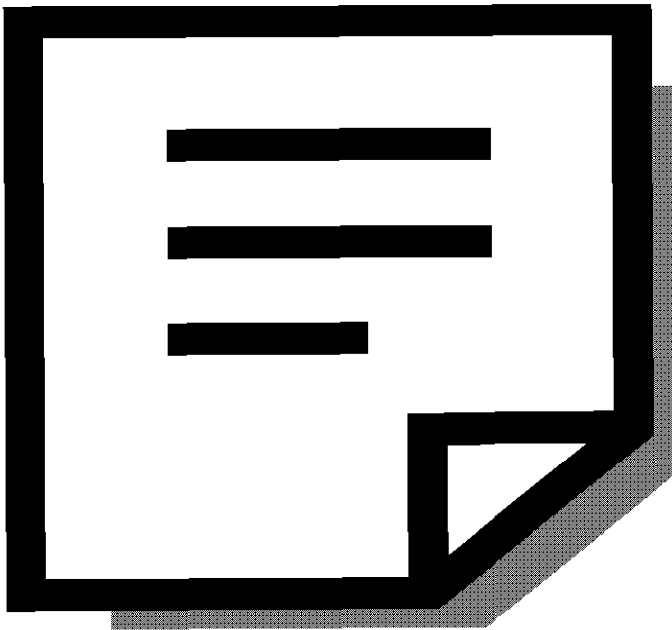
DIRECTIONAL SURVEY

ROKE OIL ENTERPRISES LIMITED

**COMPANY:** GULF CANADA RESOURCES INC.    **GRID:** \_\_\_\_\_    **DATE SURVEYED:** 24 SEPTEMBER 1980  
**DRILL HOLE:** GDR-DDH - 80-24    **LATITUDE:** \_\_\_\_\_    **SURVEY BY:** SIM  
**LOCATION:** \_\_\_\_\_    **DEPARTURE:** \_\_\_\_\_    **WITNESSED BY:** ZSCHACH  
**FIELD:** GOODRICH    **ELEVATION:** \_\_\_\_\_    **CALCULATIONS BY:** \_\_\_\_\_  
**MAGNETIC DECLINATION:** \_\_\_\_\_    **CORRECTION OF:** \_\_\_\_\_    **FOR:** \_\_\_\_\_    **GRID:** \_\_\_\_\_

Number	Cable Depth	Slant Angle	Slant Angle Bearing	Number	Cable Depth	Slant Angle	Slant Angle Bearing	Number	Cable Depth	Slant Angle	Slant Angle Bearing
0	0	.25	291.2	11				22			
1	15	.24		12				23			
2	30	* 2.25	142.5	13				24			
		1.49	113.8								
3	45	.99	153.0	14				25			
4	55	2.22	134.4	15				26			
5				16				27			
6				17				28			
7				18				29			
8				19				30			
9				20				31			
10				21				32			

\* REPEAT READINGS







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

P-141A(10-80)

SHEET NO.: 1

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: 1387.72m TOTAL DEPTH: 284.0m DATE BEGUN: \_\_\_\_\_  
 PROJECT: Goodrich BEARING: \_\_\_\_\_ CORE SIZE: HQ DATE COMPL.: September 15/80  
 CO. ORD.: 142 606.85N 547 022.52E HOLE ANGLE: 60° LOGGED BY: LK CONTRACTOR: Coates

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		.66				2.16			TOP OF BOX 1 Casing - Mudstone - dark grey, heavily broken core, minor coal laminae, carbonaceous partings, fissile.	
	15' 457	1.50							- more carbonaceous, heavily broken.	
		.18		6.25	6.97	.18	25	00586	Coal - dull banded, powder and pieces, heavily broken.	
			0.54	6.97	7.51	0.54			Core loss - coal	
		.05		7.51	7.81	.30			Siltstone - light grey	
	20' 6.10	.11							TOP OF BOX 2	
		.14							Siltstone - massive, broken	
		.12		7.81	7.93	.12			Silty mudstone - medium grey, occasional coal stringers	

**OPEN FILE**

DR-GOODRICH 8(3)

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

P-141A(10-80)

SHEET NO.: 2

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		.05		7.93	7.98	.05			Coal - boney	
		.05		7.98	8.03	.05			Silty mudstone -	
			0.75	8.03	8.78	0.75			Core loss - rock	
	<u>25</u> 7.62	2.12		8.78	12.78	4.00			Silty mudstone - heavily broken TOP OF BOX 3	
		.54								
	<u>33</u> 10.06	1.34							Silty mudstone - darker grey	
		.72		12.78	14.55	1.77			Mudstone - dark grey, coal stringers, broken TOP OF BOX 4	
		1.05							Mudstone - more coal stringers in bottom half.	
		.10		14.55	14.65	.10			Coal & rock - pieces of dull banded coal mixed with pieces of mudstone. Some powder.	

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

P-141A(10-80)

SHEET NO.: 3

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: I.K. CONTRACTOR:

BCA	BOX MARKER	Core INTERVAL THK. Cond.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
47°		.28		14.65	17.48	2.83			Mudstone - slightly laminated	
	45 13.72	1.03							Mudstone - laminations, becoming carbonaceous. Rich bright coal pods.	
		1.52							TOP OF BOX 5 Mudstone - with occasional sandy bands	
55°		.33		17.48	17.86	.38			Sandstone - medium grey, fine grained, argillaceous laminations, medium scale, cross-bedding shows "TOPS UP".	
	55 16.76	.05								
		.62		17.86	21.36	3.50			Mudstone - dark grey, laminated, occasional coal stringers	
		1.34							TOP OF BOX 6 Mudstone - carbonaceous at top, thin sandstone inter-beds, broken	

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

P-141A(10-80)

SHEET NO.: 4

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
60°	<u>62</u> 18.90	1.10							Mudstone - carbonaceous at top, thin sandstone interbeds, broken  TOP OF BOX 7	
		.44								
		.07		21.36	21.43	.07			Coal in rock - pieces in powder, bright and bone coal and mudstone.	
		.65		21.43	22.35	.92			Carbonaceous mudstone - dark grey, coal stringers, plant fragments, highly broken at base.	
		<u>71</u> 21.64								
		.27 1.10		22.35	23.85	1.50			Silty mudstone - medium to dark grey, carbonaceous mudstone layers with coal stringers  TOP OF BOX 8	
		.40								



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

P-141A(10-80)

SHEET NO.: 6

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
62°		2.41							TOP OF BOX 10	
		.33		31.24	38.29	7.05			Siltstone - thick, fine to medium grained sandstone interbeds, coal pods and stringers	
									Sandstone - light grey to medium grey, fine to medium grained sand, laminations, silty laminae, coal stringers.	
		.16							TOP OF BOX 11	
	<u>105</u> 32								Sandstone - with coal ped	
60°		2.54							Sandstone - siltstone interbeds, carbonaceous laminae, coal stringers.	
		.59							TOP OF BOX 12	
	<u>115</u> 35.05									
64°		2.23							Sandstone - light to medium grey, increasing number of siltstone interbeds, carbonaceous laminae, well developed laminae.	

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

P-141A(10-80)

SHEET NO.: 7

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION.
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.20							TOP OF BOX 13	
		.70		38.29	38.99	.70			Sandstone - cross-beds, well developed, "TOPS UP".	
		.82		38.99	39.81	.82			Siltstone - dark grey, massive	
									Mudstone - medium grey, faintly bedded. Occasional muddy lenses.	
		1.00		39.81	43.51	3.70			TOP OF BOX 14	
									Silty mudstone - medium grey, very silty at top. Occasional muddy bands.	
	<u>135</u> <u>41.15</u>	1.78								
		.92							TOP OF BOX 15	
									Silty mudstone - medium grey, very silty at top. Occasional muddy bands.	





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

P-141A(10-80)

SHEET NO.: 9

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
58°		.08		46.69	46.77	.08			Carbonaceous mudstone - as above	
		.03		46.77	46.80	.03			Coal - bright	
		.14		46.80	46.94	.14			Coal and bands - thin coal and mudstone layers, highly disturbed, sheared with listric surfaces.	
		.10		46.94	47.04	.10			Coal and rock - heavily broken pieces of dull banded coal mixed with carbonaceous mudstone: mainly mudstone (70:30), sheared heavily broken (Rock-Coal)	
		.07		47.04	47.11	.07			Carbonaceous mudstone -	
		<u>155</u> 47.3								
		.89		47.11	48.47	1.36			Mudstone - carbonaceous at top and base	
	.47							TOP OF BOX 17 Mudstone - carbonaceous in top half, not carbonaceous in bottom half. Broken at base with some pieces mixed in with coal below.		

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

P-141A(10-80)

SHEET NO.: 10

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK, J.P. CONTRACTOR:

SCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		.10		FBL 48.47	48.57	.10		74.40	↑	Coal - dull banded, heavily broken.
		.05		48.57	48.62	.05				Mudstone - medium grey
		.05		48.62	48.67	.78		00552		Coal - dull banded, sheared, heavily broken
		.11		48.67	48.78			A		Coal - dull bright, some thin boney bands, broken
		.12		48.78	48.90					- dull banded
		.05		48.90	48.95					- dull
		.04		48.95	48.99					- dull banded
		.11		48.99	49.10					- dull bright
		.05		49.10	49.15					- boney
		.06		49.15	49.21					- bright, some thin boney bands
		.04		49.21	49.25					- dull bright, powdered and broken.
		.03		49.25	49.28					Mudstone - powdered and broken

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

P-141A(10)

SHEET NO.: 11

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		.12		49.28	49.40			00552	Coal - bright banded, powdered, heavily broken	
			.32	49.40	49.72	.32		↓	Core loss - coal	
		.04		49.72	49.76	.04			Carbonaceous mudstone - highly broken	
	165 50.03	.62		49.76	50.38	.62			Mudstone - with carbonaceous zones, extensively broken. coal stringers	
		.05		50.38	50.43	.05			Coal - dull and bright	
		.07		50.43	50.50	.07			Coal and bands - irregular distribution of bright coal bands and mudstone and boney coal bands	
		.22		50.50	50.72	.22			Mudstone - carbonaceous at top and base.	
		.05		50.72	50.77	.05			Coal - bright and boney banded. Powdered; heavily broken	
		.13		50.77	50.90	.13			Mudstone - TOP OF BOX 18	
		.12		50.90	51.56	.66			Carbonaceous mudstone - dark grey, has .02cm thick bright coal band, new centre. Broken.	

60°

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

P-141A(10-80)

SHEET NO.: 12

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
50 <sup>0</sup>		.44							Carbonaceous mudstone - dark grey, has .02m thick bright coal band, new centre. Broken. Coal stringers. Broken near top.	
		.10							Carbonaceous mudstone - heavily broken.	
		.26		51.56	51.87	.31			Mudstone - dark blue grey, plant fragments, occasional coal stringers, - some bright coal pieces, increasingly carbonaceous to base.	
		.05							Core loss - coal	
				.32	51.87	52.19	.32			
		<u>173</u> 52.73								
		.37		52.19	52.56	.37			Carbonaceous mudstone - dark grey, many coal stringers, particularly at top and base. Coal pods at base (bright coal) up to .03m thick.	
	.07		52.56	52.63	.07			Coal - bright, with a 0.02cm thick pad of boney coal and a 0.005m ash band near base.		

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

P-141A(10-80)

SHEET NO.: 13

HOLE NO.: GDR-ddh-80-25 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
55 <sup>0</sup>		0.05		52.63	52.68	0.05			Coal and bands - bright coal bands and stringers interlayered with carbonaceous mudstone.	
		0.79		52.68	53.47	.79			Carbonaceous mudstone - as above with zones of thick (0.02m) pods, stringers and bands of bright coal, new centre and base.	
		0.03		53.47	53.50	.03			Coal - bright.	
		0.37		53.50	54.51	1.01			Carbonaceous mudstone - dark grey, coal stringers and some less carbonaceous zones. Highly carbonaceous zone (for 0.06m) 0.08m. below top. Broken.	
		0.27							TOP OF BOX 19 - as above	
		0.10							- as above, heavily broken. Some bright coal pieces.	
		0.27							- as above. Coal and rock powder along bottom of core box just above base.	

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

P-141A(10-80)

SHEET NO.: 14

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	183		.75	54.51	55.26	.75			Core loss - rock	
	55.78									
		0.05		55.26	55.31	0.05			Coal - bright, broken	
		0.58		55.31	55.89	0.58			Carbonaceous mudstone - dark grey, plant fragments, occasional zones low in carbonaceous matter. Coal stringers.	
		0.63		55.89	56.52	0.63			Mudstone - grey, occasional plant fragments, massive.	
		0.04		56.52	56.56	0.04			Coal and rock - Mainly broken, pieces of bright and stoney coal and mudstone. Powder and pieces.	
53°		0.22		56.56	58.22	1.66			Mudstone - grey, laminated with carbonaceous and coaly laminae.	
		0.09							- Heavily broken	
		0.22							-	
50°		1.13							TOP OF BOX 20	
	194		.40	58.22	58.62	.40			Core loss - rock	
	59.13									
		1.56		58.62	63.17	4.55			Mudstone - dark to medium grey, sparse coal laminations and carbonaceous partings	

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

P-141A(10-80)

SHEET NO.: 15

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
40°		.73							TOP OF BOX 21	
		.32							Mudstone - medium to dark grey, sparse coaly & carbonaceous stringers, slickensides and listric surfaces.	
		.64							Mudstone - heavily broken (as above).	
	205	1.30							Mudstone - medium to dark grey, coaly and carbonaceous stringers, slickensides, listric surfaces.	
	62.48								Mudstone - massive.	
									TOP OF BOX 22	
		1.74		63.17	64.91	1.74			Silty mudstone - medium grey, massive	
		1.20		64.91	66.11	1.20			Mudstone - medium to dark grey, increasingly carbonaceous with coaly laminations toward base.	



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

P-141A(10-80)

SHEET NO.: 16

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	Core INTERVAL Cond.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		.30		66.11	66.41	.30			TOP OF BOX 23 Carbonaceous mudstone - dark grey, numerous coaly laminations and stringers, slickensides, broken and powdered core - probably core loss.	
			0.30	66.41	66.71	.30			Core loss - rock.	
		1.86		66.71	68.57	1.86			Mudstone - dark grey at top grading to medium grey through most of section, silt content gradually increases towards base, some carbonaceous plant remains.	
	<u>225</u> 68.58	.58		68.57	69.15	.58			Silty mudstone - medium grey, minor carbonaceous stringers, generally massive, slickensides.	
		.08		69.15	69.23	.08			Sandstone - light to medium grey, silty clasts, coaly wisps as below.	
		.92		69.23	70.15	.92			TOP OF BOX 24 Sandstone - light to medium grey, medium to coarse grained, poorly sorted, numerous silty clasts, some with iron staining, bioturbation, coaly wisps and some laminations, massive, clasts at very irregular and contorted pattern.	

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

P-141A(10-80)

SHEET NO.: 17

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	Core INTERVAC THK. Cond.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
60°	235 71.63	.23		70.15	70.38	.23			Siltstone - medium grey, gradational to silty sandstone, coaly and carbonaceous stringers, bioturbation.	
		1.25		70.38	71.95	1.57			Silty sandstone - medium to light grey, fine grained sand distinct laminations and cross-bedding indicating "TOPS UP".	
		.32							TOP OF BOX 25	
		1.32		71.95	75.55	3.60			Sandstone - light to medium grey, fine to medium grained, numerous silty laminations, poor to moderately sorted, distinct cross-bedding, well laminated.	
		.85							- light to medium grey, fine to medium grained, moderately sorted, massive - (salt and pepper sandstone).	

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

P-141A(10-80)

SHEET NO.: 18

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
55°		.53							Sandstone - light to medium grey, fine to medium grained, poor to moderately sorted, some coaly stringers.	
		.90							TOP OF BOX 26 - light to medium grey, fine to medium grained, poor to moderately sorted, some siltstone clasts, low porosity - sharp contact at base with muddy siltstone, massive.	
		1.94		75.55	78.04	2.49			Siltstone - fine muddy laminations, three sandy interludes averaging .2m wide and medium grey to light grey, distinct cross bedding and fine laminations, becomes darker and muddier at base.	
		.08							TOP OF BOX 27	
		<u>255</u> 77.72								
		.47								
		1.40		78.04	79.44	1.40			Mudstone - dark grey, some fine silty laminae, carbonaceous and coaly stringers.	

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

P-141A(10.80)

SHEET NO.: 19

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
55°		.70		79.44	82.77	3.33			Siltstone - medium grey, minor fine, sand and mud laminations, coaly stringer (sparse) TOP OF BOX 28	
		.54								
		<u>265</u> 80.77	2.09						Siltstone - with two sandy bands up to .38m wide in middle, muddy bands with coal stringers, faint laminations. TOP OF BOX 29	
		.79		82.77	83.56	.79			Sandy siltstone - light to medium grey, well laminated, cross-bedding, sharp contact at base with mudstone.	
		.10		83.56	85.05	1.49			Mudstone - dark grey, coaly laminations, horsetail calcite veinlets, broken.	
		<u>275</u> 83.82	1.39							
		.20		85.05	85.25	.20			Carbonaceous mudstone - dark grey to black, coal laminations, broken and sheared, slickensides and listric surfaces, heavily broken.	

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

P-141A(10-80)

SHEET NO.: 20

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
45°	285 86.87	1.35		85.25	86.99	1.74			TOP OF BOX 30 Mudstone - dark grey, faintly bedded.	
		.39								
		.58		86.99	87.57	.58			Siltstone - medium grey, faintly bedded.	
50°		.40		87.57	87.97	.40			Sandy siltstone - medium grey, fine sand, poorly - moderately sorted, silty clasts. Gradational to sandstone below, faintly bedded.	
55°	295 89.92	1.61		87.97	92.49	4.52			TOP OF BOX 31 Sandstone - medium to light grey, fine to medium grained, poorly laminated, fine silt laminae, low porosity, poorly sorted.	
		1.17								
53°		1.74							TOP OF BOX 32 Sandstone - well defined cross bedding indicating "TOPS UP" increased silty laminations, calcite veinlets (CA 45°/.22m) (CA 135°/.5m).	

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

P-141A(10-80)

SHEET NO.: 21

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
50°		.76		92.49	93.25	.76			Sandy siltstone - light to medium grey, very fine to fine sand, poorly sorted, faint laminations, silty clasts - less than 2cm in length, cross-bedding indicates tops up, bioturbation.  TOP OF BOX 33	
		2.36		93.25	96.26	3.01			Sandstone - light grey, fine sand with thin argillaceous bands and laminae throughout, except at base where it's cleaner and slightly coarser.  - coal stringers in bottom half  TOP OF BOX 34  - coal strings, argillaceous clasts at base	
	315	96.01	0.35							
			0.30							
			1.03		96.26	97.29	1.03		Silty sandstone - medium to dark grey, slightly laminated	
			0.96		97.29	103.71	6.42		Sandstone - light to medium grey, occasional argillaceous laminae, but generally clean and massive.	
			0.40						Sandstone - medium to dark grey, medium to fine grained with coal stringer, argillaceous bands and clasts	
325	99.06									

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

P-141A(10-8)

SHEET NO.: 22

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
50°		1.25							TOP OF BOX 35	
		1.49							Sandstone - medium to fine grained, medium grey, argillaceous bands and laminae on top half. more massive and medium grained in lower half. Occasional coal stringers.	
		0.27							Sandstone - dark grey, medium grained, coal wisps and stringers throughout, occasional coarse and fine grained bands, silty bands near base. Heavy calcite veining at base with open vugs - angular breccias and calcite, broken.	
		2.05							TOP OF BOX 36 Sandstone - less calcite veining	
	235 102.11								Sandstone - many coal stringers and wisps some of which are up to 0.04m thick (bright coal). Fine grained bands as well as silty and argillaceous bands and laminae, are interbedded with the medium grained sandstone in the lower half. Many siltstone rip up clasts in the lower 0.15m.	
		0.42		103.71	105.50	1.79			Siltstone - medium grey, sandy	





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

P-141A(10-80)

SHEET NO.: 24

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: IK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		.43		111.59	112.02	.43			Mudstone - dark grey to black at base, becomes increasingly carbonaceous towards base, coal laminations, slickensides, broken.	
			1.75	112.02	113.77	1.75			Core loss - rock	

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

P-141A(10-80)

SHEET NO.: 25

GDR-DDH-80-25  
 HOLE NO.: \_\_\_\_\_ ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: J.S. CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
50°		.80		113.77	115.52	1.75			Mudstone - dark brown to black, carbonaceous thin coal laminae, (2mm) closely spaced(1cm) single bright coal stringer (1.5cm) .4lm below top of box. Mudstone contains minor silt laminations coal powder and broken up mudstone (.1m above 375/116.25 marker) indicates small coal bed.	
	375 116.25									
50°		0.20							Mudstone - black & dark brown interbedded	
		0.23							- two bands of coal up to (1.5m thick)	
		0.15							-	
		0.37							Mudstone - black carbonaceous with interbedded lighter brown siltstone bands	
		0.14		115.52	115.84	0.32			Ironstone - medium grey brown, dense, heavy distinct conchoidal fractures	
		0.18							TOP OF BOX 41	
		0.76		115.84	118.96	3.12			Mudstone - brown to black, carbonaceous with siltstone beds up to (2 cm) thick.	
		0.53							Mudstone - black, badly broken up, slickensided with calcarius powdered coating. powder and pieces.	

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

P-141A(10-80)

SHEET NO.: 26

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J.S. CONTRACTOR:

BCA	BOX MARKER	Core INTERVAL THK. Cond.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
30°	385 119.35	0.81							Mudstone - dark brown to black, carbonaceous, minor silt laminations and coal laminae, thin ironstone bands (3 cm) .1m below 385/119.35 marker.  TOP OF BOX 42	
		0.28							Mudstone - with three bands of bright coal (1.5cm) thick	
		0.74								
		0.15		118.96	119.11	0.28	80	B	Coal - dull banded	
		0.05		119.11	119.16			00553	- stoney, hard & heavy	
		0.08		119.16	119.24				- dull banded - powder and pieces	
			0.07	119.24	119.31	0.07			Core loss in coal	
			0.18	119.31	119.49	0.18			Core loss in mudstone	
			0.10	119.49	119.59	.1	23.92	C	Mudstone - as above	
			0.05	119.59	119.64	.05			Coal - dull banded - powder and pieces	
			0.16	119.64	119.80	0.16		00554	Core loss in coal	
			1.25	119.80	121.05	1.25			Core loss in mudstone	
		395 122.45	0.35		121.05	121.40	.35			Claystone - black, very carbonaceous, almost identifiable as stoney coal. Core has parted along closely spaced wavy highly polished sub-surfaces.

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

P-141A(10-80)

SHEET NO.: 27

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.28		121.40	121.68	0.61		78.21	D	Coal - dull banded, badly broken TOP BOX 43
		0.10		121.68	121.78				00555	Coal - dull banded, badly broken
		0.23		121.78	122.01					- bright, badly broken
			0.17	122.01	122.18	0.17				Core loss - coal

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

P-141A(10-8)

SHEET NO.: 28

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.13		122.18	122.31	0.13			BOX 43 - cont. from coal	
		0.30		122.31	124.02	1.71			Mudstone - dark grey sheared, slickensides, probable core loss coaly stringers.	
									Siltstone - medium grey, argillaceous laminae, distinct laminations and sandy crossbeds, calcite veining and brecciation - vuggy calcite veining, possible fault breccia, broken core.	
50°	405F 123.4M	1.41							Siltstone - light to medium grey, distinct laminations and crossbeds, fine sandy interbeds, fine argillaceous laminations. Coal laminations associated with argillaceous intervals, especially towards base.	
		0.92		124.02	124.94	0.92			TOP OF BOX 44	
60°		0.66		124.94	126.65	1.71			Mudstone - dark grey, carbonaceous, coal laminations	
									Siltstone - medium grey, argillaceous and fine sand intervals, crossbedding in sandy intervals, carbonaceous with coal laminations in argillaceous intervals.	
	415F 126.5	1.05								

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

P-141A(10-8)

SHEET NO.: 29

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
									TOP OF BOX 45	
55°		1.78		126.65	128.43	1.78			Mudstone - dark grey, laminated, carbonaceous, coal laminations, silty laminae (minor) horsetail calcite veining.	
		0.08		128.43	129.30	0.87			Carbonaceous mudstone - probable core loss	
	425									
	129.5									
45°		0.65							Carbonaceous mudstone - dark grey, black, numerous bright coal laminations, slickensides, powder and pieces.	
			0.30	129.30	129.60	0.30			Core loss - rock	
		0.14							TOP OF BOX 46	
									- probably core loss	
		0.07		129.60	129.90	0.30			Coal - bright. Broken.	
		0.06							- bright banded	
		0.07							- bright.	
		0.10							- bright banded	
									Probably core loss	
		0.09		129.90	129.99	0.09			Coal and bands - thin bands of bright coal inter-layered with slightly thicker (0.01m) bands of carbonaceous mudstone & coal bands decrease towards base.	

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

P-141A(10-80)

SHEET NO.: 30

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
40°		1.27		129.99	131.41	1.42			Carbonaceous mudstone - black to dark grey - numerous coal laminations, poorly laminated mudstone, last .44m extremely broken with powder and pieces possible fault.	
	435		.34	131.41	131.75	.34			Core loss - rock	
	132.59		.15	131.75	131.90	.15			Core loss - rock	
		0.15							- slickensides, listric surfaces - sharp contact with siltstone below	
		0.37		131.90	134.63	2.73			Siltstone - light grey, massive calcite veinlets truncated and offset by other open fractures and other calcite fractures (CA 35°/.05m, CA 150°/.10m). TOP OF BOX 47	
		0.49								
		1.87							Siltstone - medium to light grey, argillaceous and fine sandy laminations, coal laminations, carbonaceous plant remains, cross-bedding in sandy intervals.	
	445'		0.03	134.63	134.66	0.03			Coal - bright coal - powder probable core loss	
	135.64		0.27	134.66	134.93	0.27			Siltstone - medium grey - gradational to mudstone at base.	





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

P-141A(10-80)

SHEET NO.: 32

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
45°		0.61		143.48	151.27	7.79			Mudstone - medium grey to dark grey, minor silt content, coal laminations and stringers, calcite veinlets (CA 135/.1m)	
	475									
	144.78	1.96							- medium to dark grey, minor silt content TOP OF BOX 52	
	485	1.03								
	147.83	1.67							- silt and coal laminae TOP OF BOX 53	
45°	495F	0.63								
	150.89	1.89							Mudstone - dark grey, carbonaceous, numerous coal laminations, slickensides, listric surfaces	
		0.26		151.27	151.53	0.26			Siltstone - medium grey, sharp contact with mudstone above, silty and argillaceous laminae and crossbeds. TOP OF BOX 54	
45°		1.52		151.53	156.08	4.55			Siltstone/mudstone - medium to light grey, variable fluctuations in mud and silt content. Thin beds and laminations with variable percentages of silt and mud. Well laminated, cross-bedded in silty portions. Coal laminations and stringers in argillaceous sections.	

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

P-141A(10-80)

SHEET NO.: 33

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
45°	505' 153.92	1.25							Siltstone/mudstone - bioturbation  TOP OF BOX 55	
50°	515' 156.97	0.98		156.08	162.28	6.20			Mudstone - dark to medium grey, minor silty laminations, coal laminations.  TOP OF BOX 56	
40°		2.05							Mudstone - dark grey, occasional silty laminae, coal laminations; calcite veinlets, fractures, slickensides, crossbedding in silty interval indicates "tops up" - minor micro-faulting in silts.	
35°	525' 160.0	0.43							Mudstone - increasingly carbonaceous, decreasing silt.  TOP OF BOX 57	
		2.38							Mudstone - dark grey, faintly laminated, coal laminations, carbonaceous plant remains, horsetail calcite filled fractures.	

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

P-141A(10-80)

SHEET NO.: 34

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
45°	535F 163m	0.36							Mudstone - dark grey, faintly laminated, coal laminations, carbonaceous plant remains, horsetail calcite filled fractures.	
		1.36		162.28	163.64	1.36			TOP OF BOX 58 Carbonaceous mudstone - dark grey to black, bright coal laminations	
		0.40		163.64	164.04	0.40			Mudstone - dark grey, silty-crossbedded laminations argillaceous laminations	
		0.76		164.04	165.50	1.46			Carbonaceous mudstone - dark grey to black, bright coal laminations, bioturbation - resulting in ironstone burrows.	
45°	545F 166m	0.70							NO BOX 59 TOP OF BOX 60	
		1.96		165.50	171.05	5.55			Mudstone - dark grey, laminated, carbonaceous in upper half, slickensides, numerous coal laminations.	
		0.85							- few coal laminations - numerous silty laminae	



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

P-141A(10-8)

SHEET NO.: 36

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
45°		0.73								TOP OF BOX 63
		1.50		175.18	176.68	1.5				Mudstone/Carbonaceous mudstone - dark grey and bands of carbonaceous mudstone up to .16m wide in lower half of section, numerous bright coal laminations pods of dull, bright coal .05m wide. Slickensides and listric surfaces. Core broken mainly in coaly sections.
	585	0.20		176.68	176.88	.20				Coal and bands -
	178.4		.88	176.88	177.76	.88				Rock loss
		0.67		177.76	178.43	.67				Carbonaceous mudstone/mudstone - dark grey, thin beds with little carbonaceous matter or coal laminae. Broken.

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

P-141A(10-80)

SHEET NO.: 37

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.29		178.43	178.72	.29			TOP OF BOX 64	
		0.35		178.72	179.07	.35			Mudstone - black, carbonaceous, thin coal laminae (1mm to 5mm) closely spaced	
		0.25		179.07	179.84	0.77			Coal - dull banded	
		0.52							Mudstone - as above, very carbonaceous, coal laminae	
	595								Mudstone - medium grey black, carbonaceous grading to siltstone at base	
	181.36									
		0.91		179.84	185.48	5.64			Sandstone - fine to very fine grained, salt and pepper, grading to siltstone, muddy laminations.	

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

P-141A(70-8)

SHEET NO.: 38

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
35°		0.93							Sandstone - fine to very fine grained, salt and pepper, grading to siltstone, muddy laminations	
		2.15							TOP OF BOX 65	
45°	605								Sandstone - interbedded fine sandstones and mudstones with siltstone - extremely variable, cross-bedding shows "tops up".	
	184.5	0.29						TOP OF BOX 66		
		1.36							- calcite fractures at low angle to CA. (.81 → .94m) calcite veinlets, fractures and breccia, surrounded to angular clasts in breccia.	
		1.18		185.48	187.17	1.69			Mudstone - medium to dark grey, carbonaceous plant remains, bright coal laminations, slickensides.	
	615								- carbonaceous	
	187.5m	.51								

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

P-141A(10-B)

SHEET NO.: 39

HOLE NO.: GDH-DDH-80-25 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
			0.30	187.17	187.47	0.30			TOP OF BOX 67	
			0.38	187.47	187.85	0.38			Core loss - rock	
		0.29		187.85	188.14	0.29	44.68		Core loss in coal	
	620								Coal - dull banded, powder and pieces	
	188.98									
			.93	188.14	189.07	0.93			E	
		0.55		189.07	189.62	0.69			Core loss in coal - dull banded	
	625									
	190.5									
		0.14		189.62	189.76			00556	- dull banded, broken	
			0.66	189.76	190.42	0.66			Core loss in coal	
		0.15		190.42	190.57	0.70			- dull & bright, broken	
		0.39		190.57	190.96				- dull banded (note: dull and bright coal down graded by presence of two - lcm bands of gritty mudstone).	
		0.16		190.96	191.12				- dull & bright, broken	
			.11	191.12	191.23	0.11			Core loss in coal	
			.29	191.23	191.52	0.29			Core loss in mudstone	
		0.06		191.52	191.58	.06	17.14	F557	Mudstone - black, carbonaceous	
	630									
	192.02									
		0.32		191.58	191.90	0.85	71.43		TOP OF BOX 68	
		0.05		191.90	191.95				Coal - dull banded, strongly sheared, broken	
		0.17		191.95	192.12			G 00558	- powdered - dull banded - dull banded, strongly sheared	



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

P-141A(10-B)

SHEET NO.: 40

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
40°		0.06		192.12	192.18				G 00558	Coal - powdered, probably bright
		0.05		192.18	192.23					- bright, heavily broken.
		0.05		192.23	192.28					- coal and bands, heavily broken
		0.10		192.28	192.38					- dull banded, heavily broken
		0.05		192.38	192.43					- powdered - dull banded
				.34	192.43	192.77	.34			Core loss in coal
				.10	192.77	192.87	.10			Core loss in mudstone
			0.11		192.87	192.98	.11	52.38	H-559	Mudstone - black, carbonaceous
		635 193.53								
			0.20		192.98	193.18	0.50	90.91	I 00560	Coal - dull banded, heavily broken.
		0.30		193.18	193.48				- bright, heavily broken.	
			.05	193.48	193.53	0.05			Coal loss	
		0.90		193.53	195.04	1.51			Mudstone - dark brown to black, very carbonaceous, frequent fine coal laminae (1mm or less)	



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

P-141A(10-8)

SHEET NO.: 42

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
40°		0.65							Silty mudstone - calcite fracture fill (CA 40°/.05m) ie along bedding .42m calcite veins and breccia - angular to subrounded fragments extends -.09 metres.  TOP OF BOX 71	
(35°-60°)		0.10 1.60		199.62	201.22	1.60			Silty sandstone - light grey, very fine to fine grained sand with silty laminae. Variable bedding angles, few coal laminations, minor bioturbation, low porosity.	
		0.72		201.22	204.68	3.46			Mudstone - medium grey, gradational at top from silty sandstone, coal laminations, carbonaceous plant remains.	
	699F 213.1	1.80							TOP OF BOX 72	
(35-45°)		0.94 0.70		204.68	205.38	0.70			Mudstone - mottling from bioturbation  Siltstone - medium to light grey, variable silty and argillaceous bands - argillaceous, silt and very fine grained sand laminations, variable lamination attitudes - laminations not well defined. Plant remains, coaly laminations. Minor soft sed. deformation.	

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

F-141A(10-80)

SHEET NO.: 43

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
50°	674F	0.19		205.38	211.68	6.30			Mudstone - medium grey, silty laminae  TOP OF BOX 73	
	675F	0.24							Mudstone - medium grey, silty laminae	
		2.21							- medium to dark grey, silty laminations. coal laminations up to .01 thick, calcite horsetail fractures TOP OF BOX 74	
45°	685F 208.8m	0.69							-	
		2.03							- numerous coal laminations and stringers horsetail calcite fractures, silty laminations, minor ironstone banding. TOP OF BOX 75	
40°	695F 211m	0.94								

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

P-141A(10)

SHEET NO.: 44

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
45°		0.32		211.68	212.00	0.32			Carbonaceous mudstone - coal laminae up to .02m thick. Slickensides & sheared, heavily broken.	
		1.29		212.00	215.95	3.95			Mudstone - medium grey - silt and fine sand laminae. Numerous coal laminae and stringers cross-bedding in sandy laminae show "tops up". Plant remains, slickensides. TOP OF BOX 76	
	705F 215m	1.44							Mudstone - medium to dark grey, silty laminae, numerous coal laminae and stringers slickensides.	
		1.22							- coal laminae up to .01m thick bioturbation causing mottling - and ironstone burrows. TOP OF BOX 77	
45°		1.70		215.95	218.19	2.24			Siltstone/sandstone - light grey, fine grained sand and silt inter laminations, argillaceous laminae, also argillaceous bands and sandy bands, with sharp contact between them coal laminations, plant remains. Cross bedding shows "tops up".	

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

P-141A(10-80)

SHEET NO.: 45

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
40°	715F 218m	0.54							Siltstone/sandstone - light grey, fine grained sand and silt interlaminations, argillaceous laminae, also argillaceous bands and sandy bands, with sharp contact between them - coal laminations, plant remains. Cross bedding shows "tops up".	
		0.33		218.19	218.52	0.33			Mudstone - dark to medium grey, silty laminae, coal laminae.	
		0.05		218.52	218.57	0.05			TOP OF BOX 78 Carbonaceous mudstone - dark grey to black numerous coal laminae.	
		0.05		218.57	218.62	0.05			Coal and rock - powder and pieces	
		0.03		218.62	218.65	0.03			Coal - dull banded - powder and pieces	
		0.02		218.65	218.67	0.02			Coal and rock - powder and pieces	
		0.18		218.67	218.85	0.18			Carbonaceous mudstone - dark grey to black with numerous coal laminae. Heavily broken.	
		1.76		218.85	224.10	5.25			Mudstone - dark grey to medium grey, silty and fine sandy intervals, silt and fine sand laminae. Iron banding, coal laminae and stringers. Pyrite laminae and small blebs.	
		725F 221m	0.43						No pyrite or ironstone	

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

P-141A(10-4)

SHEET NO.: 46

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
50°		1.90							TOP OF BOX 79	
		0.69							Mudstone - dark to medium grey, silt and sand laminae throughout section with some predominantly silty intervals, extremely varied mudstone, coal laminae with stringers, vuggy calcite veins .02m thick between 1.3-1.5	
	735 224								- dark grey, numerous coal laminae, plant remains, ironstone blebs, slickensides.	
		0.47							TOP OF BOX 80	
		0.41		224.10	224.51	0.41			- dark to medium grey, silt and sand laminae, coal laminae.	
									Mudstone/siltstone crackle breccia - breccia clasts are angular and from .001 - .02m in size calcite cement surrounds clasts. Clasts are not greatly rotated or displaced.	
45°		1.22		224.51	229.01	4.50			Mudstone - dark to medium grey, silt laminae, coal laminae.	
	742	0.66							Mudstone - dark grey, very little silt, faint laminae. coal stringers.	

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

P-141A(10-6)

SHEET NO.: 47

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK, JS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
40°	745' 227m	0.22							TOP OF BOX 81	
		0.68							Mudstone - silty laminae increase	
		1.72							TOP OF BOX 82	
45°	755F 230.12 m	0.64		229.01	231.17	2.16			Siltstone - medium grey - well developed laminations, argillaceous and sandy laminae, coal stringers, plant remains - cross-bedding shows tops up.	
		1.52							Siltstone - sandstone interval from .42- .69m fine to medium grained cross-bedded. Silty laminations.	
		0.27		231.17	231.44	0.27			Mudstone - dark grey, silty laminae - becomes increasingly carbonaceous down section- with more coal laminae and stringers.	
40°			.37	231.44	231.81	.37			TOP OF BOX 83 Core loss - coal	
		0.02		231.81	231.83	0.07	15.91	↑ J	Coal - dull banded	
		0.03		231.83	231.86			00561	- powdered - dull banded	
		0.02		231.86	231.88			*	- dull banded	
			0.16		231.88	232.04	0.16		↑	Core loss - rock
		0.15		232.04	232.19	0.15	70.91	K	Mudstone - black, carbonaceous, slickensided, contracts	
40°		0.06		232.19	232.25	0.06		00562	Coal - dull banded	
		0.18		232.25	232.43	0.18		↓	Mudstone - as above	



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

P-141A(10-80)

SHEET NO.: 48

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	765	0.30		232.43	232.73	0.86		84.31	L 00563	Coal - dull banded
	233.17	0.26		232.73	232.99					- dull banded
		0.20		232.99	233.19					- bright
		0.10		233.19	233.29					- powdered, probably bright
			0.16	233.29	233.45	0.16				Core loss - coal
		0.13		233.45	233.58	0.13				Claystone - dark brown to black, carbonaceous, enclosing a 1cm band of bright coal.
		0.02		233.58	233.60	0.02				Coal - bright
		0.39		233.60	233.99	0.39				Mudstone - black carbonaceous
		0.03		233.99	234.02	0.03				Coal - bright
			0.50	234.02	234.52	0.50				Core-loss - rock
	770									
	234.70	0.25		234.52	235.02	0.50			Mudstone - as above, very carbonaceous	
		0.25							TOP OF BOX 84	
		0.10		235.02	235.12	0.10			Fault - finely powdered mudstone carbonaceous.	
			1.06	235.12	236.18	1.06			Core loss - rock	
	775									
	236.22	0.73		236.18	237.80	1.62			Mudstone - black	
		0.49							Mudstone - black, carbonaceous frequent coal laminae up to (1cm) thick, bright.	
		0.10							- carbonaceous mixed with bright coal powder	
		0.30							Mudstone - as above.	

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

P-141A(10-80)

SHEET NO.: 49

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
20°		0.20		237.80	239.82	2.02			Siltstone - calcite veinlets and slickensided surfaces, minor brecciation at upper contact, grades downward to very silty mudstones.	
		0.52							TOP OF BOX 85	
	785 239.27	1.30								
			1.11	239.82	240.93	1.11			Core loss - coal	
			0.15	240.93	241.08	.33			Coal - dull, highly polished fragments	
			0.18	241.08	241.26				- dull banded	
			0.25	241.26	242.55	1.29			Mudstone - black grey, silty	

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

P-141A(10-80)

SHEET NO.: 50

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
35°	795F 242.3	0.43							TOP OF BOX 86 Mudstone - dark grey, silty laminae in lower half. Carbonaceous, coal stringers.	
35°		0.61							- dark to medium, silty laminae, sparse bioturbation	
35°		1.72		242.55	244.27	1.72			Siltstone - medium to light grey, well laminated, argillaceous and sandy laminae - bioturba- ted, rootlets, crossbeds show "tops up". Coal stringers.	
	805F 245.4	0.51		244.27	246.96	2.69			TOP OF BOX 87 Mudstone - medium to dark grey, silty laminae, coal laminae.	
		0.15							- dark grey, coal stringers	
		2.03								
		0.11		246.96	247.37	0.41			Siltstone - light to medium grey, laminated	
40°		0.30							TOP OF BOX 88 - sand and argillaceous laminae, slickensides, - bioturbation	

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

P-141A(10-8)

SHEET NO.: 51

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.35		247.37	250.95	3.58			Mudstone - dark grey, in places grades to up to .16m of carbonaceous mudstone with numerous coal stringers, in general though - dark to medium grey with coal stringers.	
	815 248.41	1.90							TOP OF BOX 89	
		1.05							No carbonaceous mudstone sections	
	825 251.46	0.28								
		1.36		250.95	256.11	5.16			Siltstone - medium grey, very diffuse laminations, calcite veinlets - (CA 15 <sup>o</sup> / .02m)	
		1.43							TOP OF BOX 90	
43 <sup>o</sup>	835' 254.51	1.35							Siltstone - argillaceous laminae  - minor vuggy calcite veining	

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

P-121A(10-B)

SHEET NO.: 52

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.02							TOP OF BOX 91	
		0.60		256.11	260.49	4.38			Siltstone - sandy laminations increasing	
	845									
	257.56								Sandstone - light grey, fine to medium grained, numerous coal laminae, low porosity, calcareous cement calcite veining - .002m thick (CA 48°/.05m)	
(45°	AVG)	0.98							Sandstone - crossbedding indicates "tops up". Pyrite in calcite veinlets and coal laminae.	
		1.30							TOP OF BOX 92	
		0.60							Sandstone - faintly bedded	
									- wispy coal, numerous vuggy calcite veinlets increased silt content at base badly broken core -	
		0.13							- medium grey, fine sand, coal laminations	
	855F									
	260.60									
		0.08								
		0.41							- light grey, medium grained, crossbedded	

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

P-141A(10-80)

SHEET NO.: 53

HOLE NO.: \_\_\_\_\_ ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: GDR-DDH-80-25 HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
42°		0.28							TOP OF BOX 93 Sandstone - light grey, medium grained calcareous cement, wispy coal & calcite veinlets (CA 45°/.02m) sharp contact with mudstone below. contact is 40° to CA.	
		0.58		260.49	261.07	0.58			Mudstone interbeds in sandstone unit sandy and argillaceous laminations bright coal laminations, pods and stringers in places at low angles to CA - usually .01m thick.	
		1.65		261.07	265.17	4.10			Sandstone - light to medium grey, fine to coarse grained, calcareous, poorly sorted, low porosity. Coal stringers, wispy coal in places, occasional argillaceous laminae.	
		865' 263.65								
		0.16								
		2.29							TOP OF BOX 94 Sandstone - random calcite veinlets increased wispy coal, mudstone rip up clasts at base indicating "tops up" - sharp contact with mudstone below crossbedded sands - some beds have distinct grainsize variations - ie fluctuation between coarse and finely bedding.	

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

P-141A(10-8)

SHEET NO.: 54

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.43		265.17	268.54	3.37			Mudstone - dark grey, faintly laminated, bioturbated	
	875 266.70								TOP OF BOX 95	
		2.78							Mudstone - diffuse silty laminations, faint cross-beddings. Dark to medium grey, small ironstone concretions, silt content increasing downsection	
									TOP OF BOX 96	
	885 269.75	0.16								
45°		2.54		268.54	273.12	4.58			Siltstone - medium grey, argillaceous laminae, random calcite veinlets, heavily bioturbated at base	
									TOP OF BOX 97	
	895 272.80	0.58								
40°-45°		1.46							Siltstone - numerous argillaceous laminae, bioturbation.	

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

P-141A(10-8)

SHEET NO.: 55

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.65		273.12	283.54	10.42				Siltstone/mudstone - interbedded, interlaminated, dark to medium grey -  fluctuations between dominantly silty beds and dominantly argillaceous beds. In places sandy beds occur as well. • Small scale cross-bedding. Bioturbation. Plant remains, coal laminations and stringers especially in argillaceous sections. Calcite veinlets (CA 45 <sup>o</sup> /.02 - .05m
	905	0.77								• TOP OF BOX 98
	275.84	1.99								
	915	1.13								TOP OF BOX 99
	278.88	1.52								Siltstone/mudstone - sandy bands





COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12-8)

DENSITY

RESISTIVITY

DRILL NO. GDR-DDH-80-25 SEAM

APPARENT THICKNESS  
SEAM INTERVAL 48.47 - 49.72 m

SCALE 1:40

DENSITY SCALE	RESISTIVITY SCALE	SEAM COMP.	DEPTH	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS									
				ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	FSI			
1.00	1.00																	
1.10	1.10																	
1.20	1.20																	
1.30	1.30																	
1.40	1.40																	
1.50	1.50																	
1.60	1.60																	
1.70	1.70																	
1.80	1.80																	
1.90	1.90																	
2.00	2.00																	
2.10	2.10																	
2.20	2.20																	
2.30	2.30																	
2.40	2.40																	
2.50	2.50																	
2.60	2.60																	
2.70	2.70																	
2.80	2.80																	
			48.47		0.08	0.85 (0.32)	A											
			49.40				00552		0.55	22.13	24.85	52.47	0.36	11,521	4.5			
			49.72															

GEOPHYSICAL LOGS









COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

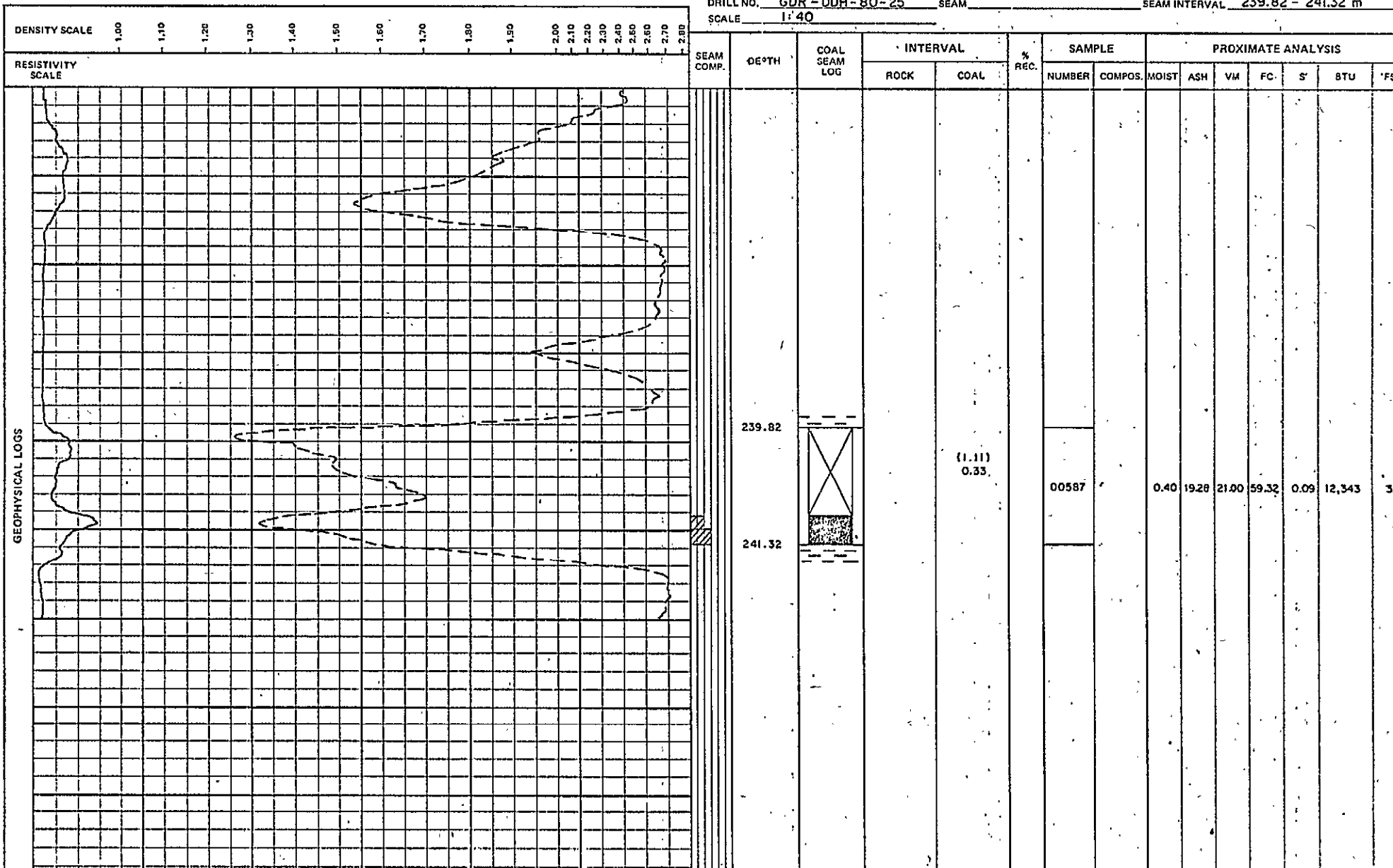
P-267 (12)

DENSITY

RESISTIVITY

DRILL NO. GDR-DDH-80-25 SEAM  
SCALE 1:40

SEAM INTERVAL  
APPARENT THICKNESS 239.82 - 241.32 m



GEOPHYSICAL LOGS

DIRECTIONAL SURVEY

ROKE OIL ENTERPRISES LIMITED

**COMPANY:** GULF CANADA RESOURCES INC.      **GRID:** \_\_\_\_\_      **DATE SURVEYED:** 24 SEPTEMBER 1980  
**DRILL HOLE:** GDR-DDH - 80-25      **LATITUDE:** \_\_\_\_\_      **SURVEY BY:** SIM  
**LOCATION:** \_\_\_\_\_      **DEPARTURE:** \_\_\_\_\_      **WITNESSED BY:** ZSCHACH  
**FIELD:** GOODRICH      **ELEVATION:** \_\_\_\_\_      **CALCULATIONS BY:** \_\_\_\_\_  
**MAGNETIC DECLINATION:** \_\_\_\_\_      **CORRECTION OF:** \_\_\_\_\_      **FOR:** \_\_\_\_\_      **GRID:** \_\_\_\_\_

Number	Cable Depth	Slant Angle	Slant Angle Bearing	Number	Cable Depth	Slant Angle	Slant Angle Bearing	Number	Cable Depth	Slant Angle	Slant Angle Bearing
0	0	34.15	13.1	11	165	34.05	207.7	22			
1	15	32.97	203.6	12	180	37.21	210.9	23			
2	30	33.24	200.4	13	195	36.16	199.6	24			
3	45	33.79	208.3	14	210	37.47	210.6	25			
4	60	* 32.82	206.8	15	225	* 38.20	211.9	26			
		33.23	205.9			37.73	213.1				
5	75	33.01	202.6	16	240	39.88	215.6	27			
6	90	33.64	203.8	17	255	39.71	205.2	28			
7	105	33.01	211.7	18	270	39.24	213.5	29			
8	120	33.22	203.6	19	275	40.92	209.4	30			
9	135	34.90	203.8	20				31			
10	150	* 35.42	196.7	21				32			
		35.11	204.0								

\* REPEAT READINGS

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

P-141A(10-80)

SHEET NO.: 1

HOLE NO.: GDR-DDH-80-26 ELEV. COLLAR: 1021.03m TOTAL DEPTH: 202.0m DATE BEGUN: \_\_\_\_\_  
 PROJECT: Goodrich BEARING: \_\_\_\_\_ CORE SIZE: HQ DATE COMPL.: September 18/80  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JP CONTRACTOR: Coates

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
35°		1.98		15.22	19.88	4.66			Casing TOP OF BOX 1	
	57 17.37	0.45							Sandstone - medium grey, coarse grained to granular, massive with intervals of coal wisps and stringers. Broken throughout particularly in lower half. Some core at top. Salt and pepper appearance.	
		2.23							- TOP OF BOX 2	
		0.15		19.88	21.21	1.33			- many mudstone rip up clasts in centre	
	67 20.42	0.15							Sandstone - medium grey, medium grained with thin argillaceous bands	
		1.03							- TOP OF BOX 3	
	71 21.64							- with carbonaceous laminae and occasional bands of coal wisps. Grades to coarser grained sandstone at base.		





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

P-141A(10-E

SHEET NO.: 3

HOLE NO.: GDR-DDH-80-26 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
	107									
	32.61	1.31		32.37	33.68	1.31			Sandy ) - dark to medium grey, laminated with fine. Siltstone) grain sandstone bands and argillaceous bands  TOP OF BOX 8	
		.81		33.68	34.49	0.81			Siltstone - dark grey, occasional sandy bands, heavily broken at top and bottom. Pieces range .02 to .20m	
	115.5									
	35.20	1.10		34.49	35.59	1.10			Carbonaceous ) - dark grey, massive coal stringers, Mudstone ) occasional sheared planes with listric surfaces and slip and slickensides. Secondary calcite on the surfaces is also slickensided. Broken (pieces are 0.08).	
	120									
	36.58									
		0.03		35.59	35.62	0.03			Coal - powder	
		0.26		35.62	36.12	0.50			Carbonaceous ) - dark grey as above, coal powder in mudstone ) centre. Broken (pieces are 0.05). - unbroken	
		0.24								

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

P-141A(10-80)

SHEET NO.: 4

HOLE NO.: GDR-DDH-80-26 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
37°	<u>125.5</u> 38.25	0.87		36.12	40.09	3.97			TOP OF BOX 9 Carbonaceous) - dark grey, massive, occasional coal mudstone ) stringers	
		1.90							- occasional faint laminations	
		0.30							TOP OF BOX 10 - broken	
		0.62							- broken with some coal powder	
		0.14								
30°	<u>135.5</u> 41.30	0.14								
		0.29	0.32	40.09	40.41	.32			Core loss - rock - many coal stringers	
		0.05		40.41	41.61	1.20			- heavily broken, some coal powder	
		0.86							- many coal stringers at top and bottom. Ironstone nodules and bands	
		0.10		41.61	41.71	0.10			Coal and rock - heavily broken pieces of bright coal and carbonaceous mudstone (50:50).	

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

P-141A(10-80)

SHEET NO.: 5

HOLE NO.: GDR-DDH-80-26 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
23°		0.05		41.71	41.76	0.05			Carbonaceous) - as above mudstone ) TOP OF BOX 11	
		0.03		41.76	41.79	0.03			Coal and rock - heavily broken pieces of bright coal and carbonaceous mudstone (50:50)	
		1.60		41.79	44.38	2.59			Carbonaceous) - dark grey, faint laminations at top, mudstone ) otherwise massive. Occasional thick bright coal stringers.	
27°	<u>145</u> 44.20	0.99							TOP OF BOX 12	
		2.13		44.38	49.12	4.74			Mudstone - dark grey, massive	
	<u>155.5</u> 47.40	0.55							- laminated at base with silty mudstone TOP OF BOX 13	
		2.06							- a few thin coal stringers in bottom half.	
		0.43		49.12	49.55	0.43			Carbonaceous) - dark grey, massive, with frequent mudstone ) thick bright coal strings and bands particularly at top and base broken.	



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

P-141A(10-80)

SHEET NO.: 7

HOLE NO.: GDR-DDH-80-26 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JS CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR THK.	TRUE THK.			
20°	179 55.49	0.60		52.93	54.02	1.09			TOP OF BOX 15 Mudstone - black, silty beds up to (1cm) thick, coal laminae, closely spaced (2cm)	
25°		0.49	0.24	54.02	54.26				Core loss - coal	
		0.25		54.26	54.51	0.25		↑ 0 0 5 7 6 ↓	Coal - dull, moderately sheared, friable	
		0.02		54.51	54.53	0.02			1	Claystone - medium brown, slickensided
		0.41		54.53	54.94	0.76				Coal - dull banded, moderately sheared
		0.35		54.94	55.29					- dull hard
		0.25		55.29	55.54	0.25				Claystone - dark brown, carbonaceous. Thin coal laminae (2mm) and stringers

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

P-141A(10-80)

SHEET NO.: 8

HOLE NO.: GDR-DDH-80-26 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
40°		0.28		55.54	55.82	0.28			TOP OF BOX 16 Mudstone - medium grey, coal laminations, very badly broken	
	187	2.37		55.82	61.49	5.67			Mudstone - medium to dark grey, slightly carbonaceous, coal laminations and stringers	
	56.99									
		2.54							TOP OF BOX 17 - faint laminations in lower half.	
35°		0.76							TOP OF BOX 18	
	207	0.08		61.49	61.57	0.08			Carbonaceous ) - dark grey, carbonaceous and coal mudstone ) laminations	
	63.09									
	1.20		61.57	63.23	1.66			Mudstone - medium to dark grey, slightly carbonaceous, silty laminations, coal stringers and lamination, badly broken in places.		

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

P-141A(10-8)

SHEET NO.: 9

HOLE NO.: GDR-DDH-80-26 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.46								TOP OF BOX 19
	215		1.00	63.23	64.23	1.00				
	65.5									
47	37°	1.92		64.23	66.45	2.22				
		0.30								TOP OF BOX 20
			0.20	66.45	66.65	0.20				- very badly broken
	223									
	67.97			66.65	67.97	1.32				- ground rock from drill
		1.15								
		0.37								- badly broken and ground
			0.44	67.97	68.41	0.44				
	230									
	70.10									
		0.15		68.41	68.56	0.15				
			2.06	68.56	70.62	2.06				Core loss - rock
										TOP OF BOX 21
28°		1.72		70.62	72.34	1.72				Mudstone - dark grey, sparse carbonaceous flecks, sparse coal stringers, very irregular fractures
			.27	72.34	72.61	0.27				



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

P-141A(10-8C)

SHEET NO.: 10

HOLE NO.: GDR-DDH-80-26 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	237 72.24	0.53		72.61	73.71	1.10			- TOP OF BOX 22	
		0.57	1.95	73.71	75.66	1.95			- broken core	
	247 75.29	1.73		75.66	81.65	5.99			- TOP OF BOX 23	
		1.24							-	
		1.34							-	
		1.54							- TOP OF BOX 24	
	267 81.38	0.14							-	
		0.13		81.65	81.78	0.13			Carbonaceous) - dark grey to black, very carbonaceous mudstone ) and numerous coal stringers	
		0.73		81.78	84.14	2.36			Mudstone - dark grey coal laminations monotonous, irregular fractures, slickensides.	

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

P-141A(10-E)

SHEET NO.: 11

HOLE NO.: GDR-DDH-80-26 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.63							TOP OF BOX 25	
			.42	84.14	84.56	0.42			Mudstone - dark grey coal laminations monotonous, irregular fractures, slickensides.	
	277 84.43								Core loss - rock	
		0.50		84.56	85.06	0.50			Mudstone -	
		0.24		85.06	85.30	0.24			Carbonaceous) - dark grey to black, very carbonaceous, mudstone ) abundant coal laminations and stringers	
									TOP OF BOX 26	
		0.85		85.30	86.15	0.85			Mudstone - dark grey, numerous bright coal laminations up to (1cm) thick slightly carbonaceous and in places badly broken.	
			1.15	86.15	87.30	1.15			Core loss - rock	
	286 87.17									
		0.22		87.30	87.52	0.22			Carbonaceous) - very carbonaceous. Numerous bright mudstone ) coal laminations.	

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

P-141A/10-80

SHEET NO.: 12

HOLE NO.: GDR-DDH-80-26 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
52°		0.97		87.52	89.85	2.33			Mudstone - coal pods (3cm x 5cm) TOP OF BOX 27	
		1.36	.51	89.85	90.36	0.51			Core loss - rock	
	296 90.22	1.03		90.36	91.39	1.03			TOP OF BOX 28	
40°		0.88		91.39	104.60	13.21			Silty mudstone - medium grey, dark grey argillaceous laminae and light grey silty laminations, sparse carbonaceous laminations.	
	304 92.66	1.72							TOP OF BOX 29	
45°		1.35								
38°	314.5 95.86	1.39								

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

P-141A(10)-

SHEET NO.: 13

HOLE NO.: GDR-DDH-80-26 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
		1.55							TOP OF BOX 30	
	324.5 98.91								Silty mudstone - increasing number of coal laminations	
45-50°		0.90							-	
		2.05							TOP OF BOX 31	
	335.0 102.11								-	
40°-45°		0.46							-	
		0.45							TOP OF BOX 32	
45-50°		2.46							-	



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

P-141A(10-8)

SHEET NO.: 15

HOLE NO.: GDR-DDH-80-26 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.20		109.28	109.48	0.20			Core loss - rock TOP OF BOX 35 - (1 of 2)	
		0.82		109.48	110.30	0.82			Mudstone - dark grey, slightly carbonaceous, coal stringers and wispy calcite veining.	
40°		1.85		110.30	112.24	1.94			Silty ) - Medium grey, silt and argillaceous Mudstone) laminations, sparse coal stringers, wispy calcite veining TOP OF BOX 35 (2 of 2)	
		0.09							Silty ) mudstone) -	
	371 113.									
		0.51		112.24	112.75	0.51			Mudstone - medium grey, silty at base, faint laminations.	
55°		2.10		112.75	114.85	2.10			Sandstone - medium to light grey, silty interbeds near base, fine to medium grained, argillaceous laminations and carbonaceous partings, cross-beds indicate 'tops up'.	



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

P-141A(10-80)

SHEET NO.: 17 / 15

HOLE NO.: GDR-DDH-80-26 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J.S., L.K. CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
		1.64		118.04	119.78	1.74			Mudstone - black carbonaceous, two bright coal bands. .8m below 394.5 marker. Numerous coal laminations.  TOP OF BOX 38	
		.1	.55	119.78	120.33	0.55			Core loss - rock	
	402 122.53	1.41		120.33	121.74	1.41			Mudstone - dark grey, carbonaceous. Numerous coal laminations, wispy coal veining.	
		.17	.17	121.74	121.91	0.17			Core loss - rock	
	408 124.36	.85	.85	121.91	123.59	1.68			Mudstone  TOP OF BOX 39	



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

P-141A(10-8C)

SHEET NO.: 18

HOLE NO.: GDR-DDH-80-26 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JS CONTRACTOR: \_\_\_\_\_

BCA	BOX		INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER				FROM	TO	APPAR. THK.	TRUE THK.			
			0.83							TOP OF BOX 39	
50°				1.48	123.59	125.07	1.48			Mudstone - black to dark brown, occasional coal lamination(1mm) thick.	
				0.99	125.07	126.06	0.99			Core loss - rock	
										Core loss - coal	
			0.07		126.06	126.13	0.07			Coal - dull banded, broken up	
			0.13		126.13	127.85	1.72			Mudstone - as above	
60°			0.12							Mudstone - grey, massive with carbonaceous flecks.	
	417										
	127.10										
			0.66								
			0.70							Mudstone - dark grey, carbonaceous flecks becoming siltier at base.	

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

P-141A(10-86)

SHEET NO.: 19

HOLE NO.: GDR-DDH-80-26 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
50°		0.11							TOP OF BOX 40	
		1.29		127.85	130.40	2.55			Mudstone - Sandstone - fine to medium grained, numerous silt and argillaceous laminations, wispy coal stringers.	
	427 130.15									
		1.26							TOP OF BOX 41	
		0.95		130.40	131.35	0.95			Silty mudstone - medium grey, silt and argillaceous laminae, carbonaceous parting	



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

F-141A(10-80)

SHEET NO.: 21

HOLE NO.: GDR-DDH-80-26 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.20							Mudstone - dark grey, carbonaceous, numerous coal laminations at (.21m) dull coal band (4cm wide) (10cm length).	
		0.73							TOP OF BOX 44	
		1.17							Mudstone - dark grey, very carbonaceous, in places grades to carbonaceous mudstone. At (.93m) a bright coal band (4cm - width - continuous around the core in length), numerous coal laminations, at base - coal pod (8cm - length 5cm - width).	
		0.52							Mudstone - dark grey, slightly carbonaceous	
	<u>467</u> 142.34		0.43	140.48	140.91	0.43				
									TOP OF BOX 45	
		1.94		140.91	143.54	2.63				
		0.69							Mudstone - dark grey, very carbonaceous, numerous coal stringers	
	<u>477</u> 145.39		0.42	143.54	143.96	0.42				

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

P-141A(10-8C)

SHEET NO.: 22

HOLE NO.: GDR-DDH-80-26 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.51		143.96	144.47	0.51			Carbonaceous) - very carbonaceous, numerous coal Mudstone ) laminations, badly broken and sheared- pieces are .03m size.	
			0.40	144.47	144.87	0.40			Core loss - rock	
	<u>480</u> 146.30	0.19				0.69			-	
		0.50							Mudstone - carbonaceous, numerous carbonaceous partings and coal laminations, dark grey.	
	<u>483</u> 147.22		0.20	144.87	145.07	0.20			Core loss - rock	
		0.02		145.07	146.95	1.88			-	
		0.02							Coal band - bright - broken (.01m pieces).	
		1.04							Mudstone - as above	
									TOP OF BOX 47	
		0.80							Mudstone - badly broken in places, pieces are .01m.	
	<u>492</u> 149.96		0.86	146.95	147.81	0.86			Core loss - coal	

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

P-141A(10-8)

SHEET NO.: 23

HOLE NO.: GDR-DDH-80-26 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
47°		0.61		147.81	148.42	.61			Carbonaceous) - dark grey to black, very carbonaceous, mudstone ) bright coal laminations, small coal pods, broken core (.04m in size).	
	494									
	150.57	0.06		148.42	148.48	0.06			Coal - dull hard	
		0.03		148.48	148.51	0.03			Mudstone	
		0.03		148.51	148.54	0.03			Coal - boney	
		0.68		148.54	149.22	0.68			Carbonaceous mudstone	
	497.5	0.27		149.22	149.49	0.27			Core loss - rock	
	151.64	0.32		149.49	149.81	0.32			Core loss - rock	
									TOP OF BOX 48	
		0.05		149.81	149.93	0.12			Carbonaceous mudstone with coal stringers	
		0.07							Carbonaceous mudstone -	
		0.32		149.93	150.25	.32			Mudstone - dark grey, carbonaceous, numerous coal laminations	
	500									
152.40	0.05		150.25	150.30	0.05			Coal - pieces of dull & bright coal in carbonaceous mudstone		
	0.72		150.30	151.02	.72			Carbonaceous mudstone		
503.5	0.33		151.02	151.35	0.33			Core loss - rock		
153.5	0.16		151.35	151.51	.16			Carbonaceous mudstone - very carbonaceous, abundant coal laminations. Broken.		



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

P-141A(10-80)

-SHEET NO.: 25

HOLE NO.: GDR-DDH-80-26 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
62°		0.10		153.67	153.77	0.10			Carbonaceous) - numerous bright coal laminations up to mudstone ) 1 cm thick, coal powder in bottom of box, small scale folds along laminations, broken	
			0.21	153.77	153.98	0.21			Core loss - rock	
	509.5 155.30	0.04		153.98	154.02	0.04				
		0.81		154.02	154.83	0.81			Mudstone - dark grey, carbonaceous, coal laminations and stringers	
		0.02		154.83	154.85	0.02			Coal - bright	
	512.5 156.21									
		1.25		154.85	156.10	1.25			Mudstone -	
		0.20		156.10	156.30	0.20			Carbonaceous) - powder and pieces, small pieces 4 cm Mudstone ) wide of coal and rock	



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

P-141A(10-80)

SHEET NO.: 26

HOLE NO.: GDR-DDH-80-26 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.73		156.30	157.03	0.73			TOP OF BOX 50 Mudstone - dark grey, carbonaceous and numerous coal laminations	
	521 158.8									
		0.55		157.03	157.58	0.55			Carbonaceous) - slickensides and abundant bright coal mudstone ) stringers	
		0.51		157.58	158.09	0.51			Mudstone - carbonaceous, coal laminations	
		0.44		158.09	158.53	0.44			Carbonaceous) - coal laminations, in places with bright mudstone ) coal up to 1cm thick.	
									TOP OF BOX 51	
		0.48		158.53	159.46	0.93			Mudstone - dark grey, slightly carbonaceous, coal laminations, numerous slickensides, badly broken in places.	
	529 161.24									
		0.45								



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

P-141A(10-80)

SHEET NO.: 28

HOLE NO.: GDR-DDH-80-26 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
50°	539	164.29		161.44	161.49	0.05				Coal and bands - bright and boney; bands of coal with carbonaceous mudstone bands, some boney carbonaceous mudstone pieces
										161.49

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

P-141A(10-80)

SHEET NO.: 29

HOLE NO.: GDR-DDH-80-26 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
50°	543 165.51	0.97							Mudstone - carbonaceous, numerous coal laminations grades to carbonaceous mudstone at base.	
	547 166.73	1.76						TOP OF BOX 53 - Badly sheared and broken slickensides		
	554 168.86	0.71						Mudstone - medium grey, slightly carbonaceous TOP OF BOX 54		
		1.62								
		0.54		167.35	168.66	1.31			Siltstone - medium grey, massive	

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

P-141A(10-8c)

SHEET NO.: 30

HOLE NO.: GDR-DDH-80-26 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
35°	564 171.91	0.22							Siltstone - medium grey, massive TOP OF BOX 55	
		0.55								
		1.87		168.66	170.53	1.87			Mudstone - dark grey, carbonaceous, numerous coal laminations and stringers, thin ironstone bands at (.8m coal pod x 4 cm wide).	
		0.18		170.53	171.24	0.71			Siltstone - medium grey, coal laminations, faintly laminated. TOP OF BOX 56	
		0.07								
		574 174.96	0.46							
			0.07		171.24	171.31	0.07		Coal and rock.	

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

P-141A(10-80)

SHEET NO.: 31

HOLE NO.: GDR-DDH-80-26 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.45		171.31	171.76	0.45			Mudstone - dark grey, carbonaceous, numerous coal laminations, slickensides	
		1.00		171.76	172.76	1.00			Siltstone - medium grey, numerous carbonaceous flecks, massive grades at base into sandstone	
		0.20		172.76	176.96	4.20			Sandstone - light grey, fine to medium grained, carbonaceous partings	
		0.59							TOP OF BOX 57 - numerous random calcite veins; slightly calcareous numerous calcite veins, 35° to CA	
	584 178.00	1.89							TOP OF BOX 58	
		1.12							- Random calcite veinlets and small rubble breccia developed	







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

P-141A(10-80)

SHEET NO.: 34

HOLE NO.: GDR-DDH-80-26 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	↓ APPAR. THK.	TRUE THK.			
		1.37							TOP OF BOX 63	
	637 194.16								Sandstone - increased abundance of coal stringers	
		1.07							-	
									TOP OF BOX 64	
		0.26							-	
		0.34		189.95	190.99	1.04			Sandstone - very carbonaceous, very dense coal stringers rock is badly broken.	
	643 195.99									
		0.47							-	
		0.23							- increasingly carbonaceous, high density of coal stringers	
		0.02		190.99	191.01	0.02			Coal band -	
		0.27		191.01	191.28	0.27			Sandstone - silt clasts and numerous coal stringers	
		0.87		191.28	195.93	4.65			Sandstone - calcareous, light grey, fine to medium grained, random calcite veinlets, coal stringers, carbonaceous flecks, carbonaceous partings.	





COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

F-267 (12-84)

DENSITY

RESISTIVITY

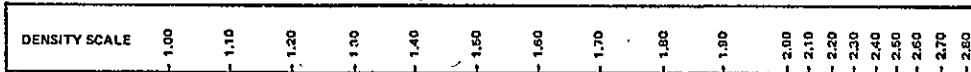
APPARENT THICKNESS

DRILL NO. GDR-DDH-00-26

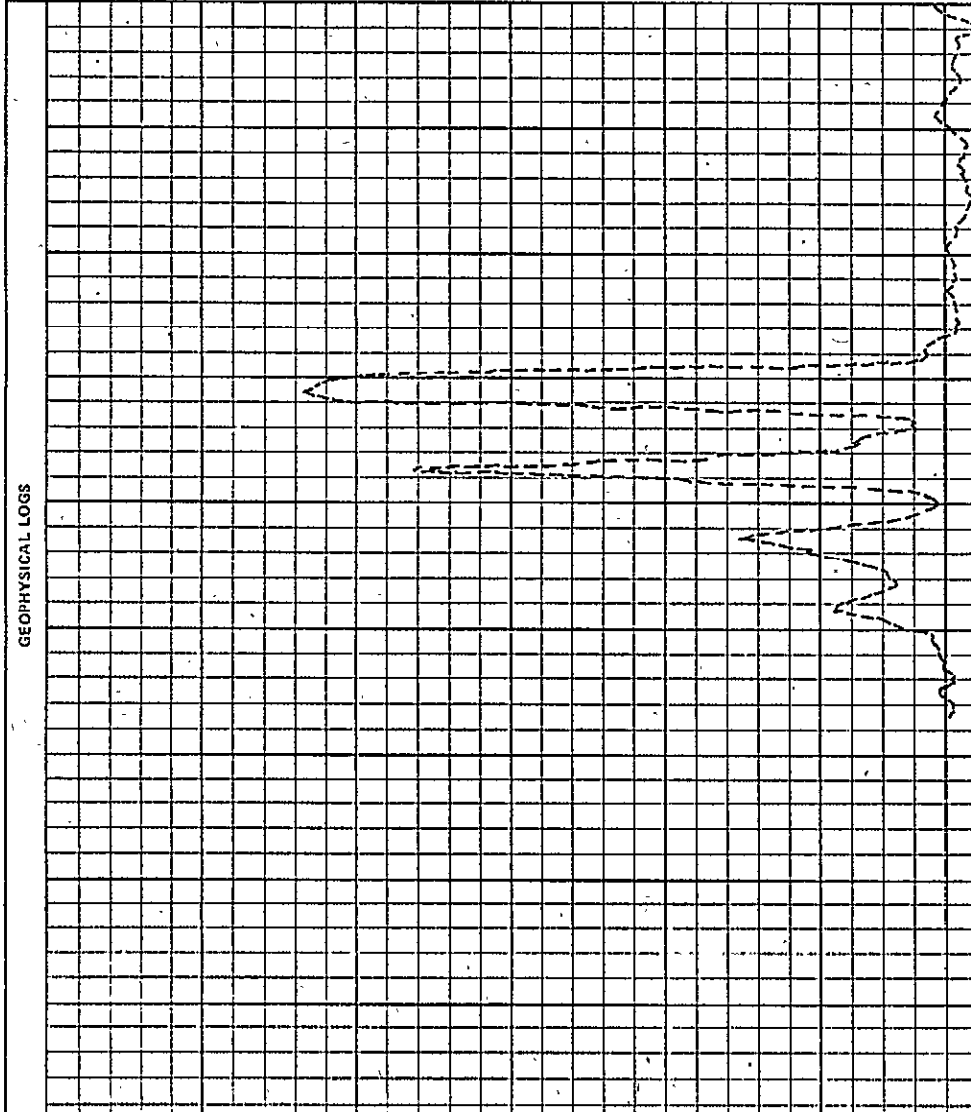
SEAM

SEAM INTERVAL 117.32 - 118.04 m.

SCALE 1:100



RESISTIVITY SCALE



GEOPHYSICAL LOGS

SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS									
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	FSI			
	117.32			(0.55)													
	118.04			0.17		00577		0.84	13.94	24.74	60.48	.80	12,925	8.5			

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-257 (12-8)

DENSITY ---

RESISTIVITY ---

APPARENT THICKNESS

DRILL NO. GDR-DDH-80-26 SEAM

SEAM INTERVAL 152.66 - 153.49 m.

SCALE 1:100

RESISTIVITY SCALE	DENSITY SCALE	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% RES.	SAMPLE		PROXIMATE ANALYSIS								
					ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	FS		
			152.66															
			153.49			( 0.49 )	0.29	00578		0.56	35.32	15.99	48.13	.25	9,677	1.0		

GEOPHYSICAL LOGS

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

P-141A(10-86)

SHEET NO.: 1

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: 1029.14m TOTAL DEPTH: 292.3m DATE BEGUN: \_\_\_\_\_  
 PROJECT: Goodrich BEARING: \_\_\_\_\_ CORE SIZE: HQ DATE COMPL.: September 23/80  
 CO. ORD.: 139 388.33N 550 827.91E HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: Acadia

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
									TOP OF BOX 1	
68°		1.4		15.70	18.25	2.55			Casing to 51.5 ft.	
	<u>52</u> 15.85								Sandstone - medium grey, medium grained, faintly laminated	
55°		1.15							- fine to medium grained, massive, numerous pebbles of ground up core.	
			6.79	18.25	25.04	6.79			Core loss - rock	
		.6		25.04	36.08	11.04			Mudstone - medium grey, massive, badly broken	
	<u>82</u> 24.99									
		1.50							TOP OF BOX 2	
	<u>87</u> 26.51								- light grey, carbonaceous flecks	
		1.15							- medium grey, carbonaceous flecks	
		.37							TOP OF BOX 3	
	<u>92</u> 28.04								- dark grey, massive, monotonous, some carbonaceous flecks, rare coal stringers. Very irregular fractures. No laminations visible.	



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

P-141A1100

SHEET NO.: 3

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JS CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
20°									TOP OF BOX 6	
		0.14		36.08	36.22	0.14			Mudstone - dark brown, carbonaceous, contains thin coal laminae (2mm) subparallel to core axis	
			0.21	36.22	36.43	0.21			Core loss - rock	
		0.54		36.43	37.22	0.79			- core parted along highly polished slicken-sided surfaces (CA 24°/5mm) of coal laminae	
		<u>122'</u> 37.10m								
		0.25								
		0.40		37.22	37.62	0.40			Coal & bands - 1 cm laminae of dull banded coal interbedded with dark brown to black mudstone (carbonaceous) About 1:2 ratio coal:rock	
		0.83		37.62	42.06	4.44			Mudstone - dark grey, soft, minor silt content, no distinct bedding	
		1.46							TOP OF BOX 7 Mudstone - as above, silty laminae	
		<u>132'</u> 40.23							Mudstone - dark grey to black, silty, carbonaceous	
	1.17									
	.09									
	<u>137'</u> 41.76m									
	.29									
	.16		42.06	42.22	0.16			Coal and bands - 2cm splits of sheared dull banded and with interbedded siltstone (dark brown).		



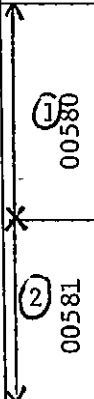
GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

P-141A(10-80)

SHEET NO.: 4

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JS CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
40°	141'	.87		42.22	43.57	1.35			Siltstone - as above, very muddy, thick bedded, grades down to claystone in part	
	42.98	.48								
	143'									
	43.59		0.47	43.57	44.04	0.47			Core loss - rock	
		.19		44.04	46.31	2.27			TOP OF BOX 9	
20°	148'	.89								
	45.11m									
0°		1.19							- bedding parallels core axis TOP OF BOX 10	
10°		0.54		46.31	46.85	0.54			Mudstone - medium grey, massive, carbonaceous in places with coal stringers	
		0.13		46.85	46.98	0.13			Carbonaceous mudstone - highly broken and powdered	
			0.12	46.98	47.10	0.12			Core loss - rock	
			0.27	47.10	47.37	0.27			Core loss - coal	
			.03	47.37	47.40	0.32			Coal - dull banded, blocky, sheared	
			.03	47.40	47.43				- boney	
			.05	47.43	47.48				- dull banded	
			.21	47.48	47.69				- boney	
			.05	47.69	47.74	0.05			Carbonaceous mudstone -	
		157'								
	47.85	.13		47.74	47.87	0.13			Mudstone - dark brown, carbonaceous partings and thin coal laminae (1mm) heavily broken at base	



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

F-141A(10-86)

SHEET NO.: 5

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JS CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
			0.19	47.87	48.06	0.19		00582 ↑ 3 ↓	Core loss - coal	
		.10		48.06	48.16	0.84			Coal - boney, heavily broken	
		.16		48.16	48.32				- dull banded	
		.30		48.32	48.62				- dull & bright	
		.28		48.62	48.90				- dull banded	
		.20		48.90	49.10	0.20			Mudstone - dark brown, heavily broken	
	162 49.38		0.17	49.10	49.27	0.17		Core loss - rock		
		0.12		49.27	49.39	0.12		-		

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

P-141A(10-8C)

SHEET NO.: 6

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
20°		1.35		49.39	50.74	1.35			TOP OF BOX 11	
	<u>167</u> 50.89		0.36	50.74	51.10	0.36			Mudstone - medium grey, carbonaceous flecks, minor coal laminations, sheared and badly broken in places	
		1.11		51.10	52.21	1.80			Core loss - rock	
									Silty mudstone - medium grey, with light grey silt & sand laminae, a few coal stringers, carbonaceous flecks	
			.69		52.21	52.90			TOP OF BOX 12	
		1.16			52.90	54.06	1.16			
		<u>177</u> 53.94		0.30	54.06	54.36	0.30		Mudstone - dark grey, numerous coal laminations	
			.54		54.36	57.48	3.12		Core loss - rock	
			.88						TOP OF BOX 13	
		<u>187</u> 56.99	1.4						- dark grey with light grey sand and silt laminae, sparse coal stringers	
								- dark grey, carbonaceous flecks. Monotonous		

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

P-141A(10-80)

SHEET NO.: 3

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
35°		.3							Mudstone - dark grey, carbonaceous flecks. Monotonous.	
		.78		57.48	58.26	.78			Silty mudstone - medium grey, extensive calcite veins, badly broken with numerous slickensides.	
		0.70	0.49	58.26 58.75	58.75 59.45	0.49 0.70			Core loss - rock - minor calcite veining	
		.78		59.45	60.36	.91			Mudstone - dark grey with medium grey, silt laminae, sparse coal laminations and minor calcite veining.	
	<u>197</u> 60.04	.13						TOP OF BOX 15		
40°		.56		60.36	60.92	.56			Sandstone - light grey (inter-bedded between dark grey mudstones) argillaceous laminae, random calcite veinlets, fine grained.	
		.77		60.92	61.69	.77			Mudstone - dark grey, silt laminations	
		.69		61.69	62.38	.69			Sandstone - light grey, argillaceous laminae, extensive calcite veining with small rubble breccias, angular to sub-rounded fragments. Fine grained.	
		.27		62.38	63.36	.98			Mudstone - dark grey, carbonaceous, coal laminations, numerous slickensides	

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

F-141A(10-86)

SHEET NO.: 8

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		.36							TOP OF BOX 16	
	203 61.87	.35							Mudstone - dark grey, carbonaceous, coal laminations, numerous slickensides	
		.47		63.36	63.83	.47			Sandstone - argillaceous (30° to CA) laminations, medium grey, minor calcite veins at 30° to core axis. Fine grained.	
45°		.95		63.83	64.78	.95			Mudstone - dark grey, silty and coal laminae	
		.3		64.78	65.38	.6			Sandstone - medium grey, fine grained, silty laminae and sparse coal stringers	
		.3							TOP OF BOX 17	
40°		.51		65.38	65.89	.51			Mudstone - dark grey, coal laminations, badly broken and sheared	
			1.38	65.89	67.27	1.38			Core loss - rock	
	217 66.13		0.96	67.27	68.23	0.96			Core loss - rock	
		1.38		68.23	73.25	5.02			- with thin sandy inter-beds	



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

P-141A(10-86)

SHEET NO.: 10

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
30°		.24		79.58	79.82	0.24			Siltstone - light grey, argillaceous, badly broken.	
			0.60	79.82	80.42	0.60			Core loss - rock	
									TOP OF BOX 22	
			1.4		80.42	81.82	1.4		-	
			.8		81.82	85.12	3.30		Mudstone - dark grey, massive, coal laminations and stringers, very irregular fractures, carbonaceous flecks and numerous slickensides.	
		<u>267</u> 81.37	.1						-	
									TOP OF BOX 23	
			2.5						- faint laminations, badly broken	
				0.30	85.12	85.42	0.30		Core loss - rock	
									TOP OF BOX 24	
		.47		85.42	89.11	3.69		-		
	<u>277</u> 84.42	2.22						-		

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

P-141A(10-8C

SHEET NO.: 11

HOLE NO.: GDR- DDH-80-27 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
15°		.52				.52			TOP OF BOX 25	
		.48		89.11	89.59	.48			Mudstone - black, carbonaceous, occasional slickensided fractures (CA50° /-.2m)	
			0.29	89.59	89.88	0.29			Coal - dull banded, highly polished & slickensided along closely spaced sheared plane	
									Core loss - rock and coal	
		.22		89.88	90.10	.22			Mudstone - black carbonaceous, silty	
		.2		90.10	90.30	.2			Coal - dull banded, intensely sheared, slickensided polished.	
			0.30	90.30	90.60	0.30			Core loss - rock and coal	
		.35		90.60	90.95	.35			Mudstone - black carbonaceous, silty; Possible faulted lower contact.	
	<u>292</u> 89.00	.29		90.95	91.24	.29			Sandstone - dark brown, very fine grained, grading to siltstone, coal flecks bedding not distinct, but sharp lower contact	



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

P-141A(10-86)

SHEET NO.: 12

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
	292 88.99									TOP OF BOX 26
		.7		91.24	91.94	.7				Sandstone - medium grey, fine to medium grained, argillaceous and massive
		.44		91.94	93.81	1.87				Mudstone - dark grey, slightly carbonaceous, coal laminations
	297 90.52	1.43								TOP OF BOX 27
		1.57		93.81	95.70	1.89				Siltstone - medium grey, slightly argillaceous, carbonaceous flecks, some sandy patches
	307 93.57	.32								
		.71		95.70	105.46	9.76				Sandstone - light to medium grey, fine to medium grained, silty and argillaceous laminae.

