BPB DIPMETER ANALYSIS
INTERPRETATION NOTES

(6) 420 240

1. All plots are correct to the resolution of the plotter used, ie. one hundredth of an inch. Vertical resolution may vary by up to one percent but each plot is correct within itself, the plotted data being dynamically merged with its gridded background
Plots exceeding eight metres in length will be split into multiples thereof, however there is no data loss associated with this subdivision.

2. Rose diagrams are plotted between every major division and are delimited by two bold arrows. For certain replay scales it may be desirable to plot these less frequently; this option is available on request.

3. The borehole tilt and azimuth displayed on the plot are the average values over the whole major division.

4. The replay scale for pads 1, 2 & 3 are designed to give the maximum visual effect over the plotted interval. Replaying shorter sections of the curve will enhance this display.

5. The grid over which the computed dip information is displayed is locally linear. That is to say it is linear between Ø & 1Ø, degrees,1Ø & 2Ø,2Ø & 3Ø etc.

6. The correlation value will vary depending upon the interval size selected. Generally speaking the larger the correlation interval, the lower the value becomes. For this reason a direct comparison of this value for differing correlation intervals is meaningless, quality control being exercised with an appreciation of this effect.

7. For customised control of computed dipmeter analysis the following parameters must be specified:
correlation step and interval(s)
magnetic declination(ie. the difference between true and magnetic North)
search angle(s)
depth range(s)
replay scale(s)
the frequency for rose diagrams
(quality control is exercised in accordance with the correlation interval used,
alternatively all correlations may be displayed on request)

The following information is a listing of ALL the output from BPB's dipmeter analysis. The data is subdivided into three consecutive sets of data readings, being read from left to right. Below is a full description of each data item:

DEPTH	the depth corresponding to the centre of the correlation interval
CALIPER	the average borehole caliper recorded over the corrleation interval
HOLE DRIFT	the average borehole deviation from vertical over the correlation interval
HOLE AZIMUTH	the average borehole azimuth over the correlation interval in degrees East of true North
DIP ANGLE	the computed formation dip in degrees, from the horizontal plane
DIP AZIMUTH	the formation azimuth in degrees East from true North
CORRELATION	a measure of the reliability of the computed result. This parameter is also used in the visual display to determine the quality of result

Further recorrelations over any step & interval size are available on any scale over any section of the log. Alternative methods of presentation, or analysis may be made available on request.

TW-84D-420 Magnetic declination 26.ØØ degrees East of North Ø2-AUG-84
********** Correlation step 1.ØØ metres ,interval 2.ØØ metres Search angle 8Ø. degrees PAGE 1

DEPTH metres	CAL. ins.	BOREHOLE TILT	BOREHOLE AZI	FORMATION DIP	FORMATION AZI	MIN. COR.	DEPTH metres	CAL. ins.	BOREHOLE TILT	BOREHOLE AZI	FORMATION DIP	FORMATION AZI	MIN. COR.	DEPTH metres	CAL. ins.	BOREHOLE TILT	BOREHOLE AZI	FORMATION DIP	FORMATION AZI	MIN. COR.
11.ØØ	2.9	1.9	16Ø.	79.7	261.	Ø.43	12.ØØ	3.Ø	1.9	157.	74.4	262.	Ø.13	13.ØØ	3.Ø	2.Ø	155.	75.2	257.	Ø.4Ø
14.ØØ	3.Ø	2.Ø	154.	74.7	261.	Ø.51	15.ØØ	2.9	2.Ø	156.	67.7	255.	Ø.7Ø	16.ØØ	2.9	2.Ø	156.	77.2	4.	Ø.56
17.ØØ	2.9	2.Ø	156.	76.9	249.	Ø.63	18.ØØ	2.9	2.Ø	156.	75.8	251.	Ø.65	19.ØØ	2.9	2.1	157.	69.3	257.	Ø.54
2Ø.ØØ	2.9	2.Ø	157.	67.9	257.	Ø.43	21.ØØ	2.9	2.1	157.	77.9	14.	Ø.23	22.ØØ	2.9	2.1	157.	5Ø.3	333.	Ø.35
23.ØØ	2.9	2.1	157.	57.7	328.	Ø.28	24.ØØ	2.9	2.1	157.	71.2	254.	Ø.51	25.ØØ	2.9	2.1	157.	7Ø.2	261.	Ø.72
26.ØØ	2.9	2.1	157.	75.2	256.	Ø.61	27.ØØ	2.9	2.1	157.	76.9	261.	Ø.63	28.ØØ	2.9	2.2	157.	71.8	349.	Ø.39
29.ØØ	2.9	2.2	157.	73.8	7Ø.	Ø.33	32.ØØ	2.9	2.3	157.	77.1	293.	Ø.53	33.ØØ	2.9	2.3	157.	47.7	277.	Ø.51
34.ØØ	2.9	2.3	157.	42.4	277.	Ø.68	35.ØØ	2.9	2.4	158.	31.Ø	281.	Ø.71	36.ØØ	2.9	2.4	157.	2Ø.4	35.	Ø.62
37.ØØ	2.9	2.4	157.	19.8	31.	Ø.65	38.ØØ	2.9	2.3	157.	23.6	331.	Ø.8Ø	39.ØØ	2.9	2.3	157.	25.2	323.	Ø.64
4Ø.ØØ	3.Ø	2.3	157.	38.7	1Ø9.	Ø.23	41.ØØ	3.Ø	2.3	157.	58.Ø	296.	Ø.24	42.ØØ	2.9	2.3	156.	12.4	286.	Ø.28
43.ØØ	3.Ø	2.3	157.	11.5	319.	Ø.34	44.ØØ	3.Ø	2.3	157.	13.6	3Ø5.	Ø.62	45.ØØ	3.Ø	2.4	157.	2Ø.6	29.	Ø.51
46.ØØ	2.9	2.4	157.	21.7	35.	Ø.54	47.ØØ	2.9	2.4	157.	2Ø.1	356.	Ø.96	48.ØØ	2.9	2.4	158.	25.2	339.	Ø.91
49.ØØ	2.9	2.4	158.	35.6	328.	Ø.86	5Ø.ØØ	2.9	2.5	157.	26.7	351.	Ø.41	51.ØØ	2.9	2.5	157.	33.9	287.	Ø.75
52.ØØ	2.9	2.5	157.	28.Ø	295.	Ø.73	53.ØØ	2.8	2.5	157.	19.2	7.	Ø.82	54.ØØ	2.9	2.5	157.	16.2	22.	Ø.53
55.ØØ	2.9	2.4	157.	18.2	26.	Ø.92	56.ØØ	2.8	2.4	157.	18.7	29.	Ø.81	57.ØØ	2.8	2.4	157.	16.8	28.	Ø.81
58.ØØ	2.8	2.4	157.	16.3	22.	Ø.84	59.ØØ	2.9	2.5	157.	17.8	36.	Ø.6Ø	6Ø.ØØ	2.9	2.5	158.	23.4	5Ø.	Ø.76
61.ØØ	2.9	2.6	157.	17.5	37.	Ø.84	62.ØØ	2.9	2.6	158.	9.9	58.	Ø.85	63.ØØ	2.8	2.6	158.	8.6	31.	Ø.83
64.ØØ	2.9	2.6	158.	12.Ø	2.	Ø.82	65.ØØ	2.9	2.6	158.	19.6	83.	Ø.84	66.ØØ	2.9	2.6	16Ø.	16.9	82.	Ø.76
67.ØØ	2.9	2.6	16Ø.	15.6	61.	Ø.56	68.ØØ	2.9	2.6	159.	18.5	51.	Ø.38	69.ØØ	2.9	2.6	157.	29.6	336.	Ø.16
7Ø.ØØ	2.8	2.6	156.	34.1	326.	Ø.33	71.ØØ	2.9	2.6	156.	34.9	329.	Ø.56	72.ØØ	2.9	2.5	157.	36.9	336.	Ø.65
73.ØØ	2.9	2.5	158.	52.2	316.	Ø.42	74.ØØ	2.9	2.5	158.	47.9	3Ø5.	Ø.33	75.ØØ	2.9	2.5	158.	72.5	297.	Ø.36
76.ØØ	2.9	2.6	158.	71.5	254.	Ø.66	77.ØØ	2.9	2.6	158.	13.4	256.	Ø.51	78.ØØ	2.9	2.6	158.	13.7	259.	Ø.62
79.ØØ	2.8	2.6	157.	2Ø.5	317.	Ø.42	8Ø.ØØ	2.9	2.6	158.	24.5	314.	Ø.65	81.ØØ	2.9	2.6	157.	37.3	284.	Ø.91
82.ØØ	2.9	2.6	157.	18.6	119.	Ø.73	83.ØØ	2.9	2.6	156.	19.2	162.	Ø.65	84.ØØ	2.9	2.6	156.	15.7	178.	Ø.61
85.ØØ	2.9	2.6	155.	32.4	134.	Ø.7Ø	86.ØØ	3.Ø	2.6	156.	36.5	144.	Ø.64	87.ØØ	3.1	2.6	156.	3Ø.7	3Ø7.	Ø.52
88.ØØ	3.Ø	2.6	156.	4.7	314.	Ø.57	89.ØØ	2.8	2.6	156.	1.8	113.	Ø.76	9Ø.ØØ	2.8	2.6	155.	4.5	8Ø.	Ø.82
91.ØØ	2.8	2.5	155.	8.Ø	144.	Ø.87	92.ØØ	2.8	2.5	155.	1Ø.7	134.	Ø.89	93.ØØ	2.8	2.5	156.	11.9	8Ø.	Ø.84
94.ØØ	2.8	2.5	157.	4.5	25.	Ø.68	95.ØØ	2.8	2.5	157.	1.4	17.	Ø.69	96.ØØ	2.8	2.5	156.	8.7	1Ø4.	Ø.69
97.ØØ	2.8	2.5	155.	4.1	1Ø9.	Ø.77	98.ØØ	2.8	2.4	154.	6.1	87.	Ø.81	99.ØØ	2.8	2.3	153.	44.1	127.	Ø.57
1ØØ.ØØ	2.8	2.1	154.	1Ø.1	1Ø3.	Ø.73	1Ø1.ØØ	2.8	2.Ø	161.	4.9	81.	Ø.86	1Ø2.ØØ	2.8	2.1	168.	56.Ø	346.	Ø.42
1Ø3.ØØ	2.8	2.4	169.	6.9	47.	Ø.16	1Ø4.ØØ	2.8	2.5	168.	8.4	73.	Ø.19	1Ø5.ØØ	2.8	2.6	166.	1Ø.Ø	183.	Ø.7Ø
1Ø6.ØØ	2.8	2.6	164.	18.1	1Ø2.	Ø.86	1Ø7.ØØ	2.8	2.6	162.	15.5	76.	Ø.45	1Ø8.ØØ	2.8	2.6	16Ø.	48.5	186.	Ø.5Ø
1Ø9.ØØ	2.8	2.6	159.	33.Ø	237.	Ø.43	11Ø.ØØ	2.8	2.6	159.	17.2	124.	Ø.37	111.ØØ	2.8	2.6	158.	37.2	86.	Ø.65
112.ØØ	2.8	2.6	156.	25.9	119.	Ø.73														

COAL LITHOLOGY LOG

BOREHOLE TW84D-421
CLIENT Crows Nest Resources Ltd.
AREA Telkwa B.C
COUNTRY Canada
DATE LOGGED 22/Jun/84
DEPTH SCALE 1:100
1 OF 4 LOGS

EQUIPMENT AND RECORDING DATA

COAL COMBINATION SONDE

LOG	EQUIPMENT			TAPING			PANEL			CAL COEFF	DEPTHS			SEAM LOG RUN
	SONDE	SOURCE	CALIBRATOR	LOG TAPED	RECORD SPEED	DIRECT or REPLAY	SPEED	TC SECS	NORM		FROM	TO	INTERVAL	
	115	5822												
GAMMA RAY	SIDEWALL POSITION		371	Y	9m/m	D	9m/m	1	-	1.6	94	00	94	
L S DENSITY			3996	Y	9m/m	D	9m/m	.3	7.62	-	94	00	94	
CALIPER			7"..2"	Y	9m/m	D	9m/m	.3	-	-	94	00	94	

COAL QUALITY/SEAM THICKNESS LOG INTERVALS (Refer to relevant log)

FROM	68.0m	55.0m	INTERVAL TOTAL
TO	65.0m	40.0m	
INTERVAL	3.0m	15.0m	18m

ADDITIONAL SONDES RUN

SONDE	LOG	GENERAL SCALE LOG	DETAIL SCALE LOG
510	DSN	1:100	

REFER TO ADDITIONAL HEADINGS

REMARKS

Start Op. 14:30
Finish Op. 17:30

BPB COAL LITHOLOGY LOG

CALIBRATION DATA

JIG No 371 VALUE 494 @ 5" DIAM
JIG MARK SHOWN AT ABOVE VALUE X0.3
JIG CAL DATE 08/Jun/84 JIG VALUE 5943 SDU @ 1.32 g/cm³ 2" ins 882 cps
JIG No 3996 SPAN 6,000 NORM SDU/CPS = 7.62 7" ins 423 cps

GAMMA RAY	DEPTH	BULK DENSITY g/cm³	CALIPER INCHES

HOLE SIZE CORRECTION DATA

GAMMA RAY	DEPTH	BULK DENSITY g/cm³	CALIPER INCHES

BOREHOLE TW84D-421 AREA Telkwa B.C
CLIENT Crows Nest Resources Ltd. COUNTRY Canada

COAL LITHOLOGY LOG

MY (1)137483 R

Th. Telkwa

94(3)8

240

BOREHOLE TW88-0421 (2)
CLIENT Crows Nest Resources Ltd.
AREA Telkwa B.C.
COUNTRY Canada
DATE LOGGED 22/6/88
DEPTH SCALE 1:20
0 OF 4 LOGS

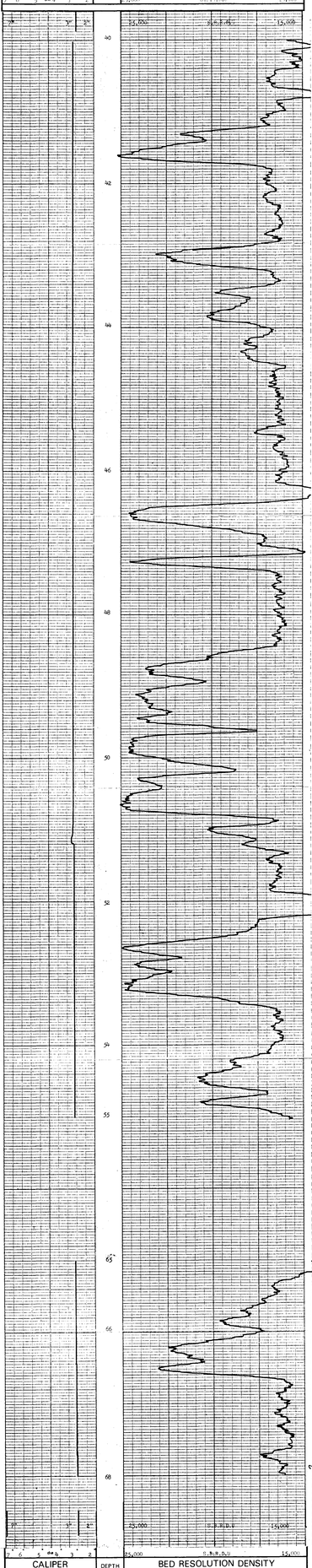
SEAM THICKNESS LOG

BOREHOLE DATA	REFER TO LITHOLOGY LOG
OPERATION DATA	REFER TO LITHOLOGY LOG
EQUIPMENT AND RECORDING DATA	
COAL COMBINATION SONDE	
LOG	SYSTEMAL POSITION
CALIPER	1.0
SEAM THICKNESS	1.0
SEAM THICKNESS LOG INTERVALS	
FROM	66.0m 55.0m
TO	65.0m 40.0m
INTERVAL	3.0m 15.0m
FROM	
TO	
INTERVAL	
REMARKS	

SONDE TYPE
COAL COMBINATION SONDE

LOG SUITE
CALIPER
BR DENSITY

B P B SEAM THICKNESS LOG



BOREHOLE TW88-0421
CLIENT Crows Nest Resources Ltd.
AREA Telkwa B.C.
COUNTRY Canada

SEAM THICKNESS LOG

MT 68003 R

TK- Telkwa

84/330

240

BPB

BOREHOLE TWS40-421 (3)
CLIENT Crows Nest Resources Ltd.
AREA Telkwa B.C
COUNTRY Canada
DATE LOGGED 22/Jan/84
DEPTH SCALE 1:200
1 of 4 LOGS

COAL QUALITY LOG

BOREHOLE DATA — REFER TO LITHOLOGY LOG
OPERATION DATA — REFER TO LITHOLOGY LOG
EQUIPMENT AND RECORDING DATA
COAL COMBINATION SONDE
SIDEWALL POSITION

LOG	TAPING	PANEL	SPEED	MONO	SPEED
GAMMA	1/2	2/4	2	1	1.60
GAMMA	1/2	2/4	2	1	1.60
GAMMA	1/2	2/4	2	1	1.60

SOURCE SONDE AND CALIBRATION
REFER TO LITHOLOGY LOG

COAL QUALITY LOG INTERVALS

FROM	65.0m	55.0m
TO	65.0m	40.0m
INTERVAL	1.0m	15.0m
FROM		
TO		
INTERVAL		

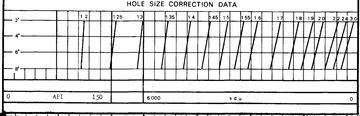
REMARKS

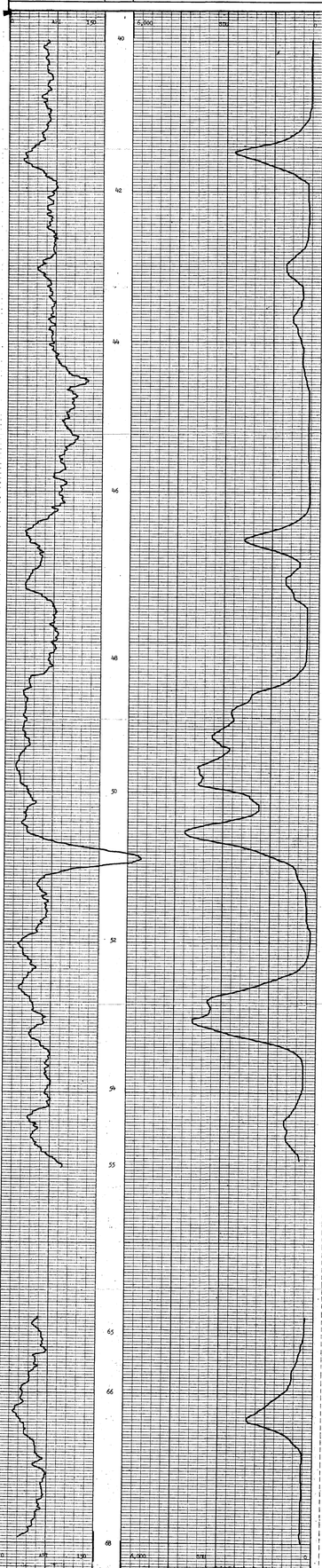
SONDE TYPE: COAL COMBINATION SONDE
LOG SUITE: GAMMA RAY, L.S. DENSITY

BPB COAL QUALITY LOG

	DEPTH	
Gamma Ray		COAL BULK DENSITY g/cm³

HOLE SIZE CORRECTION DATA





Gamma Ray		COAL BULK DENSITY g/cm³
	DEPTH	

BPB

BOREHOLE TWS40-421
AREA Telkwa B.C
CLIENT Crows Nest Resources Ltd.
COUNTRY Canada

COAL QUALITY LOG

Gamma Ray & Sandstone Porosity Logs

BOREHOLE TWBAC-421
CLIENT Crown West Resources Ltd.

