VERTICALITY ANALYSIS
SLIMLINE UNIT

LOCATION	COURTENAY
PRVNC/CO.	BRITISH COLUMBIA
FIELD	VELDWOOD COAL PROJ.
WELL: DD90-01	
COMPANY:	WESTERN CANADIAN MINING CORP.

COMPANY	WESTERN CANADIAN MINING CORP.
WELL	DD90-01
FIELD	WELDWOOD COAL PROJ.
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA

LOCATION				OTHER SERVICES
COURTENAY				CDL.CNL.FE BRD.MCS
LSD	SEC	TWP	RGE	

PERMANENT DATUM GROUND LEVEL. ELEVATION N/A
LOG MEASURED FROM GROUND LEVEL ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS: KB N/A, DF N/A, GL N/A

DATE	3-DEC-90			
RUN NUMBER	1			
DEPTH-DRILLER	162.5M			
DEPTH-LOGGER	163.4M			
FIRST READING	162.5M			
LAST READING	00.0M			
CASING-DRILLER	6.1M			
CASING-LOGGER	6.1M			
BIT SIZE	NQ 2			
HOLE FLUID TYPE	MUD			
DENS./VISC.	1.02 / N/A			
PH/FLUID LOSS	N/A / N/A			
SAMPLE SOURCE	PIT			
RM @ MEAS TEMP	16.7 @ 7.7C			
RMF @ MEAS TEMP	N/A			
RMC @ MEAS TEMP	N/A			
SOURCE: RMF/RMC	N/A / N/A			
RM @ BHT	16.7 @ 7.7C			
TIME SINCE CIRC	1.0 HRS.			
MAX REC TEMP	7.7C			
EQUIPMENT/BASE	V222 / RDR			
RECORDED BY	B PICHE			
WITNESSED BY	S CASSELMAN			

BPB VERTICALITY ANALYSIS INTERPRETATION NOTES

1. ALL PLOTTED OUTPUT IS AUTOMATICALLY SCALED TO OBTAIN THE BEST VISUAL EFFECT WITHIN THE PHYSICAL SPACE AVAILABLE. THE MAXIMUM SCALES BEING 50000:1 (METRIC) AND 48000:1 (IMPERIAL). AND THE MINIMUM 1:1.

2. THE ANALYSIS IS DERIVED BY INTEGRATING 10CM. SAMPLED DATA DOWN THE BOREHOLE. THE LISTING SUPPLIED WILL CONTAIN A MAXIMUM OF 200 POINTS IN MULTIPLES OF 1. 2. 5. 10. 20. 50 OR 100 METRES/FEET DEPENDING ON THE TOTAL RANGE OF THE ANALYSIS. HOWEVER THE ANALYSIS IS CALCULATED FOR THE ENTIRE RANGE OF THE BOREHOLE AND THE FINAL BOREHOLE POSITION IS INCLUDED IN THE LISTING.

3. COMPUTED VERTICALITY MAY ONLY BE FULLY DERIVED IN OPEN SECTIONS OF THE BOREHOLE. AWAY FROM THE INFLUENCE OF ANY UNUSUAL MAGNETIC EFFECTS (AS THE AZIMUTH CALCULATIONS ARE DERIVED FROM THREE SOLID STATE MAGNETOMETERS). SO THE ANALYSIS WILL GENERALLY BEGIN AT THE END OF THE CASING AND ALL BOREHOLE POSITIONAL INFORMATION WILL RELATE TO THIS DEPTH.

4. UP TO TEN CROSS SECTIONS MAY BE REQUESTED FOR ANY BOREHOLE TO BE DISPLAYED AT ANY SCALE (THE DEFAULT SCALE IS THAT OF THE CROSS-SECTION FOR THE ENTIRE HOLE).

5. GIVEN BELOW IS A FULL DESCRIPTION OF THE PARAMETERS DISPLAYED ON THE ENSUING LISTING:

LOG DEPTH	THE DEPTH RECORDED ON THE FIELD LOGS FOR THE BOREHOLE.
TRUE DEPTH	THE TRUE VERTICAL DEPTH CORESPONDING TO THE ABOVE DEPTH. CORRECTED FROM THE START OF THE ANALYSIS.
HOLE TILT AND AZIMUTH	THE SAMPLED BOREHOLE ORIENTATION.
AXIAL COORDINATES	THE COORDINATES NORTH AND EAST FROM THE TARGET ORIGIN.
POLAR COORDINATES	THE POLAR. OR RADIAL COORDINATES OF THE BOREHOLE.

N.B. THE REFERENCE POINT FOR ALL BEARING ANGLES ON THIS LISTING IS GIVEN AT THE TOP OF EACH SHEET.

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT. AND DO NOT. GUARENTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS. AND WE SHALL NOT. EXCEPT IN THE CASE OF GROSS OR WILFUL NEGLIGENCE ON OUR PART. BE LIABLE OR RESPONSIBLE FOR ANY LOSS. COSTS. DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS. AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

DD90-01

VERTICALITY DATA LISTING
ALL CO-ORDINATES WITH RESPECT TO TRUE NORTH

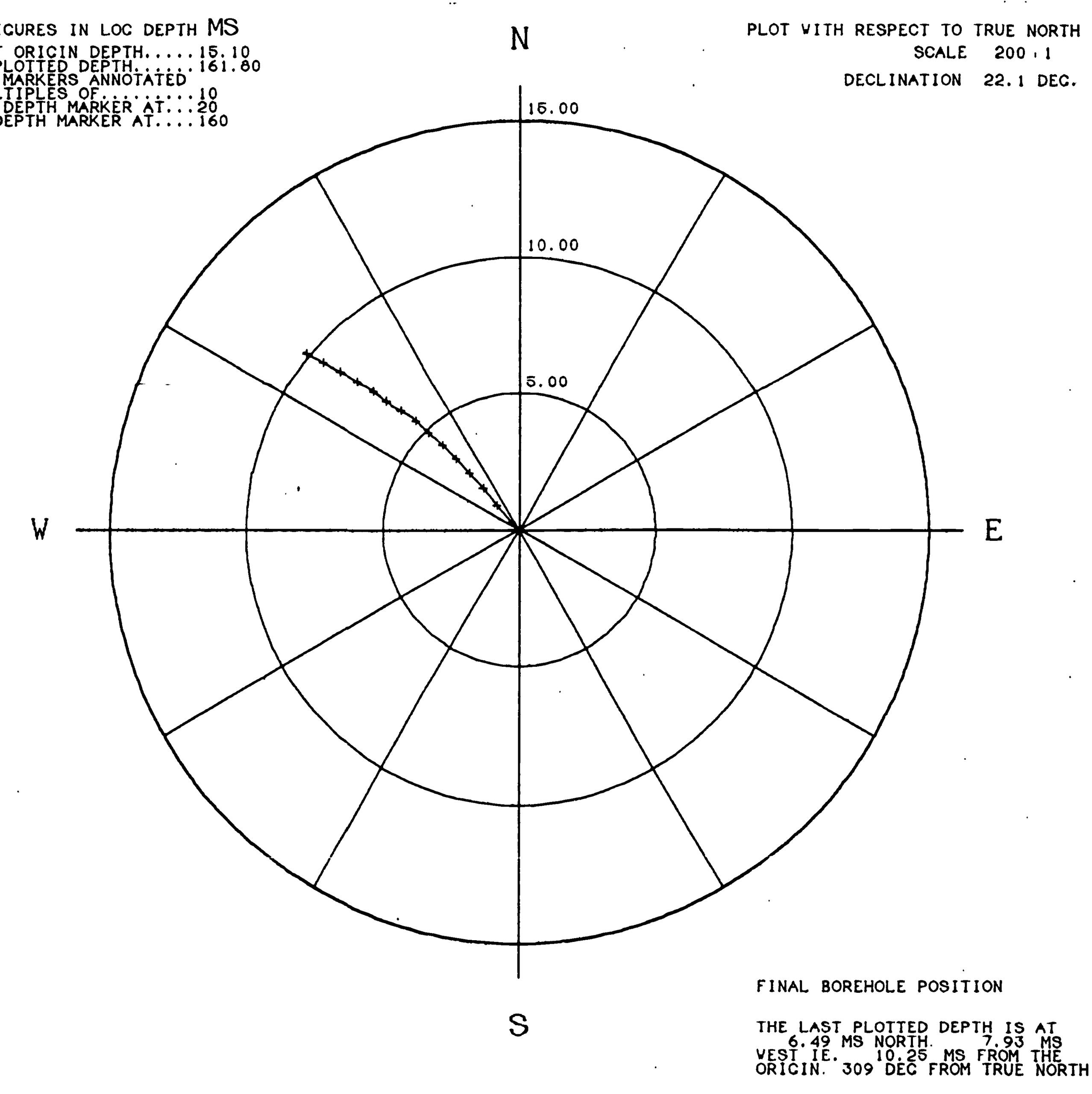
DATE PROCESSED: 3-DEC-1990
DATE LOGGED: 3-DEC-1990

DEPTHS LOG	TRUE	BOREHOLE TILT	AZI	AXIAL CO-ORDS NORTH	EAST	POLAR BRG	RADIUS
16.00	16.00	4.5	315	0.05	-0.05	313	0.07
17.00	16.99	4.5	314	0.10	-0.11	313	0.15
18.00	17.99	4.8	316	0.16	-0.17	314	0.23
19.00	18.99	4.8	317	0.22	-0.22	315	0.31
20.00	19.98	4.8	318	0.28	-0.28	315	0.40
21.00	20.98	4.9	319	0.35	-0.34	316	0.48
22.00	21.98	4.9	318	0.41	-0.39	316	0.57
23.00	22.97	4.9	318	0.47	-0.45	317	0.65
24.00	23.97	4.9	318	0.54	-0.50	317	0.74
25.00	24.97	4.9	317	0.60	-0.56	317	0.82
26.00	25.96	4.8	316	0.66	-0.62	317	0.91
27.00	26.96	5.0	317	0.73	-0.68	317	1.00
28.00	27.95	4.9	319	0.79	-0.74	317	1.08
29.00	28.95	4.7	318	0.85	-0.79	317	1.16
30.00	29.95	4.7	321	0.92	-0.84	317	1.25
31.00	30.94	4.6	320	0.98	-0.90	318	1.33
32.00	31.94	4.5	321	1.04	-0.95	318	1.41
33.00	32.94	4.6	323	1.10	-1.00	318	1.49
34.00	33.94	4.3	325	1.17	-1.04	318	1.56
35.00	34.93	4.3	323	1.23	-1.09	318	1.64
36.00	35.93	4.6	319	1.29	-1.14	319	1.72
37.00	36.93	4.6	317	1.35	-1.19	319	1.80
38.00	37.92	4.6	318	1.41	-1.24	319	1.88
39.00	38.92	4.5	318	1.47	-1.30	319	1.96
40.00	39.92	4.5	321	1.53	-1.35	319	2.03
41.00	40.91	4.5	319	1.58	-1.40	319	2.11
42.00	41.91	4.5	321	1.64	-1.44	319	2.19
43.00	42.91	4.3	319	1.70	-1.49	319	2.26
44.00	43.91	4.1	319	1.76	-1.54	319	2.33
45.00	44.90	4.0	319	1.81	-1.58	319	2.40
46.00	45.90	4.2	319	1.86	-1.63	319	2.48
47.00	46.90	4.3	317	1.92	-1.68	319	2.55
48.00	47.89	4.3	316	1.97	-1.73	319	2.63
49.00	48.89	4.2	318	2.03	-1.78	319	2.70
50.00	49.89	4.1	316	2.08	-1.83	319	2.77
51.00	50.89	4.3	319	2.14	-1.88	319	2.85
52.00	51.88	4.3	317	2.19	-1.93	319	2.92
53.00	52.88	4.3	318	2.24	-1.98	319	2.99
54.00	53.88	4.3	315	2.30	-2.03	319	3.07
55.00	54.88	4.1	318	2.35	-2.08	318	3.14
56.00	55.87	4.1	316	2.40	-2.13	318	3.21
57.00	56.87	4.1	317	2.46	-2.18	318	3.28
58.00	57.87	4.1	314	2.51	-2.23	318	3.36
59.00	58.87	4.1	315	2.56	-2.28	318	3.43
60.00	59.86	4.3	316	2.61	-2.33	318	3.50
61.00	60.86	4.3	315	2.67	-2.38	318	3.58
62.00	61.86	4.2	316	2.72	-2.43	318	3.65
63.00	62.85	3.8	314	2.77	-2.48	318	3.72
64.00	63.85	4.0	311	2.82	-2.54	318	3.79
65.00	64.85	4.0	314	2.86	-2.59	318	3.86
66.00	65.85	3.8	314	2.91	-2.64	318	3.93
67.00	66.84	4.0	311	2.96	-2.69	318	4.00
68.00	67.84	4.0	314	3.01	-2.74	318	4.07
69.00	68.84	4.0	314	3.06	-2.79	318	4.14
70.00	69.84	3.8	315	3.10	-2.84	318	4.21
71.00	70.84	3.8	313	3.15	-2.89	317	4.27
72.00	71.83	3.7	312	3.19	-2.94	317	4.34
73.00	72.83	3.8	313	3.24	-2.98	317	4.40
74.00	73.83	3.8	314	3.28	-3.03	317	4.47
75.00	74.83	3.8	313	3.33	-3.08	317	4.54
76.00	75.82	4.0	313	3.38	-3.13	317	4.61
77.00	76.82	3.9	313	3.42	-3.18	317	4.67
78.00	77.82	3.8	313	3.47	-3.23	317	4.74
79.00	78.82	3.9	314	3.52	-3.28	317	4.81
80.00	79.81	3.8	310	3.56	-3.33	317	4.88
81.00	80.81	3.8	312	3.61	-3.38	317	4.94
82.00	81.81	3.8	311	3.65	-3.43	317	5.01
83.00	82.81	3.8	312	3.69	-3.48	317	5.08
84.00	83.81	3.7	311	3.74	-3.53	317	5.14
85.00	84.80	3.7	311	3.78	-3.58	317	5.21
86.00	85.80	3.7	311	3.82	-3.63	317	5.27
87.00	86.80	3.5	310	3.87	-3.67	316	5.33
88.00	87.80	3.7	312	3.91	-3.72	316	5.40
89.00	88.80	3.7	311	3.95	-3.77	316	5.46
90.00	89.79	3.8	313	3.99	-3.82	316	5.53
91.00	90.79	3.8	311	4.04	-3.87	316	5.59
92.00	91.79	4.1	310	4.08	-3.92	316	5.66
93.00	92.79	4.2	307	4.13	-3.98	316	5.73
94.00	93.78	4.2	303	4.17	-4.04	316	5.81
95.00	94.78	4.0	300	4.21	-4.10	316	5.88
96.00	95.78	3.7	297	4.24	-4.16	316	5.94
97.00	96.78	3.4	298	4.27	-4.22	315	6.00
98.00	97.77	3.3	298	4.30	-4.27	315	6.06
99.00	98.77	3.1	297	4.32	-4.32	315	6.11
100.00	99.77	3.6	297	4.35	-4.37	315	6.17
101.00	100.77	3.8	297	4.38	-4.43	315	6.23
102.00	101.77	4.0	298	4.41	-4.49	315	6.30
103.00	102.76	4.0	300	4.45	-4.55	314	6.36
104.00	103.76	4.2	301	4.48	-4.61	314	6.43
105.00	104.76	3.1	303	4.52	-4.67	314	6.50
106.00	105.76	2.8	309	4.55	-4.71	314	6.55
107.00	106.76	3.6	326	4.59	-4.75	314	6.61
108.00	107.75	2.9	314	4.64	-4.79	314	6.67
109.00	108.75	3.3	295	4.66	-4.83	314	6.72
110.00	109.75	3.6	309	4.70	-4.89	314	6.78
111.00	110.75	3.3	310	4.74	-4.93	314	6.84
112.00	111.75	3.3	307	4.77	-4.98	314	6.90
113.00	112.75	3.4	309	4.81	-5.03	314	6.96
114.00	113.74	3.6	308	4.85	-5.07	314	7.02
115.00	114.74	3.6	307	4.88	-5.12	314	7.08
116.00	115.74	3.4	307	4.92	-5.17	314	7.14
117.00	116.74	3.4	306	4.96	-5.22	314	7.20
118.00	117.74	3.5	305	4.99	-5.27	313	7.26
119.00	118.73	3.6	304	5.03	-5.32	313	7.32
120.00	119.73	3.7	305	5.06	-5.37	313	7.38
121.00	120.73	3.7	304	5.10	-5.42	313	7.45
122.00	121.73	3.8	300	5.14	-5.48	313	7.51
123.00	122.73	4.1	304	5.18	-5.53	313	7.58
124.00	123.72	4.2	302	5.22	-5.60	313	7.65
125.00	124.72	4.4	300	5.25	-5.66	313	7.72
126.00	125.72	4.1	301	5.29	-5.72	313	7.80
127.00	126.72	3.8	303	5.33	-5.78	313	7.86
128.00	127.71	3.8	300	5.36	-5.84	313	7.93
129.00	128.71	3.7	299	5.40	-5.89	312	7.99
130.00	129.71	3.7	302	5.43	-5.95	312	8.06
131.00	130.71	3.8	301	5.46	-6.01	312	8.12
132.00	131.70	4.0	301	5.50	-6.07	312	8.19
133.00	132.70	4.1	302	5.53	-6.13	312	8.26
134.00	133.70	4.3	301	5.57	-6.19	312	8.33
135.00	134.70	4.2	300	5.61	-6.25	312	8.40
136.00	135.69	4.3	299	5.65	-6.32	312	8.48
137.00	136.69	4.5	297	5.68	-6.39	312	8.55
138.00	137.69	3.9	303	5.72	-6.45	312	8.62
139.00	138.69	4.0	299	5.75	-6.51	311	8.69
140.00	139.68	4.1	293	5.79	-6.57	311	8.76
141.00	140.68	3.7	297	5.81	-6.63	311	8.82
142.00	141.68	3.8	294	5.84	-6.69	311	8.88
143.00	142.68	3.7	298	5.87	-6.75	311	8.95
144.00	143.67	3.8	300	5.90	-6.82	311	9.02
145.00	144.67	4.0	298	5.94	-6.88	311	9.08
146.00	145.67	4.1	296	5.97	-6.94	311	9.15
147.00	146.67	4.0	299	6.00	-7.00	311	9.22
148.00	147.66	4.2	300	6.04	-7.06	311	9.29
149.00	148.66	4.2	298	6.07	-7.13	310	9.37
150.00	149.66	3.9	298	6.11	-7.19	310	9.43
151.00	150.66	4.0	297	6.14	-7.25	310	9.50
152.00	151.65	3.9	295	6.17	-7.31	310	9.57
153.00	152.65	4.1	300	6.20	-7.37	310	9.63
154.00	153.65	4.0	298	6.23	-7.43	310	9.70
155.00	154.65	4.0	296	6.27	-7.50	310	9.77
156.00	155.64	4.1	298	6.30	-7.56	310	9.84
157.00	156.64	4.0	298	6.33	-7.62	310	9.91
158.00	157.64	4.1	298	6.36	-7.68	310	9.98
159.00	158.64	4.0	297	6.40	-7.75	310	10.05
160.00	159.63	4.1	298	6.43	-7.81	309	10.12
161.00	160.63	4.2	297	6.46	-7.87	309	10.19
161.80	161.43	4.4	298	6.49	-7.93	309	10.25

CROSS SECTION

ALL FIGURES IN LOG DEPTH MS
TARGET ORIGIN DEPTH.....15.10
LAST PLOTTED DEPTH......161.80
DEPTH MARKERS ANNOTATED
IN MULTIPLES OF.........10
FIRST DEPTH MARKER AT...20
LAST DEPTH MARKER AT....160

PLOT WITH RESPECT TO TRUE NORTH
SCALE 200:1
DECLINATION 22.1 DEG.



FINAL BOREHOLE POSITION

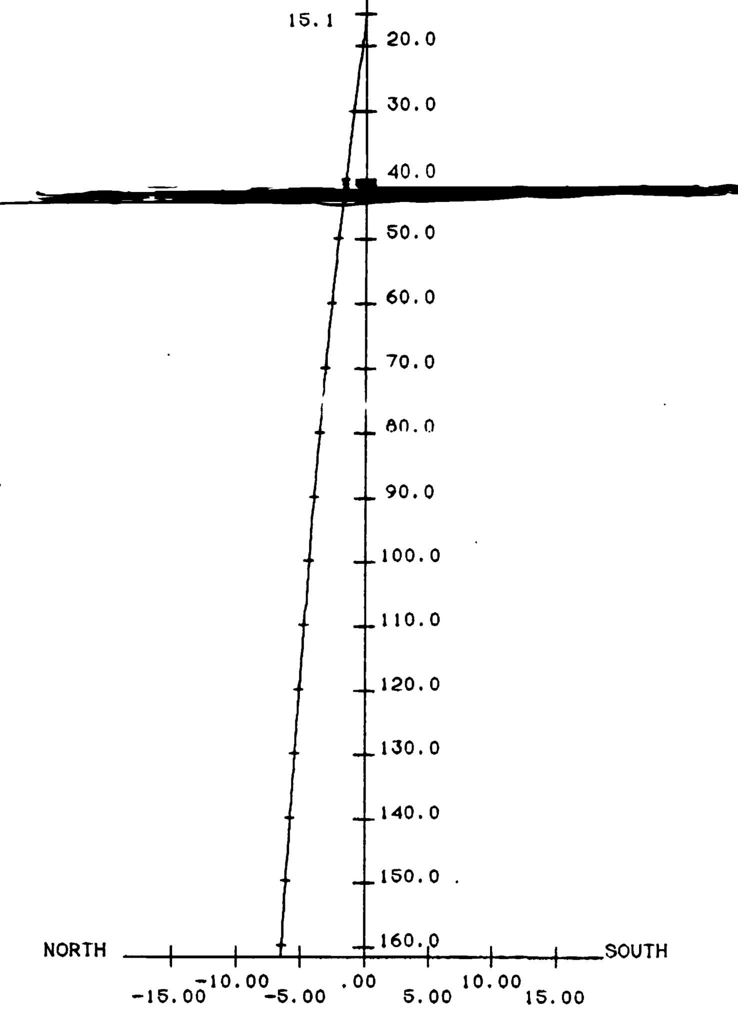
THE LAST PLOTTED DEPTH IS AT 6.49 MS NORTH. 7.93 MS WEST IE. 10.25 MS FROM THE ORIGIN. 309 DEG FROM TRUE NORTH

VERTICAL SECTIONS
(TRUE DEPTH VS DISPLACEMENT)

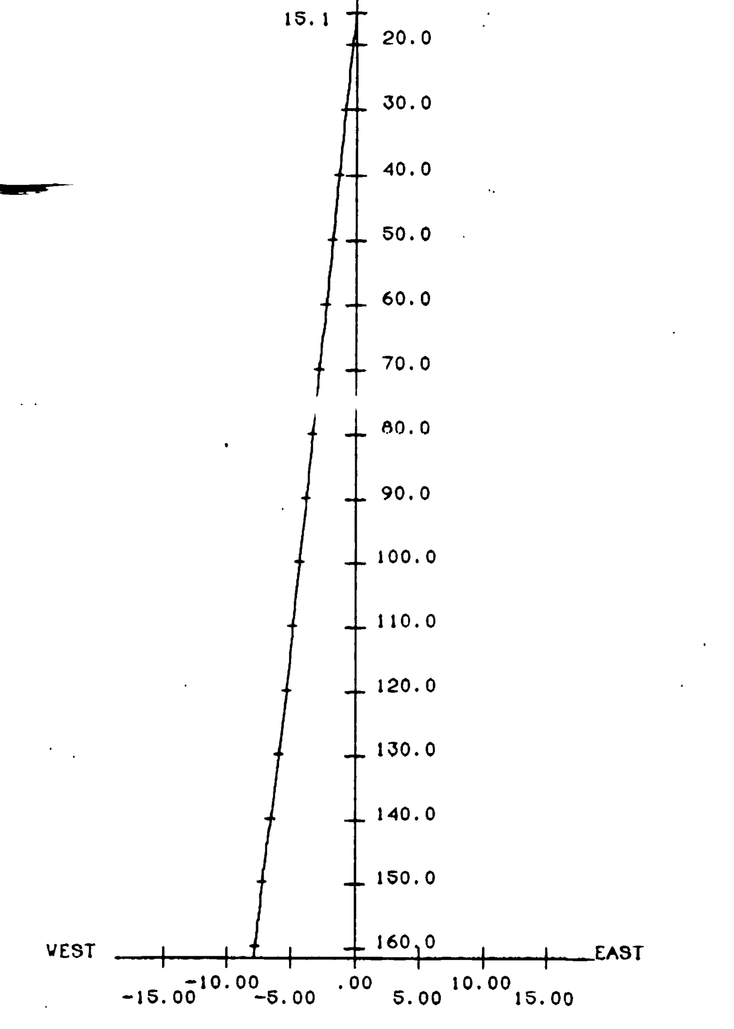
VERTICAL SCALE 1000:1
HORIZONTAL SCALE 500:1

MARKERS ANNOTATED AS ABOVE

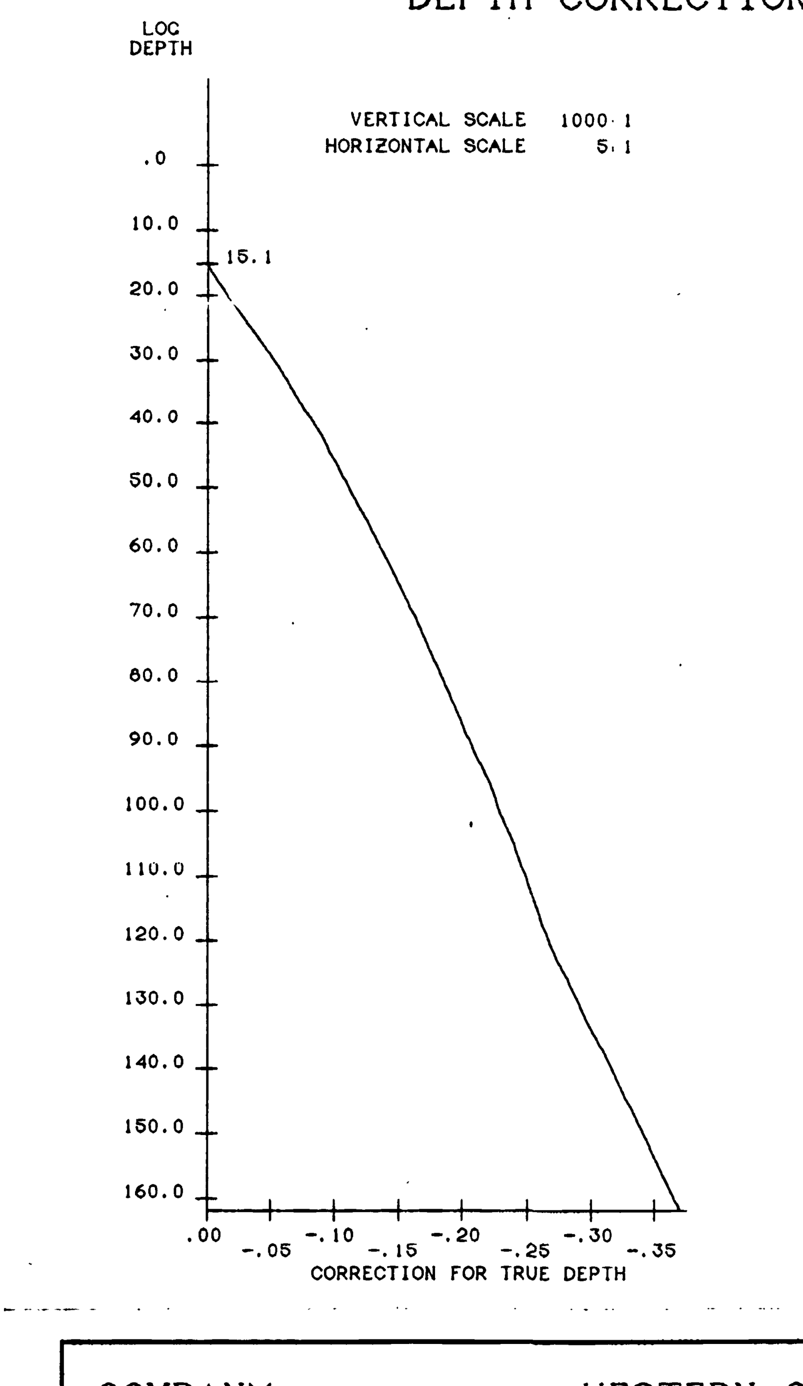
N-S SECTION



E-W SECTION



DEPTH CORRECTION ANALYSIS



DEPTHS: LOG	TRUE	DEPTHS: LOG	TRUE	DEPTHS: LOG	TRUE
16.00	16.00	86.00	85.80	156.00	155.64
17.00	16.99	87.00	86.80	157.00	156.64
18.00	17.99	88.00	87.80	158.00	157.64
19.00	18.99	89.00	88.80	159.00	158.64
20.00	19.98	90.00	89.79	160.00	159.63
21.00	20.98	91.00	90.79	161.00	160.63
22.00	21.98	92.00	91.79	161.80	161.43
23.00	22.97	93.00	92.79		
24.00	23.97	94.00	93.78		
25.00	24.97	95.00	94.78		
26.00	25.96	96.00	95.78		
27.00	26.96	97.00	96.78		
28.00	27.95	98.00	97.77		
29.00	28.95	99.00	98.77		
30.00	29.95	100.00	99.77		
31.00	30.94	101.00	100.77		
32.00	31.94	102.00	101.77		
33.00	32.94	103.00	102.76		
34.00	33.94	104.00	103.76		
35.00	34.93	105.00	104.76		
36.00	35.93	106.00	105.76		
37.00	36.93	107.00	106.76		
38.00	37.92	108.00	107.75		
39.00	38.92	109.00	108.75		
40.00	39.92	110.00	109.75		
41.00	40.91	111.00	110.75		
42.00	41.91	112.00	111.75		
43.00	42.91	113.00	112.75		
44.00	43.91	114.00	113.74		
45.00	44.90	115.00	114.74		
46.00	45.90	116.00	115.74		
47.00	46.90	117.00	116.74		
48.00	47.89	118.00	117.74		
49.00	48.89	119.00	118.73		
50.00	49.89	120.00	119.73		
51.00	50.89	121.00	120.73		
52.00	51.88	122.00	121.73		
53.00	52.88	123.00	122.73		
54.00	53.88	124.00	123.72		
55.00	54.88	125.00	124.72		
56.00	55.87	126.00	125.72		
57.00	56.87	127.00	126.72		
58.00	57.87	128.00	127.71		
59.00	58.87	129.00	128.71		
60.00	59.86	130.00	129.71		
61.00	60.86	131.00	130.71		
62.00	61.86	132.00	131.70		
63.00	62.85	133.00	132.70		
64.00	63.85	134.00	133.70		
65.00	64.85	135.00	134.70		
66.00	65.85	136.00	135.69		
67.00	66.84	137.00	136.69		
68.00	67.84	138.00	137.69		
69.00	68.84	139.00	138.69		
70.00	69.84	140.00	139.68		
71.00	70.84	141.00	140.68		
72.00	71.83	142.00	141.68		
73.00	72.83	143.00	142.68		
74.00	73.83	144.00	143.67		
75.00	74.83	145.00	144.67		
76.00	75.82	146.00	145.67		
77.00	76.82	147.00	146.67		
78.00	77.82	148.00	147.66		
79.00	78.82	149.00	148.66		
80.00	79.81	150.00	149.66		
81.00	80.81	151.00	150.66		
82.00	81.81	152.00	151.65		
83.00	82.81	153.00	152.65		
84.00	83.81	154.00	153.65		
85.00	84.80	155.00	154.65		

COMPANY	WESTERN CANADIAN MINING CORP.
WELL	DD90-01
FIELD	WELDWOOD COAL PROJ.
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA

DIPMETER ANALYSIS
SLIMLINE UNIT

COMPANY: WESTERN CANADIAN MINING CORP.
WELL: DD91-13
FIELD: WELDWOOD COAL PROJ.
PROVINCE/COUNTY: BRITISH COLUMBIA
COUNTRY/STATE: CANADA

LOCATION	COUNTRY				
PROVINCE/CO.	BRITISH COLUMBIA				
FIELD	WELDWOOD COAL PROJ.				
WELL	DD91-13				
COMPANY	WESTERN CANADIAN MINING CORP.				
CONTRACTOR	CANADA				
REFERENCE	CCS, CNL, PE				
	MCS, BRD				
	DIPMETER				
	SLIMLINE				
	SLIMLINE UNIT				

RUN	BOREHOLE RECORD			CASING RECORD			
NUMBER	BIT	FROM	TO	SIZE	WEIGHT	FROM	TO
ONE	NO 2	4.5M	TO	NO	N/A	SURFACE	4.5M

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
DIP/VERT	2011/204			

REMARKS

DIPMETER ANALYSIS — SLIMLINE UNIT

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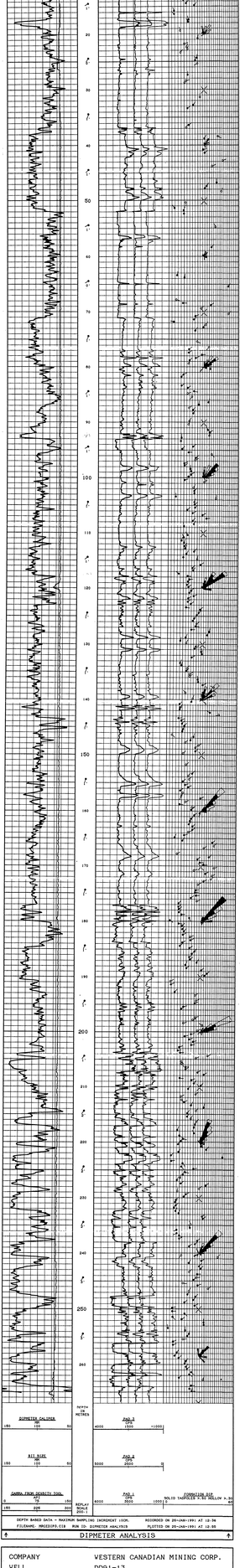
DIPMETER ANALYSIS

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 100M. RECORDED ON 25-JAN-1991 AT 12:36
FILENAME: MRCEDIP3.CIB RUN ID: DIPMETER ANALYSIS PLOTTED ON 25-JAN-1991 AT 12:55



DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 100M. RECORDED ON 25-JAN-1991 AT 12:36
FILENAME: MRCEDIP3.CIB RUN ID: DIPMETER ANALYSIS PLOTTED ON 25-JAN-1991 AT 12:55
DIPMETER ANALYSIS

COMPANY	WESTERN CANADIAN MINING CORP.
WELL	DD91-13
FIELD	WELDWOOD COAL PROJ.
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA

DIPMETER ANALYSIS
SLIMLINE UNIT

LOCATION	COURTENAY
PRVNC/CO.	BRITISH COLUMBIA
FIELD	WELDWOOD COAL PROJ.
WELL	DD91-19
COMPANY.	WESTERN CANADIAN MINING CORP.

COMPANY	WESTERN CANADIAN MINING CORP.
WELL	DD91-19
FIELD	WELDWOOD COAL PROJ.
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA

LOCATION			
COURTENAY			
LSD	SEC	TWP	RGE
N/A			

OTHER SERVICES: CCS.CNL.FE BRD.MCS

ELEVATIONS- KB	N/A
DF	N/A
GL	N/A

DATE	6-FEB-91
DATE LOG MEASURED	6-FEB-91
DRILLING MEASURED FROM	GROUND LEVEL
DRILLING MEASURED FROM	GROUND LEVEL
PERMANENT DATUM	GROUND LEVEL
LOG MEASURED FROM	GROUND LEVEL
PERMANENT DATUM	GROUND LEVEL
ELEVATION N/A	
ELEVATIONS- KB	N/A
DF	N/A
GL	N/A

RUN NUMBER	ONE
DEPTH-DRILLER	121.9M
DEPTH-LOGGER	121.9M
FIRST READING	0.5M
LAST READING	16.7M
CASING-DRILLER	16.7M
CASING-LOGGER	16.7M
BIT SIZE	NQ 2
BIT TYPE	WATER
DENS./VISC.	1.60GM
PH/FLUID LOSS	N/A
SAMPLE SOURCE	N/A
RMF @ MEAS TEMP	N/A
RMF @ MEAS TEMP	N/A
RMF @ MEAS TEMP	N/A
SOURCE RMF/RMC	N/A
RM @ BHT	6.3 @ 9C
TIME SINCE CIRC	30 MIN
MAX REC TEMP	9C
EQUIPMENT/BASE	VSS
RECORDED BY	J.C.VIBER
WITNESSED BY	S.CASSIDAY

RUN	BOREHOLE RECORD			CASING RECORD			
NUMBER	BIT	FROM	TO	SIZE	WEIGHT	FROM	TO
ONE	NQ 2	16.7M	TD	NQ	N/A	SURFACE	16.7M

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
DIP/VERT	221/226			

REMARKS

DIPMETER ANALYSIS	SLIMLINE UNIT

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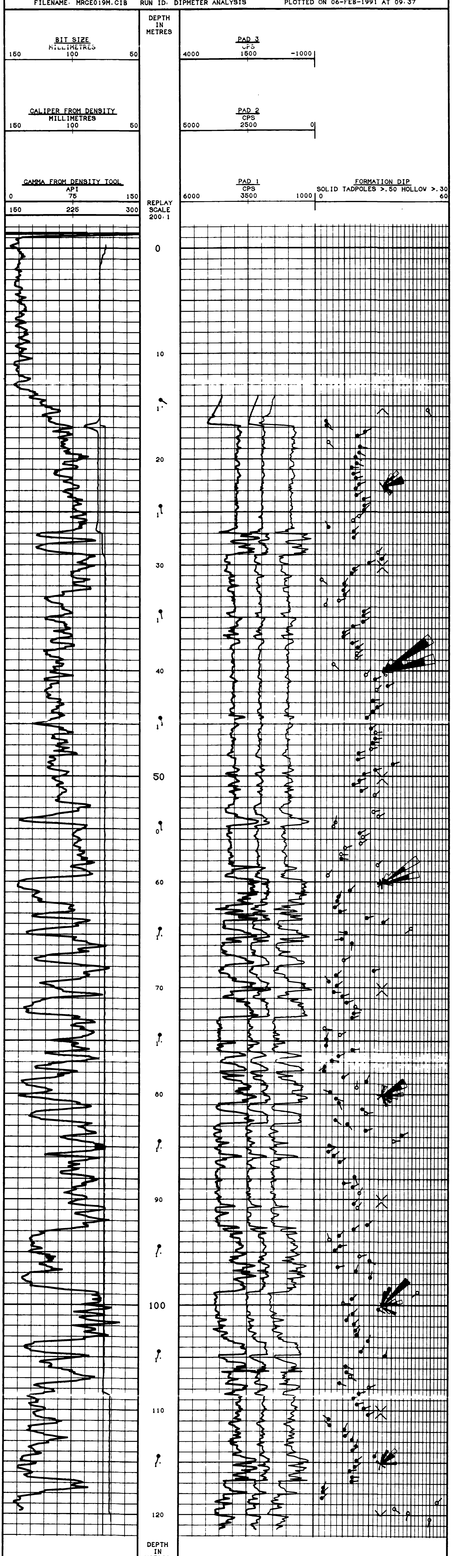
DIPMETER ANALYSIS

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM. RECORDED ON 6-FEB-1991 AT 09:26

FILENAME: MRCE019M.CIB RUN ID: DIPMETER ANALYSIS PLOTTED ON 06-FEB-1991 AT 09:37



DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM. RECORDED ON 6-FEB-1991 AT 09:26

FILENAME: MRCE019M.CIB RUN ID: DIPMETER ANALYSIS PLOTTED ON 06-FEB-1991 AT 09:37

DIPMETER ANALYSIS

COMPANY	WESTERN CANADIAN MININC CORP.
WELL	DD91-19
FIELD	WELDWOOD COAL PROJ.
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA

Borehole: GE91-08
Client: WESTERN CANADIAN MINING CORP.
Field: WELLWOOD COAL PROJ.
Area: BRITISH COLUMBIA
Country: CANADA

COMPENSATED NEUTRON
GAMMA RAY
CALIPER

SCHLUMBERGER GRAPHICS UNIT

manent Datum	GROUND LEVEL	Elevation	N/A
g measured from	GROUND LEVEL	above permanent datum	
lling measured from	GROUND LEVEL	above permanent datum	
te	7-FEB-1991		
n Number	ONE		
gnin-Driller	99.6m		
gnin-Logger	99.3m		
ttom Reading	99.2m		
op Reading	8.5m		
sing-Driller	17.9m		
sing-Logger	17.9m		
g Size	NQ 2		
ne Fluid Type	WATER		
me/Visc.	1.00CP	N/A	
ofiute Loss	N/A	MIL	
mple Source		PIT	
R Meas Temp	N/A		
R Meas Temp	N/A		
R Meas Temp	N/A		
Cake/Mud	N/A	N/A	
R @ BHT	N/A @ N/A		
ne Stnds Circ	30 MIN		
R Rec Temp	DC		
uipment/Base	1900	MCM	
gnded By	J.C.WIDMER		
ssessed By	R.CHABERLAND		

KB	N/A		
DF	N/A		
GL	N/A		

LOCATION
COUNTENAY

LSD N/A
SEC
TWP
RGE
OTHER SERVICES
CDL,MCD
FE,BRD

866

RUN NUMBER	BIT	BOREHOLE RECORD FROM	TO	BIT#	CASING RECORD WEIGHT	FROM	TO
ONE	NQ 2	17.9m	TD	NO	N/A	SURFACE	17.9m

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
DSN-CCB	581/118			

REMARKS:
COMPENSATED NEUTRON GAMMA RAY CALIPER

SYSTEM CONFIGURATION DATES: LOGGED 1-FEB-1990 PROCESSED 1-FEB-1990 PLOTTED 11-JAN-1991

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MAIN LOG

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM
RECORDED ON 7-FEB-1991 0:53
FILENAME: MAGE09M.CIB RUN ID: MAIN LOG
PLOTTED ON 7-FEB-1991 AT 10:25

DEPTH IN METRES

CALIPER FROM DENSITY
MILLIMETRES
0 100 50

GAMMA FROM DENSITY TOOL
API
75 150
0 225 300

EPITHERMAL NEUTRON POROSITY
PERCENT
75 56.25 37.5 18.75 0

REPLAY SCALE 200:1
150 131.25 112.5 93.75 75

0
10
20
30
40
50
60
70
80
90

DEPTH IN METRES

CALIPER FROM DENSITY
MILLIMETRES
0 100 50

GAMMA FROM DENSITY TOOL
API
75 150
0 225 300

EPITHERMAL NEUTRON POROSITY
PERCENT
75 56.25 37.5 18.75 0

REPLAY SCALE 200:1
150 131.25 112.5 93.75 75

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM
RECORDED ON 7-FEB-1991 0:53
FILENAME: MAGE09M.CIB RUN ID: MAIN LOG
PLOTTED ON 7-FEB-1991 AT 10:29

MAIN LOG

REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM
RECORDED ON 7-FEB-1991 0:49
FILENAME: MAGE09M.CIB RUN ID: REPEAT SECTION
PLOTTED ON 7-FEB-1991 AT 10:23

DEPTH IN METRES

CALIPER FROM DENSITY
MILLIMETRES
0 100 50

GAMMA FROM DENSITY TOOL
API
75 150
0 225 300

EPITHERMAL NEUTRON POROSITY
PERCENT
75 56.25 37.5 18.75 0

REPLAY SCALE 200:1
150 131.25 112.5 93.75 75

90

DEPTH IN METRES

CALIPER FROM DENSITY
MILLIMETRES
0 100 50

GAMMA FROM DENSITY TOOL
API
75 150
0 225 300

EPITHERMAL NEUTRON POROSITY
PERCENT
75 56.25 37.5 18.75 0

REPLAY SCALE 200:1
150 131.25 112.5 93.75 75

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM
RECORDED ON 7-FEB-1991 0:49
FILENAME: MAGE09M.CIB RUN ID: REPEAT SECTION
PLOTTED ON 7-FEB-1991 AT 10:22

REPEAT SECTION

JECT	WESTERN CANADIAN MINING CORP.
HOLE	GE91-08
ELD	WELLWOOD COAL PROJ.
REA	BRITISH COLUMBIA
UNTRY	CANADA

Borehole: DD91-20
Client: WESTERN CANADIAN MINING CORP.
Field: WELDWOOD COAL PROJ.
Area: BRITISH COLUMBIA
Country: CANADA

FOCUSSED ELECTRIC
GAMMA RAY

SUMLINE GRAPHICS UNIT

Permanent Datum GROUND LEVEL, Elevation N/A		KB N/A	LOCATION
Log measured from GROUND LEVEL above permanent datum		DF N/A	COURTENAY
Drilling measured from GROUND LEVEL above permanent datum		GL N/A	
Date	7-FEB-1991		LSD N/A
Run Number	ONE		SEC
Depth-Driller	99.6m		TWP
Depth-Logger	99.3m		RGE
First Reading	98.5m		OTHER SERVICES
Last Reading	0.3m		CCS,CNL
Casing-Driller	17.9m		MCS,BRD
Casing-Logger	17.9m		
Bit Size	NQ 2		
Hole Fluid Type	WATER		
Dens./Visc.	1.00CM N/A		
PH/Fluid Loss	N/A N/A		
Sample Source	PIT		
Rm @ Meas Temp	N/A		
RMF @ Meas Temp	N/A		
RMC @ Meas Temp	N/A		
Source: RMF/RMC	N/A N/A		
Rm @ BHT	6.3 @ 9C		
Time Since Circ	30 MIN		
Max Rec Temp	9C		
Equipment/Base	V029 RGR		
Recorded by	J.C.WIDNER		
Witnessed by	S.CASSELMAN		

866

RUN NUMBER	BOREHOLE RECORD BIT	FROM	TO	CASING RECORD SIZE	WEIGHT	FROM	TO
ONE	NQ 2	17.9m	TD	NQ	N/A	SURFACE	17.9m

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
RBA/CCS	104/110			

REMARKS:

FOCUSSED ELECTRIC GAMMA RAY

SYSTEM CONFIGURATION DATES: LOGGED 1-FEB-1990 PROCESSED 1-FEB-1990 PLOTTED 11-JAN-1991

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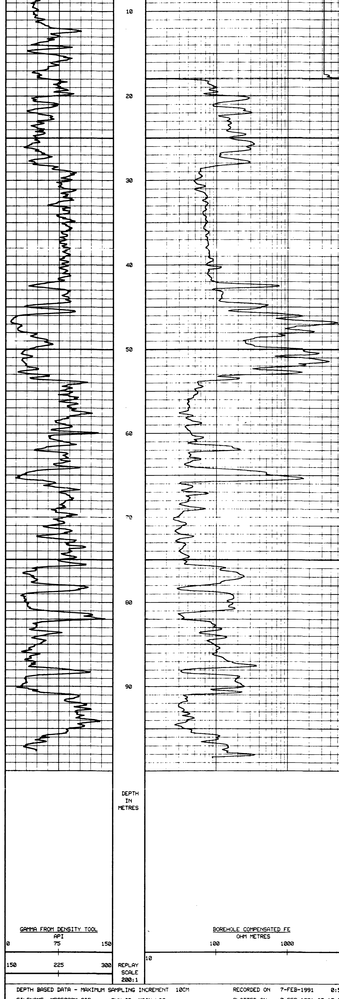
MAIN LOG

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM RECORDED ON 7-FEB-1991 0:53
FILENAME: MAGE020M.CIB RUN ID: MAIN LOG PLOTTED ON 7-FEB-1991 AT 10:08

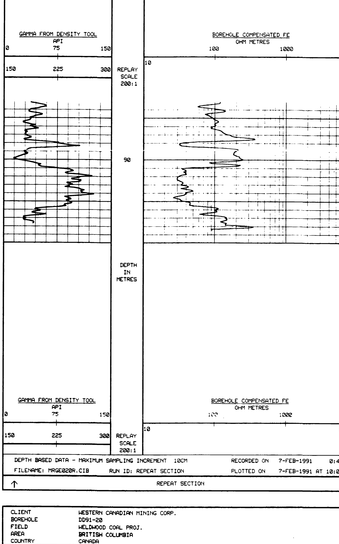


DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM RECORDED ON 7-FEB-1991 0:53
FILENAME: MAGE020M.CIB RUN ID: MAIN LOG PLOTTED ON 7-FEB-1991 AT 10:07

MAIN LOG

REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM RECORDED ON 7-FEB-1991 0:49
FILENAME: MAGE020R.CIB RUN ID: REPEAT SECTION PLOTTED ON 7-FEB-1991 AT 10:06



DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM RECORDED ON 7-FEB-1991 0:49
FILENAME: MAGE020R.CIB RUN ID: REPEAT SECTION PLOTTED ON 7-FEB-1991 AT 10:06

REPEAT SECTION

CLIENT	WESTERN CANADIAN MINING CORP.
BOREHOLE	DD91-20
FIELD	WELDWOOD COAL PROJ.
AREA	BRITISH COLUMBIA
COUNTRY	CANADA

866

DIPMETER ANALYSIS

SLIMLINE UNIT

LOCATION COURTENAY
PRVNC/CO. BRITISH COLUMBIA
FIELD VELDVOOD COAL PROJ.
VELL DD91-20
COMPANY WESTERN CANADIAN MINING CORP.

COMPANY	WESTERN CANADIAN MINING CORP.
VELL	DD91-20
FIELD	VELDVOOD COAL PROJ.
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA

LOCATION COURTENAY

LSD	SEC	TWP	RGE
N/A			

OTHER SERVICES: CDL, CNL, FF, BRD, MCS

PERMANENT DATUM GROUND LEVEL. ELEVATION N/A
LOG MEASURED FROM GROUND LEVEL ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS: KB N/A, DF N/A, GL N/A

DATE	7-FEB-91	
RUN NUMBER	ONE	
DEPTH-DRILLER	99.6M	
DEPTH-LOGGER	99.3M	
FIRST READING	99.3M	
LAST READING	0.0M	
CASING-DRILLER	17.9M	
CASING-LOGGER	17.9M	
BIT SIZE	NQ 2	
HOLE FLUID TYPE	VATER	
DENS./VISC.	1.02GM	N/A
PH/FLUID LOSS	N/A	NIL
SAMPLE SOURCE	PIT	
RM @ MEAS TEMP	N/A	
RMF @ MEAS TEMP	N/A	
RMC @ MEAS TEMP	N/A	
SOURCE. RMF/RMC	N/A	N/A
RM @ BHT	6.3 @ 9C	
TIME SINCE CIRC	30 MIN	
MAX REC TEMP	9C	
EQUIPMENT/BASE	V629	RDR
RECORDED BY	J.C.VISNER	
VITNESSED BY	S.CASSELMAN	

RUN NUMBER	BOREHOLE RECORD BIT	FROM	TO	CASING RECORD SIZE	VEIGHT	FROM	TO
ONE	NQ 2	17.9M	TD	NG	N/A	SURFACE	17.9M

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
DIP/VERT	221/226			

REMARKS

DIPMETER ANALYSIS SLIMLINE UNIT

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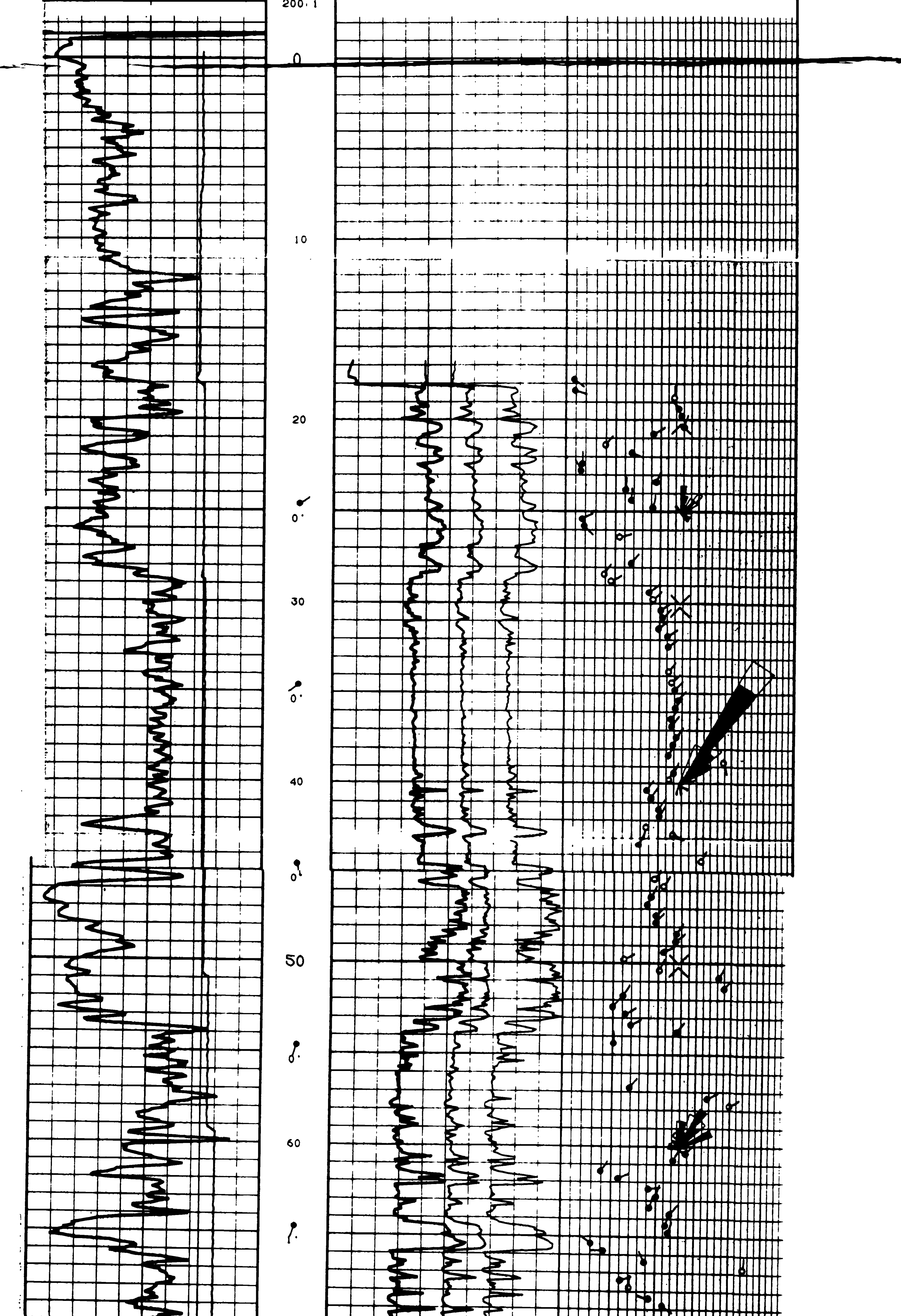
DIPMETER ANALYSIS

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM. RECORDED ON 7-FEB-1991 AT 00:53
FILENAME: MRCE020M.CIB RUN ID: DIPMETER ANALYSIS PLOTTED ON 07-FEB-1991 AT 10:42

BIT SIZE MILLIMETRES 150 100 50
CALIPER FROM DENSITY MILLIMETRES 150 100 50
GAMMA FROM DENSITY TOOL API 0 75 150 / 150 225 300
DEPTH IN METRES — REPLAY SCALE 200:1
PAD 3 CPS 4000 1500 -1000
PAD 2 CPS 5000 2500 0
PAD 1 CPS 6000 3500 1000
FORMATION DIP SOLID TADPOLES >.50 HOLLOW >.30 0 60



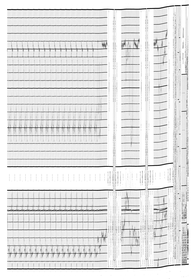
DEPTH IN METRES

BIT SIZE MILLIMETRES 150 100 50
CALIPER FROM DENSITY MILLIMETRES 150 100 50
GAMMA FROM DENSITY TOOL API 0 75 150 / 150 225 300
REPLAY SCALE 200:1
PAD 3 CPS 4000 1500
PAD 2 CPS 5000 2500
PAD 1 CPS 6000 3500 1000
FORMATION DIP SOLID TADPOLES >.50 HOLLOW >.3 0 6

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM. RECORDED ON 7-FEB-1991 AT 00:53
FILENAME: MRCE020M.CIB RUN ID: DIPMETER ANALYSIS PLOTTED ON 07-FEB-1991 AT 10:42

DIPMETER ANALYSIS

COMPANY	WESTERN CANADIAN MINING CORP.
WELL	DD91-20
FIELD	WELDWOOD COAL PROJ.
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA



SLIMLINE GRAPHICS UNIT

BPB

Borehole: DD90-05
Client: WESTERN CANADIAN MINING CORP.
Field: WELDWOOD COAL PROJ.
Area: BRITISH COLUMBIA
Country: CANADA

FOCUSSED ELECTRIC
GAMMA RAY

Permanent Datum GROUND LEVEL, Elevation N/A
Log measured from GROUND LEVEL above permanent datum
Drilling measured from GROUND LEVEL above permanent datum

KB N/A
DF N/A
GL N/A

Location
COURTENAY

Date	17-DEC-1990				LSD
Run Number	1				SEC
Depth-Driller	280.4m				TWP
Depth-Logger	280.4m				RGE
First Reading	279.5m				OTHER SERVICES
Last Reading	00.0m				CDL, CNL, MCS
Casing-Driller	21.3m				BRD, DIP
Casing-Logger	22.0m				
Bit Size	NQ 2				
Hole Fluid Type	MUD				
Dens./Visc.	1.03 / N/A				
PH/Fluid Loss	N/A / N/A				
Sample Source	PIT				
Rm @ Meas Temp	11.2 @ 8.2C				
Rmf @ Meas Temp	N/A				
Rmc @ Meas Temp	N/A				
Source: Rmf/Rmc	N/A / N/A				
Rm @ BHT	11.2 @ 8.2C				
Time Since Circ	2.0 hrs.				
Max Rec Temp	8.2C				
Equipment/Base	V222 / RDR				
Recorded by	B PICHE				
Witnessed by	S CASSELMAN				

866

RUN NUMBER	BOREHOLE RECORD BIT	FROM	TO	CASING RECORD SIZE	WEIGHT	FROM	TO
1	NQ 2	21.3m	TD	76.2mm	N/A	00.0m	22.0m

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
FE, DD3	104, 153			

REMARKS:
FOCUSSED ELECTRIC GAMMA RAY
FLUID LEVEL @ 19.8m

SYSTEM CONFIGURATION DATES: LOGGED 1-FEB-1990 PROCESSED 1-FEB-1990 PLOTTED 1-DEC-1990

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MAIN LOG

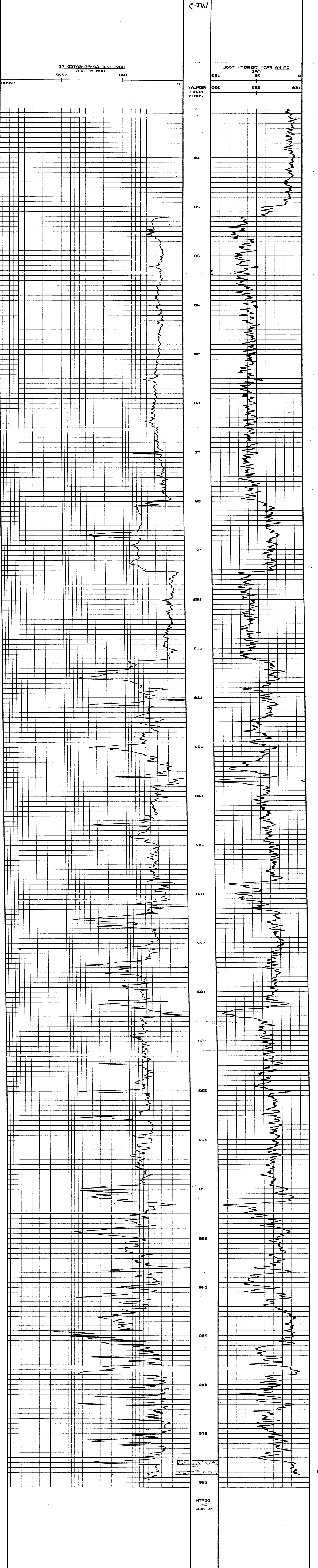
DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 17-DEC-1990 6:09
FILENAME: MRGE005M.CIB — RUN ID: MAIN LOG — PLOTTED ON 17-DEC-1990 AT 20:53

DEPTH IN METRES

WT-5

GAMMA FROM DENSITY TOOL — API — 0 / 75 / 150; 150 / 225 / 300
BOREHOLE COMPENSATED FE — OHM METRES — 10 / 100 / 1000 / 10000

REPLAY SCALE 200:1



REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 17-DEC-1990 6:06
FILENAME: MRGE005R.CIB — RUN ID: REPEAT SECTION — PLOTTED ON 17-DEC-1990 AT 20:49

DEPTH IN METRES

GAMMA FROM DENSITY TOOL — API — 0 / 75 / 150; 150 / 225 / 300
BOREHOLE COMPENSATED FE — OHM METRES — 10 / 100 / 1000 / 10000

REPLAY

REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 17-DEC-1990 6:06
FILENAME: MRGE005R.CIB — RUN ID: REPEAT SECTION — PLOTTED ON 17-DEC-1990 AT 20:49

DEPTH IN METRES

GAMMA FROM DENSITY TOOL — API — 0 / 75 / 150; 150 / 225 / 300
BOREHOLE COMPENSATED FE — OHM METRES — 10 / 100 / 1000 / 10000

REPLAY

REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 17-DEC-1990 6:06
FILENAME: MRGE005R.CIB — RUN ID: REPEAT SECTION — PLOTTED ON 17-DEC-1990 AT 20:49

DEPTH IN METRES

GAMMA FROM DENSITY TOOL — API — 0 / 75 / 150; 150 / 225 / 300
BOREHOLE COMPENSATED FE — OHM METRES — 10 / 100 / 1000 / 10000

REPLAY

Borehole: DD91-18
Client: WESTERN CANADIAN MINING CORP.
Field: HELLROOS COAL PROJ.
Area: BRITISH COLUMBIA
Country: CANADA

FOCUSED ELECTRIC
GAMMA RAY

SLIMLINE GRAPHICS UNIT

Permanent Datum: GROUND LEVEL, Elevation: N/R		KB: N/R	Location:
Log Measured from: GROUND LEVEL, 0.0m above permanent datum		DF: N/R	COUNTENAY
Drilling Measured from: GROUND LEVEL, 0.0m above permanent datum		GL: N/R	
Date	4-FEB-1991		LOC: N/R
Run Number	ONE		REC:
Depth-Driller	1200.0m		TRUC
Depth-Logger	1197.6m		MSC
First Reading	1196.4m		OTHER SERVICES
Last Reading	91.8m		CCL,GN,
Casing-Driller	3.0m		MCS,BRD
Casing-Logger	3.0m		
Bit Size	NQ 2		
Mats Fluid Type	WATER		
Dens/Visc	1.0/SOM	N/R	
Prop/Src Loss	N/R	N/C	
Fluid Loss	N/R		
Rm @ Meas Temp	N/R		
Rmf @ Meas Temp	N/R		
Rmc @ Meas Temp	N/R		
Source: Rmf/Rmc	N/R	N/R	
Rm @ BHT	N/R	0 °C	
Time Since Circ	32.0 HR		
Max Rec Temp	°C		
Equipment/Base	1002	NSM	
Recorded By	F.C.HITCHEN		
Witnessed By	N.CHRISTMAN		

RUN NUMBER	BOREHOLE RECORD BIT	FROM	TO	SIZE	CASING RECORD HEIGHT	FROM	TO
ONE	NQ 2	3.0m	TD	NQ	N/R	SURFACE	3.0m

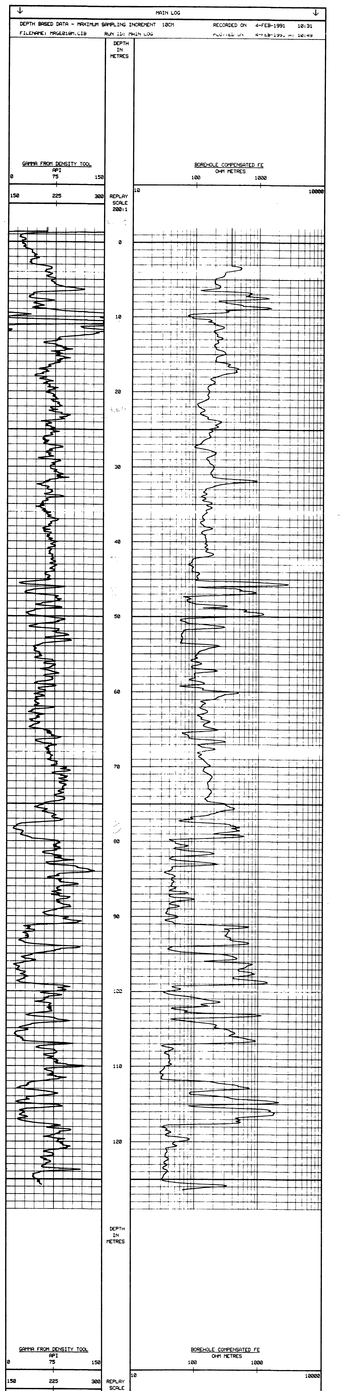
EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
RDH/CCB	1041118			

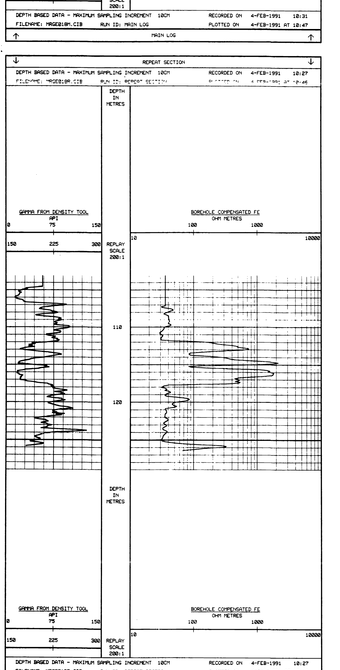
REMARKS:

FOCUSED ELECTRIC GAMMA RAY

SYSTEM CONFIGURATION DATES: LOGGED 1-FEB-1990 PROCESSED 1-FEB-1990 PLOTTED 11-JAN-1991

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT, GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.