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

P-141A(10-80)

SHEET NO.: 13

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.89							TOP OF BOX 28	
	317 96.61	.81							Sandstone - at .2 large coal pod .08 x .06	
	327 99.66	1.99							TOP OF BOX 29	
	337 102.71	1.53							- (vague laminations at 15°)	
		2.31							- argillaceous inter-beds, (vague laminations at 20°)	
		.3							TOP OF BOX 30	
		.22							- argillaceous inter-beds, (vague laminations at 25°) rare coal laminations	
		1.23		105.46	106.69	1.23			TOP OF BOX 31	
		.50		106.69	169.40	2.71			Silty mudstone - medium grey, rare carbonaceous stringers	
									Argillaceous sandstone ) - dark grey to medium grey, fine to medium grained, argillaceous laminations, silt clasts up to (.01m) numerous coaly laminations, carbonaceous.	

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

P-141A(10-86)

SHEET NO.: 14

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	345 105.15	.65							Argillaceous) - dark grey to medium grey, fine to sandstone ) medium grained, argillaceous laminations. silt clasts up to (.01m) numerous coaly laminations, carbonaceous.	
25°		1.42							TOP OF BOX 32	
	352 107.28	.14								
30-35°		1.18		109.40	112.33	2.93			Siltstone - medium grey, vague argillaceous laminations and carbonaceous flecks	
		.18							TOP OF BOX 33	
	357 108.80	1.57							- thin argillaceous inter-beds	
		.79		112.33	113.61	1.28			Mudstone - medium grey to dark grey, massive and monotonous, featureless. Very irregular fractures when broken	
		.49							TOP OF BOX 34	
	367 111.85	2.18	0.20	113.61	113.81	.20			Core loss - rock	
				113.81	119.52	5.71				

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

P-141A1:0-8C

SHEET NO.: 15

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

JCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		.72							TOP OF BOX 35	
	377 114.90								Mudstone - medium grey to dark grey, massive and monotonous, featureless. Very irregular fractures when broken.	
		1.71							- ironstone nodules	
		1.10							TOP OF BOX 36	
		.11		119.52	123.03	3.51			Argillaceous) - light to dark grey, fine to medium sandstone ) grained, argillaceous, numerous silt clasts and coal laminations to (.01m) thick, coal wisps and stringers. Very poorly sorted.	
	387 117.95									
		1.67								

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

P-141A(10:8C)

SHEET NO.: 16

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.34							TOP OF BOX 37	
	397 120.99	.39							Argillaceous) - light to dark grey, fine to medium sandstone ) grained, argillaceous, numerous silt clasts and coal laminations to (.01m) thick, coal wisps and stringers. Very poorly sorted.	
		.71	0.30	123.03 123.33	123.33 127.05	0.30 3.72			- badly sheared and broken Core loss - rock	
	407 124.04	1.87							TOP OF BOX 38	
		1.14							TOP OF BOX 39	
	417 127.09	0.13	0.40	127.05	127.45	0.40			- sheared and broken, listric surfaces Core loss - rock	
		.62		127.45	128.72	1.27			Mudstone - dark grey, slightly carbonaceous. Listric surfaces, calcite fracture fill.	
		0.3	.62	128.72	129.34	.62			- badly broken Core loss - rock	
		.25		129.34	129.62	.28			TOP OF BOX 40 Mudstone - fractures, calcite filled fractures, listric surfaces, shearing, core is very badly broken.	
									Powder and pieces, carbonaceous with coal laminations.	

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

P-141A(10-86)

SHEET NO.: 17

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
50°		.58		129.62	131.31	1.69			Mudstone - dark grey, slightly carbonaceous, numerous coal laminations and stringers, numerous slickensides and listric surfaces, sheared	
	425 129.53	1.11							- very carbonaceous, faint laminations in places, gradational to carbonaceous mudstone but these sections are badly sheared and broken.  TOP OF BOX 41	
		.7				.7			Mudstone - carbonaceous and numerous coal laminations	
		.32		131.31	131.63	.32			Sandstone - medium grey, fine to medium grained, numerous mud clasts and numerous coal stringers and laminations, numerous slickensides.	
		.07		131.63	131.70	.07			Coal and bands -	
		.09		131.70	131.79	.09			Coal - dull, sheared	
		.06		131.79	131.85	.06			Coal and bands	
	434 132.27	0.39		131.85	132.24	0.39			Core loss - rock	
		.07		132.24	132.31	.07			Coal - dull, sheared	

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

P-141A(10-80)

SHEET NO.: 18

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
20°		.8		132.31	133.11	.8			Mudstone - dark grey, slightly carbonaceous, sparse coal stringers, numerous slickensides and listric surfaces. Badly broken.	
			0.44	133.11	133.55	0.44			Core loss - rock	
		.22		133.55	134.46	0.91			Silty mudstone - medium grey, vague laminations, sparse coal stringers, listric surfaces	
		.15							TOP OF BOX 42	
		<u>439</u> 133.95	.54							
		1.00			134.46	135.46	1.00			Mudstone - dark grey, vague laminations, carbonaceous and coal laminations, also vertical calcite veinlets, listric surfaces.
	<u>445</u> 135.63	.73		135.46	136.19	.73			Siltstone - medium brown grey with dark grey argillaceous laminae, abundant coal laminations, carbonaceous numerous calcite filled fractures and veining. Development of small crackle, breccias. Listric surfaces.	





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

P-141A(10-80)

SHEET NO.: 20

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		2.43		141.75	144.18	2.43			Mudstone - a bright coal pod (5cm x 5 cm) at base.  TOP OF BOX 46	
		.04		144.18	144.22	.04			Mudstone - dark grey	
			0.20	144.22	144.42	0.20			Core loss - rock	
		.06		144.42	144.48	.06			Coal - powder & pieces, sheared, bright	
		.51		144.48	145.57	1.09			Mudstone - dark grey, carbonaceous, numerous coal laminations (up to 1 cm thick) and stringers, minor brown grey inter-beds.	
	477 145.38	.58								
20°	30°	.78		145.57	146.35	.78			Mudstone - dark grey and brown grey inter-laminations and bioturbations, slightly carbonaceous.	

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

P-141A(10-86)

SHEET NO.: 21

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
37°		.02		146.35	146.37	.02		<div style="display: flex; align-items: center; justify-content: center;"> <div style="border-left: 1px solid black; border-right: 1px solid black; width: 2px; height: 100px; margin-right: 5px;"></div> <div style="text-align: center; width: 20px; height: 100px; border-left: 1px solid black; border-right: 1px solid black; position: relative;"> <span style="position: absolute; top: 0; left: 50%; transform: translate(-50%, -50%); font-size: 10px;">4</span> <span style="position: absolute; bottom: 0; left: 50%; transform: translate(-50%, -50%); font-size: 10px;">00583</span> </div> </div>	Coal - bright	
		.62		146.37	146.99	.62			Mudstone - dark grey, carbonaceous, coal laminations, faint laminations at 20° to C.A.	
		.96		146.99	148.30	1.31			TOP OF BOX 47	
		.55		148.30	149.08	.78			Siltstone - dark brown to black, very muddy, carbonaceous flecks and partings. Direct of tops not distinct.	
45°	487 <u>148.44</u>		.78						Core loss - coal	
		.22		149.08	149.30	.27			Coal - dull & bright, strongly sheared	
		.05		149.30	149.35				- dull banded, strongly sheared, slickensided.	
		.23		149.35	149.58	0.23			Siltstone - dark brown to black, very muddy, carbonaceous partings	
35°	492 <u>149.96</u>								Core loss - rock	
		0.22		149.58	149.80	0.22			Siltstone - carbonaceous partings TOP OF BOX 48	
		.29		149.80	150.09	.29		Siltstone - medium grey to brown grey, well laminated, carbonaceous partings		
		.43		150.09	150.52	.43		Sandstone - light grey, numerous silt and argillaceous laminae, fine grained		

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

P-141A(10-80)

SHEET NO.: 22

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
25°		.6		150.52	151.84	1.32			Siltstone - medium grey to brown grey, carbonaceous, vaguely laminated and numerous coal laminations.	
	497								- distinct laminations	
	151.47	.72								
		.68		151.84	155.00	3.16			Sandstone - light grey with medium grey argillaceous laminations and minor cross-bedding indicating "tops up".	
		1.64							TOP OF BOX 49	
	507								Sandstone - sparse carbonaceous partings and coal laminations	
20°	154.52	.84								
		.35		155.00	156.24	1.24			Silty mudstone - brown grey, carbonaceous, poorly laminated, numerous coal stringers and laminations, minor calcite veining.	
		.89							TOP OF BOX 50	
		.90		156.24	157.22	.98			Sandstone - light grey, with medium to dark grey argillaceous and silty laminae, fine grained, calcite veinlets commonly at 30° to CA, cross-bedding indicates "tops up".	
	517		.08							
	157.57	.78		157.22	158.00	.78			Siltstone - brown grey, faint argillaceous laminations between .45 and .7 well developed rubble breccia angular fragments are rotated and severely disorientated from original position, within breccia two large sandstone fragments (probably fault).	

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

F-1412302

SHEET NO.: 23

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
									TOP OF BOX 51	
		2.14		158.00	160.14	2.14			Silty ) - light grey sand with medium grey silt and Sandstone) darker grey argillaceous laminations. Fine to very fine grained sand, contorted laminations. Minor coal stringers.	
			0.03	160.14	160.17	0.03			Core loss - rock	
	527 160.62	.6		160.17	160.77	0.6			- random calcite veining	
									TOP OF BOX 52	
		1.14		160.77	161.19	1.14			Siltstone - brown grey, sparse sandy and argillaceous laminations, calcite veinlets commonly at 50° to CA.	
		1.32		161.19	163.34	1.43			Silty ) - light grey, very fine to fine grained sand Sandstone) Medium grey silt, carbonaceous laminations. Calcite veinlets commonly at 50° to CA. Laminations are 0-15° to CA.	



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

P-141A11C

SHEET NO.: 25

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		.49								Siltstone - medium grey, sandy & argillaceous laminae, contorted laminations
		1.03		169.58	172.09	2.51				Mudstone - dark grey, occasional silty laminae, coal laminations
		.66								- slightly carbonaceous and numerous coal laminations
		.82								TOP OF BOX 56
										- silt content gradually increasing towards base.
			0.06	172.09	172.15	0.06				Core loss - rock
	567									
	172.81	.30		172.15	172.45	0.30				-
		1.45		172.45	174.28	1.83				Siltstone - medium grey with light grey sand and dark grey argillaceous laminations. Laminations at 17° to CA. Sparse carbonaceous stringers.
		.38								TOP OF BOX 57
25°		1.6		174.28	175.88	1.6				Mudstone - medium grey, vaguely laminated, carbonaceous flecks, coal laminations, fractures very irregular

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

P-141A76

SHEET NO: 26

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
15° 0-10		.15		175.88	176.41	.53			Mudstone - dark grey, very carbonaceous, has numerous coal laminations.	
	580 176.77	.38							- coal laminations generally parallel to CA. TOP OF BOX 58.	
		.15		176.41	176.56	0.15			Mudstone - black carbonaceous with bright coal laminae, closely spaced (.1 cm) bedding, apparently sub-parallel core axis, frequent silt laminations	
	582 177.39		0.10	176.56	176.66	0.10			Core loss - rock	
		1.43		176.66	178.09	1.43			- (1 cm) bright coal laminations .94 meters below 177.39 marker, core broken, slickensided at that point.	
	587 178.92		0.10	178.09	178.19	0.10			Core loss - rock	
	18°	.51		178.19	178.70	.51			- (1cm) coal laminations at 178.92 marker	
		.65		178.70	179.35	.65			Core loss - coal	
		.1		179.35	179.45	1.45			Coal - dull banded	
		.2		179.45	179.65				- dull & bright TOP OF BOX 59	
	.18		179.65	179.83				- dull banded,		
592 180.44		.56	179.83	180.39						
	.53		180.39	180.92				- dull banded		

00584 (5)

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

P-1412(10-80)

SHEET NO.: 27

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JS & JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.34		180.92	181.26				Coal - dull banded, grading to dull and bright	
		0.10		181.26	181.36			5	- bright	
	597 181.97		0.13	181.36	181.49	0.13		00584	Core loss - coal	
		0.04		181.49	181.53	0.93			- dull banded	
		0.51		181.53	182.04				- bright banded	
		0.10		182.04	182.14				- bright	
		0.08		182.14	182.22				- bright banded	
		0.03		182.22	182.25			*	Carbonaceous mudstone	
		0.07		182.25	182.32			6	Coal - dull banded - heavily broken with thin mudstone bands and mudstone pieces	
		0.07		182.32	182.39			00585	Carbonaceous) - dark grey, heavily broken intermixed Mudstone ) with pieces of dull banded and dull and bright coal, mainly mudstone.	
		0.04		182.39	182.43				Coal - dull and bright - heavily broken with mixed pieces of carbonaceous mudstone.	
		0.07		182.43	182.50				Carbonaceous) - heavily broken, intermixed with pieces mudstone ) of coal as above.	



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

P-141A:0:80

SHEET NO.: 28

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JS & JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
18°		.38		182.50	184.41	1.91			TOP OF BOX 60 Mudstone - black carbonaceous, silty slickensided, upper contact, occasional coal inclusions	
	602 183.49	1.53							- slickensided fractures (CA 20°/.01) (CA 50°/.04)	
	607 185.01								with gypsum smears	
		.1		184.41	184.51	.1			TOP OF BOX 61 Carbonaceous) - dark grey, very badly broken; abundant mudstone ) coal laminations	
		.08		184.51	184.59	.08			Carbonaceous mudstone and coal - powder and pieces.	
			1.07	184.59	185.66	1.07			Core loss - rock	
		.42		185.66	186.08	.42			Carbonaceous) - coal laminations up to (1 cm - thick) mudstone ) generally powdered coal.	
		1.57		186.08	189.11	3.03			Mudstone - dark grey, carbonaceous, numerous coal stringers and laminations and vaguely laminated with medium grey silt at 5° to CA.	

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

P-121A10:86

SHEET NO.: 29

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
	617									
	188.05	.33								Mudstone - dark grey with increased brown grey silt content. TOP OF BOX 62
		.27								Mudstone - dark grey, very carbonaceous, numerous coal laminations and stringers
		.86								-
		.02		189.11	189.13	.02				Coal - bright
		1.46		189.13	190.59	1.46				Mudstone - dark grey, carbonaceous flecks and stringers and sparse coal laminations
			0.29	190.59	190.88	0.29				Core loss - rock
	627									
	191.10	.43		190.88	191.31	0.43				TOP OF BOX 63
		2.4		191.31	193.71	2.4				Carbonaceous) - dark grey, numerous coal laminations. mudstone ) In places grades to mudstone.

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

P-141A710-807

SHEET NO.: 30

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
		.11		193.71	198.35	4.64			TOP OF BOX 64	
	637 194.14	.6							Mudstone - dark grey, carbonaceous, coal laminations	
20°		2.07							Mudstone - medium grey to brown grey, silty laminations, coal stringers and laminations, calcareous, calcite wisps.	
		.43							TOP OF BOX 65	
20-25°	647 197.20	.98							- very carbonaceous with numerous coal laminae at base.	
20°		1.32							Mudstone - dark grey, distinct laminations, featureless, sparse coal laminae.	
		.73							TOP OF BOX 66	
			0.32	198.35	198.67	0.32			Core loss - rock	
	657 200.24	1.60		198.67	200.27	1.60			-	

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

P-141A70-80

SHEET NO.: 31

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		.33		200.27	200.92	.65			Sandy Mudstone - dark grey with light grey silt and sand inter-laminations. This is a gradational contact between mudstone above and sandstone below.  TOP OF BOX 67	
		.32								
		.48		200.92	202.21	1.29			Sandstone - light grey, fine grained, dark grey argillaceous laminations	
	667 203.29	.81							- cross beds almost parallel to CA. Burrows indicate that this sandy unit may be overturned increasing silt contact at base.	
		1.05		202.21	203.39	1.18			Siltstone - medium grey with light grey sandy interbeds and fine crossbeds and dark grey argillaceous laminae.	

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

FL-141A710

SHEET NO.: 32

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC.	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		.13							TOP OF BOX 68	
20°		.57		203.39	203.96	0.57			Siltstone - medium grey with light grey sandy interbeds and fine crossbeds and dark grey argillaceous laminae.	
			0.48	203.96	204.44	0.48			Mudstone - dark to medium grey, some silty laminations	
	676								Core loss - rock	
	206.03	1.54		204.44	205.98	1.54			- minor coal laminations and stringers, slightly carbonaceous	
									TOP OF BOX 69	
		.7		205.98	206.68	.7			Sandy mudstone - medium to light, grey appears to be gradational contact between mudstone above and sandstone below.	
		.78		206.68	208.88	2.2			Sandstone - very fine to fine grained, light grey, numerous argillaceous laminae, sparse coal stringers and carbonaceous plant remains.	
	686.5								- crossbedding indicates "Tops up".	
	209.23	1.21								

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

P-141A(10)EC

SHEET NO.: 33

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

SCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		.21							Sandstone - crossbedding indicates "tops up".  TOP OF BOX 70	
		.82		208.88	211.10	2.22			Mudstone - dark grey, coal laminations and stringers and faint silt laminae.	
		1.40	0.37	211.10	211.47	0.37			Core loss - rock  TOP OF BOX 71	
	699 213.04	2.32		211.47	213.79	2.32			Mudstone - dark grey, slightly carbonaceous and numerous coal laminations	
	707 215.48	.1	0.21	213.79 214.00	214.00 214.10	0.21 0.1			Core loss - rock  TOP OF BOX 72	
25°		2.52		214.10	227.12	13.12			Sandy siltstone - medium grey, light grey sandy laminations and darker grey argilla- ceous laminations, sparse coal stringers. Silty laminations vary between 25° and 18°.	

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

P-121A10-8C

SHEET NO.: 34

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		.22							TOP OF BOX 73	
	<u>717</u> 218.53								Sandy ) - increased argillaceous content in siltstone, Siltstone) slightly carbonaceous	
30-25°		2.43							- sandy and argillaceous interbeds in siltstone	
		.57							TOP OF BOX 74	
	<u>727</u> 221.57	2.13							- small scale cross-bedding in sandy laminations	
		.80							-	
	<u>737</u> 224.62								TOP OF BOX 75	
30°		1.81							- sparse coal laminations	
									- increased sand content at base.	

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

P-141A110-86

SHEET NO.: 35

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.32							TOP OF BOX 76	
	747								Sandy siltstone - increased sand content at base.	
35°	227.67	1.32								
		1.42		227.12	228.54	1.42			TOP OF BOX 77	
									Argillaceous) - medium to dark grey, interlamination siltstone ) of silt and mud. Occasionally grades to mudstone.	
	757		0.31	228.54	228.85	0.31			Core loss - rock	
35°	230.72	1.24		228.85	231.33	2.48				
18°		1.24							TOP OF BOX 78	
									- wispy calcite veins	



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

P-141A:0:80

SHEET NO.: 36

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
25°		.37		231.33	231.70	0.37			Mudstone - dark grey, carbonaceous with numerous coal laminations	
	767 233.77		0.39	231.70	232.09	0.39			Core loss - rock - bright coal pods (.04 x .04cm)	
		1.01		232.09	235.13	3.04				TOP OF BOX 79
		1.84								
	777 236.81									
		.19								
		.26			235.13	235.39	.26			Coal and rock - sheared, badly broken
			0.72	235.39	236.11	0.72			Core loss - rock	
	.27			236.11	236.38	.27			Mudstone - as above	

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

FL-141A(10-80)

SHEET NO.: 37

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
										TOP OF BOX 80
		.46		236.38	236.84	.46				Carbonaceous) - dark grey, carbonaceous, abundant bright Mudstone ) coal laminations
		.25		236.84	237.09	.25				Mudstone - dark grey, slightly carbonaceous, coal laminations. Badly broken
			0.70	237.09	237.79	0.70				Core loss - rock
		.1		237.79	237.89	.1				Coal - sheared, appears to be dull with sparse bright bands. Badly broken.
		.1		237.89	237.99	.1				Carbonaceous mudstone -
		.2		237.99	238.19	.2				Mudstone - dark grey, slightly carbonaceous, coal laminations, slickensides
25 <sup>o</sup>	786 239.56	.9		238.19	239.09	.9				Silty ) - medium grey, silty laminations, slightly Mudstone) carbonaceous, coal stringers, calcareous

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

P-141A(10-80)

SHEET NO.: 38

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
25°		.36		239.09	243.05	3.96			Mudstone - medium grey, coal stringers  TOP OF BOX 81	
		1.83							- dark to medium grey, faintly laminated, wispy calcite veins, coal laminations, slightly carbonaceous. Slightly calcareous at base.	
	796 242.61	.70							- slightly calcareous  TOP OF BOX 82	
		1.07							-	
		.21		243.05	243.26	.21			Sandstone - light grey, argillaceous laminations parallel to CA, calcareous, coal stringers, carbonaceous flecks, fine grained. Sharp contact at top and base.	
	.4		243.26	244.02	.76			Argillaceous) - medium grey, numerous argillaceous Siltstone ) laminae, slickensides, calcite veining parallel to laminations, slightly calcareous.		



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

P-141A;10-801

SHEET NO.: 40

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		2.47		247.17	250.16	2.99			Siltstone - medium grey with light grey sandy laminations, darker argillaceous laminations, minor cross-bedding in sandy portions, sparse coal stringers, slightly calcareous.  TOP OF BOX 85	
		.52								
	827									
20°	252.05		0.24	250.16	250.40	0.24			Core loss - rock - calcareous, carbonaceous, plant remains, argillaceous content decreases, becomes increasingly sandy.  TOP OF BOX 86	
		2.20		250.40	252.60					
		.43		252.60	259.35	6.75			Argillaceous) - dark grey to medium gray, inter-laminated Siltstone ) siltstone and mudstone, minor sandy interlaminations, sparse carbonaceous plant remains and sparse coal laminations calcareous.	
		.28								
	837									
	255.10									
27-35°		2.01								



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

P-141A(10-80)

SHEET NO.: 42

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
30°		.1		262.80	264.88	2.08			Mudstone - medium grey, faint laminations and sparse carbonaceous flecks	
		1.12							TOP OF BOX 90	
		.3							-	
		.56							Mudstone - dark grey mudstone becoming increasingly carbonaceous towards base, numerous coal laminations and stringers	
		.67			264.88	265.68	0.80		Carbonaceous) - dark grey, very carbonaceous, abundant mudstone ) bright coal bands and stringers up to 2 cm thick.	
	.13							- powder & pieces, badly sheared and broken, appears to be carbonaceous mudstone.		
	877 267.30		0.85	265.68	266.53	0.85			Core loss - rock	

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

P-141A(10-86

SHEET NO.: 43

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
5-10 <sup>o</sup>		.51		266.53	267.04	.51			Carbonaceous) - powder and pieces, badly sheared and mudstone ) broken, listric surfaces on larger pieces, numerous coal laminations, mainly carbonaceous mudstone. TOP OF BOX 91	
		.39		267.04	267.43	0.39			Mudstone - black, thin, coal laminae (1-2mm) closely spaced (1 cm). The core parts easily along slickensided coal laminae.	
			0.10	267.43	267.53	0.10			Core loss - rock	
		.881.5 268.67								
		.17		267.53	267.70	0.17				
		.05		267.70	267.75	.05			Coal - bright, moderately sheared	
		.15		267.75	267.90	.15			Mudstone - as above	
		.22		267.90	268.21	.31			Coal - dull banded, moderately sheared - dull & bright	
		.09								
		.22		268.21	268.43	.22			Mudstone - black carbonaceous, thinly interbedded (1cm) with dull banded coal laminae (5mm)	
	.25		268.43	268.68	.25			Coal and bands - dull banded coal laminae (2mm - 1cm) interbedded with dark brown to black mudstones (1-2 cm)		
	.25		268.68	270.92	2.24			Mudstone - as above		



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

P-141A(10.E)

SHEET NO.: 44

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
5-10°	887 270.36	.28							Mudstone - black, carbonaceous, thinly interbedded (1cm) with dull banded coal laminae (5mm).  TOP OF BOX 92	
	892 271.88	1.05								
		.66	0.45	270.92	271.37	0.45			Core loss - rock	
		.1		271.37	271.47	.1			Coal - dull banded fragments mixed with sheared powder	
		.04		271.47	271.51	.04			Claystone - medium brown, carbonaceous	
15°		.07		271.51	271.58	.07			Coal - powder	
		0.62		271.58	272.20	0.62			Core loss - coal	
	897 273.41	.1		272.20	272.30	.1			Claystone - dark brown to black  TOP OF BOX 93	
		1.33		272.30	273.63	1.33			Mudstone - black, silty laminations (up to 1 cm) Carbonaceous laminae spaced (.1m) apart.	
	902 274.93	0.20		273.63	273.83	0.20			Core loss - rock	

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

P-141A(10-80)

SHEET NO.: 45

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	902 274.93	1.03		273.83	274.86				BOTTOM OF BOX 93  Mudstone - dark grey, slightly carbonaceous and numerous coal laminations	
		.32		274.86	275.18	0.32			TOP OF BOX 94  Carbonaceous) - dark grey, very carbonaceous, numerous mudstone ) coal stringers and laminations	
	907 276.44		0.16	275.18	275.34	0.16			Core loss - rock	
		.77	0.80	275.34	276.14	0.80			Core loss - rock	
				276.14	276.91	0.77			Carbonaceous) - broken and sheared, mainly powder and mudstone ) pieces	
20°	25°	1.09		276.91	278.67	1.76			Mudstone - dark grey, faint laminations, carbonaceous - in places grades to carbonaceous mudstone in zones with abundant coal laminations.	
		.1							TOP OF BOX 95	
	916 279.20	.57							-	
		1.22		278.67	279.89	1.22			Mudstone - medium grey, faintly laminated, sparse coal stringers, slightly calcareous, carbonaceous flecks.	
		.63		279.89	280.88	.99			Mudstone - dark grey, carbonaceous, numerous coal laminations, broken core.	

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

P-141A(10-82)

SHEET NO.: 46

HOLE NO.: GDR-DDH-80-27 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		.36							TOP OF BOX 96	
		.38		280.88	281.28	.38			Mudstone - dark grey, carbonaceous, numerous coal laminations, broken core	
			0.27	281.26	281.53	0.27			Mudstone - light grey, slightly carbonaceous, calcareous silty laminae, random coal stringers	
	926 282.23								Core loss - rock	
		.24		281.53	281.77	.24			Mudstone - dark grey, abundant coal laminations, carbonaceous mudstone in zones with coal laminations.	
		.13		281.77	281.90	.13			Carbonaceous) - dark grey, numerous coal laminations, Mudstone ) very carbonaceous	
		.07		281.90	281.97	.07			Coal - bright	
		.06		281.97	282.03	.06			Coal and bands - bright	
		.06		282.03	282.09	.06			Mudstone -	
		.1		282.09	282.19	.1			Mudstone with coal pod - bright coal pod (9cm x 6 cm).	





COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12-30)

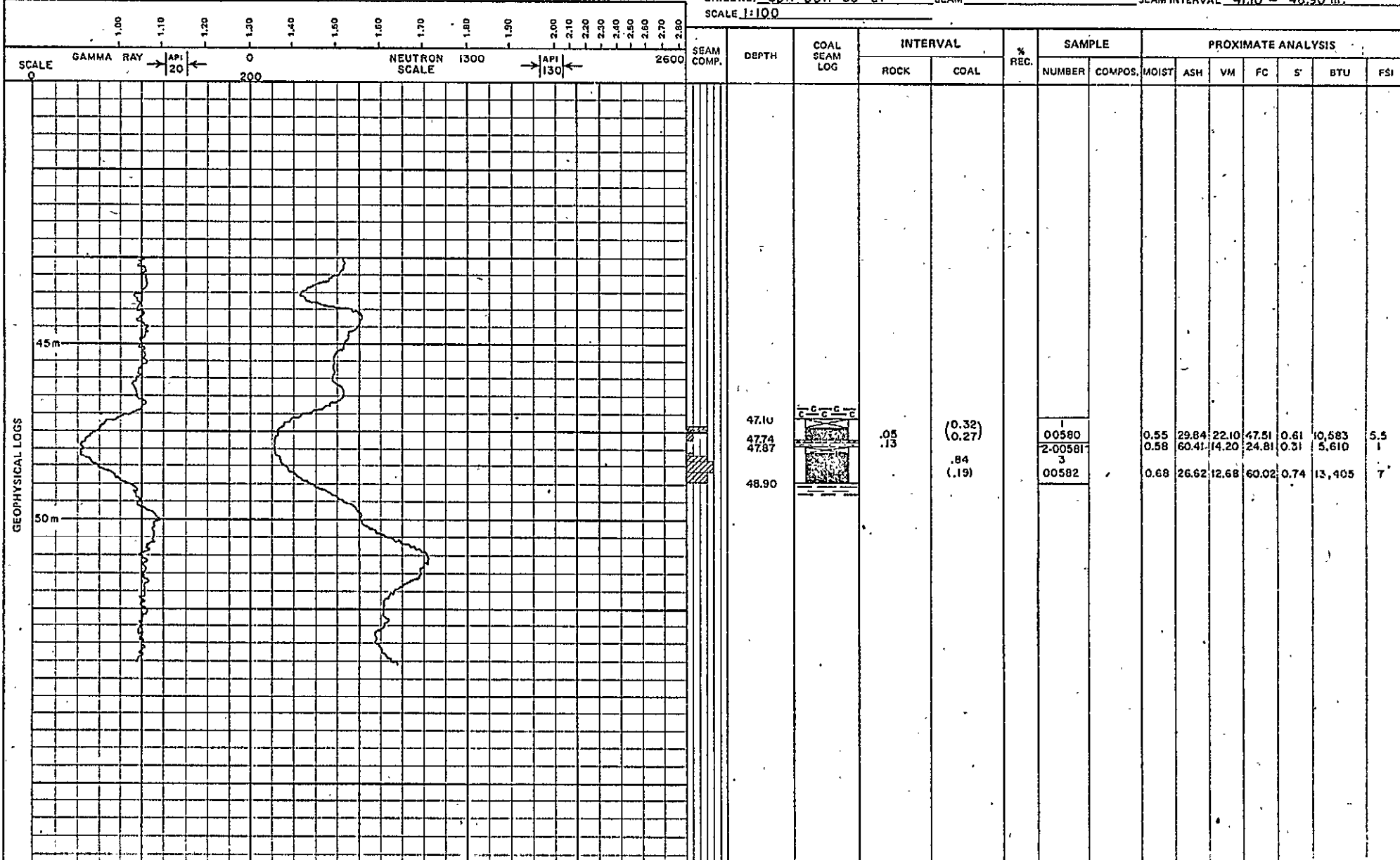
GAMMA RAY

NEUTRON

DRILL NO. GDR-DDH-80-27 SEAM \_\_\_\_\_

APPARENT THICKNESS  
SEAM INTERVAL 47.10 - 48.90 m.

SCALE 1:100



GEOPHYSICAL LOGS

SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS								
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	FSI		
	47.10			(0.32)		1										
	47.74		.05	(0.27)		00580		0.55	29.84	22.10	47.51	0.61	10,583	5.5		
	47.87		.13			2-00581		0.58	60.41	14.20	24.81	0.31	5,610	1		
	48.90			.84 (.19)		3										
						00582		0.68	26.62	12.68	60.02	0.74	13,405	7		

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

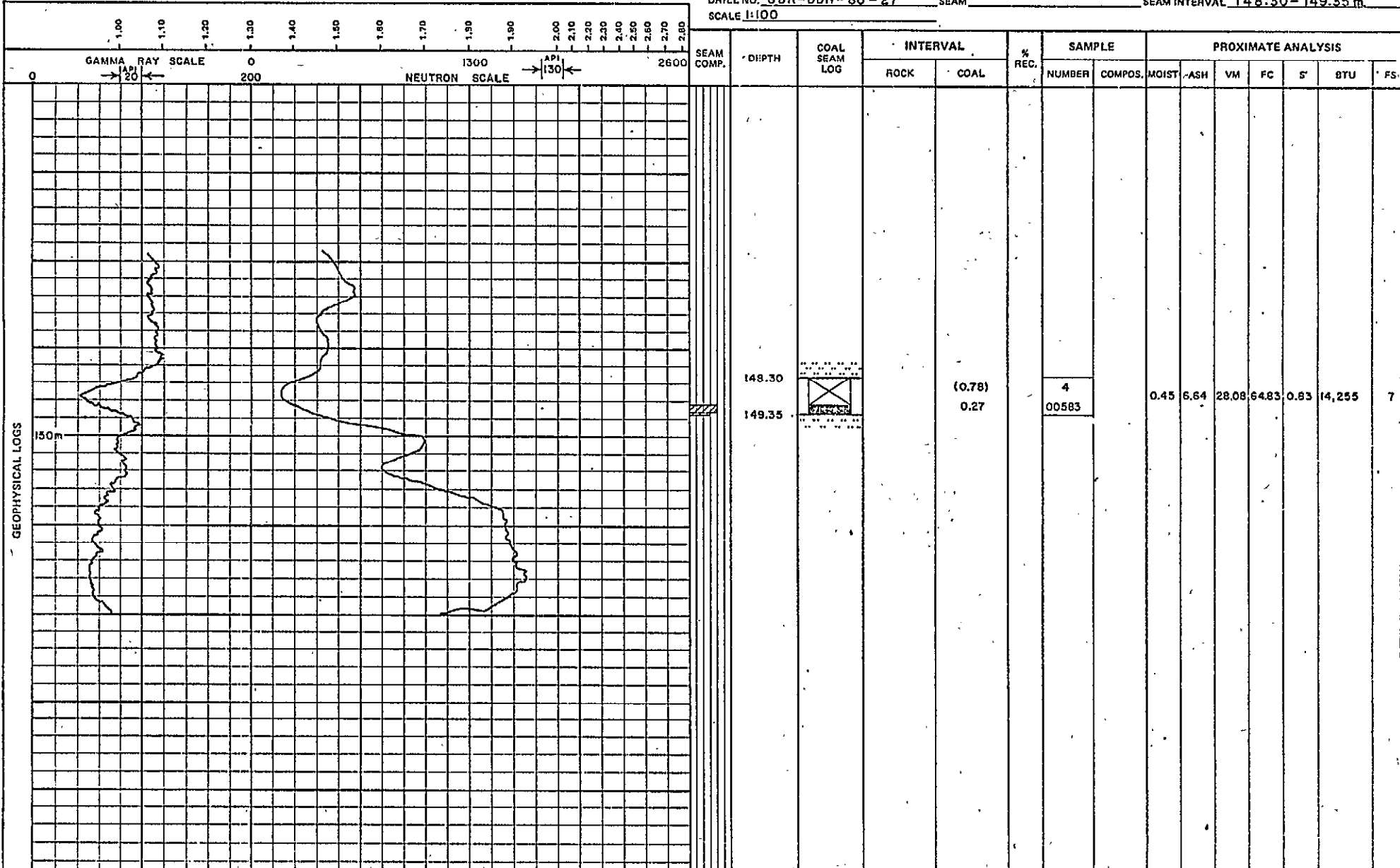
P-267 (12-A)

GAMMA RAY \_\_\_\_\_

NEUTRON \_\_\_\_\_

DRILL NO. GDR-DDH-80-27 SEAM \_\_\_\_\_  
SCALE 1:100

APPARENT THICKNESS  
SEAM INTERVAL 148.30 - 149.35 m



GEOPHYSICAL LOGS

150m

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12-3)

DENSITY

RESISTIVITY

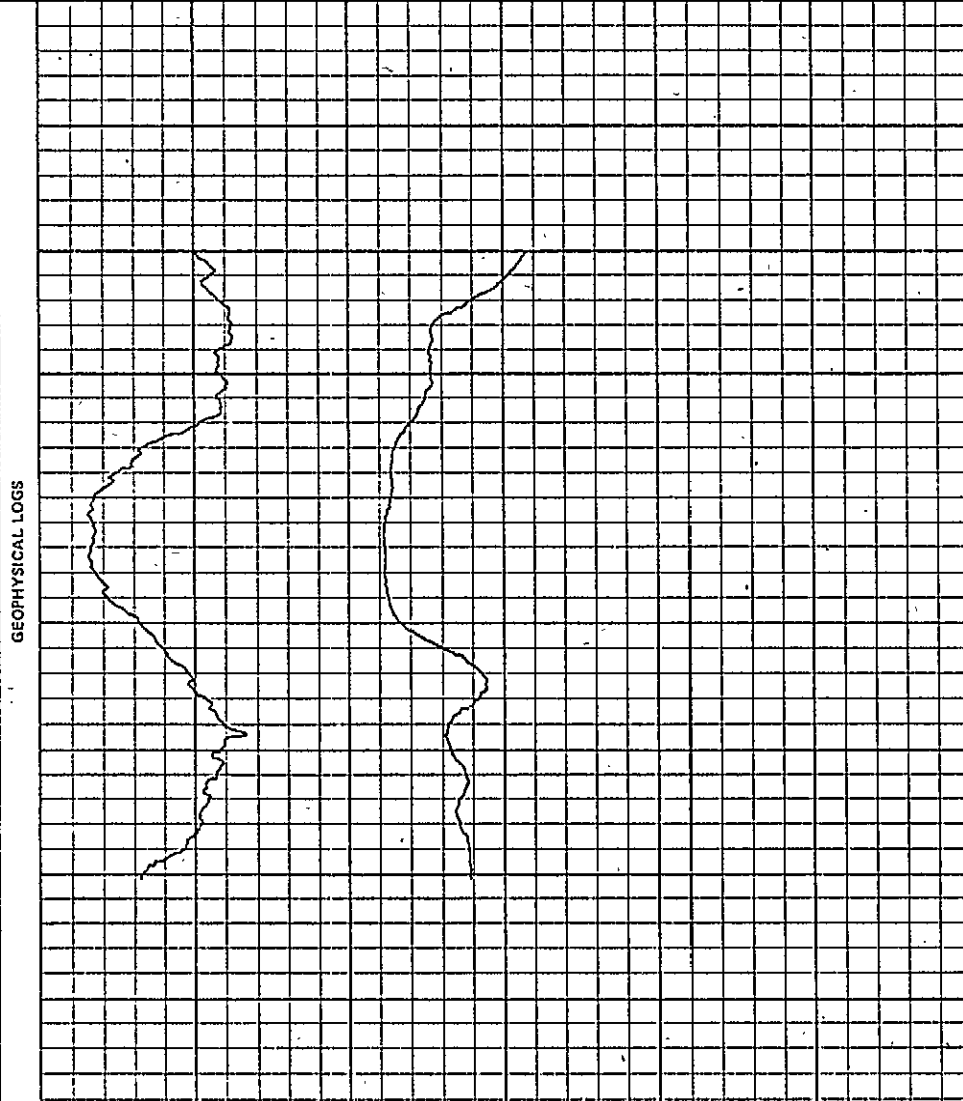
DRILL NO. GDR-DDH-80-27 SEAM \_\_\_\_\_

APPARENT THICKNESS  
SEAM INTERVAL 178.70 - 182.50 m

SCALE 1:100

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
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RESISTIVITY SCALE																			
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SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS												
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S <sup>1</sup>	BTU	FS						
	178.70			(1.34)		5														
	182.22			2.18		00584		0.58	5.43	27.05	66.94	0.21	14,522	5.5						
	182.50		0.17	0.18		9-00585		0.62	30.46	23.11	45.81	0.68	10,399	5						



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

P-141A(10-8)

SHEET NO.: 1

HOLE NO.: GDR-DDH-80- 28 ELEV. COLLAR: 1047.84m TOTAL DEPTH: 320.6m DATE BEGUN: September 24, 1980  
 PROJECT: Goodrich BEARING: \_\_\_\_\_ CORE SIZE: HQ DATE COMPL.: September 21/80  
 CO. ORD.: 139 901.33N 550 634 59E HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK - Pg 1 - 17  
JP - Pg 18 - 48 CONTRACTOR: Coates

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
									TOP OF BOX 1	
		.32		66.29	66.61	.32			Casing - 211 Ft	
			0.40	66.61	67.01	0.40			Mudstone - broken and very ground up core	
		.18		67.01	67.19	6.29			Core Loss - Rock	
									Mudstone - Medium to dark grey, numerous carbonaceous flecks in some portions the mudstone is characteristically massive, featureless and monotonous. Laminations are rarely present; mudstone breaks irregularity (when hit with hammer) occasional slickensides and shearing, infrequent high angle (25° to CA) calcite veinlets.	
	214 65.23	2.00		67.19	69.19				- medium grey to dark grey, featureless	
		.84		69.19	70.03				TOP OF BOX 2	
	224 68	1.36		70.03	71.39				- carbonaceous flecks	
									- slickenside and listric surfaces	
		.85		71.39	72.24				TOP OF BOX 3	
47°	231 70	1.06		72.24	73.30				- very faint laminations carbonaceous fleck 'roughly' aligned, parallel to bedding	
	236/ 719		.84	73.30	74.14	.84			Core Loss - Rock	

OPEN

PR-Goodrich 80C31A

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

P-141A(10-8)

SHEET NO.: 1A

HOLE NO.: GDR-DH-80-28 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: September 24, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
40°		.37		74.14	74.51	2.89				
		2.52		74.51	77.03					TOP OF BOX 4 - faint laminations, carbonaceous flecks parallel to bedding
	246 74.98		0.49	77.03	77.52	0.49				Core Loss - Rock

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

P-141A(10-80)

SHEET NO.: 2

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: \_\_\_\_\_ CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		2.48		77.52	80.00	5.57			TOP OF BOX 5 Mudstone - sparse random calcite veins, carbonaceous flecks. Massive	
		.05		80.00	80.05				TOP OF BOX 6	
	256/ 78	2.39		80.05	82.44				- minor ironstone banding generally massive	
		.65		82.44	83.09				TOP OF BOX 7	
	265/ 80.77	1.8	0.28	83.09	83.37	0.28			-	
		1.8		83.37	83.17	4.42			- Continued slickenside and listric surfaces	
		.29		85.17	84.46				TOP OF BOX 8	
50°	273/ 83.21	1.87		85.46	87.33				- No lamination, carbonaceous flecks	
		.46		87.33	87.79				TOP OF BOX 9	
	282/ 82.95	1.12	2.22	87.79	90.01	2.22			- badly broken	
				90.01	91.13	1.12			Core Loss - Rock	

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

P-141A110-8

SHEET NO.: 3

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	286/ 87.17	.88	0.16	91.13 91.34	91.34 92.22	0.16 2.59			Core Loss - Rock Mudstone -	
		1.71		92.22	93.93				TOP OF BOX 10 - - Broken and sheared, especially along slickenside surfaces carbonaceous flecks	
	295/ 89.92		0.43	93.93	94.36	0.43			Core Loss - Rock	
		.66		94.36	95.02	5.42			-	
40°		2.26		95.02	97.28				TOP OF BOX 11 - Lower half very sheared, faint laminations carbonaceous flecks parallel to laminae	
50°	306/ 93.27	.25		97.28	99.78				TOP OF BOX 12 - dark grey, carbonaceous flecks - in places badly broken core - sheared with slickensides - small rip up clasts of dark mudstone above probable eroded mudstone surface indicates tops up.	

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

P-141A(10-80)

SHEET NO.: 4

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: \_\_\_\_\_ CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	316/ 96.32	0.57		99.78	100.35	8.79			TOP OF BOX 13 Mudstone - slightly calcerous	
		1.71		100.35	102.06				- lower half broken and sheared	
	322/ 98.15								TOP OF BOX 14	
		0.90		102.06	102.96				- slightly calcerous	
	326/ 99.36								TOP OF BOX 15	
		1.6		102.96	104.56				- middle portion of the box is broken and sheared - slickensides, calcite veinlets	
		1.38		104.56	105.94					
	336/ 102.41	0.98		105.94	106.92				Slightly calcerous	
		1.65		106.92	108.57				TOP OF BOX 16 Sheared at base - slightly calcareous	
	346/ 105.46		0.80	108.57	109.37	0.80				

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

P-141A(10-8)

SHEET NO.: 5

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
45°	356/ 108.51	0.92		109.37	110.29	4.92			Mudstone -	
		1.33		110.29	111.62				TOP OF BOX 17	
		1.19		111.62	112.81					
	366/ 111.56	1.48		112.81	114.29					TOP OF BOX 18
		0.38	0.38	114.29	114.67	0.38			Core Loss - Rock	
		1.03		114.67	115.70	2.91				TOP OF BOX 19
		0.32		115.70	116.02					
	376/ 114.60	0.14		116.02	116.16					- Intensely broken - shearing-slickensides powdered and ground up mudstone
		1.42		116.16	117.58					
		0.13	0.13	117.58	117.71	0.13				
		0.57		117.71	118.28	.57			- badly broken - slickensides (listric surfaces calcite tension gashes - mudstone appears to be heavier	

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

P-141A(10-8)

SHEET NO.: 6

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: \_\_\_\_\_ CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
			0.77	118.28	119.05	0.77			Mudstone - and denser on this section	
		1.71		119.05	120.76	4.03			TOP OF BOX 20	
	386/ 117.65	.31		120.76	121.07				Core Loss	
		2.01	0.12	121.07	123.08				TOP OF BOX 21	
	394/ 120.09	.43		123.08	123.20	0.12			Core Loss - Rock	
		2.61		123.20	123.63	3.04			TOP OF BOX 22	
	404/ 123.14	.18	0.19	123.63	126.24					
				126.24	126.43	.19				
				126.43	126.61	.18				

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

P-141A(10-8)

SHEET NO.: 7

HOLE NO.: GDR-DDH-80-25 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
45°	415/ 126.49	2.85	0.17	126.61	129.46	0.17			TOP OF BOX 23	
		.13		129.46	129.59				Mudstone -	
		2.45		129.76	132.21				TOP OF BOX 24	
	425/ 129.54	.43		132.21	132.64				TOP OF BOX 25	
		2.26		132.64	134.90				TOP OF BOX 26	
		.84		134.90	135.74					
	435/ 132.59	1.93		135.74	137.67					



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

P-141A(10-8)

SHEET NO.: 8

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		2.61		137.67	140.28	3.99			Mudstone - TOP OF BOX 27	
		1.38		140.28	141.66				- TOP OF BOX 28	
	456/ 138.99		.23	141.66	141.89	.23			-	
		1.22		141.89	143.11	4.69			-	
		1.6		143.11	144.71				- TOP OF BOX 29 - sheared and very broken for .02m at 1.3m	
	466/ 142.04	.93		144.71	145.64				-	
		.94		145.64	146.58				- TOP OF BOX 30	
50°		.10		146.58	146.68	0.10			Tuff ? - light grey, hardness; 2 > < 5 appears to have a high percentage of clay shares contact above and below mudstone contact is at 50° angle.	

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

F-141A(10-8)

SHEET NO.: 9

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: \_\_\_\_\_ CONTRACTOR: \_\_\_\_\_

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
	476/ 145.08	1.04		146.68	147.72	12.24			this thin sharp band is possible a TUFF Mudstone -	
		.67		147.72	148.39				-	
		2.47		148.39	150.86				TOP OF BOX 31	
	486/ 148.13								-	
		0.07		150.86	150.93				-	
		2.51		150.93	153.44				TOP OF BOX 32	
		0.42		153.44	153.86				TOP OF BOX 33	
	496/ 151.18								-	
		2.25		153.86	156.11				-	
	506/ 154.23	0.70		156.11	156.81				TOP OF BOX 34	
		2.11		156.81	158.92				-	

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

P-121A(10-8)

SHEET NO.: 10

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
50°		.81 2.01		158.92 159.73	159.73 161.74	3.75			Mudstone - TOP OF BOX 35	
									-	
									TOP OF BOX 36	
			0.93		161.74	162.67			-	
		526 160.32		0.23	162.67 162.90	162.90 164.53	0.23 4.41		-	
			1.63						-	
									TOP OF BOX 37	
			1.46		164.53	165.99			-	
		536/ 163.37		1.32	165.99 167.31	167.31 167.40			-	
				0.09	167.31	167.40	0.09		Core Loss - Rock	
								TOP OF BOX 38		
		0.35		167.40	167.75	1.64		- faint silty laminae with carbonaceous flecks slightly aligned		
		0.06		167.75	167.81			- light blue grey, sharp contact at top and bottom at 45° with mudstone soft i.e. H < 2 (scratches with fingernail) cross cut at 45° by white calcite veinlets large % of clay present		
	546/ 166.42		1.23	167.81	169.04			-		

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

P-141A(10-d)

SHEET NO.: 11

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
45°	556/ 169.47	1.08		169.04	120.12	2.94			Mudstone - TOP OF BOX 39	
		1.86		170.12	171.98				- faint silty laminae at base	
		.73		171.98	172.71	1.73			Siltstone - light to medium grey, well laminated, bioturbated carbonaceous flecks small pyrite blebs small scale fractures calcite veinlets at top up to .02m thick extending for.09m TOP OF BOX 40	
50°		1.00		172.71	173.71				fractures at 40° angles, calcite veinlets at angles 45° +.	
40°		.59		173.71	174.30	.59			Mudstone - silty laminae, otherwise as previous	
40°		.11		174.30	174.41	.11			TUFF ? Light - blue grey, sharp contact with mudstone at top and bottom upward fining. mainly clay brownly at top - unusual upper contact with mudstone clasts on light colored rock - The core is 'right way up - but this upper contact appears to be sound. silty laminae either side of light grey band	

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

P-141A(10.8)

SHEET NO.: 12

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
50°	566/ 172.52	0.37		174.41	174.78	8.79			Mudstone - as previous	
		0.43		174.78	175.21				TOP OF BOX 41	
45°		2.58		175.21	177.79				TOP OF BOX 42	
	576/ 175.56								TOP OF BOX 43	
		2.58		177.79	180.37				TOP OF BOX 44	
		0.12		180.37	180.49					
	586/ 178.61	2.42		180.49	182.91				TOP OF BOX 44	
	596/ 181.66	0.29		182.91	183.20					

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

P-141A(10-8)

SHEET NO.: 13

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
70° & 75°		2.37		183.20	185.57	2.54			Mudstone -	
		0.17							TOP OF BOX 45 - broken and sheared	
	606/ 184.71	0.25	0.51	185.57 186.08	186.08 186.33	0.51 9.14			Core Loss - Rock	
		2.25		186.33	188.58					
	616/ 187.76	0.56		186.58	189.14				TOP OF BOX 46	
		2.16		189.14	191.30					
	626/ 190.80	0.95		191.30	192.25				TOP OF BOX 47	
		1.67		192.25	193.92					
		1.30		193.92	195.22				TOP OF BOX 48	
	636/ 193.85		1.55	195.22	196.77	1.55			Core Loss - Rock	

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

P-141A(10-8)

SHEET NO.: 14

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: \_\_\_\_\_ CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
									TOP OF BOX 49	
	646/ 196.90	1.50		196.77	198.27	2.71			Mudstone	
		1.21		198.27	199.48					
			.12	199.48	199.60	.12			TOP OF BOX 50	
	654/ 199.34	1.11		199.60	200.71	2.81				
		1.70		200.71	200.41					
			.15	202.41	202.56	.15			TOP OF BOX 51	
	662/ 201.78	.59		202.56	203.15	5.32			Core Loss	
		2.08		203.15	205.23					
		1.00		205.23	206.23				TOP OF BOX 52	
	672/ 204.83	1.65		206.23	207.88					
		.55	.54	207.88	208.42	.54			TOP OF BOX 53	
	681/ 207.57			208.42	208.97	.55			Core Loss - Rock	

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

P-141A10.8

SHEET NO.: 15

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
75°	686/ 209.09	1.74		208.97	210.71	3.28			Mudstone -	
		.35		210.71	211.06				TOP OF BOX 54	
		1.19		211.06	212.25					
		.25		212.25	212.50	.25			Argillaceous Sandstone - dark grey, very argillaceous clasts up to 6mm in length carbonaceous flecks	
		.17		212.50	212.67	.17			Sandstone - light grey argillaceous, coal wisps (dirty sandstone with coal wisps)	
70°		1.10		212.67	213.77	3.80			Sandstone - light grey, massive but with some faint laminae - some mud and salt on upper portions fine to very fine sand	
	696/ 212.14	2.7		213.77	216.47				TOP OF BOX 55 - occasional calcite veinlet at low angle to C.A.	
		.11		216.47	216.58	.11			Siltstone - medium grey, laminated	



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

P-141A(10-86)

SHEET NO.: 16

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
									TOP OF BOX 56	
65°	706/ 215.19	.33		216.58	216.91	10.93			Siltstone - medium grey silt, dark grey argillaceous laminae and thin interbeds; light grey fine sandy laminae and thin interbeds with low angle cross-beds. Variably laminated and with variable thicknesses. Laminations generally at low angles to CA	
		2.27		216.91	219.18				-	
	726/ 221.28	2.43		219.18	221.61				TOP OF BOX 57	
80°		.38		221.61	221.99				-	
80°	736/ 224.33	2.80		221.99	224.79				TOP OF BOX 58	
80°		.79		224.79	225.58				-	
		.97		225.58	226.55				-	
		.96		226.55	227.51				- A thick argillaceous interbed	



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

P-141A(10-B)

SHEET NO.: 18

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J.P. CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
75°		0.89		238.23	239.12	0.89			TOP OF BOX 64 Mudstone - dark grey, massive, monotonous	
		0.17		239.12	239.29	0.17			Sandy Mudstone - Medium grey. This mudstone is is prepared with fine - medium sized sand grains, particularly in the centre where the sand forms ill - defined layers. The mudstone is slightly carbonaceous with a few coal stringers.	
	786'		0.06	239.29	239.35	0.06			Core Loss - Coal	
	239.57			239.35	239.38	0.03			Coal and Bands - comprised of a 1.5cm bright coal band and a 1.5 cm mudstone band. Broken	
			0.03		239.38	239.44	0.06		Carbonaceous Mudstone - dark grey; coal stringers. Massive.	
			0.06		239.44	239.55	0.11		Coal & Bands - bright and dull banded coal bands and pieces with carbonaceous mudstone bands and pieces. Heavily broken. Mainly rock (70%)	
				0.06	239.55	239.61	0.06		Core Loss - Coal	
			0.09		239.61	239.70	0.09		Coal - bright banded	
			0.05		239.70	239.75	0.09		Coal & Bands - as above - Coal; rock 50:50, heavily broken	
			0.04		239.75	239.79			Coal and Bands - heavily broken Bright and powder and carbonaceous mudstone pieces	

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

P-141A(10-80)

SHEET NO.: 19

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JP CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
70°		0.20		239.79	239.99	0.20			Mudstone - medium to dark grey. Very carbonaceous and with thick (0.01m) bright coal stringers near base	
		0.13		239.99	240.12	0.13			Coal - bright, with occasional thin mudstone bands. Heavily broken, powdered and sheared	
		0.13		240.12	240.25	0.13			Carbonaceous Mudstone - dark grey. This single piece of core is divided roughly parallel to the core axis into the mudstone (70%) and bright, sheared coal (30%)	
		0.08		240.25	240.33	0.64			Coal - bright banded, sheared, powdered & broken	
		0.07		240.33	240.40				- dull and bright " " "	
		0.05		240.40	240.45				- dull banded " " "	
		0.11		240.45	240.56				- bright " " "	
		0.33		240.56	240.89				- bright, powdered, heavily broken	
		0.24		240.89	241.13	1.14			Mudstone - medium grey, occasional plant fragments Coal stringers at top	
									TOP OF BOX 65	
		0.90		241.13	242.03				Mudstone - medium grey as above, becoming quite silty in lower half. Many coal stringers at top	
		0.22		242.03	242.25	0.97			Siltstone - medium gray. Poorly laminated	



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

P-141A(10-8)

SHEET NO.: 21

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: J.P. CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.11		245.23	246.34				Silty Mudstone - as above. Occasional coal stringers above base. Broken, with coal powder just above base.	
		0.13		246.34	246.47	0.13			Carbonaceous Mudstone - dark grey, friable	
		0.06		246.47	246.53	0.06			Coal - bright, powdered	
		0.11		246.53	246.64	0.29			Carbonaceous Mudstone - as above, with bright coal powder at base.	
									TOP OF BOX 67	
		0.18		246.64	246.82				Carbonaceous Mudstone - as above	
70°		1.18		246.82	248.00	1.18			Mudstone - medium to dark grey. More arenaceous in central portion where there are some silt and sandy bands. Terminated ripple surfaces show tops-up. Zones rich in plant fragments	
	816/ 248.72		.20	248.00	248.20	.20			Core Loss - Rock	
		0.02		248.20	248.22	0.93			Coal - - dull banded, heavily broken - dull banded, hard - dull banded, hard. Thin boney band at base. some soft white fibres (gypsum?) on some fracture surfaces - dull banded - dull and bright - dull with white, soft fibres on fracture surfaces	
		0.30		248.22	248.52			6		
		0.37		248.52	248.89			00519		
		0.06		248.89	248.95					
		0.06		248.95	249.01					
		0.05		249.01	249.06					

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

P-141A(10-8)

SHEET NO.: 22

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.07		249.06	249.13			6	- Stoney	
		0.04		249.13	249.77	0.59		7	Carbonaceous Mudstone - dark grey, very carbonaceous almost a stoney coal. pieces, 0.04m	
		0.39							Carbonaceous Mudstone - as above but a little less carbonaceous	
		0.16							TOP OF BOX 68	
		0.04		249.72	249.76	0.04		00520	Carbonaceous Mudstone - dark grey as above pieces 0.05m	
		0.03		249.76	249.79	0.03			Coal - dull and bright, with thin ash bands	
		0.10		249.79	249.89	0.10			Coal and Bands - thin interbanded bright coal and carbonaceous mudstone	
			0.05	249.89	249.94	0.05			Carbonaceous Mudstone - dark grey, coaly at top, massive	
		0.07		249.94	250.01	1.20		8	Core Loss - Coal	
		0.04		250.01	250.05					Coal
		0.04		250.05	250.09					- dull banded, a few thin ash bands - dull banded - dull, hard. Seems to be fairly high in ash content. Close to boney
		0.13		250.09	250.22			00521	- dull banded	
		0.09		250.22	250.31					- boney
		0.04		250.31	250.35			00522	- boney	
		0.07		250.35	250.42			10	- dull banded	





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

P-141A(10-8)

SHEET NO.: 24

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
85°		0.04		251.38	251.42	0.04		11	Coal - dull banded	
		0.15		251.42	251.78	0.36			Tuff - bright to medium grey, The medium grey zones - are at the top and bottom; the darker color is due to the presence of carbonaceous matter.	
		0.21						00524	Tuff - light to medium grey, as above. Heavily broken very heavily sheared. Listric surfaces Possible faulted zones ***	
		0.07		251.78	251.85	0.07			Coal & Bands - very heavily sheared, heavily broken. Dull	
			0.25		251.85	252.10	0.25	12	Core Loss - Coal - banded coal and carbonaceous mudstone	
		0.17		252.10	252.27	1.78			Coal - dull banded, heavily sheared. Broken. Soft white fibres on fracture surfaces. Ash bands - dull banded. Many surfaces have soft white fibres coating them.	
		0.34		252.27	252.61				TOP OF BOX 69	
			0.10		252.61	252.71		00525	- dull banded, fibres as above	
			0.07		252.71	252.78			- dull and bright, heavily sheared white fibres	
			0.13		252.78	252.91			- dull banded, heavily sheared. White fibres	
		831								
		253.29		0.16	252.91	253.07	0.16		Core Loss - Coal	
			0.25		253.07	253.32			- dull banded, heavily sheared, white fibres	
			0.06		253.32	253.38			- dull banded " " " "	
			0.06		253.38	253.44			- dull and bright " " " "	
		0.05		253.44	253.49			- dull banded " " " "		
		0.14		253.49	253.63			- powder, has some dull banded pieces mixed in		
		0.07		253.63	253.70			- dull banded		

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

P-141A(10-86)

SHEET NO.: 25

HOLE NO.: GDR\_DDH-80-28 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J.P. CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.05		253.70	253.75			12 ↓	- dull and bright	
		0.17		253.75	253.92				- powder, no pieces (possibly dull and bright)	
		0.08		253.92	254.00				- bright banded	
		0.04		254.00	254.04				+ bright banded, powder and pieces	
		0.02		254.04	254.06	0.02		13	Tuff - light brown-grey- as before	
		0.06		254.06	254.12	0.06			Coal & Bands - 0.01 thick bands of bright coal and lightly carbonaceous mudstone	
		0.14		254.12	254.26	0.14		00526 ↓	Carbonaceous Mudstone - dark grey, coaly. Many coal stringers at base.	
		0.15		254.26	254.41	0.15			Carbonaceous Siltstone - dark grey - somewhat sandy not considered to be tuffaceous.	
	836	0.02		254.41	254.43	0.02			Coal - dull banded - powdered	
	254.81	0.07		254.43	254.50			14 ↑	Carbonaceous Mudstone - dark grey - coal stringers	
		0.06		254.50	254.56				Coaly Bands - 0.01m thick bands of bright coal and highly carbonaceous mudstone	
								00527 ↓		

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

P-141A(10-8)

SHEET NO.: 26

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: / JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.07		254.56	254.63	0.15		14	Coal - dull banded, heavily sheared, occasional ash bands	
		0.08		254.63	254.71				- dull banded, sheared	
		0.05		254.71	254.76	0.05			Coal and Bands - 0.01m bright coal carbonaceous mudstone bands	
		0.12		254.76	254.88	0.12			Carbonaceous Mudstone - dark grey, coal stringers, massive	
		0.17		254.88	255.05	0.24			Coal - dull banded	
		0.07		255.05	255.12				- bright banded	
		0.05		255.12	255.17	0.05		15	Tuff - light orange grey, soft. Has sheared surfaces parallel to core access	
		0.04		255.17	255.21	0.08			Coal - dull banded	
		0.04		255.21	255.25				- dull and bright	
									TOP OF BOX 70	
		0.04		255.25	255.29	0.04			Carbonaceous Claystone - dark grey, highly carbonaceous a few coal stringers	
		0.07		255.29	255.36	0.07			Coal - dull banded	
		0.14		255.36	255.50	0.14			Tuff - medium to dark grey, grainy in appearance but soft somewhat carbonaceous	

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

P-141A(10-8)

SHEET NO.: 27

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
40°		0.05	0.05	255.50	255.55	0.14		15 00528	Coal - dull banded	
		0.05		255.55	255.60				- bright	
		0.04		255.60	255.64				- dull and bright	
		0.19		255.64	255.69	0.05			Core Loss - Coal	
50°				255.69	255.88	0.19		16 00529	Tuff - medium orange grey to dark grey - as above occasional carbonaceous bands - coal stringer near base. Bedding reading taken on a coaly stringer at base.	
		0.06		255.88	255.94	0.38			Coal - dull and bright	
		0.02		255.94	255.96				- dull and bright	
		0.07		255.96	256.03				- dull banded	
		0.05		256.03	256.08				- dull and bright	
		0.09		256.08	256.17				- bright and heavy broken, powder and pieces	
		0.09		256.17	256.26				- dull and bright " " " "	
			0.08	256.26	256.34	0.08			Core Loss - Coal	
		0.04		256.34	256.38	0.04			Carbonaceous Mudstone - dark grey	
		0.16		256.38	256.54	0.16			Tuff - medium grey, orange tinge slightly harder than before. Occasional carbonaceous laminae.	
55°		0.20		256.54	256.74	0.20		17 00530	Carbonaceous Mudstone - dark grey, coal pods and stringers	
		0.04		256.74	256.78	0.04			Coal and Rock - pieces of dull and bright coal mixed with pieces of carbonation mudstone, heavily broken, coal 60% rock 40%	
			0.26	256.78	257.04	0.26			Core Loss - Coal	
		0.16		257.04	257.20	0.16			Carbonaceous Mudstone - dark grey, coal stringers	

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

P-141A(10-8)

SHEET NO.: 28

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
47°	846								17	
	257.86									
		.35	0.17	257.20	257.55	.35				Carbonaceous Mudstone - dark grey coal stringers
				257.55	257.72	.17				Core Loss - Coal
		0.09		257.72	257.81	0.09				Carbonaceous Mudstone - as above - heavily broken
		0.03		257.81	257.84	0.03				Coal - bright, broken
		0.04		257.84	257.88	0.07				Carbonaceous Mudstone - as above
		0.03		257.88	257.91					Carbonaceous Mudstone - as above, heavily broken
		0.03		257.91	257.94	0.03				Coal - Bright - heavily broken
		0.22		257.94	258.16	0.22				Carbonaceous Mudstone - dark grey as above
		0.08		258.16	258.24	0.89				Coal - dull banded
		0.08		258.24	258.32					- dull banded, hard
		0.26		258.32	258.58					TOP OF BOX 71
		0.09		258.58	258.67					- dull banded, broken, white soft fibres
	0.14		258.67	258.81					- dull banded, heavily broken	
	0.07		258.81	258.88					- dull and bright	
	0.17		258.88	259.05					- dull banded	
									- dull and bright, heavily broken, powder & pieces with pieces of carbonaceous mudstone, probably cave	

00530

18

00531

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

P-141A(10-8)

SHEET NO.: 29

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JH CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	853 259.99	0.08	0.53	259.05	259.58	0.53		00531	18	Core Loss - Coal Coal - dull and bright - dull banded hard
		0.23		259.58	259.66	0.08				
		0.10		259.66	259.89	0.33		00532	19	Tuff - medium to dark grey - in the top portion the tuffaceous fragments are disseminated into carbonaceous mudstone
		0.13		259.89	259.99					
		0.05	0.13	259.99	260.12	0.13		00533	20	Core Loss - Coal
		0.05		260.12	260.17	0.38				Coal - dull banded
		0.05		260.17	260.22					Coal - dull and bright
		0.05		260.22	260.27					- dull banded
		0.23		260.27	260.50					- dull banded
	856 260.91	0.15	0.17	260.50	260.67	0.17				Core Loss-Coal
		0.10		260.67	260.82	1.30				Coal - dull banded, broken - dull and bright
		0.16		260.82	260.92					- dull banded, hard
		0.10		260.92	261.08					- dull banded, hard
		0.03		261.08	261.18					- bright
		0.08		261.18	261.21					- boney
		0.07		261.21	261.29					- bright, soft white fibre on fracture surfaces
		0.04		261.29	261.36					- dull and bright
		0.09		261.36	261.40					- dull banded
		0.09		261.40	266.49					

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

P-141A(10-8)

SHEET NO.: 30

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.07		161.49	261.56			20	Coal - boney - dull banded - dull and bright	
		0.14		261.56	261.70					
		0.10		261.70	261.80					
		0.03		261.80	261.83			00533	TOP OF BOX 72 - dull and bright - dull banded - boney - dull banded - dull banded, hard - dull and bright, hard - dull banded, hard - dull banded, hard, thin boney bonds near base - dull and bright - bright, sheared, broken, occasional thin ash bands - bright, sheared, broken - sheared, broken - dull banded - dull banded - dull banded, sheared, heavily broken - dull banded	
		0.06		261.83	261.89					
		0.08		261.89	261.97					
		0.08		261.97	262.05	1.87				
		0.21		262.05	262.26					
		0.07		262.26	262.33					
		0.14		262.33	262.47					
		0.24		262.47	262.71					
		0.05		262.71	262.76					
		0.10		262.76	262.86					
		0.10		262.86	262.96					
		0.09		262.96	263.05					
		0.07		263.05	263.12					
		0.10		263.12	263.22					
		0.12		263.22	263.34					
		0.29		263.34	263.58					
	866							21	- Dull banded - Dull banded - Bright, sheared, soft white flecks on fractual surfaces - Dull and bright	
	263.96	0.07		263.58	263.65					
		0.08		263.65	263.73					
		0.06		263.73	263.79					
		0.05		263.79	263.84					
								00534		

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

P-141A(10-B)

SHEET NO.: 31

HOLE NO.: GDR-DDH1-80-28 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J.P. CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.08		263.84	263.92	0.37		21	Coal - dull banded, sheared - dull and bright, few thin boney bands at top - dull banded; sheared and broken Core Loss - Coal	
		0.22		263.92	264.14					
		0.07		264.14	264.21					
	871 265.46		0.23	264.21	264.44					
		0.06		264.44	264.50	1.08		00534	TOP OF BOX 73 - bright, heavily broken - bright, has a 0.02m boney band (present in solid core), running as about 20° to the core axis.  - bright, powder and pieces with a few boney pieces. - dull banded - dull banded - dull and bright - dull banded, hard - dull banded, hard - dull banded, powdered, heavily broken - dull banded, broken - dull banded, heavily broken Core Loss - Coal Core Loss - Rock Core Loss - Coal Core Loss - Rock	
		0.15		264.50	264.65					
		0.12		264.65	264.77					
		0.10		264.77	264.87					
		0.05		264.87	264.92					
		0.09		264.92	265.01					
		0.06		265.01	265.07					
		0.07		265.07	265.14					
		0.07		265.14	265.21					
		0.16		265.21	265.37					
		0.15		265.37	265.52					
			0.20	265.52	265.72	0.20				
	872 267.00		0.17	265.72	265.89	0.17				
			0.63	265.89	266.52	0.63				
			0.09	266.52	266.61	0.09				
		0.27		266.61	266.68	0.27		22	Carbonaceous Mudstone - dark grey coal stringers, broken, with some coal pieces just above base	
		0.99		266.68	267.87	0.99				
								00535	Mudstone - medium to dark grey with carbonaceous zones. Occasional faint laminations. carbonaceous mudstone and bright coal bands from 0.58 - 0.69 from top Carbonaceous Mudstone - dark grey as above, heavily	
	881/ 268.53	0.23		267.87	268.10	0.40				

broken particularly at base where it is heavily sheared.



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

P-141A(10-8)

SHEET NO.: 32

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J.P. CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.17		268.10	268.27			22	TOP OF BOX 74	
			0.38	268.27	268.54	0.38		23	Carbonaceous Mudstone - dark grey; has an orange tinge to the listric surfaces and therefore maybe tuffaceous	
		0.05		268.65	268.70	0.25		00536	Core Loss - Coal	
		0.13		268.70	268.83				Coal - dull, hard broken	
		0.07		268.83	268.90				- dull and bright thin boney bonds in centre, hard	
									- dull banded, hard	
		0.24		268.90	269.14	0.24		24	Carbonaceous Pellet Mudstone - dark grey with numerous light, brown pellets. Pellets are possible tuffaceous in origin. This rock is quite coaly. This rock has been recorded within the major coal seam of drill hole G-80-19.	
	886/ 270.05	0.02		269.14	269.16	0.02		00537	Mudstone - Medium Grey with brownish tinge, probably tuffaceous, broken	
			0.10	269.16	269.26	0.10			Core Loss - Rock	
			0.15	269.26	269.41	0.15		00538	Core Loss - Coal	
		0.17		269.41	269.58	0.87			25	Coal - dull banded, heavy broken
		0.11		269.58	269.69				- dull banded " "	
		0.08		269.69	269.77				- dull and bright " "	
		0.16		269.77	269.93				- dull and bright, extremely broken	
			0.09	269.93	270.02				- dull and bright	
		0.12		270.02	270.14				- dull and bright, extensively broken	
		0.14		270.14	270.28				- bright banded " "	
	890/ 271.27		0.72	270.28	271.00	0.72		Core Loss - Coal		
		0.26		271.00	271.26	0.26			- bright banded, extensively broken	

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

P-141A(10-8)

SHEET NO.: 33

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J.P. CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.02		271.26	271.28	0.02		00538	25	Mudstone - dark grey somewhat silty, heavily broken
		0.09		271.28	271.37	0.60			Coal - dull and bright	
		0.06		271.37	271.43				- bright	
		0.04		271.43	271.47				- dull and bright, powder	
		0.16		271.47	271.63				- bright banded	
		0.11		271.63	271.74				- dull and bright, powdered pieces	
		0.14		271.74	271.88				- dull banded	
	895 272.80									
		0.05		271.88	271.93	0.05		00539	26	Coal - dull banded, heavily broken
		0.55	0.55	271.93	272.48	0.55				Core Loss - Coal
		0.18	0.18	272.48	272.66	0.18				Core Loss - Rock
		0.63	0.63	272.66	273.29	0.63				TOP OF BOX 75
		0.29		273.29	273.58	0.66			Core Loss - Coal	
		0.37		273.58	273.95				Carbonaceous Mudstone - dark grey, massive coal stringer	
									Carbonaceous Mudstone - as above - very heavily sheared heavily broken: Some coal powder and pieces are present at top and at 0.14 and 0.28m below top.	
	898/ 273.71		0.17	273.95	274.12	0.17			Core LOSS - Coal	
		0.25		274.12	274.37	0.25			Carbonaceous Mudstone - as above - powder and large pieces	
		0.16	0.16	274.37	274.53	0.16			Core Loss - Coal	
		0.40		274.53	274.93	0.40			Carbonaceous Mudstone - as above	

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

P-141A(10-8

SHEET NO.: 34

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J.P. CONTRACTOR:

SCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION	
				FROM	TO	APPAR. THK.	TRUE THK.				
23 30	902/ 274.93	0.06		274.93	274.99	0.06		00539	26	Coal and Bands - a 0.03m band of bright coal and 0.03m band of carbonaceous mudstone.	
		0.22		274.99	275.21	1.40			Carbonaceous Mudstone - dark grey - coal stringers with occasional pieces of bright and dull banded coal near top centre base. heavily broken as before.		
		0.34		275.21	275.55				Carbonaceous Mudstone - as above, not broken		
		0.52		275.55	276.07				Carbonaceous Mudstone - as above broken at top, heavily broken and powdered from 0.17 to 0.26m and from 0.38 to 0.43m from top. Some silty, laminae in centre.		
									TOP OF BOX 76		
		907/ 276.45									Carbonaceous Mudstone - as above
			0.32	0.64	276.07	276.39				27	Core Loss - Coal
			0.21		277.03	277.24	0.24				Coal - dull and bright, powdered pieces - boney, pieces
			0.03		277.24	277.27					
			0.03		277.27	277.30	0.03				Carbonaceous Mudstone - broken mixed with coal powder
		0.13		277.30	277.43	0.16			28	Coal - dull banded, heavily broken	
		0.03		277.43	277.46					- dull and bright, with thin boney bands, broken	

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

P-141A(10-8)

SHEET NO.: 35

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	912 277.98		0.97	277.46	278.43	0.97		28	Core Loss - Coal Coal - dull and bright - bright - dull and bright, broken - bright banded, broken - bright sheared. This solid piece of core has a tuffaceous band of 0.015m true thickness which runs through the coal at an angle of approximately 15° to the core axis. This tuffaceous band exhibits a maximum apparent thickness of about 0.08m. The measurement for this bright coal unit and the following tuffaceous and bright coal units have taken the above described features into account.  Tuff - brownish grey, soft ) See description ) - immediately Coal - bright ) above - bright banded - dull banded  - dull banded  Siltstone - medium grey, small pieces mixed with coal powder.	
		0.35		278.43	278.78	0.58		00541		
		0.06		278.78	278.84					
		0.10		278.84	278.94					
		0.07		278.94	279.01					
		0.07		279.01	279.08	0.07		29		
								00542		
		0.08		279.08	279.16	0.08				
		0.06		279.16	279.22	0.45				
		0.10		279.22	279.32					
		0.16		279.32	279.48			30		
	917/ 279.50	0.13		279.48	279.61					
		0.02		279.61	279.63	0.02		00543		

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

P-141A(10-B)

SHEET NO.: 36

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J.P. CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.10		279.63	279.73	0.70		30	Coal - dull and bright, pieces and powder with some siltstone pieces mixed in	
		0.09		279.73	279.82				- dull banded with some thin boney laminae	
		0.06		279.82	279.88				- dull banded, powder, occasional pieces of boney coal	
		0.13		279.88	280.01				- dull banded, powder and pieces	
		0.09		280.01	280.10				- dull banded, powder and pieces	
	923							00543	TOP OF BOX 77	
	281.33	0.23		280.10	280.33				- sheared, heavily broken and powdered (possibly dull and bright)	
			1.18	280.33	281.51	1.18		*	Core Loss - Coal	
		0.58		281.51	282.09	0.58		31	Carbonaceous Mudstone - dark grey, coal stringers, sheared with listric surfaces, quite broken in centre.	
								00544		
		0.22		282.09	282.31	0.42		*	Coal - dull banded, with a few mudstone pieces at top heavily broken and powdered	
		0.09		282.31	282.40			32	- bright banded, heavily broken and powdered	
		0.05		282.40	282.45				- dull & bright " " "	
		0.04		282.45	282.49				- dull banded " " "	
	928									
	282.85									
		0.02		282.49	282.51				- dull banded, powder	
			0.18	282.51	282.69	0.18		00545	Core Loss - Coal	

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

F-141A(10-8)

SHEET NO.: 37

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: J.P. CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.11		282.69	282.80	0.40		00546	38	Coal - boney
		0.04		282.80	282.84					- dull and bright, powder
		0.11		282.84	282.95				34	- dull banded
		0.14		282.95	283.09					- powdered
			0.87	283.09	283.96	0.87				Core Loss - Coal
		0.11		283.96	284.07	0.11				- dull banded, powder, and pieces
		0.02		284.07	284.09	0.02				Carbonaceous Mudstone - dark grey, pieces mixed with coal powder
		0.09		284.09	284.18	0.12		00547		Coal - bright banded
	933 284.38	0.03		284.18	284.21					- bright banded
		0.12		284.21	284.33	0.12				Silty Mudstone - medium grey, heavily broken, mixed with some coal powder
		0.16		284.33	284.49	0.16		00548	35	Carbonaceous Mudstone - dark grey coal stringers sheared at base
		0.11		284.49	284.60	0.26				Coal - dull banded
		0.09		284.60	284.69					- dull and bright - sheared and broken
								00549	36	TOP OF BOX 78

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

P-141A(10-8)

SHEET NO.: 38

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM .	TO	APPAR. THK.	TRUE THK.			
		0.06	0.10	284.69	284.75			36 00549	Coal - dull and bright - very heavily broken	
			0.10	284.75	284.85	0.10		↑ 37	Core Loss - Rock	
			0.10	284.85	284.95	0.10			Core Loss - Coal	
		0.08		284.95	285.03	0.40		↑ 38 ↓ 00551	- bright - ash laminae at top	
		0.06		285.03	285.09				- bright, banded	
		0.11		285.09	285.20				- dull banded	
		0.04		285.20	285.24				- bright, hard - due to presence of seminated boney coal	
		0.11		285.24	285.35				- boney - has quite a strong reflectivity due to large amounts of disseminated bright coal.	
		0.15		285.35	285.50	1.06			- dull banded	
		0.18		285.50	285.68				- dull banded	
		0.16		285.68	285.84				- dull and bright	
		0.14		285.84	285.98				- bright - heavily broken particularly at	
		0.12		285.98	286.10				- dull banded base	
		0.31		286.10	286.41			- dull and bright - heavily broken at top and base		
		0.05		286.41	286.46	0.05			Coal and Bands - thin (less than 1cm) bands of bright coal and stoney coal and carbonaceous mudstone broken	
	942/ 287.12	0.15		286.46	286.61	0.15			Carbonaceous Mudstone - dark grey, massive many plant fragments	
		0.22		286.61	286.83	0.63			Mudstone - medium grey, occasional plant fragments heavily broken and powdered with some coal pieces in bottom 0.03m	

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

R-141A(10-8)

SHEET NO.: 39

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
60°		0.41		286.83	287.24				Mudstone - medium grey, occasional plant fragments, coal stringers, weakly bedded  TOP OF BOX 79	



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

P-141A(10-8)

SHEET NO.: 40

HOLE NO.: GDR - DDH-80-28 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: L.K. CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
65°		0.34	0.13	287.24 287.37	287.37 287.71	0.13 2.58			Core Loss - Rock ? TOP OF BOX 79 Mudstone - dark grey with faint silt laminations some coal stringers	
	964 288.04	2.24 0.18		287.71 289.95	289.95 290.13	0.30			- Same as above with a few ironstone bands Carbonaceous Mudstone - dark grey and numerous bright coal bands	
		0.12	0.30	290.13	290.25				TOP OF BOX 80	
		0.20		290.25	290.55	0.30			Core Loss - Coal	
				290.55	290.75	0.20			Coal - dull with some bright bands but too few to be dull banded	
		0.09		290.75	290.84	0.09			Carbonaceous Mudstone -	
		0.24		290.84	291.08	2.62			Mudstone - Medium to dark grey coal stringers and some plant remains, slickensides	
	50°	956 291.39	2.08		291.08	293.16				
			0.30		293.16	293.46				TOP OF BOX 81
			0.58		293.46	294.04	1.80			Siltstone - medium grey
	966 294.44	1.22		294.04	295.26				- High angle calcite veining	
50°		0.72		295.26	295.98	1.93			Sandstone - faint laminations very fine to fine grain sand. Calcite veining	

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

P-141A(10-8)

SHEET NO.: 41

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.1		295.98	297.08				TOP OF BOX 82	
	976 297.48	0.11		297.08	297.19					
		0.80		297.19	297.99	0.80			Siltstone - medium grey, faint laminations	
		0.40		297.99	298.39	1.97			Mudstone - dark grey, very broken and sheared, abundant calcite veining) and fractures. minor breccia development, rounded clasts	
		0.48		298.39	298.87				TOP OF BOX 83	
	983 299.62	1.09		298.87	299.96				Mudstone - dark grey, sheared, slickensides	
		1.04		299.96	301.00	3.83			Sandstone - light to medium grey, very fine to fine, massive	
		1.07		301.00	302.07				TOP OF BOX 84	
	993/ 302.67	1.49		302.07	303.56				- silty laminations, nearly parallel to core axis - gradually siltier at base and abundant calcite veining at 60° and 80°	



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

P-141A(10-8)

SHEET NO.: 43

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
65°		1.21		307.60	308.81	1.21			Sandstone - Silty laminae, calcite veining at 70°  Mudstone - medium grey  TOP OF BOX 92 (should be 87)  - carbonaceous laminations	
		0.11		308.81	308.92	1.09				
	1016 309.68	0.98		308.92	309.90					
70°		1.76		309.90	311.66	1.76			Siltstone - medium grey to brown grey, extensive calcite veining and abundant fractures. Possible fault, slickensides calcite veining predominantly at 50°	

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

P-141A(10-B)

SHEET NO.: 44

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.24		311.66	311.90	0.24			TOP OF BOX 93 Silty Mudstone - medium grey, partly bedded. Many thin calcite veins	
	1026 312.72		0.32	311.90	312.22	0.32			Core Loss - Coal	
		0.18		312.22	312.40	0.18			Coal - dull banded, heavily broken, occasionally muddy laminae, and some thin honey bands	
		0.95		312.40	313.35	0.95			Carbonaceous Mudstone - dark grey, occasional coal stringers, broken throughout, particularly just above centre where there are also some coal pieces	
	1031 314.25			313.35	314.08	0.73			Carbonaceous Mudstone - dark grey as above, very heavily broken throughout, mainly large pieces with quite a lot of powder, a few coal pieces near base	
	1036 315.77		0.89	314.08	314.97	0.89			Core Loss - Rock	
		0.25		314.97	315.22	0.25			Carbonaceous Mudstone - dark grey as above, heavily broken	