AREA Telkwa B.C.
COUNTRY Canada
DATE LOGGED 12/11/85

OPTIMUM QUALITY
LOG

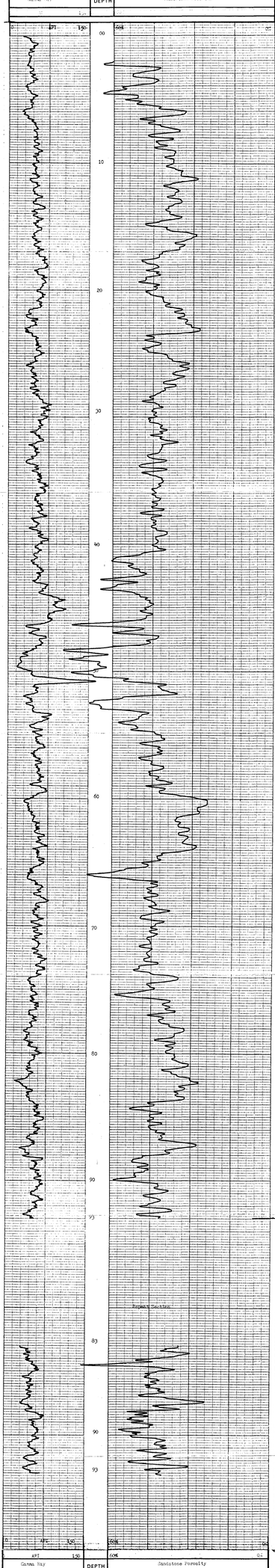
BOREHOLE DATA
REFER TO Listing
LOG

OPERATION DATA
REFER TO Listing
LOG

EQUIPMENT AND RECORDING DATA

LOG	TAPE	PANEL	LOG
GR	1	1	
SP	1	1	
SN	1	1	

REMARKS



BOREHOLE TWBAC-421
CLIENT Crown West Resources Ltd.
AREA Telkwa B.C.
COUNTRY Canada

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COAL LITHOLOGY LOG

BPB

BOREHOLE Twinning 322 AREA Telkwa B.C.
CLIENT Crows Nest Resources Ltd. COUNTRY Canada
DATE LOGGED 22/Jun/88 LOG No. 1 RUN No. 1
LOG TOP 0.00 LOG BASE 113.00 DEPTH DATUM GL

BOREHOLE DATA

CASING SIZES	FROM	TO
1	0.00	0.50
2	0.50	23.00
3	23.00	113.00
4		

TRANSMITTING FREQUENCY	
RECEIVING FREQUENCY	
SPACING	
DEPTH REFERENCE	GL
DEPTH DRILLER	113.00
DEPTH LOGGER	113.00
BOTTOM LOGGED INTERVAL	113.00
TOP LOGGED INTERVAL	0.00
CASING SHOE	23.00
CASING DRILLER	23.00
CASING LOGGER	23.00
BIT SIZE	96
TYPE FLUID IN HOLE	Ground Water
DENSITY	
VISCOSITY	
PH	
FLUID LOSS	
SOURCE OF SAMPLE	
RM @ MEAS. TEMP.	
RMF @ MEAS. TEMP.	
RMC @ MEAS. TEMP.	
SOURCE OF RMF & RMC	
RM @ BHT	
TIME SINCE CIRCULATION	
MAX. REC. TEMP.	
EQUIP. LOCATION	
RECORDED BY	
WITNESSED BY	

REMARKS: Diamond Drill Hole

LOG 1

DEPTH SCALE 1:100

EQUIPMENT AND RECORDING DATA

COAL COMBINATION SONDE

LOG	EQUIPMENT			TAPING			PANEL		DEPTHS			SEAM LOG RUN
	SONDE	SOURCE	CALIBRATOR	LOG HEAD	TRANSMITTER/RECEIVER CABLE	REPEAT	SPEED m/h	NORM	FROM	TO	INTERVAL	
GAMMA RAY	113	4008										
GAMMA RAY DENSITY			374	3	98/6	2	3M/1	-	1.00	0%	00	9%
			3996	3	9%/6	3	3M/1	2.52	-	9%	00	9%
CALIPER	SIDEWALL POSITION			3	98/6	3	3M/1	-	-	9%	00	9%

COAL QUALITY/SEAM THICKNESS LOG INTERVALS (Refer to relevant log)

FROM	TO	INTERVAL
33.0m	23.0m	9.0m
32.0m	19.0m	9.0m
28.0m	4.0m	4.0m
		TOTAL 22.0m

ADDITIONAL SONDES RUN

SONDE	LOG	GENERAL (Coal Lithology Log)	DETAIL (Coal Lithology Log)
410	308	1:100	
231	312	1:100	
204	Vert.	1:10	

REFER TO ADDITIONAL HEADINGS

REMARKS

Start Op. 12:00
Finish Op. 22:00

BPB COAL LITHOLOGY LOG

CALIBRATION DATA

JG No. 3996 @ 1 Dam
JG MAIN SHOWN AT ABOVE VALUE 40.3

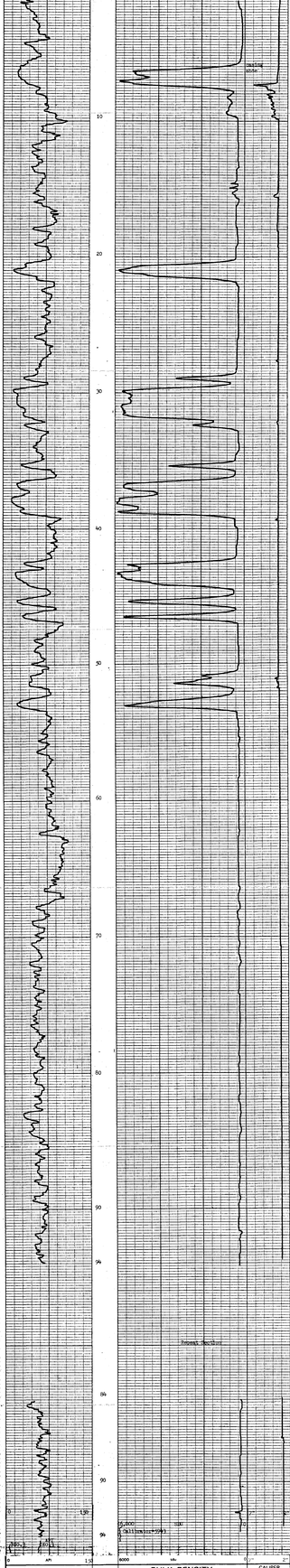
JG CAL DATE 08/Jun/88 SPAN VALUE 5000 SPAN 1.2500 cps
JG No. 3996 SPAN 5.000 NORM 2.52

2" PS 423 cps
2" PS 8832 cps

GAMMA RAY | DEPTH | BULK DENSITY g/cm³ | CALIPER INCHES

HOLE SIZE CORRECTION DATA

0 API 150 | 5.000 Min. 2.000 | 0" Min. 2"



GAMMA RAY | DEPTH | BULK DENSITY g/cm³ | CALIPER INCHES

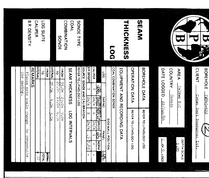
BPB

BOREHOLE Twinning 322 AREA Telkwa B.C.
CLIENT Crows Nest Resources Ltd. COUNTRY Canada

COAL LITHOLOGY LOG

240

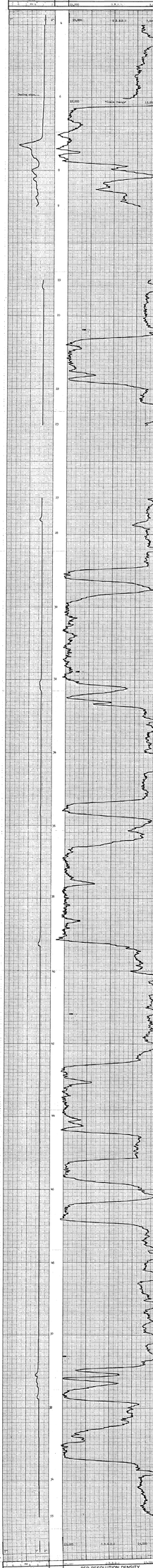
89/12/4

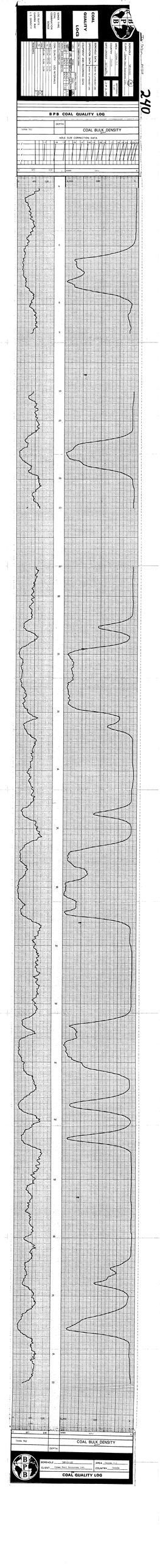


2410

B P B SEAM THICKNESS LOG

CALIPER | DEPTH | BED RESOLUTION DENSITY




B P B
COAL QUALITY LOG
BPB COAL QUALITY LOG
DEPTH
COAL BULK DENSITY
HOLE SIZE CORRECTION DATA
Timber Top
BOREHOLE
CLIENT
AREA
COUNTRY
COAL QUALITY LOG

Tk- Telkwa 84(3)A 240

Gamma Ray & Sandstone Porosity Log.

BOREHOLE TW84D-422 : 4

CLIENT Crown Nest Resources Ltd.

AREA Telkwa B.C

COUNTRY Canada

DATE LOGGED 22/Jun/84

DEPTH SCALE 1:100

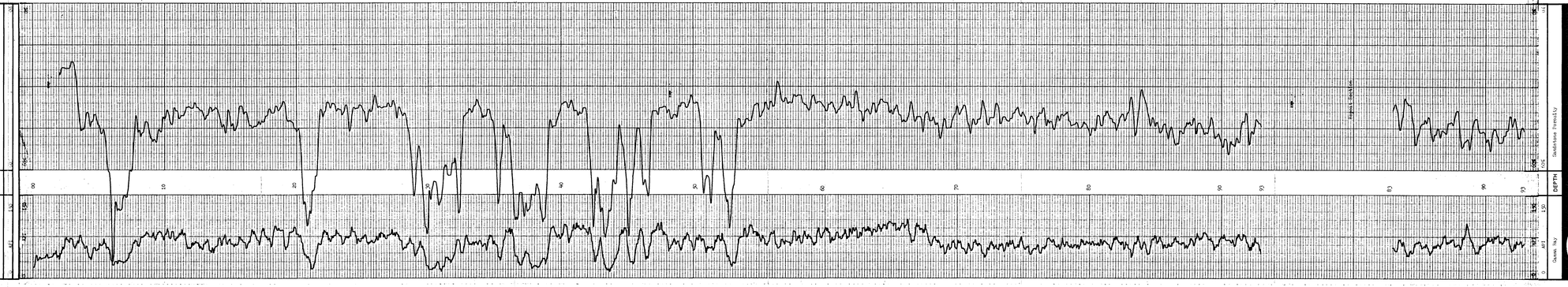
9 of 4 LOGS

BOREHOLE DATA	REFER TO Lithology	LOG
OPERATION DATA	REFER TO Lithology	LOG

EQUIPMENT AND RECORDING DATA

LOG	TAPING			PANEL			GAS CORR
	TAPE NO.	RECORDING SPEED	DEPTH	SPEED	S.C. SEN.	NORM	
G/M	Y	9m/m	D	9m/m	1	-	1.00
DCS	Y	9m/m	D	9m/m	1	.98	-
		SPEED 9m/m	510	SPEED 9m/m	720		

REMARKS



BOREHOLE TW84D-422

CLIENT Crown Nest Resources Ltd.

AREA Telkwa B.C

COUNTRY Canada

240

Tk- Telkwa

DIPMETER ANALYSIS

CLIENT C.N.R.L.
BOREHOLE TW-84D-422 (5)
AREA TELKWA B.C
COUNTRY CANADA

84(3)A

DATE LOGGED.....22-JUN-84
DATE PROCESSED..02-AUG-84

COMMENTS.....

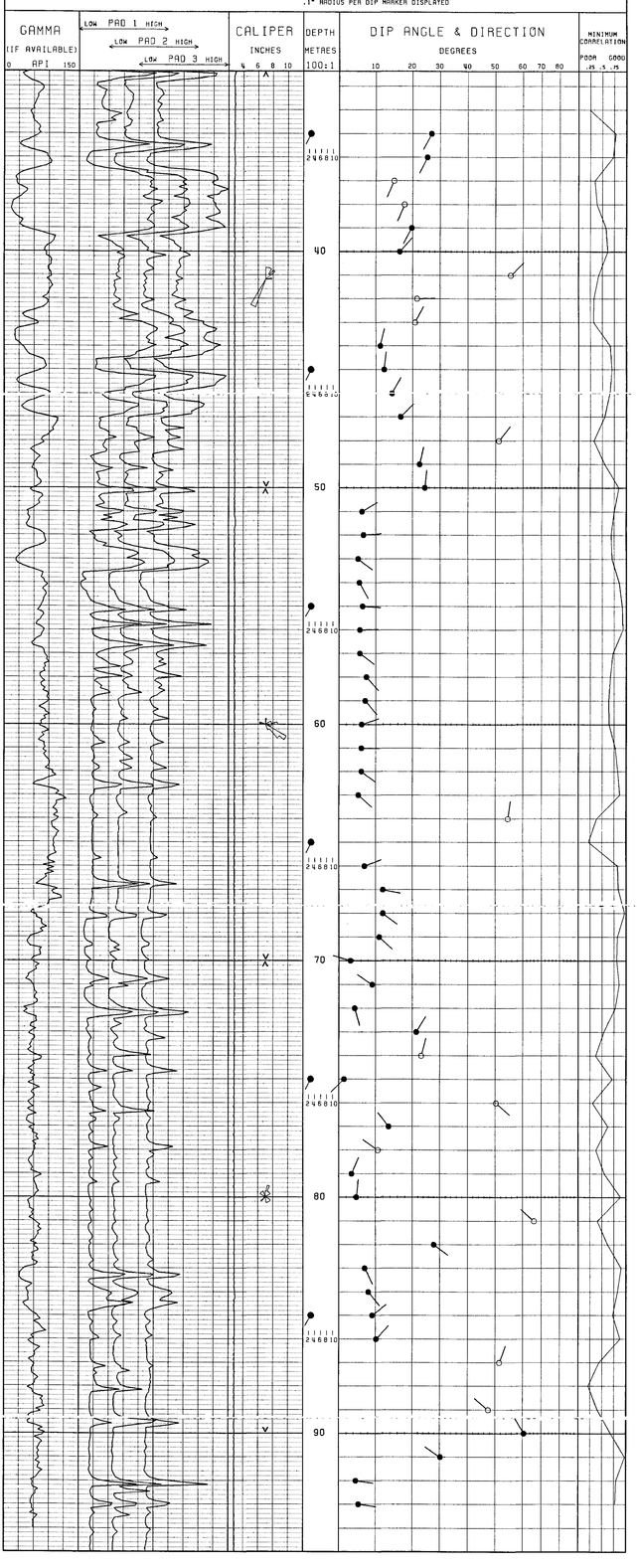
INTERPRETATION PARAMETERS

STEP 1.00M. DECLINATION 26.0 EAST
INTERVAL 2.00M. DEPTH RANGE 32.36 - 95.00M.
SEARCH ANGLE 80. DATE PROCESSED 02-AUG-84

AVERAGE BOREHOLE DEVIATION & DIRECTION ANNOTATED EVERY 10.0M.

ROSE DIAGRAMS SEGMENTED EVERY TEN DEGREES. .1" RADIUS PER DIP MARKER DISPLAYED

LEGEND:
GOOD (>0.50)
FAIR (>0.30)



422 (6) 240

BPB DIPMETER ANALYSIS
INTERPRETATION NOTES

1. All plots are correct to the resolution of the plotter used, ie. one hundredth of an inch. Vertical resolution may vary by up to one percent but each plot is correct within itself, the plotted data being dynamically merged with its gridded background
Plots exceeding eight metres in length will be split into multiples thereof, however there is no data loss associated with this subdivision.

2. Rose diagrams are plotted between every major division and are delimited by two bold arrows. For certain replay scales it may be desirable to plot these less frequently; this option is available on request.

3. The borehole tilt and azimuth displayed on the plot are the average values over the whole major division.

4. The replay scale for pads 1, 2 & 3 are designed to give the maximum visual effect over the plotted interval. Replaying shorter sections of the curve will enhance this display.

5. The grid over which the computed dip information is displayed is locally linear. That is to say it is linear between Ø & 1Ø, degrees,1Ø & 2Ø,2Ø & 3Ø etc.

6. The correlation value will vary depending upon the interval size selected. Generally speaking the larger the correlation interval, the lower the value becomes. For this reason a direct comparison of this value for differing correlation intervals is meaningless, quality control being exercised with an appreciation of this effect.

7. For customised control of computed dipmeter analysis the following parameters must be specified:
correlation step and interval(s)
magnetic declination(ie. the difference between true and magnetic North)
search angle(s)
depth range(s)
replay scale(s)
the frequency for rose diagrams
(quality control is exercised in accordance with the correlation interval used,
alternatively all correlations may be displayed on request)

The following information is a listing of ALL the output from BPB's dipmeter analysis. The data is subdivided into three consecutive sets of data readings, being read from left to right. Below is a full description of each data item:

DEPTH	the depth corresponding to the centre of the correlation interval
CALIPER	the average borehole caliper recorded over the corrleation interval
HOLE DRIFT	the average borehole deviation from vertical over the correlation interval
HOLE AZIMUTH	the average borehole azimuth over the correlation interval in degrees East of true North
DIP ANGLE	the computed formation dip in degrees, from the horizontal plane
DIP AZIMUTH	the formation azimuth in degrees East from true North
CORRELATION	a measure of the reliability of the computed result. This parameter is also used in the visual display to determine the quality of result

Further recorrelations over any step & interval size are available on any scale over any section of the log. Alternative methods of presentation, or analysis may be made available on request.

TW-84D-422 Magnetic declination 26.ØØ degrees East of North Ø2-AUG-84
********** Correlation step 1.ØØ metres ,interval 2.ØØ metres Search angle 8Ø. degrees PAGE 1

DEPTH metres	CAL. ins.	BOREHOLE TILT	BOREHOLE AZI	FORMATION DIP	FORMATION AZI	MIN. COR.	DEPTH metres	CAL. ins.	BOREHOLE TILT	BOREHOLE AZI	FORMATION DIP	FORMATION AZI	MIN. COR.	DEPTH metres	CAL. ins.	BOREHOLE TILT	BOREHOLE AZI	FORMATION DIP	FORMATION AZI	MIN. COR.
34.ØØ	2.8	2.7	2Ø9.	68.1	2Ø5.	Ø.24	35.ØØ	2.8	2.7	21Ø.	27.7	2Ø8.	Ø.77	36.ØØ	2.8	2.7	21Ø.	26.Ø	2Ø7.	Ø.72
37.ØØ	2.8	2.7	2Ø9.	14.9	2Ø3.	Ø.34	38.ØØ	2.8	2.7	2Ø9.	17.8	2Ø3.	Ø.39	39.ØØ	2.8	2.7	2Ø9.	19.8	2Ø8.	Ø.58
4Ø.ØØ	2.8	2.7	2Ø8.	16.5	42.	Ø.61	41.ØØ	2.8	2.6	2Ø7.	56.2	46.	Ø.43	42.ØØ	2.8	2.6	2Ø6.	21.9	88.	Ø.33
43.ØØ	2.8	2.6	2Ø6.	2Ø.9	28.	Ø.32	44.ØØ	2.8	2.6	2Ø6.	11.2	12.	Ø.66	45.ØØ	2.8	2.6	2Ø6.	12.2	6.	Ø.7Ø
46.ØØ	2.8	2.6	2Ø6.	14.3	29.	Ø.66	47.ØØ	2.8	2.6	2Ø6.	16.8	44.	Ø.55	48.ØØ	2.8	2.6	2Ø6.	51.3	38.	Ø.33
49.ØØ	2.8	2.6	2Ø6.	22.8	12.	Ø.55	5Ø.ØØ	2.8	2.6	2Ø6.	24.9	6.	Ø.84	51.ØØ	2.8	2.6	2Ø6.	6.3	59.	Ø.75
52.ØØ	2.8	2.6	2Ø6.	6.7	85.	Ø.69	53.ØØ	2.8	2.7	2Ø4.	5.2	126.	Ø.71	54.ØØ	2.8	2.8	2Ø4.	5.5	151.	Ø.86
55.ØØ	2.8	2.7	2Ø6.	6.4	94.	Ø.92	56.ØØ	2.8	2.7	2Ø7.	5.7	88.	Ø.93	57.ØØ	2.8	2.7	2Ø7.	5.7	128.	Ø.72
58.ØØ	2.8	2.7	2Ø8.	7.5	139.	Ø.67	59.ØØ	2.8	2.7	2Ø8.	7.2	141.	Ø.64	6Ø.ØØ	2.8	2.7	2Ø8.	6.1	71.	Ø.64
61.ØØ	2.8	2.7	2Ø8.	6.1	9Ø.	Ø.77	62.ØØ	2.8	2.7	2Ø9.	6.1	126.	Ø.82	63.ØØ	2.8	2.8	2Ø9.	5.3	131.	Ø.87
64.ØØ	2.8	2.8	2Ø9.	55.1	8.	Ø.39	65.ØØ	2.8	2.8	2Ø8.	73.1	187.	Ø.22	66.ØØ	2.8	2.7	2Ø9.	7.Ø	69.	Ø.83
67.ØØ	2.8	2.7	2Ø8.	11.9	1Ø1.	Ø.84	68.ØØ	2.8	2.7	2Ø8.	11.9	127.	Ø.97	69.ØØ	2.8	2.8	2Ø7.	11.Ø	133.	Ø.82
7Ø.ØØ	2.8	2.8	2Ø6.	3.2	287.	Ø.81	71.ØØ	2.8	2.8	2Ø6.	9.1	3Ø5.	Ø.86	72.ØØ	2.8	2.8	2Ø7.	4.3	165.	Ø.77
73.ØØ	2.8	2.9	2Ø6.	21.6	31.	Ø.53	74.ØØ	2.8	2.9	2Ø6.	23.6	14.	Ø.37	75.ØØ	2.8	2.7	2Ø8.	1.5	225.	Ø.71
76.ØØ	2.8	2.7	2Ø9.	5Ø.3	131.	Ø.31	77.ØØ	2.8	2.7	2Ø9.	13.6	322.	Ø.62	78.ØØ	2.8	2.7	2Ø9.	1Ø.6	3Ø6.	Ø.37
79.ØØ	2.8	2.7	21Ø.	3.5	22.	Ø.55	8Ø.ØØ	2.8	2.7	21Ø.	4.8	5.	Ø.89	81.ØØ	2.8	2.7	2Ø9.	66.1	312.	Ø.41
82.ØØ	2.8	2.7	2Ø9.	28.8	127.	Ø.62	83.ØØ	2.8	2.7	21Ø.	7.1	154.	Ø.9Ø	84.ØØ	2.8	2.7	21Ø.	8.Ø	141.	Ø.83
85.ØØ	2.8	2.7	21Ø.	9.1	52.	Ø.73	86.ØØ	2.8	2.7	21Ø.	1Ø.2	43.	Ø.87	87.ØØ	2.8	2.7	2Ø9.	51.7	19.	Ø.43
88.ØØ	2.8	2.7	21Ø.	74.2	3Ø9.	Ø.21	89.ØØ	2.8	2.7	21Ø.	48.5	311.	Ø.4Ø	9Ø.ØØ	2.8	2.7	21Ø.	6Ø.5	331.	Ø.68
91.ØØ	2.8	2.7	21Ø.	3Ø.1	3Ø5.	Ø.98	92.ØØ	2.8	2.7	21Ø.	4.6	98.	Ø.8Ø	93.ØØ	2.8	2.7	211.	5.3	97.	Ø.77

COAL LITHOLOGY LOG

BPB

BOREHOLE	[illegible]
CLIENT	[illegible]
AREA	[illegible]
COUNTRY	[illegible]
DATE LOGGED	[illegible]
LOGGING ENGINEER	[illegible]
OPERATING RIG	[illegible]
DRILLER	[illegible]
CASING DEPTH	[illegible]
DEPTH DRILLER	[illegible]
DEPTH LOGGER	[illegible]
BOTTOM LOG INTERVAL	[illegible]
TOP LOG INTERVAL	[illegible]
CASING SIZE	[illegible]
BIT SIZE	[illegible]
TYPE FLUID IN HOLE	[illegible]
DENSITY	[illegible]
VISCOSITY	[illegible]
PH	[illegible]
FLUID LOSS	[illegible]
SOURCE OF SAMPLE	[illegible]
RM @ MEAS. TEMP	[illegible]
RMF @ MEAS. TEMP	[illegible]
RMC @ MEAS. TEMP	[illegible]
SOURCE RMF & RMC	[illegible]
RM @ BHT	[illegible]
TIME SINCE CIRC.	[illegible]
MAX. REC. TEMP.	[illegible]
EQUIP. LOCATION	[illegible]
RECORDED BY	[illegible]
WITNESSED BY	[illegible]

RUN NO. [illegible]

BOREHOLE RECORD

GAMMA RAY
BULK DENSITY
CALIPER

CASING TYPE
COAL
FORMATION
DENSITY

OPERATOR'S RECORD

RUN NO.	BIT SIZE	CASING SIZE	CASING WEIGHT	FROM	TO
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

RECORDED DATA

RUN NO.	PASS NO.	DATE	TIME	LOGGING SPEED (FPM)	TYPE OF RECORDED DATA	TOOL STRING (TOP TO BOTTOM)
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

REMARKS

[illegible]

WITNESSED BY

[illegible]

RECORDED BY

[illegible]

LOGGING ENGINEER

[illegible]

OPERATING RIG

[illegible]

DRILLER

[illegible]

DATE LOGGED

[illegible]

AREA

[illegible]

COUNTRY

[illegible]

BOREHOLE

[illegible]

CLIENT

[illegible]

FIELD

0

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EQUIPMENT AND RECORDING DATA

COAL COMBINATION SONDE

LOG	EQUIPMENT SONDE	SOURCE	CALIBRATION	LOG LOGGED	RECORDING DISPLAY	SPEED	PANEL DATA	NORM	DEPTHS FROM	TO	SEAM LOG RUN
GAMMA RAY	113		9912								
BULK DENSITY			275	F	0670		0%	5	1.07	1.76	
CALIPER	SIDEWALL	POSITION	2.4.4		1170		0%	1.3	1.70	1.92	

COAL QUALITY/SEAM THICKNESS LOG INTERVALS (Refer to detailed log)

	FROM	TO	INTERVAL
INTERVAL			TOTAL

ADDITIONAL SONDES RUN

SONDE	LOG	GENERAL SCALE LOG/SCALE LOG	DETAIL SCALE LOG/SCALE LOG
1300		4.0.0.0	

REFER TO ADDITIONAL HEADINGS

REMARKS

Tool @ 0.15

Logging Depth

Tool start 33.50m on Pressure up

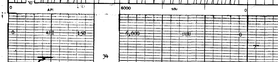
Acquisition below this point.