CLIENT	WESTERN CANADIAN MINING CORP.
BOREHOLE	DD91-18
FIELD	HELLROOS COAL PROJ.
AREA	BRITISH COLUMBIA
COUNTRY	CANADA

VERTICALITY ANALYSIS

SLIMLINE UNIT

COMPANY	WESTERN CANADIAN MINING CORP.
WELL	DD91-20
FIELD	WELDWOOD COAL PROJ.
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA

LOCATION COURTENAY

LSD	SEC	TWP	RGE
N/A			

OTHER SERVICES: CCS. CNL. FE BRD. MCS

LOCATION COURTENAY
PRVNC/CO. BRITISH COLUMBIA
FIELD WELDWOOD COAL PROJ.
WELL: DD91-20
COMPANY: WESTERN CANADIAN MINING CORP.

PERMANENT DATUM GROUND LEVEL. ELEVATION N/A
LOG MEASURED FROM GROUND LEVEL ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS: KB N/A DF N/A CL N/A

DATE	7-FEB-91			
RUN NUMBER	ONE			
DEPTH-DRILLER	99.6M			
DEPTH-LOGGER	99.3M			
FIRST READING	99.3M			
LAST READING	0.0M			
CASING-DRILLER	17.9M			
CASING-LOGGER	17.9M			
BIT SIZE	NQ 2			
HOLE FLUID TYPE	WATER			
DENS./VISC.	1.02GM | N/A			
PH/FLUID LOSS	N/A | NIL			
SAMPLE SOURCE	PIT			
RM @ MEAS TEMP	N/A			
RMF @ MEAS TEMP	N/A			
RMC @ MEAS TEMP	N/A			
SOURCE RMF/RMC	N/A | N/A			
RM @ BHT	6.3 @ 9C			
TIME SINCE CIRC	30 MIN			
MAX REC TEMP	9C			
EQUIPMENT/BASE	V629 | RDR			
RECORDED BY	J.C.VISMER			
WITNESSED BY	S.CASSELMAN			

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BPB VERTICALITY ANALYSIS INTERPRETATION NOTES

1. ALL PLOTTED OUTPUT IS AUTOMATICALLY SCALED TO OBTAIN THE BEST VISUAL EFFECT WITHIN THE PHYSICAL SPACE AVAILABLE. THE MAXIMUM SCALES BEING 50000:1 (METRIC) AND 48000:1 (IMPERIAL). AND THE MINIMUM 1:1.

2. THE ANALYSIS IS DERIVED BY INTEGRATING 10CM. SAMPLED DATA DOWN THE BOREHOLE. THE LISTING SUPPLIED VILL CONTAIN A MAXIMUM OF 200 POINTS IN MULTIPLES OF 1, 2, 5, 10, 20, 50 OR 100 METRES/FEET DEPENDING ON THE TOTAL RANGE OF THE ANALYSIS. HOWEVER THE ANALYSIS IS CALCULATED FOR THE ENTIRE RANGE OF THE BOREHOLE AND THE FINAL BOREHOLE POSITION IS INCLUDED IN THE LISTING.

3. COMPUTED VERTICALITY MAY ONLY BE FULLY DERIVED IN OPEN SECTIONS OF THE BOREHOLE. AVAY FROM THE INFLUENCE OF ANY UNUSUAL MAGNETIC EFFECTS (AS THE AZIMUTH CALCULATIONS ARE DERIVED FROM THREE SOLID STATE MAGNETOMETERS). SO THE ANALYSIS VILL GENERALLY BEGIN AT THE END OF THE CASING AND ALL BOREHOLE POSITIONAL INFORMATION VILL RELATE TO THIS DEPTH.

4. UP TO TEN CROSS SECTIONS MAY BE REQUESTED FOR ANY BOREHOLE TO BE DISPLAYED AT ANY SCALE (THE DEFAULT SCALE IS THAT OF THE CROSS-SECTION FOR THE ENTIRE HOLE).

5. BOREHOLE POSITIONAL ERROR IS DERIVED ASSUMING THE FOLLOWING PARAMETERS.

	TILT(DEGREES)	AZIMUTH(DEGREES)
TYPICAL ERROR	+/- 0.3333	+/- 10
MAXIMUM ERROR	+/- 0.5	+/- 15

6. ERROR ANALYSIS MAY BE CALCULATED AND PLOTTED FROM THE DATA LISTING AS FOLLOVS.

A) PLOT THE FOUR COORDINATES FROM THE ERROR LISTING (BASED UPON ZERO AZIMUTH ERROR) ON A TARGET PLOT. ORIGIN AT THE START OF THE ANALYSIS.
B) DESCRIBE ARCS OF +/- 10 DEGREES AND +/- 15 DEGREES (CENTRE AT THE ORIGIN) THROUGH THE INNER AND OUTER POINTS RESPECTIVELY.
C) CONNECT THE RESPECTIVE ARCS TOGETHER VITH STRAIGHT LINES TO GIVE THE TYPICAL AND MAXIMUM BOREHOLE POSITIONAL ERROR.

7. GIVEN BELOW IS A FULL DESCRIPTION OF THE PARAMETERS DISPLAYED ON THE ENSUING LISTING.

LOG DEPTH	THE DEPTH RECORDED ON THE FIELD LOGS FOR THE BOREHOLE.
TRUE DEPTH	THE TRUE VERTICAL DEPTH CORESPONDING TO THE ABOVE DEPTH. CORRECTED FROM THE START OF THE ANALYSIS.
HOLE TILT AND AZIMUTH	THE SAMPLED BOREHOLE ORIENTATION.
AXIAL COORDINATES	THE COORDINATES NORTH AND EAST FROM THE TARGET ORIGIN.
POLAR COORDINATES	THE POLAR. OR RADIAL COORDINATES OF THE BOREHOLE.
ERROR COORDINATES	THE POLAR COORDINATES CORRESPONDING TO THE TYPICAL AND MAXIMUM TILT ERROR.

N.B. THE REFERENCE POINT FOR ALL BEARING ANGLES ON THIS LISTING IS GIVEN AT THE TOP OF EACH SHEET.

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND VE CANNOT. AND DO NOT. GUARENTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS. AND VE SHALL NOT. EXCEPT IN THE CASE OF CROSS OR VILFUL NEGLIGENCE ON OUR PART. BE LIABLE OR RESPONSIBLE FOR ANY LOSS. COSTS. DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS. AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

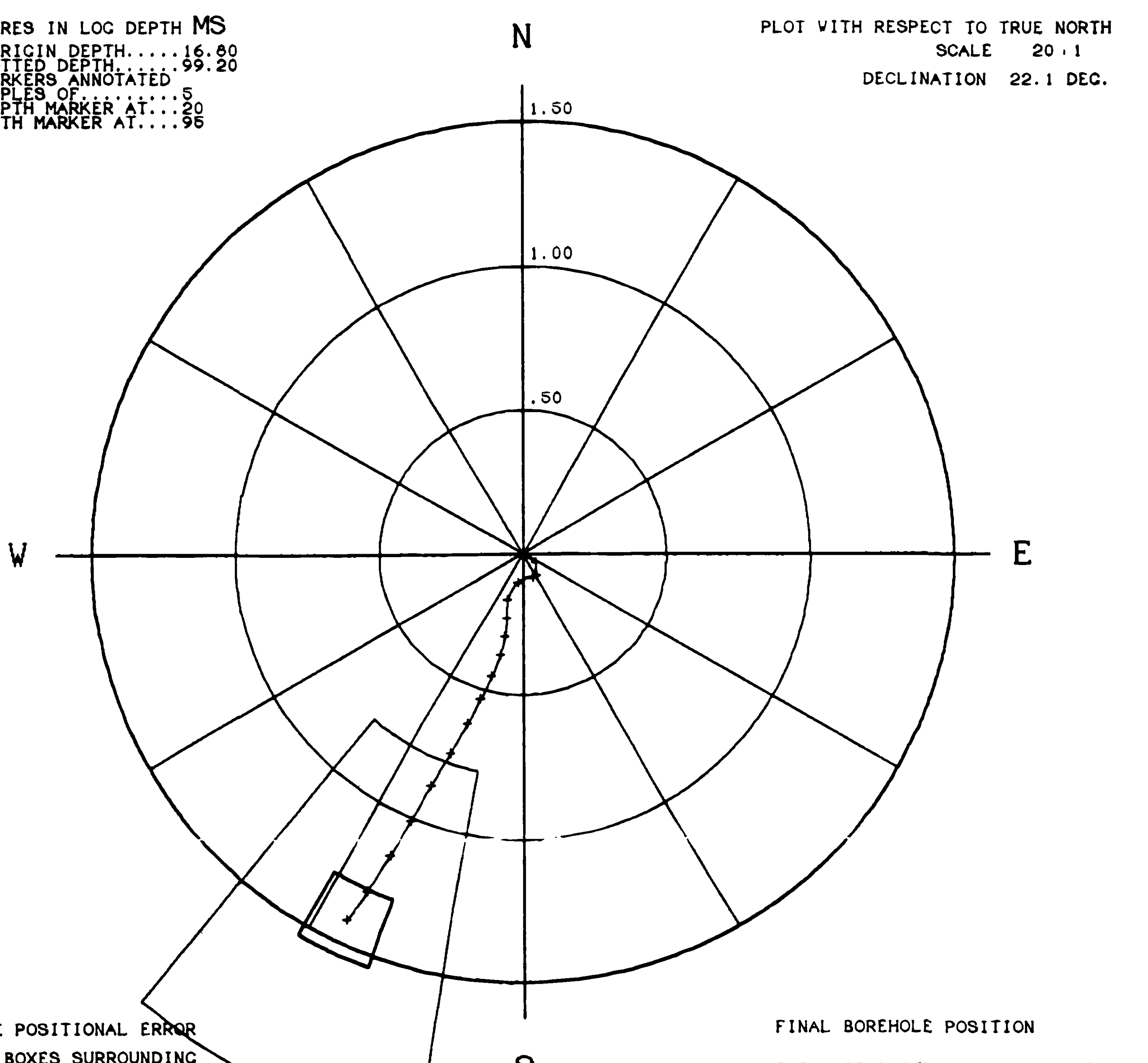
DD91-20 VERTICALITY DATA LISTING — DATE PROCESSED: 7-FEB-1991
ALL CO-ORDINATES VITH RESPECT TO TRUE NORTH — DATE LOGGED: 7-FEB-1991

DEPTHS		BOREHOLE		AXIAL CO-ORDS		POLAR		POLAR ERROR CO-ORDINATES (MAXIMUM & TYPICAL)							
LOG	TRUE	TILT	AZI	NORTH	EAST	BRG	RADIUS	BRG	RADIUS	BRG	RADIUS	BRG	RADIUS	BRD	RADIUS
17.00	17.00	1.1	125	0.00	0.00	110	0.00	110	0.00	111	0.00	110	0.00	111	0.00
18.00	18.00	1.1	130	-0.01	0.02	128	0.02	128	0.03	128	0.02	128	0.02	128	0.02
19.00	19.00	1.1	141	-0.02	0.03	128	0.04	128	0.05	128	0.03	128	0.04	128	0.04
20.00	20.00	0.8	253	-0.03	0.04	126	0.05	126	0.06	126	0.04	126	0.06	126	0.05
21.00	21.00	0.7	191	-0.04	0.04	135	0.06	136	0.07	135	0.05	135	0.07	135	0.06
22.00	22.00	0.7	183	-0.06	0.04	143	0.07	144	0.08	142	0.05	144	0.08	143	0.06
23.00	23.00	0.5	159	-0.07	0.04	147	0.08	148	0.10	145	0.06	147	0.09	146	0.07
24.00	24.00	0.4	166	-0.07	0.04	149	0.09	150	0.11	147	0.06	150	0.10	148	0.07
25.00	25.00	0.2	117	-0.08	0.05	149	0.09	150	0.11	147	0.07	149	0.10	148	0.08
26.00	26.00	0.2	188	-0.08	0.05	147	0.09	148	0.12	147	0.07	148	0.10	147	0.08
27.00	27.00	0.2	256	-0.08	0.05	150	0.09	151	0.12	147	0.07	151	0.11	149	0.08
28.00	28.00	0.2	239	-0.08	0.04	151	0.09	154	0.12	147	0.07	153	0.11	150	0.08
29.00	29.00	0.3	266	-0.08	0.04	154	0.09	157	0.12	148	0.07	155	0.10	151	0.08
30.00	30.00	0.5	289	-0.08	0.03	157	0.09	161	0.11	149	0.06	159	0.10	154	0.08
31.00	31.00	0.5	268	-0.08	0.03	162	0.09	167	0.11	153	0.06	165	0.10	159	0.07
32.00	32.00	0.6	267	-0.08	0.02	169	0.09	174	0.11	160	0.06	172	0.10	165	0.07
33.00	33.00	0.7	244	-0.09	0.01	176	0.09	181	0.12	167	0.06	179	0.10	172	0.07
34.00	34.00	0.8	237	-0.09	-0.01	184	0.09	188	0.13	176	0.06	186	0.11	181	0.08
35.00	35.00	0.9	231	-0.10	-0.02	190	0.10	193	0.14	184	0.07	192	0.12	188	0.09
36.00	36.00	1.0	227	-0.11	-0.03	196	0.12	197	0.15	189	0.08	196	0.13	192	0.10
37.00	37.00	0.7	212	-0.12	-0.04	197	0.13	200	0.17	193	0.09	199	0.15	196	0.11
38.00	38.00	0.9	209	-0.14	-0.05	199	0.14	201	0.19	198	0.10	200	0.17	197	0.12
39.00	39.00	0.7	190	-0.15	-0.05	199	0.16	201	0.21	196	0.11	200	0.18	198	0.13
40.00	40.00	0.8	199	-0.16	-0.06	199	0.17	200	0.22	196	0.12	200	0.20	197	0.15
41.00	41.00	0.8	189	-0.18	-0.06	198	0.18	200	0.24	195	0.13	199	0.21	197	0.16
42.00	42.00	0.8	181	-0.19	-0.06	197	0.20	199	0.26	194	0.14	198	0.23	196	0.17
43.00	43.00	0.8	173	-0.20	-0.06	196	0.21	197	0.27	193	0.15	197	0.24	195	0.18
44.00	44.00	0.8	166	-0.21	-0.06	195	0.22	197	0.29	193	0.16	196	0.26	194	0.19
45.00	45.00	0.7	176	-0.23	-0.06	194	0.23	196	0.30	192	0.17	195	0.27	193	0.20
46.00	46.00	0.8	168	-0.24	-0.06	194	0.25	195	0.32	191	0.18	194	0.28	193	0.21
47.00	47.00	0.7	165	-0.25	-0.06	193	0.26	195	0.33	191	0.19	194	0.30	193	0.22
48.00	48.00	0.7	181	-0.27	-0.06	193	0.27	194	0.35	191	0.19	194	0.31	192	0.23
49.00	49.00	0.7	190	-0.28	-0.06	193	0.29	194	0.37	191	0.20	194	0.33	192	0.24
50.00	50.00	0.9	196	-0.29	-0.07	193	0.30	194	0.38	191	0.21	193	0.34	192	0.26
51.00	51.00	0.6	207	-0.30	-0.07	193	0.31	194	0.40	191	0.22	193	0.35	192	0.27
52.00	52.00	0.8	197	-0.32	-0.07	193	0.32	194	0.42	191	0.23	193	0.37	192	0.28
53.00	53.00	0.8	196	-0.33	-0.07	193	0.34	194	0.43	191	0.24	193	0.38	192	0.29
54.00	54.00	0.8	192	-0.34	-0.08	193	0.35	194	0.45	191	0.25	193	0.40	192	0.30
55.00	55.00	1.0	194	-0.36	-0.08	193	0.37	194	0.47	191	0.26	193	0.42	192	0.31
56.00	56.00	1.0	205	-0.37	-0.09	193	0.38	194	0.49	192	0.28	194	0.43	193	0.33
57.00	57.00	0.7	202	-0.39	-0.09	194	0.40	194	0.51	192	0.29	194	0.45	193	0.34
58.00	58.00	0.7	199	-0.40	-0.10	194	0.41	195	0.52	193	0.30	194	0.47	193	0.36
59.00	59.00	1.0	196	-0.42	-0.10	194	0.43	195	0.54	193	0.31	195	0.49	194	0.37
60.00	60.00	1.0	207	-0.43	-0.11	195	0.45	195	0.56	194	0.33	195	0.50	194	0.39
61.00	61.00	1.0	203	-0.45	-0.12	195	0.46	196	0.59	194	0.34	195	0.52	195	0.40
62.00	62.00	1.0	210	-0.46	-0.13	195	0.48	196	0.61	194	0.35	196	0.54	195	0.42
63.00	63.00	1.0	206	-0.48	-0.13	196	0.50	196	0.63	195	0.37	196	0.56	195	0.43
64.00	64.00	1.0	203	-0.49	-0.14	196	0.51	197	0.65	195	0.38	196	0.58	196	0.45
65.00	65.00	0.9	209	-0.51	-0.15	196	0.53	197	0.67	196	0.40	197	0.60	196	0.46
66.00	66.00	1.1	209	-0.53	-0.16	197	0.55	197	0.69	196	0.41	197	0.62	196	0.48
67.00	67.00	1.1	208	-0.54	-0.17	197	0.57	197	0.71	196	0.42	197	0.64	197	0.50
68.00	67.99	1.1	206	-0.56	-0.18	197	0.59	198	0.73	197	0.44	198	0.66	197	0.51
69.00	68.99	1.3	206	-0.58	-0.18	198	0.61	198	0.76	197	0.46	198	0.68	198	0.53
70.00	69.99	1.1	204	-0.60	-0.20	198	0.63	198	0.78	198	0.47	198	0.70	198	0.55
71.00	70.99	1.5	214	-0.62	-0.21	199	0.65	199	0.81	198	0.49	199	0.73	198	0.57
72.00	71.99	1.3	206	-0.63	-0.22	199	0.67	199	0.83	199	0.51	199	0.75	199	0.59
73.00	72.99	1.3	206	-0.66	-0.23	199	0.69	200	0.86	199	0.53	199	0.78	199	0.61
74.00	73.99	1.5	208	-0.68	-0.24	200	0.72	200	0.89	200	0.55	200	0.80	200	0.64
75.00	74.99	1.5	208	-0.70	-0.26	200	0.74	200	0.91	200	0.57	200	0.83	200	0.66
76.00	75.99	1.5	214	-0.72	-0.27	201	0.77	201	0.94	200	0.59	201	0.86	200	0.68
77.00	76.99	1.5	214	-0.74	-0.28	201	0.79	201	0.97	201	0.61	201	0.88	201	0.70
78.00	77.99	1.5	215	-0.76	-0.30	201	0.82	201	1.00	201	0.64	201	0.91	201	0.73
79.00	78.99	1.5	210	-0.78	-0.31	201	0.84	202	1.03	201	0.66	202	0.94	201	0.75
80.00	79.99	1.5	211	-0.81	-0.32	202	0.87	202	1.06	202	0.68	202	0.96	202	0.78
81.00	80.99	1.6	212	-0.83	-0.34	202	0.90	202	1.09	202	0.70	202	0.99	202	0.80
82.00	81.99	1.6	212	-0.86	-0.35	202	0.92	202	1.12	202	0.73	202	1.02	202	0.83
83.00	82.99	1.6	213	-0.88	-0.36	203	0.95	202	1.15	203	0.75	203	1.05	203	0.85
84.00	83.99	1.6	214	-0.90	-0.38	203	0.98	203	1.18	203	0.78	203	1.08	203	0.88
85.00	84.99	1.6	213	-0.93	-0.39	203	1.01	203	1.21	203	0.80	203	1.11	203	0.91
86.00	85.99	1.6	212	-0.95	-0.41	203	1.04	203	1.24	203	0.83	203	1.14	203	0.93
87.00	86.99	1.7	206	-0.98	-0.42	203	1.06	203	1.28	204	0.85	203	1.17	204	0.96
88.00	87.99	1.6	208	-1.00	-0.44	204	1.09	203	1.31	204	0.88	204	1.20	204	0.98
89.00	88.99	1.6	215	-1.02	-0.45	204	1.12	204	1.34	204	0.90	204	1.23	204	1.01
90.00	89.99	1.6	214	-1.05	-0.47	204	1.15	204	1.37	204	0.93	204	1.26	204	1.04
91.00	90.99	1.6	207	-1.07	-0.48	204	1.18	204	1.40	204	0.95	204	1.29	204	1.06
92.00	91.99	1.6	214	-1.10	-0.50	204	1.21	204	1.44	205	0.98	204	1.32	204	1.09
93.00	92.99	1.6	214	-1.12	-0.51	205	1.23	204	1.47	205	1.00	204	1.35	205	1.12
94.00	93.99	1.6	213	-1.15	-0.53	205	1.26	205	1.50	205	1.03	205	1.38	205	1.15
95.00	94.99	1.6	214	-1.17	-0.55	205	1.29	205	1.53	205	1.05	205	1.41	205	1.17
96.00	95.98	1.6	208	-1.20	-0.56	205	1.32	205	1.57	205	1.08	205	1.45	205	1.20
97.00	96.98	1.5	216	-1.22	-0.58	205	1.35	205	1.60	206	1.11	205	1.48	205	1.23
98.00	97.98	1.5	224	-1.25	-0.60	206	1.38	205	1.63	206	1.13	205	1.51	206	1.26
99.00	98.98	1.7	221	-1.27	-0.61	206	1.41	206	1.66	206	1.16	206	1.54	206	1.28
99.20	99.18	1.6	224	-1.27	-0.62	206	1.41	206	1.67	206	1.16	206	1.54	206	1.29

CROSS SECTION

ALL FIGURES IN LOG DEPTH MS
TARGET ORIGIN DEPTH.....16.80
LAST PLOTTED DEPTH......99.20
DEPTH MARKERS ANNOTATED
IN MULTIPLES OF.........5
FIRST DEPTH MARKER AT...20
LAST DEPTH MARKER AT....95

PLOT WITH RESPECT TO TRUE NORTH
SCALE 20:1
DECLINATION 22.1 DEG.



BOREHOLE POSITIONAL ERROR
THE TWO BOXES SURROUNDING THE LAST PLOTTED DEPTH SHOW THE TYPICAL. AND MAXIMUM. POSITIONAL ERROR AT THAT DEPTH.

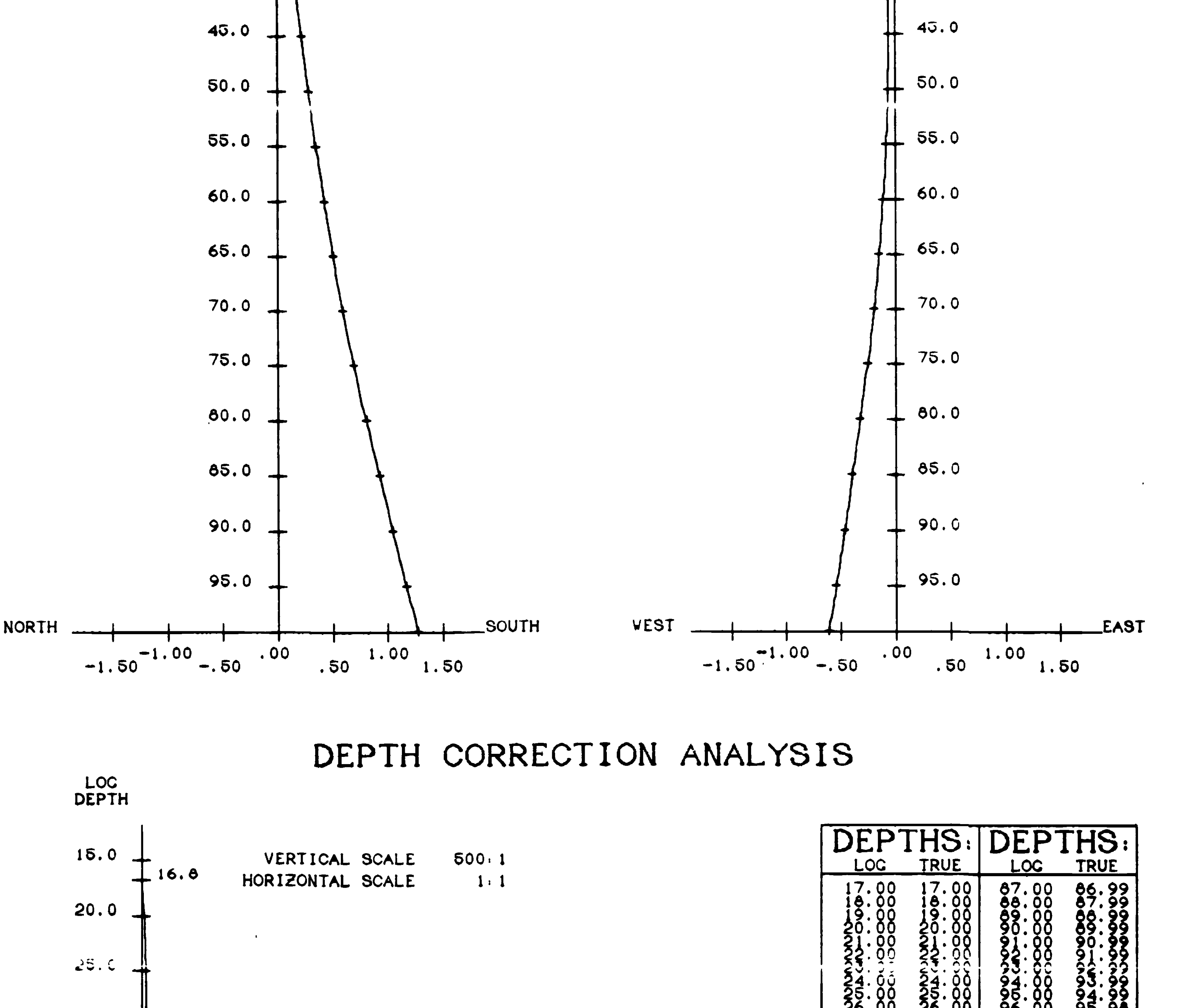
FINAL BOREHOLE POSITION
THE LAST PLOTTED DEPTH IS AT 1.27 MS SOUTH. .62 MS VEST IE. 1.41 MS FROM THE ORIGIN. 206 DEG FROM TRUE NORTH

VERTICAL SECTIONS
(TRUE DEPTH VS DISPLACEMENT)

N-S SECTION — E-W SECTION

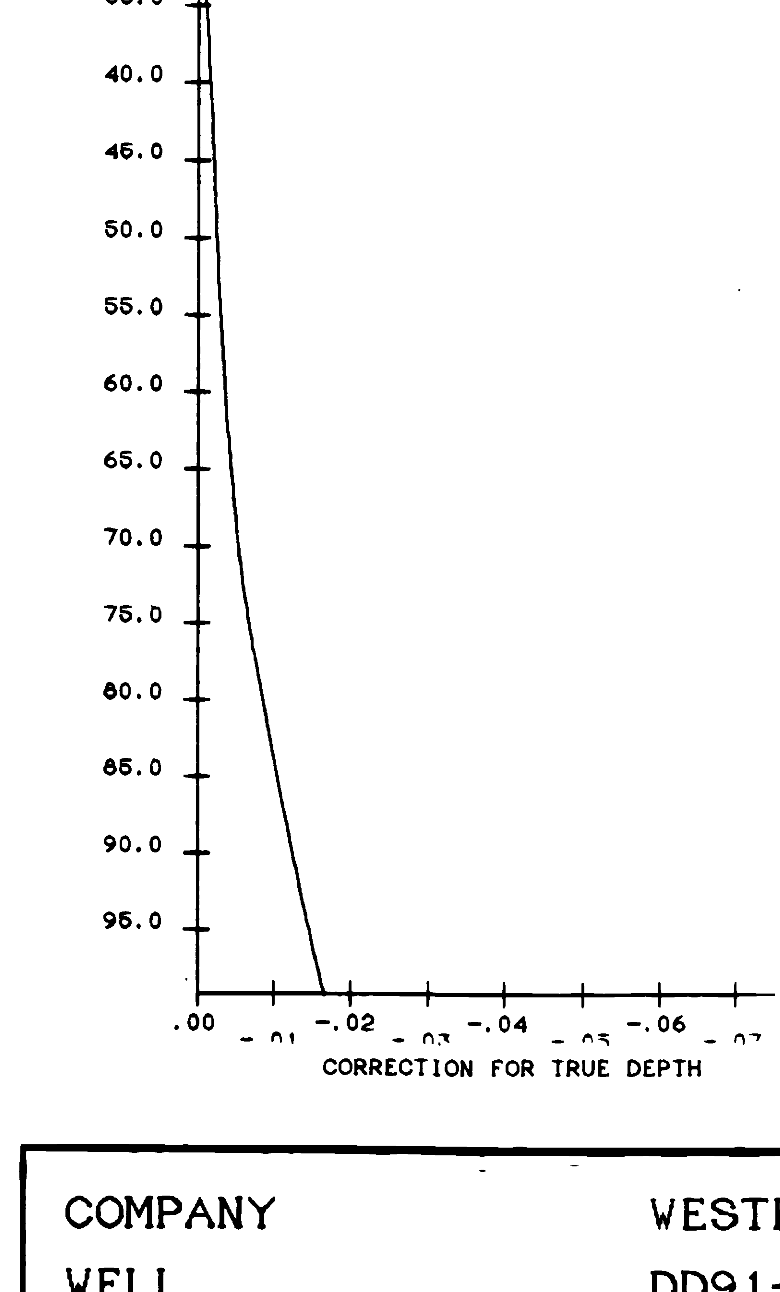
VERTICAL SCALE 500:1
HORIZONTAL SCALE 50:1

MARKERS ANNOTATED AS ABOVE



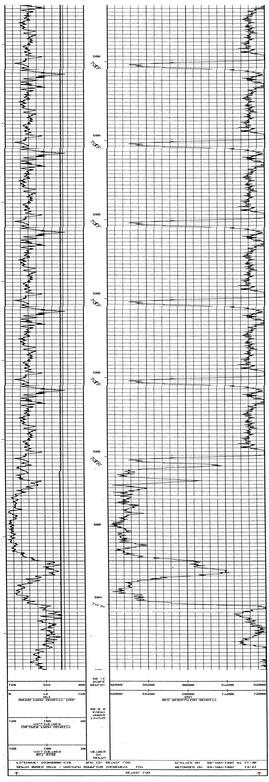
DEPTH CORRECTION ANALYSIS

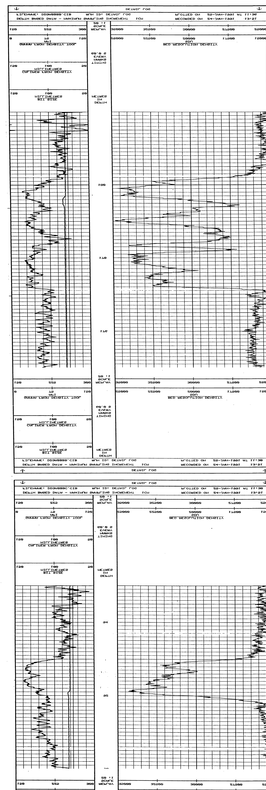
VERTICAL SCALE 500:1
HORIZONTAL SCALE 1:1

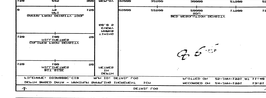


DEPTHS: LOG	TRUE	DEPTHS: LOG	TRUE
17.00	17.00	87.00	86.99
18.00	18.00	88.00	87.99
19.00	19.00	89.00	88.99
20.00	20.00	90.00	89.99
21.00	21.00	91.00	90.99
22.00	22.00	92.00	91.99
23.00	23.00	93.00	92.99
24.00	24.00	94.00	93.99
25.00	25.00	95.00	94.99
26.00	26.00	96.00	95.98
27.00	27.00	97.00	96.98
28.00	28.00	98.00	97.98
29.00	29.00	99.00	98.98
30.00	30.00	99.20	99.18
31.00	31.00		
32.00	32.00		
33.00	33.00		
34.00	34.00		
35.00	35.00		
36.00	36.00		
37.00	37.00		
38.00	38.00		
39.00	39.00		
40.00	40.00		
41.00	41.00		
42.00	42.00		
43.00	43.00		
44.00	44.00		
45.00	45.00		
46.00	46.00		
47.00	47.00		
48.00	48.00		
49.00	49.00		
50.00	50.00		
51.00	51.00		
52.00	52.00		
53.00	53.00		
54.00	54.00		
55.00	55.00		
56.00	56.00		
57.00	57.00		
58.00	58.00		
59.00	59.00		
60.00	60.00		
61.00	61.00		
62.00	62.00		
63.00	63.00		
64.00	64.00		
65.00	65.00		
66.00	66.00		
67.00	67.00		
68.00	67.99		
69.00	68.99		
70.00	69.99		
71.00	70.99		
72.00	71.99		
73.00	72.99		
74.00	73.99		
75.00	74.99		
76.00	75.99		
77.00	76.99		
78.00	77.99		
79.00	78.99		
80.00	79.99		
81.00	80.99		
82.00	81.99		
83.00	82.99		
84.00	83.99		
85.00	84.99		
86.00	85.99		

COMPANY	WESTERN CANADIAN MINING CORP.
WELL	DD91-20
FIELD	WELDWOOD COAL PROJ.
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA







Borehole:	DD90-04	
Client:	WESTERN CANADIAN MINING CORP.	FOCUSSED ELECTRIC
Field:	WELDWOOD COAL PROJ.	GAMMA RAY
Area:	BRITISH COLUMBIA	
Country:	CANADA	

SLIMLINE GRAPHICS UNIT

Permanent Datum GROUND LEVEL, Elevation N/A	KB N/A	Location
Log measured from GROUND LEVEL above permanent datum	DF N/A	COURTENAY
Drilling measured from GROUND LEVEL above permanent datum	GL N/A	

Date	13-DEC-1990					LSD
Run Number	1					SEC
Depth-Driller	222.5m					TWP
Depth-Logger	221.9m					RGE
First Reading	221.0m					OTHER SERVICES
Last Reading	00.0m					CDL,CNL,MCS
Casing-Driller	6.1m					BRD,DIP
Casing-Logger	6.1m					
Bit Size	NQ 2					
Hole Fluid Type	MUD					
Dens./Visc.	1.02 N/A					
PH/Fluid Loss	N/A N/A					
Sample Source	PIT					
Rm @ Meas Temp	24.6 @ 10.2C					
Rmf @ Meas Temp	N/A					
Rmc @ Meas Temp	N/A					
Source: Rmf/Rmc	N/A N/A					
Rm @ BHT	24.6 @ 10.2C					
Time Since Circ	2.0 hrs.					
Max Rec Temp	10.2C					
Equipment/Base	V222 RDR					
Recorded by	B PICHE					
Witnessed by	S CASSELMAN					

866

RUN NUMBER	BOREHOLE RECORD BIT	FROM	TO	CASING RECORD SIZE	WEIGHT	FROM	TO
1	NQ 2	6.1m	TD	76.2mm	N/A	00.0m	6.1m

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
FE,DD3	104,153			

REMARKS:
FOCUSSED ELECTRIC GAMMA RAY

FLUID LEVEL @ 12.3m

SYSTEM CONFIGURATION DATES: LOGGED 1-FEB-1990 PROCESSED 1-FEB-1990 PLOTTED 24-AUG-1990

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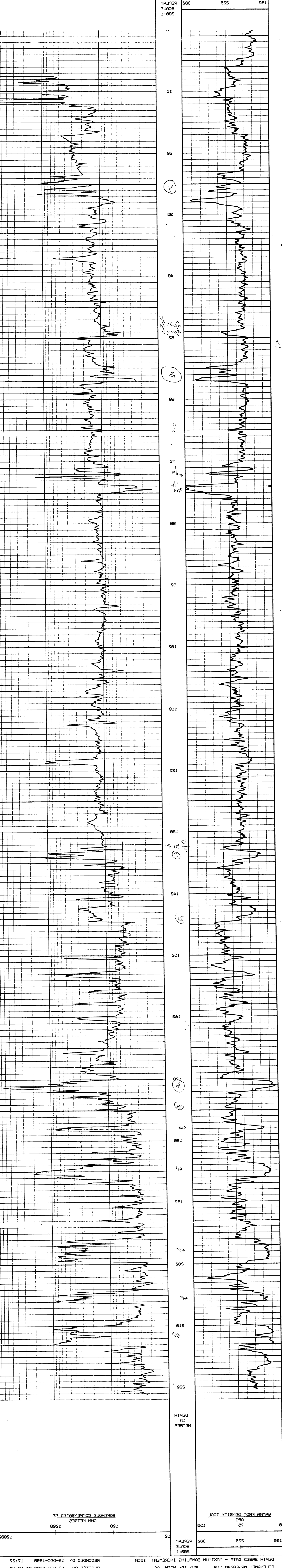
MAIN LOG

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM RECORDED ON 13-DEC-1990 17:27
FILENAME: MRGE004M.CIB RUN ID: MAIN LOG PLOTTED ON 13-DEC-1990 AT 18:20

GAMMA FROM DENSITY TOOL (API 0 – 75 – 150; 150 – 225 – 300) | DEPTH IN METRES, REPLAY SCALE 200:1 | BOREHOLE COMPENSATED FE (OHM METRES 10 – 100 – 1000 – 10000)

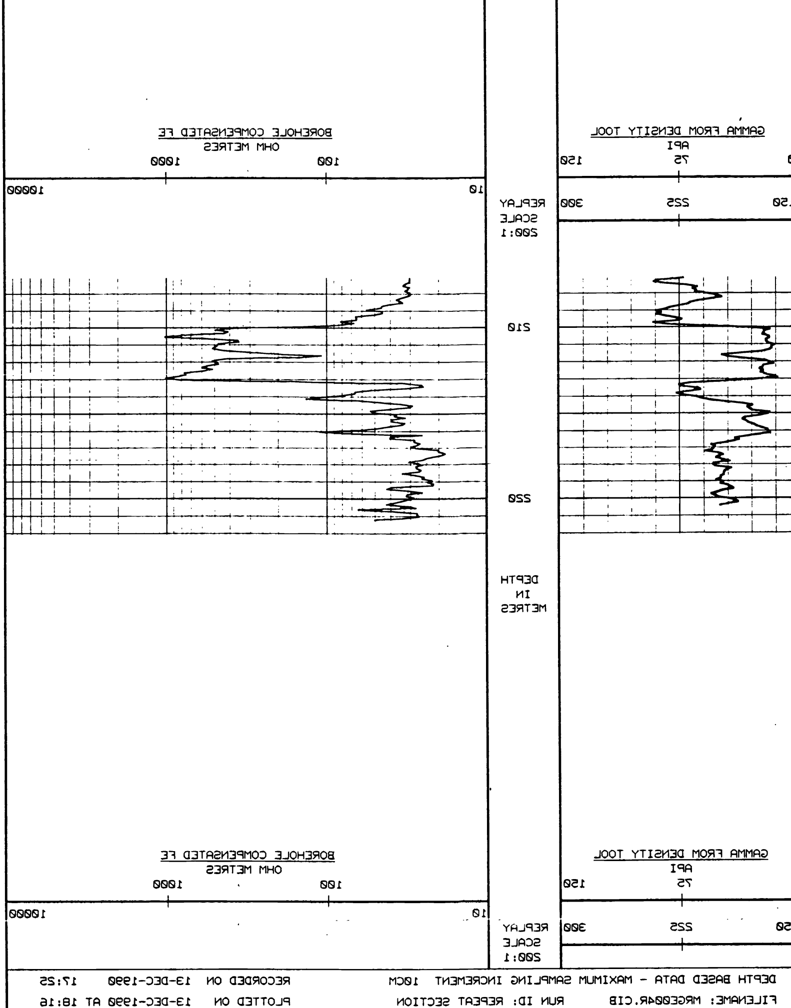


GAMMA FROM DENSITY TOOL (API) | REPLAY SCALE 200:1 | BOREHOLE COMPENSATED FE (OHM METRES)

FILENAME: MRGE004M.CIB RUN ID: MAIN LOG PLOTTED ON 13-DEC-1990 AT 18:20
DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM RECORDED ON 13-DEC-1990 17:27

REPEAT SECTION

GAMMA FROM DENSITY TOOL (API) | DEPTH IN METRES | BOREHOLE COMPENSATED FE (OHM METRES)



GAMMA FROM DENSITY TOOL (API 0 – 75 – 150; 150 – 225 – 300) | REPLAY SCALE 200:1 | BOREHOLE COMPENSATED FE (OHM METRES 10 – 100 – 1000 – 10000)

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM RECORDED ON 13-DEC-1990 17:25
FILENAME: MRGE004R.CIB RUN ID: REPEAT SECTION PLOTTED ON 13-DEC-1990 AT 18:16

REPEAT SECTION

CLIENT	WESTERN CANADIAN MINING CORP.
BOREHOLE	DD90-04
FIELD	WELDWOOD COAL PROJ.
AREA	BRITISH COLUMBIA
COUNTRY	CANADA

DIPMETER ANALYSIS

SLIMLINE UNIT

COMPANY: WESTERN CANADIAN MINING CORP.
WELL: DD90-04
FIELD: WELDWOOD COAL PROJ.
PROVINCE/COUNTY: BRITISH COLUMBIA
COUNTRY: CANADA

LOCATION: COURTENAY
PROVINCE/CO.: BRITISH COLUMBIA
FIELD: WELDWOOD COAL PROJ.
WELL: DD90-04
COMPANY: WESTERN CANADIAN MINING CORP.

DRILLING MEASURED FROM:	ELEVATION	PERMANENT DATUM	LOG MEASURED FROM	DRILLING MEASURED FROM
KELLY BUSHING	N/A	GROUND LEVEL	KELLY BUSHING	KELLY BUSHING

RUN NUMBER	DATE	DEPTH-DRILLER	DEPTH-LOGGER	BTM LOG INTERVAL	TOP LOG INTERVAL	CASING-DRILLER	CASING-LOGGER	BIT SIZE	TYPE FLUID IN HOLE	DENSITY	VISCOSITY	PH	FLUID LOSS	SOURCE OF SAMPLE	RM @ MEAS TEMP	RMF @ MEAS TEMP	RMC @ MEAS TEMP	SOURCE OF RMF	SOURCE OF RMC	RM @ BHT	TIME SINCE CIRC	MAX REC TEMP	EQUIP LOCATION	RECORDED BY	WITNESSED BY
1	13-DEC-90	220.0M	220.0M	220.0M	74.0M	74.0M	74.0M	NQ-2	WATER	1.0	26	8.0	N/A	MUD PIT	0.0 OHMM @ 0.0 DEGF	0.0 OHMM @ 0.0 DEGF	0.0 OHMM @ 0.0 DEGF	MEAS	MEAS	0.0 OHMM @ 0.0 DEGF	0 HR	0.0 DEGF	3-3	R. ELLIOTT	N/A

RUN	BOREHOLE RECORD			CASING RECORD			
NUMBER	BIT	FROM	TO	SIZE	WEIGHT	FROM	TO
1	NQ-2	6.1M	TO	74.0MM	N/A	00.0M	6.1M

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
DIP.000	221.229.153			

REMARKS

DIPMETER ANALYSIS — SLIMLINE UNIT

FLUID LEVEL @ 12.2M

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DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM. RECORDED ON 13-DEC-1990 AT 15:28
FILENAME: DIP2004M.C1B RUN ID: DIPMETER ANALYSIS PLOTTED ON 13-DEC-1990 AT 19:17

DIPMETER ANALYSIS

DEPTH IN METRES

GAMMA RAY API 0 75 150 / 150 225 300

TIMING MARKS EVERY 60 SEC

DIPMETER CALIPER MM 150 100 50

REPLAY SCALE 200:1

PAD 3 OHM 4000 1500 -1000

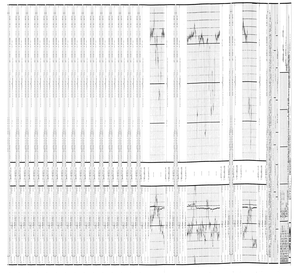
PAD 2 OHM 5000 2000 0

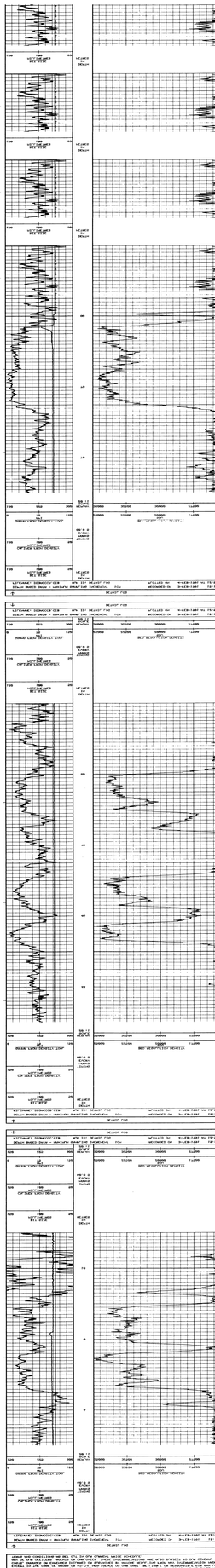
PAD 1 OHM 6000 3000 1000

FORMATION DIP SOLID TADPOLES > 5.0° HOLLOW > 30 0 30 60

DEPTH IN METRES
GAMMA RAY API 0 75 150 / 150 225 300
TIMING MARKS EVERY 60 SEC
DIPMETER CALIPER MM 150 100 50
REPLAY SCALE 200:1
PAD 3 OHM 4000 1500 -1000
PAD 2 OHM 5000 2000 0
PAD 1 OHM 6000 3000 1000
FORMATION DIP SOLID TADPOLES > 5.0° HOLLOW > 30 0 30 60
DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM. RECORDED ON 13-DEC-1990 AT 15:28
FILENAME: DIP2004M.C1B RUN ID: DIPMETER ANALYSIS PLOTTED ON 13-DEC-1990 AT 19:17
DIPMETER ANALYSIS

COMPANY	WESTERN CANADIAN MINING CORP.
WELL	DD90-04
FIELD	WELDWOOD COAL PROJ.
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA





See

Borehole: DDH-14
Client: WESTERN CANADIAN MINING CORP.
Area: HELLWOOD COAL PROJ.
Prov: BRITISH COLUMBIA
Country: CANADA

FOCUSSED ELECTRIC
GAMMA RAY

SCHLUMBERGER CANADA LIMITED

Permanent Datum	GROUND LEVEL	Elevation	0 m
Log Measured from	GROUND LEVEL	0.0 m Above Permanent Datum	
Drilling Measured from	GROUND LEVEL	0.0 m Above Permanent Datum	
Date	27-JAN-1991		
Run Number	ONE		
Depth Driller	193.5m		
Depth Logger	192.9m		
First Reading	193.0m		
Last Reading	8.0m		
Casing/Driller	3.0m		
Casing/Logger	3.0m		
Bit Size	NQ 2		
Mate Fluid Type	WATER		
Mate/Visc	1.000E3 N/M		
Mate/Density	1.0E3 KG/M3		
Rm @ Meas Temp	N/M		
Rmf @ Meas Temp	N/M		
Rmc @ Meas Temp	N/M		
Source of Rm/Rmf/Rmc	N/M		
Rm @ BHT	1.2 @ 5b		
Max Rec Temp	5b		
Equipment/Base	1000 / NDM		
Witnessed By	C.CHRISTOPHER		

DP N/M	
DC N/M	
SL N/M	

LOCATION
COURTENAY

LOG TYPE
GR
NEUT
DEN
MAG

OTHER SERVICES
CAL,CPL
MCN,BMG

866

RUN	BOREHOLE RECORD			CASING RECORD			
NUMBER	BIT	FROM	TO	SIZE	WEIGHT	FROM	TO
ONE	NQ 2	3.0m	TD	NQ	N/M	SURFACE	3.0m

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
RBA-CCB	1BA/110			

REMARKS:
FOCUSSED ELECTRIC GAMMA RAY

SYSTEM CONFIGURATION DATES: LOGGED 1-FEB-1988 PROCESSED 1-FEB-1988 PLOTTED 11-JAN-1991

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MAIN LOG

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 27-JAN-1991 9:27
FILENAME: MAGE04R.C1B — RUN 1: MAIN LOG — PLOTTED ON 27-JAN-1991 AT 9:25

DEPTH IN METRES

GAMMA RAY FROM DENSITY TOOL
API
0 75 150

BOREHOLE COMPENSATED FE
OHM METRES
10 100 1000 10000

REPLAY SCALE 200:1

150 225 300

0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
190

DEPTH IN METRES

GAMMA RAY FROM DENSITY TOOL
API
0 75 150

BOREHOLE COMPENSATED FE
OHM METRES
10 100 1000 10000

REPLAY SCALE 200:1

150 225 300

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 27-JAN-1991 9:27
FILENAME: MAGE04R.C1B — RUN 1: MAIN LOG — PLOTTED ON 27-JAN-1991 AT 9:32

MAIN LOG

REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 27-JAN-1991 9:33
FILENAME: MAGE04R.C1B — RUN 2: REPEAT SECTION — PLOTTED ON 27-JAN-1991 AT 9:22

DEPTH IN METRES

GAMMA RAY FROM DENSITY TOOL
API
0 75 150

BOREHOLE COMPENSATED FE
OHM METRES
10 100 1000 10000

REPLAY SCALE 200:1

150 225 300

150
160
170
180
190

DEPTH IN METRES

GAMMA RAY FROM DENSITY TOOL
API
0 75 150

BOREHOLE COMPENSATED FE
OHM METRES
10 100 1000 10000

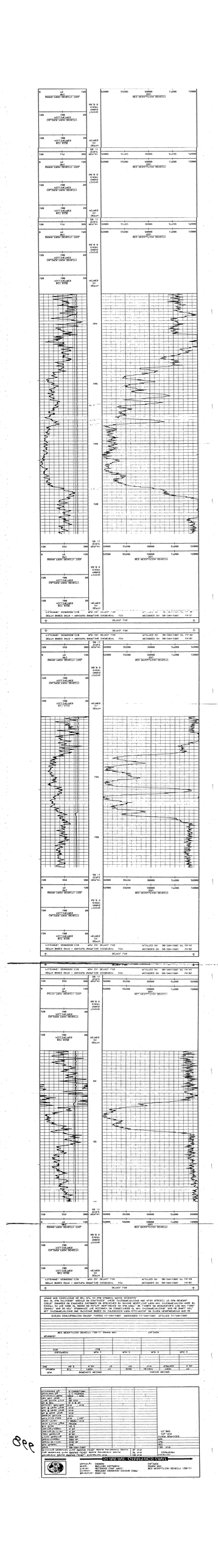
REPLAY SCALE 200:1

150 225 300

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 27-JAN-1991 9:33
FILENAME: MAGE04R.C1B — RUN 2: REPEAT SECTION — PLOTTED ON 27-JAN-1991 AT 9:22

REPEAT SECTION

Client: WESTERN CANADIAN MINING CORP.
Borehole: DDH-14
Field: HELLWOOD COAL PROJ.
Area: BRITISH COLUMBIA
Country: CANADA



Borehole: DD91-11
Client: WESTERN CANADIAN MINING CORP.
Field: HELDWOOD COAL PROJ.
Area: BRITISH COLUMBIA
Country: CANADA

BED RESOLUTION DENSITY (20:1)
GAMMA RAY
CALIPER

SLIMLINE GRAPHICS UNIT

Permanent Datum GROUND LEVEL, Elevation N/A	KB N/A	Location COURTENAY	
Log measured from GROUND LEVEL above permanent datum	DF N/A		
Drilling measured from GROUND LEVEL above permanent datum	GL N/A	LSD N/A	
		SEC	
		TWP	
		RGE	
		OTHER SERVICES CNL,MCS FE,CCS	

Date	28-JAN-1991		
Run Number	ONE		
Depth-Driller	155.1m		
Depth-Logger	155.0m		
First Reading	154.7m		
Last Reading	0.0m		
Casing-Driller	3.0m		
Casing-Logger	3.0m		
Bit Size	NQ 2		
Hole Fluid Type	WATER		
Dens./Visc.	1.03SG/ N/A		
PH/Fluid Loss	N/A / NIL		
Sample Source	PIT		
Rm @ Meas Temp	N/A		
Rmf @ Meas Temp	N/A		
Rmc @ Meas Temp	N/A		
Source: Rmf/Rmc	N/A / N/A		
Rm @ BHT	6.3 @ 9C		
Time Since Circ	30 MIN		
Max Rec Temp	9C		
Equipment/Base	V829 / RDR		
Recorded By	J.C.WISPER		
Witnessed By	S.CRASSLMAN		

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RUN NUMBER	BOREHOLE RECORD BIT	FROM	TO	CASING RECORD SIZE	WEIGHT	FROM	TO
ONE	NQ 2	3.0m	TD	NQ	N/A	SURFACE	3.0m

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
CCS	118			

REMARKS:
BED RESOLUTION DENSITY (20:1) GAMMA RAY CALIPER

SYSTEM CONFIGURATION DATES: LOGGED 11-JAN-1991 PROCESSED 11-JAN-1991 PLOTTED 11-JAN-1991

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DETAIL LOG

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 1CM
RECORDED ON 28-JAN-1991 5:56
FILENAME: DD3ACCCA.CIB RUN ID: DETAIL LOG
PLOTTED ON 29-JAN-1991 AT 16:38

BIT SIZE MILLIMETRES 150 100 50
DEPTH IN METRES
CALIPER FROM DENSITY MILLIMETRES 150 100 50
TIMING MARKS EVERY 60.0 S
GAMMA FROM DENSITY TOOL API 0 75 150
BED RESOLUTION DENSITY SDU 25000 22500 20000 17500 15000
150 225 300
REPLAY SCALE 20 :1
35000 32500 30000 27500 25000

96

98

100

BIT SIZE MILLIMETRES 150 100 50
DEPTH IN METRES
CALIPER FROM DENSITY MILLIMETRES 150 100 50
TIMING MARKS EVERY 60.0 S
GAMMA FROM DENSITY TOOL API 0 75 150
BED RESOLUTION DENSITY SDU 25000 22500 20000 17500 15000
150 225 300
REPLAY SCALE 20 :1
35000 32500 30000 27500 25000
DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 1CM
RECORDED ON 28-JAN-1991 5:56
FILENAME: DD3ACCCA.CIB RUN ID: DETAIL LOG
PLOTTED ON 29-JAN-1991 AT 16:36
DETAIL LOG

LOGGING/CALIBRATION CONSTANTS

LOGGING CONSTANTS

Sonde Type (DD3,CCS)	CCS	Sonde Mode (WET,DRY,STD)	WET
Mud Weight	1.01	Strip Coefficient	0.50
Annular Volume Diameter	127.00	Water Level	0.00
Caliper Arm Length (CMS)	29.60	Matrix Density	2.71
Caliper Units(INS,MMS)	MILLIMTR	Density of Mud Filtrate	1.00
Brd point one	1.00	Brd point two	3.00
Density point one	1.00	Density point two	3.00
Density scalar	1.40	Brd scalar	-.40
Bit depths & water level (FT,M)	METRES	Caliper source for processing	CAL
Bit size 1	88.00	Bit depth 1	.00
Bit size 2	76.23	Bit depth 2	3.00
Bit size 3	.00	Bit depth 3	155.10
Bit size 4	.00	Bit depth 4	.00
Bit size 5	.00	Bit depth 5	.00

CALIBRATION CONSTANTS

Gamma calibrator value 1	494.00	Gamma count rate 1	304.00
Brd calibrator value 1	25000.00	Brd count rate 1	2973.00
Brd calibrator value 2	.00	Brd count rate 2	.00
Lsd calibrator value 1	10300.00	Lsd count rate 1	1503.30
Caliper ring size 1	76.20	Caliper count for ring 1	522.00
Caliper ring size 2	101.60	Caliper count for ring 2	576.00
Caliper ring size 3	127.00	Caliper count for ring 3	629.00
Caliper ring size 4	152.40	Caliper count for ring 4	687.00
Caliper ring size 5	203.20	Caliper count for ring 5	740.00
Caliper ring size 6	254.00	Caliper count for ring 6	795.00

CLIENT	WESTERN CANADIAN MINING CORP.
BOREHOLE	DD91-11
FIELD	HELDWOOD COAL PROJ.
AREA	BRITISH COLUMBIA
COUNTRY	CANADA

DIPMETER ANALYSIS

SLIMLINE UNIT

COMPANY WESTERN CANADIAN MINING CORP.
WELL DD91-18
FIELD WELDWOOD COAL PROJ.
PROV/STATE BRITISH COLUMBIA
COUNTRY/STATE CANADA

LOCATION COURTENAY
PROV/CO. BRITISH COLUMBIA
FIELD WELDWOOD COAL PROJ.
WELL DD91-18
COMPANY WESTERN CANADIAN MINING CORP.