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

P-141A110-ii

SHEET NO.: 45

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
									TOP OF BOX 94	
		0.21		315.22	315.43	0.21			Carbonaceous Mudstone - dark grey as above. Has a thick bright coal band (6.02m) running sub parallel to core axis	
		0.10		315.43	315.53	0.10		00564 A	Coal - bright, heavily broken	
		0.30		315.53	315.83	0.30		00565 B	Carbonaceous Mudstone - dark grey, becoming less carbonaceous than above. Coal stringers	
		0.04		315.83	315.87	0.04		00566 C	Coal - bright banded	
		0.15		315.87	316.02	0.15		00567 D	Coal and Rock - pieces of bright coal and carbonaceous mudstone completely inter-mixed, heavily broken	
78°		0.13		316.02	316.15	0.13		00568 E	Mudstone - medium grey coal stringers and carbonaceous bands. This BCA can be considered to be unreliable if it is substantially different from the ones obtained above box 93.	
		0.08		316.15	316.23	0.08			Coal - dull banded heavily broken and powdered	

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

P-141A(10-8)

SHEET NO.: 46

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.07		316.23	316.30	0.07		00569 F 00570 G 00571 H I 00572	Carbonaceous Mudstone - dark grey coal stringers broken	
		0.35		316.30	316.65	0.35			Core Loss (undifferentiated)	
	1041 317.30	0.76		316.65	317.41	0.76			Core Loss (undifferentiated) ) -- within coal seam	
		0.05		317.41	317.46	0.39			Coal - dull banded	
		0.34		317.46	317.80				- dull banded, broken, has a few thin mudstone bands (0.005m)	
		0.19		317.80	317.99	0.19			Carbonaceous Mudstone - dark grey, coal stringers, heavily sheared with listric surfaces heavily broken, mixed with coal powder	
		0.18		317.99	318.17	0.18			Coal - dull banded, heavily broken	
	1046 318.82	0.55		318.17	318.72	0.55			Core Loss - Coal ?	
		0.16		318.72	318.88	0.71			- dull banded	
		0.14		318.88	319.02				- dull banded	
		0.08		319.02	319.10			- dull and bright		
		0.05		319.10	319.15			- dull banded		
		0.14		319.15	319.29			- dull and bright		
								TOP OF BOX 95		
	1050 320.04	0.14		319.29	319.43			- dull banded extremely broken, occasional boney pieces		





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

P-141A110-8L

SHEET NO.: 48

HOLE NO.: GDR-DDH-80-28 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J.P. CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
										Mudstone to 692' at BCA; 45° for most part then in last few boxes down to BCA; 70° Argillaceous sandstone with ore pebbles - granules possible glauconite. Then massive to slightly bedded fine grained sandstone Then to sandstone with thin mudstone/argillaceous bands - similar to top of Moosebury ) Lower most Torreno sequence Get more argillaceous as it goes to 773' Then 773 to top of seam get mudstones and silty mudstone and siltstone
							24			

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12-85)

DENSITY

RESISTIVITY

DRILL NO. GDR-DDH-80-28 SEAM \_\_\_\_\_  
SCALE 1:40

SEAM INTERVAL 239.29 - 240.89 m.  
APPARENT THICKNESS

DENSITY SCALE	RESISTIVITY SCALE	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS								
					ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	FSI		
1.00	1.00																	
1.10	1.10																	
1.20	1.20																	
1.30	1.30																	
1.40	1.40																	
1.50	1.50																	
1.60	1.60																	
1.70	1.70																	
1.80	1.80																	
1.90	1.90																	
2.00	2.00																	
2.10	2.10																	
2.20	2.20																	
2.30	2.30																	
2.40	2.40																	
2.50	2.50																	
2.60	2.60																	
2.70	2.70																	
2.80	2.80																	
			239.29		0.17	(0.12) 0.21		1 0G514	0.90	45.07	19.92	33.31	2.33	7,768	5.5			
			239.79		0.20		2 00515	0.87	68.40	13.61	17.12	0.35	4,123	1				
			239.99				3 00516	0.88	12.17	27.53	59.42	0.70	13,210	9				
			240.12		0.13		4 00517	0.93	71.17	13.19	14.71	0.23	3,423	0				
			240.25				5 00518	0.90	6.18	29.20	63.72	0.75	14,140	9				
			240.89			0.64												

GEOPHYSICAL LOGS



COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-257 (12-80)

DENSITY RESISTIVITY

DRILL NO. GDR-DDH-80-28 SEAM \_\_\_\_\_  
SCALE 1:40

SEAM INTERVAL \_\_\_\_\_ APPARENT THICKNESS 248.20 - 296.46m

DENSITY SCALE RESISTIVITY SCALE	DENSITY SCALE										SEAM COMP.	DEPTH	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	ROCK	COAL	NUMBER	COMPOS.	MOIST	ASH
													254.04		0.41	0.05		13 00526		.70	61.29	22.86	15.15	0.09	3,914	0			
													254.50		0.17	0.45		14 00527		.88	22.74	23.66	52.52	0.25	11,633	4			
													255.12		0.42	0.29 (0.05)		15 00528		.58	53.81	21.64	23.97	0.16	6,198	4			
													255.88			0.38 (0.08)		16 00529		.83	9.77	33.75	55.65	0.35	13,831	8.5			
													256.34		1.30	0.09 (0.43)		17 00530		.92	57.63	15.34	16.41	0.12	3,693	0.5			
												258.16																	

GEOPHYSICAL LOGS

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12-80)

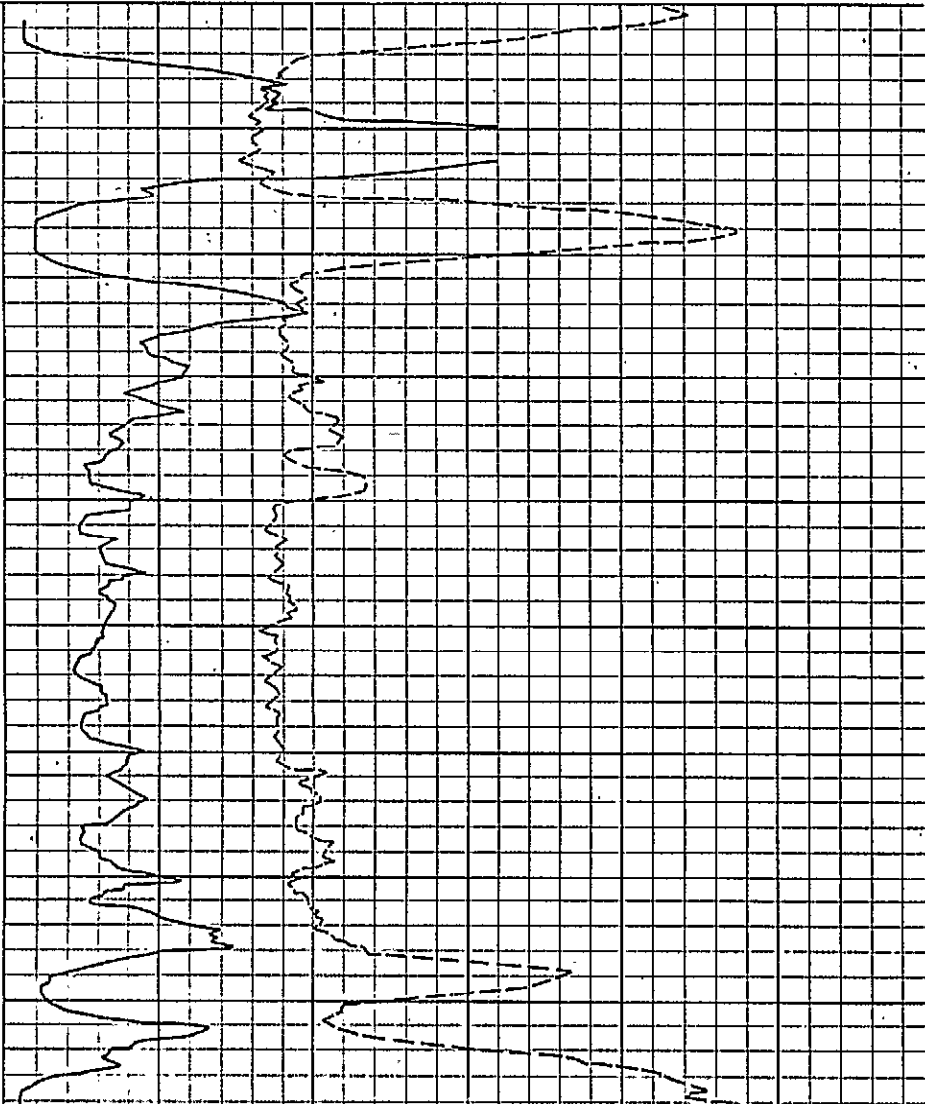
DENSITY RESISTIVITY

DRILL NO. 3DR - DDH - 80 - 28 SEAM  
SCALE 1:40

APPARENT THICKNESS  
SEAM INTERVAL 248.20 - 295.46 m

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	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS						
					POCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	FSI
			258.16	C-C-C-C		0.97		18		0.92	12.81	20.20	59.07	0.25	13,261	4.5
			259.66	X		(0.53)		19		0.68	67.92	15.46	15.94	0.06	3,158	0
			259.99	V V V V V V V V V V		0.33		20		0.78	7.67	25.49	66.06	0.21	13,800	1.5
			261.97	X		(0.30)		21		1.12	5.48	25.55	67.85	0.25	14,316	3
			265.72	X		1.68										
			265.89	X		(0.38)										
			266.52	X		3.37										
				C-C-C-C												

GEOPHYSICAL LOGS



IV



COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12)

DENSITY RESISTIVITY

DRILL NO. GDR - DDH - 80 - 28 SEAM  
SCALE 1 : 40

APPARENT THICKNESS  
SEAM INTERVAL 248.20 - 286.46

DENSITY SCALE	RESISTIVITY SCALE											SEAM COMP.	DEPTH	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	ROCK	COAL	NUMBER	COMPOS.	MOIST	ASH
														273.29 276.39 277.30 279.01 279.22 281.51	(0.33) 0.03 (0.64) 0.24 (0.97) 0.74 0.08 0.13 0.02 1.09 (1.18)	2.74 0.03 0.03 0.08 0.02 1.09 (1.18)	25 00539 27 00540 28 00541 29 00542 30 00543	1.37 77.49 10.42 10.72 0.08 2,546 0 1.25 17.34 25.34 56.07 0.26 11,727 15 1.17 27.66 6.38 64.79 0.30 14,148 6 1.07 22.78 28.00 48.15 0.25 11,247 8 1.21 13.08 25.13 60.58 0.28 13,035 4											

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (1)

DENSITY RESISTIVITY

DRILL NO. **GDR-DDH-80-28** SEAM  
SCALE **1:40**

APPARENT THICKNESS  
SEAM INTERVAL **248.20 - 286.46 m**

RESISTIVITY SCALE	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
GEOLOGICAL LOGS	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS										
				ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	F				
		281.51		0.58			31 00544		1.25	77.70	10.30	10.75	0.08	2,634	0				
		282.09		0.42 (0.18)			32 00545		1.16	12.53	24.31	62.00	0.27	13,056	1.5				
		282.69 282.80		0.11			33 00546		0.52	19.26	34.09	46.13	0.20	10,310	4.1				
		284.21		0.52 (0.87)			34 00547		0.78	5.99	27.03	66.20	0.29	14,208	4.1				
		284.49		0.02			35 00548		0.66	65.42	15.06	18.86	0.16	4,699	1				
		284.75 284.85		0.28			36 00549		0.75	9.57	28.40	61.28	0.31	14,064	7.1				
		285.35		(0.10) 0.40			37 00550		0.56	9.00	30.32	60.12	0.21	13,382	6				
		286.46		1.11			38 00551		0.79	5.36	28.81	65.04	0.32	14,322	7				



DIRECTIONAL SURVEY

ROKE OIL ENTERPRISES LIMITED

COMPANY: GULF CANADA RESOURCES INC.      GRID: \_\_\_\_\_      DATE SURVEYED: 25 SEPTEMBER 1980  
DRILL HOLE: GDR-DDH - 80-28      LATITUDE: \_\_\_\_\_      SURVEY BY: SIM  
LOCATION: \_\_\_\_\_      DEPARTURE: \_\_\_\_\_      WITNESSED BY: ZSCHACH  
FIELD: GOODRICH      ELEVATION: \_\_\_\_\_      CALCULATIONS BY: \_\_\_\_\_  
MAGNETIC DECLINATION: \_\_\_\_\_      CORRECTION OF: \_\_\_\_\_      FOR: \_\_\_\_\_      GRID: \_\_\_\_\_

Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing	Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing	Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing
0	0	.61	81.2	11	165	3.76	344.5	22			
1	15	2.52	56.0	12	180	2.69	259.6	23			
2	30	2.74	5.4	13	195	3.76	337.4	24			
3	45	2.94	270.4	14	210	3.75	351.5	25			
4	60	2.74	193.2	15	225	3.76	350.8	26			
5	75	2.73	340.2	16	240	3.96	342.0	27			
6	90	3.15	326.7	17	255	3.74	346.3	28			
7	105	3.78	348.4	18	270	2.89	317.3	29			
8	120	3.78	309.4	19	285	3.12	338.0	30			
9	135	3.77	322.4	20	300	3.75	56.6	31			
10	150	3.77	339.5	21				32			

\* REPEAT READINGS

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

P-141A(10-8)

SHEET NO.: 1

HOLE NO.: GDR-DDH-80-29 ELEV. COLLAR: 1026.56m TOTAL DEPTH: 200.5m DATE BEGUN: \_\_\_\_\_  
 PROJECT: Goodrich BEARING: \_\_\_\_\_ CORE SIZE: HQ DATE COMPL.: September 22/80  
 CO. ORD.: 139 189.70N 550 515.77E HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: Coates

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
									TOP OF BOX 1	
						0.52			CASING - 73'	
									Mudstone - dark grey, slickensides, extensively fractured and broken and some calcite fracture fill (entire box extensively broken)	
	73.5 22.40	0.17		26.22	26.39				-	
	75.5 23.01	0.35		26.39	26.74				-	
			0.53	26.74	27.27	0.53			Core Loss - Rock	
		1.04		27.27	28.31	1.04			-	
	81.0 24.69								TOP OF BOX 2	
		0.54		28.31	28.85	0.54			Argillaceous Sandstone - medium grey, argillaceous, carbonaceous coal wisps, extensive calcite veining and numerous fracture.	
			0.14	28.85	28.99	0.14			Core Loss - Rock	
	85.5 26.06	0.69		28.99	29.68	0.69			Mudstone - Dark grey, carbonaceous (slightly) badly broken and sheared. Listric surfaces.	
			0.90	29.68	30.58	0.90			-	

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

P-141A(10-8)

SHEET NO.: 2

HOLE NO.: GDR-DDH-80-29 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
	92.5 28.19	0.50		30.58	31.08	0.5			- thin coal band reduced to powder-thickness of (.05m)	
	96.0 29.26		.94	31.08	32.02	.94			Core Loss - Rock	
		1.21		32.02	33.23	1.21			TOP OF BOX 3	
		0.68		33.23	33.91	0.68			Sandy Mudstone - Dark grey, argillaceous mud with inter-mixed light grey sand and small clasts up to (.02m) - massive. Sharp contact at base. Numerous listric surfaces	
		0.50		33.91	34.41	1.30			Mudstone - dark grey, extensively broken and sheared numerous listric surfaces	
		0.80		34.41	35.21				TOP OF BOX 4 - Massive numerous fractures and slickensides	
	110 33.53	0.85	0.50	35.21	35.79	0.58			Core Loss - Rock	
		0.70		36.64	37.34	0.70			Argillaceous Sandstone - dark grey to medium grey, argillaceous coal wisps, carbonaceous abundant calcite veins (10° - 15°) numerous slickensides extensively broken. sparse clasts averaging (.002m) appears to have sharp contact at base.	

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

P-141A(10-8)

SHEET NO.: 3

HOLE NO.: GDR-DDH-80-29 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.17		37.34	37.51	0.17			Mudstone - Dark grey, calcite veins, extensively broken	
			0.41	37.51	37.92	0.41			Core Loss - Rock	
	117								TOP OF BOX 5	
	35.66	0.92		37.92	38.84	0.92			Mudstone - dark grey mudstone, extensively broken, shearing	
			.86	38.84	39.70	.86			Core Loss - Rock	
	121.5									
	37.03	0.51		39.70	40.21	1.05			- Calcite veining	
	123.5									
45°	37.64	0.54		40.21	40.75				- silty laminae	
	127.0									
	38.71								TOP OF BOX 6	
		0.15		40.75	40.90	0.15			Carbonaceous Mudstone - Dark grey numerous coal laminations. Badly broken	
			0.79	40.90	41.69	0.79			-	
	131.0									
	39.93	0.18		41.69	41.87	0.18			-	
		0.30		41.87	42.17	0.30			Mudstone - Carbonaceous, dark grey	
	133.0									
	40.54		.31	42.17	42.48	0.31			Core Loss - Rock	

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

P-141A(10.)

SHEET NO.: 4

HOLE NO.: GDR-DDH-80-29 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: L.K. CONTRACTOR: \_\_\_\_\_

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
		0.22		42.48	42.70	0.22				
		0.13		42.70	42.83	0.13			Carbonaceous Mudstone - Dark grey coal laminations, badly broken, slickensides	
			0.29	42.83	43.12	0.29			Core Loss - Rock	
	<u>135.5</u> 41.30	0.12		43.12	43.24	0.12				
		1.07		43.24	44.31	2.82			Sandstone - light grey, fine to medium grained, sharp 50° contact with mudstone above upper portion contains silted clasts, Coal laminations, abundant calcite veining. Major calcite veining 65°. Small scale breccias along veinlets. Massive	
				Possible fault						
		1.75		44.31	46.06				TOP OF BOX 7 - extensive calcite veining generally (60° - 90°)	
			0.56	46.06	46.62	0.56			Core Loss - Rock	
	<u>147</u> 44.80	0.36		46.62	46.98	0.36			Sandstone/Argillaceous Sandstone - light to dark grey, sandstone grading to Argillaceous sandstone at base, extensively brecciated (crackle to small scale rubble breccia) and veined surfaces. Badly broken	

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

P-141A(10-8)

SHEET NO.: 5

HOLE NO.: GDR-DDH-80-29 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
		0.36		46.98	47.34	0.36			Mudstone - sharp contact at top. Dark grey. Tiny micro fracturing with calcite in-fill	
									TOP OF BOX 8	
		1.59		47.34	48.93	1.59			Mudstone - medium to dark grey monotonous massive, and a few carbonaceous flakes. Fractures are very irregular, badly broken	
	<u>156</u>		.44	48.93	49.37	.44			-	
	<u>47.55</u>	0.63		49.37	50.00	5.87			-	
		2.33		50.00	52.33				TOP OF BOX 9	
	<u>166</u>								- Ironstone bands	
	<u>50.59</u>	0.23		52.33	52.56				- Ironstone bands, is a very dense rock	
		2.53		52.56	55.09				TOP OF BOX 10	
	<u>176</u>									
	<u>53.64</u>								TOP OF BOX 11	
		0.15		55.09	55.24				Mudstone -	
		2.58		55.24	57.82	2.75			Sandstone - Medium grey, medium grain, argillaceous, very poorly sorted, numerous clasts (.01m) coal stringers, massive - very sharp contact at top with mudstone, slickensided, moderate porosity (a very dirty sandstone)	

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

P-141A(10-8)

SHEET NO.: 6

HOLE NO.: GDR-DDH-80-29 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
		0.17		57.82	57.99				TOP OF BOX 12 - very broken and powdered carbonaceous laminae	
	186 56.69	0.59		57.99	58.58	0.59			Argillaceous Sandstone Conglomerate - abundant clasts up to .02cm in length, argillaceous, numerous coal wisps and stringers, listric surfaces, extremely sharp lower contact	
		0.78		58.58	59.36	0.78			Mudstone - dark grey becoming silty at base, monotonous coal laminations, listric surfaces, badly broken	
	192 58.52		0.53	59.36	59.89	0.53			Core Loss - Rock	
		0.53		59.89	60.42	0.78			- badly broken	
		0.25		60.42	60.67				TOP OF BOX 13 - powdered, carbonaceous mudstone	

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

P-141A(10-8)

SHEET NO.: 7

HOLE NO.: GDR-DDH-80-29 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
45°		1.13		60.67	61.80	2.16			Siltstone - medium grey, argillaceous laminations, sandy laminations, calcite veining at 20° to core access	
	200								- Pyrite. Gradually muddier at base	
	60.96	1.03		61.80	62.83				TOP OF BOX 14	
		0.76		62.83	63.59	5.02			Mudstone - dark grey, badly broken and sheared	
	206.5								- faintly silty laminae	
	62.94	1.62		63.59	65.21				TOP OF BOX 15	
		1.32		65.21	66.53				- faint silty laminae, at 15° to CA - coal laminae	
	216.5								- badly broken - probably core loss	
	65.99	0.48		66.53	67.01					
	218.5									
	66.60	0.55		67.01	67.56				- broken - coal laminae - listric surfaces	



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

P-141A(10-8)

SHEET NO.: 8

HOLE NO.: GDR-DDH-80-29 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

SCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
50°		0.29		67.56	67.85				TOP OF BOX 16 - silt laminae, coal stringers	
		1.02		67.85	68.87	1.02			Siltstone - medium grey, argillaceous laminae, calcite veining	
		0.56		68.87	69.43	3.49			Mudstone - dark grey, numerous silt and coal laminations - badly broken	
	227 69.19	0.70		69.43	70.13				-	
		0.90		70.13	71.03				TOP OF BOX 17 - massive, no silt, coal laminations, badly broken	
	232 70.71	1.33		71.03	72.36				- badly broken, coal laminations	
		1.02		72.36	73.38				TOP OF BOX 18 Silty Mudstone - medium grey, coal laminations, slickensides	
	241 73.45	0.86		73.38	74.24	0.86			Mudstone - dark grey, coal laminations, carbonaceous flecks, sheared and slickensided places resulting in badly broken sections. Some coal laminations are powdered.	



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

P-141A(10.8)

SHEET NO.: 10

HOLE NO.: GDR-DDH-80-29 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J.S. CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
32°			0.44	78.09	78.53	0.44			TOP OF BOX 20	
	0.	0.90		78.53	79.43	0.90			Core Loss - Rock	
									Mudstone - dark grey to black. Silt and very fine grained sand, very finely crossbedded in part (indicating 'top up') A single coal lens (2mm thick) occurs .25m below top of box	
		1.41		79.43	80.84	2.11			Mudstone - dark grey to black, very fine grained sandy laminations dominate. Slickensided joint (CA 24°) and calcite filled fractures with minor brecciation (CA 80°/-0.2m) occurs bottom in the lower .4m of this interval.	
	266' / 81.08m	0.11		80.84	80.95					
		0.59		80.95	81.54				TOP OF BOX 21	
									- Conjugate calcite fractures (CA34°/-0.03m) and (CA80°/-0.05m)	

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

P-141A(10-8)

SHEET NO.: 11

HOLE NO.: GDR-80-29 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JS CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
20 <sup>0</sup>		.1		81.54	81.64	0.10			MUDSTONE - black, carbonaceous, slickensided surfaces	
		.48		81.64	82.12	0.48			Sandstone - light to medium grey. very fine grained (Tuff?) grading to siltstone, coal laminae (2mm thick) occur parallel to bedding, minor coal flecks, very soft; possibly tuffaceous	
			0.85	82.12	82.97	0.85			Core Loss - Rock	
	273									
	83.21		0.38	82.97	83.35	0.38		1	Core Loss - Coal	
50 <sup>0</sup>		.15		83.35	83.50	0.15		00505	Coal - dull and bright, strongly sheared, core loss very high (95%)	
			2.28	83.50	85.78	2.18				
		.2		85.78	85.98	0.48		2	Sandstone - medium to light grey buff, fine grained to (Tuff?) silt sized, poorly sorted, very soft, possibly tuffaceous	
	282/ 85.95	.28		85.98	86.26			00506		
		.59		86.26	86.85	0.77			Mudstone - black with buff silt laminations, a single vuggy calcite lens occurs .26m above bottom of box. Irregular hairline calcite fractures occur throughout, truncated by small scale. Slips normal to bedding. Also contains coal lenses.	

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

P-141A110-8L

SHEET NO.: 12

HOLE NO.: GDR-DDH-80-29 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J.S. CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		.18		86.85	87.03				TOP OF BOX 22	
	287									
	87.47		0.04	87.03	87.07	.04				
		.67		87.07	87.74	0.64		3	Sandstone - as above, contains coal clasts and flicks. Highly polished fractures (curved) occur and parallel to core axis	
		.23		87.74	87.97	0.23		00507	Sandstone - As above (Tuffaceous) mixed with slickensided fragments of dull coal and carbonaceous clay stone	
			0.59	87.97	88.56	0.59			Core Loss in Sandstone	
			0.47	88.56	89.03	0.47			Core Loss in Coal	
			0.09	89.03	89.12	0.09		4	Core Loss in Sandstone	
	291/ 88.7	.58		89.12	89.70	0.58			Sandstone - Badly broken up and highly polished surfaces; carbonaceous, slickensides occur on one fragment .32 meters below 88.7 marker.	
			0.42	89.70	90.12	0.42		00508	Core Loss in Sandstone	

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

P-141A(10-80)

SHEET NO.: 13

HOLE NO.: GDR-DDH-80-29 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	297/ 90.52	.2	0.42	90.12 90.54	90.54 90.74	0.42 0.20			Core Loss in Coal Siltstone (?) - dark brown to black. Noticeably denser than other rock types. Highly polished argillaceous surfaces (irregular)	
			0.20	90.74	90.94	0.20			Core Loss in Siltstone	
		.15	0.50	90.94 91.44	91.44 91.59	0.50 0.15			Core Loss in Mudstone Sandstone - as above, highly polished. curved fractures (Tuff?)	
	301/ 91.74	.03		91.59	91.62	0.03			Coal and Bands - Single piece of core having 1cm clay bands bounded by 2 cm bands of bright shear coal	
		.1	0.18	91.62 91.80	91.80 91.90	0.18 0.10			Core Loss in Coal Claystone - dark brown and black heavy carbonaceous. strongly sheared and slickensided	
									TOP OF BOX 23	
	303/ 92.35	.13	0.14	91.90 92.04	92.04 92.17	0.14 0.13			Core Loss in Mudstone Mudstone - black, very carbonaceous	
		.02		92.17	92.19	0.02			Coal - Dull and Bright. Appears to be a single thin bed	
			0.10	92.19	92.29	0.10			Core Loss in Coal	
			0.29	92.29	92.58	0.29			Core Loss in Mudstone	

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

P-141A(10-8)

SHEET NO.: 14

HOLE NO.: GDR-DDH-80-29 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	307/ 93.57	.17	0.38	92.58	92.75	0.17		5	Mudstone - Dark brown and black, very carbonaceous, as Core Loss in Mudstone (above	
				92.75	93.13	0.38				
	309/ 94.18	.23	0.58	93.13	92.71	0.58		00509	Core Loss in Coal	
				92.71	92.94	1.00				
	312/ 95.1	.18	0.72	92.94	93.12			5	Coal - dull banded, badly broken up. Traces of buff soft non-calcareous coating on closely spaced (2mm) parallel fractured planes strongly sheared - Dull banded, as above, strongly sheared	
				.18	93.12	93.30				
	315/ 96.01	.08	0.36	93.30	93.38			5	- Dull Banded	
				.18	93.38	94.10	0.72			
				94.10	94.28				- Dull (Note: coal quality down graded by presence of 10% clay or ash stringers which are probably bedding features)	
				94.28	94.64	0.36			Core Loss in Coal	
		.15		94.64	94.79				- Dull banded, moderately sheared but core survived as short sticks	
				94.79	95.00	0.21			Core Loss in Coal	

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

P-141A(10)8.

SHEET NO.: 15

HOLE NO.: GDR-DDH-80-29 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
32°		0.09		95.00	95.09	0.09		00510	6 Sandstone - as above, slickensided contacts (Tuff?)	
		.2		95.09	95.29	0.20			Mudstone - Black to dark brown carbonaceous partings, slickensided	
			0.43 0.24	95.29 95.72	95.72 95.96	0.43 0.24				Core Loss in Mudstone Core Loss in Coal
		.13		95.96	96.09	0.23			7 Coal - dull banded, laminations of dull banded and bright qualities	
43°	318/ 96.93	.1		96.09	96.19			00511	- Dull	
		.27		96.19	96.46	.27			Mudstone - dark brown, black coal laminae, 2mm thick	
			.09		96.46	96.55	.09		TOP OF BOX 24 Core Loss in Mudstone	
		0.32	96.55	96.87	0.32			Sample ends between the two core losses		
		0.10	96.87	96.97	0.10		8	Core Loss in Coal		
		.03	96.97	97.00	0.25		00512	Coal - dull banded, moderately sheared, slickensided		
	.22	97.00	97.22			- dull banded, core in reasonably conditions, lightly sheared				
	0.28	97.22	97.50	0.28		Core Loss in Coal				
	322/ 98.15							9 00513		



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

P-141A(10-8)

SHEET NO.: 16

HOLE NO.: GDR-DDH-80-29 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.17		97.50	97.67	0.17			Mudstone - Dark brown to black, frequent thin coal laminae (2mm) slickensided, apparent core loss.	
			0.31	97.67	97.98	0.31				
		0.26		97.98	98.24	1.85			- infrequent coal laminae	
50°		0.18		98.24	98.42				- closely spaced coal laminae	
		0.10		98.42	98.52				- infrequent coal laminae	
	327/ 99.67	1.31		98.52	99.83				- infrequent coal laminae	

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

P-141A(10-8)

SHEET NO.: 17

HOLE NO.: GDR-DDH-80-29 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.69		99.83	100.52	2.17			TOP OF BOX 25	
45°	337/ 102.72	1.48		100.52	102.00				Siltstone - medium grey, numerous argillaceous laminations, coal laminations, random calcite veining, slickensides	
35°		0.26		102.00	102.26	0.43			Mudstone - dark grey, badly broken	
		0.17		102.26	102.43				TOP OF BOX 26	
	345/ 105.15	1.48	0.52	102.43	102.95	0.52			Core Loss - Rock	
16- 50°		0.57		102.95	104.43	1.48			Silty Mudstone - medium grey, silt laminae, coal stringers	
		0.57		104.43	105.00	1.21			Mudstone - dark grey, carbonaceous, numerous coal stringers and laminations up to 1cm thick	
		0.64		105.00	105.64				TOP OF BOX 27	



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

P-141A(10-8)

SHEET NO.: 19

HOLE NO.: GDR-DDH-80-29 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
45°	379/ 115.51	1.20		109.91	111.11	1.93			TOP OF BOX 29	
		0.73		111.11	111.84				- Silt laminae steepen to 20° to BCA	
		0.40		111.84	112.24	2.59			Mudstone - dark grey, carbonaceous, numerous coal laminae in places very carbonaceous	
	387/ 117.95	1.50		112.24	113.74				TOP OF BOX 30	
		0.69		113.74	114.43				- abundant coal laminae - some up to 1.5cm thick (20° to CA)	
	397/ 121.00	0.25		114.43	114.68	0.25			Core Loss - Rock	
		1.96		114.68	116.64	2.60			TOP OF BOX 31	
		0.64		116.64	117.28				- in places gradational to carbonaceous mudstone with abundant coal laminae	

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

P-141A(10-80)

SHEET NO.: 20

HOLE NO.: GDR-DDH-80-29 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
30 <sup>0</sup>		1.48	0.50	117.28	118.76	1.48			- sparse faint silt laminae	
				118.76	119.26	.50			Probable Core Loss	
	403.5/ 122.98	0.33		119.26	119.59	0.66			- coal laminae up to 1.5cm thick	
		0.33		119.59	119.92				TOP OF BOX 32	
		0.81		119.92	120.73	0.81			Welded Tuff? - light grey to light light grey brown-siliceous- extremely fine grained - distinct flow patterns, small shards and clasts aligned in flow bands. Sharp contacts at top and bottom with clastics	
	413.5/ 126.03	1.66		120.73	122.39	9.08			Sandstone - medium grey, massive, fine grained	

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

P-141A(10.8)

SHEET NO.: 21

HOLE NO.: GDR-DDH-80-29 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		2.61		122.39	125.00				TOP OF BOX 33 - sparse silt laminae (25° to CA-) calcite veinlets (average angle to CA is 70°) - gradually becoming calcerous.	
	424/ 129.23	0.37		125.00	125.37				TOP OF BOX 34	
		2.30		125.37	127.67				- sparse silt laminae (30° to CA) - medium grey on lower half due to increased argillaceous content - calcite veinlets (average angle to CA 70°) - calcerous	
	434.5 132.43	0.64		127.67	128.31				TOP OF BOX 35 - silt laminae (35° to CA)	
		1.50		128.31	129.81				- increasing silt and argillaceous content poorly developed laminations	
	440/ 134.11		0.18	129.81	129.99	0.18			Core Loss - Rock	
		0.25		129.99	130.24	0.25			- extensive calcite veining - possible fault	

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

P-141A(10-80)

SHEET NO.: 22

HOLE NO.: GDR-DDH-80-29 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
30 <sup>0</sup>		1.85		130.24	132.09	2.29			TOP OF BOX 36 Sandstone - light grey, medium grained, calcareous, silty and argillaceous laminae calcite veinlets (CA 30 <sup>0</sup> )	
	447/ 136.24	0.44		132.09	132.53				Wispy coal )	
		0.49		132.53	133.02	3.70			Sandstone - light grey, medium to coarse grained, silt clasts, numerous coal wisps and laminae poorly sorted, calcareous	
	457/ 139.29	2.10		133.02	135.12				TOP OF BOX 37 - as above but fine to coarse grained, some silt laminae - obviously very fluctuating environment.	
		0.43		135.12	135.55				- thin argillaceous interbeds in sandstone	
		0.68		135.55	136.23				TOP OF BOX 38 - coal pod 2cm x 8cm	

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

P-141A(10-80)

SHEET NO.: 23

HOLE NO.: GDR-DDH-80-29 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.76		136.23	137.99	1.76			Sandstone - Medium grey, fine to very fine grained, argillaceous vague laminations at 20 to CA calcareous	
	467/ 142.33		0.17	137.99	138.16	0.17			Core Loss - Rock	
		1.30		138.16	139.46	1.30			TOP OF BOX 39	
		0.68		139.46	140.14	0.68			Sandstone gradational to mudstone - Increasing argillaceous content and decreasing sand. Small .002m clasts, carbonaceous flecks, calcareous	
		1.57		140.14	141.71	1.57			Mudstone - medium grey at top gradually becoming dark grey at base - coal laminations only in lower dark grey half, in portion small portions badly broken, carbonaceous, calcareous (except in last 20 cm)	
	476/ 145.08								TOP OF BOX 40	
		1.37		141.71	143.08	1.75			Mudstone - calcareous, medium grey, silty laminae, carbonaceous plant remains in places, slightly sandy.	



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

P-141A(10)8

SHEET NO.: 24

HOLE NO.: GDR-DDH-80-29 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
35°	486/ 148.13	0.38		143.08	143.46	0.38			- Dark grey, carbonaceous. numerous coal laminae, badly broken	
			0.36						Core Loss - Rock	
		0.91		143.46	143.82	0.36			- Numerous silty laminations. Calcareous, medium grey	
				143.82	144.73	0.91				
43°	493/ 150.26		0.18						Core Loss - Rock	
				144.73	144.91	0.18			TOP OF BOX 41	
		0.81		144.91	145.72	0.81			- Dark grey, faint argillaceous laminations - coal laminations. Slickensides	
		0.10		145.72	145.82	0.10			Coal - bright	
		1.04		145.82	146.86	1.66			Mudstone - as above	
		0.32		146.86	147.18					
									TOP OF BOX 42	
		0.30		147.18	147.48					
0.05		147.48	147.53	0.05			Coal - bright			
0.33		147.53	147.86	0.33			Mudstone - slightly carbonaceous			
1.92		147.86	149.78	1.92			Siltstone - light grey, argillaceous laminae, slightly silty, sparse coal laminations (1.6 to 1.68m) small rubble breccia			

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

P-141A(10-8)

SHEET NO.: 25

HOLE NO.: GDR-DDH-80-29 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	503/ 153.31		0.13	149.78	149.91	0.13			Core Loss - rock	
		1.00		149.91	152.42	2.51			TOP OF BOX 43 Mudstone - medium grey becoming darker towards base, faint silty laminations and a few carbon- aceous flecks and coal laminations, slickensides	
	507/ 154.53	1.51		152.42	153.93				- dark grey, carbonaceous coal laminations, slickensides	
		1.22		153.93	156.72	2.79			TOP OF BOX 44 Silty Mudstone - medium grey, carbonaceous flecks	
	517/ 157.57	1.57		156.72	158.29				-	
		1.22		158.29	159.51	1.55			TOP OF BOX 45 Mudstone - dark grey, coal laminations	
	527/ 160.62	0.33		159.51	159.84				-	
27°		1.14		159.84	160.98	2.46			- Siltstone - medium grey, numerous argillaceous and sandy coal stringers	



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

P-141A(10-80)

SHEET NO.: 27

HOLE NO.: GDR-DDH-80-29 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
35°	551/ 167.94	0.82	0.63	165.46	166.28				- In places grades to argillaceous sandstone with abundant coal wisps, badly broken	
		0.34		166.28	166.62				TOP OF BOX 48	
		0.80		166.62	167.25	0.63			Core Loss - rock	
		0.40		167.25	168.05					
35°	557/ 169.77	0.40	0.11	168.05	168.45	4.08			Mudstone/Silty Mudstone - Dark grey to medium grey interbedded mudstone and silty mudstone with faint silty laminae	
		0.83		168.45	169.28				TOP OF BOX 49	
		2.19		169.28	171.47					
		0.66		171.47	172.13					
				172.13	172.24	0.11			Core Loss - Rock	

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

P-141A(10-8)

SHEET NO.: 28

HOLE NO.: GDR-DDH-80-29 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: IK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		2.28		172.24	174.52	4.01			TOP OF BOX 50  Silty Mudstone - medium grey with variable silt and mud contents and minor silt and argillaceous laminations. Sparce coal laminations.	
	577/ 175.86	0.60		174.52	175.12					
		1.13		175.12	176.25				TOP OF BOX 51	
		0.18		176.25	176.43	4.53			Mudstone - dark grey	
	583.5/ 177.84	1.50		176.43	177.93				- minor silty intervals plant remains, slickensides random calcite veining, generally massive	
		1.60		177.93	179.53				TOP OF BOX 52	
	593.5/ 180.89	1.25		179.53	180.78					
40° 65°		0.93		180.78	181.71	1.27			TOP OF BOX 53  Siltstone - light to medium grey, minor argillaceous laminations. Some fine sand laminae	

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

P-141A(10-80)

SHEET NO.: 29

HOLE NO.: GDR-DDH-80-29 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	601/ 183.18	0.34		181.71	182.05					
		0.97		182.05	183.02	1.25			Mudstone - dark grey, generally massive	
	606/ 184.70	0.28		183.02	183.30				- Dark grey, numerous coal stringers grades into argillaceous sandstone	
		0.72		183.30	184.02	0.72			TOP OF BOX 54 Argillaceous Sandstone - medium grey, medium grained, argillaceous, numerous coal laminae and wisps. Silty clasts, badly broken	
			0.22	184.02	184.24	0.22			Core Loss - Rock	
	610/ 185.92	0.54		184.24	184.78	0.54			Mudstone - dark grey, coal laminations, numerous slickensides, badly broken	
		0.42		184.78	185.20	2.25			Siltstone - light to medium grey, generally massive, carbonaceous flecks	
	614/ 187.14	0.73		185.20	185.93				TOP OF BOX 55	
		1.10		185.93	187.03					
	624.5/ 190.34	1.25		187.03	188.28	3.95			Mudstone - massive, dark grey	



COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

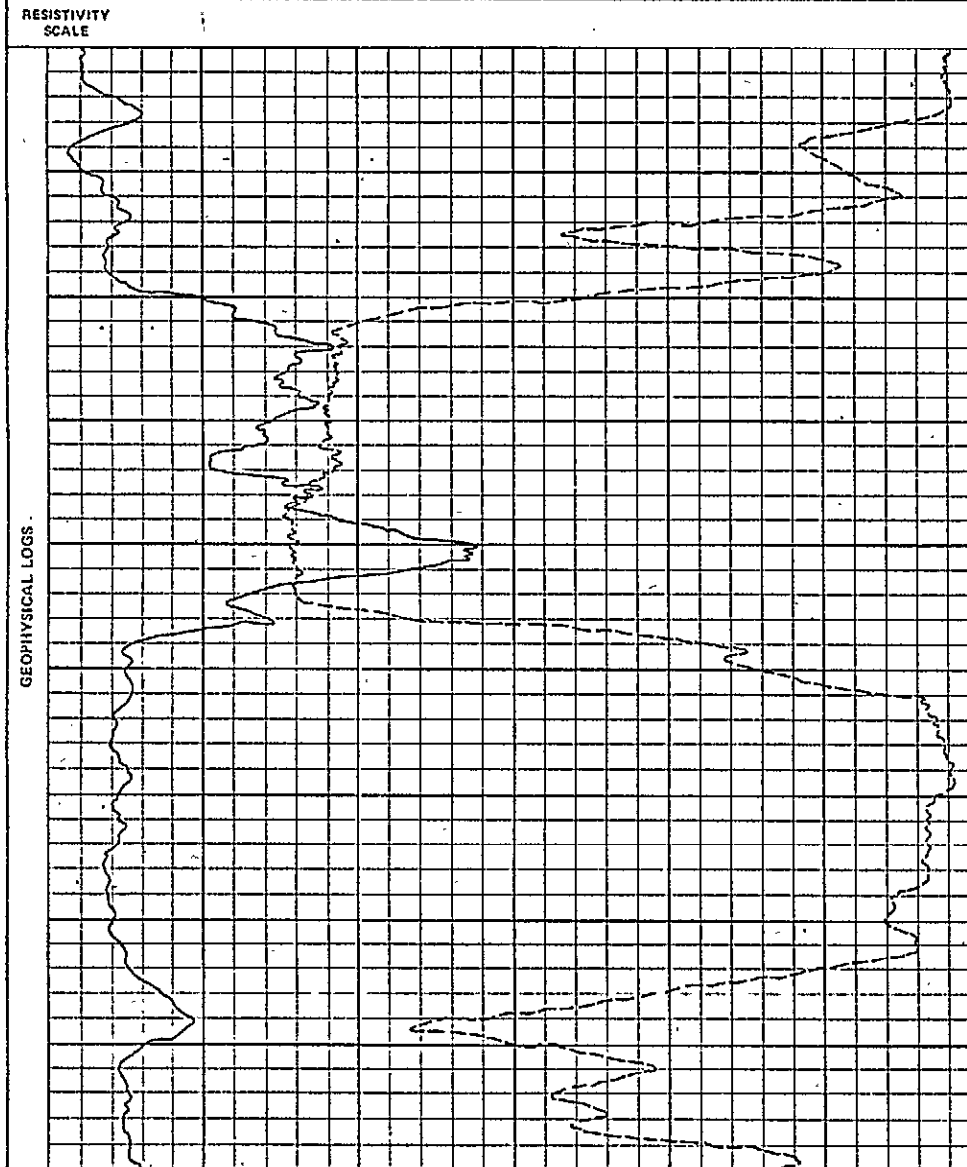
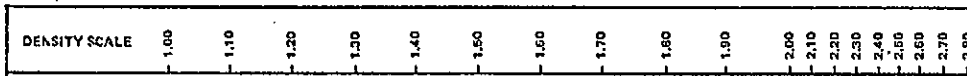
P-267 (12-8)

DENSITY RESISTIVITY

DRILL NO. GDR-DDH-80-29 SEAM

APPARENT THICKNESS  
SEAM INTERVAL 82.97 - 87.97 m.

SCALE 1:40



SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS						
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S'	STU	FSI
	82.87			.15 (2.66)		1.00505		0.42	15.39	32.58	51.61	0.37	12,753	9
	85.78		1.25			2.00606		0.37	92.18	6.36	1.09	0.15	441	0
	87.03		.90 (0.04)			3 0.0507		0.29	83.82	13.19	2.70	0.06	394	0
	87.97													

GEOPHYSICAL LOGS



COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12-80)

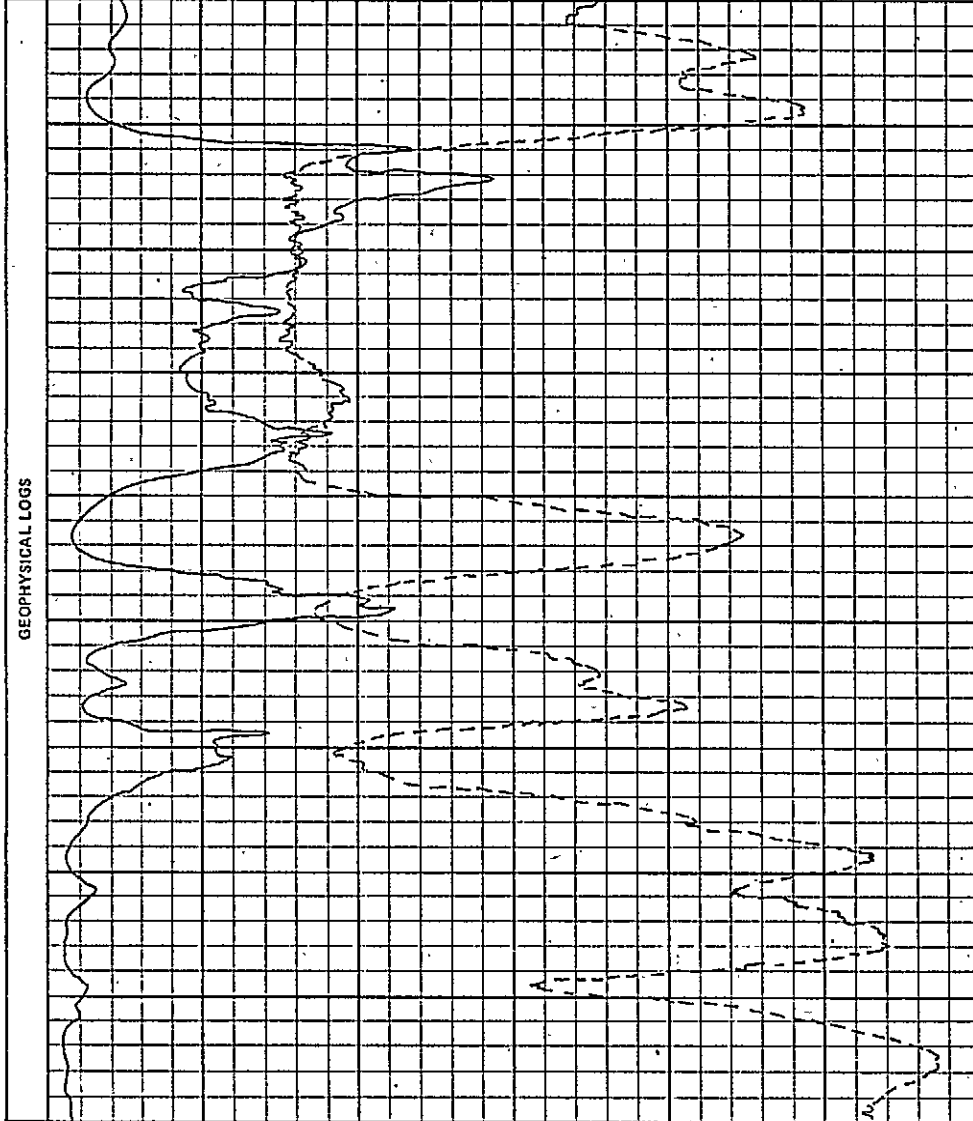
DENSITY --- RESISTIVITY ———

DRILL NO. CDR- DDH- 80- 29 SEAM  
SCALE 1: 40 SEAM INTERVAL APPARENT THICKNESS  
93.13 - 98.50 m.

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

SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS						
			ROCK	COAL		NUMBER	CCMPOS.	MOIST	ASH	VM	FC	S	BTU	FSI



	93.13	[Coal Log]																
				1.00 (1.87)		5 00509		0.65	8.04	35.44	55.87	0.25	14,148	9				
	95.00	[Coal Log]	.29 (.43)			6 00510		0.60	74.57	13.10	11.73	0.09	2,598	0				
	95.72	[Coal Log]		.23 (.24)		7 00511		0.61	5.40	24.63	69.36	0.25	14,377	11.5				
	97.87	[Coal Log]	.36 (.32)			8 00512		0.78	65.31	12.99	20.92	0.10	4,627	.5				
	98.50	[Coal Log]		.25 (.38)		9 00513		0.81	12.11	29.90	57.18	0.29	13,372	8.5				

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

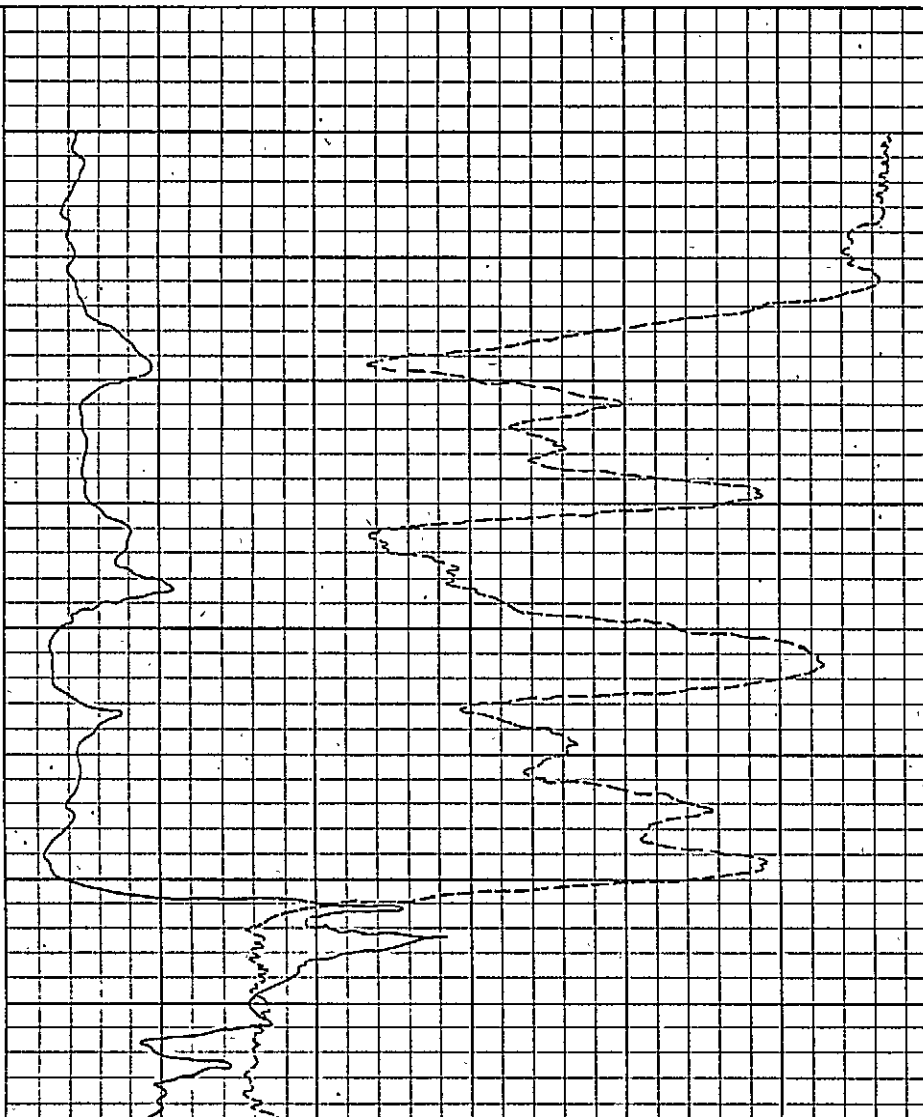
P-267 (12)

DENSITY RESISTIVITY

DRILL NO. GDR-DDH-80-29 SEAM \_\_\_\_\_ APPARENT THICKNESS 87.97 - 93.13 m.  
SCALE 1:40 SEAM INTERVAL \_\_\_\_\_

DENSITY SCALE	RESISTIVITY SCALE	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS						
					ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	PS
1.00	1.10		87.97		1.10 (2.84)	0.05 (1.17)		4 00508	0.51	20.72	12.69	6.08	0.08	1,494	0	
1.20	1.30		93.13													

GEOPHYSICAL LOGS



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

P-141A(10-80)

SHEET NO.: 1

HOLE NO.: GR-80-DDH-30 ELEV. COLLAR: 1164.36m TOTAL DEPTH: 332.8m DATE BEGUN: \_\_\_\_\_  
 PROJECT: Goodrich BEARING: \_\_\_\_\_ CORE SIZE: HQ DATE COMPL.: October 22/80  
 CO. ORD.: 140 881.09N 549 883.64E HOLE ANGLE: \_\_\_\_\_ LOGGED BY: CW CONTRACTOR: Coates

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
28 <sup>0</sup>		0.12		77.37	77.49	0.12			TOP BOX 1 Mudstone - dark grey, highly broken	
		0.02		77.49	77.51	0.02			Clay - medium brown inter-mixed with mudstone A./A	
		0.14		77.51	77.65	0.14			Mudstone - dark grey, highly broken	
		0.13		77.65	77.78	0.13			clay - A./A	
		0.26		77.78	78.04	1.77	0.13		Mudstone - medium - dark gray - small gypsum crystals	
		0.20		78.04	78.24		0.10		A/A - highly broken, intermixed with clay A/A - calcite on fracture surfaces	
		0.09		78.24	78.33		0.05		Mudstone - A/A	
		1.00		78.33	79.33		0.5		Mudstone - A/A - with odd pyrite flecks	
		0.22		79.33	79.55		0.11		Mudstone - A/A	
				0.34	79.55	79.89	0.34	0.17		Core Loss - Rock

257  
78.33



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

P-141A(10-80)

SHEET NO.: 3

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: 18 Oct /80  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: CW CONTRACTOR: \_\_\_\_\_

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
		2.07		85.29	87.36		1.04			- A/A - - fossil bivalve located at 0.15 - Silty from 0.15 - 0.50 - Pyrite flecks - heavy clacite veining at 0.50 - slickensides - bioturbation - pyrite blebs - carbonaceous flecks
	<u>287</u> 87.48									<u>TOP OF BOX 5</u>
		2.62		87.36	89.98		1.31			Mudstone - medium - dark grey - calcite and pyrite on slickenside surfaces - minor calcite horsetail veining - calcite blebs
										<u>TOP OF BOX 6</u>
	<u>296</u> 90.22	0.24		89.98	90.22		0.12			Mudstone - dark grey - pyrite blebs

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

P-141A(10-80)

SHEET NO.: 4

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: Oct 18, 80  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: CW CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.60		90.22	90.82		0.30		A/A - Broken	
		0.18		90.82	91.00		0.09		A/A - highly broken - intermixed with calcite particles and some clay - larger pieces heavily slickensided	
		1.27		91.00	92.27		0.64		A/A - Medium - dark grey - minor horsetail calcite veins	
				<u>TOP OF BOX 7</u>						
		0.93		92.27	93.20		0.47		A/A - badly broken, listric surfaces	
	<u>306</u> 93.27		0.21	93.20	93.41	0.21	0.11		Core Loss - Rock	
		1.41		93.41	94.82	5.78	0.71		A/A - bivalve located at 0.20 - sulphide present (pyrite)	
				<u>TOP OF BOX 8</u>						
		0.80		94.82	95.62		0.40		A/A - calcite veining becoming more abundant - listric surfaces	
	<u>314</u> 95.71									
		1.22		95.62	96.84		0.61		A/A	
		0.44		96.84	97.28		0.22		A/A - very badly broken, crumbly - abundant calcite along listric surfaces	

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

P-141A(10-80)

SHEET NO.: 5

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.22		97.28	98.50		0.61			<u>TOP OF BOX 9</u> Mudstone - dark grey - very badly broken - abundant listric surfaces - abundant calcite veining
	<u>323.5</u> 98.60	0.69	1.10	98.50	99.19		0.35			A/A -
				99.19	100.29	1.10	0.55			Core Loss - Rock
	<u>327</u> 99.67	0.56		100.29	100.85	10.84	0.28			A/A -
		1.28		100.85	102.13		0.64			A/A - very badly broken
		0.94		102.13	103.07		0.47			A/A - core broken - horsetail calcite veining - pyrite present - carbonaceous flecks
	<u>336</u> 102.41	0.13		103.07	103.20		0.07			A/A -
		2.61		103.20	105.81		1.31			<u>TOP OF BOX 11</u> A/A - slightly broken - pyrite flecks

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

P-141A(10-80)

SHEET NO.: 6

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.05		105.81	105.86		0.03			-at 1.36 fossilized worm burrow or plant stem? (may be pyritized) - towards lower end of measurement a bedding fault may be present  <u>TOP OF BOX 12</u>
	346 105.46	2.63		105.86	108.49		1.32			A/A - full of pyrite blebs (worm burrows ?) - a few carbonaceous plant casts - abundant pyrite flecks and blebs  <u>TOP OF BOX 13</u>
	356.6 108.66	0.46		108.49	108.95		0.23			A/A
		1.51		108.95	110.46		0.76			A/A A/A
		0.67		110.46	111.13		0.34			A/A - very badly broken; abundant calcite veining; - silty at base, possible bedding plane fault (angular pieces in calcite) - <u>Listric Surfaces</u> Abundant - clay band at top of unit
			0.20	111.13	111.33	0.20	0.10			Core Loss - Rock



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

P-141A(10-80)

SHEET NO.: 7

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.20		111.33	111.53	3.24	0.10			<u>TOP OF BOX 14</u> A/A - breccia calcite filled
	365 111.25	2.14		111.53	113.67		1.07			Mudstone - dark grey - calcite veining (moderate) - abundant pyrite - pyritized worm burrows - a few listric surfaces - moderately broken - carbonaceous flecks
		0.14		113.67	113.81		0.07			A/A - - very badly broken with clay intermixed
		0.14		113.81	113.95		0.07			<u>TOP OF BOX 15</u> - A/A - very badly broken with clay intermixed
		0.62		113.95	114.57		0.31			Mudstone - dark grey - calcite on slickenside surfaces - horsetail calcite veining in places - carbonaceous plant fragments - badly broken



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

P-141A(10-80)

SHEET NO.: 9

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: CW CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
30°		1.02		118.28	119.30		0.53		A/A - <u>TOP OF BOX 17</u>	
		0.18		119.30	119.48		0.090		A/A -	
		1.20		119.48	120.68	2.23	0.62		Mudstone & Siltstone interbedded, light to medium grey - bioturbations - minor calcite veining - minor listeric surfaces	
		<del>1.03</del> 396 <u>120.70</u> 1.03		120.68	121.71		0.59		A/A -	
		0.07		<del>121.71</del> 121.71	121.78	0.07	0.04		Sandstone - light gray - fine grained	
40°			0.43	121.78	122.21	0.43	0.25		Core Loss - Rock <u>TOP OF BOX 18</u>	
		0.20		122.21	122.41	0.20	0.12		A/A -	
		1.00		122.41	123.41	1.55	0.57		Mudstone & Siltstone - interbedded, light - mud grey - bioturbations (abundant) - minor calcite veining - minor listric surfaces	



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

P-141A(10-80)

SHEET NO.: 11

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: Oct 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
41°	417 127.10	1.10		125.78	126.88		0.64		A/A - TOP OF BOX 20	
		0.30		126.88	127.18		0.18		A/A -	
	427 130.15	2.16		127.18	129.34		1.29		A/A - Abundant small bioturbations TOP OF BOX 21	
		0.80		129.34	130.14		0.48		A/A - core pieces at footage marker do not match	
	435 132.59	1.80		130.14	131.94		1.071		A/A - yellow staining on calcite veining at 0.60 TOP OF BOX 22	
		0.45		131.94	132.39		0.27		A/A - core is badly broken; possible core loss.	
		0.15		132.39	132.54	0.15	0.09		Core Loss - Rock	

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

P-141A(10-86)

SHEET NO.: 12

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.48		132.54	133.02	0.48	0.30			A/A - badly broken
		0.12		132.02	133.14	0.12	0.08			Clay and ground up rock fragmented mixed together
		1.27		133.14	134.41	11.95	0.79			Mudstone & Siltstone - A/A - interbedded - light - dark grey - from 0.2 - 0.24 of the measurement is highly fractured and abundant calcite veining - 0.50 - 0.58 fine grained sandstone - crossbedding, top is up - bioturbations are still abundant
		0.11		134.41	134.52		0.07			A/A -
	441 134.42	1.66		134.52	136.18		1.03			A/A - abundant bioturbations - at 0.00, 0.30, 0.80 yellow staining at calcite veins (crude oil ?)
										<u>TOP OF BOX 23</u>

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

P-141A(10-80)

SHEET NO.: 13

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
36°	447 136.25	0.80		136.18	136.98		0.50		A/A - bioturbations are abundant  <u>TOP OF BOX 24</u>	
		2.10		136.98	139.08		1.19		A/A - Yellow staining on calcite vein at 0.90 - calcite filled breccia at the end of the measurement, pieces are sub-rounded - horsetail calcite at end of measurement	
	457 139.30	0.55		139.08	139.63		0.31		A/A - yellow staining on calcite veining  <u>TOP OF BOX 25</u>	
		1.22		139.63	140.85		0.69		A/A - at end of measurement core does not match	
		1.20		140.85	142.05		0.68		A/A - sandy beds tend to be increasing a few - listric surfaces along - bedding planes - yellow staining along calcite veins - pyrite blebs - cross bedding, top is up	

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

F-141A(10-80)

SHEET NO.: 14

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
33°	467 142.34	0.24		142.05	142.29		0.14		A/A	<u>TOP OF BOX 26</u>
		2.80		142.29	145.09		1.52		A/A - at 2.40 badly broken, possible core loss	<u>TOP OF BOX 27</u>
	477 145.39	2.64		145.09	147.73	2.93	1.44		Mudstone - medium - dark grey - silt laminations - bioturbations - pyrite blebs (minor)	



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

P-141A(10-80)

SHEET NO.: 15

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.29		147.73	148.02		0.16			<u>TOP OF BOX 28</u>
			0.10	148.02	148.12	0.10	0.05			- A/A - possible core loss at footage marker Core Loss - Rock
	<u>487</u> 148.44	2.38		148.12	150.50	2.38	1.30			A/A - 1.3 to 1.5 yellow staining at calcite veins - 2.23 possible core loss - bioturbations
			0.50	150.50	151.00	0.50	0.27			Core Loss - Rock
		0.41		151.00	151.41	3.22	0.22			<u>TOP OF BOX 29</u> A/A - core becoming darker - possible core loss at 0.20 - listric surfaces
	<u>497</u> 151.49	2.20		151.41	153.61		1.20			A/A - at 1.53 horestail calcite veining

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

P-141A(10-80)

SHEET NO.: 16

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
										<u>TOP OF BOX 30</u>
		0.61		153.61	154.22		0.33			A/A - small white pellets (abundant) - boney coal ? at the end of measurement possible core loss
			0.20	154.22	154.42	0.20	0.11			Core loss - Rock
	507 154.54	0.18		154.42	154.60	0.18	0.10			A/A - carbonaceous - listric surfaces - coaly laminations
		0.08		154.60	154.68	0.08	0.04			Coal - dull banded - badly sheared - broken and powdery coal and rock
		0.33		154.68	155.01	1.03	0.18			Mudstone - dark grey - black - very carbonaceous - abundant coaly inclusions - listric surfaces
		0.70		155.01	155.71		0.38			A/A - very badly broken - coaly material in bottom of tray



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

P-141A(10-80)

SHEET NO.: 18

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.43		157.13	157.56	0.43	0.23			A/A -
		0.38		157.56	157.94	0.38	0.21			Mudstone carbonaceous - coaly laminations
		0.04		157.94	157.98	0.04	0.02			Clay - light tan in color
		0.20		157.98	158.18	0.20	0.11			Mudstone - A/A - badly broken
			0.15	158.18	158.33	0.15	0.08	↑		Core Loss - Rock
			0.05	158.33	158.38	0.05	0.03			Core Loss - Coal
		0.26		158.38	158.64	0.26	0.14			Coal - dull banded - badly broken and powdery - sheared
	52.15 158.96									
		0.02		158.64	158.66	0.02	0.01			Coal - boney - badly broken
			0.06	158.66	158.72	0.06	0.03			Core Loss - Coal
		0.07		158.72	158.79	0.07	0.04			Coal - dull banded - badly broken and powdery
		0.03		158.79	158.82	0.03	0.02	91		Mudstone carbonaceous - dark grey - very carbonaceous

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

P-141A(10-80)

SHEET NO.: 19

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC.	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.10	0.03	158.82	158.85	0.03	0.02			Core Loss Coal
				158.85	158.95	0.10	0.05			Coal - dull banded
		0.05		158.95	159.00	0.05	0.03			Mudstone - dark grey - abundant coaly laminations
		0.10		159.00	159.10	0.51	0.05			Coal - dull banded - badly broken and powdery - badly sheared
										<u>TOP OF BOX 32</u>
		0.14		159.10	159.24		0.08			Coal - dull banded - with dirt bands - sheared
		0.27		159.24	159.51		0.15			Coal - dull banded
		0.03		159.51	159.54	0.03	0.02			Clay - light grey

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

P-141A(10-80)

SHEET NO.: 20

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.06		159.54	159.59	0.12	0.03			Coal - dull banded with dirt bands
		0.07		159.59	159.66		0.04			Coal - dull banded
		0.02		159.66	159.68	0.02	0.01			Clay - medium tan
		0.15		159.68	159.83	0.15	0.08			Coal - dull banded
	526 160.33									
		0.09		159.83	159.92	0.09	0.05			Tuff (?) - light grey - fine grained - argillaceous
		0.89		159.92	160.81	0.89	0.49			Mudstone - dark grey - very carbonaceous - coaly inclusions and laminations - badly broken
			0.10	160.81	160.91		0.05			Core Loss - Rock

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

P-141A(10-80)

SHEET NO.: 21

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.10	0.10	160.91	161.01		0.05	↑ 83 ↑		Coal loss coal
		0.15		161.01	161.16	0.15	0.08			Coal - dull banded
		0.04		161.16	161.20	0.04	0.02			Mudstone - carbonaceous - badly broken
		0.08		161.20	161.28	0.08	0.04			Coal - dull banded - badly broken
		0.01		161.28	161.29	0.01	0.01			Clay - medium brown - broken on bottom of box
		0.13		161.29	161.42	0.33	0.09			Coal - dull banded - badly broken

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

P-141A(10-80)

SHEET NO.: 22

October 18, 1980

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	531 161.85	0.07		161.42	161.49		0.04		Coal - dull banded - badly broken	
		0.13		161.49	161.62		0.07		Coal - powdery - sheared - with abundant rock fragments	
			0.06	161.62	161.68	0.06	0.03		Core loss - Coal	
		0.18		161.68	161.86	0.18	0.10		Mudstone - dark grey - abundant coaly laminations - and inclusions	
								3C 00591	<u>TOP OF BOX 33</u>	
		0.10		161.86	161.96	0.20	0.05		Coal - dull banded - badly broken - sheared	









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

P-141A(10-80)

SHEET NO.: 26  
October 18, 1980

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.45		168.16	168.61				A/A - core at end of measurement does not fit	
		0.95		168.61	169.56				A/A - possible core loss at footage marker	
	551.5 168.10									
		0.12	2.23	169.56 171.79	171.79 171.91	2.23 1.94			Core Loss - Rock A/A -	
									<u>TOP OF BOX 36</u>	
25°		0.37		171.91	172.28				A/A - coaly inclusions and laminations	
	561 171.00									
		0.98		172.28	173.26				A/A - light to medium grey - coaly inclusions and laminations - pyrite present along fractures - carbonaceous	

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

P-141A(10-80)

SHEET NO.: 27

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: October 18, 1980  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: CW CONTRACTOR: \_\_\_\_\_

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
	564.5 172.06	0.47		173.26	173.73				A/A - - Calcite veining	
		0.72		173.73	174.45	2.50			Mudstone - dark grey - slickenside surfaces - calcite lamination - 0.01m thick at 0.40  <u>TOP OF BOX 37</u>	
		1.78		174.45	176.23				A/A - possible core loss at the top of the box - grading into sandstone - thick, calcite laminations at the top and at point 0.85	

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

P-141A(10-80)

SHEET NO.: 28

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: Oct 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
30°	574.5 175.11	0.81		176.23	177.04	0.81			Sandstone - light to medium grey - very fine to fine grain - calcite horsetail - coaly fragments at 0.40 - badly broken - cross bedding top is up - coaly laminations and inclusions	
30°			0.30	177.04	177.34	0.30			Core Loss - Rock	
30°		1.65		177.34	178.99	2.41			<u>TOP OF BOX 38</u> A/A - very fine to medium grain coarsening down - core is badly broken - listric surfaces	
	584 178.01	0.76		178.99	179.75				A/A - coarse grain to gritty - calcite veining - smoky quartz crystals - badly broken	
			0.30	179.75	180.05	0.30			Core Loss - Rock	
33°		1.90		180.05	181.95	9.30			<u>TOP OF BOX 39</u> A/A - calcite veining - badly broken - top of box does not match bottom of former box	

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

P-141A(10-80)

SHEET NO.: 29

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
35°	594 181.05	0.37		181.95	182.32				A/A - yellow staining on calcite veining at 0.15	
		0.28		182.32	182.60				Sandstone - light to dark grey - fine to medium grains - abundant coaly laminations - odd calcite filled fractures - listric surfaces  TOP OF BOX 40	
		0.37		182.60	182.97				A/A	
		1.80		182.97	184.77				Sandstone - light to medium grey - fine to coarse - coaly laminations - odd calcite filled fractures - pyrite smears - smoky quartz crystals - yellow staining on calcite veining - odd silty laminations and inclusions - broken to badly broken	





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

P-141A(10-80)

SHEET NO.: 31

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
33 <sup>0</sup>	617 188.06	0.84		187.85	188.69					TOP OF BOX 42 A/A - rip up clasts at 0.12 - broken
		0.66		188.69	189.35					A/A - possible core loss at 0.24 - abrupt contact with lower lithological unit - broken - rip up clasts, top is up
		1.17		189.35	190.52	3.79				Mudstone - dark grey - calcite filled fractures
		1.10		190.52	191.62					TOP OF BOX 43 A/A - Calcite filled fracture at 0.30, core badly broken at this point - silty and sandy laminations with bioturbations

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

F-141A(10-80)

SHEET NO.: 32

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	627 191.11	1.52		191.62	193.14				A/A - coaly plant remained - minor horsetail calcite veining - broken with possible core loss at end of measurement	
			0.20	193.14	193.34	0.20			Core Loss - Rock  <u>TOP OF BOX 44</u>	
		0.79		193.34	194.13	9.69			A/A - abundant calcite filled fractures - badly broken, possible core loss	
	635.5 193.70	1.78		194.13	195.91				A/A - a few silty laminations - mottled appearance  <u>TOP OF BOX 45</u>	
36°		1.26		195.91	197.17				A/A - at 0.71 pieces do not match	





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

P-141A(10-80)

SHEET NO.: 35

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.14		204.27	205.41					A/A - core is badly broken possible core loss - coaly plant remains - possible core loss throughout box - very badly broken
			0.39	205.41	205.80	0.39				Core Loss - Rock
	675.5 205.89									
		0.24		205.80	206.04	0.24				A/A - end of measurement extensive calcite infractiions  <u>TOP OF BOX 49</u>
		1.06		206.04	207.10	1.13				Siltstone - light to medium grey - carbonaceous inclusions & laminations
		0.07		207.10	207.17					A/A - with powdery coal in tray - core is badly broken
			0.40	207.17	207.57	0.40				Core Loss - Rock
		0.04		207.57	207.61	0.09				Mudstone - dark grey - very carbonaceous



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

P-141A(10-80)

SHEET NO.: 37

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
36 <sup>0</sup>		1.14		211.42	212.56				A/A - interbedded with silt <u>TOP OF BOX 51</u>	
		1.64		212.56	214.20				A/A - rock sample taken at top of box - yellow staining on calcite veining	
	704 214.58	0.85		214.20	215.05				A/A - abundant silty laminations - yellow staining on calcite veining - numerous calcite fractures <u>TOP OF BOX 52</u>	
		0.74		215.05	215.79				A/A - silty laminations - listric surfaces - calcite veining - core is badly broken possible core loss	
			0.50	215.79	216.29	0.50			Core Loss - Rock	

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

P-141A(10-80)

SHEET NO.: 38

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: October 18, 1980  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: CW CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
20°		0.08		216.29	216.37	6.24	J		A/A - very badly broken, possible core loss	
		0.17		216.37	216.54				A/A - - A/A	
		<u>712</u> 217.02								
		1.33		216.54	217.87				A/A - yellow staining on calcite veining  <u>TOP OF BOX 53</u>	
		0.18		217.87	218.05				A/A - medium to dark grey - carbonaceous laminations and inclusions - silty throughout - slickensides	
	0.52		218.05	218.57				A/A - - at 0.22 a sandy interval (n 0.05m) - possible core loss at end of measurement pieces do not fit		



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

P-141A(10-80)

SHEET NO.: 39

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	723 220.37	1.34		218.57	219.91				A/A - - Silty laminations	
		0.66		219.91	220.57				A/A - plant fossils at 0.20 - very carbonaceous	
				<u>TOP OF BOX 54</u>						
	727 221.59	0.59		220.57	221.16				A/A - - core is broken	
		1.37		221.16	222.53				A/A - - possible core loss, core is badly broken	
			1.05	222.53	223.58	1.05			Core Loss - Rock	
		0.34		223.58	223.92	1.16			A/A - some coaly fragments in tray - very badly broken	

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

P-141A(10-80)

SHEET NO.: 40

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.82		223.92	224.74					<u>TOP OF BOX 55</u>
			0.34	224.74	225.08	0.34				A/A - - listric and slickensided surfaces - from 0.60 - 0.82 carbonaceous laminations and inclusions - powdery coaly fragments on bottom of box - badly broken  Core Loss - Rock
	740.5 225.71	0.03		225.08	225.11	0.03				Mudstone - - A/A - very badly broken
			0.04	225.11	225.15	0.04	0.02			Core Loss - Coal
		0.05		225.15	225.20	0.05	0.02			Coal - - dull bright - badly broken
		0.03		225.20	225.23	0.03	0.01			Mudstone - - A/A - very carbonaceous - very badly broken

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

P-141A(10-a)

SHEET NO.: 41

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.05		225.23	225.28	0.05	0.02			Coal - - dull bright - dirt bands - very badly broken.
			0.28	225.28	225.56	0.28	0.13			Core Loss - Coal
		0.09		225.56	226.38	0.82	0.04			Mudstone - - dark grey; coaly laminations - badly broken
	741.5 226.01									
		0.73					0.35			A/A - - carbonaceous plant remains - broken
			0.17	226.38	226.55	0.17	0.08			Core Loss - Rock
	744 226.77									
			0.53	226.55	277.08	0.53	0.25			Core Loss - Coal
		0.03		227.08	227.11	0.03	0.02			Coal - - dull banded - very badly broken

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

P-141A(10-8)

SHEET NO.: 42

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.02		227.11	227.13	0.02	0.01			Mudstone - - badly broken
		0.08		227.13	227.21	0.08	0.04			Coal - - bright banded - very badly broken
			0.26	227.21	227.47	0.26	0.13			Core Loss - Coal
		0.01		227.47	227.48	0.01	0.01			Mudstone -
		0.05		227.48	227.53	0.05	0.02		00593 2 B	Coal - - dull bright - very hard - badly broken
			0.26	227.53	227.79	0.26	0.13			Core Loss - Coal
		0.21		227.79	228.00	0.21	0.10			Mudstone - - dark grey - coaly inclusions - slickensides - broken

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

P-141A(10-8)

SHEET NO.: 43

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
			0.45	228.00	228.45	0.45			Core Loss - Coal	
		0.01		228.45	228.46	0.01			Coal - dull banded - badly broken with rock fragments	
		0.15		228.46	228.61	5.24			Mudstone - - A/A - Listric surfaces - Badly broken	
									<u>TOP OF BOX 56</u>	
37°		0.48		228.61	229.09				A/A - - coaly laminations and inclusions - badly broken	
	754.5 229.97	2.03		229.09	231.12				A/A - - Becoming silty - Carbonaceous plant remains - Slickensided surfaces	

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

P-141A(10-8)

SHEET NO.: 44

HOLE NO. GR-80-DDH30 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: October 18, 1980  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: CW CONTRACTOR: \_\_\_\_\_

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
										<u>TOP OF BOX 57</u>
		0.63		231.12	231.75					A/A - - broken
		0.02		231.75	231.77					A/A - - very badly broken with coaly fragments in tray
		0.27		231.77	232.04					A/A -
	765 233.17									
		0.21		232.04	232.25					A/A - -
		0.03		232.25	232.28					A/A - very badly broken

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

P-141A(10.8)

SHEET NO.: 45

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October, 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.42		232.28	233.70					A/A - listric and - silty interval from 0.90 to 1.00 - very badly broken
			0.15	233.70	233.85	0.15				Core Loss - Rock
										<u>TOP OF BOX 58</u>
		1.04		233.85	234.89	1.04				A/A -
		0.34		234.89	235.23	1.67				Siltstone - - muddy - light - medium grey - argillaceous - carbonaceous inclusions - yellow staining on calcite veining
	775.5 236.38									
		1.33		235.23	236.56					A/A
			0.10	236.56	236.66	0.10				Core Loss - Rock

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

P-141A(10-80)

SHEET NO.: 46

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.59		236.66	237.25	0.59			<u>TOP OF BOX 59</u> A/A -	
		1.14		237.25	238.39	8.72			Sandstone - - light to medium grey - very fine grained - carbonaceous laminations - calcite veining - broken	
	786 239.58	0.91		238.39	239.30				A/A - - Argillaceous - Yellow staining on calcite vein at 0.79	



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

P-141A(10-80)

SHEET NO.: 47

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: October 18, 1980  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: CW CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
48°		2.04		239.30	241.34				<u>TOP OF BOX 60</u>	
									A/A - - coarsening downwards	
	796.5 242.78	0.66		241.34	242.00				A/A - - medium grain	
									<u>TOP OF BOX 61</u>	
		2.19		242.00	244.19				A/A - - rip up clasts coarsening downwards	
	806.5 245.82	0.46		244.19	244.65				A/A - - medium to coarse grain - abundant coaly laminations and inclusions - abundant calcite veining	

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

P-141A(10.8)

SHEET NO.: 48

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
33°		1.28		244.65	245.93					<u>TOP OF BOX 62</u> A/A - - possible core loss pieces do not match - badly broken
		0.04		245.93	245.97					A/A - - minor calcite smears on listric surfaces - very badly broken
			0.30	245.97	246.27	0.30				Core Loss - Rock
		0.74		246.27	247.01	4.19				A/A - - - core is badly broken - pyrite throughout
	815 248.42	0.40		247.01	247.41					A/A - - Grading to coarse grains - pyrite smears - pyrite throughout - badly broken

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

P-141A(10-80)

SHEET NO.: 49

HOLE NO.: GR-86-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.81		247.41	248.22					A/A - - broken  <u>TOP OF BOX 63</u>
	818 249.33	1.39		248.22	249.61					A/A - - - rip up clasts - grits at base of measurement
		0.42		249.61	250.03					A/A - medium to very coarse (odd grits) - abundant coaly inclusions and laminations
		0.43		250.03	250.46					<u>TOP OF BOX 64</u>  A/A - - rip up clasts - broken
			0.40	250.46	250.86	0.40				Core Loss - Rock
	827 252.07	0.48		250.86	251.34	0.48				A/A - - becoming siltier

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

P-141A(10-80)

SHEET NO.: 50

October 18, 1980

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: PROJECT: BEARING: CORE SIZE: DATE COMPL.: CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
50°		0.90		251.34	252.24	0.90			Siltstone - medium grey - very muddy - coaly inclusions and laminations - rip up clasts - badly broken	
		0.84		252.24	253.08	3.46			Sandstone - - Light to medium grey - fine to coarse grained - coaly laminations - grit vein at 0.54 - pyrite smears on fractures  <p style="text-align: center;"><u>TOP OF BOX 65</u></p>	
		0.80		253.08	253.88				A/A - grading to very coarse grain - abundant calcite filled fractures - broken	

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

P-141A(10-80)

SHEET NO.: 51

HOLE NO: GR-80-DDH 30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.52		253.88	255.40				A/A - - from 0.39 to 0.59 is a very carbonaceous sandston - gritty from 0.78 to 1.52	
		0.30		255.40	255.70				Sandstone - medium grey to dark grey - very carbonaceous with coaly inclusions and and laminations - coaly fragments in tray - broken	
			0.17	255.70	255.87	0.17			Core Loss - Rock	
									<u>TOP OF BOX 66</u>	
36°		1.06		255.87	256.93	1.06			A/A - - very silty - broken	
	847 258.17									
		0.31		256.93	257.24	0.36			Mudstone - dark grey - carbonaceous plant fossils	



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

P-141A(10-80)

SHEET NO.: 53  
October 18, 1980

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: CW CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.70		259.93	260.63	0.70			Mudstone - medium to dark grey - silty - very carbonaceous - badly broken	
			0.15	260.63	260.78	0.15			Core Loss - Rock	
	<u>860</u> 262.13	0.02		260.78	260.79	0.01			Coal - Dull banded - Sheared and badly broken	
		0.12		260.79	260.91	0.12			Mudstone - dark grey - coaly laminations and inclusions - very badly broken -	
		0.13		260.91	261.04	0.13			Coal - - dull banded - very badly broken and powdery	
			0.10	261.04	261.14	0.10			Core Less - Coal	
		0.02		261.14	261.16	0.14			Mudstone - A/A - Badly broken	

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

P-141A(10-80)

SHEET NO.: 54

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.12		261.16	261.28				A/A - - very coaly with coaly inclusions - broken	
			0.10	261.28	261.38	0.10			Core Loss - Rock	
		0.07		261.38	261.45	0.07			Coal - - dull banded	
		0.48		261.45	261.93	0.48			Mudstone - - dark grey - very carbonaceous with numerous coaly inclusions and laminations - very badly broken	
			0.10	261.93	262.03	0.10			Core Loss - Rock	
		0.08		262.03	262.11	0.08			Coal and Mudstone - - coal is powdery and mixed together - very badly broken	
			0.20	262.11	262.31	0.20			Core Loss - Rock	
		0.11		262.31	262.42	0.11			Mudstone - - A/A	
		865.5								
		263.81								



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

P-141A(10-80)

SHEET NO.: 55

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.02		262.42	262.44	0.02			Coal - - dull banded with minor dirt laminations - very badly broken	
		0.18		262.44	262.62	0.18			Mudstone - A/A	
		0.08		262.62	262.70	0.08			Coal Boney - very badly broken	
		0.30		262.70	263.00	0.30			Mudstone - very carbonaceous	
		0.10		263.00	263.10	0.10			Coal bony	
		0.16		263.10	263.26	0.92			Mudstone - - A/A - Coaly fragment on bottom of tray - very badly broken	

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

F-141A(10-80)

SHEET NO.: 56

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.63		263.26	263.89					Mudstone - A/A - very badly broken - powdery coal at end of measurement
										<u>TOP OF BOX 69</u>
		0.13		263.89	264.02					A/A
		0.01		264.02	264.03	0.01				Coal - powdery
			0.10	264.03	264.13	0.10				Core Loss - Coal
		0.12		264.13	264.25	0.12				Mudstone - A/A - badly broken with powdery coal in tray
			0.10	264.25	264.35	0.10				Core Loss - Coal
		0.04		264.35	264.39	0.04				Coal - powdery with rock fragments
			0.10	264.39	264.49	0.10				Core Loss - Coal

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

P-141A(10-80)

SHEET NO.: 57

HOLE NO. GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
47°		0.28		264.49	264.77	0.28			Mudstone - A/A - very badly broken	
			0.20	264.77	264.97	0.20			Core Loss - Rock	
	874 266.40	2.11		264.97	267.08	4.66			Mudstone - Medium to dark grey - silty with silty laminations - bioturbations - coaly inclusions	
									<u>TOP OF BOX 70</u>	
			0.74		267.08	267.82			A/A	
	884 269.45	1.81		267.82	269.63				A/A - turning to a lighter color - possible core loss at end of box - very badly broken	
			0.75	269.63	270.38	0.75			Core Loss - Rock	



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

P-141A(10-80)

SHEET NO.: 59

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.81		273.82	275.63				A/A - Abundant calcite veining	
		0.75		275.63	276.38				TOP OF BOX 73 A/A - very abundant calcite veining - rip up clasts - very badly broken	
		0.40		276.38	276.78	2.60			Mudstone - light to dark grey - silty with silty laminations - heavy calcite veining - possible fault area	
	913 278.29									
47°		1.40		276.78	278.18				A/A -	

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

P-141A(10.80)

SHEET NO.: 60

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
										TOP OF BOX 74
		0.80		278.18	278.98					A/A - extremely badly broken possible core loss
			0.40	278.98	279.38	0.40				Core Loss - Rock
	922 281.03									
		0.35		279.38	279.73	0.35				A/A
			0.30	279.73	280.03	0.30				Core Loss - Rock
		0.10		280.03	280.13	0.10				Coal - powder with rock fragments
		0.02		280.13	280.15	0.02				Mudstone - A/A
			0.30	280.15	280.45	0.30				Core Loss - Rock







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

P-141A(10-80)

SHEET NO.: 63

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: Oct 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.54		286.27	286.81				A/A - Sandy interval ending at 0.10  <u>TOP OF BOX 77</u>	
		2.43		286.81	289.24				A/A - becoming silty - broken - yellow staining on calcite veining	
	954 290.78								<u>TOP OF BOX 78</u>	
37°		2.71		289.24	291.95				A/A - silty interval towards end of measurement - broken	
			0.20	291.95	292.15	0.20			Core Loss - Rock	

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

P-141A(10-80)

SHEET NO.: 64

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: October 18, 1980  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: CW CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.36		292.15	292.51	1.76			<u>TOP OF BOX 79</u>  Siltstone - - light to medium grey - dirty - odd coaly inclusion	
	<u>965</u> 294.14	1.40		292.51	293.91				A/A - - odd calcite veining - becoming very sandy - bioturbations (very few)	
		0.82		293.91	294.73	4.53			Sandstone - - light grey - fine to medium grained - muddy matrix - bioturbations - calcite veining	
									<u>TOP OF BOX 80</u>	
42°		0.71		294.73	295.44				A/A - - muddy - yellow calcite veining	

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

P-141A(10-80)

SHEET NO.: 65

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 80  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
44°	975 297.18	1.95		295.44	297.39				A/A - - dirty - bioturbations - at 0.63 an iron stone band - slickensides  <u>TOP OF BOX 81</u>	
		1.05		297.39	298.44				A/A - - very fine crossbedding - yellow staining along calcite veining	
38°	986 300.54	1.66		298.44	300.10	7.62			Siltstone - mudstone interbedded - light to dark grey - carbonaceous inclusions and laminations - listric surfaces - bioturbations - yellow staining - top is up - slickensides	

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

P-141A(10-80)

SHEET NO.: 66

October 18, 1980

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
									<u>TOP OF BOX 82</u>	
38°		0.60		300.10	300.70				A/A - yellow staining	
	993 302.67									
45°		2.02		300.70	302.74				A/A - darker in color - muddy - yellow staining	
									<u>TOP OF BOX 83</u>	
44°		1.01		302.74	303.73				A/A - very carbonaceous - yellow staining	
	1003.5 305.87									
45°		1.60		303.73	305.83				A/A - yellow staining	

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

P-141A(10-80)

SHEET NO.: 67

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: October 18, 1980  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: CW CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
40 <sup>0</sup>									<u>TOP OF BOX 84</u>	
		0.73		305.33	306.06				A/A - badly broken possible core loss at 0.10	
			1.00	306.06	307.06	1.00			Core Loss - Rock	
		<u>1014.5</u> <u>309.22</u>								
		0.61		307.06	307.67	0.67			A/A - possible core loss at this point peices do not match	
		0.06		307.67	307.73				A/A - badly broken	
		0.40		307.73	308.13	0.40			Mudstone - dark grey - abundant coaly laminations and inclusions - abundant <u>list</u> surfaces - very badly broken possible core loss	
	<u>1018</u> <u>310.27</u>									
	0.10		308.13	308.23	0.10			A/A - very badly broken		
		0.48	308.23	308.71	0.48	0.27		Core Loss - Rock		

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

P-141A(10-80)

SHEET NO.: 68

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
			0.56	308.71	309.27	0.56	0.31			Core Loss - Coal
			0.16	309.27	309.43	0.16	0.09			Core Loss - Rock
			0.26	309.43	309.69	0.26	0.15			Core Loss - Coal
		0.10		309.69	309.79	0.10	0.06			Coal - dull bright, very badly broken with rock fragments
		0.05		309.79	309.84	0.05	0.03			Mudstone - A/A
			0.47	309.84	310.31	0.47	0.26			Core Loss - Rock
			0.29	310.31	310.60	0.29	0.16			Core Loss - Coal
		0.06		310.60	310.66	0.06	0.03			Coal - bright banded - sheared - badly broken with rock fragments
		0.10		310.66	310.76	0.10	0.06			Coal & broken rock 80% coal - - very badly broken
			0.15	310.76	310.91	0.15	0.08			Core Loss - Coal
		0.05		310.91	310.96	0.05	0.03		1A 00594	Mudstone - A/A

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

P-141A(10-80)

SHEET NO.: 69

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
			0.07	310.96	311.03	0.07	0.04			Core Loss - Coal
		0.04		311.03 311.03	311.07	0.18	0.02			Coal - Stoney to coal and bands
	1022 311.49									<u>TOP OF BOX 85</u>
		0.14		311.07	311.21		0.08			Coal - Stoney - Coal and bands - contains muddy laminations - broken
		1.04		311.21	312.25	1.04	0.58			Mudstone - mud to dark grey - very barconaceous - silty towards base - mottled - listric surfaces - possible core loss at top of measurement - broken
29°		1.65		312.25	313.90	18.97				Sandstone - - fine to medium grain - light to dark grey - silty laminations - calcite veining - listric surfaces





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

P-141A(10-8)

SHEET NO.: 71

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		2.05		317.24	319.29					A/A - pyrite smears on listric surfaces - medium to coarse grain - core badly broken at 0.90  TOP OF BOX 88
		0.96		319.29	320.25					A/A - core is broken
	1053 320.96									
		1.61		320.25	321.86					A/A - broken  TOP OF BOX 89
30°		0.93		321.86	322.79					A/A - abundant calcite veining - possible fault - very badly broken possible core loss

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

P-141A(10-80)

SHEET NO.: 72

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
31°	1062 323.78	1.22		322.79	324.01					A/A - pyrite smears - core is very badly broken  <u>TOP OF BOX 90</u>
		1.41		324.01	325.42					A/A - abundant mineralization quartz, pyrite - very badly broken from 1.01 to end of measurement
44°	1071.5 326.60	1.04		325.42	326.46					A/A - calcite veining  <u>TOP OF BOX 91</u>
		1.77		326.46	328.23					A/A - rip up clasts - abundant rip up clasts - badly broken, possible core loss at end of measurement - top is up

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

P-141A(10-B)

SHEET NO.: 73

HOLE NO.: GR-80-DDH30 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 18, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
	1082 329.80	0.74		328.23	328.97				A/A - rip up clasts at upper end of measurement  <u>TOP OF BOX 92</u>	
		2.25		328.97	331.22				A/A - rip up clasts - at 0.10 prices do not match - broken	
	1092 332.85								* Roke logging depth 331.00m from log heading	



COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-257 (1/26)

DENSITY

RESISTIVITY

DRILL NO. GDR-DDH-80-30 SEAM  
SCALE 1:40

APPARENT THICKNESS  
SEAM INTERVAL 225.11 - 228.46 m.

