

OPEN FILE

GULF CANADA RESOURCES INC.

COAL DIVISION

GOODRICH GEOLOGICAL REPORT

1981

APPENDIX C

ROTARY DRILL HOLE DATA

RDH 80-51 to RDH 80-59

and

RDH 81-01 to RDH 81-10

RDH 80-51

GCRI - COAL DIVISION - DATA SOURCE RECORD

PROJECT: GDR BLOCK: _____ DATA SOURCE: RDH80051

HISTORY

START DATE: 20/11/80 END DATE: 22/11/80 OPERATOR: GULF CANADA RES.
 CONTRACTOR: ALBERTA SOUTHERN GEOLOGIST: _____ SURVEYOR: D. WATSON
 REMARKS: WATER FLOW: 2 GPM AT 70.10 M.

LOCATION

PROVINCE: B.C. ELEVATION: 1033.40
 UTM ZONE: 10 NORTH: 6139460.09 EAST: 550520.58
 LAT&LONG LATITUDE: _____ LONGITUDE: _____
 DLS-ALTA NORTH: _____ EAST: _____ LSD: _____ SEC: _____ TWP: _____ RGE: _____ MER: _____
 NTS-BC NORTH: _____ EAST: _____ QUAD: _____ UNIT: _____ BLK: _____ ST: _____ MUS: _____ MS: _____

DIMENSIONS AND ORIENTATION

LENGTH: 243.80 INCLINATION: -90.0 AZIMUTH: 000.0
 SIZE WIDTH: _____ SIZE HEIGHT: _____
 ROOF STRIKE: _____ DIP: _____ FLOOR STRIKE: _____ DIP: _____

DRILL HOLE STATUS

CASING DEPTH: 16.46 CEMENTED: _____ PLUGGED: _____ PEIZOMETERS INSTALLED: _____
 AQUIFER DEPTHS: _____ LOST CIRCULATION DEPTHS: _____

GEOPHYSICAL LOGGING

	LOG RUN	SCALE 1	SCALE 2	DIGITIZED	TRUE THICKNESS	OPEN HOLE	THRU RODS	TOOL NUMBER
GAMMA	X	1:100	:	---	---	X	---	125A
NEUTRON	X	1:100	:	---	---	X	---	125A
DENSITY	X	1:100	1:40	---	---	X	---	---
CALIPER	X	1:100	:	---	---	X	---	---
FE-SHORT	X	:	1:40	---	---	X	---	---
FE-LONG	X	1:100	1:40	---	---	X	---	5
DIRECTIONAL	X	:	:	---	---	X	---	5
DIPMETER	---	:	:	---	---	---	---	---

*** COAL DIVISION ***

DATA SOURCE: R80-51

INTERVAL OF INTERPOLATION 10 UNIT(S)

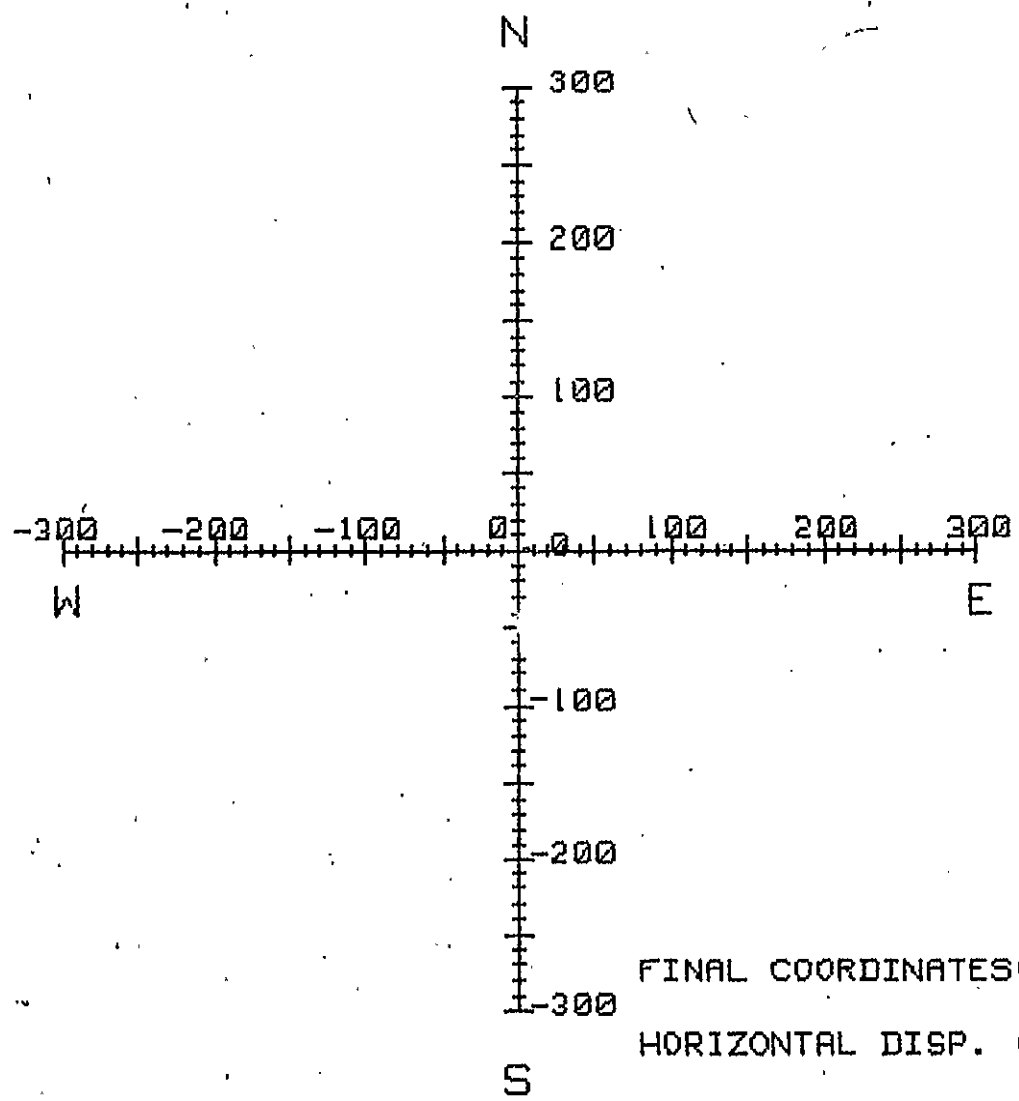
VIEWPOINT: 45.0 DEGREES

DIRECTIONAL SURVEY - INPUT PARAMETERS

MEAS. DEPTH(M)	SLANT	AZIMUTH
-----	-----	-----
0.00	.10	66.00
5.00	.10	66.00
15.00	.10	55.90
30.00	.25	45.00
45.00	1.40	89.70
60.00	.80	50.90
75.00	2.20	63.40
90.00	2.80	82.10
105.00	2.40	93.80
120.00	2.60	63.20
135.00	2.30	54.70
150.00	3.71	74.80
165.00	.10	49.40
180.00	4.50	78.70
195.00	4.10	81.90
204.00	2.20	49.10
210.00	.10	187.60
225.00	3.80	64.20
239.00	.10	150.90

PLAN VIEW

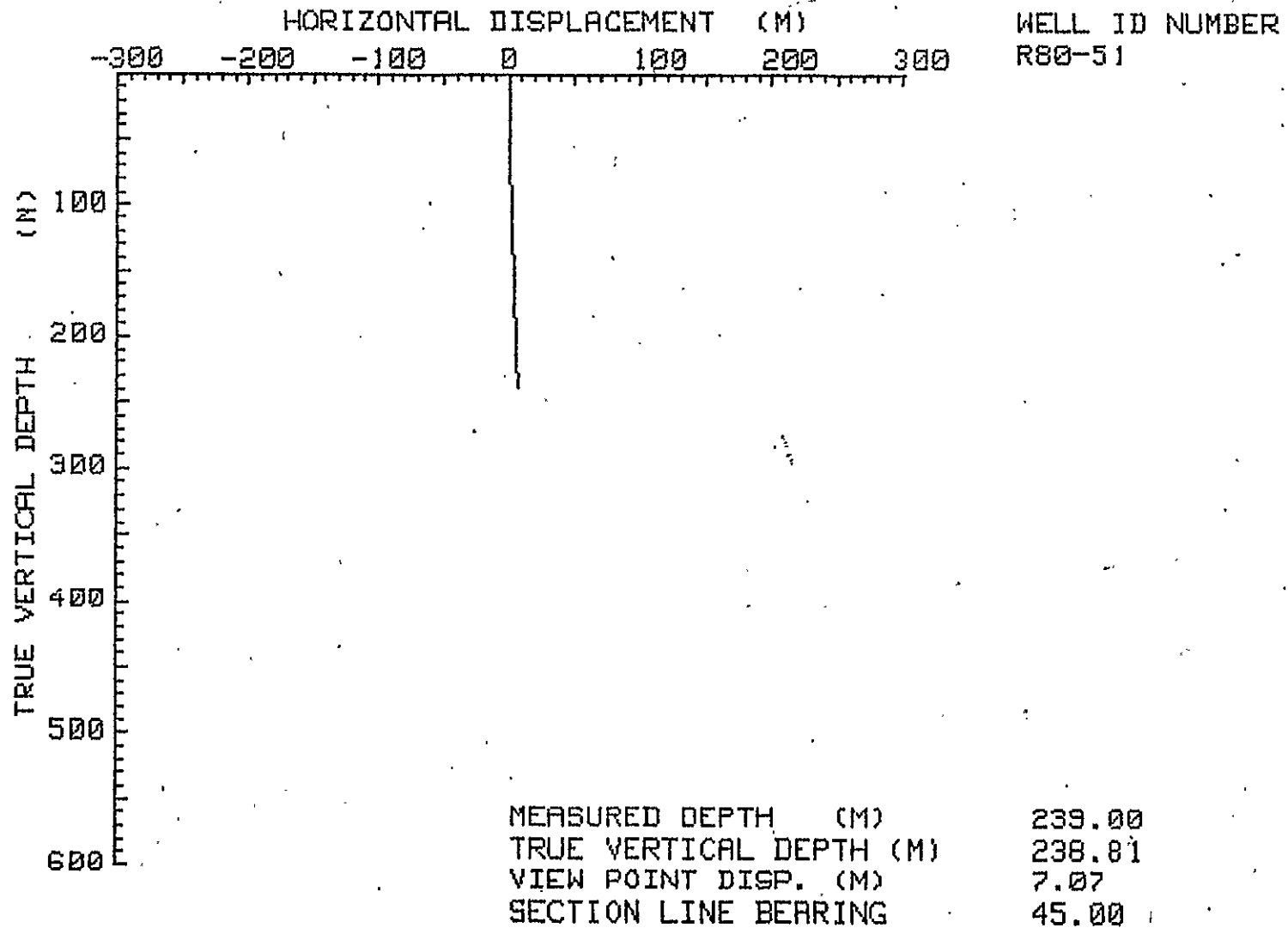
WELL ID NUMBER
R88-51



FINAL COORDINATES(M) N 2.37
E 7.62
HORIZONTAL DISP. (M) 7.07

1000 10 10000 100000 1000000 10000000 100000000 1000000000

DISPLACEMENT

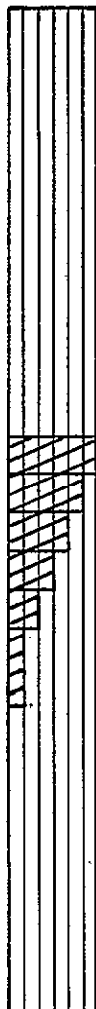


SEAM
COMP.

COAL
SEAM
LOG

LITHOTYPE

- C-1: Bright 80% Vitrain
- C-2: Bright banded 60-80% Vitrain
- C-3: Dull/Bright 40-60% Vitrain
- C-4: Dull banded 20-40% Vitrain
- C-5: Dull 20% Vitrain
- C-6: Bone



- breccia
- carbonaceous claystone
- claystone
- coaly claystone
- conglomerate
- sandstone
- siltstone
- silty claystone
- tuff
- coal
- coal-boney, stoney, coal and bands/rock - designated 'C6'
- rock > coal lithotype uncertain
- coal } MISSING CORE
- rock }
- rock
- coal

CORED HOLE
GEOPHYSICALLY
LOGGED
LITHOLOGY
DESCRIBED

UNCORED HOLE
GEOPHYSICAL
LOGS ONLY

GULF CANADA RESOURCES INC.		
CALGARY	Coal Division	
LEGEND FOR COAL SEAM DATA SHEETS		
PREPARED BY: V.O.		SCALE 1:40
APPROVED BY:		DATE: JAN. 82 DRAWING No.

82/01/12

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

PAGE 1

PROJECT: GDR BLOCK: XX DATA SOURCE: RDH80051

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
	0.00	16.46	16.46			OVERBURDEN	CASED.
	16.46	179.45	162.99			ROCK	WATER FLOW 2 GPM AT 70.10M.
	179.45	180.56	1.11		1	COAL	
	180.56	181.82	1.26			ROCK	
	181.82	184.25	2.43		1	COAL	
	184.25	185.21	0.96			ROCK.	
	185.21	187.66	2.45		1	COAL	
	187.66	188.03	0.37			ROCK.	
	188.03	198.58	10.55		1	COAL	
	198.58	242.30	43.72			ROCK	T.D. 242.30M.

RDH 80-52

GCRI - COAL DIVISION - DATA SOURCE RECORD

PROJECT: GDR BLOCK: ___ DATA SOURCE: RDH80052

HISTORY

START DATE: 22/11/80 END DATE: 25/11/80 OPERATOR: GULF CANADA RES.
 CONTRACTOR: ALBERTA SOUTHERN GEOLOGIST: _____ SURVEYOR: D. WATSON
 REMARKS: WATER FLOWS: 20 GPM AT 24.38 M, 40 GPM AT 45.72 M, 80 GPM AT
 67.05 M, 150 GPM AT 91.44 M.

LOCATION

PROVINCE: B.C. ELEVATION: 1030.60
 UTM ZONE: 10 NORTH: 6139447.92 EAST: 550889.69
 LAT & LONG LATITUDE: _____ LONGITUDE: _____
 DLS-ALFA NORTH: . EAST: . LSD: _____ SEC: _____ TWP: _____ RGE: _____ MER: _____
 NTS-BC NORTH: . EAST: . QUAD: _____ UNIT: _____ BLK: _____ ST: _____ MUS: _____ MS: _____

DIMENSIONS AND ORIENTATION

LENGTH: 256.00 INCLINATION: -90.0 AZIMUTH: 000.0
 SIZE WIDTH: . SIZE HEIGHT: .
 ROOF STRIKE: _____ DIP: _____ FLOOR STRIKE: _____ DIP: _____

DRILL HOLE STATUS

CASING DEPTH: 22.55 CEMENTED: _____ PLUGGED: _____ PEIZOMETERS INSTALLED: _____
 AQUIFER DEPTHS: _____ LOST CIRCULATION DEPTHS: _____

GEOPHYSICAL LOGGING

	LOG RUN	SCALE 1	SCALE 2	DIGITIZED	TRUE THICKNESS	OPEN HOLE	THRU RODS	TOOL NUMBER
GAMMA	X	1:100	:	---	---	X	---	125A
NEUTRON	X	1:100	:	---	---	X	---	125A
DENSITY	X	1:100	1:40	---	---	X	---	241AS
CALIPER	X	1:100	:	---	---	X	---	240
FE-SHORT	---	:	:	---	---	---	---	---
FE-LONG	---	:	:	---	---	---	---	---
DIRECTIONAL	X	:	:	---	---	X	---	---
DIPMETER	---	:	:	---	---	---	---	---

*** COAL DIVISION ***

DATA SOURCE: R80-52

INTERVAL OF INTERPOLATION 10 UNIT(S)

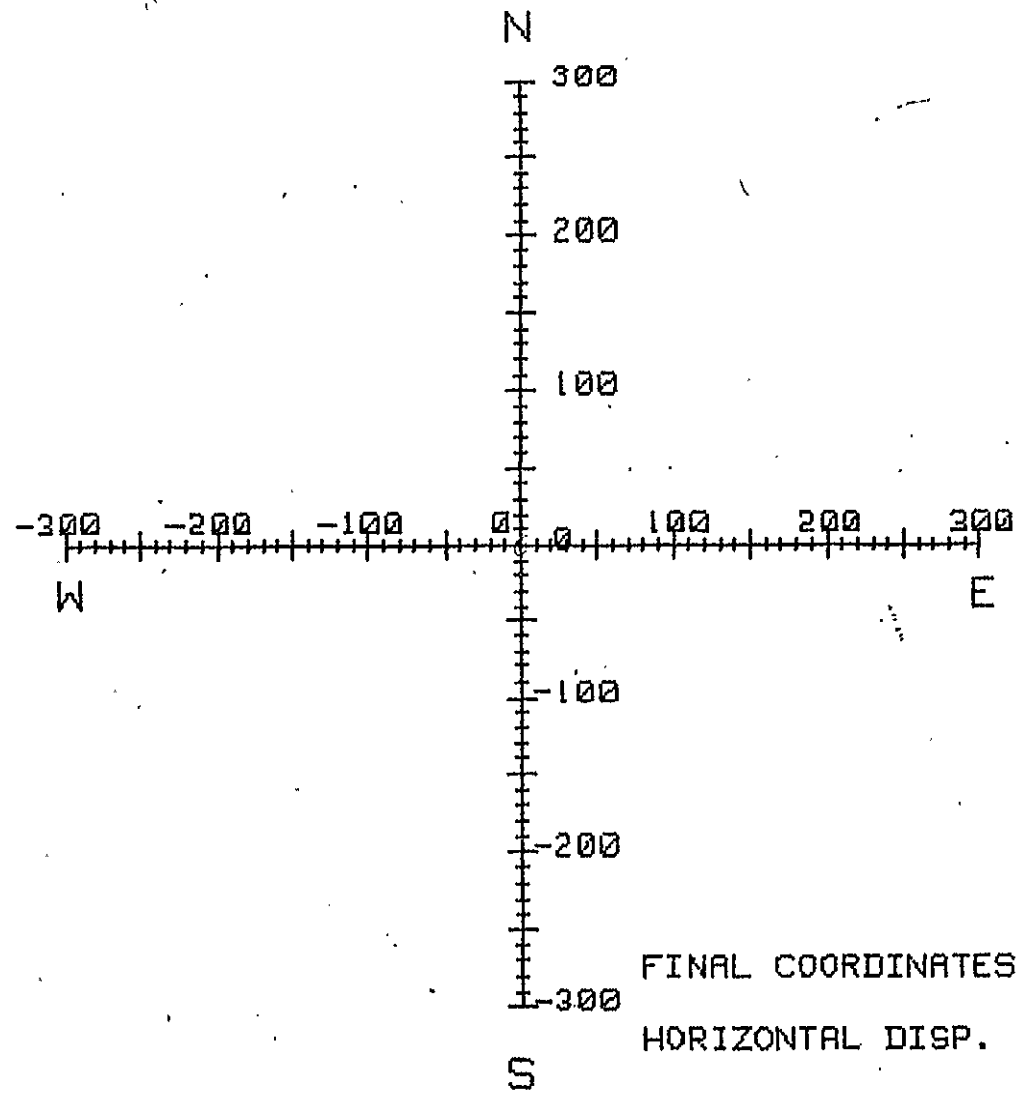
VIEWPOINT: 45.0 DEGREES

DIRECTIONAL SURVEY - INPUT PARAMETERS

MEAS. DEPTH(M)	SLANT	AZIMUTH
-----	-----	-----
0.00	3.40	335.30
22.60	3.40	335.30
30.00	3.20	336.30
45.00	2.70	356.50
60.00	2.90	14.00
75.00	3.32	21.20
78.00	3.30	20.30
84.00	2.70	30.30
90.00	3.10	20.40
105.00	3.40	19.40
120.00	3.20	15.80
135.00	3.00	356.50
150.00	2.50	354.60
165.00	2.80	329.50
180.00	3.80	318.80
195.00	3.60	319.20
210.00	3.00	314.80
217.00	3.20	312.30

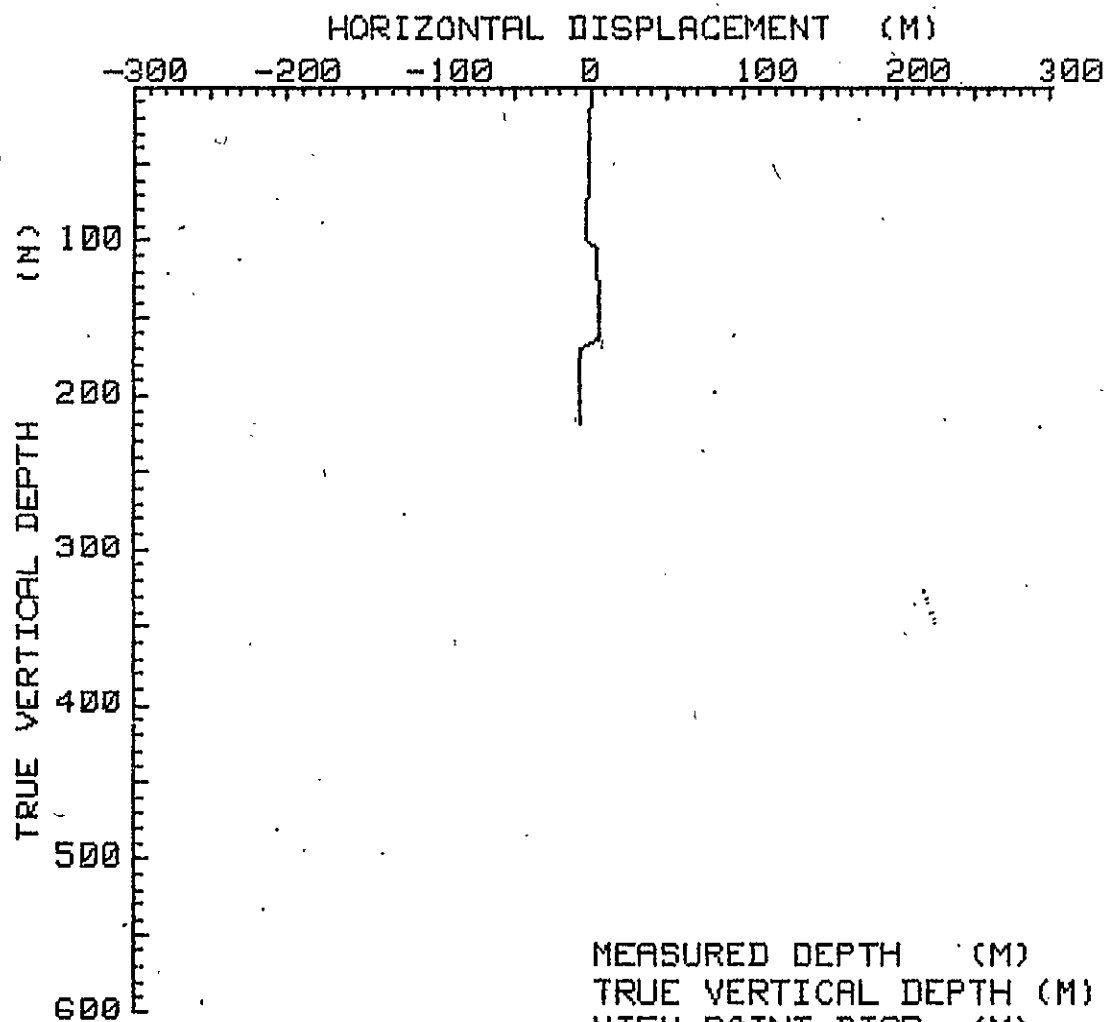
PLAN VIEW

WELL ID NUMBER
R80-32



FINAL COORDINATES(M) N 10.65
E -1.92
HORIZONTAL DISP. (M) -6.17

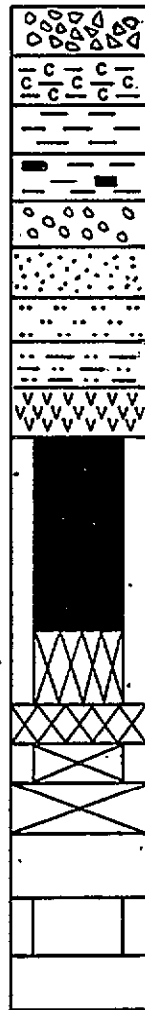
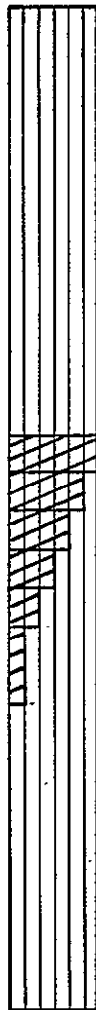
DISPLACEMENT



MEASURED DEPTH (M)	217.00
TRUE VERTICAL DEPTH (M)	216.67
VIEW POINT DISP. (M)	-6.17
SECTION LINE BEARING	45.00

SEAM
COMP

COAL
SEAM
LOG



LITHOTYPE

- C-1: Bright 80% Vitrain
- C-2: Bright banded 60-80% Vitrain
- C-3: Dull/Bright 40-60% Vitrain
- C-4: Dull banded 20-40% Vitrain
- C-5: Dull 20% Vitrain
- C-6: Bone

- breccia
- carbonaceous claystone
- claystone
- coaly claystone
- conglomerate
- sandstone
- siltstone
- silty claystone
- tuff

coal

coal-boney, stoney,
coal and bands/rock
- designated 'CS'

rock > coal
lithotype uncertain

coal } MISSING
rock } CORE

rock

coal

CORED HOLE
GEOPHYSICALLY
LOGGED
LITHOLOGY
DESCRIBED

UNCORED HOLE
GEOPHYSICAL
LOGS ONLY

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



LEGEND FOR COAL
SEAM DATA SHEETS

PREPARED BY: V.O.

SCALE 1:40

APPROVED BY:

DATE: JAN. 82 DRAWING No.

82/01/12

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

PAGE 1

PROJECT: GDR BLOCK: XX DATA SOURCE: RDH80052

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	22.55	22.55			OVERBURDEN	CASED.
	22.55	79.68	57.13			ROCK	WATER FLOW 20 GPM AT 24.38M. 40 GPM AT 45.72M; 80 GPM AT 67.05M AND 150 GPM AT 91.44M.
	79.68	81.45	1.77			COAL	NO FBL.
	81.45	256.63	175.18			ROCK	T.D. 256.63M.