LSD	SEC	TWP	RGE	OTHER SERVICES
N/A				CDN.,CNL.,FE BRD.MCS

LOCATION	COURTENAY
COUNTRY/STATE	CANADA
ELEVATIONS	KB N/A GL N/A DF N/A

DATE	04-FEB-1991
RUN NUMBER	ONE
DEPTH-DRILLER	156.0M
DEPTH-LOGGER	157.0M
BTM LOG INTERVAL	157.0M
TOP LOG INTERVAL	3.0M
CASING-DRILLER	3.0M
CASING-LOGGER	NO 2
BIT SIZE	3.0M
TYPE FLUID IN HOLE	WATER
DENS. VISC.	N/A N/A
PH	N/A
FLUID LOSS	N/A
SOURCE OF SAMPLE	N/A
RM @ MEAS. TEMP.	N/A
RMF @ MEAS. TEMP.	N/A
RMC @ MEAS. TEMP.	N/A
SOURCE: RMF/RMC	N/A
RM @ BHT	6.4 @ 30C
RMF @ BHT	6.4 @ 30C
RMC @ BHT	N/A
MAX REC. TEMP.	6.4 @ 30C
EQUIPMENT NO.	221/226
LOGGING DISTRICT	N/A
LOGGED BY	V.C.VERLEIR
WITNESSED BY	S.CARDERON

DRILLING MEASURED FROM GROUND LEVEL. LAST PERMANENT DATUM IS 0.0M ABOVE GROUND LEVEL.

RUN	BOREHOLE RECORD			CASING RECORD			
NUMBER	BIT	FROM	TO	SIZE	WEIGHT	FROM	TO
ONE	NQ 2	3.0M	TD	NQ	N/A	SURFACE	3.0M

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
DIP/VERT	221/226			

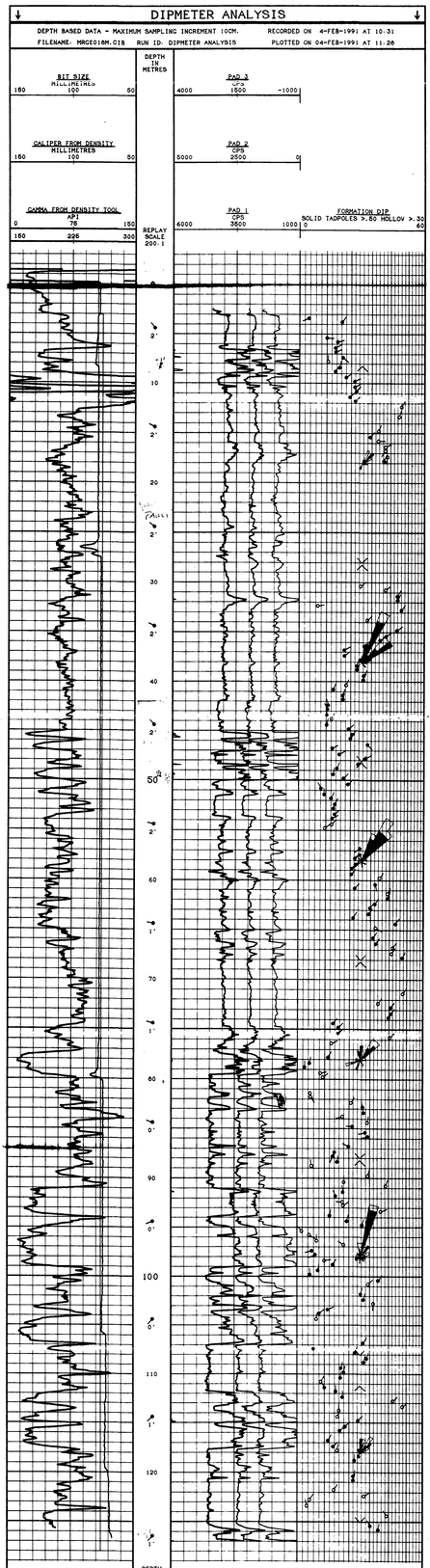
REMARKS

DIPMETER ANALYSIS — SLIMLINE UNIT

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT, GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS. A WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSE INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS IN OUR PRICE SCHEDULE

DIPMETER ANALYSIS

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM. RECORDED ON 4-FEB-1991 AT 10:31
FILENAME: MRCE016M.C1B RUN ID: DIPMETER ANALYSIS PLOTTED ON 04-FEB-1991 AT 11:26



DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM. RECORDED ON 4-FEB-1991 AT 10:31
FILENAME: MRCE016M.C1B RUN ID: DIPMETER ANALYSIS PLOTTED ON 04-FEB-1991 AT 11:26

DIPMETER ANALYSIS

COMPANY	WESTERN CANADIAN MINING CORP.
WELL	DD91-18
FIELD	WELDWOOD COAL PROJ.
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA

DIPMETER ANALYSIS

SLIMLINE UNIT

COMPANY	WESTERN CANADIAN MINING CORP.
WELL	DD90-05
FIELD	WELDWOOD COAL PROJ.
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA

LOCATION COURTENAY

LSD	SEC	TWP	RGE

OTHER SERVICES: BRD. WCS CDL. CNL. FE

COMPANY: WESTERN CANADIAN MINING CORP.
WELL: DD90-05
FIELD: WELDWOOD COAL PROJ.
PRVNC/CO. BRITISH COLUMBIA
LOCATION COURTENAY

PERMANENT DATUM: GROUND LEVEL, ELEVATION N/A
LOG MEASURED FROM: GROUND LEVEL ABOVE PERMANENT DATUM
DRILLING MEASURED FROM: GROUND LEVEL

ELEVATIONS: KB N/A, DF N/A, GL N/A

DATE	17-DEC-90
RUN NUMBER	1
DEPTH-DRILLER	300.4M
DEPTH-LOGGER	300.4M
FIRST READING	279.5M
LAST READING	00.0M
CASING-DRILLER	21.3M
CASING-LOGGER	22.0M
BIT SIZE	NQ 2
HOLE FLUID TYPE	MUD
DENS./VISC.	1.03 / N/A
PH/FLUID LOSS	N/A / N/A
SAMPLE SOURCE	PIT
RM @ MEAS TEMP	11.2 @ 6.3C
RMF @ MEAS TEMP	N/A
RMC @ MEAS TEMP	N/A
SOURCE: RMF/RMC	N/A / N/A
RM @ BHT	11.2 @ 6.3C
TIME SINCE CIRC	9.0 HRS.
MAX REC TEMP	6.3C
EQUIPMENT/BASE	2222 / RDR
RECORDED BY	B PICHE
WITNESSED BY	S CASSELMAN

RUN NUMBER	BOREHOLE RECORD BIT	FROM	TO	CASING RECORD SIZE	WEIGHT	FROM	TO
1	NQ 2	21.3M	TD	76.2MM	N/A	00.0M	22.0M

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
DIP.DD3	226.221.163			

REMARKS

DIPMETER ANALYSIS SLIMLINE UNIT

FLUID LEVEL @ 19.8M

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DIPMETER ANALYSIS

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM. RECORDED ON 17-DEC-1990 AT 06:37
FILENAME: DIP3005M.CIB RUN ID: DIPMETER ANALYSIS PLOTTED ON 17-DEC-1990 AT 21:52

DIPMETER ANALYSIS

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM. RECORDED ON 17-DEC-1990 AT 06:37
FILENAME: DIP3005M.CIB RUN ID: DIPMETER ANALYSIS PLOTTED ON 17-DEC-1990 AT 21:52

LOGGING/CALIBRATION CONSTANTS

LOGGING CONSTANTS & GAMMA CALIBRATION

CORRELATION STEP (M.)	.50	CORRELATION INTERVAL (M.)	1.00
BIT SIZE #1 (MM)	76.20	BIT DEPTH #1 (M.)	0.00
BIT SIZE #2	75.70	BIT DEPTH #2	21.30
BIT SIZE #3	.00	BIT DEPTH #3	280.40
BIT SIZE #4	.00	BIT DEPTH #4	0.00
BIT SIZE #5	.00	BIT DEPTH #5	0.00
GAMMA CALIBRATOR (API)	370.00	GAMMA COUNTS	226.30
UNUSED	XXXXXXXX	SEARCH ANGLE (DEGREES)	60.00
DECLINATION (DEGREES)	22.10 E	DETAIL PAD DATA	YES
CORRELATE	YES	CALIPER UNITS	MM
DEPTH UNITS	METRIC	CALIPER USED IN CALCULATIONS	YES

LEVEL CELL CALIBRATION

TILT(DEGREES)	LC1(COUNTS)	LC2(COUNTS)
-10.00	171.00	171.00
-8.00	181.00	181.00
-6.00	191.00	190.00
-4.00	200.00	201.00
-2.00	210.00	211.00
.00	220.00	220.00
2.00	231.00	232.00
4.00	241.00	242.00
6.00	250.00	252.00
8.00	260.00	260.00
10.00	270.00	272.00
.00	.00	.00
.00	.00	.00
.00	.00	.00
.00	.00	.00
.00	.00	.00
.00	.00	.00
.00	.00	.00
.00	.00	.00
.00	.00	.00

MAGNETOMETER CALIBRATION

	MAG.X	MAG.Y	MAG.Z
MAX.	229.40	229.00	280.00
MIN.	129.10	128.00	80.00

CALIPER CALIBRATION & PAD OFFSETS

CALIBRATOR(MM)	COUNTS	PAD 2 OFFSET(MM)	PAD 3 OFFSET(MM)
76.20	145.00	.00	.00
101.60	162.00	.00	.00
127.00	180.00	.00	.00
152.40	204.00	.00	.00
203.20	241.00	.00	.00
254.00	264.00	.00	.00

COMPANY	WESTERN CANADIAN MINING CORP.
WELL	DD90-05
FIELD	WELDWOOD COAL PROJ.
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA

VERTICALITY ANALYSIS

SLIMLINE UNIT

BPB

LOCATION COURTENAY
PRVNC/CO. BRITISH COLUMBIA
FIELD WELDWOOD COAL PROJ.
WELL: DD91-19
COMPANY: WESTERN CANADIAN MINING CORP.

COMPANY WESTERN CANADIAN MINING CORP.
WELL DD91-19
FIELD WELDWOOD COAL PROJ.
PROVINCE/COUNTY BRITISH COLUMBIA
COUNTRY/STATE CANADA

LOCATION COURTENAY

LSD	SEC	TWP	RGE
N/A			

OTHER SERVICES CDL. CNL. FE BRD. MCS

PERMANENT DATUM GROUND LEVEL . ELEVATION N/A
LOG MEASURED FROM GROUND LEVEL ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS: KB N/A DF N/A GL N/A

DATE	5-FEB-91		
RUN NUMBER	ONE		
DEPTH-DRILLER	121.9M		
DEPTH-LOGGER	121.5M		
FIRST READING	121.3M		
LAST READING	0.0M		
CASING-DRILLER	16.7M		
CASING-LOGGER	16.7M		
BIT SIZE	NQ 2		
HOLE FLUID TYPE	WATER		
DENS./VISC.	1.02GM / N/A		
PH/FLUID LOSS	N/A / NIL		
SAMPLE SOURCE	PIT		
RM @ MEAS TEMP	N/A		
RMF @ MEAS TEMP	N/A		
RMC @ MEAS TEMP	N/A		
SOURCE: RMF/RMC	N/A / N/A		
RM @ BHT	6.3 @ 9C		
TIME SINCE CIRC	30 MIN		
MAX REC TEMP	9C		
EQUIPMENT/BASE	V629 / RDR		
RECORDED BY	J.C.VISNER		
WITNESSED BY	S.CASSELMAN		

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BPB VERTICALITY ANALYSIS INTERPRETATION NOTES

1. ALL PLOTTED OUTPUT IS AUTOMATICALLY SCALED TO OBTAIN THE BEST VISUAL EFFECT WITHIN THE PHYSICAL SPACE AVAILABLE. THE MAXIMUM SCALES BEING 50000:1 (METRIC) AND 48000:1 (IMPERIAL). AND THE MINIMUM 1:1.

2. THE ANALYSIS IS DERIVED BY INTEGRATING 10CM. SAMPLED DATA DOWN THE BOREHOLE. THE LISTING SUPPLIED WILL CONTAIN A MAXIMUM OF 200 POINTS IN MULTIPLES OF 1. 2. 5. 10. 20. 50 OR 100 METRES/ FEET DEPENDING ON THE TOTAL RANGE OF THE ANALYSIS. HOWEVER THE ANALYSIS IS CALCULATED FOR THE ENTIRE RANGE OF THE BOREHOLE AND THE FINAL BOREHOLE POSITION IS INCLUDED IN THE LISTING.

3. COMPUTED VERTICALITY MAY ONLY BE FULLY DERIVED IN OPEN SECTIONS OF THE BOREHOLE. AWAY FROM THE INFLUENCE OF ANY UNUSUAL MAGNETIC EFFECTS (AS THE AZIMUTH CALCULATIONS ARE DERIVED FROM THREE SOLID STATE MAGNETOMETERS). SO THE ANALYSIS WILL GENERALLY BEGIN AT THE END OF THE CASING AND ALL BOREHOLE POSITIONAL INFORMATION WILL RELATE TO THIS DEPTH.

4. UP TO TEN CROSS SECTIONS MAY BE REQUESTED FOR ANY BOREHOLE TO BE DISPLAYED AT ANY SCALE (THE DEFAULT SCALE IS THAT OF THE CROSS-SECTION FOR THE ENTIRE HOLE).

5. BOREHOLE POSITIONAL ERROR IS DERIVED ASSUMING THE FOLLOWING PARAMETERS.

	TILT(DEGREES)	AZIMUTH(DEGREES)
TYPICAL ERROR	+/- 0.3333	+/- 10
MAXIMUM ERROR	+/- 0.5	+/- 15

6. ERROR ANALYSIS MAY BE CALCULATED AND PLOTTED FROM THE DATA LISTING AS FOLLOWS:

A) PLOT THE FOUR COORDINATES FROM THE ERROR LISTING (BASED UPON ZERO AZIMUTH ERROR) ON A TARGET PLOT. ORIGIN AT THE START OF THE ANALYSIS.
B) DESCRIBE ARCS OF +/- 10 DEGREES AND +/- 15 DEGREES (CENTRE AT THE ORIGIN) THROUGH THE INNER AND OUTER POINTS RESPECTIVELY.
C) CONNECT THE RESPECTIVE ARCS TOGETHER WITH STRAIGHT LINES TO GIVE THE TYPICAL AND MAXIMUM BOREHOLE POSITIONAL ERROR.

7. GIVEN BELOW IS A FULL DESCRIPTION OF THE PARAMETERS DISPLAYED ON THE ENSUING LISTING:

LOG DEPTH	THE DEPTH RECORDED ON THE FIELD LOGS FOR THE BOREHOLE.
TRUE DEPTH	THE TRUE VERTICAL DEPTH CORESPONDING TO THE ABOVE DEPTH. CORRECTED FROM THE START OF THE ANALYSIS.
HOLE TILT AND AZIMUTH	THE SAMPLED BOREHOLE ORIENTATION.
AXIAL COORDINATES	THE COORDINATES NORTH AND EAST FROM THE TARGET ORIGIN.
POLAR COORDINATES	THE POLAR. OR RADIAL COORDINATES OF THE BOREHOLE.
ERROR COORDINATES	THE POLAR COORDINATES CORRESPONDING TO THE TYPICAL AND MAXIMUM TILT ERROR.

N.B. THE REFERENCE POINT FOR ALL BEARING ANGLES ON THIS LISTING IS GIVEN AT THE TOP OF EACH SHEET.

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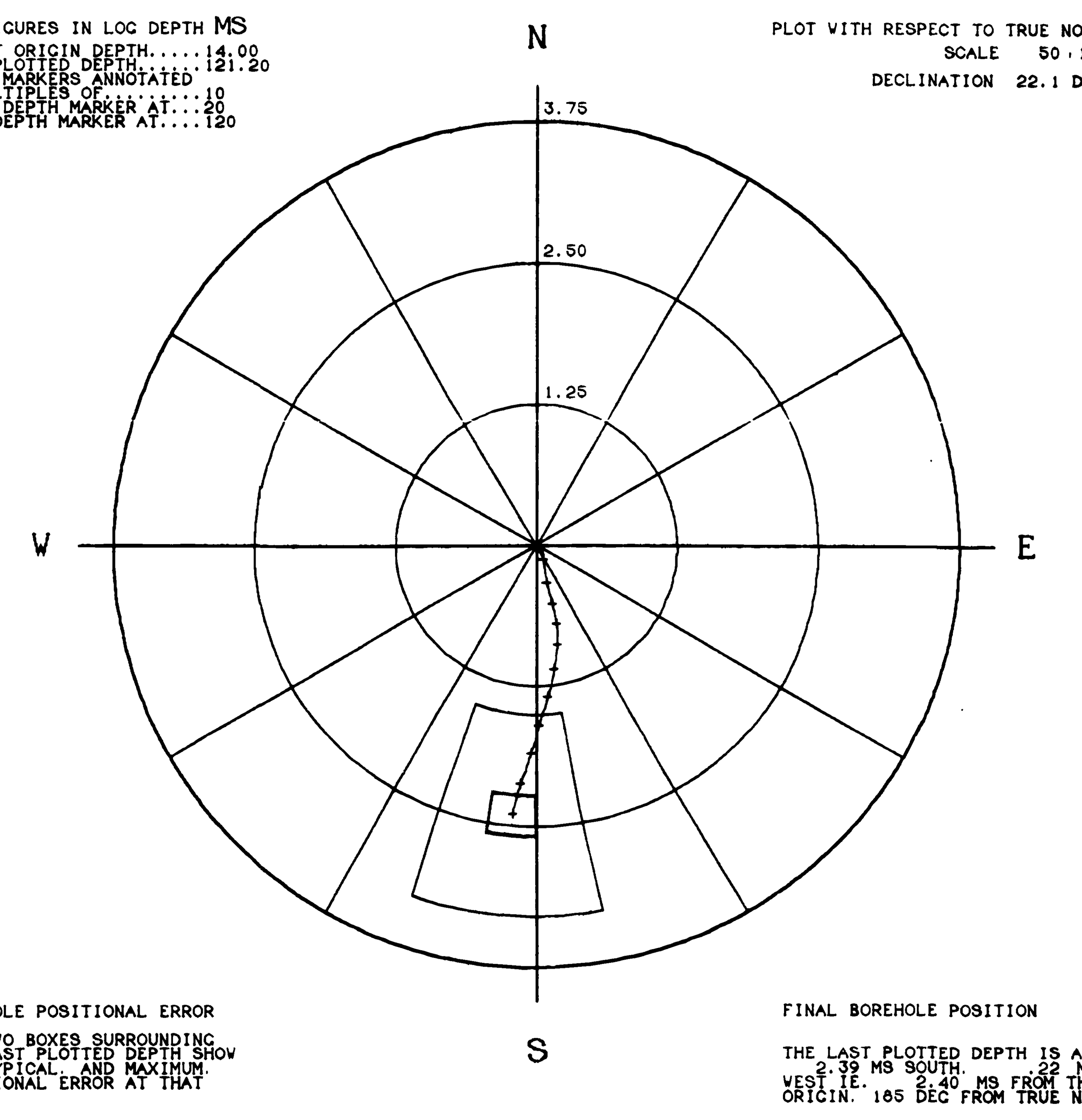
DD91-19 VERTICALITY DATA LISTING DATE PROCESSED: 6-FEB-1991
ALL CO-ORDINATES WITH RESPECT TO TRUE NORTH DATE LOGGED: 5-FEB-1991

DEPTHS LOG	TRUE	BOREHOLE TILT	AZI	AXIAL CO-ORDS NORTH	EAST	POLAR BRG	RADIUS	POLAR ERROR CO-ORDINATES (MAXIMUM & TYPICAL) BRG	RADIUS	BRG	RADIUS	BRG	RADIUS	BRD	RADIUS
15.00	15.00	1.3	141	-0.02	0.00	174	0.02	175	0.02	174	0.01	175	0.02	174	0.02
16.00	16.00	1.3	99	-0.03	0.02	142	0.03	143	0.04	142	0.03	143	0.04	142	0.03
17.00	17.00	1.5	126	-0.04	0.04	134	0.06	135	0.07	134	0.05	134	0.06	134	0.05
18.00	18.00	1.4	172	-0.06	0.05	139	0.08	139	0.09	138	0.07	139	0.09	139	0.07
19.00	19.00	1.5	178	-0.08	0.06	142	0.10	142	0.11	142	0.08	142	0.11	142	0.09
20.00	20.00	1.4	180	-0.10	0.06	149	0.12	149	0.14	149	0.10	149	0.13	149	0.11
21.00	21.00	1.4	182	-0.13	0.06	154	0.14	154	0.16	154	0.12	154	0.15	154	0.13
22.00	22.00	1.4	175	-0.15	0.06	157	0.16	157	0.19	157	0.14	157	0.17	157	0.15
23.00	23.00	1.3	177	-0.17	0.06	159	0.18	159	0.21	159	0.15	159	0.20	159	0.17
24.00	24.00	1.1	167	-0.19	0.07	161	0.20	161	0.23	161	0.17	161	0.22	161	0.19
25.00	25.00	1.2	174	-0.21	0.07	162	0.22	162	0.26	162	0.19	162	0.24	162	0.21
26.00	26.00	1.3	165	-0.23	0.07	163	0.24	163	0.28	163	0.21	163	0.26	163	0.22
27.00	27.00	1.2	170	-0.25	0.08	163	0.26	163	0.31	163	0.22	163	0.28	163	0.24
28.00	28.00	1.0	173	-0.27	0.08	164	0.28	164	0.33	164	0.24	164	0.31	164	0.26
29.00	29.00	1.2	172	-0.29	0.08	164	0.31	164	0.35	164	0.26	164	0.33	164	0.28
30.00	30.00	1.4	161	-0.31	0.09	165	0.33	165	0.38	164	0.27	165	0.35	164	0.30
31.00	31.00	1.2	175	-0.34	0.09	165	0.35	165	0.40	165	0.29	165	0.38	165	0.32
32.00	32.00	1.0	173	-0.35	0.10	165	0.37	165	0.43	165	0.31	165	0.40	165	0.34
33.00	33.00	1.2	159	-0.37	0.10	165	0.39	165	0.45	165	0.33	165	0.42	165	0.36
34.00	34.00	1.2	164	-0.39	0.11	165	0.41	165	0.47	165	0.34	165	0.44	165	0.38
35.00	35.00	1.2	161	-0.41	0.11	165	0.43	165	0.50	165	0.36	165	0.46	165	0.39
36.00	35.99	1.2	166	-0.43	0.12	165	0.45	165	0.52	165	0.37	165	0.48	165	0.41
37.00	36.99	1.0	164	-0.45	0.12	165	0.47	165	0.54	165	0.39	165	0.50	165	0.43
38.00	37.99	1.0	163	-0.47	0.13	165	0.48	165	0.56	165	0.40	165	0.52	165	0.44
39.00	38.99	1.0	164	-0.48	0.13	165	0.50	165	0.58	165	0.42	165	0.54	165	0.46
40.00	39.99	1.1	172	-0.50	0.13	165	0.52	165	0.61	165	0.43	165	0.56	165	0.48
41.00	40.99	1.1	171	-0.52	0.14	165	0.54	165	0.63	165	0.45	165	0.58	165	0.49
42.00	41.99	1.0	161	-0.54	0.14	165	0.56	165	0.65	165	0.46	165	0.60	165	0.51
43.00	42.99	1.2	165	-0.56	0.15	165	0.58	165	0.67	165	0.48	165	0.62	165	0.53
44.00	43.99	1.1	166	-0.57	0.15	165	0.59	165	0.69	165	0.49	165	0.64	165	0.54
45.00	44.99	1.1	164	-0.59	0.16	165	0.61	165	0.72	165	0.51	165	0.66	165	0.56
46.00	45.99	1.1	172	-0.61	0.16	165	0.63	165	0.74	165	0.52	165	0.68	165	0.58
47.00	46.99	0.9	165	-0.63	0.16	165	0.65	165	0.76	165	0.54	165	0.70	165	0.59
48.00	47.99	0.9	178	-0.64	0.17	165	0.67	165	0.78	165	0.55	165	0.72	165	0.61
49.00	48.99	1.1	166	-0.66	0.17	166	0.68	166	0.80	165	0.57	166	0.74	165	0.63
50.00	49.99	1.0	169	-0.68	0.17	166	0.70	166	0.82	166	0.58	166	0.76	166	0.64
51.00	50.99	1.0	167	-0.70	0.18	166	0.72	166	0.84	166	0.59	166	0.78	166	0.66
52.00	51.99	0.9	171	-0.71	0.18	166	0.74	166	0.86	166	0.61	166	0.80	166	0.67
53.00	52.99	1.1	171	-0.73	0.18	166	0.75	166	0.88	166	0.62	166	0.82	166	0.69
54.00	53.99	1.1	170	-0.75	0.18	166	0.77	166	0.91	166	0.64	166	0.84	166	0.70
55.00	54.99	1.1	181	-0.77	0.19	166	0.79	166	0.93	166	0.65	166	0.86	166	0.72
56.00	55.99	1.1	180	-0.78	0.19	167	0.81	167	0.95	167	0.66	167	0.88	167	0.74
57.00	56.99	1.0	184	-0.80	0.19	167	0.83	167	0.97	167	0.68	167	0.90	167	0.75
58.00	57.99	1.1	175	-0.82	0.19	167	0.84	167	0.99	167	0.69	167	0.92	167	0.77
59.00	58.99	1.0	181	-0.84	0.19	167	0.86	168	1.01	167	0.71	168	0.94	167	0.78
60.00	59.99	1.2	184	-0.86	0.18	168	0.88	168	1.03	168	0.72	168	0.96	168	0.80
61.00	60.99	1.2	186	-0.88	0.18	168	0.90	168	1.06	168	0.74	168	0.98	168	0.82
62.00	61.99	1.2	188	-0.90	0.18	169	0.92	169	1.08	169	0.76	169	1.00	169	0.84
63.00	62.99	1.3	181	-0.92	0.18	169	0.94	169	1.10	169	0.77	169	1.02	169	0.85
64.00	63.99	1.0	186	-0.94	0.18	169	0.96	169	1.13	169	0.79	169	1.04	169	0.87
65.00	64.99	1.0	186	-0.96	0.17	170	0.98	170	1.15	170	0.81	170	1.06	170	0.89
66.00	65.99	1.3	185	-0.98	0.17	170	1.00	170	1.17	170	0.82	170	1.09	170	0.91
67.00	66.99	1.3	187	-1.01	0.17	170	1.02	170	1.20	170	0.84	170	1.11	170	0.93
68.00	67.99	1.4	184	-1.03	0.17	171	1.04	171	1.22	171	0.86	171	1.13	171	0.95
69.00	68.99	1.4	196	-1.05	0.16	171	1.06	171	1.25	171	0.88	171	1.16	171	0.97
70.00	69.99	1.4	197	-1.08	0.16	172	1.09	172	1.28	172	0.90	172	1.18	172	0.99
71.00	70.99	1.4	188	-1.10	0.16	172	1.11	172	1.30	172	0.92	172	1.21	172	1.01
72.00	71.99	1.4	188	-1.12	0.15	172	1.13	172	1.33	172	0.94	172	1.23	172	1.04
73.00	72.99	1.4	197	-1.15	0.15	173	1.16	173	1.35	173	0.96	173	1.26	173	1.06
74.00	73.99	1.3	193	-1.17	0.14	173	1.18	173	1.38	173	0.98	173	1.28	173	1.08
75.00	74.99	1.4	185	-1.19	0.14	173	1.20	173	1.41	174	1.00	173	1.31	173	1.10
76.00	75.99	1.3	191	-1.22	0.13	174	1.23	174	1.44	174	1.02	174	1.33	174	1.12
77.00	76.99	1.4	194	-1.24	0.13	174	1.25	174	1.46	174	1.04	174	1.36	174	1.14
78.00	77.99	1.4	184	-1.27	0.12	175	1.27	175	1.49	175	1.06	175	1.38	175	1.17
79.00	78.99	1.4	194	-1.29	0.11	175	1.30	175	1.52	175	1.08	175	1.41	175	1.19
80.00	79.99	1.4	193	-1.32	0.11	175	1.32	175	1.54	175	1.10	175	1.43	175	1.21
81.00	80.99	1.5	201	-1.34	0.10	176	1.35	176	1.57	176	1.12	176	1.46	176	1.23
82.00	81.98	1.5	201	-1.37	0.09	176	1.37	176	1.60	176	1.14	176	1.49	176	1.26
83.00	82.98	1.4	192	-1.39	0.09	177	1.40	176	1.63	177	1.16	176	1.51	177	1.28
84.00	83.98	1.5	202	-1.42	0.08	177	1.42	177	1.65	177	1.18	177	1.54	177	1.30
85.00	84.98	1.6	197	-1.44	0.07	177	1.44	177	1.68	177	1.21	177	1.56	177	1.33
86.00	85.98	1.6	197	-1.47	0.06	178	1.47	177	1.71	178	1.23	177	1.59	178	1.35
87.00	86.98	1.7	206	-1.49	0.05	178	1.49	178	1.74	178	1.25	178	1.62	178	1.37
88.00	87.98	1.6	198	-1.52	0.05	178	1.52	178	1.77	178	1.27	178	1.64	178	1.40
89.00	88.98	1.7	194	-1.54	0.04	179	1.54	178	1.80	179	1.29	178	1.67	179	1.42
90.00	89.98	1.6	201	-1.57	0.03	179	1.57	179	1.82	179	1.32	179	1.70	179	1.44
91.00	90.98	1.7	196	-1.60	0.02	179	1.60	179	1.85	179	1.34	179	1.73	179	1.47
92.00	91.98	1.6	200	-1.62	0.02	179	1.62	179	1.88	180	1.36	179	1.75	179	1.49
93.00	92.98	1.4	195	-1.65	0.01	180	1.65	179	1.91	180	1.38	179	1.78	180	1.52
94.00	93.98	1.4	198	-1.67	0.01	180	1.67	180	1.94	180	1.40	180	1.81	180	1.54
95.00	94.98	1.5	196	-1.70	0.00	180	1.70	180	1.97	180	1.43	180	1.83	180	1.56
96.00	95.98	1.5	197	-1.72	-0.01	180	1.72	180	2.00	181	1.45	180	1.86	180	1.59
97.00	96.98	1.7	198	-1.75	-0.02	181	1.75	180	2.03	181	1.47	180	1.89	181	1.61
98.00	97.98	1.5	202	-1.77	-0.03	181	1.77	181	2.06	181	1.49	181	1.91	181	1.63
99.00	98.98	1.6	204	-1.80	-0.04	181	1.80	181	2.08	181	1.51	181	1.94	181	1.66
100.00	99.98	1.5	196	-1.82	-0.04	181	1.82	181	2.11	182	1.54	181	1.97	182	1.68
101.00	100.98	1.5	200	-1.85	-0.05	182	1.85	181	2.14	182	1.56	182	1.99	182	1.70
102.00	101.98	1.5	200	-1.87	-0.06	182	1.88	182	2.17	182	1.58	182	2.02	182	1.73
103.00	102.98	1.6	195	-1.90	-0.07	182	1.90	182	2.20	182	1.60	182	2.05	182	1.76
104.00	103.98	1.7	203	-1.93	-0.08	182	1.93	182	2.23	183	1.63	182	2.08	182	1.78
105.00	104.98	1.7	195	-1.95	-0.09	183	1.96	182	2.26	183	1.65	182	2.11	183	1.80
106.00	105.98	1.5	199	-1.98	-0.10	183	1.98	183	2.29	183	1.68	183	2.14	183	1.83
107.00	106.98	1.5	196	-2.01	-0.11	183	2.01	183	2.32	183	1.70	183	2.17	183	1.85
108.00	107.98	1.6	202	-2.03	-0.12	183	2.04	183	2.35	184	1.72	183	2.19	183	1.88
109.00	108.97	1.6	202	-2.06	-0.13	184	2.06	183	2.38	184	1.75	183	2.22	184	1.91
110.00	109.97	1.5	202	-2.09	-0.14	184	2.09	183	2.41	184	1.77	184	2.25	184	1.93
111.00	110.97	1.8	200	-2.11	-0.14	184	2.12	184	2.44	184	1.79	184	2.28	184	1.96
112.00	111.97	1.5	198	-2.14	-0.15	184	2.14	184	2.47	184	1.82	184	2.31	184	1.98
113.00	112.97	1.7	202	-2.17	-0.16	184	2.17	184	2.50	185	1.84	184	2.34	184	2.01
114.00	113.97	1.7	198	-2.19	-0.17	184	2.20	184	2.53	185	1.87	184	2.37	185	2.03
115.00	114.97	1.4	191	-2.22	-0.18	185	2.23	184	2.56	185	1.89	184	2.39	185	2.06
116.00	115.97	1.6	199	-2.25	-0.19	185	2.25	184	2.59	185	1.91	185	2.42	185	2.08
117.00	116.97	1.7	196	-2.27	-0.19	185	2.28	185	2.63	185	1.94	185	2.45	185	2.11
118.00	117.97	1.7	196	-2.30	-0.20	185	2.31	185	2.66	185	1.96	185	2.48	185	2.14
119.00	118.97	1.8	195	-2.33	-0.21	185	2.34	185	2.69	185	1.99	185	2.51	185	2.16
120.00	119.97	1.5	190	-2.36	-0.21	185	2.37	185	2.72	185	2.01	185	2.54	185	2.19
121.00	120.97	1.5	182	-2.38	-0.22	185	2.39	185	2.75	186	2.04	185	2.57	185	2.22
121.20	121.17	1.7	190	-2.39	-0.22	185	2.40	185	2.76	186	2.04	185	2.58	185	2.22

CROSS SECTION

ALL FIGURES IN LOG DEPTH MS
TARGET ORIGIN DEPTH.....14.00
LAST PLOTTED DEPTH......121.20
DEPTH MARKERS ANNOTATED
IN MULTIPLES OF.........10
FIRST DEPTH MARKER AT...20
LAST DEPTH MARKER AT....120

PLOT WITH RESPECT TO TRUE NORTH
SCALE 50:1
DECLINATION 22.1 DEG.



BOREHOLE POSITIONAL ERROR

THE TWO BOXES SURROUNDING THE LAST PLOTTED DEPTH SHOW THE TYPICAL. AND MAXIMUM. POSITIONAL ERROR AT THAT DEPTH.

FINAL BOREHOLE POSITION

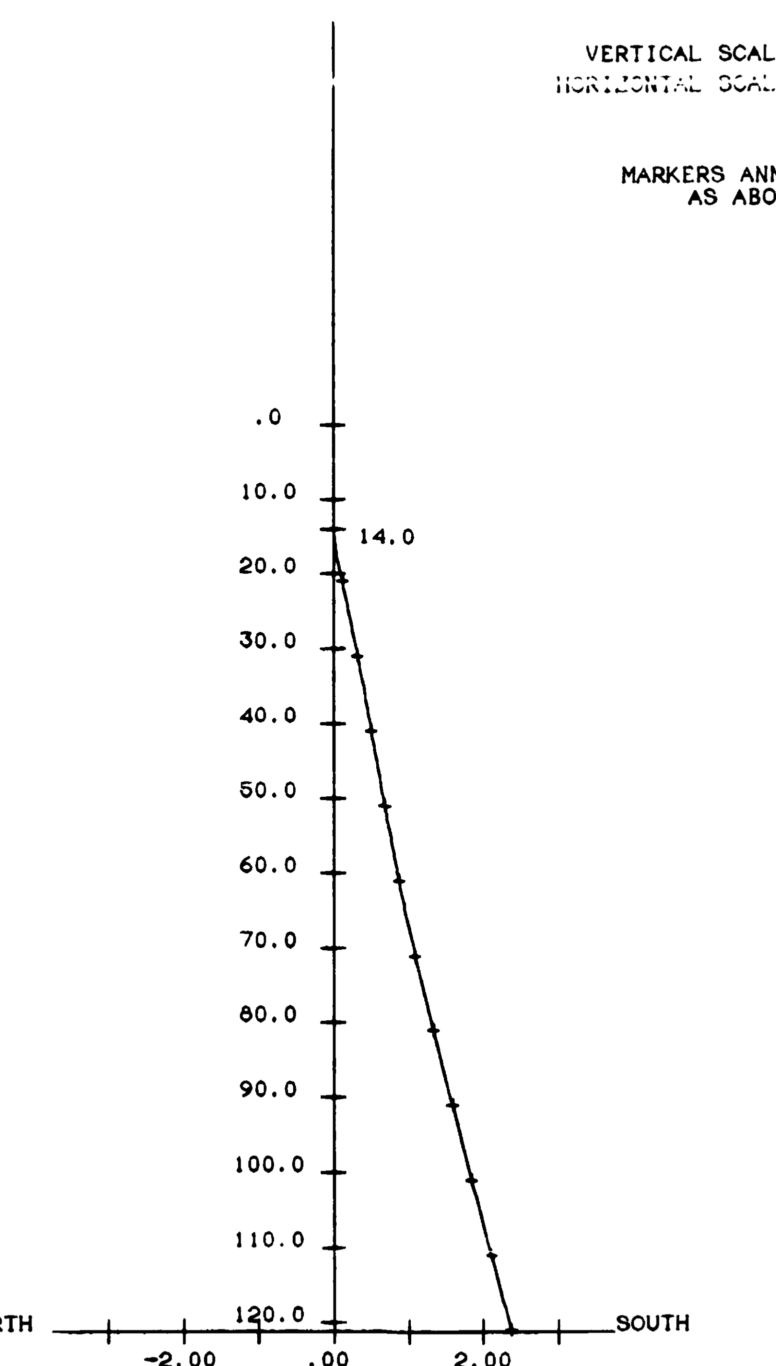
THE LAST PLOTTED DEPTH IS AT 2.39 MS SOUTH. .22 MS WEST IE. 2.40 MS FROM THE ORIGIN. 185 DEG FROM TRUE NORTH

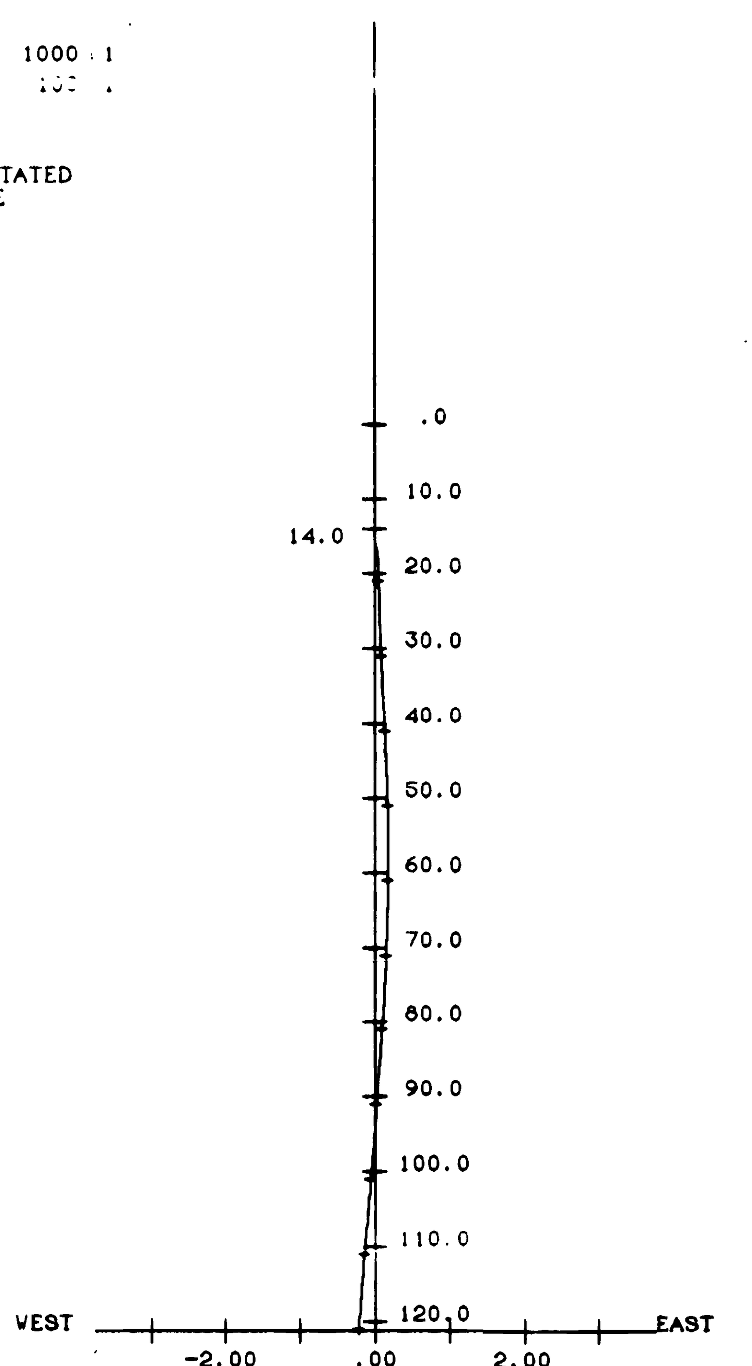
N-S SECTION VERTICAL SECTIONS E-W SECTION

(TRUE DEPTH VS DISPLACEMENT)

VERTICAL SCALE 1000:1
HORIZONTAL SCALE 100:1

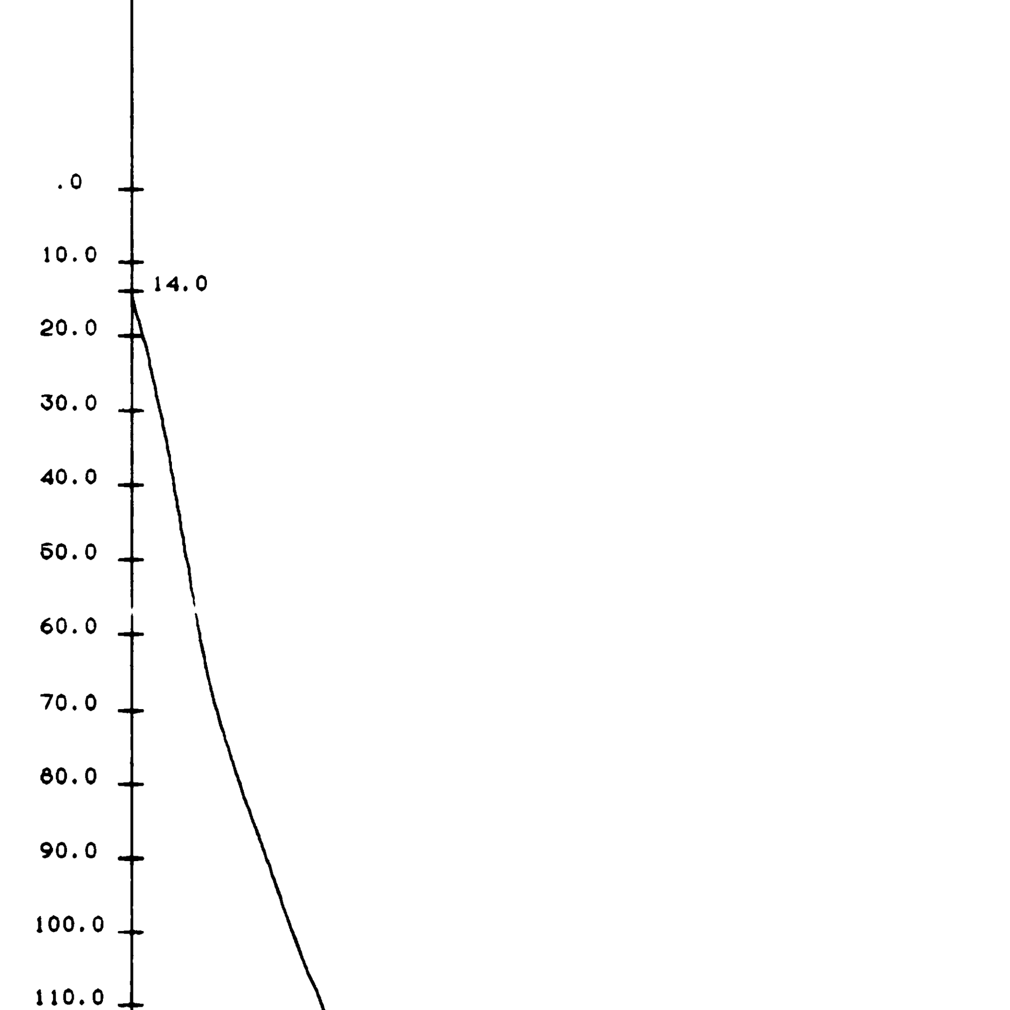
MARKERS ANNOTATED AS ABOVE





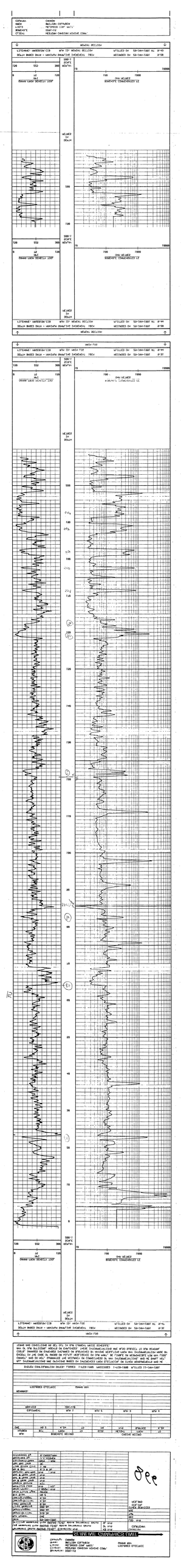
DEPTH CORRECTION ANALYSIS

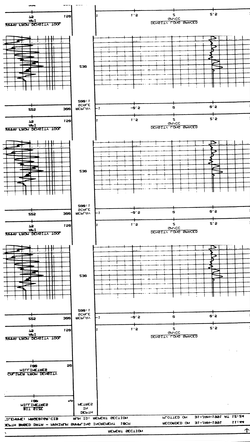
VERTICAL SCALE 1000:1
HORIZONTAL SCALE 1:1

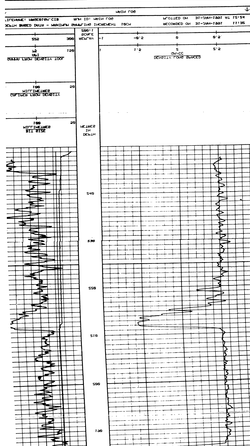


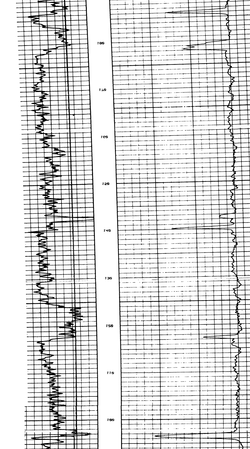
DEPTHS: LOG	TRUE	DEPTHS: LOG	TRUE
15.00	15.00	85.00	84.98
16.00	16.00	86.00	85.98
17.00	17.00	87.00	86.98
18.00	18.00	88.00	87.98
19.00	19.00	89.00	88.98
20.00	20.00	90.00	89.98
21.00	21.00	91.00	90.98
22.00	22.00	92.00	91.98
23.00	23.00	93.00	92.98
24.00	24.00	94.00	93.98
25.00	25.00	95.00	94.98
26.00	26.00	96.00	95.98
27.00	27.00	97.00	96.98
28.00	28.00	98.00	97.98
29.00	29.00	99.00	98.98
30.00	30.00	100.00	99.98
31.00	31.00	101.00	100.98
32.00	32.00	102.00	101.98
33.00	33.00	103.00	102.98
34.00	34.00	104.00	103.98
35.00	35.00	105.00	104.98
36.00	35.99	106.00	105.98
37.00	36.99	107.00	106.98
38.00	37.99	108.00	107.98
39.00	38.99	109.00	108.97
40.00	39.99	110.00	109.97
41.00	40.99	111.00	110.97
42.00	41.99	112.00	111.97
43.00	42.99	113.00	112.97
44.00	43.99	114.00	113.97
45.00	44.99	115.00	114.97
46.00	45.99	116.00	115.97
47.00	46.99	117.00	116.97
48.00	47.99	118.00	117.97
49.00	48.99	119.00	118.97
50.00	49.99	120.00	119.97
51.00	50.99	121.00	120.97
52.00	51.99	121.20	121.17
53.00	52.99		
54.00	53.99		
55.00	54.99		
56.00	55.99		
57.00	56.99		
58.00	57.99		
59.00	58.99		
60.00	59.99		
61.00	60.99		
62.00	61.99		
63.00	62.99		
64.00	63.99		
65.00	64.99		
66.00	65.99		
67.00	66.99		
68.00	67.99		
69.00	68.99		
70.00	69.99		
71.00	70.99		
72.00	71.99		
73.00	72.99		
74.00	73.99		
75.00	74.99		
76.00	75.99		
77.00	76.99		
78.00	77.99		
79.00	78.99		
80.00	79.99		
81.00	80.99		
82.00	81.98		
83.00	82.98		
84.00	83.98		

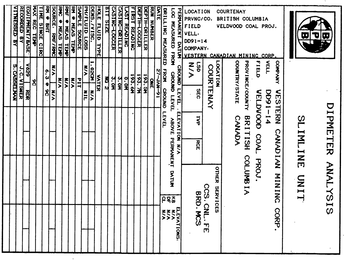
COMPANY	WESTERN CANADIAN MINING CORP.
WELL	DD91-19
FIELD	WELDWOOD COAL PROJ.
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA











RUN	BOREHOLE RECORD			CASING RECORD			
NUMBER	BIT	FROM	TO	SIZE	WEIGHT	FROM	TO
ONE	NO 2	2.0M	TD	NQ	N/A	SURFACE	2.0M

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
DIP/VERT	201/206			

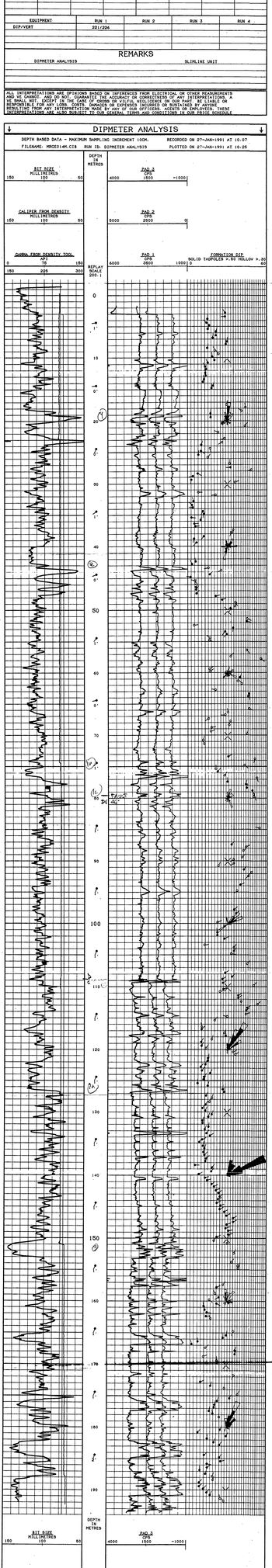
REMARKS

DIPMETER ANALYSIS — SLIMLINE UNIT

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT GUARANTEE THE CORRECTNESS OF ANY INTERPRETATION OR A BOOK, CORPORATION OR ANY OF THEIR OFFICERS, AGENTS OR EMPLOYEES, SHALL NOT BE RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS IN OUR PRICE SCHEDULE

DIPMETER ANALYSIS

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 100M. RECORDED ON 27-JAN-1991 AT 10:07
FILENAME: MRDD91-M.CIB RUN ID: DIPMETER ANALYSIS PLOTTED ON 27-JAN-1991 AT 10:25



DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 100M. RECORDED ON 27-JAN-1991 AT 10:07
FILENAME: MRDD91-M.CIB RUN ID: DIPMETER ANALYSIS PLOTTED ON 27-JAN-1991 AT 10:25
DIPMETER ANALYSIS

COMPANY	WESTERN CANADIAN MINING CORP.
WELL	DD91-14
FIELD	VELDWOOD COAL PROJ.
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA

Borehole: DD91-28
Client: WESTERN CANADIAN MINING CORP.
Field: HELDUCO COAL PROJ.
Area: BRITISH COLUMBIA
Country: CANADA

LONG SPACED DENSITY
GAMMA RAY
CALIPER

SCHLUMBERGER GRAPHICS UNIT

manent Datum	GROUND LEVEL	Elevation	N/A
g measured from	GROUND LEVEL	above permanent datum	KB N/A
illing measured from	GROUND LEVEL	above permanent datum	DF N/A
			GL N/A
ate	7-FEB-1991		
un Number	ONE		
pth-Driller	99.6m		
pth-Logger	99.3m		
ttom Reading	99.2m		
st Reading	5.5m		
ning-Driller	17.9m		
ning-Logger	17.9m		
Type	NQ 2		
Fluid Type	WATER		
Density	1.00gm/cc		N/A
Viscosity	N/A		NIL
Ph/ Source	PIT		
R Meas Temp	N/A		
R Mf Meas Temp	N/A		
R Mc Meas Temp	N/A		
Src Rmf/Rmc	N/A		N/A
R Mf	0.2 @ 90		
Rm Bhtmp Circ	30 MIN		
Rmc Temp	OC		
Time/Date	0600	MON	
Unit Number	7/C.NICHOLSON		
Witnessed By	W.CHASE/MSM		

Location:
COURTENAY

LIC N/A
SEC
TWP
RGE
OTHER SERVICES
CNL,MCS
FE,BHC

866

RUN NUMBER	BIT	BOREHOLE RECORD FROM	TO	SIZE	CASING RECORD WEIGHT	FROM	TO
	NQ 2	17.9m	TD	NQ	N/A	SURFACE	17.9m

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
CCB	118			

REMARKS:
LONG SPACED DENSITY GAMMA RAY CALIPER

SYSTEM CONFIGURATION DATES: LOGGED 1-FEB-1990 PROCESSED 1-FEB-1990 PLOTTED 11-JAN-1991

INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE DO NOT, AND DO NOT, GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILLFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY US AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

MAIN LOG

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 7-FEB-1991 0:53
FILENAME: PROGRAM.CIB — RUN ID: MAIN LOG — PLOTTED ON 7-FEB-1991 AT 10:33

BIT SIZE MILLIMETRES 100 50
CALIPER FROM DENSITY MILLIMETRES 100 50
GAMMA FROM DENSITY TOOL API 75 150 / 225 300
DEPTH IN METRES
DENSITY LONG SPACED GM/CC 1 1.5 2 2.5 3
REPLAY SCALE 200:1 -1 -0.5 0 0.5 1

0 10 20 30 40 50 60 70 80 90

BIT SIZE MILLIMETRES 100 50
CALIPER FROM DENSITY MILLIMETRES 100 50
GAMMA FROM DENSITY TOOL API 75 150 / 225 300
DEPTH IN METRES
DENSITY LONG SPACED GM/CC 1 1.5 2 2.5 3
REPLAY SCALE 200:1 -1 -0.5 0 0.5 1

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 7-FEB-1991 0:53
FILENAME: PROGRAM.CIB — RUN ID: MAIN LOG — PLOTTED ON 7-FEB-1991 AT 10:31

MAIN LOG

REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 7-FEB-1991 0:49
FILENAME: PROGRAM.CIB — RUN ID: REPEAT SECTION — PLOTTED ON 7-FEB-1991 AT 10:31

BIT SIZE MILLIMETRES 100 50
CALIPER FROM DENSITY MILLIMETRES 100 50
GAMMA FROM DENSITY TOOL API 75 150 / 225 300
DEPTH IN METRES
DENSITY LONG SPACED GM/CC 1 1.5 2 2.5 3
REPLAY SCALE 200:1 -1 -0.5 0 0.5 1

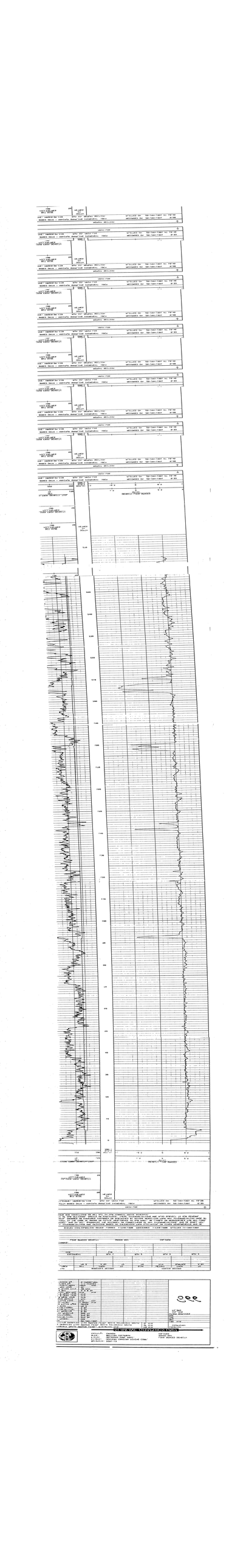
90

BIT SIZE MILLIMETRES 100 50
CALIPER FROM DENSITY MILLIMETRES 100 50
GAMMA FROM DENSITY TOOL API 75 150 / 225 300
DEPTH IN METRES
DENSITY LONG SPACED GM/CC 1 1.5 2 2.5 3
REPLAY SCALE 200:1 -1 -0.5 0 0.5 1

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 7-FEB-1991 0:49
FILENAME: PROGRAM.CIB — RUN ID: REPEAT SECTION — PLOTTED ON 7-FEB-1991 AT 10:30

REPEAT SECTION

CLIENT WESTERN CANADIAN MINING CORP.
BOREHOLE DD91-28
FIELD HELDUCO COAL PROJ.
AREA BRITISH COLUMBIA
COUNTRY CANADA



VERTICALITY ANALYSIS

SLIMLINE UNIT

866

COMPANY	WESTERN CANADIAN MINING CORP.
WELL	DD91-18
FIELD	VELDVOOD COAL PROJ.
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA
LOCATION	COURTENAY
LSD	N/A
SEC	
TWP	
RGE	
OTHER SERVICES	CDL. CNL. FE BRD. MCS

LOCATION COURTENAY
PRVNC/CO. BRITISH COLUMBIA
FIELD VELDVOOD COAL PROJ.
WELL DD91-18

PERMANENT DATUM GROUND LEVEL. ELEVATION N/A
LOG MEASURED FROM GROUND LEVEL ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS: KB N/A DF N/A GL N/A

DATE	3-FEB-91			
RUN NUMBER	ONE			
DEPTH-DRILLER	128.0M			
DEPTH-LOGGER	127.6M			
FIRST READING	127.0M			
LAST READING	0.0M			
CASING-DRILLER	3.0M			
CASING-LOGGER	3.0M			
BIT SIZE	NQ 2			
HOLE FLUID TYPE	WATER			
DENS./VISC.	1.02GM / N/A			
PH/FLUID LOSS	N/A / NIL			
SAMPLE SOURCE	PIT			
RM @ MEAS TEMP	N/A			
RMF @ MEAS TEMP	N/A			
RMC @ MEAS TEMP	N/A / N/A			
SOURCE RMF/RMC	N/A / N/A			
RM @ BHT	6.3 @ 9C			
TIME SINCE CIRC	30 MIN			
MAX REC TEMP	9C			
EQUIPMENT/BASE	V029 / RDR			
RECORDED BY	J.C.VISNER			
WITNESSED BY	S.CASSELMAN			

BPB VERTICALITY ANALYSIS INTERPRETATION NOTES

1. ALL PLOTTED OUTPUT IS AUTOMATICALLY SCALED TO OBTAIN THE BEST VISUAL EFFECT WITHIN THE PHYSICAL SPACE AVAILABLE. THE MAXIMUM SCALES BEING 50000:1 (METRIC) AND 48000:1 (IMPERIAL). AND THE MINIMUM 1:1.

2. THE ANALYSIS IS DERIVED BY INTEGRATING 10CM. SAMPLED DATA DOWN THE BOREHOLE. THE LISTING SUPPLIED VILL CONTAIN A MAXIMUM OF 200 POINTS IN MULTIPLES OF 1. 2. 5. 10. 20. 50 OR 100 METRES/FEET DEPENDING ON THE TOTAL RANGE OF THE ANALYSIS. HOWEVER THE ANALYSIS IS CALCULATED FOR THE ENTIRE RANGE OF THE BOREHOLE AND THE FINAL BOREHOLE POSITION IS INCLUDED IN THE LISTING.

3. COMPUTED VERTICALITY MAY ONLY BE FULLY DERIVED IN OPEN SECTIONS OF THE BOREHOLE. AVAY FROM THE INFLUENCE OF ANY UNUSUAL MAGNETIC EFFECTS (AS THE AZIMUTH CALCULATIONS ARE DERIVED FROM THREE SOLID STATE MAGNETOMETERS). SO THE ANALYSIS VILL GENERALLY BEGIN AT THE END OF THE CASING AND ALL BOREHOLE POSITIONAL INFORMATION VILL RELATE TO THIS DEPTH.

4. UP TO TEN CROSS SECTIONS MAY BE REQUESTED FOR ANY BOREHOLE TO BE DISPLAYED AT ANY SCALE (THE DEFAULT SCALE IS THAT OF THE CROSS-SECTION FOR THE ENTIRE HOLE).

5. BOREHOLE POSITIONAL ERROR IS DERIVED ASSUMING THE FOLLOWING PARAMETERS.

	TILT(DEGREES)	AZIMUTH(DEGREES)
TYPICAL ERROR	+/- 0.3333	+/- 10
MAXIMUM ERROR	+/- 0.5	+/- 15

6. ERROR ANALYSIS MAY BE CALCULATED AND PLOTTED FROM THE DATA LISTING AS FOLLOWS:
   A) PLOT THE FOUR COORDINATES FROM THE ERROR LISTING (BASED UPON ZERO AZIMUTH ERROR) ON A TARGET PLOT. ORIGIN AT THE START OF THE ANALYSIS.
   B) DESCRIBE ARCS OF +/- 10 DEGREES AND +/- 15 DEGREES (CENTRE AT THE ORIGIN) THROUGH THE INNER AND OUTER POINTS RESPECTIVELY.
   C) CONNECT THE RESPECTIVE ARCS TOGETHER VITH STRAIGHT LINES TO GIVE THE TYPICAL AND MAXIMUM BOREHOLE POSITIONAL ERROR.