DENSITY SCALE	RESISTIVITY SCALE	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS								
					ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	FS		
1.00	1.00		0 <sup>8</sup>															
1.10	1.10		225.11			0.03	0.13 (0.32)	2A 00592		0.53	16.68	24.66	58.44	0.42	13,121	8		
1.20	1.20		225.56															
1.30	1.30		226.55				0.16 (.53)											
1.40	1.40		227.08			0.03	0.26 (.80)	2B 00593		0.72	13.84	22.78	62.66	0.37	13,077	2.5		
1.50	1.50		227.53															
1.60	1.60		228.00															
1.70	1.70		228.46															
1.80	1.80																	
1.90	1.90																	
2.00	2.00																	
2.10	2.10																	
2.20	2.20																	
2.30	2.30																	
2.40	2.40																	
2.50	2.50																	
2.60	2.60																	
2.70	2.70																	
2.80	2.80																	

GEOPHYSICAL LOGS

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

F-267 (12-80)

DENSITY

RESISTIVITY

DRILL NO. GDR-DDH-80-30 SEAM

APPARENT THICKNESS  
SEAM INTERVAL 308.71 - 311.21 m.

SCALE 1 : 40

DENSITY SCALE	RESISTIVITY SCALE	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS											
					ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	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																					
2.80																					
			308.71																		
			309.27																		
			309.43																		
			309.79																		
	310.31					0.05	0.34	IA													
	311.21					(0.51)		00594		0.63	53.89	12.75	32.73	0.41	6,779						

GEOPHYSICAL LOGS

DIRECTIONAL SURVEY

ROKE OIL ENTERPRISES LIMITED

COMPANY: GULF CANADA RESOURCES INC. GRID: \_\_\_\_\_ DATE SURVEYED: 22 OCTOBER 1980  
DRILL HOLE: GDR - DDH - 80 - 30 LATITUDE: \_\_\_\_\_ SURVEY BY: SIM  
LOCATION: \_\_\_\_\_ DEPARTURE: \_\_\_\_\_ WITNESSED BY: ZSCHACH  
FIELD: GOODRICH ELEVATION: \_\_\_\_\_ CALCULATIONS BY: \_\_\_\_\_  
MAGNETIC DECLINATION: \_\_\_\_\_ CORRECTION OF: \_\_\_\_\_ FOR: \_\_\_\_\_ GRID: \_\_\_\_\_

Num- ber	Cable Depth	Slant Angle	Slant Angle Bearing	Num- ber	Cable Depth	Slant Angle	Slant Angle Bearing	Num- ber	Cable Depth	Slant Angle	Slant Angle Bearing
0	0	18.31	259.8	11	165	18.26	29.1	22	330	19.72	26.1
1	15	17.58	174.2	12	180	17.55	28.1	23			
2	30	17.51	69.9	13	195	17.97	28.3	24			
3	45	18.15	142.3	14	210	18.43	30.7	25			
4	60	17.74	56.1	15	225	18.57	30.5	26			
5	75	17.75	59.4	16	240	18.36	30.4	27			
6	90	17.82	28.4	17	255	18.64	29.6	28			
7	105	18.08	28.2	18	270	19.3 19.1	27.7 28.3	29			
8	120	17.73	26.1	19	285	19.2	27.6	30			
9	135	17.73	26.8	20	300	19.33	28.4	31			
10	150	17.48	31.5	21	315	19.51	27.4	32			

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

P-141A(10-80)

SHEET NO.: 1

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: 1306.17m TOTAL DEPTH: 367.0m DATE BEGUN: Oct. 25/80.  
 PROJECT: Gondrich BEARING: \_\_\_\_\_ CORE SIZE: H0 DATE COMPL.: October 29/80  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: Vert. LOGGED BY: IK CONTRACTOR: Coates

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
			52.85	0	52.85	52.85			TOP OF BOX 1 Casing - 0 - 52.85m	
		0.80		52.85	53.65	0.80			Sandstone - light grey, medium to coarse grained, silty laminations, broken and rounded pieces of core.	
	176/ 53.64		1.76	53.65	55.41	1.76			Core loss-rock	
		0.42		55.41	55.83	0.42			-	
30°		0.71		55.83	56.54	0.71			Mudstone - dark grey, carbonaceous flecks, silty laminations	
									TOP OF BOX 2	
		0.16		56.54	56.70	2.51			Silty mudstone - medium grey	
	186/ 56.69									
45°		2.35		56.70	59.05				Silty mudstone - medium to dark grey, numerous silty silty laminations, occasional sandy cross-beds, carbonaceous partings, coal stringers.	

**OPEN FILE**

PR-Gondrich 50131A



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

P-141A(10-80)

SHEET NO.: 2

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: vert LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
										TOP OF BOX 3
		0.14		59.04	59.19	0.14				Mudstone - dark to medium grained, carbonaceous partings - minor coal stringers
			0.56	59.19	59.75	0.56				Core loss rock
	196' 59.74									
		0.70		59.75	60.45	0.70				
35°		1.44		60.45	61.89	1.44				Silty mudstone - medium grey, numerous silty laminations, towards base becomes increasingly sandier - carbonaceous partings
		0.30		61.89	62.19	0.30				Sandstone - medium grey, fine to medium grained - coal stringers with fine pyrite inclusions - this is a small sandy interbed within the mudstone
	206' 62.79		0.61	62.19	62.80	0.61				Core loss-rock
										TOP OF BOX 4
		0.60		62.80	63.40	0.60				
40°		1.80		63.40	65.20	1.80				Silty mudstone - medium to light grey - silt and sand interlaminations - carbonaceous partings - coal stringers

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

P-141A(10-E)

SHEET NO.: 3

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: Vert. LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
35°	216' /56.83		0.55	65.20	65.75	0.55			Slickensides	
									Core loss-rock.	
									TOP OF BOX 5	
		0.10	65.75	65.85	2.42				-	
		2.09	65.85	67.94					Silty mudstone - coal laminations, broken core	
	226' /68.88								TOP OF BOX 6	
		0.23	67.94	68.17					-	
			0.96	68.17	69.13	0.96			Core loss rock	
		0.12	69.13	69.25	0.12				Mudstone	
			.87	69.25	70.12	.87			Coal loss	
				.18			Coal			
	0.06	70.12	70.18				Coal - dull			
	0.06	70.18	70.24				Coal - dull banded			
	0.06	70.24	70.30				Coal and bands (30% coal)			
	1.25	70.30	71.55	1.25				Mudstone - dark grey, slightly carbonaceous - coal laminations and stringers.		

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

P-141A(10-B)

SHEET NO.: 4

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
50°	236' / 71.92	0.31		71.55	71.86	1.96			Carbonaceous partings	
40°		2.65		71.86	74.51				Silty mudstone - light to medium grey - silt and argillaceous laminations - minor sandy cross-beds - fine to medium grained - carbonaceous partings. - coal laminations TOP OF BOX 7	
			0.51	74.51	75.02	0.51			Silty mudstone - @ 0.91m - sheared mudstone (possibly minor fault) Core loss rock TOP OF BOX 8	
35°	246' / 74.98	2.52		75.02	77.54	2.89			Mudstone - dark grey - carbonaceous flecks sparse coal stringers - faint silt laminations - slickensides	

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

P-141A(10)EC

SHEET NO.: 5

HOLE NO.: CDR-DDH-80-31 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 JO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: IK CONTRACTOR: \_\_\_\_\_

SCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION		
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.					
									TOP OF BOX 9			
		0.10	0.43	77.54	77.64					Mudstone - badly broken & sheared		
				77.64	78.07					Core loss rock		
	256' /78.03	0.27		78.07	78.34		0.15			Mudstone - (solid piece)		
		0.12		78.34	78.46	0.21	0.07	↑ 35%	↓ 5	Coal	- heavily sheared, appears to be dull-banded	
		0.06		78.46	78.52		0.03	↑ 35%	↓ 5 #00604		- dull banded with carbonaceous mudstone clasts -	
		0.03		78.52	78.55		0.02					badly broken - pyrite smears
			0.67	78.55	79.22	0.67	0.36					Core loss coal
		0.02		79.22	79.24	0.15	0.01					Coal - dull banded and sheared badly broken - powder & pieces. Pyrite smears.
		0.10		79.24	79.34		0.05			Coal - bright, sheared		
		0.03		79.34	79.37		0.02	↓	↑	Coal - bright banded, sheared.		

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

P-141A(10-8)

SHEET NO.: 6

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
30°		0.26		79.37	79.63	0.26	0.14			Carbonaceous mudstone - dark grey, carbonaceous
		1.47		79.63	81.10	7.23				Silty mudstone - light to dark grey - argillaceous, silt and sand interlamina- tions
25°		0.32		81.10	81.42					TOP OF BOX 10 Silty mudstone - some calcite fracturing and small crackle- breccia development - carbonaceous parting, pyrite disseminations
35°	266' /81.07	2.36		81.42	83.78					Silty mudstone - sandy interbeds, vuggy calcite veinlets, tension gashlets, slickensides, slightly carbonaceous -bioturbation.
		0.54		83.78	84.32					TOP OF BOX 11
40°	276' /84.12	2.19		84.32	86.51					Silty mudstone - coal lamination, sandy intervals, some bioturbation.

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

P-141A(10-E)

SHEET NO.: 7

HOLE NO.: GDR-DDH-80- 32 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
									TOP OF BOX 12	
35°		0.41		86.51	86.92				Silty mudstone -	
		0.45		86.92	87.37	0.61			Mudstone - dark grey, carbonaceous, coal lamination, pyrite disseminations.	
	286' /87.17									
		0.18		87.37	87.55		0.10		-	
						0.58			Coal - slightly sheared, badly broken	
35°		0.12		87.55	87.67		0.07	↑ 67%	Coal - bright banded	
		0.05		87.67	87.72		0.03	↓	Coal - dull bright	
		0.05		87.72	87.77		0.03	4A #00601	Coal - bright banded	

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

P-141A(10-E)

SHEET NO.: 8

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.05		87.77	87.82		0.03	↓ 4A #00601 ↑	Coal - dull banded, sheared	
		0.05		87.82	87.87		0.03		Coal - badly sheared, powder in pieces, appears to be dull banded.	
		0.08		87.87	87.95		0.05		Coal - dull banded	
		0.03		87.95	87.98		0.02		Coal - dull banded, heavily sheared	
		0.10		87.98	88.08		0.60		Coal - dull	
		0.05		88.08	88.13		0.30		Coal - dull banded, badly sheared, powder in pieces	
			0.29	88.13	88.42	0.29	0.17		COAL LOSS - Coal	
		0.82		88.42	89.24	0.82	0.47	Mudstone - dark grey, slightly carbonaceous - very dense, breaks very irregularly - badly broken at base.		

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

P-141A(10-E)

SHEET NO.: 9

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
									TOP OF BOX 13	
30°		0.36		89.24	89.60	0.36			Carbonaceous mudstone - coal laminations - dark grey, powder and pieces at base	
	296 1/2		0.72	89.60	90.32	0.72			Rock loss	
	90.22	0.06		90.32	90.38	0.06			Coal - bright, badly broken, slightly sheared - minor claystone cleats	
		0.02		90.38	90.40	0.02			Coal and bands - (80% coal), pyrite inclusions	
		0.05		90.40	90.45	0.05			Carbonaceous mudstone - dark grey, carbonaceous	
			0.18	90.45	90.63	0.18			Rock loss	
		0.23		90.63	90.86	0.23			Mudstone - abundant calcite veining with crackle and nibble breccia slightly developed with rounded clasts	
		0.04		90.86	90.90	0.04			Coal - sheared heavily, bright banded, pyrite inclusions	
50°		1.21		90.90	92.11	1.21			Silty mudstone - light to dark grey, abundant silt, sand and argillaceous laminations - rootlets - slightly carbonaceous	
30°		0.04		92.11	92.15	0.04			Carbonaceous mudstone	
		0.03		92.15	92.18	0.03			Coal - heavily sheared, powder and pieces appears to be dull banded.	



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

P-141A(10-8)

SHEET NO.: 10

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.12		92.18	92.30	0.12	0.07			Carbonaceous mudstone - numerous coal laminations, many of which are powder in pieces
		0.11		92.30	92.41	0.24	0.06			Coal
		0.06		92.41	92.47		0.03			Coal - dull banded, hard
		0.04		92.47	92.51		0.02			Coal - bright banded, sheared, in places powder and pieces
		0.03		92.51	92.54		0.02			Coal - bright banded, powder and pieces
			0.70	92.54	93.24	0.70	0.40			Coal - dull banded, powder and pieces
			0.42	93.24	93.66	0.42	0.24			Coal loss TOP OF BOX 14
		0.08		93.66	93.74	0.08	0.05			Rock loss
										Carbonaceous mudstone - black, exceptionally carbonaceous, numerous bright coal laminations.



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

P-141A(10-0)

SHEET NO.: 12

HOLE NO.: GDR-DDH-80-31      ELEV. COLLAR: \_\_\_\_\_      TOTAL DEPTH: \_\_\_\_\_      DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_      BEARING: \_\_\_\_\_      CORE SIZE: \_\_\_\_\_      DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_      HOLE ANGLE: \_\_\_\_\_      LOGGED BY: LK      CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
35°		0.22		97.14	97.36				-	
35°		0.82		97.36	98.18	0.82			Mudstone - medium grey, faintly laminated - powder coal laminations and inclusions @ 0.7m	
			0.33	98.18	98.51				Core loss rock	
50°		1.50		98.51	100.01	1.85			Sandstone - light grey, silty laminations - sparse coal stringers	
		0.15		100.01	100.16				TOP OF BOX 16	
	326' /99.36	0.20		100.16	100.36					

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

P-141A(10)E

SHEET NO.: 13

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
45°		1.88		100.36	102.24	1.88			Mudstone - medium grey, silt laminations, carbonaceous laminations - coal stringers and laminations - in places becomes more carbonaceous	
40°		0.23		102.34	102.47	0.23			Carbonaceous mudstone - dark grey to black. - carbonaceous with numerous coal stringers	
									TOP OF BOX 17	
30°		0.62		102.47	103.09	0.62			Mudstone - dark grey, slightly carbonaceous - coal stringers - faintly laminated at base. - powder in pieces in middle, possibly due to shearing.	
			0.12	103.09	103.21				Core loss rock	
	336' /102.41									
45°		1.42		103.21	104.63	1.42			Siltstone - light grey, numerous argillaceous and sandy intervals - random coal stringers - random calcite veinlets	

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

P-141A(10-E)

SHEET NO.: 14

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J.K. CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
40'	346' /105.46	0.59		104.63	105.22	0.59			Mudstone - dark grey, numerous coal laminations and pods. - pods up to 2 cm wide of bright banded coal. - sheared - carbonaceous - badly broken	
			0.48		105.22	105.70			Core loss rock TOP OF BOX 18	
		0.47		105.70	106.17	3.52			Mudstone - dark grey	
		2.06		106.17	108.25				Mudstone - dark grey, faintly laminated carbonaceous flecks, sparse coal stringers, sandy interlaminations at top	

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

P-141A(10-80)

SHEET NO.: 15

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.33		108.25	108.58				TOP OF BOX 19	
	356' /108.50									
40° 45°		0.66		108.58	109.24				Mudstone - well defined laminations	
		0.06		109.24	109.30	0.10			Coal - dull, sheared	
		0.04		109.30	109.34				Coal - dull banded	
		0.14		109.34	109.48	0.14			Mudstone - dark grey - faintly laminated - coal stringers and laminations	
		1.37		109.48	110.85	1.37			Siltstone - medium to light grey - well laminated with argillaceous and sandy interbeds - at 1.10m then carbonaceous interbed occurs.	



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

P-141A(10-E)

SHEET NO.: 17

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
20°	376' /114.60	0.60		114.65	115.25	0.60			Mudstone - dark grey - faintly laminated	
		1.02		115.25	116.27	1.02			Carbonaceous mudstone - very carbonaceous in places - abundant coal stringers and laminations and pods up to 2 cm wide. - badly broken - mainly powder in pieces at base - at base pyrite inclusion found	
			1.07	116.27	117.34					
		0.10		117.34	117.44	4.08			Siltstone - argillaceous and sandy interbeds - well laminated - light to medium grey - coal laminations  TOP OF BOX 22	



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

P-141A(10-E)

SHEET NO.: 18

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.20		117.44	117.64				-	
	386' /117.65									
45°		2.28		117.64	119.92				-	
									TOP OF BOX 23	
		0.68		119.92	120.60				-	
	396' /120.69									
25°		0.82		120.60	121.42				-	



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

P-141A(10-E)

SHEET NO.: 20

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
30°		0.20		126.32	126.52					
		0.06		126.52	126.58	0.06			Coal - powder in pieces - dull banded	
		2.07		126.58	128.65	2.07			Mudstone - well laminated - silt and sand laminations - dark to medium grey	
		0.21		128.65	128.86	2.33			Sandstone - light grey	
		0.30		128.86	129.16				TOP OF BOX 26 Sandstone - carbonaceous and argillaceous laminations	
			0.19	129.16	129.35				Core loss rock	

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

P-141A(10-EC)

SHEET NO.: 21

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
35°	425' /129.53	1.82		129.35	131.17					
		0.60		131.17	131.77	1.31			Mudstone - medium grey - silty in places	



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

P-141A(10-80)

SHEET NO.: 23

HOLE NO.: GDR-DDH-CO-31 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.61		133.52	137.13				Mudstone - listric surfaces  TOP OF BOX 29	
		0.63		137.13	137.76				-	
		0.88		137.76	138.64	1.42			Siltstone - medium grey - slightly sandy - gradational to sandstone at base - carbonaceous flecks - massive	
	455' /138.68									
		0.54		138.64	139.18				-	
		0.73		139.18	139.91	2.08			Sandstone - light grey, fine to medium grained - carbonaceous and argillaceous laminations	



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

P-141A(10-80)

SHEET NO.: 25

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
30°	486' /148.13	0.67		144.59	145.26				-  TOP OF BOX 32	
		2.47		145.26	147.73				Mudstone - slightly carbonaceous - faintly laminated	
		0.20		147.73	147.93				-  TOP OF BOX 33	
		0.08	0.49	147.93	148.01	0.08			Mudstone - dark grey, carbonaceous Core loss rock	
		0.22		148.50	148.72	0.22			Coal - dull bright, sheared - mainly powder in pieces	
		0.64	0.88	148.72	149.60				Core loss coal and rock	
		0.64		149.60	150.24	4.51			Mudstone - dark grey, carbonaceous - powder, in pieces and badly sheared in places	



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

P-141A(10-80)

SHEET NO.: 26

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	496' /151.17	0.54		150.24	150.78				Mudstone - numerous coal laminations Core loss rock	
		1.33		150.78	152.11					
		0.21		152.11	152.32					
35°		0.97		152.32	153.29				TOP OF BOX 34 Mudstone - well laminated silty interval	
		0.54		153.29	153.83				Mudstone - dark grey, carbonaceous	
25°	506' /154.22	1.03		153.83	154.86				Mudstone - numerous coal laminations and stringers Mudstone - @ 0.76 rock is badly sheared. powder and pieces	
		1.14		154.86	156.00				Core loss rock	

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

F-141A(10-80)

SHEET NO.: 27

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CD. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

SCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
40°	516' /157.27	0.88		156.00	156.88	0.88			TOP OF BOX 35 Sandstone - light grey, fine-grained - sharp contact with mudstone at top and base. - carbonaceous and argillaceous laminations and coal stringers	
		1.83		156.88	158.71	7.47			Mudstone - dark grey to medium grey - silt laminations - slightly carbonaceous	
		0.53		158.71	159.24				Core loss rock	
	526' /160.32	0.67		159.74	159.91				TOP OF BOX 36	

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

P-141A(10-80)

SHEET NO.: 28

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

SCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
45°		1.92		159.91	161.83				Mudstone - dark grey and monotonous - sparse coal laminations	
			0.12	161.83	161.95				TOP OF BOX 37 Core loss rock	
		1.01		161.95	162.96				-	
	536' 163.36									
35°		1.60		162.96	164.56				-	
				164.56	165.04				TOP OF BOX 38	
		0.48		165.04	166.01	6.38			Siltstone - light to medium grey - sandy and argillaceous intervals - well laminated in places - sparse calcite veining	
		0.97								

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

P-141A(10-80)

SHEET NO.: 29

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
45°	546' /166.41	1.39		166.01	167.40					TOP OF BOX 39
		0.58		167.40	167.98					Siltstone - mudstone interval
		1.08		167.98	169.06					
40°	556' /169.46	1.12		169.06	170.18					TOP OF BOX 40
		1.29		170.18	171.47					
40°		0.64		171.47	172.11	0.64				Siltstone - gradational to sandstone

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

P-141A(10-80)

SHEET NO.: 30

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
45°	566' /172.51	0.86	0.10	172.11	172.97	12.52			Sandstone - light grey, coarse grained - (salt and pepper sandstone) - carbonaceous partings - coal laminations - sparse silt laminations - random calcite veinlets (sparse)	
				172.97	173.07			Core loss rock TOP OF BOX 41		
55°	576' /175.56	2.19		173.07	175.26					
		0.52		175.26	175.78					
		0.45		175.78	176.23			Core loss rock TOP OF BOX 42		
		1.67		176.23	177.90				Sandstone - faint bedding	

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

P-141A(10-80)

SHEET NO.: 31

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
	584' /177.99	0.89		177.90	178.79				- TOP OF BOX 43	
	594' /181.04	2.19		178.79	180.98				-	
		0.62		180.98	181.60				Sandstone - massive TOP OF BOX 44	
	596' /181.65	2.79		181.60	184.39				Sandstone - massive - stylolites with coal rims	

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

P-141A(10-80)

SHEET NO.: 32

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

SCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
		0.27		184.39	184.66				TOP OF BOX 45	
	606' /184.70									
		0.67		184.66	185.33				Sandstone - lower 0.13m has very coarse and subangular grains, wispy coal stringers and laminations - razor sharp contact with dark grey mudstone at base	
45°		1.65		185.33	186.98	1.94			Mudstone - dark grey carbonaceous - gradational in places to carbonaceous mudstone - coal stringers and laminations - faintly laminated and badly broken at base	
			0.61	186.98	187.59				Core loss rock	
		0.11		187.59	187.70				TOP OF BOX 46	





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

P-14(A110-80)

SHEET NO.: 34

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

SCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.32		190.77	191.09					
35°		2.08		191.09	193.17	2.71			Mudstone - dark grey - vaguely laminated - breaks irregularly - coal laminations at base	
35°									TOP OF BOX 48	
		0.67		193.17	193.84					
	636' 193.84									
45°		1.99		193.84	195.83	2.07			Mudstone - dark grey - slightly carbonaceous - coal stringers and laminations - thin sandy intervals - broken - numerous vuggy calcite veinlets with some rubble breccia development - (possible fault) - pyrite inclusions along calcite veinlets	



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

P-141A(10-80)

SHEET NO.: 36

HOLE NO.: CDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
60°		1.67		199.36	201.03	5.98				
		1.47		201.03	202.50					TOP OF BOX 51 Mudstone - faint 40° lamination - slightly carbonaceous
	664' /202.38	1.26		202.50	203.76					Mudstone - faint 30° lamination - carbonaceous
		1.58		203.76	205.34					TOP OF BOX 52 Mudstone - increasingly carbonaceous - broken - pyrite disseminations
	675' /205.73		.51	205.34	205.85	0.51	0.33			Rock loss
			1.83	205.85	207.68	1.83	1.17			Rock and coal loss



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

P-141A110-801

SHEET NO.: 38

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
40°	695' /211.83	1.79		212.35	214.14				Mudstone - sandy and silty interlaminations in upper 2/3 - monotonous mudstone at base  TOP OF BOX 55	
		0.95		214.14	215.09	6.56			Mudstone - dark grey - slightly carbonaceous - sparse coal laminations - continuation of homogenous, monotonous mudstone from above	
	705' /214.87	1.64	0.15	215.09	215.24				Core loss rock	
		1.36		215.24	216.88				Mudstone - badly broken at marker  TOP OF BOX 56	
		1.36		216.88	218.24				Mudstone - random calcite veinlets (sparse)	

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

P-141A(10-80)

SHEET NO.: 39

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

SCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
	715' /217.92									
35°		1.28		218.24	219.52					
30°		0.06		219.52	219.58				Mudstone - powder and pieces - 2cm wide pieces of bright-banded coal mixed in powder of carbonaceous mudstone and coal	
									TOP OF BOX 57	
35°		1.27		219.58	220.85				Mudstone - dark grey with lighter argillaceous and silty interbeds - coal laminations	
		0.03		220.85	220.88	0.03			Coal - powder and pieces of bright-banded coal	
		0.08		220.88	220.96	0.08			Carbonaceous mudstone - with 0.04 band of bright- banded coal	

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

P-141A(10-80)

SHEET NO.: 40

HOLE NO.: GDRDDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

SCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
35 <sup>0</sup>	725' /220.97	0.44		220.96	221.40	1.27			Mudstone - dark to medium grey - slightly carbonaceous - slightly silty	
		0.83		221.40	222.23				Mudstone - carbonaceous and coal laminations  TOP OF BOX 58	
		0.20		222.23	222.43					
		1.10		222.43	223.53	1.10			Sandstone - light to medium grey - argillaceous and sandy interlaminations	
		0.34		223.53	223.87	0.34			Mudstone - dark grey - slightly carbonaceous - coal laminations	

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

P-141A(10-80)

SHEET NO.: 41

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.20		223.87	224.07	0.20			Carbonaceous mudstone - powder and pieces - pieces of carbonaceous mudstone in powdered mass - appears to contain powdered coal laminations	
		0.32		224.07	224.39	0.72			Mudstone - dark grey - carbonaceous - broken at marker	
			0.14	224.39	224.53				Core loss rock	
	736' /224.32	0.28		224.53	224.81				-  TOP OF BOX 59	
		0.12		224.81	224.93				-	
						0.10			Coal	
		0.07		224.93	225.00				Coal - dull and bright	



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

P-141A(10-80)

SHEET NO.: 42

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
40 <sup>0</sup>		0.03		225.00	225.03				Coal - bright-banded	
		2.32		225.03	227.35	2.32			Coal - medium grey Mudstone - slightly silty - slikenoids - faintly laminated	
		0.15		227.35	227.50	1.35			Sandstone - medium grey - fine grained - silty laminations and argillaceous laminations	
		746' 227.37							TOP OF BOX 60	
(30 <sup>0</sup> )		1.20		227.50	228.70				-	
		1.20		228.70	229.90				Sandstone - light grey - medium grained - calcareous - cross-bedding	

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

P-141A(10-80)

SHEET NO.: 43

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
						0.44			Sandstone - salt and pepper sandstone - razor sharp contact with coal seam at base	
(25 <sup>0</sup> )		0.23		229.90	230.13				Coal	
		0.08		230.13	230.21				Coal - dull banded to dull - sheared - powder and pieces generally	
		.05		230.21	230.26				Coal - dull - all powder and pieces	
		.06		230.26	230.32				- dull banded - dull banded with thin carbonaceous mudstone laminations	
		0.03		230.32	230.35				TOP OF BOX 61 Coal - powder - possibly dull or dull-banded	





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

P-141A(10-80)

SHEET NO.: 46

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.57		239.35	239.92	0.57			Mudstone - dark grey - slightly carbonaceous at top - grading to carbonaceous mudstone at base	
		1:89		239.92	241.81	1.89			Sandstone - fine grained - light grey - poorly developed cross-bedding - silty and argillaceous interbeds - gradational from mudstone at top	
40°		0.14		241.81	241.95	0.32			Mudstone - dark grey - well laminated - sharp contact at top with sandstone  TOP OF BOX 65	
35°		0.18		241.95	242.13				-	
						0.06			Coal and bands	
		0.06		242.13	242.19				- powder and pieces - 35% coal	
			0.53	242.19	242.72	0.53			Core loss rock & coal	

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

P-141A(10-80)

SHEET NO.: 47

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

SCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	796' /242.61	0.52		242.72	243.24	0.52	0.33			Mudstone - dark grey - carbonaceous - coal stringers and laminations
		0.12		243.24	243.36	0.83	0.08	↑ 83%		Coal " - dull
		0.09		243.36	243.45		0.06		↓ 3	" - dull-banded
		0.04		243.45	243.49		0.03		#00600	" - dull and bright - some shearing
		0.06		243.49	243.55		0.04			" - bright, some shearing
		0.05		243.55	243.60		0.04			" - dull and bright - some shearing
		0.03		243.60	243.63		0.02			" - dull banded



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

P-141A(10-80)

SHEET NO.: 49

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
40°	806' /245.66	0.37		245.77	246.14	1.29			Mudstone - dark grey - silty at top - pyrite disseminations near base	
40°		0.92		246.14	247.06				-	
		0.58		247.06	247.64	1.09			Mudstone - dark grey - heavily broken - half of interval is powder and pieces - listric surfaces and slickensides - (possible fault)	
			0.35	247.64	247.99	0.35			Core loss rock	
		0.51		247.99	248.50				- solid core  TOP OF BOX 67	
	816' /248.70	0.68		248.50	249.18	1.95			Mudstone - medium grey - slightly carbonaceous - sandy laminations	





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

P-141A(10-80)

SHEET NO.: 51

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.74		252.23	252.97				Sandstone	
40°		0.90		252.97	253.87	1.13			Mudstone - dark grey - carbonaceous partings TOP OF BOX 69	
		0.23		253.87	254.10				-	
40°		1.24		254.10	255.34	1.81			Sandstone - light grey - argillaceous laminations - very fine grained - carbonaceous partings	
	836' /254.8									
45°		0.57		255.34	255.91					
		0.53		255.91	256.44	0.74			Mudstone - dark grey - monotonous	

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

P-141A(10-80)

SHEET NO.: 52

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

SCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
35°		0.21		256.44	256.65				TOP OF BOX 70	
		1.69		256.65	258.34	3.68			Mudstone - dark grey - monotonous	
	846' /257.85								Sandstone - light to medium grey - fine to very fine grained - carbonaceous partings - argillaceous laminations	
55°		0.85		258.34	259.19				Sandstone - silty intervals	
		1.14		259.19	260.33				TOP OF BOX 71	
		0.74		260.33	261.07	0.74			Sandstone - silty intervals	
		0.15		261.07	261.22	0.15			Mudstone - medium grey - faintly laminated - silty at top	
	856' /260.9	0.28		261.22	261.50	0.28			Sandstone - medium grained - light grey	
									Mudstone - dark grey	

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

P-141A(10-80)

SHEET NO.: 53

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
45°		0.45		261.50	261.95	0.45			Sandstone - light grey - medium grained - argillaceous interlamination  TOP OF BOX 72	
		0.55		261.95	262.50	0.55			Siltstone - well laminated - medium grey - sandy and argillaceous interbeds	
		0.34		262.50	262.84	0.34			Sandstone - light grey, medium grained - argillaceous laminations	
45°		0.48		262.84	263.32	0.48			Mudstone - dark grey - carbonaceous flecks - sandy at base	
		0.59		263.32	263.91	0.59			Sandstone - light grey - medium to fine grained at top - argillaceous laminations	
45°	866' /263.94	0.13		263.91	264.04	2.60	1.85		Mudstone - medium grey, silty	
		0.55		264.04	264.59				Mudstone - medium grey, silty  TOP OF BOX 73	
		1.92		264.59	266.51				Mudstone - lower half mudstone - very carbonaceous with coal laminations	
			0.96	266.51	267.47	0.96	0.68		Coal loss	
			0.20	267.47	267.67	0.20	0.14		Rock loss	

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

P-141A(10-80)

SHEET NO.: 54

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
			0.46	267.67	268.13	0.46	0.33			Coal loss
			0.62	268.13	268.75	0.62	0.44			Rock loss
			0.07	268.75	268.82	0.07	0.05			Coal loss
		0.18		268.82	269.00	1.05	0.13	94%		Coal
		0.16		269.00	269.16		0.11		2A #00597	Coal - powder and pieces - appears to be mainly dull  - dull banded - heavily broken with powder and pieces
	876' /266.99	0.10		269.16	269.26		0.07			Coal - dull - badly broken
		0.05		269.26	269.31		0.04			Coal - dull banded - heavily broken
		0.35		269.31	269.66		0.25			Coal - dull, hard heavily broken

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

P-147A(10-80)

SHEET NO.: 55

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
									TOP OF BOX 74	
		0.15		269.66	269.81		0.11	2A #00597	Coal - powder and pieces - sheared - dull	
		0.06		269.81	269.87		0.04		- powder and pieces - sheared - dull-banded	
		0.50		269.87	270.37	0.50	0.36	2B #00598	Mudstone - dark grey - carbonaceous - gradational at base to carbonaceous mudstone - numerous coal laminations	
			0.31	270.37	270.68	0.31	0.22		Rock loss	
			0.40	270.68	271.08	0.40	0.28		Coal loss	
		0.03		271.08	271.11	0.15	0.02		Coal - bright, broken	
		0.12		271.11	271.23		0.09	2C #00599	Coal - dull - broken - powder and pieces	

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

P-141A110-801

SHEET NO.: 56

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.03		271.23	271.26	0.03	0.02			Carbonaceous Mudstone
	886' /270.04									
50°		1.50		271.26	272.76	1.85				Mudstone - dark grey - very carbonaceous - numerous coal laminations - @ 0.52m carbonaceous mudstone eventually grading back to laminated mudstone.  TOP OF BOX 75
45°		0.35		272.76	273.11					
		0.51		273.11	273.62	3.54				Sandstone - mudstone - light grey sandstone - medium to dark grey mudstone - fine to very fine grained sand. - alternating sandstone and mudstone intervals

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

F-141A(10-80)

SHEET NO.: 57

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

SCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
35 <sup>0</sup>	896' /273.09	1.72		273.62	275.34				Sandstone - mudstone - mudstone sheared and broken at base listric surfaces	
									TOP OF BOX 76	
		1.31		275.34	276.65					
	906' /276.14	0.72		276.65	277.37	0.72			Mudstone - dark grey - carbonaceous - coal stringers	
						0.14			Coal	
		0.03		277.37	277.40				Coal - dull-banded	
		0.11		277.40	277.51				- dull - bright - sheared	









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

P-141A(110-80)

SHEET NO.: 61

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
40°		0.44		285.56	286.00	0.44			Siltstone - medium to dark grey Mudstone - laminated - slickensides	
									TOP OF BOX 80	
45°		1.61		286.00	287.61	1.61			Mudstone - dark grey - well laminated - carbonaceous in places - sandy interlaminaions at base	
		0.51		287.61	288.12	0.51			Sandy siltstone - light grey with argillaceous laminations - grading at base to mudstone	
	946' /288.33									
		0.13		288.12	288.25	0.13			Mudstone - dark grey - carbonaceous	
		0.14		288.25	288.39	0.14			Siltstone - medium grey - argillaceous - coal stringers	

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

P-141A(10-80)

SHEET NO.: 62

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

9CA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
										TOP OF BOX 81
40°		0.68		288.39	289.07	0.68				Sandy siltstone - light grey to medium grey - sand and argillaceous lamination
35°		1.48		289.07	290.55	1.48				Mudstone - dark grey - carbonaceous - sparse coal stringers - slickensides - faintly laminated
						0.09				Coal
		0.09		290.55	290.64					- dull - sheared
		0.07		290.64	290.71	0.07				Carbonaceous mudstone - dark grey - carbonaceous - coal lamination
						0.29				Coal
		0.04		290.71	290.75					Coal - dull banded
		0.05		290.75	290.80					Coal - dull - sheared

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

P-141A(10-80)

SHEET NO.: 63

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.09		290.80	290.89				Coal - powder and pieces - probably dull - heavily sheared	
		0.07		290.89	290.96				Coal - dull banded with small rock clasts - heavily sheared	
		0.04		290.96	291.00				- powder and pieces - probably dull-banded  TOP OF BOX 82	
		0.15		291.00	291.15	0.15			Carbonaceous mudstone - badly broken and sheared	
38°	956' 291.37	1.73		291.15	292.06	1.73			Mudstone - medium grey - faintly laminated	



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

P-141A(10-80)

SHEET NO.: 65

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
45°		1.86		294.40	296.26	1.86			Mudstone - dark grey - carbonaceous - numerous coal laminations and stringers - wispy calcite veinlets  TOP OF BOX 84	
		0.23		296.26	296.49	0.23			Argillaceous sandstone - large and small angular mudstone - rip-up clasts	
40°		0.96		296.49	297.45	1.32			Mudstone - dark grey - carbonaceous - numerous coal laminations - in places gradational to carbonaceous mudstone	
	976' /297.47	0.36		297.45	297.81				-	



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

P-141A(10-80)

SHEET NO.: 66

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

SCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.05		297.81	297.86	0.05			Coal Coal - dull - powder and pieces	
		0.12		297.86	297.98	0.12			Carbonaceous mudstone - dark grey - carbonaceous - coal laminations	
		0.62		297.98	298.60	0.62			Mudstone - dark to medium grey - carbonaceous - sparse coal laminations	
						0.16			Coal	
		0.07		298.60	298.67				Coal - bright, slightly sheared	
		0.07		298.67	298.74				Coal - powder and pieces - appears to be bright - heavily sheared	
			0.19	298.74	298.93	0.19			Core loss coal  TOP OF BOX 85	
		0.02		298.93	298.95				Coal - powder - possibly bright	

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

P-141A(10-80)

SHEET NO.: 67

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

SCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
40°		0.22		298.95	299.17	0.22			Mudstone - dark grey - carbonaceous	
		0.04		299.17	299.71	0.04			Coal - bright banded	
		0.95		299.21	300.16	0.95			Mudstone - dark grey - carbonaceous - faintly laminated - coal stringers - in places gradational to carbonaceous mudstone - broken in places	
35°	986' /300.52	0.96		300.16	301.12	0.96			Mudstone - medium grey to dark grey at base. - faintly laminated and carbonaceous - sparse coal stringers - slightly silty at top	

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

P-141A(10 80)

SHEET NO.: 68

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.30		301.12	301.42	2.11			Sandstone - light grey - medium to fine grained at top - cross-bedded - rootlets - silty laminations  TOP OF BOX 86	
		1.81		301.42	303.23				Sandstone - coal laminations at base	
		0.21		303.23	303.44	0.21			Carbonaceous mudstone - with powder and pieces of dull banded coal	
		0.16		303.44	303.60	0.16			Mudstone - medium grey - gradational at base to sandstone - slightly carbonaceous	
45°	996' /303.57	0.70		303.60	304.30	0.70			Sandstone - medium grey - silty laminations	

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

P-141A(10-80)

SHEET NO.: 69

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
38 <sup>0</sup>		0.34		304.30	304.64	0.34			Sandstone - fine-grained - sparse - coal stringers - rootlets  TOP OF BOX 87	
		0.09		304.64	304.73	0.09			Mudstone - medium to dark grey - laminated - silty at top - gradational to carbonaceous mudstone at base	
		0.11		304.73	304.84	0.11			Coal and bands - badly sheared and broken	
		0.41		304.84	305.25	0.41			Carbonaceous mudstone - dark grey - numerous coal laminations - badly broken  Siltstone - medium grey - sandy and argillaceous laminations - slightly carbonaceous	

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

P-141A(10-80)

SHEET NO.: 70

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: I.K. CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
45°		1.31		305.25	306.56	1.31			Silty sandstone - light grey to medium grey - fine to very fine grained sand and silt - argillaceous laminations - sparse coal laminations - random calcite veinlets	
	1006' / 306.61	0.05		306.56	306.61	0.31			Siltstone - medium grey - faintly laminated - ironstone modules	
48°		0.26		306.61	306.87				Siltstone - medium grey - faintly laminated - ironstone modules  TOP OF BOX 88	
35°		1.10		306.87	307.97	1.10			Silty sandstone - light grey - very fine to fine grained sand with silt - faintly cross-bedded - sparse coal laminations	

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

P-141A(10-80)

SHEET NO.: 71

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.57		307.97	309.54	2.87			Mudstone - medium to dark grey at base - slightly carbonaceous at top, becomes more carbonaceous at base - coal laminations and stringers - slickensides and listric surfaces.	
55°	1016' /309.66	1.30		309.54	310.84				Mudstone - dark grey - very argillaceous at top and small carbonaceous interval in middle	
		1.11		310.84	311.95	1.11			Sandstone - medium grey at top, light grey at base - argillaceous laminations at top - fine grained at top, medium grained at base - random calcite veinlets - faintly cross-bedded	
35°		0.75		311.95	312.70	2.06			Mudstone - dark grey - faintly laminated at top - very irregular fractures when broken.	

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

P-141A(10:8

SHEET NO.: 72

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
38°	1026' 312.71	0.17		312.70	312.87				Mudstone - featureless TOP OF BOX 90	
		1.14		312.87	314.01				-	
		1.40		314.01	315.41	1.40			Silty mudstone - medium to dark grey - silty with argillaceous and siltstone interlaminations - silt content decreases towards base - sparse carbonaceous laminations	
		0.64		315.41	316.05	0.94			TOP OF BOX 91 Mudstone - dark grey - featureless - breaks very irregularly and becomes very dark grey at base.	

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

P-141A(10-80)

SHEET NO.: 73

HOLE NO.: GDRDDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
	1036' / 315.76	0.30		316.05	316.35				Mudstone - dark grey - featureless - breaks very irregularly and becomes very dark grey at base.	
		0.09		316.35	316.44	0.48			Coal - dull banded - heavily broken - sheared	
		0.14		316.44	316.58				- powder - probably dull-banded	
		0.08		316.58	316.66				- bright - powder and pieces	
		0.08		316.66	316.74				Coal - bright-banded - heavily broken	
		0.05		316.74	316.79				Coal - bright - powder and pieces	
			0.06	316.79	316.85	0.06			Core loss coal	





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

P-141A(10)

SHEET NO.: 75

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.37		318.78	319.15				Silty mudstone - numerous silty laminations - very carbonaceous at top with powder coal laminations - sandy in middle - gradational to a sandstone at base	
55° 60°		1.07		319.15	320.22	1.07			Siltstone - medium grey, argillaceous - numerous sand laminations gradational between sandstone at base and mudstone at top	
45°		0.99		320.77	321.21	0.99			Sandstone - light grey, fine grained sands - numerous dark grey argillaceous lamination - appears to contain micaceous and slightly carbonaceous matrix	
									TOP OF BOX 93	
40°		0.98		321.21	322.19	3.45			Sandstone - medium grey - medium grained - sparse carbonaceous laminations - argillaceous laminations - cross-bedding indicates tops up	

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

P-141A(10.8

SHEET NO.: 76

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
40°	1056' /321.85	1.68		322.19	323.87				Sandstone - coarse grained intervals at base. - argillaceous laminations  TOP OF BOX 94	
		0.79		323.87	324.66				Sandstone - coarse grained - wispy coal laminations and stringers - carbonaceous	
38°		0.77		324.66	325.43	0.77			Mudstone - dark grey - carbonaceous - faintly laminated - sharp contact with sandstone at top	
50°		1.18		325.43	326.61	1.85			Siltstone - medium grey with dark grey argillaceous laminations - sparse coal laminations - sandy interval near base - some contorted argillaceous laminations above sand interval.	

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

P-141A(10-8

SHEET NO.: 77

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
									TOP OF BOX 95	
		0.38		326.61	326.99				Siltstone - medium grey with dark grey argillaceous laminations - sparse coal laminations - sandy interval near base - some contorted argillaceous laminations above sand interval	
		0.29		326.99	327.26				Siltstone - medium grained with sparse argillaceous laminations	
		0.17		327.26	327.45	0.17			Carbonaceous mudstone - dark grey - carbonaceous - numerous coal laminations - broken	
			0.20	327.45	327.65	0.20			Core loss rock Coal	
			0.08	327.65	327.73				Coal - dull-banded - sheared, heavily broken	
	1076' /327.95		0.31	327.73	328.04	0.31			Core loss coal	
		0.06		328.04	328.10				Coal - dull-banded - sheared - heavily broken	
		0.30		328.10	328.40	0.30			Siltstone - medium grey - sandy and argillaceous laminations - carbonaceous - pyrite disseminations at top just below coal	



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

P-141A(10-8)

SHEET NO.: 79

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
		0.25		331.00	331.25					Sandstone - light grey - argillaceous matrix - sparse carbonaceous laminations
40°		1.20		331.25	332.45	2.48				Mudstone - medium grey - faintly laminated - sandy interval near base
45°										TOP OF BOX 97
45°		1.28		332.45	333.73					Mudstone - slightly carbonaceous - sandy intervals - sparse carbonaceous stringers
	1096' / 334.04									Sandstone - light grey - argillaceous laminations - fine cross-bedding indicating tops up - fine grained
		0.97		337.73	334.70					Sandstone - slightly coarser grained at base

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

P-141A(10 8.)

SHEET NO.: 80

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% HEC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
40°		0.06		334.70	334.76	0.49			Mudstone - carbonaceous laminations and slickensides TOP OF BOX 98	
		0.43		334.76	335.19				Mudstone - silt laminations carbonaceous laminations	
40°		0.38		335.19	335.57	0.38			Sandstone - light grey - generally fine-grained, medium grained at top and base - argillaceous laminations on middle portion - rootlets	
		1.63		335.57	337.20	1.63			Siltstone - medium to dark grey - silty and argillaceous laminations well defined - numerous carbonaceous partings - coal laminations and stringers - gradational at base to mudstone	
		0.30		337.20	337.50	0.30			Mudstone - dark grey - becoming carbonaceous mudstone in lower two thirds - numerous coal laminations - broken	
		0.07		337.50	337.57	0.07			Core loss rock	

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

P-141A(10-80)

SHEET NO.: 81

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: IK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
35°		0.22		337.57	337.79	0.22			TOP OF BOX 99	
			0.43	337.79	338.22	0.43			Coal - dull-banded - powder and pieces - heavily sheared	
		0.94		338.22	339.16	0.94			Mudstone - very dark grey - numerous coal laminations - very carbonaceous - powdered coal laminations in places	
		0.67		339.16	339.83	1.41			Mudstone - dark grey - carbonaceous - silty laminations in middle - sparse coal laminations	
		1116' 340.14								
		0.74		339.83	340.57				Mudstone - sparse silt and sandy laminations - coal laminations and carbonaceous laminations increase at base	



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

P-141A(10-E)

SHEET NO.: 82

HOLE NO.: GDR-DD4-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
45°		0.59		340.57	341.16	0.59			TOP OF BOX 100 SANDSTONE - medium gray - very fine grained - numerous argillaceous laminations - some carbonaceous partings	
		0.74		341.16	341.90	0.74			MUDSTONE - medium to dark grey - slightly carbonaceous - some coal laminations and sparse sandy laminations	
		0.64		341.90	342.54	0.64			SANDSTONE - light grey - fine grained - argillaceous laminations - argillaceous interbed in middle section - vuggy calcite veining	
	1126 / 343.19	0.54		342.54	343.08	1.41			MUDSTONE - medium grey - silty - very badly broken - abundant calcite veinlets - possible fault zone	
			0.30	343.08	343.38	0.30			Core loss broken	

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

P-141A110.8

SHEET NO.: 83

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
		0.87		343.38	344.25				TOP OF BOX 101	
			0.10	344.25	344.35	0.10			Mudstone - broken - dark grey and carbonaceous at base with minor rubble breccia development along veinlet - possible fault. Core loss rock	
35°		1.60		344.35	345.95	1.78			Siltstone - medium grey - argillaceous and sandy interlamination - fine scale cross-bedding	
									TOP OF BOX 102	
38°		0.18		345.95	346.13				-	
45°		1.12		346.13	347.25	1.12			Sandstone - argillaceous and carbonaceous partings	
		0.24		347.25	347.49	1.45			Siltstone - medium grey - well laminated	
	1141' / 347.76									
40°		1.21		347.49	348.70				Siltstone - numerous argillaceous and sandy inter- lamination - fine cross-bedding.	

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

P-141A(10-80)

SHEET NO.: 84

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
40 <sup>0</sup>	1151 / 350.81	1.96		348.70	350.66	1.96			TOP OF BOX 103 Mudstone - medium to dark grey - well laminated - slightly silty - fine sandy laminations at top	
		0.81		350.66	351.47	1.03			MUDSTONE - very dark grey - featureless - breaks very irregularly	
		0.22		351.47	351.69				TOP OF BOX 104	
		1.36		351.69	353.05	1.36			SANDY SILTSTONE - medium grey - numerous silt, sand and argillaceous interlamations - slightly carbonaceous - coal laminations near base - gradational to mudstone at base - pyrite disseminations at top along mudstone contact - bioturbation	

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

P-141A(10-80)

SHEET NO.: 85

HOLE NO.: GDR-DDN-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
40°	1162 / 354.16	0.15		353.05	353.20	0.15			CARBONACEOUS MUDSTONE - powder and pieces - powdered coal laminations probably dull-banded	
			0.20		353.20	353.40	0.20		Core loss rock	
		0.26		353.40	353.66	0.26			MUDSTONE - medium grey - slightly carbonaceous with coal laminations	
		0.47		353.66	354.13	0.64			SILTY SANDSTONE- medium gray - fine grained - very silty - argillaceous laminations - coal lamination - slightly carbonaceous	
		0.17		354.13	354.30				-	

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

P-141A(10-8)

SHEET NO.: 93

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
55°		0.82		396.24	397.13	0.89			Mudstone - dark to medium grey - faintly laminated  TOP OF BOX 131	
		0.07								
52°		0.79		397.13	397.92	0.79			Sandstone - medium grey - fine grained - numerous argillaceous laminae - carbonaceous partings - gradational at top from mudstone - gradational at bottom to silstone	
	1306' // 398.05									
55°		0.47		399.92	398.39	0.47			Siltstone - medium grey - numerous argillaceous laminae - bioturbations and rootlets - gradational at base to mudstone	
		0.50		398.39	398.89	0.50			Mudstone - dark grey - random coal stringers - gradational at base to siltstone	
		0.89		398.89	400.91	2.02			Siltstone - medium grey - massive	

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

P-141A(10-80)

SHEET NO.: 87

HOLE NO.: GDR-DDH-80-31 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
45°	1183 / 360.56	1.30		360.56	361.86					- sparse carbonaceous partings - faint cross-bedding
42°		0.65		361.86	362.51	0.65	0.44			Mudstone- dark grey - faintly laminated - extremely sharp contact with sandstone at top  - slickensides - carbonaceous mudstone last few cm
		0.08		362.51	362.59	0.62	0.05	84%	↓ 1 #00596	COAL  - dull banded - badly broken and sheared









COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12-53)

DENSITY RESISTIVITY

DRILL NO. GDR-DDH-80-31 SEAM \_\_\_\_\_  
SCALE 1:40

APPARENT THICKNESS  
SEAM INTERVAL 78.34 - 79.37 m.

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	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS									
					ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	FSI			
			78.34				0.21												
			79.37				0.15	5 00604		.48	14.89	25.11	55.52	.87	12,899	9			

GEOPHYSICAL LOGS









COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-297 (12-00)

DENSITY 

RESISTIVITY 

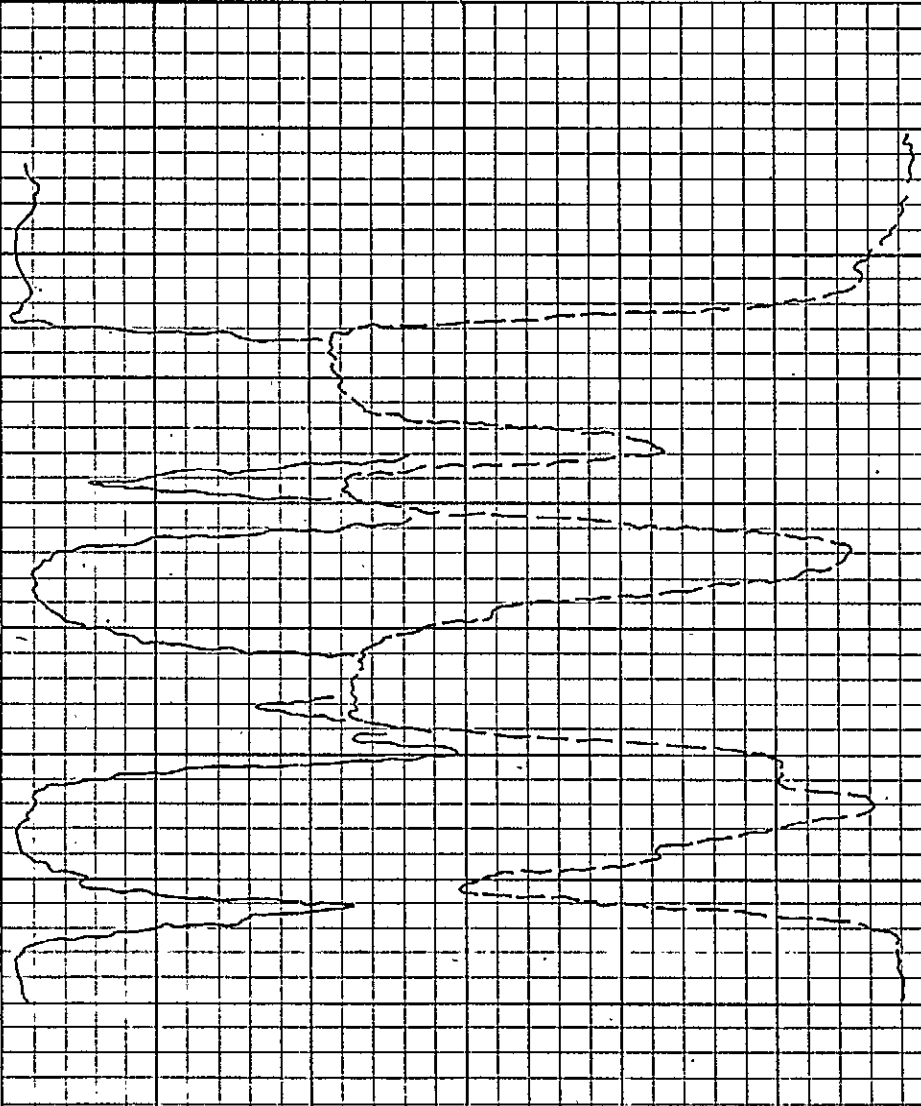
APPARENT THICKNESS

DRILL NO. GDR-ODH-80-31

SEAM \_\_\_\_\_

SEAM INTERVAL 266.51 - 271.23 m

SCALE 1:10

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	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS											
					ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	FS					
			266.51																		
			267.47																		
			267.67																		
			268.13																		
			268.75					(0.07)		2A											
			269.87					1.06		00597	.37	6.02	16.47	77.14	.56	14,470					
			270.37				0.50			2B											
			270.68				(0.31)			00598	.33	79.73	6.04	13.90	.09	2,451					0
			271.08					(0.40)													
	271.23					0.15		2C 00599	.36	25.77	13.87	60.00	.46	11,193					1		

GEOPHYSICAL LOGS

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12-80)

DENSITY

RESISTIVITY

APPARENT THICKNESS

DRILL NO. GDR-DDH-80-31 SEAM \_\_\_\_\_  
SCALE 1:40

SEAM INTERVAL 362.51 - 363.25 m.

DENSITY SCALE	RESISTIVITY SCALE										SEAM COMP.	DEPTH	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	ROCK	COAL	NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	FSI															
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">GEOPHYSICAL LOGS</p>												362.51																																					
												363.25			0.62		00596		.33	4.63	18.14	76.90	.79	14,762	3.5																								



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

P-141A(10)

SHEET NO.: 1

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: 1305.97m TOTAL DEPTH: 312.1m DATE BEGUN: October 21, 1980  
 PROJECT: Goodrich BEARING: \_\_\_\_\_ CORE SIZE: HQ DATE COMPL.: October 27, 1980  
 CO. ORD.: 164 013.84N 532 310.62E HOLE ANGLE: \_\_\_\_\_ LOGGED BY: John Perry CONTRACTOR: Coates

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
28°										TOP OF BOX 1
		32' 9.75m		0.00	9.75					Casing - no core recovered
			1.36	9.75	11.11	1.36				Sandstone - medium grey, fine grained in top half to medium grained in base, occasional - argillaceous laminations - small scale cross bedding shows that tops are up.
				0.31	11.11	11.42	0.31			Core Loss
		37' 11.28m			11.42	14.15	2.73			Sandstone - heavily broken, as above - occasional calcite veins and some mud filled joints, - pyrite flecks - not broken
			0.97							
			0.45							
			1.31							TOP OF BOX 2  - thin argillaceous laminae and a thin zone of small coaly whisps
		47' 14.32m		0.40	14.15	14.55	0.40			Core Loss - Coal
				0.25	14.55	14.80	0.25			Core Loss - Rock
		1.05		14.80	15.85	1.05			Mudstone - medium to dark grey - occasional coal stringers - broken at the top - occasional thin bands of mud	



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

P-141A(10-8)

SHEET NO.: 3

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 21  
 PROJECT: GOODRICH BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
33°		0.03		18.29	18.32				Coal - dull	
		0.14		18.32	18.46	0.14			Carbonaceous Mudstone - dark grey as above	
		0.36		18.46	18.82	0.36			Silty Mudstone - medium grey; faintly laminated	
		0.27		18.82	20.11	1.29			Carbonaceous Mudstone - dark grey; thin coal stringers and occasional very fine grained calcite layers on fractured surfaces	
20°		0.67							TOP OF BOX 4 - somewhat broken throughout	
	<u>67'</u> 20.42m	0.35							- as above	
52°		0.72		20.11	20.83	0.72			Mudstone - medium grey; generally massive; - Fe-stone nodules near center and highly carbonaceous mudstone near base	

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

P-141A110

SHEET NO.: 46

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.05		320.25	320.30					- boney - fractured with listric surfaces - core broken
			0.08	320.30	320.38	0.08	0.07			Coal Loss
						0.23	0.21			Coal
		0.03		320.38	320.41			2A		Coal - dull lustrous - fractured with listric surfaces - core intact
		0.12		320.41	320.53			00663		- dull and bright - some fracturing with listric surfaces - occasional dirt bands - core broken
		0.08		320.53	320.61					- dull lustrous - some fractures along bright bands with listric surfaces - some small dirt bands - tuff band at bottom containing some disseminated pyrite
68 <sup>0</sup>		0.33	0.22	320.61 320.83	320.83 321.16	0.22 0.56	0.20 0.51			Coal Loss
								69		Coal - boney - dull lustrous - some fracturing with listric surfaces - some small bright inclusions - core intact and broken

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

P-141A(10-8)

SHEET NO.: 5

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 21, 1980  
 PROJECT: GOODRICH BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J. Perry CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.47							TOP OF BOX 6	
	84' 25.60m	0.22								
		0.68		25.07	25.75	0.68			Mudstone - dark grey occasional silty zones; many carbonized plant remains, and a few coal stringers	
30°		0.46		25.75	26.21	0.46			Carbonaceous Mudstone - dark grey; coal stringers; broken at base	
	90' 27.43m	0.99		26.21	27.20	0.99			Mudstone - dark grey to medium grey; occasional thin carbonaceous layers; thin siltstone layer at the base. Occasional layers with calcite horsetails.	
		0.55		27.20	27.75	0.55			Core Loss - Coal	

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

P-141A(10-8)

SHEET NO.: 6

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: October 21, 1980  
 PROJECT: GOODRICH BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JP CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.75		27.75	29.55	1.80			TOP OF BOX 7	
	97' 29.56m	1.05							Mudstone - (as above) dark grey; somewhat broken in the bottom half	
	101' 30.78		0.27	29.55	29.82	0.27			- broken throughout	
		0.74		29.82	31.22	1.40			Core Loss - Rock	
									Mudstone - joint has a CA of 20° the surface is smooth and regular with slickensides running along a fracture.	
									- (as above)	
	103' 31.39m	0.10							TOP OF BOX 8	
									-	
	104' 31.70m	0.20							-	

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

P-141A(10-8)

SHEET NO.: 7

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: GOODRICH BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JP CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
5°		0.36							Mudstone - (as above)	
		0.11		31.22	31.33	0.11			Carbonaceous Mudstone - dark grey; heavily broken and mixed with some small coal pieces.	
		0.42		31.33	34.85	3.52			Siltstone - dark grey; massive;	
		<u>107'</u> 32.61m							- laminated towards base  TOP OF BOX 9	
		2.01							- thin sandy bands and laminations, steeply bedded	
	<u>117'</u> 35.66m									
		0.66		34.85	37.66	2.81			Sandy Siltstone - dark grey; similar to the siltstone above, but has thicker fine grained sand layers; steeply bedded	

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

P-141A(10-8)

SHEET NO.: 8

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: J.Perry CONTRACTOR: \_\_\_\_\_

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
9°		2.15							TOP OF BOX 10 Sandy Siltstone - (as above) the bedding in this unit is very steep, but also quite irregular, as was the case with the box above; BCA's vary from 30° to 0° due to the irregular, wavy nature of the bedding	
		0.34		37.66	39.76	2.10			Sandstone - medium grey; fine grained; somewhat argillaceous; faint thin laminate	
		127' 38.71								
		0.13							-	
		1.63							TOP OF BOX 11 -	
		0.65			39.76	40.41	0.65		Siltstone - dark grey; sandy	
	0.52			40.41	40.93	0.52		Carbonaceous Mudstone - dark grey; thin coal bands at the top and center and coal stringers throughout.		



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

P-141A(10 a)

SHEET NO.: 9

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J. Perry CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION						
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.									
31°	137'	41.76m	0.31	40.93	41.24	0.31			Core Loss - Coal (?)							
										1.39	41.24	42.63	1.39			TOP OF BOX 12 Mudstone - medium grey; occasional laminations; silty towards base
										0.77	42.63	43.40	0.77			Siltstone - dark grey; massive
										0.62	43.40	46.77	3.37			Sandstone - light grey; fine to medium grained; faintly laminated; calcite veined
20°		44.80m	0.59						TOP OF BOX 13							
										2.16						- has more argillaceous and coaly laminations with some coaly whisps, particularly in the bottom half
	155'	47.24														

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

P-141A(10-8)

SHEET NO.: 10

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: GOODRICH BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J. Perry CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
										TOP OF BOX 14
		1.11		46.77	47.88	1.11				Mudstone - medium grey; massive; occasional plant fragments; thick coal stringer near base
			0.25	47.88	48.13	0.25				Core Loss - Coal
		0.17		48.13	48.30	0.17				Coal - dull sheared, broken
		0.27		48.30	48.57	0.27				Mudstone - medium grey as above
		0.53		48.57	49.10	0.53				Siltstone - dark grey; argillaceous
		0.23		49.10	50.61	1.51				Mudstone - dark grey; coal inclusions
	162' 49.38m									
		0.35								
										TOP OF BOX 15
30°		0.93								Mudstone - silty particularly towards the base; dark grey; occasional laminations
40°		1.89		50.61	55.58	4.97				Siltstone - medium grey; massive; with both sandy and argillaceous layers



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

P-141A(10-80)

SHEET NO.: 12

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: Oct. 30/80  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
24°		1.20		39.29	40.49				Mudstone - light to medium grey, silty laminations, coaly inclusions & laminations, very badly broken	
		0.03		40.49	40.52				- very badly broken to powdery	
19°			0.80	40.52	41.32				Core loss - rock	
		0.67		41.32	41.99				- silty laminations more abundant, plant fossils. Top is up.	
									TOP OF BOX 9	
	136 41.45									
		2.47		41.99	44.46				Mudstone - bioturbations, plant fossils, possible core loss at 0.04, becoming featureless	
									TOP OF BOX 10	
		0.42		44.46	44.88				- silty	
		2.00		44.88	46.88				- slickenside surfaces, possible core loss at end of measurement	

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

P-141A(10-8)

SHEET NO.: 13

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: GOODRICH BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J.Perry CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.05		59.17	59.22	0.05			Coal - dull; sheared; heavily broken	
		0.06		59.22	59.28	0.06			Mudstone - (as above)	
		0.04		59.28	59.32	0.04			Coal in Rock - dull coal intermixed with pieces of carbonaceous mudstone	
		0.18		59.32	59.67	0.35			Carbonaceous Mudstone - dark grey; broken; coal inclusions	
		0.17							Carbonaceous Mudstone (as above); heavily broken, powdered and pulverized with some coal pieces	
		0.18		59.67	60.29	0.62			Sandstone - medium grey; fine grained; laminated; broken	
	197' 60.04m									
		0.44								
		0.05		60.29	60.34	0.05			Coal in Rock (as above); very heavily broken	
			0.33	60.34	60.67	0.33			Core Loss - Coal	
		0.13		60.67	60.80	0.13			Mudstone - dark grey slightly carbonaceous; broken	

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

P-141A(10-86)

SHEET NO.: 14

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: GOODRICH BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: \_\_\_\_\_ CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
28°		0.31		60.80	61.11	0.31			TOP OB BOX 19	
		0.66		61.11	61.77	0.66			Carbonaceous Mudstone - dark grey; coal stringers	
		1.10		61.77	62.87	1.10			Mudstone - medium grey; massive	
									Siltstone - medium grey; thinly interlayered with very fine grained sands and muds	
	<u>207'</u> <u>63.09m</u>									
		0.72		62.87	63.87	1.00			Sandstone - medium to dark grey; has many argillaceous laminae and bands	
40°									TOP OF BOX 20	
		0.28							-	
		0.72		63.87	65.46	1.59			Siltstone and Mudstone - interbanded on a scale of less than 0.01m up to 0.03m	
	<u>213'</u> <u>64.92</u>									
		0.87							- occasional thin sandstone bands; heavily broken at base	

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

P-141A(10 e

SHEET NO.: 15

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: GOODRICH BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J. Perry CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
40°		0.17		65.46	65.63	0.17			Sandstone - medium grey; fine grained; heavy calcite veining; listric fracture surfaces along argillaceous layers.	
		0.57		65.63	66.20	0.57			Siltstone - medium grey argillaceous with occasional sandy bands	
		0.14		66.20	66.79	0.59			Sandstone - medium grey; fine grained; argillaceous; calcite veining	
		0.15							TOP OF BOX 21	
		0.30							- very argillaceous	
15°	220' 67.05m		0.43	66.79	67.22	0.43			Sandstone - medium grey; medium grained; coal stringers in bottom half; calcite veined	
		0.89		67.22	68.11	0.89			Core Loss - Coal	
43°		0.83		68.11	68.94	0.83			Mudstone - medium grey; coaly plant fragments; coal stringers; occasional Fe-stone nodules and a few sandy bands	
									Sandy Siltstone - medium grey; interbanded fine grained sandstone and mudstone in bands up to 0.02m thick	

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

P-141A(10-8)

SHEET NO.: 16

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J.Perry CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
45°	227' 69.19		2.55	68.94	71.49	2.55			Core Loss - Coal	
		0.06		71.49	71.55	0.19			Coal - dull banded, heavily broken, sheared	
		0.06		71.55	71.61				- bright, heavily broken, sheared	
		0.07		71.61	71.68				- dull banded, heavily broken, sheared	
		0.27		71.68	72.41	0.73			Siltstone - dark grey; argillaceous; sheared; heavily broken	
									TOP OF BOX 22	
		0.46							- fine grained; 0.20m sandstone band in the center.	
		0.09			72.41	72.59	0.18		Sandstone - dark grey; medium grained carbonaceous laminae	
		237' 72.23m								
		0.09								
	0.40			72.59	72.99	0.40			Siltstone - with thin interbanded muds and sands	
	0.24			72.99	73.23	0.24			Sandstone - medium grey; fine grained with thin argillaceous bands	
	1.34			73.23	74.57	1.34			Siltstone - medium grey; with thin layers of fine grained sandstone, and some sandy zones	



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

P-141A(10-8)

SHEET NO.: 17

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: GOODRICH BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J.Perry CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
									TOP OF BOX 23	
			0.30	74.57	74.87	0.30			Core Loss - Coal	
		0.05		74.87	74.92	0.05			Coal and Rock - small pieces and powder of dull banded coal, mixed with pieces of argillaceous fine grained sandstone	
		0.08		74.92	75.30	0.38			Sandstone - medium grey; fine grained; argillaceous, carbonaceous laminac	
	245' 74.67m									
		0.30							- coal stringers at base	
10°		1.26		75.30	76.56	1.26			Siltstone - dark grey; argillaceous; occasional thin fine grained sandstone bands, and sandy zones, as well as occasional thin mudstone interbeds; heavily broken in lower half	
	251' 76.50m									
			0.15	76.56	76.71	0.15			Core Loss - Rock	
		0.90		76.71	94.43	17.72			Siltstone - broken at top; pyrite on some fracture surfaces (as above)	

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

P-141A(10-8)

SHEET NO.: 18

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: GOODRICH BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J. Perry CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.92							TOP OF BOX 24 <span style="float: right;">1/2</span>	
	257' 78.33m								Siltstone - (as above)	
7°		1.71							- TOP OF BOX 25	
		1.30							-	
	267' 81.38m								-	
		1.53							-	
13°		1.52							- TOP OF BOX 26	
	277' 84.43m								-	
17°		1.34							- heavily broken in bottom half	
		1.78							TOP OF BOX 27	
									- steeply but irregularly bedded; possible sedimentary structures all through this unit: is heavily sheared with many listric surfaces; bedding changes very quickly, approximately 0.70m above base, however, here again it is believed to be due to sedimentary structures (bedding is at a BCA of 70°)	



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

P-141A(10)

SHEET NO.: 20

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: GOODRICH BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J. Perry CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
10°		1.05							Siltstone - (as above)	
18°		0.64							TOP OF BOX 30 - becoming quite argillaceous almost a silty mudstone	
		1.31		94.43	97.44	3.01			Mudstone - dark grey; somewhat silty; massive	
	313' 95.40m	0.72							- TOP OF BOX 31	
		0.98							-	
18°		0.68		97.44	98.84	1.40			Siltstone - dark grey, with many disrupted thin bands of fine grained sandstone giving the unit a modelled appearance; Bioturbated; this unit is in abrupt contact with the overlying mudstone, however, there is no evidence of major tectonic disturbances steeply bedded, 10° to 25° BCA	



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

P-141A(10)

SHEET NO.: 22

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: J. PERRY CONTRACTOR: \_\_\_\_\_

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
26 <sup>0</sup>		0.78							TOP OF BOX 32 Sandstone - medium grey; very fine grained with many argillaceous laminae; tops are up medium grained at the top and base	
		1.89		102.61	104.81	2.20			Silty Mudstone - dark grey; generally massive	
		0.31							TOP OF BOX 34	
17 <sup>0</sup>	343'									
	104.54m									
		1.02		104.81	105.83	1.02			Siltstone - dark grey; argillaceous	
		1.38		105.83	108.17	2.34			Sandstone - light grey; fine grained; argillaceous laminae and some carbonaceous laminae, small scale cross-bedding which shows the tops are up on a steeply dipping sequence	
		0.74						TOP OF BOX 35 - with a thick argillaceous layer near base		

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

P-141A(10)

SHEET NO.: 23

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J. PERRY CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
20°	353' 107.59	0.22							Sandstone - (as above)	
		0.33		108.17	114.88	6.71			The above unit is an abrupt contact with the unit described below. At the contact, and for 0.10m below the contact, there is heavy calcite veining and this together with the abrupt change in lithology and bedding angle suggests the present of a fault. The unit described below is very similar to one described in Box 31.	
		0.65							Siltstone - dark grey, with many disrupted, thin bands of fine grained sandstone giving the unit a modelled appearance; bioturbated.	
	357' 108.81								Siltstone - medium to dark grey with sandstone and argillaceous bands not particularly disruptive.	

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

P-141A(10)

SHEET NO.: 24

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: GOODRICH BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: J.Perry CONTRACTOR: \_\_\_\_\_

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
		0.75							Siltstone - (as above) some bioturbation TOP OF BOX 36	
		0.84							- bioturbated	
		1.41							Siltstone - dark grey; massive; bioturbated	
	<u>367'</u> <u>111.86m</u>									
		0.56							- TOP OF BOX 37	
		0.32							-	
19°		0.52							Siltstone - dark grey, with many disrupted thin bands of fine grained sandstone giving the unit a modelled appearance; bioturbated	
34°		1.33							Siltstone - dark grey; some thin sandstone lens, faintly bedded. BCA taken at base	
		0.40		114.88	115.60	0.72			Sandstone - medium grey; fine grained argillaceous laminae some calcite veining	





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

P-141A(10)

SHEET NO.: 26

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J. Perry CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
35°		0.30								Siltstone - (as above) thinly banded at base with fine grained sandstone
38°		1.77		118.53	120.30	1.77				Sandstone - medium grey; fine grained; has zones of thin argillaceous bands and laminae as well as a zone of carbonaceous stringers and whips near center
		0.35		120.30	122.85	2.55				Siltstone - dark grey as above
		0.34								TOP OF BOX 40
	397' 121.00m									
45°		1.64								- with some bioturbation the bedding in this unit is fairly regular in the top half (see BCA) however, it is quite steep in the center (approx. 25°) and shallow at base (50°)
		0.22								- very heavily broken and sheared
		0.14		122.85	122.99	0.14				Core Loss - Rock

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

P-141A(10..

SHEET NO.: 27

HOLE NO.: GDR-DDH-80-32      ELEV. COLLAR: \_\_\_\_\_      TOTAL DEPTH: \_\_\_\_\_      DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_      BEARING: \_\_\_\_\_      CORE SIZE: \_\_\_\_\_      DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_      HOLE ANGLE: \_\_\_\_\_      LOGGED BY: JP      CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.28		122.99	123.27	0.28			Siltstone - (as above)	
	404'								TOP OF BOX 41	
	123.13 m									
		0.69		123.27	123.96	0.69			Sandy Siltstone - medium grey; thin interbands of siltstone and fine grained sandstone steeply bedded but irregular	
		2.07		123.96	128.31	4.35			Sandstone - light to medium grey; fine to medium grained; occasional carbonaceous laminae; crossbedding; calcite veins fairly clean throughout except at the top.	
									TOP OF BOX 42	
		0.39							- clean, salt and pepper appearance in places; calcite veins	
	414'									
	126.18									
		1.57								

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

P-141A(10)

SHEET NO.: 28

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
18°		0.32							Sandstone - medium to dark grey; fine grained; argillaceous bands and laminae	
		0.24		128.31	134.44	6.13			Siltstone - dark grey; with sandstone bands  TOP OF BOX 43	
		0.70							Siltstone - dark grey; generally massive or poorly bedded	
	424' 129.23m									
		0.32							-	
	425' 129.53									
		1.64							-	
45°		1.52							TOP OF BOX 44  - with frequent argillaceous zones and occasional mudstone bands. Occasional Fe-stone nodules some of which have pyrite centers.	

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

P-141A(10-8)

SHEET NO.: 29

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION					
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.								
22°	435'	1.29		134.44	136.90	2.46			Siltstone - (as above) has a carbonaceous mudstone layer near top  TOP OF BOX 45						
	132.58 m														
		0.42													
		0.74													
	443'	1.18													
135.02															
	0.11														
447'	0.43							TOP OF BOX 46							
136.24															

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

P-141A(10)

SHEET NO.: 30

HOLE NO. GDR-DDH-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: GOODRICH BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J.Perry CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
26°		0.89		136.90	140.20	3.30			Siltstone - medium grey, with thin mudstone interbeds; some angular breccia	
		1.32							Siltstone - medium grey; massive	
			0.33						TOP OF BOX 47	
									Siltstone - dark grey; slightly bedded with a more argillaceous silt; occasional calcite veins	
		457' 139.29							- grading to a massive medium - grey silt at base	
			0.36							
20°		0.40							Siltstone - medium grey; massive	
		1.63		140.20	142.75	2.55			Silty Mudstone - dark grey, with steep wavy bedding	
									TOP OF BOX 48	
			0.60						- possible bedding	
	467 142.33								- core broken	
		0.32								

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

P-141A(10 a)

SHEET NO.: 31

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: GOODRICH BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J. PERRY CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
20°		0.26		142.75	143.01	0.26			Siltstone - medium grey; grades to fine grained sandstone at base	
		0.92		143.01	144.77	1.76			Sandstone - medium grey; fine grained argillaceous laminae	
		0.62							Sandstone - medium grey; medium grained; with a few argillaceous and carbonaceous laminae	
									TOP OF BOX 49	
15°		0.22							-	
10°		0.64		144.77	147.39	2.62			Sandy Silstone - medium grey; with many thin very fine grained sandstone bands; some bioturbation; steeply bedded, but somewhat irregular	
	477'									
	145.38									
5°		1.98							- with a fine to medium grained sandstone band in center; becomes a fine grained silty sandstone towards base	

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

P-141A110

SHEET NO.: 32

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: J. PERRY CONTRACTOR: \_\_\_\_\_

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
		1.04		147.39	149.54	2.15			TOP OF BOX 50 Silty Sandstone - medium grey; fine grained, gradational with the unit above; steep and wavy bedding, some bioturbation	
	487'									
	148.43									
		1.11							-	
		0.69		149.54	151.61	2.07			Sandstone - medium grey; medium grained; with occasional carbonaceous laminae	
									TOP OF BOX 51	
		1.25							- has a 0.35m siltstone, and very fine grained sandstone layer in center thick calcite veins at base	
	497'									
	151.48								- argillaceous band at base	
		0.13								
		0.19		151.61	151.80	0.19			Siltstone - medium grey, a few sandstone lenses; heavily broken in bottom half; with some possible coal powder	



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

P-141A(10..