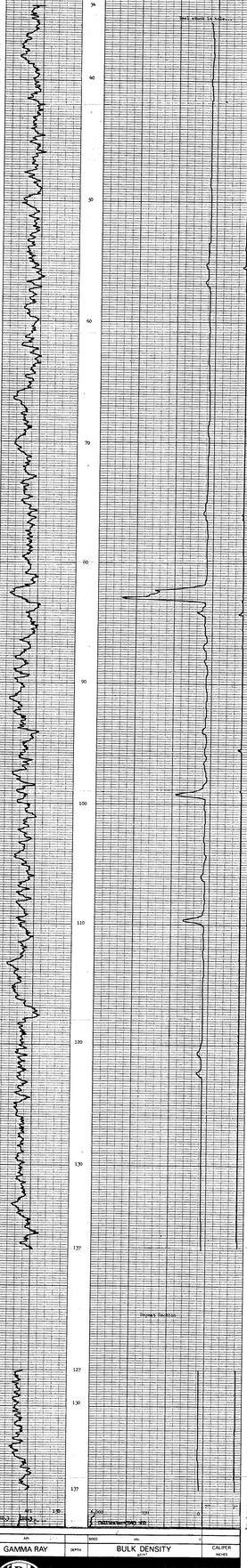
BPB COAL LITHOLOGY LOG

CALIBRATION DATA

GAMMA RAY	DEPTH	BULK DENSITY	CALIPER
		g/cm³	INCHES

HOLE SIZE CORRECTION DATA





GAMMA RAY	BULK DENSITY	CALIPER
	g/cm³	INCHES

BPB

BOREHOLE [illegible]

AREA [illegible]

CLIENT [illegible]

COUNTRY [illegible]

COAL LITHOLOGY LOG

Tk-Teshwa 84/8/8

240

BPB

BOREHOLE 423 (2)

CLIENT

AREA

COUNTRY

DATE LOGGED

DEPTH SCALE

M OR FT

BOREHOLE DATA REFER TO LOG

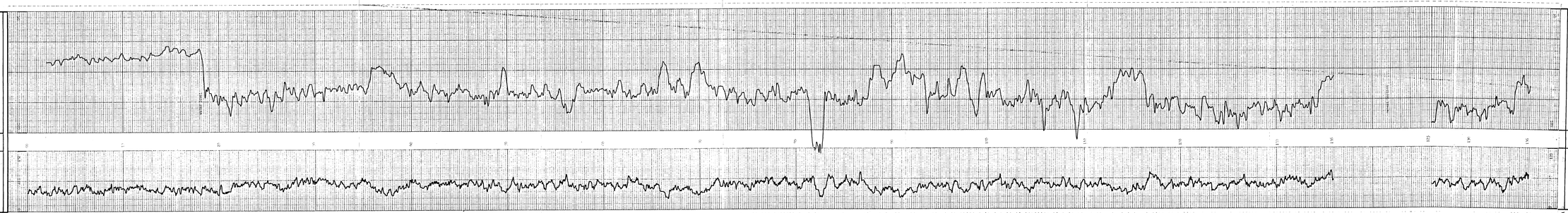
OPERATION DATA REFER TO LOG

EQUIPMENT AND RECORDING DATA

LOG	TAPING		PANEL		LOG
	LOG	STATIC	TECH.	OPERATOR	A.S.	NORM.
	MAX.		MIN.			

REMARKS

DEPTH



DEPTH

AREA

COUNTRY

BOREHOLE

CLIENT

BPB

The Stratum

Project

240

BP

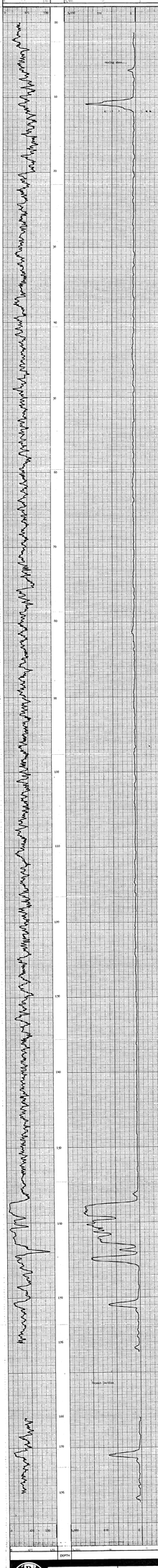
BOREHOLE	0
CLIENT	Tamar Development Company
DATE	18/8/88
SURVEYED BY	Geophysics
DRILLED BY	Tamar Development Company
DRILLING METHOD	Rotary
DRILLING FLUID	Water
DRILLING CONTRACTOR	Tamar Development Company
DRILLING RIG	Rotary
DRILLING DATE	18/8/88
DRILLING TIME	1 hr
DRILLING PROGRESS	0
DRILLING DEPTH	0
DRILLING DIAMETER	6"
DRILLING DIRECTION	Vertical
DRILLING ANGLE	0
DRILLING AZIMUTH	0
DRILLING COMMENTS	
SURVEYED DATE	18/8/88
SURVEYED TIME	1 hr
SURVEYED PROGRESS	0
SURVEYED DEPTH	0
SURVEYED DIAMETER	6"
SURVEYED DIRECTION	Vertical
SURVEYED ANGLE	0
SURVEYED AZIMUTH	0
SURVEYED COMMENTS	

EQUIPMENT AND RECORDING DATA

LOG	SONDE	EQUIPMENT	CALIBRATOR	TIMING	FLUID	PANEL	CALIBRATION	DEPTH
	2221	3202						
	2222	3203						
	2223	3204						
	2224	3205						
	2225	3206						

ADDITIONAL SONDES RUN				REMARKS
SONDE	LOG	COMMENCE DEPTH	FINISH DEPTH	

DATUM	0	DEPTH	



BOREHOLE	0
CLIENT	Tamar Development Company Ltd
AREA	Kitson
COUNTRY	Jamaica

TC-Telkwa

84/3/18

240

SEAM THICKNESS LOG

BPB

BOREHOLE 409 (2)

CLIENT [illegible]

AREA [illegible]

COUNTRY [illegible]

DATE LOGGED [illegible]

DEPTH SCALE 1:200

SONDE TYPE
COAL COMBINATION SONDE

LOG SUITE
CALIPER
B.R. DENSITY

SEAM THICKNESS LOG INTERVALS

FROM	TO	THICKNESS
155	156	1.00
158	160	2.00
162	164	2.00
165	168	3.00
170	172	2.00
173		

REMARKS

BOREHOLE DATA
RIG TYPE: CALIBRATION DATE: [illegible]

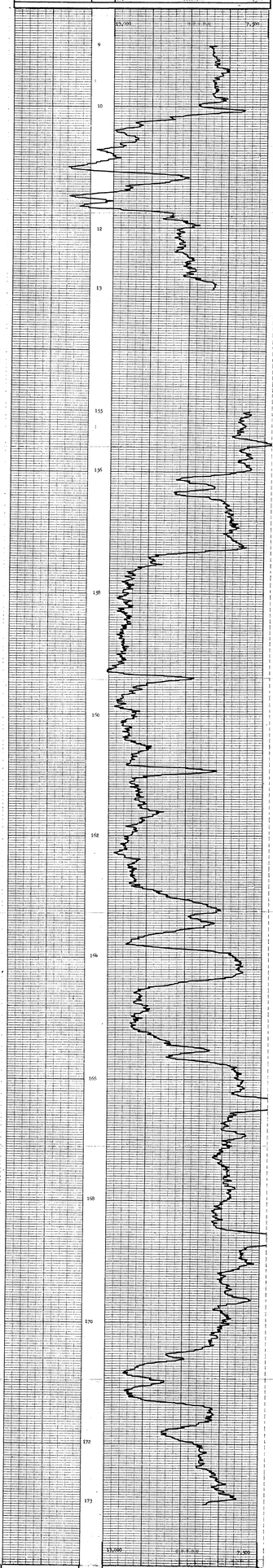
OPERATION DATA
RIG TYPE: CALIBRATION DATE: [illegible]

EQUIPMENT AND RECORDING DATA
COAL COMBINATION SONDE
SERIAL NO.: [illegible]
CALIBRATION DATE: [illegible]
CALIBRATION DATE: [illegible]

DEPTH	SCALE	RESOLUTION
155	1:200	0.5
156		
158		
160		
162		
164		
165		
168		
170		
172		
173		

B P B SEAM THICKNESS LOG

DEPTH	BED RESOLUTION DENSITY
	13,000 0.8 g/cm³ 7,500



DEPTH	BED RESOLUTION DENSITY
	13,000 0.8 g/cm³ 7,500

BPB

BOREHOLE 409 (2)

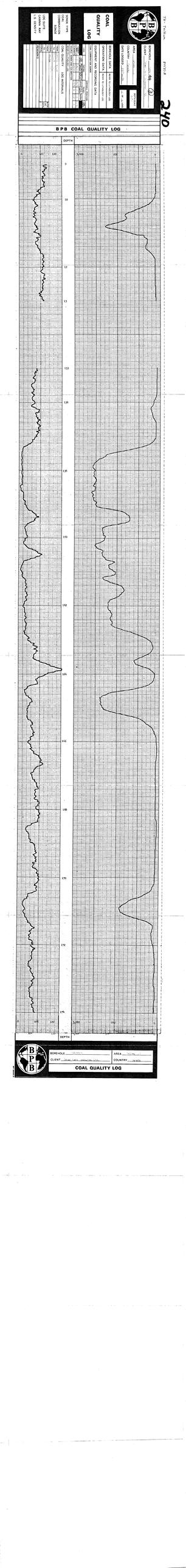
CLIENT [illegible]

AREA [illegible]

COUNTRY Canada

SEAM THICKNESS LOG

MF 8 0 0 0 0 8


BPB
COAL QUALITY LOG
BOREHOLE DATA
EQUIPMENT AND RECORDING DATA
COAL QUALITY LOG INTERVALS
DEPTH
BOREHOLE
AREA
CLIENT
COUNTRY
COAL QUALITY LOG
BPB COAL QUALITY LOG
240

To: Tatum Well(s) # 240

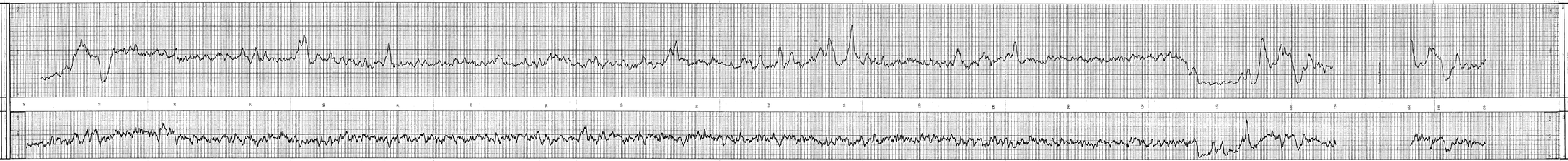
BPB

WELLSITE GEOLOGIST	
SCHEDULE	4
CLIENT	
AREA	
COUNTRY	
DATE LOGGED	
BOREHOLE DATA	
OPERATION DATA	
EQUIPMENT AND RECORDING DATA	

UNIT	TYPE	SERIAL NO.	PROBE TYPE	SERIAL NO.	CALIB.

START	FINISH

REMARKS



DEPTH

CLIENT

AREA

COUNTRY

SCHEDULE

EQUIPMENT

COAL LITHOLOGY LOG

BPB

LOG SUITE: GAMMA RAY / DENSITY

COAL SONDE CALIBRATION

SONDE TYPE

BOREHOLE: [illegible] 0
CLIENT: [illegible]
AREA: [illegible]
DATE LOGGED: 26/06/85
LOGGING ENGINEER: [illegible]
DRILLING CONTRACTOR: [illegible]
RIG: [illegible]

REFERENCE DATA

LOG	DEPTH	DATUM
DRILLER	[illegible]	[illegible]
LOGGER	[illegible]	[illegible]

CASING RECORD

	SIZE	FROM	TO
CASING	[illegible]	[illegible]	[illegible]
LINER	[illegible]	[illegible]	[illegible]

FLUID RECORD

	TYPE	LEVEL
BEFORE	[illegible]	[illegible]
AFTER	[illegible]	[illegible]

OPERATION DATA

RUN NO.	DATE	CASING SHOE	TOOL ZERO	LOGGED INTERVAL	LOGGING SPEED	TIME AT TD
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

REMARKS

[illegible]

EQUIPMENT AND RECORDING DATA

COAL COMBINATION SONDE

LOG	SONDE	SOURCE	CALIBRATOR	TAPING: LOG NAMES	TAPING: RECORD SPEED	TAPING: DIRECT/REPLAY	PANEL: SPEED	PANEL: TC DATA	PANEL: NORM	CAL CHECK	DEPTH: FROM	DEPTH: TO	DEPTH: BRING	BEAM LOG RUN
GAMMA RAY														
DENSITY														
CALIPER														

COAL QUALITY/SEAM THICKNESS LOG INTERVALS (Refer to stream log)

FROM					INTERVAL TOTALS
TO					
INTERVAL					

ADDITIONAL SONDES RUN

SONDE	LOG	GENERAL SOLVE MEDIA/CAT LOG	DETAIL MEDIA/CAT LOG

REFER TO ADDITIONAL HEADINGS

REMARKS

[illegible]

BPB COAL LITHOLOGY LOG

CALIBRATION DATA

JG No. 371 VALUE 1000 @ 5 DAM

JG MARK SHOWN AT ABOVE VALUE 40.3

JG CAL DATE: [illegible] VALUE 1955 500@1.19gm/cc

JG No. 1776 SPAN 4,000 NORM 2000 @ 2.20

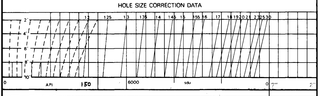
GAMMA RAY

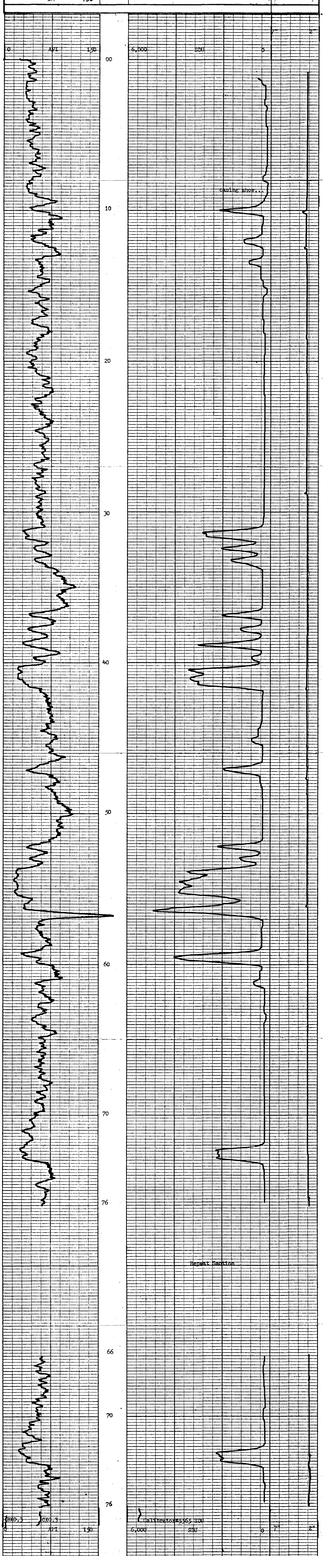
DEPTH

BULK DENSITY gm/cc

CALIPER INCHES

HOLE SIZE CORRECTION DATA





GAMMA RAY

DEPTH

BULK DENSITY gm/cc

CALIPER INCHES

BPB

BOREHOLE [illegible]
AREA [illegible]
CLIENT [illegible]
COUNTRY Canada

COAL LITHOLOGY LOG

BPT 1111299818

240

TK-Telkwa 84(3)A

240

BOREHOLE TK84C-425 (2)

CLIENT Crows Nest Resources Ltd.

AREA Telkwa B.C.

COUNTRY Canada

DATE LOGGED 24/Jun/84

DEPTH SCALE 1:20

2 OF 4 LOGS

SEAM THICKNESS LOG

BOREHOLE DATA — REFER TO LITHOLOGY LOG

OPERATION DATA — REFER TO LITHOLOGY LOG

EQUIPMENT AND RECORDING DATA

COAL COMBINATION SONDE

SONDE TYPE: COAL COMBINATION SONDE

LOG SUITE: CALIPER, B.R. DENSITY

SOURCE SONDE AND CALIBRATION REFER TO LITHOLOGY LOG

SEAM THICKNESS LOG INTERVALS

FROM	75.0m	61.0m	49.0m	43.0m
TO	71.0m	51.0m	46.0m	30.0m
INTERVAL	4.0m	10.0m	3.0m	13.0m

REMARKS

B P B SEAM THICKNESS LOG

CALIPER (INCHES)	DEPTH	BED RESOLUTION DENSITY

CALIPER (INCHES)	DEPTH	BED RESOLUTION DENSITY

BOREHOLE TK84C-425

CLIENT Crows Nest Resources Ltd.

AREA Telkwa B.C.

COUNTRY Canada

SEAM THICKNESS LOG

MY 88002 R

240

COAL QUALITY LOG

BORE TYPE: CORRELATION / SONIC

LOG SUITE: GAMMA RAY / E.S. / DENSITY / CALIPER

BOREHOLE CLIENT: BPB
COUNTRY: Canada
DATE LOGGED: 27 - 8 - 1987

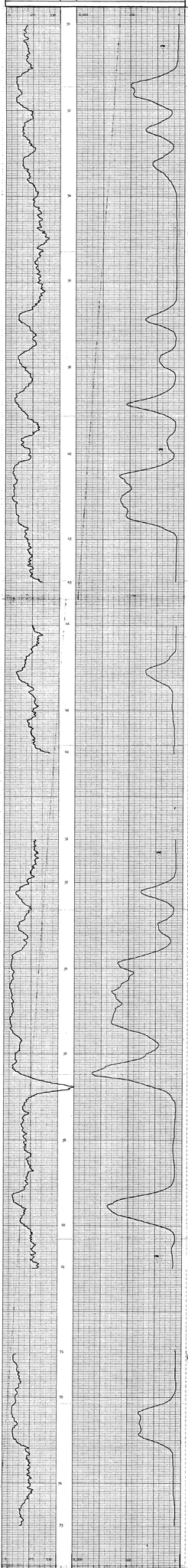
BORE DATA: WATER DEPTH / KELLY BUSHING / GROUND LEVEL
OPERATING DATA: MAKE THE INTERVALS ON
EQUIPMENT AND RECORDING DATA: COMPANY: Geophysics / MODEL: 1 / SERIAL NO.: 1 / CALIBRATION DATE: 27-8-87

COAL QUALITY LOG INTERVALS: 0.000 – 0.000 / 0.000 – 0.000 / 0.000 – 0.000

BPB COAL QUALITY LOG

	DEPTH	
Gamma Ray		COAL BULK DENSITY

HOLE SIZE CORRECTION DATA



DATE 27-8-87		COAL BULK DENSITY
	DEPTH	

BOREHOLE: [illegible] — AREA: [illegible]
CLIENT: [illegible] — COUNTRY: Canada

COAL QUALITY LOG

Tk-Telkwa 84(3)A

240

Gamma Ray & Sandstone Porosity Log.