7. GIVEN BELOW IS A FULL DESCRIPTION OF THE PARAMETERS DISPLAYED ON THE ENSUING LISTING:

LOG DEPTH	THE DEPTH RECORDED ON THE FIELD LOGS FOR THE BOREHOLE.
TRUE DEPTH	THE TRUE VERTICAL DEPTH CORESPONDING TO THE ABOVE DEPTH. CORRECTED FROM THE START OF THE ANALYSIS.
HOLE TILT AND AZIMUTH	THE SAMPLED BOREHOLE ORIENTATION.
AXIAL COORDINATES	THE COORDINATES NORTH AND EAST FROM THE TARGET ORIGIN.
POLAR COORDINATES	THE POLAR, OR RADIAL COORDINATES OF THE BOREHOLE.
ERROR COORDINATES	THE POLAR COORDINATES CORRESPONDING TO THE TYPICAL AND MAXIMUM TILT ERROR.

N.B. THE REFERENCE POINT FOR ALL BEARING ANGLES ON THIS LISTING IS GIVEN AT THE TOP OF EACH SHEET.

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND VE CANNOT, AND DO NOT, GUARENTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS. AND VE SHALL NOT, EXCEPT IN THE CASE OF CROSS OR VILFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS. COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

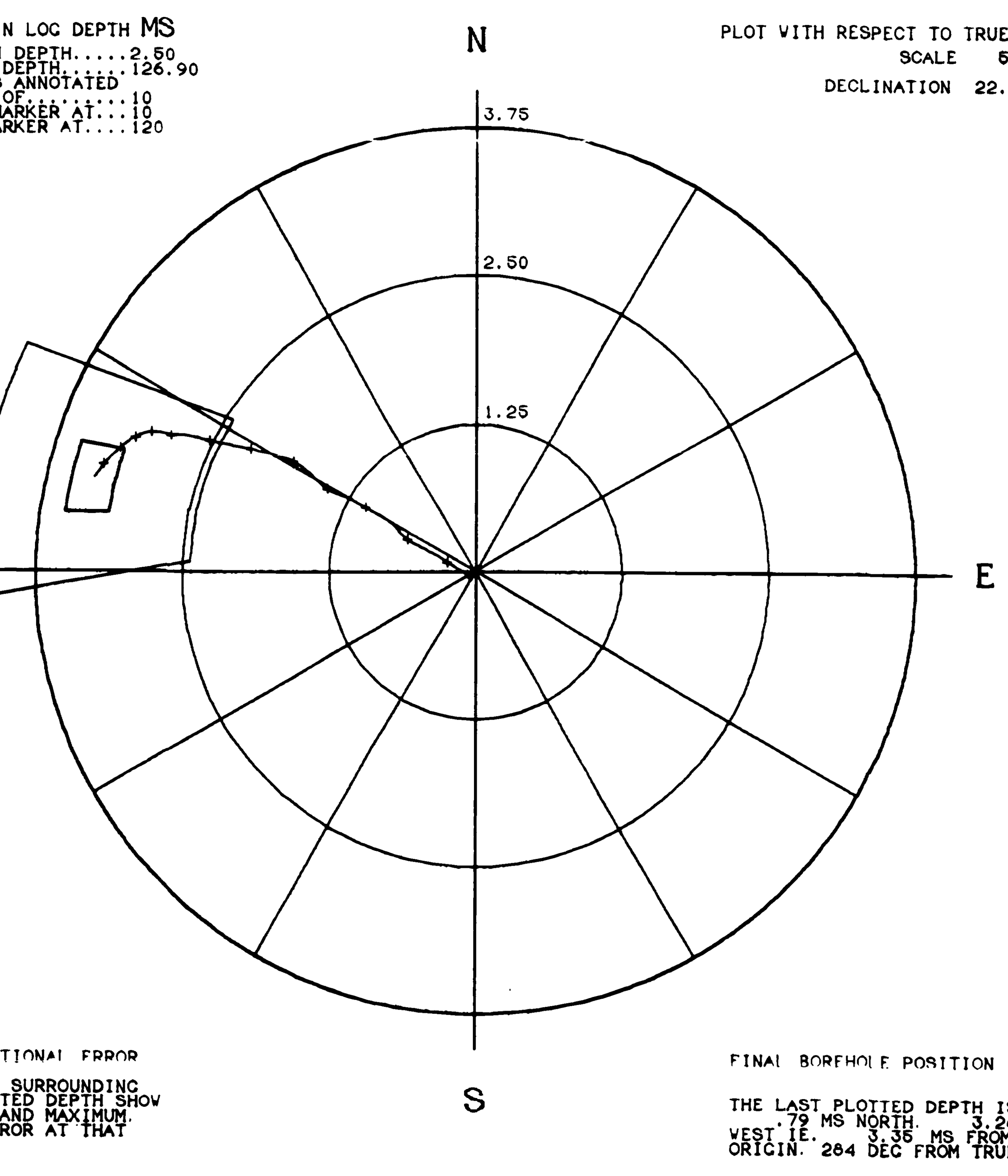
DD91-18 VERTICALITY DATA LISTING — DATE PROCESSED: 4-FEB-1991
ALL CO-ORDINATES VITH RESPECT TO TRUE NORTH — DATE LOGGED: 3-FEB-1991

DEPTHS LOG	TRUE	BOREHOLE TILT	AZI	AXIAL CO-ORDS NORTH	EAST	POLAR BRG	RADIUS	POLAR ERROR CO-ORDINATES (MAXIMUM & TYPICAL) BRG	RADIUS	BRG	RADIUS	BRG	RADIUS	BRD	RADIUS
3.00	3.00	1.6	229	-0.01	0.00	201	0.01	201	0.01	202	0.01	201	0.01	201	0.01
4.00	4.00	2.5	192	-0.04	-0.02	211	0.05	211	0.05	211	0.04	211	0.05	211	0.05
5.00	5.00	2.7	265	-0.06	-0.05	220	0.08	220	0.09	220	0.08	220	0.09	220	0.08
6.00	6.00	2.8	312	-0.03	-0.08	252	0.09	251	0.10	253	0.08	251	0.09	252	0.09
7.00	7.00	2.9	305	0.00	-0.12	271	0.12	270	0.13	271	0.11	270	0.13	271	0.12
8.00	7.99	2.9	300	0.03	-0.16	280	0.17	279	0.18	280	0.15	279	0.17	280	0.16
9.00	8.99	2.6	300	0.05	-0.20	285	0.21	284	0.23	285	0.20	284	0.22	285	0.20
10.00	9.99	2.6	302	0.08	-0.24	288	0.26	288	0.28	288	0.24	288	0.27	288	0.25
11.00	10.99	2.5	306	0.10	-0.28	290	0.30	290	0.32	290	0.28	290	0.31	290	0.29
12.00	11.99	2.4	296	0.13	-0.32	291	0.35	291	0.37	292	0.32	291	0.36	292	0.33
13.00	12.99	2.5	301	0.15	-0.36	292	0.39	292	0.42	293	0.36	292	0.40	292	0.37
14.00	13.99	2.4	298	0.17	-0.40	293	0.43	293	0.46	293	0.40	293	0.45	293	0.41
15.00	14.99	2.2	299	0.19	-0.43	294	0.47	293	0.51	294	0.44	293	0.49	294	0.45
16.00	15.99	2.2	295	0.21	-0.47	294	0.51	294	0.55	294	0.47	294	0.53	294	0.49
17.00	16.99	1.9	294	0.22	-0.50	294	0.55	294	0.59	294	0.50	294	0.57	294	0.52
18.00	17.99	1.8	298	0.24	-0.53	294	0.58	294	0.63	294	0.53	294	0.60	294	0.56
19.00	18.99	1.8	299	0.25	-0.56	294	0.61	294	0.66	294	0.56	294	0.64	294	0.59
20.00	19.98	1.8	304	0.27	-0.58	295	0.64	295	0.69	295	0.59	295	0.67	295	0.61
21.00	20.98	2.2	314	0.29	-0.61	296	0.67	296	0.73	296	0.62	296	0.70	296	0.65
22.00	21.98	2.4	316	0.32	-0.63	297	0.71	297	0.77	297	0.65	297	0.74	297	0.68
23.00	22.98	2.9	316	0.35	-0.67	298	0.75	298	0.82	298	0.69	298	0.79	298	0.72
24.00	23.98	3.1	309	0.39	-0.70	299	0.80	299	0.87	299	0.74	299	0.84	299	0.77
25.00	24.98	2.9	308	0.42	-0.74	300	0.86	299	0.93	300	0.79	299	0.89	300	0.82
26.00	25.98	2.9	308	0.45	-0.79	300	0.91	300	0.98	300	0.83	300	0.94	300	0.87
27.00	26.98	2.7	299	0.48	-0.83	300	0.95	300	1.03	300	0.88	300	0.99	300	0.91
28.00	27.98	2.6	301	0.50	-0.86	300	1.00	300	1.08	300	0.92	300	1.04	300	0.96
29.00	28.98	2.5	299	0.52	-0.90	300	1.04	300	1.13	300	0.96	300	1.08	300	1.00
30.00	29.97	2.5	296	0.54	-0.94	300	1.09	300	1.17	300	1.00	300	1.13	300	1.04
31.00	30.97	2.4	299	0.56	-0.98	300	1.13	300	1.22	300	1.04	300	1.17	300	1.08
32.00	31.97	2.4	295	0.58	-1.02	300	1.17	300	1.26	300	1.08	300	1.22	300	1.12
33.00	32.97	2.3	295	0.60	-1.05	300	1.21	300	1.31	300	1.11	300	1.26	300	1.16
34.00	33.97	2.3	294	0.61	-1.09	299	1.25	299	1.35	300	1.15	299	1.30	300	1.20
35.00	34.97	2.0	294	0.63	-1.12	299	1.28	299	1.39	299	1.18	299	1.34	299	1.23
36.00	35.97	2.0	293	0.64	-1.15	299	1.32	299	1.43	299	1.21	299	1.37	299	1.27
37.00	36.97	1.9	295	0.66	-1.18	299	1.35	299	1.47	299	1.24	299	1.41	299	1.30
38.00	37.97	1.8	296	0.67	-1.21	299	1.38	299	1.50	299	1.27	299	1.44	299	1.33
39.00	38.97	1.6	299	0.68	-1.24	299	1.41	299	1.53	299	1.30	299	1.47	299	1.36
40.00	39.97	1.8	303	0.70	-1.26	299	1.44	299	1.57	299	1.32	299	1.50	299	1.38
41.00	40.97	1.7	305	0.71	-1.29	299	1.47	299	1.60	299	1.35	299	1.53	299	1.41
42.00	41.97	1.9	310	0.73	-1.31	299	1.50	299	1.63	299	1.37	299	1.57	299	1.44
43.00	42.97	1.9	310	0.75	-1.34	299	1.53	299	1.66	299	1.40	299	1.60	299	1.47
44.00	43.97	2.0	315	0.77	-1.36	300	1.57	300	1.70	300	1.43	300	1.63	300	1.50
45.00	44.96	2.5	318	0.80	-1.39	300	1.60	300	1.74	300	1.46	300	1.67	300	1.53
46.00	45.96	2.5	311	0.83	-1.42	300	1.65	300	1.79	300	1.50	300	1.72	300	1.57
47.00	46.96	2.5	306	0.86	-1.45	301	1.69	301	1.83	301	1.54	301	1.76	301	1.62
48.00	47.96	2.4	305	0.89	-1.49	301	1.73	301	1.88	301	1.58	301	1.81	301	1.66
49.00	48.96	2.4	300	0.91	-1.52	301	1.78	301	1.93	301	1.62	301	1.85	301	1.70
50.00	49.96	2.4	299	0.93	-1.56	301	1.82	301	1.98	301	1.66	301	1.90	301	1.74
51.00	50.96	2.4	296	0.95	-1.60	301	1.86	301	2.02	301	1.70	301	1.94	301	1.78
52.00	51.96	2.3	295	0.97	-1.64	301	1.90	301	2.06	301	1.74	301	1.98	301	1.82
53.00	52.96	2.3	289	0.98	-1.67	300	1.94	300	2.11	300	1.77	300	2.02	300	1.86
54.00	53.96	2.1	282	0.99	-1.71	300	1.98	300	2.15	300	1.81	300	2.06	300	1.89
55.00	54.96	2.1	284	1.00	-1.75	300	2.01	300	2.19	300	1.84	300	2.10	300	1.93
56.00	55.96	2.2	283	1.01	-1.78	300	2.05	299	2.23	300	1.87	299	2.14	300	1.96
57.00	56.95	2.0	280	1.02	-1.82	299	2.08	299	2.26	299	1.90	299	2.17	299	1.99
58.00	57.95	2.1	281	1.02	-1.85	299	2.12	299	2.30	299	1.94	299	2.21	299	2.03
59.00	58.95	2.0	277	1.03	-1.89	299	2.15	299	2.34	299	1.97	299	2.25	299	2.06
60.00	59.95	2.0	285	1.04	-1.92	298	2.19	298	2.38	298	2.00	298	2.28	298	2.09
61.00	60.95	1.9	281	1.05	-1.96	298	2.22	298	2.41	298	2.03	298	2.32	298	2.12
62.00	61.95	2.1	279	1.06	-1.99	298	2.25	298	2.45	298	2.06	298	2.35	298	2.16
63.00	62.95	2.0	284	1.06	-2.03	298	2.29	298	2.49	298	2.09	298	2.39	298	2.19
64.00	63.95	2.0	285	1.07	-2.06	297	2.32	297	2.53	297	2.12	297	2.42	297	2.22
65.00	64.95	2.1	281	1.08	-2.10	297	2.36	297	2.56	297	2.15	297	2.46	297	2.25
66.00	65.95	2.1	283	1.08	-2.13	297	2.39	297	2.60	297	2.18	297	2.50	297	2.29
67.00	66.95	2.0	281	1.09	-2.17	297	2.43	297	2.64	297	2.21	297	2.53	297	2.32
68.00	67.95	2.0	282	1.10	-2.20	297	2.46	296	2.68	297	2.24	296	2.57	297	2.35
69.00	68.95	2.0	284	1.11	-2.24	296	2.50	296	2.72	296	2.28	296	2.61	296	2.39
70.00	69.95	2.1	280	1.11	-2.27	296	2.53	296	2.75	296	2.31	296	2.64	296	2.42
71.00	70.95	2.1	281	1.12	-2.31	296	2.56	296	2.79	296	2.34	296	2.68	296	2.45
72.00	71.95	1.9	282	1.13	-2.34	296	2.60	296	2.83	296	2.37	296	2.71	296	2.48
73.00	72.94	2.0	285	1.14	-2.37	296	2.63	296	2.87	296	2.40	296	2.75	296	2.52
74.00	73.94	2.1	281	1.15	-2.41	295	2.67	295	2.90	296	2.43	295	2.79	295	2.55
75.00	74.94	2.0	284	1.15	-2.44	295	2.70	295	2.94	295	2.46	295	2.82	295	2.58
76.00	75.94	1.9	278	1.16	-2.47	295	2.73	295	2.98	295	2.49	295	2.85	295	2.61
77.00	76.94	1.9	276	1.16	-2.51	295	2.76	295	3.01	295	2.52	295	2.89	295	2.64
78.00	77.94	1.8	271	1.17	-2.54	295	2.79	295	3.04	295	2.54	295	2.92	295	2.67
79.00	78.94	1.7	260	1.16	-2.57	294	2.82	294	3.07	295	2.57	294	2.95	294	2.69
80.00	79.94	1.5	261	1.16	-2.60	294	2.84	294	3.10	294	2.59	294	2.97	294	2.72
81.00	80.94	1.1	279	1.17	-2.61	294	2.86	294	3.12	294	2.60	294	2.99	294	2.73
82.00	81.94	0.9	281	1.17	-2.63	294	2.88	294	3.14	294	2.61	294	3.01	294	2.75
83.00	82.94	1.0	287	1.17	-2.65	294	2.90	294	3.16	294	2.63	294	3.03	294	2.76
84.00	83.94	1.1	269	1.18	-2.66	294	2.91	294	3.18	294	2.64	294	3.05	294	2.78
85.00	84.94	1.0	280	1.18	-2.68	294	2.93	294	3.21	294	2.66	294	3.07	294	2.79
86.00	85.94	1.2	284	1.18	-2.70	294	2.95	294	3.23	294	2.67	294	3.09	294	2.81
87.00	86.94	1.0	277	1.19	-2.72	294	2.96	293	3.25	294	2.68	293	3.11	294	2.82
88.00	87.94	0.9	269	1.19	-2.73	293	2.98	293	3.26	294	2.70	293	3.12	294	2.84
89.00	88.94	0.8	260	1.19	-2.75	293	2.99	293	3.28	293	2.71	293	3.14	293	2.85
90.00	89.94	0.8	261	1.19	-2.76	293	3.01	293	3.30	293	2.72	293	3.15	293	2.86
91.00	90.94	0.9	274	1.19	-2.78	293	3.02	293	3.31	293	2.73	293	3.17	293	2.87
92.00	91.94	0.8	263	1.18	-2.79	293	3.03	293	3.33	293	2.74	293	3.18	293	2.88
93.00	92.94	0.8	262	1.18	-2.81	293	3.04	293	3.34	293	2.74	293	3.19	293	2.89
94.00	93.94	0.7	249	1.18	-2.82	293	3.05	292	3.36	293	2.75	293	3.21	293	2.90
95.00	94.94	0.7	250	1.17	-2.83	293	3.07	292	3.37	293	2.76	292	3.22	293	2.91
96.00	95.94	0.7	253	1.17	-2.84	292	3.08	292	3.38	293	2.77	292	3.23	293	2.92
97.00	96.94	0.9	240	1.16	-2.86	292	3.08	292	3.39	293	2.77	292	3.24	292	2.93
98.00	97.94	0.7	239	1.16	-2.87	292	3.09	292	3.41	292	2.78	292	3.25	292	2.94
99.00	98.94	0.9	239	1.15	-2.88	292	3.10	291	3.42	292	2.79	292	3.26	292	2.95
100.00	99.94	0.9	249	1.14	-2.90	292	3.12	291	3.43	292	2.80	291	3.27	292	2.96
101.00	100.94	0.9	247	1.14	-2.91	291	3.13	291	3.45	292	2.81	291	3.29	292	2.97
102.00	101.94	0.9	234	1.13	-2.93	291	3.14	291	3.46	292	2.81	291	3.30	291	2.97
103.00	102.94	1.1	234	1.12	-2.94	291	3.14	290	3.47	291	2.82	291	3.31	291	2.98
104.00	103.94	0.9	223	1.11	-2.95	291	3.15	290	3.48	291	2.83	290	3.32	291	2.99
105.00	104.94	0.9	224	1.10	-2.97	290	3.16	290	3.49	291	2.83	290	3.33	291	3.00
106.00	105.94	0.9	225	1.09	-2.98	290	3.17	290	3.50	291	2.84	290	3.34	290	3.01
107.00	106.94	0.9	234	1.08	-2.99	290	3.18	289	3.51	291	2.85	290	3.35	290	3.01
108.00	107.94	0.9	243	1.07	-3.00	290	3.19	289	3.52	290	2.86	289	3.36	290	3.02
109.00	108.94	0.9	231	1.06	-3.02	289	3.20	289	3.53	290	2.86	289	3.37	290	3.03
110.00	109.94	0.9	230	1.05	-3.03	289	3.21	288	3.54	290	2.87	289	3.37	289	3.04
111.00	110.94	1.1	228	1.04	-3.04	289	3.21	288	3.55	290	2.87	288	3.38	289	3.04
112.00	111.94	1.1	228	1.02	-3.05	289	3.22	288	3.56	289	2.88	288	3.39	289	3.05
113.00	112.94	1.3	228	1.01	-3.07	288	3.23	288	3.57	289	2.89	288	3.40	289	3.06
114.00	113.94	1.3	232	1.00	-3.08	288	3.24	287	3.58	289	2.89	288	3.41	288	3.07
115.00	114.94	1.1	222	0.98	-3.10	288	3.25	287	3.60	288	2.90	287	3.42	288	3.08
116.00	115.94	1.1	231	0.97	-3.11	287	3.26	287	3.61	288	2.91	287	3.43	288	3.09
117.00	116.94	1.1	229	0.95	-3.13	287	3.27	286	3.62	288	2.92	287	3.45	287	3.09
118.00	117.94	1.3	221	0.94	-3.14	287	3.28	286	3.63	288	2.93	286	3.46	287	3.10
119.00	118.94	1.3	226	0.92	-3.16	286	3.29	286	3.64	287	2.94	286	3.47	287	3.11
120.00	119.94	1.3	218	0.91	-3.17	286	3.30	285	3.65	287	2.94	286	3.48	286	3.12
121.00	120.93	1.3	221	0.89	-3.18	286	3.31	285	3.66	287	2.95	285	3.49	286	3.13
122.00	121.93	1.2	207	0.87	-3.20	285	3.31	284	3.67	286	2.95	285	3.49	286	3.13
123.00	122.93	1.3	220	0.85	-3.21	285	3.32	284	3.68	286	2.96	284	3.50	285	3.14
124.00	123.93	1.3	215	0.84	-3.22	285	3.33	284	3.69	286	2.97	284	3.51	285	3.15
125.00	124.93	1.3	215	0.82	-3.24	284	3.34	283	3.70	285	2.97	284	3.52	285	3.16
126.00	125.93	1.1	220	0.80	-3.25	284	3.35	283	3.71	285	2.98	283	3.53	284	3.16
126.90	126.83	1.3	224	0.79	-3.26	284	3.35	283	3.72	285	2.99	283	3.54	284	3.17

CROSS SECTION

ALL FIGURES IN LOG DEPTH MS
TARGET ORIGIN DEPTH.....2.50
LAST PLOTTED DEPTH......126.90
DEPTH MARKERS ANNOTATED
IN MULTIPLES OF.........10
FIRST DEPTH MARKER AT...10
LAST DEPTH MARKER AT....120

PLOT WITH RESPECT TO TRUE NORTH
SCALE 50:1
DECLINATION 22.1 DEG.



BOREHOLE POSITIONAL ERROR
THE TWO BOXES SURROUNDING THE LAST PLOTTED DEPTH SHOW THE TYPICAL, AND MAXIMUM, POSITIONAL ERROR AT THAT DEPTH.

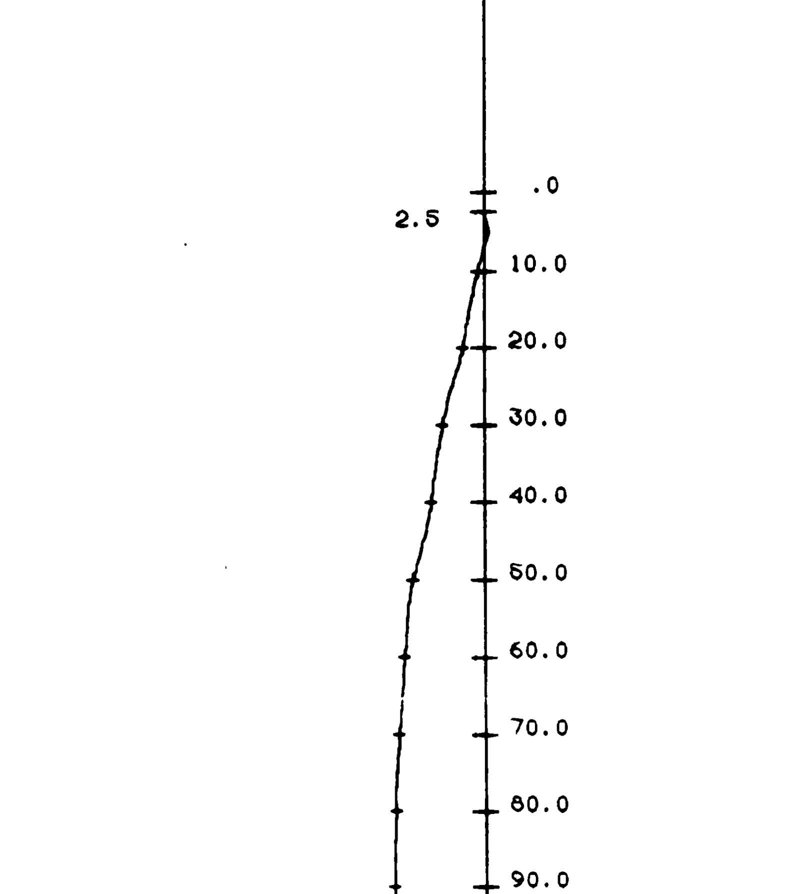
FINAL BOREHOLE POSITION
THE LAST PLOTTED DEPTH IS AT .79 MS NORTH, 3.26 MS WEST IE. 3.35 MS FROM THE ORIGIN. 284 DEG FROM TRUE NORTH

VERTICAL SECTIONS
(TRUE DEPTH VS DISPLACEMENT)

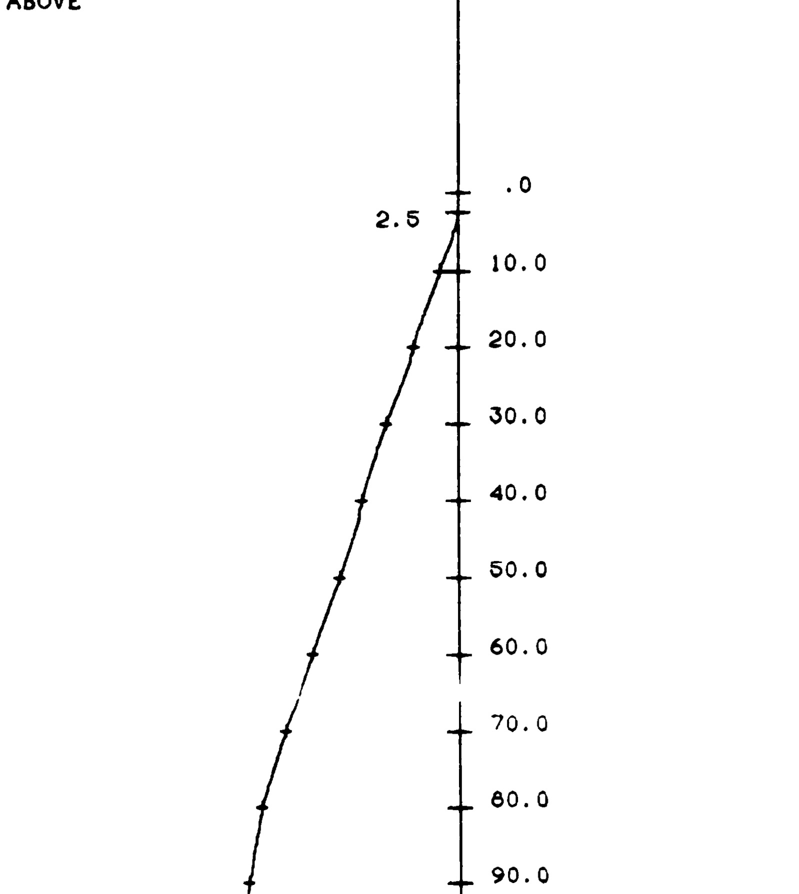
VERTICAL SCALE 1000:1
HORIZONTAL SCALE 100:1

MARKERS ANNOTATED AS ABOVE

N-S SECTION

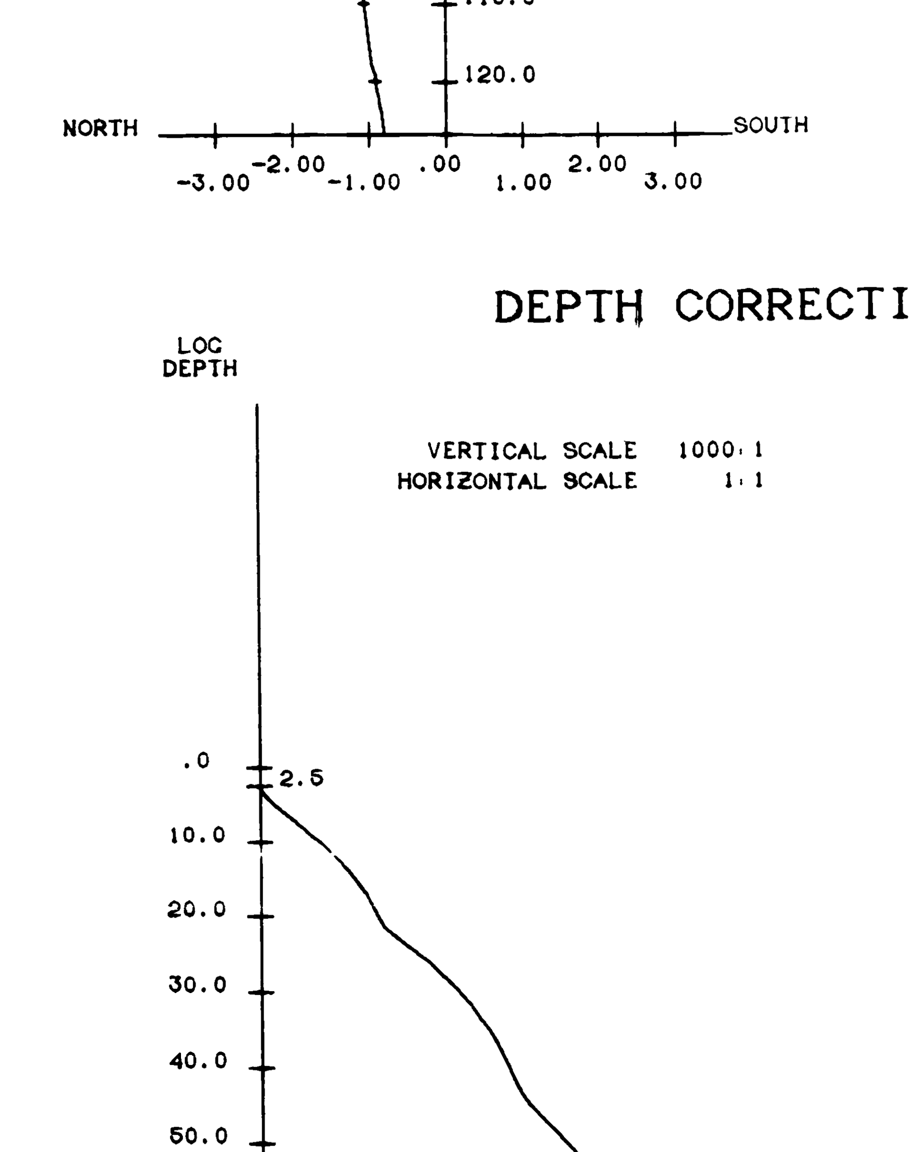


E-W SECTION



DEPTH CORRECTION ANALYSIS

VERTICAL SCALE 1000:1
HORIZONTAL SCALE 1:1



DEPTHS: LOG	TRUE	DEPTHS: LOG	TRUE
3.00	3.00	73.00	72.94
4.00	4.00	74.00	73.94
5.00	5.00	75.00	74.94
6.00	6.00	76.00	75.94
7.00	7.00	77.00	76.94
8.00	7.99	78.00	77.94
9.00	8.99	79.00	78.94
10.00	9.99	80.00	79.94
11.00	10.99	81.00	80.94
12.00	11.99	82.00	81.94
13.00	12.99	83.00	82.94
14.00	13.99	84.00	83.94
15.00	14.99	85.00	84.94
16.00	15.99	86.00	85.94
17.00	16.99	87.00	86.94
18.00	17.99	88.00	87.94
19.00	18.99	89.00	88.94
20.00	19.98	90.00	89.94
21.00	20.98	91.00	90.94
22.00	21.98	92.00	91.94
23.00	22.98	93.00	92.94
24.00	23.98	94.00	93.94
25.00	24.98	95.00	94.94
26.00	25.98	96.00	95.94
27.00	26.98	97.00	96.94
28.00	27.98	98.00	97.94
29.00	28.98	99.00	98.94
30.00	29.97	100.00	99.94
31.00	30.97	101.00	100.94
32.00	31.97	102.00	101.94
33.00	32.97	103.00	102.94
34.00	33.97	104.00	103.94
35.00	34.97	105.00	104.94
36.00	35.97	106.00	105.94
37.00	36.97	107.00	106.94
38.00	37.97	108.00	107.94
39.00	38.97	109.00	108.94
40.00	39.97	110.00	109.94
41.00	40.97	111.00	110.94
42.00	41.97	112.00	111.94
43.00	42.97	113.00	112.94
44.00	43.97	114.00	113.94
45.00	44.96	115.00	114.94
46.00	45.96	116.00	115.94
47.00	46.96	117.00	116.94
48.00	47.96	118.00	117.94
49.00	48.96	119.00	118.94
50.00	49.96	120.00	119.94
51.00	50.96	121.00	120.93
52.00	51.96	122.00	121.93
53.00	52.96	123.00	122.93
54.00	53.96	124.00	123.93
55.00	54.96	125.00	124.93
56.00	55.96	126.00	125.93
57.00	56.95	126.90	126.83
58.00	57.95		
59.00	58.95		
60.00	59.95		
61.00	60.95		
62.00	61.95		
63.00	62.95		
64.00	63.95		
65.00	64.95		
66.00	65.95		
67.00	66.95		
68.00	67.95		
69.00	68.95		
70.00	69.95		
71.00	70.95		
72.00	71.95		

COMPANY	WESTERN CANADIAN MINING CORP.
WELL	DD91-18
FIELD	WELDWOOD COAL PROJ.
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA

Borehole: DD91-12
Client: WESTERN CANADIAN MINING CORP.
Field: WELLWOOD CAN. PROJ.
Area: BRITISH COLUMBIA
Country: CANADA

FOCUSED ELECTRIC
GAMMA RAY

SLIMLINE GRAPHICS UNIT

Permanent Datum GROUND LEVEL, Elevation: N/A		GR N/A	Location:
Log measured from GROUND LEVEL above permanent datum		SP N/A	COURTENAY
Drilling measured from GROUND LEVEL above permanent datum		SL N/A	
Date	22-JAN-1991		LSD N/A
Run Number	ONE		SEC
Depth-Driller	182.9m		TOP
Depth-Logger	182.9m		BOT
First Reading	181.9m		OTHER SERVICES
Last Reading	0.5m		CDL,CNL
Casing-Driller	9.1m		MCS,BRD
Casing-Logger	9.1m		
Bit Size	76.2		
Data Field Type	WATER		
Data/Visc.	1.0000 N/A		
Matrix Loss	N/A		
Fluid Loss	N/A		
Max Temp Temp	N/A		
Max @ Meas Temp	N/A		
Max @ Meas Temp	N/A		
Recorded Rate/Max	N/A		
Max @ Rec	9.1 @ 0m		
Time Since Circ	30 MIN		
Max Rec Temp	N/A		
Equipment/Base	1.0000 N/A		
Recorded By	J.C.WEBBER		
Witnessed By	S.CARDELMAN		

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RUN NUMBER	BOREHOLE RECORD BIT	FROM	TO	SIZE	CASING RECORD WEIGHT	FROM	TO
ONE	NQ 2	9.1m	10	NQ	N/A	SURFACE	9.1m

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
RBA-CCB	18K-118			

REMARKS:
FOCUSED ELECTRIC GAMMA RAY

SYSTEM CONFIGURATION DATES: LOGGED 1-FEB-1990 PROCESSED 1-FEB-1990 PLOTTED 11-JAN-1991

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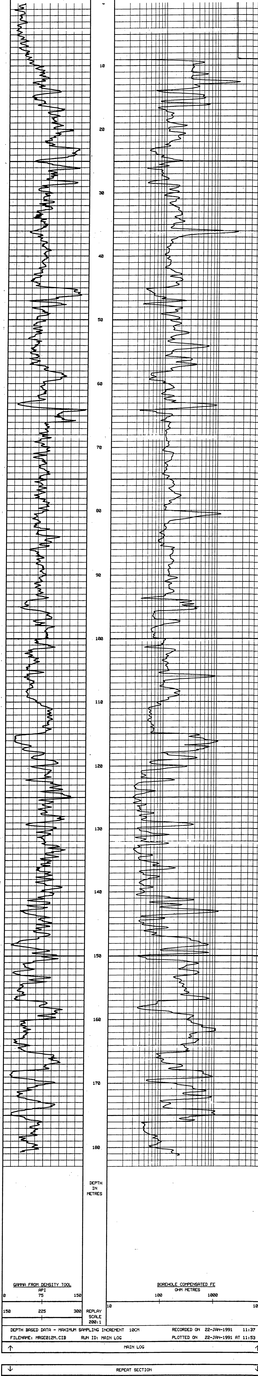
MAIN LOG

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM RECORDED ON 22-JAN-1991 11:37
FILENAME: MAGEBIZH.CIB RUN ID: MAIN LOG PLOTTED ON 22-JAN-1991 AT 11:55

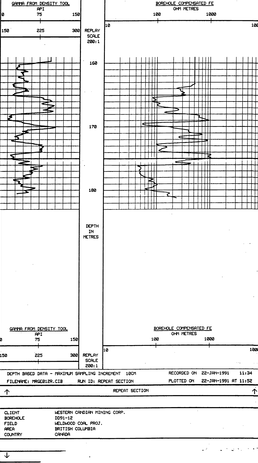


DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM RECORDED ON 22-JAN-1991 11:37
FILENAME: MAGEBIZH.CIB RUN ID: MAIN LOG PLOTTED ON 22-JAN-1991 AT 11:53

MAIN LOG

REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM RECORDED ON 22-JAN-1991 11:34
FILENAME: MAGEBIZH.CIB RUN ID: REPEAT SECTION PLOTTED ON 22-JAN-1991 AT 11:53

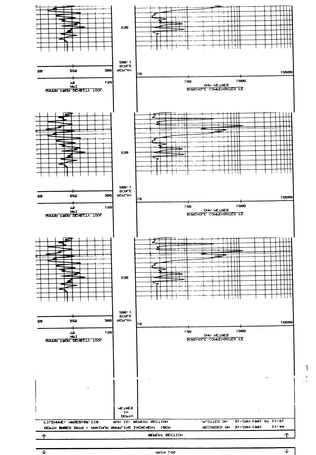


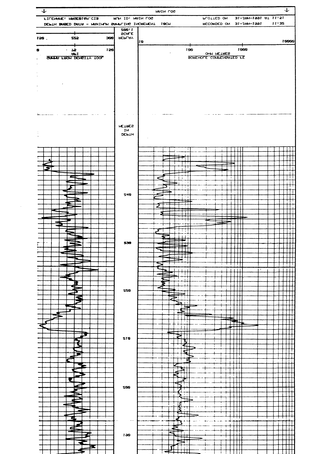
DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM RECORDED ON 22-JAN-1991 11:34
FILENAME: MAGEBIZH.CIB RUN ID: REPEAT SECTION PLOTTED ON 22-JAN-1991 AT 11:52

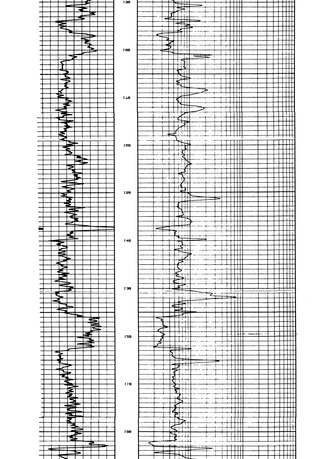
REPEAT SECTION

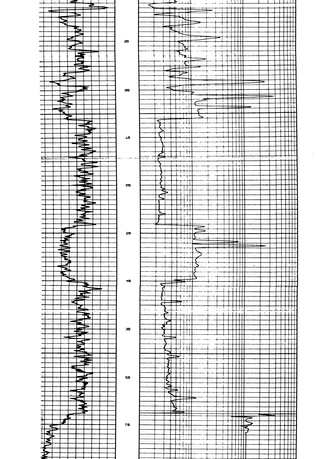
CLIENT	WESTERN CANADIAN MINING CORP.
BOREHOLE	DD91-12
FIELD	WELLWOOD CAN. PROJ.
AREA	BRITISH COLUMBIA
COUNTRY	CANADA

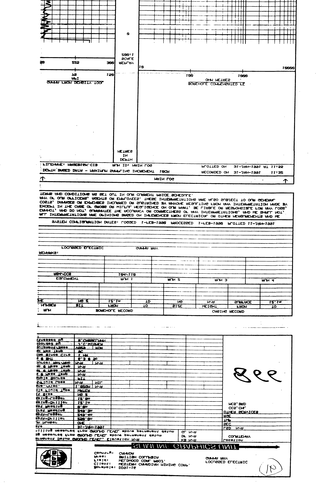
DEPTH BASED

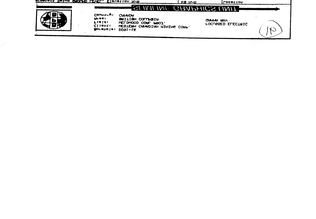












Borehole: DD91-16
Client: WESTERN CANADIAN MINING CORP.
Field: HELIKADO COAL PROJ.
Area: BRITISH COLUMBIA
Country: CANADA

BCD RESOLUTION DENSITY (2D:1)
GAMMA RAY
CALIPER

SLIMLINE GRAPHICS UNIT

Permanent Datum	GROUND LEVEL	Elevation m/ft
Log measured from	GROUND LEVEL	above permanent datum
Drilling measured from	GROUND LEVEL	above permanent datum

Elevation	
COUNTRY	
KB	N/A
DF	N/A
GL	N/A

LOG - N/A
SEC
TWP
RGE
OTHER SERVICES
CAL, HCS
FE, BHC

	31-JAN-1991
Run Number	ONE
Depth-Driller	250.0m
Depth-Logger	249.4m
First Reading	248.9m
Last Reading	6.9m
Casing-Driller	12.1in
Casing-Logger	12.1in
Bit Size	11.5in
Type Fluid/Type	WATER
Density/Viscosity	1.03Gm/cc N/A
Ph/Fluid Loss	N/A mls
Sample Source	PIT
Rm @ Meas Temp	N/A
Rmf @ Meas Temp	N/A
Rmc @ Meas Temp	N/A
Source of Rm/Rmf/Rmc	N/A N/A
RM @ BHT	N/A @ N/A
Time Since Circ	38 MIN
Max Rec Temp	DEGC
Equipment/Base	1800 ft
Recorded By	C.CHRISCHNEY
Witnessed By	D.CHRISCHNEY

RUN NUMBER	BOREHOLE RECORD BIT	FROM	TO
ONE	M2 2	12.1in	TD

CASING RECORD SIZE	WEIGHT	FROM	TO
	N/A	SURFACE	12.1m

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
CCS	118			

REMARKS:
BCD RESOLUTION DENSITY (2D:1) GAMMA RAY CALIPER

SYSTEM CONFIGURATION DATES: LOGGED 11-JAN-1991 PROCESSED 11-JAN-1991 PLOTTED 11-JAN-1991

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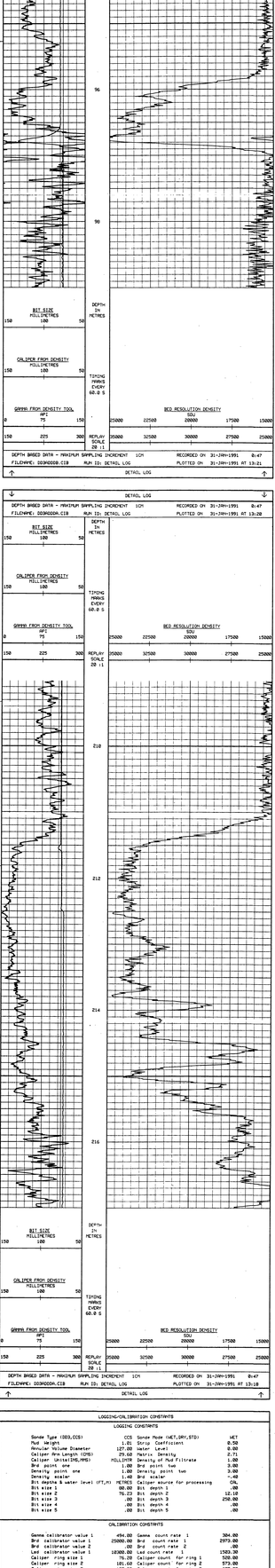
DETAIL LOG

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 1CM — RECORDED ON 31-JAN-1991 0:47
FILENAME: DD91CCDB.CIB — RUN ID: DETAIL LOG — PLOTTED ON 31-JAN-1991 AT 13:23

BIT SIZE MILLIMETRES 150 100 50
CALIPER FROM DENSITY MILLIMETRES 150 100 50
DEPTH IN METRES
TIMING MARKS EVERY 60.0 S
GAMMA FROM DENSITY TOOL API 0 75 150
BCD RESOLUTION DENSITY SDU 25000 22500 20000 17500 15000
REPLAY SCALE 20 :1
150 225 300
25000 32500 30000 27500 25000



DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 1CM — RECORDED ON 31-JAN-1991 0:47
FILENAME: DD91CCDB.CIB — RUN ID: DETAIL LOG — PLOTTED ON 31-JAN-1991 AT 13:21

DETAIL LOG

DETAIL LOG

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 1CM — RECORDED ON 31-JAN-1991 0:47
FILENAME: DD91CCDB.CIB — RUN ID: DETAIL LOG — PLOTTED ON 31-JAN-1991 AT 13:28

BIT SIZE MILLIMETRES 150 100 50
CALIPER FROM DENSITY MILLIMETRES 150 100 50
DEPTH IN METRES
TIMING MARKS EVERY 60.0 S
GAMMA FROM DENSITY TOOL API 0 75 150
BCD RESOLUTION DENSITY SDU 25000 22500 20000 17500 15000
REPLAY SCALE 20 :1
150 225 300
25000 32500 30000 27500 25000

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 1CM — RECORDED ON 31-JAN-1991 0:47
FILENAME: DD91CCDB.CIB — RUN ID: DETAIL LOG — PLOTTED ON 31-JAN-1991 AT 13:18

DETAIL LOG

LOGGING-CALIBRATION CONSTANTS

LOGGING CONSTANTS

Sonde Type (CCD,CCS)	CCS	Sonde Mode (WET,DRY,STD)	WET
Mud Weight	1.01	Borip Coefficient	0.52
Annular Volume Diameter	127.00	Water Level	0.00
Caliper Arm Length (CM)	25.40	Matrix Density	2.71
Caliper Units(INS,MMS)	MILLIMTR	Density of Mud Filtrate	1.00
Bhc point one	1.00	Bhc point two	3.00
Density point one	1.00	Density point two	3.00
Density Scaler	1.40	Bhc scaler	1.40
Bit depths & water level (FT,M)	METRES	Caliper source for processing	CAL
Bit size 1	00.00	Bit depth 1	.00
Bit size 2	76.23	Bit depth 2	12.10
Bit size 3	.00	Bit depth 3	250.00
Bit size 4	.00	Bit depth 4	.00
Bit size 5	.00	Bit depth 5	.00

CALIBRATION CONSTANTS

Gamma calibrator value 1	454.00	Gamma count rate 1	304.00
Brd calibrator value 1	25000.00	Brd count rate 1	2373.00
Brd calibrator value 2	.00	Brd count rate 2	.00
Lsd calibrator value 1	10300.00	Lsd count rate 1	1523.00
Caliper ring size 1	76.20	Caliper count for ring 1	520.00
Caliper ring size 2	101.60	Caliper count for ring 2	573.00
Caliper ring size 3	127.00	Caliper count for ring 3	627.00
Caliper ring size 4	152.40	Caliper count for ring 4	680.00
Caliper ring size 5	203.20	Caliper count for ring 5	737.00
Caliper ring size 6	254.00	Caliper count for ring 6	797.00

CLIENT	WESTERN CANADIAN MINING CORP.
BOREHOLE	DD91-16
FIELD	HELIKADO COAL PROJ.
AREA	BRITISH COLUMBIA
COUNTRY	CANADA

Borehole: DD91-20
Client: WESTERN CANADIAN MINING CORP.
Field: WELLWOOD COAL PROJ.
Area: BRITISH COLUMBIA
Country: CANADA

BED RESOLUTION DENSITY (20:1)
GAMMA RAY
CALIPER

SLIMLINE GRAPHICS UNIT

manent Datum	GROUND LEVEL	Elevation	N/A
measured from	GROUND LEVEL	above permanent datum	
lling measured from	GROUND LEVEL	above permanent datum	
	6-FEB-1991		
Number	ONE		
sh-Driller	99.6m		
sh-Logger	99.3m		
ot Reading	99.2m		
t Reading	97.9m		
ing-Driller	17.9m		
ing-Logger	17.3m		
t Size	HQ 3		
e Fluid Type	WATER		
ity/Visc.	1.000cP	N/A	
Fluid Loss	N/A	MIL	
ple Source	PIT		
Meas Temp	N/A		
Meas Temp	N/A		
Meas Temp	N/A		
ker Ref/Rec	N/A	N/A	
Unit	9.9 @ 5		
Since Circ	28 MIN		
Max Temp	°C		
pment/Base	VANC	ROM	
Recorded By	T.C.WISNER		
Witnessed By	S.CRABBE/ANN		

KB	N/A
DF	N/A
GL	N/A

Location
COURTENAY

LSD N/A
SEC
TWP
RGE
OTHER SERVICES
CAL,MCS
FE,CCS

866

RUN NUMBER	BOREHOLE RECORD				CASING RECORD		
	BIT	FROM	TO	SIZE	WEIGHT	FROM	TO
	NQ 2	17.9m	TD	NG	N/A	SURFACE	17.9m

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
CCS	118			

REMARKS:

BED RESOLUTION DENSITY (20:1) GAMMA RAY

CALIPER

SYSTEM CONFIGURATION DATES: LOGGED 11-JAN-1991 PROCESSED 11-JAN-1991 PLOTTED 11-JAN-1991

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DETAIL LOG

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 1CM
RECORDED ON 6-FEB-1991 23:28
FILENAME: DD9ICCCA.C1B
RUN ID: DETAIL LOG
PLOTTED ON 7-FEB-1991 AT 11:37

BIT SIZE
MILLIMETRES
100 50

DEPTH IN METRES

CALIPER FROM DENSITY
MILLIMETRES
50 100 50

TIMING MARKS EVERY 60.0 S

GAMMA FROM DENSITY TOOL
API
0 75 150

BED RESOLUTION DENSITY
SDU
25000 22500 20000 17500 15000

REPLAY SCALE 20 :1

0 225 300

25000 32500 30000 27500 25000

44

46

48

50

52

54

BIT SIZE
MILLIMETRES
150 100 50

DEPTH IN METRES

CALIPER FROM DENSITY
MILLIMETRES
150 100 50

TIMING MARKS EVERY 60.0 S

GAMMA FROM DENSITY TOOL
API
0 75 150

BED RESOLUTION DENSITY
SDU
25000 22500 20000 17500 1500

REPLAY SCALE 20 :1

150 225 300

25000 32500 30000 27500 2500

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 1CM
RECORDED ON 6-FEB-1991 23:28
FILENAME: DD9ICCCA.C1B
RUN ID: DETAIL LOG
PLOTTED ON 7-FEB-1991 AT 11:34

DETAIL LOG

LOGGING/CALIBRATION CONSTANTS

LOGGING CONSTANTS

Sonde Type (DD3,CCS)	CCS	Sonde Mode (WET,DRY,STD)	WET		
Mud Weight	1.01	Strip Coefficient	0.50		
Annular Volume Diameter	127.00	Water Level	0.00		
Caliper Arm Length (CMS)	29.68	Matrix Density	2.71		
Caliper Units(INS,MMS)	MILLIMTR	Density of Mud Filtrate	1.00		
Bhd point one	1.00	Bhd point two	3.00		
Density point one	1.00	Density point two	3.00		
Density scaler	1.40	Bhd scaler	-.40		
Bit depths & water level (FT,M)	METRES	Caliper source for processing	CAL		
Bit size 1	80.00	Bit depth 1	.00		
Bit size 2	76.23	Bit depth 2	17.90		
Bit size 3	.00	Bit depth 3	99.60		
Bit size 4	.00	Bit depth 4	.00		
Bit size 5	.00	Bit depth 5	.00		

CALIBRATION CONSTANTS

Gamma calibrator value 1	494.00	Gamma count rate 1	304.00
Bhd calibrator value 1	25000.00	Bhd count rate 1	2973.00
Bhd calibrator value 2	.00	Bhd count rate 2	.00
Lsd calibrator value 1	10300.00	Lsd count rate 1	1583.30
Caliper ring size 1	76.20	Caliper count for ring 1	518.00
Caliper ring size 2	101.60	Caliper count for ring 2	573.00
Caliper ring size 3	127.00	Caliper count for ring 3	627.00
Caliper ring size 4	152.40	Caliper count for ring 4	680.00
Caliper ring size 5	203.20	Caliper count for ring 5	737.00
Caliper ring size 6	254.00	Caliper count for ring 6	797.00

CLIENT WESTERN CANADIAN MINING CORP.
BOREHOLE DD91-20
FIELD WELLWOOD COAL PROJ.
AREA BRITISH COLUMBIA
COUNTRY CANADA

Borehole: DD91-16
Client: WESTERN CANADIAN MINING CORP.
Field: WELDWOOD COAL PROJ.
Area: BRITISH COLUMBIA
Country: CANADA

M. C. SONIC - 20cm & 60cm
GAMMA RAY
CALIPER

SLIMLINE GRAPHICS UNIT

Permanent Datum GROUND LEVEL, Elevation N/A		KB N/A	Location
Log measured from GROUND LEVEL above permanent datum		DF N/A	COURTENAY
Drilling measured from GROUND LEVEL above permanent datum		GL N/A	
Date	31-JAN-1991		LSD N/A
Run Number	ONE		SEC
Depth-Driller	250.0m		TWP
Depth-Logger	249.4m		RGE
First Reading	248.1m		OTHER SERVICES
Last Reading	0.0m		CCS, CNL
Casing-Driller	12.1m		FE, BRD
Casing-Logger	12.8m		
Bit Size	NQ 2		
Hole Fluid Type	WATER		
Dens./Visc.	1.0GCM N/A		
PH/Fluid Loss	N/A NIL		
Sample Source	PIT		
Rm @ Meas Temp	N/A		
Rmf @ Meas Temp	N/A		
Rmc @ Meas Temp	N/A		
Source: Rmf/Rmc	N/A N/A		
Rm @ BHT	6.3 @ 5c		
Time Since Circ	30 MIN		
Max Rec Temp	5C		
Equipment/Base	V829 RDR		
Recorded by	J.C.WISNER		
Witnessed by	S.CASSELMAN		

8cc

RUN NUMBER	BOREHOLE RECORD BIT	FROM	TO	CASING RECORD SIZE	WEIGHT	FROM	TO
ONE	NQ 2	12.1m	TD	NQ	N/A	SURFACE	12.1m

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
MCS/CCS	510/110			

REMARKS:
M. C. SONIC - 20cm & 60cm GAMMA RAY CALIPER

SYSTEM CONFIGURATION DATES: LOGGED 1-FEB-1990 PROCESSED 1-FEB-1990 PLOTTED 11-JAN-1991

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MAIN LOG

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM RECORDED ON 31-JAN-1991 11:32
FILENAME: MP6016M.CIB RUN ID: MAIN LOG PLOTTED ON 31-JAN-1991 AT 12:06

SLIMLINE GRAPHICS UNIT

Borehole: DD91-13
Client: WESTERN CANDIAN MINING CORP.
Field: WELDWOOD COAL PROJ.
Area: BRITISH COLUMBIA
Country: CANADA

FOCUSSED ELECTRIC
GAMMA RAY

Permanent Datum GROUND LEVEL, Elevation N/A	KB N/A	Location COURTENAY	
Log measured from GROUND LEVEL above permanent datum	DF N/A		
Drilling measured from GROUND LEVEL above permanent datum	GL N/A		
Date	25-JAN-1991	LSD N/A	
Run Number	ONE	SEC	
Depth-Driller	274.3m	TWP	
Depth-Logger	272.0m	RGE	
First Reading	272.0m	OTHER SERVICES	
Last Reading	0.0m	CCS, CNL.	
Casing-Driller	4.5m	MCS, BRD	
Casing-Logger	5.0m		
Bit Size	NQ 2		
Hole Fluid Type	WATER		
Dens./Visc.	1.02GM	N/A	
PH/Fluid Loss	N/A	NIL	
Sample Source	PIT		
Rm @ Meas Temp	N/A		
Rmf @ Meas Temp	N/A		
Rmc @ Meas Temp	N/A		
Source: Rmf/Rmc	N/A	N/A	
Rm @ BHT	6.3 @ 9c		
Time Since Circ	1 HR		
Max Rec Temp	9C		
Equipment/Base	VB29	RDR	
Recorded by	J.C.WISNER		
Witnessed by	S.CASSELMAN		

Bee

RUN NUMBER	BIT	FROM	TO	SIZE	WEIGHT	FROM	TO
	BOREHOLE RECORD			CASING RECORD			
ONE	NQ 2	4.5m	TD	NQ	N/A	SURFACE	4.5m

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
R04/CCS	104/110			

REMARKS:
FOCUSSED ELECTRIC GAMMA RAY

SYSTEM CONFIGURATION DATES: LOGGED 1-FEB-1990 PROCESSED 1-FEB-1990 PLOTTED 11-JAN-1991

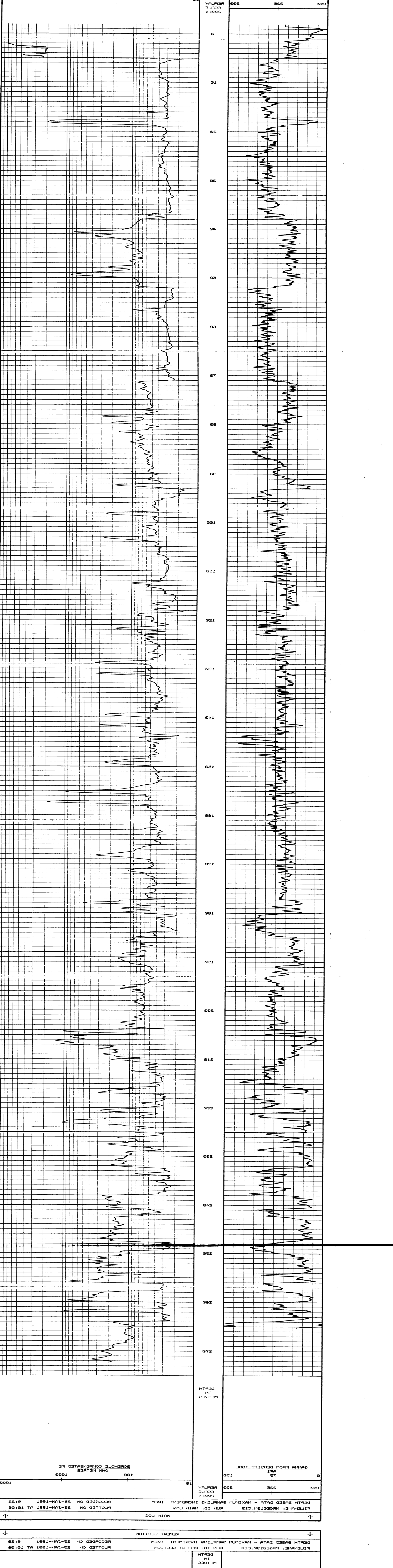
ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT, GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

MAIN LOG

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM
FILENAME: MRGE013M.CIB RUN ID: MAIN LOG
RECORDED ON 25-JAN-1991 9:33
PLOTTED ON 25-JAN-1991 AT 10:10

WT-13

GAMMA FROM DENSITY TOOL (API) 0 – 75 – 150; 150 – 225 – 300
DEPTH IN METRES, REPLAY SCALE 200:1
BOREHOLE COMPENSATED FE (OHM METRES) 10 – 100 – 1000 – 10000



REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM
FILENAME: MRGE013R.CIB RUN ID: REPEAT SECTION
RECORDED ON 25-JAN-1991
PLOTTED ON 25-JAN-1991 AT 10

GAMMA FROM DENSITY TOOL (API) 0 – 75 – 150; 150 – 225 – 300
DEPTH IN METRES, REPLAY SCALE 200:1
BOREHOLE COMPENSATED FE (OHM METRES) 10 – 100 – 1000 – 10000

LOCATION COURTENAY
PRVNC/CO. BRITISH COLUMBIA
FIELD WELDWOOD COAL PROJ.
WELL: DD91-14
COMPANY: WESTERN CANADIAN MINING CORP.

VERTICALITY ANALYSIS
SLIMLINE UNIT

COMPANY	WESTERN CANADIAN MINING CORP.
WELL	DD91-14
FIELD	WELDWOOD COAL PROJ.
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA

LOCATION COURTENAY

LSD	SEC	TWP	RGE
N/A			

OTHER SERVICES: CDL. CNL. FE BRD. MCS

PERMANENT DATUM GROUND LEVEL. ELEVATION N/A
LOG MEASURED FROM GROUND LEVEL ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS: KB N/A, DF N/A, GL N/A

DATE	26-JAN-91
RUN NUMBER	ONE
DEPTH-DRILLER	193.5M
DEPTH-LOGGER	193.7M
FIRST READING	193.6M
LAST READING	0.0M
CASING-DRILLER	3.0M
CASING-LOGGER	3.0M
BIT SIZE	NO 2
HOLE FLUID TYPE	WATER
DENS./VISC.	1.02CM / N/A
PH/FLUID LOSS	N/A / NIL
SAMPLE SOURCE	PIT
RM @ MEAS TEMP	N/A
RMF @ MEAS TEMP	N/A
RMC @ MEAS TEMP	N/A
SOURCE: RMF/RMC	N/A / N/A
RM @ BHT	6.3 @ 9C
TIME SINCE CIRC	
MAX REC TEMP	9C
EQUIPMENT/BASE	V829 / RDR
RECORDED BY	J.C.VISNER
WITNESSED BY	S.CASSELMAN

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BPB VERTICALITY ANALYSIS INTERPRETATION NOTES

1. ALL PLOTTED OUTPUT IS AUTOMATICALLY SCALED TO OBTAIN THE BEST VISUAL EFFECT WITHIN THE PHYSICAL SPACE AVAILABLE. THE MAXIMUM SCALES BEING 50000:1 (METRIC) AND 48000:1 (IMPERIAL). AND THE MINIMUM 1:1.