SHEET NO.: 33

HOLE NO.: GDR-DDH-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: GOODRICH BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J. Perry CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.12		151.80	151.92	0.12			Sandstone - medium grey; medium grained with some siltstone clasts the base of this unit as well as the top is an abrupt contact with the underlying siltstone. This contact is at a high angle to the bedding and is tectonic, similarly for the top contact.	
3°		1.04		151.92	153.60	1.68			Siltstone - medium grey; faintly laminated with more sandy or argillaceous bands  TOP OF BOX 52	
6°		0.64							-	
		0.97		153.60	154.95	1.35			Mudstone - medium to dark grey; somewhat silty	
	507' 154.53	0.38							-	
		0.66		154.95	157.01	2.06			Silty Mudstone - dark grey; poorly bedded	

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

P-141A(10)

SHEET NO.: 34

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: Goodrich BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J. Perry CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
5°		1.40							TOP OF BOX 53	
		0.26		157.01	157.27	0.26			Silty Mudstone - (as above) - several very silty zones occasional listeric surfaces; have a thin bright coal band at base	
		0.22		157.27	157.49	0.22			Siltstone - dark grey; sandy; massive	
		0.17		157.49	157.66	0.17			Mudstone - dark grey as above	
		517							Siltstone - dark grey, sandy as above	
		157.57								
		0.66		157.66	158.32	0.66			Sandy Siltstone - poorly bedded with a few coal stringers	
								TOP OF BOX 54		
		1.02		158.32	159.34	1.02			Siltstone - dark grey with many thin fine grained sandstone bands	
		0.43		159.34	159.77	0.43			Sandstone - medium grey; very fine grained; silty; faint regular bedding	

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

P-141A(10)

SHEET NO.: 35

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J. PERRY CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.44		159.77	160.21	0.44			Siltstone - dark grey as above	
		0.43		160.21	160.64	0.43			Mudstone - dark grey; some silty zones thin bright coal band at top; broken in top half	
	527' 160.62									
		0.39		160.64	161.25	0.61			Silty Mudstone - dark grey; some sandy lenses; bioturbated; occasional coal laminae. Many plant fragments	
									TOP OF BOX 55	
		0.22							-	
		1.68		161.25	162.93	1.68			Sandstone - medium to dark grey; fine grained; silty in the top half where there are also argillaceous bands and laminae; the lower half is relatively clean with occasional carbonaceous laminae	
		0.30		162.93	163.23	0.30			Silty Mudstone - dark grey; heavily broken, listric surfaces	
	535' 163.06		0.14	163.23	163.37	0.14			Core Loss - Rock	

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

P-141A(10)

SHEET NO.: 36

HOLE NO.: GDR-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J. Perry CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.51		163.37	166.90	3.53			Sandy Siltstone - medium grey; with several sandy zones	
14°		2.18							TOP OF BOX 56 - becomes less sandy towards base	
	545'									
	166.11									
42°		0.37							- with many thin sandstone interbeds	
		0.47								
		0.38		166.90	167.28	0.38			Sandstone - medium grey; fine grained, silty with argillaceous bands and laminae; calcite veining; broken at top and base; small amount of coal powder present	
46°		0.26		167.28	167.54	0.26			Silty Sandstone - dark grey fine grained with argillaceous layers	
		0.08		167.54	167.62	0.08			Carbonaceous Mudstone - dark grey; heavily broken and powdered	
			0.17	167.62	169.79	0.17			Core Loss - Coal	

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

P-141A(10)

SHEET NO.: 37

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: GOODRICH BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: J. Perry CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.05		167.79	167.84	0.05			Coal and Rock - powdered, sheared coal and carbonaceous mudstone	
		0.08		167.84	167.92	0.08			Carbonaceous Mudstone - dark grey; unbroken	
		0.07		167.92	167.99	0.07			Coal and Rock - powder and pieces of sheared coal and sheared carbonaceous mudstone	
		0.03		167.99	168.02	0.03			Coal - dull, broken	
		0.08		168.02	168.10	0.08			Carbonaceous Mudstone - dark grey, heavily sheared pieces and powdered	
	559' 170.38		0.37	168.10	168.47	0.37			Core Loss - Rock	
		0.83		168.47	170.02	1.55			Carbonaceous Mudstone - dark grey; broken in center and at base; listric fracture surfaces some coal powder and laminae in the broken areas	

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

P-141A(10-8)

SHEET NO.: 38

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J. Perry CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.72								TOP OF BOX 58 - a little coal powder at base; broken
		0.75		170.02	171.18	1.16				Sandstone - medium grey; medium grained but fine grained in center; occasional carbon- aceous laminae and a few carbonaceous mudstone bands; calcite veins
	562'									
	171.29									
		0.41								- 0.03m vertical coal pod at base; broken
40°		0.58		171.18	171.76	0.58				Silty Sandstone - dark grey, very fine grained, with argillaceous laminae. Has a thin carbonaceous mudstone at top
28°		2.18		171.76	173.94	2.18				TOP OF BOX 59 Silty Sandstone - medium to dark grey; very fine to fine grained, with the occasional medium grained lens; many argillaceous laminae; zones of bioturbation occasional calcite veins
	572'									
	174.34									
20°		0.53		173.94	183.89	9.95				Siltstone - dark grey; somewhat sandy with many thin fine grained sandstone bands



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

P-141A(10-E

SHEET NO.: 40

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: GOODRICH BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
										TOP OF BOX 62
		0.90								Siltstone - (as above)
		1.65								Siltstone - dark grey; argillaceous; generally massive but has a few sandy bands.
										TOP OF BOX 63
		0.33								-
	602'									
	183.48									-
		0.33								
	603'									
	183.79									
16°										
		0.68								-
		1.28		183.89	185.17	1.28				Silty Mudstone -dark grey, with thin silt and sandy layers in the top half
										TOP OF BOX 63
		1.10		185.17	194.91	9.74				Mudstone - medium to dark grey; occasionally silty zones; massive but with some very faint bedding in places. Steeply bedded





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

P-141A(10-8)

SHEET NO.: 42

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: GOODRICH BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J. Perry CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
8°		0.56							Siltstone - (as above)	
10°		2.43							TOP OF BOX 68	
	653'									
	199.03									
		0.25							TOP OF BOX 69	
10°		2.67							- has a zone of calcite veins just above center with associated angular brecciation; has several thick (0.04m) fine grained sandstone bands above base	
		0.22							TOP OF BOX 70	
	663'									
	202.07									
5°		2.64							- thin sandstone bands throughout. Close to a silty mudstone in lower half	

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

P-141A(10-8)

SHEET NO.: 43

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: GOODRICH BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J. Perry CONTRACTOR:

SCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.43							TOP OF BOX 71	
	673'								Siltstone - (as above)	
	205.12									
		1.13							-	
13°		0.98		205.83	206.81	0.98			Siltstone and sandstone - dark grey; argillaceous siltstone thinly interbedded with fine grained sandstone	
10°		0.91		206.81	209.90	3.09			TOP OF BOX 72 Siltstone - dark grey; with many thin sandstone bands (less frequent than above)	
	683'									
	208.17									
9°		1.75							-	
		0.43							TOP OF BOX 73	
5°		0.69		209.90	210.59	0.69			Sandstone - medium grey; fine grained, with thin argillaceous and silty bands; bedding varies from 0° - 10°	

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

P-141A(10-8)

SHEET NO.: 44

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: Goodrich BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J.Perry CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
5°		0.23		210.59	212.02	1.43			Siltstone - (as above)	
	693'									
	211.22	1.20							- sandstone bands at base; bedding varies from 0°-10°	
									TOP OF BOX 74	
3°		1.90		212.02	213.92	1.90			Mudstone - dark grey; slightly silty, with thin sandstone bands. Still steeply bedded	
	703'									
	214.26	0.86		213.92	215.99	2.07			Silty Mudstone - dark grey; with thin sandstone bands, steeply bedded	
									TOP OF BOX 75	
		1.21							- has thick sandstone layer sub-parallel to core axis in lower half bedding ranges from 0° - 5°	
	710'									
	216.40	0.69		215.99	216.68	0.69			Siltstone - medium grey; interlayered with medium grained sandstone, and silty mudstone; calcite veining in lower half, with spar development and vuggs; an abrupt contact with the underlying unit, possible minor fault	

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

P-141A(10-80)

SHEET NO.: 45

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: GOODRICH BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J. Perry CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
5 <sup>0</sup>		0.75		216.68	217.43	0.75			Silty Mudstone - dark grey; with thin sandstone bands; broken in lower half  TOP OF BOX 76	
		2.16		217.43	219.59	2.16			Siltstone - dark to medium grey; argillaceous at top, grading to sandy above center, and argillaceous in the lower half where there are discreet sandstone bands and lenses	
		0.70		219.59	220.92	1.33			Sandstone and Siltstone - fine grained; medium grained sandstone, with argillaceous laminae; interbedded with dark grey argillaceous siltstone  TOP OF BOX 77	
		0.52							-	
	725' 220.97									
		0.11							-	

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

P-141A(10)

SHEET NO.: 46

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: Goodrich BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J.Perry CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
3°		2.26		220.92	223.18	2.26			Mudstone - dark grey; thin sandy laminations and lenses; occasionally silty  TOP OF BOX 78	
		0.38		223.18	224.19	1.01			Silty Mudstone - dark grey, with thin sandstone bands	
	735' 224.02									
3°		0.63							- increasing in sandstone content towards base	
		1.87		224.19	226.06	1.87			Sandstone - medium to dark grey; fine grained, with many thin argillaceous and silty bands and laminae  TOP OF BOX 79	
		0.45		226.06	226.93	0.87			Silty Mudstone and Sandstone - interbeds as before	
	745' 227.07									
		0.42								
		1.50		226.93	228.43	1.50			Silty Mudstone - dark grey; with a thick sandstone layer in the center; steeply bedded	

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

P-141A(10 8)

SHEET NO.: 47

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: Goodrich BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J. Perry CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
8°		0.44		228.43	229.61	1.18			Sandstone - medium grey, fine grained with many argillaceous laminae	
		0.74							TOP OF BOX 80	
		0.47		229.61	230.08	0.47			- increasing in argillaceous bands	
		756'							Silty Mudstone - dark grey; with silt and sandy bands	
		230.42								
5°		0.86		230.08	230.94	0.86			Siltstone and Sandstone - interbeds as above	
		0.72		230.94	238.55	7.61			Siltstone - dark grey with sandy bands	
		1.35							TOP OF BOX 81	
		765'							- with occasional silty mudstone layers	
		233.16								
		1.42							- again with occasional silty mudstone layers	

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

P-141A10.8

SHEET NO.: 48

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: Goodrich BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J. Perry CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
15°		1.82								TOP OF BOX 82
	775'									Siltstone - dark grey; with interbeds of fine grained sandstone and mudstone, BCA's range from 10° at top to 20° at base
	236.21									
		0.85								
15°		1.45								TOP OF BOX 83
		0.50		238.55	239.05	0.50				Mudstone - dark grey; silty bands; heavily broken
			0.10	239.05	239.15	0.10				Core Loss - Coal
70°		0.15		239.15	239.78	0.63				Siltstone - dark grey, thinly interbanded with sandstone and mudstone. The rapid change in BCA does not appear to be due to faulting
	785'									
	239.26									
		0.48								- grading to silty sandstone at the base





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

P-141A(10-8

SHEET NO.: 50

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: Goodrich BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J. Perry CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
		0.45							TOP OF BOX 86	
	807'								Sandstone - (as above) with frequent coaly and carbonaceous mudstone bands and laminae	
	245.96	0.37							-	
		1.83		246.02	247.85	1.83			Silty Sandstone - dark grey; very fine grained, many silty and argillaceous laminae throughout, small scale cross-bedding shows tops up, medium scale cross bedding also present. No BCA's but the possible bedding surfaces are all quite steep.	
		0.88		247.85	249.29	1.44			TOP OF BOX 87	
	817'								Siltstone - dark grey; sandy; with a mudstone band near the center; much irregular calcite veining near center.	
	249.01									
70°		0.56							-	

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

P-141A(10.6)

SHEET NO.: 51

HOLE NO.: GDR-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: Goodrich BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JPerry CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.12		249.29	268.38	19.09			Sandstone - medium grey; fine grained at top, grading to medium grained at centre; occasional argillaceous laminae at the top half  TOP OF BOX 88	
		1.33							- medium scale crossbedding shows steep apparent bedding surfaces; coarse grained at base	
	827' 252.06	1.46							Sandstone - medium grey; medium to coarse grained; generally massive, with a few argillaceous laminae; faint medium scale cross-bedding  TOP OF BOX 89	
	837' 255.11	1.57							-	
		1.23							-	

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

P-141A(10-8)

SHEET NO.: 52

HOLE NO.: GDR-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J. Perry CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.80							TOP OF BOX 90	
	847'								Sandstone - (as above) with a thick calcite vein and angular breccia at top	
	258.15								-	
		0.78							TOP OF BOX 91	
		1.17							-	
		1.01							Sandstone - medium grey; medium grained, with many argillaceous bands and laminae	
	857'									
	261.20									
(2°)		0.52							- somewhat silty; possible BCA at base of 2°	
									TOP OF BOX 92	
		0.09							-	
		2.46							Sandstone - medium grey; medium grained; cross bedded; calcite veins	

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

P-141A(10-3

SHEET NO.: 53

HOLE NO.: GDR-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J. Perry CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
	867'									
	264.25									
		0.16							Sandstone - (as above)	
									TOP OF BOX 93	
		2.81							-	
									TOP OF BOX 94	
		0.04							-	
		1.54							- many argillaceous and carbonaceous laminae, crossbedded, but all showing steep dips	
		0.87		268.38	269.25	0.87			Silty Sandstone - dark grey; medium grained; grades to sandy siltstone at base. The top of this unit is in abrupt contact with the overlying sandstone, calcite veining is present at the contact but no major dislocation is suggested	
									TOP OF BOX 95	
		0.50		269.25	274.15	4.90			Sandy Siltstone - dark grey, gradational with the above	

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

P-141A(10.8)

SHEET NO.: 54

HOLE NO.: GDR-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J. Perry CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
3°	887'	2.24							Ssmdy Siltstone - (as above) with many thin sandstone bands and lenses in the center  TOP OF BOX 96	
	270.34									0.74
	897'	1.42					- convolute bedding, possible BCA near center of 10°, becomes more sandy towards base			
	273.39							0.62	274.15	286.56
		0.96							Sandstone - medium grey, fine grained generally massive	

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

P-141A(10-8)

SHEET NO.: 55

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: J. Perry CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
(30 <sup>d</sup> )	907'	1.87							Sandstone - medium grained as above  TOP OF BOX 98  - fine to medium grained  - faintly laminated in center  TOP OF BOX 99	
	276.44									
		1.19								
		1.63								
		1.31								
	927'	1.32							TOP OF BOX 100	
	282.54									
		1.59								
	937'	0.95							TOP OF BOX 101	
	285.58									

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

P-141A(10-8)

SHEET NO.: 56

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: Goodrich BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J. Perry CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.97							TOP OF BOX 101	
	947' 288.63								Sandstone - (as above) becoming silty; medium scale cross beds all bedding surfaces steeply dipping	
		0.58		286.56	287.14	0.58			Siltstone - dark grey; sandy; somewhat carbonaceous Occasional coal laminae	
		0.12		287.14	287.26	0.12			Sandstone - medium grey; medium grained; calcite veined	
			1.52	287.26	288.78	1.52			Core Loss - Coal	
		0.06		288.78	288.84	0.06			Coal - dull; heavily sheared; pulverized with some carbonaceous siltstone pieces. (no detail log. seam is heavily caved)	
			0.69	288.84	289.53				Core Loss - Rock	
		0.44		289.53	290.10	0.57			Sandstone - medium grey; medium grained as above; silty in the center; occasional carbonaceous laminae	



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

P-141A(10-B)

SHEET NO.: 57

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: Goodrich BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JPerry CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	957' 291.68	0.13							Sandstone - (as above)	
			0.69	290.10	290.79	0.69			Core Loss - Rock-	
		0.21		290.79	291.00	0.21			Siltstone - dark grey as above; with some small coal inclusions at top, where there is also some sheared coal powder. Listeric fracture surfaces, broken	
									Core Loss - Rock	
									TOP OF BOX 102	
			0.68	291.00	291.68	0.68			Core Loss - Rock	
			0.48	291.68	292.16	0.48			Core Loss - Coal	
		0.09		292.16	292.25	0.09			Coal - dull highly sheared pulverized	
		0.93		292.25	293.18	0.93			Sandstone - medium grey; medium grained; somewhat silty; occasional argillaceous laminae particularly at base, along with a 0.04m band of sheared dull coal.	
			0.33	293.18	293.51	0.33			Core Loss - Coal (?)	
		0.10		293.51	293.61	0.10			Coal - dull banded, heavily sheared pulverized	

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

P-141A(10-B

SHEET NO.: 58

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: Goodrich BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J.Perry CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
		0.26		293.61	297.20	3.59			Sandstone - (as above)	
	965'									
	294.12									
		1.22							- with many carbonaceous laminae; calcite veining in center	
									TOP OF BOX 103	
		1.91							- carbonaceous laminae decrease towards the center where the sandstone is medium to coarse grained; massive, and has a salt and pepper appearance.	
	975'									
	297.17									
		0.20							-	
			1.14	297.20	298.34	1.14			Core Loss - Coal	
		0.06		298.34	298.40	0.06			Coal - sheared heavily pulverized, with some carbonaceous claystone pieces.	



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

P-141A(10.2

SHEET NO.: 60

HOLE NO.: GDR-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J. Perry CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
40°		0.72		301.41	303.00	1.59			Silty Mudstone - dark grey, with a few plant remains	
		0.87							TOP OF BOX 105	
			0.65	303.00	303.65	0.65			Core Loss - Coal	
			0.05	303.65	303.70	0.05			Coal - highly sheared, broken,	
			0.06	303.70	303.76	0.06			Silty Mudstone - (as above)	
		997' 303.87								
			1.06	303.76	304.82	1.06			Carbonaceous Mudstone - dark grey; silty at the top; coal laminae; stringers	
		0.55	304.82	305.37	0.55			Silty Mudstone - dark to medium grey; carbonaceous at top; occasional calcite veins		

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

P-141A(10)

SHEET NO.: 61

HOLE NO.: GDR-80-32 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J. Perry CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
33°										TOP OF BOX 106
		0.30		305.37	305.67	0.30				Siltstone - argillaceous at top;
		0.52		305.67	306.19	0.52				Sandstone - medium grey; fine grained; silty bands; small scale crossbedding shows 'tops up' grades to siltstone at base
		1.80		306.19	307.99	1.80				Silty Mudstone - dark grey, with occasional non-silty slightly carbonaceous mudstone zones
										TOP OF BOX 107
		0.67		307.99	309.58	1.59				Siltstone - medium grey; occasional sandy zones
		1014' 309.05								
		0.92							-	
		0.77		309.58	310.35	0.77				Mudstone - dark grey; slightly silty
		0.28		310.35	310.63	0.28				Siltstone - medium grey, with thin fine grained, sandstone grains and lenses grading to sandstone at the base



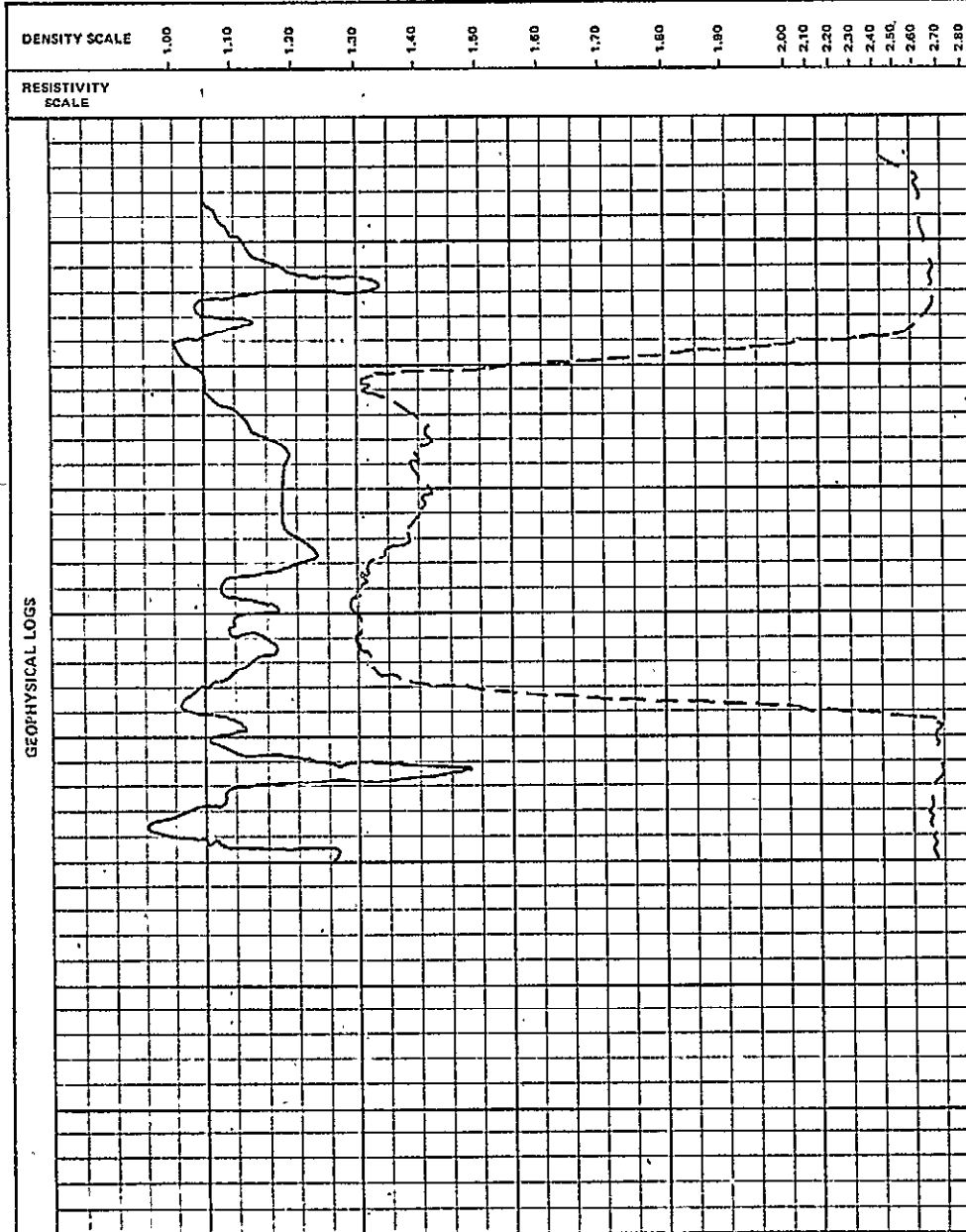
**COAL SEAM DATA SHEET**

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12-00)

DENSITY RESISTIVITY

DRILL NO. GDR-DDH-80-32 SEAM \_\_\_\_\_ APPARENT THICKNESS  
SCALE 1:40 SEAM INTERVAL 68.94-71.68 m.



SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS						
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	FSI
	68.94			(2.55)		A 00595		.32	13.04	21.63	65.01	.70	13,351	8.5
	71.47 71.68			0.19										

GEOPHYSICAL LOGS

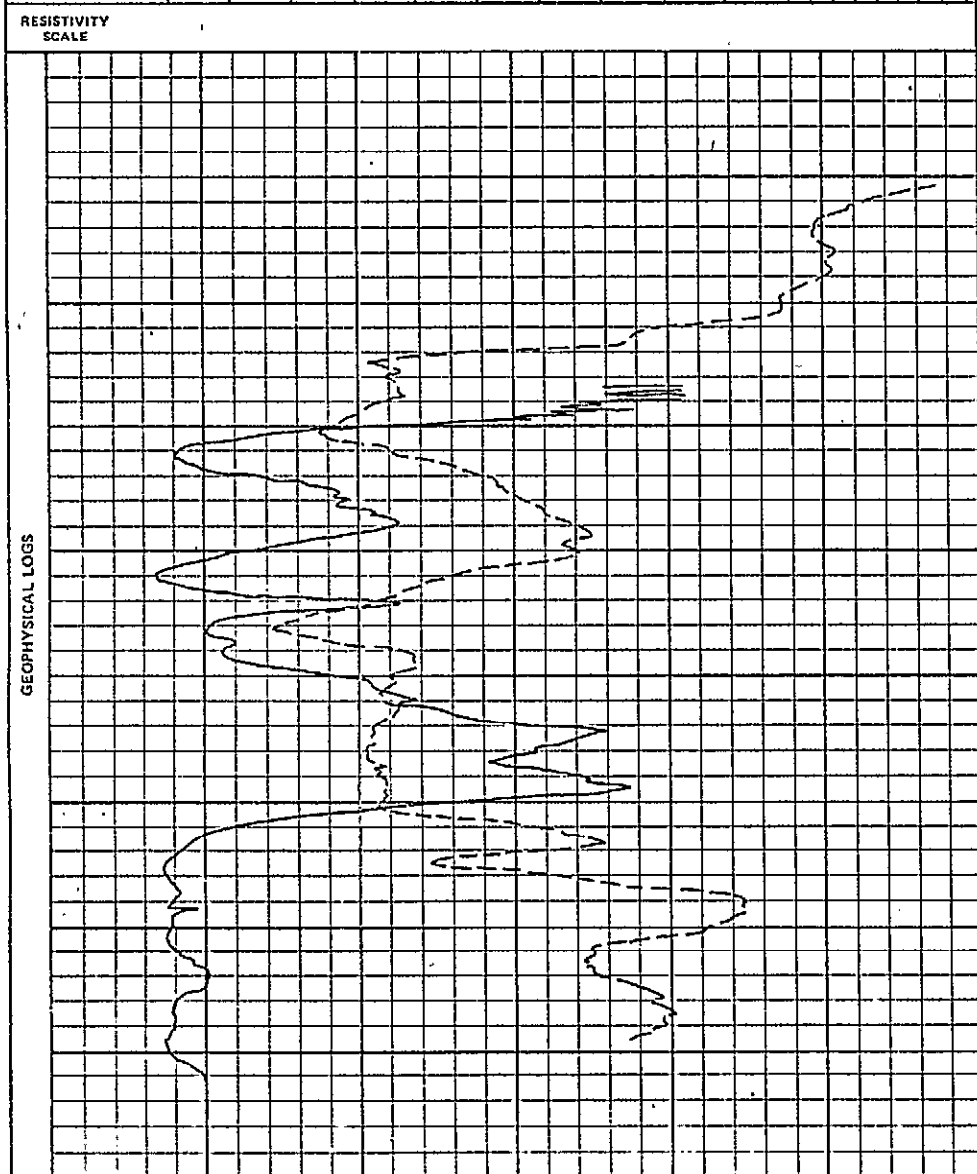
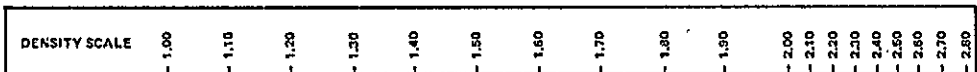
COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-287 (12-60)

DENSITY RESISTIVITY

DRILL NO. GDR-DDH-80-33 SEAM \_\_\_\_\_ APPARENT THICKNESS  
SCALE 1:40 SEAM INTERVAL 12.95 - 17.54 m



SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS									
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	FSI			
	12.96		0.37 0.05 (0.18) 0.14														
	13.58		0.20	0.05		3A 00630		0.58	2.26	25.08	72.08	0.25	14,577	0.3			
	14.48		0.01	0.68		3B 00631		0.54	8.03	25.32	66.11	0.29	13,772	1.5			
	15.14		0.15 0.04 0.16 0.10 0.21	0.21		3C 00632		0.43	13.60	23.37	62.60	0.23	12,808	1			
	15.83			0.68		3D 00633		0.42	4.61	25.50	69.47	0.28	14,115	1.5			
	17.28			(1.30)													
	17.54		(0.15) 0.05	0.21		3E 00634		0.87	13.21	24.54	61.38	0.30	12,912	1.5			



COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-287 (12-89)

DENSITY SCALE

RESISTIVITY SCALE

DRILL NO. GDR-DDH-80-33 SEAM \_\_\_\_\_  
SCALE 1:40

APPARENT THICKNESS  
SEAM INTERVAL 17.54 - 23.02 m

RESISTIVITY SCALE	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS								
				ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	FSI		
		17.54		0.02 0.07 0.19	0.03												
		18.27		0.20 0.03 0.02 0.15		3F 00635		0.61	15.39	23.41	60.99	0.27	12,560	1.5			
					(0.73)												
		22.76		0.02 0.12	0.12	3G 00636		0.64	6.50	24.38	68.48	0.28	14,005	1			
		23.02															

GEOPHYSICAL LOGS

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

F-267 (12-80)

DENSITY RESISTIVITY

DRILL NO. CDR-DDH-80-33 SEAM \_\_\_\_\_  
SCALE 1:40

APPARENT THICKNESS  
23.02 - 29.26 m

RESISTIVITY SCALE	DENSITY SCALE	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS								
					ROCK	COAL		NUMBER	COAL POS.	MOIST	ASH	VM	FC	S	BTU	FSI		
			23.02			0.37												
			23.50		0.11		(0.70)			3H 00637	0.85	4.69	23.86	70.60	0.27	14,274	1.5	
			24.63			(0.12)		(0.31)										
			24.81		0.18					3I 00638	0.59	10.74	22.97	65.70	0.26	13,221	1.5	
			25.31			(0.10)		(0.20)			3J 00639	0.70	6.43	22.96	69.91	0.27	14,083	1
			26.21			(0.30)		(0.30)										
			26.35		0.14					3K 00640	0.69	7.03	24.40	67.88	0.27	13,951	1	
			26.59		0.17			(0.33)		3L 00641	0.55	24.95	26.29	48.21	0.38	11,339	8	
			28.18			(0.42)		(0.59)										
			29.26		0.37					3M 00642	0.63	11.55	25.77	62.05	0.30	13,235	3.5	

GEOPHYSICAL LOGS

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12.82)

DENSITY RESISTIVITY

DRILL NO. GDR - DDH - 80 - 33 SEAM \_\_\_\_\_ SEAM INTERVAL, 87.30 - 93.16 m  
SCALE 1:40

APPARENT THICKNESS  
87.30 - 93.16 m

RESISTIVITY SCALE	DENSITY SCALE	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS									
					ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S <sup>c</sup>	BTU	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 2.80		87.30		0.02 0.01 0.01	0.22 0.10 0.16													
						1.38		2A 00643		0.69	3.75	25.38	70.18	0.23	14,730	1.5			
			69.87			(0.68)													
			90.47		0.06														
			91.67 91.72		0.02 0.02 0.18 0.05	0.22		2B 00644		0.55	5.73	29.39	64.33	0.23	14,384	6.5			
								2C 00645		0.82	7.84	25.64	65.70	0.23	13,881	3.5			
			92.6d		0.02 0.03			2D 00646		0.47	5.68	33.10	60.75	0.21	14,586	7.5			
			93.16					2E 00647		0.67	7.74	25.99	65.66	0.24	14,024	3.5			

GEOPHYSICAL LOGS



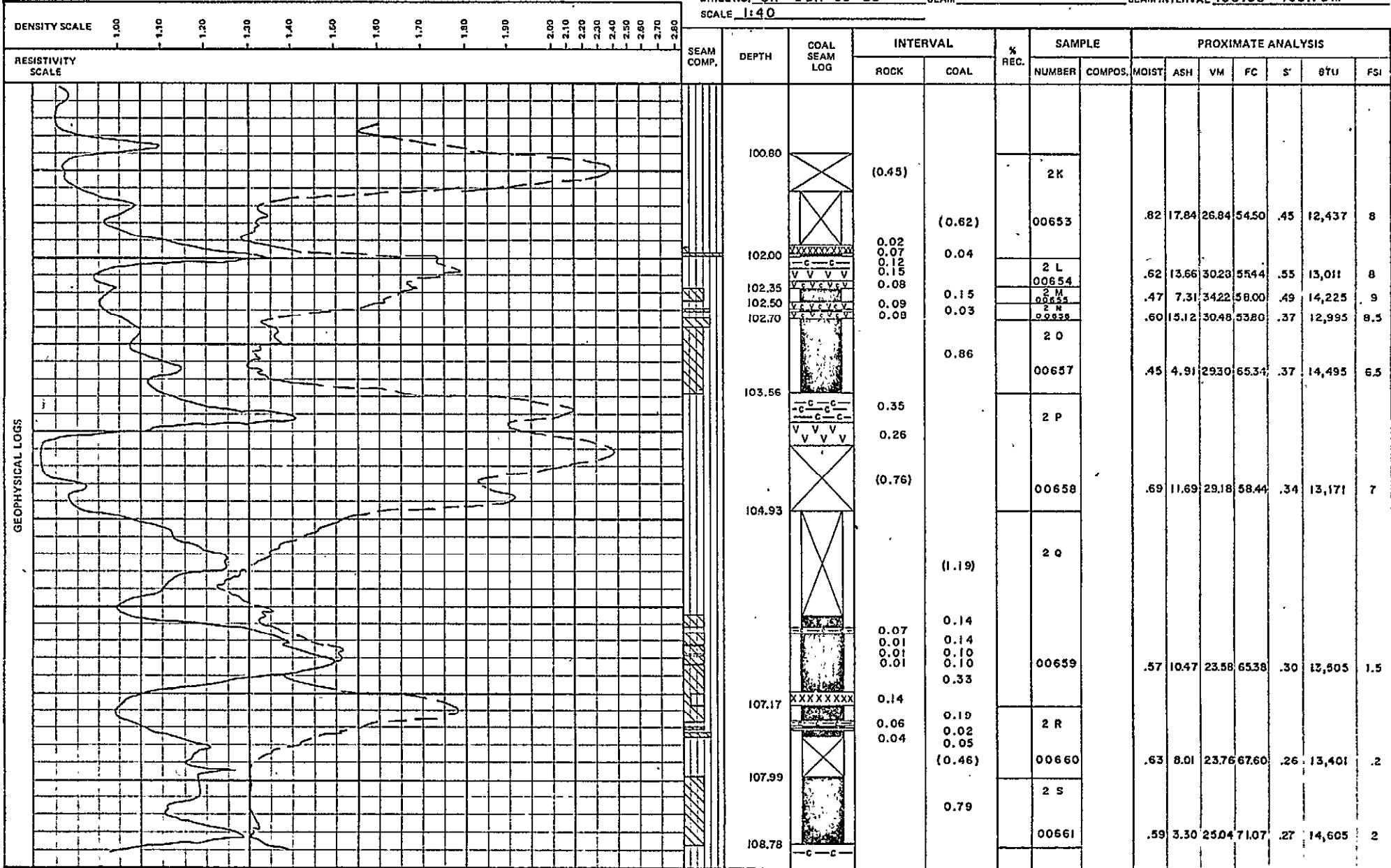
COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12.80)

DENSITY RESISTIVITY

DRILL NO. GR-DDH-80-33 SEAM \_\_\_\_\_ SEAM INTERVAL 100.80 - 108.78 m  
SCALE 1:40

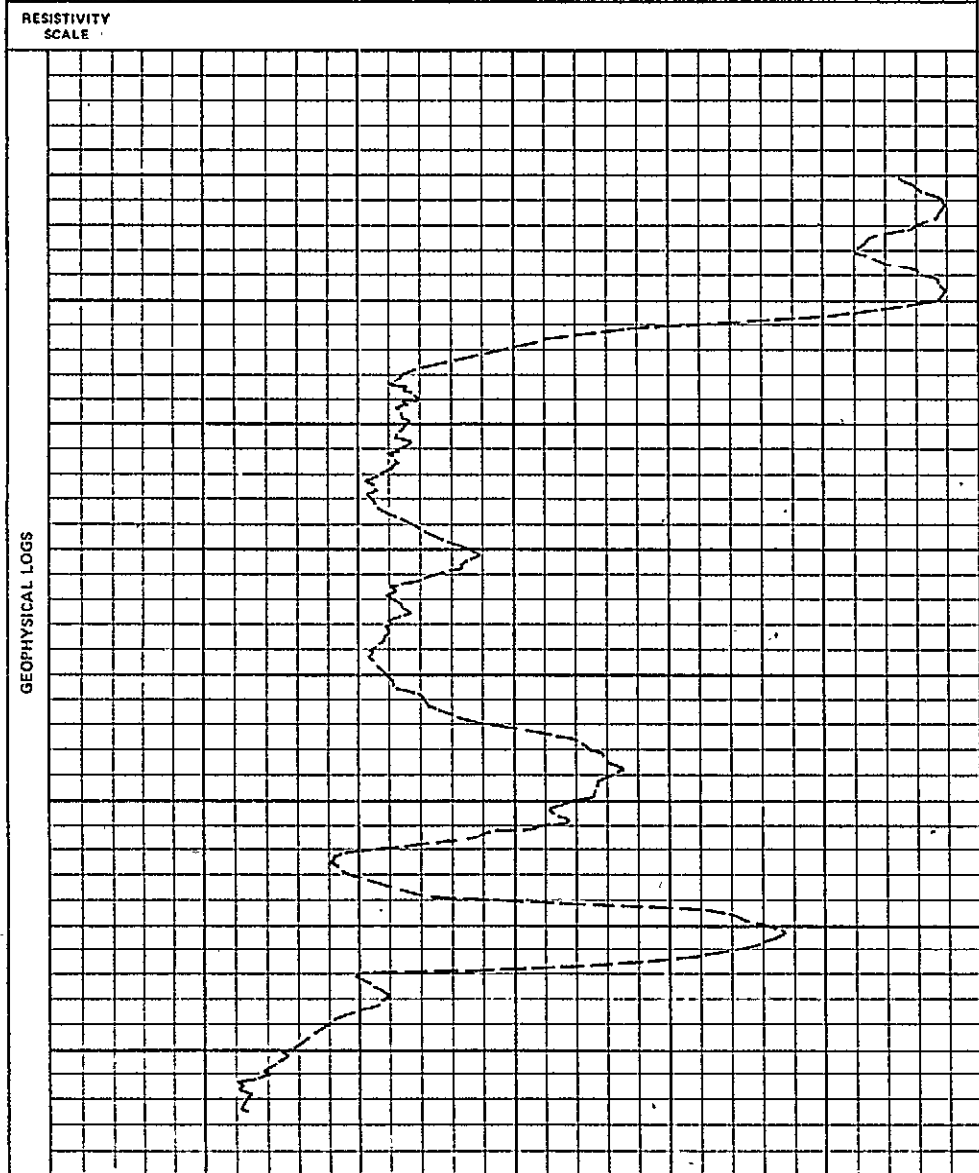
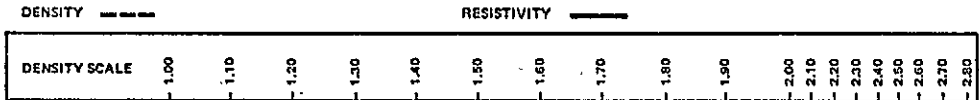


COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

F-267 (12-80)

DRILL NO. GDR - DDH - 80 - 33 SEAM \_\_\_\_\_ APPARENT THICKNESS  
SCALE 1:40 SEAM INTERVAL 356.21 - 360.84 m



SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS								
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	FSI		
	358.21	C C C C C C C C C C		(1.21)		IA										
			0.04	0.39		00613		0.49	14.25	19.99	65.27	0.31	12,954	1		
	358.19		0.18 0.06	(0.10) (0.10)		IB										
			0.03	0.64		00614		0.56	4.15	24.74	70.55	0.28	14,619	1.5		
	359.44			(0.20) (0.28)												
	358.88		(0.44)			IC										
	360.21		0.30 0.03 0.01 0.07	0.06 0.04 (0.21)		00615		0.58	16.20	21.60	62.62	0.24	12,624	1.5		
				0.24		ID										
	360.84					00616		0.64	11.97	23.61	63.78	0.28	13,356	1		

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

DENSITY RESISTIVITY

DRILL NO. GDR - DDR - 80 - 33 SEAM \_\_\_\_\_  
SCALE 1:40

APPARENT THICKNESS  
360.84 - 365.48 m.

DENSITY SCALE	RESISTIVITY SCALE	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS								
					ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	STU	FSI		
			360.84	V V V V V V V V V V V V V V V V	(0.06)			I E										
				V V V V V V V V V V V V V V V V	0.36			00617	0.65	18.15	22.21	59.99	0.33	12,449	3			
			361.33	X	0.05	0.02												
				X		0.27												
				X		(0.62)		I F										
				X		0.79		00618	0.60	8.34	23.27	67.79	0.27	13,889	1.5			
				X		0.03												
				X		(0.60)												
			363.80	G C C C C C C C C C C C C C C C C	0.25			I G										
			364.05	G C C C C C C C C C C C C C C C C		0.15		00619	0.69	16.44	22.99	59.88	0.27	12,653	3.5			
				X		(0.18)		I H										
			364.56	C C C C C C C C C C C C C C C C	0.18	0.02		00620	0.67	13.97	23.44	61.92	0.26	13,107	2.5			
				X		0.07												
				X		0.22												
				X		(0.05)		I I										
				X		0.04		00621	0.91	7.79	23.40	67.90	0.28	13,997	1.5			
			365.48	X		0.43												

GEOPHYSICAL LOGS







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

P-141A(10-80)

SHEET NO.: 1

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: 1102.58m TOTAL DEPTH: 374.0m DATE BEGUN: Oct. 30/80  
 PROJECT: Goodrich BEARING: \_\_\_\_\_ CORE SIZE: HQ DATE COMPL.: Oct. 31/80  
 CO. ORD.: 140 422.03N 550 086.87E HOLE ANGLE: \_\_\_\_\_ LOGGED BY: CW CONTRACTOR: Coates

DCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.37		12.59	12.96	0.37			TOP OF BOX 1 Sandstone - light grey, medium grain, very badly broken	
	41.5 12.65									
		0.05		12.96	13.01	0.05	0.02		Coal and bands - hard, 60-80% coal, sheared	
	43.5 13.26		0.18	13.01	13.19	0.18	0.08	00630 3A	Core loss - coal and bands	
		0.14		13.19	13.33	0.14	0.07		Coal and bands - sheared and badly broken	
		0.05		13.33	13.38	0.93	0.44		Coal - dull banded, sheared, very badly broken	
		0.20		13.38	13.58				Coal and bands - 80% coal dull banded	
		0.14		13.58	13.72			3B 00631	Coal - dull banded	

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

P-141A(10-80)

SHEET NO.: 2

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: Oct. 30/80  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: \_\_\_\_\_ CW CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.18		13.72	13.90			↑ 3B ↓	Coal - bright banded with few carbonaceous dirt bands, very badly broken and sheared	
		0.28		13.90	14.18				Coal - dull banded; few dirt bands, 6mm thick, badly broken; sheared	
	47'									
	14.32									
		0.08		14.18	14.26				Coal - dull banded, a few small ash bands - 1mm thick, badly broken & sheared, however a few hard pieces in tray.	
		0.01		14.26	14.27	0.01	0.005		Mudstone - dark grey, very carbonaceous, coal laminations	



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

P-141A(10 BC)

SHEET NO.: 4

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: Oct. 30/80  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: \_\_\_\_\_ CW CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.21		14.93	15.14			↑ 3C	TOP OF BOX 2	
		0.69		15.14	15.83	0.69	0.32	*	Mudstone - very badly broken	
	57'		1.30	15.83	17.13	1.30	0.61	3D 00633	Coal - dull, banded, mudstone band located at 0.17 - 2mm thick, very badly broken	
	17.37		0.15	17.13	17.28	0.15	0.07	*	Core loss - coal	
		0.03		17.28	17.31	0.05	0.02	*	Core loss - rock	
		0.02		17.31	17.33			3E 00634	Tuff?- light grey, hardness - 2, waxy lustre and feel, carbonaceous laminations, very badly broken, coarse grained	
		0.21		17.33	17.54	0.21	0.10	↓	very badly sheared, powdery with coal fragments	
									Coal - dull banded? very badly sheared, very badly broken, may contain carbonaceous mudstone	

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

P-141A(10-80)

SHEET NO.: 5

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: CW CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
28 <sup>0</sup>		0.02		17.54	17.56	0.09	0.04	00635 3F ↑      ↓	Mudstone - dark grey, very carbonaceous, very badly broken	
		0.07		17.56	17.63				- powdery with powdered coal in tray	
		0.19		17.63	17.82	0.19	0.09		Tuff? - light grey, hardness - 2, waxy lustre and feel, carbonaceous laminations, very badly broken, medium-coarse grained.	
		0.03		17.82	17.85	0.03	0.01		Coal - dull banded, very badly broken	
		0.20		17.85	18.05	0.20	0.09		Tuff? - A/A, with coaly fragments in tray, broken, fine grained.	
		0.05		18.05	18.10	0.05	0.02		Mudstone - dark grey to black, very badly broken, heavily sheared and broken and intermixed with tuff fragments, very carbonaceous	
		0.02		18.10	18.12	0.02	0.01		Tuff - A/A. Fine-medium grained	

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

P-141A(10-B)

SHEET NO.: 6

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: Oct. 30/80  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% HEC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.15		18.12	18.27	0.15	0.07		Mudstone - sheared, intermixed with coaly fragments in bottom of tray, badly broken	
	67' 20.42		0.73	18.27	19.00	0.73	0.34	3F	Core loss - rock	
			3.76	19.00	22.76	3.76	1.26	*	Core loss - coal	
		0.12		22.76	22.88	0.12	0.02		Coal - dull banded, dirt band at 0.05, badly sheared, powdery	
		0.02		22.88	22.90	0.02	0.005	00636 3G	Mudstone - dark grey, very carbonaceous, sheared, very badly broken	
	77' 23.47			22.90	23.02	0.12	0.02		Coal and bands? - approx. 80% coal, badly sheared	
									TOP OF BOX 3	
		0.37		23.02	23.39	0.37	0.07	3H 00637	Coal - dull banded, sheared, very badly broken, dirt bands at 0.14	

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

P-141A(10-80

SHEET NO.: 7

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: Oct. 30/80  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
11 <sup>0</sup>	81' 24.69	0.11		23.39	23.50	0.11	0.02	3H	Coal and bands - 80-90% coal, very badly broken	
			0.70	23.50	24.20	0.70	0.13		00638	Core loss - coal
			0.12	24.20	24.32	0.12	0.02	- rock		
			0.31	24.32	24.63	0.31	0.06	- coal		
		0.18		24.63	24.81	0.18	0.03	3I	Mudstone - dark grey, coaly laminations, very badly broken	
		0.15		24.81	24.96	0.50	0.10	3J 00639	Coal - dull banded, very badly sheared and broken	
		0.35		24.96	25.31				Coal - dull banded, powdery, at the top 0.15m badly sheared, as well as a few minor dirt bands, dirt band at 0.24 - 1mm	
		84' 25.60		0.10	25.31	25.41	0.10	0.02		Core loss - rock
			0.20	25.41	25.61	0.20	0.04	- coal		
			0.30	25.61	25.91	0.30	0.06	- rock		
			0.30	25.91	25.21	0.30	0.06	- coal		
		0.14		26.21	26.35	0.14	0.03	3K 00640	Coal and bands - contact with tuff	



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

P-141A(10-80)

SHEET NO.: 8

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: Oct. 30/80  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
32 <sup>0</sup>		0.17		26.35	26.52	0.17	0.03	↑ 00641 3L	Tuff - very fine grained	
		0.07		26.52	26.59	0.07	0.01	↓	Mudstone - dark grey, coal laminations and inclusions, badly broken	
			0.33	26.59	26.92	0.33	0.06		Core loss - rock	
			0.25	26.92	27.17	0.25	0.09		- coal	
			0.42	27.17	27.59	0.42	0.15		- rock	
			0.59	27.59	28.18	0.59	0.22		- coal	
			0.37		28.18	28.55	1.02	0.37	↑	Mudstone - as above
										TOP OF BOX 4
		0.65		28.55	29.20			00642 3M	- abundant, coaly inclusions and laminations, becoming more carbonaceous towards end. - badly broken	
		0.06		29.20	29.26	0.06	0.03	↓	Coal and bands - very badly broken	
		0.02		29.26	29.28	0.02	0.01		Tuff - very badly broken, medium to coarse grained?	

87'  
26.52

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

P-141A(10-8)

SHEET NO.: 9

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: Oct. 30/80  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
		0.86		29.28	30.14	8.37			Mudstone - light to medium grey, carbonaceous inclusions and laminations, broken	
	97 29.56									
		0.76		30.14	30.90				- carbonaceous inclusions and laminations TOP OF BOX 5	
		2.01		30.90	32.91				- becoming siltier, minor calcite veining, a few silty laminations, a few bioturbations	
	107 32.61									
		0.54		32.91	33.45				- broken	

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

P-141A(10-80)

SHEET NO.: 10

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: Oct. 30/80.  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
22 <sup>0</sup>		1.36		33.45	34.81				TOP OF BOX 6	
		1.04		34.81	35.85				Mudstone - silty laminationations from 0.62 to 1.14, bioturbations present	
			1.10	35.85	36.95				- light to medium grey, silty, odd coaly inclusions and laminations, odd listric surfaces, badly broken	
									Core loss - rock	
		117 35.67								
		0.15		36.95	37.10				Mudstone - badly broken	
								TOP OF BOX 7		
	0.55		37.10	37.65				Mudstone - abundant coal laminations & inclusions, very badly broken with coal in tray.		
	0.11		37.65	37.76	0.11			Coal? - dull banded; very badly broken		



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

P-141A(10-80)

SHEET NO.: 12

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: Oct. 30/80  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
24°		1.20		39.29	40.49				Mudstone - light to medium grey, silty laminations, coaly inclusions & laminations, very badly broken	
		0.03		40.49	40.52				- very badly broken to powdery	
19°			0.80	40.52	41.32				Core loss - rock	
		0.67		41.32	41.99				- silty laminations more abundant, plant fossils. Top is up.	
									TOP OF BOX 9	
	136 41.45									
		2.47		41.99	44.46				Mudstone - bioturbations, plant fossils, possible core loss at 0.04, becoming featureless	
									TOP OF BOX 10	
		0.42		44.46	44.88				- silty	
		2.00		44.88	46.88				- slickenside surfaces, possible core loss at end of measurement	

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

P-141A(10-80)

SHEET NO.: 13

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: Oct. 30/80  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.15		46.88	47.03	3.98			Sandstone - light to medium grey, very fine grained, mottled appearance, bioturbations, calcite veining	
		0.74		47.03	47.77				TOP OF BOX 11	
	155 47.24	1.85		47.77	49.62				-	
		1.24		49.62	50.86				TOP OF BOX 12	
	165 50.28								- possible core loss at 0.13, yellow staining on calcite veining	

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

P-141A(10-80)

SHEET NO.: 14

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: Oct. 30/80  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLER NO	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		2.58		50.86	53.44	4.25			TOP OF BOX 13 Siltstone - light to medium grey, muddy mottled appearance, bioturbations. Core is broken.	
		1.67		53.44	55.11				TOP OF BOX 14 Siltstone - a fine to medium sand at 0.25 - 0.51, core loss at end of measurement.	
			1.13	55.11	56.24	1.13			Core loss - rock	
		0.38		56.24	56.62	3.25			-	
	185 56.39	0.57		56.62	57.19				- badly broken, possible core loss	
		2.30		57.19	59.49				TOP OF BOX 15 - possible core loss at 0.19, 0.89.	
			0.20	59.49	59.69	0.20			Core loss - rock	

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

P-141A(10-80)

SHEET NO.: 15

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: Oct. 30/80  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
03°	195.5 59.59	0.24		59.69	59.93	2.96			Siltstone - pyrites TOP OF BOX 16	
		2.72		59.93	62.65				Siltstone - pyrites, increasing silty laminations, bioturbations, mottled appearance, pieces do not match next box.	
09°			0.40	62.65	63.05	0.40			Core loss - rock TOP OF BOX 17	
		0.15		63.05	63.20	1.65			- broken	
	206 62.79	1.12		63.20	64.32				- core loss at end measurement	
		0.38		64.32	64.70				- core loss at end of measurement, becoming muddy	



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

P-141A(10-80)

SHEET NO.: 16

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: Oct. 30/80  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	213 64.92	0.60		64.70	65.30	10.56			-	
		0.34		65.30	65.64				Mudstone - medium to dark grey, small coaly inclusions, monotonous TOP OF BOX 18	
		2.63		65.64	68.27				Mudstone - monotonous TOP OF BOX 19	
	223 67.97	0.83		68.27	69.10				- pieces do not match at footage marker	
	226 68.88	1.85		69.10	70.95				-	



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

P-141A(10-80)

SHEET NO.: 18

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: Oct. 30/80  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.81		78.35	79.16				Mudstone	
		2.12		79.16	81.28				TOP OF BOX 23 Mudstone - possible core loss at 1.27	
			0.20	81.28	81.48	0.20			Core loss - rock	
	<u>267</u> 81.38	0.49		81.48	81.97	4.16			- TOP OF BOX 24	
		2.59		81.97	84.56				Mudstone - becoming siltier, still monotonous	
	<u>277</u> 84.43	0.11		84.56	84.67				-	

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

P-141A(10-B)

SHEET NO.: 19

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: Oct. 30/80  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.97		84.67	85.64				TOP OF BOX 25	
		0.78		85.64	86.42	0.78			Mudstone - core is very badly broken from 0.70 on, calcite veining	
			0.50	86.42	86.92	0.50			Siltstone - light to medium grey, interlaminated with mudstone, some muddy laminations, some coaly inclusions, becoming more carbonaceous abundant calcite veining, possible core loss at end of measurement	
		0.10		86.92	87.02	0.33			Core loss - rock	
	286 87.17								Mudstone - dark grey, heavy calcite veining, abundant listric surfaces, very badly broken, contains silty laminations	
		0.23		87.02	87.25				Mudstone - becoming very carbonaceous, very badly broken	

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

P-141A(10-80)

SHEET NO.: 20

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: October 30/80.  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CD. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: CW CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO	DESCRIPTION		
				FROM	TO	APPAR. THK.	TRUE THK.					
21 <sup>0</sup>		0.03		87.25	87.28	0.03		74%	↑ 2A ↓ # 00643	Coal & bands - approximately 40 - 50% coal		
		0.02		87.28	87.30	0.02				Mudstone -		
		0.19		87.30	87.49	0.22	0.08			Coal - dull banded, broken		
			TOP OF BOX 26									
	291	88.69	0.03		87.49	87.52					Mudstone - possible core loss at end of measurement	
			0.02		87.52	87.54	0.02			0.01	Mudstone - medium grey, very carbonaceous, badly broken	
	0.10			87.54	87.64	0.10	0.04	Coal - dull banded				

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

P-141A(10-80)

SHEET NO.: 21

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: Oct. 30/80  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: CW CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.01		87.64	87.65	0.01	0.005	↑ 2A ↓	Mudstone -	
		0.15		87.65	87.80	0.15	0.05		Coal - dull banded, very badly broken, a few dirt blebs in the coal	
		0.01		87.80	87.81	0.01	0.005		Coal - boney?	
		0.24		87.81	88.05	1.38	0.60		Coal - dull banded, badly broken	
		0.13		88.05	88.18				Coal - bright banded, badly broken	
		0.09		88.18	88.27				- ?	
		0.11		88.27	88.38				-	

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

P-141A(10 80

SHEET NO.: 22

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: Oct. 30/80  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.23		88.38	88.61			2A	Coal - dull bright, badly broken	
		0.58		88.61	89.19				Coal - dull banded, badly broken	
			0.68	89.19	89.87	0.68			Core loss - coal	
			0.60	89.87	90.47	0.60			Core loss - rock	
	297 90.52									
		0.06		90.47	90.53	0.06		23 #00644	Mudstone - black, very carbonaceous, very badly sheared,	
		0.04		90.53	90.57	0.70	100%		Coal - dull banded, very badly broken	

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

P-141A(10-80)

SHEET NO.: 23

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: Oct. 30/80  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPL NO	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
34°		0.06		90.57	90.63			↑ 2B ↓	Coal - dull banded, with dirt bands 1cm each	
		0.60		90.63	91.23				Coal - dull bright; badly broken; some dirt blebs	
		0.02		91.23	91.25	0.02			Mudstone - dark grey; very carbonaceous	
									TOP OF BOX 27	
		0.22		91.25	91.47	0.22			Coal - dull bright, very badly broken	
		0.02		91.47	91.49	0.02			Mudstone - light grey (clay?)	
	0.18		91.49	91.67	0.18		Coal bands			





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

P-141A(10-80)

SHEET NO.: 25

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: Oct. 30/80  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPL NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
39°	307' 93.57	0.26		92.56	92.82			100	2D	Coal - dull banded
		0.06		92.82	92.88					- a few dirt bands
		0.23		92.88	93.11	0.23			2E #00647	Coal & bands - very muddy, possible core loss
		0.05		93.11	93.16	0.05		Coal - dull banded		
		0.21		93.16	93.37	1.84		2F # 00648		Mudstone - medium to dark grey, plant fossils, carbonaceous laminations, broken
		0.35		93.37	93.72				78	- core is badly broken, abundant plant fossils

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

P-141A(10-80)

SHEET NO.: 26

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: Oct. 30/80.  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.55		93.72	94.27			2F	TOP OF BOX 28	
		0.07		94.27	94.34				Mudstone - abundant coal laminations	
		0.35		94.34	94.69				- very badly broken, coal fragments on bottom	
		0.03		94.69	94.72				- several vitrain coal bands, 3cm in width	
		0.18		94.72	94.90				- powdery and broken	
		0.10		94.90	95.00				-	
	314.5' 95.85		0.51	95.00	95.51	0.51		2G	- powdery and broken, coal on bottom of tray	
		0.14		95.51	95.65	0.14			Core loss - carbonaceous mudstone	
									Mudstone - as above	

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

P-141A(10-80)

SHEET NO.: 27

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: Oct. 30/80  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: CW CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% HEC	SAMPL NO	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.13		95.65	95.78	0.13		100	↑ 2G ↓ #00649	Tuff? -
		0.05		95.78	95.83	0.05				
		0.20		95.83	96.03	0.33		100	* ↓ 2H ↓ #00650	Coal - bright, badly broken
		0.07		96.03	96.10					- dull banded
		0.06		96.10	96.16					- dull banded, sheared, contains dirt bands
		0.04		96.16	96.20	0.04				Mudstone - with tuff intermixed
		0.03		96.20	96.23	0.03	16	↓ 2I ↓ #00651	Tuff? - intermixed with coal	

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

P-141A(10-80)

SHEET NO.: 28

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: Oct. 30/80  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: CW CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.02		96.23	96.25	0.02		2I	Coal & rock - intermixed, powdery	
		0.10		96.25	96.35	0.10			Mudstone - dark grey, abundant coaly laminations and inclusions	
	318		0.35	96.35	96.70	0.35		X	Core loss - rock	
	96.92		0.33	96.70	97.03	0.33			- coal	
			0.33	97.03	97.36	0.33			- rock	
			0.54	97.36	97.90	0.54			- coal	
	322		0.24	97.90	98.14	0.24			- rock	
	98.14							2J	Mudstone - as above, very badly broken	
		0.04		98.14	98.18	0.06			TOP OF BOX 29	
		0.02		98.18	98.20		46		- very badly broken	
		0.07		98.20	98.27	0.07			Tuff? - light to medium brown, feels like talc, bas	
								#00652		

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

P-141A(10-80)

SHEET NO.: 29

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: Oct. 30/80  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.02		98.27	98.29	0.02			Coal - bright	
		0.66		98.29	98.95	1.44		2J	Mudstone - dark grey, abundant coaly laminations and inclusions, badly broken	
	327 99.66	0.78		98.95	99.73				- very badly broken, possible core loss, abundant plant fossils, abundant listric surfaces	
	331 100.88		0.73	99.73	100.46	0.73			Core loss - rock with carbonaceous zones	
			0.34	100.46	100.80	0.34			- coal	
			0.45	100.80	101.25	0.45			- rock	
			0.62	101.25	101.87	0.62			- coal	
		0.02		101.87	101.89	0.02			Mudstone - as above	
		0.07		101.89	101.96	0.07	11		Coal & bands - very badly broken, sheared	
		0.04		101.96	102.00	0.04		2K #00653	Coal - bright	



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

P-141A(10-80)

SHEET NO.: 31

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: Oct. 30/80  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.08		102.62	102.70	0.08		2 N	Tuff? - light grey; coaly inclusions; listric surfaces	
		0.10		102.70	102.80	0.86		100 2 0 #00657	Coal - dull bright; very badly broken - sheared	
		0.06		102.80	102.86				Coal - dull banded; dirt band at top (1cm)	
		0.28		102.86	103.14				Coal - dull banded with dirt blebs; sheared	
		0.07		103.14	103.21				Coal - dull banded - sheared	
		0.16		103.21	103.37				Coal - dull banded; few minor dirt bands	
		0.19		103.37	103.56				Coal - dull banded; sheared	
		0.09		103.56	103.65	0.35	45	2 P #00658	Mudstone - dark grey, very carbonaceous, broken with powdered coal in tray	



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

P-141A(10-80)

SHEET NO.: 32

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: Oct. 30/80  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
26		0.26		103.65	103.91				Mudstone - abundant coaly inclusions	
		0.26		103.91	104.17	0.26		2P	Tuff? - light grey, coaly inclusions; very badly broken	
	345' 105.15		0.76	104.17	104.93	0.76			Core loss - rock	
			1.19	104.93	106.12	1.19			Core loss - coal	
		0.14		106.12	106.26	0.14			Coal - dull banded, badly broken	
		0.07		106.26	106.33	0.07			Mudstone - dark grey, very carbonaceous, badly sheared	
	349' 106.37								TOP OF BOX 31	
		0.07		106.33	106.40	0.14			Coal - dull banded	
		0.07		106.40	106.47			20 #00659	Coal - dull banded, badly broken	
		0.01		106.47	106.48	0.01			Mudstone - dark grey, carbonaceous	

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

P-141A(10-80)

SHEET NO.: 33

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: Oct. 30/80  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.10		106.48	106.58	0.10		2Q ↓ #00659 ↓ 2R ↓	Coal - dull banded	
		0.01		106.58	106.59	0.01			Mudstone - dark grey, very badly broken	
		0.10		106.59	106.69	0.10			Coal - dull banded, badly broken; hard	
		0.01		106.69	106.70	0.01			Mudstone - dark grey; very carbonaceous	
		0.08		106.70	106.78	0.33			Coal - dull banded dirt band from 0.04 to 0.05	
		0.25		106.78	107.03				Coal - dull banded, badly broken	
		0.14		107.03	107.17	0.14			Coal - boney	
		0.19		107.17	107.36	0.19			Coal & rock - broken, powdery, intermixed m.b. to unit below, 50% coal	



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

P-141A(10-8C)

SHEET NO.: 35

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 D.O. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

CA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
44°		0.06		108.72	108.78				2S	Coal -
		0.05		108.78	108.83	4.47			*	Mudstone - dark grey, coaly inclusions & laminations; white clay (?) specks at end of measurements
		0.65		108.83	109.48					TOP OF BOX 32 - possible core loss at end of measurement - pieces do not match
		0.91		109.48	110.39					- plant fossils
		0.46		110.39	110.85					- abundant silty laminations; worm burrows; micaceous
		0.58		110.85	111.43					- coaly laminations & inclusions, increasing

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

P-141A(10-80)

SHEET NO.: 36

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: Oct. 30/80  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.50		111.43	112.93				TOP OF BOX 33	
		0.06		112.93	112.99				Mudstone - silty	
		0.18		112.99	113.17				- broken and powdery with coal fragments in tray, core loss	
		0.08		113.17	113.25				-	
		0.15	0.80	113.25	114.05	0.80			- broken and powdery	
				114.05	114.20	0.20			Core loss - rock	
	375									
	114.29									
		0.05		114.20	114.25				- broken & powdery	
			0.75	114.25	115.00	0.75				
		0.15		115.00	115.15	0.15			Coal - dull banded, badly broken	
		0.12		115.15	115.27	0.12			Mudstone - light to medium grey; coaly laminations & inclusions	
			0.10	115.27	115.37	0.10			Core loss - coal	

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

P-141A(10-80)

SHEET NO.: 37

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: Oct. 30/80  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
42 <sup>0</sup>		1.55		115.37	116.92	10.96			TOP OF BOX 34 Mudstone - light to medium grey, few silty laminations, small bioturbations or carbonaceous blebs(?) silty at base; monotonous	
	384 117.04									
		1.18		116.92	118.10				-	
38 <sup>0</sup>		1.75		118.10	119.85				TOP OF BOX 35 -	
	392 119.48									
		0.93		119.85	120.78				- pyrite flecks	
	403 122.83								TOP OF BOX 36 Mudstone - silty laminations becoming more abundant, bioturbations, pyrite flecks	

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

P-141A(10-80)

SHEET NO.: 38

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: Oct. 30/80  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 D. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: CW CONTRACTOR: \_\_\_\_\_

3CA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
		0.53		122.94	123.47				Mudstone - silty laminations becoming more abundant, bioturbations, pyrite flecks.  TOP OF BOX 37	
		1.20		123.47	124.67				-	
		0.50		124.67	125.17				Mudstone - light grey, highly fractured; yellow staining on calcite veins; few coaly inclusions, very hard.	
		0.79		125.17	125.96				Mudstone & ) - alternating light to medium grey, & siltstone) carbonaceous flecks or very small worm interbedded) burrows abundant; pyrite flecks, larger bioturbations present. -	
	413' 125.88								Overtuned sequence??  Blue sky sequence?	
52°		0.27		125.96	126.23				-	

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

P-141A(10-80)

SHEET NO.: 39

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 30/80  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.10		126.23	126.33					Mudstone - very badly broken - pieces do not match
			0.10	126.33	126.43	0.10				Core loss - rock
		0.73		126.43	127.16	0.73				badly broken - pieces do not match
	417 127.10									
36°			0.10	127.16	127.17	0.10				Core loss - rock
		1.68		127.17	128.94	4.31				- "green" looking band at 0.36 (pyrite) & pyrite at 0.43
										TOP OF BOX 39
		1.26		128.94	130.20					- several small clay (?) galls present
	427 130.14									
40°		2.37		130.20	131.57					- few thin very fine s.s. beds 2cm; pieces don't match at end of box.



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

P-141A(10-80)

SHEET NO.: 40

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: Oct. 30/80  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: CW CONTRACTOR: \_\_\_\_\_

SCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
42°	437 133.19	1.44	0.20	131.57	131.77	0.20			TOP OF BOX 40	
				131.77	133.21	2.45			Core loss - rock - pieces do not match at footage block *	
		1.01		133.21	134.22				- small bioturbations abundant *	
			0.10	134.22	134.32	0.10			Core loss - rock	
42°	447 136.24	1.91		134.32	136.23	2.70			TOP OF BOX 41	
									-	
		0.79		136.23	137.02				- pieces do not match at 0.46	
			0.09	137.02	137.11	0.09			Core loss - rock	

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

P-141A(10-80)

SHEET NO.: 41

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: Oct. 30/80  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: CW CONTRACTOR: \_\_\_\_\_

#CA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				F <sub>s</sub> REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
52 <sup>0</sup>		0.09		137.11	137.20	2.49		*	TOP OF BOX 42 Mudstone - badly broken; very fine grained s.s. from 0.00-0.05	
		1.15		137.20	138.35				-	
		0.96		138.35	139.31				- very badly broken, abundant calcite veining. Pieces do not match at footage block. Possible fault	
	<u>457</u>									
	<u>139.29</u>									
		0.29		139.31	139.60				- very badly broken, abundant calcite veining, pieces do not match at end of box with next box	
			0.40	139.60	140.00	0.40			Core loss - rock	
		0.73		140.00	140.73	2.27			TOP OF BOX 43 - very badly broken	

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

P-141A(10-80)

SHEET NO.: 42

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: Oct. 30/80  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

3CA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.99		140.73	141.72				Mudstone - highly fractured, possible core loss throughout, calcite veining throughout possible fault.	
	465 141.73									
50°		0.55		141.72	142.27				- getting muddy  TOP OF BOX 44	
44°		2.45		142.27	144.72	8.24			Mudstone - medium to dark grey, a few silt laminations, slightly carbonaceous, pyrite flecks.	
	475 144.77									
		0.27		144.72	144.99				- pyrite flecks, very small bioturbations, worm burrows may be pyritized.	

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

P-141A(10.80)

SHEET NO.: 43

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: October 30/80  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		2.75		144.99	147.74					TOP OF BOX 45 Mudstone - iron stone band at 0.30, pyrite blebs, not silty anymore
	485 147.82									
		2.77	0.50	147.74 150.51	150.51 151.01	0.50				TOP OF BOX 46 Core loss - rock
		0.37		151.01	151.38	8.47				TOP OF BOX 47 -
	497 151.48									
		0.68		151.38	152.06					Mudstone - calcite veining, badly broken

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

P-141A(10-80)

SHEET NO.: 44

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: Oct. 30/80  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BQA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	498 151.79	0.40		152.06	152.46					Mudstone - pieces do not match, very badly broken, core loss, calcite veining
		1.12		152.46	153.58					- possible core loss at end of measurement  TOP OF BOX 48
		0.22		153.53	153.80					- possible core loss at end of measurement, pieces do not match, listric surfaces
		0.81		153.80	154.61					- badly broken, listric surfaces
		0.32		154.61	154.93					- very badly broken, listric surfaces
		1.20		154.93	156.13					- very badly broken, listric surfaces

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

P-141A(10 80

SHEET NO.: 45

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: Oct. 30/80  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.29		156.13	156.42				TOP OF BOX 49 Mudstone - calcite veining; badly broken. Possible core loss; pyrite blebs	
	514 156.67									
		2.35		156.42	158.77				- some coal inclusions & silt bands. Last 0.13m very badly broken, few silty blebs.	
									TOP OF BOX 50	
		0.63		158.77	159.40				- abundant listric surfaces, some carbonaceous inclusions, calcite veining, abundant listric surfaces, very badly broken	
	522 159.11									
		0.08		159.40	159.48				-	
			0.68	159.48	160.16	0.68			Core loss - rock	
	524.5 159.87									
		0.25		160.16	160.41	2.92			- ironstone band	
(30°)		1.53		160.41	161.94				- pyrite specks abundant, silty from 0.51	

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

P-141A(10)

SHEET NO.: 46

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.14		161.94	163.08					TOP OF BOX 51
										- at 0.10 possible ironstone concretion; pyrite specks increasing @0.42 possible fossil stone-carrot shaped - seen as ironstone in mudstone O.C. South of GR-DDH-80-18 in O.C. they are vertical - here virtually horizontal - very badly broken possible core loss at end of measurement
	534.5/ 162.92		0.13	163.08	163.21	0.13				Core Loss - Rock
		1.28		163.21	164.49	1.77				- badly broken; pyritized bioturbations abundant
										TOP OF BOX 52
		0.49		164.49	164.98					- very badly broken
			0.20	164.98	165.18	0.20				Core Loss - Rock
	541/ 164.90									
		0.47		165.18	165.65	0.60				-
		0.13		165.65	165.78					- very badly broken - crumbly
			0.50	165.78	166.28	0.50				Core Loss - Rock
20°		1.37		166.28	167.65	3.89				- silty at 0.40 "carrot shaped" object locate @ 1.18

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

P-141A(10-8)

SHEET NO.: 47

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	551.8 168.19	0.78		167.65	168.43				- "carrot" @ 0.62 - again virtually horizontal with respect to core	
		0.10		168.43	168.53				-	
		1.64		168.53	170.17				- 0.64 possible core loss	
			0.10	170.17	170.27	0.10			Core Loss - Rock	
									TOP OF BOX 54	
		1.27		170.27	171.54	8.24			- 0.49 "carrot" again horizontal; some carbonaceous material core loss at footage block?	
	562/ 171.30								-	
		1.53		171.54	173.07				-	
									TOP OF BOX 55	
		1.56		173.07	174.63				- pieces don't match at block	
	572/ 174.35								-	
		1.24		174.63	175.87				- 0.40 large pyrite concretion around coaly inclusion	



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

P-141A(10-2)

SHEET NO.: 48

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.90		175.87	177.77				TOP OF BOX 56	
	582.5/ 177.55	0.74	0.20	177.77 178.51	178.51 178.71	0.20			- possible core loss at 0.62 Core Loss - Rock	
		2.26		178.71	180.97	5.54			TOP OF BOX 57 - few carbonaceous inclusions	
	593' / 180.75	0.45		180.97	181.42					
		2.65		181.42	184.07				TOP OF BOX 58 - becoming silty	
	603' / 183.79	0.18		184.07	184.25					
			0.08	184.25	184.33	0.08			Core Loss - Rock	

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

P-141A(10)

SHEET NO.: 49

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: CW CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
										TOP OF BOX 59
	607/ 185.01	0.96		184.33	185.29	2.71				-
		1.75		185.29	187.04					- 0.70 to end of measurement heavy calcite veining, mudstone and sandstone inter-mixed. Possible fault or fold axis
			0.05	187.04	187.09	0.05				Core Loss - Rock
		1.21		187.09	188.30	2.72			*	TOP OF BOX 60 Inter laminated mudstone, siltstone and sandstone - light to dark grey; laminations running sub parallel to core axis with way up 90° axis; sandstone very fine to coarse ground, worm burrows
	617/ 188.06	0.60		188.30	188.90					-
		0.91		188.90	189.81					Mudstone - dark grey, silty, mottled appearance, listric surfaces
			0.21	189.81	189.93	0.12				Core Loss - Rock

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

P-141A(10-8)

SHEET NO.: 50

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.42		189.93	191.35	20.90			TOP OF BOX 61 - Calcite veining from 0.69 to 1.00 listric surfaces abundant	
	627/ 191.11	1.33		191.35	192.68				- listric surfaces	
		1.75		192.68	194.43				TOP OF BOX 62 - 0.85 and 1.12 - interlaminated blebs by mudstone, siltstone and sandstone as in Box 60 (rip up clasts?)	
	637/ 194.16	0.82		194.43	195.25				-	
		2.24		195.25	197.49				TOP OF BOX 63 - @ 1.14 interlaminated rip of clast as in Box 60	
	647/ 197.21	0.48		197.49	197.97				-	

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

P-141A(10.8)

SHEET NO.: 51

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
		2.54		197.97	200.51				-	TOP OF BOX 64
	657/ 200.25	0.17		200.51	200.68				-	TOP OF BOX 65
		2.82		200.68	203.50				-	TOP OF BOX 66
	667/ 203.30	2.74		203.50	206.24				-	TOP OF BOX 67
		2.73		206.24	208.97				-	few coaly inclusions; pyrite becoming more abundant

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

P-141A(10-8)

SHEET NO.: 52

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
										TOP OF BOX 68
	682/ 209.40	0.61		208.97	209.58					-
		1.25	0.83	209.58 210.83	210.83 211.66	0.83				- Core Loss - Rock
										TOP OF BOX 69
	697/ 212.45	0.86		211.66	212.52	2.65				-
		1.79	0.05	212.52 214.31	214.31 214.36	0.05				- Core Loss - Rock
										TOP OF BOX 70
	707/ 215.49	1.21		214.36	215.57	2.74				- Pyrite flecks and bleb increasing worm burrows
		1.53	0.09	215.57 217.10	217.10 217.19	0.09				- Core Loss - Rock

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

P-141A(10.1)

SHEET NO.: 53

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: CW CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.43		217.19	218.62	2.77			- TOP OF BOX 71	
	717/ 218.54	1.34		218.62	219.96				- Calcite veining at 0.12 and 1.22	
			0.05	219.96	220.01	0.05			Core Loss - Rock	
									TOP OF BOX 72	
		1.65		220.01	221.66	2.65			-	
	727/ 221.59	1.00		221.66	222.66				-	
			0.05	222.66	222.71	0.05			Core Loss - Rock	
									TOP OF BOX 73	
		1.98		222.71	224.69	2.69			- few coaly inclusions and pyrite flecks	
	739/ 224.64	0.71		224.69	225.40				-	
			0.10	225.40	225.50	0.10			Core Loss - Rock	

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

P-141A(10-B)

SHEET NO.: 54

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		2.24		225.50	227.74	2.79			TOP OF BOX 74	
	747/ 227.69	0.55	0.05	227.74	228.29	0.05			- size of pyrite bleb increasing	
				228.29	228.34				Core Loss - Rock	
		2.43		228.34	230.77	5.44			TOP OF BOX 75	
	757/ 23-.73	0.36		230.77	231.13					
		2.40		231.13	233.53				TOP OF BOX 76	
	766/ 233.48	0.25	0.35	233.53	233.78	0.35				
				233.78	234.13				Core Loss - Rock	

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

P-141A(10.1)

SHEET NO.: 55

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
(15)		2.75		234.13	236.88	13.54			TOP OF BOX 77 - ironstone nodule (?) 1.87 - carrot (?) at 1.93m - some carbonaceous material present, silty	
	777/ 237.83	2.71		236.88	239.59				TOP OF BOX 78  - Carrot at 1.20	
		0.36		239.59	239.95				TOP OF BOX 79  -	
	787/ 239.88	2.39		239.95	242.34				- large calcite vein at 0.60	



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

P-141A(10-8)

SHEET NO.: 56

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: CW CONTRACTOR: \_\_\_\_\_

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
	797/ 242.93	2.70		242.34	245.04				TOP OF BOX 80  - Carrot at 0.06 - broken	
		0.99		245.04	246.03				TOP OF BOX 81  - ironstone band at 0.88	
	807/ 245.97	1.64	0.17	246.03 247.67	247.67 247.84	0.17			- few clay Core Loss - Rock	
		1.24		247.84	249.08	2.68			TOP OF BOX 82  -	
	817/ 249.02	1.44	0.13	249.08 250.52	250.52 250.65	0.13			-  Core Loss - Rock	

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

P-141A(10-8)

SHEET NO.: 57

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.48		250.65	252.13	2.49			TOP OF BOX 83	
	827/ 252.07	1.01		252.13	253.14				- calcite veinings listric surfaces; few coal laminations	
			0.10	253.14	253.24	0.10			- pyrite flecks still abundant	
		1.94		253.24	255.18	5.32			Core Loss Rock	
	837/ 255.12	0.71		255.18	255.89				TOP OF BOX 84	
		2.37		255.89	258.26				-	
	847/ 258.17	0.30		258.26	258.56				TOP OF BOX 85	
			0.17	258.56	258.73	0.17			- large calcite vein at 2.17	
									- pieces do not match - possible core loss	
									Core Loss - Rock	

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

P-141A(10)

SHEET NO.: 58

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FRGM	TO	APPAR. THK.	TRUE THK.			
		0.46		258.73	259.19	6.61			TOP OF BOX 86 - pieces at end do not match - core loss ?	
		2.12		259.19	261.31				- pieces do not match at 0.20	
	857/ 261.21	0.09		261.31	261.40				-	
(21 <sup>o</sup> ?)		2.74		261.40	264.14				TOP OF BOX 87 - large pyritized worm burrows (?) at 1.86	
		0.22		264.14	264.36				-	
	867/ 264.26	0.38		264.36	264.74				- heavy calcite veining at end of measurement, listric surfaces - possible	

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

P-141A(10-R)

SHEET NO.: 59

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.60		264.74	265.34				- very badly broken, listric surfaces; possible ironstone band at 0.20; possible core loss	
		1.33	0.20	265.34 265.54	265.54 266.87	0.20 2.81			Core Loss - Rock -	
		0.54		266.87	267.41				TOP OF BOX 89	
	877/ 267.31	0.74		267.41	268.15				- calcite veining at end of measurement, possible core loss at black - pieces do not match	
		0.17	0.17	268.15	268.32	0.17			- lighter in color, very badly broken with calcite veins; possible core loss	
	880/ 268.22	1.18		268.32 269.50	269.50 269.59	1.18 0.09			Core Loss - Rock	
		0.87	0.09	269.59	270.46	2.64			TOP OF BOX 90 - size of pyrite blebb increasing	
	887/ 270.36	1.77		270.46 272.23	272.23 272.32	0.09			- Core Loss - Rock	

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

P-141A(10)

SHEET NO.: 60

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.19		272.32	273.51	9.11			TOP OF BOX 91	
	897/ 273.41	1.44		273.51	274.95				-	
		1.58		274.95	276.53				TOP OF BOX 92 - pyritized worm burrows still abundant	
	907/ 276.45	1.00		276.53	277.53				- ironstone band at 0.80 large pyrite blebs still present	
		2.08		277.53	279.61				TOP OF BOX 93 -	
	917/ 279.50	0.65		279.61	280.26				- slightly silty	



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

P-141A(10.8)

SHEET NO.: 62

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.43		282.66	283.09				-	TOP OF BOX 95
30°		2.63		283.09	285.72				-	
	937/ 285.60									TOP OF BOX 96
20°		2.80		285.72	288.52				-	badly broken at 1.90 to 2.60 heavy calcite veining
			0.10	288.52	288.62	0.10				Core Loss - Rock
		0.14		288.62	288.76	2.52			-	TOP OF BOX 97
	947/ 288.65									
32°		2.38		288.76	291.14				-	gypsum smears (or anhydrite) along fracture surfaces, calcite filled breccia at 1.9

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

P-141A(10)

SHEET NO.: 63

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
			0.09	291.14	291.23	0.09			Core Loss - Rock	
		0.58		291.23	291.81	0.58			TOP OF BOX 98	
30°	957/ 291.69	2.01		291.81	293.82	2.01			Mudstone - siltstone, interbedded - light grey 1.14 to 1.24 and 1.10 at end of measurement, top appears to be up, worm burrows, graded bedding, core is badly broken at end of measurement	
			0.34	293.82	294.16	0.34			Core Loss - Rock	
		0.70		294.16	294.86	0.70			TOP OF BOX 99 - inter-laminated sandstone and siltstone abundant listric surfaces last 10cm very badly broken- abundant calcite veining	
	967/ 294.74	0.65		294.86	295.51	0.65			Sandstone - light to medium grey, medium grained, salt and peppery appearance, heavy calcite veining, possible fault!	



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

P-141A(10 8

SHEET NO.: 64

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: CW CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.59		295.51	296.10	0.59			Mudstone and Siltstone - Interbedded, light to dark grey, bioturbations, abundant calcite veining very badly broken, listric surfaces	
		0.61		296.10	296.71	0.61			Sandstone - light grey, fine grained, salt and peppery	
		0.12		296.71	296.83	5.51			Interbedded Mudstone & Siltstone - Minor sandstone - light to dark grey, abundant bioturbations, pyrite blebs, sandstones are fine to medium grained, top appears to be up, worm burrows, graded bedding cross bedding, some yellow staining along calcite veining	
									TOP OF BOX 100	
25°		0.15		296.83	296.98				possible core loss, pieces do not match	
	974/ 296.88	2.48		296.98	299.46				carbonaceous material present, two pyrite laminations at 1.06	

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

P-141A(10.3)

SHEET NO.: 65

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
										TOP OF BOX 101
	984/ 299.92	0.68		299.46	300.14					-
		2.08		300.14	302.22					- listric surfaces
			0.17	302.22	302.39	0.17				TOP OF BOX 102 Core Loss - Rock
	994/ 302.97	0.80		302.39	303.19	3.86				- at 0.36 possible core loss, calcite veining pieces do not match at end of measurement
		1.85		303.19	305.04					- at 0.14 possible core loss pieces do not match, bioturbations, top is up
	1004/ 306.02	1.21		305.04	306.25					TOP OF BOX 103 - becoming muddier

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

P-141A(10-80)

SHEET NO.: 66

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
60			0.28	306.25	306.53	0.28			Core Loss - Rock	
			0.63	306.53	307.16	1.33			-	
	1007/ 306.93		0.70	307.16	307.86				-	
			0.17	307.86	308.03	0.17			Core Loss - Rock	
			2.18	308.03	310.21	4.08			TOP OF BOX 104	
	1017/ 309.98		0.36	310.21	310.57				-	
			1.54	310.57	312.11	0.24			TOP OF BOX 105	
	1024/ 312.12		0.24	312.11	312.35	0.24			Core Loss - Rock	

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

P-141A(10-B)

SHEET NO.: 67

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: CW CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
49° 50°	1034/ 315.16	1.19		312.35	313.54	6.21			- possible core loss at 0.99 pieces do not match	
		1.91		313.54	315.45				TOP OF BOX 106	
		0.81		315.45	316.26				- two fine grained sandstone bands at 0.50 and 0.60 - they are 5cm	
		2.30		316.26	318.56				- carbonaceous flecks	
		0.09	0.09	318.56	318.65	0.09			TOP OF BOX 107	
	1044.5/ 318.36	0.43		318.65	319.08	5.21			- with thin sand laminations, pyrite smears along breaks - very fine grained sand at base of measurement	
									Core Loss - Rock	
									- very highly fractured, heavy calcite veining sub-rounded breccia filled with calcite, <u>possible fault zone!</u>	

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

P-141A(10-80)

SHEET NO.: 68

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT			% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.			
		1.08		319.08	320.16				TOP OF BOX 108
		1.55		320.16	321.71				- abundant calcite veining for the first 10cm
	1054.5 321.41								- very badly broken from 0 - 0.40, heavy calcite veining
		2.15		321.71	323.86				TOP OF BOX 109
41			0.44	323.86	324.30	0.44			- possible core loss at 0.94, 1.14 Core Loss - Rock
	1063/ 324.00	0.31		324.30	324.61	0.31			- possible core loss throughout Core Loss - Rock
			0.60	324.61	325.21	0.60			
		0.30		325.21	325.51	5.07			TOP OF BOX 110
	1067/ mismatch 325.22								- hardly broken

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

P-141A(10-8)

SHEET NO.: 69

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: CW CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
47 <sup>0</sup>		2.13		325.51	327.64				-	
		0.94		327.64	328.58				-	
	1077/ 328.27	1.70		328.58	330.28				-	
			0.12	330.28	330.40	0.12			-	
	1087/ 331.32	1.20		330.40	331.60	4.11			-	

TOP OF BOX 111

at 0.54 there is a sandstone light grey, fine grained, top is up, pyrite blebs

abundant small bioturbations, listric surfaces carbonaceous material present, small sandstone beds at 0.20, .40 and 1.1 about 5-5cm in thickness

Core Loss - Rock

TOP OF BOX 112

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

P-141A(10-80)

SHEET NO.: 70

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN: Oct 30, 1980  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.44		331.60	333.04					- ironstone band at 1.27, approximately 10cm thick
										TOP OF BOX 113
		1.47		333.04	334.51					- becoming muddy, at 0.91 possible core loss as well as end of measurement, bioturbations
	1097/ 334.39		0.14	334.51	334.65	0.14				
		1.20		334.65	335.85	3.02				- carbonaceous material present
		1.82		335.85	337.67	3.90				TOP OF BOX 114
	1107/ 337.41									
		0.86		337.67	338.53					Mudstone - a few silty laminations, carbonaceous flecks possible core loss at footage marker and at 0.44 a few pyritized bioturbations





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

P-141A(10-80)

SHEET NO.: 72

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.68		342.92	343.60				- possible core loss at bottom and at 0.45	
									TOP OF BOX 117	
		0.17		343.60	343.77				Mudstone - dark grey, abundant coaly laminations, very badly sheared and broken; listric surfaces; some powdery coal in tray; core loss?	
			0.30	343.77	344.07	0.30			Core Loss - Rock	
		0.13		344.07	344.20	1.99			- minor horsetail calcite veining	
		0.07		344.20	344.27				- abundant coaly laminations, sheared	
		0.70		344.27	344.97				- badly broken	
		0.17		344.97	345.14				- very badly broken mudstone and coal inter-mixed	

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

P-141A(10-80)

SHEET NO.: 73

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: CW CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
49°	1136/ 346.25	0.27		345.14	345.41				Mudstone - very carbonaceous, listric surfaces, badly broken	
		0.04		345.41	345.45				- intermix, powdered rocks, coal fragments	
		0.50		345.45	345.95				- some ironstone banding?	
52°		0.11		345.95	346.06				-	
		0.02		346.06	346.08	0.02			Coal - dull banded; sheared; few dirt bands 1mm thick	
		0.01		346.08	346.09	0.01			Mudstone - carbonaceous	

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

P-141A(10-80

SHEET NO.: 74

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: CW CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.16		346.09	346.25	0.16			Coal - bright banded; sheared; few rock fragments mixed throughout tray	
									TOP OF BOX 118	
		0.30		346.25	346.55	0.30			Mudstone - dark grey; abundant coaly laminations and some 2 to 3cm across, possible core loss at end of measurement, slickenside; listric surfaces	
			0.22	346.55	346.77	0.22			Core Loss - Rock	
		0.38		346.77	347.15	0.51			- badly broken, possible core	
		0.13		347.15	347.28				- very badly sheared; some coal in tray	
		0.03		347.28	347.31	0.30			Coal - bright banded; badly broken	

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

P-141A(10-80)

SHEET NO.: 75

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
30°		0.25		347.31	347.56				-	
		0.02		347.56	347.58				Coal - dull, badly broken	
		0.40		347.58	347.98	0.40			Mudstone - dark grey, very carbonaceous, listric surfaces abundant, coaly inclusions badly broken	
		0.03		347.98	348.01	0.03			Coal - dull; badly broken	
		0.03		348.01	348.04	0.03			Coal and rock inter-mixed - very badly broken	
		0.61		348.04	348.65	1.45			Mudstone; medium - dark grey; carbonaceous, silt laminations; bioturbations ?	