BOREHOLE 7[illegible]-425 (4)

CLIENT Crown West Resources Ltd.

AREA Telkwa [illegible]

COUNTRY Canada

DATE LOGGED 24/Jun/84

DEPTH SCALE 1:1[illegible]

[illegible] OF [illegible] LOGS

BOREHOLE DATA	REFER TO Lithology	LOG
OPERATION DATA	REFER TO Lithology	LOG

EQUIPMENT AND RECORDING DATA

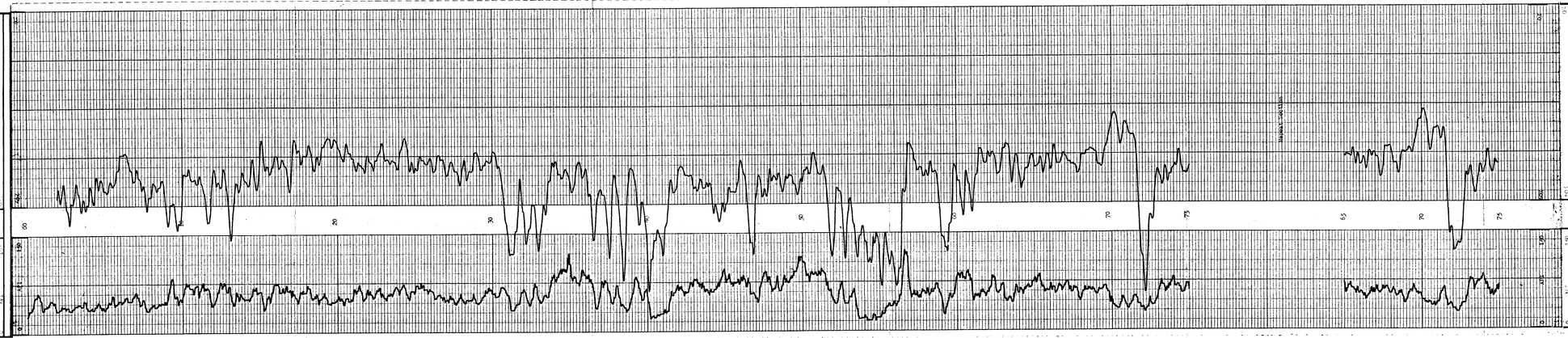
LOG	TAPING			PANEL			CAL. COEFF.
	LOG TAPED	RECORDING SPEED	CORRECTION REPLAY	SPEED	Y AXIS	NORM	
[illegible]	Y	2m/m	[illegible]	2m/m	1		1.[illegible]
[illegible]	Y	2m/m	[illegible]	2m/m	1	1.0	
		MODE NO.	[illegible]	MODE NO.	[illegible]		

REMARKS

Sandstone Porosity

DEPTH

Gamma Ray



Sandstone Porosity

DEPTH

Gamma Ray

BOREHOLE 7[illegible]-425

CLIENT Crown West Resources Ltd.

AREA Telkwa [illegible]

COUNTRY Canada

240

Tk- Telkwa

DIPMETER ANALYSIS

CLIENT C.N.R.L.
BOREHOLE TW-84D-425 (5)
AREA TELKWA B.C
COUNTRY CANADA

84(3)A

DATE LOGGED.....24-JUN-84
DATE PROCESSED..02-AUG-84

COMMENTS.....

SEVERE SONDE ROTATION HAS CORRUPTED DATA.

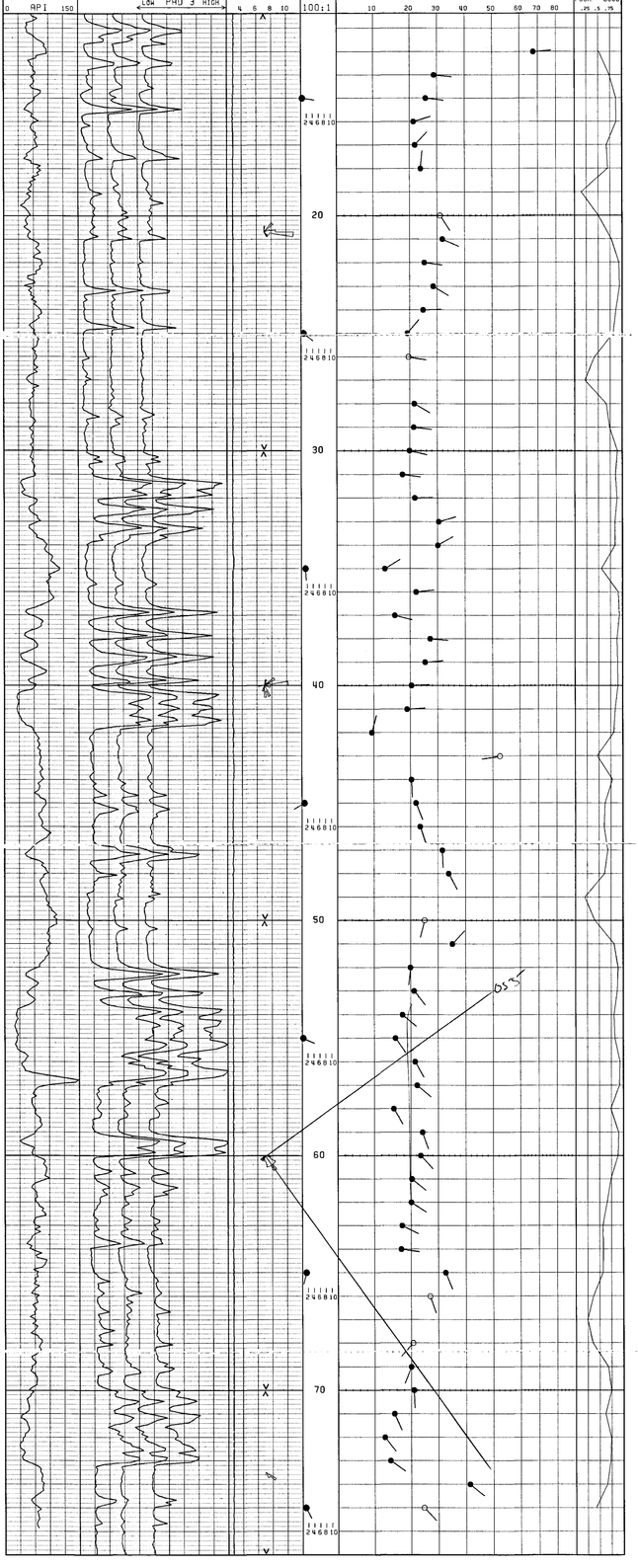
INTERPRETATION PARAMETERS

STEP 1.00M. DECLINATION 26.0 EAST
INTERVAL 2.00M. DEPTH RANGE 11.36 - 77.00M.
SEARCH ANGLE 80. DATE PROCESSED 02-AUG-84

AVERAGE BOREHOLE DEVIATION & DIRECTION ANNOTATED EVERY 10.0M.

ROSE DIAGRAMS SEGMENTED EVERY TEN DEGREES. .1" RADIUS PER DIP MARKER DISPLAYED

LEGEND:
GOOD (>0.50)
FAIR (>0.30)



240

BPB DIPMETER ANALYSIS
INTERPRETATION NOTES

(b)

1. All plots are correct to the resolution of the plotter used, ie. one hundredth of an inch. Vertical resolution may vary by up to one percent but each plot is correct within itself, the plotted data being dynamically merged with its gridded background Plots exceeding eight metres in length will be split into multiples thereof, however there is no data loss associated with this subdivision.

2. Rose diagrams are plotted between every major division and are delimited by two bold arrows. For certain replay scales it may be desirable to plot these less frequently; this option is available on request.

3. The borehole tilt and azimuth displayed on the plot are the average values over the whole major division.

4. The replay scale for pads 1, 2 & 3 are designed to give the maximum visual effect over the plotted interval. Replaying shorter sections of the curve will enhance this display.

5. The grid over which the computed dip information is displayed is locally linear. That is to say it is linear between Ø & 1Ø, degrees,1Ø & 2Ø,2Ø & 3Ø etc.

6. The correlation value will vary depending upon the interval size selected. Generally speaking the larger the correlation interval, the lower the value becomes. For this reason a direct comparison of this value for differing correlation intervals is meaningless, quality control being exercised with an appreciation of this effect.

7. For customised control of computed dipmeter analysis the following parameters must be specified:
   correlation step and interval(s)
   magnetic declination(ie. the difference between true and magnetic North)
   search angle(s)
   depth range(s)
   replay scale(s)
   the frequency for rose diagrams
   (quality control is exercised in accordance with the correlation interval used,
   alternatively all correlations may be displayed on request)

The following information is a listing of ALL the output from BPB's dipmeter analysis. The data is subdivided into three consecutive sets of data readings, being read from left to right. Below is a full description of each data item:

DEPTH	the depth corresponding to the centre of the correlation interval
CALIPER	the average borehole caliper recorded over the corrleation interval
HOLE DRIFT	the average borehole deviation from vertical over the correlation interval
HOLE AZIMUTH	the average borehole azimuth over the correlation interval in degrees East of true North
DIP ANGLE	the computed formation dip in degrees, from the horizontal plane
DIP AZIMUTH	the formation azimuth in degrees East from true North
CORRELATION	a measure of the reliability of the computed result. This parameter is also used in the visual display to determine the quality of result

Further recorrelations over any step & interval size are available on any scale over any section of the log. Alternative methods of presentation, or analysis may be made available on request.

TW-84D-425
****

Magnetic declination 26.ØØ degrees East of North
Correlation step 1.ØØ metres ,interval 2.ØØ metres Search angle 8Ø. degrees

Ø2-AUG-84
PAGE 1

DEPTH metres	CAL. ins.	BOREHOLE TILT	BOREHOLE AZI	FORMATION DIP	FORMATION AZI	MIN. COR.	DEPTH metres	CAL. ins.	BOREHOLE TILT	BOREHOLE AZI	FORMATION DIP	FORMATION AZI	MIN. COR.	DEPTH metres	CAL. ins.	BOREHOLE TILT	BOREHOLE AZI	FORMATION DIP	FORMATION AZI	MIN. COR.
13.ØØ	2.9	Ø.6	249.	67.6	85.	Ø.52	14.ØØ	2.9	Ø.9	228.	3Ø.Ø	96.	Ø.74	15.ØØ	2.8	1.2	21Ø.	26.6	97.	Ø.87
16.ØØ	2.8	1.4	192.	21.5	73.	Ø.88	17.ØØ	2.8	1.4	174.	22.1	42.	Ø.67	18.ØØ	2.8	1.3	156.	24.5	5.	Ø.7Ø
19.ØØ	2.8	1.1	138.	65.5	236.	Ø.14	2Ø.ØØ	2.8	Ø.9	121.	31.2	148.	Ø.5Ø	21.ØØ	2.8	Ø.5	99.	32.1	113.	Ø.78
22.ØØ	2.8	Ø.2	29.	26.Ø	98.	Ø.93	23.ØØ	2.8	Ø.3	298.	29.6	121.	Ø.95	24.ØØ	2.8	Ø.6	255.	25.5	87.	Ø.87
25.ØØ	2.8	Ø.9	238.	19.3	4Ø.	Ø.81	26.ØØ	2.8	1.1	219.	19.7	99.	Ø.42	27.ØØ	2.8	1.3	2ØØ.	17.5	8Ø.	Ø.22
28.ØØ	2.8	1.3	184.	21.8	12Ø.	Ø.67	29.ØØ	2.8	1.2	167.	21.6	96.	Ø.74	3Ø.ØØ	2.8	1.1	149.	19.9	1Ø2.	Ø.9Ø
31.ØØ	2.8	Ø.9	129.	18.Ø	97.	Ø.85	32.ØØ	2.8	Ø.6	1Ø5.	21.9	88.	Ø.89	33.ØØ	2.8	Ø.3	69.	3Ø.5	73.	Ø.84
34.ØØ	2.8	Ø.2	347.	3Ø.Ø	59.	Ø.84	35.ØØ	2.8	Ø.4	274.	13.1	57.	Ø.55	36.ØØ	2.8	Ø.7	255.	22.4	83.	Ø.91
37.ØØ	2.8	1.Ø	239.	15.8	1Ø4.	Ø.93	38.ØØ	2.8	1.1	221.	28.1	95.	Ø.88	39.ØØ	2.8	1.3	2Ø7.	26.1	85.	Ø.89
4Ø.ØØ	2.8	1.4	193.	2Ø.5	87.	Ø.9Ø	41.ØØ	2.8	1.4	177.	19.1	86.	Ø.84	42.ØØ	2.8	1.3	162.	9.5	14.	Ø.81
43.ØØ	2.8	1.2	149.	52.9	261.	Ø.46	44.ØØ	2.8	1.Ø	135.	2Ø.4	179.	Ø.78	45.ØØ	2.8	Ø.8	118.	22.2	159.	Ø.62
46.ØØ	2.7	Ø.5	1Ø6.	23.9	162.	Ø.61	47.ØØ	2.8	Ø.2	13Ø.	31.8	178.	Ø.68	48.ØØ	2.8	Ø.2	2Ø2.	34.3	153.	Ø.61
49.ØØ	2.7	Ø.4	252.	51.6	1Ø8.	Ø.2Ø	5Ø.ØØ	2.7	Ø.7	251.	25.7	194.	Ø.4Ø	51.ØØ	2.7	Ø.9	239.	35.8	42.	Ø.81
52.ØØ	2.7	1.Ø	227.	19.9	187.	Ø.89	53.ØØ	2.7	1.2	215.	21.3	141.	Ø.88	54.ØØ	2.7	1.3	2Ø3.	17.7	131.	Ø.81
55.ØØ	2.7	1.5	189.	15.8	146.	Ø.83	56.ØØ	2.7	1.5	175.	21.6	15Ø.	Ø.93	57.ØØ	2.7	1.4	162.	22.5	13Ø.	Ø.92
58.ØØ	2.7	1.2	149.	15.2	15Ø.	Ø.74	59.ØØ	2.7	1.Ø	136.	24.7	161.	Ø.9Ø	6Ø.ØØ	2.7	Ø.7	121.	24.Ø	138.	Ø.89
61.ØØ	2.7	Ø.4	115.	2Ø.3	129.	Ø.74	62.ØØ	2.7	Ø.2	168.	2Ø.1	123.	Ø.66	63.ØØ	2.7	Ø.3	237.	17.6	116.	Ø.57
64.ØØ	2.7	Ø.6	253.	17.3	97.	Ø.57	65.ØØ	2.7	Ø.8	246.	32.9	159.	Ø.57	66.ØØ	2.7	1.Ø	234.	27.7	161.	Ø.37
67.ØØ	2.7	1.1	226.	22.5	16Ø.	Ø.24	68.ØØ	2.7	1.2	218.	2Ø.7	222.	Ø.35	69.ØØ	2.7	1.3	21Ø.	2Ø.Ø	2Ø2.	Ø.67
7Ø.ØØ	2.7	1.3	2Ø3.	21.Ø	177.	Ø.75	71.ØØ	2.7	1.4	195.	15.3	156.	Ø.62	72.ØØ	2.7	1.4	186.	12.7	143.	Ø.73
73.ØØ	2.7	1.3	173.	14.3	125.	Ø.72	74.ØØ	2.7	1.2	161.	41.5	129.	Ø.65	75.ØØ	2.7	1.1	153.	25.2	137.	Ø.42

TK- Telkwa

84(3)A

240

COAL LITHOLOGY LOG

DSA

BOREHOLE [redacted] 426 (1)
Crows Nest Resources Ltd.

AREA Telkwa B.C.

COUNTRY Canada

DATE LOGGED Canada

DEPTH SCALE 1:100

1 OF 2 LOGS

SONDE TYPE: COAL COMBINATION SONDE

LOG SUITE: GAMMA RAY, L.S. DENSITY, CALIPER

BOREHOLE DATA

PERMANENT DATUM	Ground Level	
ELEVATION OF P.D.		
	BPB	DRILLER
MEASUREMENTS FROM	G.L	G.L
DEPTH REACHED	47.0m	53.9m
CASING SHOE	9.1m	9.1m
BIT SIZES	1 3" TO TD	2 TO
	3 TO	4 TO
CASING SIZES	1 3.5" TO 9.1	2 TO

FLUID DATA

NATURE	Kwik-Thik/Water
SG	1.0 gms/cc.
LEVEL	15.0 m
VISCOSITY	N/A
Rm at meas temp	N/A
BHT	N/A

OPERATION DATA

FIRST READING	43.0m
LAST READING	00.0m
INTERVAL LOGGED	43.0m
UNIT-TRUCK No	V216/U124
ENGINEER	JM
WITNESS	

EQUIPMENT AND RECORDING DATA

COAL COMBINATION SONDE

LOG	EQUIPMENT			TAPING			PANEL			CAL COEFF	DEPTHS			SEAM LOG RUN
	SONDE	SOURCE	CALIBRATOR	LOG TAPED	RECORD SPEED	DIRECT or REPLAY	SPEED	TC SECS	NORM		FROM	TO	INTERVAL	
	1293	5822												
GAMMA RAY			371	Y	9m/m	D	9m/m	1	-	1.6	45	00	45	
L.S. DENSITY	SIDEWALL POSITION		3996	Y	9m/m	D	9m/m	.3	7.08	-	45	00	45	
CALIPER			7"..2"	Y	9m/m	D	9m/m	.3	-	-	45	00	45	

COAL QUALITY/SEAM THICKNESS LOG INTERVALS (Refer to relevant log)

FROM		INTERVAL TOTAL
TO		
INTERVAL		

ADDITIONAL SONDES RUN

SONDE	LOG	GENERAL SCALE LOG	DETAIL SCALE LOG
510	DSN	1:100	

REFER TO ADDITIONAL HEADINGS

REMARKS

Start Op 17:30

Finish Op 18:15

BPB COAL LITHOLOGY LOG

CALIBRATION DATA

JIG No 371 VALUE 49@ 5" DIAM

JIG MARK SHOWN AT ABOVE VALUE = N/A

JIG CAL DATE 08/Jun/84 JIG VALUE 5565 SDU @ g/cm³

JIG No 3996 SPAN 6,000 NORM SDU/CPS = 7.08

2" ins 534 cps

7" ins 945 cps

GAMMA RAY	DEPTH	BULK DENSITY g/cm³	CALIPER INCHES

HOLE SIZE CORRECTION DATA

0 API 150		6000 sdu 0	7" 2"
GAMMA RAY	DEPTH	BULK DENSITY g/cm³	CALIPER INCHES

BOREHOLE TK84-426 AREA Telkwa B.C

CLIENT Crows Nest Resources Ltd. COUNTRY Canada

COAL LITHOLOGY LOG

MY (1)137483 R

Tk- Telkwa

84(3)A

240

BOREHOLE 426 (2)

CLIENT Crown Nest Resources Ltd.

AREA Telkwa

COUNTRY Canada

DATE LOGGED 20/9/84

DEPTH SCALE 1:1

__ OF __ LOGS

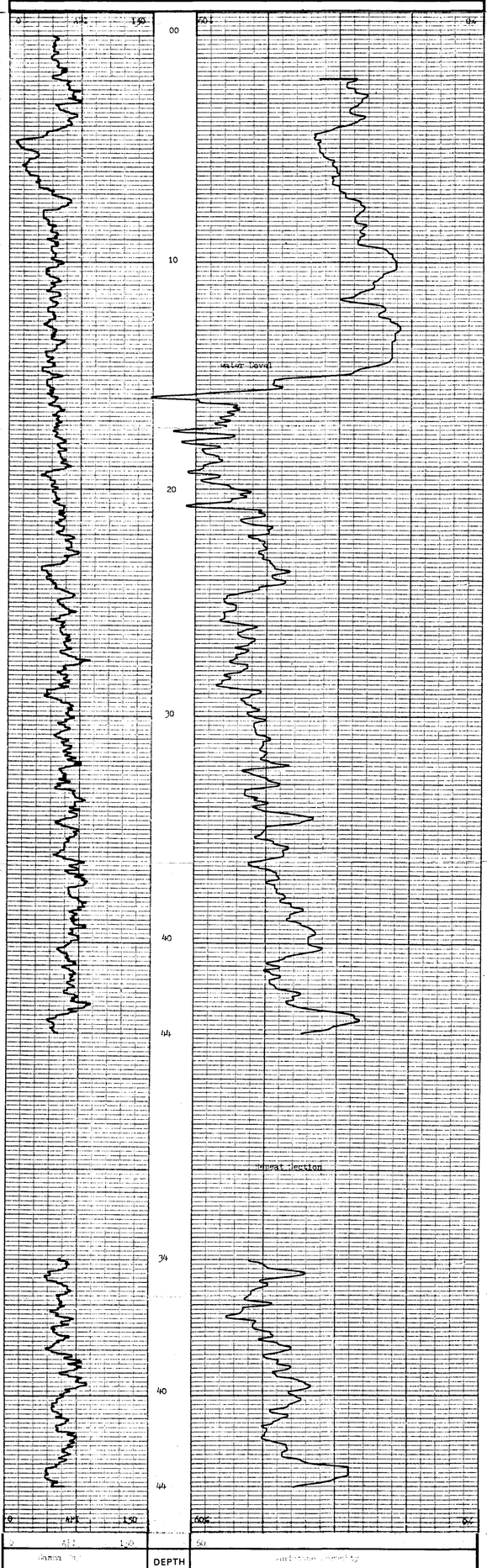
BOREHOLE DATA — REFER TO Mitchell LOG

OPERATION DATA — REFER TO [illegible] LOG

EQUIPMENT AND RECORDING DATA

LOG	TAPING			PANEL		CAL COEFF
LOG TAPED	RECORD SPEED	DIRECTION REPLAY	SPEED	T.C. SECS	NORM	
[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]
	SOURCE NO.	[illegible]	SOURCE NO.	[illegible]		

REMARKS



BOREHOLE [illegible]

CLIENT Crown Nest Resources Ltd.