2. THE ANALYSIS IS DERIVED BY INTEGRATING 10CM. SAMPLED DATA DOWN THE BOREHOLE. THE LISTING SUPPLIED WILL CONTAIN A MAXIMUM OF 200 POINTS IN MULTIPLES OF 1. 2. 5. 10. 20. 50 OR 100 METRES/ FEET DEPENDING ON THE TOTAL RANGE OF THE ANALYSIS. HOWEVER THE ANALYSIS IS CALCULATED FOR THE ENTIRE RANGE OF THE BOREHOLE AND THE FINAL BOREHOLE POSITION IS INCLUDED IN THE LISTING.

3. COMPUTED VERTICALITY MAY ONLY BE FULLY DERIVED IN OPEN SECTIONS OF THE BOREHOLE. AWAY FROM THE INFLUENCE OF ANY UNUSUAL MAGNETIC EFFECTS (AS THE AZIMUTH CALCULATIONS ARE DERIVED FROM THREE SOLID STATE MAGNETOMETERS). SO THE ANALYSIS WILL GENERALLY BEGIN AT THE END OF THE CASING AND ALL BOREHOLE POSITIONAL INFORMATION WILL RELATE TO THIS DEPTH.

4. UP TO TEN CROSS SECTIONS MAY BE REQUESTED FOR ANY BOREHOLE TO BE DISPLAYED AT ANY SCALE (THE DEFAULT SCALE IS THAT OF THE CROSS-SECTION FOR THE ENTIRE HOLE).

5. BOREHOLE POSITIONAL ERROR IS DERIVED ASSUMING THE FOLLOWING PARAMETERS.

	TILT(DEGREES)	AZIMUTH(DEGREES)
TYPICAL ERROR	+/- 0.3333	+/- 10
MAXIMUM ERROR	+/- 0.5	+/- 15

6. ERROR ANALYSIS MAY BE CALCULATED AND PLOTTED FROM THE DATA LISTING AS FOLLOWS:

A) PLOT THE FOUR COORDINATES FROM THE ERROR LISTING (BASED UPON ZERO AZIMUTH ERROR) ON A TARGET PLOT. ORIGIN AT THE START OF THE ANALYSIS.
B) DESCRIBE ARCS OF +/- 10 DEGREES AND +/- 15 DEGREES (CENTRE AT THE ORIGIN) THROUGH THE INNER AND OUTER POINTS RESPECTIVELY.
C) CONNECT THE RESPECTIVE ARCS TOGETHER WITH STRAIGHT LINES TO GIVE THE TYPICAL AND MAXIMUM BOREHOLE POSITIONAL ERROR.

7. GIVEN BELOW IS A FULL DESCRIPTION OF THE PARAMETERS DISPLAYED ON THE ENSUING LISTING:

LOG DEPTH	THE DEPTH RECORDED ON THE FIELD LOGS FOR THE BOREHOLE.
TRUE DEPTH	THE TRUE VERTICAL DEPTH CORESPONDING TO THE ABOVE DEPTH. CORRECTED FROM THE START OF THE ANALYSIS.
HOLE TILT AND AZIMUTH	THE SAMPLED BOREHOLE ORIENTATION.
AXIAL COORDINATES	THE COORDINATES NORTH AND EAST FROM THE TARGET ORIGIN.
POLAR COORDINATES	THE POLAR. OR RADIAL COORDINATES OF THE BOREHOLE.
ERROR COORDINATES	THE POLAR COORDINATES CORRESPONDING TO THE TYPICAL AND MAXIMUM TILT ERROR.

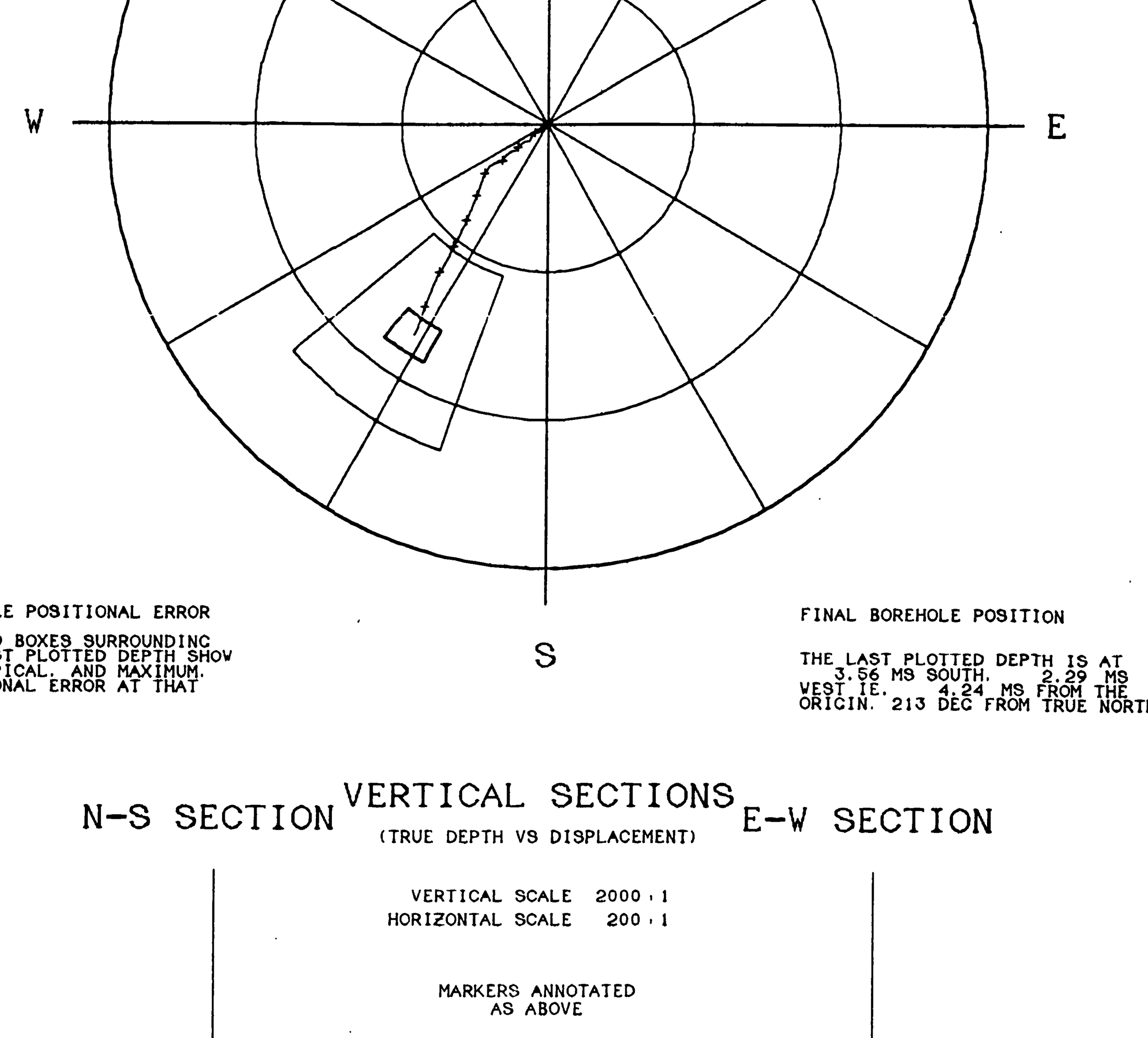
N.B. THE REFERENCE POINT FOR ALL BEARING ANGLES ON THIS LISTING IS GIVEN AT THE TOP OF EACH SHEET.

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT. AND DO NOT. GUARENTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS. AND WE SHALL NOT. EXCEPT IN THE CASE OF GROSS OR WILFUL NEGLIGENCE ON OUR PART. BE LIABLE OR RESPONSIBLE FOR ANY LOSS. COSTS. DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS. AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

DD91-14 VERTICALITY DATA LISTING
ALL CO-ORDINATES WITH RESPECT TO TRUE NORTH
DATE PROCESSED: 27-JAN-1991
DATE LOGGED: 26-JAN-1991

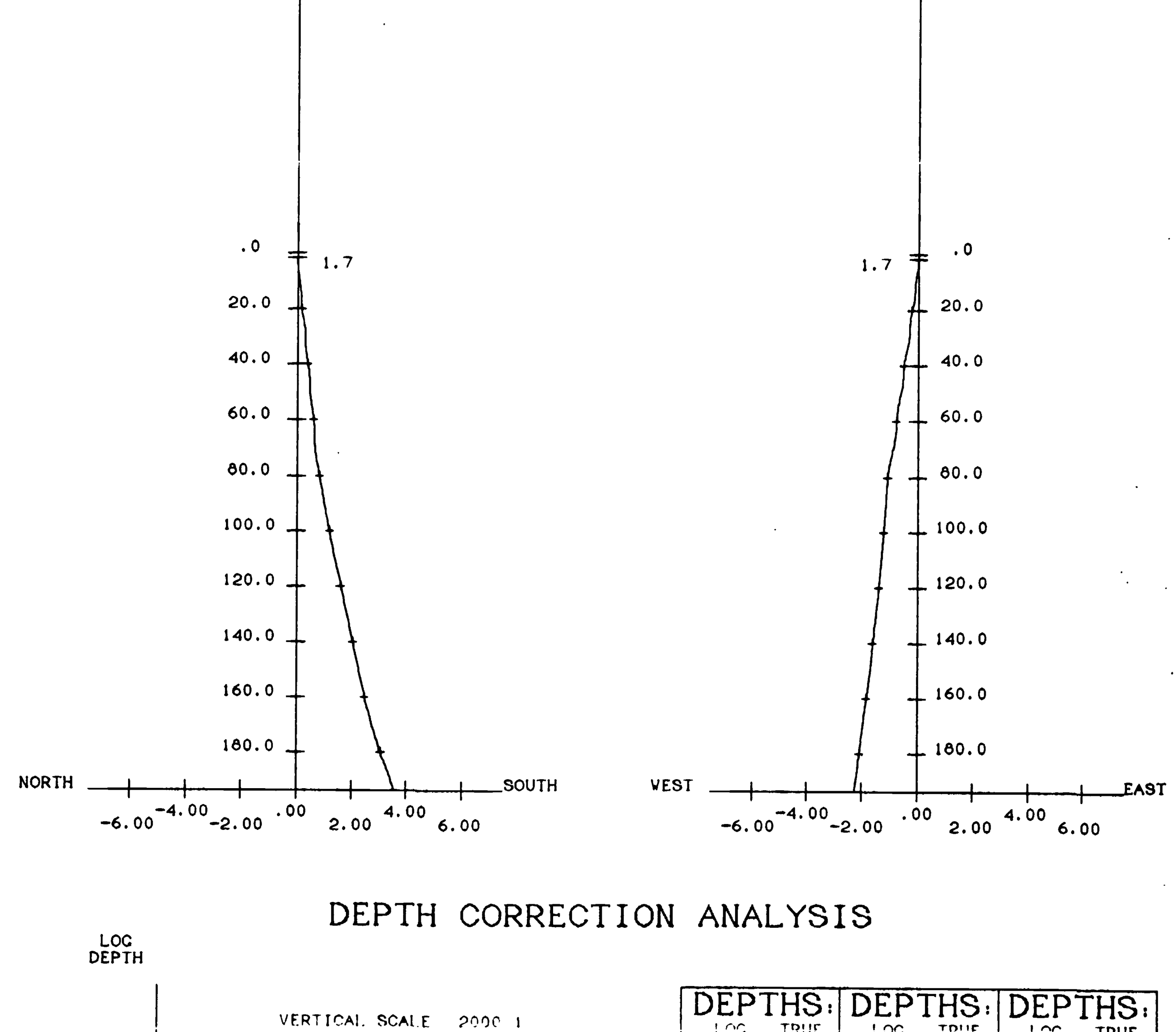
DEPTHS LOG	DEPTHS TRUE	BOREHOLE TILT	BOREHOLE AZI	AXIAL CO-ORDS NORTH	AXIAL CO-ORDS EAST	POLAR BRG	POLAR RADIUS	POLAR ERROR BRG	RADIUS	BRG	RADIUS	BRG	RADIUS	BRD	RADIUS
2.00	2.00	0.7	12	0.00	0.00	325	0.00	326	0.00	323	0.00	325	0.00	324	0.00
3.00	3.00	0.6	260	0.01	0.00	334	0.01	334	0.01	333	0.00	334	0.01	334	0.00
4.00	4.00	1.1	226	-0.01	-0.01	245	0.01	246	0.02	239	0.01	247	0.02	242	0.01
5.00	5.00	1.1	5	-0.02	-0.02	233	0.03	235	0.03	230	0.02	234	0.03	232	0.03
6.00	6.00	1.3	250	-0.02	-0.04	243	0.05	245	0.06	242	0.04	244	0.05	243	0.04
7.00	7.00	1.2	232	-0.03	-0.06	242	0.07	243	0.08	241	0.06	243	0.08	242	0.07
8.00	8.00	1.2	219	-0.05	-0.08	238	0.09	238	0.11	237	0.08	238	0.10	237	0.09
9.00	9.00	1.0	222	-0.07	-0.09	234	0.11	235	0.13	234	0.10	235	0.12	234	0.11
10.00	10.00	0.8	209	-0.08	-0.10	231	0.13	232	0.15	231	0.11	231	0.14	231	0.12
11.00	11.00	0.9	197	-0.10	-0.11	228	0.15	229	0.17	228	0.12	229	0.16	228	0.13
12.00	12.00	0.6	194	-0.11	-0.12	226	0.16	226	0.19	226	0.13	226	0.17	226	0.15
13.00	13.00	0.5	221	-0.12	-0.12	225	0.17	225	0.20	225	0.14	225	0.19	225	0.15
14.00	14.00	0.5	237	-0.13	-0.13	225	0.18	225	0.21	225	0.14	225	0.20	225	0.16
15.00	15.00	0.5	250	-0.13	-0.14	226	0.19	226	0.23	226	0.15	226	0.21	226	0.17
16.00	16.00	0.8	263	-0.13	-0.15	228	0.20	228	0.24	228	0.16	228	0.22	228	0.18
17.00	17.00	1.1	269	-0.13	-0.17	231	0.21	231	0.26	231	0.17	231	0.24	231	0.19
18.00	18.00	1.3	259	-0.14	-0.19	233	0.23	233	0.28	233	0.18	233	0.26	233	0.21
19.00	19.00	1.4	250	-0.15	-0.21	235	0.26	235	0.31	235	0.20	235	0.28	235	0.23
20.00	20.00	1.5	238	-0.16	-0.23	236	0.28	236	0.33	236	0.23	236	0.31	236	0.25
21.00	21.00	1.5	226	-0.17	-0.25	235	0.31	235	0.36	235	0.25	235	0.34	235	0.28
22.00	22.00	1.4	213	-0.19	-0.27	234	0.33	234	0.39	234	0.27	234	0.36	234	0.30
23.00	23.00	1.3	216	-0.21	-0.28	233	0.35	233	0.42	233	0.29	233	0.39	233	0.32
24.00	24.00	1.4	206	-0.23	-0.30	232	0.37	232	0.44	232	0.31	232	0.41	232	0.34
25.00	25.00	1.2	211	-0.25	-0.30	231	0.39	231	0.46	231	0.32	231	0.43	231	0.36
26.00	26.00	0.9	201	-0.26	-0.31	229	0.41	230	0.48	229	0.33	230	0.44	229	0.37
27.00	27.00	0.7	200	-0.28	-0.31	229	0.42	229	0.50	229	0.34	229	0.46	229	0.38
28.00	28.00	0.4	192	-0.29	-0.32	228	0.43	228	0.51	228	0.35	228	0.47	228	0.39
29.00	29.00	0.4	252	-0.29	-0.32	228	0.43	228	0.52	228	0.35	228	0.48	228	0.39
30.00	30.00	0.5	248	-0.29	-0.33	229	0.44	229	0.53	229	0.36	229	0.49	229	0.40
31.00	31.00	0.9	255	-0.29	-0.35	230	0.45	230	0.54	230	0.36	230	0.50	230	0.41
32.00	31.99	1.1	262	-0.30	-0.36	231	0.47	231	0.56	231	0.38	231	0.51	231	0.42
33.00	32.99	1.3	254	-0.30	-0.38	232	0.49	232	0.58	232	0.39	232	0.53	232	0.44
34.00	33.99	1.3	245	-0.31	-0.41	233	0.51	233	0.61	233	0.41	233	0.56	233	0.46
35.00	34.99	1.5	243	-0.32	-0.43	234	0.54	234	0.64	234	0.43	234	0.59	234	0.48
36.00	35.99	1.5	235	-0.33	-0.45	234	0.56	234	0.67	234	0.46	234	0.61	234	0.51
37.00	36.99	1.4	223	-0.35	-0.47	234	0.59	234	0.70	234	0.48	234	0.64	234	0.53
38.00	37.99	1.5	223	-0.37	-0.49	233	0.61	233	0.72	233	0.50	233	0.67	233	0.55
39.00	38.99	1.3	213	-0.38	-0.50	233	0.63	233	0.75	233	0.52	233	0.69	233	0.57
40.00	39.99	1.2	213	-0.40	-0.52	232	0.65	232	0.77	232	0.53	232	0.71	232	0.59
41.00	40.99	1.0	212	-0.41	-0.53	232	0.67	232	0.79	232	0.55	232	0.73	232	0.61
42.00	41.99	0.9	189	-0.43	-0.53	231	0.68	231	0.81	231	0.56	231	0.75	231	0.62
43.00	42.99	0.7	200	-0.44	-0.54	231	0.70	231	0.83	231	0.57	231	0.76	231	0.63
44.00	43.99	0.4	217	-0.45	-0.55	231	0.71	231	0.84	231	0.57	231	0.77	231	0.64
45.00	44.99	0.5	234	-0.45	-0.55	231	0.71	231	0.85	231	0.58	231	0.78	231	0.64
46.00	45.99	0.7	251	-0.45	-0.56	231	0.72	231	0.86	231	0.58	231	0.79	231	0.65
47.00	46.99	1.0	266	-0.45	-0.57	232	0.73	232	0.87	232	0.59	232	0.80	232	0.66
48.00	47.99	1.1	272	-0.46	-0.59	232	0.75	232	0.89	232	0.60	232	0.82	232	0.67
49.00	48.99	1.3	262	-0.46	-0.61	233	0.76	233	0.91	233	0.62	233	0.84	233	0.69
50.00	49.99	1.5	250	-0.47	-0.63	234	0.79	234	0.94	234	0.64	234	0.86	234	0.71
51.00	50.99	1.3	242	-0.48	-0.65	234	0.81	234	0.96	234	0.66	234	0.89	234	0.73
52.00	51.99	1.5	236	-0.49	-0.68	234	0.83	234	0.99	234	0.68	234	0.91	234	0.76
53.00	52.99	1.6	225	-0.50	-0.69	234	0.86	234	1.02	234	0.70	234	0.94	234	0.78
54.00	53.99	1.4	224	-0.52	-0.71	234	0.88	234	1.05	234	0.72	234	0.97	234	0.80
55.00	54.99	1.1	219	-0.54	-0.73	233	0.90	233	1.07	233	0.74	233	0.99	233	0.82
56.00	55.99	1.2	211	-0.55	-0.74	233	0.92	233	1.10	233	0.75	233	1.01	233	0.84
57.00	56.99	1.2	219	-0.57	-0.75	233	0.94	233	1.12	233	0.77	233	1.03	233	0.86
58.00	57.99	1.0	207	-0.59	-0.76	232	0.96	232	1.14	232	0.78	232	1.05	232	0.87
59.00	58.99	0.9	213	-0.60	-0.77	232	0.98	232	1.16	232	0.79	232	1.07	232	0.89
60.00	59.99	0.9	211	-0.61	-0.78	232	0.99	232	1.17	232	0.81	232	1.08	232	0.90
61.00	60.99	0.6	206	-0.62	-0.78	231	1.00	231	1.19	231	0.81	231	1.09	231	0.91
62.00	61.99	0.5	211	-0.63	-0.79	231	1.01	231	1.20	231	0.82	231	1.11	231	0.91
63.00	62.99	0.4	249	-0.64	-0.79	231	1.02	231	1.21	231	0.82	231	1.11	231	0.92
64.00	63.99	0.6	267	-0.64	-0.80	232	1.02	232	1.22	232	0.83	232	1.12	232	0.93
65.00	64.99	0.8	267	-0.64	-0.82	232	1.04	232	1.24	232	0.84	232	1.14	232	0.94
66.00	65.99	0.9	277	-0.64	-0.83	232	1.05	232	1.25	232	0.85	232	1.15	232	0.95
67.00	66.99	1.1	266	-0.64	-0.85	233	1.07	233	1.27	233	0.86	233	1.17	233	0.96
68.00	67.99	1.5	252	-0.65	-0.87	233	1.09	233	1.30	233	0.88	233	1.19	233	0.98
69.00	68.99	1.4	252	-0.65	-0.89	234	1.11	234	1.32	234	0.90	234	1.21	234	1.00
70.00	69.99	1.3	248	-0.66	-0.92	234	1.13	234	1.35	234	0.92	234	1.24	234	1.02
71.00	70.99	1.4	241	-0.68	-0.94	234	1.16	234	1.38	234	0.94	234	1.27	234	1.05
72.00	71.99	1.5	238	-0.69	-0.96	234	1.18	234	1.40	234	0.96	234	1.29	234	1.07
73.00	72.99	1.5	227	-0.70	-0.98	234	1.21	234	1.43	234	0.98	234	1.32	234	1.09
74.00	73.99	1.6	234	-0.72	-1.00	234	1.23	234	1.46	234	1.00	234	1.35	234	1.12
75.00	74.99	1.4	225	-0.74	-1.02	234	1.26	234	1.49	234	1.03	234	1.37	234	1.14
76.00	75.99	1.4	217	-0.76	-1.04	234	1.28	234	1.52	234	1.05	234	1.40	234	1.16
77.00	76.99	1.3	215	-0.78	-1.05	234	1.31	234	1.54	234	1.07	234	1.42	234	1.19
78.00	77.99	1.4	215	-0.80	-1.06	233	1.33	233	1.57	233	1.08	233	1.45	233	1.21
79.00	78.98	1.2	206	-0.81	-1.07	233	1.35	233	1.59	233	1.10	233	1.47	233	1.22
80.00	79.98	1.2	208	-0.83	-1.08	232	1.37	232	1.62	232	1.12	232	1.49	232	1.24
81.00	80.98	1.2	201	-0.85	-1.09	232	1.39	232	1.64	232	1.13	232	1.51	232	1.26
82.00	81.98	1.2	195	-0.87	-1.10	232	1.40	232	1.66	232	1.15	232	1.53	232	1.28
83.00	82.98	1.3	199	-0.89	-1.11	231	1.42	231	1.68	231	1.16	231	1.55	231	1.29
84.00	83.98	1.0	206	-0.91	-1.11	231	1.44	231	1.70	231	1.18	231	1.57	231	1.31
85.00	84.98	1.2	199	-0.93	-1.12	230	1.45	230	1.72	230	1.19	230	1.59	230	1.32
86.00	85.98	1.0	195	-0.95	-1.12	230	1.47	230	1.74	230	1.20	230	1.60	230	1.34
87.00	86.98	1.0	192	-0.96	-1.13	229	1.48	230	1.75	229	1.21	230	1.62	229	1.35
88.00	87.98	1.1	198	-0.98	-1.13	229	1.50	229	1.77	229	1.23	229	1.64	229	1.36
89.00	88.98	1.1	195	-1.00	-1.14	229	1.52	229	1.79	229	1.24	229	1.65	229	1.38
90.00	89.98	1.2	190	-1.02	-1.14	228	1.53	228	1.81	228	1.25	228	1.67	228	1.39
91.00	90.98	1.1	190	-1.04	-1.15	228	1.55	228	1.83	228	1.27	228	1.69	228	1.41
92.00	91.98	1.2	205	-1.05	-1.16	228	1.57	228	1.85	228	1.28	228	1.71	228	1.42
93.00	92.98	1.1	209	-1.07	-1.16	227	1.58	227	1.87	227	1.30	227	1.73	227	1.44
94.00	93.98	1.2	201	-1.09	-1.17	227	1.60	227	1.89	227	1.31	227	1.75	227	1.46
95.00	94.98	1.2	200	-1.11	-1.18	227	1.62	227	1.91	227	1.33	227	1.77	227	1.47
96.00	95.98	1.2	198	-1.13	-1.19	226	1.64	226	1.94	226	1.34	226	1.79	226	1.49
97.00	96.98	1.2	209	-1.15	-1.20	226	1.66	226	1.96	226	1.36	226	1.81	226	1.51
98.00	97.98	1.2	196	-1.17	-1.20	226	1.68	226	1.98	226	1.37	226	1.83	226	1.53
99.00	98.98	1.4	201	-1.19	-1.21	226	1.70	226	2.00	225	1.39	226	1.85	226	1.54
100.00	99.98	1.2	206	-1.21	-1.22	225	1.72	225	2.03	225	1.41	225	1.87	225	1.56
101.00	100.98	1.4	199	-1.23	-1.23	225	1.73	225	2.05	225	1.42	225	1.89	225	1.58
102.00	101.98	1.2	204	-1.25	-1.24	225	1.75	225	2.07	225	1.44	225	1.91	225	1.60
103.00	102.98	1.1	196	-1.27	-1.24	224	1.77	225	2.09	224	1.45	224	1.93	224	1.61
104.00	103.98	1.2	202	-1.29	-1.25	224	1.79	224	2.12	224	1.47	224	1.96	224	1.63
105.00	104.98	1.2	200	-1.31	-1.26	224	1.81	224	2.14	224	1.49	224	1.98	224	1.65
106.00	105.98	1.2	199	-1.33	-1.27	224	1.83	224	2.16	224	1.51	224	2.00	224	1.67
107.00	106.98	1.3	208	-1.35	-1.28	223	1.85	224	2.19	223	1.52	223	2.02	223	1.69
108.00	107.98	1.2	195	-1.37	-1.28	223	1.88	223	2.21	223	1.54	223	2.04	223	1.71
109.00	108.98	1.4	199	-1.39	-1.29	223	1.90	223	2.24	223	1.56	223	2.07	223	1.73
110.00	109.98	1.3	204	-1.41	-1.30	223	1.92	223	2.26	223	1.58	223	2.09	223	1.75
111.00	110.98	1.4	199	-1.43	-1.31	223	1.94	223	2.29	222	1.59	223	2.11	222	1.77
112.00	111.98	1.4	197	-1.45	-1.32	222	1.96	222	2.31	222	1.61	222	2.14	222	1.79
113.00	112.98	1.3	203	-1.47	-1.33	222	1.98	222	2.34	222	1.63	222	2.16	222	1.81
114.00	113.98	1.3	201	-1.49	-1.34	222	2.00	222	2.36	222	1.65	222	2.18	222	1.83
115.00	114.98	1.3	198	-1.51	-1.35	222	2.03	222	2.39	222	1.67	222	2.21	222	1.85
116.00	115.98	1.3	212	-1.53	-1.36	221	2.05	222	2.41	221	1.69	222	2.23	221	1.87
117.00	116.98	1.3	211	-1.56	-1.37	221	2.07	221	2.44	221	1.70	221	2.25	221	1.89
118.00	117.98	1.3	208	-1.58	-1.37	221	2.09	221	2.46	221	1.72	221	2.28	221	1.91
119.00	118.98	1.4	200	-1.60	-1.38	221	2.11	221	2.49	221	1.74	221	2.30	221	1.93
120.00	119.98	1.3	204	-1.62	-1.39	221	2.14	221	2.51	221	1.76	221	2.32	221	1.95
121.00	120.98	1.5	205	-1.64	-1.40	221	2.16	221	2.54	220	1.78	221	2.35	220	1.97
122.00	121.98	1.3	208	-1.66	-1.41	220	2.18	221	2.56	220	1.80	220	2.37	220	1.99
123.00	122.97	1.3	205	-1.68	-1.42	220	2.20	220	2.59	220	1.82	220	2.39	220	2.01
124.00	123.97	1.3	203	-1.70	-1.43	220	2.22	220	2.61	220	1.83	220	2.42	220	2.03
125.00	124.97	1.3	209	-1.72	-1.44	220	2.25	220	2.64	220	1.85	220	2.44	220	2.05
126.00	125.97	1.3	208	-1.74	-1.45	220	2.27	220	2.66	220	1.87	220	2.47	220	2.07
127.00	126.97	1.5	208	-1.77	-1.46	220	2.29	220	2.69	219	1.89	220	2.49	220	2.09
128.00	127.97	1.5	201	-1.79	-1.48	220	2.32	220	2.72	219	1.92	220	2.52	219	2.12
129.00	128.97	1.5	209	-1.81	-1.49	219	2.34	220	2.75	219	1.94	219	2.55	219	2.14
130.00	129.97	1.5	203	-1.83	-1.50	219	2.37	219	2.78	219	1.96	219	2.57	219	2.16
131.00	130.97	1.5	209	-1.86	-1.51	219	2.39	219	2.80	219	1.98	219	2.60	219	2.19
132.00	131.97	1.5	208	-1.88	-1.52	219	2.42	219	2.83	219	2.00	219	2.62	219	2.21
133.00	132.97	1.5	200	-1.90	-1.53	219	2.44	219	2.86	219	2.02	219	2.65	219	2.23
134.00	133.97	1.5	206	-1.92	-1.54	219	2.46	219	2.89	218	2.04	219	2.68	219	2.25
135.00	134.97	1.5	205	-1.95	-1.55	219	2.49	219	2.91	218	2.06	219	2.70	218	2.28
136.00	135.97	1.5	205	-1.97	-1.56	218	2.51	219	2.94	218	2.08	219	2.73	218	2.30
137.00	136.97	1.5	202	-1.99	-1.57	218	2.54	218	2.97	218	2.10	218	2.75	218	2.32
138.00	137.97	1.5	202	-2.01	-1.58	218	2.56	218	2.99	218	2.12	218	2.78	218	2.34
139.00	138.97	1.3	202	-2.03	-1.59	218	2.58	218	3.02	218	2.14	218	2.80	218	2.36
140.00	139.97	1.5	203	-2.06	-1.60	218	2.61	218	3.05	218	2.16	218	2.83	218	2.38
141.00	140.97	1.5	206	-2.08	-1.61	218	2.63	218	3.08	218	2.18	218	2.85	218	2.41
142.00	141.97	1.5	205	-2.10	-1.62	218	2.65	218	3.10	217	2.20	218	2.88	218	2.43
143.00	142.97	1.5	211	-2.12	-1.63	218	2.68	218	3.13	217	2.22	218	2.90	217	2.45
144.00	143.97	1.5	209	-2.14	-1.64	217	2.70	218	3.16	217	2.24	218	2.93	217	2.47
145.00	144.97	1.5	206	-2.17	-1.65	217	2.72	218	3.18	217	2.26	217	2.95	217	2.49
146.00	145.97	1.5	203	-2.19	-1.66	217	2.75	217	3.21	217	2.29	217	2.98	217	2.52
147.00	146.97	1.3	208	-2.21	-1.67	217	2.77	217	3.24	217	2.31	217	3.01	217	2.54
148.00	147.97	1.3	206	-2.23	-1.69	217	2.80	217	3.27	217	2.33	217	3.03	217	2.56
149.00	148.97	1.1	205	-2.25	-1.70	217	2.82	217	3.29	217	2.35	217	3.06	217	2.58
150.00	149.97	1.4	208	-2.27	-1.71	217	2.84	217	3.32	217	2.37	217	3.08	217	2.60
151.00	150.97	1.4	206	-2.29	-1.72	217	2.87	217	3.35	217	2.39	217	3.11	217	2.63
152.00	151.97	1.4	208	-2.31	-1.73	217	2.89	217	3.38	217	2.41	217	3.13	217	2.65
153.00	152.97	1.6	210	-2.34	-1.75	217	2.92	217	3.40	217	2.43	217	3.16	217	2.67
154.00	153.97	1.6	210	-2.36	-1.76	217	2.94	217	3.43	216	2.45	217	3.19	217	2.70
155.00	154.97	1.6	209	-2.38	-1.77	217	2.97	217	3.46	216	2.47	217	3.22	217	2.72
156.00	155.96	1.6	208	-2.41	-1.79	217	3.00	217	3.49	216	2.50	217	3.24	216	2.75
157.00	156.96	1.6	200	-2.43	-1.80	217	3.02	217	3.52	216	2.52	217	3.27	216	2.77
158.00	157.96	1.5	210	-2.45	-1.81	216	3.05	217	3.55	216	2.54	217	3.30	216	2.80
159.00	158.96	1.5	208	-2.48	-1.82	216	3.08	217	3.58	216	2.57	216	3.33	216	2.82
160.00	159.96	1.6	212	-2.50	-1.84	216	3.10	216	3.61	216	2.59	216	3.36	216	2.85
161.00	160.96	1.7	207	-2.52	-1.85	216	3.13	216	3.65	216	2.62	216	3.39	216	2.87
162.00	161.96	1.5	204	-2.55	-1.86	216	3.16	216	3.68	216	2.64	216	3.42	216	2.90
163.00	162.96	1.5	204	-2.57	-1.88	216	3.18	216	3.71	216	2.66	216	3.45	216	2.92
164.00	163.96	1.6	209	-2.60	-1.89	216	3.21	216	3.74	216	2.69	216	3.47	216	2.95
165.00	164.96	1.9	204	-2.63	-1.90	216	3.24	216	3.77	216	2.71	216	3.51	216	2.98
166.00	165.96	1.7	207	-2.65	-1.91	216	3.27	216	3.80	216	2.74	216	3.54	216	3.01
167.00	166.96	1.7	207	-2.68	-1.93	216	3.30	216	3.84	215	2.77	216	3.57	216	3.03
168.00	167.96	1.7	208	-2.71	-1.94	216	3.33	216	3.87	215	2.79	216	3.60	216	3.06
169.00	168.96	1.9	205	-2.74	-1.95	216	3.36	216	3.90	215	2.82	216	3.63	215	3.09
170.00	169.96	2.0	203	-2.77	-1.97	215	3.39	216	3.94	215	2.85	216	3.67	215	3.12
171.00	170.96	2.0	204	-2.80	-1.98	215	3.42	215	3.97	215	2.88	215	3.70	215	3.15
172.00	171.96	1.9	195	-2.83	-1.99	215	3.46	215	4.01	215	2.90	215	3.73	215	3.18
173.00	172.96	1.8	204	-2.86	-2.00	215	3.49	215	4.04	215	2.93	215	3.77	215	3.21
174.00	173.96	2.0	203	-2.89	-2.02	215	3.52	215	4.08	215	2.96	215	3.80	215	3.24
175.00	174.96	1.9	198	-2.92	-2.03	215	3.55	215	4.12	215	2.99	215	3.84	215	3.27
176.00	175.96	2.0	203	-2.95	-2.04	215	3.59	215	4.15	214	3.02	215	3.87	215	3.31
177.00	176.96	2.1	196	-2.98	-2.05	215	3.62	215	4.19	214	3.05	215	3.91	214	3.34
178.00	177.95	2.0	204	-3.01	-2.07	214	3.65	215	4.23	214	3.08	215	3.94	214	3.37
179.00	178.95	2.1	196	-3.05	-2.08	214	3.69	215	4.26	214	3.11	214	3.98	214	3.40
180.00	179.95	2.1	199	-3.08	-2.09	214	3.72	214	4.30	214	3.14	214	4.01	214	3.43
181.00	180.95	2.1	201	-3.11	-2.10	214	3.76	214	4.34	214	3.18	214	4.05	214	3.47
182.00	181.95	2.2	197	-3.15	-2.12	214	3.79	214	4.38	214	3.21	214	4.09	214	3.50
183.00	182.95	2.2	200	-3.18	-2.13	214	3.83	214	4.42	213	3.24	214	4.12	214	3.54
184.00	183.95	2.2	196	-3.22	-2.14	214	3.87	214	4.46	213	3.27	214	4.16	213	3.57
185.00	184.95	2.0	196	-3.26	-2.15	213	3.90	214	4.50	213	3.31	214	4.20	213	3.60
186.00	185.95	2.2	199	-3.29	-2.16	213	3.94	214	4.54	213	3.34	213	4.24	213	3.64
187.00	186.95	2.1	205	-3.33	-2.18	213	3.98	213	4.58	213	3.37	213	4.28	213	3.68
188.00	187.95	2.3	204	-3.36	-2.19	213	4.02	213	4.62	213	3.41	213	4.32	213	3.71
189.00	188.95	2.3	197	-3.40	-2.21	213	4.05	213	4.66	213	3.44	213	4.36	213	3.75
190.00	189.95	2.3	197	-3.44	-2.22	213	4.09	213	4.70	212	3.48	213	4.40	213	3.79
191.00	190.95	2.2	204	-3.47	-2.23	213	4.13	213	4.75	212	3.51	213	4.44	213	3.82
192.00	191.94	2.4	210	-3.51	-2.25	213	4.17	213	4.79	212	3.55	213	4.48	213	3.86
193.00	192.94	2.4	212	-3.54	-2.27	213	4.21	213	4.83	212	3.59	213	4.52	213	3.90
193.60	193.54	2.4	213	-3.56	-2.29	213	4.24	213	4.86	212	3.61	213	4.55	213	3.92

CROSS SECTION

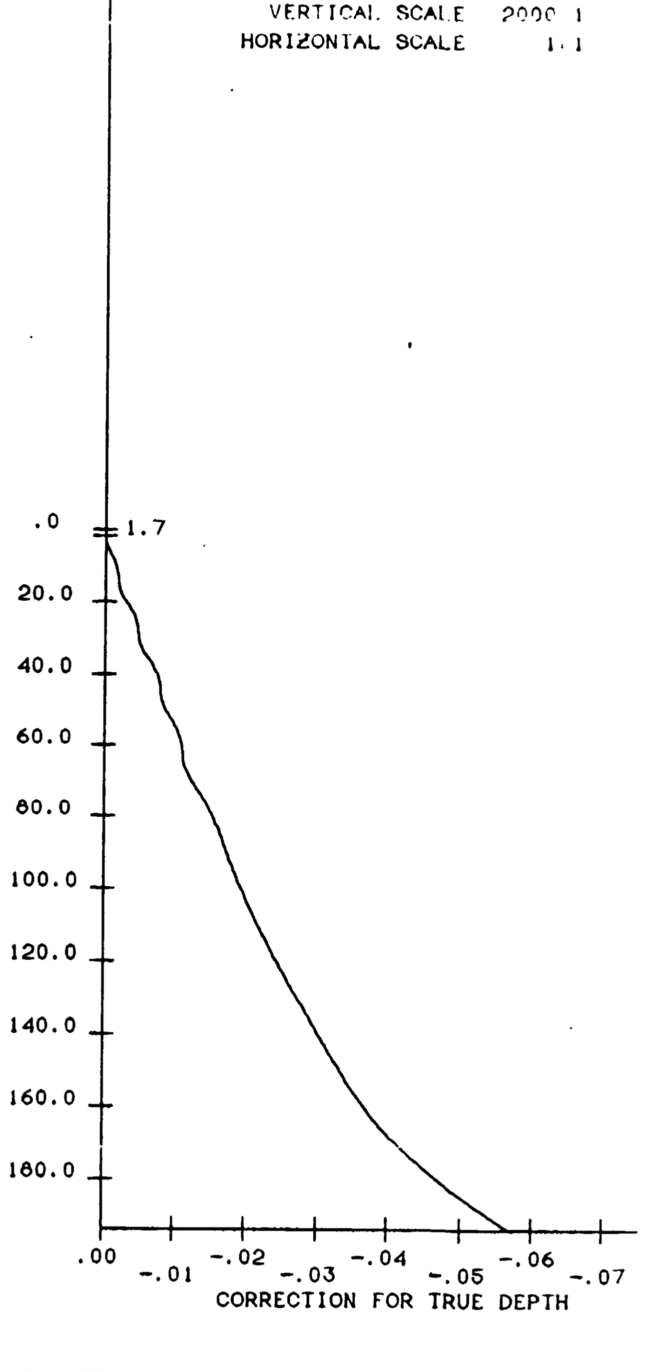


VERTICAL SECTIONS

(TRUE DEPTH VS DISPLACEMENT)

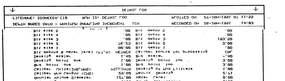


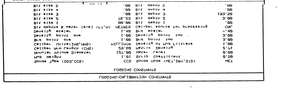
DEPTH CORRECTION ANALYSIS

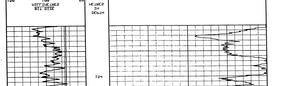


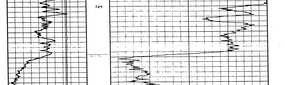
DEPTHS: LOG	TRUE	DEPTHS: LOG	TRUE	DEPTHS: LOG	TRUE
2.00	2.00	72.00	71.99	142.00	141.97
3.00	3.00	73.00	72.99	143.00	142.97
4.00	4.00	74.00	73.99	144.00	143.97
5.00	5.00	75.00	74.99	145.00	144.97
6.00	6.00	76.00	75.99	146.00	145.97
7.00	7.00	77.00	76.99	147.00	146.97
8.00	8.00	78.00	77.99	148.00	147.97
9.00	9.00	79.00	78.98	149.00	148.97
10.00	10.00	80.00	79.98	150.00	149.97
11.00	11.00	81.00	80.98	151.00	150.97
12.00	12.00	82.00	81.98	152.00	151.97
13.00	13.00	83.00	82.98	153.00	152.97
14.00	14.00	84.00	83.98	154.00	153.97
15.00	15.00	85.00	84.98	155.00	154.97
16.00	16.00	86.00	85.98	156.00	155.96
17.00	17.00	87.00	86.98	157.00	156.96
18.00	18.00	88.00	87.98	158.00	157.96
19.00	19.00	89.00	88.98	159.00	158.96
20.00	20.00	90.00	89.98	160.00	159.96
21.00	21.00	91.00	90.98	161.00	160.96
22.00	22.00	92.00	91.98	162.00	161.96
23.00	23.00	93.00	92.98	163.00	162.96
24.00	24.00	94.00	93.98	164.00	163.96
25.00	25.00	95.00	94.98	165.00	164.96
26.00	26.00	96.00	95.98	166.00	165.96
27.00	27.00	97.00	96.98	167.00	166.96
28.00	28.00	98.00	97.98	168.00	167.96
29.00	29.00	99.00	98.98	169.00	168.96
30.00	30.00	100.00	99.98	170.00	169.96
31.00	31.00	101.00	100.98	171.00	170.96
32.00	31.99	102.00	101.98	172.00	171.96
33.00	32.99	103.00	102.98	173.00	172.96
34.00	33.99	104.00	103.98	174.00	173.96
35.00	34.99	105.00	104.98	175.00	174.96
36.00	35.99	106.00	105.98	176.00	175.96
37.00	36.99	107.00	106.98	177.00	176.96
38.00	37.99	108.00	107.98	178.00	177.95
39.00	38.99	109.00	108.98	179.00	178.95
40.00	39.99	110.00	109.98	180.00	179.95
41.00	40.99	111.00	110.98	181.00	180.95
42.00	41.99	112.00	111.98	182.00	181.95
43.00	42.99	113.00	112.98	183.00	182.95
44.00	43.99	114.00	113.98	184.00	183.95
45.00	44.99	115.00	114.98	185.00	184.95
46.00	45.99	116.00	115.98	186.00	185.95
47.00	46.99	117.00	116.98	187.00	186.95
48.00	47.99	118.00	117.98	188.00	187.95
49.00	48.99	119.00	118.98	189.00	188.95
50.00	49.99	120.00	119.98	190.00	189.95
51.00	50.99	121.00	120.98	191.00	190.95
52.00	51.99	122.00	121.98	192.00	191.94
53.00	52.99	123.00	122.97	193.00	192.94
54.00	53.99	124.00	123.97	193.60	193.54
55.00	54.99	125.00	124.97		
56.00	55.99	126.00	125.97		
57.00	56.99	127.00	126.97		
58.00	57.99	128.00	127.97		
59.00	58.99	129.00	128.97		
60.00	59.99	130.00	129.97		
61.00	60.99	131.00	130.97		
62.00	61.99	132.00	131.97		
63.00	62.99	133.00	132.97		
64.00	63.99	134.00	133.97		
65.00	64.99	135.00	134.97		
66.00	65.99	136.00	135.97		
67.00	66.99	137.00	136.97		
68.00	67.99	138.00	137.97		
69.00	68.99	139.00	138.97		
70.00	69.99	140.00	139.97		
71.00	70.99	141.00	140.97		

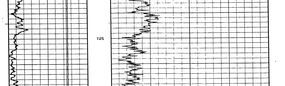
COMPANY	WESTERN CANADIAN MINING CORP.
WELL	DD91-14
FIELD	WELDWOOD COAL PROJ.
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA

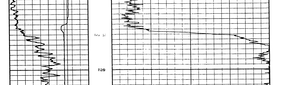


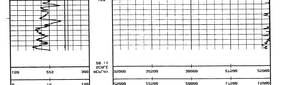


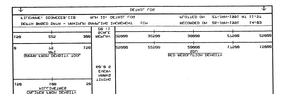


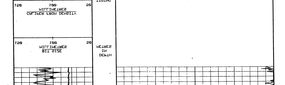


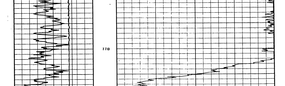


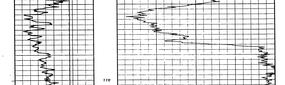


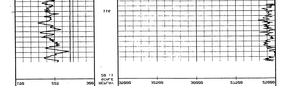


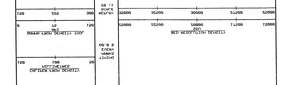


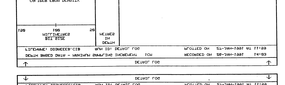


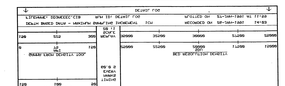


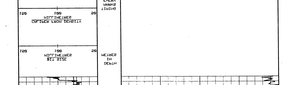


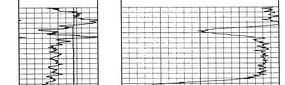


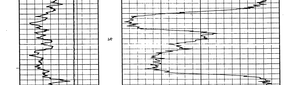


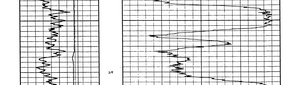


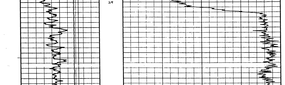


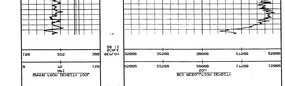


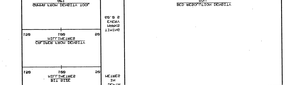


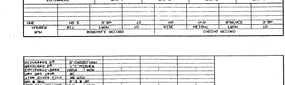


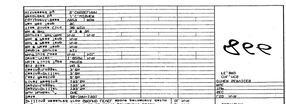












Borehole:	DDH-89
Client:	WESTERN CANADIAN MINING CORP.
Field:	HELLROAD COAL PROJ.
Area:	BRITISH COLUMBIA
Country:	CANADA

FOCUSED ELECTRIC
GAMMA RAY

SLIMLINE GRAPHICS UNIT

Permanent Datum: GROUND LEVEL	Elevation: N/A			KB: N/A	Location: COURTENAY
Log measured from: GROUND LEVEL, 0.0 m above permanent datum				DF: N/A	
Drilling measured from: GROUND LEVEL, 0.0 m above permanent datum				G: N/A	
Date	13-JAN-1991				LSD: N/A
Run Number	ONE				SEC:
Depth-Driller	185.0 m				TWP:
Depth-Logger	184m				RGE:
First Reading	183m				OTHER SERVICES
Last Reading	0.5m				CDL,CNS
Casing-Driller	18.0 m				BHC
Casing-Logger	18m				
Bit Size	NQ 2				
Rate Fluid Type	WATER				
Fluid Salinity	0 PPM / N/A				
Vertical Loss	N/A / TOL				
Sample Source	RIT				
Rm @ Meas Temp	N/A				
Rmf @ Meas Temp	N/A				
Rmc @ Meas Temp	N/A				
Source of Rm/Rmf	N/A / N/A				
Rm @ BHT	N/A @ 0 °C				
Time Since Circ	12 HRS				
Max Rec Temp	0 °C				
Equipment No.	9809 / 1404				
Recorded by	J.CLINCKEMEY				
Witnessed by	R.CROSSLEY/MV				

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RUN NUMBER	BOREHOLE RECORD BIT	FROM	TO	CASING RECORD SIZE	WEIGHT	FROM	TO
ONE	NQ 2	18.0 m	70	3.5"	N/A	SURFACE	18.0 m

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
BHC	184			

REMARKS:

FOCUSED ELECTRIC GAMMA RAY

SYSTEM CONFIGURATION DATES: LOGGED 1-FEB-1990 PROCESSED 1-FEB-1990 PLOTTED 24-AUG-1990

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MAIN LOG

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 13-JAN-1991 12:23
FILENAME: MRGEOM7A.CIB — RUN ID: MAIN LOG — PLOTTED ON 13-JAN-1991 AT 12:35

DEPTH IN METRES

GAMMA FROM DENSITY TOOL — API — 0 / 75 / 150

BOREHOLE COMPENSATED FE — OHM METRES — 10 / 100 / 1000 / 10000

REPLAY SCALE 1:500.1

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 13-JAN-1991 12:23
FILENAME: MRGEOM7A.CIB — RUN ID: MAIN LOG — PLOTTED ON 13-JAN-1991 AT 12:33

REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 13-JAN-1991 11:09
FILENAME: MRGEOM7B.CIB — RUN ID: REPEAT SECTION — PLOTTED ON 13-JAN-1991 AT 12:33

DEPTH IN METRES

GAMMA FROM DENSITY TOOL — API — 0 / 75 / 150

BOREHOLE COMPENSATED FE — OHM METRES — 10 / 100 / 1000 / 10000

REPLAY SCALE 1:500.1

170 180

DEPTH IN METRES

GAMMA FROM DENSITY TOOL — API — 0 / 75 / 150

BOREHOLE COMPENSATED FE — OHM METRES — 10 / 100 / 1000 / 10000

REPLAY SCALE 1:500.1

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 13-JAN-1991 11:28
FILENAME: MRGEOM7B.CIB — RUN ID: REPEAT SECTION — PLOTTED ON 13-JAN-1991 AT 12:32

REPEAT SECTION

CLIENT	WESTERN CANADIAN MINING CORP.
BOREHOLE	DDH-89
FIELD	HELLROAD COAL PROJ.
AREA	BRITISH COLUMBIA
COUNTRY	CANADA

Borehole:	DD90-03		
Client:	WESTERN CANADIAN MINING CORP.		FOCUSSED ELECTRIC
Field:	WELDWOOD COAL PROJ.		GAMMA RAY
Area:	BRITISH COLUMBIA		
Country:	CANADA		

SLIMLINE GRAPHICS UNIT

Permanent Datum GROUND LEVEL, Elevation N/A	KB N/A	Location
Log measured from GROUND LEVEL above permanent datum	DF N/A	COURTENAY
Drilling measured from GROUND LEVEL above permanent datum	GL N/A	

Date	10-DEC-1990				LSD
Run Number	1				SEC
Depth-Driller	276.7m				TWP
Depth-Logger	276.5m				RGE
First Reading	275.5m				OTHER SERVICES
Last Reading	00.0m				CDL, CNL, MCS
Casing-Driller	18.3m				BRD, DIP
Casing-Logger	18.3m				
Bit Size	75.7mm				
Hole Fluid Type	MUD				
Dens./Visc.	1.03 / N/A				
PH/Fluid Loss	N/A / N/A				
Sample Source	MUD PIT				
Rm @ Meas Temp	21.4 @ 7.4C				
Rmf @ Meas Temp	N/A				
Rmc @ Meas Temp	N/A				
Source: Rmf/Rmc	N/A / N/A				
Rm @ BHT	21.4 @ 7.4C				
Time Since Circ	2.5 hrs.				
Max Rec Temp	7.4C				
Equipment/Base	V222 / RDR				
Recorded by	B PICHE				
Witnessed by	S CASSLEMAN				

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RUN NUMBER	BOREHOLE RECORD BIT	FROM	TO	CASING RECORD SIZE	WEIGHT	FROM	TO
1	75.7mm	18.3m	TD	76.2mm	N/A	00.0m	18.3m

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
FE, DD3	104, 115			

REMARKS:

FOCUSSED ELECTRIC GAMMA RAY

FLUID LEVEL @ 16.0m

SYSTEM CONFIGURATION DATES: LOGGED 1-FEB-1990 PROCESSED 1-FEB-1990 PLOTTED 24-AUG-1990

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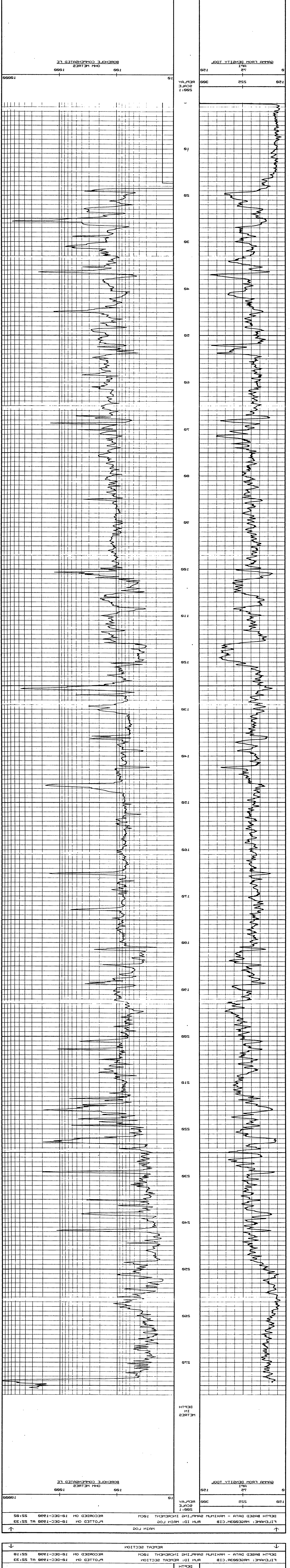
MAIN LOG

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 10-DEC-1990 22:02

FILENAME: MRGE003M.CIB — RUN ID: MAIN LOG — PLOTTED ON 10-DEC-1990 AT 22:36



DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 10-DEC-1990 22:02

FILENAME: MRGE003M.CIB — RUN ID: MAIN LOG — PLOTTED ON 10-DEC-1990 AT 22:33

MAIN LOG

REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 10-DEC-1990 22:18

FILENAME: MRGE003R.CIB — RUN ID: REPEAT SECTION — PLOTTED ON 10-DEC-1990 AT 22:33

DEPTH IN METRES

GAMMA FROM DENSITY TOOL — BOREHOLE COMPENSATED FE

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 10-DEC-1990 22:02

FILENAME: MRGE003M.CIB — RUN ID: MAIN LOG — PLOTTED ON 10-DEC-1990 AT 22:33

MAIN LOG

REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 10-DEC-1990 22:18

FILENAME: MRGE003R.CIB — RUN ID: REPEAT SECTION — PLOTTED ON 10-DEC-1990 AT 22:33

DEPTH IN METRES

GAMMA FROM DENSITY TOOL — BOREHOLE COMPENSATED FE

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 10-DEC-1990 22:02

FILENAME: MRGE003M.CIB — RUN ID: MAIN LOG — PLOTTED ON 10-DEC-1990 AT 22:33

MAIN LOG

REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 10-DEC-1990 22:18

FILENAME: MRGE003R.CIB — RUN ID: REPEAT SECTION — PLOTTED ON 10-DEC-1990 AT 22:33

DEPTH IN METRES

GAMMA FROM DENSITY TOOL — BOREHOLE COMPENSATED FE

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 10-DEC-1990 22:02

FILENAME: MRGE003M.CIB — RUN ID: MAIN LOG — PLOTTED ON 10-DEC-1990 AT 22:33

MAIN LOG

REPEAT SECTION

Borehole: D090-02
Client: WESTERN CANADIAN MINING CORP.
Field: HILLWOOD COAL PROJ.
Area: BRITISH COLUMBIA
Country: CANADA

FOCUSSED ELECTRIC
GREEN RAY

SLIMLINE GRAPHICS UNIT

Permanent Datum GROUND LEVEL, Elevation N/A				KB N/A	Location
Log measured from GROUND LEVEL, 0.0m above permanent datum				DF N/A	COURTENAY
Drilling measured from GROUND LEVEL, 0.0m above permanent datum				GL N/A	
Date	5-DEC-1990				LSD
Run Number	1				SEC
Depth-Driller	168.5m				TWP
Depth-Logger	168.8m				RGE
First Reading	164.8m				OTHER SERVICES
Last Reading	4.6m				DIL,CNL,MSS
Casing-Driller	4.6m				SFD
Casing-Logger	4.6m				
Bit Size	NQ 2				
Hole Fluid Type	FW				
Fluid Density	N/A	N/A			
Viscosity Lbs	N/A	N/A			
Sample Source	PIT				
Rm @ Meas Temp	21.2 @ 9.2C				
Rmf @ Meas Temp	N/A				
Rmc @ Meas Temp	N/A				
Source Rm/Rmf	N/A	N/A			
Rm @ BHT	21.2 @ 9.2C				
Time Since Circ	1.0 Hrs.				
Max Rec Temp	10.2C				
Equipment/Base	VSP / BDR				
Recorded By	R.PYCHE				
Witnessed By	S.CHEESLMAN				

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RUN NUMBER	BOREHOLE RECORD BIT	FROM	TO	CASING RECORD SIZE	WEIGHT	FROM	TO
1	NQ 2	4.6m	TD	NQ 2cm	N/A	GR.Sm	4.6m

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
FA,MSS	1CM,110			

REMARKS:

FOCUSSED ELECTRIC — GREEN RAY

FIXED LEVEL @ 27.5m

SYSTEM CONFIGURATION DATES: LOGGED 1-FEB-1990 PROCESSED 1-FEB-1990 PLOTTED 24-AUG-1990

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MAIN LOG

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 5-DEC-1990 19:30
FILENAME: MRGD090.C1B — RUN 1D: MAIN LOG — PLOTTED ON 5-DEC-1990 AT 20:12

GAMMA FROM DENSITY TOOL (API) 0 75 150 | 150 225 300 — REPLAY SCALE 200:1

BOREHOLE COMPENSATED FE (OHM METRES) 10 100 1000 | 10 100 1000

DEPTH IN METRES

REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 5-DEC-1990 19:27
FILENAME: MRGD090.C1B — RUN 2D: REPEAT SECTION — PLOTTED ON 5-DEC-1990 AT 20:18

GAMMA FROM DENSITY TOOL (API) 0 75 150 | 150 225 300 — REPLAY SCALE 200:1

BOREHOLE COMPENSATED FE (OHM METRES) 10 100 1000 | 10 100 1000

DEPTH IN METRES

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 5-DEC-1990 19:27
FILENAME: MRGD090.C1B — RUN 2D: REPEAT SECTION — PLOTTED ON 5-DEC-1990 AT 20:20

REPEAT SECTION

CLIENT	WESTERN CANADIAN MINING CORP.
BOREHOLE	D090-02
FIELD	HILLWOOD COAL PROJ.
AREA	BRITISH COLUMBIA
COUNTRY	CANADA

VERTICALITY ANALYSIS

SLIMLINE UNIT

COMPANY	WESTERN CANADIAN MINING CORP.
WELL	DD91-08
FIELD	WELDWOOD COAL PROJ.
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA

LOCATION				OTHER SERVICES
COUTTENAY				DD3.MCS
LSD	SEC	TWP	RGE	FE.BRD
N/A				

LOCATION COUTTENAY
PRVNC/CO. BRITISH COLUMBIA
FIELD VELDVOOD COAL PROJ.
VELL: DD91-08
COMPANY: WESTERN CANADIAN MINING CORP.

PERMANENT DATUM GROUND LEVEL. ELEVATION N/A
LOG MEASURED FROM GROUND LEVEL ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS: KB N/A DF N/A GL N/A

DATE	14-JAN-91		
RUN NUMBER	ONE		
DEPTH-DRILLER	104.2M		
DEPTH-LOGGER	103.2M		
FIRST READING	103.0M		
LAST READING	00M		
CASING-DRILLER	6.0M		
CASING-LOGGER	5.2M		
BIT SIZE	NO 2		
HOLE FLUID TYPE	WATER		
DENS./VISC.	1.01 / N/A		
PH/FLUID LOSS	N/A / NIL		
SAMPLE SOURCE	PIT		
RM @ MEAS TEMP	6.3 @ 9 C		
RMF @ MEAS TEMP	N/A		
RMC @ MEAS TEMP	N/A		
SOURCE: RMF/RMC	N/A / N/A		
RM @ BHT	6.3 @ 9C		
TIME SINCE CIRC	15 MIN.		
MAX REC TEMP	9C		
EQUIPMENT/BASE	V629 / RDR		
RECORDED BY	J.C.VISNER		
WITNESSED BY	S.CASSELMAN		

BPB VERTICALITY ANALYSIS INTERPRETATION NOTES

1. ALL PLOTTED OUTPUT IS AUTOMATICALLY SCALED TO OBTAIN THE BEST VISUAL EFFECT WITHIN THE PHYSICAL SPACE AVAILABLE. THE MAXIMUM SCALES BEING 50000:1 (METRIC) AND 48000:1 (IMPERIAL), AND THE MINIMUM 1:1.