RDH 80-53

GCRI - COAL DIVISION - DATA SOURCE RECORD

PROJECT: GDR BLOCK: ___ DATA SOURCE: RDH80053

HISTORY

START DATE: 26/11/80 DY MO YR END DATE: 28/11/80 DY MO YR OPERATOR: GULF CANADA RES.
 CONTRACTOR: ALBERTA SOUTHERN GEOLOGIST: _____ SURVEYOR: D. WATSON
 REMARKS: _____

LOCATION

PROVINCE: B.C. ELEVATION: 1030.80
 UTM ZONE: 10 NORTH: 6139549.96 EAST: 551051.65
 LAT&LONG LATITUDE: _____ LONGITUDE: _____
 DLS-ALTA NORTH: . EAST: . LSD: _____ SEC: _____ TWP: _____ RGE: _____ MER: _____
 NTS-BC NORTH: . EAST: . QUAD: _____ UNIT: _____ BLK: _____ ST: _____ MUS: _____ MS: _____

DIMENSIONS AND ORIENTATION

LENGTH: 280.40 INCLINATION: -90.0 AZIMUTH: 000.0
 SIZE WIDTH: . SIZE HEIGHT: .
 ROOF STRIKE: _____ DIP: _____ FLOOR STRIKE: _____ DIP: _____

DRILL HOLE STATUS

CASING DEPTH: 50.28 CEMENTED: _____ PLUGGED: _____ PIEZOMETERS INSTALLED: _____
 AQUIFER DEPTHS: LOST CIRCULATION DEPTHS:

GEOPHYSICAL LOGGING

	LOG RUN	SCALE 1	SCALE 2	DIGITIZED	TRUE THICKNESS	OPEN HOLE	THRU RODS	TOOL NUMBER
GAMMA	X	1:100	:	---	---	X	---	125A
NEUTRON	X	1:100	:	---	---	X	---	125A
DENSITY	---	:	:	---	---	---	---	---
CALIPER	---	:	:	---	---	---	---	---
FE-SHORT	---	:	:	---	---	---	---	---
FE-LONG	---	:	:	---	---	---	---	---
DIRECTIONAL	---	:	:	---	---	---	---	---
DIPMETER	---	:	:	---	---	---	---	---

82/01/12

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

PAGE 1

PROJECT: GDR BLOCK: XX DATA SOURCE: RDH80053

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	50.28	50.28			OVERBURDEN	CASED.
	50.28	64.61	14.33			ROCK	NO WATER FLOW RECORDED.
	64.61	66.13	1.52		1	COAL	DRILLER'S DEPTHS USED. ONLY GRN LOG AVAILABLE AND IT WAS RUN THROUGH RODS - DID NOT INDICATE COAL...
	66.13	84.12	17.99			ROCK	
	84.12	86.25	2.13			COAL	AS ABOVE.
	86.25	152.39	66.14			ROCK	
	152.39	187.44	35.05		3	COAL	AS ABOVE.
	187.44	254.19	66.75			ROCK	
	254.19	257.54	3.35		4	COAL	AS ABOVE.
	257.54	265.16	7.62			ROCK	T.D. 280.40

RDH 80-54

GCRI - COAL DIVISION - DATA SOURCE RECORD

PROJECT: GDR BLOCK: _____ DATA SOURCE: RDH80054

HISTORY

DY MO YR DY MO YR
 START DATE: 29/11/80 END DATE: 30/11/80 OPERATOR: GULF CANADA RES.
 CONTRACTOR: ALBERTA SOUTHERN GEOLOGIST: _____ SURVEYOR: D. WATSON
 REMARKS: WATER FLOWS: 0.5 GPM AT 9.14 M, 2 GPM AT 15.24 M, 5 GPM AT 82.29 M,
 1 GPM AT 124.96 M.

LOCATION

PROVINCE: B.C. ELEVATION: 1066.00
 UTM ZONE: 10 NORTH: 6139790.18 EAST: 550378.94
 LAT&LONG LATITUDE: _____ LONGITUDE: _____
 DLS-ALTA NORTH: _____ EAST: _____ LSD: _____ SEC: _____ TWP: _____ RGE: _____ MER: _____
 NTS-BC NORTH: _____ EAST: _____ QUAD: _____ UNIT: _____ BLK: _____ ST: _____ MUS: _____ MS: _____

DIMENSIONS AND ORIENTATION

LENGTH: 237.80 INCLINATION: -90.0 AZIMUTH: 000.0
 SIZE WIDTH: _____ SIZE HEIGHT: _____
 ROOF STRIKE: _____ DIP: _____ FLOOR STRIKE: _____ DIP: _____

DRILL HOLE STATUS

CASING DEPTH: 4.27 CEMENTED: _____ PLUGGED: _____ PIEZOMETERS INSTALLED: _____
 AQUIFER DEPTHS: _____ LOST CIRCULATION DEPTHS: _____

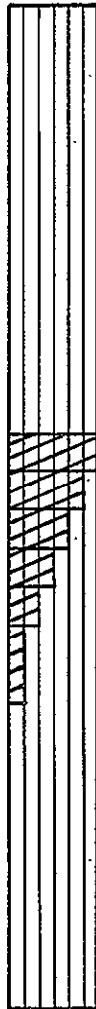
GEOPHYSICAL LOGGING

	LOG RUN	SCALE 1	SCALE 2	DIGITIZED	TRUE THICKNESS	OPEN HOLE	THRU RODS	TOOL NUMBER
GAMMA	X	1:100	:	---	---	X	---	125A
NEUTRON	X	1:100	:	---	---	X	---	125A
DENSITY	X	1:100	1:40	---	---	X	---	241AS
CALIPER	---	:	:	---	---	---	---	---
FE-SHORT	---	:	:	---	---	---	---	---
FE-LONG	---	:	:	---	---	---	---	---
DIRECTIONAL	X	:	:	---	---	X	---	---
DIPMETER	---	:	:	---	---	---	---	---

SEAM
COMP.

COAL
SEAM
LOG

- LITHOTYPE
- C-1: Bright 80% Vitrain
 - C-2: Bright banded 60-80% Vitrain.
 - C-3: Dull/Bright 40-60% Vitrain
 - C-4: Dull banded. 20-40% Vitrain
 - C-5: Dull 20% Vitrain
 - C-6: Bone



- breccia
- carbonaceous claystone
- claystone
- coaly claystone
- conglomerate
- sandstone
- siltstone
- silty claystone
- tuff
- coal
- coal-boney, stoney, coal and bands/rock - designated C6
- rock > coal lithotype uncertain
- coal } MISSING CORE
- rock }
- rock
- coal

CORED HOLE
GEOPHYSICALLY
LOGGED
LITHOLOGY
DESCRIBED

UNCORED HOLE
GEOPHYSICAL
LOGS ONLY

GULF CANADA RESOURCES INC.		
CALGARY	Coal Division	
LEGEND FOR COAL SEAM DATA SHEETS		
PREPARED BY: V.O.	DATE: JAN. 82	SCALE 1:40 DRAWING No.

82/01/12

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

PAGE 1

PROJECT: GDR BLOCK: XX DATA SOURCE: RDH80054

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
	0.00	4.27	4.27			OVERBURDEN	CASED.
	4.27	102.35	98.08			ROCK	WATER FLOW 0.5 GPM AT 9.14M, 2 GPM AT 5.24M, 5 GPM AT 82.29M.
	102.35	105.19	2.84		1	COAL	NO F.B.L., NO CAL, GRN RUN THROUGH RODS, DEN NOT RUN TO BOTTOM OF SEAM.
	105.19	106.30	1.11			ROCK	WATER FLOW 1 GPM AT 124.96M.
	106.30	111.50	5.20		1	COAL	COAL SEAM PICKED FROM GRN LOG.
	111.50	237.73	126.23			ROCK	T.D. 237.73

RDH 80-55

GCRI - COAL DIVISION - DATA SOURCE RECORD

PROJECT: GDR BLOCK: _____ DATA SOURCE: RDH80055

HISTORY

DY MO YR DY MO YR
 START DATE: 01/12/80 END DATE: 06/12/80 OPERATOR: GULF CANADA RES.
 CONTRACTOR: ALBERTA SOUTHERN GEOLOGIST: _____ SURVEYOR: D. WATSON
 REMARKS: _____

LOCATION

PROVINCE: B.C. ELEVATION: 1045.00
 UTM ZONE: 10 NORTH: 6139866.54 EAST: 550544.70
 LAT&LONG LATITUDE: _____ LONGITUDE: _____
 DLS-ALTA NORTH: _____ EAST: _____ LSD: _____ SEC: _____ TWP: _____ RGE: _____ MER: _____
 NIS-BC NORTH: _____ EAST: _____ QUAD: _____ UNIT: _____ BLK: _____ ST: _____ MUS: _____ MS: _____

DIMENSIONS AND ORIENTATION

LENGTH: 304.00 INCLINATION: -90.0 AZIMUTH: 000.0
 SIZE WIDTH: _____ SIZE HEIGHT: _____
 ROOF STRIKE: _____ DIP: _____ FLOOR STRIKE: _____ DIP: _____

DRILL HOLE STATUS

CASING DEPTH: 16.76 CEMENTED: _____ PLUGGED: _____ PEIZOMETERS INSTALLED: _____
 AQUIFER DEPTHS: _____ LOST CIRCULATION DEPTHS: _____

GEOPHYSICAL LOGGING

	LOG RUN	SCALE 1	SCALE 2	DIGITIZED	TRUE THICKNESS	OPEN HOLE	THRU RODS	TOOL NUMBER
GAMMA	X	1:100	:	---	---	X	---	125A
NEUTRON	X	1:100	:	---	---	X	---	125A
DENSITY	X	1:100	:	---	---	X	---	457AS
CALIPER	X	1:100	:	---	---	X	---	20A45
FE-SHORT		:	:	---	---		---	
FE-LONG	X	1:100	:	---	---	X	---	5
DIRECTIONAL		:	:	---	---		---	
DIPMETER		:	:	---	---		---	

82/01/12

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

PAGE 1

PROJECT: GDR BLOCK: XX DATA SOURCE: RDH80055

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
	0.00	304.00	304.00			ROCK	NO INDICATION OF COAL - DEN ONLY TO 225 M. T.D. 304.00M.

RDH 80-56

GCRI - COAL DIVISION - DATA SOURCE RECORD

PROJECT: GDR BLOCK: _____ DATA SOURCE: RDH80056

HISTORY

START DATE: 07/12/80 END DATE: 09/12/80 OPERATOR: GULF CANADA RES.
 CONTRACTOR: ALBERTA SOUTHERN GEOLOGIST: _____ SURVEYOR: D. WATSON
 REMARKS: WATER FLOWS: 10 GPM AT 42.67 M, 20 GPM AT 60.96 M, 30 GPM AT
 76.20 M.

LOCATION

PROVINCE: B.C. ELEVATION: 1081.80
 UTM ZONE: 10 NORTH: 6140120.72 EAST: 550362.06
 LAT&LONG LATITUDE: _____ LONGITUDE: _____
 DLS-ALTA NORTH: . EAST: . LSD: SEC: TWP: RGE: MER:
 NTS-BC NORTH: . EAST: . QUAD: UNIT: BLK: ST: MUS: MS:

DIMENSIONS AND ORIENTATION

LENGTH: 335.87 INCLINATION: -90.0 AZIMUTH: 000.0
 SIZE WIDTH: . SIZE HEIGHT: .
 ROOF STRIKE: . DIP: . FLOOR STRIKE: . DIP: .

DRILL HOLE STATUS

CASING DEPTH: 27.43 CEMENTED: PLUGGED: PEIZOMETERS INSTALLED: .
 AQUIFER DEPTHS: LOST CIRCULATION DEPTHS:

GEOPHYSICAL LOGGING

	LOG RUN	SCALE 1	SCALE 2	DIGITIZED	TRUE THICKNESS	OPEN HOLE	THRU RODS	TOOL NUMBER
GAMMA	X	1:100	:	---	---	X	---	125A
NEUTRON	X	1:100	:	---	---	X	---	125A
DENSITY	X	1:100	:	---	---	X	---	457AS
CALIPER	X	1:100	:	---	---	X	---	785
FE-SHORT	X	:	1:40	---	---	X	---	7
FE-LONG	X	1:100	1:40	---	---	X	---	7
DIRECTIONAL	X	:	:	---	---	X	---	---
DIPMETER	---	:	:	---	---	---	---	---

*** COAL DIVISION ***

DATA SOURCE: R80-56

INTERVAL OF INTERPOLATION 10 UNIT(S)

VIEWPOINT: 45.0 DEGREES

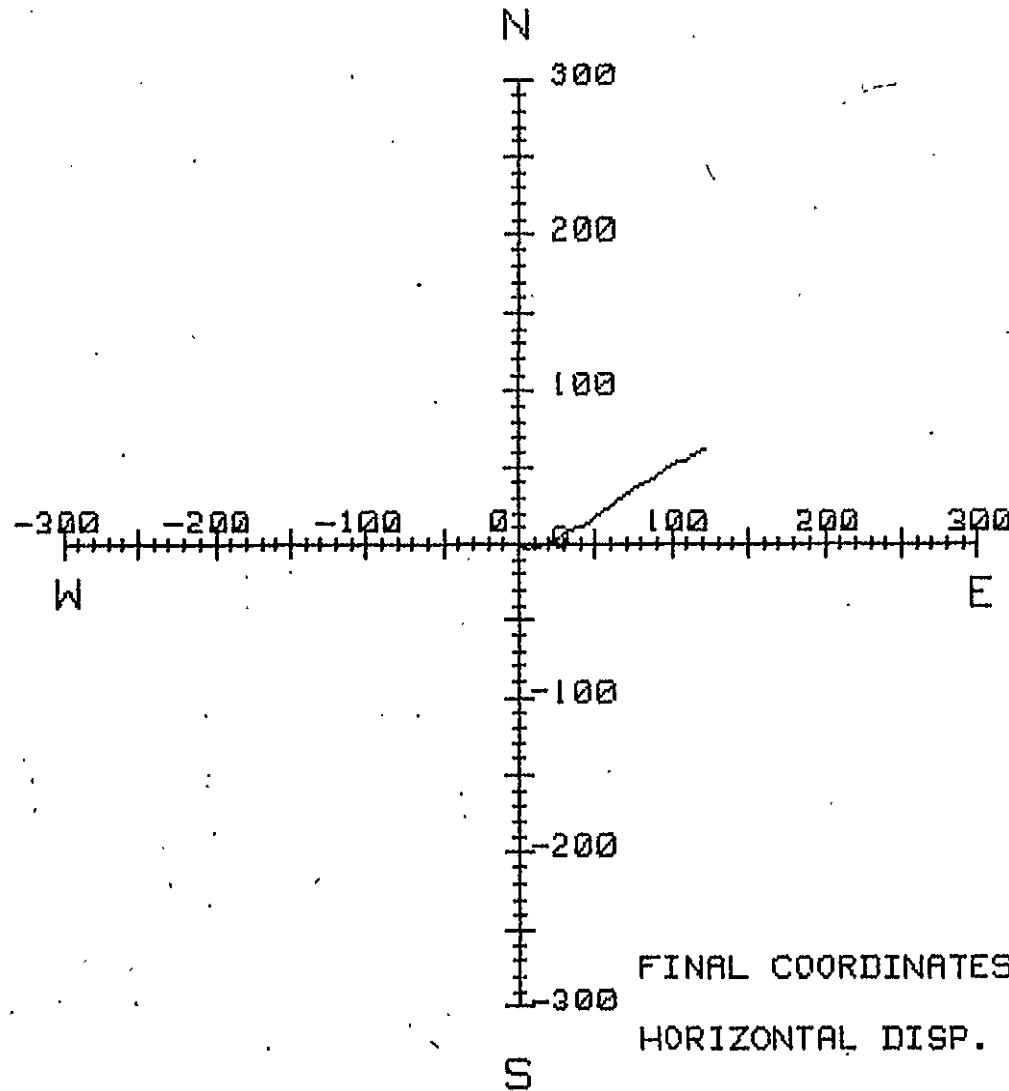
DIRECTIONAL SURVEY - INPUT PARAMETERS

MEAS. DEPTH(M)	SLANT	AZIMUTH
-----	-----	-----
0.00	2.30	151.50
30.00	2.30	151.50
45.00	2.75	126.20
60.00	4.50	119.20
75.00	7.20	105.80
90.00	8.20	94.50
105.00	12.40	80.00
120.00	15.70	80.70
135.00	19.90	66.60
150.00	23.30	66.30
165.00	24.60	62.00
180.00	26.90	60.50
195.00	29.60	60.50
210.00	34.00	58.80
225.00	35.10	52.20
240.00	36.30	55.20
255.00	39.20	54.90
270.00	43.00	57.20
285.00	50.00	59.70
300.00	54.60	61.70
307.00	57.60	60.50
315.00	60.50	63.50
320.00	60.80	58.30
335.87	60.80	58.30

PLAN VIEW

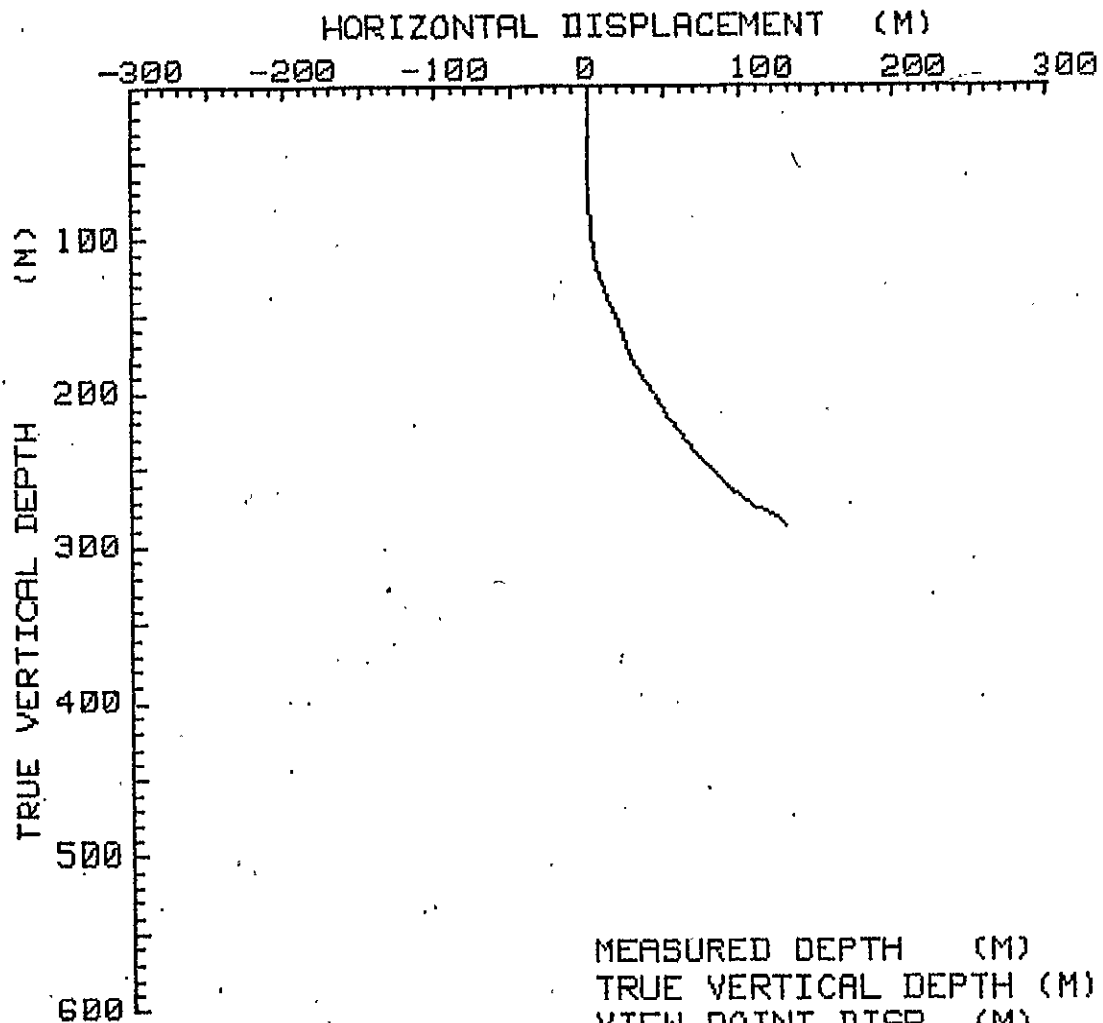
WELL ID NUMBER

R80-36



FINAL COORDINATES(M) N 62.38
E 121.15
HORIZONTAL DISP. (M) 129.78

DISPLACEMENT



WELL ID NUMBER
R80-56

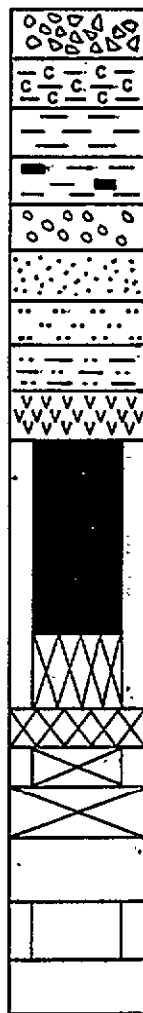
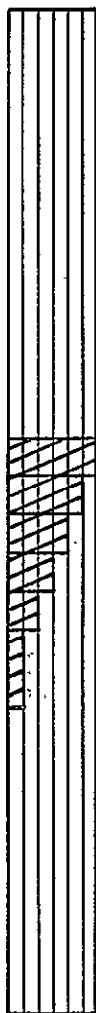
MEASURED DEPTH (M)	335.87
TRUE VERTICAL DEPTH (M)	285.84
VIEW POINT DISP. (M)	129.78
SECTION LINE BEARING	45.00

SEAM
COMP.

COAL
SEAM
LOG

LITHOTYPE

- C-1: Bright 80% Vitrain
- C-2: Bright banded 60-80% Vitrain
- C-3: Dull/Bright 40-60% Vitrain
- C-4: Dull banded 20-40% Vitrain
- C-5: Dull 20% Vitrain
- C-6: Bone



- breccia
- carbonaceous claystone
- claystone
- coaly claystone
- conglomerate
- sandstone
- siltstone
- silty claystone
- tuff
- coal
- coal-boney, stoney, coal and bands/rock - designated "C6"
- rock } coal lithotype uncertain
- coal } MISSING CORE
- rock }
- rock
- coal

CORED HOLE
GEOPHYSICALLY
LOGGED
LITHOLOGY
DESCRIBED

UNCORED HOLE
GEOPHYSICAL
LOGS ONLY

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



LEGEND FOR COAL
SEAM DATA SHEETS

PREPARED BY: V.O.

SCALE 1:40

APPROVED BY:

DATE: JAN. 82

DRAWING No.

82/01/12

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

PAGE 1

PROJECT: GDR BLOCK: XX DATA SOURCE: RDH80056

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	27.43	27.43			OVERBURDEN	CASED.
	27.43	305.20	277.77			ROCK	WATER FLOW 10 GPM AT 42.67M, 20 GPM AT 60.96M, 30 GPM AT 76.20M.
	305.20	309.01	3.81		1	COAL	
	309.01	309.91	0.90			ROCK	
	309.91	313.91	4.00		1	COAL	
	313.91	335.37	21.46			ROCK	T.D. 335.37

RDH 80-57

*** COAL DIVISION ***

DATA SOURCE: R80-57

INTERVAL OF INTERPOLATION 10 UNIT(S)

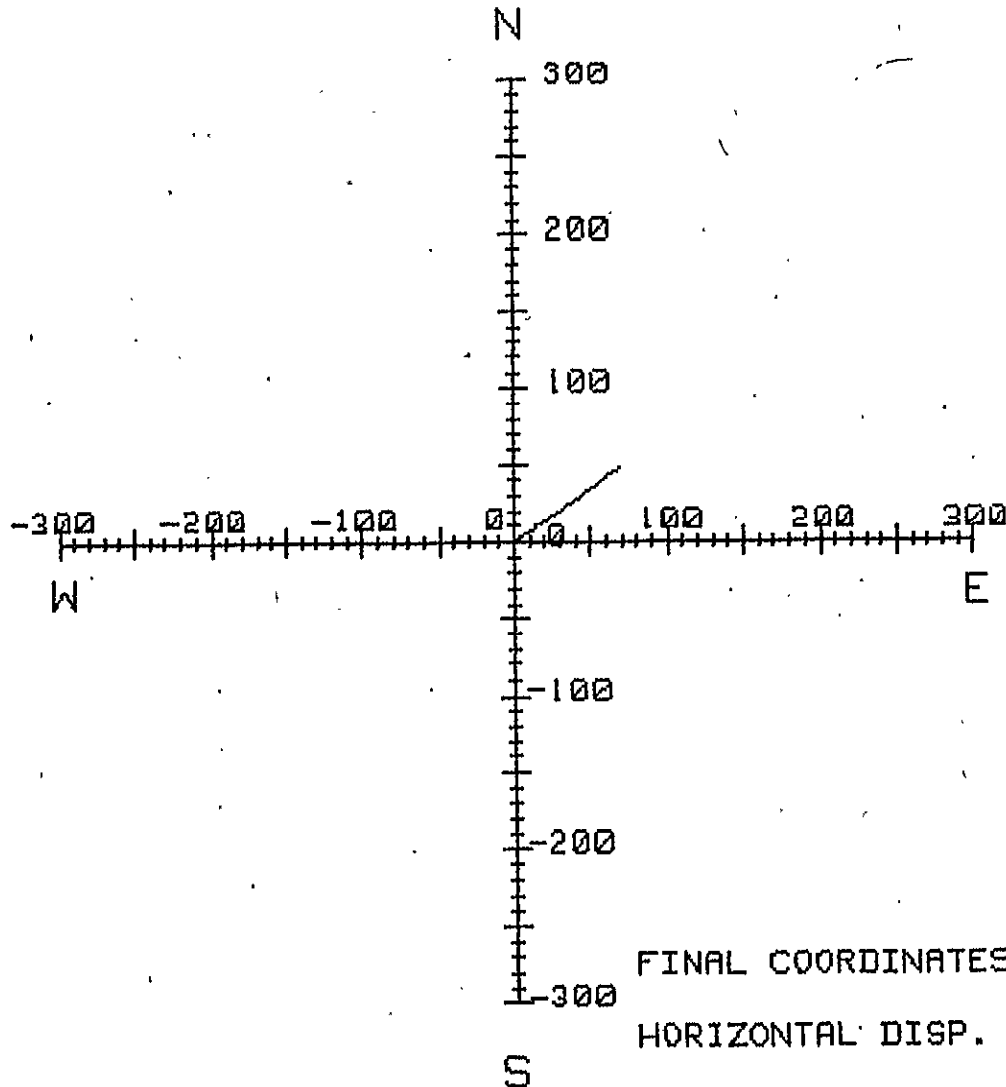
VIEWPOINT: 45.0 DEGREES

DIRECTIONAL SURVEY - INPUT PARAMETERS

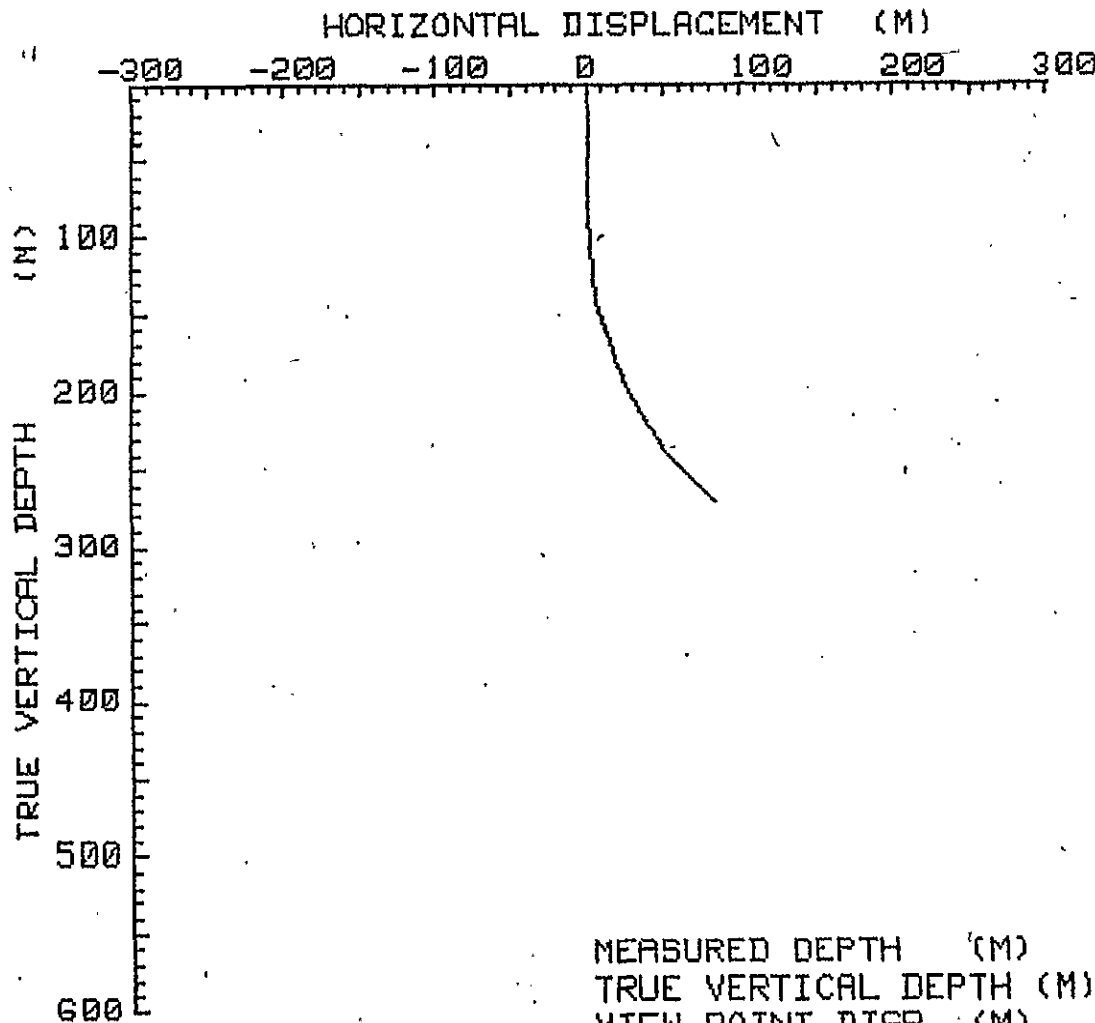
MEAS. DEPTH(M)	SLANT	AZIMUTH
-----	-----	-----
0.00	.30	73.50
60.00	.30	74.30
75.00	2.10	24.40
90.00	2.70	41.80
105.00	3.50	55.20
120.00	5.90	64.70
135.00	10.50	61.60
150.00	14.50	58.60
165.00	18.00	56.30
180.00	21.50	51.70
195.00	24.20	53.30
210.00	29.60	59.70
225.00	33.60	55.40
240.00	36.70	55.30
255.00	41.90	53.40
270.00	44.40	53.50
294.12	46.20	54.30

PLAN VIEW

WELL ID NUMBER
R80-57



DISPLACEMENT



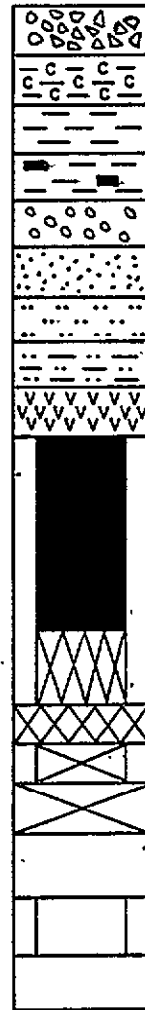
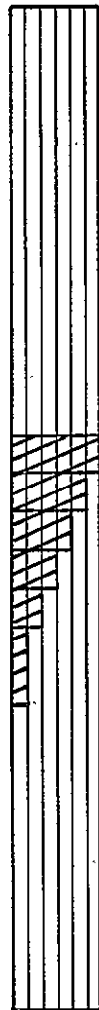
MEASURED DEPTH (M)	294.12
TRUE VERTICAL DEPTH (M)	269.66
VIEW POINT DISP. (M)	92.46
SECTION LINE BEARING	45.00

SEAM
COMP.