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

P-141A(10-80)

SHEET NO.: 76

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CW CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.04		348.65	348.69				-	TOP OF BOX 119
	1145/ 349.00	0.80		348.69	349.49				-	
			0.10	349.49	349.59	0.10				Core Loss - Rock
	1148/ 349.91									
		0.94		349.59	350.53	0.94			-	- very badly broken listric surfaces abundant
			0.35	350.53	350.88	0.35				Core Loss - Rock
		0.65		350.88	351.53	0.65				- large coaly inclusion from 0.30 to 0.42

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

P-141A(10-80)

SHEET NO.: 77

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JP CONTRACTOR: \_\_\_\_\_

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
15° 30°		0.78		351.53	352.31	0.78			TOP OF BOX 120	
	1157' / 352.64		0.03	352.31	352.34	0.03			Silty Sandstone - dark grey; fine grained, with many argillaceous laminae; small scale cross bedding, irregular but steeply bedded	
		1.15		352.34	353.49	1.41			Core Loss - Rock	
	1161 / 353.86	0.26		353.49	353.75				Mudstone - dark to medium grey; carbonaceous at top and base, and in other thin zones throughout some silty zones, frequent coal stringers; listric fracture surfaces; BCA at top = 15° BCA at bottom = 30°	
		0.26		353.75	354.01	0.26			-	
									Siltstone - dark grey; sandy in center; argillaceous at base; the bedding in this unit is very shallow (in some places almost flat) but irregular	

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

P-141A(10-80)

SHEET NO.: 78

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
		0.26		354.01	354.27	0.26			TOP OF BOX 121 Carbonaceous Mudstone - dark grey, with many coal stringers and laminae; listric fracture surfaces	
		0.13		354.27	354.40	0.33			Coal - the coal described below is comprised of fairly large pieces - dull banded, with a thin (0.002m) clay band and two 0.01m clay pods near base	
		0.10		354.40	354.50				- dull and bright, white powder (gypsum) on fracture surfaces	
		0.10		354.50	354.60				- dull banded with thin clay bands and pods as above	
		0.50		354.60	355.10	0.50			Carbonaceous Mudstone - dark grey, coal laminae and stringers, broken throughout	

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

P-141A(10-80)

SHEET NO.: 79

HOLE NO.: GDR-80-33 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JP CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
30 <sup>0</sup>	1167/ 355.68		0.36	355.10	355.46	0.36			Core Loss - Rock	
		0.75		355.46	356.21	0.75	0.38		Carbonaceous Mudstone - (as above) heavily broken in center; BCA taken at top	
			1.21		356.21	357.42	1.21	0.65	Core Loss - Coal	
		0.04			357.42	357.46	0.43		Coal and Bands - dull banded with clay laminae and many interlaced calcite veins	
									Coal - this section of coal is extremely and heavily sheared; broken and pulverized	
		0.27			357.46	357.73			- dull and banded with many of the larger pieces showing interlaced calcite veining	
		0.12			357.73	357.85			- powdered, sheared, possibly dull banded. mixed with rock below	
			0.10		357.85	357.95	0.10	0.06	Core Loss - Coal	
			0.18		357.95	358.13	0.18	0.10	Core Loss - Rock	
		0.03			358.13	358.16	0.06	0.03	Carbonaceous Mudstone - dark grey, heavily sheared and broken. Mixed with coal above	

↑  
1A  
00613



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

P-141A(10-8)

SHEET NO.: 80

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
	1177' 358.73								TOP OF BOX 122	
		0.03		358.16	358.19			1A 00613	Mudstone - dark grey; slightly carbonaceous; heavily broken	
			0.10	358.19	358.29	0.10	0.06		Core Loss - Coal	
									Coal - heavily broken	
		0.04		358.29	358.33	0.87	0.49		- dull; sheared	
		0.06		358.33	358.39			1B	- dull banded; sheared	
		0.16		358.39	358.55				- sheared; possibly dull banded, occasional clay laminae	
		0.12		358.55	358.67				- dull banded; sheared; a few clay laminae	
		0.14		358.67	358.81				- dull banded; sheared	
		0.12		358.81	358.93				- dull banded, sheared	
		0.03		358.93	358.96				- boney	
		0.04		358.96	359.00			00614	- dull banded	

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

P-141A(10.8)

SHEET NO.: 6

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: GS CONTRACTOR: \_\_\_\_\_

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
44 <sup>0</sup>		0.13		29.28	30.89	1.61			Mudstone - carbonaceous plant fragments - moderate calcite veins and slickensides  TOP OF BOX 6	
		1.48							- carbonaceous in parts - slickensides	
		0.74		30.89	32.03	1.14			Siltstone - sandy - moderate calcite veining	
	105' / 32.00	0.40							-	

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

F-141A(10-80)

SHEET NO.: 82

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.07		360.28	360.35	0.11	0.07			Coal - boney
	1185' / 361.16	0.04		360.35	360.39				1D	Coal - dull banded, hard
		0.21		360.39	360.60	0.21	0.13		00616	Core Loss - Coal
		0.24		360.60	360.84	0.24	0.15		X	- dull banded; intact
		0.06		360.84	360.90	0.06	0.04			Core Loss - Rock
		0.36		360.90	361.26	0.41	0.26		1E 00617	Tuff - medium brown-grey. This lithology is of a sandstone grain size equivalent of, fine to medium grained; it is soft and the listric surfaces are light brown in color 'grains' which may well be elongated, shards can be observed with a hard lens. Some thick coal stringers, laminae and thin bands are present throughout. Broken at top

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

P-141A(10-8)

SHEET NO.: 83

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: J.P. CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
									<u>TOP OF BOX 123</u>	
		0.03		361.26	361.29				1E Tuff - (as above), broken	
		0.02		361.29	361.31				Tuff - (as above), heavily broken, mixed with coal below	
		0.02		361.31	361.33	0.02	0.01	00617	Coal - sheared, possibly dull banded. Heavily broken, mixed with rock above.	
		0.27		361.33	361.60	0.27	0.17		- dull banded; heavily sheared; broken	
39°	<u>1192</u> 363.30		0.62	361.60	362.22	0.62	0.39		Core Loss - Coal	
		0.27		362.22	362.49	0.79	0.50	1F	Coal - dull banded; heavily broken	
		0.09		362.49	362.58				- dull banded; heavily broken	
		0.17		362.58	362.75				- dull and bright; sheared; intact	
		0.26		362.75	363.01			00618	- dull banded; sheared; highly broken 1 cm boney band at base	
		0.03		363.01	363.04	0.03	0.02		Mudstone - dark grey; slightly carbonaceous	

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

P-141A(10-80

SHEET NO.: 84

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: I.P. CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.09		363.04	363.13	0.16	0.10		1F	Coal - dull; highly broken, sheared, with much gypsum coating of fracture surfaces
		0.07		363.13	363.20					- dull, sheared, heavily broken, gypsum on fracture surfaces
			0.60	363.20	363.80	0.60	0.41			Core Loss - Coal
		0.25		363.80	364.05	0.25	0.17		1G 00619	Carbonaceous Mudstone - dark grey with many skin coal bands and laminae
		0.10		364.05	364.15	0.15	0.10		1H	Coal - sheared; possibly dull banded with some intermixed rock pieces
		0.05		364.15	364.20					- powdered, sheared possibly dull banded. Mixed with rock below.
		0.18		364.20	364.38	0.18	0.12			Core Loss - Coal
		0.12		364.38	364.50	0.18	0.12			Carbonaceous Mudstone - dark grey, sheared, heavily broken. Mixed with rock above

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

P-141A(10-80)

SHEET NO.: 85

HOLE NO.: GDR-DDH-80-32 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: J.P. CONTRACTOR: \_\_\_\_\_

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
(43.5)		0.06		364.50	364.56			II	Carbonaceous Mudstone - dark grey, coal laminae	
		0.07		364.56	364.63	0.36	0.25		Coal - dull and bright; broken	
		0.02		364.63	364.65				- stoney	
		0.14		364.65	364.79				- dull banded; sheared; broken	
		0.08		364.79	364.87				- dull; sheared; broken	
		<u>1199'</u>								
		<u>365.44</u>	0.09		364.87	364.96	0.09		0.06	Core Loss - Coal
			0.05		364.96	365.01	0.05		0.03	Core Loss - Rock
		0.04		365.01	365.05	0.04	0.03	Tuff - similiar to that described above; present here as pebbles; may be cave		
		0.04		365.05	365.09	0.43	0.30	Coal - drill; heavily broken		

00621

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

P-141A(10-80)

SHEET NO.: 86

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J.P. CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
									TOP OF BOX 124	
		0.17		365.09	365.26				1I	Coal - dull, hard, sleared.
		0.06		365.26	365.32					- dull banded; sleared; broken
		0.06		365.32	365.38					- dull, hard
		0.05		365.38	365.43				00621	- dull banded
		0.05		365.43	365.48					- dull banded; heavily broken, powdered
			0.36	365.48	365.84	0.36	0.25			Core Loss - Rock
			0.15	365.84	365.99	0.15	0.10			Core Loss - Coal
		0.23		365.99	366.22	1.56	1.16			Coal - dull banded, sheared, broken
		0.16		366.22	366.38					- sheared, heavily broken & powdered. Has occasional pieces of sheared broken carbonaceous mudstone, intermixed. (Coal is possibly dull banded)
									1J	
		0.13		366.38	366.51					- dull, hard
		0.04		366.51	366.55					- dull banded
		0.06		366.55	366.61				00622	- dull; broken
		0.16		366.61	366.77					- dull
		0.06		366.77	366.83					Coal & Bands - dull coal with thin mudstone bands. Quite broken
		0.06		366.83	366.89				1K	Coal - dull banded.

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

P-141A(10-80

SHEET NO.: 87

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: J.P. CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	COHE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.15		366.89	367.04				Coal - dull	
		0.07		367.04	367.11				- dull banded, heavily broken, powdered	
	1206 367.57									
		0.08		367.11	367.19			1K	- dull banded	
		0.07		367.19	367.26				- dull, hard	
		0.07		367.26	367.33				- dull	
		0.05		367.33	367.38				- dull banded, with several thin lenses (0.003 - 0.01 M) of clay	
		0.13		367.38	367.51			00623	- dull banded; sheared	
		0.04		367.51	367.55				- dull	
		0.02		367.55	367.57	0.02	0.01		Carbonaceous Mudstone - highly sheared	
		0.07		367.57	367.64	0.15	0.11		Coal - dull with several thin (0.004 Meter) clay lenses near base. Powder & pieces	



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

P-141A(10-8)

SHEET NO.: 88

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: I. P. CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.08		367.64	367.72				1K	Coal - sheared, probably dull powder & pieces  <u>TOP OF BOX 125</u>
(48°)		0.11		367.72	367.83	0.78	0.58		1L	Tuff - light brown - grey; grainy; very similar to that previously described; occasional coal stringers, listric fracture surfaces
	1209' 368.49	0.32		367.83	368.15				00624	- decreasing in grain size, so that from the middle down, this lithology is quite fine grained. The finer grained portions are considerably softer than the coarse grained portions; heavily broken
	1210' 368.79	0.35		368.15	368.50					- broken

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

P-141A(10-80)

SHEET NO.: 89

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J.P. CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.17		368.50	368.67	0.17	0.13		1M	Carbonaceous Tuff - dark grey; carbonaceous lithology which grades into the tuff above, and has many coal laminae and stringers; heavily sheared. Coaly
		0.19		368.67	368.86	0.19	0.14			Tuff - light brown - grey, fine grained as above; some carbonaceous zones
		0.38		368.86	369.24	0.38	0.28		00625	Carbonaceous Tuff - (as above) heavily sheared; heavily broken. Very coaly
	1215 370.31									
		0.09		369.24	369.33	0.09	0.07			Tuff - light brown - grey, grainy, heavily broken; present as slightly rounded pebbles
			0.15	369.33	369.48	0.15	0.11			Core Loss - Rock
		0.16		369.48	369.64	0.80	0.59		1N	Coal - dull; broken
		0.15		369.64	369.79					- dull banded; broken
		0.04		369.79	369.83					- dull; broken
									00626	



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

P-141A(10-8)

SHEET NO.: 91

HOLE NO.: GDR-DDH-80-33 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.24		371.50	371.74	0.52	0.39			Carbonaceous Mudstone - dark grey; coaly; many thin coal bands and stringers; heavily broken
		0.10		371.74	371.84				1Q	- extremely heavily broken; very heavily sheared; some intermixed coal powder
		0.10		371.84	371.94					- intact
		0.08		371.94	372.02				00629	- extremely heavily broken, coaly in places with some intermixed coal pieces and powder
		0.05		372.02	372.07	0.05	0.04			Coal - powder; with some dull banded pieces and intermixed pieces and powder of carbonaceous mudstone
		0.07		372.07	372.14	0.10	0.07			Carbonaceous Mudstone - pieces, as above
		0.03		372.14	372.17					- powder and pieces. Completely mixed with coal below
		0.03		372.17	372.20	0.03	0.02			Coal - powder and pieces, probably dull banded, mixed with rock above
	1227 373.97		0.85	372.20	373.05	0.85	0.63			Core Loss
<u>END OF HOLE</u>										

**DIRECTIONAL SURVEY**

**ROCK OIL ENTERPRISES LIMITED**

**COMPANY:** GULF CANADA RESOURCES INC.

**GRID:** \_\_\_\_\_

**DATE SURVEYED:** 31 OCTOBER 1980

**DRILL HOLE:** GDR - DDH - 80 - 33

**LATITUDE:** \_\_\_\_\_

**SURVEY BY:** SIM

**LOCATION:** \_\_\_\_\_

**DEPARTURE:** \_\_\_\_\_

**WITNESSED BY:** ZSCHACH

**FIELD:** GOODRICH

**ELEVATION:** \_\_\_\_\_

**CALCULATIONS BY:** \_\_\_\_\_

**MAGNETIC DECLINATION:** \_\_\_\_\_

**CORRECTION OF:** \_\_\_\_\_

**FOR:** \_\_\_\_\_ **GRID:** \_\_\_\_\_

Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing	Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing	Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing
0	0	2.05	174.8	11	165	4.21	81.4	22	330	2.15	330.3
1	15	1.62	195.3	12	180	4.43	75.1	23	345	3.18	
2	30	1.61	122.1	13	195	2.43	26.4	24	360	2.85	55.4
3	45	2.88	170.1	14	210	3.71	58.3	25	370	0.11	268.5
4	60	3.12	162.4	15	225	3.70	51.1	26			
5	75	3.30	138.4	16	240	2.61	120.2	27			
6	90	3.75	105.9	17	255	3.03	39.8	28			
7	105	4.23	160.8	18	270	3.01	341.4	29			
8	120	3.28	83.0	19	285	3.06	33.5	30			
9	135	4.64	107.3	20	300	3.11	12.6	31			
10	150	4.44	94.3	21	315	2.19	6.9	32			

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

P-141A(10.8)

SHEET NO.: 1

HOLE NO.: GDR-80-34 ELEV. COLLAR: 1357.00m TOTAL DEPTH: 130.0m DATE BEGUN: \_\_\_\_\_  
 PROJECT: Goodrich BEARING: \_\_\_\_\_ CORE SIZE: HQ DATE COMPL.: November 5/80  
 CO. ORD.: 143 757.01N 545 846.05E HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JP CONTRACTOR: Coates

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
			25.11	0.00	25.11	25.11			TOP OF BOX 1	
	22' 6.71	(0.16)				1.91			Casing - no core recovered	
	27' 8.23	(0.75)							Overburden - sandstone : medium grained; mainly pebbles; possible cave	
	47' 14.33	(0.90)							- with occasional unbroken lengths of core and some quartzite pebbles, in the pebble zones	
	57' 17.37	(0.10)							- with occasional unbroken lengths of core and some quartzite pebbles, in the pebble zones	

**OPEN FILE**

PR- Goodrich 80(3)A

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

P-141A(10-BL)

SHEET NO.: 2

HOLE NO.: CDR-80-34 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JP JP CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
									TOP OF BOX 2	
		0.19		25.11	25.30	0.19			Siltstone - dark grey; with thin sandy bands particularly at base; heavily broken; pyrite on fracture surfaces	
	83' 25.30		0.32	25.30	26.62	0.32			Core Loss - Rock	
		0.35		25.62	25.97	0.35			Sandstone - medium grey; medium grained; grading to siltstone at base	
15°		1.92		25.97	27.89	1.92			Siltstone - dark grey, with sandy and argillaceous bands; coal stringers in top half; some coal powder on top.	
									TOP OF BOX 3	
		0.72		27.89	28.61	0.72			Sandy Siltstone - medium to dark grey, with many thin, very fine grained, sandstone bands	
		0.74		28.61	29.35	0.74			Sandstone - medium grey; very fine grained, with many silty bands and argillaceous laminae	
	97' 29.56									
24°		1.30		29.35	30.65	1.70			Siltstone - medium grey, with many thin sandy zones and argillaceous laminae occasional coal stringers	

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

P-141A(10-8)

SHEET NO.: 3

HOLE NO.: GDR-80-34 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JP CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
										TOP OF BOX 4
		0.40		30.65	31.05					Siltstone - (as above)
		1.01		31.05	32.06	1.20				Silty Mudstone - dark grey, many plant remains, and occasional coal stringers, heavily broken at top, where there is a small amount of coal powder.
	<u>106'</u> 32.31									
		0.19		32.06	32.25					-
		0.16		32.25	32.41	1.84				Carbonaceous Mudstone - dark grey; many thin coal stringers and laminae
	<u>107'</u> 32.61									
			0.48	32.41	32.89	0.48				Core Loss - Coal
		0.04		32.89	32.93					- broken
		0.42		32.93	33.35					- with occasional thick bright coal stringers and pods throughout, but particularly at base
			0.30	33.35	33.65	0.30				Core Loss - Coal
		0.32		33.65	33.97					Carbonaceous Mudstone - dark grey, as above



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

P-141A(10-8)

SHEET NO.: 4

HOLE NO.: GDR-80-34 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.90		33.97	34.87				TOP OF BOX 5	
		0.03		34.87	34.90	0.03			Carbonaceous Mudstone - (as above) with thick bright coal pods and stringers	
			0.10	34.90	35.00	0.10			Coal - bright; broken; probably represents one of these thick coal pods as described above	
		0.66		35.00	35.66	2.92			Core Loss - Coal	
117									Mudstone - dark grey; occasionally carbonaceous; thinner coal pods and stringers.	
35.66		1.00		35.66	36.66					
		1.26		36.66	37.92				TOP OF BOX 6	
									- many thin coal bands and laminae; occasional carbonaceous bands	

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

P-141A(10-8)

SHEET NO.: 5

HOLE NO.: GDR-80-34 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JP CONTRACTOR: \_\_\_\_\_

SCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.07		37.92	37.99	0.07			Coal - bright	
			0.18	37.99	38.17	0.18			Core Loss - Coal	
		0.40		38.17	38.57	0.56			Carbonaceous Mudstone - dark grey; coal stringers	
			0.10	38.57	38.67	0.10			Core Loss - Coal	
		0.16		38.67	38.83				- with thick bright coal pods and stringers. Quite broken	
	127' 38.71									
20°		0.49		38.83	39.32	0.49			Mudstone - dark grey, coal pods and stringers; carbonaceous towards base	
		0.16		39.32	39.48	0.96			Carbonaceous Mudstone - dark grey; coal stringers and laminae	
									TOP OF BOX 7	
		0.80		39.48	40.28				- thicker coal stringers and pods than above with a corresponding increase in occurrence	
		0.20		40.28	40.48	0.20			Coal and Bands - thin bands of carbonaceous mudstone and bright coal	
		0.32		40.48	40.80	0.32			Carbonaceous Mudstone - dark grey, coal pods, and stringers	
		0.54		40.80	41.34	0.54			Core Loss - Coal	
		0.03		41.34	41.37	0.03			Coal - Bright, broken	

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

P-141A(10-8)

SHEET NO.: 6

HOLE NO.: GDR-80-34 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JP CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.07		41.37	41.44	0.07			Coal and Bands - thin bands of highly carbonaceous mudstone and bright coal	
		0.12		41.44	41.56	0.12			Carbonaceous Mudstone - dark grey. heavily broken, completely mixed with coal below. spread out across the Marker Block	
		0.13		41.56	41.69	0.13			Core Loss - Rock	
	<u>137'</u> 41.76									
		0.10		41.69	41.79	0.10			Core Loss - Coal	
		0.11		41.79	41.90	0.11			Coal - dull and bright heavily broken. Mixed with rock above..	
		0.31		41.90	42.21	0.31			Mudstone - dark grey with many thin coal stringers and thin coal bands; broken in bottom half.	
		0.16		42.21	42.37	0.16			Coal and Bands - 0.02m bands of heavily sheared coal and carbonaceous mudstone	
			0.27	42.37	42.64	0.27			Core Loss - Coal	

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

P-141A(10)

SHEET NO.: 7

HOLE NO.: GDR-80-34 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.43		42.64	43.07	0.56			Mudstone - medium grey; soft; plant fragments, occasional coal stringers	
		0.13		43.07	43.20				TOP OF BOX 8	
			0.50	43.20	43.70	0.50			- broken at base, some coal powder at base	
			0.50	43.70	44.20	0.50			Core Loss - Coal	
			0.38	44.20	44.58	0.38			Core Loss - Rock	
		0.34		44.20	44.58	0.38			Core Loss - Coal	
				44.58	44.92	0.34			Sandstone - dark grey; very fine grained; very hard, possibly silicified, possibly carbonaceous highly veined with calcite. Broken, some coal powder just above base.	
			0.32	44.92	45.24	0.32			Core Loss - Coal	
			0.20	45.24	45.44	0.20			Core Loss - Rock	
	147' 44.80	0.09		45.44	45.53	0.58			Sandy Siltstone - dark grey; carbonaceous; softer than the sandstone immediately above; broken and mixed, with some pieces of carbonaceous mudstone and coal powder	
		0.49		45.53	46.02				- intact; hard, very sandy may be transitional to fine grained sandstone, has a band of dull banded coal running subparallel to core axis near base	

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

P-141A(10.8

SHEET NO.: 8

HOLE NO.: GDR-DDH-80-34 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.21		46.02	46.23	0.21				Carbonaceous Mudstone - dark grey; heavily broken, some coal powder
			0.23	46.23	46.46	0.23				Core Loss - Rock
			0.10	46.46	46.56	0.10				Core Loss - Coal
										Coal - the coal described below is in perfect condition and exhibits an extremely constant "bedding"
		0.37		46.56	46.93	1.23	0.42		3A	- dull banded
		0.09		46.93	47.02				00607	- dull and bright
		0.11		47.02	47.13					- bright banded, within this portion of the coal seam there are a few 'pellets' of the type described below. They increase in number towards the base.
		0.28		47.13	47.41				3B	- dull banded. This coal contains a large number of 'pellets'; and consequently possesses a high specific gravity. The 'pellets' are approximately 0.001m to 0.003m in diameter. Most exhibit a light brown colour but others exhibit a faint metallic lustre. Pyrite is present and it could be the faint metallic lustre is residual from an original pyritic clay or a pyrite nodule itself. Some of the 'pellets' are soft and can be scratched with a knife. The lithology is similar to the pellet mudstones described in GDR-DDH-80-28,19 and differs only in coal content and size of pellets.
							65%		00608	

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

P-141A(10-8)

SHEET NO.: 9

HOLE NO.: GDR-DDH-80-34 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION	
				FROM	TO	APPAR. THK.	TRUE THK.				
20 <sup>0</sup>	157' 47.85	0.08		47.41	47.49			00608 3B	Coal - Stoney (as above)		
		0.08		47.49	47.57				- boney, with thin, bright bands; pellet content decreasing		
		0.07		47.57	47.64				- dull banded, hard; no pellets		
		0.15	0.69		47.64	47.79	0.69	0.24	00609 3C	- dull banded	
					47.79	48.48				Core Loss - Coal	
				0.32		48.48	48.80	0.32	0.11	00610 3D	Core Loss - Rock
											TOP OF BOX 9
				0.37		48.80	49.17	0.37	0.11		Core Loss - Coal
				0.15		49.17	49.32	1.65	0.57		- dull banded
				0.05		49.32	49.37				- dull and bright
				0.24		49.37	49.61				- dull banded
				0.03		49.61	49.64				- dull banded; broken
				0.03		49.64	49.67				- dull and bright; broken
				0.20		49.67	49.87				- dull and bright; intact
				0.10		49.87	49.97				- dull and bright
		0.11		49.97	50.08				- dull banded		
		0.29		50.08	50.37				- dull banded		

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

P-141A(10-8)

SHEET NO.: 10

HOLE NO.: GDR-DDH-80-34 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.22		50.37	50.59				Coal - dull banded	
		0.05		50.59	50.64				- dull banded	
		0.05		50.64	50.69				- dull and bright	
		0.13		50.69	50.82				- bright banded	
	167 50.90		0.24	50.82	51.06	0.24	0.09	00610 3D	Core Loss - Coal	
		0.08		51.06	51.14	0.29	0.12		- Bright	
		0.11		51.14	51.25				- dull and bright	
		0.05		51.25	51.30				- boney	
		0.05		51.30	51.35				- boney, pieces with some powder. Mixed with rock below	
			0.14	51.35	51.49	0.14	0.07	00611 3E	Core Loss - Rock	
		0.05		51.49	51.54	0.05	0.02		Carbonaceous Mudstone - dark grey, lightly sheared and heavily broken. Mixed with coal above and below	
		0.06		51.54	51.60	0.06	0.03		Coal - dull and bright, sheared broken Mixed with rock above.	
			0.15	51.60	51.75	0.15	0.07		Core Loss - Coal	
		0.05		51.75	51.80	0.65	0.32		- dull and bright; sheared	
		0.08		51.80	51.88				- dull banded; sheared	
		0.05		51.88	51.93				- dull banded	
		0.10		51.93	52.03			00612 3F	- dull and bright	

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

P-141A(10-8)

SHEET NO.: 11

HOLE NO.: GDR-DDH-80-34 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
33°		0.16		52.03	52.19				3F	Coal - dull banded
		0.16		52.19	52.35					- bright
		0.05		52.35	52.40				00612	- powdered with many pieces of bright coal
			0.15	52.40	52.55	0.15	0.07			Core Loss - Coal
				TOP OF BOX 10						
		1.33		52.55	53.88	1.33				Silty Mudstone - medium grey; occasional coal stringers and plant fragments, faintly bedded leads to a soft mudstone at base
	177 53.95	1.40		53.88	55.28	1.51				Mudstone - medium grey; soft; occasional plant fragments; sheared; broken in center



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

P-141A(10-8)

SHEET NO.: 12

HOLE NO.: GDR-DDH-80-34 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
15°		0.11		55.28	55.39				TOP OF BOX 11	
		1.80		55.39	57.19	2.75			Mudstone - (as above)	
		187'							Siltstone - medium grey; argillaceous at top, becoming more sandy towards base; massive	
		57.00							-	
		0.95		57.19	58.14				TOP OF BOX 12	
		1.07		58.14	59.21	1.07			Sandy Siltstone - medium grey; grading to sandstone at base; massive	
		0.99		59.21	60.20	7.12			Sandstone - medium grey; very fine to fine grained; gradational with siltstone above; faintly bedded; no reliable BCA's	
	197'									
	60.04									
	0.67		60.20	60.87						

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

P-141A(10-8)

SHEET NO.: 13

HOLE NO.: GDR-DDH-80-34 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
18°		2.35		60.87	63.22				TOP OF BOX 13 Sandstone - (as above) occasional silty zones and occasional medium grained layers; faintly bedded; fairly regular.	
	207' 63.09	0.50		63.22	63.72				TOP OF BOX 14 - becoming coarser grained towards base; occasional argillaceous bands in lower half; faint small scale cross-bedding shows tops up	
17°		2.52		63.72	66.24					
	217' 66.14	0.09		66.24	66.33				TOP OF BOX 15 - Sandstone - medium grey; medium grained; with occasional coarse and fine grained zones; thin argillaceous bands near top and regular spaces, argillaceous and carbonaceous laminae in lower half; this unit varies from regularly bedded to massive.	
17°		2.77		66.33	69.10	2.77				



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

P-141A(10-8)

SHEET NO.: 15

HOLE NO. GDR-DDH-80-34 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JP CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		2.33		72.27	74.60					Sandstone - (as above) with occasional coarse grained zones; many fine grain and silty layers occasional argillaceous bands
		0.75		74.60	75.35					TOP OF BOX 18 - more silty and argillaceous; occasional rip up clasts above the argillaceous bands
	247' 75.28									
		1.70		75.35	77.05					-
20°		0.44		77.05	77.49	0.51				Sandy Siltstone - dark grey
										TOP OF BOX 19
		0.07		74.49	77.56					-
15°		0.73		77.56	78.29	4.92				Sandstone - medium grey; fine grained; many silty bands and laminae
	257' 78.33									
23°		1.83		78.29	80.12					- small scale cross bedding and sedimentary structures indicate tops up. BCA's are variable (10° - 30°)

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

P-141A(10.6)

SHEET NO.: 16

HOLE NO.: GDR-80-34 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
12 <sup>0</sup>		1.27		80.12	81.39				TOP OF BOX 20 Sandstone - (as above) with thicker silty and argillaceous bands particularly in lower half.	
	267' 81.38									
30 <sup>0</sup>		1.09		81.39	82.48				- thick coal stringer at top	
		0.46		82.48	82.94	0.70			Siltstone - medium grey, with thin fine grained sandstone bands, some argillaceous layers and a few coal stringers	
		0.24		82.94	83.18				TOP OF BOX 21	
		1.15		83.18	84.33	2.47			- Sandstone - medium to dark grey; fine to very fine grained, occasional medium grained zones. Quite silty throughout and with occasional argillaceous laminae; cross bedding shows 'tops up'	
	277' 84.43									
		1.32		84.33	85.65				-	

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

P-141A(10-B)

SHEET NO.: 17

HOLE NO.: GDR-DDH-80-34 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: IP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
30°		0.10		85.65	85.75	1.32			Mudstone - medium grey, many plant fragments TOP OF BOX 22	
		1.22		85.75	86.97				- with carbonaceous mudstone bands and occasional coal stringers	
		0.21		86.97	87.18	0.21			Carbonaceous Mudstone - dark grey; broken slickensided fracture surfaces	
		<u>287'</u> 87.47		0.64	87.18	87.82	0.64		Core Loss	
		1.14			87.82	88.96	2.11		- occasional thin coal stringers TOP OF BOX 23	
		0.97			88.96	89.93			- occasional silty bands	
		0.76			89.93	90.69	0.76		Siltstone - medium grey; occasional sand laminae; coal stringers and plant fragments	
15°		<u>297'</u> 90.42								
		0.40		90.69	91.09	0.40			Carbonaceous Mudstone ( as above)	
		0.55		91.09	91.64	0.55			Siltstone - medium grey; as above; thin sandstone bands, bedding irregular but steep	

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

P-141A(10.0

SHEET NO.: 18

HOLE NO.: GDR-DDH-80-34 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JP CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
									TOP OF BOX	
		1.01		91.64	92.65	1.01			Carbonaceous Mudstone - dark grey; occasional silty bands; occasional coal stringers	
		0.38		92.65	93.03	0.38			Silty Mudstone - medium to dark grey, occasional coal stringers	
		0.14		93.03	93.17	0.14			Carbonaceous Mudstone - dark grey, as above	
		0.26		93.17	93.43	0.26			Tuff - Light grey, brownish tinge; soft; grainy appearance, micas(?) are present, massive, some carbonaceous and carbonaceous mud clasts.	
		0.16		93.43	93.59	1.72			Carbonaceous Mudstone - dark grey	
		<u>307</u>								
		<u>93.57</u>								
25°		0.76		93.59	94.35				-	
									TOP OF BOX 25	
		0.80		94.35	95.15				- occasional non carbonaceous bands, particularly towards the base; many thin coal stringers and laminae	
7°		1.45		95.15	96.60	2.75			Mudstone - medium to dark grey , with occasional carbonaceous zones and a few thin silty bands. Coal stringers	

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

P-141A(10-80)

SHEET NO. 19

HOLE NO.: GDR-DDH-80-34 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
	317'	0.50		96.60	97.10					Mudstone - (as above) pyrite or some fracture surfaces  TOP OF BOX 26
	96.62									
		0.80		97.10	97.90					
		0.65		97.90	98.55	0.65				Sandy Siltstone - medium to dark grey, with many argillaceous rip up clasts, and thin bands, lots of nodular pyrite near top, heavily broken in center.
	324'	1.11	0.20	98.55	98.75	0.20				Core Loss - Rock
	98.75									
				98.75	99.86	1.11				Carbonaceous Mudstone - dark grey; occasional coal stringers, particularly towards base; slickensided fracture surfaces  TOP OF BOX 27
			0.20	99.86	100.06	0.20				Core Loss - Coal
		0.65		100.06	100.71	1.14				- many coal stringers and thin bands in upper half; broken at top
	330'	100.58								
	100.58									



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

P-141A(10-B)

SHEET NO.: 20

HOLE NO.: GDR-80-34 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
25°		0.49		100.71	101.20			91%	2A	Carbonaceous Mudstone-( as above) contact with coal below is preserved
		0.05	0.08	101.20	101.28	0.08	0.03			Core Loss - Coal
				101.28	101.33	0.56	0.24			Coal - dull; with several thin ash bands; heavily broken
		0.04		101.33	101.37					- dull and bright; broken
		0.07		101.37	101.44					- bright banded
		0.17		101.44	101.61					- bright
		0.16		101.61	101.77					- bright, banded with occasional thin (0.005m) clay bands
		0.07		101.77	101.84					- dull and bright in contact with a mudstone band
		0.06		101.84	101.90	0.06	0.03			MUDSTONE- dark brownish grey; coal stringers BCA at contact equals 25°. No core loss along roof and floor contacts
		0.06		101.90	101.96	0.15	0.06			Coal - dull banded
	0.09		101.96	102.05			- dull and bright			

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

P-141A(10-d)

SHEET NO.: 21

HOLE NO.: GDR-DDH-80-34 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
		0.12		102.05	102.17	0.26			Mudstone - dark brownish-grey, as above	
	335'									
	102.10									
		0.14	0.18	102.17	102.31				- heavily broken, with some coal powder	
		0.04		102.31	102.49	0.18			Core Loss - Coal	
				102.49	102.53	0.04			Coal - dull banded, pieces and powder	
		0.18		102.53	102.71	0.27			Mudstone - dark, brownish-grey, as above	
									TOP OF BOX 28	
		0.09		102.71	102.80				-	
		0.11		102.80	102.91	0.35			Coal - dull banded	
		0.12		102.91	103.03				- boney	
		0.12		103.03	103.15				- dull banded; this piece is in contact with the rock below along a long contact which runs at a small angle to the core axis	
		0.12		103.15	103.27	0.12			Carbonaceous Mudstone - dark grey, many coal stringers	
	338'									
	103.02		0.17	103.27	103.44	0.17			Core Loss - Coal	
		0.45		103.44	103.89	0.45			Carbonaceous Mudstone - dark grey; many coal stringers, broken at top	

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

P-141A(10.8)

SHEET NO.: 22

HOLE NO.: GDR-DDH-80-34 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
		0.72		103.89	104.61	1.18			Silty Mudstone - Medium grey; some carbonaceous bands; coal stringers; heavily broken in centre	
	343' 104.54									
		0.46		104.61	105.07				- many carbonaceous bands and many thin coaly bands in contact with coal at base contact is long and is taken at 2/3 of the way along	
		0.15		105.07	105.22	0.15			Coal - bright; sheared; quite broken	
			0.24	105.22	105.46	0.24			Core Loss - Coal	
									TOP OF BOX 29	
		0.49		105.46	105.95	0.49			Carbonaceous Mudstone - dark grey; coal laminae has a coal band at top which extends half way along the contact, this coal belongs to that described above.	

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

P-141A(10-8

SHEET NO.: 23

HOLE NO.: GDR-80-34 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
20°	347' 105.76	0.30		105.95	106.25	0.30			Coal and Bands - bands of 0.01m to 0.02m thick carbonaceous mudstone and bright coal	
		0.24		106.25	106.49	0.24			Mudstone - dark grey, with carbonaceous zones and coal bands	
			0.03	106.49	106.52	0.03			Core Loss - Rock	
		0.14		106.52	106.66	0.14			Coal and Bands - ( as above) broken at top	
23°		0.44		106.66	107.10	0.44			Mudstone - medium to dark grey, a few carbonaceous and coal laminae	
		0.11		107.10	107.21	0.11			Carbonaceous Mudstone - dark grey, somewhat broken with a few powdered zone	

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

P-141A(10-8)

SHEET NO.: 24

HOLE NO.: GDR-80-34 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.02		107.21	107.23	0.02				Coal - dull banded; broken
		0.16		107.23	107.39	0.16				Carbonaceous Mudstone - (as above)
		0.43		107.39	107.82	0.48				Mudstone - medium to dark grey; carbonaceous zones, coal stringers and laminae; broken at base
		0.05		107.82	107.87					- heavily broken. Mixed with coal below
			0.07	107.87	107.94	0.07	0.03			Core Loss - Coal
		0.10		107.94	108.04	0.81	0.30			Coal - dull and bright. Large pieces and powder mixed with rock above
										TOP OF BOX 30
		0.05		108.04	108.09			92%	1A	Coal - dull and bright, with some pieces of boney coal; heavily broken
		0.29		108.09	108.38					- dull and bright, intact. With a 0.01m boney band and a 0.005m clay band running throughout the length of most of the core.

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

P-141A(10.8)

SHEET NO.: 25

HOLE NO.: GDR-DDH-80-34 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: .IP CONTRACTOR: \_\_\_\_\_

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
		0.05		108.38	108.43					Coal;- dull and bright; heavily broken
	<u>355'</u> <u>108.20</u>									
		0.10		108.43	108.53					- bright banded
		0.13		108.53	108.66					- dull and bright
		0.09		108.66	108.75					- bright banded
		1.98		108.75	110.73	2.81				Siltstone - medium grey; argillaceous; occasional plant fragments, and coal stringers; massive becomes a silty mud in places.
										TOP OF BOX 31
		0.87		110.73	111.60					- with a thin fine grained sandstone band near the base
	<u>365'</u> <u>111.25</u>									
		0.26		111.60	111.86					

00605 1A

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

P-141A(10-8)

SHEET NO.: 26

HOLE NO.: GDR-DDH-80-34 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: TP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
20°		1.29		111.86	113.15	4.49			Sandstone - medium grey; fine grained, generally massive; silty towards base; some faint laminations	
	371' 113.08									
		0.42		113.15	113.57				TOP OF BOX 32	
		1.12		113.57	114.69					
	376' 114.60									
15°		1.66		114.69	116.35				- with occasional argillaceous laminae	
									TOP OF BOX 33	
		1.48		116.35	117.83	1.48			Sandstone - dark grey; very fine to fine grained; silty, with occasional argillaceous rich bands	
	386' 117.65									
20°		0.74		117.83	118.57	0.74			Sandstone - medium to dark grey; interlayered, very fine grained and silty, with medium grained, less silty layers; the lighter, medium grained layers have many bands of carbonaceous material within them.	







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

P-141A(10.8)

SHEET NO.: 29

HOLE NO.: GDR-DDH-80-34 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JP CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.03		123.70	124.73					Conglomerate - (as above)  TOP OF BOX 36
		0.64		124.73	125.37					-
		0.57		125.37	125.94					- only a very few coal laminae; very clean; with a general decrease in granule size towards base. A thin pebble band at base.
		0.35		125.94	126.29	1.92				Sandstone- medium grey, coarse grained to gritty
	412' 125.57									
		0.94		126.29	127.23					- with occasional thin granule conglomerate bands; cross bedded
	417' 127.10									
		0.21		127.23	127.44					- has a thick coal stringer
										TOP OF BOX 37
		0.10		127.44	127.54					- carbonaceous has a thick bright coal pod throughout length.



COAL SEAM DATA SHEET

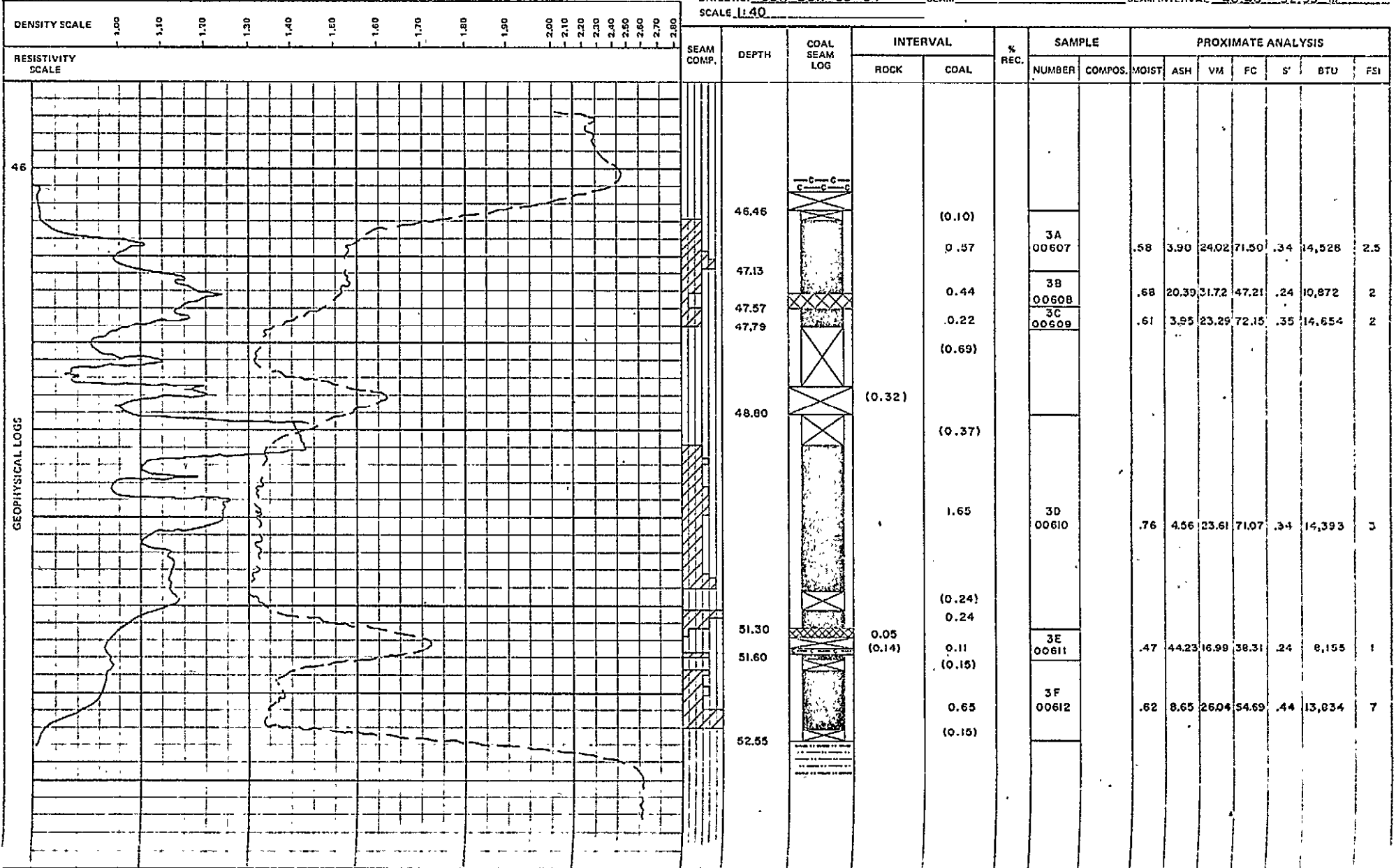
GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12-83)

DENSITY RESISTIVITY

DRILL NO. GDR-DDH-80-34 SEAM \_\_\_\_\_  
SCALE 1:40

APPARENT THICKNESS  
SEAM INTERVAL 46.46 - 52.55 m



COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-207 (12-00)

DENSITY

RESISTIVITY

DRILL NO. GDR-DDH-80-34 SEAM \_\_\_\_\_  
SCALE 1:40

APPARENT THICKNESS  
SEAM INTERVAL 101.20-102.05 m.

DENSITY SCALE RESISTIVITY SCALE	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS												
				ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	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 2.80																					
				101.20		(0.08)															
				102.05		0.06	0.56	2A 00606	.56	20.57	27.04	51.83	.61	12,074	9						

GEOPHYSICAL LOGS

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-297 (12-80)

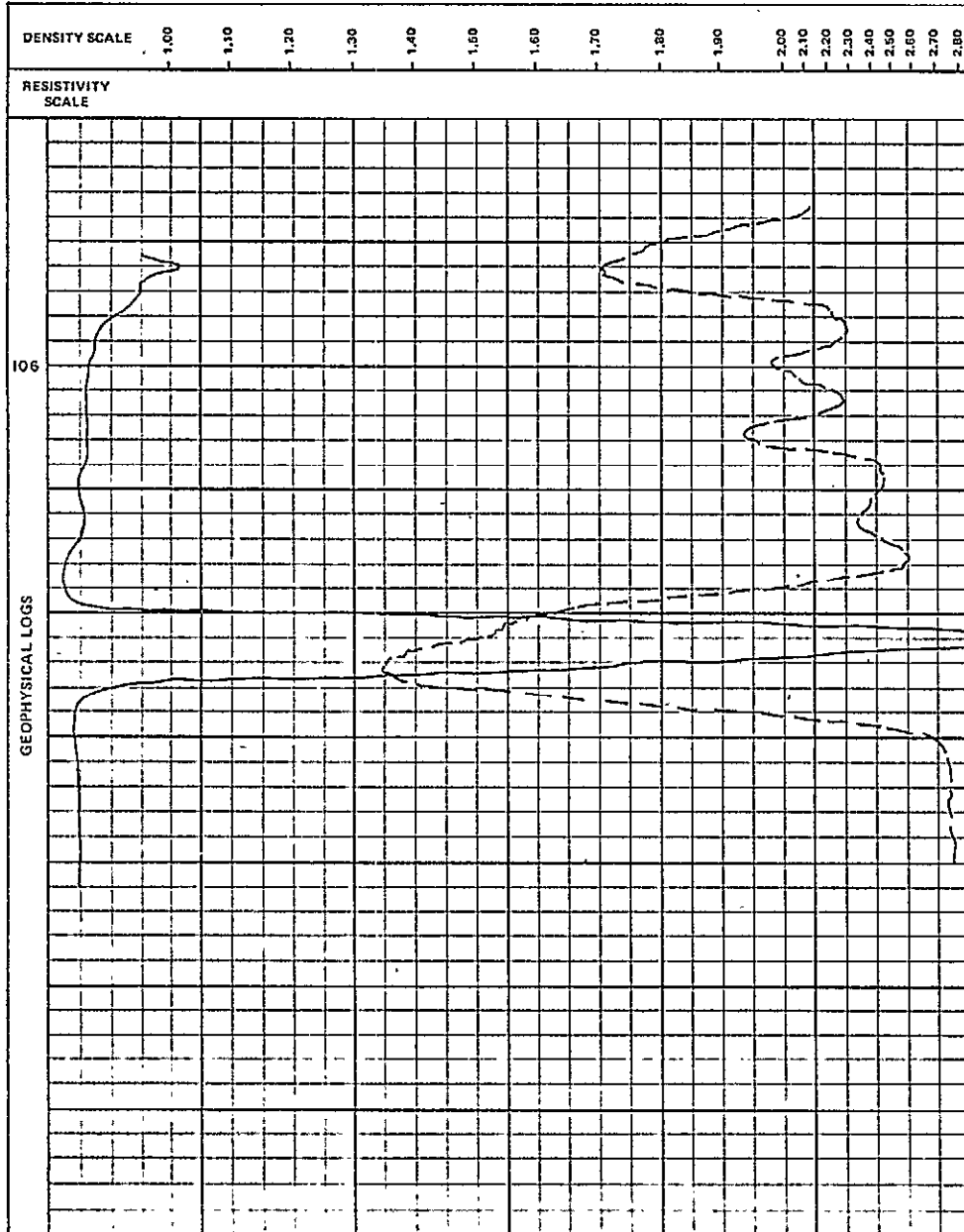
DENSITY

RESISTIVITY

DRILL NO. GDR-DDH-80-34 SEAM

APPARENT THICKNESS

SEAM INTERVAL 107.87 - 108.75 m.



GEOLOGICAL LOGS

106

SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS									
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S'	BTU	FSI'			
	107.87			(0.07)		1A											
	108.75			0.81		00605		.62	15.42	28.47	55.49	.62	12,813	8.5'			

DIRECTIONAL SURVEY

ROKE OIL ENTERPRISES LIMITED

COMPANY: GULF CANADA RESOURCES INC. GRID: \_\_\_\_\_ DATE SURVEYED: 5 NOVEMBER 1980  
DRILL HOLE: GDR - DDH - 80 - 34 LATITUDE: \_\_\_\_\_ SURVEY BY: PUBANZ  
LOCATION: \_\_\_\_\_ DEPARTURE: \_\_\_\_\_ WITNESSED BY: ZSCHACH  
FIELD: GOODRICH ELEVATION: \_\_\_\_\_ CALCULATIONS BY: \_\_\_\_\_  
MAGNETIC DECLINATION: \_\_\_\_\_ CORRECTION OF: \_\_\_\_\_ FOR: \_\_\_\_\_ GRID: \_\_\_\_\_

Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing	Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing	Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing
0	0	0.84	-	11	110	2.6	127.9	22			
1	10	0.83	-	12	120	3.03	160.5	23			
2	20	0.42	-	13				24			
3	30	1.35	158.4	14				25			
4	40	1.49	189.6	15				26			
5	50	2.63	161.3	16				27			
6	60	2.84	172.3	17				28			
7	70	2.44	169.9	18				29			
8	80	2.23	194.5	19				30			
9	90	2.61	147.9	20				31			
10	100	2.82	146.5	21				32			

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

P-141A(10-8)

SHEET NO.: 1

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: 1309.61 m TOTAL DEPTH: 419.4 m DATE BEGUN: \_\_\_\_\_  
 PROJECT: Goodrich BEARING: \_\_\_\_\_ CORE SIZE: HQ DATE COMPL.: November 10/80  
 CO. ORD.: 165 273 60N 531.997,93 E HOLE ANGLE: \_\_\_\_\_ LOGGED BY: GS CONTRACTOR: Coates

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
									TOP OF BOX 1	
		0.12		15.50	15.62	0.12			Sandstone - medium to fine grained - core broken	
		0.36		15.62	15.98	0.36			Sandstone - fine grained - laminated - numerous small calcite veins	
		0.16		15.98	16.43	0.45			Sandstone - carbonaceous - coal bands - core broken	
		0.29							- pyritic - mudstone bands - moderate calcite veining - carbonaceous partings	
	56' 17.07		0.70	16.43	17.13	0.70			Core loss - rock	



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

P-141A(10-8)

SHEET NO.: 2

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: GS CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
39 <sup>0</sup>		1.40		17.13	18.53	1.40			Sandstone - very fine grained - Silty - becoming siltier towards base - minor calcite veining - carbonaceous plant fragments	
		0.23		18.53	19.45	0.92			Mudstone - carbonaceous plant fragments - silty  TOP OF BOX 2	
		0.69							- minor coal partings - becomes siltier towards base - slickensides	
38 <sup>0</sup>		1.34		19.45	20.79	1.34			Sandstone - very fine grained - laminated - silty - micaceous - carbonaceous plant fragments - light to moderate calcite veining	
		0.55		20.79	21.34	0.55			Siltstone - Sandy in parts - becomes muddier towards base - coal laminations and slickenside - calcite being moderate	



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

P-141A(10-80)

SHEET NO.: 4

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: GS CONTRACTOR: \_\_\_\_\_

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
48 <sup>0</sup>		1.34		23.93	26.60	2.67			Mudstone - minor sandstone and siltstone bands - bioturbated at top - core blocky in parts	
	85' / 25.91	1.33								



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

P-141A(10.8)

SHEET NO.: 6

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: GS CONTRACTOR: \_\_\_\_\_

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
44 <sup>0</sup>		0.13		29.28	30.89	1.61			Mudstone - carbonaceous plant fragments - moderate calcite veins and slickensides  TOP OF BOX 6	
		1.48							- carbonaceous in parts - slickensides	
		0.74		30.89	32.03	1.14			Siltstone - sandy - moderate calcite veining	
	105' / 32.00	0.40							-	

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

P-141A(10-80)

SHEET NO.: 7

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
45 <sup>0</sup>		0.65		32.03	32.68	0.65			TOP OF BOX 7 Siltstone - interbedded with mudstone - slickensides - core becomes blocky at base	
		0.23		32.68	32.91	0.23			Mudstone - very carbonaceous - coal laminations - slickensides	
41 <sup>0</sup>		1.79		32.91	34.70	1.79			Sandstone - very fine grained - laminated - carbonaceous partings - moderate to heavy calcite veins - slickensides	
	115' / 35.05		0.73	34.70	35.43	0.73			Core loss - rock	

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

P-141A(10-8)

SHEET NO.: 8

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
40 <sup>0</sup>		1.69		35.43	37.12	1.69			TOP OF BOX 8	
		0.97		37.12	38.35	1.23			Mudstone - slickensides - core blocky to broken in parts - minor calcite veins	
		0.26							TOP OF BOX 9	
	126' / 38.40		0.72	38.35	39.07	0.72			Core loss - rock	
		1.78		39.07	40.85	1.78			- carbonaceous in part - carbonaceous plant fragments	
		0.20		40.85	41.05	0.20			Mudstone - coaly - core is sheared and broken	

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

P-141A(10-80)

SHEET NO.: 9

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: GS CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.35		41.05	41.40	0.35			Mudstone - carbonaceous plant fragments - slickensides - abundant calcite veins at base  TOP OF BOX 10	
	136' / 41.45		0.41	41.40	41.81	0.41			Core loss - rock	
39°		1.24		41.81	43.05	1.24			Mudstone - coal partings - moderate calcite veining - slickenslide - carbonaceous plant fragments	
45°		1.25		43.05	44.30	1.25			Sandstone - interbedded with siltstone - medium to dark grey - minor calcite veins - minor coaly partings - mudstone bands near base	
		0.15		44.30	44.45	0.15			Mudstone - carbonaceous - coal partings - abundant carbonaceous plant fragments	



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

P-141A(10-8)

SHEET NO.: 10

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
										TOP OF BOX 11
	146' / 44.50		0.10	44.45	44.55	0.10				Core loss - rock
		0.12		44.55	44.67	0.12				-
47°		0.44		44.67	45.11	0.44				Sandstone - laminated with mudstone - carbonaceous - fine-grained
		0.40		45.11	45.51	0.40				Mudstone - carbonaceous plan fragments abundant - slickensides
		0.08		45.51	45.59	0.08				Mudstone - coaly
		0.13		45.59	45.72	0.13				Mudstone - becoming sandy
61°		1.63		45.72	47.39	1.67				Sandstone - fine grained, medium grey - carbonaceous - moderate calcite veining - laminated - micaceous - cross-bedding

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

P-141A(10-8)

SHEET NO.: 11

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: GS CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
40°	156' / 47.55	0.04							TOP OF BOX 12	
			0.48	47.39	47.87	0.48			- core blocky - heavy calcite veining	
									Core loss - rock	
			0.18	47.87	48.05	0.18			Mudstone - minor coal partings - minor pyrite - silty	
			1.52	48.05	49.57	1.52			Siltstone - sandy - moderate calcite veining	
			0.20	49.57	49.77	0.20			Mudstone - carbonaceous partings	
	0.66	49.77	50.43	0.66			Sandstone - fine grained - carbonaceous - calcite veining moderate - slickensides - becoming silty at base			



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

P-141A(10-8)

SHEET NO.: 13

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
40 <sup>0</sup>		2.54								- minor mudstone interbeds - cross bedding - slightly carbonaceous  TOP OF BOX 15
	186' / 56.69	0.60								
45 <sup>0</sup>		2.007								= core blocky in part  TOP OF BOX 16
		0.97								- micaceous near base

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

P-141A(10-80)

SHEET NO.: 14

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	196' / 59.74	0.97							- - mudstone clasts	
		0.20		60.59	60.79	0.20			Mudstone - carbonaceous - sheared - core broken - calcite veins abundant near base	
			0.12	60.79	60.91	0.12			Core loss - rock	
40°		0.47		60.91	62.57	1.66			Sandstone - interbedded with mudstone - slightly carbonaceous	
		1.19							TOP OF BOX 17  - - bioturbated - becomes silty at base - very micaceous in parts	



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

P-141A(10-80)

SHEET NO.: 16

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
49 <sup>0</sup>		0.77		65.78	66.55	0.77			Siltstone - slightly sandy - interbedded with mudstone - carbonaceous plant fragments	
			0.15	66.55	66.70	0.15			Core loss - rock	
			0.41	66.70	67.11	0.41			Core loss - coal	
			0.03	67.11	67.14	0.48	53.93		Coal - dull banded, heavily broken	
			0.02	67.14	67.16				- bright, heavily broken	
			0.04	67.16	67.20				- bright	
			0.04	67.20	67.24				- bright banded, broken	
			0.05	67.24	67.29			00662	- dull banded	
			0.05	67.29	67.34				- dull banded, heavily broken	
			0.09	67.34	67.43				- sheared, probably dull banded	
			0.04	67.43	67.47				- dull banded	
			0.04	67.47	67.51				- sheared, dull banded	
			0.08	67.51	67.59				- dull banded	

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

P-141A(10-80)

SHEET NO.: 17

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.26		67.59	68.24	0.65			Mudstone - very carbonaceous - coal stringers - carbonaceous plant fragments  TOP OF BOX 19	
		0.39							- numerous fine calcite veinlets	
		0.61		68.24	68.85	0.61			Sandstone - very fine grained - moderate calcite vining - carbonaceous	



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

P-141A(10.8)

SHEET NO.: 18

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	226'/ 68.88		0.42	68.85	69.27	0.42			Core loss - rock	
		0.10		69.27	69.37	0.10			Sandstone - as above	
		0.37		69.37	69.74	0.37			Mudstone - carbonaceous plant fragments - becomes silty towards base	
		0.37		69.74	70.11	0.37			Sandstone - fine grained - interbedded with mudstone - bioturbated - micaceous - carbonaceous plant fragments	
		0.80		70.11	71.05	0.94			Mudstone - pyritic - carbonaceous plant fragments - minor coal laminations	
		0.14							TOP OF BOX 20  - becoming sandy at base - moderate calcite veining	

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

P-141A(10-80)

SHEET NO.: 19

HOLE NO.: GDR-DDH-80-55 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: GS CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
45°	236' / 71.93	0.39	0.08	71.05	71.44	0.39			Sandstone - very fine grained - interbedded with mudstone - laminated	
		0.17		71.44	71.61	0.17			Mudstone - slickensides - carbonaceous - coal partings	
		0.29		71.61	73.19	1.58			Sandstone - very fine grained - interbedded with mudstone - slightly carbonaceous	
		1.29								
		0.36		73.19	73.75	0.56			Mudstone -  TOP OF BOX 21	
		0.20							- - minor calcite veining	

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

P-141A(10-85)

SHEET NO.: 20

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
49 <sup>0</sup>	246' / 74.98	1.28		73.75	75.03	1.28			Sandstone - interbedded with mudstone - minor bioturbation - top's up	
			0.19	75.03	75.22	0.19			Core loss - rock	
	1.31		75.22	76.98	1.76			Sandstone - as above		
	0.45							TOP OF BOX 22 - - becoming silty towards base		
	1.10		76.98	78.43	1.45			Mudstone - minor calcite veining - carbonaceous partings - becomes carbonaceous towards base - core blocky at base		
	256' / 78.03		0.37	78.43	78.80	0.37			Core loss - rock	

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

P-141A(10-80)

SHEET NO.: 21

HOLE NO.: GDR-DDH-80-55 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION	
				FROM	TO	APPAR. THK.	TRUE THK.				
47°		0.35								- becoming silty towards base - minor carbonaceous plant fragments	
		0.53		78.80	79.33	0.53				Sandstone - interbedded with mudstone	
		0.44		79.33	79.92	0.59				Mudstone -	
										TOP OF BOX 23	
		0.15									
		1.13			79.92	81.05	1.13				Sandstone - interbedded with mudstone
		0.35			81.05	81.40	0.35				Siltstone - interbedded with mudstone
				0.66	81.40	82.06	0.66				Core loss - rock
		0.85			82.06	82.91	0.85				- minor coal laminations in parts

266' /  
81.07



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

P-141A(10-80)

SHEET NO.: 23

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
50 <sup>0</sup>	296' / 90.22	1.19		87.50	88.69	1.19			Sandstone - interbedded with siltstone - slightly micaceous  TOP OF BOX 26	
		1.93		88.69	90.62	1.93			Sandstone - interbedded with mudstone - top's shown	
		0.22		90.62	90.84	0.22			Sandstone - slightly carbonaceous	
		0.41		90.84	91.25	0.41			Mudstone - carbonaceous plant fragments - slickensides	
		0.35		91.25	91.60	0.35			Sandstone - very fine grained, silty - slightly carbonaceous  TOP OF BOX 27	
54 <sup>0</sup>		1.12		91.60	92.72	1.12			Sandstone - interbedded with mudstone - top's shown	

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

P-141A(10-80)

SHEET NO.: 24

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: GS CONTRACTOR: \_\_\_\_\_

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
		1.00		92.72	94.17	1.45			Sandstone - fine to medium grained - medium grey - slightly micaceous	
	306' / 93.26		0.06							
		0.45							- - minor calcite veins	
		0.11		94.17	95.25	1.08			Sandstone - interbedded with mudstone - carbonaceous	
									TOP OF BOX 28	
46°		0.97							- - becoming silty at base - carbonaceous plant fragments	
47°		1.23		95.25	96.48	1.23			Mudstone - silty in parts	
		0.23		96.48	96.71	0.23			Sandstone - interbedded with mudstone - slightly carbonaceous	

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

P-141A(10-80)

SHEET NO.: 25

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
40 <sup>0</sup>	316'/ 96.31		0.10	96.71	96.81	0.10			Core loss - rock	
									TOP OF BOX 29	
		1.37		96.81	98.18	1.37			Mudstone - sandstone clasts	
		1.40		98.18	99.76				Siltstone - sandy in parts - slightly carbonaceous	
									TOP OF BOX 30	
			0.18						-	
		326'/ 99.36		0.58	99.76	100.34	0.58		Core loss - rock	
			0.35		100.34	100.69	0.35		-	
		0.59		100.69	101.28	0.59		Mudstone - very carbonaceous - coaly - pyritic		



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

P-141A(10-80)

SHEET NO.: 26

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	331' / 100.88		0.42	101.28	101.70	0.42			Core loss - rock	
		0.30		101.70	102.00	0.30			Mudstone - as above	
		0.63		102.00	102.99	0.99			Sandstone - moderate calcite veining	
	336' / 102.41									
40°		0.36							-	
		0.35		102.99	103.51	0.52			Siltstone - minor calcite veining	
									TOP OF BOX 31	
		0.17							-	
40°		0.52		103.51	104.03	0.52			Sandstone - very fine grained	
		1.06		104.03	105.09	1.06			Mudstone - slickensides - silty in parts - slightly carbonaceous	

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

P-141A(10.8)

SHEET NO.: 27

HOLE NO.: GDR-DDH -80-35 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: GS CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
28 <sup>0</sup>	346'/ 105.46	0.53		105.09	105.62	0.53			Siltstone - interbedded with sandstone - carbonaceous plant fragments	
			0.13	105.62	105.75	0.13			Core loss - rock	
		0.41		105.75	107.95	2.20			Sandstone - interbedded with mudstone  TOP OF BOX 32	
		1.79							- - top's indicated - beds remain upright	
		0.77		107.95	108.72	0.77			Mudstone - carbonaceous plant fragments	
		0.70		108.72	109.42	0.70			Core loss - rock	
		0.18		109.42	109.60				Mudstone - as above	
		356'/ 108.50								



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

P-141A(10 80)

SHEET NO.: 29

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPLETION:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
45°		0.20		114.82	115.22	0.40			Mudstone - coal laminations - calcite veins	
		0.20							TOP OF BOX 35	
		0.31		115.22	115.53	0.31			- - becoming silty towards base	
		1.05		115.53	116.58	1.05			Sandstone - claystone clasts	
		0.41		116.58	116.99	0.41			Mudstone - very carbonaceous - coal partings of vitrine - minor calcite veining	
		0.74		116.99	117.73	0.74			Siltstone - carbonaceous plant fragments - becomes sandy near base - bioturbated	
		0.07		117.73	117.80	0.07			Sandstone - interbedded with siltstone - bioturbated	
								TOP OF BOX 36		
								Sandstone - medium grained - slightly carbonaceous		

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

P-141A(10-80)

SHEET NO.: 30

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: GS CONTRACTOR: \_\_\_\_\_

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
	386' / 117.65		0.13	117.80	117.93	0.13				
		0.67	117.93	118.60	0.67			Sandstone - laminated with mudstone - becomes muddy towards base - carbonaceous		
		0.94	118.60	119.54	0.94			Mudstone - interbedded with sandstone - minor bioturbations - minor pyrite		
		0.90	119.54	120.44	0.90			Mudstone - sand clasts near base - carbonaceous		
									TOP OF BOX 37	
49 <sup>0</sup>	396' / 120.69	0.40		120.44	120.84	0.40			Mudstone - interbedded with sandstone	
		0.11	120.84	120.95	0.11			Core loss - rock		

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

P-141A(10 B)

SHEET NO.: 31

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.63		120.95	122.58	1.63			Mudstone - becoming silty towards base	
		0.59		122.58	123.17	0.59			Siltstone - becoming muddy towards base	
		0.14		123.17	123.31	0.14			Mudstone - carbonaceous - minor coal laminations	
									TOP OF BOX 38	
		0.32		123.31	123.63	0.32			Mudstone - coal laminations throughout - slightly sheared	
		0.26		123.63	123.89	0.26			Siltstone - becomes sandy towards base - carbonaceous plant fragments	
	406' 123.74									
		0.08		123.89	123.97	0.08			Mudstone - coal laminations - slickensides	



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

P-141A(10-80)

SHEET NO.: 33

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: GS CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
42 <sup>0</sup>		0.64								
		0.96		127.57	128.53	0.96			Sandstone - fine grained - top's shown beds remain upright - moderate calcite veining	
		0.10		128.53	128.63	0.10			TOP OF BOX 40 Sandstone - very fine grained - becomes silty towards base	
		1.25		128.63	130.32	1.69			Mudstone - silty in parts	
	426' / 129.84									
		0.44							Mudstone - as above - becoming silty towards base	
45 <sup>0</sup>		0.74		130.32	131.06	0.74			Sandstone - interbedded with siltstone and - mudstone - becoming muddy towards base	



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

P-141A(10-80)

SHEET NO.: 34

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: GS CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% HEC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
53 <sup>0</sup>	436' / 132.89	0.22		131.06	132.31	1.25			Mudstone -  TOP OF BOX 41	
		1.03							- - becoming silty towards base	
		0.61		132.31	132.92	0.61			Sandstone - fine grained - interbedded with siltstone - bioturbated - slickensides	
		0.14		132.92	133.06	0.14			Mudstone -	
		0.98		133.06	134.59	1.53			Sandstone - interbedded with mudstone - laminated - slickenside - carbonaceous	
		0.55						TOP OF BOX 42  - becoming muddier towards base - moderate calcite veining		

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

P-141A(10-80)

SHEET NO.: 35

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: GS CONTRACTOR: \_\_\_\_\_

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
48 <sup>0</sup>		1.48		134.59	138.85	4.26			Mudstone - sandstone laminations - disappearing towards base	
	446' / 135.93		0.00							
		0.83							-  TOP OF BOX 43	
43 <sup>0</sup>		1.95							-  - very carbonaceous and coaly near base - moderate calcite veining	
		0.27		138.85	139.12	0.27			Siltstone - minor coaly partings - carbonaceous	
	456' / 138.98		0.20	139.12	139.32	0.20			Core loss - rock	
		0.40		139.32	140.22	0.90			Mudstone - silty in parts - carbonaceous	

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

P-141A(10-80)

SHEET NO.: 36

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: GS CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
									TOP OF BOX 44	
41 <sup>0</sup>		0.50							- becoming silty towards base	
		1.05		140.22	141.27	1.05			Sandstone - interbedded with silstone - becoming muddy towards base - slightly carbonaceous	
		0.67		141.27	141.94	0.67			Mudstone - sandy - carbonaceous plant fragments	
50 <sup>0</sup>		0.41		141.94	142.91	0.97			Sandstone - silty - carbonaceous plant fragments (minor)	
									TOP OF BOX 45	
		0.56							- becoming muddy towards base	
53 <sup>0</sup>		2.10		142.91	145.01	2.10			Mudstone - silty in parts - minor carbonaceous plant fragments	

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

P-141A(10-80)

SHEET NO.: 37

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

3CA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
	476' / 145.08		0.17	145.01	145.18	0.17			Core loss-rock	
		1.54		145.18	146.72	1.54			Mudstone- as above TOP OF BOX 46	
			0.50	146.72	147.22	0.50			Core loss- coal	
		0.06		147.22	147.28	0.06			Coal- dull banded	
		0.07		147.28	147.35	0.07			Carbonaceous mudstone	
45°		0.40		147.35	147.75	0.40			Siltstone- sandy - carbonaceous in parts	
		0.08		147.75	147.83	0.08			Siltstone- muddy -carbonaceous	

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

P-121A(10-80)

SHEET NO.: 38

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

JCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	486' / 148.13		0.17	147.83	148.00	0.17			Core loss- rock	
			0.25	148.00	148.25	0.25			Core loss- coal	
		0.05		148.25	148.30	0.05			Coal- dull and bright - broken	
		0.25		148.30	149.29	0.99			Mudstone- very carbonaceous - vitrine bands	
									TOP OF BOX 47	
		0.74							-	
		0.17		149.29	149.46	0.17			Siltstone- carbonaceous plant fragments	
37°		1.40		149.46	151.23	1.77			Sandstone- fine-grained -silty in parts -slightly pyritic	

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

P-141A(10-80)

SHEET NO.: 39

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

SCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	496' / 151.17	0.33								
		0.21		151.23	152.49	1.26			Mudstone - TOP OF BOX 48	
		1.05							- carbonaceous plant fragments - becomes silty towards base	
		0.50		152.49	152.99	0.50			Siltstone - sandy in part - becomes muddy near base	
		0.99		152.99	155.41	2.42			Mudstone - silty - carbonaceous - minor coal laminations - slickensides - minor calcite veins	
	506' / 154.22		0.15	155.41	155.56	0.15			Core loss - rock	
		0.17								

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

P-141A(10-80)

SHEET NO.: 40

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

3CA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
									TOP OF BOX 49	
		1.26							- sandy in parts	
		0.51		155.56	156.07	0.51			Siltstone -	
		0.43		156.07	156.50	0.43			Mudstone - silty in parts	
		0.35		156.50	156.85	0.35			Siltstone -	
		0.17		156.85	157.02	0.17			Mudstone - slightly carbonaceous	
	516' 157.26								TOP OF BOX 50	
		2.08		157.02	159.10	2.08			Siltstone - carbonaceous plant fragments - minor slickensides - becomes sandy in parts	
		0.70		159.10	160.04	0.94			Sandstone - very fine grained, silty - mottled at base	

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

P-141A(10-80)

SHEET NO.: 41

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

DCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
40 <sup>0</sup>		0.24							TOP OF BOX 51	
	526' / 160.32		0.60	160.04	160.64	0.60			Core loss - rock	
		0.97		160.64	161.61	0.97			Sandstone - as above; becomes muddier towards face	
		0.34		161.61	161.95	0.34			Carbonaceous Mudstone - coal stringers - slickensides; - becomes silty towards base	
		0.48		161.95	162.43	0.48			Siltstone - sandy - carbonaceous	
		0.55		162.43	162.98	0.55			Mudstone - carbonaceous - minor coal laminations - slickensides - becomes silty towards base - sand clasts near base	
		0.11		162.98	164.98	2.00			Sandstone - very fine grained	





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

P-141A(10-80)

SHEET NO.: 43

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

JCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
									TOP OF BOX 53	
		0.90		166.31	167.21	0.90			Sandstone - fine to medium grained - micaceous - carbonaceous plant fragments - becomes muddy towards base	
		0.42		167.21	167.63	0.42			Mudstone - silty in part - very carbonaceous - vitrine band to 0.5 cm (minor) - slickensides	
			0.28	167.63	167.91	0.28			Core loss - rock	
		0.20		167.91	168.11	0.20			Sandstone - becomes muddy at base - laminated - carbonaceous	
45°		1.08		168.11	169.19	1.08			Mudstone - very carbonaceous - coal stringers throughout - slickensides	
	556' / 169.46		0.98	169.19	170.17	0.98			Core loss - rock	

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

P-141A(10-80)

SHEET NO.: 44

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: GS CONTRACTOR: \_\_\_\_\_

3CA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
									TOP OF BOX 54	
		0.93		170.17	171.10	0.93			Mudstone - as above; siltier towards base	
		1.23		171.10	172.33	1.23			Sandstone - interbedded with mudstone - minor carbonaceous plant fragments	
		0.56		172.33	173.29	0.96			Mudstone - carbonaceous - slickensides - minor coal bands near base	
									TOP OF BOX 55	
		0.40							- sandstone interbeds in parts	
		2.05		173.29	175.34	2.05			Sandstone - fine to medium grained - top's indicated - minor calcite veining - micaceous	
		0.25		175.34	175.59	0.25			Mudstone - slightly carbonaceous	

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

P-141A(10-80)

SHEET NO.: 45

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

JCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.78		175.59	177.37	1.78			TOP OF BOX 56 Mudstone - carbonaceous - coal laminations in parts (minor) - slickensides - becomes silty towards base	
45°		0.31		177.37	177.69	0.31			Sandstone - very fine grained - micaceous - slightly carbonaceous - becomes silty at base	
		0.65		177.69	100.73	3.05			Mudstone - silty in part	
	586' / 178.60								TOP OF BOX 57	
		0.70	0.14	100.73	100.97	0.14			Core loss - rock - silty near base	
53°		1.70							- silty - minor sandstone bands - minor bioturbation	
		0.30		100.97	181.75	0.88			Carbonaceous Mudstone - sheared - coal stringers - minor calcite banding	

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

P-141A(10-84)

SHEET NO.: 46

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

JCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.21							TOP OF BOX 58	
	596' / 181.65	0.37							- becomes silty and less carbonaceous toward base	
56°		2.08		181.75	183.83	2.08			Siltstone - muddy - minor sandstone bands - carbonaceous plant fragments - becomes sandy towards base - top's shown	
		0.11							Sandstone - very fine grained - slightly carbonaceous - minor calcite veinlets - slickensides	
		0.57							TOP OF BOX 59 - mudstone laminations and bands - moderate calcite veining	

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

P-141A(10.80)

SHEET NO.: 47

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

DCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
	606' / 184.70		0.44	183.83	184.27	0.44			Core loss - rock	
		0.08							-	
		0.26		184.27	184.53	0.26			Mudstone - silty - laminated	
		0.63		184.53	185.16	0.63			Sandstone - top's shown - fine-grained - pyrite	
		0.81		185.16	185.97	0.81			Siltstone - soft sediment deformation - sand lenses - slightly carbonaceous	
		0.11		185.97	186.08	0.11			Sandstone - fine grained - slightly carbonaceous	
		0.26		186.08	186.34	0.26			Siltstone - sandstone laminations	
		0.04		186.34	186.44	0.10			Sandstone - fine grained - carbonaceous - coal laminations	

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

P-141A(10-80)

SHEET NO.: 48

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

3CA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
										TOP OF BOX 60
		0.06								
		0.26		186.44	186.70	0.26				Carbonaceous claystone
			0.38	186.70	187.08	0.38				Core loss - rock
			0.36	187.08	187.44	0.36				Core loss - coal
		0.05		187.44	187.49	0.05				Coal - dull banded
		0.09		187.49	187.58	0.09				Mudstone - carbonaceous - coal laminations
	616' / 187.75									
		0.04								
		0.49		187.58	188.07	0.49				Claystone - silty - coal laminations (minor) - carbonaceous plant fragments
45°		1.09		188.07	189.16	1.09				Siltstone - sandy - carbonaceous plant fragments

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

P-141A(10-80)

SHEET NO.: 49

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: GS CONTRACTOR: \_\_\_\_\_

JCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
46 <sup>0</sup>	626' / 190.80	0.73		189.16	190.66	1.50			Sandstone - very fine grained - laminated - mudstone bands - carbonaceous - moderate calcite veining  TOP OF BOX 61	
		0.77							-	
			0.32	190.66	190.98	0.32			Core loss - rock - as above	
		0.98		190.98	191.96	0.98			Sandstone - becomes increasingly carbonaceous in parts - core blocky - some coal laminations	
		0.86		191.96	193.26	1.30			Carbonaceous Mudstone - abrupt contact - becomes silty near base - abundant carbonaceous plant fragments  TOP OF BOX 62	
		0.28						-		





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

P-141A(10-8)

SHEET NO.: 51

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
47°		0.53								
		1.03		197.21	199.28	2.07			Sandstone - silty at top - very fine grained	
		1.04							TOP OF BOX 64 - becomes muddy at base - slightly carbonaceous	
		0.35		199.28	200.19	0.91			Mudstone - carbonaceous - moderate calcite veining - minor coal laminations	
		656' / 199.94		1.02	200.19	201.21	1.02			Core loss - rock
		0.56								
	0.85			201.21	202.25	1.04			Sandstone - fine grained - slightly carbonaceous - calcite veins moderate	

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

P-141A(10-80)

SHEET NO.: 52

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

3CA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.19							TOP OF BOX 65	
		2.56		202.25	205.32	3.07			Mudstone - silty at top - carbonaceous - coal laminations up to 0.5 cm - abundant carbonaceous plant fragments - minor calcite veinlets	
		0.51							TOP OF BOX 66 - becomes silty towards base	
55°		0.40		205.32	206.28	0.96			Sandstone - very fine grained - silty	
	676' / 206.03	0.56							- becomes muddier towards base - top's shown - minor carbonaceous plant fragments	



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

P-141A(10-B)

SHEET NO.: 54

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		.08								
47 <sup>0</sup>		0.44		208.93	209.37	0.44			Mudstone - silty towards base	
		0.88		209.37	210.25	0.88			Sandstone - top's shown - carbonaceous in parts	
		0.32		210.25	210.57	0.32			Siltstone - grading to mudstone	
50 <sup>0</sup>		1.25		210.57	211.82	1.25			TOP OF BOX 68 Sandstone - fine grained - laminated - caused by mudstone - top's shown - carbonaceous plant fragments	
	696' / 212.13		0.60	211.82	212.42	0.60			Core loss - rock	
45 <sup>0</sup>		1.45		212.42	214.98	2.56			Mudstone - silt and very fine grained sand interbeds  - slightly carbonaceous	

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

P-141A(10-8)

SHEET NO.: 55

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.00							TOP OF BOX 69	
	706' / 215.18								- becomes increasingly carbonaceous towards base	
		0.11							- sheared in parts	
		0.03		214.98	215.01	0.03			- core blocky	
		0.13		215.01	215.14	0.13			Coaly mudstone - core broken	
		1.34		215.14	216.91	1.77			Mudstone - carbonaceous - becomes sandy towards base	
									Sandstone - very fine grained - silt - top's shown - slightly carbonaceous in part - bioturbation	

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

P-141A(10-8)

SHEET NO.: 56

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
										TOP OF BOX 70
49 <sup>0</sup>		0.43								-
		1.02		216.91	217.93	1.02				Siltstone - slickensides - slightly carbonaceous - laminated - minor calcite veining
	716' / 218.23									
			0.19	217.93	218.12	0.19				Core loss - rock
47 <sup>0</sup>		1.27		218.12	219.55	1.43				Siltstone - as above; becomes increasingly muddier towards base - top's indicated
										TOP OF BOX 71
		0.16								- muddy
		1.27		219.55	220.32	1.27				Mudstone - carbonaceous - coal laminations - becomes silty towards base - core crumbly and blocky in part
		0.15		220.32	220.97	0.15				Sandstone - very fine grained - interbedded with mudstone

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

P-141A(10-80)

SHEET NO.: 57

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: GS CONTRACTOR: \_\_\_\_\_

HOLE NO.	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
37°	726' / 221.27	0.57		220.97	221.54	0.57			Sandstone - very fine grained to silty - interbedded with mudstone	
		0.17		221.54	221.71	0.17			Sandstone - very fine grained	
		0.32		221.71	222.72	1.01			Mudstone -	
		0.69							TOP OF BOX 72  - minor calcite veins - carbonaceous - coal laminations near base - silty towards base - core blocky at base	
41°			0.59	222.72	223.31	0.59			Core loss - rock	
		0.71		223.31	225.73	2.42			Sandstone - carbonaceous - coaly laminations - fine grained	



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

P-141A(10-80)

SHEET NO.: 58

HOLE NO.: GDR-DDH-80-55 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

JCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
45°	736' / 224.32	1.28							- slickensides	
		0.43							TOP OF BOX 73	
		0.30		225.73	226.03	0.30			Mudstone - silty	
		0.47		226.03	226.50	0.47			Sandstone - very fine grained - becomes silty towards base - slightly carbonaceous	
		0.68		226.50	227.18	0.68			Mudstone - silty at top - minor calcite veining	
		746' / 227.37		0.68	227.18	227.86	0.68			Core loss - rock

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

P-141A(10-80)

SHEET NO.: 59

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

3CA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.83		227.86	228.69	0.83			Mudstone - silty at top - becoming carbonaceous at base  TOP OF BOX 74	
		1.54		228.69	230.23	1.54			Mudstone - carbonaceous - coal laminations - becomes silty towards base - minor slickensides	
	756' / 230.42		0.91	230.23	231.14	0.91			Core loss - rock	
		0.17		231.14	231.31	0.17			Mudstone - as above; silty	
36°		0.98		231.31	234.89	3.58			Sandstone - very fine grained - moderate calcite veining - mud clasts at top - slightly carbonaceous  TOP OF BOX 75  - becoming coarser grained - minor coal laminations - slickensides	
		2.60								