2. THE ANALYSIS IS DERIVED BY INTEGRATING 10CM. SAMPLED DATA DOWN THE BOREHOLE. THE LISTING SUPPLIED VILL CONTAIN A MAXIMUM OF 200 POINTS IN MULTIPLES OF 1, 2, 5, 10, 20, 50 OR 100 METRES/FEET DEPENDING ON THE TOTAL RANGE OF THE ANALYSIS. HOWEVER THE ANALYSIS IS CALCULATED FOR THE ENTIRE RANGE OF THE BOREHOLE AND THE FINAL BOREHOLE POSITION IS INCLUDED IN THE LISTING.

3. COMPUTED VERTICALITY MAY ONLY BE FULLY DERIVED IN OPEN SECTIONS OF THE BOREHOLE. AVAY FROM THE INFLUENCE OF ANY UNUSUAL MAGNETIC EFFECTS (AS THE AZIMUTH CALCULATIONS ARE DERIVED FROM THREE SOLID STATE MAGNETOMETERS). SO THE ANALYSIS VILL GENERALLY BEGIN AT THE END OF THE CASING AND ALL BOREHOLE POSITIONAL INFORMATION VILL RELATE TO THIS DEPTH.

4. UP TO TEN CROSS SECTIONS MAY BE REQUESTED FOR ANY BOREHOLE TO BE DISPLAYED AT ANY SCALE (THE DEFAULT SCALE IS THAT OF THE CROSS-SECTION FOR THE ENTIRE HOLE).

5. BOREHOLE POSITIONAL ERROR IS DERIVED ASSUMING THE FOLLOWING PARAMETERS.

	TILT(DEGREES)	AZIMUTH(DEGREES)
TYPICAL ERROR	+/- 0.3333	+/- 10
MAXIMUM ERROR	+/- 0.5	+/- 15

6. ERROR ANALYSIS MAY BE CALCULATED AND PLOTTED FROM THE DATA LISTING AS FOLLOWS:
   A) PLOT THE FOUR COORDINATES FROM THE ERROR LISTING (BASED UPON ZERO AZIMUTH ERROR) ON A TARGET PLOT. ORIGIN AT THE START OF THE ANALYSIS.
   B) DESCRIBE ARCS OF +/- 10 DEGREES AND +/- 15 DEGREES (CENTRE AT THE ORIGIN) THROUGH THE INNER AND OUTER POINTS RESPECTIVELY.
   C) CONNECT THE RESPECTIVE ARCS TOGETHER WITH STRAIGHT LINES TO GIVE THE TYPICAL AND MAXIMUM BOREHOLE POSITIONAL ERROR.

7. GIVEN BELOW IS A FULL DESCRIPTION OF THE PARAMETERS DISPLAYED ON THE ENSUING LISTING:

LOG DEPTH	THE DEPTH RECORDED ON THE FIELD LOGS FOR THE BOREHOLE.
TRUE DEPTH	THE TRUE VERTICAL DEPTH CORESPONDING TO THE ABOVE DEPTH. CORRECTED FROM THE START OF THE ANALYSIS.
HOLE TILT AND AZIMUTH	THE SAMPLED BOREHOLE ORIENTATION.
AXIAL COORDINATES	THE COORDINATES NORTH AND EAST FROM THE TARGET ORIGIN.
POLAR COORDINATES	THE POLAR, OR RADIAL COORDINATES OF THE BOREHOLE.
ERROR COORDINATES	THE POLAR COORDINATES CORRESPONDING TO THE TYPICAL AND MAXIMUM TILT ERROR.

N.B. THE REFERENCE POINT FOR ALL BEARING ANGLES ON THIS LISTING IS GIVEN AT THE TOP OF EACH SHEET.

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND VE CANNOT, AND DO NOT, GUARENTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND VE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR VILFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

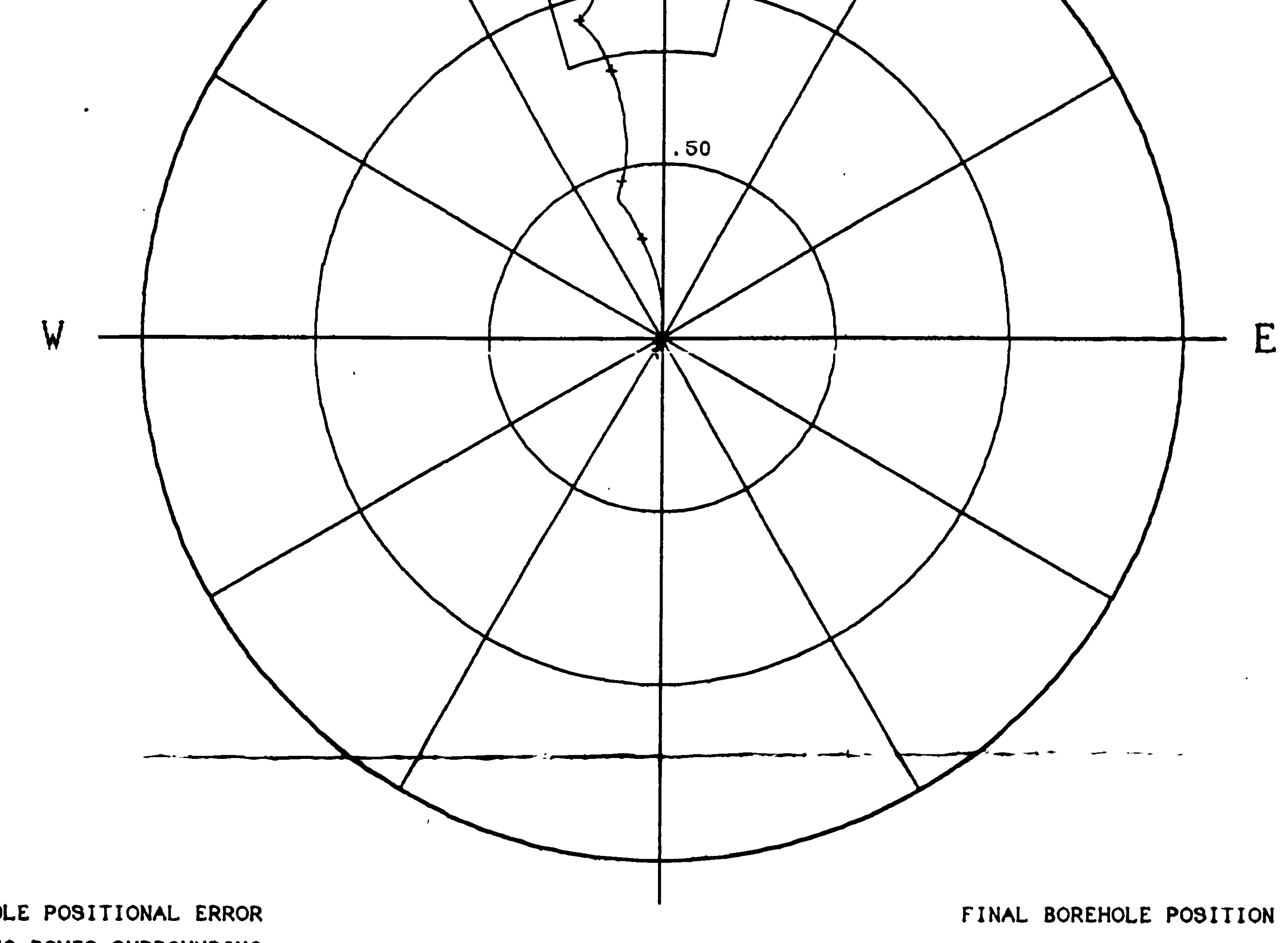
DD91-08 VERTICALITY DATA LISTING
ALL CO-ORDINATES WITH RESPECT TO TRUE NORTH
DATE PROCESSED: 14-JAN-1991
DATE LOGGED: 14-JAN-1991

DEPTHS LOG	TRUE	BOREHOLE TILT	AZI	AXIAL CO-ORDS NORTH	EAST	POLAR BRG	RADIUS	POLAR ERROR CO-ORDINATES (MAXIMUM & TYPICAL) BRG	RADIUS	BRG	RADIUS	BRG	RADIUS	BRD	RADIUS
5.00	5.00	1.4	218	-0.01	-0.01	234	0.01	234	0.01	234	0.01	234	0.01	234	0.01
6.00	6.00	1.3	193	-0.03	-0.02	210	0.03	210	0.04	210	0.03	210	0.03	210	0.03
7.00	7.00	1.1	168	-0.05	-0.01	196	0.05	196	0.06	196	0.04	196	0.05	196	0.05
8.00	8.00	1.0	172	-0.06	-0.01	193	0.06	193	0.07	193	0.05	193	0.07	193	0.06
9.00	9.00	0.8	357	-0.05	-0.02	200	0.05	200	0.06	199	0.05	200	0.06	200	0.05
10.00	10.00	1.1	16	-0.03	-0.02	205	0.04	205	0.04	203	0.03	205	0.04	204	0.04
11.00	11.00	1.5	13	-0.01	-0.01	221	0.01	225	0.02	216	0.01	223	0.02	218	0.01
12.00	12.00	1.9	10	0.02	0.00	351	0.02	351	0.02	352	0.02	351	0.02	352	0.02
13.00	13.00	2.2	3	0.05	0.00	0	0.05	360	0.06	1	0.05	0	0.06	1	0.05
14.00	14.00	2.0	356	0.09	0.00	359	0.09	359	0.10	360	0.08	359	0.10	360	0.09
15.00	15.00	2.3	350	0.13	-0.01	357	0.13	357	0.14	358	0.12	357	0.14	358	0.12
16.00	16.00	2.2	344	0.16	-0.01	355	0.16	355	0.18	356	0.15	355	0.17	355	0.16
17.00	16.99	1.9	343	0.20	-0.02	353	0.20	353	0.22	353	0.18	353	0.21	353	0.19
18.00	17.99	1.9	341	0.23	-0.04	351	0.23	351	0.26	351	0.21	351	0.24	351	0.22
19.00	18.99	1.7	337	0.26	-0.05	349	0.26	349	0.29	350	0.23	349	0.27	349	0.25
20.00	19.99	1.8	332	0.28	-0.06	348	0.29	348	0.32	348	0.26	348	0.30	348	0.27
21.00	20.99	1.6	330	0.31	-0.07	347	0.32	347	0.35	347	0.28	347	0.33	347	0.30
22.00	21.99	1.5	335	0.33	-0.09	345	0.34	345	0.38	346	0.30	345	0.36	346	0.32
23.00	22.99	1.3	328	0.35	-0.10	344	0.37	344	0.41	344	0.33	344	0.39	344	0.35
24.00	23.99	1.2	319	0.37	-0.11	343	0.39	343	0.43	343	0.34	343	0.41	343	0.36
25.00	24.99	0.9	328	0.38	-0.12	342	0.40	342	0.45	343	0.36	342	0.43	342	0.38
26.00	25.99	0.6	325	0.40	-0.13	342	0.42	341	0.47	342	0.37	342	0.44	342	0.39
27.00	26.99	0.4	359	0.40	-0.13	342	0.43	341	0.48	342	0.37	342	0.45	342	0.40
28.00	27.99	0.8	11	0.41	-0.13	342	0.43	342	0.49	342	0.38	342	0.46	342	0.41
29.00	28.99	1.1	13	0.43	-0.13	343	0.45	343	0.51	343	0.39	343	0.48	343	0.42
30.00	29.99	1.3	18	0.45	-0.12	345	0.46	345	0.53	345	0.40	345	0.50	345	0.43
31.00	30.99	1.7	16	0.47	-0.12	346	0.49	346	0.55	346	0.42	346	0.52	346	0.45
32.00	31.99	1.7	6	0.50	-0.11	347	0.52	347	0.58	348	0.45	347	0.55	348	0.48
33.00	32.99	2.0	359	0.54	-0.11	348	0.55	348	0.62	348	0.47	348	0.58	348	0.51
34.00	33.99	2.0	358	0.57	-0.11	349	0.58	349	0.66	349	0.50	349	0.62	349	0.54
35.00	34.99	2.1	355	0.61	-0.11	349	0.62	349	0.70	350	0.54	349	0.66	350	0.58
36.00	35.99	2.0	351	0.64	-0.12	350	0.65	350	0.73	350	0.57	350	0.69	350	0.61
37.00	36.99	1.9	349	0.67	-0.12	350	0.68	350	0.77	350	0.60	350	0.73	350	0.64
38.00	37.99	1.8	343	0.71	-0.13	349	0.72	349	0.81	350	0.63	349	0.76	350	0.67
39.00	38.99	2.0	343	0.74	-0.14	349	0.75	349	0.84	349	0.66	349	0.80	349	0.70
40.00	39.99	1.7	336	0.77	-0.15	349	0.78	349	0.88	349	0.68	349	0.83	349	0.73
41.00	40.99	1.6	334	0.80	-0.16	348	0.81	348	0.91	348	0.71	348	0.86	348	0.76
42.00	41.99	1.5	327	0.82	-0.18	348	0.84	348	0.95	348	0.74	348	0.89	348	0.79
43.00	42.98	1.4	327	0.85	-0.19	347	0.87	347	0.97	347	0.76	347	0.92	347	0.81
44.00	43.98	1.4	315	0.86	-0.21	347	0.89	347	1.00	347	0.78	347	0.94	347	0.83
45.00	44.98	1.0	312	0.88	-0.22	346	0.91	346	1.02	346	0.79	346	0.96	346	0.85
46.00	45.98	0.7	308	0.89	-0.23	345	0.92	345	1.03	346	0.80	345	0.98	345	0.86
47.00	46.98	0.5	293	0.89	-0.24	345	0.93	345	1.05	345	0.81	345	0.99	345	0.87
48.00	47.98	0.2	302	0.90	-0.25	345	0.93	344	1.05	345	0.81	345	0.99	345	0.87
49.00	48.98	0.3	12	0.90	-0.25	345	0.93	344	1.06	346	0.81	344	1.00	345	0.87
50.00	49.98	0.4	42	0.91	-0.25	345	0.94	345	1.07	345	0.81	345	1.00	345	0.88
51.00	50.98	0.6	45	0.91	-0.24	345	0.94	345	1.07	345	0.81	345	1.01	345	0.88
52.00	51.98	0.8	38	0.92	-0.23	346	0.95	346	1.08	346	0.82	346	1.02	346	0.88
53.00	52.98	0.9	32	0.93	-0.23	346	0.96	346	1.09	346	0.83	346	1.03	346	0.89
54.00	53.98	1.2	29	0.95	-0.22	347	0.97	347	1.11	347	0.83	347	1.04	347	0.90
55.00	54.98	1.1	18	0.96	-0.21	348	0.99	348	1.13	348	0.85	348	1.06	348	0.92
56.00	55.98	1.1	11	0.98	-0.20	348	1.01	348	1.15	348	0.86	348	1.08	348	0.93
57.00	56.98	1.3	13	1.01	-0.20	349	1.03	349	1.17	349	0.88	349	1.10	349	0.95
58.00	57.98	1.5	358	1.03	-0.20	349	1.05	349	1.20	349	0.90	349	1.12	349	0.97
59.00	58.98	1.5	3	1.06	-0.20	349	1.07	350	1.23	349	0.92	349	1.15	349	1.00
60.00	59.98	1.4	353	1.08	-0.20	350	1.10	350	1.26	349	0.94	350	1.18	350	1.02
61.00	60.98	1.4	351	1.11	-0.20	350	1.13	350	1.28	350	0.97	350	1.20	350	1.05
62.00	61.98	1.3	348	1.13	-0.21	350	1.15	350	1.31	349	0.99	350	1.23	350	1.07
63.00	62.98	1.3	342	1.15	-0.21	349	1.17	350	1.34	349	1.01	350	1.25	349	1.09
64.00	63.98	1.2	346	1.17	-0.22	349	1.19	349	1.36	349	1.02	349	1.28	349	1.11
65.00	64.98	1.2	343	1.19	-0.23	349	1.22	349	1.39	349	1.04	349	1.30	349	1.13
66.00	65.98	1.2	338	1.21	-0.24	349	1.24	349	1.41	349	1.06	349	1.33	349	1.15
67.00	66.98	1.1	337	1.23	-0.24	349	1.26	349	1.44	349	1.08	349	1.35	349	1.17
68.00	67.98	1.1	331	1.25	-0.25	348	1.28	349	1.46	348	1.09	349	1.37	348	1.18
69.00	68.98	1.2	319	1.27	-0.27	348	1.29	348	1.48	348	1.11	348	1.39	348	1.20
70.00	69.98	1.0	325	1.28	-0.28	348	1.31	348	1.50	348	1.12	348	1.41	348	1.22
71.00	70.98	0.9	309	1.29	-0.29	347	1.32	347	1.52	348	1.13	348	1.42	347	1.23
72.00	71.98	0.9	299	1.30	-0.30	347	1.33	347	1.53	347	1.14	347	1.43	347	1.24
73.00	72.98	0.6	292	1.31	-0.31	347	1.34	346	1.54	347	1.15	347	1.44	347	1.24
74.00	73.98	0.6	280	1.31	-0.32	346	1.35	346	1.55	346	1.15	346	1.45	346	1.25
75.00	74.98	0.6	270	1.31	-0.33	346	1.35	346	1.55	346	1.15	346	1.45	346	1.25
76.00	75.98	0.6	260	1.31	-0.34	345	1.36	345	1.56	346	1.15	346	1.46	345	1.25
77.00	76.98	0.2	236	1.31	-0.35	345	1.35	345	1.55	345	1.15	345	1.45	345	1.25
78.00	77.98	0.2	225	1.30	-0.36	345	1.35	344	1.55	345	1.15	344	1.45	345	1.25
79.00	78.98	0.2	214	1.30	-0.36	345	1.35	344	1.54	345	1.15	344	1.45	345	1.25
80.00	79.98	0.2	206	1.30	-0.36	344	1.35	344	1.54	345	1.15	344	1.44	345	1.25
81.00	80.98	0.2	156	1.29	-0.36	344	1.34	344	1.53	345	1.15	344	1.44	345	1.24
82.00	81.98	0.4	148	1.29	-0.36	344	1.34	344	1.53	345	1.15	344	1.43	345	1.24
83.00	82.98	0.3	96	1.28	-0.36	345	1.33	344	1.52	345	1.15	344	1.43	345	1.24
84.00	83.98	0.4	134	1.28	-0.35	345	1.33	344	1.51	345	1.14	345	1.42	345	1.24
85.00	84.98	0.6	109	1.28	-0.34	345	1.32	344	1.51	346	1.14	345	1.41	345	1.23
86.00	85.98	0.4	96	1.27	-0.34	345	1.32	345	1.50	346	1.14	345	1.41	345	1.23
87.00	86.98	0.5	115	1.27	-0.33	346	1.31	345	1.49	346	1.14	346	1.40	346	1.22
88.00	87.98	0.6	92	1.27	-0.32	346	1.31	346	1.48	346	1.13	346	1.40	346	1.22
89.00	88.98	0.6	89	1.27	-0.31	346	1.31	346	1.48	347	1.13	346	1.39	346	1.22
90.00	89.98	0.6	84	1.27	-0.30	347	1.30	347	1.47	347	1.13	347	1.39	347	1.22
91.00	90.98	0.5	99	1.27	-0.29	347	1.30	347	1.47	347	1.13	347	1.38	347	1.21
92.00	91.98	0.6	75	1.27	-0.28	348	1.30	346	1.47	348	1.12	348	1.38	348	1.21
93.00	92.98	0.5	87	1.27	-0.26	348	1.29	348	1.47	348	1.12	348	1.38	348	1.21
94.00	93.98	0.7	80	1.27	-0.25	349	1.29	349	1.46	349	1.12	349	1.38	349	1.21
95.00	94.98	0.6	56	1.27	-0.24	349	1.30	350	1.47	349	1.12	349	1.38	349	1.21
96.00	95.98	0.7	69	1.28	-0.23	350	1.30	350	1.47	349	1.13	350	1.38	350	1.21
97.00	96.98	0.7	64	1.28	-0.22	350	1.30	351	1.47	350	1.13	351	1.39	350	1.21
98.00	97.98	0.7	58	1.29	-0.21	351	1.30	351	1.48	350	1.13	351	1.39	351	1.22
99.00	98.98	0.7	51	1.29	-0.20	351	1.31	352	1.49	351	1.13	352	1.40	351	1.22
100.00	99.98	0.7	60	1.30	-0.19	352	1.32	352	1.49	351	1.14	352	1.40	352	1.23
101.00	100.98	0.7	55	1.31	-0.18	352	1.32	353	1.50	351	1.14	353	1.41	352	1.23
102.00	101.98	0.7	48	1.32	-0.17	353	1.33	354	1.51	352	1.15	353	1.42	352	1.24
103.00	102.86	******	***	1.28	-0.07	357	1.28	357	1.46	356	1.10	357	1.37	357	1.19

CROSS SECTION

ALL FIGURES IN LOG DEPTH MS
TARGET ORIGIN DEPTH.....4.60
LAST PLOTTED DEPTH......103.00
DEPTH MARKERS ANNOTATED IN MULTIPLES OF.........10
FIRST DEPTH MARKER AT...10
LAST DEPTH MARKER AT....100

PLOT VITH RESPECT TO TRUE NORTH
SCALE 20:1
DECLINATION 22.1 DEC.



BOREHOLE POSITIONAL ERROR

THE TWO BOXES SURROUNDING THE LAST PLOTTED DEPTH SHOW THE TYPICAL, AND MAXIMUM, POSITIONAL ERROR AT THAT DEPTH.

FINAL BOREHOLE POSITION

THE LAST PLOTTED DEPTH IS AT 1.28 MS NORTH, .07 MS VEST IE. 1.28 MS FROM THE ORIGIN, 357 DEC FROM TRUE NORTH

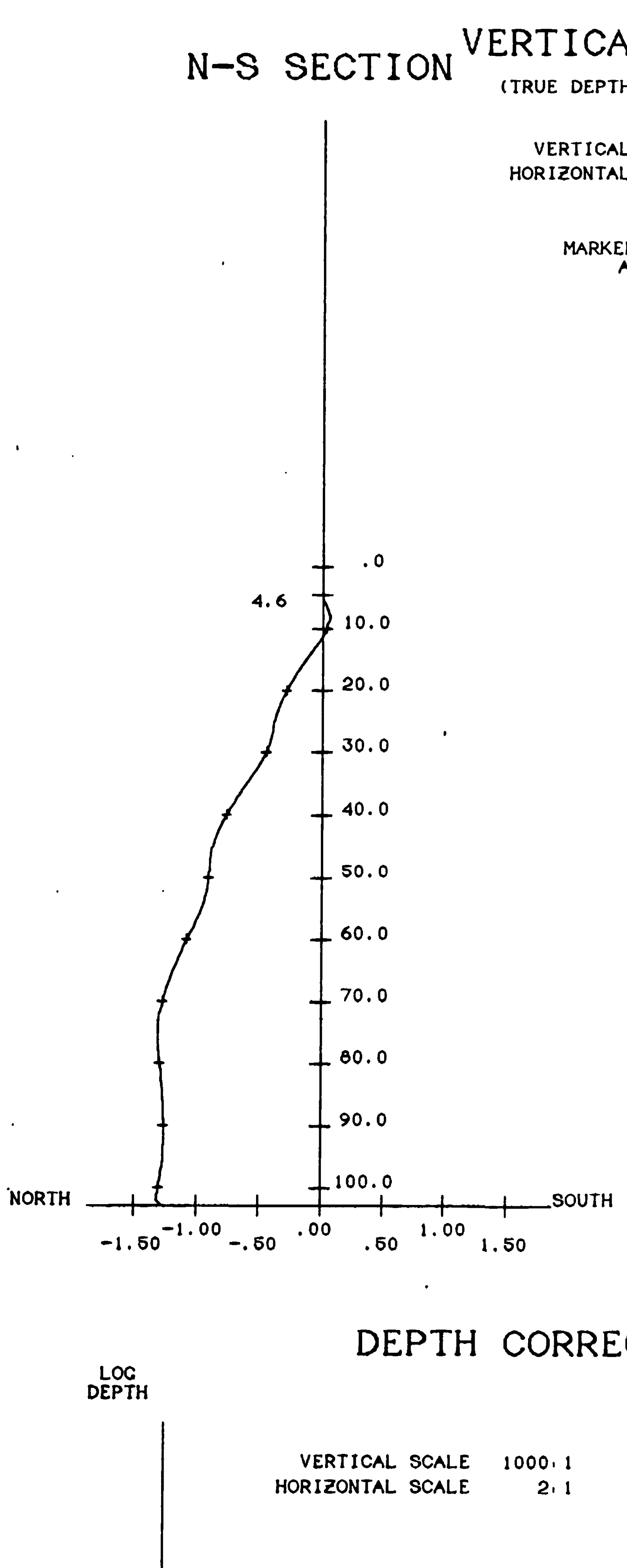
VERTICAL SECTIONS

(TRUE DEPTH VS DISPLACEMENT)

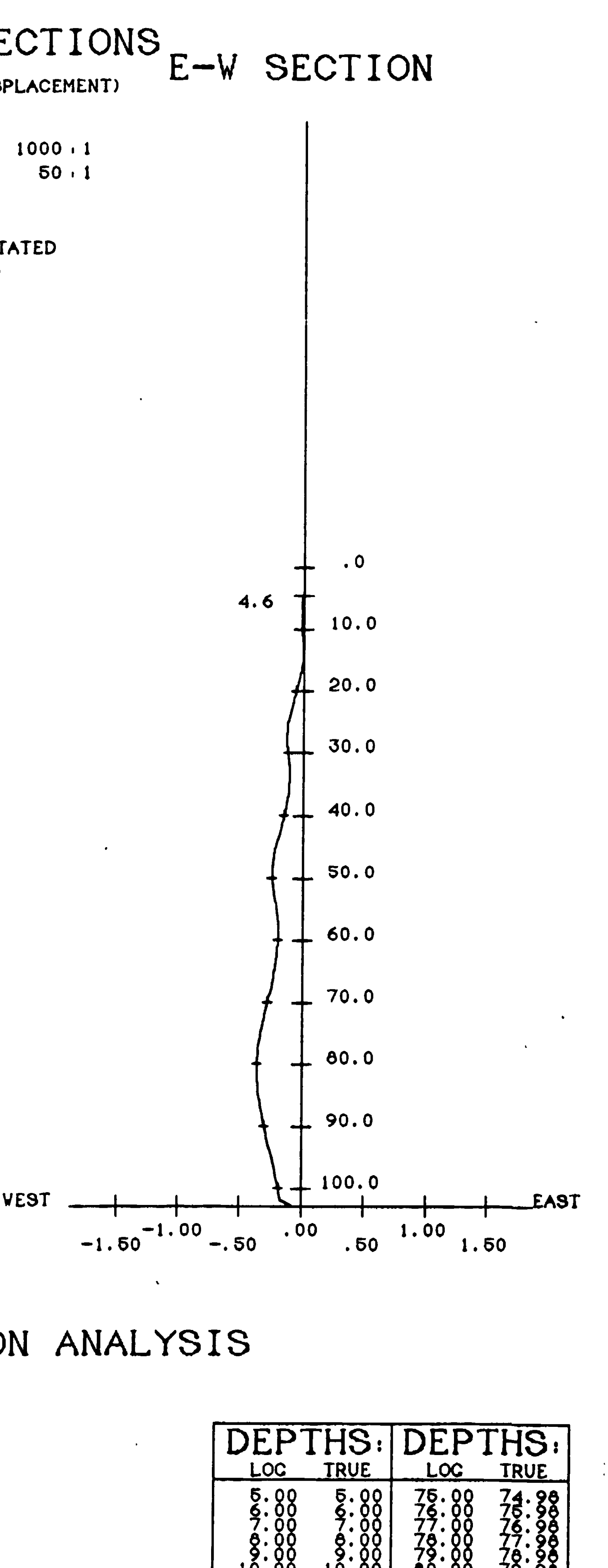
VERTICAL SCALE 1000:1
HORIZONTAL SCALE 50:1

MARKERS ANNOTATED AS ABOVE

N-S SECTION

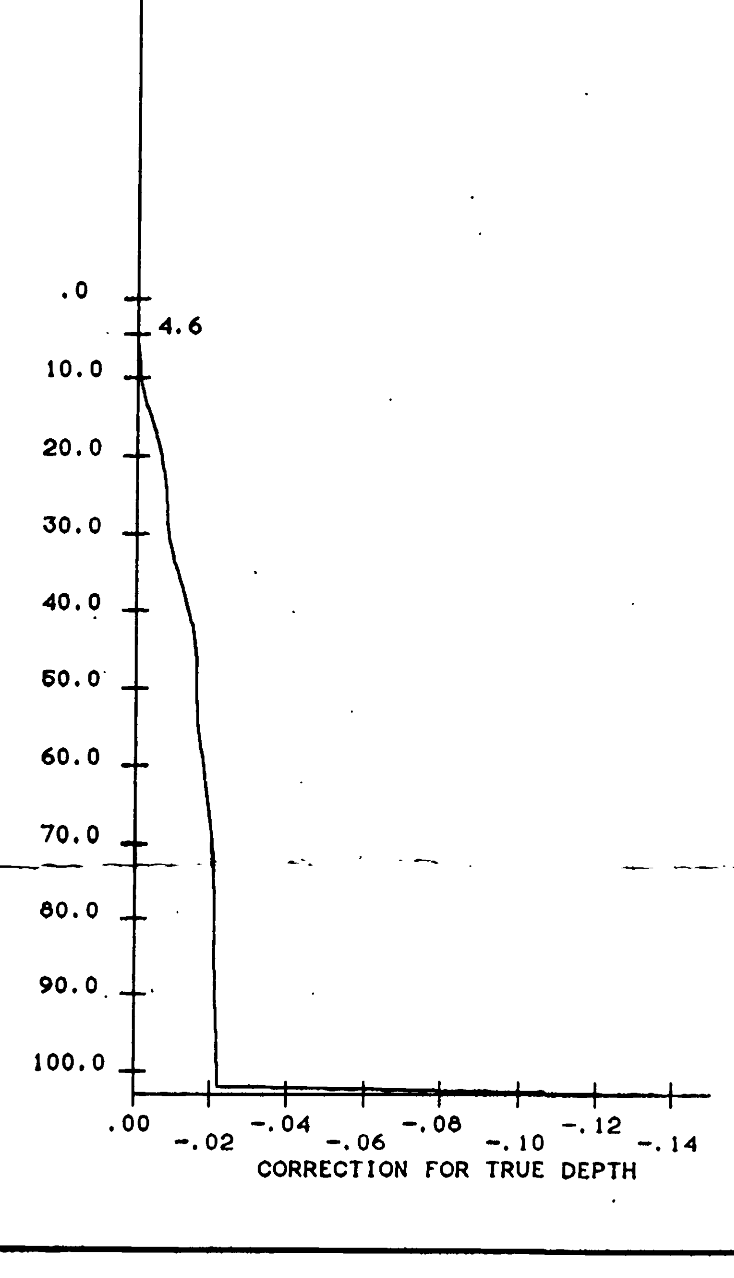


E-W SECTION



DEPTH CORRECTION ANALYSIS

VERTICAL SCALE 1000:1
HORIZONTAL SCALE 2:1



DEPTHS: LOG	TRUE	DEPTHS: LOG	TRUE
5.00	5.00	75.00	74.98
6.00	6.00	76.00	75.98
7.00	7.00	77.00	76.98
8.00	8.00	78.00	77.98
9.00	9.00	79.00	78.98
10.00	10.00	80.00	79.98
11.00	11.00	81.00	80.98
12.00	12.00	82.00	81.98
13.00	13.00	83.00	82.98
14.00	14.00	84.00	83.98
15.00	15.00	85.00	84.98
16.00	16.00	86.00	85.98
17.00	16.99	87.00	86.98
18.00	17.99	88.00	87.98
19.00	18.99	89.00	88.98
20.00	19.99	90.00	89.98
21.00	20.99	91.00	90.98
22.00	21.99	92.00	91.98
23.00	22.99	93.00	92.98
24.00	23.99	94.00	93.98
25.00	24.99	95.00	94.98
26.00	25.99	96.00	95.98
27.00	26.99	97.00	96.98
28.00	27.99	98.00	97.98
29.00	28.99	99.00	98.98
30.00	29.99	100.00	99.98
31.00	30.99	101.00	100.98
32.00	31.99	102.00	101.98
33.00	32.99	103.00	102.86
34.00	33.99		
35.00	34.99		
36.00	35.99		
37.00	36.99		
38.00	37.99		
39.00	38.99		
40.00	39.99		
41.00	40.99		
42.00	41.99		
43.00	42.98		
44.00	43.98		
45.00	44.98		
46.00	45.98		
47.00	46.98		
48.00	47.98		
49.00	48.98		
50.00	49.98		
51.00	50.98		
52.00	51.98		
53.00	52.98		
54.00	53.98		
55.00	54.98		
56.00	55.98		
57.00	56.98		
58.00	57.98		
59.00	58.98		
60.00	59.98		
61.00	60.98		
62.00	61.98		
63.00	62.98		
64.00	63.98		
65.00	64.98		
66.00	65.98		
67.00	66.98		
68.00	67.98		
69.00	68.98		
70.00	69.98		
71.00	70.98		
72.00	71.98		
73.00	72.98		
74.00	73.98		

COMPANY	WESTERN CANADIAN MINING CORP.
WELL	DD91-08
FIELD	WELDWOOD COAL PROJ.
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA

Borehole: DD91-08
Client: WESTERN CANADIAN MINING CORP.
Field: WELLWOOD COAL PROJ.
Area: BRITISH COLUMBIA
Country: CANADA

FOCUSSED ELECTRIC
GAMMA RAY

SLIMLINE GRAPHICS UNIT

Permanent Datum GROUND LEVEL, Elevation N/A		KB N/A	Location COUNTENAY
Log measured from GROUND LEVEL above permanent datum		DF N/A	
Drilling measured from GROUND LEVEL above permanent datum		GL N/A	
Date	14-JAN-1991		LBD N/A
Run Number	ONE		SEC
Depth-Driller	104.2m		TWP
Depth-Logger	103.2m		RGE
First Reading	102.0m		OTHER SERVICES COL,MCS,BRD DIPMETER
Last Reading	50m		
Casing-Driller	6.0m		
Casing-Logger	5.0m		
Bit Size	NQ 2		
Hole Fluid Type	WATER		
Dens./Visc.	1.0GM/ N/A		
Fluid Loss	N/A	NIL	
Sample Source	PIT		
Rm @ Meas Temp	N/A		
Rmf @ Meas Temp	N/A		
Rmc @ Meas Temp	N/A		
Source: Rmf/Rmc	N/A	N/A	
Rm @ BHT	6.3 @ 5°C		
Time Since Circ	1 HOUR		
Max Rec Temp	5C		
Equipment/Base	1929	RDR	
Recorded by	J.C.WIDNER		
Witnessed by	S.CASSELMAN		

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RUN NUMBER	BOREHOLE RECORD BIT	FROM	TO	CASING RECORD SIZE	WEIGHT	FROM	TO
ONE	NQ 2	6.0m	TD	NQ	N/A	SURFACE	6.0m

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
RG4	104			

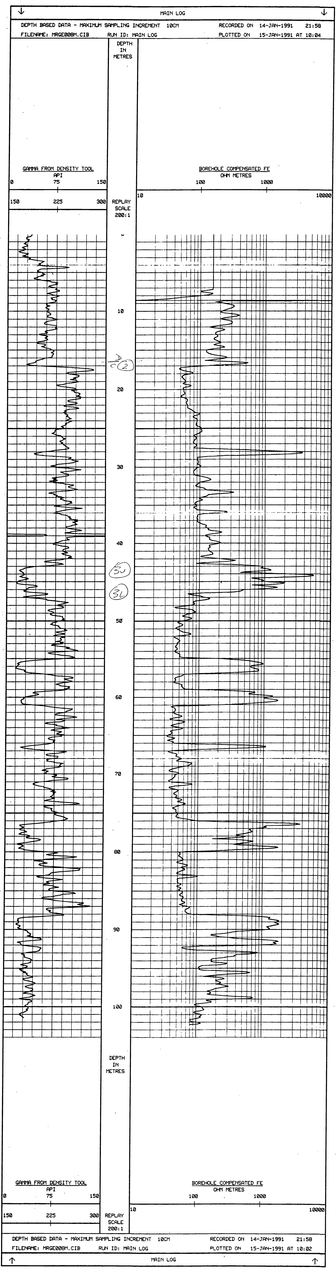
REMARKS:
FOCUSSED ELECTRIC GAMMA RAY

SYSTEM CONFIGURATION DATES: LOGGED 1-FEB-1990 PROCESSED 1-FEB-1990 PLOTTED 24-AUG-1990

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT, GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

MAIN LOG

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM RECORDED ON 14-JAN-1991 21:58
FILENAME: MAGE000A.CIB RUN ID: MAIN LOG PLOTTED ON 15-JAN-1991 AT 10:04

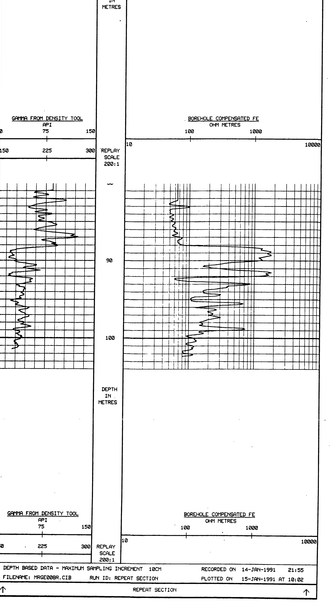


DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM RECORDED ON 14-JAN-1991 21:58
FILENAME: MAGE000A.CIB RUN ID: MAIN LOG PLOTTED ON 15-JAN-1991 AT 10:02

MAIN LOG

REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM RECORDED ON 14-JAN-1991 21:55
FILENAME: MAGE000A.CIB RUN ID: REPEAT SECTION PLOTTED ON 15-JAN-1991 AT 10:02



DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM RECORDED ON 14-JAN-1991 21:55
FILENAME: MAGE000A.CIB RUN ID: REPEAT SECTION PLOTTED ON 15-JAN-1991 AT 10:02

REPEAT SECTION

CLIENT	WESTERN CANADIAN MINING CORP.
BOREHOLE	DD91-08
FIELD	WELLWOOD COAL PROJ.
AREA	BRITISH COLUMBIA
COUNTRY	CANADA

Boreholes: DD91-08
Client: WESTERN CANADIAN MINING CORP.
Field: HELMAND COAL PROJ.
Area: BRITISH COLUMBIA
Country: CANADA

BCD RESOLUTION DENSITY (ZDL)
GAMMA RAY
CALIPER

SLIMLINE GRAPHICS UNIT

Permanent Datum GROUND LEVEL, Elevation N/R				KB N/R	Location
Log measured from GROUND LEVEL, above permanent datum				DF N/R	COUNTERRY
Drilling measured from GROUND LEVEL, above permanent datum				GL N/R	
Date	14-JAN-1991				LSD N/R
Run Number	ONE				SEC
Depth-Driller	184.2m				TWP
Depth-Logger	183.2m				RGE
First Reading	182.0m				OTHER SERVICES
Last Reading	50m				FE,MDL,CAL
Casing-Driller	6.0m				DIMETER
Casing-Logger	5.0m				
Bit Size	NQ 2				
Fluid Type	WATER				
Dens./Visc.	1.01	N/R			
Fluid Loss	N/R	N/L			
Sample Source	FLT				
Rm @ Meas Temp	0.19 @ 3°C				
Rmf @ Meas Temp	N/R				
Rmc @ Meas Temp	N/R				
Source: Rmf/Rmc	N/R	N/R			
Rm @ BHT	0.2 @ 9C				
Time Since Circ	1 HR				
Max Rec Temp	9C				
Equipment/Base	VDDS	NDE			
Recorded By	J.CLINCHER				
Witnessed By	B.CHRISELMAN				

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RUN NUMBER	BOREHOLE RECORD BIT	FROM	TO	SIZE	CASING RECORD WEIGHT	FROM	TO
ONE	NQ 2	6.0m	TD	NQ	N/R	SURFACE	6.0m

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
2096	183			

REMARKS:

BCD RESOLUTION DENSITY (ZDL) GAMMA RAY — CALIPER

SYSTEM CONFIGURATION DATES: LOGGED 24-AUG-1990 PROCESSED 24-AUG-1990 PLOTTED 24-AUG-1990

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DETAIL LOG

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT .1CM — RECORDED ON 14-JAN-1991 17:29
FILENAME: DD91ALL8.CIB — RUN ID: DETAIL LOG — PLOTTED ON 15-JAN-1991 AT 12:08

BIT SIZE MILLIMETRES 150 100 50
CALIPER FROM DENSITY MILLIMETRES 150 100 50
DEPTH IN METRES
TIMING MARKS EVERY 60.0 S
GAMMA FROM DENSITY TOOL API 0 75 150 — 150 225 300
DENSITY SHORT SPACED GM/CC 1 1.5 2 2.5 3
REPLAY SCALE 20 :1 — +1 -0.5 0 0.5 1

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT .1CM — RECORDED ON 14-JAN-1991 17:29
FILENAME: DD91ALL8.CIB — RUN ID: DETAIL LOG — PLOTTED ON 15-JAN-1991 AT 12:07

DETAIL LOG

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT .1CM — RECORDED ON 14-JAN-1991 17:29
FILENAME: DD91ALL8.CIB — RUN ID: DETAIL LOG — PLOTTED ON 15-JAN-1991 AT 12:06

DETAIL LOG

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT .1CM — RECORDED ON 14-JAN-1991 17:29
FILENAME: DD91ALL8.CIB — RUN ID: DETAIL LOG — PLOTTED ON 15-JAN-1991 AT 12:04

LOGGING/CALIBRATION CONSTANTS

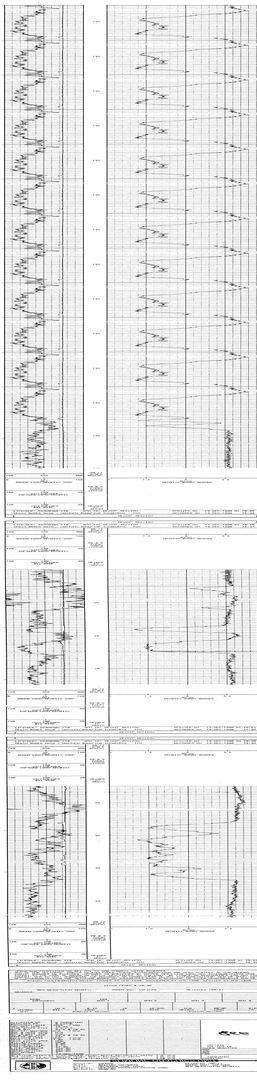
LOGGING CONSTANTS

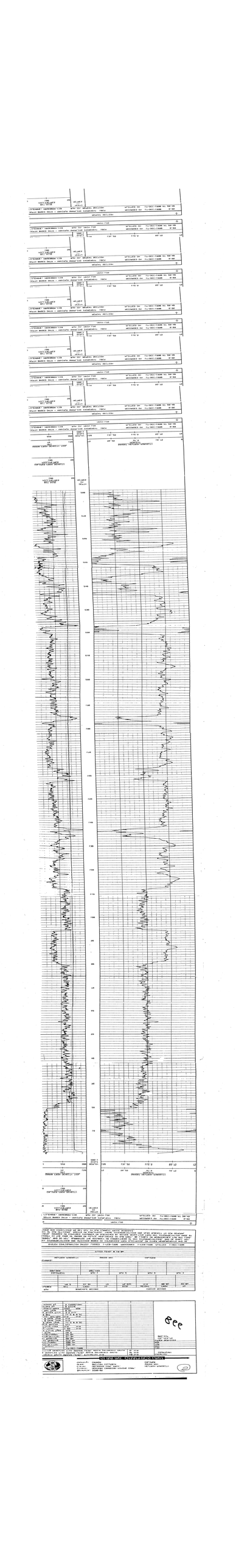
Sonde Type (2200,CCS)	2200	Sonde Mode (NET,DRY,STD)	STD
Mud weight	1.01	Shale Coefficient	0.50
Resistivity Multiplier	127.00	Matrix Density	2.65
Mud Resistivity (OHM)	0.19	Matrix Density	2.71
Caliper Units(INS,MMS)	MILLIMETRE	Density of Mud Filtrate	1.00
Brd point one	1.00	Brd point two	3.00
Density point one	1.00	Density point two	3.00
Density scalar	1.50	Brd scaler	-.50
Bit depths & water level (FT,M)	METRES	Caliper source for processing	CAL
Bit size 1	80.00	Bit depth 1	.00
Bit size 2	76.20	Bit depth 2	6.00
Bit size 3	.00	Bit depth 3	184.20
Bit size 4	.00	Bit depth 4	.00
Bit size 5	.00	Bit depth 5	.00

CALIBRATION CONSTANTS

Gamma calibrator value 1	494.00	Gamma count rate 1	293.60
Brd calibrator value 1	36843.00	Brd count rate 1	1896.40
Brd calibrator value 2	13985.00	Brd count rate 2	734.00
Caliper ring size 1	80.00	Caliper count for ring 1	916.00
Caliper ring size 2	76.20	Caliper count for ring 2	540.00
Caliper ring size 3	101.60	Caliper count for ring 3	590.00
Caliper ring size 4	127.00	Caliper count for ring 4	639.00
Caliper ring size 5	152.40	Caliper count for ring 5	697.00
Caliper ring size 6	203.20	Caliper count for ring 6	820.00
Caliper ring size 6	254.00	Caliper count for ring 6	932.00

CLIENT: WESTERN CANADIAN MINING CORP.
BOREHOLE: DD91-08
FIELD: HELMAND COAL PROJ.
AREA: BRITISH COLUMBIA
COUNTRY: CANADA





VERTICALITY ANALYSIS

SLIMLINE UNIT

LOCATION COURTENAY
PRVNC/CO. BRITISH COLUMBIA
FIELD VELDWOOD COAL PROJ.
VELL
DD90-04
COMPANY
VESTERN CANADIAN MINING CORP.

COMPANY	WESTERN CANADIAN MINING CORP.
VELL	DD90-04
FIELD	WELDWOOD COAL PROJ.
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA

LOCATION COURTENAY

LSD	SEC	TVP	RGE

OTHER SERVICES
CDL. CNL. FE
BRD. MCS

PERMANENT DATUM GROUND LEVEL . ELEVATION N/A
LOG MEASURED FROM GROUND LEVEL ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS:
KB N/A
DF N/A
CL N/A

DATE	13-DEC-90						
RUN NUMBER	1						
DEPTH-DRILLER	222.5M						
DEPTH-LOGGER	221.9M						
FIRST READING	221.0M						
LAST READING	00.0M						
CASING-DRILLER	6.1M						
CASING-LOGGER	6.0M						
BIT SIZE	NQ 2						
HOLE FLUID TYPE	MUD						
DENS./VISC.	1.02	N/A					
PH/FLUID LOSS	N/A	N/A					
SAMPLE SOURCE	PIT						
RM @ MEAS TEMP	24.6 @ 10.2C						
RMF @ MEAS TEMP	N/A						
RMC @ MEAS TEMP	N/A						
SOURCE: RMF/RMC	N/A	N/A					
RM @ BHT	24.6 @ 10.2C						
TIME SINCE CIRC	6.0 HRS.						
MAX REC TEMP	10.2C						
EQUIPMENT/BASE	V222	RDR					
RECORDED BY	B PICHE						
VITNESSED BY	S CASSELMAN						

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BPB VERTICALITY ANALYSIS INTERPRETATION NOTES

1. ALL PLOTTED OUTPUT IS AUTOMATICALLY SCALED TO OBTAIN THE BEST VISUAL EFFECT WITHIN THE PHYSICAL SPACE AVAILABLE. THE MAXIMUM SCALES BEING 50000:1 (METRIC) AND 48000:1 (IMPERIAL). AND THE MINIMUM 1:1.

2. THE ANALYSIS IS DERIVED BY INTEGRATING 10CM. SAMPLED DATA DOWN THE BOREHOLE. THE LISTING SUPPLIED VILL CONTAIN A MAXIMUM OF 200 POINTS IN MULTIPLES OF 1. 2. 5. 10. 20. 50 OR 100 METRES/FEET DEPENDING ON THE TOTAL RANGE OF THE ANALYSIS. HOVEVER THE ANALYSIS IS CALCULATED FOR THE ENTIRE RANGE OF THE BOREHOLE AND THE FINAL BOREHOLE POSITION IS INCLUDED IN THE LISTING.

3. COMPUTED VERTICALITY MAY ONLY BE FULLY DERIVED IN OPEN SECTIONS OF THE BOREHOLE. AVAY FROM THE INFLUENCE OF ANY UNUSUAL MAGNETIC EFFECTS (AS THE AZIMUTH CALCULATIONS ARE DERIVED FROM THREE SOLID STATE MAGNETOMETERS). SO THE ANALYSIS VILL GENERALLY BEGIN AT THE END OF THE CASING AND ALL BOREHOLE POSITIONAL INFORMATION VILL RELATE TO THIS DEPTH.

4. UP TO TEN CROSS SECTIONS MAY BE REQUESTED FOR ANY BOREHOLE TO BE DISPLAYED AT ANY SCALE (THE DEFAULT SCALE IS THAT OF THE CROSS-SECTION FOR THE ENTIRE HOLE).

5. GIVEN BELOW IS A FULL DESCRIPTION OF THE PARAMETERS DISPLAYED ON THE ENSUING LISTING:

LOG DEPTH	THE DEPTH RECORDED ON THE FIELD LOGS FOR THE BOREHOLE.
TRUE DEPTH	THE TRUE VERTICAL DEPTH CORESPONDING TO THE ABOVE DEPTH. CORRECTED FROM THE START OF THE ANALYSIS.
HOLE TILT AND AZIMUTH	THE SAMPLED BOREHOLE ORIENTATION.
AXIAL COORDINATES	THE COORDINATES NORTH AND EAST FROM THE TARGET ORIGIN.
POLAR COORDINATES	THE POLAR. OR RADIAL COORDINATES OF THE BOREHOLE.

N.B. THE REFERENCE POINT FOR ALL BEARING ANGLES ON THIS LISTING IS GIVEN AT THE TOP OF EACH SHEET.

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DD90-04

VERTICALITY DATA LISTING
ALL CO-ORDINATES VITH RESPECT TO TRUE NORTH

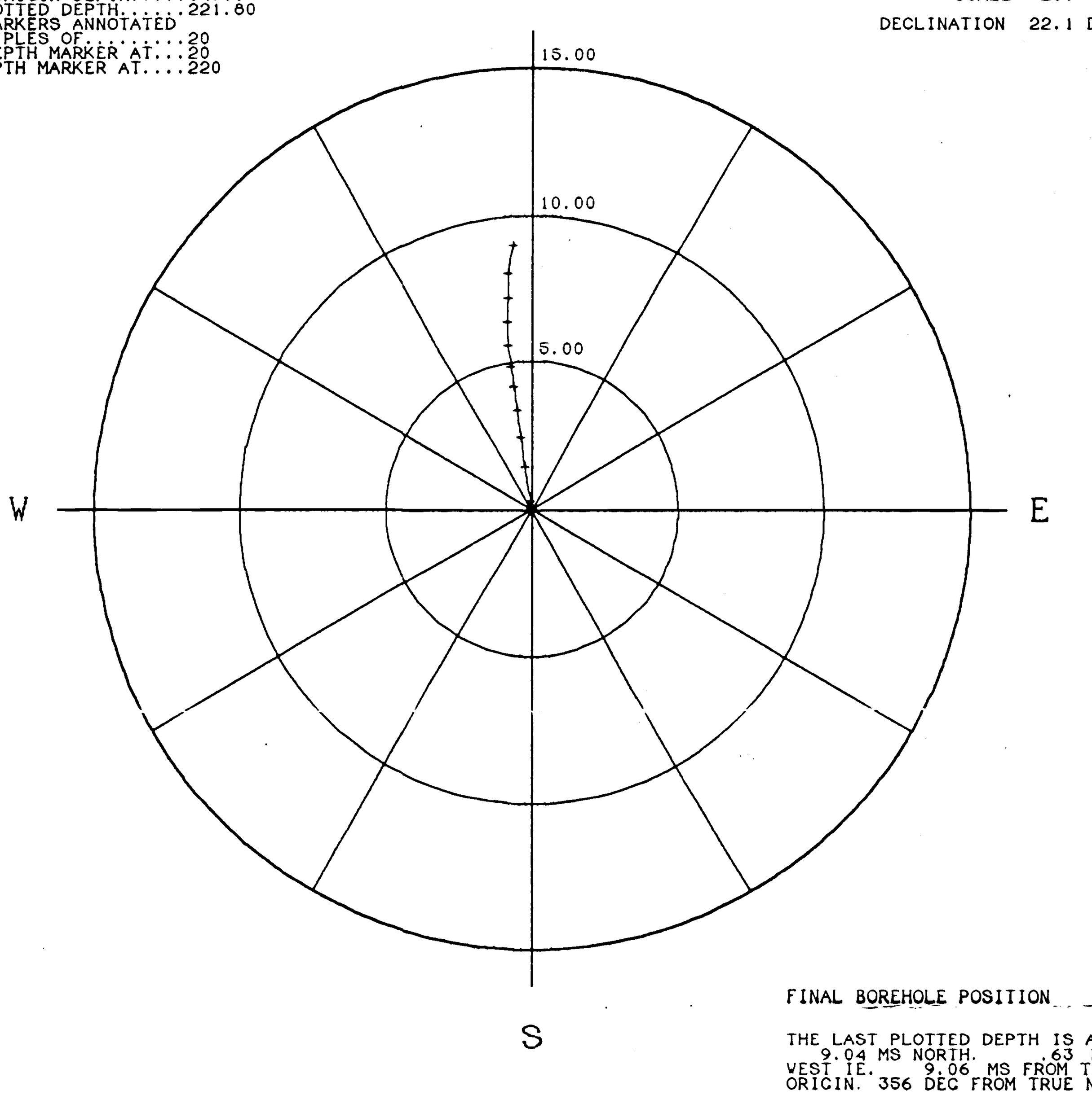
DATE PROCESSED: 13-DEC-1990
DATE LOGGED: 13-DEC-1990

DEPTHS		BOREHOLE		AXIAL CO-ORDS		POLAR	
LOG	TRUE	TILT	AZI	NORTH	EAST	BRG	RADIUS
16.00	16.00	4.2	354	0.09	0.00	357	0.09
18.00	17.99	3.2	350	0.21	-0.03	351	0.21
20.00	19.99	3.0	1	0.32	-0.06	350	0.32
22.00	21.99	3.4	345	0.45	-0.07	351	0.46
24.00	23.98	3.6	347	0.57	-0.10	350	0.57
26.00	25.98	2.4	356	0.67	-0.13	349	0.68
28.00	27.98	3.8	350	0.78	-0.13	351	0.79
30.00	29.97	3.0	351	0.89	-0.16	350	0.91
32.00	31.97	2.4	355	1.00	-0.18	350	1.01
34.00	33.97	3.9	347	1.11	-0.18	351	1.13
36.00	35.96	2.8	349	1.22	-0.21	350	1.24
38.00	37.96	2.4	340	1.33	-0.24	350	1.35
40.00	39.96	3.4	358	1.43	-0.24	351	1.45
42.00	41.95	3.3	346	1.55	-0.26	350	1.57
44.00	43.95	3.0	352	1.65	-0.28	350	1.67
46.00	45.95	2.1	345	1.74	-0.31	350	1.77
48.00	47.95	3.4	3	1.83	-0.30	351	1.86
50.00	49.94	2.9	348	1.95	-0.32	351	1.97
52.00	51.94	3.0	348	2.04	-0.33	351	2.07
54.00	53.94	2.4	8	2.12	-0.35	351	2.15
56.00	55.94	3.3	348	2.24	-0.35	351	2.26
58.00	57.93	2.7	353	2.33	-0.37	351	2.36
60.00	59.93	2.0	0	2.42	-0.39	351	2.45
62.00	61.93	3.2	349	2.52	-0.39	351	2.55
64.00	63.93	2.7	353	2.62	-0.41	351	2.65
66.00	65.92	2.1	4	2.70	-0.43	351	2.73
68.00	67.92	3.1	347	2.80	-0.44	351	2.84
70.00	69.92	2.9	351	2.90	-0.46	351	2.93
72.00	71.92	2.0	2	2.98	-0.48	351	3.01
74.00	73.91	3.1	351	3.08	-0.48	351	3.11
76.00	75.91	2.4	356	3.17	-0.50	351	3.20
78.00	77.91	1.6	359	3.25	-0.52	351	3.29
80.00	79.91	3.1	355	3.34	-0.51	351	3.37
82.00	81.91	2.4	347	3.43	-0.53	351	3.47
84.00	83.90	2.1	339	3.51	-0.55	351	3.55
86.00	85.90	2.5	9	3.57	-0.55	351	3.61
88.00	87.90	2.6	344	3.67	-0.56	351	3.71
90.00	89.90	2.3	350	3.75	-0.58	351	3.79
92.00	91.90	1.9	340	3.83	-0.60	351	3.87
94.00	93.90	2.4	8	3.89	-0.60	351	3.93
96.00	95.89	3.0	351	3.98	-0.60	351	4.03
98.00	97.89	2.6	344	4.07	-0.62	351	4.12
100.00	99.89	2.1	349	4.14	-0.64	351	4.19
102.00	101.89	2.3	344	4.22	-0.65	351	4.27
104.00	103.89	1.4	348	4.28	-0.67	361	4.34
106.00	105.89	1.9	11	4.34	-0.66	351	4.39
108.00	107.89	2.5	356	4.42	-0.65	352	4.47
110.00	109.88	2.3	347	4.51	-0.67	352	4.56
112.00	111.88	2.2	344	4.59	-0.68	352	4.64
114.00	113.88	2.0	349	4.65	-0.70	351	4.70
116.00	115.88	2.1	341	4.72	-0.72	351	4.77
118.00	117.88	1.2	343	4.78	-0.74	351	4.8[illegible]
120.00	119.88	1.7	12	4.82	-0.73	351	4.88
122.00	121.88	2.4	2	4.90	-0.72	352	4.95
124.00	123.88	2.4	351	4.98	-0.73	352	5.03
126.00	125.87	2.3	350	5.06	-0.74	352	5.12
128.00	127.87	1.9	344	5.14	-0.76	352	5.19
130.00	129.87	2.0	342	5.20	-0.78	351	5.26
132.00	131.87	1.8	340	5.27	-0.80	351	5.33
134.00	133.87	1.9	352	5.33	-0.81	351	5.39
136.00	135.87	2.0	353	5.40	-0.83	351	5.46
138.00	137.87	2.0	355	5.47	-0.83	351	5.53
140.00	139.86	2.1	354	5.54	-0.84	351	5.60
142.00	141.86	2.1	355	5.61	-0.84	351	5.68
144.00	143.86	2.3	356	5.69	-0.85	352	5.75
146.00	145.86	2.2	358	5.77	-0.85	352	5.83
148.00	147.86	2.4	359	5.85	-0.85	352	5.91
150.00	149.86	2.4	358	5.93	-0.85	352	5.99
152.00	151.86	2.4	358	6.01	-0.85	352	6.07
154.00	153.85	2.3	1	6.10	-0.86	352	6.16
156.00	155.85	2.4	356	6.18	-0.86	352	6.24
158.00	157.85	2.5	1	6.26	-0.86	352	6.32
160.00	159.85	2.3	3	6.35	-0.86	352	6.40
162.00	161.85	2.3	356	6.43	-0.86	352	6.49
164.00	163.85	2.3	4	6.51	-0.86	352	6.57
166.00	165.84	2.1	360	6.59	-0.86	353	6.64
168.00	167.84	2.3	2	6.67	-0.86	353	6.72
170.00	169.84	2.3	1	6.74	-0.86	353	6.80
172.00	171.84	2.3	2	6.82	-0.86	353	6.87
174.00	173.84	2.3	5	6.90	-0.86	353	6.95
176.00	175.84	2.4	2	6.98	-0.85	353	7.03
178.00	177.83	2.3	0	7.06	-0.85	353	7.11
180.00	179.83	2.2	1	7.14	-0.84	353	7.19
182.00	181.83	2.3	3	7.22	-0.84	353	7.27
184.00	183.83	2.2	5	7.30	-0.83	353	7.35
186.00	185.83	2.4	359	7.38	-0.83	354	7.43
188.00	187.83	2.4	355	7.46	-0.84	354	7.51
190.00	189.82	2.2	360	7.54	-0.84	354	7.59
192.00	191.82	2.5	0	7.62	-0.84	354	7.67
194.00	193.82	2.7	360	7.71	-0.84	354	7.76
196.00	195.82	2.7	1	7.81	-0.84	354	7.85
198.00	197.82	2.6	358	7.90	-0.84	354	7.95
200.00	199.81	2.9	4	8.00	-0.84	354	8.04
202.00	201.81	2.8	4	8.09	-0.83	354	8.14
204.00	203.81	2.8	7	8.19	-0.82	354	8.23
206.00	205.81	3.0	7	8.30	-0.81	354	8.34
208.00	207.80	3.0	13	8.41	-0.79	355	8.44
210.00	209.80	3.0	11	8.51	-0.78	355	8.55
212.00	211.80	3.2	12	8.62	-0.75	355	8.65
214.00	213.80	2.8	13	8.72	-0.73	355	8.75
216.00	215.79	2.7	11	8.82	-0.71	355	8.84
218.00	217.79	2.4	15	8.91	-0.69	356	8.93
220.00	219.79	2.2	23	8.98	-0.67	356	9.00
221.80	221.59	2.5	35	9.04	-0.63	356	9.06

CROSS SECTION

ALL FIGURES IN LOG DEPTH MS
TARGET ORIGIN DEPTH.....14.50
LAST PLOTTED DEPTH......221.80
DEPTH MARKERS ANNOTATED
IN MULTIPLES OF.........20
FIRST DEPTH MARKER AT...20
LAST DEPTH MARKER AT....220

PLOT VITH RESPECT TO TRUE NORTH
SCALE 200:1
DECLINATION 22.1 DEG.