COAL
SEAM
LOG

LITHOTYPE

- C-1: Bright 80% Vitrain
- C-2: Bright banded 60-80% Vitrain
- C-3: Dull/Bright 40-60% Vitrain
- C-4: Dull banded 20-40% Vitrain
- C-5: Dull 20% Vitrain
- C-6: Bone



- breccia
- carbonaceous claystone
- claystone
- coaly claystone
- conglomerate
- sandstone
- siltstone
- silty claystone
- tuff
- coal
- coal-boney, stoney, coal and bands/rock - designated 'C6'
- rock > coal lithotype uncertain
- MISSING CORE
- rock
- coal

CORED HOLE
GEOPHYSICALLY
LOGGED
LITHOLOGY
DESCRIBED

UNCORED HOLE
GEOPHYSICAL
LOGS. ONLY

GULF CANADA RESOURCES INC.		
CALGARY	Coal Division	
LEGEND FOR COAL SEAM DATA SHEETS		
PREPARED BY: V.O.		SCALE 1:40
APPROVED BY:		DATE: JAN. 82 DRAWING No.

82/01/12

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

PAGE 1

PROJECT: GDR BLOCK: XX DATA SOURCE: RDH80057

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
	0.00	16.15	16.15			OVERBURDEN	CASED.
	16.15	59.38	43.23			ROCK	WATER FLOW 5 GPM AT 30.48M, 10 GPM AT 42.67M.
	59.38	61.49	2.11			COAL	WATER FLOW 20 GPM AT 60.96M.
	61.49	220.97	159.48			ROCK	WATER FLOW 30 GPM AT 121.91M. T.D. 220.97M.

RDH 80-58

GCRI - COAL DIVISION - DATA SOURCE RECORD

PROJECT: GDR BLOCK: DATA SOURCE: RDH80058

HISTORY

DY MO YR DY MO YR
 START DATE: 13/12/80 END DATE: 14/12/80 OPERATOR: GULF CANADA RES.
 CONTRACTOR: ALBERTA SOUTHERN GEOLOGIST: SURVEYOR: D. WATSON
 REMARKS: WATER FLOWS: 1 GPM AT 36.57 M, 4 GPM AT 70.10 M, 10 GPM AT
 91.44 M, 30 GPM AT 103.63 M.

LOCATION

PROVINCE: B.C. ELEVATION: 1139.90
 UTM ZONE: 10 NORTH: 6140175.89 EAST: 549704.61
 LAT&LONG LATITUDE: LONGITUDE:
 DLS-ALTA NORTH: EAST: LSD: SEC: TWP: RGE: MER:
 NTS-EC NORTH: EAST: QUAD: UNIT: BLK: ST: MUS: MS:

DIMENSIONS AND ORIENTATION

LENGTH: 299.30 INCLINATION: -90.0 AZIMUTH: 000.0
 SIZE WIDTH: SIZE HEIGHT:
 ROOF STRIKE: DIP: FLOOR STRIKE: DIP:

DRILL HOLE STATUS

CASING DEPTH: 6.10 CEMENTED: PLUGGED: PEIZOMETERS INSTALLED:
 AQUIFER DEPTHS: LOST CIRCULATION DEPTHS:

GEOPHYSICAL LOGGING

	LOG RUN	SCALE 1	SCALE 2	DIGITIZED	TRUE THICKNESS	OPEN HOLE	THRU RODS	TOOL NUMBER
GAMMA	X	1:100	: -----	--	--	X	--	125A
NEUTRON	X	1:100	: -----	--	--	X	--	125A
DENSITY	X	1:100	: -----	--	--	X	--	457AS
CALIPER	X	1:100	: -----	--	--	X	--	785
FE-SHORT		:	: -----	--	--		--	
FE-LONG	X	1:100	: -----	--	--	X	--	7
DIRECTIONAL	X	:	: -----	--	--	X	--	
DIPMETER		:	: -----	--	--		--	

*** COAL DIVISION ***

DATA SOURCE: RB0-58

INTERVAL OF INTERPOLATION 10 UNIT(S)

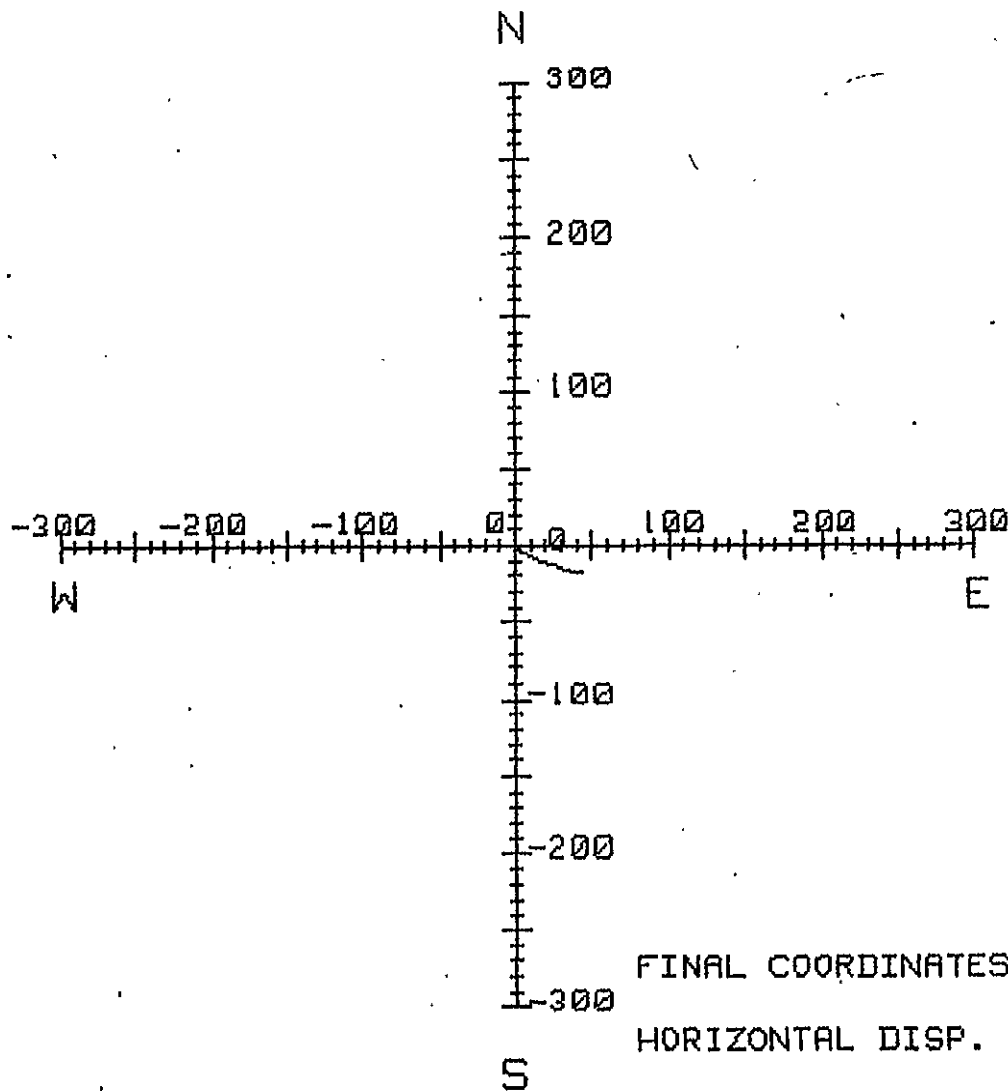
VIEWPOINT: 45.0 DEGREES

DIRECTIONAL SURVEY - INPUT PARAMETERS

MEAS. DEPTH(M)	SLANT	AZIMUTH
0.00	.10	139.50
30.00	.10	139.50
45.00	.60	146.20
60.00	1.70	163.10
75.00	2.30	151.10
90.00	3.00	150.90
105.00	3.47	160.30
120.00	4.60	151.50
135.00	5.30	115.70
150.00	5.90	111.00
165.00	7.40	117.20
180.00	8.30	105.40
195.00	10.90	117.10
210.00	12.40	124.00
225.00	15.98	100.80
240.00	18.20	105.90
255.00	21.30	111.40
270.00	24.90	107.00
300.21	28.76	105.80

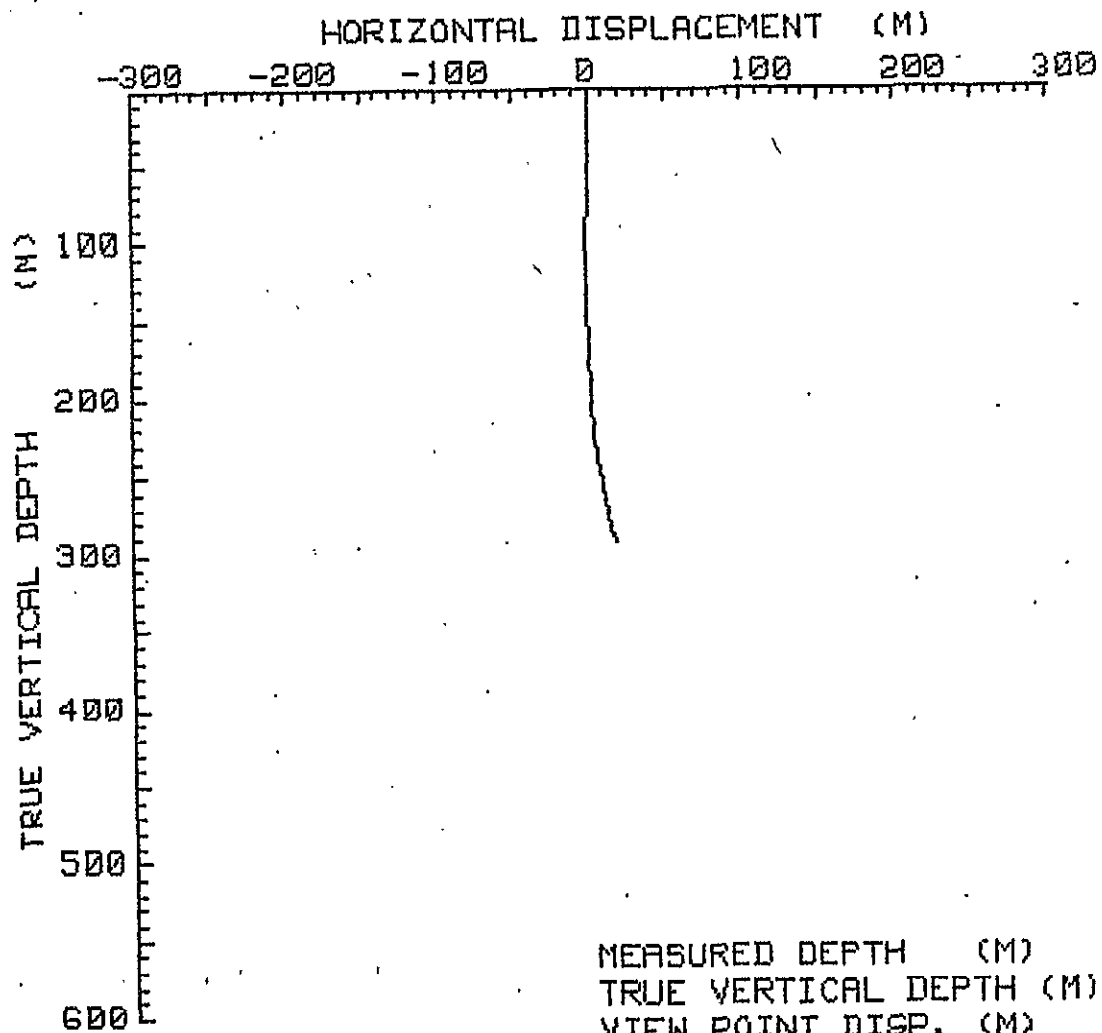
PLAN VIEW

WELL ID NUMBER
R80-58



FINAL COORDINATES (M) N -18.25
E 43.25
HORIZONTAL DISP. (M) 47.60

DISPLACEMENT



MEASURED DEPTH (M)	300.21
TRUE VERTICAL DEPTH (M)	292.78
VIEW POINT DISP. (M)	17.60
SECTION LINE BEARING	45.00

82/01/12

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

PAGE 1

PROJECT: GDR BLOCK: XX DATA SOURCE: RDH80058

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	6.10	6.10			OVERBURDEN	CASED.
	6.10	254.49	248.39			ROCK	WATER FLOW 1 GPM AT 36.57M, 4 GPM AT 70.10M, 10 GPM AT 91.44M, 30 GPM AT 103.63M. T.D. 254.49M.

RDH 80-59

GCRI - COAL DIVISION - DATA SOURCE RECORD

PROJECT: GDR BLOCK: DATA SOURCE: RDH80059

HISTORY

START DATE: 15/12/80 END DATE: 16/12/80 OPERATOR: GULF CANADA RES.
 CONTRACTOR: ALBERTA SOUTHERN GEOLOGIST: SURVEYOR: D. WATSON
 REMARKS: WATER FLOW: 18 GPM AT 140.20 M.

LOCATION

PROVINCE: B.C. ELEVATION: 1130.46
 UTM ZONE: 10 NORTH: 6140269.72 EAST: 549837.67
 LAT&LONG LATITUDE: LONGITUDE:
 DLS-ALTA NORTH: EAST: LSD: SEC: TWP: RGE: MER:
 NTS-BC NORTH: EAST: QUAD: UNIT: BLK: ST: MUS: MS:

DIMENSIONS AND ORIENTATION

LENGTH: 243.80 INCLINATION: -90.0 AZIMUTH: 000.0
 SIZE WIDTH: SIZE HEIGHT:
 ROOF STRIKE: DIP: FLOOR STRIKE: DIP:

DRILL HOLE STATUS

CASING DEPTH: 6.09 CEMENTED: PLUGGED: PEIZOMETERS INSTALLED:
 AQUIFER DEPTHS: LOST CIRCULATION DEPTHS:

GEOPHYSICAL LOGGING

	LOG RUN	SCALE 1	SCALE 2	DIGITIZED	TRUE THICKNESS	OPEN HOLE	THRU RODS	TOOL NUMBER
GAMMA	X	1:100	:	---	---	X	---	125A
NEUTRON	X	1:100	:	---	---	X	---	125A
DENSITY	X	1:100	1:40	---	---	X	---	457AS
CALIPER	X	1:100	:	---	---	X	---	785
FE-SHORT	X	:	1:40	---	---	X	---	7
FE-LONG	X	1:100	1:40	---	---	X	---	7
DIRECTIONAL	X	:	:	---	---	X	---	---
DIPMETER	---	:	:	---	---	---	---	---

*** COAL DIVISION ***

DATA SOURCE: R80-59

INTERVAL OF INTERPOLATION 10 UNIT(S)

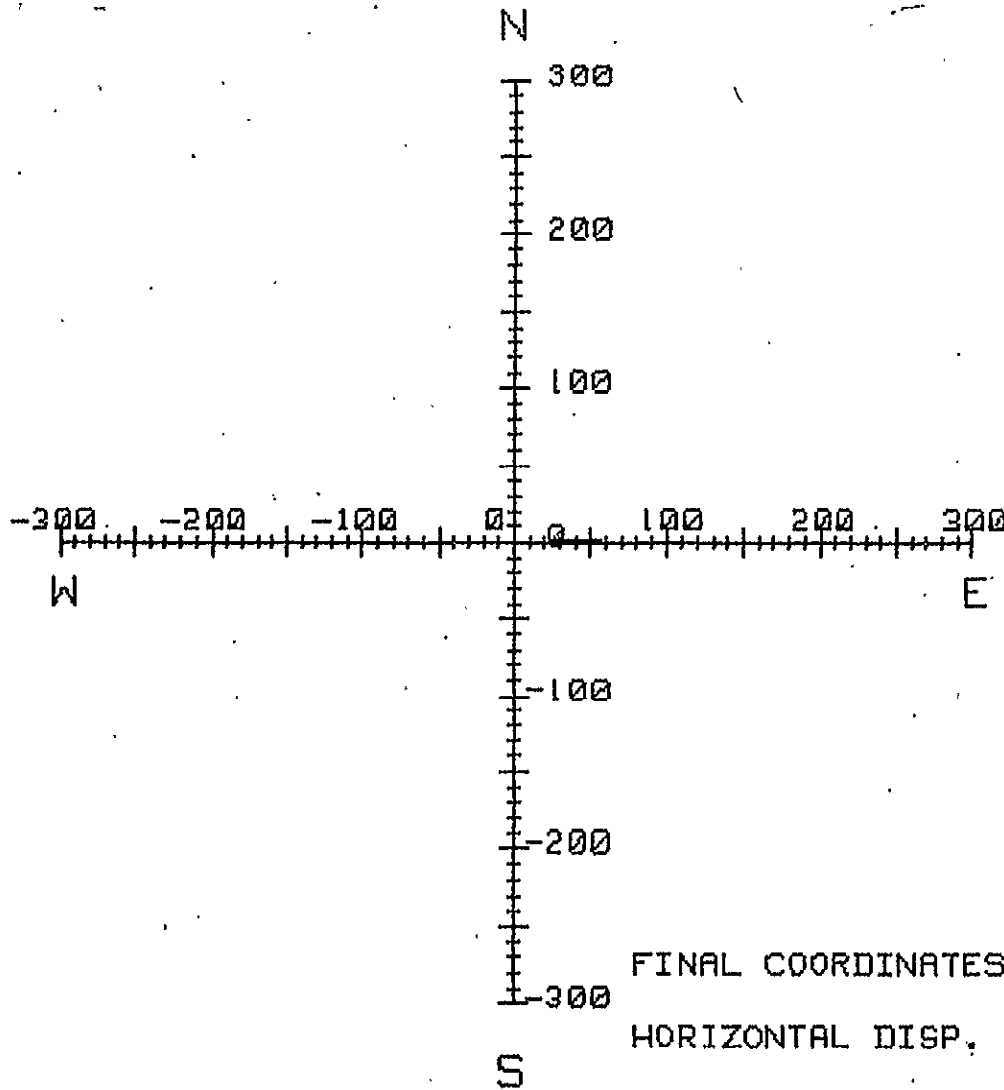
VIEWPOINT: 45.0 DEGREES

DIRECTIONAL SURVEY - INPUT PARAMETERS

MEAS. DEPTH(M)	SLANT	AZIMUTH
0.00	6.30	85.70
45.00	6.30	85.70
60.00	9.80	106.60
75.00	13.80	92.80
90.00	17.80	91.70
105.00	20.10	91.10
120.00	24.90	61.90
135.00	29.40	88.40
150.00	30.70	97.00
165.00	32.20	90.00
180.00	36.50	95.80
195.00	39.40	91.80
210.00	43.40	88.20
225.00	46.30	95.10
243.82	48.10	85.90

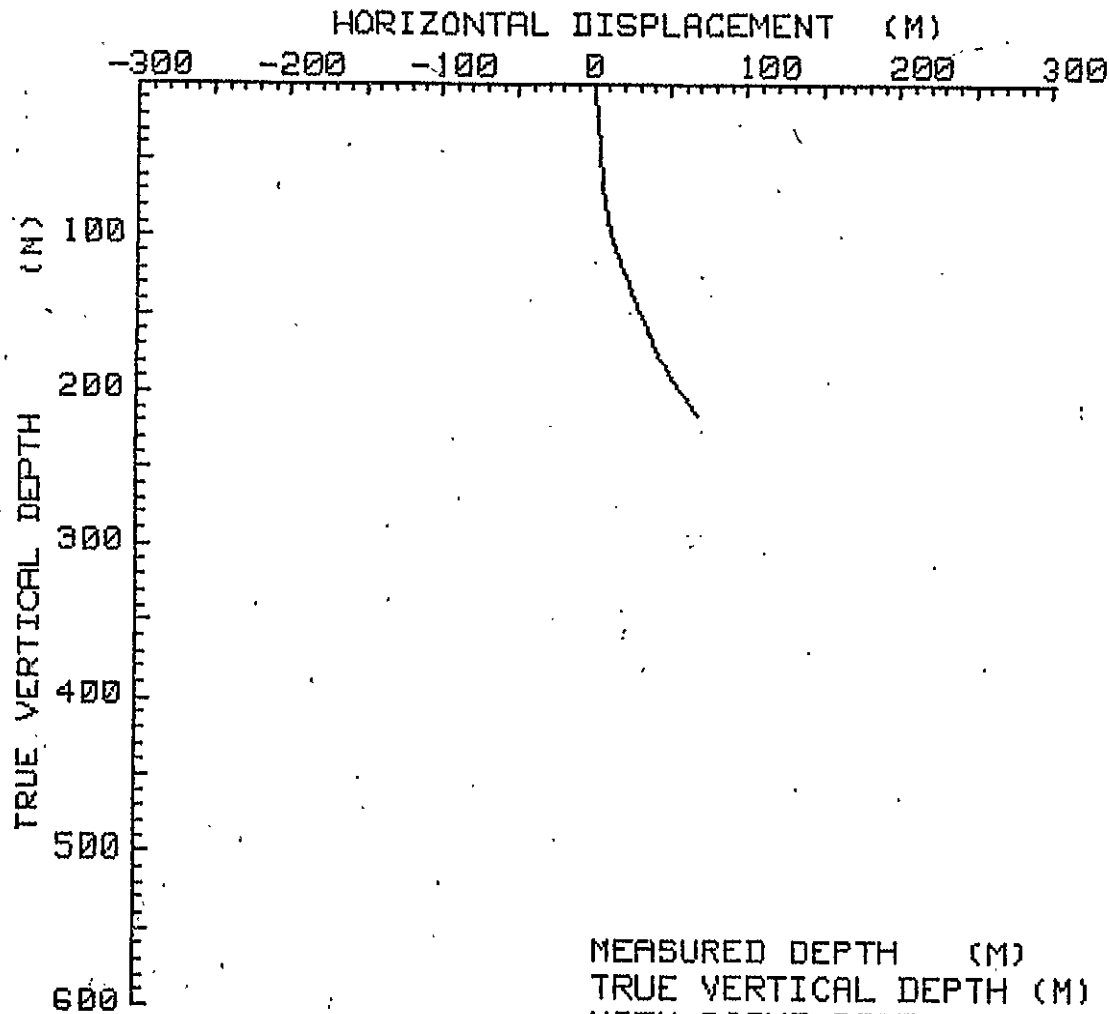
PLAN VIEW

WELL ID NUMBER
R80-59



FINAL COORDINATES(M) N .09
E 97.99
HORIZONTAL DISP. (M) 69.35

DISPLACEMENT



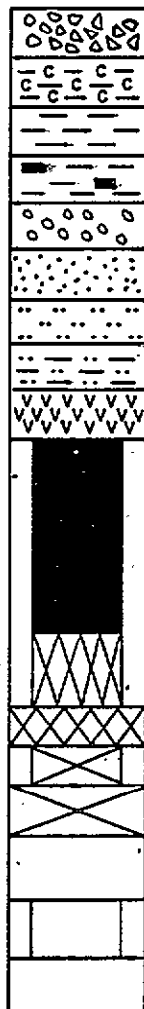
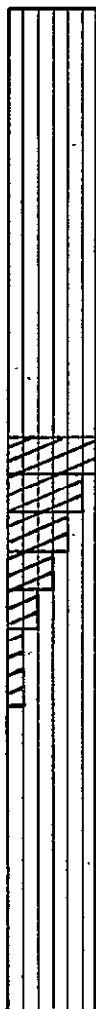
MEASURED DEPTH (M)	243.82
TRUE VERTICAL DEPTH (M)	214.87
VIEW POINT DISP. (M)	69.35
SECTION LINE BEARING	45.00

SEAM
COMP

COAL
SEAM
LOG

LITHOTYPE

- C-1: Bright 80% Vitrain
- C-2: Bright banded 60-80% Vitrain
- C-3: Dull/Bright 40-60% Vitrain
- C-4: Dull banded 20-40% Vitrain
- C-5: Dull 20% Vitrain
- C-6: Bone



- breccia
- carbonaceous claystone
- claystone
- coaly claystone
- conglomerate
- sandstone
- siltstone
- silty claystone
- tuff
- coal
- coal-boney, stoney, coal and bands/rock - designated "C6"
- rock } coal lithotype uncertain
- coal } MISSING CORE
- rock }
- rock
- coal

CORED HOLE
GEOPHYSICALLY
LOGGED
LITHOLOGY
DESCRIBED

UNCORED HOLE
GEOPHYSICAL
LOGS ONLY

GULF CANADA RESOURCES INC.		
CALGARY	Coal Division	
LEGEND FOR COAL SEAM DATA SHEETS		
PREPARED BY: V.O.		SCALE 1:40
APPROVED BY:		DATE: JAN. 82 DRAWING No.