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

P-141A(10-80)

SHEET NO.: 60

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

JCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.12		234.89	236.32	1.43			- top's indicated Carbonaceous Mudstone - coal laminations - slickensides - abrupt contact with above unit	
		1.31							TOP OF BOX 76 - becomes silty towards base - core crumbled in parts - becomes coaly in broken sections	
			0.30	236.32	236.62	0.30			Core loss - rock	
50°	776' / 236.51	0.46		236.62	237.08	0.46			Siltstone - laminated - blocky in parts	
		1.01		237.08	238.72	1.64			Mudstone - carbonaceous plant fragments abundant near top	

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

P-141A(10-80)

SHEET NO.: 61

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: GS CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.63							TOP OF BOX 77 - - becomes silty towards base - coal stringers at base	
		0.65		238.72	239.37				Siltstone- sandy - minor calcite veining	
	786' / 239.56		0.22	239.37	239.59	0.22			Core loss- rock	
		0.65		239.59	240.24	0.65			Siltstone- as above; mudstone bands - slickensides - minor carbonaceous plant fragments	
		0.35		240.24	240.59	0.35			Mudstone - becomes carbonaceous and silty near base	
		0.35		240.59	245.19	4.60			Sandstone- very fine grained - silty - coarsening downwards	

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

P-141A(10-8)

SHEET NO.: 62

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.48							TOP OF BOX 78 - slightly carbonaceous - calcite veining minor	
56 <sup>0</sup>	796' / 242.61	1.25							-	
		1.52							TOP OF BOX 78 - core blocky in parts - minor pyrite	
58 <sup>0</sup>		0.52		245.19	245.71	0.52			Mudstone - abrupt contact with above unit - slickensides - carbonaceous plant fragments	
		0.85		245.71	246.56	0.85			Siltstone - sandy - becoming muddy towards base - slightly carbonaceous - slickensides - minor calcite veins	

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

P-141A(10-80)

SHEET NO.: 63

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: GS CONTRACTOR: \_\_\_\_\_

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
40°		2.09		246.56	248.65	2.09			TOP OF BOX 80	
	816' / 248.70		0.92	248.65	249.57	0.92			Mudstone - silty near top - carbonaceous plant fragments - increasing near base	
		0.67		249.57	252.54	2.97			Core loss - rock Mudstone - as above	
		2.30							TOP OF BOX 81 - silty in parts - minor coal laminations	
		0.41		252.54	254.75	2.21			Siltstone - carbonaceous plant fragments	

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

P-141A(10-80)

SHEET NO.: 64

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: \_\_\_\_\_ TOTAL DPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: GS CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
46 <sup>0</sup>	836' / 254.80	1.80							TOP OF BOX 82 - sandy - grades to sandstone near base	
			0.74	254.75	255.49	0.74			Core loss - rock	
		0.27		255.49	258.36	2.89			Sandstone - very fine grained	
47 <sup>0</sup>	846' / 257.85	2.07							TOP OF BOX 83 - becoming carbonaceous and coarse grained - top's indicated	
		0.15							-	
		0.40							TOP OF BOX 84 -	

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

P-141A(10-80)

SHEET NO.: 65

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: GS CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.78		258.36	259.16	0.78			Mudstone - carbonaceous - core blocky - minor slickensides	
		1.69		259.16	260.85	1.69			Siltstone - sandy in parts - bioturbated	
									TOP OF BOX 85	
	856' / 260.90		0.17	260.85	261.02	0.17			Core loss - rock	
39 <sup>0</sup>		2.00		261.02	263.02	2.00			- sandstone laminations near base - pyritic and very carbonaceous near base	
		0.32		263.02	263.34	0.32			Coaly Mudstone - core blocky - slickensides	
		0.47		263.34	263.89	0.55			Mudstone - very carbonaceous - coal laminations - core blocky	



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

P-141A(10-80)

SHEET NO.: 66

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.08							TOP OF BOX 86	
46°	866' / 263.94	1.92		263.89	265.81	1.92			Mudstone - silty - very carbonaceous - mottled - slickensides - core broken in part	
		0.73		265.81	266.92	1.11			Siltstone - carbonaceous plant fragments	
		0.38							TOP OF BOX 87	
	876' / 266.99		0.17	266.92	267.09	0.17			Core loss - rock	
		0.08		267.09	267.17	0.08			Mudstone - very carbonaceous - coal laminations	

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

P-141A(10-86)

SHEET NO.: 67

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: GS CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.10		267.17	268.27	1.10			Siltstone - carbonaceous plant fragments - sandy in parts - top's are indicated	
		0.47		268.27	268.74	0.47			Mudstone - carbonaceous plant fragments	
		0.72		268.74	269.46	0.72			Siltstone - carbonaceous plant fragments - sandy in parts - minor calcite veins	
									TOP OF BOX 88	
		0.14		269.46	269.60	0.14			Mudstone - carbonaceous	
		0.37		269.60	270.25	0.65			Sandstone - very fine grained - slickensides - muddy to silty at top	
49 <sup>0</sup>	886' / 270.04	0.28								

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

P-141A(10-80)

SHEET NO.: 68

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

SCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
48 <sup>0</sup>	896' / 273.09	1.60		270.25	271.85	1.60			Mudstone - becomes coaly at base - core blocky at base - numerous carbonaceous plant fragments throughout	
			0.29	271.85	272.14	0.29			Core loss - rock	
		0.39		272.14	273.02	0.88			Mudstone - silty - carbonaceous	
		0.49							TOP OF BOX 89	
44 <sup>0</sup>		1.19			273.02	274.21	1.19			Siltstone - carbonaceous plant fragments in part
50 <sup>0</sup>	1.07			274.21	275.28	1.07			Mudstone - core blocky and broken at base	
			0.35	275.28	275.63	0.35			Core loss - rock	

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

P-141A(10-80)

SHEET NO.: 69

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	906'/ 276.14	0.82		275.63	278.55	2.92			TOP OF BOX 90 Mudstone - as above mottled with sand and silt - bioturbated - slightly carbonaceous	
		1.90								
		0.20							TOP OF BOX 91 - becomes sandy towards base	
		0.46		278.55	279.01	0.46			Sandstone - very fine grained - carbonaceous - laminated	
		0.13		279.01	279.14	0.13			Siltstone - carbonaceous - slickensides - core blocky	
	916'/ 279.18		0.31	279.14	279.45	0.31			Core loss - rock	

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

P-141A(10-80)

SHEET NO.: 70

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: GS CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
48°		0.11		279.45	279.56				Siltstone - as above	
		1.84		279.56	282.66	3.10			Sandstone - fine grained - silty - minor calcite veining - carbonaceous plant fragments	
		0.79							TOP OF BOX 92 - top's indicated.	
42°	926' / 282.23	0.47								
		0.20		282.66	282.86	0.20			Mudstone - abrupt contact - becomes silty towards base	
		1.36		282.86	288.17	5.31			Sandstone - very fine to medium grained - coarser downwards - minor mudstone clasts	

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

P-141A(10.80)

SHEET NO.: 71

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.02							TOP OF BOX 93	
45 <sup>0</sup>	936' / 285.28	1.68								
		1.25							TOP OF BOX 94 - slightly carbonaceous in parts - minor slickenside	
43 <sup>0</sup>	946' / 288.33	1.45	0.12	288.17	288.29	0.12			Core loss - rock	
				288.29	290.18	1.89			Sandstone - as above - minor calcite veining - core broken at base - minor isolated pebbles	
45 <sup>0</sup>		0.44							TOP OF BOX 95 - core blocky at top	

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

P-141A(10-80)

SHEET NO.: 72

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: GS CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.18		290.18	290.36	0.18			Conglomerate - chert pebbles - rounded - maximum clast diameter 1.5 cm average 0.5 cm - sand matrix	
		0.22		290.36	290.58	0.22			Sandstone - fine to medium grained - minor isolated pebbled - slightly carbonaceous	
		0.15		290.58	290.73	0.15			Conglomerate - maximum clast diameter 2 cm, average 0.5 cm - sandstone matrix	
		0.35		290.73	291.08	0.35			Mudstone - carbonaceous - plant fragments abundant	
	956'/ 291.37									
		0.30		291.08	291.38	0.30			Siltstone - minor carbonaceous plant fragments - sandy in parts	
		0.87		291.38	292.25	0.87			Sandstone - fine grained - mudstone bands - top's indicated - minor carbonaceous plant fragments	

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

P-141A(10.80)

SHEET NO.: 73

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: GS CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
47 <sup>0</sup>		0.25		292.25	292.60	0.35			Siltstone - laminated - minor carbonaceous plant fragments	
		0.10							TOP OF BOX 96	
		0.50		292.60	293.10	0.50			Mudstone - becomes very carbonaceous near base	
		0.45		293.10	293.55	0.45			Carbonaceous Siltstone - mottled - very carbonaceous - minor coal laminations	
		0.44		293.55	294.90	1.35			Siltstone - interbedded with mudstone - carbonaceous - sandy in parts	
	966' / 294.42	0.91								
51 <sup>0</sup>		0.67		294.90	295.97	1.07			Mudstone - silty near top	



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

P-141A(10-80)

SHEET NO.: 74

HOLE NO.: GDR DDH-80-35 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.40							TOP OF BOX 97	
		0.02		295.97	295.99	0.02			Mudstone - dark grey - gradational to carbonaceous mudstone	
			0.93	295.99	296.92	0.93			Coal - dull banded - hard	
		0.40		295.92	299.20	2.28			Core loss - coal - carbonaceous at top	
45°	976' / 297.27	1.21							- silty laminations at top - carbonaceous laminations and coal stringers	
	981' / 298.99	0.67							-	
60°		0.67		299.20	299.87	0.67			TOP OF BOX 98	
		0.54		299.87	300.41	0.54			Siltstone - medium grey - numerous argillaceous laminations and carbonaceous partings	
									Silty Sandstone - medium grey - fine to medium grained - argillaceous laminae - fine cross bedding - matrix appears to be micaceous	

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

P-141A(10-80)

SHEET NO.: 75

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.56		300.41	300.97	0.56			Interbedded Sandstone/Mudstone - sandstone predominate with mudstone clasts scour surfaces and high angle crossbeds - mudstone laminations are generally contorted	
		0.77		300.97	301.74	0.77			Mudstone - dark grey - slightly carbonaceous - minor coal laminations - badly broken in places	
	992' / 302.35		0.15	301.74	301.89	0.15			Core loss - rock	
55 <sup>0</sup>		1.56	1.49	301.89 303.38	303.38 305.61	1.49 2.23			Core loss - rock Mudstone - as above; very carbonaceous in places - sandy at top	
	1002' / 305.40	0.67							- carbonaceous mudstone in places	
	1006' / 306.61		0.54	305.61	306.15	0.54			Core loss - rock	
		0.38		306.15	308.93	2.78			Mudstone - as above; sandy laminations	
50 <sup>0</sup> 45 <sup>0</sup>		2.40							TOP OF BOX 100 - dark grey - slightly carbonaceous - faintly laminated	

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

P-141A(10-80)

SHEET NO.: 76

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: I K CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
			0.27	308.93	309.20	0.27			- bioturbations - gradational to carbonaceous mudstone at base	
	1016' / 309.66	0.28		309.20	309.97	0.77			Core loss - rock	
		0.49							Mudstone - as above; carbonaceous mudstone at top	
		0.63		309.97	310.60	0.63			TOP OF BOX 101 - rootlets	
50°		1.47		310.60	314.94	4.34			Mudstone - gradational between mudstone and medium grained sandstone below - predominately mudstone with contorted sandstone laminations and inclusions	
	1026' / 312.71	0.10							Sandstone - medium grey - medium grained - generally a very dirty sandstone with - an argillaceous matrix - massive - carbonaceous partings - wispy coal stringers	

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

P-141A(10-80)

SHEET NO.: 77

HOLE NO.: GDR-DDH-8-35 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
45°	1032' / 314.54	1.79							TOP OF BOX 102 Sandstone - as above	
		0.98							- faintly bedded - varies from medium to coarse grained	
	1042' / 317.59	1.91		314.94	316.85	1.91			TOP OF BOX 103 Sandstone - generally coarse grained - argillaceous matrix - massive	
		0.10		316.85	317.55	0.70			Mudstone - sharp contact of mudstone at top - with sandstone - dark grey - carbonaceous - numerous coal laminations at top - bioturbations with siltstone infill	
	1046' / 318.81	0.60							TOP OF BOX 104	
		0.14		317.55	317.69	0.14			Mudstone - dark grey	
			0.48	317.69	318.17	0.48			Core loss - rock	

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

P-141A(10-80)

SHEET NO.: 78

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
45 <sup>C</sup>		2.17		318.17	320.34	2.17			Mudstone - as above - with sandy laminations and bioturbations between 0.70 and 0.94 meters - sparce coal stringers - slightly carbonaceous in places	
		0.22		320.34	320.56	0.22			Sandstone - light grey - very fine grained - numerous argillaceous laminae and numerous rootlets	
		0.26		320.56	321.04	0.48			Mudstone - dark grey - carbonaceous - sparce coal laminations	
		0.10							TOP OF BOX 105	
	1058' / 322.46	0.12								
			0.23		321.04	321.27	0.23			Core loss - rock
			0.62		321.27	321.89	0.62			Core loss - coal
			0.07		321.89	321.96	0.07			Coal - dull banded - heavily broken
			0.60		321.96	322.56	0.60			Core loss - rock

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

P-141A(10-80)

SHEET NO.: 79

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.68		322.56	325.48	2.92			Mudstone - carbonaceous at top - grading to dark grey - with sandy laminations and with micaceous matrix	
	1066' / 324.90	0.96							TOP OF BOX 106	
		0.28								
50°		0.34		325.48	325.82	0.34			Sandstone - medium grey - dark grey, argillaceous laminations	
45°		1.08		325.82	326.90	1.08			Mudstone - dark grey - sparse sandy laminae	
		0.73		326.90	329.59	2.69			Sandstone - medium grey, fine to very fine grained - fine small scale crossbedding - numerous argillaceous laminae - carbonaceous partings	
	1076' / 327.95	0.50							- crossbedding indicates "tops up"	

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

P-141A(10-8c)

SHEET NO.: 80

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
46 <sup>0</sup>		1.46							TOP OF BOX 107	
		1.04		329.59	330.63	1.04			Sandstone - as above	
									Mudstone - medium grey - silt and sand inter-laminations in upper half - carbonaceous with carbonaceous partings at base	
	1086' / 331.00		0.07	330.63	330.70	0.07			Core loss - rock	
45 <sup>0</sup>			0.32	330.70	331.02	0.32			Mudstone - dark grey - very carbonaceous - coal laminations	
		0.25		331.02	331.27	0.27			TOP OF BOX 108	
									Sandstone - medium grey - fine grained - coal laminations and partings - sharp contacts at top and base with mudstone	
		1.20		331.27	332.47	1.20			Mudstone - dark grey - carbonaceous - coal laminations - numerous carbonaceous partings	
		0.92		332.47	353.39	.92			Mudstone - dark grey - numerous sandy inter-laminations - bioturbations filled with sand	

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

P-141A(10-8)

SHEET NO.: 81

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
41 <sup>0</sup>		0.44		333.39	333.83	.44			Mudstone - contorted laminations (soft sedimentary deformations) - carbonaceous with random coal stringers  TOP OF BOX 109	
		1.86		333.83	333.69	1.86			Mudstone - dark grey - carbonaceous with random coal stringers	
		0.36		335.69	336.05	0.36			Argillaceous Sandstone - medium grey - medium to fine grained - argillaceous matrix	
		0.17		336.05	336.49	0.44			Mudstone - dark grey - very irregular fracture	
45 <sup>0</sup>	1106' / 337.09	0.27							- silty at base  TOP OF BOX 110	
51 <sup>0</sup>		1.12		336.49	337.61	1.12			Argillaceous Sandstone - medium grey - fine grained - argillaceous matrix - carbonaceous partings - small crossbedding indicates tops up	



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

P-141A(10-8)

SHEET NO.: 82

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: IK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
45 <sup>0</sup>		1.77		337.61	339.62	2.01			Mudstone - dark grey - numerous silt and sandy inter-laminations  TOP OF BOX 111	
	1116' / 340.14	0.24							-	
		2.50		339.62	342.32	2.70			Sandstone - light grey - medium grained to coarse grained - salt and pepper - faintly bedded - random calcite veinlets with sparse pyrite crystals  TOP OF BOX 112	
		0.20	0.03	342.32	342.35	0.03			Core loss - carbonaceous partings - rock	
	1126' / 343.19	2.29		342.35	<del>344.89</del> 394.89	2.54			-	
	1133' / 345.32	0.25							-	



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

P-141A(10-8)

SHEET NO.: 84

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 GO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
60 <sup>0</sup> 69 <sup>0</sup>		1.46		351.62	353.08	1.46			Mudstone - dark grey - carbonaceous - random coal stringers - silt laminations in middle - sharp contact at top and base with sandstone	
		0.16		353.08	353.24	0.16			Sandstone - medium grey - fine grained - argillaceous inter laminae  TOP OF BOX 116	
44 <sup>0</sup>		1.32		353.24	355.25	2.01			Sandstone - medium grey - fine grained - numerous carbonaceous laminae - carbonaceous partings	
	1166'/ 355.38	0.69							- bioturbations - crossbedding indicates tops - up	
		0.32		355.25	355.57	0.32			Mudstone/Sandstone Interbeds - dark grey mudstone - medium grey, coarse sandstone - silty interlaminations - bioturbations - coal laminations	

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

P-141A(10-80)

SHEET NO.: 85

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
45°		0.39		355.57	356.69	1.12			Mudstone - dark grey - very carbonaceous - sparce coal stringers  TOP OF BOX 117	
		0.73							-	
		0.79		356.69	357.48	0.79			Mudstone - bioturbations - dark grey mudstone, with light grey, fine grained, silty and sandy laminations - carbonaceous partings	
		1.25		357.48	358.73	1.25			Mudstone - as above  TOP OF BOX 188	
45°	1176' / 358.43	1.14		358.73	359.87	1.14			Mudstone - dark grey - carbonaceous coal laminations - carbonaceous mudstone in palces	
		0.22	0.22	359.87	360.09	0.22			Core loss - rock	
		1.56		360.09	361.65	1.56			Mudstone - as above; silty near base	

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

P-141A(10-B)

SHEET NO.: 86

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: IK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
									TOP OF BOX 119	
50 <sup>0</sup>		1.60		361.65	363.25	1.60			Silty Mudstone - dark to medium grey - silty laminations - rootlets	
	1196' / 364.52	0.54		363.25	363.79	0.54			Mudstone - medium grey - irregular fractures - gradational to sandstone at base	
		0.70		363.79	365.19	1.40			Argillaceous Sandstone - medium grey - fine grained - numerous argillaceous laminae - carbonaceous partings in coal stringers - argillaceous matrix	
		0.70	0.07	365.19	365.26	0.07			TOP OF BOX 120 Core loss - rock	
55 <sup>0</sup>		0.27		365.26	365.53	0.27			Mudstone - dark grey - numerous sandy interlaminae	
		0.68		365.53	366.21	0.68			Sandstone - argillaceous matrix - coal partings - medium grey, medium to coarse grained	

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

P-141A(10-8)

SHEET NO.: 87

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: IK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	1206'/ 367.57		0.05	366.21	366.26	0.05			Core loss - rock	
		1.04		366.26	367.41	1.15			Sandstone - medium grey - fine grained - argillaceous laminae - small scale crossbedding  TOP OF BOX 121	
		0.11							-	
		1.94		367.41	369.35	1.94			Sandstone - medium grey - fine to coarse grained - occasional dark grey mudstone interbeds (0.03 m thick) also, mudstone clasts at top	
	1216'/ 370.62		0.05	369.35	369.40	0.05			Core loss - rock	
		0.80		369.40	372.37	2.97			Sandstone - as above; fine to medium grained - fine argillaceous laminae - faintly bedded  TOP OF BOX 122	
		2.17							- sparse coal stringers at base	
		0.50		372.37	373.72	1.35			Sandstone Conglomerate - medium grey	

con't

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

P-141A(10-80)

SHEET NO.: 88

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
41°	1226' 373.67	0.61							Sandstone - coarse grained numerous rounded and angular clasts of variable colors and sizes, mainly chert - wispy coal stringers with pyrite smears	
		0.24							- angular mudstone clasts up to (0.045 m thick) and rounded clasts as small as one to two mm thick - numerous coal wisps at base  TOP OF BOX 123  - pyrite disseminations along coal stringers	
	0.19	373.72	373.91	0.19				Core loss - rock		
	1.92	373.91	375.83	1.92				Mudstone - dark grey - slightly carbonaceous - silty laminations near base		
	0.60	375.83	376.43	0.60				Core loss - rock		
	1236' 376.71		0.29	376.43	376.72	0.29			Core loss - coal	

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

P-141A(10-80)

SHEET NO.: 89

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.08		376.72	396.80	0.13			Coal - badly broken - mixed pieces of boney and dull banded	
		0.05		376.80	376.85				Coal - stoney	
		0.06		376.85	376.91	0.06			Carbonaceous M udstone - numerous coal stringers	
		0.50		376.91	377.41	0.50			Mudstone - very carbonaceous at top  TOP OF BOX 124	
		1.85		377.41	388.18	2.77			Silty Mudstone - medium grey - rootlets - coal stringers - sparce pyrite disseminations	
53 <sup>0</sup>	1246' / 379.76	0.92							- siltier near base with sparce mudstone clasts	





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

P-141A(10-B)

SHEET NO.: 91

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
35 <sup>0</sup>		2.85							TOP OF BOX 126  Sandstone - as above - sparce coal stringers - carbonaceous partings - distinct bedding in lower half - calcite veining at base	
	1266' / 385.86	2.75							TOP OF BOX 127  - mudstone rip-up clasts at base - numerous wispy coal stringers in the lower 1.5 m	
		0.42							TOP OF BOX 128  - medium grey - medium grained - massive	
	1276' / 388.91	0.37								
		0.55							- coarse grained - small mudstone rip up clasts - numerous wispy coal stringers	

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

P-141A(10-B)

SHEET NO.: 92

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.40		389.78	391.88	2.10			Sandstone - medium grey - fine to medium-coarse grained - generally massive  TOP OF BOX 129	
50°	1286' / 391.95	0.70							- small angular mudstone rip-up clasts	
		1.76		391.88	393.64	1.76			Sandstone - medium grey - medium grained	
55°		0.33		393.64	393.97	0.33			Mudstone - dark grey - carbonaceous at top - silty laminations at base  TOP OF BOX 130	
51°		0.66		393.97	394.63	0.66			Siltstone - medium grey - with dark grey argillaceous laminae and light grey sandy inter beds	
			0.30	394.63	394.93	0.30			Core loss - rock	
47°	1296' / 395.00	1.31		394.93	396.24	1.31			Siltstone - as above; soft sediment deformation	

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

P-141A(10-8L)

SHEET NO.: 93

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
55°		0.82		396.24	397.13	0.89			Mudstone - dark to medium grey - faintly laminated  TOP OF BOX 131	
		0.07								
52°		0.79		397.13	397.92	0.79			Sandstone - medium grey - fine grained - numerous argillaceous laminae - carbonaceous partings - gradational at top from mudstone - gradational at bottom to silstone	
	1306' // 398.05									
55°		0.47		399.92	398.39	0.47			Siltstone - medium grey - numerous argillaceous laminae - bioturbations and rootlets - gradational at base to mudstone	
		0.50		398.39	398.89	0.50			Mudstone - dark grey - random coal stringers - gradational at base to siltstone	
		0.89		398.89	400.91	2.02			Siltstone - medium grey - massive	

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

P-141A(10-B)

SHEET NO.: 94

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.13							TOP OF BOX 132	
	1316' / 401.10								Siltstone - as above - argillaceous matrix	
40°		1.48		400.91	402.59	1.68			Sandstone - medium grey - very fine grained - numerous argillaceous and carbonaceous laminae and partings - gradational at top from siltstone - small mudstone rip up clasts	
		0.20							TOP OF BOX 133	
		0.24		402.59	402.83	0.24			- thin mudstone bands Sandstone - dark grey - fine grained - abundant mudstone rip-up clasts - coal stringers - extremely irregular shaped clasts	
		0.68		402.83	403.51	0.68			Sandstone - light grey - fine grained - carbonaceous partings - rip-up clasts at base	

con't

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

P-141A(10-8)

SHEET NO.: 95

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
45°	1326' 404.15	0.51		403.51	404.02	0.51			Sandstone (con't) - sharp contact with mudstone below	
									Mudstone - dark grey - slightly carbonaceous	
			0.35		404.02	404.37	0.35			Core loss - rock
		1.16		404.37	405.53	1.16			Mudstone - as above; silty at top	
										TOP OF BOX 134
		0.49		405.53	406.02	0.49			Silty Mudstone - medium grey - grey laminations at base	
		0.61		406.02	406.63	0.61			Sandstone - light grey - very fine grained - numerous argillaceous laminations	
57°		0.35		406.63	406.98	0.35			Mudstone - dark grey - carbonaceous - grades to carbonaceous mudstone at base	
		1.21		406.98	408.19	1.21			Sandy Mudstone - medium grey - sandy laminations and sandy intervals mixed with mud and bioturbations in-filled with sand	

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

P-141A(10-8L)

SHEET NO.: 96

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: LK CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
47°		0.25		408.19	408.44	0.25			Mudstone - dark grey - carbonaceous  TOP OF BOX 135	
		1.66		408.44	410.79	2.35			Siltstone - dark to medium grey - variable amounts of sand and mud intermixed with the silt - numerous sand and silt laminations especially towards base - slightly carbonaceous - bioturbated	
55°	1346' / 410.24	0.69							- well laminated - gradational at base to mudstone	
		0.40		410.79	411.19	0.40			Mudstone - dark grey - carbonaceous - coal stringers  TOP OF BOX 136	
45° 55°		0.28 0.96		411.19	412.19	1.00			Sandstone/Mudstone Interbeds - medium grey - numerous argillaceous inter-beds and laminations - bioturbations - gradational between sandstone and mudstone	

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

P-141A(10-8L)

SHEET NO.: 97

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.72		412.19	412.91	0.72			Sandstone - medium grey - fine grained - carbonaceous and argillaceous laminae	
55°	1356' / 413.29	0.82		412.91	413.73	0.82			Sandstone/Mudstone Inter-beds - gradational from sandstone to mudstone becoming less sandy towards base - numerous laminations	
									TOP OF BOX 137	
53°		2.07		413.73	415.80	2.07			Mudstone - dark grey - numerous silty laminae - slightly carbonaceous	
			0.16	415.80	415.96	0.16			Core loss - rock	
	1366' / 416.34	0.70		415.96	417.56	1.60			Mudstone - dark grey - carbonaceous	
									TOP OF BOX 138	
		0.90							- broken	
			0.91	417.56	418.47	0.91			Core loss - rock	
		0.53		418.47	419.00	0.53			Sandstone - medium grey - fine to medium grained - argillaceous matrix	



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

P-141A(10-86)

SHEET NO.: 98

HOLE NO.: GDR-DDH-80-35 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: LK CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	1376' / 419.38									- muddy top - massive hole  END OF HOLE



DIRECTIONAL SURVEY

ROKE OIL ENTERPRISES LIMITED

**COMPANY:** GULF CANADA RESOURCES INC.    **GRID:** \_\_\_\_\_    **DATE SURVEYED:** 10 NOVEMBER 1980  
**DRILL HOLE:** GDR - DDH - 80 - 35    **LATITUDE:** \_\_\_\_\_    **SURVEY BY:** SIM  
**LOCATION:** \_\_\_\_\_    **DEPARTURE:** \_\_\_\_\_    **WITNESSED BY:** ZSCHACH  
**FIELD:** GOODRICH    **ELEVATION:** \_\_\_\_\_    **CALCULATIONS BY:** \_\_\_\_\_  
**MAGNETIC DECLINATION:** \_\_\_\_\_    **CORRECTION OF:** \_\_\_\_\_    **FOR:** \_\_\_\_\_    **GRID:** \_\_\_\_\_

Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing	Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing	Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing
0	0	0.24	-	11	165	3.20	42.0	22	330	6.49	55.2
1	15	0.68	-	12	180	3.20	25.2	23	345	6.69	51.8
2	30	0.76	-	13	195	3.38	69.5	24	360	6.50	56.1
3	45	0.78	-	14	210	3.47	52.3	25	375	6.86	45.8
4	60	0.78	109.0	15	225	4.49	46.5	26	390	7.23	46.9
5	75	1.16	16.4	16	240	4.48	48.5	27	405	4.62	51.3
6	90	1.15	59.4	17	255	4.85	56.1	28	415	7.40	46.7
7	105	1.52	46.5	18	270	5.21	57.9	29		7.77	57.9
8	120	1.92	33.1	19	285	5.58	58.5	30			
9	135	2.10	29.3	20	300	6.13	49.1	31			
10	150	2.83	35.9	21	315	6.12	52.3	32			

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

P-141A(10-)

SHEET NO.: 1

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: 1125.87m TOTAL DEPTH: 384.2m DATE BEGUN: November 2, 1980  
 PROJECT: Goodrich BEARING: CORE SIZE: HQ DATE COMPL.: Nov. 8, 1980  
 CO. ORD.: 140 119.31N 549 835.07E HOLE ANGLE: LOGGED BY: J. Loader CONTRACTOR: Coates

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
27 <sup>o</sup>		0.73		0.00 10.55	10.55 11.28	10.55 0.73			TOP OF BOX 1 Casing - no core recovered Mudstone - dark grey, occasionally silty with a few thin fine grained sandstone and siltstone bands	
		37/ 11.28	0.10	11.28	11.38	0.10			Core Loss	
		0.60	11.38	11.98	7.40			Mudstone - has weathered fracture surfaces. A thin coal laminae occurs along a bedding surface just above base		
		0.25	11.98	12.23				- broken, some overburden material is present. Weathered fracture surfaces and bedding planes		
		1.11	12.23	13.34				- becoming less silty, no sandstone or siltstone bands		
		0.28	13.34	13.62				TOP OF BOX 2 Mudstone - dark grey, as above, massive		
	45/ 13.72	2.37	13.62	15.99				- small amounts of pyrite and marcasite, weathered fracture surfaces, some elongated argillaceous blebs		

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

P-141A(10)

SHEET NO.: 2

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: J.L. CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.76		15.99	16.75				TOP OF BOX 3	
	55/16.76	2.03		16.75	18.78			-	Mudstone - dark grey, massive, as above  - weathered fracture surfaces, becoming sandy near bottom	
		1.16		18.78	19.94	1.16			TOP OF BOX 4  Sandstone - Light grey, medium grained at top with argillaceous interbeds, <u>prominent glauconite along bedding planes</u> , regular bedded, calcite fracture infillings, sandstone becoming fine grained near with more argillaceous interbeds	
27°	65/ 19.81	1.55		19.94	21.49	3.47			Mudstone - dark grey, interbedded with fine grain sandstone near top, band of shell fragments sandstone interbeds, Grade to medium grain to bottom, few calcite filled fractures, some elongated argillaceous blebs.	

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

P-141A(10-5)

SHEET NO.: 3

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JL CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
26 <sup>o</sup>		1.51		21.49	23.00				TOP OF BOX 5	
26 <sup>o</sup>	75/ 22.86	0.41		23.00	23.41				- As above, sandstone becoming finer grained towards bottom	
		0.80		23.41	24.21	2.75			- as above, some elongated argillaceous blebs	
									Mudstone - dark grey, with fine grained sandstone interbeds, some elongated argillaceous blebs (possible worm burrows)	
29 <sup>o</sup>		1.95		24.21	26.16				TOP OF BOX 6	
	85/ 25.91	0.14	0.14	26.16	26.30	0.14			- as above, sandstone. Interbeds grading to medium grained near bottom, some argillaceous blebs	
		0.82		26.30	27.12	2.55			Core Loss	
		1.73		27.12	28.85				Mudstone - as above	
									TOP OF BOX 7	
									- as above, shell fragments, fine grained sandstone interbeds, elongated argillaceous blebs, weathered surfaces along fractures some slickensides	



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

P-141A(10-0)

SHEET NO.: 5

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: J.L. CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
26°		2.68		32.89	35.57	5.41			Mudstone - dark grey, light and dark banding as in hole 33, interbeds of medium to fine grained sandstone, some cross-beds in sandstones, weathered fracture surfaces with slickensides and calcite some argillaceous elongates and clasts, coal broken along fracture at bottom  TOP OF BOX 10	
26°	116.5/ 35.51	2.73		35.57	38.30				- as above, BCA starting to decrease near bottom (BCA 20°) increasing amounts of elongated argillaceous blebs near bottom	
20°									TOP OF BOX 11	
15°		0.35		38.30	38.65	0.35			Mudstone - dark grey, light grey, shale blebs, increasing elongated argillaceous blebs near bottom, some pyrite	
	126.5 / 38.56		0.07	38.65	38.72	0.07			Core Loss	



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

P-141A(10-e)

SHEET NO.: 6

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JL CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		2.35		38.72	41.07	3.06			Mudstone - dark grey, light and dark banding at top, many elongated argillaceous blebs near bottom (possible worm burrows)	
									TOP OF BOX 12	
		0.71		41.07	41.78				- as above, possible worm burrows near top, some pyrite near bottom	
	137/ 41.76		0.02	41.78	41.80	0.02			Core Loss	
		2.13		41.80	43.93	4.10			Mudstone - as above	
									TOP OF BOX 13	
		0.87		43.93	44.80				- As above	
	147/ 44.81								- as above, interbedded siltstones	
		1.10		44.80	45.90					
		0.62		45.90	46.52	0.62			Sandstone - light grey, fine grained, weathered fracture surfaces, cross bedded.	

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

P-141A(10-2)

SHEET NO.: 7

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: J.L CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
31°	157/ 47.85	1.34		46.52	47.86	4.39			TOP OF BOX 14 Mudstone - dark grey, occasionally silty with sandstone interbeds, core broken along fracture, slickensides	
		1.39		47.86	49.25			-	as above	
	167/ 50.90	1.66		49.25	50.91			-	as above, sandstone interbeds at bottom	
		0.56	0.56	50.91	51.47	0.56			Core Loss	
		0.86		51.47	52.33	4.06			TOP OF BOX 16 Sandstone - light grey, medium to fine grained, interbedded with siltstones and mudstones, light grey shale clasts, calcite filled fractures up to 1.5cm (some core missing)	



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

P-141A(10-c)

SHEET NO.: 9

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JL CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.63		61.53	62.16				- as above, small elongated blebs (possible worm burrows)	
									TOP OF BOX 20	
		2.57		62.16	64.73				- as above	
	214/ 65.23	0.18		64.73	64.91				- as above	
									TOP OF BOX 21	
		1.43		64.91	66.34				- as above, becoming bioturbated near bottom	
30°		0.60		66.34	66.94	0.60			Sandstone - light grey, fine grained, massive	
27°		0.76		66.94	67.70	7.18			Mudstone - Dark grey, silty, bioturbated near top, occasional banding, some possible worm burrows, top is upright.	
									TOP OF BOX 22	
30°	224.5/ 68.43	0.17		67.70	67.87				- as above, siltstone band	
		0.56		67.87	68.43				- as above, banded, irregular bedded, possible worm burrows, fracture with coaly material and pyrite at bottom	

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

P-141A(10)

SHEET NO.: 10

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: J.L. CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
32°		2.05		68.43	70.48				- as above, light grey siltstone bands, possible worm burrows  TOP OF BOX 23	
	235/ 71.63	0.52		70.48	71.00			- as above		
		0.24		71.00	71.24			- as above, fracture with weathered surface (possible core loss)		
		1.08		71.24	72.32			- as above, 2cm calcite fracture parallel to bedding at bottom		
		0.90		72.32	73.22			- as above, weathered fracture surfaces  TOP OF BOX 24		
30°		0.90		73.22	74.12			Mudstone - dark grey, occasionally silty with light grey irregular bedded siltstone bands, elongated argillaceous blebs (possible worm burrows)		
	245/ 74.68	1.89	0.11	74.12 74.23	74.23 76.12	0.11 4.70		Core Loss Mudstone - as above		

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

P-141A(10)

SHEET NO.: 11

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J.L. CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
33 <sup>0</sup>	255.5/ 77.88	1.10		76.12	77.22				TOP OF BOX 25	
		0.57		77.22	77.79			-	as above	
		1.14		77.79	78.93			-	as above, fine grained sandstone band with pyrite at bottom	
			0.34		78.93	79.27	4.49		TOP OF BOX 26	
			1.05		79.27	80.32			Mudstone - dark grey, occasionally silty with light grey siltstone bands, irregular bedded with occasional bioturbation, possible worm burrows, 1.5cm calcite filled fracture with slickensides parallel to bedding at bottom.	
		265.5/ 80.92	1.45		80.32	81.77			-	as above
			0.50		81.77	82.27			-	TOP OF BOX 27 as above, 1.5cm calcite filled fracture with slickensides parallel to bedding

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

P-141A(10)

SHEET NO.: 12

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	276/ 84.12	1.15		82.27	83.42				- as above, weathered fracture surfaces	
		1.07		83.42	84.49	1.07			Mudstone - dark grey, homogeneous, possible worm burrows, pyrite flecks	
									TOP OF BOX 28	
		1.65		84.49	86.14	8.13			Mudstone - dark grey, as above, pyrite flecks, 3cm calcite filled fracture with slickensides parallel to bedding at bottom	
		0.32		86.14	86.46				- as above	
	286.5/ 87.33	0.68		86.46	87.14				- as above	
									TOP OF BOX 29	
		2.36		87.14	89.50				- as above, some shell fragments, weathered fracture surfaces	
	296.5/ 90.37	0.37		89.50	89.87				- as above	
									TOP OF BOX 30	
	306.5/ 93.42	2.75	0.08	89.87	92.62				- as above	
				92.62	92.70	0.08			Core Loss	





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

P-141A(10-B)

SHEET NO.: 14

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
										TOP OF BOX 34
	336.5/ 102.57	1.00 1.69	0.19	100.76 101.76 101.95	101.76 101.95 103.64	0.19				Mudstone - as above, possible core loss Core Loss - as above
										TOP OF BOX 35
	347/ 105.77	1.13 1.54		103.64 104.77	104.77 106.31	2.67				Mudstone - as above - as above
										TOP OF BOX 36
	357/ 108.81	1.58 1.24		106.31 107.89	107.89 109.13	10.97				Mudstone - dark grey to black, occasionally silty, pyrite flecks, weathered fracture surfaces, possible worm burrows, some shell fragments - as above
										TOP OF BOX 37
	367/ 111.86	1.91 0.80		109.13 111.04	111.04 111.84					- as above - as above

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

P-141A(10-8-

SHEET NO.: 15

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
									TOP OF BOX 38	
	377/ 114.91	2.23		111.84	114.07				- as above	
		0.52		114.07	114.59				- as above	
									TOP OF BOX 39	
		0.15		114.59	114.74				- as above, 2cm pulverized fracture zone partially filled with calcite parallel to bedding at bottom	
	387/ 117.96	2.30		114.74	117.04				Mudstone - as above	
		0.24		117.04	117.28				- as above	
									TOP OF BOX 40	
		1.60		117.28	118.88	2.81			MUDSTONE - dark grey, some pyrite flecks, some calcite filled stress cracks, possible worm burrows 1cm calcite filled fracture at bottom	
	397/ 121.01	1.21		118.88	120.09				- as above	

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

P-141A(10-8)

SHEET NO.: 16

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX - MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.90		120.09	120.99	5.47			TOP OF BOX 41 Mudstone - dark grey, occasionally silty, pyrite flecks, elongated argillaceous blebs (possible worm burrows)	
		1.20		120.99	122.19				- as above, bioturbated	
		0.53		122.19	122.72				- as above	
		0.13		122.72	122.85				Mudstone - as above, bioturbated	
		0.29		122.85	123.14				TOP OF BOX 42 - as above, bioturbated	
	407/ 124.05	1.04		123.14	124.18				- as above, bioturbated	
30°		1.38		124.18	125.56				Mudstone - as above, irregular bedded light argillaceous bands, some coaly material and pyrite along stress cracks	



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

P-141A(10-8)

SHEET NO.: 18

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
									TOP OF BOX 46	
		1.63		135.55	135.18				Mudstone - as above	
	447/ 136.25	1.14		135.18	136.32				- as above	
									TOP OF BOX 47	
		0.10		136.32	136.42				- as above	
	451/ 137.46	1.58	0.13	136.42	136.55	0.13			Core Loss	
				136.55	138.13	5.23			Mudstone - as above, core broken and recut, possible core loss	
		0.97		138.13	139.10				Mudstone - as above	
									TOP OF BOX 48	
		0.55		139.10	139.65				- as above	
	462/ 140.82	1.53		139.65	141.18				- A/A - with ironstone nodule with calcite filled cracks	
	467/ 142.34	0.60		141.18	141.78				Mudstone - A/A	





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

F-141A(10..)

SHEET NO.: 21

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
										TOP OF BOX 55
	527/ 160.63	0.65		158.60	159.25					Mudstone - as above
		2.11		159.25	161.36					- as above
										TOP OF BOX 56
	537/ 163.68	0.91		161.36	162.27					- as above
		1.95		162.27	164.22					- as above, weathered fracture surfaces
										TOP OF BOX 57
		1.10		164.22	165.32					- as above
	547/ 166.73	1.70		165.32	167.02					- as above
										TOP OF BOX 58
		1.33		167.02	168.35					- as above
	557/ 169.77	1.48		168.35	169.83					- as above
										TOP OF BOX 59
		1.55		169.83	171.38					- as above
	567/ 172.82	1.21		171.38	172.59					- as above



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

P-141A(10-8)

SHEET NO.: 22

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.72		172.59	174.31	1.88			TOP OF BOX 60	
		0.16		174.31	174.47				- as above with fracture zone containing ironstone, coal and pyrite in fine cracks, some some calcite in filling	
	577/ 175.87	0.85		174.47	175.32	2.99			Mudstone - Dark grey to black, pyrite flecks and inclusions, some possible worm burrows	
		2.14		175.32	177.46				TOP OF BOX 61	
			0.13	177.46	177.59	0.13			- as above, ironstone "carrot" near top Core Loss	
	587/ 178.92	0.47		177.59	178.06	0.47			Mudstone - as above with 0.5cm calcite filled fracture at bottom, parallel to bedding	
		1.85		178.06	179.91	1.85			TOP OF BOX 62	
									Mudstone - dark grey to black, pyrite flecks and inclusions, possible worm burrows	



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

P-141A(10-8)

SHEET NO.: 24

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		2.86		186.39	189.25				Mudstone - as above	
									TOP OF BOX 66	
		0.30		189.25	189.55				- as above	
	627/ 191.11		0.18	189.55	189.73	0.18			Core Loss	
		2.43		189.73	192.16	5.20			MUDSTONE - as above	
									TOP OF BOX 67	
		0.26		192.16	192.42				- as above	
	637/ 194.16								- as above, pyrite filled ironstone "carrot" at top, fracture zone at bottom with listric surfaces parallel to core axis	
		1.50		192.42	193.92				- as above, becoming silty towards bottom	
		1.01		193.92	194.93				TOP OF BOX 68	
		0.50		194.93	195.43	0.50			Mudstone - dark grey to black, occasionally silty, pyrite flecks and inclusions, possible worm burrows.	
			0.08	195.43	195.51	0.08			Core Loss	
	646.5/ 197.05									
		1.21		195.51	196.72	9.29			Mudstone - as above	

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

P-141A(10-8)

SHEET NO.: 25

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	651/ 198.42	0.95		196.72	197.67				Mudstone - as above	
		2.19		197.67	199.86				TOP OF BOX 69 - as above	
	661/ 201.47	0.60		199.86	200.46				- as above	
		1.34		200.46	201.80				TOP OF BOX 70 - as above	
	667/ 203.30	1.45		201.80	203.25				- as above	
50°		1.55		203.25	204.80				TOP OF BOX 71 - as above	
45°	677/ 206.35	0.14		204.80	204.94	0.14			Sandstone - light grey, fine grained quartzose, massive, fractures with listric surfaces, contact sharp	
		0.21		204.94	205.15	0.21			Mudstone - medium grey, silty, possible worm burrows	
		0.30		205.15	205.45	0.30			Mudstone - light grey, hard, possibly iron rich, many stress cracks with listric surfaces gradational contacts	

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

P-141A(10-8)

SHEET NO.: 26

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.48		205.45	205.93	0.48			Mudstone - medium grey, silty, pyrite flecks, possible worm burrows  TOP OF BOX 72	
		1.83		205.93	207.76	8.11			Mudstone - medium to dark grey, occasionally silty, pyrite flecks and inclusions, elongated argillaceous blebs (possible worm burrows)	
	687/ 209.40	0.87		207.76	208.63				- as above  TOP OF BOX 73	
		2.27		208.63	210.90				- as above	
	697/ 212.45	0.62		210.90	211.52				- as above  TOP OF BOX 74	
		2.52		211.52	214.04				- as above	
			0.09	214.04	214.13	0.09			Core Loss	
	707/ 215.49	0.37		214.13	214.50	6.52			Mudstone - as above  TOP OF BOX 75	
		1.60		214.50	216.10				- as above	

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

P-141A(10)

SHEET NO.: 27

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
52 <sup>0</sup>		1.17		216.10	217.27				Mudstone - as above TOP OF BOX 76	
	721/ 219.76	0.90		217.27	218.17				- as above	
		2.05		218.17	220.22				- as above TOP OF BOX 77	
		0.43		220.22	220.65				- as above	
		0.06		220.65	220.71	0.06			Sandstone - light grey, fine grained, quartzose, calcite laminae along bedding planes with listric surfaces	
		0.68		220.71	221.39	3.76			Mudstone - medium to dark grey, occasionally silty, some pyrite flecks, possible worm burrows	
	731/ 222.81	1.56		221.39	222.95				- as above TOP OF BOX 78	
		1.52		222.95	224.47				- as above	
		0.96		224.47	225.43	0.96			Core Loss	
	741/ 225.86	0.37		225.43	225.80	0.37			Mudstone - as above with light grey silty bands	

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

P-141A(10-8)

SHEET NO.: 28

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
60 <sup>0</sup>		0.07		225.80	225.87	0.07			Sandstone - light grey, fine grained quartzose, sharp contact	
		0.83		225.87	226.70	0.83			Mudstone - light grey, silty, hard, possibly iron rich many stress cracks with listric surfaces	
									TOP OF BOX 79	
56 <sup>0</sup>		0.26		226.70	226.96	0.26			Mudstone - dark grey with light grey irregular bands, silty, some pyrite, possible worm burrows, light grey argillaceous clasts	
		0.06		226.96	227.02	0.06			Sandstone - light grey, fine grained, quartzose, fine flecks of disseminated pyrtie, sharp contact	
		0.65		227.02	227.67	0.65			Mudstone - dark grey with light grey irregular bands, silty, pyrite blebs near top, possible worm burrows	
		1.82		227.67	229.49	4.12			Mudstone - dark grey to black, fine disseminated pyrite flecks with occasional blebs, possible worm burrows	

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

P-141A(10-6)

SHEET NO.: 29

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
									TOP OF BOX 80	
	771.5/ 235.15	2.30	0.12	229.49	231.79				- as above	
		0.51		231.79	231.91	0.12			Core Loss	
				231.91	232.42	6.07			Mudstone - as above	
									TOP OF BOX 81	
	782/ 238.35	2.46		232.42	234.88				- as above	
		0.37		234.88	235.25				Mudstone - as above	
									TOP OF BOX 82	
	792/ 241.40	2.73	0.15	235.25	237.98				- as above	
		0.06		237.98	238.13	0.15			Core Loss	
				238.13	238.19	3.17			Mudstone - as above	
									TOP OF BOX 83	
	797/ 242.93	1.17		239.19	239.36				- as above	
		1.64		239.36	241.00				- as above	
									TOP OF BOX 84	
		0.30		241.00	241.30				- as above	



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

P-141A(10-)

SHEET NO.: 30

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
55 <sup>0</sup>		0.34		241.30	241.64	0.34			Mudstone - light grey, silty, hard, possibly iron rich many stress cracks, light and dark irregular banded, siltstone near top	
		0.83		241.64	242.47	3.97			Mudstone - dark grey to black, disseminated pyrite flecks and blebs, possible worm burrows.	
	806/ 245.67	1.23		242.47	243.70				- as above, calcite filled fracture near bottom	
		1.91		243.70	245.61				TOP OF BOX 85	
			0.12	245.61	245.73	0.12			Mudstone - as above Core Loss	
	816/ 248.72	0.89		245.73	246.62	3.78			Mudstone - as above	
		2.21		246.62	248.83				TOP OF BOX 86	
827/ 252.07	0.68		248.83	249.51				- as above - as above		

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

P-141A(10-8)

SHEET NO.: 31

HOLE NO. GDR-DDH-80-36 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JL CONTRACTOR: \_\_\_\_\_

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
		2.43		249.51	251.94	11.69			Mudstone - dark grey to black, occasionally silty, disseminated pyrite flecks and blebs, elongated argillaceous blebs (possible worm burrows)	
	837/ 255.12	0.45		251.94	252.39				- as above	
		2.63		252.39	255.02				TOP OF BOX 88 - as above, (calcite filled fracture at 1.03)	
	847/ 258.17	0.15		255.02	255.17				- as above	
		2.79		255.17	257.96				TOP OF BOX 89 - as above (pulverized rock and mud filled fracture at 1.95)	
		0.16		257.96	258.12				TOP OF BOX 90 - as above	
	857/ 261.21	2.66		258.12	260.78				- as above	





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

P-141A(10)

SHEET NO.: 34

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
75°		1.65		272.66	274.31	3.02			Siltstone - light to dark grey, banded, fine grained sandstone interbeds, irregular bedded with frequent bioturbated intervals, disseminated pyrite flecks and pyrite blebs, moderately fractured with calcite infilling, historic fracture surfaces, worm burrows, (similarity to cork in hole 33)	
65°									TOP OF BOX 96	
55°		1.37		274.31	275.68				- as above increasing sandy intervals fractured along bedding	
	914/ 278.59		0.03	275.68	275.71	0.03			Core Loss	
		0.11		275.71	275.82	12.38			Siltstone - as above wire broken with rounded fragment - possible vary	
24°		1.20		275.82	277.02				Siltstone - as above	

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

P-141A(10-8)

SHEET NO.: 35

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
27°		1.57		277.02	278.59				TOP OF BOX 97	
29°	924/ 281.64								- as above listric surfaces along fractures	
38°		0.99		278.59	279.58				- as above	
35°		2.28		279.58	281.86				TOP OF BOX 98 - as above - listric surfaces along fractures	
43°	934/ 284.68									
60°		0.49		281.86	282.35				- as above	

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

P-141A(10-c)

SHEET NO.: 36

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		2.15		282.35	284.50				TOP OF BOX 99 - as above - listric surfaces along fractures - heavily fractured near bottom - core broken	
39°	943/ 287.43	0.69		284.50	285.19				- as above	
52°		2.45		285.19	287.64				TOP OF BOX 100 - as above - increased bioturbation - extensive worm burrows - some argillaceous clasts	
50°	953.5/ 290.63	0.45		287.64	288.09				- as above	

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

P-141A110

SHEET NO.: 37

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: J.L. CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
55°		2.68		288.09	290.77	8.32			TOP OF BOX 101	
60°									Siltstone - light to dark grey banded - fine grained sandstone interbeds - fractures parallel to bedding planes - listric surfaces - disseminated pyrite flecks and blebs - worm burrows - bioturbated - occasional argillaceous clasts	
	963/ 293.52	2.79		290.77	293.56				TOP OF BOX 102  - as above	
		0.34		293.56	293.90				TOP OF BOX 103  - as above	



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

P-141A(10)

SHEET NO.: 38

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JL CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
55°	974/ 296.88	2.51		293.90	296.41				- as above - quartz and calcite infilling along fractures - some argillaceous clasts	
		0.52		296.41	296.93	8.17			TOP OF BOX 104  Mudstone - dark grey - occasionally silty with siltstone interbeds - some disseminated pyrite flecks and blebs - worm burrows - possibly some shell fragments	
	984/ 299.92	2.26		296.93	299.19				- as above	

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

P-141A(10)

SHEET NO.: 39

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: II CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
										TOP OF BOX 105
	994/ 302.97	0.92		299.19	300.11					-
	997/ 303.89	0.64		300.11	300.75					-
		1.23		300.75	301.98					-
										TOP OF BOX 106
	1007/ 306.93	1.91		301.98	303.89					- - as above - occasional silty zones
		0.69		303.89	304.58					- - as above
		0.27		304.58	304.85	0.87				Siltstone - dark grey, fine grained - argillaceous clasts - coaly plant fragments and inclusions

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

P-141A(10)

SHEET NO.: 40

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.60		304.85	305.45				TOP OF BOX 107 - some pyrite - some calcite filled stress fractures near bottom	
		1.29		305.45	306.74	3.70			Siltstone - medium grey with fine grained sandstone interbedded - coaly and carbonaceous filled fractures - disseminated pyrite blebs - some calcite veinlets - core broken along fractures	
	1017/ 309.98	0.92		306.74	307.66				- as above	
		1.49		307.66	309.15				TOP OF BOX 108 - as above - becoming sandy to bottom	

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

P-141A(10 a

SHEET NO.: 41

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.72		309.15	309.87	4.64			Sandstone - light grey - fine grained - some banding - fracture zones with coal and calcite laminations - worm burrows	
	1027/ 313.03	0.58		309.87	310.45				- as above	
42°		2.49		310.45	312.94				TOP OF BOX 109 - as above - slickensides along fracture surfaces	
	1037/ 316.08									
40°		0.37		312.94	313.31				- as above - pyrite blebs at top	

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

P-141A(10)

SHEET NO.: 42

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.48		313.31	313.79				TOP OF BOX 110 - as above	
60°		2.25		313.79	316.04	3.31			Siltstone - medium grey - fine grained sandstone interbeds disseminated pyrite blecks - carbonaceous stringers throughout - carbonaceous plant fragments - calcite filled fracture veinlets - bioturbated - worm burrows	
	1047/ 319.13								TOP OF BOX 111	
		1.06		316.04	317.10				- as above - listric surfaces along fractures - calcite and coal lamination along fracture zones	
40°		1.19		317.10	318.29	1.19			Mudstone - dark grey to black - carbonaceous plant fragments and flecks - coal along fracture zones	

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

P-141A110-a

SHEET NO.: 43

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
55°	1057/ 322.17	0.32		318.29	318.61	0.32			- listric fracture surfaces - core broken along fractures	
		0.23		318.61	318.84	0.23			Siltstone - as above Mudstone - as above	
		0.72		318.84	319.56	0.72			TOP OF BOX 112 Mudstone - as above	

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

P-141A(10)

SHEET NO.: 44

HOLE NO.: GDR - DDH-80-36 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JL CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.02		319.56	319.58	0.74	0.67	82	↑     82 00663	Coal
		0.03		319.58	319.61					- dull lustrous - sheared with slickensides - core broken with rounded fragments
		0.02		319.61	319.63					- stoney - fractured and sheared - some calcite veinlets - core contact
		0.04		319.63	319.67					- dull and bright - sheared - slickensides - core broken and pulverized
		0.09		319.67	319.76					- dull and bright - some shearing with slickensides - core badly broken

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

P-141A(10-2)

SHEET NO.: 45

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JL CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
67°		0.05		319.76	319.81				- dull lustrous - sheared, slickensides - some small dirt bands - core broken	
		0.08		319.81	319.89				- dull and bright - some argillaceous pellets - core broken	
		0.11		319.89	320.00				- dull lustrous - occasional small dirt bands and argillite pellets - core contact	
		0.08		320.00	320.08			2A 00663	- dull and bright - some small dirt bands and argillite pellets - core contact	
65°		0.17		320.08	320.25				- dull lustrous - some shearing with slickensides - core broken and partially pulverized	



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

P-141A(10)

SHEET NO.: 46

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.05		320.25	320.30					- boney - fractured with listric surfaces - core broken
			0.08	320.30	320.38	0.08	0.07			Coal Loss
						0.23	0.21			Coal
		0.03		320.38	320.41			2A		Coal - dull lustrous - fractured with listric surfaces - core intact
		0.12		320.41	320.53			00663		- dull and bright - some fracturing with listric surfaces - occasional dirt bands - core broken
		0.08		320.53	320.61					- dull lustrous - some fractures along bright bands with listric surfaces - some small dirt bands - tuff band at bottom containing some disseminated pyrite
68 <sup>0</sup>		0.33	0.22	320.61 320.83	320.83 321.16	0.22 0.56	0.20 0.51			Coal Loss
								69		Coal - boney - dull lustrous - some fracturing with listric surfaces - some small bright inclusions - core intact and broken

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

P-141A(10-8

SHEET NO.: 47

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.13		321.16	321.29					<ul style="list-style-type: none"> <li>- dull lustrous</li> <li>- occasional dirt band</li> <li>- sheared slickensides</li> <li>- some calcite along fractures</li> <li>- core badly broken and pulverized</li> </ul>
		0.10		321.29	321.39			2B		<ul style="list-style-type: none"> <li>- stoney</li> <li>- dull lustrous</li> <li>- sheared with slickensides</li> <li>- core broken and pulverized</li> </ul>
			0.76	321.39	322.15	0.76	0.69			Coal Loss
						0.40	0.36			Coal
		0.14		322.15	322.29			33		<ul style="list-style-type: none"> <li>- dull and bright</li> <li>- occasional dirt band</li> <li>- sheared, slickensides</li> <li>- some calcite along fractures</li> <li>- core broken and pulverized</li> </ul>
	1067/ 325.21							2C		
								00665		

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

P-141A(10)

SHEET NO.: 48

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.26		322.29	322.55			2C 00665	TOP OF BOX 113 - dull lustrous - occasional dirt band - some bright coal bands - core badly broken well rounded fragments	
			0.34	322.55	322.89	0.34	0.30	X	Coal Loss	
		0.08		322.89	322.97	0.08	0.07	63	Sandstone - tuffaceous - fine grained, orange-brown - coaly inclusions and laminations - slickensides along fractures - core broken	
						0.12	0.11	2D 00666	Coal - stoney - dull lustrous - some fine argillaceous pellets - core badly broken	
		0.12		322.97	323.09					
		0.37		323.09	323.46	0.37	0.33		Sandstone - as above	
			0.20	323.46	323.66	0.20	0.18	X	Core Loss	
	1073/ 327.03	0.18		323.66	323.84	0.18	0.16	67 2E 00667	Rock Loss	

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

P-14(A)10..

SHEET NO.: 49

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.33		323.84	324.17	0.33	0.29			Sandstone - as above
		0.03		324.17	324.20	0.03	0.03			Mudstone - carbonaceous - dark grey with silty zones - core broken - listric surfaces along fractures
		0.21		324.20	324.41	0.21	0.19		2E 00667	Tuff - highly sheared and fractured - core badly broken - listric surfaces along fractures with some carbonaceous surfaces
			0.10	324.41	324.51	0.10	0.09		X	Rock Loss
			0.09	324.51	324.60	0.09 0.96	0.08 0.85	89	X	Coal Loss Coal
		0.33		324.60	324.93				2F 00668	- stoney - dull lustrous - occasional bright band - listric surfaces along fractures - some calcite - core badly broken
60°		0.38		324.93	325.31					- dull lustrous - occasional dirt band end and a few bright bands with concordal fractures - core partially intact and partially sheared and pulverized - slickenside surfaces

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

P-121A(10-8)

SHEET NO.: 50

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
63°	1081/ 329.47	0.25		325.31	325.56				TOP OF BOX 114 - stoney - dull lustrous - occasional bright bands - some dirt bands - core badly broken, sheared and pulverized - slickensides	
			0.08	325.56	325.64	0.08 0.56	0.07 0.49		Coal Loss Coal	
		0.07		325.64	325.71				- dull lustrous - some small dirt bands - core broken - listric fracture surfaces	
			0.11		325.71	325.82				- dull and bright - bright bands with concordal fracture - listric surfaces along fractures - core broken
		0.23		325.82	326.05				- dull lustrous - some small dirt bands - occasional bright bands - some shearing - core broken badly	

2F  
00668

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

P-141A(10-84)

SHEET NO.: 51

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
60°		0.15		326.05	326.20					<ul style="list-style-type: none"> <li>- stoney</li> <li>- dull lustrous</li> <li>- occasional bright bands</li> <li>- sheared and broken</li> <li>- slickensides</li> </ul>
60°		0.05		326.20	326.25	0.05	0.04	89	2G	Sandstone - tuffaceous - orange brown - fine grained - coaly and carbonaceous inclusions and laminae
						0.11	0.10			Coal
		0.11		326.25	326.36					<ul style="list-style-type: none"> <li>- stoney</li> <li>- dull lustrous</li> <li>- occasional bright bands</li> <li>- listric surfaces along fractures</li> <li>- sheared and broken</li> <li>- some argillaceous pellets</li> </ul>
		0.06		326.36	326.42	0.06	0.05			Sandstone - as above - contorted
		0.07		326.42	326.49	0.07	0.06			Coal Loss
						0.26	0.23	90	2H	Coal
		0.09	326.49	326.58					00670	<ul style="list-style-type: none"> <li>- stoney</li> <li>- some bright bands</li> <li>- dull lustrous</li> </ul>

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

P-141A(10-B)

SHEET NO.: 52

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK	TRUE THK			
		0.17		326.58	326.75			2H 00670	<ul style="list-style-type: none"> <li>- concoidal fractures on bright bands</li> <li>- sheared with slickensides</li> <li>- core badly broken and pulverized</li> <li>- dull lustrous</li> <li>- occasional bright bands</li> <li>- some dirt bands</li> <li>- calcite on listric fracture surfaces</li> <li>- core badly broken and sheared</li> </ul>	
		0.15		326.75	326.90	0.15			Sandstone - tuffaceous - orange brown - fine grained - carbonaceous and coaly inclusions and laminations - few mudstone rip up clasts near bottom - listric fracture surfaces	
		0.90		326.90	327.80	0.90			Mudstone - dark grey - carbonaceous plant fragments with coaly inclusions throughout - core highly fractured and pulverized in places - slickensides and listric surfaces along fractures	
			2.67	327.80	330.47	2.67			Rock Loss	

GULF CANADA RESOURCES INC. -- COAL DIVISION -- DRILL CORE LOG

P-141A(10-8)

SHEET NO.: 53

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
	1087/ 331.30									TOP OF BOX 115
		0.56		330.47	331.03	0.71				Mudstone - as above
	1097/ 334.35									
		0.15		331.03	331.18					Mudstone - as above
			0.53	331.18	331.71	0.53 0.10	0.46 0.09			Coal Loss Coal
		0.10		331.71	331.81			19		- stoney-dull lustrous - occasional bright bands - fractures with listric surfaces - some calcite infilling - some iron staining along fractures
		0.05		331.81	331.86	0.05	0.04		1A	Mudstone - as above
	1099/ 334.96								00671	
		0.10		331.86	331.96	0.10	0.09			Sandstone - orange-brown-fine grained - possibly tuffaceous - dirty and carbonaceous - some coaly inclusions - core regrounded = possible core loss



GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

P-141A(10-8)

SHEET NO.: 54

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
60°		0.06		331.96	332.02	0.11	0.10		Coal	-dull lustrous -rounded end -core intact
		0.05		332.02	332.07					-dull -occasional lustrous bands -core intact -possible core loss
		0.07		332.07	332.14	0.07	0.06		Sandstone - as above.	- core reground - rounded ends - core mismatch
	1109/ 338.01		2.02	332.14	334.16	2.02	1.77	1A 00671	Coal Loss	
62°		0.03		334.16	334.19	0.36	0.31		Coal	- boney - dull - partly lustrous - core broken
		0.33		334.19	334.52					- dull lustrous - occasional bright bands - fractured with listric surfaces - core broken
		0.80		334.52	335.32	0.80	0.70		Coal Loss	

GULF CANADA RESOURCES INC. — COAL DIVISION — DRILL CORE LOG

P-141A(10-8)

SHEET NO.: 55

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
	1114/ 339.55	0.29		335.32	335.61	0.29			Mudstone - medium grey - occasional coaly inclusions - listric surfaces along fractures - core re-round and broken - possible core loss	

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

P-141A(10-80)

SHEET NO.: 56

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: II CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.49		335.61	336.10	0.49			Mudstone - dark grey - occasionally silty - bright coal inclusions - listric surfaces along fractures with some calcite infilling - core intact	
		0.25		336.10	336.35	0.25			Siltstone - fine to medium grained - dark grey to brown - bright coal inclusions and coaly flecks throughout - listric surfaces along fractures	
	1117/ 340.46								TOP OF BOX 116	
		2.63		336.35	338.98	2.63			Siltstone - dark grey - fine grained - carbonaceous plant fragments - some fine grained sandstone interbeds - some worm burrows	

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

P-141A(10-8)

SHEET NO.: 57

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
60°	1127/ 343.51	0.11		338.98	339.09	0.61			Mudstone - dark grey - silty - occasional fine-grained silty interbeds - carbonaceous plant fragments - some calcite veinlets - carbonaceous material along fractures - worm burrows - occasional argillaceous clasts  TOP OF BOX 117	
		0.50		339.09	339.59				- as above	
		2.27		339.59	341.86	3.65			Siltstone - dark grey - some fine grained sandstone interbeds - some pyrite in sandstone bands - fractures parallel to bedding with some calcite infilling - worm burrows	



GULF CANADA RESOURCES INC. — COAL DIVISION — DRILL CORE LOG

P-141A(10-8)

SHEET NO.: 59

HOLE NO.: DR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CONTRACTOR:

BCA	BOX	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
	MARKER			FROM	TO	APPAR. THK.	TRUE THK.			
65°		1.87		345.63	347.50				<ul style="list-style-type: none"> <li>- as above</li> <li>- becoming dark grey</li> <li>- some carbonaceous blebs</li> <li>- carbonaceous plant fragments along fractures</li> </ul>	
		1.18		347.50	348.68				<p style="text-align: center;">TOP OF BOX 120</p> <ul style="list-style-type: none"> <li>- as above</li> <li>- some cross bedding</li> </ul>	
	1157/ 352.65	1.64		348.68	350.32	2.10			<p>Sandstone - dark grey</p> <ul style="list-style-type: none"> <li>- some lighter grey banding</li> <li>- fine to medium grained</li> <li>- cross-bedded</li> <li>- carbonaceous plant fragments along fracture</li> <li>- some argillaceous clasts and blebs</li> <li>- listric and carbonaceous surfaces along fractures near bottom</li> </ul>	

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

P-141A(10-80)

SHEET NO.: 60

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
60°		0.46		350.32	350.78				TOP OF BOX 121	
		0.84		350.78	351.62	0.84			- as above	
	1167/ 355.70								Sandstone - sharp contact with above - dark to light grey, banded - medium grained - carbonaceous zones along bedding - large argillaceous clasts over infillings near bottom - fracture zones with coal and calcite infilling - listric surfaces	
60°		1.49		351.62	353.11	1.49			Sandstone - medium grey - medium grained - very hard - carbonaceous laminations parallel to bedding - coaly and calcite fracture infillings - argillaceous clasts zoned throughout - intense fracturing near bottom with carbonaceous and listric surfaces	

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

P-141A(10-8)

SHEET NO.: 61

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		1.54		353.11	354.65	1.54			TOP OF BOX 122	
	1177/ 358.75								Sandstone - medium grey - medium to coarse grained - coaly and carbonaceous infilling throughout - intense fracturing with carbonaceous and calcite infilling - listric surfaces along fractures - Fault Zone	
58°		0.48		354.65	355.13	0.48			Sandstone - medium grey - medium grained - well bedded - fractured with calcite infilling	
		0.73		355.13	355.86	0.79			Siltstone - dark grey - fine grained - intense calcite filled fracturing throughout - listric surfaces along fracture zones	



GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

P-141A(10-8)

SHEET NO.: 62

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JL CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.06		355.86	355.92				TOP OF BOX 123 - as above	
		1.76		355.92	357.68	3.93			Sandstone - medium grey - fine grained grading to medium grained at bottom - some carbonaceous plant fragments - carbonaceous material along bedding planes - some calcite and quartz filled fractures - occasional coaly inclusion - cross bedded	
	1187/ 361.80	0.96		357.68	358.64				- as above TOP OF BOX 124	
45°		1.21		358.64	359.85				- as above - increasing coaly inclusions near bottom - fractures with coal and calcite infilling - listric surfaces	

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

P-141A(10-80)

SHEET NO.: 63

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.17		359.85	360.02	0.17			Siltstone - dark grey to brown - fine grained - coaly and calcite inclusions - sandy towards bottom	
		0.69		360.02	360.71	3.06			Sandstone - light grey to medium grey - medium to coarse grained - coaly and calcite fractures infilling - zones of intense fracture filling - some argillaceous clasts - listric surfaces along fracture - core broken along fracture zones	
	1197/ 364.85									
50°		0.68		360.71	361.39				- as above - top extremely coaly	
45°		1.18		361.39	362.57				TOP OF BOX 125 - as above	

GULF CANADA RESOURCES INC. — COAL DIVISION — DRILL CORE LOG

P-141A(10-80)

SHEET NO.: 64

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: JL CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.51		362.57	363.08					- as above - contains zones of large argillaceous rip up clasts  Fault Zone
		0.62		363.08	363.70	1.00				Sandstone - medium grey - fine grained - decreased amount of fracturing with few calcite infillings
	1207/ 367.89	0.38		363.70	364.08					- as above - massive - medium - grained at bottom  TOP OF BOX 126
		1.82		364.08	365.90	1.82				Sandstone - salt and pepper - medium grained - few fractures - calcite infilling and listric surfaces - some cross bedding - some carbonaceous infillings and argillaceous clasts throughout - extremely hard

GULF CANADA RESOURCES INC. - COAL DIVISION - DRILL CORE LOG

P-141A(10-8)

SHEET NO.: 65

HOLE NO.: GDR-DDH-80-56 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.30		365.90	366.20	0.30			Sandstone - dark grey to brown - fine grained - intensely fractured with carbonaceous plant fragments - carbonaceous and calcite infillings	
		0.61		366.20	366.81	0.90			Sandstone - medium grey - medium grained - carbonaceous plant fragments along bedding planes - some fracturing with calcite infilling	
	1217/ 370.94								TOP OF BOX 127	
		0.29		366.81	367.10				- as above	
		1.84		367.10	368.94	1.84			Sandstone - dark grey, fine grained to medium filled - some carbonaceous plant fragments - carbonaceous material along bedding planes - zones of intense fracturing with coaly and calcite infilling - listric surfaces - fracture zones showing rip-up clasts and occasional dark grey, fine-grained silty zones - bedding displays possible warping at time of sedimentation - no positive signs of overturned beds	

GULF CANADA RESOURCES INC. — COAL DIVISION — DRILL CORE LOG

P-141A(10-8)

SHEET NO.: 66

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: J.L. CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
22 <sup>0</sup>		0.70		368.94	369.64	0.70			Siltstone - medium grey - fine grained - carbonaceous plant fragments - no fracture  TOP OF BOX 128	
	1227/ 373.99	0.21		369.64	369.85	1.42			Sandstone - medium grey - fine to medium grained - carbonaceous material along bedding planes - some fracturing with calcite infilling	

GULF CANADA RESOURCES INC. — COAL DIVISION — DRILL CORE LOG

P-141A(10-85)

SHEET NO.: 67

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: \_\_\_\_\_ DATE BEGUN: \_\_\_\_\_  
 PROJECT: \_\_\_\_\_ BEARING: \_\_\_\_\_ CORE SIZE: \_\_\_\_\_ DATE COMPL.: \_\_\_\_\_  
 CO. ORD.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: II CONTRACTOR: \_\_\_\_\_

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
0° 20°		1.21		369.85	371.06				<ul style="list-style-type: none"> <li>- as above</li> <li>- 0° BCA near top</li> <li>- 20° BCA near bottom</li> <li>- becoming medium to coarse grained near bottom</li> <li>- rip up clasts near bottom</li> <li>- bedding has been warped during deposition</li> <li>- extremely hard</li> <li>- no evidence of overturned beds</li> </ul>	
		1.45		371.06	372.51	2.45			<p>Siltstone - medium grey, fine grained</p> <ul style="list-style-type: none"> <li>- moderate to extensive fracturing</li> <li>- carbonaceous and calcite infillings</li> <li>- listric fracture surface</li> <li>- some fine grained sandy zones</li> <li>- possible bioturbation</li> </ul> <p style="text-align: center;">TOP OF BOX 129</p>	
	1237/ 377.04		0.30		372.51	372.81				<ul style="list-style-type: none"> <li>- as above</li> <li>- increasing sandy interval</li> </ul>

GULF CANADA RESOURCES INC. -- COAL DIVISION -- DRILL CORE LOG

P-141A(10-8)

SHEET NO.: 68

HOLE NO.: GDR-DDH-80-36 ELEV. COLLAR: TOTAL DEPTH: DATE BEGUN:  
 PROJECT: BEARING: CORE SIZE: DATE COMPL.:  
 CO. ORD.: HOLE ANGLE: LOGGED BY: JL CONTRACTOR:

BCA	BOX MARKER	INTERVAL THK.	CORE LOSS	LITHOLOGICAL UNIT				% REC	SAMPLE NO.	DESCRIPTION
				FROM	TO	APPAR. THK.	TRUE THK.			
		0.70		372.81	373.51				- as above	
		0.89		373.51	374.40	0.89			Mudstone - dark grey, silty - few calcite filled fractures	
		0.32		374.40	374.72	0.32			Siltstone - medium grained, fine grained - some calcite filled fracturing	
		0.59		374.72	375.31	3.31			Sandstone - light grey - medium grained - extremely fractured with coal and calcite fracture filling - fracture zones with listric surfaces - coaly inclusions Fault Zone	
		0.65		375.31	375.96				TOP OF BOX 130  - becoming darker grey and more coaly inclusions found	











DIRECTIONAL SURVEY

ROKE OIL ENTERPRISES LIMITED

**COMPANY:** GULF CANADA RESOURCES INC.    **GRID:** \_\_\_\_\_    **DATE SURVEYED:** 8 NOVEMBER 1980  
**DRILL HOLE:** GDR - DDH - 80 - 36    **LATITUDE:** \_\_\_\_\_    **SURVEY BY:** SIM  
**LOCATION:** \_\_\_\_\_    **DEPARTURE:** \_\_\_\_\_    **WITNESSED BY:** ZSCHACH  
**FIELD:** GOODRICH    **ELEVATION:** \_\_\_\_\_    **CALCULATIONS BY:** \_\_\_\_\_  
**MAGNETIC DECLINATION:** \_\_\_\_\_    **CORRECTION OF:** \_\_\_\_\_    **FOR:** \_\_\_\_\_    **GRID:** \_\_\_\_\_

Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing	Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing	Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing
0	0	0.10	-	11	165	1.13	268.7	22	330	1.51	257.6
1	15	0.14	243.7	12	180	1.13	270.7	23	345	1.96	299.4
2	30	0.16	307.9	13	195	1.14	276.6	24	360	1.87	296.0
3	45	0.16	5.4	14	210	1.21	269.7	25	375	1.96	295.0
4	60	0.35	14.0	15	225	1.21	263.1	26	380	2.28	267.5
5	75	0.54	14.9	16	240	1.19	264.3	27			
6	90	0.68	12.6	17	255	1.20	263.7	28			
7	105	0.73	295.8	18	270	1.46	221.6	29			
8	120	0.82	224.5	19	285	1.51	295.4	30			
9	135	0.85	219.7	20	300	1.51	257.6	31			
10	150	0.94	283.5	21	315	1.59	279.4	32			



GULF CANADA RESOURCES INC. - COAL DIVISION

DRILL CORE LOG

HOLE NO.: GDR - RDH-80-01

SHEET NO.: 1

PROJECT: Goodrich Coal  
Project

ELEV. COLLAR: \_\_\_\_\_

TOTAL DEPTH: 111.25m

DATE BEGUN: \_\_\_\_\_

BEARING: \_\_\_\_\_

CORE SIZE: Rotary

DATE COMPL.: \_\_\_\_\_

CO. ORDS.: \_\_\_\_\_

HOLE ANGLE: \_\_\_\_\_

LOGGED BY: Alberta Southern

CONTRACTOR: \_\_\_\_\_

INTERVAL (m)			LITHOLOGICAL UNIT			WATER FLOW (GALLONS PER MINUTE)	DESCRIPTION AND COMMENTS
FROM	TO	THICK	FROM	TO	TRUE THK		
0	1.52	1.52					Shattered sandstone (cased 1.22m)
1.52	6.10	4.58					Shale
6.10	6.40	0.30					Coaly shale
6.40	6.86	0.46					Coal
6.86	10.67	3.81					Sandstone
10.67	13.72	3.05					Shale
13.72	15.85	2.13					Coal
15.85	19.51	3.66					Shale (18.29m - 21.3m calcite stringers).
19.51	27.43	7.92					Sandstone
27.43	30.48	3.05					Shale and sandstone
30.48	32.92	2.44					Sandstone
32.92	34.44	1.52					Siltstone and shale
34.44	35.05	0.61					Sandstone and siltstone
35.05	35.66	0.61				5 gpm/@ 30.48	Coal
35.66	38.10	2.44					Shale and siltstone
38.10	48.16	10.06					Shale
48.16	51.21	3.05					Sandstone
51.21	56.39	5.18					Shale and siltstone (0.30m coal @ 44.20m)
56.39	61.87	5.48					Siltstone
61.87	63.70	1.83					Shale
63.70	67.06	3.36					Siltstone
67.06	67.97	0.91					Shale
67.97	70.10	2.13					Sandstone
70.10	71.63	1.53					Shale
71.63	72.54	0.91					Sandstone and shale
72.54	73.15	0.61					Coal and shale
73.15	73.76	0.61					Siltstone
73.76	74.07	0.31					Coal
74.07	76.20	2.13					Sandstone
76.20	76.51	0.31					Shale

OPEN FILE

PR - Goodrich 80(3)A



GULF CANADA RESOURCES INC. - COAL DIVISION

DRILL CORE LOG

HOLE NO.: GDR-RDH-80-01A

SHEET NO.: 3

PROJECT: Goodrich Coal  
Project

ELEV. COLLAR: \_\_\_\_\_

TOTAL DEPTH: \_\_\_\_\_

DATE BEGUN: \_\_\_\_\_

BEARING: \_\_\_\_\_

CORE SIZE: Rotary

DATE COMPL.: \_\_\_\_\_

CO. ORDS.: \_\_\_\_\_

HOLE ANGLE: \_\_\_\_\_

LOGGED BY: Alberta Southern

CONTRACTOR: \_\_\_\_\_

INTERVAL (m)			LITHOLOGICAL UNIT			WATER FLOW (GALLONS PER MINUTE)	DESCRIPTION AND COMMENTS
FROM	TO	THICK	FROM	TO	TRUE THK		
							CORE HOLE NEXT TO GDR-RDH-80-01 "same log"



GULF CANADA RESOURCES INC. — COAL DIVISION

DRILL CORE LOG

HOLE NO.: GDR-RDH-80-02  
 PROJECT: Goodrich Coal  
Project  
 CO. ORDS.: T

ELEV. COLLAR: \_\_\_\_\_  
 BEARING: \_\_\_\_\_  
 HOLE ANGLE: \_\_\_\_\_

TOTAL DEPTH: 259.08m  
 CORE SIZE: Rotary  
 LOGGED BY: Alberta Southern

SHEET NO.: 4  
 DATE BEGUN: \_\_\_\_\_  
 DATE COMPL.: \_\_\_\_\_  
 CONTRACTOR: \_\_\_\_\_

INTERVAL (m)			LITHOLOGICAL UNIT			WATER FLOW (GALLONS PER MINUTE)	DESCRIPTION AND COMMENTS
FROM	TO	THICK	FROM	TO	TRUE THK		
0	10.67	10.67					Broken sandstone (case 0 - 3.66m)
10.67	11.28	0.61					Siltstone and shale
11.28	13.41	2.13					Coal
13.41	14.63	1.22					Siltstone and shale
14.63	16.76	2.13					Soft fine-grained sandstone
16.76	26.21	9.45					Shale
26.21	27.43	1.22					Coal
27.43	28.96	1.53					Shale and siltstone
28.96	30.48	1.52					Sandstone
30.48	31.09	0.61					Shale
31.09	31.70	0.61					Coal
31.70	34.75	3.05					Shale
34.75	35.05	0.30					Coal
35.05	36.88	1.83					Shale and siltstone
36.88	37.49	0.61					Coal
37.49	39.01	1.52					Shale
39.01	39.62	0.61					Coal
39.62	40.54	0.92					Shale
40.54	47.55	7.01					Sandstone
47.55	48.16	0.61					Coal
48.16	57.91	9.75					Sandstone
						5gpm @ 54.86	(Shattered material @ 49.68m and 53.34m)
57.91	61.57	3.66					Siltstone and shale
61.57	62.70	1.22					Sandstone
62.79	63.40	0.61					Shale
63.40	64.01	0.61					Coal
64.01	65.23	1.22					Shale and siltstone
65.23	74.68	9.45					Sandstone (broken ground @ 70.10)
74.68	75.29	0.61					Shale and coal
75.29	88.39	13.10					Sandstone



GULF CANADA RESOURCES INC. - COAL DIVISION

DRILL CORE LOG

HOLE NO.: GDR-RDH-80-02  
 PROJECT: Goodrich Coal  
Project  
 CO. ORDS.: \_\_\_\_\_

ELEV. COLLAR: \_\_\_\_\_  
 BEARING: \_\_\_\_\_  
 HOLE ANGLE: \_\_\_\_\_

TOTAL DEPTH: 259.08m  
 CORE SIZE: Rotary  
 LOGGED BY: Alberta Southern

SHEET NO.: 6  
 DATE BEGUN: \_\_\_\_\_  
 DATE COMPL.: \_\_\_\_\_  
 CONTRACTOR: \_\_\_\_\_

INTERVAL (m)			LITHOLOGICAL UNIT			WATER FLOW (GALLONS PER MINUTE)	DESCRIPTION AND COMMENTS
FROM	TO	THICK	FROM	TO	TRUE THK		
166.73	168.25	1.52					Siltstone
168.25	168.86	0.61					Shale - coal stringers
168.86	169.47	0.61					Shale
169.47	172.21	2.74					Sandstone
172.21	173.13	0.92					Siltstone
173.13	173.74	0.61					Shale
173.74	174.96	1.22					Sandstone
174.96	175.57	0.61					Siltstone
175.57	179.22	3.65					Sandstone
179.22	182.88	3.66					Siltstone
182.88	183.49	0.61					Coal and shale
183.49	184.10	0.61					Sandstone
184.10	184.71	0.61					Siltstone
184.71	190.50	5.79					Sandstone - traces of coal
190.50	191.72	1.22					Sandstone
191.72	193.55	1.83					Sandstone
193.55	193.45	0.30					Shaley coal
193.85	194.46	0.61					Siltstone
194.46	194.77	0.31					Shale and coal
194.77	195.38	0.61					Sandstone
195.38	198.73	3.35					Siltstone
198.73	200.25	1.52					Shale
200.25	201.17	0.92					Siltstone
201.17	201.78	0.61					Sandstone
201.78	202.39	0.61					Shale
202.39	205.74	3.35					Siltstone
205.74	207.26	1.52					Sandstone
207.26	208.79	1.53					Siltstone
208.79	211.23	2.44					Sandstone
211.23	211.84	0.61					Siltstone



GULF CANADA RESOURCES INC. - COAL DIVISION

HOLE NO.: GDR - RDH - 80 - 03

PROJECT: Goodrich Coal  
Project

CO. ORDS.: \_\_\_\_\_

ELEV. COLLAR: \_\_\_\_\_

BEARING: \_\_\_\_\_

HOLE ANGLE: \_\_\_\_\_

TOTAL DEPTH: 154.53 m

CORE SIZE: rotary

LOGGED BY: Alberta Southern

DRILL CORE LOG

SHEET NO.: 8

DATE BEGUN: \_\_\_\_\_

DATE COMPL.: \_\_\_\_\_

CONTRACTOR: \_\_\_\_\_

BOX MARKER	INTERVAL (m)			CORE LOSS	LITHOLOGICAL UNIT			WATER FLOW (GALLONS PER MINUTE)	DESCRIPTION AND COMMENTS
	FROM	TO	THICK		FROM	TO	TRUE THK		
	0	9.14	9.14						weathered sandstone ( cased 3.65 m)
	9.14	10.67	1.53						shale
	10.67	10.97	0.30						coal
	10.97	11.58	0.61						shale
	11.58	11.89	0.31						coal
	11.89	15.55	3.66						siltstone to shale
	15.55	16.46	0.91						coal
	16.46	18.29	1.83						siltstone
	18.29	19.51	1.22						sandstone
	19.51	22.25	2.74						siltstone
	22.25	22.86	0.61						shale and coal
	22.86	23.47	0.61						coal
	23.47	23.77	0.30						shale
	23.77	26.52	2.75						sandstone
	26.52	27.13	0.61						shale
	27.13	28.04	0.91						coal - shale
	28.04	28.96	0.92						siltstone
	28.96	30.18	1.22						sandstone
	30.18	31.09	0.91						shale
	31.09	32.00	0.91						siltstone
	32.00	33.22	1.22						sandstone
	33.22	34.14	0.92						siltstone
	34.14	36.58	2.44						sandstone
	36.58	37.49	0.91						siltstone
	37.49	38.41	0.92						sandstone
	38.41	39.62	1.21						siltstone
	39.62	40.84	1.22						shale and coal
	40.84	41.45	0.61						coal
	41.45	44.20	2.75						siltstone
	44.20	48.46	4.26						siltstone to sandstone