FINAL BOREHOLE POSITION

THE LAST PLOTTED DEPTH IS AT 9.04 MS NORTH. .63 MS VEST IE. 9.06 MS FROM THE ORIGIN. 356 DEG FROM TRUE NORTH

VERTICAL SECTIONS

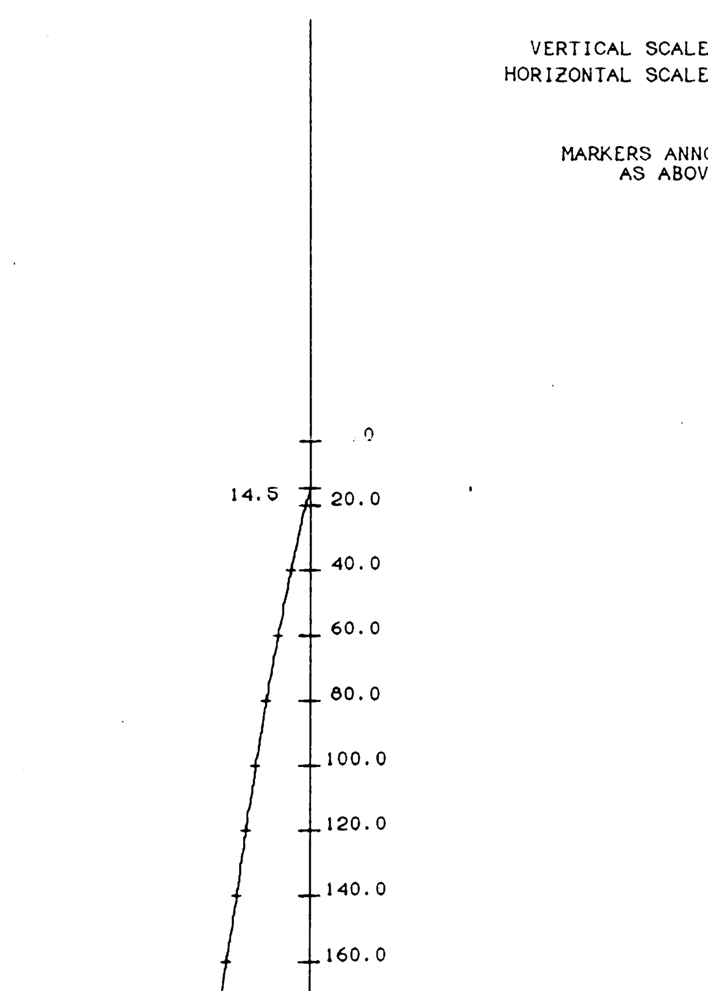
(TRUE DEPTH VS DISPLACEMENT)

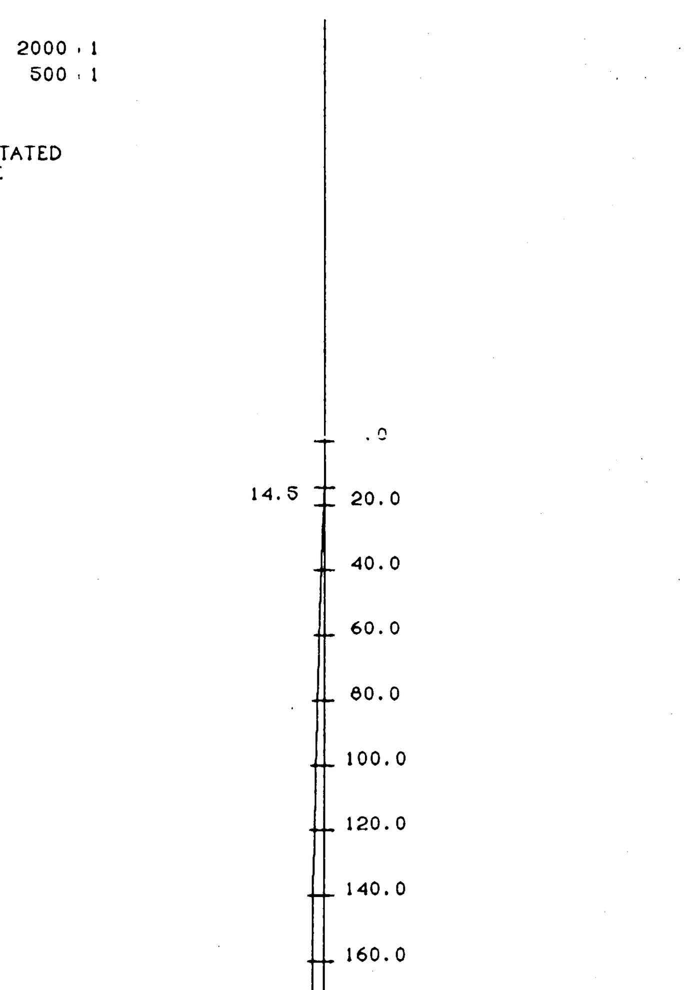
N-S SECTION

E-W SECTION

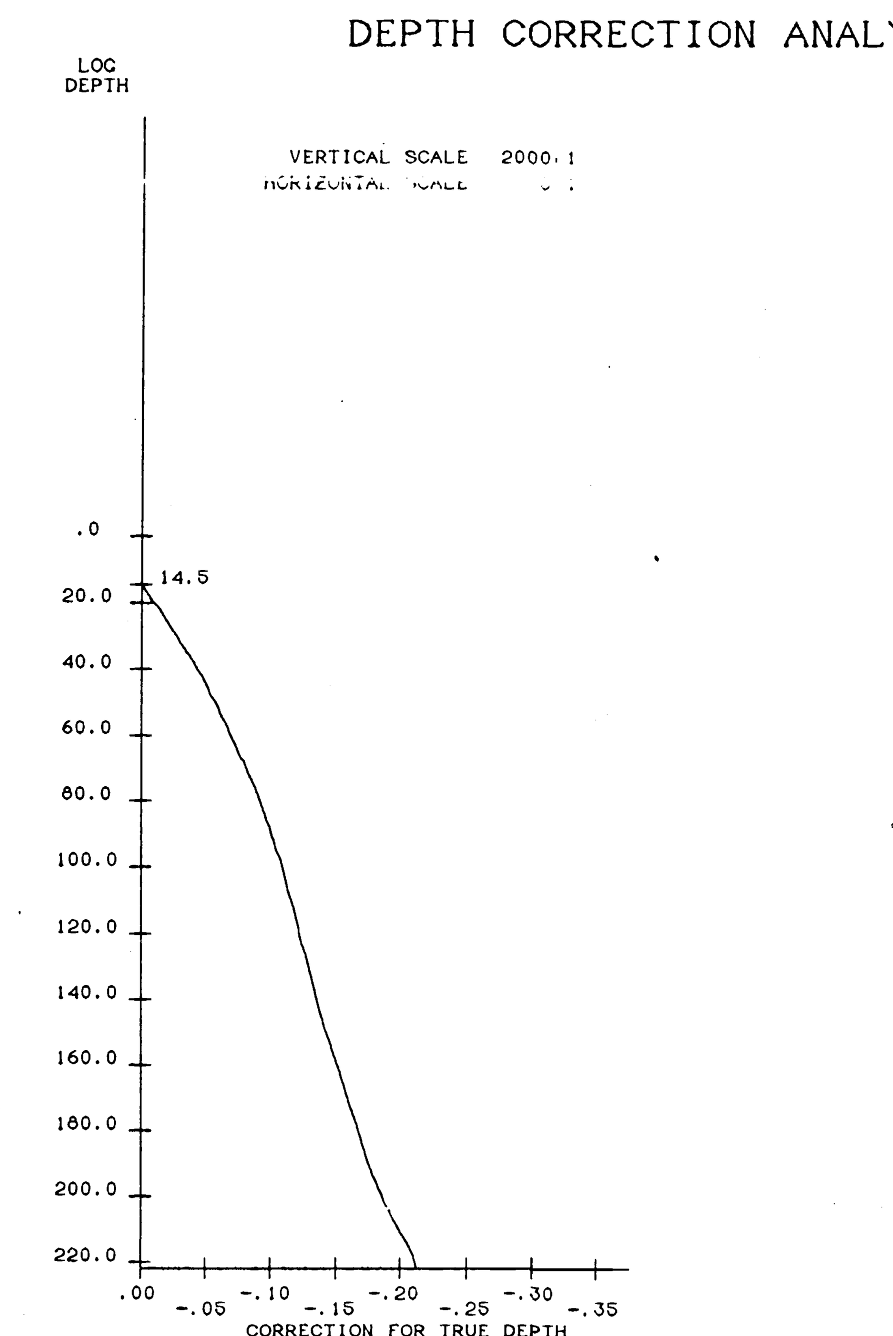
VERTICAL SCALE 2000:1
HORIZONTAL SCALE 500:1

MARKERS ANNOTATED AS ABOVE





DEPTH CORRECTION ANALYSIS



DEPTHS: LOG	TRUE	DEPTHS: LOG	TRUE
16.00	16.00	156.00	155.85
18.00	17.99	158.00	157.85
20.00	19.99	160.00	159.85
22.00	21.99	162.00	161.85
24.00	23.98	164.00	163.85
26.00	25.98	166.00	165.84
28.00	27.98	168.00	167.84
30.00	29.97	170.00	169.84
32.00	31.97	172.00	171.84
34.00	33.97	174.00	173.84
36.00	35.96	176.00	175.84
38.00	37.96	178.00	177.83
40.00	39.96	180.00	179.83
42.00	41.95	182.00	181.83
44.00	43.95	184.00	183.83
46.00	45.95	186.00	185.83
48.00	47.95	188.00	187.83
50.00	49.94	190.00	189.82
52.00	51.94	192.00	191.82
54.00	53.94	194.00	193.82
56.00	55.94	196.00	195.82
58.00	57.93	198.00	197.82
60.00	59.93	200.00	199.81
62.00	61.93	202.00	201.81
64.00	63.93	204.00	203.81
66.00	65.92	206.00	205.81
68.00	67.92	208.00	207.80
70.00	69.92	210.00	209.80
72.00	71.92	212.00	211.80
74.00	73.91	214.00	213.80
76.00	75.91	216.00	215.79
78.00	77.91	218.00	217.79
80.00	79.91	220.00	219.79
82.00	81.91	221.80	221.59
84.00	83.90		
86.00	85.90		
88.00	87.90		
90.00	89.90		
92.00	91.90		
94.00	93.90		
96.00	95.89		
98.00	97.89		
100.00	99.89		
102.00	101.89		
104.00	103.89		
106.00	105.89		
108.00	107.89		
110.00	109.88		
112.00	111.88		
114.00	113.88		
116.00	115.88		
118.00	117.88		
120.00	119.88		
122.00	121.88		
124.00	123.88		
126.00	125.87		
128.00	127.87		
130.00	129.87		
132.00	131.87		
134.00	133.87		
136.00	135.87		
138.00	137.87		
140.00	139.86		
142.00	141.86		
144.00	143.86		
146.00	145.86		
148.00	147.86		
150.00	149.86		
152.00	151.86		
154.00	153.85		

COMPANY	WESTERN CANADIAN MINING CORP.
WELL	DD90-04
FIELD	WELDWOOD COAL PROJ.
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA

SLIMLINE GRAPHICS UNIT

Borehole: DD91-06
Client: WESTERN CANADIAN MINING CORP.
Field: WELDWOOD COAL PROJ.
Area: BRITISH COLUMBIA
Country: CANADA

FOCUSSED ELECTRIC
GAMMA RAY

Permanent Datum GROUND LEVEL, Elevation N/A				KB N/A	Location
Log measured from GROUND LEVEL above permanent datum				DF N/A	COURTENAY
Drilling measured from GROUND LEVEL above permanent datum				GL N/A	
Date	10-JAN-1991				LSD N/A
Run Number	ONE				SEC
Depth-Driller	189m				TWP
Depth-Logger	187.4M				RGE
First Reading	187M				OTHER SERVICES
Last Reading	00m				CDL, CNL, MCS
Casing-Driller	24.4m				BRD
Casing-Logger	24.3M				
Bit Size	NQ 2				
Hole Fluid Type	WATER				
Dens./Visc.	1.01GM | N/A				
PH/Fluid Loss	N/A | NIL				
Sample Source	PIT				
Rm @ Meas Temp	N/A				
Rmf @ Meas Temp	N/A				
Rmc @ Meas Temp	N/A				
Source: Rmf/Rmc	N/A | N/A				
Rm @ BHT	6.3 @ 9 C				
Time Since Circ	48 HRS.				
Max Rec Temp	9C				
Equipment/Base	VB29 | RDR				
Recorded by	A. LEBRETON				
Witnessed by	S.CASSELMAN				

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RUN NUMBER	BOREHOLE RECORD BIT	FROM	TO	CASING RECORD SIZE	WEIGHT	FROM	TO
ONE	NQ 2	24.4m	TD	3.5"	N/A	SURFACE	24.4m

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
R04	104			

REMARKS:
FOCUSSED ELECTRIC GAMMA RAY

SYSTEM CONFIGURATION DATES: LOGGED 1-FEB-1990 PROCESSED 1-FEB-1990 PLOTTED 24-AUG-1990

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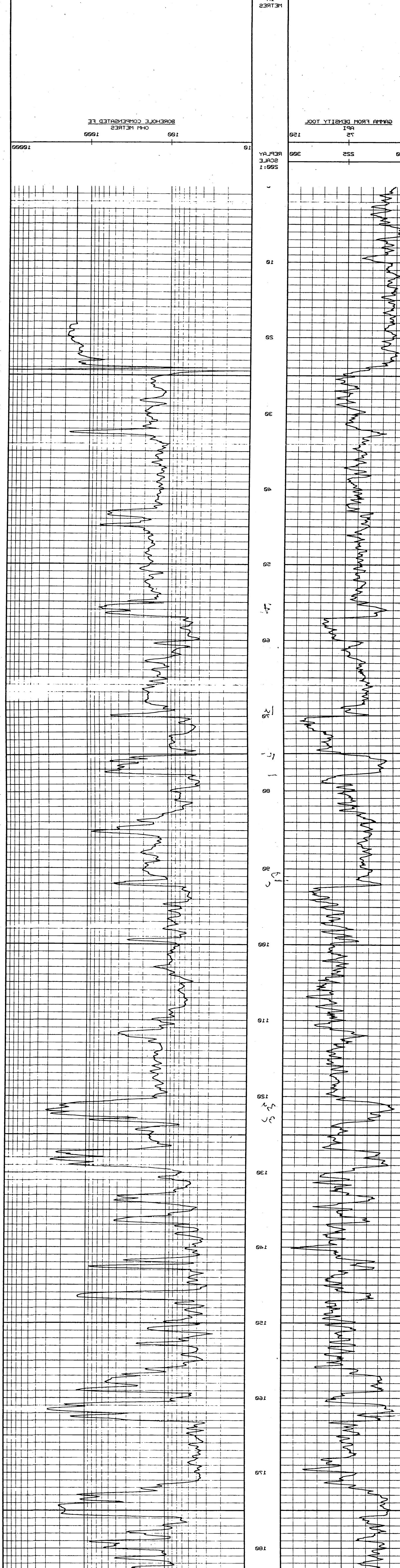
MAIN LOG

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM   RECORDED ON 10-JAN-1991 13:43
FILENAME: MRGE006S.CIB   RUN ID: MAIN LOG   PLOTTED ON 10-JAN-1991 AT 13:55

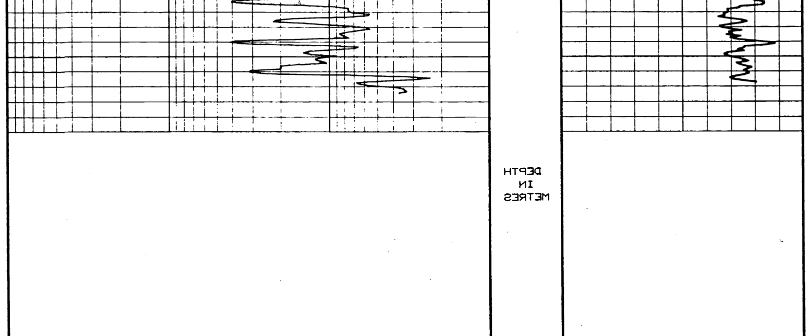


DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM   RECORDED ON 10-JAN-1991 13:43
FILENAME: MRGE006S.CIB   RUN ID: MAIN LOG   PLOTTED ON 10-JAN-1991 AT 13:52

MAIN LOG

REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM   RECORDED ON 10-JAN-1991 13:41
FILENAME: MRGE00R.CIB   RUN ID: REPEAT SECTION   PLOTTED ON 10-JAN-1991 AT 13:52

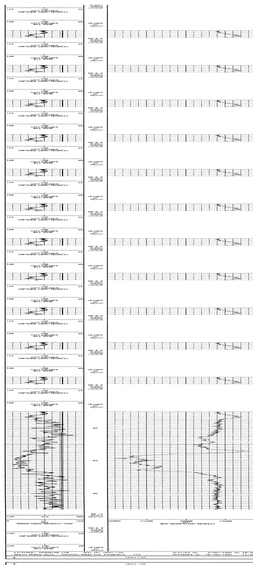


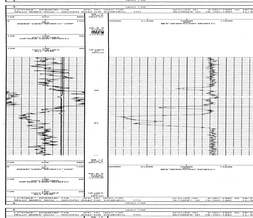
REPEAT SECTION

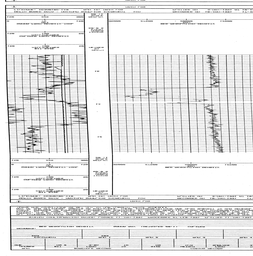
CLIENT	WESTERN CANADIAN MINING CORP.
BOREHOLE	DD91-06
FIELD	WELDWOOD COAL PROJ.
AREA	BRITISH COLUMBIA
COUNTRY	CANADA

CLIENT	WESTERN CANADIAN MINING CORP.
BOREHOLE	DD91-06
FIELD	WELDWOOD COAL PROJ.
AREA	BRITISH COLUMBIA
COUNTRY	CANADA

CLIENT	WESTERN CANADIAN MINING CORP.
BOREHOLE	DD91-06
FIELD	WELDWOOD COAL PROJ.
AREA	BRITISH COLUMBIA
COUNTRY	CANADA







DIPMETER ANALYSIS

SLIMLINE UNIT

COMPANY	WESTERN CANADIAN MINING CORP.
WELL	DD90-03
FIELD	VELDWOOD COAL PROJ.
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA

LOCATION: COORDINATE
PROVINCE: BRITISH COLUMBIA
FIELD: VELDWOOD COAL PROJ.
WELL: DD90-03
COMPANY: WESTERN CANADIAN MINING CORP.

COMPANY	WESTERN CANADIAN MINING CORP.
WELL	DD90-03
FIELD	VELDWOOD COAL PROJ.
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA

LOCATION	COORDINATE
PROVINCE	BRITISH COLUMBIA
FIELD	VELDWOOD COAL PROJ.
WELL	DD90-03
COMPANY	WESTERN CANADIAN MINING CORP.

DATE	11-DEC-1990
RUN NUMBER	1
DEPTH-DRILLER	1500.00
DEPTH-LOGGER	1500.00
BTM LOG INTERVAL	1500.00
TOP LOG INTERVAL	0.00
CASING-DRILLER	0.00 @ 0.00
CASING-LOGGER	0.00
BIT SIZE	0.00 IN
TYPE FLUID IN HOLE	WATER
DENSITY	0.00 LB/G
VISCOSITY	0.00 S
PH	0.00
FLUID LOSS	0.00 C3
SOURCE OF SAMPLE	FLOWING
RM @ MEASURED TEMP	0.00 @ 0.00
RMF @ MEASURED TEMP	0.00 @ 0.00
RMC @ MEASURED TEMP	0.00 @ 0.00
RM @ BHT	0.00 @ 0.00
MAX RECORDED TEMP	0.00
LOGGING DISTRICT	
LOGGING ENGINEER	
WITNESS	

RUN NUMBER	BIT RUN NO.	BIT SIZE	FROM	TO	SIZE	WEIGHT	FROM	TO
1		10.000 IN	0.00	1500.00	76.200	N/A	0.00	1500.00

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
DDS-DIP	115.229.021			

REMARKS

DIPMETER ANALYSIS — SLIMLINE UNIT

FLUID LEVEL @ 16.0M

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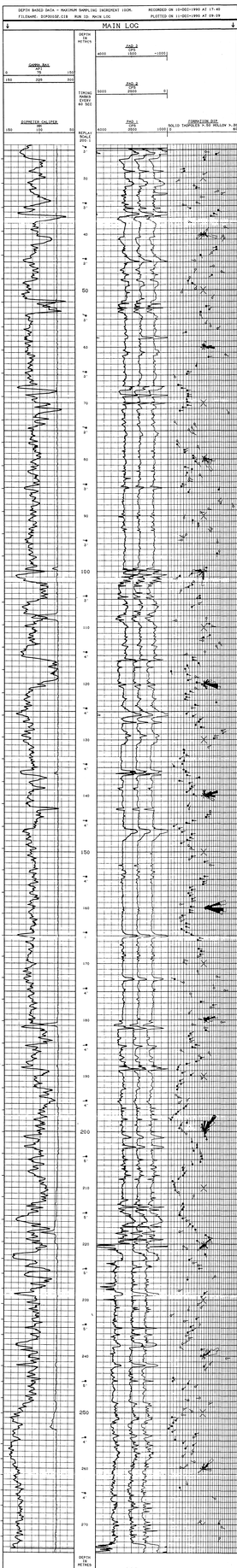
DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 100M. RECORDED ON 10-DEC-1990 AT 17:40
FILENAME: DIP0003E.C10 RUN ID: MAIN LOG PLOTTED ON 11-DEC-1990 AT 09:09

MAIN LOG



DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 100M. RECORDED ON 10-DEC-1990 AT 17:40
FILENAME: DIP0003E.C10 RUN ID: MAIN LOG PLOTTED ON 11-DEC-1990 AT 09:09

MAIN LOG

COMPANY	WESTERN CANADIAN MINING CORP.
WELL	DD90-03
FIELD	VELDWOOD COAL PROJ.
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA

Borehole:	0091-09
Client:	WESTERN CANADIAN MINING CORP.
Project:	HELIDADOO COAL PROJ.
Area:	BRITISH COLUMBIA
Country:	CANADA

FOCUSSED ELECTRIC
GAMMA RAY

SLIMLINE GRAPHICS UNIT

Permanent Datum: GROUND LEVEL, Elevation N/A				DF N/A	LOCATION:
Log measured from GROUND LEVEL, 0.0m above permanent datum				GF N/A	COUNTRY
Drilling measured from GROUND LEVEL, above permanent datum				KB N/A	
Date	17-JAN-1991				LSD N/A
Run Number	ONE				SEC
Depth-Driller	140.5m				TWP
Depth-Logger	140.2m				RGE
First Reading	140.5m				OTHER SERVICES
Last Reading	0.0m				CDL,MCS
Casing-Driller	6.0m				BRD
Casing-Logger	6.0m				
Bit Size	NQ 2				
Wtr/Mud Type	WATER				
Wtr/Mud Level	1.810M	N/A			
Density/Viscos	N/A	N/A			
Sample Source	PIT				
Rm @ Meas Temp	N/A				
Rmf @ Meas Temp	N/A				
Rmc @ Meas Temp	N/A				
Source of Rmf/Rmc	N/A	N/A			
Rm @ BHT	0.0 @ 0°C				
Time Since Circ	30 MIN.				
Max Rec Temp	0°C				
Equipment/Base	1504	NONE			
Recorded By	J.C.LATIMER				
Witnessed By	R.CROSSLAND				

$866

RUN	BOREHOLE RECORD			CASING RECORD			
NUMBER	BIT	FROM	TO	SIZE	WEIGHT	FROM	TO
ONE	NQ 2	6.0m	TD	HQ	N/A	SURFACE	6.0m

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
MSM-0103	1041/103			

REMARKS:

FOCUSSED ELECTRIC GAMMA RAY

SYSTEM CONFIGURATION DATES: LOGGED 1-FEB-1990 PROCESSED 1-FEB-1990 PLOTTED 24-AUG-1990

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MAIN LOG

DEPTH BASED DATA - MINIMUM SAMPLING INCREMENT 10CM — RECORDED ON 17-JAN-1991 11:21
FILENAME: MRGDEPTH.CIB — RUN 1D: MAIN LOG — PLOTTED ON 17-JAN-1991 AT 11:48

DEPTH IN METRES

GAMMA FROM DENSITY TOOL — API units — 0 (MIN) 150 (MAX)
BOREHOLE COMPENSATED FE OHM METRES — 10 (MIN) 10000 (MAX)
REPLAY SCALE 2001:1

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

DEPTH IN METRES

GAMMA FROM DENSITY TOOL — API units — 0 (MIN) 150 (MAX)
BOREHOLE COMPENSATED FE OHM METRES — 10 (MIN) 10000 (MAX)
REPLAY SCALE 2001:1

DEPTH BASED DATA - MINIMUM SAMPLING INCREMENT 10CM — RECORDED ON 17-JAN-1991 11:21
FILENAME: MRGDEPTH.CIB — RUN 1D: MAIN LOG — PLOTTED ON 17-JAN-1991 AT 11:38

MAIN LOG

REPEAT SECTION

DEPTH BASED DATA - MINIMUM SAMPLING INCREMENT 10CM — RECORDED ON 17-JAN-1991 11:18
FILENAME: MRGDEPTH.CIB — RUN 2D: REPEAT SECTION — PLOTTED ON 17-JAN-1991 AT 11:38

DEPTH IN METRES

GAMMA FROM DENSITY TOOL — API units — 0 (MIN) 150 (MAX)
BOREHOLE COMPENSATED FE OHM METRES — 10 (MIN) 10000 (MAX)
REPLAY SCALE 2001:1

130 140

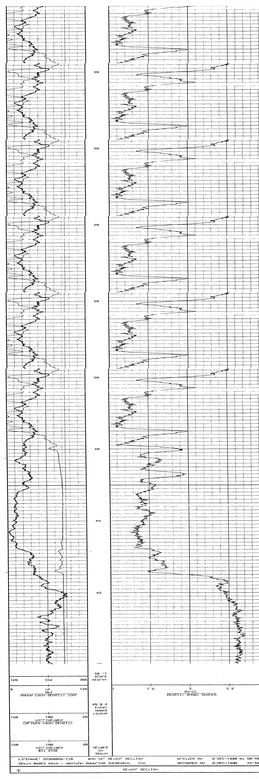
DEPTH IN METRES

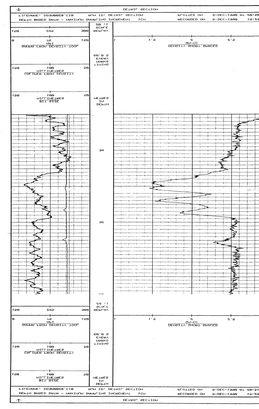
GAMMA FROM DENSITY TOOL — API units — 0 (MIN) 150 (MAX)
BOREHOLE COMPENSATED FE OHM METRES — 10 (MIN) 10000 (MAX)
REPLAY SCALE 2001:1

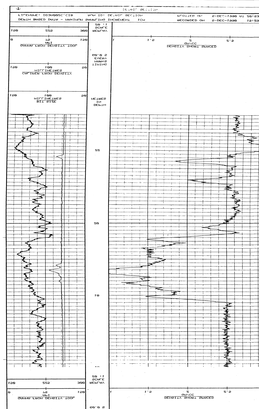
DEPTH BASED DATA - MINIMUM SAMPLING INCREMENT 10CM — RECORDED ON 17-JAN-1991 11:18
FILENAME: MRGDEPTH.CIB — RUN 2D: REPEAT SECTION — PLOTTED ON 17-JAN-1991 AT 11:37

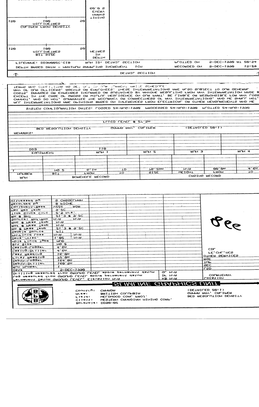
REPEAT SECTION

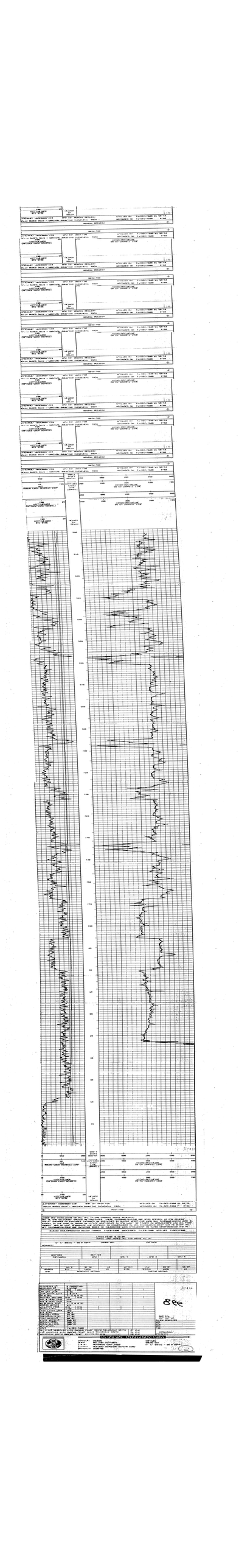
CLIENT	WESTERN CANADIAN MINING CORP.
BOREHOLE	0091-09
PROJECT	HELIDADOO COAL PROJ.
AREA	BRITISH COLUMBIA
COUNTRY	CANADA











Borehole: 2091-11
Client: WESTERN CANADIAN MINING CORP.
Field: HIGH GRADE COAL PROJ.
Area: BRITISH COLUMBIA
Country: CANADA

FOUGERES ELECTRIC
GAMMA RAY

SLIMLINE GRAPHICS UNIT

Permanent Datum GROUND LEVEL, Elevation N/A	LOG RUN 1
Log measured from GROUND LEVEL, above permanent datum	DF N/A
Drilling measured from GROUND LEVEL, above permanent datum	GL N/A
Date	21-JAN-1991
Run Number	ONE
Depth-Driller	155.1m
Depth-Logger	155.1m
Bottom Logged Int.	155.1m
Last Casing	6.3m
Casing-Driller	5.3m
Casing-Logger	5.3m
Bit Size	140 MM
Date First Type	21-JAN-1991
Fluid Density	1.0GCM N/A
Viscosity	N/A 1.10%
Sample Source	MIX
Rm @ Meas Temp	N/A
Rmf @ Meas Temp	N/A
Rmc @ Meas Temp	N/A
Source: Rmf/Rmc	N/A N/A
Rm @ BHT	N/A @ N/A
Time Since Circ	48 MIN
Max Rec Temp	N/A
Equipment Number	1009 RUN ONE
Recorded By	F.C.GIESBRECHT
Witnessed By	S.CHRISELMAN

LOCATION COORDINATES
100 S-W
SEC
TWP
RGE
OTHER SERVICES
CDL, CNL
MCG, BHC

B66

RUN NUMBER	BIT	BOREHOLE RECORD FROM	TO	CASING RECORD SIZE	WEIGHT	FROM	TO
ONE	140 MM	3.8m	TD	NQ	N/A	SURFACE	3.8m

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
MGA-CCB	184-118			

REMARKS:

FOUGERES ELECTRIC GAMMA RAY

SYSTEM CONFIGURATION DATED: LOGGED 1-FEB-1990 PROCESSED 1-FEB-1990 PLOTTED 11-JAN-1991

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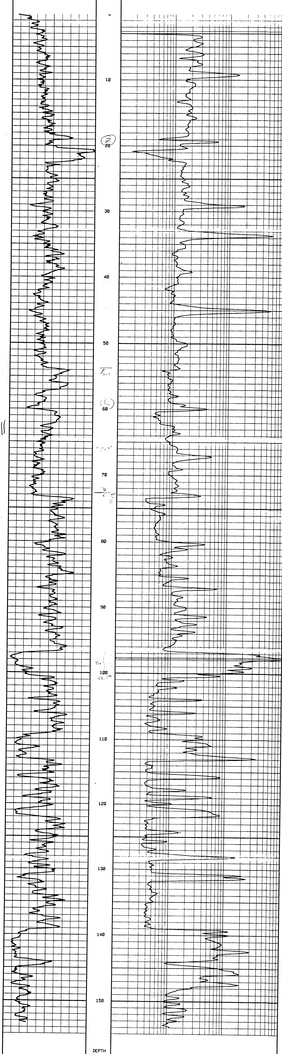
MAIN LOG

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 21-JAN-1991 12:24
FILENAME: MAGEO1M.C1B — RUN ID: MAIN LOG — PLOTTED ON 22-JAN-1991 AT 15:55

DEPTH IN METRES

GAMMA FROM DENSITY TOOL API 0 75 150 — BOREHOLE COMPENSATED FE OHM METRES 10 100 1000 10000

REPLAY SCALE 200:1



GAMMA FROM DENSITY TOOL API 0 75 150 — BOREHOLE COMPENSATED FE OHM METRES 10 100 1000 10000

REPLAY SCALE 200:1

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 21-JAN-1991 12:24
FILENAME: MAGEO1M.C1B — RUN ID: MAIN LOG — PLOTTED ON 22-JAN-1991 AT 15:53

MAIN LOG

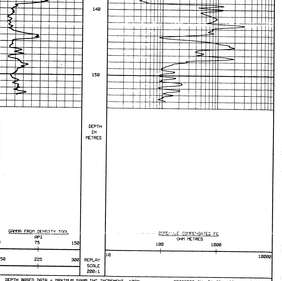
REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 21-JAN-1991 12:28
FILENAME: MAGEO1R.C1B — RUN ID: REPEAT SECTION — PLOTTED ON 22-JAN-1991 AT 15:53

DEPTH IN METRES

GAMMA FROM DENSITY TOOL API 0 75 150 — BOREHOLE COMPENSATED FE OHM METRES 10 100 1000 10000

REPLAY SCALE 200:1



GAMMA FROM DENSITY TOOL API 0 75 150 — BOREHOLE COMPENSATED FE OHM METRES 10 100 1000 10000

REPLAY SCALE 200:1

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 21-JAN-1991 12:28
FILENAME: MAGEO1R.C1B — RUN ID: REPEAT SECTION — PLOTTED ON 22-JAN-1991 AT 15:52

REPEAT SECTION

CLIENT	WESTERN CANADIAN MINING CORP.
BOREHOLE	2091-11
FIELD	HIGH GRADE COAL PROJ.
AREA	BRITISH COLUMBIA
COUNTRY	CANADA

Borehole:	DD90-03
Client:	WESTERN CANADIAN MINING CORP.
Field:	WELDWOOD COAL PROJ.
Area:	BRITISH COLUMBIA
Country:	CANADA

VERTICALITY ANALYSIS

SLIMLINE GRAPHICS UNIT

Permanent Datum GROUND LEVEL, Elevation N/A	KB N/A	Location COURTENAY
Log measured from GROUND LEVEL above permanent datum	DF N/A	
Drilling measured from GROUND LEVEL above permanent datum	GL N/A	

Date	10-DEC-1990	LSD
Run Number	1	SEC
Depth-Driller	276.7m	TWP
Depth-Logger	276.5m	RGE
First Reading	276.0m	OTHER SERVICES CDL, CNL, FE MCS, BRD
Last Reading	00.0m	
Casing-Driller	18.3m	
Casing-Logger	18.8m	
Bit Size	NQ 2	
Hole Fluid Type	MUD	
Dens./Visc.	1.03 N/A	
PH/Fluid Loss	N/A N/A	
Sample Source	PIT	
Rm @ Meas Temp	21.3 @ 7.8C	
Rmf @ Meas Temp	N/A	
Rmc @ Meas Temp	N/A	
Source: Rmf/Rmc	N/A N/A	
Rm @ BHT	21.3 @ 7.8C	
Time Since Circ	9.0 hrs.	
Max Rec Temp	7.8C	
Equipment/Base	V222 RDR	
Recorded by	B PICHE	
Witnessed by	S CASSELMAN	

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BPB VERTICALITY ANALYSIS INTERPRETATION NOTES

1. ALL PLOTTED OUTPUT IS AUTOMATICALLY SCALED TO OBTAIN THE BEST VISUAL EFFECT WITHIN THE PHYSICAL SPACE AVAILABLE. THE MAXIMUM SCALES BEING 50000:1 (METRIC) AND 48000:1 (IMPERIAL). AND THE MINIMUM 1:1.

2. THE ANALYSIS IS DERIVED BY INTEGRATING 10CM. SAMPLED DATA DOWN THE BOREHOLE. THE LISTING SUPPLIED WILL CONTAIN A MAXIMUM OF 200 POINTS IN MULTIPLES OF 1. 2. 5. 10. 20. 50 OR 100 METRES/ FEET DEPENDING ON THE TOTAL RANGE OF THE ANALYSIS. HOWEVER THE ANALYSIS IS CALCULATED FOR THE ENTIRE RANGE OF THE BOREHOLE AND THE FINAL BOREHOLE POSITION IS INCLUDED IN THE LISTING.

3. COMPUTED VERTICALITY MAY ONLY BE FULLY DERIVED IN OPEN SECTIONS OF THE BOREHOLE. AWAY FROM THE INFLUENCE OF ANY UNUSUAL MAGNETIC EFFECTS (AS THE AZIMUTH CALCULATIONS ARE DERIVED FROM THREE SOLID STATE MAGNETOMETERS). SO THE ANALYSIS WILL GENERALLY BEGIN AT THE END OF THE CASING AND ALL BOREHOLE POSITIONAL INFORMATION WILL RELATE TO THIS DEPTH.

4. UP TO TEN CROSS SECTIONS MAY BE REQUESTED FOR ANY BOREHOLE TO BE DISPLAYED AT ANY SCALE (THE DEFAULT SCALE IS THAT OF THE CROSS-SECTION FOR THE ENTIRE HOLE).

5. GIVEN BELOW IS A FULL DESCRIPTION OF THE PARAMETERS DISPLAYED ON THE ENSUING LISTING:

LOG DEPTH	THE DEPTH RECORDED ON THE FIELD LOGS FOR THE BOREHOLE.
TRUE DEPTH	THE TRUE VERTICAL DEPTH CORESPONDING TO THE ABOVE DEPTH. CORRECTED FROM THE START OF THE ANALYSIS.
HOLE TILT AND AZIMUTH	THE SAMPLED BOREHOLE ORIENTATION.
AXIAL COORDINATES	THE COORDINATES NORTH AND EAST FROM THE TARGET ORIGIN.
POLAR COORDINATES	THE POLAR. OR RADIAL COORDINATES OF THE BOREHOLE.

N.B. THE REFERENCE POINT FOR ALL BEARING ANGLES ON THIS LISTING IS GIVEN AT THE TOP OF EACH SHEET.

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT. AND DO NOT. GUARENTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS. AND WE SHALL NOT. EXCEPT IN THE CASE OF GROSS OR WILFUL NEGLIGENCE ON OUR PART. BE LIABLE OR RESPONSIBLE FOR ANY LOSS. COSTS. DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS. AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

DD90-03 VERTICALITY DATA LISTING — ALL CO-ORDINATES WITH RESPECT TO TRUE NORTH

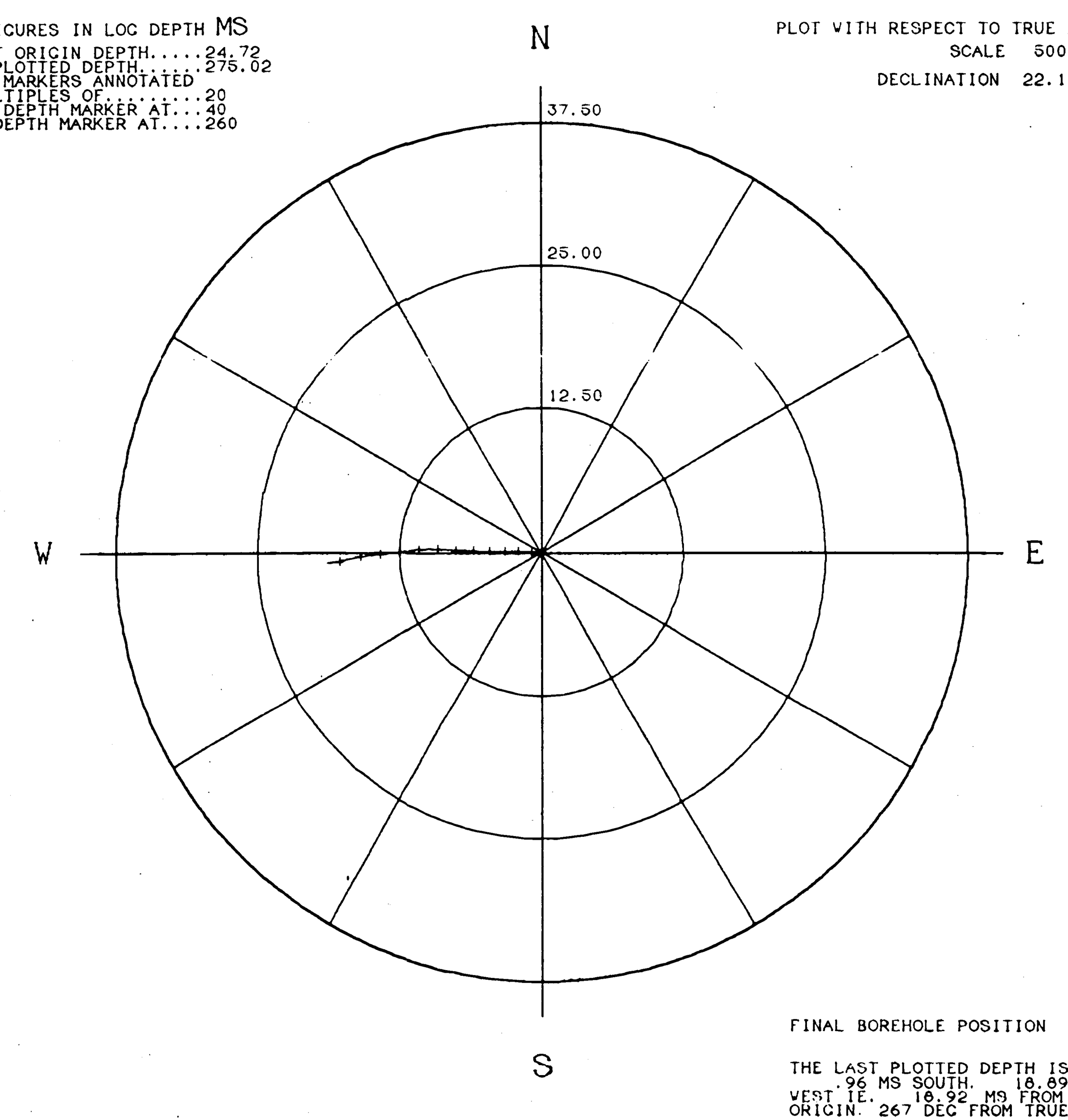
DATE PROCESSED: 11-DEC-1990
DATE LOGGED: 10-DEC-1990

DEPTHS LOG	TRUE	BOREHOLE TILT	AZI	AXIAL CO-ORDS NORTH	EAST	POLAR BRG	RADIUS
26.00	26.00	4.0	287	0.02	-0.07	290	0.07
28.00	27.99	3.0	268	0.03	-0.20	279	0.20
30.00	29.99	3.5	266	0.04	-0.31	277	0.32
32.00	31.99	3.7	289	0.05	-0.41	277	0.42
34.00	33.98	3.5	266	0.07	-0.55	277	0.55
36.00	35.98	3.3	275	0.07	-0.66	276	0.66
38.00	37.98	2.4	283	0.06	-0.77	275	0.77
40.00	39.97	4.0	278	0.10	-0.89	276	0.89
42.00	41.97	3.2	265	0.09	-1.01	275	1.02
44.00	43.97	3.6	273	0.10	-1.13	275	1.13
46.00	45.96	2.8	288	0.10	-1.23	275	1.23
48.00	47.96	4.1	276	0.13	-1.36	276	1.36
50.00	49.95	3.3	264	0.13	-1.48	275	1.49
52.00	51.95	3.3	275	0.13	-1.59	275	1.60
54.00	53.95	2.7	265	0.13	-1.71	274	1.72
56.00	55.94	4.2	282	0.15	-1.82	275	1.83
58.00	57.94	3.4	263	0.15	-1.96	274	1.96
60.00	59.94	3.3	271	0.14	-2.06	274	2.07
62.00	61.93	3.2	260	0.14	-2.19	274	2.19
64.00	63.93	3.2	287	0.15	-2.28	274	2.29
66.00	65.93	3.9	271	0.17	-2.42	274	2.42
68.00	67.92	3.3	264	0.16	-2.54	274	2.55
70.00	69.92	3.3	268	0.15	-2.66	273	2.66
72.00	71.92	3.9	274	0.15	-2.77	273	2.78
74.00	73.91	3.5	261	0.15	-2.91	273	2.91
76.00	75.91	3.8	288	0.16	-3.01	273	3.02
78.00	77.90	4.2	270	0.18	-3.16	273	3.17
80.00	79.90	4.0	266	0.17	-3.30	273	3.30
82.00	81.89	3.4	263	0.15	-3.42	273	3.43
84.00	83.89	3.6	263	0.14	-3.55	272	3.55
86.00	85.89	3.7	266	0.13	-3.67	272	3.68
88.00	87.88	3.8	270	0.13	-3.80	272	3.80
90.00	89.88	3.7	270	0.13	-3.93	272	3.93
92.00	91.87	3.8	270	0.13	-4.06	272	4.06
94.00	93.87	3.9	272	0.14	-4.19	272	4.20
96.00	95.86	4.0	274	0.15	-4.33	272	4.33
98.00	97.86	4.0	274	0.16	-4.47	272	4.48
100.00	99.85	4.0	276	0.17	-4.61	272	4.62
102.00	101.85	3.8	268	0.17	-4.75	272	4.75
104.00	103.84	3.7	270	0.17	-4.88	272	4.89
106.00	105.84	3.8	264	0.16	-5.02	272	5.02
108.00	107.84	3.8	264	0.14	-5.15	272	5.15
110.00	109.83	4.1	272	0.15	-5.29	272	5.29
112.00	111.83	4.3	273	0.16	-5.44	272	5.44
114.00	113.82	4.3	273	0.17	-5.58	272	5.59
116.00	115.81	4.4	273	0.18	-5.74	272	5.74
118.00	117.81	4.3	274	0.19	-5.89	272	5.89
120.00	119.80	4.3	272	0.20	-6.04	272	6.04
122.00	121.80	4.3	274	0.21	-6.19	272	6.20
124.00	123.79	4.3	273	0.22	-6.34	272	6.35
126.00	125.78	4.3	273	0.23	[illegible]	[illegible]	[illegible]
128.00	127.78	4.4	275	0.24	-6.64	272	6.65
130.00	129.77	4.2	273	0.25	-6.80	272	6.80
132.00	131.77	4.5	277	0.27	-6.95	272	6.95
134.00	133.76	4.5	274	0.28	-7.10	272	7.11
136.00	135.76	4.4	272	0.28	-7.26	272	7.26
138.00	137.75	4.5	270	0.29	-7.42	272	7.42
140.00	139.74	4.4	271	0.30	-7.58	272	7.58
142.00	141.74	4.1	270	0.30	-7.74	272	7.74
144.00	143.73	4.6	272	0.31	-7.89	272	7.90
146.00	145.72	4.5	273	0.32	-8.05	272	8.06
148.00	147.72	4.7	273	0.32	-8.21	272	8.22
150.00	149.71	4.7	272	0.33	-8.37	272	8.38
152.00	151.70	4.5	272	0.34	-8.53	272	8.54
154.00	153.70	4.8	274	0.35	-8.70	272	8.70
156.00	155.69	4.6	271	0.35	-8.86	272	8.87
158.00	157.68	4.8	270	0.36	-9.02	272	9.03
160.00	159.68	4.5	272	0.36	-9.19	272	9.19
162.00	161.67	4.6	272	0.36	-9.35	272	9.36
164.00	163.66	4.8	272	0.37	-9.51	272	9.52
166.00	165.66	4.6	269	0.37	-9.68	272	9.68
168.00	167.65	4.7	271	0.38	-9.84	272	9.85
170.00	169.64	4.8	269	0.38	-10.01	272	10.01
172.00	171.64	4.7	264	0.37	-10.17	272	10.18
174.00	173.63	4.9	267	0.36	-10.34	272	10.35
176.00	175.62	5.1	266	0.35	-10.51	272	10.52
178.00	177.61	5.0	269	0.34	-10.69	272	10.70
180.00	179.61	4.8	274	0.35	-10.86	272	10.87
182.00	181.60	4.9	262	0.34	-11.03	272	11.04
184.00	183.59	4.8	260	0.31	-11.20	272	11.20
186.00	185.59	4.8	261	0.28	-11.36	271	11.37
188.00	187.58	4.8	260	0.25	-11.53	271	11.53
190.00	189.57	4.8	259	0.22	-11.69	271	11.70
192.00	191.56	5.0	259	0.19	-11.86	271	11.86
194.00	193.56	4.8	258	0.15	-12.02	271	12.02
196.00	195.55	4.8	257	0.12	-12.18	271	12.18
198.00	197.54	4.7	259	0.08	-12.35	270	12.35
200.00	199.54	4.8	258	0.05	-12.51	270	12.51
202.00	201.53	4.7	258	0.02	-12.67	270	12.67
204.00	203.52	5.2	260	-0.01	-12.84	270	12.84
206.00	205.51	5.0	261	-0.04	-13.01	270	13.01
208.00	207.51	5.0	258	-0.07	-13.18	270	13.18
210.00	209.50	4.8	258	-0.11	-13.35	270	13.35
212.00	211.49	4.8	258	-0.14	-13.52	269	13.52
214.00	213.49	5.1	259	-0.18	-13.69	269	13.69
216.00	215.48	4.9	264	-0.20	-13.86	269	13.86
218.00	217.47	4.9	264	-0.22	-14.03	269	14.03
220.00	219.46	4.9	269	-0.24	-14.20	269	14.20
222.00	221.46	5.1	268	-0.24	-14.37	269	14.38
224.00	223.45	5.1	264	-0.25	-14.55	269	14.55
226.00	225.44	5.1	263	-0.27	-14.73	269	14.73
228.00	227.43	5.3	267	-0.28	-14.91	269	14.91
230.00	229.42	5.1	263	[illegible]	-15.08	[illegible]	[illegible]
232.00	231.42	5.2	262	-0.32	-15.26	269	15.27
234.00	233.41	5.3	263	-0.35	-15.44	269	15.45
236.00	235.40	5.2	259	-0.38	-15.62	269	15.63
238.00	237.39	5.2	259	-0.41	-15.80	269	15.81
240.00	239.38	5.3	260	-0.44	-15.98	268	15.99
242.00	241.37	5.4	258	-0.47	-16.16	268	16.17
244.00	243.36	5.6	257	-0.51	-16.35	268	16.36
246.00	245.35	5.8	259	-0.55	-16.55	268	16.56
248.00	247.34	5.6	260	-0.59	-16.74	268	16.75
250.00	249.33	5.7	260	-0.62	-16.94	268	16.95
252.00	251.32	5.6	259	-0.66	-17.13	268	17.14
254.00	253.32	4.8	255	-0.70	-17.30	268	17.32
256.00	255.31	4.7	253	-0.74	-17.46	268	17.48
258.00	257.30	4.7	253	-0.78	-17.62	267	17.64
260.00	259.30	4.6	255	-0.83	-17.78	267	17.80
262.00	261.29	4.6	265	-0.86	-17.93	267	17.95
264.00	263.28	4.3	276	-0.85	-18.08	267	18.10
266.00	265.28	4.5	266	-0.86	-18.23	267	18.26
268.00	267.27	4.4	267	-0.88	-18.38	267	18.40
270.00	269.27	4.2	265	-0.89	-18.53	267	18.55
272.00	271.26	4.3	256	-0.91	-18.67	267	18.70
274.00	273.26	4.2	258	-0.94	-18.82	267	18.84
276.00	274.26	4.1	261	-0.96	-18.89	267	18.92

CROSS SECTION

ALL FIGURES IN LOG DEPTH MS
TARGET ORIGIN DEPTH.....24.72
LAST PLOTTED DEPTH......275.02
DEPTH MARKERS ANNOTATED IN MULTIPLES OF.........20
FIRST DEPTH MARKER AT...40
LAST DEPTH MARKER AT....260

PLOT WITH RESPECT TO TRUE NORTH
SCALE 500:1
DECLINATION 22.1 DEG.