AREA [illegible]

COUNTRY Canada

MY A58452R

JK-Tellico

84/3/18

2.40

BPB

BOREHOLE MW3-427 ①
CLIENT Crows Nest Resources Ltd.
AREA Tellico
COUNTRY Canada
DATE LOGGED 84/Jan/22
DEPTH SCALE 1:200
1 OF 2 LOGS

OPEN HOLE (Bare, Mining, Uncased, Tubing, Screen)

BOREHOLE DATA

PERMANENT DATUM	ground level
ELEVATION OF PD	
MEASUREMENTS FROM	DRILLER
DEPTH REACHED	411.5m
CASING SHOE	36m
BIT SIZES	1 311 mm TO 36m
	2 TO
	3 TO
CASING SIZES	1 244 mm TO 13.5m
	2 TO
	4 TO

FLUID DATA

NATURE	water
S.G.	1.0
LEVEL	10
VISCOSITY	
PH or CHEM. RMS	
BHT	

OPERATION DATA

TIME READING	
LAST READING	
INTERVAL LOGGED	
UNIT - TRUCK No	
ENGINEER	
WITNESS	

EQUIPMENT AND RECORDING DATA

LOG	EQUIPMENT SONDE	EQUIPMENT SOURCE	EQUIPMENT CALIBRATOR	TAPING LOG SPEED	TAPING RECORD/DIRECT SPEED	TAPING REPLAY	PANEL SPEED	PANEL T.C. SECS	PANEL NORM	CAL COEFF	DEPTHS FROM	DEPTHS TO	DEPTHS INTERVAL
	1703	5022											
GAMMA			371	4	0m/m	1	0m/m	1	-	1.6	36	00	36
DEN			2996	Y	0m/m	1	0m/m	2	7.0	.703	36	00	36

ADDITIONAL SONDES RUN

SONDE	LOG	GENERAL SCALE LOG	DETAIL SCALE LOG
510	DC	100:1	

REFER TO ADDITIONAL HEADINGS

REMARKS

Start Up 0900
Finish 0945

Logged through rods, scales changed accordingly.

GAMMA RAY | DEPTH | LONG SPACED DENSITY

0 API 120 | 2000 kg/m³ 0

CASING SHOE

INTERFACE

0 API 120 | 3000 kg/m³ 0

GAMMA RAY | DEPTH | LONG SPACED DENSITY

BPB

BOREHOLE MW3-427 | AREA Tellico
CLIENT Crows Nest Resources Ltd. | COUNTRY Canada

MT 93160 B

Tk- Telkwa 84(3)A

240

BOREHOLE 427 (2)

CLIENT

AREA

COUNTRY

DATE LOGGED

DEPTH SCALE

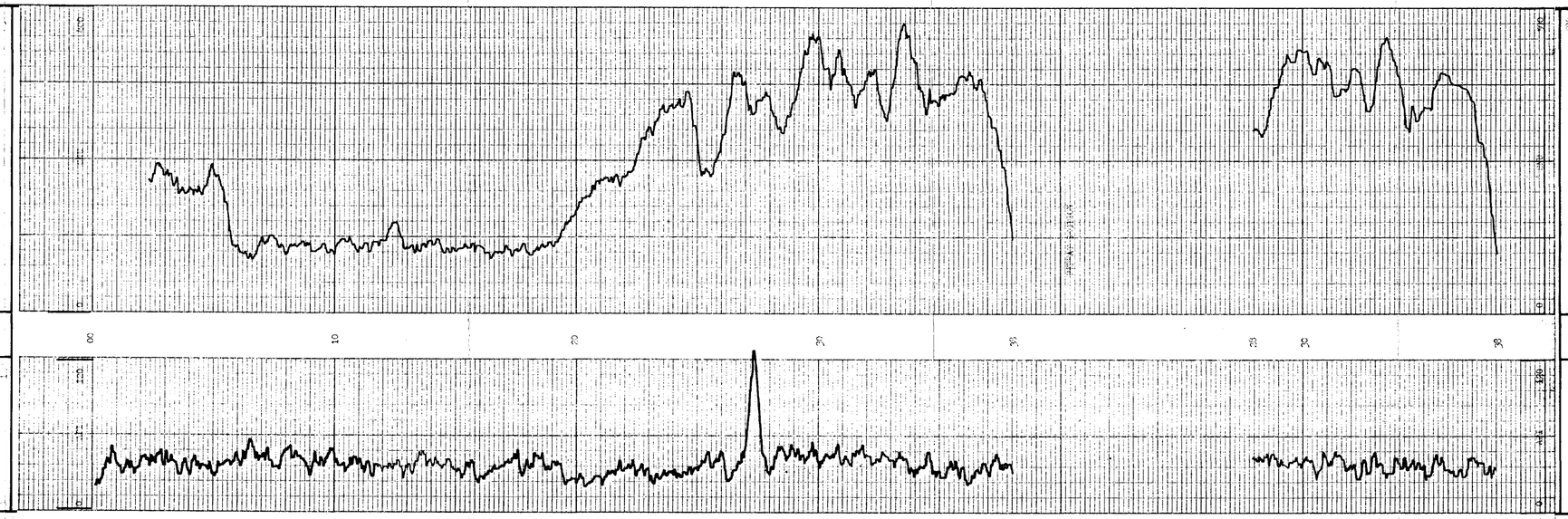
OF LOGS

BOREHOLE DATA	REFER TO	LOG
OPERATION DATA	REFER TO	LOG

EQUIPMENT AND RECORDING DATA

LOG	TAPING			PANEL			CAL COEFF
	LOG TAPED	RECORD SPEED	DIRECT REPLAY	SPEED	T.C. SECS	NORM	
					1	-	1.
					1		
		SONDE NO	-	SOURCE NO			

REMARKS



BOREHOLE

CLIENT

AREA

COUNTRY

MY A3E4552R

84(3)A

240

BPB COAL LITHOLOGY LOG

BOREHOLE DATA

Ground Level

FLUID DATA

OPERATION DATA

DEPTH SCALE 100:1

1 OF 4 LOGS

CLIENT: Crows Nest Resources Ltd.

AREA: Telkwa

COUNTRY: Canada

DATE LOGGED: 25/June/84

EQUIPMENT AND RECORDING DATA

COAL COMBINATION SONDE

LOG	EQUIPMENT			TAPING			PANEL			CAL COEFF	DEPTHS			SEAM LOG RUN
	SONDE	SOURCE	CALIBRATOR	LOG TAPED	RECORD SPEED	DIRECT or REPLAY	SPEED	TC SECS	NORM		FROM	TO	INTERVAL	
	1293	5822												
GAMMA RAY	SIDEWALL POSITION		371	Y	9m/m	D	9m/m	1	-	1.60	105	00	105	
L.S. DENSITY			3996	Y	9m/m	D	9m/m	.3	7.09	.708	105	00	105	
CALIPER			2"..7"	Y	9m/m	D	9m/m	.3	-	-	105	00	105	

COAL QUALITY/SEAM THICKNESS LOG INTERVALS (Refer to relevant log)

				INTERVAL TOTAL
FROM	88	74	53	
TO	81	59	42	
INTERVAL	7	15	11	34

ADDITIONAL SONDES RUN					REMARKS
SONDE	LOG	GENERAL SCALE LOG	DETAIL SCALE LOG	REFER TO ADDITIONAL HEADINGS	Start Op: 1045
510	DSN	100:1			Finish Op: 1400

BPB COAL LITHOLOGY LOG

CALIBRATION DATA

JIG No. 371 VALUE 494 @ 5" DIAM

JIG MARK SHOWN AT ABOVE VALUE - x0.3

JIG CAL. DATE 8/June/84 JIG VALUE 5565 SDU @ 1.32 g/cm³ | 7 ins 345 cps

JIG No 3996 SPAN 6000 NORM SDU/CPS = 7.08 | 2 ins 534 cps

GAMMA RAY	DEPTH	BULK DENSITY g/cm³	CALIPER INCHES

HOLE SIZE CORRECTION DATA

0 API 150		6000 sdu 0	7" 2"
GAMMA RAY	DEPTH	BULK DENSITY g/cm³	CALIPER INCHES

BOREHOLE: [illegible] AREA: Telkwa

CLIENT: Crows Nest Resources Ltd. COUNTRY: Canada

COAL LITHOLOGY LOG

MY (1)137483 R

Tk-Telkwa 84(3)B

240

BOREHOLE 428 (2)

CLIENT

AREA Telkwa

COUNTRY Canada

DATE LOGGED

DEPTH SCALE 1:500

OF LOGS

BOREHOLE DATA REFER TO LOG

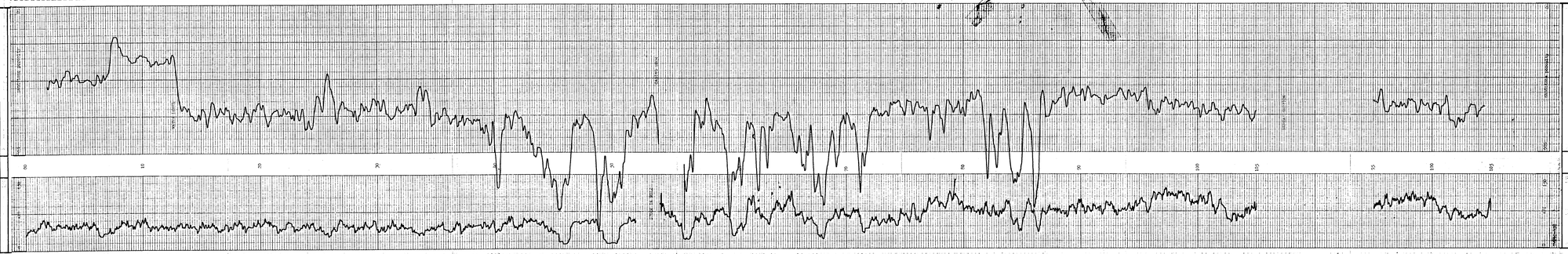
OPERATION DATA REFER TO LOG

EQUIPMENT AND RECORDING DATA

LOG	TAPING			PANEL			LOG
	LOG SPEED	RECORDING SPEED	RECORDING SPEED	SPEED	S.S. SEN	NORM	

SCALE 1:500 SHEET 1 OF 1

REMARKS

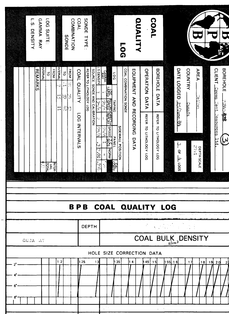


BOREHOLE

CLIENT

AREA

COUNTRY



240

BPB COAL QUALITY LOG
DEPTH
COAL BULK DENSITY
HOLE SIZE CORRECTION DATA

DATA SET
DEPTH
COAL BULK DENSITY

BOREHOLE
CLIENT Imperial Chemical Industries Ltd.
AREA
COUNTRY
COAL QUALITY LOG

Th- Tatham 94(2) A

240

BOREHOLE 4

CLIENT [illegible]

AREA [illegible]

COUNTRY [illegible]

DATE LOGGED [illegible]

DEPTH SCALE 1:50

CALIPER CALIBRATION

SEAM THICKNESS LOG

BOREHOLE DATA	REFER TO LITHOLOGY LOG
OPERATION DATA	REFER TO LITHOLOGY LOG
EQUIPMENT AND RECORDING DATA	

COAL COMBINATION SONDE

SONDE TYPE
COAL
COMBINATION SONDE

LOG SUITE
CALIPER
B.R. DENSITY

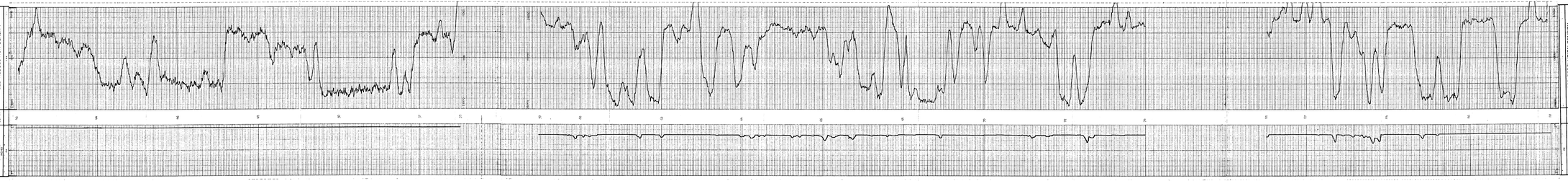
SEAM THICKNESS LOG INTERVALS

FROM		
TO		
FROM		
TO		
FROM		
TO		
REMARKS		

B P B SEAM THICKNESS LOG

BED RESOLUTION DENSITY

CALIPER



BED RESOLUTION DENSITY

CALIPER

DEPTH

BOREHOLE

CLIENT

AREA

COUNTRY

SEAM THICKNESS LOG

COAL LITHOLOGY LOG

BOREHOLE NO. 240

EQUIPMENT AND RECORDING DATA

COAL COMPARISON TOOLS

EQUIPMENT				TUNING				TIME CONSTANT		DEPTHS				
LOG	SONDE	SERIAL No.	CABLEHEAD	LOG SPEED	CALIBRATION SPEED	TIME CONSTANT	FILTER	LOG	FILTER	FROM	TO	SERIAL No.		SERVICE RUN
GAMMA RAY		227												
BULK DENSITY														
CALIPER														

COAL SEAM THICKNESS CALCULATIONS (Where a reference log)

ITEM	1	2	3	4	5	6
TOP	74.05	73.45	70.08	71.74		
BASE	75.20	75.74	74.76	73.74		
INTERVAL	1.15	2.29	4.68	2.00		

ADDITIONAL SONDES RUN

SONDE	LOG	CALIBRATION	SERIAL No.

NOTES TO ADDITIONAL HEADINGS

REMARKS

Spot @ 51.00

Drill to 80.0

INTERVAL TOTAL 92.74

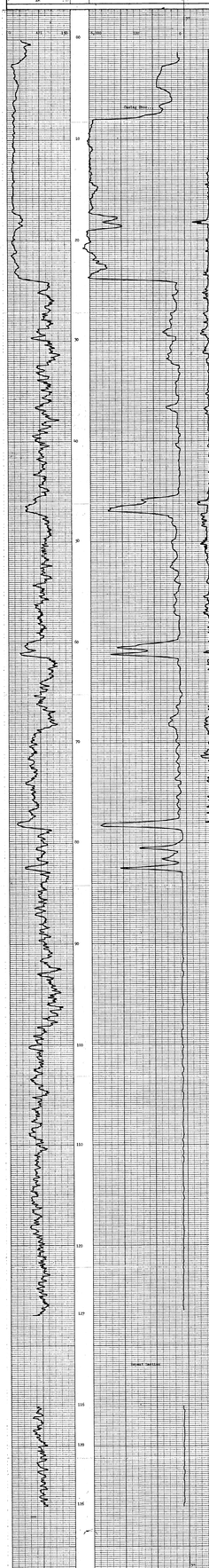
BPB COAL LITHOLOGY LOG

CALIBRATION DATA

At No. 123	Wrapped Log: 0 Scale	At No. 5110 Spans 0,000	Wrapped Log: 0 Scale
At Same Screen as Above Depth 123		At No. 5110 Spans 0,000	Wrapped Log: 0 Scale

GAMMA RAY | DEPTH | BULK DENSITY gm/cc | CALIPER inches

HOLE SIZE CORRECTION DATA

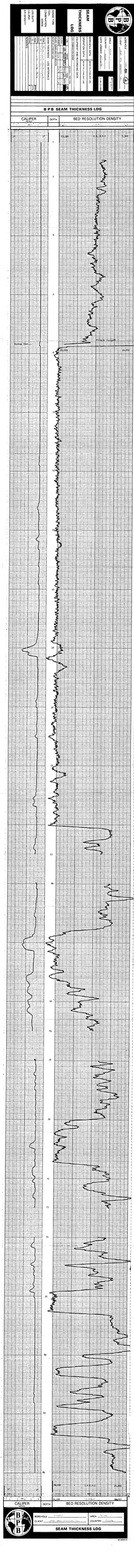


GAMMA RAY | DEPTH | BULK DENSITY gm/cc | CALIPER inches

BOREHOLE No.5137 AREA Llithgow

CLIENT Thames Valley Constructors Ltd COUNTRY Wales

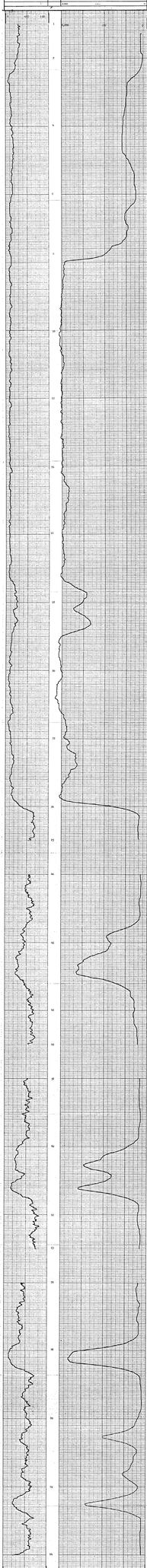
COAL LITHOLOGY LOG

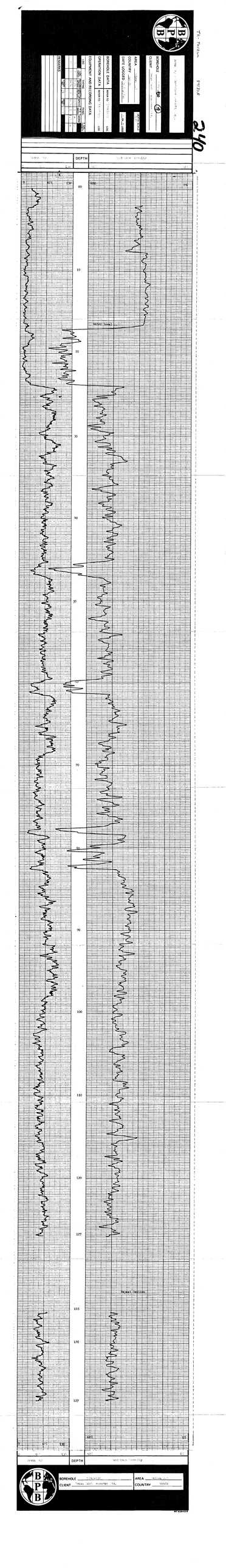


B P B SEAM THICKNESS LOG
CALIPER
DEPTH
BED RESOLUTION DENSITY
SEAM THICKNESS LOG

240

BPB	
COAL QUALITY LOG	
DENSITY	
COAL BULK DENSITY	
HOLE SIZE CORRECTION DATA	
DEPTH	
COAL BULK DENSITY	
DEPTH	
BPB	
SCHEDULE	
CLIENT	
AREA	
COUNTRY	
COAL QUALITY LOG	




BPB
BOREHOLE
CLIENT
AREA
COUNTRY
DATE LOGGED
RUN NO.
BOREHOLE DATA
OPERATION DATA
EQUIPMENT AND RECORDING DATA
DEPTH
Water level
Bedrock surface
240

Tk- Telkwa 84(3) A

240

Gamma Ray & Long Spaced Density Log
(Through Drill Rods.)

BOREHOLE TS84-430-A ①
CLIENT Crows Nest Resources Ltd.
AREA Telkwa B.C
COUNTRY Canada
DATE LOGGED 26/Jun/84
DEPTH SCALE 1:100
1 OF 3 LOGS

BOREHOLE DATA

PERMANENT DATUM	Ground Level	
ELEVATION OF P.D.	B.P.B.	DRILLER
MEASUREMENTS FROM	G.L.	
DEPTH REACHED	23.0m	26.5m
CASING SHOE	None set.	None set.
BIT SIZES	1 3" TO 2	2 TO
	3 TO 4	4 TO
CASING SIZES	1 N/A TO	2 TO

FLUID DATA

NATURE	Mud-Thik/Water
S.G	N/A
LEVEL	0.0m
VISCOSITY	N/A
Rm at meas. temp.	N/A
B.H.T	N/A

OPERATION DATA

FIRST READING	21.3m
LAST READING	00.0m
INTERVAL LOGGED	21.3m
UNIT - TRUCK No.	2216/A24
ENGINEER	RW
WITNESS	

EQUIPMENT AND RECORDING DATA

LOG	EQUIPMENT			TAPING			PANEL			CAL. COEFF	DEPTHS		
	SONDE	SOURCE	CALIBRATOR	LOG TAPED	RECORD SPEED	DIRECT or REPLAY	SPEED	T.C. SECS	NORM		FROM	TO	INTERVAL
	1293	5822											
GR			371	Y	9m/m	D	9m/m	1	-	1.6	21.3	00	21.3
LSD			3996	Y	9m/m	D	9m/m	.3	7.08	-	21.3	00	21.3

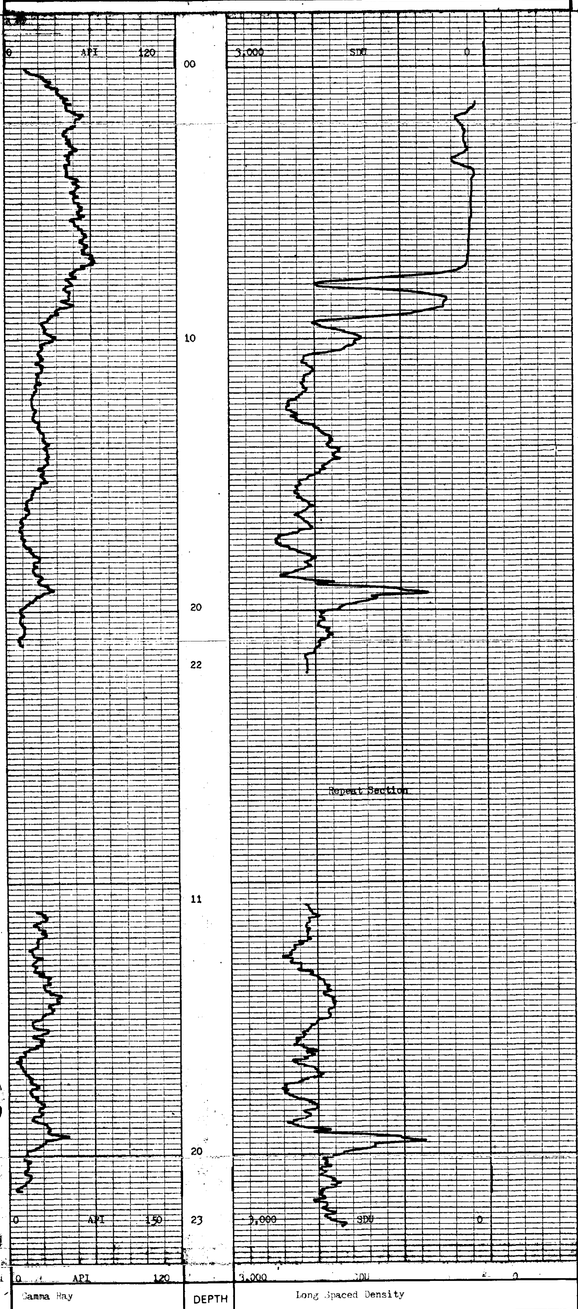
ADDITIONAL SONDES RUN

SONDE	LOG	GENERAL SCALE LOG	DETAIL SCALE LOG
510	DCN		

REFER TO ADDITIONAL HEADINGS

REMARKS

Logged through drill rods, scales adjusted accordingly.