82/01/12

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

PAGE 1

PROJECT: GDR BLOCK: XX DATA SOURCE: RDH80059

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	6.09	6.09			CASING	
	6.09	142.56	137.47			ROCK	
	143.56	149.68	6.12		↑	COAL	
	149.68	152.21	2.53			ROCK	WATER FLOW 18 GPM; 2 GM INCREASE AT 152.39M.
	152.21	157.19	4.98		↑	COAL	
	157.19	211.47	54.28			ROCK	
	211.47	212.54	1.07			COAL	
	212.54	243.82	31.28			ROCK.	T.D. 243.82 M.

RDH 81-01
(GOODRICH EAST)

GCRI - COAL DIVISION - DATA SOURCE RECORD

PROJECT: GDR BLOCK: DATA SOURCE: RDHS1001

HISTORY

DY MO YR DY MO YR
 START DATE: 07/07/81 END DATE: 09/07/81 OPERATOR: GULF CANADA RES.
 CONTRACTOR: ALBERTA SOUTHERN GEOLOGIST: SURVEYOR: D. WATSON
 REMARKS: WATER FLOWS: 2 GPM AT 30.47 M, 5 GPM AT 54.86 M, 20 GPM AT 70.10.

LOCATION

PROVINCE: B.C. ELEVATION: 1114.28
 UTM ZONE: 10 NORTH: 6139880.25 EAST: 554877.02
 LAT&LONG LATITUDE: LONGITUDE: _____
 DLS-ALTA NORTH: . EAST: . LSD: _____ SEC: _____ TWP: _____ RGE: _____ MER: _____
 NTS-BC NORTH: . EAST: . QUAD: _____ UNIT: _____ BLK: _____ ST: _____ MUS: _____ MS: _____

DIMENSIONS AND ORIENTATION

LENGTH: 212.00 INCLINATION: -90.0 AZIMUTH: 000.0
 SIZE WIDTH: . SIZE HEIGHT: .
 ROOF STRIKE: _____ DIP: _____ FLOOR STRIKE: _____ DIP: _____

DRILL HOLE STATUS

CASING DEPTH: 9.00 CEMENTED: _____ PLUGGED: _____ PEIZOMETERS INSTALLED: _____
 AQUIFER DEPTHS: . . LOST CIRCULATION DEPTHS: . . .

GEOPHYSICAL LOGGING

	LOG RUN	SCALE 1	SCALE 2	DIGITIZED	TRUE THICKNESS	OPEN HOLE	THRU RODS	TOOL NUMBER
GAMMA	X	1:100	: _____	---	---	X	---	125A
NEUTRON	X	1:100	: _____	---	---	X	---	125A
DENSITY	X	1:100	1:40 _____	---	---	X	---	247AS
CALIPER	X	1:100	: _____	---	---	X	---	785
FE-SHORT		: _____	: _____	---	---		---	
FE-LONG	X	1:100	: _____	---	---	X	---	10
DIRECTIONAL	X	: _____	: _____	---	---	X	---	
DIPMETER		: _____	: _____	---	---		---	

*** COAL DIVISION ***

DATA SOURCE: R04-01

INTERVAL OF INTERPOLATION 10 UNIT(S)

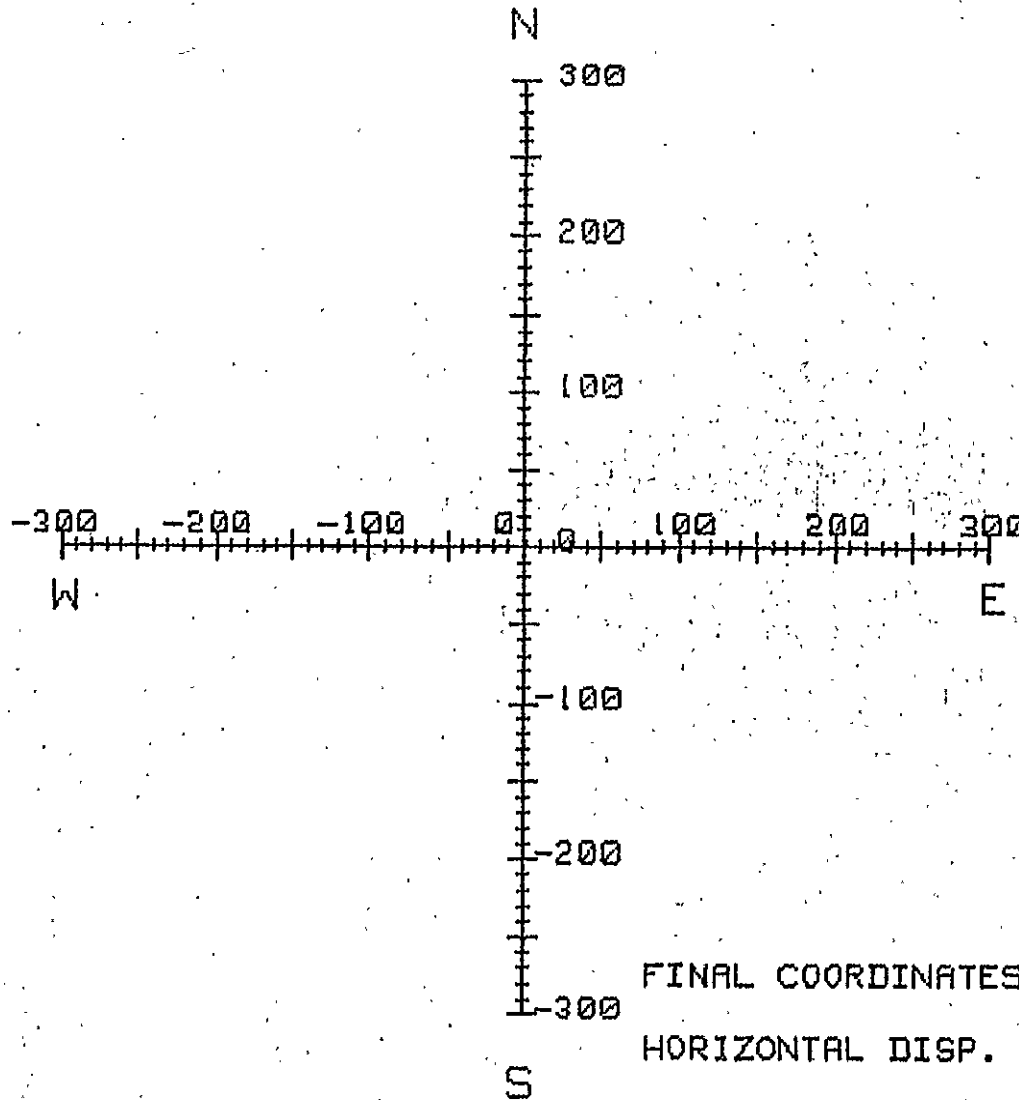
VIEWPOINT: 45.0 DEGREES

DIRECTIONAL SURVEY - INPUT PARAMETERS

MEAS. DEPTH(M)	SLANT	AZIMUTH
0.00	2.30	2.80
15.00	2.30	2.80
30.00	3.00	9.20
45.00	2.60	357.80
60.00	1.70	129.70
75.00	1.90	53.40
90.00	1.80	29.80
105.00	1.10	342.00
120.00	1.30	306.30
135.00	1.20	280.50
150.00	1.20	240.00
165.00	2.97	145.70
180.00	3.50	155.40
195.00	3.30	160.30
210.00	2.50	149.30

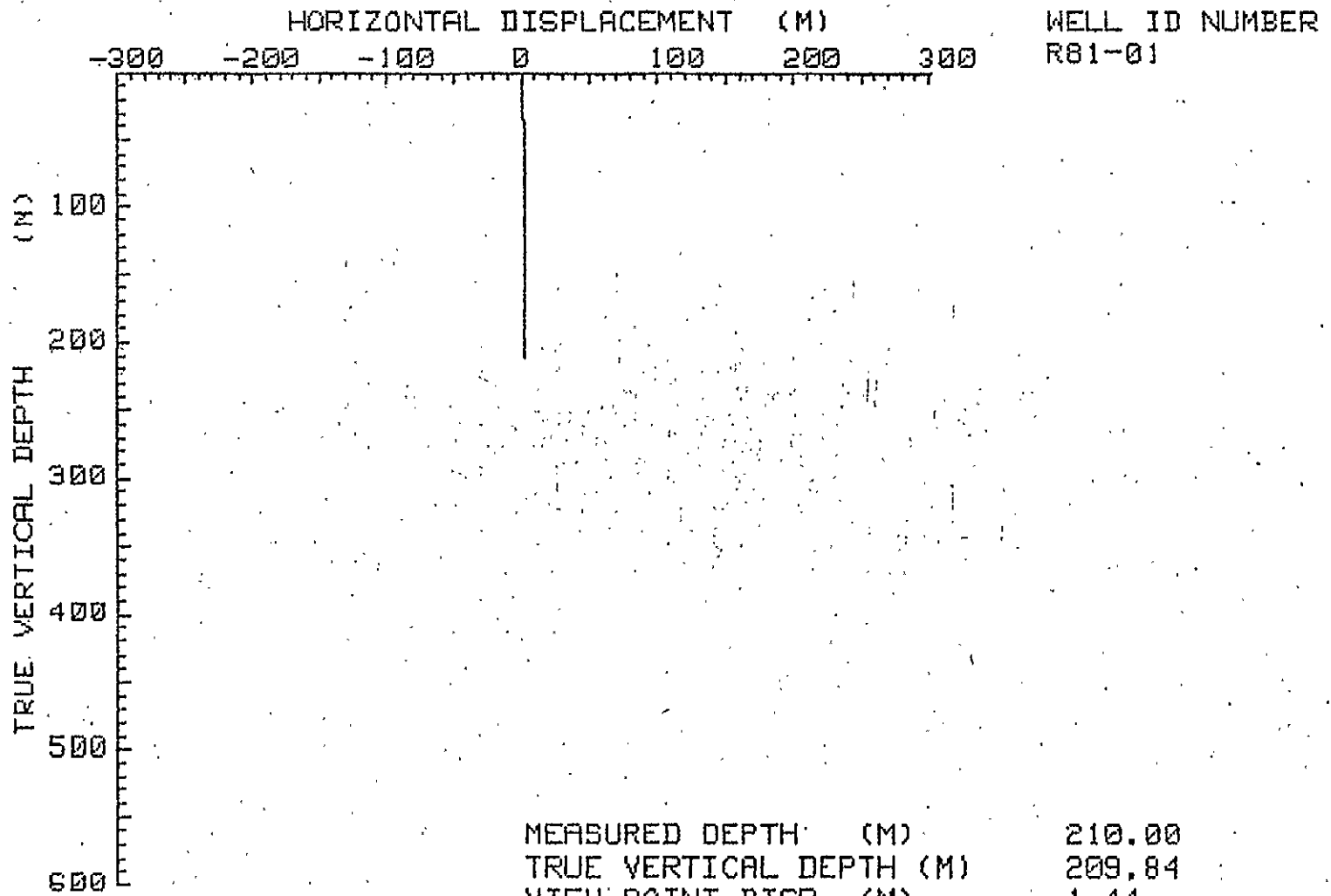
PLAN VIEW

WELL ID NUMBER
R81-01



FINAL COORDINATES (M) N .58
E 1.45
HORIZONTAL DISP. (M) 1.44

DISPLACEMENT



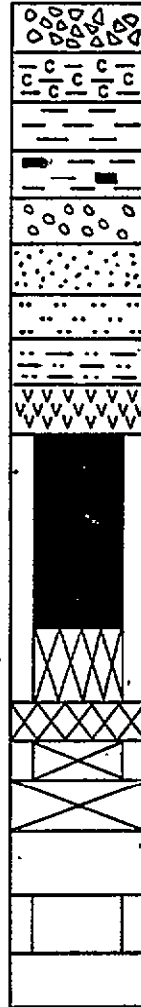
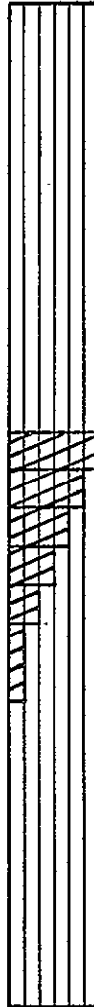
MEASURED DEPTH (M)	210.00
TRUE VERTICAL DEPTH (M)	209.84
VIEW POINT DISP. (M)	1.44
SECTION LINE BEARING	45.00

SEAM
COMP

COAL
SEAM
LOG

LITHOTYPE

- C-1: Bright 80% Vitrain
- C-2: Bright banded 60-80% Vitrain
- C-3: Dull/Bright 40-60% Vitrain
- C-4: Dull banded 20-40% Vitrain
- C-5: Dull 20% Vitrain
- C-6: Bone



- breccia
- carbonaceous claystone
- claystone
- coaly claystone
- conglomerate
- sandstone
- siltstone
- silty claystone
- tuff
- coal
- coal-boney, stoney, coal and bands/rock - designated "C6"
- rock > coal lithotype uncertain
- MISSING CORE
- rock
- coal

CORED HOLE
GEOPHYSICALLY
LOGGED
LITHOLOGY
DESCRIBED

UNCORED HOLE
GEOPHYSICAL
LOGS ONLY

GULF CANADA RESOURCES INC.

CALGARY

Coal Division

ALBERTA



LEGEND FOR COAL
SEAM DATA SHEETS

PREPARED BY: V.O.

SCALE 1:40

APPROVED BY:

DATE: JAN. 82 DRAWING No.

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.
COAL DIVISION

DENSITY

RESISTIVITY

DENSITY SCALE

RESISTIVITY SCALE

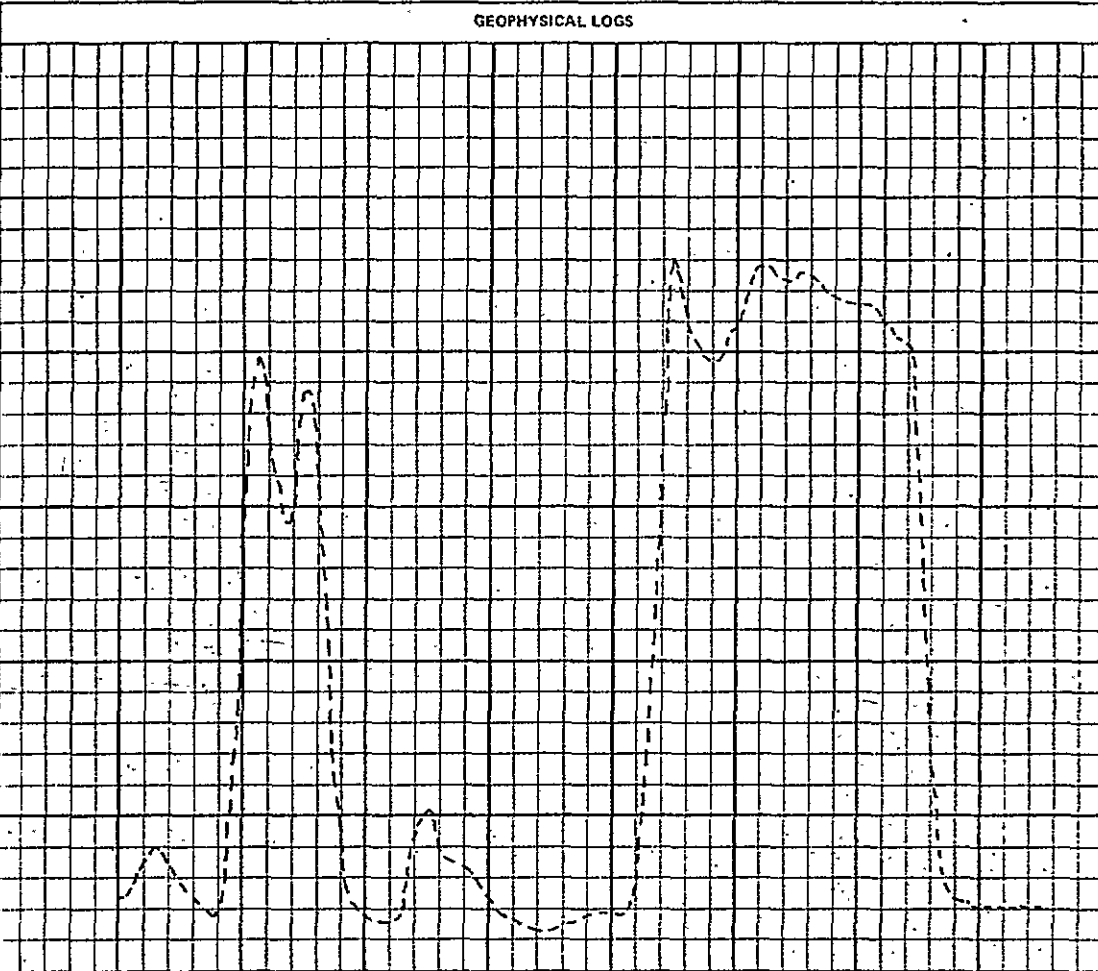
DRILL NO. GOR-RDH-BI-01

SEAM B1

SEAM INTERVAL 30.47m - 32.63m

35.32m - 36.01m

GEOPHYSICAL LOGS



SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL	ROCK	COAL	% REC.	SAMPLE NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	RTU	FSI
	30.47	Wavy line	2.16m												
	32.63	Rectangular	2.69m												
	35.32	Rectangular	0.69m												
	36.01	Wavy line													

XXXX

82/01/12

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

PAGE 1

PROJECT: GDR BLOCK: XX DATA SOURCE: RDH81001

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. TO</u>	<u>SEAM TO</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
	0.00	9.14	9.14			OVERBURDEN	CASED
	9.14	30.46	21.32			ROCK	WATERFLOW 2 GPM AT 30.47 M.
	30.46	32.62	2.16		81	COAL	
	32.62	35.31	2.69			ROCK	
	35.31	36.00	0.69			COAL	
	36.00	213.36	177.36			ROCK	T.D. 213.36 M. WATERFLOW 5 GPM AT 54.86 20 GPM AT 70.10 M.

RDH 81-02
(GOODRICH EAST)

GCRI -- COAL DIVISION -- DATA SOURCE RECORD

PROJECT: GDR BLOCK: ___ DATA SOURCE: RDH81002

HISTORY

DY MO YR DY MO YR
 START DATE: 09/07/81 END DATE: 10/07/81 OPERATOR: GULF CANADA RES.
 CONTRACTOR: ALBERTA SOUTHERN GEOLOGIST: _____ SURVEYOR: D. WATSON
 REMARKS: WATER FLOWS: 2 TO 5 GPM AT 30.97 M, 30 GPM AT 115.81 M.

LOCATION

PROVINCE: B.C. ELEVATION: 1173.55
 UTM ZONE: 10 NORTH: 6140290.32 EAST: 554585.21
 LAT&LONG LATITUDE: _____ LONGITUDE: _____
 DLS-ALTA NORTH: . EAST: . LSD: . SEC: . TWP: . RGE: . MER: .
 NTS-BC NORTH: . EAST: . QUAD: . UNIT: . BLK: . ST: . MUS: . MS: .

DIMENSIONS AND ORIENTATION

LENGTH: 213.00 INCLINATION: -90.0 AZIMUTH: 000.0
 SIZE WIDTH: . SIZE HEIGHT: .
 ROOF STRIKE: . DIP: . FLOOR STRIKE: . DIP: .

DRILL HOLE STATUS

CASING DEPTH: 21.30 CEMENTED: . PLUGGED: . PEIZOMETERS INSTALLED: .
 AQUIFER DEPTHS: . . . LOST CIRCULATION DEPTHS: . . .

GEOPHYSICAL LOGGING

	LOG RUN	SCALE 1	SCALE 2	DIGITIZED	TRUE THICKNESS	OPEN HOLE	THRU RODS	TOOL NUMBER
GAMMA	X	1:100	:	--	--	X	--	125A
NEUTRON	X	1:100	:	--	--	X	--	125A
DENSITY	X	1:100	1:40	--	--	X	--	247AS
CALIPER	X	1:100	:	--	--	X	--	785
FE-SHORT		:	:	--	--		--	
FE-LONG	X	1:100	:	--	--	X	--	10
DIRECTIONAL	X	:	:	--	--	X	--	
DIPMETER		:	:	--	--		--	

*** COAL DIVISION ***

DATA SOURCE: RB1-02

INTERVAL OF INTERPOLATION 10 UNIT(S)

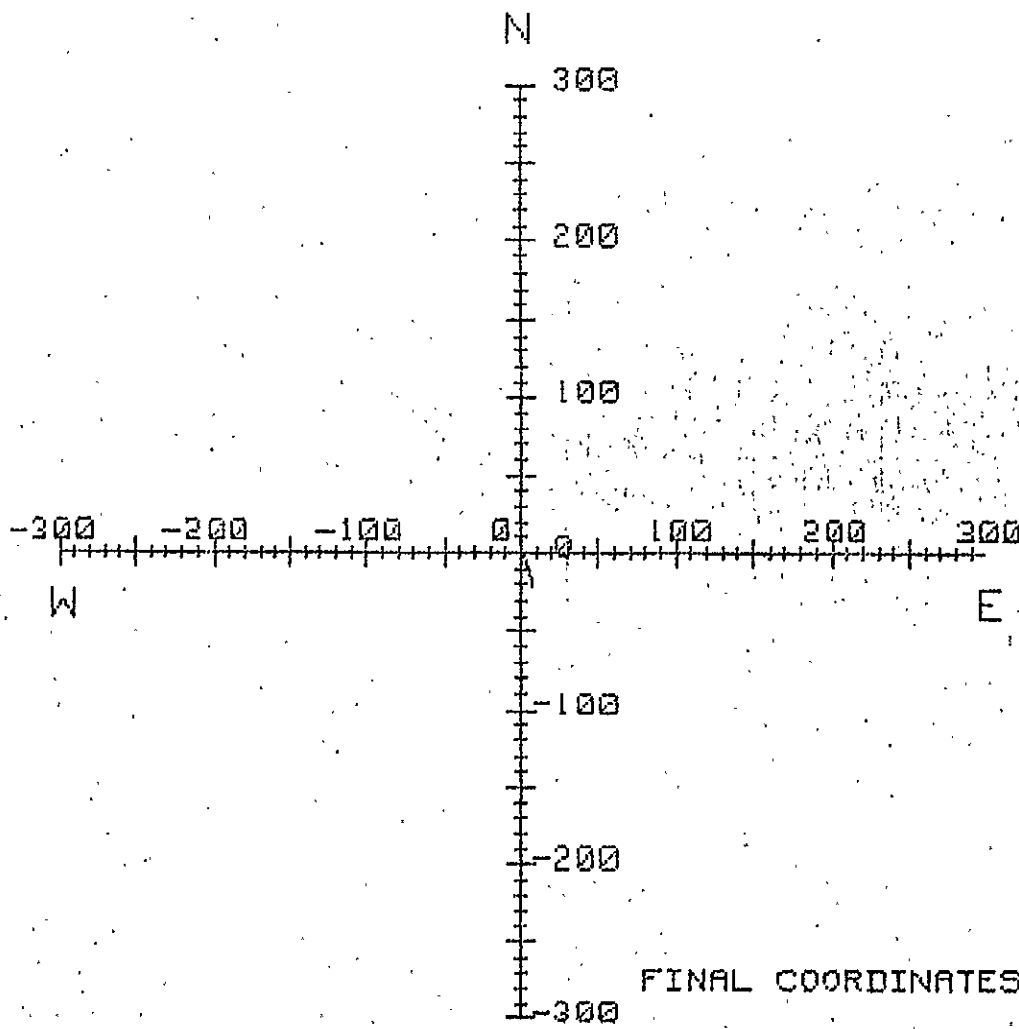
VIEWPOINT: 45.0 DEGREES

DIRECTIONAL SURVEY - INPUT PARAMETERS

MEAS. DEPTH(M)	SLANT	AZIMUTH
-----	-----	-----
0.00	1.70	138.20
15.00	1.70	138.20
30.00	2.30	139.60
45.00	4.30	149.20
60.00	4.50	151.90
75.00	5.30	153.10
90.00	5.90	161.60
105.00	6.40	170.20
120.00	6.20	151.90
135.00	7.00	161.50
150.00	8.20	162.20
165.00	8.40	161.80
180.00	9.90	169.70
195.00	10.20	166.90
210.00	11.50	160.40
210.00	11.50	160.40

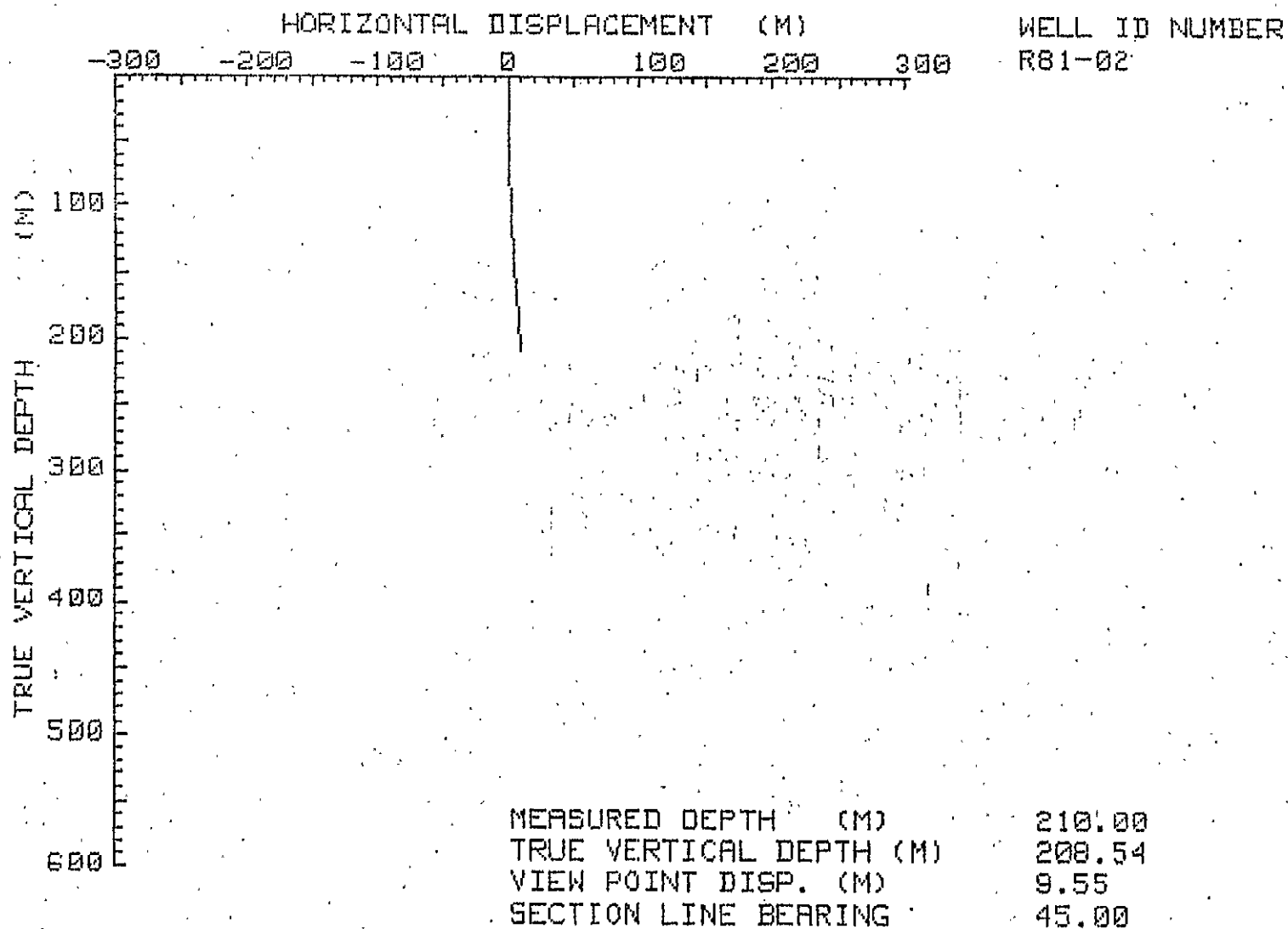
PLAN VIEW

WELL ID NUMBER
R81-02



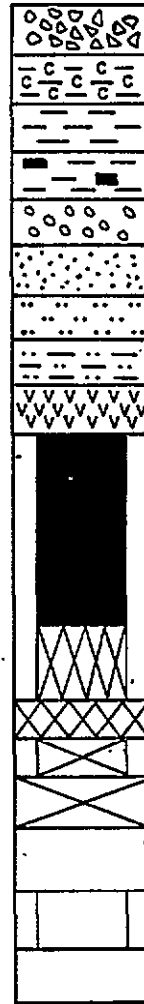
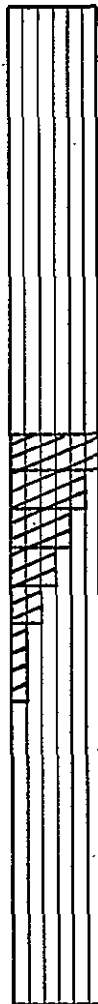
FINAL COORDINATES(M) N-21.12
E 7.61
HORIZONTAL DISP. (M) 9.55

DISPLACEMENT



SEAM
COMP

COAL
SEAM
LOG



LITHOTYPE

- C-1: Bright 80% Vitrain
- C-2: Bright banded 60-80% Vitrain
- C-3: Dull/Bright 40-60% Vitrain
- C-4: Dull banded 20-40% Vitrain
- C-5: Dull 20% Vitrain
- C-6: Bone

- breccia
- carbonaceous claystone
- claystone
- coaly claystone
- conglomerate
- sandstone
- siltstone
- silty claystone
- tuff

coal

coal-boney, stoney, coal and bands/rock - designated C6

rock } coal lithotype uncertain

coal } MISSING CORE

rock

coal

CORED HOLE
GEOPHYSICALLY
LOGGED
LITHOLOGY
DESCRIBED

UNCORED HOLE
GEOPHYSICAL
LOGS ONLY

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



LEGEND FOR COAL
SEAM DATA SHEETS

PREPARED BY: V.O.