GULF CANADA RESOURCES INC. - COAL DIVISION

DRILL CORE LOG

HOLE NO.: GDR-RDH-80-03  
 PROJECT: Goodrich Coal  
Project  
 CO. ORDS.: \_\_\_\_\_

ELEV. COLLAR: \_\_\_\_\_  
 BEARING: \_\_\_\_\_  
 HOLE ANGLE: \_\_\_\_\_

TOTAL DEPTH: 154.53m  
 CORE SIZE: Rotary  
 LOGGED BY: Alberta Southern

SHEET NO.: 9  
 DATE BEGUN: \_\_\_\_\_  
 DATE COMPL.: \_\_\_\_\_  
 CONTRACTOR: \_\_\_\_\_

INTERVAL (m)			LITHOLOGICAL UNIT			WATER FLOW (GALLONS PER MINUTE)	DESCRIPTION AND COMMENTS
FROM	TO	THICK	FROM	TO	TRUE THK		
48.46	49.07	0.61				15 gpm	Shale and coal
49.07	50.60	1.53					Coal
50.60	51.21	0.61					Shale
51.21	54.86	3.65					Sandstone
54.86	56.69	1.83					Siltstone (calcite stringers)
56.69	62.79	6.10					Salt & pepper sandstone
62.79	63.40	0.61					Shale and coal
63.40	98.45	35.05					Sandstone
98.45	101.19	2.74					Coal
101.19	101.80	0.61					Shale
101.80	105.16	3.36					Sandstone
105.16	108.20	3.04					Siltstone
108.20	109.73	1.53					Sandstone
109.73	110.03	0.30					Shale
110.03	112.47	2.44					Coal
112.47	113.69	1.22					Shale
113.69	116.13	2.44					Sandstone
116.13	117.04	0.91					Siltstone and shale
117.04	118.57	1.53					Coal and shale
118.57	119.18	0.61					Shale and siltstone
119.18	121.01	1.83					Sandstone
121.01	121.62	0.61					Siltstone
121.62	122.23	0.61					Coal
122.23	122.53	0.30					Shale and siltstone
122.53	123.14	0.61					Coal
123.14	124.05	0.91					Sandstone
124.05	125.27	1.22					Shale and siltstone - coal stringers
125.27	128.02	2.75					Sandstone
128.02	131.06	3.04				Siltstone	
131.06	153.62	22.56				Sandstone	
153.62	154.53	0.91				Cored	
							T.D. 154.53m

GULF CANADA RESOURCES INC. - COAL DIVISION

HOLE NO.: GDR - RDH - 80 - 04

PROJECT: Goodrich Coal  
Project

CO. ORDS.: \_\_\_\_\_

ELEV. COLLAR: \_\_\_\_\_

BEARING: \_\_\_\_\_

HOLE ANGLE: \_\_\_\_\_

TOTAL DEPTH: 171.30 m

CORE SIZE: Rotary

LOGGED BY: Alberta Southern

DRILL CORE LOG

SHEET NO.: 10

DATE BEGUN: \_\_\_\_\_

DATE COMPL.: \_\_\_\_\_

CONTRACTOR: \_\_\_\_\_

BOX MARKER	INTERVAL (m)			CORE LOSS	LITHOLOGICAL UNIT			WATER FLOW (GALLONS PER MINUTE)	DESCRIPTION AND COMMENTS
	FROM	TO	THICK		FROM	TO	TRUE THK		
	0	6.10	6.10						Broken sandstone - shale stringers (cased 3.66m)
	6.10	7.93	1.83						shale
	7.93	9.45	1.52						sandstone
	9.45	10.06	0.61						siltstone
	10.06	10.67	0.61						coal
	10.67	11.28	0.61						siltstone
	11.28	13.72	2.44						sandstone
	13.72	14.63	0.91						siltstone
	14.63	14.94	0.31						coaly shale
	14.94	17.68	2.74						siltstone
	17.68	18.29	0.61						sandstone
	18.29	18.90	0.61						siltstone
	18.90	19.51	0.61						sandstone
	19.51	20.73	1.22						siltstone
	20.73	21.34	0.61				75 gpm		shale
	21.34	22.25	0.91						siltstone
	22.25	22.86	0.61						sandstone
	22.86	24.69	1.83						siltstone
	24.69	24.99	0.30						sandstone
	24.99	26.82	1.83						siltstone - traces of coal
	26.82	27.43	0.61						coal
	27.43	28.35	0.92						sandstone
	28.35	29.57	1.22						shale
	29.57	31.39	1.82						siltstone
	31.39	32.92	1.53						sandstone
	32.92	33.83	0.91						siltstone
	33.83	34.75	0.92						sandstone
	34.75	35.36	0.61						siltstone
	35.36	35.97	0.61						shale
	35.97	37.19	1.22						coal

GULF CANADA RESOURCES INC. – COAL DIVISION

DRILL CORE LOG

HOLE NO.: GDR-RDH-80-04  
 PROJECT: Goodrich Coal  
Project  
 CO. ORDS.: \_\_\_\_\_

ELEV. COLLAR: \_\_\_\_\_  
 BEARING: \_\_\_\_\_  
 HOLE ANGLE: \_\_\_\_\_

TOTAL DEPTH: 171.30 m  
 CORE SIZE: Rotary  
 LOGGED BY: Alberta Southern

SHEET NO.: 11  
 DATE BEGUN: \_\_\_\_\_  
 DATE COMPL.: \_\_\_\_\_  
 CONTRACTOR: \_\_\_\_\_

INTERVAL (m)			LITHOLOGICAL UNIT			WATER FLOW (GALLONS PER MINUTE)	DESCRIPTION AND COMMENTS
FROM	TO	THICK	FROM	TO	TRUE THK		
37.19	39.01	1.82					Siltstone
39.01	39.62	0.61					Sandstone
39.62	41.15	1.53					Sandstone
41.15	41.45	0.30					Shale
41.45	41.76	0.31					Coal
41.76	43.59	1.83					Sandstone
43.59	44.20	0.61					Siltstone
44.20	44.50	0.30					Shale
44.50	44.81	0.31					Coal
44.81	45.42	0.61					Shale
45.42	46.63	1.21				150 gpm	Sandstone
46.63	47.24	0.61					Shale
47.24	47.85	0.61					Siltstone
47.85	53.34	5.49					Sandstone
53.34	53.95	0.61					Shale - traces of coal
53.95	59.44	5.49					Sandstone
59.44	61.27	1.83					Siltstone
61.27	61.87	0.60					Shale
61.87	62.48	0.61					Coal
62.48	64.01	1.53					Sandstone
64.01	64.92	0.91					Shale
64.92	65.53	0.61					Coal
65.53	66.45	0.92					Sandstone
66.45	67.06	0.61					Shale
67.06	67.36	0.30					Sandstone
67.36	69.19	1.83					Shale
69.19	70.10	0.91					Siltstone
70.10	70.41	0.31					Sandstone
70.41	71.32	0.91				200 gpm	Siltstone
71.32	71.63	0.31					Sandstone



DRILL CORE LOG

HOLE NO.: GDR-RDH-80-04  
 PROJECT: Goodrich Coal Project  
 CO. ORDS.: \_\_\_\_\_

ELEV. COLLAR: \_\_\_\_\_  
 BEARING: \_\_\_\_\_  
 HOLE ANGLE: \_\_\_\_\_

TOTAL DEPTH: 171.30m  
 CORE SIZE: Rotary  
 LOGGED BY: Alberta Southern

SHEET NO.: 12  
 DATE BEGUN: \_\_\_\_\_  
 DATE COMPL.: \_\_\_\_\_  
 CONTRACTOR: \_\_\_\_\_

INTERVAL (m)			LITHOLOGICAL UNIT			WATER FLOW (GALLONS PER MINUTE)	DESCRIPTION AND COMMENTS
FROM	TO	THICK	FROM	TO	TRUE THK		
71.63	72.54	0.91					Siltstone
72.54	74.68	2.14					Sandstone
74.68	75.29	0.61					Siltstone
75.29	77.72	2.43					Sandstone
77.72	78.64	0.92					Siltstone
78.64	79.25	0.61					Sandstone
79.25	82.30	3.05					Siltstone
82.30	87.17	4.87					Sandstone
87.17	88.39	1.22					Siltstone
88.39	89.00	0.61					Coaly shale
89.00	92.96	3.96					Sandstone, salt and pepper
92.96	94.18	1.22					Sandstone, salt and pepper
94.18	94.79	0.61					Siltstone
94.79	95.40	0.61					Sandstone, salt and pepper
95.40	96.93	1.53					Siltstone (traces of coal and calcite)
96.93	99.06	2.13					Sandstone, salt & pepper; calcite stringers
99.06	100.28	1.22					Shale
100.28	100.89	0.61					Shale and coal
100.89	101.50	0.61					Siltstone and shale
101.50	103.63	2.13					Sandstone (calcite @ 102.72m)
103.63	107.59	3.96					Shale to siltstone
107.59	109.73	2.14					Sandstone (calcite 108.51m)
109.73	110.64	0.91					Siltstone
110.64	110.95	0.31					Coal and shale
110.95	111.25	0.30				75 gpm	Shale
111.25	112.17	0.92					Coal
112.17	112.78	0.61					Shale and siltstone
112.78	115.82	3.04					Sandstone
115.82	118.87	3.05					Siltstone
118.87	123.44	4.57					Sandstone



GULF CANADA RESOURCES INC. — COAL DIVISION

DRILL CORE LOG

HOLE NO.: GDR-RDH-80-05  
 PROJECT: Goodrich Coal  
Project  
 CO. ORDS.: \_\_\_\_\_

ELEV. COLLAR: \_\_\_\_\_  
 BEARING: \_\_\_\_\_  
 HOLE ANGLE: \_\_\_\_\_

TOTAL DEPTH: 193.55m  
 CORE SIZE: Rotary  
 LOGGED BY: Alberta Southern

SHEET NO.: 14  
 DATE BEGUN: \_\_\_\_\_  
 DATE COMPL.: \_\_\_\_\_  
 CONTRACTOR: \_\_\_\_\_

INTERVAL (m)			LITHOLOGICAL UNIT			WATER FLOW (GALLONS PER MINUTE)	DESCRIPTION AND COMMENTS
FROM	TO	THICK	FROM	TO	TRUE THK		
0	8.84	8.84					(cased 8.84m); overburden weathered rock
8.84	19.81	10.97					Coarse Shale to siltstone
19.81	25.91	6.10					Sandstone
25.91	27.43	1.52					Siltstone
27.43	27.74	0.31					Coal.
27.74	30.48	2.74					Shale and siltstone.
30.48	30.79	0.31					Coal
30.79	42.06	11.27					Sandstone
42.06	42.67	0.61					Siltstone
42.67	45.72	3.05					Coal
45.72	50.60	4.88					Siltstone - shale (calcite stringers)
50.60	50.90	0.30					Siltstone
50.90	52.43						Coal
52.43	53.34	0.91					Shale and siltstone (calcite 53.34m)
53.34	59.44	6.10					Sandstone
59.44	60.66	1.22					Siltstone
60.66	61.27	0.61					Sandstone
61.27	61.87	0.60				10 gpm	Shale
61.87	63.09	1.22					Siltstone
63.09	66.45	3.36					Sandstone
66.45	67.36	0.91					Siltstone and shale
67.36	85.34	17.98					Sandstone (coal stringer at 75.29m)
85.34	86.26	0.92					Siltstone
86.26	89.00	2.74				20 gpm	Sandstone
89.00	96.01	7.01					Sandstone; coal stringer @ 92.05 m
96.01	97.54	1.53					Shale
97.54	99.06	1.52					Siltstone and shale
99.06	100.28	1.22					Shale and coal
100.28	100.89	0.61					Siltstone
100.89	111.25	10.36					Sandstone; calcite @ 102.11 m

GULF CANADA RESOURCES INC. - COAL DIVISION

DRILL CORE LOG

HOLE NO.: GDR-RDA-80-05

PROJECT: Goodrich Coal  
Project

CO. ORDS.: \_\_\_\_\_

ELEV. COLLAR: \_\_\_\_\_

BEARING: \_\_\_\_\_

HOLE ANGLE: \_\_\_\_\_

TOTAL DEPTH: 193.55 m

CORE SIZE: Rotary

LOGGED BY: Alberta Southern

SHEET NO.: 15

DATE BEGUN: \_\_\_\_\_

DATE COMPL.: \_\_\_\_\_

CONTRACTOR: \_\_\_\_\_

INTERVAL (m)			LITHOLOGICAL UNIT			WATER FLOW (GALLONS PER MINUTE)	DESCRIPTION AND COMMENTS
FROM	TO	THICK	FROM	TO	TRUE THK		
111.25	115.21	3.96					Sandstone
115.21	116.43	1.22					Siltstone and shale
116.43	121.31	4.88					Shale
121.31	122.53	1.22					Coal, shale
122.53	128.02	5.49					Sandstone
128.02	133.20	5.18					Sandstone, siltstone
133.20	137.16	3.96					Siltstone
137.16	140.82	3.66					Shale - traces of
140.82	141.43	0.61					Coal; traces of shale
141.43	149.96	8.53					Sandstone - calcite stringers
149.96	150.88	0.92					Siltstone
150.88	151.79	0.91					Coal
151.79	154.84	3.05					Shale, coal
154.84	155.45	0.61					Siltstone
155.45	157.28	1.83					Shale - traces of coal
157.28	160.33	3.05					Sandstone
160.33	162.76	2.43					Siltstone
162.76	164.59	1.83					Sandstone
164.59	166.73	2.14					Sandstone
166.73	167.03	0.30					Coal
167.03	169.77	2.74					Sandstone
169.77	179.38	0.61					Shale, coal
170.38	171.91	1.53					Shale to siltstone
171.19	175.57	3.66					Sandstone
175.57	176.78	1.21					Shale - coal
176.78	179.22	2.44					Coal
179.22	181.36	2.14					Sandstone - calcite stringers
181.36	181.97	0.61					Shale - traces of coal
181.97	183.49	1.52					Siltstone
183.47	184.10	0.61					Coal



GULF CANADA RESOURCES INC. – COAL DIVISION

DRILL CORE LOG

HOLE NO.: GDR-RDH-80-06

PROJECT: Goodrich Coal  
Project

CO. ORDS.: \_\_\_\_\_

ELEV. COLLAR: \_\_\_\_\_

BEARING: \_\_\_\_\_

HOLE ANGLE: \_\_\_\_\_

TOTAL DEPTH: 178.31 m

CORE SIZE: Rotary

LOGGED BY: Alberta Southern

SHEET NO.: 17

DATE BEGUN: \_\_\_\_\_

DATE COMPL.: \_\_\_\_\_

CONTRACTOR: \_\_\_\_\_

INTERVAL (m)			LITHOLOGICAL UNIT			WATER FLOW (GALLONS PER MINUTE)	DESCRIPTION AND COMMENTS
FROM	TO	THICK	FROM	TO	TRUE THK		
0	6.10	6.10					Cased 6.10 m; shattered rock
6.10	8.23	2.13					Sandstone and shale
8.23	11.28	3.05					Coal
11.28	13.11	1.83					Shale
13.11	13.72	0.61					Coal
13.72	35.66	21.94					Sandstone
35.66	35.97	0.31					Coal
35.97	38.10	2.13					Sandstone
38.0	63.09	24.99					Sandstone; coal stringers @ 47.24m, 56.04m, 57.91 m, 58.83 m
63.09	64.01	0.92					Coal and shale
64.01	68.58	4.57					Sandstone
68.58	92.96	24.38				15 gpm @ 82.30	Sandstone
92.96	96.01	3.05					Sandstone
96.01	97.54	1.53					Siltstone
97.54	99.37	1.83					Sandstone
99.37	100.58	1.21					Siltstone
100.58	101.19	0.61					Shale - traces of coal
101.19	101.80	0.61					Sandstone
101.80	102.41	0.61					Siltstone
102.41	105.16	2.75					Sandstone
105.16	105.46	0.30					Shale - traces of coal
105.46	106.68	1.22					Siltstone
106.68	108.20	1.52					Siltstone
108.20	109.73	1.53					Shale - traces of coal
109.73	111.25	1.52					Siltstone
111.25	111.86	0.61					Sandstone
111.86	114.91	3.05					Siltstone
114.91	117.35	2.44					Sandstone
117.35	117.96	0.61					Siltstone
117.96	118.26	0.30					Shale

GULF CANADA RESOURCES INC. - COAL DIVISION

DRILL CORE LOG

HOLE NO.: GDR-RDH-80-06  
 PROJECT: Goodrich Coal  
Project  
 CO. ORDS.: \_\_\_\_\_

ELEV. COLLAR: \_\_\_\_\_  
 BEARING: \_\_\_\_\_  
 HOLE ANGLE: \_\_\_\_\_

TOTAL DEPTH: 178.31 m  
 CORE SIZE: Rotary  
 LOGGED BY: Alberta Southern

SHEET NO.: 18  
 DATE BEGUN: \_\_\_\_\_  
 DATE COMPL.: \_\_\_\_\_  
 CONTRACTOR: \_\_\_\_\_

INTERVAL (m)			LITHOLOGICAL UNIT			WATER FLOW (GALLONS PER MINUTE)	DESCRIPTION AND COMMENTS
FROM	TQ	THICK	FROM	TO	TRUE THK		
118.26	119.79	1.53					Siltstone
119.79	120.40	0.61					Sandstone
120.40	121.92	1.52					Siltstone
121.92	123.14	1.22					Coal and shale
123.14	123.75	0.61					Sandstone
123.75	124.05	0.30					Siltstone
124.05	125.58	1.53					Shale - coal
125.58	127.41	1.83					Siltstone
127.41	128.32	0.91					Mud stone
128.32	129.54	1.22					Siltstone
129.54	132.59	3.05					Sandstone
132.59	133.20	0.61					Siltstone
133.20	133.81	0.61					Shale - traces of coal
133.81	135.94	2.13					Sandstone
135.94	137.16	1.22					Siltstone
137.16	138.38	1.22					Shale - traces of coal
138.38	138.99	0.61					Sandstone
138.99	139.60	0.61					Siltstone
139.60	140.21	0.61					Siltstone
140.21	140.80	0.61					Shale - traces of coal
140.82	141.12	0.30					Sandstone
141.12	141.43	0.31					Siltstone
141.43	141.73	0.30					Shale - traces of coal
141.73	142.34	0.61					Sandstone
142.34	142.65	0.31					Siltstone
142.65	144.78	2.13					Shale - traces of coal
144.78	145.69	0.91					Siltstone
145.69	146.00	0.31					Sandstone
146.00	146.91	0.91					Siltstone
146.91	147.52	0.61					Shale - traces of coal

GULF CANADA RESOURCES INC. - COAL DIVISION

DRILL CORE LOG

HOLE NO.: GDR-RDH-80-06  
 PROJECT: Goodrich Coal  
Project  
 CO. ORDS.: \_\_\_\_\_

ELEV. COLLAR: \_\_\_\_\_  
 BEARING: \_\_\_\_\_  
 HOLE ANGLE: \_\_\_\_\_

TOTAL DEPTH: 178.31 m  
 CORE SIZE: Rotary  
 LOGGED BY: Alberta Southern

SHEET NO.: 19  
 DATE BEGUN: \_\_\_\_\_  
 DATE COMPL.: \_\_\_\_\_  
 CONTRACTOR: \_\_\_\_\_

INTERVAL (m)			LITHOLOGICAL UNIT			WATER FLOW (GALLONS PER MINUTE)	DESCRIPTION AND COMMENTS
FROM	TO	THICK	FROM	TO	TRUE THK		
147.52	150.87	3.05					Coal
150.571	151.18	0.61					Sandstone to siltstone
151.18	152.40	1.22					Siltstone
152.40	153.31	0.91					Shale
153.31	153.62	0.31					Siltstone
153.62	155.14	1.52					Shale
155.14	155.75	0.61					Coal
155.75	156.06	0.31					Siltstone
156.06	156.97	0.91					Shale
156.97	157.89	0.92					Coal
157.89	158.19	0.30					Sandstone
158.19	159.41	1.22					Shale
159.41	160.33	0.92					Siltstone
160.33	162.15	1.82					Shale - traces of coal
162.15	162.76	0.61					Siltstone
162.76	163.68	0.92					Shale
163.68	163.98	0.30					Sandstone
163.98	164.59	0.61					Siltstone
164.59	171.91	7.32					Sandstone
171.91	172.21	0.30					Shale coal
172.21	172.52	0.31					Sandstone
175.52	173.74	1.22					Siltstone
173.74	178.31	4.57					Sandstone
							T.D. 178.31 m



GULF CANADA RESOURCES INC. — COAL DIVISION

DRILL CORE LOG

HOLE NO.: CDR-RDH-80-07

SHEET NO.: 20

PROJECT: Goodrich Coal  
Project

ELEV. COLLAR: \_\_\_\_\_

TOTAL DEPTH: 207.87 m

DATE BEGUN: \_\_\_\_\_

BEARING: \_\_\_\_\_

CORE SIZE: Rotary

DATE COMPL.: \_\_\_\_\_

CO. ORDS.: \_\_\_\_\_

HOLE ANGLE: \_\_\_\_\_

LOGGED BY: Alberta Southern

CONTRACTOR: \_\_\_\_\_

INTERVAL (m)			LITHOLOGICAL UNIT			WATER FLOW (GALLONS PER MINUTE)	DESCRIPTION AND COMMENTS
FROM	TO	THICK	FROM	TO	TRUE THK		
0	4.27	4.27					(Cased 4.27 m) some overburden - shattered bedrock
4.27	6.40	2.13					Sandstone
6.40	7.01	0.61					Coal
7.01	10.67	3.66					Sandstone
10.67	11.58	0.91					Coal
11.58	14.02	2.44					Sandstone
14.02	14.63	0.61					Coal
14.63	27.43	12.80					Sandstone - coal stringer 15.85 m, coal stringer 22.86 m
27.43	28.96	1.53					Shale
28.96	41.15	12.19					Sandstone, 41.15 m calcite stringer
41.15	43.28	2.13					Shale and siltstone
43.28	48.89	0.61					Coal and shale
43.89	53.34	9.45					Sandstone
53.34	54.86	1.52					Shale
54.86	55.47	0.61					Sandstone
55.87	56.08	0.61					Shale - traces of coal
56.08	57.91	1.83					Sandstone
57.91	60.96	3.05					Siltstone and shale
60.96	70.71	9.75					Sandstone - coal stringer @ 70.10 m
70.71	71.63	0.92					Coal and shale
71.63	75.29	3.66					Sandstone
75.29	76.20	0.91					Coal
76.20	79.25	3.05					Sandstone
79.25	79.86	0.61					Coal
79.86	81.08	1.22					Sandstone
81.08	82.30	1.22					Shale
82.30	91.44	9.14					Sandstone
91.44	92.05	0.61					Coal
92.05	94.79	2.74					Sandstone
94.79	96.32	1.53					Coal

DRILL CORE LOG

HOLE NO.: GDR-RDH-80-07  
 PROJECT: Goodrich Coal  
Project  
 CO. ORDS.: \_\_\_\_\_

ELEV. COLLAR: \_\_\_\_\_  
 BEARING: \_\_\_\_\_  
 HOLE ANGLE: \_\_\_\_\_

TOTAL DEPTH: 207.87 m  
 CORE SIZE: Rotary  
 LOGGED BY: Alberta Southern

SHEET NO.: 21  
 DATE BEGUN: \_\_\_\_\_  
 DATE COMPL.: \_\_\_\_\_  
 CONTRACTOR: \_\_\_\_\_

INTERVAL (m)			LITHOLOGICAL UNIT			WATER FLOW (GALLONS PER MINUTE)	DESCRIPTION AND COMMENTS
FROM	TO	THICK	FROM	TO	TRUE THK		
96.32	99.67	3.35					Sandstone
99.67	102.11	2.44					Siltstone
102.11	105.16	3.05					Sandstone
105.16	105.77	0.61					Coal, Shale
105.77	110.64	4.87					Sandstone
110.64	111.25	0.61					Sandstone - traces of coal
111.25	114.30	3.05					Shale - traces of coal
114.30	115.21	0.91					Sandstone
115.21	115.82	0.61					Siltstone
115.82	116.43	0.61					Shale - traces of coal
116.43	117.35	0.92					Siltstone
117.35	119.48	2.13					Sandstone
119.48	121.01	1.53					Siltstone
121.01	121.92	0.91					Shale
121.92	122.23	0.31					Coal
122.23	122.53	0.30					Siltstone
122.53	123.75	1.22					Shale - traces of coal
123.75	124.66	0.91					Sandstone
124.66	125.58	0.92					Shale, coaly
125.58	126.49	0.91					Sandstone
126.49	127.10	0.61					Siltstone
127.10	127.71	0.61					Sandstone
127.81	132.59	4.88					Siltstone
132.59	134.11	1.52					Shale
134.11	134.42	0.31					Siltstone
134.42	136.25	1.83					Shale
136.25	137.16	0.91					Sandstone
137.16	138.68	1.52					Siltstone
138.68	141.12	2.44					Sandstone
141.12	143.26	2.14					Siltstone

GULF CANADA RESOURCES INC. — COAL DIVISION

DRILL CORE LOG

HOLE NO.: GDR-RDH-80-07  
 PROJECT: Goodrich Coal  
Project  
 CO. ORDS.: \_\_\_\_\_

ELEV. COLLAR: \_\_\_\_\_  
 BEARING: \_\_\_\_\_  
 HOLE ANGLE: \_\_\_\_\_

TOTAL DEPTH: 207.87 m  
 CORE SIZE: Rotary  
 LOGGED BY: Alberta southern

SHEET NO.: 22  
 DATE BEGUN: \_\_\_\_\_  
 DATE COMPL.: \_\_\_\_\_  
 CONTRACTOR: \_\_\_\_\_

INTERVAL (m)			LITHOLOGICAL UNIT			WATER FLOW (GALLONS PER MINUTE)	DESCRIPTION AND COMMENTS
FROM	TO	THICK	FROM	TO	TRUE THK		
143.26	143.87	0.61					Sandstone
143.87	146.20	2.43					Shale - some coal
146.30	146.91	0.61					Sandstone
146.91	147.83	0.92					Sandstone
147.83	149.05	1.22					Siltstone
149.05	149.96	0.91					Shale
149.96	151.18	1.22					Sandstone
151.18	152.40	1.22					Siltstone
152.40	156.97	4.57					Sandstone
156.97	173.74	16.77					Sandstone
173.74	176.78	3.04					Siltstone
176.78	187.45	10.67					Shale
187.45	188.37	0.92					Coal
188.37	201.17	12.80					Siltstone
201.17	207.87	6.70					Sandstone
							T.D. 207.87 m

GULF CANADA RESOURCES INC. - COAL DIVISION

DRILL CORE LOG

23

HOLE NO.: GDR-RDH-80-08  
 PROJECT: Goodrich Coal  
Project  
 CO. ORDS.: \_\_\_\_\_

ELEV. COLLAR: \_\_\_\_\_  
 BEARING: \_\_\_\_\_  
 HOLE ANGLE: \_\_\_\_\_

TOTAL DEPTH: 281.03 m  
 CORE SIZE: Rotary  
 LOGGED BY: Alberta Southern

SHEET NO.: \_\_\_\_\_  
 DATE BEGUN: \_\_\_\_\_  
 DATE COMPL.: \_\_\_\_\_  
 CONTRACTOR: \_\_\_\_\_

INTERVAL (m)			LITHOLOGICAL UNIT			WATER FLOW (GALLONS PER MINUTE)	DESCRIPTION AND COMMENTS
FROM	TO	THICK	FROM	TO	TRUE THK		
0	24.69	24.69					Overburden (cased)
24.69	36.58	11.89					Mudstone
36.58	44.20	7.62					Shale
44.20	70.10	25.90					Sandstone
70.10	70.71	0.61					Shale
70.71	71.32	0.61					Coal
71.32	73.46	2.14					Shale
73.46	73.76	0.30					Coal
73.76	74.07	0.31					Shale
74.07	78.64	4.57					Siltstone
78.64	79.25	0.61					Sandstone
79.25	80.16	0.91					Siltstone
80.16	80.77	0.61					Sandstone
80.77	90.53	9.76					Siltstone
90.53	91.44	0.91					Coal
91.44	93.88	2.44					Shale - traces of coal
93.88	111.25	17.37					Shale, mudstone & coal
111.25	126.49	15.24				5 gpm @	
						106.68 m	Shale & coal
126.49	155.45	28.96					Sandstone
155.45	169.16	13.71				10 gpm @	
						160.02 m	Siltstone
169.16	173.74	4.58					Siltstone & shale
173.74	182.88	9.14					Shale - traces of coal 173.74 m and 176.78 m; calcite stringer @ 173.74 m
182.88	198.12	15.24					Shale & siltstone
198.12	203.61	5.49					Sandstone
203.61	210.31	6.70					Shale
210.31	220.98	10.67					Shale & siltstone
220.98	229.91	8.93					Sandstone
229.91	231.65	1.74					Siltstone
231.65	235.31	3.66					Shale, mudstone
235.31	237.74	2.43					Siltstone

GULF CANADA RESOURCES INC. — COAL DIVISION

DRILL CORE LOG

HOLE NO.: GDR-RDH-80-08  
 PROJECT: Goodrich Coal  
Project  
 CO. ORDS.: \_\_\_\_\_

ELEV. COLLAR: \_\_\_\_\_  
 BEARING: \_\_\_\_\_  
 HOLE ANGLE: \_\_\_\_\_

TOTAL DEPTH: 281.03 m  
 CORE SIZE: Rotary  
 LOGGED BY: Alberta Southern

SHEET NO.: 24  
 DATE BEGUN: \_\_\_\_\_  
 DATE COMPL.: \_\_\_\_\_  
 CONTRACTOR: \_\_\_\_\_

INTERVAL (m)			LITHOLOGICAL UNIT			WATER FLOW (GALLONS PER MINUTE)	DESCRIPTION AND COMMENTS
FROM	TO	THICK	FROM	TO	TRUE THK		
237.74	240.79	3.05					Siltstone
240.79	242.32	1.53					Sandstone
242.32	244.45	2.13					Mudstone & shale
244.65	248.41	3.96					Sandstone
248.41	250.85	2.44					Shale
250.85	253.59	2.74					Coal
253.59	254.20	0.61					Shale
254.20	255.42	1.22					Coal
255.42	150.60	5.18					Shale
260.60	202.12	1.53					Sandstone
262.12	263.65	1.52					Siltstone
263.65	281.03	17.38					Sandstone
							T.D. 281.03 m

GULF CANADA RESOURCES INC. - COAL DIVISION

DRILL CORE LOG

HOLE NO.: GDR - RDH - 80 - 09

SHEET NO.: 25

PROJECT: Goodrich Coal

ELEV. COLLAR: \_\_\_\_\_

TOTAL DEPTH: 35.36 m

DATE BEGUN: \_\_\_\_\_

Project

BEARING: \_\_\_\_\_

CORE SIZE: rotary

DATE COMPL.: \_\_\_\_\_

CO. ORDS.: \_\_\_\_\_

HOLE ANGLE: \_\_\_\_\_

LOGGED BY: Alberta Southern

CONTRACTOR: \_\_\_\_\_

BOX MARKER	INTERVAL (m)			CORE LOSS	LITHOLOGICAL UNIT			WATER FLOW (GALLONS PER MINUTE)	DESCRIPTION AND COMMENTS
	FROM	TO	THICK		FROM	TO	TRUE THK		
	0	35.36	35.36						cased hole - too crooked to drill - casing break



GULF CANADA RESOURCES INC. – COAL DIVISION

DRILL CORE LOG

HOLE NO.: GDR-RDH-80-10

SHEET NO.: 27

PROJECT: Goodrich Coal  
Project

ELEV. COLLAR: \_\_\_\_\_

TOTAL DEPTH: 262.74 m

DATE BEGUN: \_\_\_\_\_

BEARING: \_\_\_\_\_

CORE SIZE: Rotary

DATE COMPL.: \_\_\_\_\_

CO. ORDS.: \_\_\_\_\_

HOLE ANGLE: \_\_\_\_\_

LOGGED BY: Alberta Southern

CONTRACTOR: \_\_\_\_\_

INTERVAL (m)			LITHOLOGICAL UNIT			WATER FLOW (GALLONS PER MINUTE)	DESCRIPTION AND COMMENTS
FROM	TO	THICK	FROM	TO	TRUE THK		
129.54	138.68	9.14				50 gpm @ 140.21 m	Siltstone
138.68	142.65	3.97					Sandstone
142.65	150.57	7.92					Siltstone
150.57	152.40	1.83					Shale
152.40	157.84	5.49					Siltstone
157.89	161.54	3.65					Shale, with traces of coal
161.54	163.07	1.53					Siltstone
163.07	167.64	4.57					Sandstone, calcite at 161.54 m & 164.59 m
167.64	179.83	12.19					Siltstone
179.83	181.36	1.53					Shale
181.36	184.40	3.04					Siltstone with calcite stringers at 173.74 m & 178.31 m
184.40	188.37	3.97					Shale
188.37	208.79	20.42					Shale
210.31	220.98	10.67					Siltstone
220.98	224.03	3.05					Siltstone with shale stringers
224.03	252.98	28.95				Siltstone & shale	
252.98	256.03	3.05				Sandstone	
256.03	262.74	6.71				Sandstone	



DRILL CORE LOG

HOLE NO.: GDR-RDH-80-11 SHEET NO.: 28  
 PROJECT: Goodrich Coal Project ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: 281.03m DATE BEGUN: \_\_\_\_\_  
 BEARING: \_\_\_\_\_ CORE SIZE: Rotary DATE COMPL.: \_\_\_\_\_  
 CO. ORDS.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: Alberta Southern CONTRACTOR: \_\_\_\_\_

INTERVAL (m)			LITHOLOGICAL UNIT			WATER FLOW (GALLONS PER MINUTE)	DESCRIPTION AND COMMENTS
FROM	TO	THICK	FROM	TO	TRUE THK		
0	26.52	26.52					Overburden (cased 0-28.35m)
26.52	27.43	0.91					Coal
27.43	29.57	2.14					Siltstone
29.57	32.31	2.74					Shale
32.31	34.75	2.44					Sandstone
34.75	41.15	6.40					Siltstone
41.15	41.76	0.61					Shale & coal
41.76	43.28	1.52					Siltstone
43.28	49.38	6.10				10 gpm	Shale & coal
49.38	53.95	4.57					Sandstone
53.95	55.47	1.52					Siltstone
55.47	67.06	11.59				30 gpm	Sandstone
						56.39m	
						64.01m	
67.06	73.15	6.09					Siltstone
73.15	91.44	18.29				75 gpm @	Sandstone - 83.82m - 88.39m Badly shattered
						85.54m	
91.44	92.96	1.52					Shale & traces of coal
92.96	93.88	0.92					Shale
93.88	95.10	1.22					Shale & coal
95.10	103.63	8.53					Shale, with traces of coal
103.63	106.07	2.44					Siltstone
106.07	108.81	2.74				100 gpm	Shale & coal
108.81	109.42	0.61					Siltstone
109.42	110.64	1.22					Sandstone - 111.25m - 114.30m traces of coal, shattered
110.64	120.40	9.80					Siltstone
120.40	123.75	3.31					Coal
123.75	128.02	4.27					Coaly shale
128.02	132.59	4.57					Shale
132.59	135.64	3.05					Coal & shale
135.64	144.78	9.14					Coal
144.78	146.30	1.52					Shale & coal
146.30	147.83	1.53					Shale

GULF CANADA RESOURCES INC. - COAL DIVISION

DRILL CORE LOG

HOLE NO.: GDR-RDH-80-11  
 PROJECT: Goodrich Coal  
Project  
 CO. ORDS.: \_\_\_\_\_

ELEV. COLLAR: \_\_\_\_\_  
 BEARING: \_\_\_\_\_  
 HOLE ANGLE: \_\_\_\_\_

TOTAL DEPTH: 281.03 m  
 CORE SIZE: Rotary  
 LOGGED BY: Alberta Southern

SHEET NO.: 29  
 DATE BEGUN: \_\_\_\_\_  
 DATE COMPL.: \_\_\_\_\_  
 CONTRACTOR: \_\_\_\_\_

INTERVAL (m)			LITHOLOGICAL UNIT			WATER FLOW (GALLONS PER MINUTE)	DESCRIPTION AND COMMENTS
FROM	TO	THICK	FROM	TO	TRUE THK		
147.83	149.66	1.83					Sandstone
149.66	151.18	1.52					Siltstone
151.18	153.31	2.13					Shale - traces of coal
153.31	153.92	0.61					Coal
153.92	158.50	4.58					Shale & coal
158.50	160.93	2.43					Siltstone
160.93	161.54	0.61					Shale & coal
161.54	185.93	24.39					Siltstone to sandstone
185.93	187.45	1.52					Shale
187.45	195.07	7.62					Siltstone - calcite traces
195.07	204.22	9.15					Siltstone
204.22	225.55	21.33					Sandstone
225.55	231.65	6.10					Siltstone & shale
231.65	243.84	12.19					Fine grained sandstone
243.84	263.65	19.81					Shale & siltstone
263.65	267.61	3.96					Coal & shale
267.61	281.03	13.42					Siltstone
							T.D. 281.03 m



GULF CANADA RESOURCES INC. - COAL DIVISION

DRILL CORE LOG

HOLE NO.: GDR-RDH-80-13 SHEET NO.: 31  
 PROJECT: Goodrich Coal ELEV. COLLAR: \_\_\_\_\_ TOTAL DEPTH: 244.50 m DATE BEGUN: \_\_\_\_\_  
Project BEARING: \_\_\_\_\_ CORE SIZE: Rotary DATE COMPL.: \_\_\_\_\_  
 CO. ORDS.: \_\_\_\_\_ HOLE ANGLE: \_\_\_\_\_ LOGGED BY: Albera Southern CONTRACTOR: \_\_\_\_\_

INTERVAL (m)			LITHOLOGICAL UNIT			WATER FLOW (GALLONS PER MINUTE)	DESCRIPTION AND COMMENTS
FROM	TO	THICK	FROM	TO	TRUE THK		
0	4.88	4.88					Overburden - weathered, shattered bedrock (cased 4.88 m)
4.88	21.34	16.46					Sandstone
21.34	24.38	3.04					Shale & coal
24.38	27.43	3.05					Sandstone
27.43	30.48	3.05				10 gpm	Coal
30.48	32.31	1.83					Shale
32.31	33.53	1.22					Coal & shale
33.53	70.41	36.88				20 gpm @ 56.39 m	
70.41	71.93	1.52					Sandstone - calcite @ 39.62 m
71.93	72.24	0.31					Siltstone
72.24	72.54	0.30					Shale - traces of coal
72.54	74.07	1.53					Siltstone
74.07	77.11	3.04					Shale - traces of coal
77.11	77.72	0.61					Sandstone
77.72	78.94	1.22					Shale
78.94	79.55	0.61					Coal
79.55	81.69	2.14					Shale - siltstone
81.69	82.30	0.61					Sandstone
82.30	83.82	1.52					Coal & shale
83.82	85.34	1.52					Siltstone
85.34	100.58	15.24					Sandstone; @ 85.34m calcite crystals (?)
100.58	109.12	8.54					Sandstone
109.12	112.78	3.66					Sandstone (coarse grained to fine grained); calcite stringers
112.78	115.82	3.04					Siltstone
115.82	121.31	5.49					Siltstone
121.31	124.97	3.66					Fine grained sandstone
124.97	125.58	0.61					Siltstone
125.58	126.19	0.61					Shale - traces of coal
126.19	127.71	1.52					Siltstone
127.71	129.54	1.83					Sandstone
							Siltstone (traces of coal @ 128.32m)

GULF CANADA RESOURCES INC. - COAL DIVISION

DRILL CORE LOG

HOLE NO.: GDR-RDH-80-13

PROJECT: Goodrich Coal  
Project

CO. ORDS.: \_\_\_\_\_

ELEV. COLLAR: \_\_\_\_\_

BEARING: \_\_\_\_\_

HOLE ANGLE: \_\_\_\_\_

TOTAL DEPTH: 244.50 m

CORE SIZE: Rotary

LOGGED BY: Alberta Southern

SHEET NO.: 32

DATE BEGUN: \_\_\_\_\_

DATE COMPL.: \_\_\_\_\_

CONTRACTOR: \_\_\_\_\_

INTERVAL (m)			LITHOLOGICAL UNIT			WATER FLOW (GALLONS PER MINUTE)	DESCRIPTION AND COMMENTS
FROM	TO	THICK	FROM	TO	TRUE THK		
129.54	135.68	6.14					Sandstone (hard)
135.68	135.98	0.30					Sandstone
135.98	136.29	0.31					Calcite crystals
136.29	159.45	23.16					Sandstone; shattered @ 141.43 - 147.83 m
159.45	160.06	.61					Giltstone
160.06	161.28	1.22					Coal & shale
161.28	162.19	.91					Sandstone
162.19	163.72	1.53					Shale & coal
163.72	165.85	2.13					Coal
165.85	167.68	1.83					Shale & siltstone
167.68	169.20	1.52					Siltstone
169.20	185.97	16.77					Sandstone; hard and fine
185.97	187.49	1.52					Siltstone
187.45	194.50	7.01					Sandstone; very hard
194.50	194.81	.31					Coal - fault
194.81	199.38	4.57					Siltstone
199.30	213.10	13.72					Sandstone; hard
213.10	221.02	7.92					Siltstone with traces of brown shale
221.02	225.59	4.57					Sandstone; hard
225.59	236.87	11.28					Siltstone - sandstone layers
236.87	237.18	.31					Coal
237.18	241.76	4.58					Siltstone with traces of shale
241.76	244.50	2.74					Sandstone
							T.D. 244.50 m



GULF CANADA RESOURCES INC. – COAL DIVISION

DRILL CORE LOG

HOLE NO.: GDR-RDH-80-14

PROJECT: Goodrich Coal Project

CO. ORDS.: \_\_\_\_\_

ELEV. COLLAR: \_\_\_\_\_

BEARING: \_\_\_\_\_

HOLE ANGLE: \_\_\_\_\_

TOTAL DEPTH: 257.56 m

CORE SIZE: Rotary

LOGGED BY: Alberta outhern

SHEET NO.: 34

DATE BEGUN: \_\_\_\_\_

DATE COMPL.: \_\_\_\_\_

CONTRACTOR: \_\_\_\_\_

INTERVAL (m)			LITHOLOGICAL UNIT			WATER FLOW (GALLONS PER MINUTE)	DESCRIPTION AND COMMENTS
FROM	TO	THICK	FROM	TO	TRUE THK		
199.64	205.13	5.49					Shale - coal layers
205.13	206.96	1.83					Coal
206.96	208.18	1.22					Shale
208.18	209.09	.91					Coal
209.09	210.31	1.22					Shale
210.31	219.15	8.84					Siltstone
219.15	223.42	4.27					Shale
223.42	224.33	.91					Shale
224.33	230.12	5.79					Siltstone
230.12	231.65	1.53					Shale
231.65	232.56	.91					Coal
232.56	238.05	5.49					Shale; siltstone; coal from 237.13 to 238.05 m
238.05	243.23	5.18					Shale
243.23	245.67	2.44					Coal
245.67	257.56	11.89					Shale & siltstone
							T.D. 257.56 m

GULF CANADA RESOURCES INC. - COAL DIVISION

DRILL CORE LOG

HOLE NO.: GDR-RDH-80-15  
 PROJECT: Goodrich Coal  
Project  
 CO. ORDS.: \_\_\_\_\_

ELEV. COLLAR: \_\_\_\_\_  
 BEARING: \_\_\_\_\_  
 HOLE ANGLE: \_\_\_\_\_

TOTAL DEPTH: 245.36 m  
 CORE SIZE: Rotary  
 LOGGED BY: Alberta Southern

SHEET NO.: 35  
 DATE BEGUN: \_\_\_\_\_  
 DATE COMPL.: \_\_\_\_\_  
 CONTRACTOR: \_\_\_\_\_

INTERVAL (m)			LITHOLOGICAL UNIT			WATER FLOW (GALLONS PER MINUTE)	DESCRIPTION AND COMMENTS
FROM	TO	THICK	FROM	TO	TRUE THK		
0	57.91	57.91				30	Gravel, boulders, etc.
57.91	60.96	3.05					Siltstone & mudstone
60.96	83.83	22.86					Sand; casing broken
83.82	84.73	.91					Coal
84.73	170.69	85.96					Mudstone & siltstone
170.69	173.74	3.05					Traces of coal
173.74	182.88	9.14					Mudstone
182.88	205.74	22.86					Sandstone & siltstone
205.74	210.31	4.57					Shale
210.31	220.98	10.67					Shale and coal
220.98	228.60	7.62					Siltstone
228.60	245.36	16.76				Sandstone	
							T.D. 245.36 m





GULF CANADA RESOURCES INC. - COAL DIVISION

DRILL CORE LOG

HOLE NO.: GDR-RDH-80-17  
 PROJECT: Goodrich Coal  
Project  
 CO. ORDS.: \_\_\_\_\_

ELEV. COLLAR: \_\_\_\_\_  
 BEARING: \_\_\_\_\_  
 HOLE ANGLE: \_\_\_\_\_

TOTAL DEPTH: 239.27 m  
 CORE SIZE: Rotary  
 LOGGED BY: Alberta Southern

SHEET NO.: 37  
 DATE BEGUN: \_\_\_\_\_  
 DATE COMPL.: \_\_\_\_\_  
 CONTRACTOR: \_\_\_\_\_

INTERVAL (m)			LITHOLOGICAL UNIT			WATER FLOW (GALLONS PER MINUTE)	DESCRIPTION AND COMMENTS
FROM	TO	THICK	FROM	TO	TRUE THK		
0	4.27	4.27					Overburden
4.27	6.10	1.83					Weathered bedrock; cased 6.10 m
6.10	12.19	6.09				10	Shale
12.19	35.05	22.86					Mudstone
35.05	53.34	18.29					Mudstone
53.34	54.56	1.22					Coal
54.56	54.86	.30					Siltstone
54.86	59.44	4.58					Sandstone
59.44	67.06	7.62					Shale
67.06	68.58	1.52					Carbonaceous shale - traces of coal
68.58	79.25	10.67					Shale
79.25	91.75	12.50					Siltstone - mudstone
91.75	93.27	1.52				Gas !!!	Shale & coal
93.27	93.88	.61					Mudstone
93.88	103.94	10.06				20	Siltstone - calcite traces
103.94	104.55	.61					Siltstone & calcite fractured
104.55	153.31	48.76					Siltstone - calcite stringer @ 144.78m - coal stringer @ 126.49m
153.31	163.07	9.76					Shale - very little coal
163.07	167.64	4.57				50	Shale
167.64	170.69	3.05					Siltstone
170.69	172.82	2.13					Shale
172.82	175.87	3.05					Shale & coal
175.87	177.70	1.83					Siltstone & shale
177.70	182.88	5.18					Shale & coal
182.88	184.10	1.22					Shale
184.10	192.02	7.92					Siltstone, hard; shale
192.02	195.07	3.05					Shale & coal
195.07	198.12	3.05					Sandstone
201.17	205.74	4.57					Siltstone



COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12-80)

DENSITY         

RESISTIVITY         

DRILL NO. GDR-DRH-80-01 SEAM           
SCALE 1:150

APPARENT THICKNESS  
SEAM INTERVAL 3.67-4.52 m.

RESISTIVITY SCALE	DENSITY SCALE		SEAM COMP.	DEPTH	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	ROCK	COAL	NUMBER	COMPS	MOIST	ASH

GEOPHYSICAL LOGS



COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12-80)

DENSITY

RESISTIVITY

DRILL NO. GDR-DRH-80-02 SEAM \_\_\_\_\_  
SCALE 1:140

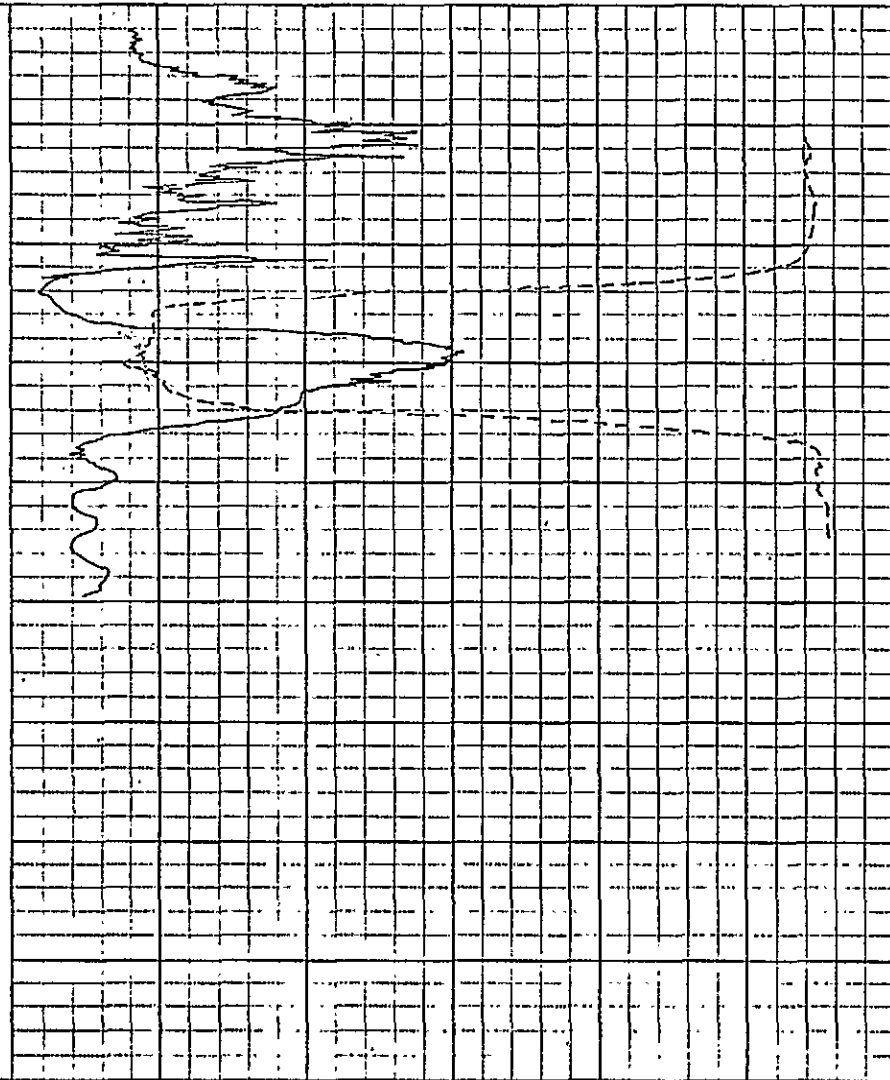
APPARENT THICKNESS  
SEAM INTERVAL 25.36-29.51m.

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

SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS										
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	FSI				

GEOPHYSICAL LOGS



COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-287 (12-80)

DENSITY RESISTIVITY

DRILL NO. GDR-DRH-80-02 SEAM \_\_\_\_\_  
SCALE 1:40

APPARENT THICKNESS  
SEAM INTERVAL 100.37 - 101.94 m

DENSITY SCALE RESISTIVITY SCALE	DENSITY SCALE											SEAM COMP.	DEPTH	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	ROCK	COAL	NUMBER	CO <sup>3</sup> POS.	MOIST.	ASH	VM	FC	S	BTU	FSH			

GEOPHYSICAL LOGS

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12 80)

DENSITY

RESISTIVITY

APPARENT THICKNESS

DRILL NO. GDR-DRH-80-02 SEAM

SEAM INTERVAL 228.12 - 229.03m

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

SEAM COMP.

DEPTH

COAL SEAM LOG

INTERVAL

% REC.

SAMPLE

PROXIMATE ANALYSIS

ROCK

COAL

NUMBER

COMPOS.

MOIST

ASH

VM

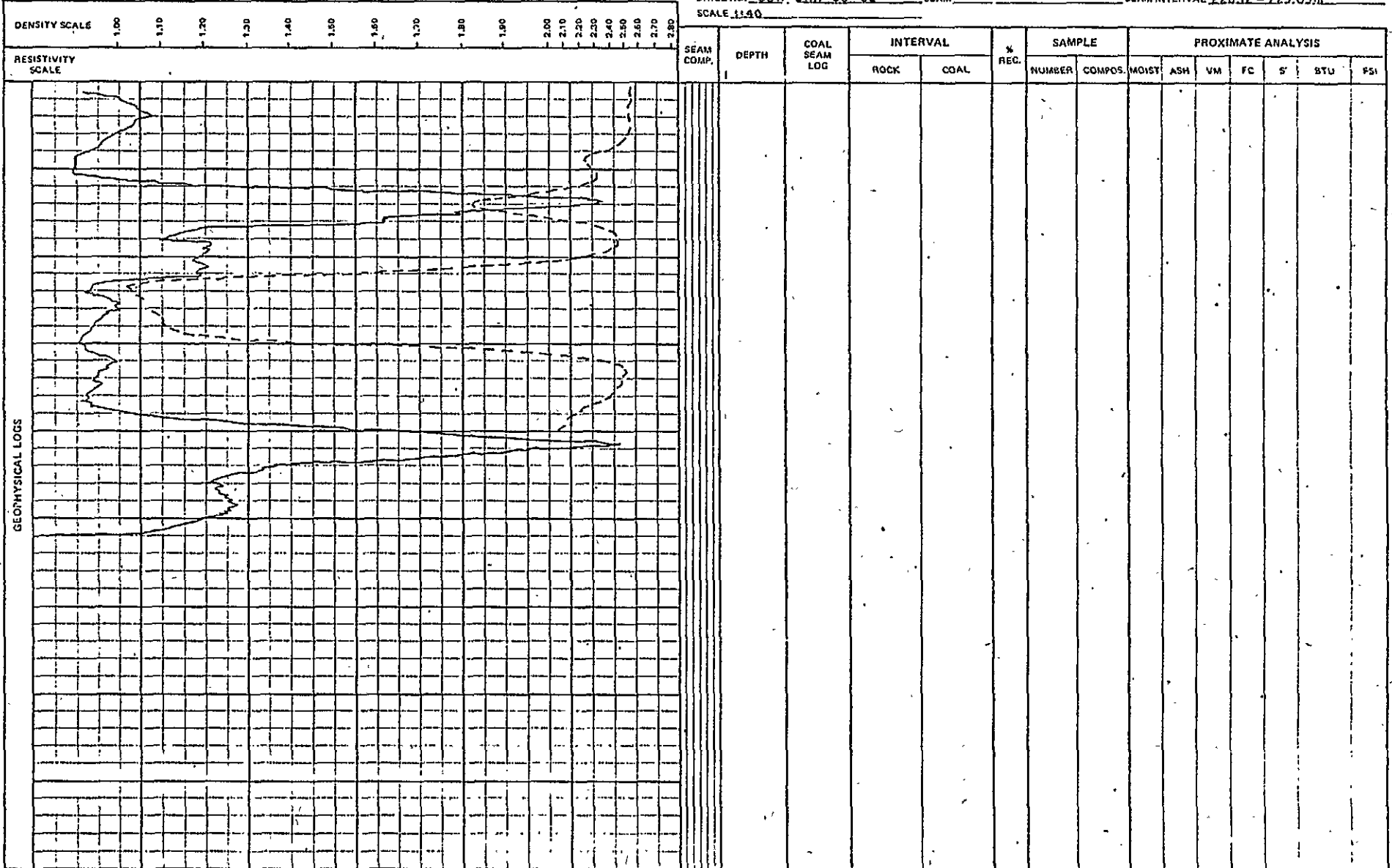
FC

S

BTU

FSI

GEOPHYSICAL LOGS



SCALE 1:40





COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-207 (12-80)

DENSITY

RESISTIVITY

DRILL NO. **GDR - DRH - 80-03** SEAM

APPARENT THICKNESS  
SEAM INTERVAL **93.50 - 95.58 m.**

SCALE **1:40**

RESISTIVITY SCALE	DENSITY SCALE										SEAM COMP.	DEPTH	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	ROCK	COAL	NUMBER	COMPOS.	MOIST	ASH

GEOPHYSICAL LOGS

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-207 (12 00)

DENSITY

RESISTIVITY

DRILL NO. GDR-DRH-80-03 SEAM   
SCALE 1:40

APPARENT THICKNESS  
SEAM INTERVAL 110.22 - 112.17 m.

RESISTIVITY SCALE	DENSITY SCALE											SEAM COMP.	DEPTH	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	ROCK	COAL	NUMBER	COMPOS.	MOIST	ASH

GEOPHYSICAL LOGS

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-207 (12-80)

DENSITY

RESISTIVITY

DRILL NO. GDR-DRH-80-03 SEAM \_\_\_\_\_  
SCALE 1:40

APPARENT THICKNESS  
120.88 - 122.52 m.

DENSITY SCALE RESISTIVITY SCALE	DENSITY SCALE											SEAM COMP.	DEPTH	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	ROCK	COAL	NUMBER	COMPCS.	MOIST	ASH

GEOPHYSICAL LOGS



COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (112-60)

DENSITY

RESISTIVITY

DRILL NO. GDR-DRH-80-05 SEAM \_\_\_\_\_  
SCALE 1" = 40'

APPARENT THICKNESS  
SEAM INTERVAL 42.20 - 44.94 m.

RESISTIVITY SCALE	DENSITY SCALE		SEAM COMP.	DEPTH	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	ROCK	COAL	NUMBER	COMPOS.	MOIST	ASH
<p>GEOPHYSICAL LOGS</p>																													









COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

F-267 (12-80)

DENSITY \_\_\_\_\_

RESISTIVITY \_\_\_\_\_

DRILL NO. GDR - DPH - 80 - 05 SEAM \_\_\_\_\_

APPARENT THICKNESS  
SEAM INTERVAL 183.33 - 186.28 m.

SCALE 1:40

RESISTIVITY SCALE	DENSITY SCALE		SEAM COMP.	DEPTH	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	NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BYU	FSI
	ROCK	COAL																														

GEOPHYSICAL LOGS







COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12-80)

DENSITY g/cm<sup>3</sup> RESISTIVITY ohm-cm

APPARENT THICKNESS

DRILL NO. GDR-DRH-80-06 SEAM \_\_\_\_\_  
SCALE 1:40

SEAM INTERVAL 147.18-148.94 m

DENSITY SCALE RESISTIVITY SCALE	DENSITY SCALE		RESISTIVITY SCALE		SEAM COMP.	DEPTH	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	ROCK	COAL	NUMBER	COMPOS.	MOIST	ASH

GEOPHYSICAL LOGS













COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-287 (12-80)

DENSITY RESISTIVITY

DRILL NO. GDR-DRH-80-10 SEAM \_\_\_\_\_  
SCALE 1:100

SEAM INTERVAL \_\_\_\_\_

DENSITY SCALE	RESISTIVITY SCALE	SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS															
					ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VIM	FC	S'	BTU	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																									
2.80																									

GEOPHYSICAL LOGS

NOTE: DENSITY READING THROUGH CASING DATA ONLY AN APPROXIMATION







COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12-80)

DENSITY

RESISTIVITY

APPARENT THICKNESS

DRILL NO. GDR-DRH-80-11 SEAM  
SCALE 1:1.0

SEAM INTERVAL 120.35 - 125.56 m.

RESISTIVITY SCALE	DENSITY SCALE										SEAM COMP.	DEPTH	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	ROCK	COAL	NUMBER	COMPOS.	MOIST	ASH

GEOPHYSICAL LOGS





COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

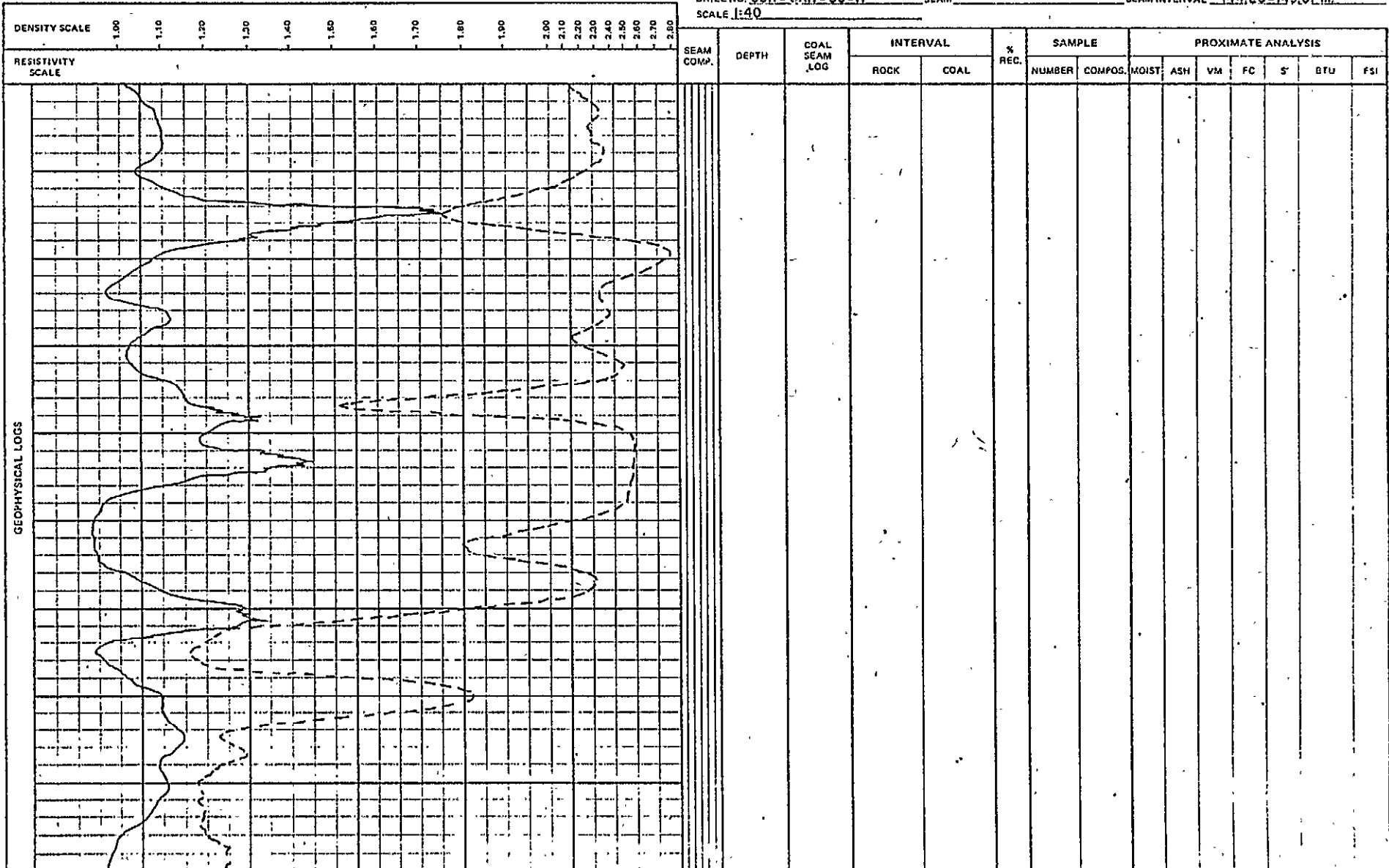
P-267 (1280)

DENSITY

RESISTIVITY

DRILL NO. GDR-DRH-80-11 SEAM \_\_\_\_\_  
SCALE 1:40

APPARENT THICKNESS  
SEAM INTERVAL 144.26-149.01 m.





COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.  
COAL DIVISION

P-267 (12-80)

DENSITY RESISTIVITY

DRILL NO. GDR-DRH-80-II SEAM \_\_\_\_\_ APPARENT THICKNESS  
SCALE 1:40 SEAM INTERVAL 156.84-161.44 m.

DENSITY SCALE RESISTIVITY SCALE	DENSITY SCALE		RESISTIVITY SCALE		SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% RES.	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	ROCK	COAL	NUMBER	COMPOS.	MOIST.	ASH
GEOPHYSICAL LOGS																													
		Empty grid for data entry																											













DIRECTIONAL SURVEY

ROKE OIL ENTERPRISES LIMITED

COMPANY: GULF CANADA RESOURCES INC.      GRID: \_\_\_\_\_      DATE SURVEYED: 10 JULY 1980  
 DRILL HOLE: GR-02      LATITUDE: \_\_\_\_\_      SURVEY BY: ROBERTSON  
 LOCATION: GOODRICH PROPERTY      DEPARTURE: \_\_\_\_\_      WITNESSED BY: JORDAN  
 FIELD: CHETWYND      ELEVATION: \_\_\_\_\_      CALCULATIONS BY: \_\_\_\_\_  
 MAGNETIC DECLINATION: \_\_\_\_\_      CORRECTION OF: \_\_\_\_\_      FOR: \_\_\_\_\_      GRID: \_\_\_\_\_

BEARINGS ARE FROM MAGNETIC NORTH

SLANT ANGLE IS FROM VERTICAL

Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing	Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing	Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing
0	00	01.01	335.2	11	150	35.27	64.3	22			
1	07.5	01.28	341.6	12	165	38.04	61.6	23			
2	15	01.41	353.1	13	180	* 38.56 38.89	58.8 61.1	24			
3	30	02.92	39.8	14	195	39.62	55.1	25			
4	45	06.24	65.6	15	210	42.28	56.0	26			
5	60	* 09.28 09.38	63.2 66.1	16	225	44.50	56.5	27			
6	75	12.89	82.0	17	240	* 44.96 44.78	62.4 59.7	28			
7	90	17.34	80.4	18	254	43.85	62.0	29			
8	105	21.68	76.1	19				30			
9	120	* 25.73 26.24	67.5 68.6	20				31			
10	135	30.90	66.5	21				32			

\* REPEAT READINGS

DIRECTIONAL SURVEY

ROKE OIL ENTERPRISES LIMITED

COMPANY: GULF CANADA RESOURCES INC. GRID: \_\_\_\_\_ DATE SURVEYED: 11 JULY 1980  
 DRILL HOLE: GR-03 LATITUDE: \_\_\_\_\_ SURVEY BY: ROBERTSON  
 LOCATION: GOODRICH PROPERTY DEPARTURE: \_\_\_\_\_ WITNESSED BY: JORDAN  
 FIELD: CHETWYND ELEVATION: \_\_\_\_\_ CALCULATIONS BY: \_\_\_\_\_  
 MAGNETIC DECLINATION: \_\_\_\_\_ CORRECTION OF: \_\_\_\_\_ FOR: \_\_\_\_\_ GRID: \_\_\_\_\_

Number	Cable Depth	Slant Angle	Slant Angle Bearing	Number	Cable Depth	Slant Angle	Slant Angle Bearing	Number	Cable Depth	Slant Angle	Slant Angle Bearing
0	00	00.12	220.8	11	150	16.05	78.4	22			
1	10	02.81	206.4	12				23			
2	15	01.28	198.8	13				24			
3	30	02.16	179.7	14				25			
4	45	03.30	140.8	15				26			
5	60	* 05.44 05.35	107.6 119.8	16				27			
6	75	07.17	104.1	17				28			
7	90	08.22	97.1	18				29			
8	105	09.76	90.9	19				30			
9	120	* 11.60 11.27	75.9 90.6	20				31			
10	135	13.09	85.0	21				32			

\* REPEAT READINGS

DIRECTIONAL SURVEY

ROKE OIL ENTERPRISES LIMITED

COMPANY: GULF CANADA RESOURCES INC.

GRID: \_\_\_\_\_

DATE SURVEYED: 12 JULY 1980

DRILL HOLE: GR-04

LATITUDE: \_\_\_\_\_

SURVEY BY: ROBERTSON

LOCATION: GOODRICH PROPERTY

DEPARTURE: \_\_\_\_\_

WITNESSED BY: JORDAN

FIELD: CHETWYND

ELEVATION: \_\_\_\_\_

CALCULATIONS BY: \_\_\_\_\_

MAGNETIC DECLINATION: \_\_\_\_\_

CORRECTION OF: \_\_\_\_\_

FOR: \_\_\_\_\_ GRID: \_\_\_\_\_

Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing	Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing	Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing
0	00	02.25	332.7	11	150	17.36	254.9	22			
1	05	02.25	209.3	12	165	16.72	256.7	23			
2	15	03.28	343.2	13				24			
3	30	04.58	336.8	14				25			
4	45	05.13	307.5	15				26			
5	60	* 06.17 06.97	290.3 288.6	16				27			
6	75	09.60	278.1	17				28			
7	90	12.55	251.6	18				29			
8	105	14.97	255.7	19				30			
9	120	* 17.99 16.83	255.0 251.0	20				31			
10	135	18.53	256.7	21				32			

DIRECTIONAL SURVEY

ROKE OIL ENTERPRISES LIMITED

COMPANY: GULF CANADA RESOURCES INC.

GRID: \_\_\_\_\_

DATE SURVEYED: 13 JULY 1980

DRILL HOLE: GR-80-05

LATITUDE: \_\_\_\_\_

SURVEY BY: ROBERTSON

LOCATION: GOODRICH PROPERTY

DEPARTURE: \_\_\_\_\_

WITNESSED BY: JORDAN

FIELD: CHETWYND

ELEVATION: \_\_\_\_\_

CALCULATIONS BY: \_\_\_\_\_

MAGNETIC DECLINATION: \_\_\_\_\_

CORRECTION OF: \_\_\_\_\_

FOR: \_\_\_\_\_ GRID: \_\_\_\_\_

Number	Cable Depth	Slant Angle	Slant Angle Bearing	Number	Cable Depth	Slant Angle	Slant Angle Bearing	Number	Cable Depth	Slant Angle	Slant Angle Bearing
0	00	01.72	258.1	11	150	04.97	325.9	22			
1	10	02.67	156.6	12	165	04.75	332.8	23			
2	15	01.97	325.6	13	180	04.38	333.1	24			
3	30	02.16	317.9	14	190	04.57	327.3	25			
4	45	03.48	285.2	15				26			
5	60	04.03	295.3	16				27			
6	75	04.40	296.9	17				28			
7	90	04.92	297.7	18				29			
8	105	05.32	294.0	19				30			
9	120	05.49	302.9	20				31			
10	135	05.30	299.6	21				32			

DIRECTIONAL SURVEY

ROKE OIL ENTERPRISES LIMITED

COMPANY: GULF CANADA RESOURCES INC.

GRID: \_\_\_\_\_

DATE SURVEYED: 14 JULY 1980

DRILL HOLE: GR-80-06

LATITUDE: \_\_\_\_\_

SURVEY BY: ROBERTSON

LOCATION: GOODRICH PROPERTY

DEPARTURE: \_\_\_\_\_

WITNESSED BY: JORDAN

FIELD: CHETWYND

ELEVATION: \_\_\_\_\_

CALCULATIONS BY: \_\_\_\_\_

MAGNETIC DECLINATION: \_\_\_\_\_

CORRECTION OF: \_\_\_\_\_

FOR: \_\_\_\_\_ GRID: \_\_\_\_\_

Number	Cable Depth	Slant Angle	Slant Angle Bearing	Number	Cable Depth	Slant Angle	Slant Angle Bearing	Number	Cable Depth	Slant Angle	Slant Angle Bearing
0	00	02.32	350.1	11	165	15.25	278.1	22			
1	15	02.33		12	170	16.13	277.4	23			
2	30	03.68	327.6	13				24			
3	45	04.45	302.0	14				25			
4	60	06.32	315.0	15				26			
5	75	08.04	294.6	16				27			
6	90	08.82	298.7	17				28			
7	105	09.77	298.3	18				29			
8	120	09.95	295.9	19				30			
9	135	10.88	285.5	20				31			
10	150	13.55	284.2	21				32			

DIRECTIONAL SURVEY

ROKE OIL ENTERPRISES LIMITED

COMPANY: GULF CANADA RESOURCES INC. GRID: \_\_\_\_\_ DATE SURVEYED: 17 JULY 1980  
 DRILL HOLE: GR-80-07 LATITUDE: \_\_\_\_\_ SURVEY BY: ROBERTSON  
 LOCATION: GOODRICH PROPERTY DEPARTURE: \_\_\_\_\_ WITNESSED BY: JORDAN  
 FIELD: CHEWYND ELEVATION: \_\_\_\_\_ CALCULATIONS BY: \_\_\_\_\_  
 MAGNETIC DECLINATION: \_\_\_\_\_ CORRECTION OF: \_\_\_\_\_ FOR: \_\_\_\_\_ GRID: \_\_\_\_\_

Number	Cable Depth	Slant Angle	Slant Angle Bearing	Number	Cable Depth	Slant Angle	Slant Angle Bearing	Number	Cable Depth	Slant Angle	Slant Angle Bearing
0	00	1.23	253.8	11	150	09.97	89.2	22			
1	10	1.40	291.9	12	165	09.80	81.0	23			
2	15	1.78	304.8	13	180	* 10.51 09.82	94.0 96.7	24			
3	30	2.95	017.3	14	195	11.67	79.5	25			
4	45	6.66	005.0	15	204	12.28	88.5	26			
5	60	9.52	052.2	16				27			
6	75	6.64	048.3	17				28			
7	90	8.37	070.2	18				29			
8	105	8.67	084.3	19				30			
9	120	* 7.41 8.25	104.0 089.8	20				31			
10	135	8.57	086.9	21				32			

\* REPEAT READINGS

DIRECTIONAL SURVEY

ROKE OIL ENTERPRISES LIMITED

COMPANY: GULF CANADA RESOURCES INC. GRID: \_\_\_\_\_ DATE SURVEYED: 18 JULY 1980  
 DRILL HOLE: GR-80-08 LATITUDE: \_\_\_\_\_ SURVEY BY: ROBERTSON  
 LOCATION: GOODRICH PROPERTY DEPARTURE: \_\_\_\_\_ WITNESSED BY: JORDAN  
 FIELD: CHETWYND ELEVATION: \_\_\_\_\_ CALCULATIONS BY: \_\_\_\_\_  
 MAGNETIC DECLINATION: \_\_\_\_\_ CORRECTION OF: \_\_\_\_\_ FOR: \_\_\_\_\_ GRID: \_\_\_\_\_

Number	Cable Depth	Slant Angle	Slant Angle Bearing	Number	Cable Depth	Slant Angle	Slant Angle Bearing	Number	Cable Depth	Slant Angle	Slant Angle Bearing
0	00	00.81	035.5	11	165	19.53	36.4	22			
1	15	02.01	129.9	12	180	21.39	40.1	23			
2	30	08.23	033.9	13	195	19.93	40.9	24			
3	45	10.63	031.6	14	210	22.76	37.0	25			
4	60	09.63	026.1	15	225	24.21	34.6	26			
5	75	14.84	036.7	16	240	30.14	33.0	27			
6	90	14.02	043.5	17	255	36.07	35.5	28			
7	105	17.04	039.5	18	270	38.62	38.5	29			
8	120	18.00	038.7	19	278	39.78	40.9	30			
9	135	19.76	038.3	20				31			
10	150	* 17.97 12.24	037.9 046.3	21				32			

\* REPEAT READINGS



DIRECTIONAL SURVEY

ROKE OIL ENTERPRISES LIMITED

COMPANY: GULF CANADA RESOURCES INC.

GRID: \_\_\_\_\_

DATE SURVEYED: 31 JULY 1980

DRILL HOLE: GR-80-10

LATITUDE: \_\_\_\_\_

SURVEY BY: ROBERTSON

LOCATION: GOODRICH PROPERTY

DEPARTURE: \_\_\_\_\_

WITNESSED BY: JORDAN

FIELD: CHETWYND

ELEVATION: \_\_\_\_\_

CALCULATIONS BY: \_\_\_\_\_

MAGNETIC DECLINATION: \_\_\_\_\_

CORRECTION OF: \_\_\_\_\_

FOR: \_\_\_\_\_ GRID: \_\_\_\_\_

Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing	Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing	Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing
0	00	00.45	015.4	11	165	10.42	119.7	22			
1	15	02.06	206.0	12	180	* 11.92 12.33	131.4 136.3	23			
2	30	01.29	NO STEADY READING	13	195	13.74	141.1	24			
3	45	01.43	243.0	14	210	14.97	138.2	25			
4	60	* 03.50 03.50	205.0 201.3	15	225	13.67	135.3	26			
5	75	03.52	153.3	16	240	* 14.78 14.77	123.6 123.8	27			
6	90	04.35	168.8	17	255	14.78	132.4	28			
7	105	06.00	126.6	18	260	14.61	135.6	29			
8	120	* 06.40 06.00	122.9 115.0	19				30			
9	135	07.82	088.5	20				31			
10	150	10.06	118.6	21				32			

\* REPEAT READINGS

DIRECTIONAL SURVEY

ROKE OIL ENTERPRISES LIMITED

COMPANY: GULF CANADA RESOURCES INC.

GRID: \_\_\_\_\_

DATE SURVEYED: 24 JULY 1980

DRILL HOLE: GR-80-11

LATITUDE: \_\_\_\_\_

SURVEY BY: ROBERTSON

LOCATION: GOODRICH PROPERTY

DEPARTURE: \_\_\_\_\_

WITNESSED BY: JORDAN

FIELD: CHETWYND

ELEVATION: \_\_\_\_\_

CALCULATIONS BY: \_\_\_\_\_

MAGNETIC DECLINATION: \_\_\_\_\_

CORRECTION OF: \_\_\_\_\_

FOR: \_\_\_\_\_ GRID: \_\_\_\_\_

Number	Cable Depth	Slant Angle	Slant Angle Bearing	Number	Cable Depth	Slant Angle	Slant Angle Bearing	Number	Cable Depth	Slant Angle	Slant Angle Bearing
0	00	01.24	216.8	11	165	15.26	042.5	22			
1	15	04.06	249.7	12	180	15.27	038.6	23			
2	30	02.84	173.3	13	195	14.44	035.6	24			
3	45	02.43	130.8	14	210	15.65	049.1	25			
4	60	05.93	064.0	15	225	15.38	051.7	26			
5	75	06.74	086.8	16	240	20.26	044.0	27			
6	90	08.94	056.9	17	255	22.90	045.9	28			
7	105	13.23	040.3	18	270	24.58	048.9	29			
8	120	14.83	044.9	19	275	25.18	051.6	30			
9	135	12.80	046.2	20				31			
10	150	10.80	043.3	21				32			

CASING TO 28.0 M

DIRECTIONAL SURVEY

ROKE OIL ENTERPRISES LIMITED

COMPANY: GULF CANADA RESOURCES INC.      GRID: \_\_\_\_\_      DATE SURVEYED: 29 JULY 1980  
 DRILL HOLE: GR-80-12      LATITUDE: \_\_\_\_\_      SURVEY BY: ROBERTSON  
 LOCATION: GOODRICH PROPERTY      DEPARTURE: \_\_\_\_\_      WITNESSED BY: JORDAN  
 FIELD: GHETWYND      ELEVATION: \_\_\_\_\_      CALCULATIONS BY: \_\_\_\_\_  
 MAGNETIC DECLINATION: \_\_\_\_\_      CORRECTION OF: \_\_\_\_\_      FOR: \_\_\_\_\_      GRID: \_\_\_\_\_

Number	Cable Depth	Slant Angle	Slant Angle Bearing	Number	Cable Depth	Slant Angle	Slant Angle Bearing	Number	Cable Depth	Slant Angle	Slant Angle Bearing
0	00	1.44	314.9	11	165	08.02	32.2	22			
1	15	3.52	096.2	12	180	12.42	039.1	23			
2	30	4.34	000.6	13	195	11.92	035.7	24			
3	45	4.34	002.6	14	210	12.74	048.0	25			
4	60	3.53	327.6	15	225	18.01	045.0	26			
5	75	2.49		16	240	22.10	051.0	27			
6	90	* 1.66 2.51		17	255	21.64	067.8	28			
7	105	1.45	333.2	18				29			
8	120	3.52	007.4	19				30			
9	135	2.50	348.3	20				31			
10	150	4.98	034.1	21				32			

\* REPEAT READINGS

WATER FLOWING INTO HOLE FROM 90M -- STEADY READING OF S.A.B. COULD NOT BE OBTAINED

DIRECTIONAL SURVEY

ROKE OIL ENTERPRISES LIMITED

COMPANY: GULF CANADA RESOURCES INC.      GRID: \_\_\_\_\_      DATE SURVEYED: 5 AUGUST 1980  
DRILL HOLE: GR-80-14      LATITUDE: \_\_\_\_\_      SURVEY BY: ROBERTSON  
LOCATION: GOODRICH PROPERTY      DEPARTURE: \_\_\_\_\_      WITNESSED BY: JORDAN  
FIELD: CHETWYND      ELEVATION: \_\_\_\_\_      CALCULATIONS BY: \_\_\_\_\_  
MAGNETIC DECLINATION: \_\_\_\_\_      CORRECTION OF: \_\_\_\_\_      FOR: \_\_\_\_\_      GRID: \_\_\_\_\_

Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing	Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing	Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing
0	00	00.56	086.2	11				22			
1	15	01.98	148.1	12				23			
2	30	03.05	158.6	13				24			
3	35	03.60	146.0	14				25			
4				15				26			
5				16				27			
6				17				28			
7				18				29			
8				19				30			
9				20				31			
10				21				32			

DIRECTIONAL SURVEY

ROKE OIL ENTERPRISES LIMITED

COMPANY: GULF CANADA RESOURCES INC.

GRID: \_\_\_\_\_

DATE SURVEYED: 4 AUGUST 1980

DRILL HOLE: GR-80-16

LATITUDE: \_\_\_\_\_

SURVEY BY: ROBERTSON

LOCATION: GOODRICH PROPERTY

DEPARTURE: \_\_\_\_\_

WITNESSED BY: JORDAN

FIELD: CHETWYND

ELEVATION: \_\_\_\_\_

CALCULATIONS BY: \_\_\_\_\_

MAGNETIC DECLINATION: \_\_\_\_\_

CORRECTION OF: \_\_\_\_\_

FOR: \_\_\_\_\_ GRID: \_\_\_\_\_

Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing	Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing	Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing
0	00	1.46	314.6	11	115	53.81	22.3	22			
1	15	1.56	103.9	12	120	54.56	20.4	23			
2	30	2.60	27.4	13	125	55.36	20.2	24			
3	45	9.19	46.2	14	130	58.28	10.9	25			
4	60	17.11	40.7	15	135	58.38	21.2	26			
5	75	24.94	29.2	16	140	60.94	22.4	27			
6	90	* 35.06 35.07	22.7 28.7	17	145	66.95	16.7	28			
7	95	38.84	28.2	18	150	70.55	13.7	29			
8	100	42.51	27.3	19	151	72.21	12.3	30			
9	105	45.59	26.2	20	152	72.21	15.7	31			
10	110	50.19	24.2	21	153	72.57	15.6	32			

\*. REPEAT READINGS

DIRECTIONAL SURVEY

ROKE OIL ENTERPRISES LIMITED

COMPANY: GULF CANADA RESOURCES INC.

DRILL HOLE: GR-80-17

LOCATION: GOODRICH PROPERTY

FIELD: CHETWYND

MAGNETIC DECLINATION: \_\_\_\_\_

GRID: \_\_\_\_\_

LATITUDE: \_\_\_\_\_

DEPARTURE: \_\_\_\_\_

ELEVATION: \_\_\_\_\_

CORRECTION OF: \_\_\_\_\_

DATE SURVEYED: 5 AUGUST 1980

SURVEY BY: ROBERTSON

WITNESSED BY: JORDAN

CALCULATIONS BY: \_\_\_\_\_

FOR: \_\_\_\_\_ GRID: \_\_\_\_\_

SLANT ANGLE IS FROM VERTICAL

BEARINGS ARE FROM MAGNETIC NORTH

Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing	Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing	Num-ber	Cable Depth	Slant Angle	Slant Angle Bearing
0	00	01.47	054.3	11	165	23.19	223.0	22			
1	15	04.42	248.7	12	180	26.35	212.4	23			
2	30	06.71	219.0	13	195	29.19	217.4	24			
3	45	11.25	229.2	14	210	30.57	215.1	25			
4	60	12.30	206.3	15	225	30.81	216.8	26			
5	75	13.33	231.1	16	235	31.20	212.5	27			
6	90	16.85	215.1	17				28			
7	105	18.23	216.2	18				29			
8	120	18.71	218.7	19				30			
9	135	20.65	200.8	20				31			
10	150	22.31	222.1	21				32			