BOREHOLE TS84-430-A
CLIENT Crows Nest Resources Ltd.
AREA Telkwa B.C
COUNTRY Canada

MT 95180 R

Tk - Talkua

94(3) H

240

SEAM THICKNESS LOG

BOREHOLE 490-A (2)
CLIENT
AREA
COUNTRY
DATE LOGGED
DEPTH SCALE
1 OF 1 LOGS

BOREHOLE DATA — REFER TO LITHOLOGY LOG
OPERATION DATA — REFER TO LITHOLOGY LOG
EQUIPMENT AND RECORDING DATA
COAL COMBINATION SONDE
SIDEWALL POSITION

LOG	TAPING	RECORDING	SPEED	PANEL	NORM
CALIPER					
B.R. DENSITY					

SOURCE SONDE AND CALIBRATION — REFER TO LITHOLOGY LOG

SEAM THICKNESS LOG INTERVALS

FROM		
TO		
INTERVAL		
FROM		
TO		
INTERVAL		

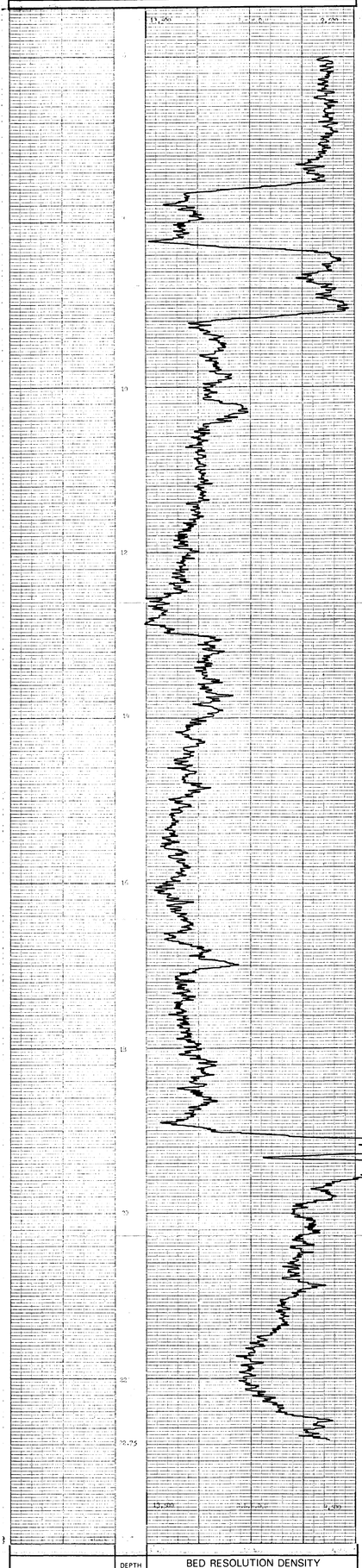
REMARKS

SONDE TYPE
COAL COMBINATION SONDE

LOG SUITE
CALIPER
B.R. DENSITY

B P B SEAM THICKNESS LOG

DEPTH	BED RESOLUTION DENSITY



DEPTH	BED RESOLUTION DENSITY

BPB

BOREHOLE
CLIENT
AREA
COUNTRY

SEAM THICKNESS LOG

MY88003A

Tk - Telkwa

97(3)A

240

BPB

BOREHOLE ____ A3-A (3)

CLIENT ____

AREA ____

COUNTRY ____

DATE LOGGED ____

DEPTH SCALE 1:20

OF ___ LOGS

COAL QUALITY LOG

BOREHOLE DATA — REFER TO LITHOLOGY LOG

OPERATION DATA — REFER TO LITHOLOGY LOG

EQUIPMENT AND RECORDING DATA

COAL COMBINATION SONDE — SCRAWL POSITION

LOG	TAPING	PANEL	CALC
GAMMA RAY	LOG	SPEED	3
L.S. DENSITY	SPEED	3	NORM

SOURCE SONDE AND CALIBRATION

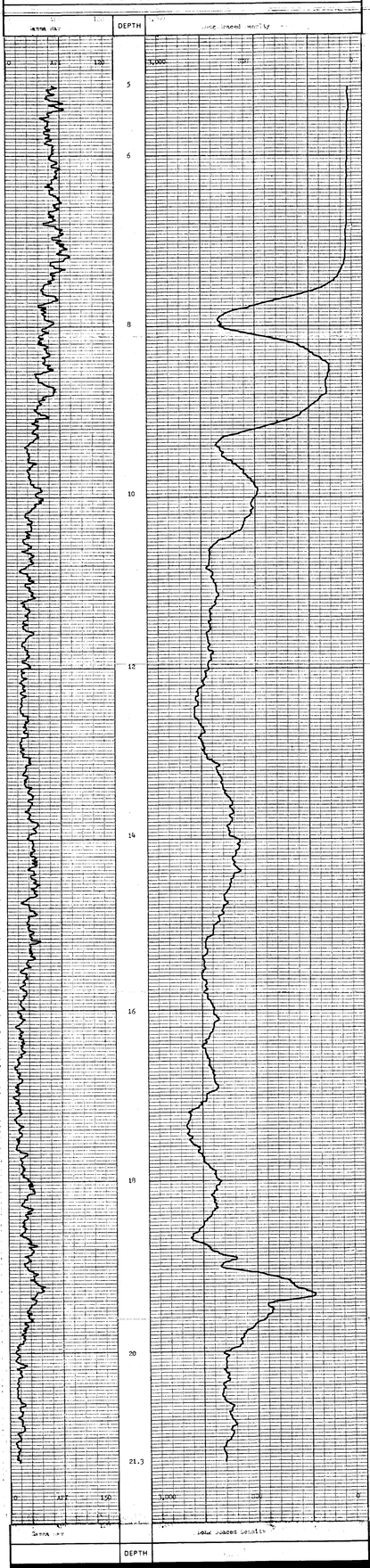
SONDE TYPE	COAL COMBINATION SONDE
LOG SUITE	GAMMA RAY
	L.S. DENSITY

COAL QUALITY LOG INTERVALS

FROM			
TO			
INTERVAL			
FROM			
TO			
INTERVAL			

REMARKS

BPB COAL QUALITY LOG



BPB

BOREHOLE ____ AREA ____

CLIENT Crows Nest Resources Ltd. COUNTRY ____

COAL QUALITY LOG

TK-Telkwa 84(3)A

240

COAL LITHOLOGY LOG

BOREHOLE	TK84-431 (1)
CLIENT	Crows Nest Resources Ltd.
AREA	Telkwa B.C
COUNTRY	Canada
DATE LOGGED	27/Jun/84
DEPTH SCALE	1:100
	1 OF 4 LOGS

BOREHOLE DATA

	BPB	DRILLER
PERMANENT DATUM	Ground level.	
ELEVATION OF P.D		
MEASUREMENTS FROM	G.L	G.L
DEPTH REACHED	126.0m	127.1m
CASING SHOE	21.0m	21.0m
BIT SIZES	1: 3" TO [illegible] / 3: TO	2: TO / 4: TO
CASING SIZES	1: 3.5" TO 21 / 3: TO	2: TO / 4: TO

FLUID DATA

NATURE	Kwik-Thik/Water
SG	1.02 Gms/cc.
LEVEL	13.5m
VISCOSITY	N/A
Rm at meas temp	N/A
BHT	N/A

OPERATION DATA

FIRST READING	125.0m
LAST READING	00.0m
INTERVAL LOGGED	125.0m
UNIT-TRUCK No	[illegible]
ENGINEER	[illegible]
WITNESS	

SONDE TYPE	LOG SUITE
COAL COMBINATION SONDE	GAMMA RAY L. S. DENSITY CALIPER

EQUIPMENT AND RECORDING DATA

COAL COMBINATION SONDE

LOG	SONDE	SOURCE	CALIBRATOR	LOG TAPED	RECORD SPEED	DIRECT or REPLAY	SPEED	TC SECS	NORM	CAL COEFF	FROM	TO	INTERVAL	SEAM LOG RUN
	129B	5822												
GAMMA RAY			371	Y	9m/m	D	9m/m	1	-	1.66	125	00	125	
LS DENSITY			3996	Y	9m/m	D	9m/m	.3	7.61	-	125	00	125	
CALIPER	SIDEWALL POSITION		7"..2"	Y	9m/m	D	9m/m	.3	-	-	125	00	125	

COAL QUALITY/SEAM THICKNESS LOG INTERVALS (Refer to relevant log)

				INTERVAL TOTAL
FROM	123.0m	91.0m	49.0m	
TO	116.0m	69.0m	41.0m	
INTERVAL	7.0m	22.0m	8.0m	= 37.0m

ADDITIONAL SONDES RUN

SONDE	LOG	GENERAL SCALE LOG	DETAIL SCALE LOG	
510	DSN	1:100		REFER TO ADDITIONAL HEADINGS
231	Dip	1:100		
224	Vert.	CDS		

REMARKS

Start OP 16:30

Finish OP 20:30

BPB COAL LITHOLOGY LOG

CALIBRATION DATA

JIG No 371 VALUE 49 @ 5" DIAM	JIG CAL DATE 27/Jun/84 JIG VALUE 6117 SDU @ g/cm³	2" ins 535 cps	
JIG MARK SHOWN AT ABOVE VALUE N/A	JIG No 3996 SPAN 6,000 NORM SDU/CPS = 7.61	7" ins 947 cps	

GAMMA RAY	DEPTH	BULK DENSITY g/cm³	CALIPER INCHES

HOLE SIZE CORRECTION DATA

GAMMA RAY	DEPTH	BULK DENSITY g/cm³	CALIPER INCHES

BOREHOLE	TK84D-431	AREA	Telkwa B.C
CLIENT	Crows Nest Resources Ltd.	COUNTRY	Canada

COAL LITHOLOGY LOG

MY (1)137483 R

Tx. Tulsa 91/11/8

240

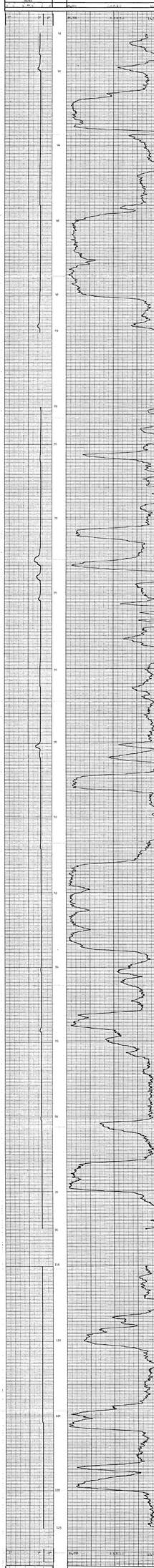
BPB

SEAM THICKNESS LOG

COMPANY	BPB
WELL	Tulsa 91-1
AREA	Denmark
COUNTRY	Denmark
DATE	1991-11-08
RUN NO.	1
DEPTH REFERENCE	KB
OPERATOR DATA	
EQUIPMENT AND RECORDING DATA	
SEAM THICKNESS LOG	
CONDITIONS	
LOG OUTPUT	
LOG SCALE	

B P B SEAM THICKNESS LOG

CALIPER (INCH)	DEPTH	BED RESOLUTION DENSITY
6" 7" 8"		0.5 g/cm³ 2.5 g/cm³ 4.5 g/cm³



CALIPER	DEPTH	BED RESOLUTION DENSITY
6" 7" 8"		0.5 g/cm³ 2.5 g/cm³ 4.5 g/cm³

BPB

BOREHOLE: Tulsa 91-1
CLIENT: Danish Oil and Natural Gas Ltd.
AREA: Tulsa 91-1
COUNTRY: Denmark

SEAM THICKNESS LOG

TO: Taha FILE

240

BPB

COAL QUALITY LOG

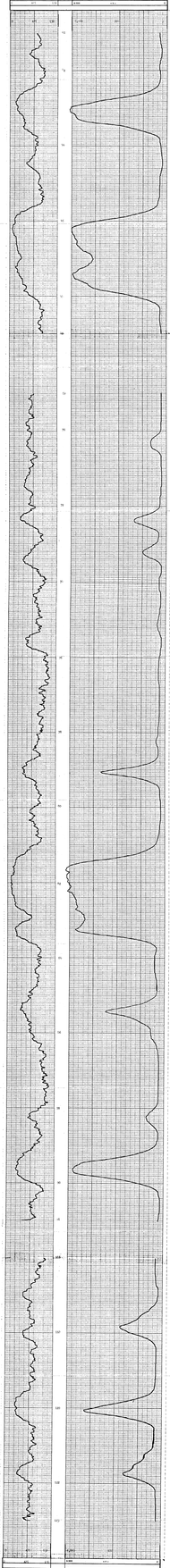
WELL NO.	
COUNTY	
STATE	
DATE	
DRILLING CONTRACTOR	
DRILLER	
DRILLING METHOD	
HOLE SIZE	
DRILLING FLUID	
DRILLING FLUID LEVEL	
DRILLING FLUID LOSS	
DRILLING TIME	
DRILLING RATE	
DRILLING PRESSURE	
DRILLING TORQUE	
DRILLING VIBRATION	
DRILLING SOUND	
DRILLING TEMPERATURE	
DRILLING FLUID TEMPERATURE	
DRILLING FLUID PH	
DRILLING FLUID SPECIFIC GRAVITY	
DRILLING FLUID VISCOSITY	
DRILLING FLUID SAND CONTENT	
DRILLING FLUID CHLORIDES	
DRILLING FLUID CALCIUM	
DRILLING FLUID MAGNESIUM	
DRILLING FLUID SULFATE	
DRILLING FLUID CARBONATE	
DRILLING FLUID BICARBONATE	
DRILLING FLUID SODIUM	
DRILLING FLUID POTASSIUM	
DRILLING FLUID IRON	
DRILLING FLUID MANGANESE	
DRILLING FLUID ALUMINUM	
DRILLING FLUID SILICA	
DRILLING FLUID CATION EXCHANGE CAPACITY	
DRILLING FLUID SOLIDS	
DRILLING FLUID SAND	
DRILLING FLUID MBT	
DRILLING FLUID CEC	
DRILLING FLUID ALKALINITY	
DRILLING FLUID CHLORIDES	
DRILLING FLUID CALCIUM	
DRILLING FLUID MAGNESIUM	
DRILLING FLUID SULFATE	
DRILLING FLUID CARBONATE	
DRILLING FLUID BICARBONATE	
DRILLING FLUID SODIUM	
DRILLING FLUID POTASSIUM	
DRILLING FLUID IRON	
DRILLING FLUID MANGANESE	
DRILLING FLUID ALUMINUM	
DRILLING FLUID SILICA	
DRILLING FLUID CATION EXCHANGE CAPACITY	
DRILLING FLUID SOLIDS	
DRILLING FLUID SAND	
DRILLING FLUID MBT	
DRILLING FLUID CEC	
DRILLING FLUID ALKALINITY	

BPB COAL QUALITY LOG

DEPTH

Scale 1:2 — COAL BULK DENSITY

HOLE SIZE CORRECTION DATA



Scale 1:2 — COAL BULK DENSITY

DEPTH

BPB

SCHEDULE	
CLIENT	
COAL QUALITY LOG	

DIPMETER ANALYSIS

240

TK Telkwa 84(3).A

CLIENT C.N.R.L.
BOREHOLE TW-84D-431 (4)
AREA TELKWA B.C
COUNTRY CANADA

DATE LOGGED.....27-JUN-84
DATE PROCESSED..02-AUG-84

COMMENTS.....

INTERPRETATION PARAMETERS

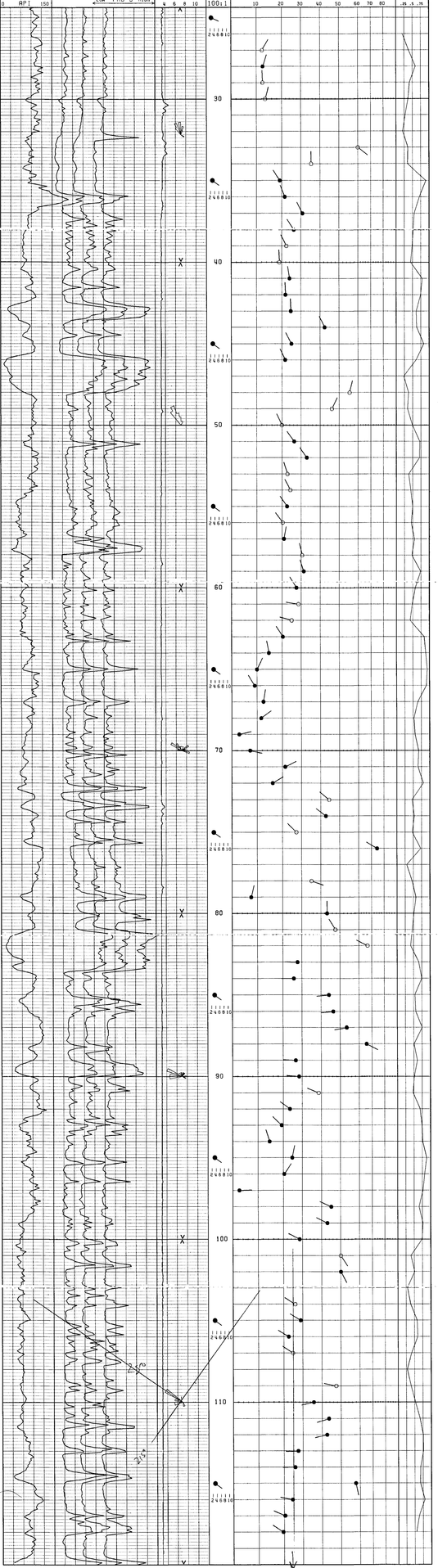
STEP 1.00M.
INTERVAL 2.00M.
SEARCH ANGLE 80.
DECLINATION 26.0 EAST
DEPTH RANGE 24.36 - 120.00M.
DATE PROCESSED 02-AUG-84

AVERAGE BOREHOLE DEVIATION & DIRECTION
SMOOTHED EVERY 10.0M.

ROSE DIAGRAMS SEGMENTED EVERY TEN DEGREES,
.1" RADIUS PER DIP MARKER DISPLAYED

LEGEND:
GOOD (+0.50)
FAIR (+0.30)

GAMMA (IF AVAILABLE) 0 API 150
LOW PAD 1 HIGH
LOW PAD 2 HIGH
LOW PAD 3 HIGH
CALIPER INCHES 4 6 8 10
DEPTH METRES 100:1
DIP ANGLE & DIRECTION DEGREES 10 20 30 40 50 60 70 80
MINIMUM CORRELATION POOR 0.00 -.25 -.5 -.75



-1300M

(5) 240

BPB DIPMETER ANALYSIS
INTERPRETATION NOTES

1. All plots are correct to the resolution of the plotter used, ie. one hundredth of an inch. Vertical resolution may vary by up to one percent but each plot is correct within itself, the plotted data being dynamically merged with its gridded background Plots exceeding eight metres in length will be split into multiples thereof, however there is no data loss associated with this subdivision.

2. Rose diagrams are plotted between every major division and are delimited by two bold arrows. For certain replay scales it may be desirable to plot these less frequently; this option is available on request.

3. The borehole tilt and azimuth displayed on the plot are the average values over the whole major division.

4. The replay scale for pads 1, 2 & 3 are designed to give the maximum visual effect over the plotted interval. Replaying shorter sections of the curve will enhance this display.

5. The grid over which the computed dip information is displayed is locally linear. That is to say it is linear between Ø & 1Ø, degrees,1Ø & 2Ø,2Ø & 3Ø etc.

6. The correlation value will vary depending upon the interval size selected. Generally speaking the larger the correlation interval, the lower the value becomes. For this reason a direct comparison of this value for differing correlation intervals is meaningless, quality control being exercised with an appreciation of this effect.