SCALE 1:40

APPROVED BY:

DATE: JAN. 82 DRAWING No.

82/01/12

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

PAGE 1

PROJECT: GDR BLOCK: XX DATA SOURCE: RDH81002

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
	0.00	3.04	3.04			OVERBURDEN	CASED
	3.04	28.68	25.64			ROCK	
	28.68	31.18	2.50	B1		COAL	WATERFLOW 2 TO 5 GPM AT 30.97 M.
	31.18	34.85	3.67			ROCK	
	34.85	35.52	0.67			COAL	
	35.52	81.45	45.93			ROCK	
	81.45	81.95	0.50			COAL	
	81.95	204.82	122.87			ROCK	T.D. 204.82 M. WATERFLOW 30 GPM AT 115.81 M.

RDH 81-03
(GOODRICH EAST)

GCRI - COAL DIVISION - DATA SOURCE RECORD

PROJECT: GDR BLOCK: _____ DATA SOURCE: RDH81003

HISTORY

START DATE: 10/07/81 END DATE: 11/07/81 OPERATOR: GULF CANADA RES.
 CONTRACTOR: ALBERTA SOUTHERN GEOLOGIST: _____ SURVEYOR: D. WATSON
 REMARKS: _____

LOCATION

PROVINCE: B.C. ELEVATION: 1158.56
 UTM ZONE: 10 NORTH: 6140166.16 EAST: 554735.38
 LAT&LONG LATITUDE: _____ LONGITUDE: _____
 DLS-ALTA NORTH: _____ EAST: _____ LSD: _____ SEC: _____ TWP: _____ RGE: _____ MER: _____
 NTS-BC NORTH: _____ EAST: _____ QUAD: _____ UNIT: _____ BLK: _____ ST: _____ MUS: _____ MS: _____

DIMENSIONS AND ORIENTATION

LENGTH: 182.00 INCLINATION: -90.0 AZIMUTH: 000.0
 SIZE WIDTH: _____ SIZE HEIGHT: _____
 ROOF STRIKE: _____ DIP: _____ FLOOR STRIKE: _____ DIP: _____

DRILL HOLE STATUS

CASING DEPTH: 2.50 CEMENTED: _____ PLUGGED: _____ PEIZOMETERS INSTALLED: _____
 AQUIFER DEPTHS: _____ LOST CIRCULATION DEPTHS: _____

GEOPHYSICAL LOGGING

	LOG RUN	SCALE 1	SCALE 2	DIGITIZED	TRUE THICKNESS	OPEN HOLE	THRU RODS	TOOL NUMBER
GAMMA	X	1:100	:	---	---	X	---	125A
NEUTRON	X	1:100	:	---	---	X	---	125A
DENSITY	X	1:100	1:40	---	---	X	---	247AS
CALIPER	X	1:100	:	---	---	X	---	785
FE-SHORT	---	:	:	---	---	---	---	---
FE-LONG	---	:	:	---	---	---	---	---
DIRECTIONAL	X	:	:	---	---	X	---	---
DIPMETER	---	:	:	---	---	---	---	---

*** COAL DIVISION ***

DATA SOURCE: RB1-03

INTERVAL OF INTERPOLATION 10 UNIT(S)

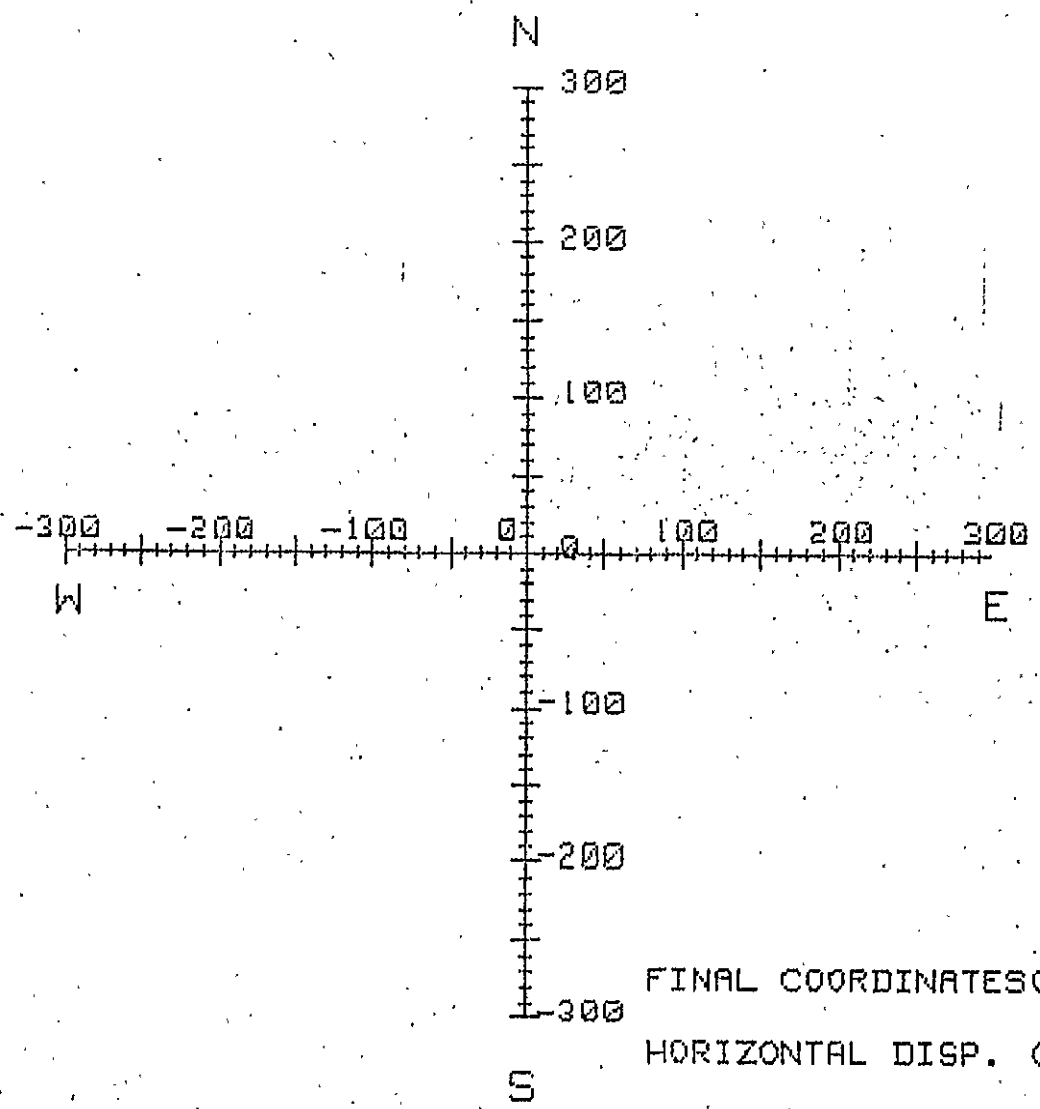
VIEWPOINT: 45.0 DEGREES

DIRECTIONAL SURVEY - INPUT PARAMETERS.

MEAS. DEPTH(H)	SLANT	AZIMUTH
0.00	1.80	231.50
15.00	1.80	231.50
30.00	2.40	257.70
45.00	2.40	256.30
60.00	2.40	246.70

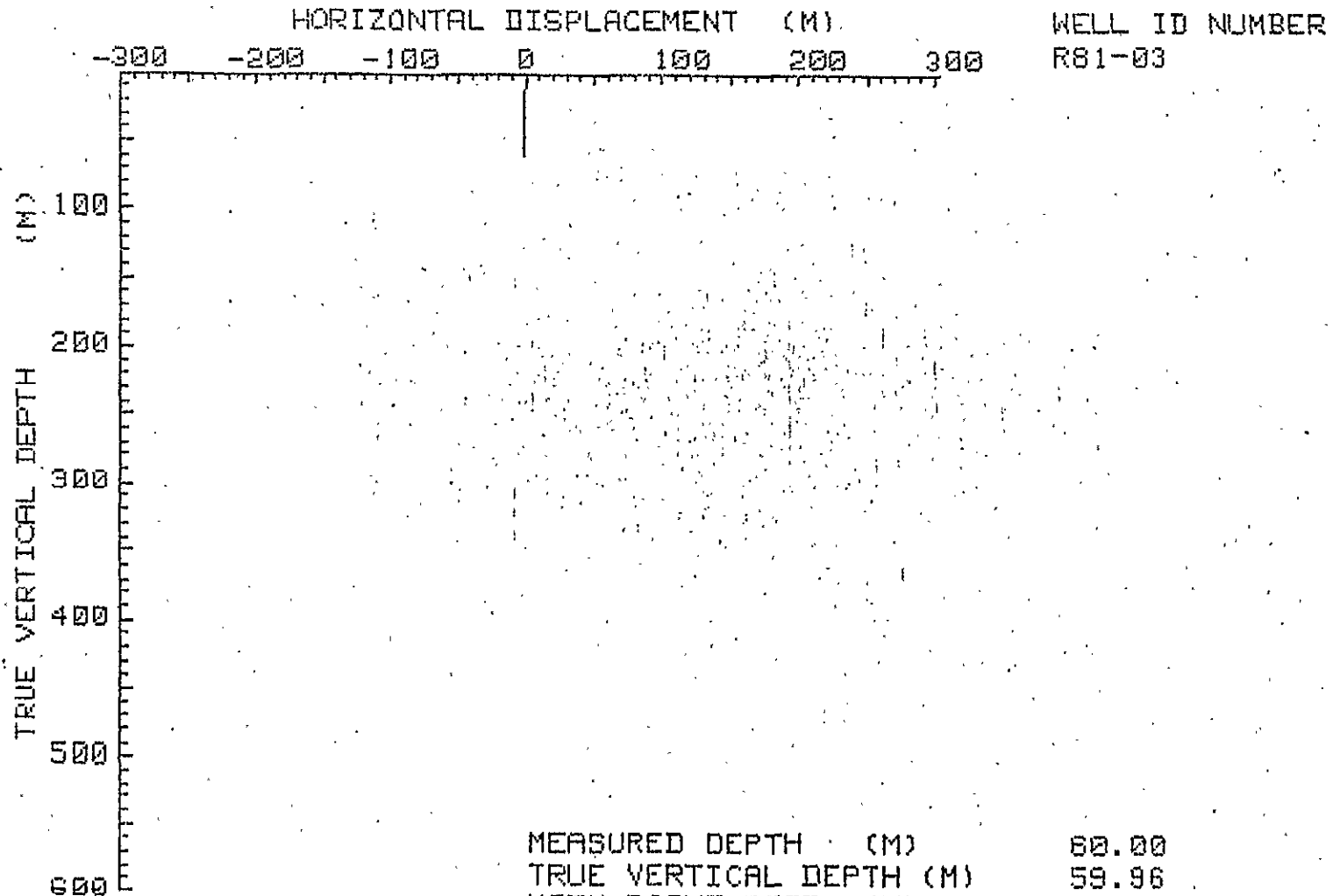
PLAN VIEW

WELL ID NUMBER
R81-03



FINAL COORDINATES(M) N-.85
E-2.07
HORIZONTAL DISP. (M) -2.06

DISPLACEMENT

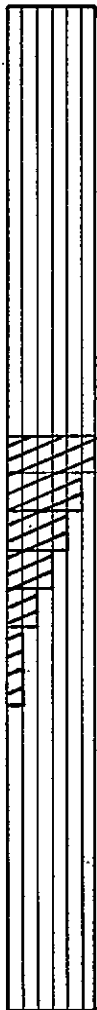


MEASURED DEPTH (M)	60.00
TRUE VERTICAL DEPTH (M)	59.96
VIEW POINT DISP. (M)	-2.06
SECTION LINE BEARING	45.00

SEAM
COMP.

COAL
SEAM
LOG

- LITHOTYPE
- C-1: Bright 80% Vitrain
 - C-2: Bright banded 60-80% Vitrain
 - C-3: Dull/Bright 40-60% Vitrain
 - C-4: Dull banded 20-40% Vitrain
 - C-5: Dull 20% Vitrain
 - C-6: Bone



- breccia
- carbonaceous claystone
- claystone
- coaly claystone
- conglomerate
- sandstone
- siltstone
- silty claystone
- tuff
- coal
- coal-boney, stoney, coal and bands/rock - designated "C6"
- rock > coal lithotype uncertain
- coal } MISSING CORE
- rock }
- rock
- coal

CORED HOLE
GEOPHYSICALLY
LOGGED
LITHOLOGY
DESCRIBED

UNCORED HOLE
GEOPHYSICAL
LOGS ONLY

GULF CANADA RESOURCES INC.
Coal Division
CALGARY ALBERTA



LEGEND FOR COAL
SEAM DATA SHEETS

PREPARED BY: V.O. SCALE 1:40
APPROVED BY: DATE: JAN. 82 DRAWING No.

82/01/12

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

PAGE 1

PROJECT: GDR BLOCK: XX DATA SOURCE: RDH81003

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	3.04	3.04			OVERBURDEN	CASED
	3.04	42.86	39.82			ROCK	
	42.86	45.20	2.34		B1	COAL	
	45.20	48.31	3.11			ROCK	
	48.31	49.19	0.88			COAL	
	49.19	201.17	151.98			ROCK	T.D. 201.17 M

R D H 81-04
(GOODRICH EAST)

GCRI - COAL DIVISION - DATA SOURCE RECORD

PROJECT: GDR BLOCK: ___ DATA SOURCE: RDH81004

HISTORY

DY MO YR DY MO YR
 START DATE: 12/07/81 END DATE: 13/07/81 OPERATOR: GULF CANADA RES.
 CONTRACTOR: ALBERTA SOUTHERN GEOLOGIST: _____ SURVEYOR: D. WATSON
 REMARKS: _____

LOCATION

PROVINCE: B.C. ELEVATION: 1173.55
 UTM ZONE: 10 NORTH: 6140306.96 EAST: 554671.19
 LAT&LONG LATITUDE: _____ LONGITUDE: _____
 DLS-ALTA NORTH: . EAST: . LSD: . SEC: . TWP: . RGE: . MER: .
 NIS-BC NORTH: . EAST: . QUAD: . UNIT: . BLK: . ST: . MUS: . MS: .

DIMENSIONS AND ORIENTATION

LENGTH: 222.00 INCLINATION: -90.0 AZIMUTH: 000.0
 SIZE WIDTH: . SIZE HEIGHT: .
 ROOF STRIKE: . DIP: . FLOOR STRIKE: . DIP: .

DRILL HOLE STATUS

CASING DEPTH: 2.50 CEMENTED: . PLUGGED: . PEIZOMETERS INSTALLED: .
 AQUIFER DEPTHS: . . . LOST CIRCULATION DEPTHS: . . .

GEOPHYSICAL LOGGING

	LOG RUN	SCALE 1	SCALE 2	DIGITIZED	TRUE THICKNESS	OPEN HOLE	THRU RODS	TOOL NUMBER
GAMMA	X	1:100	:	---	---	X	---	125A
NEUTRON	X	1:100	:	---	---	X	---	125A
DENSITY	X	1:100	1:40	---	---	X	---	247AS
CALIPER	X	1:100	:	---	---	X	---	785
FE-SHORT	---	:	:	---	---	---	---	---
FE-LONG	X	1:100	:	---	---	X	---	9
DIRECTIONAL	X	:	:	---	---	X	---	---
DIPMETER	---	:	:	---	---	---	---	---

*** COAL DIVISION ***

DATA SOURCE: R81-04

INTERVAL OF INTERPOLATION 10 UNIT(S)

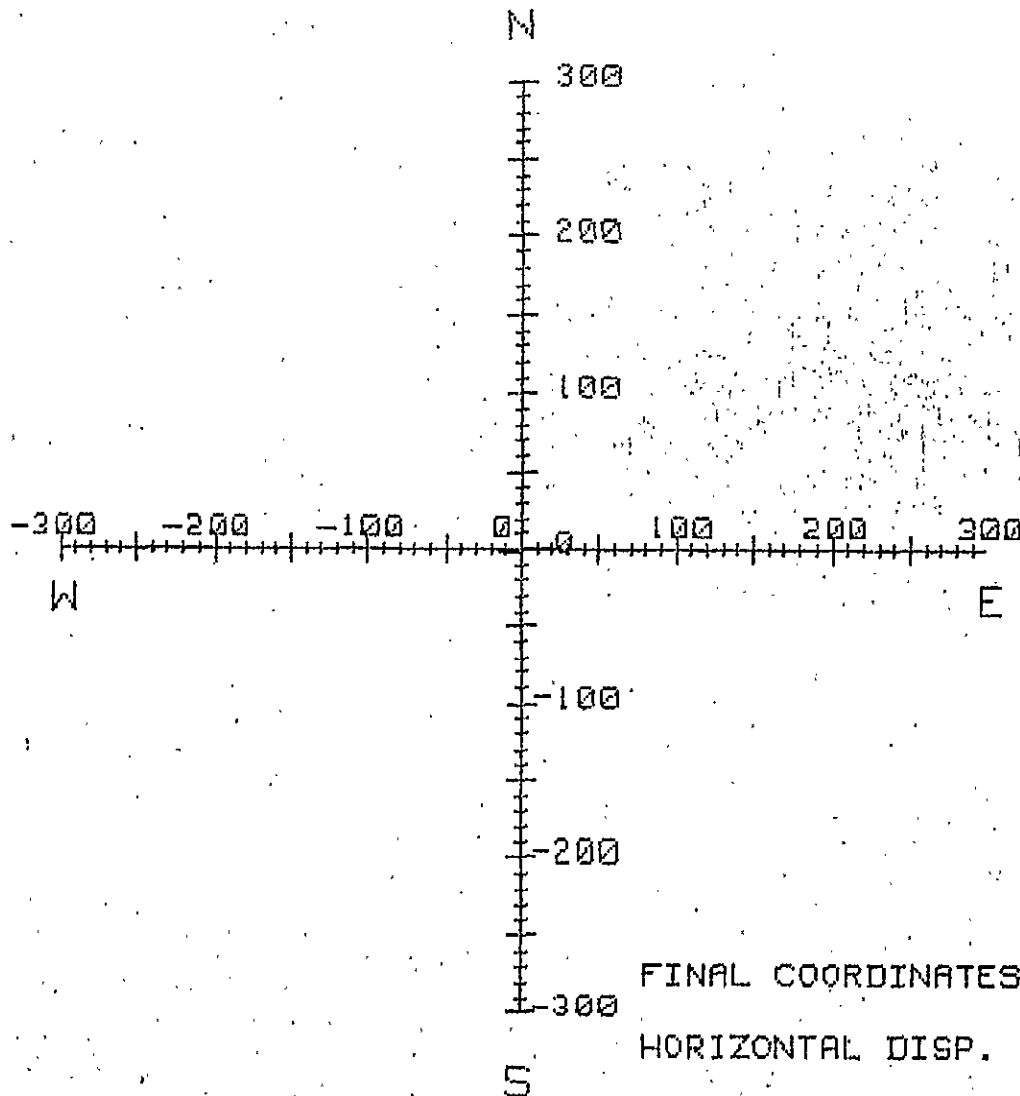
VIEWPOINT: 45.0 DEGREES

DIRECTIONAL SURVEY - INPUT PARAMETERS

MEAS. - DEPTH(M)	SLANT	AZIMUTH
0.00	3.10	240.60
45.00	3.10	240.60
60.00	3.10	259.70
75.00	4.00	274.20
90.00	3.97	264.60
105.00	4.10	266.40
120.00	4.30	278.50
135.00	4.10	264.20
150.00	4.90	260.90
165.00	5.80	267.70
180.00	5.40	286.30
195.00	5.40	283.60
210.00	4.30	257.80

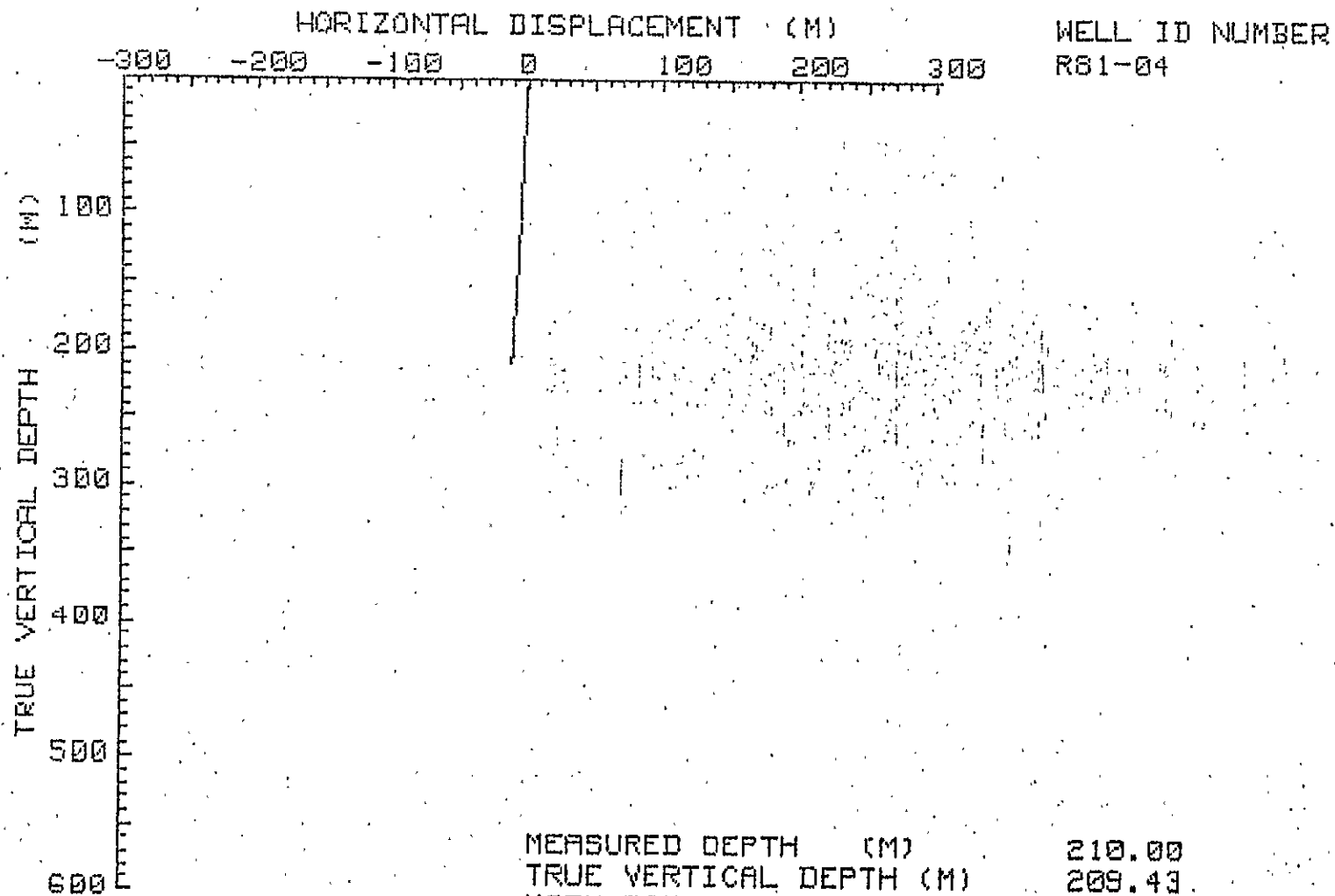
PLAN VIEW

WELL ID NUMBER
R81-04



FINAL COORDINATES (M) N-1.22
E-14.66
HORIZONTAL DISP. (M) -11.23

DISPLACEMENT

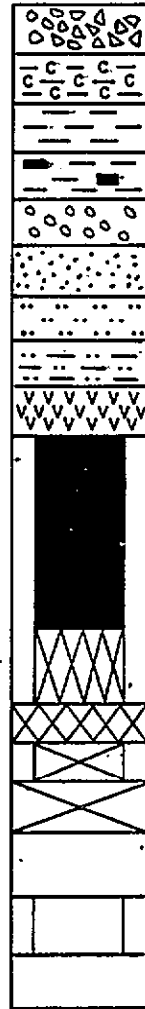
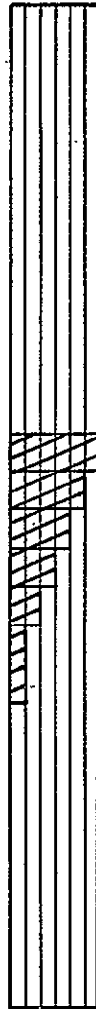


SEAM
COMP.

COAL
SEAM
LOG.

LITHOTYPE

- C-1: Bright 80% Vitrain
- C-2: Bright banded 60-80% Vitrain
- C-3: Dull/Bright 40-60% Vitrain
- C-4: Dull banded 20-40% Vitrain
- C-5: Dull 20% Vitrain
- C-6: Bone



- breccia
- carbonaceous claystone
- claystone
- coaly claystone
- conglomerate
- sandstone
- siltstone
- silty claystone
- tuff
- coal
- coal-boney, stoney, coal and bands/rock - designated "C6"
- rock } coal lithotype uncertain
- coal } MISSING CORE
- rock }
- coal

CORED HOLE
GEOPHYSICALLY
LOGGED
LITHOLOGY
DESCRIBED

UNCORED HOLE
GEOPHYSICAL
LOGS ONLY

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



LEGEND FOR COAL
SEAM DATA SHEETS

PREPARED BY: V.O.

SCALE 1:40

APPROVED BY:

DATE: JAN. 82

DRAWING No.