FINAL BOREHOLE POSITION

THE LAST PLOTTED DEPTH IS AT .96 MS SOUTH. 18.89 MS WEST IE. 18.92 MS FROM THE ORIGIN. 267 DEG FROM TRUE NORTH

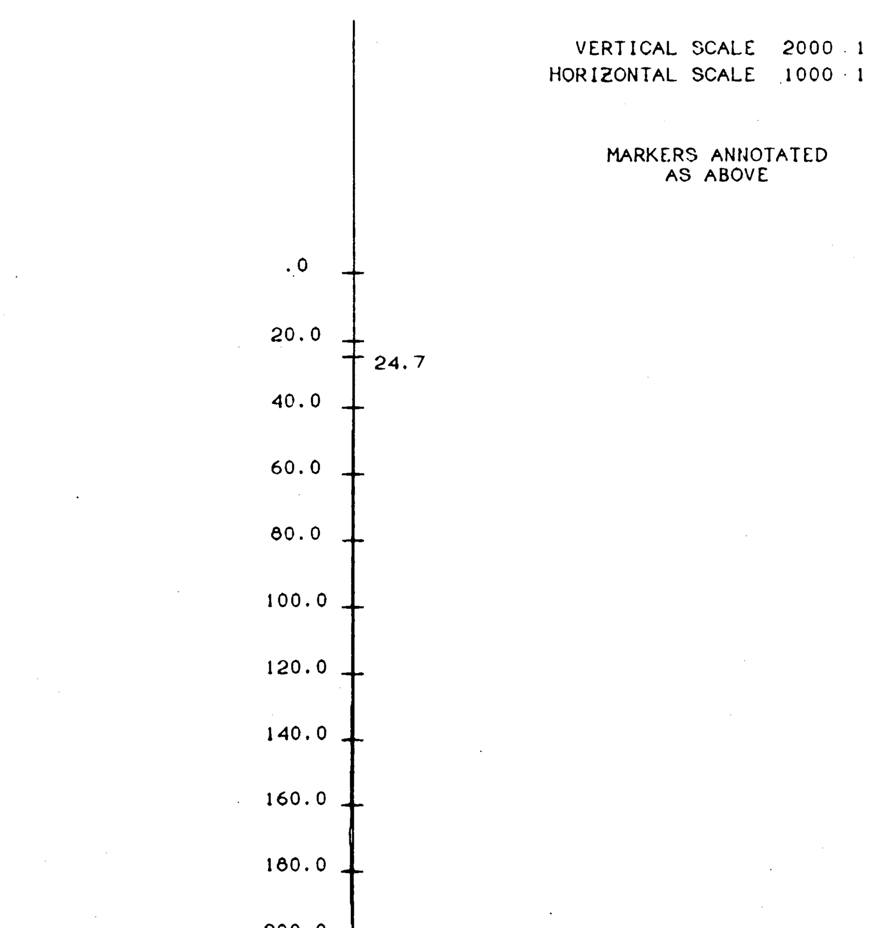
VERTICAL SECTIONS

(TRUE DEPTH VS DISPLACEMENT)

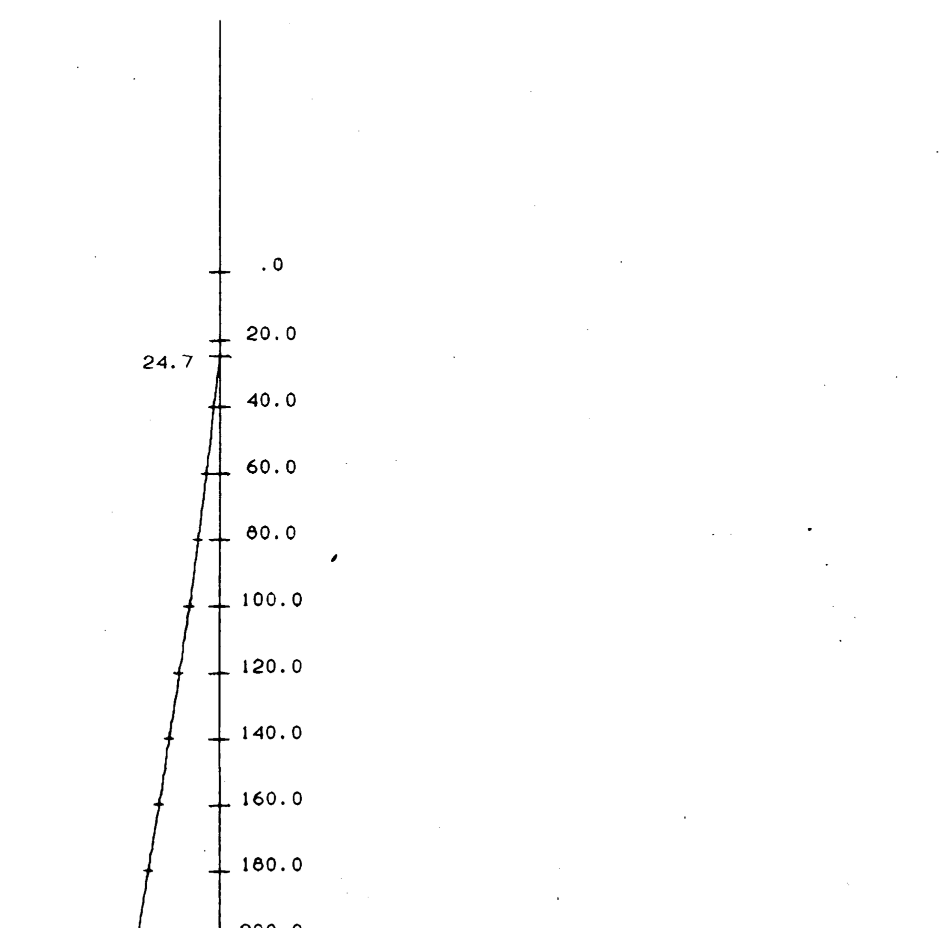
VERTICAL SCALE 2000:1
HORIZONTAL SCALE 1000:1

MARKERS ANNOTATED AS ABOVE

N-S SECTION

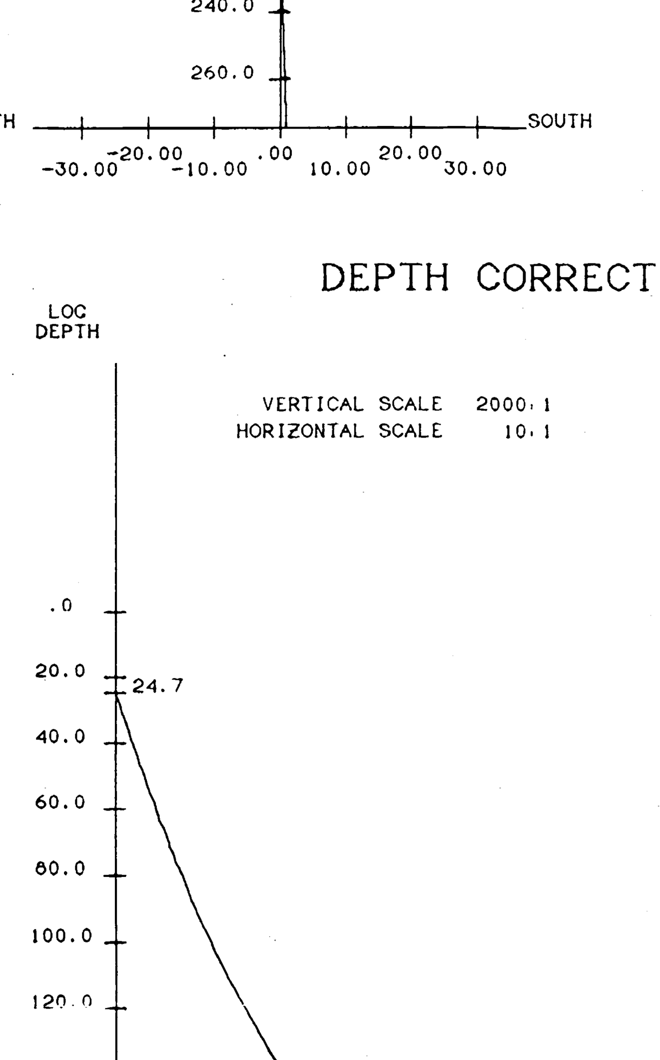


E-W SECTION



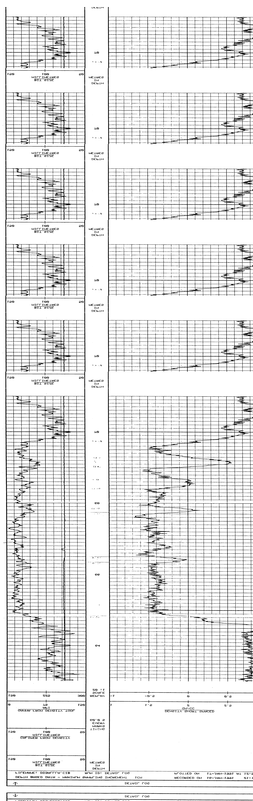
DEPTH CORRECTION ANALYSIS

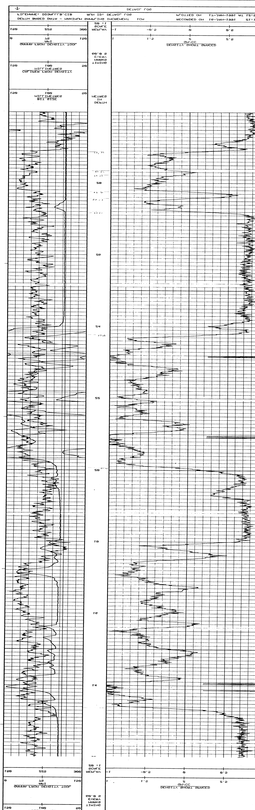
VERTICAL SCALE 2000:1
HORIZONTAL SCALE 10:1

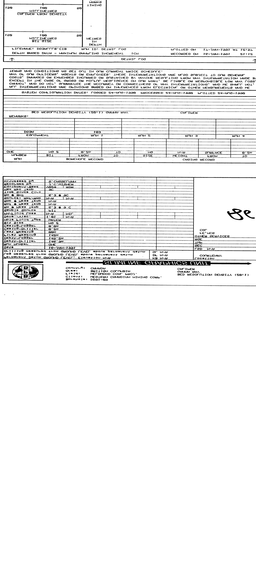


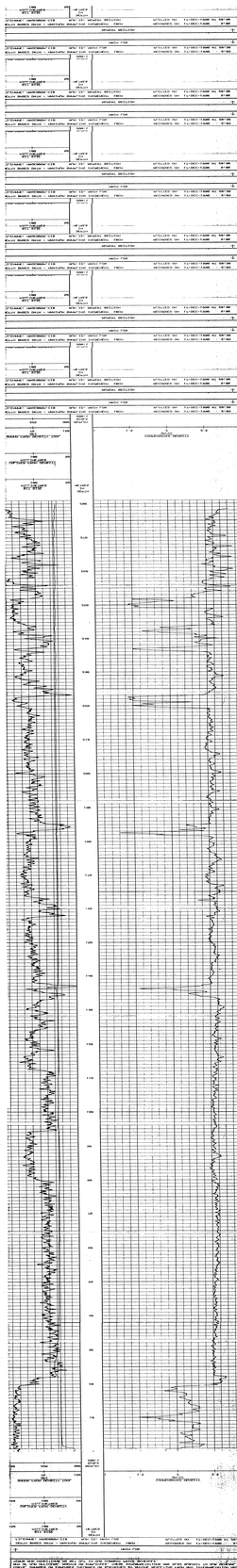
DEPTHS: LOG	TRUE	DEPTHS: LOG	TRUE
26.00	26.00	166.00	165.66
28.00	27.99	168.00	167.65
30.00	29.99	170.00	169.64
32.00	31.99	172.00	171.64
34.00	33.98	174.00	173.63
36.00	35.98	176.00	175.62
38.00	37.98	178.00	177.61
40.00	39.97	180.00	179.61
42.00	41.97	182.00	181.60
44.00	43.97	184.00	183.59
46.00	45.96	186.00	185.59
48.00	47.96	188.00	187.58
50.00	49.95	190.00	189.57
52.00	51.95	192.00	191.56
54.00	53.95	194.00	193.56
56.00	55.94	196.00	195.55
58.00	57.94	198.00	197.54
60.00	59.94	200.00	199.54
62.00	61.93	202.00	201.53
64.00	63.93	204.00	203.52
66.00	65.93	206.00	205.51
68.00	67.92	208.00	207.51
70.00	69.92	210.00	209.50
72.00	71.92	212.00	211.49
74.00	73.91	214.00	213.49
76.00	75.91	216.00	215.48
78.00	77.90	218.00	217.47
80.00	79.90	220.00	219.46
82.00	81.89	222.00	221.46
84.00	83.89	224.00	223.45
86.00	85.89	226.00	225.44
88.00	87.88	228.00	227.43
90.00	89.88	230.00	229.42
92.00	91.87	232.00	231.42
94.00	93.87	234.00	233.41
96.00	95.86	236.00	235.40
98.00	97.86	238.00	237.39
100.00	99.85	240.00	239.38
102.00	101.85	242.00	241.37
104.00	103.84	244.00	243.36
106.00	105.84	246.00	245.35
108.00	107.84	248.00	247.34
110.00	109.83	250.00	249.33
112.00	111.83	252.00	251.32
114.00	113.82	254.00	253.32
116.00	115.81	256.00	255.31
118.00	117.81	258.00	257.30
120.00	119.80	260.00	259.30
122.00	121.80	262.00	261.29
124.00	123.79	264.00	263.28
126.00	125.78	266.00	265.28
128.00	127.78	268.00	267.27
130.00	129.77	270.00	269.27
132.00	131.77	272.00	271.26
134.00	133.76	274.00	273.26
136.00	135.76	275.02	274.27
138.00	137.75		
140.00	139.74		
142.00	141.74		
144.00	143.73		
146.00	145.72		
148.00	147.72		
150.00	149.71		
152.00	151.70		
154.00	153.70		
156.00	155.69		
158.00	157.68		
160.00	159.68		
162.00	161.67		
164.00	163.66		

COMPANY	WESTERN CANADIAN MINING CORP.
WELL	DD90-03
FIELD	WELDWOOD COAL PROJ.
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA









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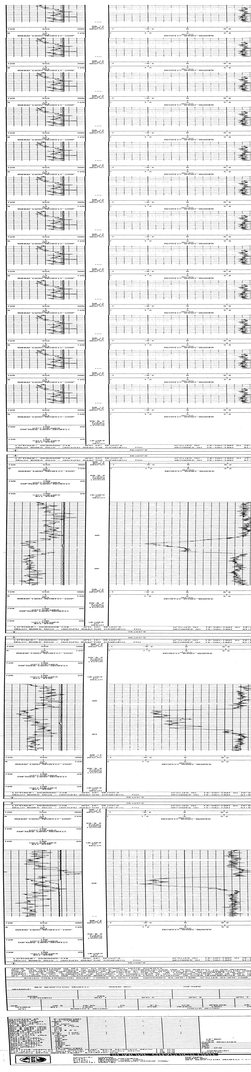

Borehole:	DD91-19	BED RESOLUTION DENSITY (20:1)
Client:	WESTERN CANADIAN MINING CORP.	GAMMA RAY
Field:	WELDWOOD COAL PROJ.	CALIPER
Area:	BRITISH COLUMBIA	
Country:	CANADA	

SLIMLINE GRAPHICS UNIT

Permanent Datum GROUND LEVEL, Elevation N/A	KB N/A	Location
Log measured from GROUND LEVEL above permanent datum	DF N/A	COURTENAY
Drilling measured from GROUND LEVEL above permanent datum	GL N/A	

Date	5-FEB-1991			LSD N/A
Run Number	ONE			SEC
Depth-Driller	121.9m			TWP
Depth-Logger	121.5m			RGE
First Reading	121.3m			OTHER SERVICES
Last Reading	0.0m			CNL, MCS
Casing-Driller	16.7m			FE
Casing-Logger	16.7m			
Bit Size	NQ 2			
Hole Fluid Type	WATER			
Dens./Visc.	1.02GM | N/A			
PH/Fluid Loss	N/A | NIL			
Sample Source	PIT			
Rm @ Meas Temp	N/A			
Rmf @ Meas Temp	N/A			
Rmc @ Meas Temp	N/A			
Source: Rmf/Rmc	N/A | N/A			
Rm @ BHT	6.3 @ 9c			
Time Since Circ	30 MIN			
Max Rec Temp	9C			
Equipment/Base	VB29 | RDR			
Recorded by	J.C.WISNER			
Witnessed by	S.CASSELMAN			

RUN NUMBER	BOREHOLE RECORD BIT	FROM	TO	CASING RECORD SIZE	WEIGHT	FROM	TO
ONE	NQ 2	16.7m	TD	NQ	N/A	SURFACE	16.7m

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
CCS	110			

REMARKS:
BED RESOLUTION DENSITY (20:1) GAMMA RAY CALIPER

SYSTEM CONFIGURATION DATES: LOGGED 11-JAN-1991 PROCESSED 11-JAN-1991 PLOTTED 11-JAN-1991

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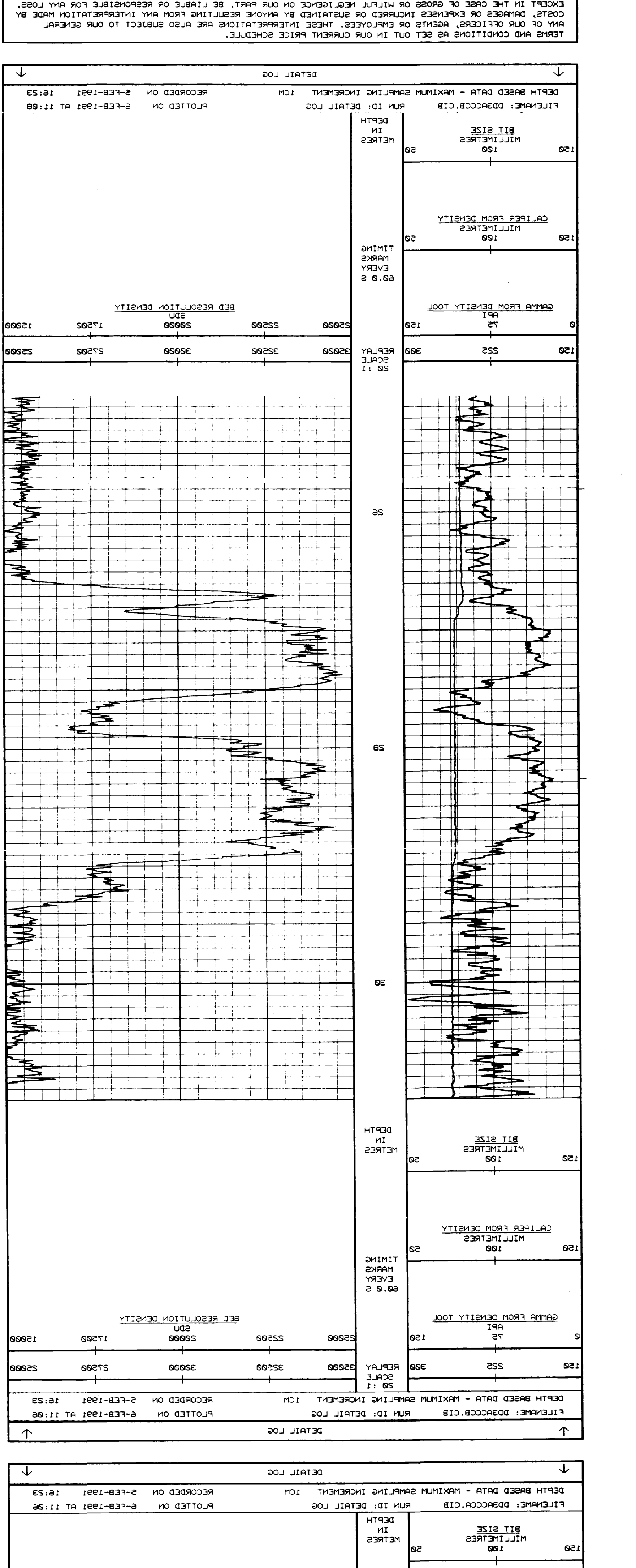
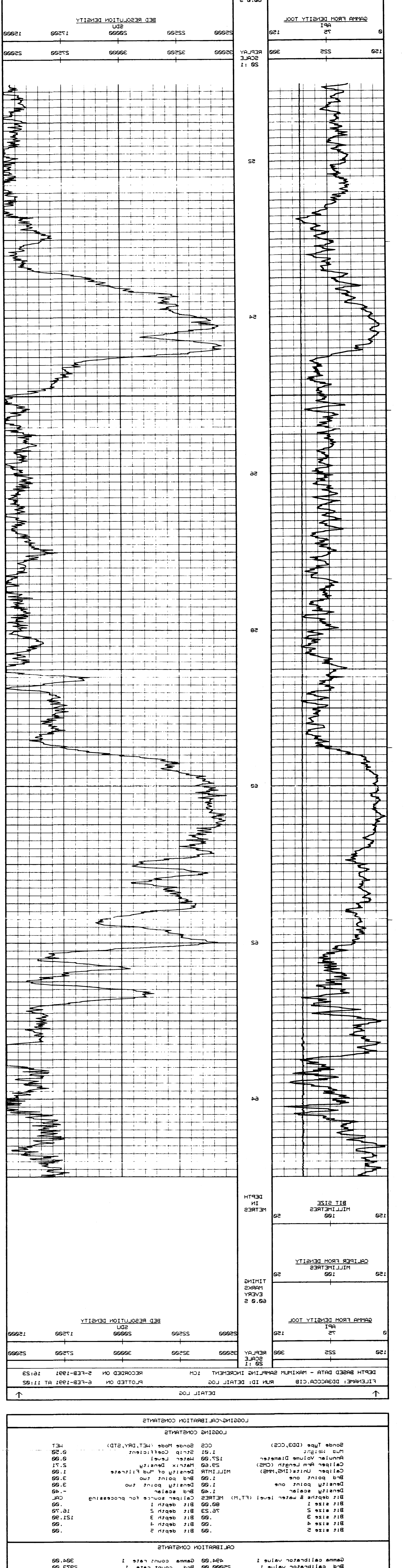
DETAIL LOG

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 1CM RECORDED ON 5-FEB-1991 16:23
FILENAME: DD3ACCCB.CIB RUN ID: DETAIL LOG PLOTTED ON 6-FEB-1991 AT 11:08



DETAIL LOG

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 1CM RECORDED ON 5-FEB-1991 16:23
FILENAME: DD3ACCCA.CIB RUN ID: DETAIL LOG PLOTTED ON 6-FEB-1991 AT 11:02



DETAIL LOG

LOGGING/CALIBRATION CONSTANTS

LOGGING CONSTANTS

Sonde Type (DD3,CCS)	CCS	Sonde Mode (WET,DRY,STD)	WET
Mud Weight	1.01	Strip Coefficient	0.50
Annular Volume Diameter	127.00	Water Level	0.00
Caliper Arm Length (CMS)	29.60	Matrix Density	2.71
Caliper Units(INS,MMS)	MILLIMTR	Density of Mud Filtrate	1.00
Brd point one	1.00	Brd point two	3.00
Density point one	1.00	Density point two	3.00
Density scalar	1.40	Brd scalar	-.40
Bit depths & water level (FT,M)	METRES	Caliper source for processing	CAL
Bit size 1	80.00	Bit depth 1	.00
Bit size 2	76.23	Bit depth 2	16.70
Bit size 3	.00	Bit depth 3	121.90
Bit size 4	.00	Bit depth 4	.00
Bit size 5	.00	Bit depth 5	.00

CALIBRATION CONSTANTS

Gamma calibrator value 1	494.00	Gamma count rate 1	304.00
Brd calibrator value 1	25000.00	Brd count rate 1	2973.00
Brd calibrator value 2	.00	Brd count rate 2	.00
Lsd calibrator value 1	10300.00	Lsd count rate 1	1503.30
Caliper ring size 1	76.20	Caliper count for ring 1	518.00
Caliper ring size 2	101.60	Caliper count for ring 2	573.00
Caliper ring size 3	127.00	Caliper count for ring 3	627.00
Caliper ring size 4	152.40	Caliper count for ring 4	680.00
Caliper ring size 5	203.20	Caliper count for ring 5	737.00
Caliper ring size 6	254.00	Caliper count for ring 6	797.00

CLIENT	WESTERN CANADIAN MINING CORP.
BOREHOLE	DD91-19
FIELD	WELDWOOD COAL PROJ.
AREA	BRITISH COLUMBIA
COUNTRY	CANADA

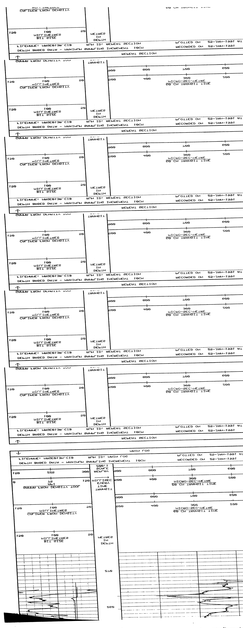
CALIBRATION CONSTANTS

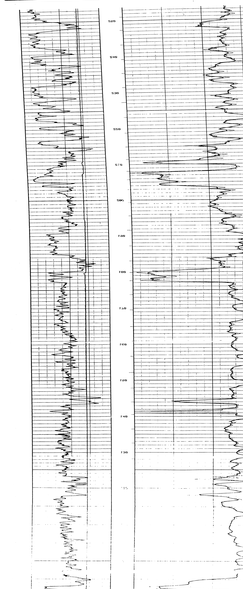
Gamma calibrator value 1	494.00	Gamma count rate 1	304.00
Brd calibrator value 1	25000.00	Brd count rate 1	2973.00
Brd calibrator value 2	.00	Brd count rate 2	.00
Lsd calibrator value 1	10300.00	Lsd count rate 1	1503.30
Caliper ring size 1	76.20	Caliper count for ring 1	518.00
Caliper ring size 2	101.60	Caliper count for ring 2	573.00
Caliper ring size 3	127.00	Caliper count for ring 3	627.00
Caliper ring size 4	152.40	Caliper count for ring 4	680.00
Caliper ring size 5	203.20	Caliper count for ring 5	737.00
Caliper ring size 6	254.00	Caliper count for ring 6	797.00

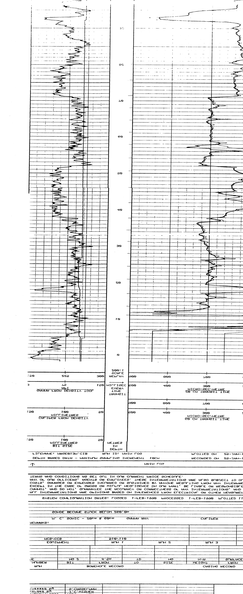
CLIENT	WESTERN CANADIAN MINING CORP.
BOREHOLE	DD91-19
FIELD	WELDWOOD COAL PROJ.
AREA	BRITISH COLUMBIA
COUNTRY	CANADA

CALIBRATION CONSTANTS

Gamma calibrator value 1	494.00	Gamma count rate 1	304.00
Brd calibrator value 1	25000.00	Brd count rate 1	2973.00







Borehole: DD91-28
Client: WESTERN CANADIAN MINING CORP.
Field: WELDWOOD COAL PROJ.
Area: BRITISH COLUMBIA
Country: CANADA

M. C. SONIC - 20cm & 60cm
GAMMA RAY
CALIPER

SLIM LINE GRAPHICS UNIT

Permanent Datum GROUND LEVEL, Elevation N/A	Kg N/A	Location	
Log measured from GROUND LEVEL above permanent datum	DF N/A	COUNTRY	
Drilling measured from GROUND LEVEL above permanent datum	G. N/A	LSD N/A	
Date 7-FEB-1991		SEC	
Run Number ONE		TWP	
Depth-Driller 99.6m		RGE	
Depth-Logger 99.3m		OTHER SERVICES	
First Reading 98.0m		CCS, CNL	
Last Reading 8.3m		FE,BRD	
Casing-Driller 17.3m			
Casing-Logger 17.3m			
Bit Size NQ 2			
Type Fluid in Hole WATER			
PH/Viscosity 8.0@20F N/A			
Fluid Loss N/A N/L			
Source of Sample PIT			
Rm @ Meas Temp N/A			
Rmf @ Meas Temp N/A			
Source: Rmf/Rmc N/A N/A			
Rm @ BHT 0.2 @ 9C			
Time Since Circ 36 MIN			
Max Rec Temp 9C			
Equipment/Base VMON/1 MOM			
Recorded By J.L.HEIMER			
Witnessed By S.CRABBLMAN			

RUN NUMBER	BOREHOLE RECORD BIT	FROM	TO	CASING RECORD SIZE	WEIGHT	FROM	TO
ONE	NQ 2	17.3m	TD	NQ	N/A	SURFACE	17.3m

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
MCS-CCS	318/118			

REMARKS:

M. C. SONIC - 20cm & 60cm GAMMA RAY CALIPER

SYSTEM CONFIGURATION DATE(S): LOGGED 1-FEB-1990 PROCESSED 1-FEB-1990 PLOTTED 11-JAN-1991

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MAIN LOG

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 7-FEB-1991 0:53
FILENAME: MAGE02M.CIB RUN ID: MAIN LOG — PLOTTED ON 7-FEB-1991 AT 10:17

DEPTH IN METRES

CALIPER FROM DENSITY MILLIMETRES 100 50

60 CM TRANSIT TIME MICRO-SEC/METRE 500 400 300 200 100

GAMMA FROM DENSITY TOOL API 75 150 225 300

TRANSIT TIME EVERY MILLISEC

20 CM TRANSIT TIME MICRO-SEC/METRE 500 400 300 200 100

REPLAY SCALE 200:1 900 800 700 600 500

0 10 20 30 40 50 60 70 80 90

DEPTH IN METRES

CALIPER FROM DENSITY MILLIMETRES 100 50

60 CM TRANSIT TIME MICRO-SEC/METRE 500 400 300 200 100

GAMMA FROM DENSITY TOOL API 75 150 225 300

TRANSIT TIME EVERY MILLISEC

20 CM TRANSIT TIME MICRO-SEC/METRE 500 400 300 200 100

REPLAY SCALE 200:1 900 800 700 600 500

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 7-FEB-1991 0:53
FILENAME: MAGE02M.CIB RUN ID: MAIN LOG — PLOTTED ON 7-FEB-1991 AT 10:14

MAIN LOG

REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 7-FEB-1991 0:49
FILENAME: MAGE02M.CIB RUN ID: REPEAT SECTION — PLOTTED ON 7-FEB-1991 AT 10:14

DEPTH IN METRES

CALIPER FROM DENSITY MILLIMETRES 100 50

60 CM TRANSIT TIME MICRO-SEC/METRE 500 400 300 200 100

GAMMA FROM DENSITY TOOL API 75 150 225 300

TRANSIT TIME EVERY MILLISEC

20 CM TRANSIT TIME MICRO-SEC/METRE 500 400 300 200 100

REPLAY SCALE 200:1 900 800 700 600 500

90

DEPTH IN METRES

CALIPER FROM DENSITY MILLIMETRES 100 50

60 CM TRANSIT TIME MICRO-SEC/METRE 500 400 300 200 100

GAMMA FROM DENSITY TOOL API 75 150 225 300

TRANSIT TIME EVERY MILLISEC

20 CM TRANSIT TIME MICRO-SEC/METRE 500 400 300 200 100

REPLAY SCALE 200:1 900 800 700 600 500

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 7-FEB-1991 0:49
FILENAME: MAGE02M.CIB RUN ID: REPEAT SECTION — PLOTTED ON 7-FEB-1991 AT 10:13

REPEAT SECTION

CLIENT	WESTERN CANADIAN MINING CORP.
BOREHOLE	DD91-28
FIELD	WELDWOOD COAL PROJ.
AREA	BRITISH COLUMBIA
COUNTRY	CANADA

Borehole: DDH-98
Client: WESTERN CANADIAN MINING CORP.
Field: HELMSMAN COAL PROJ.
Area: BRITISH COLUMBIA
Country: CANADA

FOCUSSED ELECTRIC
GAMMA RAY

SLIMLINE GRAPHICS UNIT

Permanent Datum: GROUND LEVEL, Elevation: N/A					KB: N/A	LOCATION
Log measured from: GROUND LEVEL, above permanent datum					DF: N/A	COURTENAY
Drilling measured from: GROUND LEVEL, above permanent datum					G.L.: N/A	
Date	6-FEB-1991					LSD: N/A
Run Number	ONE					SEC
Depth-Driller	121.9m					TWP
Depth-Logger	120.5m					RGE
First Reading	120.3m					OTHER SERVICES
Last Reading	18.7m					GDL-CAL
Casing-Driller	18.7m					HOL-BHC
Casing-Logger	18.7m					
Bit Size	NQ 2					
Type Fluid (Mud)	WATER					
Density/Viscosity	N/A	N/A				
Max Rec Temp	15°C	15°C				
Sample Source	N/A					
Rm @ Meas Temp	N/A					
Rmf @ Meas Temp	N/A					
Rmc @ Meas Temp	N/A					
Source of Rm/Rmf/Rmc	N/A	N/A	N/A			
Rm @ BHT	N/A @ N/A					
Time Since Circ	28 HRS					
Max Rec Temp	15°C					
Equip. Location	KDC	BDE				
Recorded By	T.C. WEBBER					
Witnessed By	R. CRADDOCK					

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BOREHOLE RECORD

RUN NUMBER	BIT	FROM	TO
ONE	NQ 2	18.7m	TD

CASING RECORD

SIZE	WEIGHT	FROM	TO
NQ	N/A	SURFACE	18.7m

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
MBA/CCB	1BA/110			

REMARKS:

FOCUSSED ELECTRIC GAMMA RAY

SYSTEM CONFIGURATION DATE(S) LOGGED: 1-FEB-1990 PROCESSED: 1-FEB-1990 PLOTTED: 11-JAN-1995

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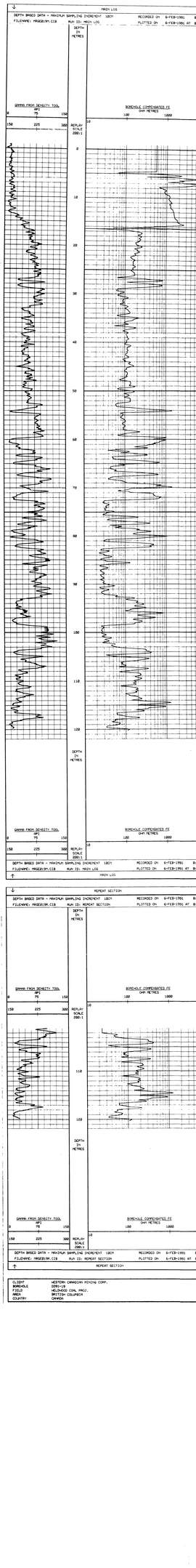

CLIENT	WESTERN CANADIAN MINING CORP.
BOREHOLE	DDH-98
AREA	HELMSMAN COAL PROJ.
FIELD	BRITISH COLUMBIA
COUNTRY	CANADA

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VERTICALITY ANALYSIS

COMPANY	WESTERN CANADIAN MINING CORP.
WELL	DD90-05
FIELD	WELDWOOD COAL PROJ.
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA

LOCATION	LSD	SEC	TWP	RGE	OTHER SERVICES
COURTENAY					CDL. CNL. FE BRD. MCS

LOCATION COURTENAY
PRVNC/CO. BRITISH COLUMBIA
FIELD WELDWOOD COAL PROJ.
WELL: DD90-05
COMPANY: WESTERN CANADIAN MINING CORP.

PERMANENT DATUM GROUND LEVEL. ELEVATION N/A
LOG MEASURED FROM GROUND LEVEL ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS: KB N/A, DF N/A, GL N/A

DATE	17-DEC-90			
RUN NUMBER	1			
DEPTH-DRILLER	280.4M			
DEPTH-LOGGER	280.4M			
FIRST READING	279.5M			
LAST READING	00.0M			
CASING-DRILLER	21.3M			
CASING-LOGGER	22.0M			
BIT SIZE	NQ 2			
HOLE FLUID TYPE	MUD			
DENS./VISC.	1.03			
PH/FLUID LOSS	N/A | N/A			
SAMPLE SOURCE	PIT			
RM @ MEAS TEMP	11.2 @ 8.2C			
RMF @ MEAS TEMP	N/A			
RMC @ MEAS TEMP	N/A			
SOURCE: RMF/RMC	N/A | N/A			
RM @ BHT	11.2 @ 8.2C			
TIME SINCE CIRC	9.0 HRS.			
MAX REC TEMP	8.2C			
EQUIPMENT/BASE	V222 | RDR			
RECORDED BY	B PICHE			
WITNESSED BY	S CASSELMAN			

BPB VERTICALITY ANALYSIS INTERPRETATION NOTES

1. ALL PLOTTED OUTPUT IS AUTOMATICALLY SCALED TO OBTAIN THE BEST VISUAL EFFECT WITHIN THE PHYSICAL SPACE AVAILABLE. THE MAXIMUM SCALES BEING 50000:1 (METRIC) AND 48000:1 (IMPERIAL). AND THE MINIMUM 1:1.

2. THE ANALYSIS IS DERIVED BY INTEGRATING 10CM. SAMPLED DATA DOWN THE BOREHOLE. THE LISTING SUPPLIED WILL CONTAIN A MAXIMUM OF 200 POINTS IN MULTIPLES OF 1, 2, 5, 10, 20, 50 OR 100 METRES/FEET DEPENDING ON THE TOTAL RANGE OF THE ANALYSIS. HOWEVER THE ANALYSIS IS CALCULATED FOR THE ENTIRE RANGE OF THE BOREHOLE AND THE FINAL BOREHOLE POSITION IS INCLUDED IN THE LISTING.

3. COMPUTED VERTICALITY MAY ONLY BE FULLY DERIVED IN OPEN SECTIONS OF THE BOREHOLE. AWAY FROM THE INFLUENCE OF ANY UNUSUAL MAGNETIC EFFECTS (AS THE AZIMUTH CALCULATIONS ARE DERIVED FROM THREE SOLID STATE MAGNETOMETERS). SO THE ANALYSIS WILL GENERALLY BEGIN AT THE END OF THE CASING AND ALL BOREHOLE POSITIONAL INFORMATION WILL RELATE TO THIS DEPTH.

4. UP TO TEN CROSS SECTIONS MAY BE REQUESTED FOR ANY BOREHOLE TO BE DISPLAYED AT ANY SCALE (THE DEFAULT SCALE IS THAT OF THE CROSS-SECTION FOR THE ENTIRE HOLE).

5. GIVEN BELOW IS A FULL DESCRIPTION OF THE PARAMETERS DISPLAYED ON THE ENSUING LISTING.

LOG DEPTH	THE DEPTH RECORDED ON THE FIELD LOGS FOR THE BOREHOLE.
TRUE DEPTH	THE TRUE VERTICAL DEPTH CORESPONDING TO THE ABOVE DEPTH. CORRECTED FROM THE START OF THE ANALYSIS.
HOLE TILT AND AZIMUTH	THE SAMPLED BOREHOLE ORIENTATION.
AXIAL COORDINATES	THE COORDINATES NORTH AND EAST FROM THE TARGET ORIGIN.
POLAR COORDINATES	THE POLAR. OR RADIAL COORDINATES OF THE BOREHOLE.

N.B. THE REFERENCE POINT FOR ALL BEARING ANGLES ON THIS LISTING IS GIVEN AT THE TOP OF EACH SHEET.

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DD90-05

VERTICALITY DATA LISTING
ALL CO-ORDINATES WITH RESPECT TO TRUE NORTH

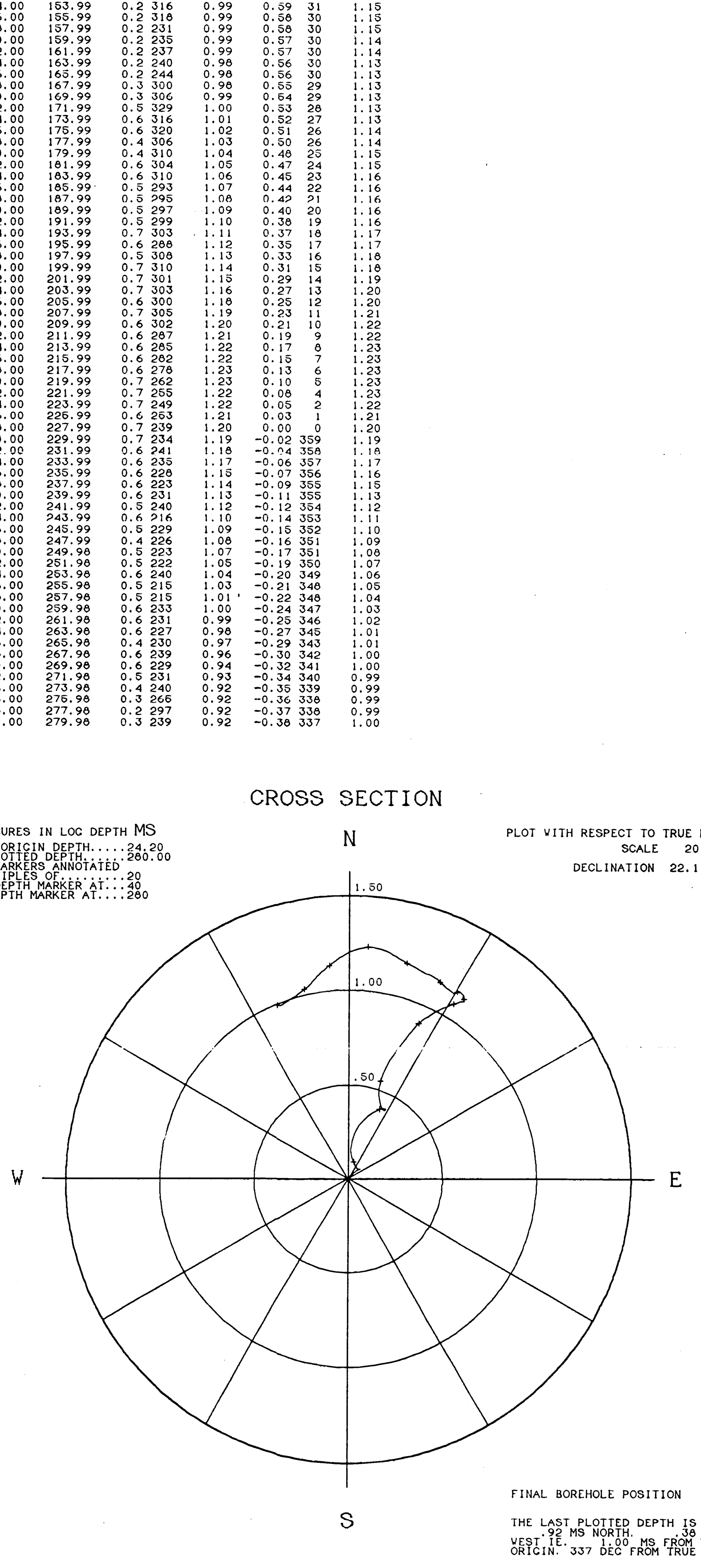
DATE PROCESSED: 18-DEC-1990
DATE LOGGED: 17-DEC-1990

DEPTHS LOG	DEPTHS TRUE	BOREHOLE TILT	BOREHOLE AZI	AXIAL CO-ORDS NORTH	AXIAL CO-ORDS EAST	POLAR BRG	POLAR RADIUS
26.00	26.00	0.7	30	0.02	0.02	38	0.03
28.00	28.00	0.7	44	0.04	0.03	43	0.05
30.00	30.00	0.5	84	0.05	0.05	47	0.07
32.00	32.00	0.2	111	0.05	0.06	50	0.08
34.00	34.00	0.2	232	0.05	0.06	50	0.08
36.00	36.00	0.4	299	0.05	0.05	44	0.08
38.00	38.00	0.6	328	0.07	0.04	29	0.08
40.00	40.00	0.7	330	0.09	0.03	16	0.10
42.00	42.00	1.0	346	0.13	0.02	8	0.13
44.00	44.00	1.1	354	0.16	0.01	4	0.17
46.00	46.00	1.2	12	0.21	0.02	6	0.21
48.00	48.00	1.3	23	0.25	0.03	7	0.25
50.00	50.00	1.1	37	0.28	0.05	11	0.29
52.00	52.00	1.0	43	0.31	0.08	14	0.32
54.00	54.00	0.8	49	0.33	0.10	17	0.35
56.00	56.00	0.8	63	0.35	0.12	20	0.37
58.00	58.00	0.7	69	0.36	0.15	22	0.39
60.00	60.00	0.5	67	0.37	0.17	24	0.41
62.00	62.00	0.3	105	0.37	0.18	26	0.42
64.00	64.00	0.4	89	0.37	0.19	27	0.42
66.00	66.00	0.2	229	0.37	0.20	28	0.42
68.00	68.00	0.2	207	0.36	0.19	28	0.41
70.00	70.00	0.4	307	0.37	0.19	27	0.41
72.00	72.00	0.6	332	0.38	0.18	25	0.42
74.00	74.00	0.9	347	0.41	0.17	22	0.44
76.00	76.00	1.0	1	0.44	0.16	20	0.47
78.00	77.99	1.0	5	0.48	0.16	18	0.51
80.00	79.99	1.1	16	0.52	0.17	18	0.55
82.00	81.99	1.0	21	0.56	0.18	18	0.59
84.00	83.99	1.1	26	0.60	0.20	18	0.63
86.00	85.99	1.1	30	0.63	0.22	19	0.67
88.00	87.99	1.1	36	0.66	0.24	20	0.70
90.00	89.99	1.1	40	0.69	0.26	21	0.74
92.00	91.99	1.1	42	0.72	0.28	21	0.77
94.00	93.99	1.0	35	0.75	0.30	22	0.81
96.00	95.99	1.0	41	0.77	0.33	23	0.84
98.00	97.99	1.0	46	0.80	0.35	24	0.87
100.00	99.99	0.8	43	0.82	0.37	24	0.90
102.00	101.99	0.8	50	0.84	0.39	25	0.93
104.00	103.99	0.8	55	0.86	0.42	26	0.96
106.00	105.99	0.7	62	0.87	0.44	27	0.98
108.00	107.99	0.7	69	0.89	0.46	27	1.00
110.00	109.99	0.5	54	0.90	0.48	28	1.02
112.00	111.99	0.5	59	0.90	0.50	29	1.03
114.00	113.99	0.6	62	0.91	0.51	29	1.04
116.00	115.99	0.3	87	0.92	0.53	30	1.06
118.00	117.99	0.3	89	0.92	0.54	30	1.07
120.00	119.99	0.4	61	0.93	0.55	31	1.08
122.00	121.99	0.4	65	0.93	0.56	31	1.09
124.00	123.99	0.4	68	0.93	0.57	32	1.09
126.00	125.99	0.2	101	0.93	0.58	32	1.10
128.00	[illegible]	0.3	52	0.94	[illegible]	32	[illegible]
130.00	129.99	0.3	53	0.94	0.59	32	1.11
132.00	131.99	0.2	104	0.94	0.60	33	1.11
134.00	133.99	0.2	108	0.94	0.61	33	1.12
136.00	135.99	0.2	27	0.94	0.61	33	1.12
138.00	137.99	0.3	343	0.95	0.61	33	1.12
140.00	139.99	0.2	33	0.95	0.61	33	1.13
142.00	141.99	0.2	304	0.96	0.61	32	1.13
144.00	143.99	0.2	35	0.96	0.60	32	1.14
146.00	145.99	0.2	38	0.97	0.61	32	1.14
148.00	147.99	0.2	310	0.97	0.61	32	1.15
150.00	149.99	0.2	310	0.98	0.60	32	1.15
152.00	151.99	0.2	313	0.98	0.60	31	1.15
154.00	153.99	0.2	316	0.99	0.59	31	1.15
156.00	155.99	0.2	318	0.99	0.58	30	1.15
158.00	157.99	0.2	231	0.99	0.58	30	1.15
160.00	159.99	0.2	235	0.99	0.57	30	1.14
162.00	161.99	0.2	237	0.99	0.57	30	1.14
164.00	163.99	0.2	240	0.98	0.56	30	1.13
166.00	165.99	0.2	244	0.98	0.56	30	1.13
168.00	167.99	0.3	300	0.98	0.55	29	1.13
170.00	169.99	0.3	306	0.99	0.54	29	1.13
172.00	171.99	0.5	329	1.00	0.53	28	1.13
174.00	173.99	0.6	316	1.01	0.52	27	1.13
176.00	175.99	0.6	320	1.02	0.51	26	1.14
178.00	177.99	0.4	306	1.03	0.50	26	1.14
180.00	179.99	0.4	310	1.04	0.48	25	1.15
182.00	181.99	0.6	304	1.05	0.47	24	1.15
184.00	183.99	0.6	310	1.06	0.45	23	1.16
186.00	185.99	0.5	293	1.07	0.44	22	1.16
188.00	187.99	0.5	295	1.08	0.42	21	1.16
190.00	189.99	0.5	297	1.09	0.40	20	1.16
192.00	191.99	0.5	299	1.10	0.38	19	1.16
194.00	193.99	0.7	303	1.11	0.37	18	1.17
196.00	195.99	0.6	288	1.12	0.35	17	1.17
198.00	197.99	0.5	308	1.13	0.33	16	1.18
200.00	199.99	0.7	310	1.14	0.31	15	1.18
202.00	201.99	0.7	301	1.15	0.29	14	1.19
204.00	203.99	0.7	303	1.16	0.27	13	1.20
206.00	205.99	0.6	300	1.18	0.25	12	1.20
208.00	207.99	0.7	305	1.19	0.23	11	1.21
210.00	209.99	0.6	302	1.20	0.21	10	1.22
212.00	211.99	0.6	287	1.21	0.19	9	1.22
214.00	213.99	0.6	285	1.22	0.17	8	1.23
216.00	215.99	0.6	282	1.22	0.15	7	1.23
218.00	217.99	0.6	278	1.23	0.13	6	1.23
220.00	219.99	0.7	262	1.23	0.10	5	1.23
222.00	221.99	0.7	255	1.22	0.08	4	1.23
224.00	223.99	0.7	249	1.22	0.05	2	1.22
226.00	225.99	0.6	253	1.21	0.03	1	1.21
228.00	227.99	0.7	239	1.20	0.00	0	1.20
230.00	229.99	0.7	234	1.19	-0.02	359	1.19
232.00	231.99	0.6	241	1.18	-0.04	358	1.18
234.00	233.99	0.6	235	1.17	-0.06	357	1.17
236.00	235.99	0.6	228	1.15	-0.07	356	1.16
238.00	237.99	0.6	223	1.14	-0.09	355	1.15
240.00	239.99	0.6	231	1.13	-0.11	355	1.13
242.00	241.99	0.5	240	1.12	-0.12	354	1.12
244.00	243.99	0.6	216	1.10	-0.14	353	1.11
246.00	245.99	0.5	229	1.09	-0.15	352	1.10
248.00	247.99	0.4	226	1.08	-0.16	351	1.09
250.00	249.98	0.5	223	1.07	-0.17	351	1.08
252.00	251.98	0.5	222	1.05	-0.19	350	1.07
254.00	253.98	0.6	240	1.04	-0.20	349	1.06
256.00	255.98	0.5	215	1.03	-0.21	348	1.05
258.00	257.98	0.5	215	1.01	-0.22	348	1.04
260.00	259.98	0.6	233	1.00	-0.24	347	1.03
262.00	261.98	0.6	231	0.99	-0.25	346	1.02
264.00	263.98	0.6	227	0.98	-0.27	345	1.01
266.00	265.98	0.4	230	0.97	-0.29	343	1.01
268.00	267.98	0.6	239	0.96	-0.30	342	1.00
270.00	269.98	0.6	229	0.94	-0.32	341	1.00
272.00	271.98	0.5	231	0.93	-0.34	340	0.99
274.00	273.98	0.4	240	0.92	-0.35	339	0.99
276.00	275.98	0.3	266	0.92	-0.36	338	0.99
278.00	277.98	0.2	297	0.92	-0.37	338	0.99
280.00	279.98	0.3	239	0.92	-0.38	337	1.00

CROSS SECTION

ALL FIGURES IN LOG DEPTH MS
TARGET ORIGIN DEPTH.....24.20
LAST PLOTTED DEPTH......280.00
DEPTH MARKERS ANNOTATED
IN MULTIPLES OF.........20
FIRST DEPTH MARKER AT...40
LAST DEPTH MARKER AT....260

PLOT WITH RESPECT TO TRUE NORTH
SCALE 20:1
DECLINATION 22.1 DEG.

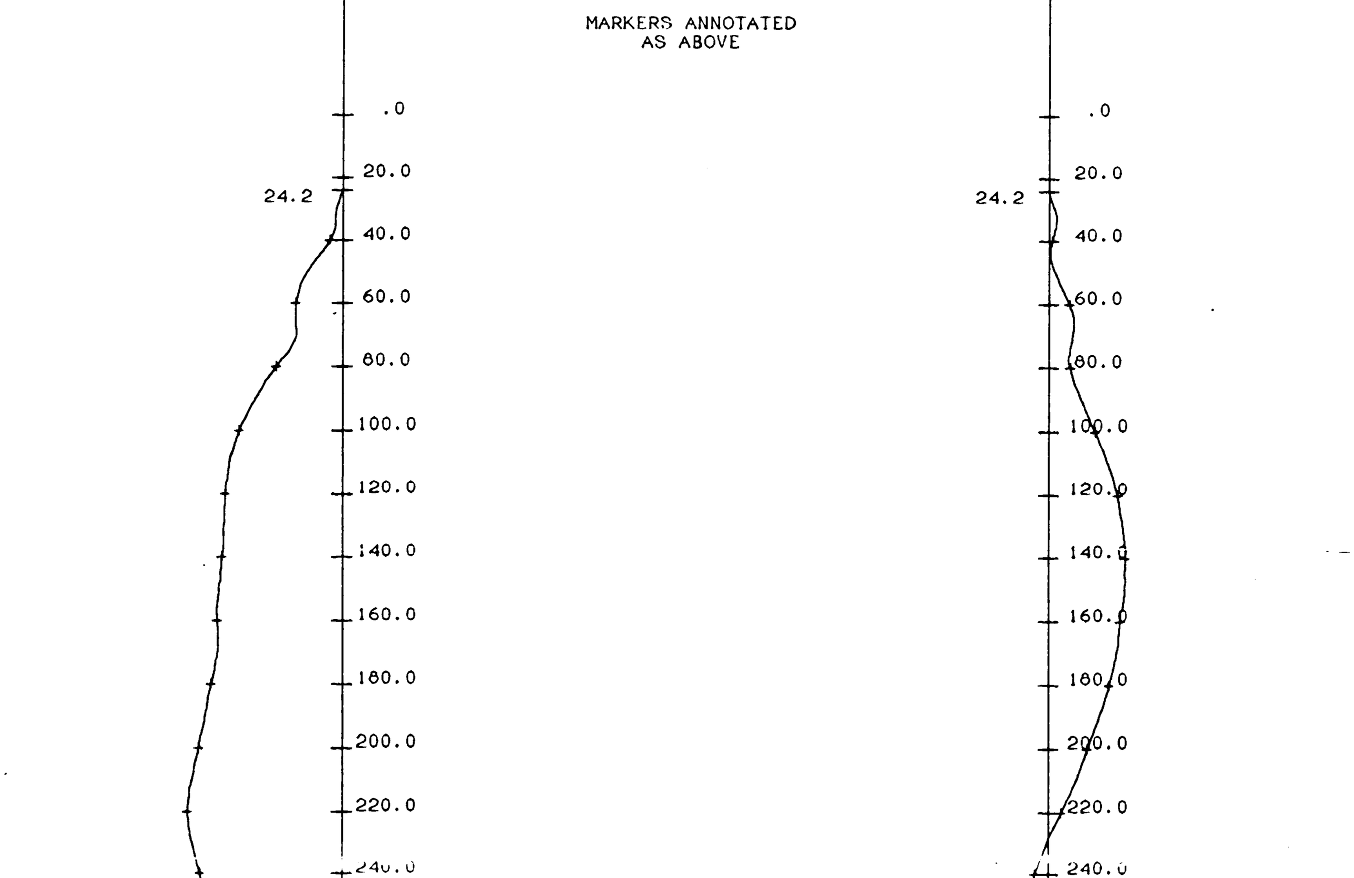


FINAL BOREHOLE POSITION

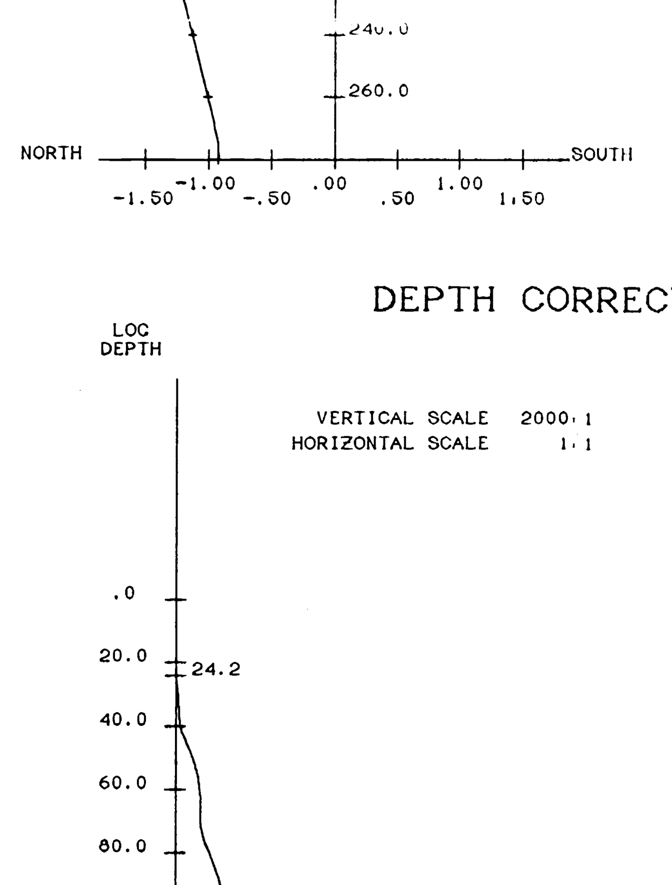
THE LAST PLOTTED DEPTH IS AT .92 MS NORTH. .38 MS WEST IE. 1.00 MS FROM THE ORIGIN. 337 DEG FROM TRUE NORTH

N-S SECTION VERTICAL SECTIONS E-W SECTION

(TRUE DEPTH VS DISPLACEMENT)



DEPTH CORRECTION ANALYSIS



DEPTHS: LOG	DEPTHS: TRUE	DEPTHS: LOG	DEPTHS: TRUE
26.00	26.00	166.00	165.99
28.00	28.00	168.00	167.99
30.00	30.00	170.00	169.99
32.00	32.00	172.00	171.99
34.00	34.00	174.00	173.99
36.00	36.00	176.00	175.99
38.00	38.00	178.00	177.99
40.00	40.00	180.00	179.99
42.00	42.00	182.00	181.99
44.00	44.00	184.00	183.99
46.00	46.00	186.00	185.99
48.00	48.00	188.00	187.99
50.00	50.00	190.00	189.99
52.00	52.00	192.00	191.99
54.00	54.00	194.00	193.99
56.00	56.00	196.00	195.99
58.00	58.00	198.00	197.99
60.00	60.00	200.00	199.99
62.00	62.00	202.00	201.99
64.00	64.00	204.00	203.99
66.00	66.00	206.00	205.99
68.00	68.00	208.00	207.99
70.00	70.00	210.00	209.99
72.00	72.00	212.00	211.99
74.00	74.00	214.00	213.99
76.00	76.00	216.00	215.99
78.00	77.99	218.00	217.99
80.00	79.99	220.00	219.99
82.00	81.99	222.00	221.99
84.00	83.99	224.00	223.99
86.00	85.99	226.00	225.99
88.00	87.99	228.00	227.99
90.00	89.99	230.00	229.99
92.00	91.99	232.00	231.99
94.00	93.99	234.00	233.99
96.00	95.99	236.00	235.99
98.00	97.99	238.00	237.99
100.00	99.99	240.00	239.99
102.00	101.99	242.00	241.99
104.00	103.99	244.00	243.99
106.00	105.99	246.00	245.99
108.00	107.99	248.00	247.99
110.00	109.99	250.00	249.98
112.00	111.99	252.00	251.98
114.00	113.99	254.00	253.98
116.00	115.99	256.00	255.98
118.00	117.99	258.00	257.98
120.00	119.99	260.00	259.98
122.00	121.99	262.00	261.98
124.00	123.99	264.00	263.98
126.00	125.99	266.00	265.98
128.00	127.99	268.00	267.98
130.00	129.99	270.00	269.98
132.00	131.99	272.00	271.98
134.00	133.99	274.00	273.98
136.00	135.99	276.00	275.98
138.00	137.99	278.00	277.98
140.00	139.99	280.00	279.98
142.00	141.99		
144.00	143.99		
146.00	145.99		
148.00	147.99		
150.00	149.99		
152.00	151.99		
154.00	153.99		
156.00	155.99		
158.00	157.99		
160.00	159.99		
162.00	161.99		
164.00	163.99		

COMPANY	WESTERN CANADIAN MINING CORP.
WELL	DD90-05
FIELD	WELDWOOD COAL PROJ.
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA

SLIMLINE GRAPHICS UNIT

Borehole:	DD91-13
Client:	WESTERN CANDIAN MINING CORP.
Field:	WELDWOOD COAL PROJ.
Area:	BRITISH COLUMBIA
Country:	CANADA

COMPENSATED NEUTRON
GAMMA RAY
CALIPER

Permanent Datum GROUND LEVEL, Elevation N/A — KB N/A — Location COURTENAY
Log measured from GROUND LEVEL above permanent datum — DF N/A
Drilling measured from GROUND LEVEL above permanent datum — GL N/A

Date	25-JAN-1991					LSD N/A
Run Number	ONE					SEC
Depth-Driller	274.3m					TWP
Depth-Logger	272.0m					RGE
First Reading	266.7M					OTHER SERVICES
Last Reading	0.0m					CCS,MCS
Casing-Driller	4.5m					FE,BRD
Casing-Logger	5.0m					
Bit Size	NQ 2					
Hole Fluid Type	WATER					
Dens./Visc.	1.02GM N/A					
pH/Fluid Loss	N/A NIL					
Sample Source	PIT					
Rm @ Meas Temp	N/A					
Rmf @ Meas Temp	N/A					
Rmc @ Meas Temp	N/A					
Source: Rmf/Rmc	N/A N/A					
Rm @ BHT	6.3 @ 9C					
Time Since Circ	30 MIN					
Max Rec Temp	9C					
Equipment/Base	V829 RDR					
Recorded by	J.C.WISNER					
Witnessed by	S.CASSELMAN					

RUN NUMBER	BOREHOLE RECORD			CASING RECORD			
	BIT	FROM	TO	SIZE	WEIGHT	FROM	TO
ONE	NQ 2	4.5m	TD	NQ	N/A	SURFACE	4.5m

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
DSN/CCS	501/110			

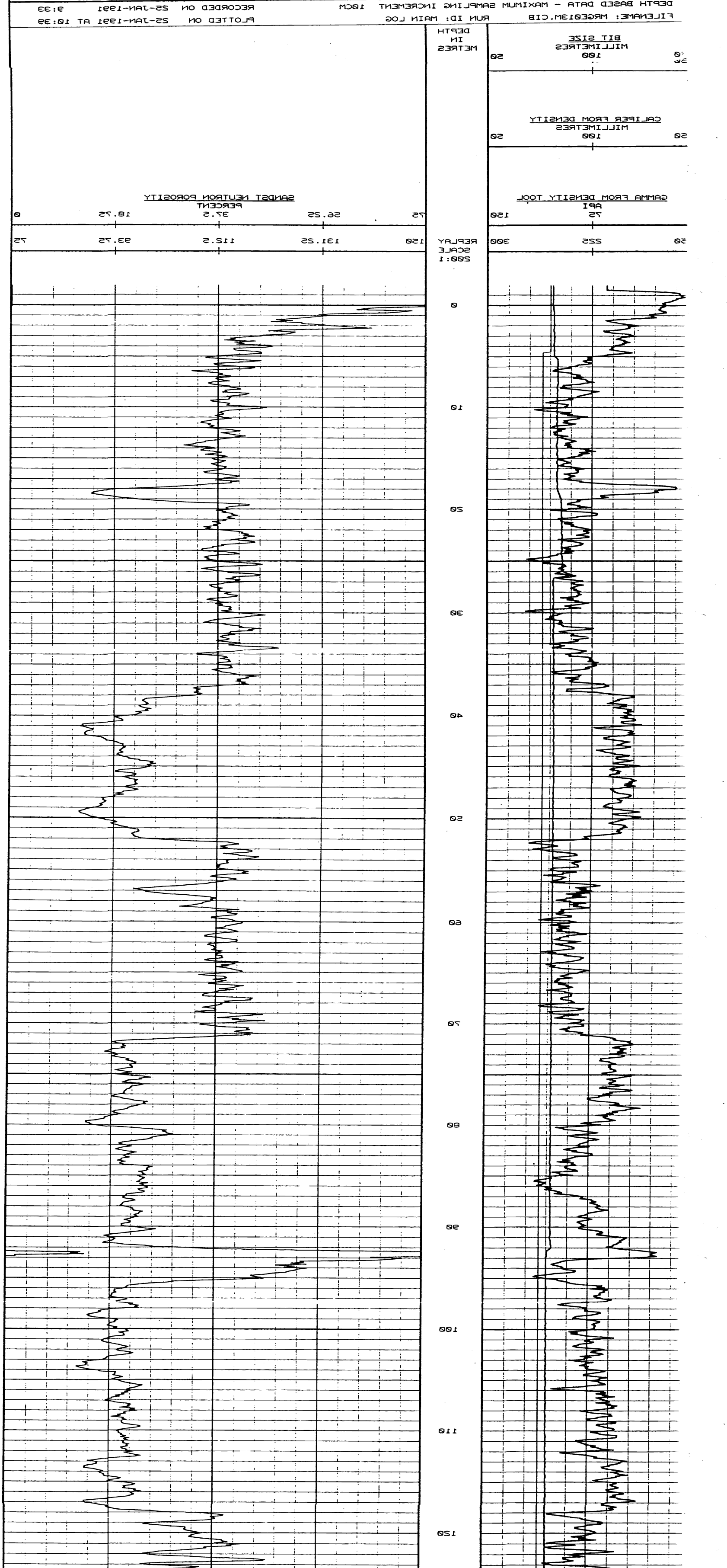
REMARKS:
COMPENSATED NEUTRON GAMMA RAY CALIPER

SYSTEM CONFIGURATION DATES: LOGGED 1-FEB-1990 PROCESSED 1-FEB-1990 PLOTTED 11-JAN-1991

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT, GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

MAIN LOG

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 25-JAN-1991 9:33
FILENAME: MRGE013M.CIB — RUN ID: MAIN LOG — PLOTTED ON 25-JAN-1991 AT 10:39



MAIN LOG

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 25-JAN-1991 9:33
FILENAME: MRGE013M.CIB — RUN ID: MAIN LOG — PLOTTED ON 25-JAN-1991 AT 10:39

REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 25-JAN-1991 9:28
FILENAME: MRGE013R.CIB — RUN ID: REPEAT SECTION — PLOTTED ON 25-JAN-1991 AT 10:34

BIT SIZE MILLIMETRES 50 100 150 — CALIPER FROM DENSITY MILLIMETRES 50 100 150 — DEPTH IN METRES

REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 25-JAN-1991 9:28
FILENAME: MRGE013R.CIB — RUN ID: REPEAT SECTION — PLOTTED ON 25-JAN-1991 AT 10:34

REPEAT SECTION

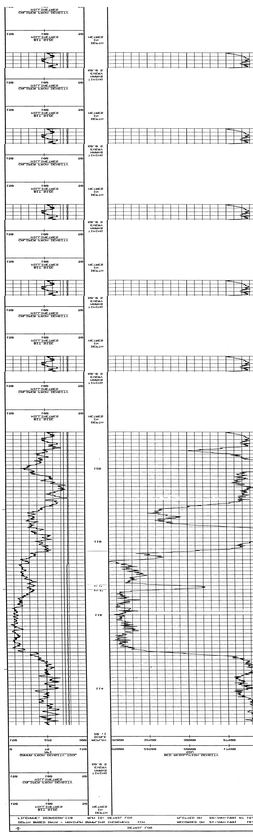
DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 25-JAN-1991 9:28
FILENAME: MRGE013R.CIB — RUN ID: REPEAT SECTION — PLOTTED ON 25-JAN-1991 AT 10:34

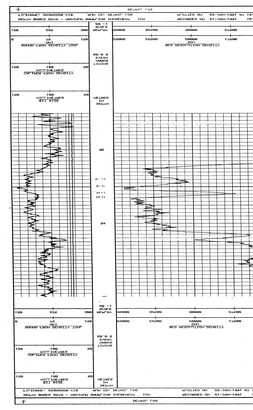
REPEAT SECTION

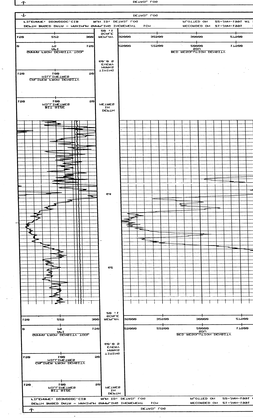
DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 25-JAN-1991 9:28
FILENAME: MRGE013R.CIB — RUN ID: REPEAT SECTION — PLOTTED ON 25-JAN-1991 AT 10:34

REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM — RECORDED ON 25-JAN-1991 9:28
FILENAME: MRGE013R.CIB — RUN ID: REPEAT SECTION — PLOTTED ON 25-JAN-1991 AT 10:34







MAIN LOG
REPEAT SECTION
DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10CM
FILENAME: MRGE016M.CIB
RUN ID: MAIN LOG
RECORDED ON 31-JAN-1991 11:32
PLOTTED ON 31-JAN-1991 AT 12:13
FILENAME: MRGE016R.CIB
RUN ID: REPEAT SECTION
RECORDED ON 31-JAN-1991 11:44
PLOTTED ON 31-JAN-1991 AT 12:12
DEPTH IN METRES
REPLAY SCALE 1:200
CALIPER FROM DENSITY
MILLIMETRES
GAMMA FROM DENSITY TOOL
API
SANDST NEUTRON POROSITY
PERCENT