7. For customised control of computed dipmeter analysis the following parameters must be specified:
   correlation step and interval(s)
   magnetic declination(ie. the difference between true and magnetic North)
   search angle(s)
   depth range(s)
   replay scale(s)
   the frequency for rose diagrams
   (quality control is exercised in accordance with the correlation interval used,
   alternatively all correlations may be displayed on request)

The following information is a listing of ALL the output from BPB's dipmeter analysis. The data is subdivided into three consecutive sets of data readings, being read from left to right. Below is a full description of each data item:

DEPTH	the depth corresponding to the centre of the correlation interval
CALIPER	the average borehole caliper recorded over the corrleation interval
HOLE DRIFT	the average borehole deviation from vertical over the correlation interval
HOLE AZIMUTH	the average borehole azimuth over the correlation interval in degrees East of true North
DIP ANGLE	the computed formation dip in degrees, from the horizontal plane
DIP AZIMUTH	the formation azimuth in degrees East from true North
CORRELATION	a measure of the reliability of the computed result. This parameter is also used in the visual display to determine the quality of result

Further recorrelations over any step & interval size are available on any scale over any section of the log. Alternative methods of presentation, or analysis may be made available on request.

TW-84D-431 Magnetic declination 26.ØØ degrees East of North Ø2-AUG-84
********** Correlation step 1.ØØ metres ,interval 2.ØØ metres Search angle 8Ø. degrees PAGE 1

DEPTH metres	CAL. ins.	BOREHOLE TILT	BOREHOLE AZI	FORMATION DIP	FORMATION AZI	MIN. COR.	DEPTH metres	CAL. ins.	BOREHOLE TILT	BOREHOLE AZI	FORMATION DIP	FORMATION AZI	MIN. COR.	DEPTH metres	CAL. ins.	BOREHOLE TILT	BOREHOLE AZI	FORMATION DIP	FORMATION AZI	MIN. COR.
26.ØØ	3.4	2.2	114.	83.5	3Ø7.	Ø.2Ø	27.ØØ	3.4	2.2	115.	12.2	3Ø.	Ø.39	28.ØØ	3.4	2.2	117.	12.5	17.	Ø.59
29.ØØ	3.4	2.2	118.	12.4	358.	Ø.41	3Ø.ØØ	3.6	2.3	116.	13.5	14.	Ø.37	31.ØØ	3.6	2.4	114.	36.3	341.	Ø.28
32.ØØ	3.6	2.4	115.	61.1	157.	Ø.2Ø	33.ØØ	3.7	2.6	119.	6Ø.Ø	129.	Ø.36	34.ØØ	3.6	2.8	122.	36.Ø	359.	Ø.35
35.ØØ	3.4	2.8	123.	19.2	327.	Ø.9Ø	36.ØØ	3.4	2.8	124.	21.7	339.	Ø.71	37.ØØ	3.3	2.9	124.	3Ø.9	333.	Ø.55
38.ØØ	3.2	2.9	123.	27.1	326.	Ø.52	39.ØØ	3.2	2.9	124.	22.6	334.	Ø.49	4Ø.ØØ	3.2	2.9	124.	19.1	356.	Ø.44
41.ØØ	3.2	2.9	125.	24.5	352.	Ø.79	42.ØØ	3.2	2.9	126.	22.Ø	359.	Ø.75	43.ØØ	3.2	2.9	127.	25.2	358.	Ø.61
44.ØØ	3.1	2.9	127.	42.7	335.	Ø.62	45.ØØ	3.2	2.9	127.	25.5	333.	Ø.84	46.ØØ	3.2	3.Ø	127.	21.8	336.	Ø.61
47.ØØ	3.1	3.Ø	126.	56.4	23.	Ø.23	48.ØØ	3.2	3.Ø	126.	56.1	13.	Ø.38	49.ØØ	3.2	3.Ø	125.	46.9	25.	Ø.34
5Ø.ØØ	3.2	3.Ø	125.	19.9	335.	Ø.49	51.ØØ	3.1	3.Ø	126.	27.1	325.	Ø.71	52.ØØ	3.1	3.Ø	126.	33.3	325.	Ø.71
53.ØØ	3.2	3.Ø	126.	23.2	342.	Ø.38	54.ØØ	3.1	3.Ø	125.	24.9	333.	Ø.44	55.ØØ	3.1	3.Ø	125.	22.9	325.	Ø.5Ø
56.ØØ	3.1	3.Ø	125.	2Ø.4	323.	Ø.45	57.ØØ	3.1	3.Ø	124.	21.Ø	1Ø.	Ø.55	58.ØØ	3.1	3.Ø	124.	3Ø.6	346.	Ø.47
59.ØØ	3.1	3.Ø	125.	31.5	342.	Ø.74	6Ø.ØØ	3.1	3.1	126.	28.4	328.	Ø.58	61.ØØ	3.1	3.1	126.	29.5	279.	Ø.48
62.ØØ	3.1	3.1	126.	25.6	286.	Ø.42	63.ØØ	3.1	3.1	126.	2Ø.4	328.	Ø.84	64.ØØ	3.1	3.2	125.	14.7	349.	Ø.89
65.ØØ	3.1	3.2	126.	1Ø.Ø	26.	Ø.93	66.ØØ	3.1	3.1	127.	9.1	329.	Ø.91	67.ØØ	3.1	3.1	128.	12.5	8.	Ø.64
68.ØØ	3.1	3.2	126.	11.6	53.	Ø.53	69.ØØ	3.1	3.3	124.	2.9	77.	Ø.56	7Ø.ØØ	3.1	3.3	124.	7.2	1Ø3.	Ø.66
71.ØØ	3.1	3.3	125.	21.5	63.	Ø.64	72.ØØ	3.1	3.2	126.	16.1	59.	Ø.81	73.ØØ	3.2	3.2	126.	45.1	3Ø9.	Ø.46
74.ØØ	3.2	3.2	126.	43.1	3Ø8.	Ø.53	75.ØØ	3.1	3.2	125.	28.2	315.	Ø.47	76.ØØ	3.1	3.2	125.	74.5	3Ø1.	Ø.72
77.ØØ	3.1	3.3	124.	73.1	354.	Ø.3Ø	78.ØØ	3.1	3.3	124.	35.8	1Ø9.	Ø.46	79.ØØ	3.1	3.2	125.	7.6	12.	Ø.58
8Ø.ØØ	3.1	3.2	126.	43.6	36Ø.	Ø.51	81.ØØ	3.1	3.2	127.	48.6	329.	Ø.47	82.ØØ	3.1	3.3	128.	66.8	298.	Ø.41
83.ØØ	3.1	3.3	127.	28.6	271.	Ø.66	84.ØØ	3.1	3.3	127.	26.4	27Ø.	Ø.75	85.ØØ	3.1	3.3	127.	44.7	264.	Ø.54
86.ØØ	3.1	3.3	127.	47.2	265.	Ø.56	87.ØØ	3.1	3.2	128.	53.9	26Ø.	Ø.75	88.ØØ	3.1	3.2	127.	65.8	117.	Ø.51
89.ØØ	3.1	3.3	126.	27.4	273.	Ø.61	9Ø.ØØ	3.1	3.4	125.	29.3	275.	Ø.51	91.ØØ	3.1	3.4	125.	39.7	293.	Ø.48
92.ØØ	3.1	3.3	126.	23.9	3Ø7.	Ø.69	93.ØØ	3.1	3.4	125.	19.3	315.	Ø.74	94.ØØ	3.1	3.5	123.	14.6	343.	Ø.76
95.ØØ	3.1	3.4	124.	25.2	11.	Ø.88	96.ØØ	3.1	3.3	125.	2Ø.5	33.	Ø.82	97.ØØ	3.1	3.3	126.	2.6	88.	Ø.77
98.ØØ	3.1	3.3	126.	45.7	295.	Ø.65	99.ØØ	3.1	3.3	126.	43.5	297.	Ø.77	1ØØ.ØØ	3.1	3.3	126.	29.5	298.	Ø.75
1Ø1.ØØ	3.1	3.3	126.	5Ø.1	148.	Ø.4Ø	1Ø2.ØØ	3.1	3.3	126.	5Ø.1	153.	Ø.51	1Ø3.ØØ	3.1	3.3	127.	55.8	57.	Ø.29
1Ø4.ØØ	3.1	3.3	127.	26.8	3Ø2.	Ø.39	1Ø5.ØØ	3.1	3.3	127.	29.9	3Ø3.	Ø.58	1Ø6.ØØ	3.1	3.3	127.	22.9	3Ø1.	Ø.6Ø
1Ø7.ØØ	3.1	3.3	127.	25.4	3Ø3.	Ø.41	1Ø8.ØØ	3.1	3.2	128.	27.3	3Ø8.	Ø.28	1Ø9.ØØ	3.1	3.2	128.	48.4	282.	Ø.39
11Ø.ØØ	3.1	3.2	128.	36.4	257.	Ø.53	111.ØØ	3.1	3.2	129.	44.1	253.	Ø.66	112.ØØ	3.1	3.2	129.	43.Ø	256.	Ø.75
113.ØØ	3.1	3.2	129.	28.4	267.	Ø.76	114.ØØ	3.1	3.2	129.	26.6	269.	Ø.67	115.ØØ	3.1	3.2	129.	58.6	168.	Ø.67
116.ØØ	3.1	3.2	129.	25.Ø	281.	Ø.8Ø	117.ØØ	3.1	3.2	128.	2Ø.5	294.	Ø.63	118.ØØ	3.1	3.2	128.	19.6	3Ø4.	Ø.55

TK- Telkua 84(3) A 240

Gamma Ray & Conductance Density Log.

BOREHOLE DPH-431 (6)

CLIENT Gruppen Sept Lemigemeinschaft

AREA Sulawesi

COUNTRY Indonesia

DATE LOGGED 20/9/85

DEPTH SCALE 1 OF LOGS

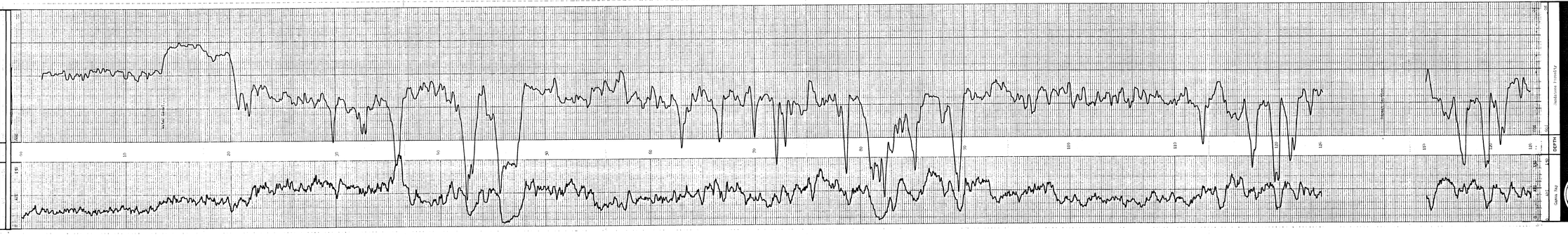
BOREHOLE DATA	REFER TO Timelog	LOG
OPERATION DATA	REFER TO Timelog	LOG

EQUIPMENT AND RECORDING DATA

LOG	TAPING		PANEL		FILM		FILM LOG
	TAPE NO.	RECORDING SPEED	SERIAL NO.	SPEED	SERIAL NO.	SPEED	

CAL.	1	NORM	1
CAL.	1	NORM	1

REMARKS



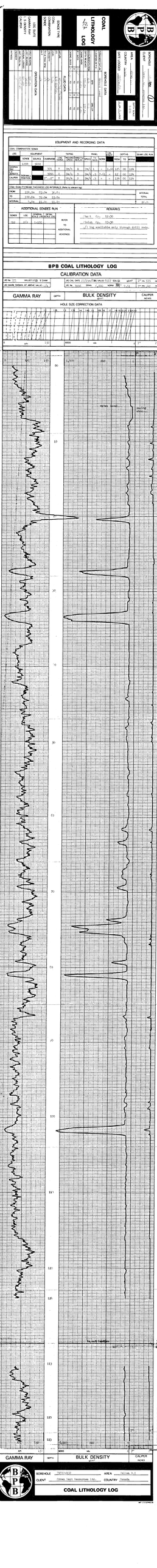
BOREHOLE DPH-431

AREA Sulawesi

COUNTRY Indonesia

CLIENT Gruppen Sept Lemigemeinschaft

Gamma Ray


COAL LITHOLOGY LOG
BPB
BOREHOLE
AREA
CLIENT
COUNTRY
EQUIPMENT AND RECORDING DATA
CALIBRATION DATA
GAMMA RAY
BULK DENSITY
CALIPER
HOLE SIZE CORRECTION DATA
REMARKS
ADDITIONAL SONDES RUN
COAL LITHOLOGY LOG

TK-Talkwa 84-(3A)

240

BPB

BOREHOLE TK84-432 (2)

CLIENT Crows Nest Resources Ltd.

AREA Talkwa D.C.

COUNTRY Canada

DATE LOGGED 23-Jan-85

TRUE VERTICAL DEPTH

SEAM THICKNESS LOG

DOWNHOLE DATA — MEASURED FROM COLLAR

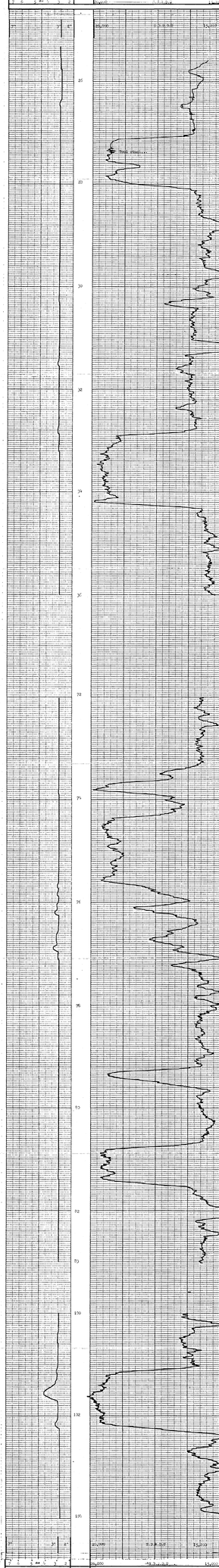
DOWNHOLE DATA — MEASURED FROM COLLAR

EQUIPMENT AND RECORDING DATA

DATE LOGGED 23-Jan-85

SEAM THICKNESS LOG INTERVALS			
	FROM	TO	THICKNESS
	0.00	0.20	0.20
	0.20	0.30	0.10
	0.30	0.40	0.10
	0.40	0.50	0.10
	0.50	0.60	0.10
	0.60	0.70	0.10
	0.70	0.80	0.10
	0.80	0.90	0.10
	0.90	1.00	0.10
	1.00	1.10	0.10
	1.10	1.20	0.10
	1.20	1.30	0.10
	1.30	1.40	0.10
	1.40	1.50	0.10
	1.50	1.60	0.10
	1.60	1.70	0.10
	1.70	1.80	0.10
	1.80	1.90	0.10
	1.90	2.00	0.10
	2.00	2.10	0.10
	2.10	2.20	0.10
	2.20	2.30	0.10
	2.30	2.40	0.10
	2.40	2.50	0.10
	2.50	2.60	0.10
	2.60	2.70	0.10
	2.70	2.80	0.10
	2.80	2.90	0.10
	2.90	3.00	0.10
	3.00	3.10	0.10
	3.10	3.20	0.10
	3.20	3.30	0.10
	3.30	3.40	0.10
	3.40	3.50	0.10
	3.50	3.60	0.10
	3.60	3.70	0.10
	3.70	3.80	0.10
	3.80	3.90	0.10
	3.90	4.00	0.10
	4.00	4.10	0.10
	4.10	4.20	0.10
	4.20	4.30	0.10
	4.30	4.40	0.10
	4.40	4.50	0.10
	4.50	4.60	0.10
	4.60	4.70	0.10
	4.70	4.80	0.10
	4.80	4.90	0.10
	4.90	5.00	0.10
	5.00	5.10	0.10
	5.10	5.20	0.10
	5.20	5.30	0.10
	5.30	5.40	0.10
	5.40	5.50	0.10
	5.50	5.60	0.10
	5.60	5.70	0.10
	5.70	5.80	0.10
	5.80	5.90	0.10
	5.90	6.00	0.10
	6.00	6.10	0.10
	6.10	6.20	0.10
	6.20	6.30	0.10
	6.30	6.40	0.10
	6.40	6.50	0.10
	6.50	6.60	0.10
	6.60	6.70	0.10
	6.70	6.80	0.10
	6.80	6.90	0.10
	6.90	7.00	0.10
	7.00	7.10	0.10
	7.10	7.20	0.10
	7.20	7.30	0.10
	7.30	7.40	0.10
	7.40	7.50	0.10
	7.50	7.60	0.10
	7.60	7.70	0.10
	7.70	7.80	0.10
	7.80	7.90	0.10
	7.90	8.00	0.10
	8.00	8.10	0.10
	8.10	8.20	0.10
	8.20	8.30	0.10
	8.30	8.40	0.10
	8.40	8.50	0.10
	8.50	8.60	0.10
	8.60	8.70	0.10
	8.70	8.80	0.10
	8.80	8.90	0.10
	8.90	9.00	0.10
	9.00	9.10	0.10
	9.10	9.20	0.10
	9.20	9.30	0.10
	9.30	9.40	0.10
	9.40	9.50	0.10
	9.50	9.60	0.10
	9.60	9.70	0.10
	9.70	9.80	0.10
	9.80	9.90	0.10
	9.90	10.00	0.10
	10.00	10.10	0.10
	10.10	10.20	0.10
	10.20	10.30	0.10
	10.30	10.40	0.10
	10.40	10.50	0.10
	10.50	10.60	0.10
	10.60	10.70	0.10
	10.70	10.80	0.10
	10.80	10.90	0.10
	10.90	11.00	0.10
	11.00	11.10	0.10
	11.10	11.20	0.10
	11.20	11.30	0.10
	11.30	11.40	0.10
	11.40	11.50	0.10
	11.50	11.60	0.10
	11.60	11.70	0.10
	11.70	11.80	0.10
	11.80	11.90	0.10
	11.90	12.00	0.10
	12.00	12.10	0.10
	12.10	12.20	0.10
	12.20	12.30	0.10
	12.30	12.40	0.10
	12.40	12.50	0.10
	12.50	12.60	0.10
	12.60	12.70	0.10
	12.70	12.80	0.10
	12.80	12.90	0.10
	12.90	13.00	0.10
	13.00	13.10	0.10
	13.10	13.20	0.10
	13.20	13.30	0.10
	13.30	13.40	0.10
	13.40	13.50	0.10
	13.50	13.60	0.10
	13.60	13.70	0.10
	13.70	13.80	0.10
	13.80	13.90	0.10
	13.90	14.00	0.10
	14.00	14.10	0.10
	14.10	14.20	0.10
	14.20	14.30	0.10
	14.30	14.40	0.10
	14.40	14.50	0.10
	14.50	14.60	0.10
	14.60	14.70	0.10
	14.70	14.80	0.10
	14.80	14.90	0.10
	14.90	15.00	0.10

B P B SEAM THICKNESS LOG



BPB

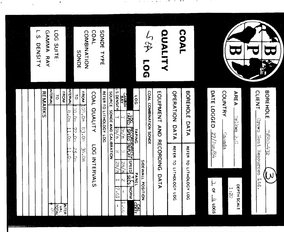
BOREHOLE TK84-432

CLIENT Crows Nest Resources Ltd.

AREA Talkwa D.C.