82/01/12

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

PAGE 1

PROJECT: GDR BLOCK: XX DATA SOURCE: RDH81004

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
	0.00	3.04	3.04			OVERBURDEN	CASING
	3.04	37.75	34.71			ROCK	
	37.75	39.54	1.79		81	COAL	
	39.54	46.04	6.50			ROCK	
	46.04	46.96	0.92			COAL	POSSIBLY CAVED TOP AND BOTTOM OF SEAM;
	46.96	224.03	177.07			ROCK	T.D. 224.03 M

RDH 81-05
(GOODRICH EAST)

GCRI -- COAL DIVISION -- DATA SOURCE RECORD

PROJECT: GDR BLOCK: ___ DATA SOURCE: RDH81005

HISTORY

START DATE: 13/07/81 END DATE: 14/07/81 OPERATOR: GULF CANADA RES.
 CONTRACTOR: ALBERTA SOUTHERN GEOLOGIST: _____ SURVEYOR: D. WATSON
 REMARKS: _____

LOCATION

PROVINCE: B.C. ELEVATION: 1071.00
 UTM ZONE: 10 NORTH: 6139687.54 EAST: 555118.65
 LAT&LONG LATITUDE: _____ LONGITUDE: _____
 DLS-ALFA NORTH: _____ EAST: _____ LSD: _____ SEC: _____ TWP: _____ RGE: _____ MER: _____
 NIS-BC NORTH: _____ EAST: _____ QUAD: _____ UNIT: _____ BLK: _____ ST: _____ MUS: _____ MS: _____

DIMENSIONS AND ORIENTATION

LENGTH: 211.00 INCLINATION: -90.0 AZIMUTH: 000.0
 SIZE WIDTH: _____ SIZE HEIGHT: _____
 ROOF STRIKE: _____ DIP: _____ FLOOR STRIKE: _____ DIP: _____

DRILL HOLE STATUS

CASING DEPTH: 18.50 CEMENTED: _____ PLUGGED: _____ PEIZOMETERS INSTALLED: _____
 AQUIFER DEPTHS: _____ LOST CIRCULATION DEPTHS: _____

GEOPHYSICAL LOGGING

	LOG RUN	SCALE 1	SCALE 2	DIGITIZED	TRUE THICKNESS	OPEN HOLE	THRU RODS	TOOL NUMBER
GAMMA	X	1:100	:	---	---	X	---	125A
NEUTRON	X	1:100	:	---	---	X	---	125A
DENSITY	X	1:100	:	---	---	X	---	247AS
CALIPER	X	1:100	:	---	---	X	---	785
FE-SHORT		:	:	---	---		---	
FE-LONG	X	1:100	:	---	---	X	---	10
DIRECTIONAL	X	:	:	---	---	X	---	
DIPMETER		:	:	---	---		---	

*** COAL DIVISION ***

DATA SOURCE: R81-05

INTERVAL OF INTERPOLATION 10 UNIT(S)

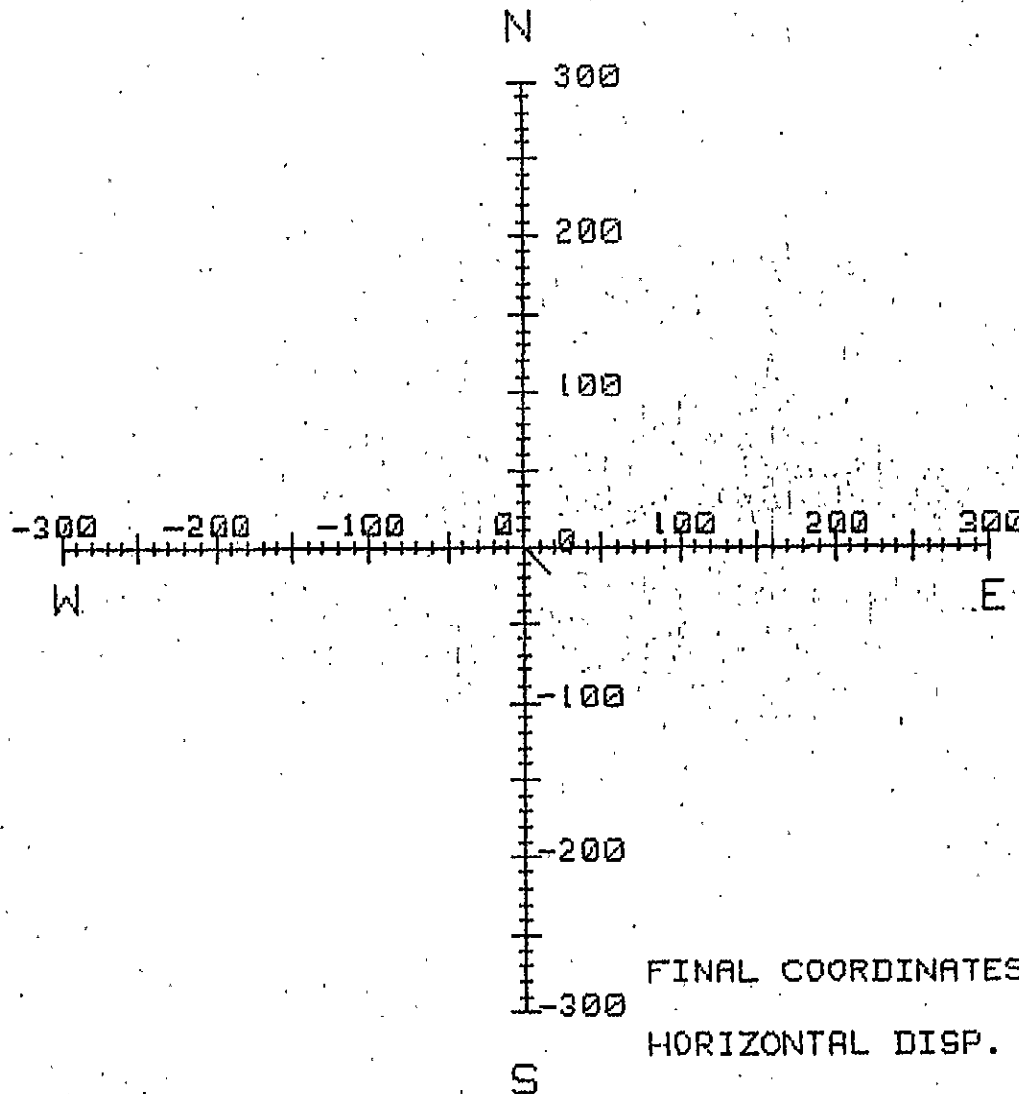
VIEWPOINT: 45.0 DEGREES

DIRECTIONAL SURVEY - INPUT PARAMETERS

MEAS. DEPTH(M)	SLANT	AZIMUTH
0.00	4.70	131.10
30.00	4.70	131.10
45.00	5.40	128.40
60.00	5.80	138.30
75.00	5.80	140.40
90.00	5.80	126.60
105.00	6.30	138.10
120.00	6.50	139.10
135.00	6.80	140.20
150.00	6.30	137.40
165.00	6.60	139.50
180.00	7.70	122.00
195.00	9.90	138.80
210.00	10.30	140.10

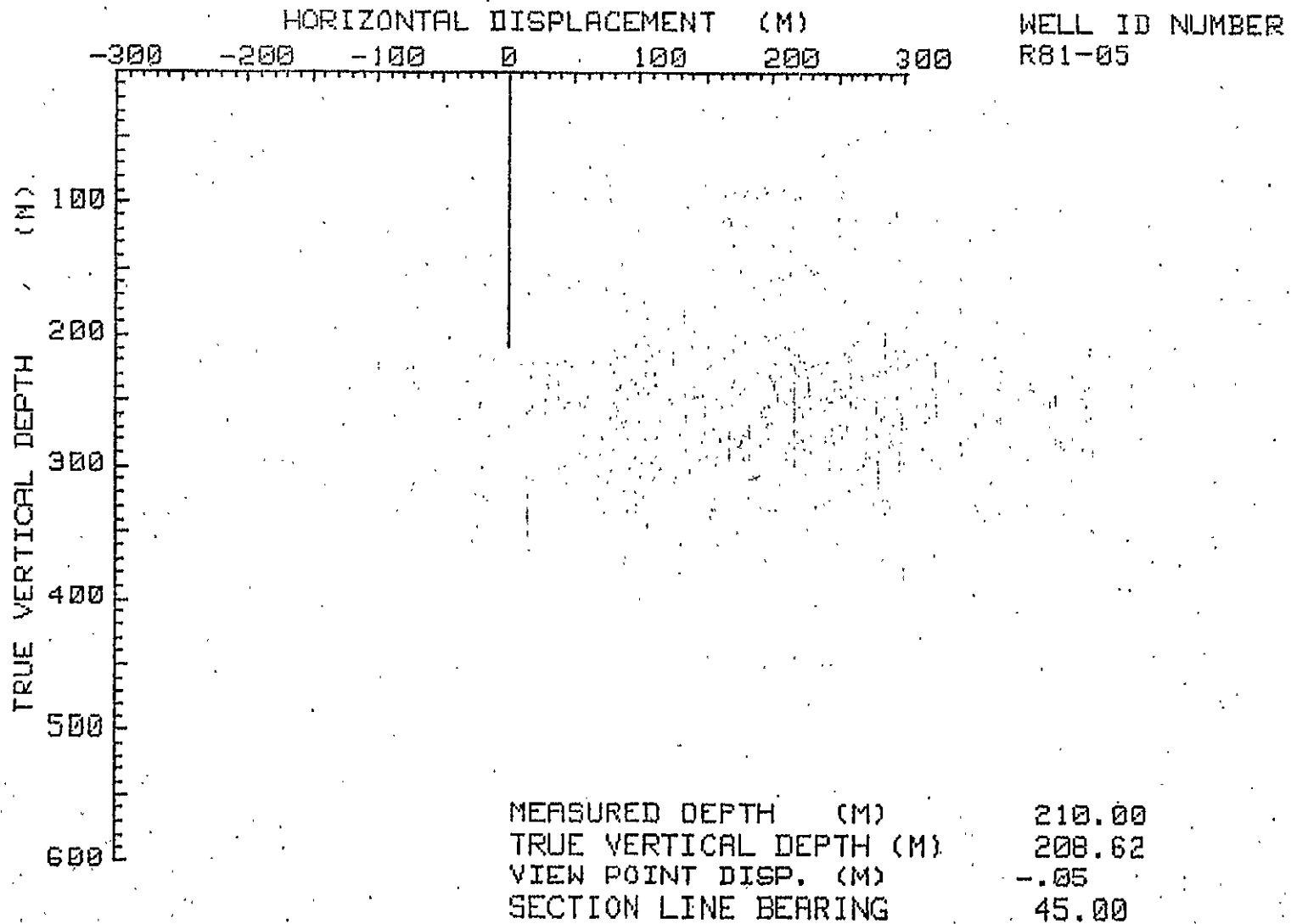
PLAN VIEW

WELL ID NUMBER
R81-05



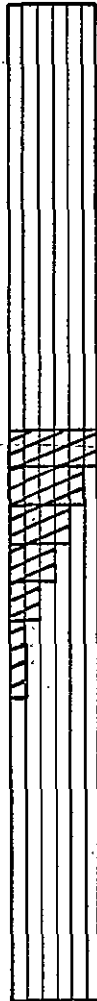
FINAL COORDINATES (M) N-16.53
E 16.46
HORIZONTAL DISP. (M) -.05

DISPLACEMENT



SEAM
COMP

COAL
SEAM
LOG



breccia
 carbonaceous claystone
 claystone
 coaly claystone
 conglomerate
 sandstone
 siltstone
 silty claystone
 tuff

 coal

 coal - boney, stoney, coal and bands/rock - designated "C6"
 rock } coal lithotype uncertain
 coal } MISSING CORE
 rock }

 rock

 coal

CORED HOLE
 GEOPHYSICALLY LOGGED
 LITHOLOGY DESCRIBED

 UNCORED HOLE
 GEOPHYSICAL LOGS ONLY

LITHOTYPE

- C-1: Bright 80% Vitrain
- C-2: Bright banded 60-80 % Vitrain
- C-3: Dull/Bright 40-60 % Vitrain
- C-4: Dull banded 20-40 % Vitrain
- C-5: Dull 20 % Vitrain
- C-6: Bone

GULF CANADA RESOURCES INC.		
<small>Coal Division</small>		
<small>CALGARY</small>	<small>ALBERTA</small>	
 LEGEND FOR COAL SEAM DATA SHEETS 		
<small>PREPARED BY: V.O.</small>		<small>SCALE 1:40</small>
<small>APPROVED BY:</small>		<small>DATE: JAN. 82 DRAWING No.</small>

COAL SEAM DATA SHEET

GULF CANADA RESOURCES INC.
COAL DIVISION

P-267 (12-80)

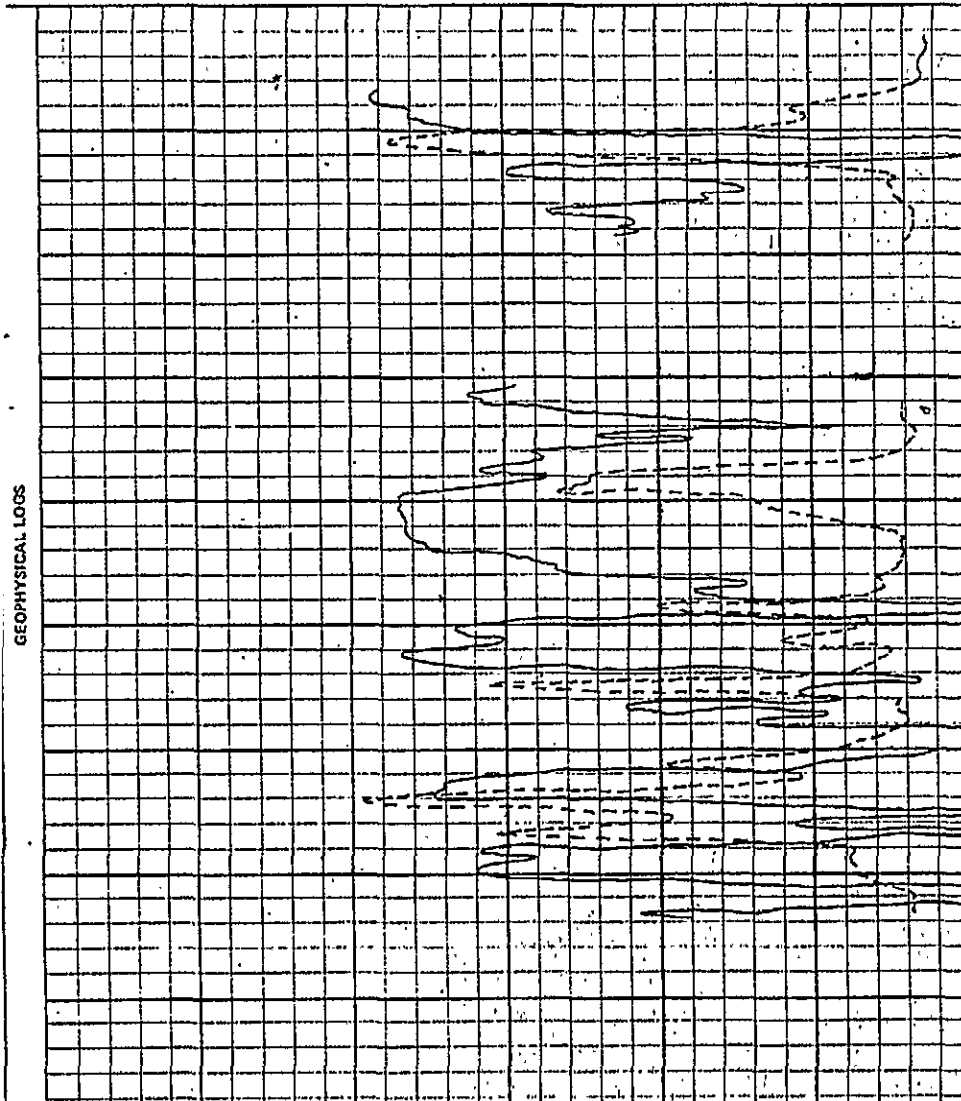
DENSITY RESISTIVITY

DRILL NO. GDR-RDH-81-05 SEAM

SEAM INTERVAL 67.31 - 68.05m
146.72 - 147.67m
153.26 - 154.15m

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			
	67.31			0.74m													
	68.05																
	146.72			0.95													
	147.67																
	153.26			0.89m													
	154.15																

GEOPHYSICAL LOGS

82/01/12

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

PAGE 1

PROJECT: GDR BLOCK: XX DATA SOURCE: RDH81005

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
	0.00	18.29	18.29			OVERBURDEN	
	18.29	145.55	127.26			ROCK	
	145.55	146.50	0.95			COAL	
	146.50	153.58	7.08			ROCK	
	153.58	154.42	0.84			COAL	
	154.42	219.45	65.03			ROCK	T.D. 219.45 M

RDH 81-06

GCRI - COAL DIVISION - DATA SOURCE RECORD

PROJECT: GDR BLOCK: _____ DATA SOURCE: RDH81006

HISTORY

DY MO YR . DY MO YR
 START DATE: 08/08/81 END DATE: 10/08/81 OPERATOR: GULF CANADA RES.
 CONTRACTOR: ALBERTA SOUTHERN GEOLOGIST: _____ SURVEYOR: D. WATSON
 REMARKS: WATER FLOWS: 5 GPM AT 76.20 M, 30 GPM AT 103.36 M, 20 GPM AT
 155.45 M, 65 GPM AT 286.50 M.

LOCATION

PROVINCE: B.C. ELEVATION: 1029.73
 UTM ZONE: 10 NORTH: 6139524.98 EAST: 551001.84
 LAT&LONG LATITUDE: _____ LONGITUDE: _____
 DLS-ALTA NORTH: _____ EAST: _____ LSD: _____ SEC: _____ TWP: _____ RGE: _____ MER: _____
 NIS-BC NORTH: _____ EAST: _____ QUAD: _____ UNIT: _____ BLK: _____ ST: _____ MUS: _____ MS: _____

DIMENSIONS AND ORIENTATION

LENGTH: 286.50 INCLINATION: -90.0 AZIMUTH: 000.0
 SIZE WIDTH: _____ SIZE HEIGHT: _____
 ROOF STRIKE: _____ DIP: _____ FLOOR STRIKE: _____ DIP: _____

DRILL HOLE STATUS

CASING DEPTH: 41.50 CEMENTED: _____ PLUGGED: _____ PEIZOMETERS INSTALLED: _____
 AQUIFER DEPTHS: _____ LOST CIRCULATION DEPTHS: _____

GEOPHYSICAL LOGGING

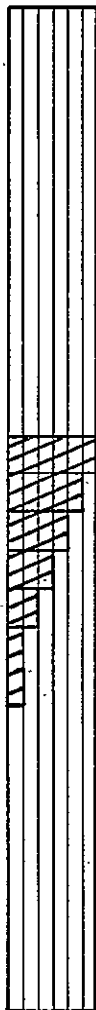
	LOG RUN	SCALE 1	SCALE 2	DIGITIZED	TRUE THICKNESS	OPEN HOLE	THRU RODS	TOOL NUMBER
GAMMA	X	1:100	:	—	—	X	X	125A
NEUTRON	X	1:100	:	—	—	X	X	125A
DENSITY	X	1:100	1:40	—	—	X	—	422AS
CALIPER	X	1:100	:	—	—	X	—	785
FE-SHORT	—	:	:	—	—	—	—	—
FE-LONG	X	1:100	1:40	—	—	X	—	9
DIRECTIONAL	—	:	:	—	—	—	—	—
DIPMETER	—	:	:	—	—	—	—	—

SEAM
COMP

COAL
SEAM
LOG

LITHOTYPE

- C-1: Bright 80% Vitrain
- C-2: Bright banded 60-80% Vitrain
- C-3: Dull/Bright 40-60% Vitrain
- C-4: Dull banded 20-40% Vitrain
- C-5: Dull 20% Vitrain
- C-6: Bone



- breccia
- carbonaceous claystone
- claystone
- coaly claystone
- conglomerate
- sandstone
- siltstone
- silty claystone
- tuff

coal

coal-boney, stoney,
coal and bands/rock
- designated 'C6'

rock } coal
lithotype uncertain

coal } MISSING
rock } CORE

rock

coal

CORED HOLE
GEOPHYSICALLY
LOGGED
LITHOLOGY
DESCRIBED

UNCORED HOLE
GEOPHYSICAL
LOGS ONLY

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



LEGEND FOR COAL
SEAM DATA SHEETS

PREPARED BY: V.O.

SCALE 1:40

APPROVED BY:

DATE: JAN. 82

DRAWING No.

82/01/12

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

PAGE 1

PROJECT: GDR BLOCK: XX DATA SOURCE: RDH81006

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	41.76	41.76			OVERBURDEN	CASED
	41.76	167.25	125.49			ROCK	WATERFLOW 5 GPM AT 76.20 M, 30 GPM AT 103.36 M, 20 GPM AT 155.45 M.
	167.25	168.64	1.59		1	COAL	
	168.84	172.73	3.89			ROCK	
	172.73	173.61	0.88		1	COAL	
	173.61	286.51	112.90			ROCK	T.D. 286.51 M. WATERFLOW 65 GPM.

RDH 81-07

GCRI - COAL DIVISION - DATA SOURCE RECORD

PROJECT: GDR BLOCK: ___ DATA SOURCE: RDH81007

HISTORY

DY MO YR DY MO YR
 START DATE: 23/08/81 END DATE: 28/08/81 OPERATOR: GULF CANADA RES.
 CONTRACTOR: ALBERTA SOUTHERN GEOLOGIST: _____ SURVEYOR: D. WATSON
 REMARKS: WATER FLOWS: 21 GPM AT 30.48 M, 30 GPM AT 91.43 M, 75 GPM AT
 152.39 M, 100 GPM AT 167.63 M, 150 GPM AT 198.11 M.

LOCATION

PROVINCE: B.C. ELEVATION: 1030.85
 UTM ZONE: 10 NORTH: 6139469.70 EAST: 550927.57
 LAT&LONG LATITUDE: _____ LONGITUDE: _____
 DLS-ALTA NORTH: . EAST: . LSD: _____ SEC: _____ TWP: _____ RGE: _____ MER: _____
 NTS-BC NORTH: . EAST: . QUAD: _____ UNIT: _____ BLK: _____ ST: _____ MUS: _____ MS: _____

DIMENSIONS AND ORIENTATION

LENGTH: 317.00 INCLINATION: -90.0 AZIMUTH: 000.0
 SIZE WIDTH: . SIZE HEIGHT: .
 ROOF STRIKE: _____ DIP: _____ FLOOR STRIKE: _____ DIP: _____

DRILL HOLE STATUS

CASING DEPTH: 30.50 CEMENTED: _____ PLUGGED: _____ PEIZOMETERS INSTALLED: _____
 AQUIFER DEPTHS: LOST CIRCULATION DEPTHS:

GEOPHYSICAL LOGGING

	LOG RUN	SCALE 1	SCALE 2	DIGITIZED	TRUE THICKNESS	OPEN HOLE	THRU RODS	TOOL NUMBER
GAMMA	X	1:100	:	---	---	X	X	125A
NEUTRON	X	1:100	:	---	---	X	X	125A
DENSITY	X	1:100	1:40	---	---	X	---	422AS
CALIPER	X	1:100	:	---	---	X	---	785
FE-SHORT		:	:	---	---	---	---	---
FE-LONG	X	1:100	1:40	---	---	X	---	9
DIRECTIONAL	X	::	:	---	---	X	---	---
DIPMETER		:	:	---	---	---	---	---

*** COAL DIVISION ***

DATA SOURCE: RB1-07

INTERVAL OF INTERPOLATION 10 UNIT(S)

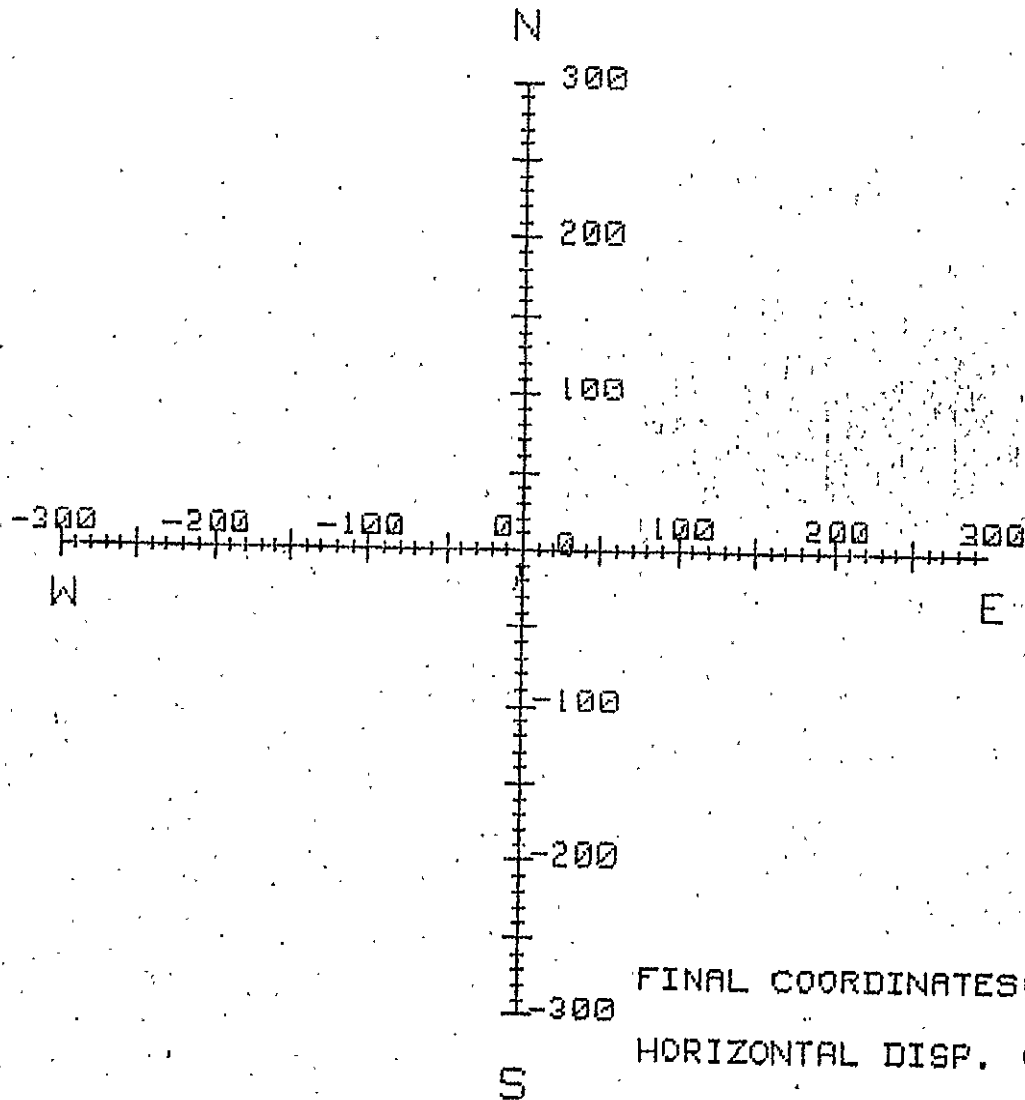
VIEWPOINT: 45.0 DEGREES

DIRECTIONAL SURVEY - INPUT PARAMETERS

MEAS. DEPTH(M)	SLANT	AZIMUTH
-----	-----	-----
0.00	2.20	185.60
45.00	2.20	185.60
60.00	2.50	183.60
75.00	2.60	186.10
90.00	2.90	188.40
105.00	3.20	183.80
120.00	3.70	185.10
135.00	4.10	185.00
150.00	4.30	190.50
165.00	4.90	192.50
180.00	5.10	190.10
195.00	5.30	192.00
210.00	5.80	189.30
225.00	6.10	195.70
240.00	6.80	189.70
240.00	6.80	193.70
255.00	7.10	195.90
270.00	8.40	194.80
285.00	8.90	191.70
300.00	9.20	195.80
307.00	9.70	197.40

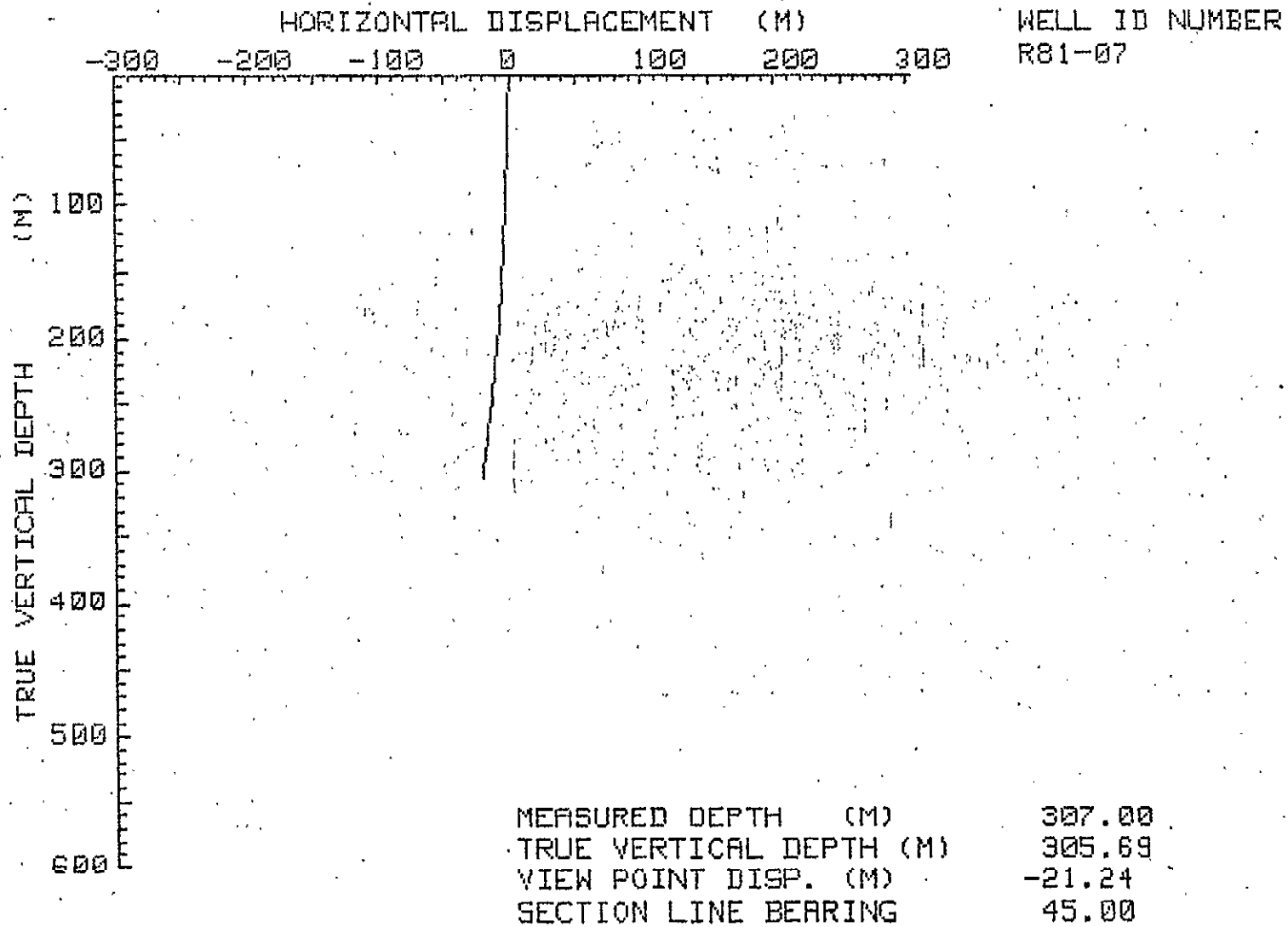
PLAN VIEW

WELL ID NUMBER
R81-07



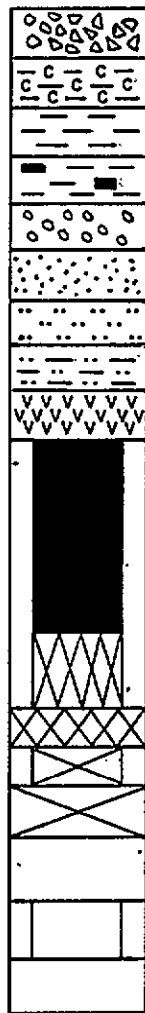
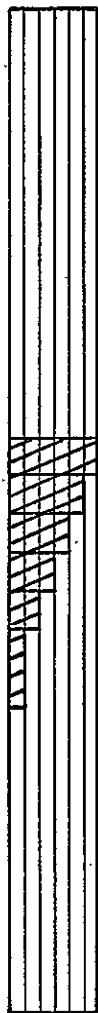
FINAL COORDINATES (M) N-25.18
E-4.86
HORIZONTAL DISP. (M) -21.24

DISPLACEMENT



SEAM
COMP.

COAL
SEAM
LOG



LITHOTYPE

- C-1: Bright 80% Vitrain
- C-2: Bright banded 60-80 % Vitrain
- C-3: Dull/Bright 40-60 % Vitrain
- C-4: Dull banded 20-40 % Vitrain
- C-5: Dull 20 % Vitrain
- C-6: Bone

CORED HOLE
GEOPHYSICALLY
LOGGED
LITHOLOGY
DESCRIBED

UNCORED HOLE
GEOPHYSICAL
LOGS ONLY

GULF CANADA RESOURCES INC.		
Coal Division		
CALGARY	ALBERTA	

LEGEND FOR COAL
SEAM DATA SHEETS

COAL SEAM DATA SHEET

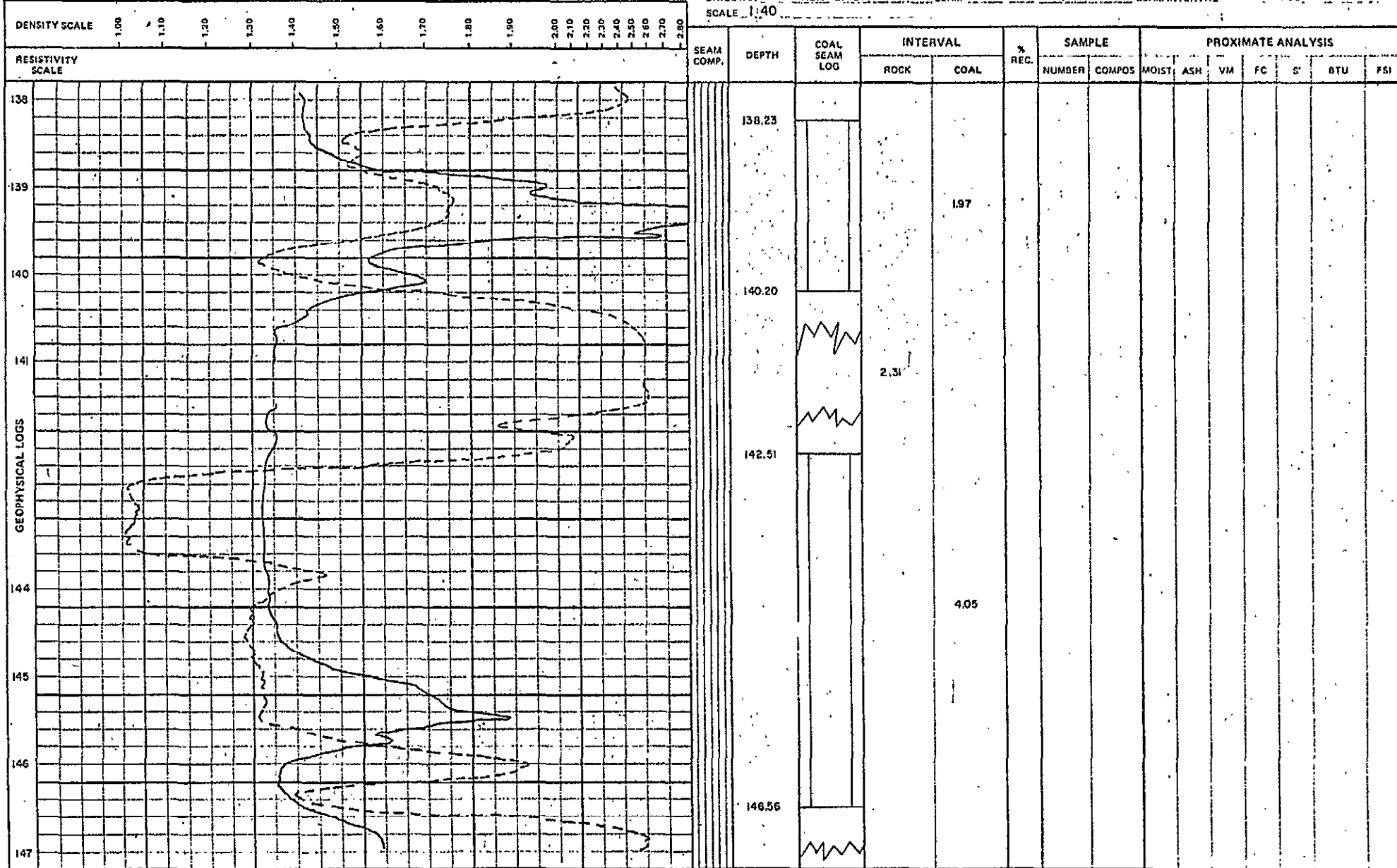
GULF CANADA RESOURCES INC.
COAL DIVISION

P-267 (12/80)

DENSITY RESISTIVITY

DRILL NO. GDR-RDH-81-07 SEAM 1
SCALE 1:40

SEAM INTERVAL 134.07-146.56m



82/01/12

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

PAGE 1

PROJECT: GDR BLOCK: XX DATA SOURCE: RDH81007

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	30.48	30.48			OVERBURDEN	CASED
	30.48	80.90	50.42			ROCK	WATERFLOW 21 GPM AT 30.48 M.
	80.90	82.29	1.39			COAL	
	82.29	134.07	51.78			ROCK	WATERFLOW 30 GPM AT 91.43 M.
	134.07	135.72	1.65		1	COAL	
	135.72	138.23	2.51			ROCK	
	138.23	140.20	1.97		1	COAL	
	140.20	142.51	2.31			ROCK	
	142.51	146.56	4.05		1	COAL	
	146.56	257.53	110.97			ROCK	WATERFLOW 75 GPM AT 152.39 M, 100 GPM AT 167.63 M, 150 GPM AT 198.11 M.
	257.53	262.52	4.99		1	COAL	
	262.52	320.04	57.52			ROCK	POSSIBLE COAL 266--278; BUT CAVED VERY BADLY; T.D. 320.04 M

RDH 81-08

GCRI - COAL DIVISION - DATA SOURCE RECORD

PROJECT: GDR BLOCK: ___ DATA SOURCE: RDH81008

HISTORY

DY MO YR DY MO YR
 START DATE: 19/08/81 END DATE: 22/08/81 OPERATOR: GULF CANADA RES.
 CONTRACTOR: ALBERTA SOUTHERN GEOLOGIST: _____ SURVEYOR: D. WATSON
 REMARKS: WATER FLOWS: 60 GPM AT 152.39 M, 100 GPM AT 262.19 M, 90 GPM AT
 255.90 M.

LOCATION

PROVINCE: B.C. ELEVATION: 1042.25
 UTM ZONE: 10 NORTH: 6139110.61 EAST: 550329.45
 LAT&LONG LATITUDE: _____ LONGITUDE: _____
 DLS-ALTA NORTH: _____ EAST: _____ LSD: _____ SEC: _____ TWP: _____ RGE: _____ MER: _____
 NTS-BC NORTH: _____ EAST: _____ QUAD: _____ UNIT: _____ BLK: _____ ST: _____ MUS: _____ MS: _____

DIMENSIONS AND ORIENTATION

LENGTH: 290.00 INCLINATION: -90.0 AZIMUTH: 000.0
 SIZE WIDTH: _____ SIZE HEIGHT: _____
 ROOF STRIKE: _____ DIP: _____ FLOOR STRIKE: _____ DIP: _____

DRILL HOLE STATUS

CASING DEPTH: 36.50 CEMENTED: _____ PLUGGED: _____ PEIZOMETERS INSTALLED: _____
 AQUIFER DEPTHS: _____ LOST CIRCULATION DEPTHS: _____

GEOPHYSICAL LOGGING

	LOG RUN	SCALE 1	SCALE 2	DIGITIZED	TRUE THICKNESS	OPEN HOLE	THRU RODS	TOOL NUMBER
GAMMA	X	1:100	_____	---	---	X	---	125A
NEUTRON	X	1:100	_____	---	---	X	---	125A
DENSITY	X	1:100	1:40	---	---	X	---	422AS
CALIPER	X	1:100	_____	---	---	X	---	785
FE-SHORT	---	_____	_____	---	---	---	---	_____
FE-LONG	X	1:100	1:40	---	---	X	---	9
DIRECTIONAL	X	_____	_____	---	---	X	---	_____
DIPMETER	---	_____	_____	---	---	---	---	_____

*** COAL DIVISION ***

DATA SOURCE: RB1-08

INTERVAL OF INTERPOLATION 10 UNIT(S)

VIEWPOINT: 45.0 DEGREES

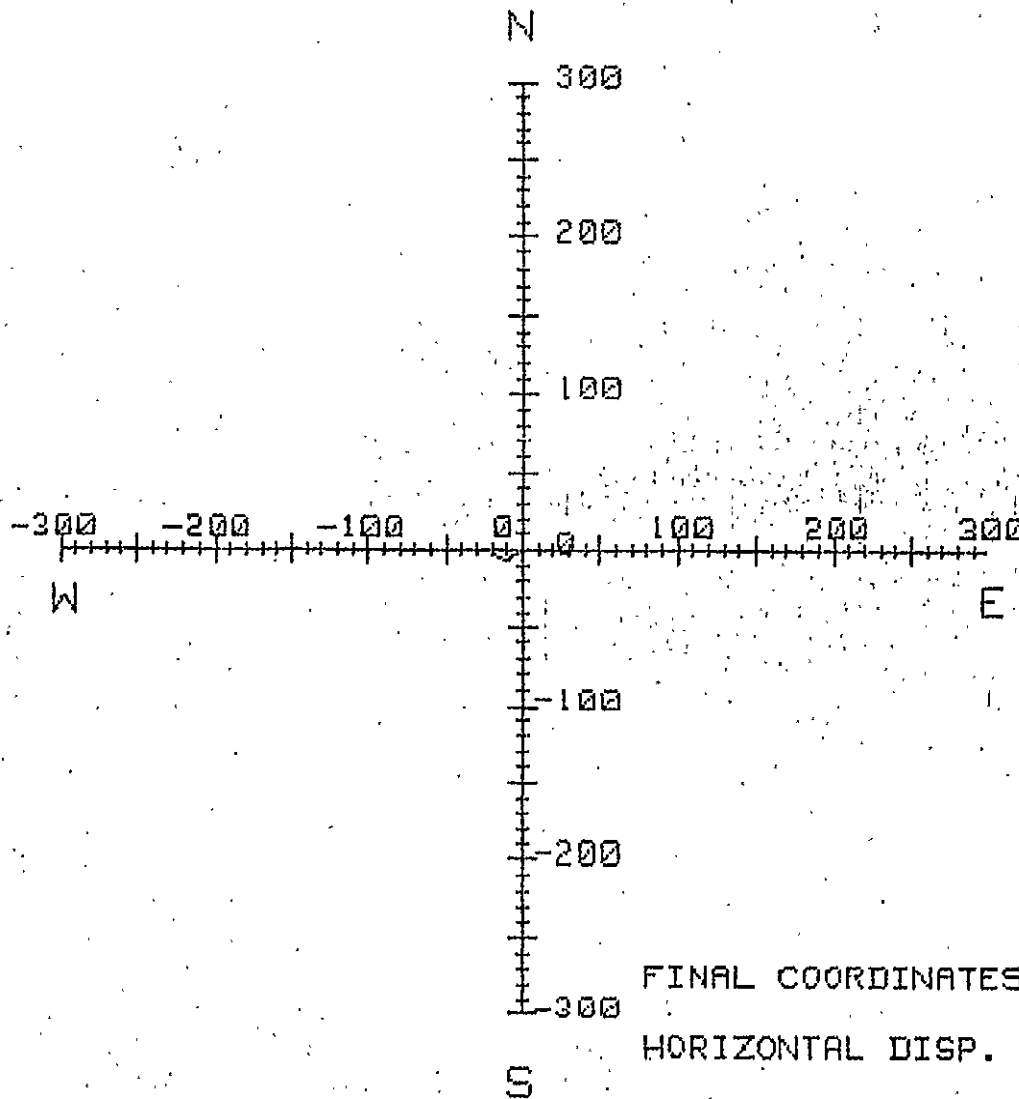
DIRECTIONAL SURVEY - INPUT PARAMETERS

HEAS. DEPTH(M)	SLANT	AZIMUTH
0.00	1.50	237.60
45.00	1.50	237.60
60.00	2.40	247.00
75.00	2.80	210.80
90.00	4.00	239.30
105.00	3.70	227.00
120.00	3.00	257.70
135.00	2.60	225.20
150.00	3.40	243.30
165.00	4.60	223.50
180.00	5.00	203.10
195.00	7.90	261.00
210.00	8.20	268.50
225.00	7.50	264.10
240.00	7.00	295.70
255.00	9.20	308.50
270.00	8.10	299.50
285.00	8.40	295.60
288.00	8.60	288.00

PLAN VIEW

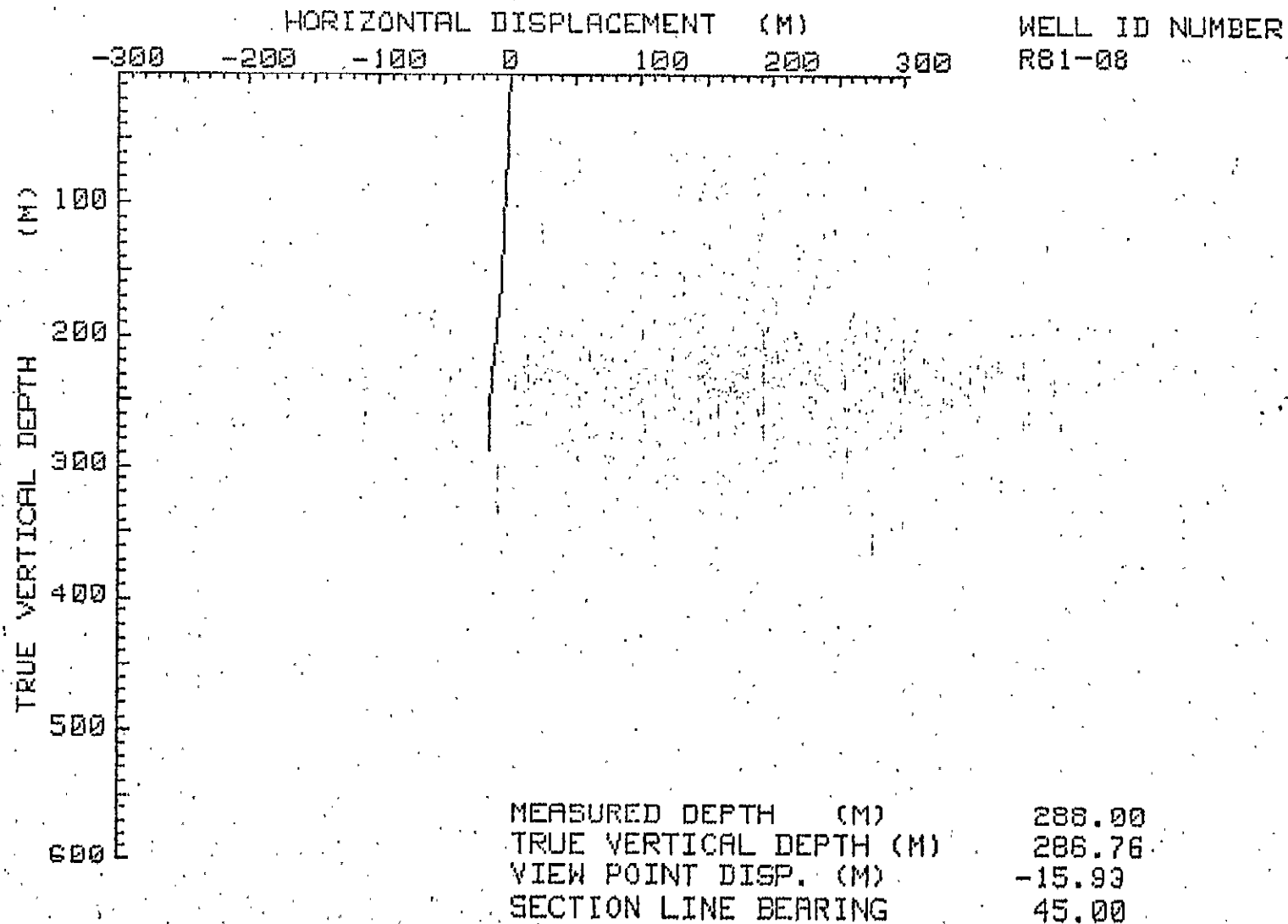
WELL ID NUMBER

R81-00



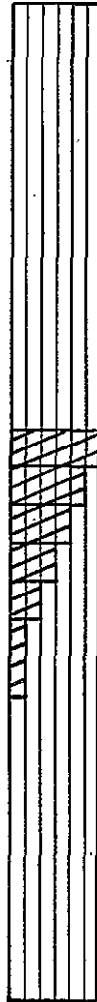
FINAL COORDINATES(M) N-2.54
E-19.99
HORIZONTAL DISP. (M) -15.93

DISPLACEMENT



SEAM
COMPR

COAL
SEAM
LOG



LITHOTYPE

- C-1: Bright 80% Vitrain
- C-2: Bright banded 60-80% Vitrain
- C-3: Dull/Bright 40-60% Vitrain
- C-4: Dull banded 20-40% Vitrain
- C-5: Dull 20% Vitrain
- C-6: Bone

CORED HOLE

GEOPHYSICALLY
LOGGED
LITHOLOGY
DESCRIBED

UNCORED HOLE
GEOPHYSICAL
LOGS ONLY

GULF CANADA RESOURCES INC.

Coal Division

CALGARY

ALBERTA



LEGEND FOR COAL
SEAM DATA SHEETS

PREPARED BY: V.O.

SCALE 1:40

APPROVED BY:

DATE: JAN. 82 DRAWING No.

82/01/12

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

PAGE 1

PROJECT: GDR BLOCK: XX DATA SOURCE: RDH81008

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
	0.00	36.58	36.58			OVERBURDEN	CASED.
	36.58	119.15	82.57			ROCK	
	119.15	120.46	1.31			COAL	
	120.46	128.23	7.77			ROCK	
	128.23	129.38	1.15			COAL	
	129.38	292.61	163.23			ROCK	T.D. 292.61 M. WATERFLOW 60 GPM AT 152.39 M, 100 GPM AT 262.19 M, 90 GPM AT 253.90 M.

RDH 81-09

GCRI - COAL DIVISION - DATA SOURCE RECORD

PROJECT: GDR BLOCK: ___ DATA SOURCE: RDH81009

HISTORY

DY MO YR DY MO YR
 START DATE: 29/08/81 END DATE: 02/09/81 OPERATOR: GULF CANADA RES.
 CONTRACTOR: ALBERTA SOUTHERN GEOLOGIST: _____ SURVEYOR: D. WATSON
 REMARKS: RIG SKIDDED 17-08-81 AND 18-08-81. WATER FLOWS: 5 GPM AT 91.43 M,
 3.6 GPM AT 106.67 M, 10 GPM AT 152.39 M, 30 GPM AT 213.34 M, 60 GPM
 AT 365.74 M.

LOCATION

PROVINCE: B.C. ELEVATION: 1189.86
 UTM ZONE: 10 NORTH: 6140899.00 EAST: 549622.47
 LAT&LONG LATITUDE: _____ LONGITUDE: _____
 DLS-ALTA NORTH: _____ EAST: _____ LSD: _____ SEC: _____ TWP: _____ RGE: _____ MER: _____
 NTS-BC NORTH: _____ EAST: _____ QUAD: _____ UNIT: _____ BLK: _____ ST: _____ MUS: _____ MS: _____

DIMENSIONS AND ORIENTATION

LENGTH: 366.00 INCLINATION: -90.0 AZIMUTH: 000.0
 SIZE WIDTH: _____ SIZE HEIGHT: _____
 ROOF STRIKE: _____ DIP: _____ FLOOR STRIKE: _____ DIP: _____

DRILL HOLE STATUS

CASING DEPTH: 43.60 CEMENTED: _____ PLUGGED: _____ PEIZOMETERS INSTALLED: _____
 AQUIFER DEPTHS: _____ LOST CIRCULATION DEPTHS: _____

GEOPHYSICAL LOGGING

	LOG RUN	SCALE 1	SCALE 2	DIGITIZED	TRUE THICKNESS	OPEN HOLE	THRU RODS	TOOL NUMBER
GAMMA	X	1:100	_____	---	---	X	X	125A
NEUTRON	X	1:100	_____	---	---	X	X	125A
DENSITY	X	1:100	1:40	---	---	X	---	422AS
CALIPER	X	1:100	_____	---	---	X	---	785
FE-SHORT	---	_____	_____	---	---	---	---	_____
FE-LONG	X	1:100	1:40	---	---	X	---	9
DIRECTIONAL	X	_____	_____	---	---	X	---	_____
DIPMETER	---	_____	_____	---	---	---	---	_____

*** COAL DIVISION ***

DATA SOURCE: R81-09

INTERVAL OF INTERPOLATION 10 UNIT(S)

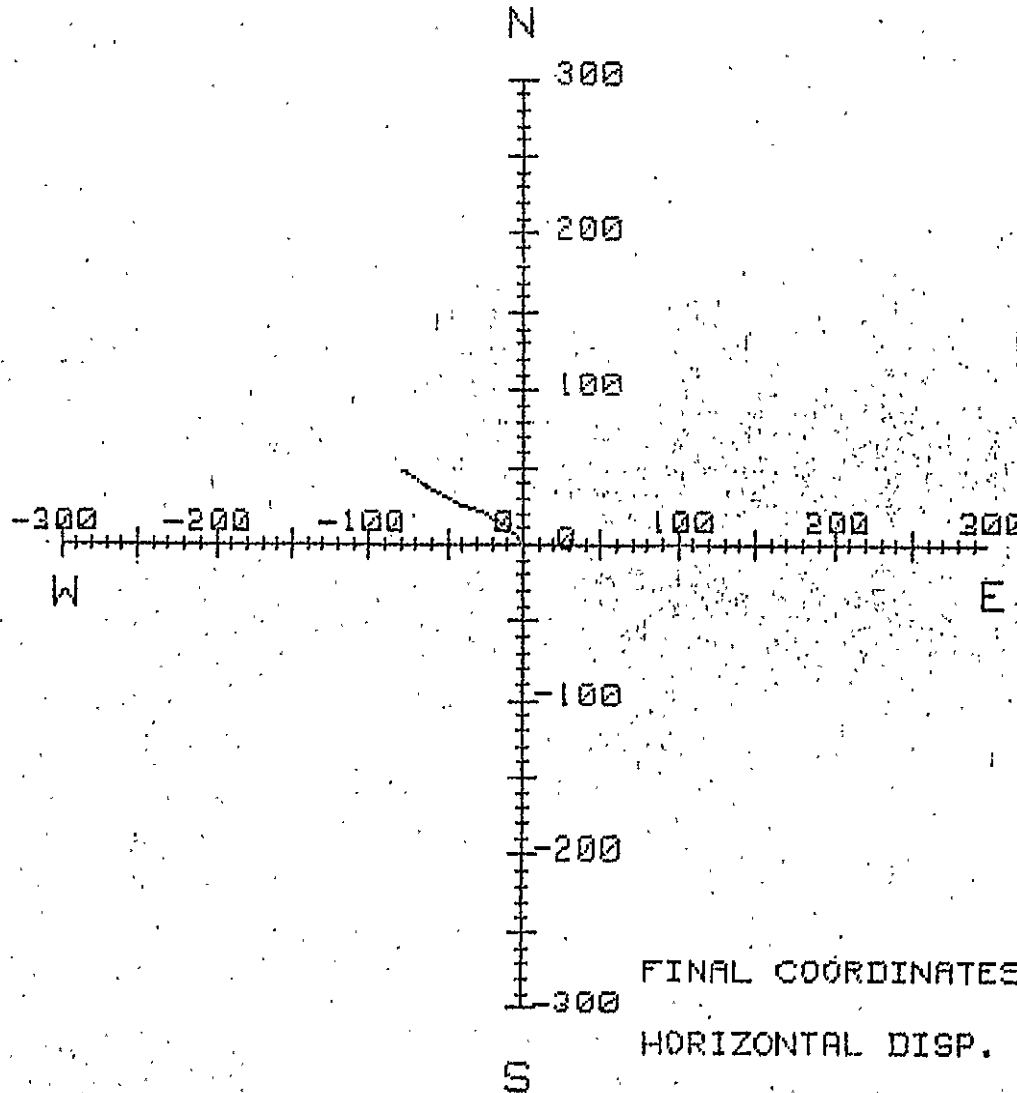
VIEWPOINT: 45.0 DEGREES

DIRECTIONAL SURVEY - INPUT PARAMETERS

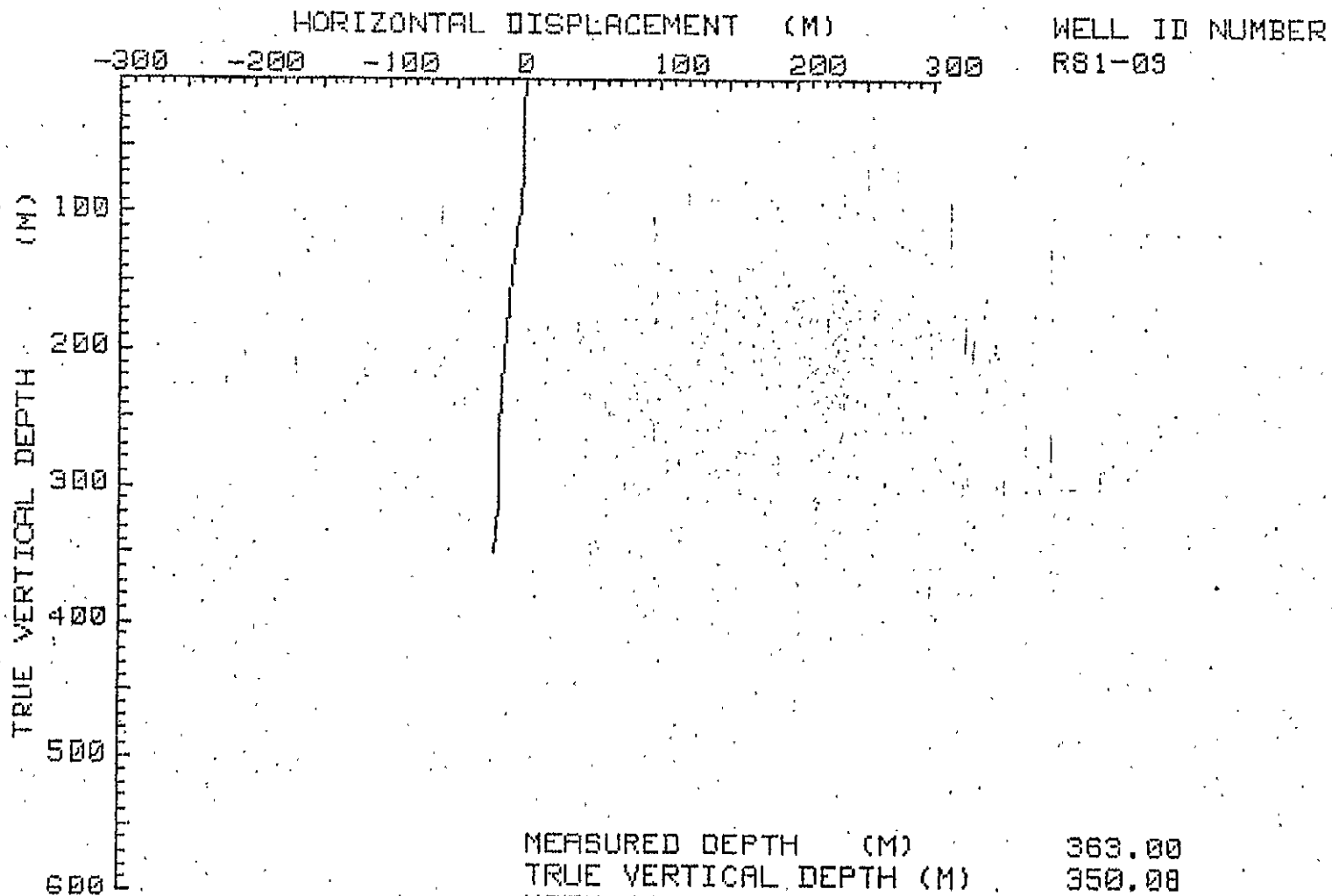
MEAS. DEPTH(M)	SLANT	AZIMUTH
0.00	19.00	319.80
45.00	19.00	319.80
60.00	18.80	293.40
75.00	17.90	292.30
90.00	16.70	305.10
105.00	16.90	287.30
120.00	17.20	288.20
135.00	16.20	297.10
150.00	16.70	285.10
165.00	17.00	297.00
180.00	16.20	297.50
195.00	16.20	298.60
210.00	15.80	300.50
225.00	15.80	295.50
240.00	14.10	295.60
255.00	13.40	305.90
270.00	11.20	310.40
285.00	9.90	313.30
300.00	10.60	302.60
315.00	10.00	303.90
330.00	9.50	314.70
345.00	9.30	277.00
360.00	11.20	293.40
363.00	10.80	290.70

PLAN VIEW

WELL ID NUMBER
R81-09



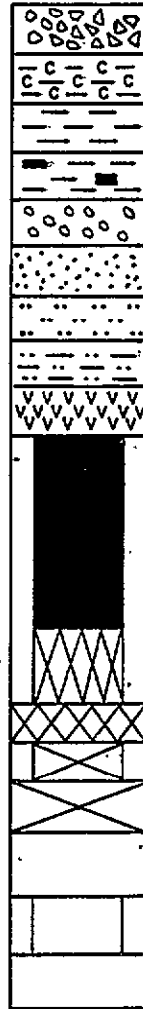
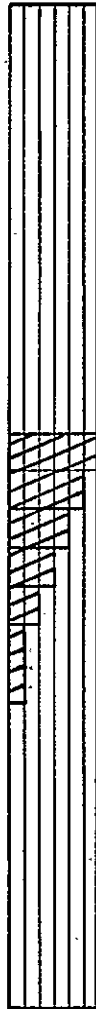
DISPLACEMENT



MEASURED DEPTH (M) 363.00
TRUE VERTICAL DEPTH (M) 350.08
VIEW POINT DISP. (M) -21.95
SECTION LINE BEARING 45.00

SEAM
COMP

COAL
SEAM
LOG



LITHOTYPE

- C-1: Bright 80% Vitrain
- C-2: Bright banded 60-80% Vitrain
- C-3: Dull/Bright 40-60% Vitrain
- C-4: Dull banded 20-40% Vitrain
- C-5: Dull 20% Vitrain
- C-6: Bone

- breccia
- carbonaceous claystone
- claystone
- coaly claystone
- conglomerate
- sandstone
- siltstone
- silty claystone
- tuff

- coal
- coal-boney, stoney, coal and bands/rock - designated 'CS'
- rock } coal lithotype uncertain
- coal } MISSING CORE
- rock }
- rock
- coal

CORED HOLE
GEOPHYSICALLY LOGGED
LITHOLOGY DESCRIBED

UNCORED HOLE
GEOPHYSICAL LOGS ONLY

GULF CANADA RESOURCES INC.		
Coal Division		
CALGARY	ALBERTA	
LEGEND FOR COAL SEAM DATA SHEETS		
PREPARED BY: V.O.	SCALE 1:40	
APPROVED BY:	DATE: JAN. 82	DRAWING No.

82/01/12

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

PAGE 1

PROJECT: GDR BLOCK: XX DATA SOURCE: RDH81009

<u>BCA</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
	0.00	43.59	43.59			OVERBURDEN	CASED
	43.59	75.18	31.59			ROCK	
	75.18	76.13	0.95			COAL	
	76.13	260.99	184.86			ROCK	
	260.99	262.32	1.33			COAL	WATERFLOW 5 GPM AT 91.43 M, 3.6 GPM AT 106.67 M, 10 GPM AT 152.39 M, 30 GPM AT 213.34 M, 60 GPM AT 365.74 M.
	262.32	365.76	103.44			ROCK	T.D. 365.76 M

RDH 81-10

GCRI - COAL DIVISION - DATA SOURCE RECORD

PROJECT: GDR BLOCK: _____ DATA SOURCE: RDH81010

HISTORY

START DATE: 11/08/81 END DATE: 16/08/81 OPERATOR: GULF CANADA RES.
 CONTRACTOR: ALBERTA SOUTHERN GEOLOGIST: _____ SURVEYOR: D. WATSON
 REMARKS: RIG SKIDDED 11-08-81. WATER FLOWS: 30 GPM AT 76.19 M, 60 GPM AT
 121.91 M, 100 GPM AT 140.20 M, 100 GPM AT T.D.

LOCATION

PROVINCE: B.C. ELEVATION: 1226.98
 UTM ZONE: 10 NORTH: 6141416.37 EAST: 548897.84
 LAT&LONG LATITUDE: _____ LONGITUDE: _____
 DLS-ALTA NORTH: _____ EAST: _____ LSD: _____ SEC: _____ TWP: _____ RGE: _____ MER: _____
 NTS-BC NORTH: _____ EAST: _____ QUAD: _____ UNIT: _____ BLK: _____ ST: _____ MUS: _____ MS: _____

DIMENSIONS AND ORIENTATION

LENGTH: 280.00 INCLINATION: -90.0 AZIMUTH: 000.0
 SIZE WIDTH: _____ SIZE HEIGHT: _____
 ROOF STRIKE: _____ DIP: _____ FLOOR STRIKE: _____ DIP: _____

DRILL HOLE STATUS

CASING DEPTH: 25.75 CEMENTED: _____ PLUGGED: _____ PEIZOMETERS INSTALLED: _____
 AQUIFER DEPTHS: _____ LOST CIRCULATION DEPTHS: _____

GEOPHYSICAL LOGGING

LOG RUN	SCALE 1	SCALE 2	DIGITIZED	TRUE THICKNESS	OPEN HOLE	THRU RODS	TOOL NUMBER
GAMMA	X 1:100	:	---	---	---	X	125A
NEUTRON	X 1:100	:	---	---	---	X	125A
DENSITY	X 1:100	1:40	---	---	X	---	422AS
CALIPER	X 1:100	:	---	---	X	---	785
FE-SHORT	:	:	---	---	---	---	---
FE-LONG	X 1:100	1:40	---	---	X	---	9
DIRECTIONAL	X :	:	---	---	X	---	---
DIPMETER	:	:	---	---	---	---	---

*** COAL DIVISION ***

DATA SOURCE: R81-10

INTERVAL OF INTERPOLATION 10 UNIT(S)

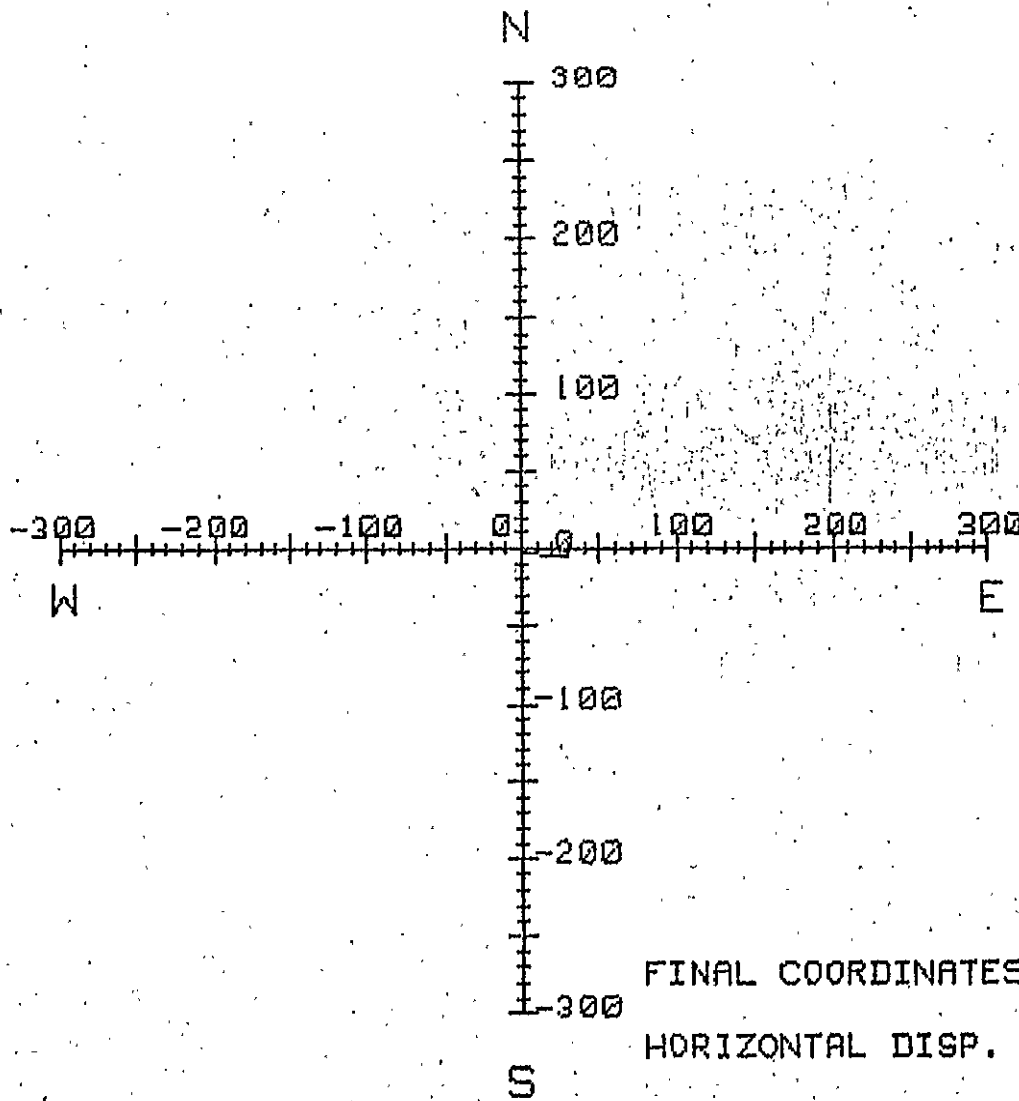
VIEWPOINT: 45.0 DEGREES

DIRECTIONAL SURVEY - INPUT PARAMETERS

MEAS. DEPTH(M)	SLANT	AZIMUTH
0.00	2.40	150.00
30.00	2.40	150.00
45.00	2.30	152.00
60.00	1.80	147.00
75.00	1.60	95.90
90.00	2.60	123.60
105.00	3.20	94.80
120.00	4.30	109.70
135.00	4.90	103.60
150.00	4.90	104.20
165.00	4.80	101.00
180.00	6.10	86.90
195.00	8.80	99.60
210.00	11.30	96.90
225.00	11.70	100.30
240.00	13.40	90.40
255.00	16.40	92.70
270.00	15.40	98.50
278.00	18.70	95.80

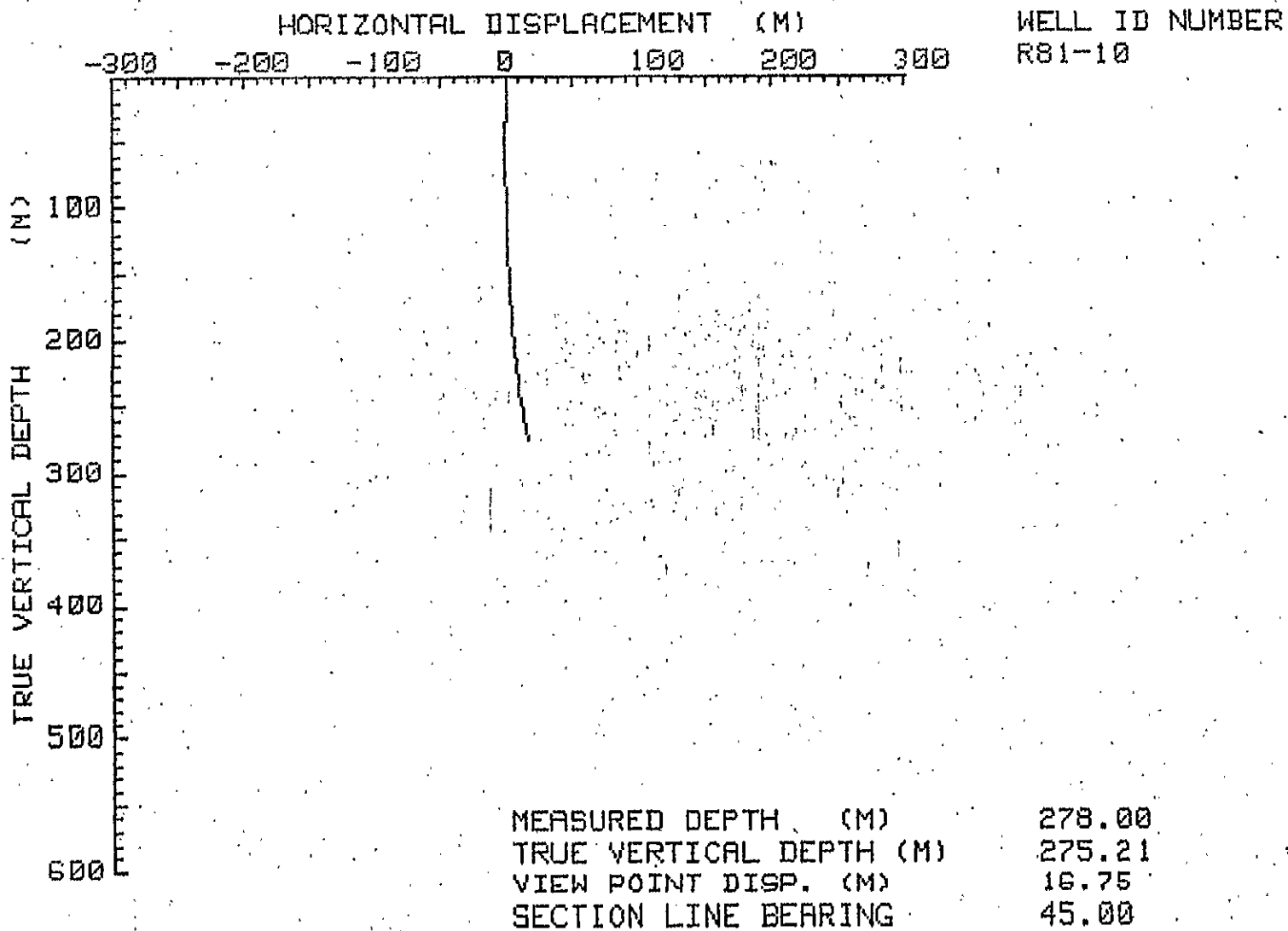
PLAN VIEW

WELL ID NUMBER
R81-10



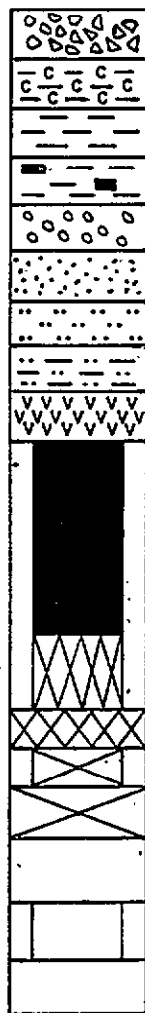
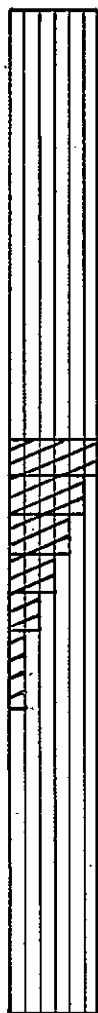
FINAL COORDINATES(M) N-6.00
E 29.69
HORIZONTAL DISP. (M) 16.75

DISPLACEMENT



SEAM
COMP.

COAL
SEAM
LOG



breccia
carbonaceous
claystone
claystone
coaly claystone
conglomerate
sandstone
siltstone
silty claystone
tuff

coal

coal-boney, stoney,
coal and bands/rock
- designated "C6"

rock } coal
lithotype uncertain

coal } MISSING
rock } CORE

rock

coal

CORED HOLE
GEOPHYSICALLY
LOGGED
LITHOLOGY
DESCRIBED

UNCORED HOLE
GEOPHYSICAL
LOGS ONLY

LITHOTYPE

- C-1: Bright 80% Vitrain
- C-2: Bright banded 60-80 % Vitrain.
- C-3: Dull/Bright 40-60 % Vitrain
- C-4: Dull banded 20-40 % Vitrain.
- C-5: Dull 20 % Vitrain
- C-6: Bone

GULF CANADA RESOURCES INC.		
Coal Division		
CALGARY	ALBERTA	

LEGEND FOR COAL
SEAM DATA SHEETS

PREPARED BY: V.O.	SCALE 1:40
APPROVED BY:	DATE: JAN. 82 DRAWING No.

COAL SEAM DATA SHEET

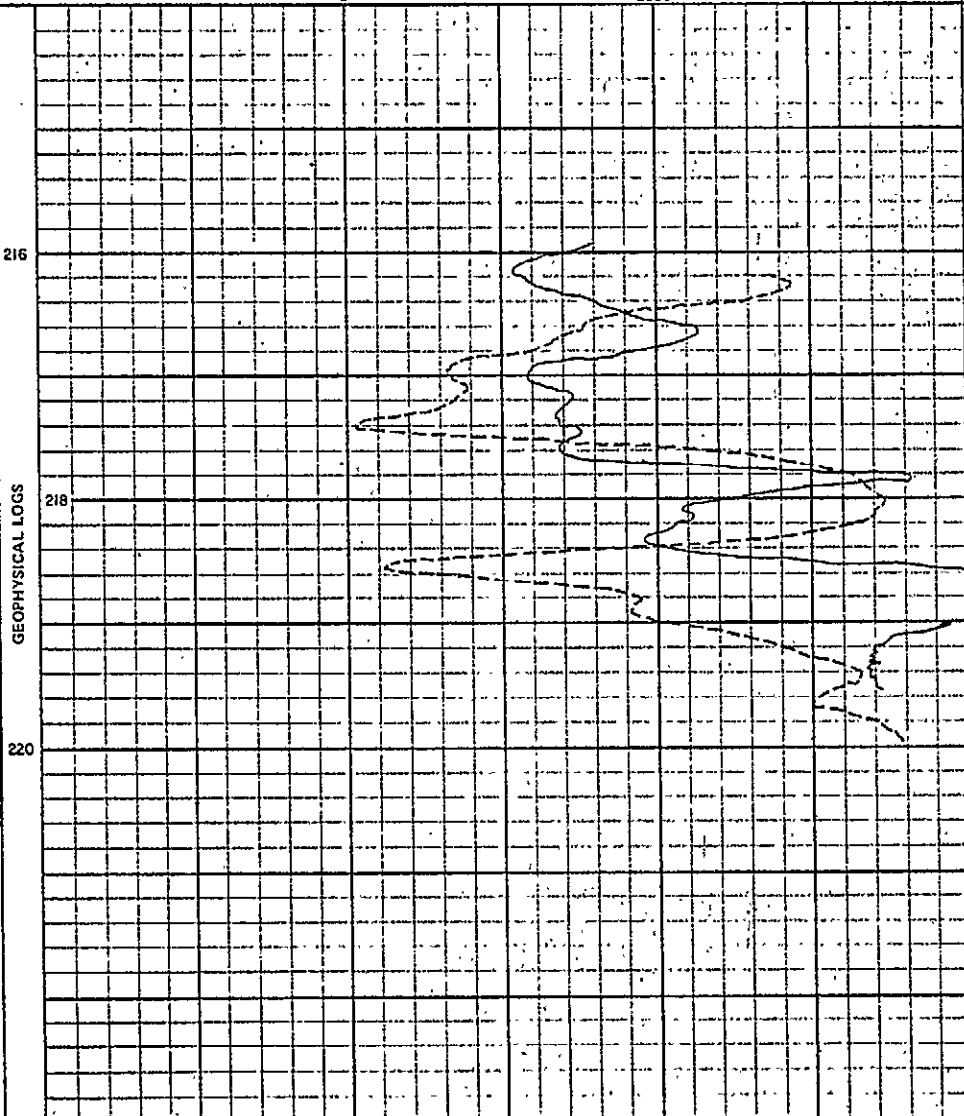
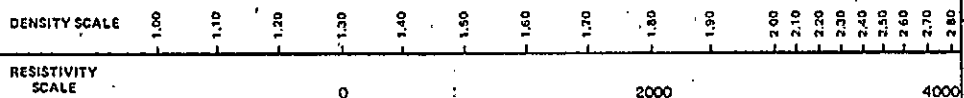
GULF CANADA RESOURCES INC.
COAL DIVISION

P-267 (12 80)

DENSITY RESISTIVITY

DRILL NO. GDR-RDH-81-10 SEAM 4
SCALE 1:40

SEAM INTERVAL 216.49m - 219.09m



SEAM COMP.	DEPTH	COAL SEAM LOG	INTERVAL		% REC.	SAMPLE		PROXIMATE ANALYSIS									
			ROCK	COAL		NUMBER	COMPOS.	MOIST	ASH	VM	FC	S	BTU	FSI			
	216.49			1.06													
	217.55		0.78														
	218.33			0.76													
	219.09																

82/01/12

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

PAGE 1

PROJECT: GDR BLOCK: XX DATA SOURCE: RDH81010

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	27.43	27.43			OVERBURDEN	CASED
	27.43	78.52	51.09			ROCK	
	78.52	79.15	0.63		3	COAL	WATERFLOW 60 GPM AT 121.91 M, 100 GPM AT 140.20 M.
	79.15	79.67	0.52			ROCK	
	79.67	80.56	0.89		3	COAL	
	80.56	201.31	120.75			ROCK	
	201.31	204.59	3.28		4	COAL	
	204.59	205.91	1.32			ROCK	
	205.91	207.41	1.50		4	COAL	
	207.41	211.28	3.87			ROCK	
	211.28	213.65	2.37		4	COAL	

82/01/12

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

PAGE 2

PROJECT: GDR BLOCK: XX DATA SOURCE: RDH81010

BCA	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	213.65	216.49	2.84			ROCK	
	216.49	217.55	1.06		4	COAL	
	217.55	218.33	0.78			ROCK	
	218.33	219.09	0.76		4	COAL	
	219.09	280.42	61.33			ROCK	T.D. 280.42 M. WATERFLOW 100 GPM AT T.D