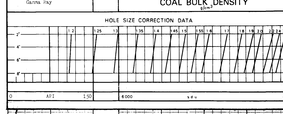
COUNTRY Canada

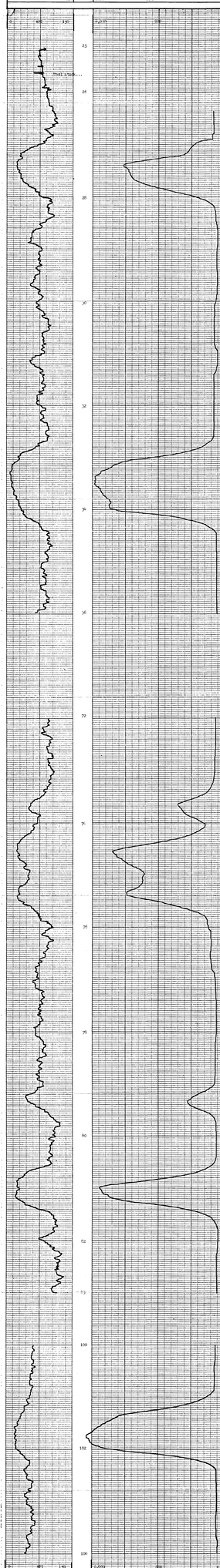
SEAM THICKNESS LOG



240

BPB COAL QUALITY LOG





BOREHOLE
CLIENT Lornex Yech Resources Ltd.
AREA Tatlayoko Lake
COUNTRY Canada

COAL QUALITY LOG

TK-Telkwa 84(3)A

240

BPB

Gamma ray - neutron/neutron log
(Sample with data)

BOREHOLE 42 (4)

CLIENT [illegible]

AREA [illegible]

COUNTRY [illegible]

DATE LOGGED [illegible]

DEPTH SCALE

[illegible] OR [illegible] LOGS

BOREHOLE DATA REFER TO [illegible] LOG

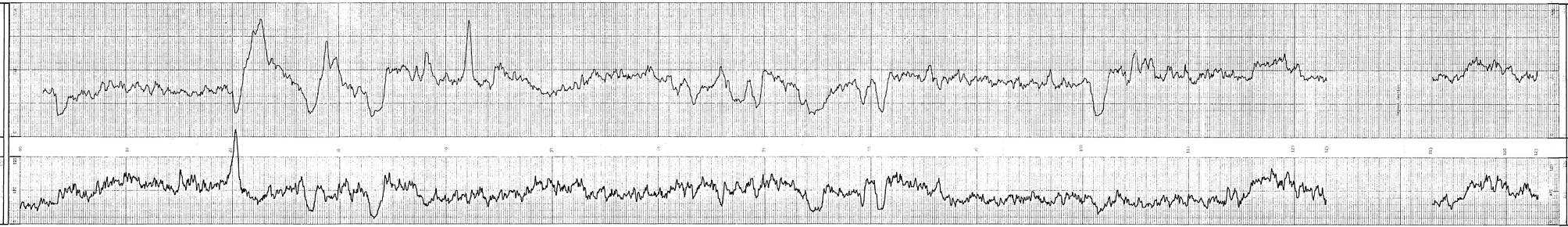
OPERATION DATA REFER TO [illegible] LOG

EQUIPMENT AND RECORDING DATA

LOG		TAPING				PANEL		LOG
		SPEED	DEPTH	SPEED	DEPTH	SPEED	NORM	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	

REMARKS

[illegible]



BOREHOLE [illegible]

CLIENT [illegible]

AREA [illegible]

COUNTRY [illegible]

BPB

COAL LITHOLOGY LOG

BOREHOLE	TW84D-433
CLIENT	Crows Nest Resources Ltd.
AREA	Telkwa B.C
COUNTRY	Canada
DATE LOGGED	28/Jun/84
DEPTH SCALE	1:100
LOGS	1 OF 4

SONDE TYPE: COAL COMBINATION SONDE

LOG SUITE: GAMMA RAY, L.S. DENSITY, CALIPER

BOREHOLE DATA

PERMANENT DATUM	Ground Level			
ELEVATION OF P.D				
	BPB		DRILLER	
MEASUREMENTS FROM	G.L		G.L	
DEPTH REACHED	100.0m		102.0m	
CASING SHOE	10.0m		10.0m	
BIT SIZES	1	3" TO TD	2	TO
	3	TO	4	TO
CASING SIZES	1	3.5" TO 10	2	TO

FLUID DATA

NATURE	Kwik-Thik/Water
SG	0.99 Gms/cc.
LEVEL	4.0m
VISCOSITY	N/A
Rm at meas temp	N/A
BHT	N/A

OPERATION DATA

FIRST READING	100.0m
LAST READING	00.0m
INTERVAL LOGGED	100.0m
UNIT-TRUCK No	V216/U24
ENGINEER	WAJCC & RW
WITNESS	

EQUIPMENT AND RECORDING DATA

COAL COMBINATION SONDE

LOG	EQUIPMENT			TAPING			PANEL			CAL COEFF	DEPTHS			SEAM LOG RUN
	SONDE	SOURCE	CALIBRATOR	LOG TAPED	RECORD SPEED	DIRECT or REPLAY	SPEED	TC SECS	NORM		FROM	TO	INTERVAL	
	129B	5822												
GAMMA RAY	SIDEWALL POSITION		371	Y	9m/m	D	9m/m	1	-	1.58	100	00	100	
L.S. DENSITY			3996	Y	9m/m	D	9m/m	.3	7.67	-	100	00	100	
CALIPER			7"..2"	Y	9m/m	D	9m/m	.3	-	-	100	00	100	

COAL QUALITY/SEAM THICKNESS LOG INTERVALS (Refer to relevant log)

FROM	84.0m	INTERVAL TOTAL
TO	72.0m	
INTERVAL	12.0m	12.0m

ADDITIONAL SONDES RUN

SONDE	LOG	GENERAL SCALE LOG	DETAIL SCALE LOG
510	DSN	1:100	
231	Dip	1:100	
224	Vert.	CDS.	

REFER TO ADDITIONAL HEADINGS

REMARKS

Start Op. 07:15

Finish Op. 11:00

BPB COAL LITHOLOGY LOG

CALIBRATION DATA

JIG No 371 VALUE 494 @ 5" DIAM

JIG MARK SHOWN AT ABOVE VALUE X0.3

JIG CAL DATE 27/Jun/84 JIG VALUE 6117 SDU @ 1.29 g/cm³

JIG No 3996 SPAN 6,000 NORM SDU/CPS = 7.67

2" ins 535 cps

7" ins 947 cps

GAMMA RAY	DEPTH	BULK DENSITY g/cm³	CALIPER INCHES

HOLE SIZE CORRECTION DATA

GAMMA RAY	DEPTH	BULK DENSITY g/cm³	CALIPER INCHES

BOREHOLE	TW84D-433	AREA	Telkwa B.C
CLIENT	Crows Nest Resources Ltd.	COUNTRY	Canada

COAL LITHOLOGY LOG

MY (1)137483 R

Tk-Telkwa 94(3)A 240

BPB

BOREHOLE TW840-433 (2)
CLIENT Crows Nest Resources Ltd.

AREA Telkwa B.C
COUNTRY Canada
DATE LOGGED 27/Jun/84

2 OF 4 LOGS

DEPTH SCALE 1:20

SEAM THICKNESS LOG

SONDE TYPE: COAL COMBINATION SONDE

LOG SUITE: CALIPER, B.R. DENSITY

BOREHOLE DATA — REFER TO LITHOLOGY LOG

OPERATION DATA — REFER TO LITHOLOGY LOG

EQUIPMENT AND RECORDING DATA

COAL COMBINATION SONDE

LOG	TRAPPING	SIDEWALL POSITION	PANEL	MONN
CALIPER 1	1860	1860	1860	1860
B.R. DENSITY	2870	2870	2870	2870
B.R. DENSITY	2870	2870	2870	2870

CALIPER CALIBRATION: 2in. 3 15,400

B.R. DENSITY CALIBRATION: 2in. 2.4 g/c.c.

SECURITY SONDE AND CABLE

RELATED TO LITHOLOGY LOG

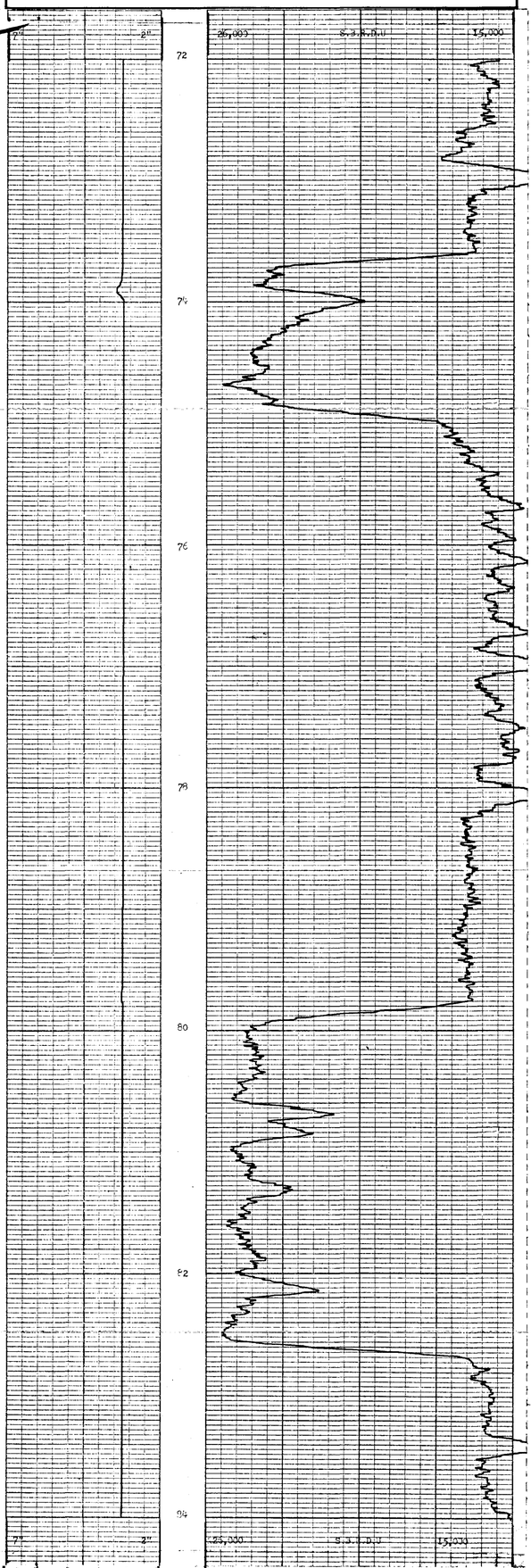
SEAM THICKNESS LOG INTERVALS

	FROM	TO	INTERNAL
	784.0m	796.0m	
	796.0m	808.0m	
INTERNAL	FROM	TO	INTERNAL
	808.0m	820.0m	
TOTAL			12.0m

REMARKS

B P B SEAM THICKNESS LOG

CALIPER INCHES	DEPTH	BED RESOLUTION DENSITY
7 6 5 4 3 2		26,000 S.S.R.D.U 15,000



CALIPER INCHES	DEPTH	BED RESOLUTION DENSITY
7 6 5 4 3 2		26,000 S.S.R.D.U 15,000

BPB

BOREHOLE TW840-433
CLIENT Crows Nest Resources Ltd.

AREA Telkwa B.C
COUNTRY Canada

SEAM THICKNESS LOG

MY 88002 R

TK- Telkua 84(3) A 240

BPB

Geophysical Services Inc.

BOREHOLE 84 (3)

CLIENT

AREA

COUNTRY

DATE LOGGED

DEPTH SCALE

OF LOGS

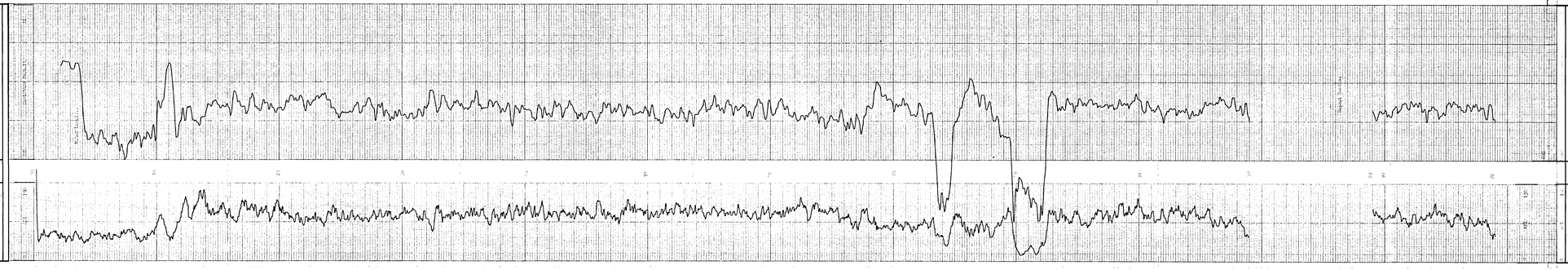
BOREHOLE DATA	REFER TO	LOG
OPERATION DATA	REFER TO	LOG

EQUIPMENT AND RECORDING DATA

LOG	TAPING			PANEL		LOG
	LOG TIMED	RECORDED SPEED	RECORDED SPEED	SUPPRESSED	X-X SENS	NORM

REMARKS

DEPTH



DEPTH

BOREHOLE 84(3)

CLIENT

AREA

COUNTRY

BPB

DIPMETER ANALYSIS 240

TK- Telkwa 84(3)A

CLIENT C.N.R.L.
BOREHOLE TW-84D-433 (4)
AREA TELKWA B.C
COUNTRY CANADA

DATE LOGGED.....28-JUN-84
DATE PROCESSED..02-AUG-84

COMMENTS.....

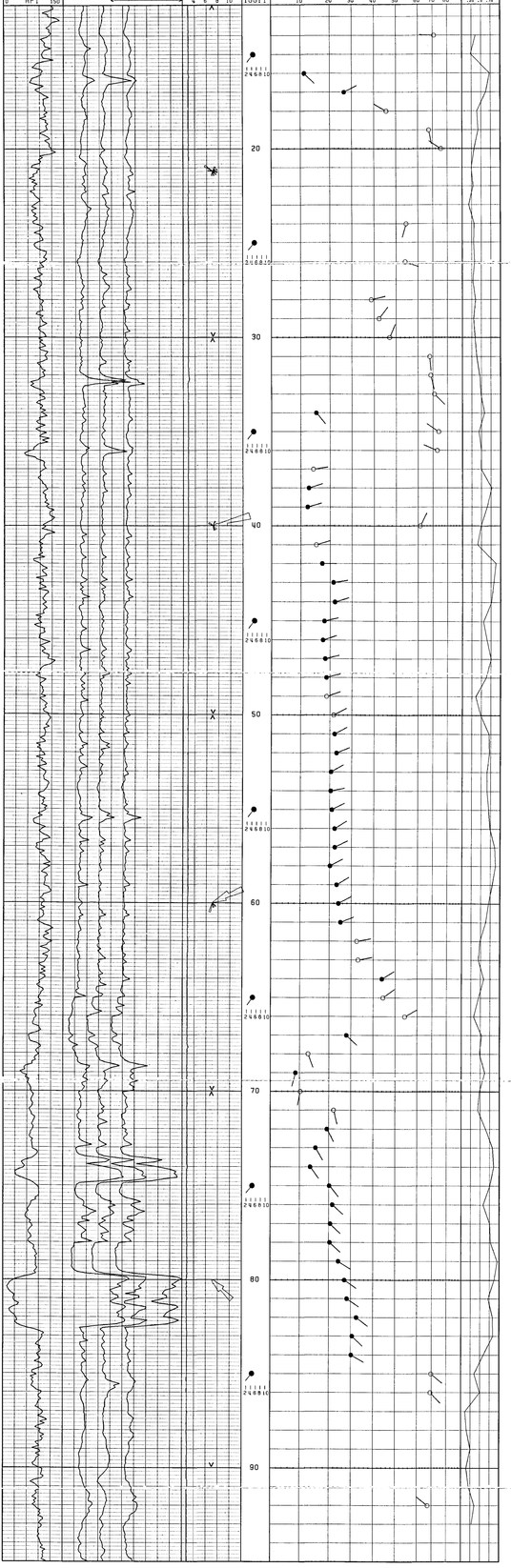
INTERPRETATION PARAMETERS

STEP 1.00M. DECLINATION 26.0 EAST
INTERVAL 2.00M. DEPTH RANGE 12.36 - 95.00M.
SEARCH ANGLE 80. DATE PROCESSED 02-AUG-84

AVERAGE BOREHOLE DEVIATION & DIRECTION ANNOTATED EVERY 10.0M.

ROSE DIAGRAMS SEGMENTED EVERY TEN DEGREES, .1" RADIUS PER DIP MARKER DISPLAYED

LEGEND:
GOOD (>0.50)
FAIR (>0.30)



433 (5) 240

BPB DIPMETER ANALYSIS
INTERPRETATION NOTES

1. All plots are correct to the resolution of the plotter used, ie. one hundredth of an inch. Vertical resolution may vary by up to one percent but each plot is correct within itself, the plotted data being dynamically merged with its gridded background
Plots exceeding eight metres in length will be split into multiples thereof, however there is no data loss associated with this subdivision.

2. Rose diagrams are plotted between every major division and are delimited by two bold arrows. For certain replay scales it may be desirable to plot these less frequently; this option is available on request.

3. The borehole tilt and azimuth displayed on the plot are the average values over the whole major division.

4. The replay scale for pads I, 2 & 3 are designed to give the maximum visual effect over the plotted interval. Replaying shorter sections of the curve will enhance this display.

5. The grid over which the computed dip information is displayed is locally linear. That is to say it is linear between Ø & 1Ø, degrees,IØ & 2Ø,2Ø & 3Ø etc.

6. The correlation value will vary depending upon the interval size selected. Generally speaking the larger the correlation interval, the lower the value becomes. For this reason a direct comparison of this value for differing correlation intervals is meaningless, quality control being exercised with an appreciation of this effect.

7. For customised control of computed dipmeter analysis the following parameters must be specified:
correlation step and interval(s)
magnetic declination(ie. the difference between true and magnetic North)
search angle(s)
depth range(s)
replay scale(s)
the frequency for rose diagrams
(quality control is exercised in accordance with the correlation interval used,
alternatively all correlations may be displayed on request)

The following information is a listing of ALL the output from BPB's dipmeter analysis. The data is subdivided into three consecutive sets of data readings, being read from left to right. Below is a full description of each data item:

DEPTH	the depth corresponding to the centre of the correlation interval
CALIPER	the average borehole caliper recorded over the corrleation interval
HOLE DRIFT	the average borehole deviation from vertical over the correlation interval
HOLE AZIMUTH	the average borehole azimuth over the correlation interval in degrees East of true North
DIP ANGLE	the computed formation dip in degrees, from the horizontal plane
DIP AZIMUTH	the formation azimuth in degrees East from true North
CORRELATION	a measure of the reliability of the computed result. This parameter is also used in the visual display to determine the quality of result

Further recorrelations over any step & interval size are available on any scale over any section of the log. Alternative methods of presentation, or analysis may be made available on request.

TW-84D-433 Magnetic declination 26.ØØ degrees East of North Ø2-AUG-84
********** Correlation step 1.ØØ metres ,interval 2.ØØ metres Search angle 8Ø. degrees PAGE 1

DEPTH metres	CAL. ins.	BOREHOLE TILT	BOREHOLE AZI	FORMATION DIP	FORMATION AZI	MIN. COR.	DEPTH metres	CAL. ins.	BOREHOLE TILT	BOREHOLE AZI	FORMATION DIP	FORMATION AZI	MIN. COR.	DEPTH metres	CAL. ins.	BOREHOLE TILT	BOREHOLE AZI	FORMATION DIP	FORMATION AZI	MIN. COR.
14.ØØ	2.9	4.6	216.	71.Ø	273.	Ø.36	15.ØØ	2.9	4.6	219.	47.5	141.	Ø.23	16.ØØ	2.9	4.6	219.	11.3	135.	Ø.73
17.ØØ	2.9	4.8	22Ø.	27.3	62.	Ø.63	18.ØØ	2.9	5.1	217.	46.4	3ØØ.	Ø.39	19.ØØ	2.9	4.8	214.	67.4	169.	Ø.43
2Ø.ØØ	2.9	4.6	215.	75.7	3Ø4.	Ø.32	21.ØØ	2.9	4.5	218.	37.1	118.	Ø.24	22.ØØ	2.9	4.6	218.	44.2	58.	Ø.29
23.ØØ	2.9	4.6	218.	45.1	332.	Ø.17	24.ØØ	2.9	4.9	22Ø.	55.1	196.	Ø.31	25.ØØ	2.9	5.1	217.	42.Ø	8Ø.	Ø.3Ø
26.ØØ	2.9	4.8	215.	54.6	11Ø.	Ø.32	27.ØØ	2.9	4.6	216.	59.4	62.	Ø.28	28.ØØ	2.9	4.5	218.	39.8	76.	Ø.35
29.ØØ	2.9	4.6	217.	42.5	36.	Ø.3Ø	3Ø.ØØ	2.9	4.6	218.	47.9	23.	Ø.33	31.ØØ	2.9	4.9	219.	67.9	175.	Ø.38
32.ØØ	2.9	5.1	216.	68.6	168.	Ø.46	33.ØØ	2.8	4.9	213.	71.1	135.	Ø.49	34.ØØ	2.8	4.7	213.	15.3	142.	Ø.58
35.ØØ	2.8	4.6	213.	73.9	3Ø5.	Ø.44	36.ØØ	2.8	4.5	214.	72.9	293.	Ø.5Ø	37.ØØ	2.8	4.5	215.	14.3	81.	Ø.5Ø
38.ØØ	2.8	4.5	216.	12.7	73.	Ø.77	39.ØØ	2.8	4.5	217.	12.4	73.	Ø.65	4Ø.ØØ	2.8	4.5	218.	61.4	26.	Ø.49
41.ØØ	2.8	4.5	218.	15.3	73.	Ø.4Ø	42.ØØ	2.8	4.6	218.	17.3	9Ø.	Ø.88	43.ØØ	2.8	4.6	219.	21.6	81.	Ø.83
44.ØØ	2.8	4.6	219.	22.4	73.	Ø.76	45.ØØ	2.8	4.7	219.	18.Ø	76.	Ø.56	46.ØØ	2.8	4.7	219.	17.6	72.	Ø.65
47.ØØ	2.8	4.7	218.	18.4	75.	Ø.76	48.ØØ	2.8	4.7	218.	18.8	74.	Ø.62	49.ØØ	2.8	4.8	217.	18.9	71.	Ø.36
5Ø.ØØ	2.8	4.8	217.	21.9	61.	Ø.49	51.ØØ	2.8	4.8	217.	22.4	61.	Ø.71	52.ØØ	2.8	4.8	216.	23.4	68.	Ø.72
53.ØØ	2.8	4.7	216.	2Ø.6	6Ø.	Ø.66	54.ØØ	2.8	4.7	216.	2Ø.4	78.	Ø.65	55.ØØ	2.8	4.7	216.	21.1	61.	Ø.7Ø
56.ØØ	2.8	4.7	216.	22.5	57.	Ø.74	57.ØØ	2.8	4.8	216.	22.7	62.	Ø.86	58.ØØ	2.8	4.7	216.	2Ø.3	61.	Ø.88
59.ØØ	2.8	4.7	216.	23.6	57.	Ø.8Ø	6Ø.ØØ	2.8	4.7	216.	24.6	61.	Ø.71	61.ØØ	2.8	4.8	216.	25.7	68.	Ø.63
62.ØØ	2.8	4.8	216.	32.8	79.	Ø.48	63.ØØ	2.8	4.8	216.	33.4	79.	Ø.44	64.ØØ	2.8	4.8	216.	44.5	57.	Ø.59
65.ØØ	2.8	4.8	216.	45.Ø	53.	Ø.45	66.ØØ	2.8	4.7	216.	54.9	61.	Ø.33	67.ØØ	2.8	4.7	215.	28.9	134.	Ø.53
68.ØØ	2.8	4.6	215.	12.9	16Ø.	Ø.48	69.ØØ	2.8	4.6	215.	8.6	195.	Ø.62	7Ø.ØØ	2.8	4.5	215.	1Ø.2	191.	Ø.48
71.ØØ	2.8	4.5	214.	22.4	167.	Ø.44	72.ØØ	2.8	4.4	215.	19.4	153.	Ø.64	73.ØØ	2.8	4.4	216.	15.4	149.	Ø.83
74.ØØ	2.8	4.4	215.	13.7	145.	Ø.85	75.ØØ	2.8	4.4	215.	2Ø.3	141.	Ø.75	76.ØØ	2.8	4.4	215.	21.8	131.	Ø.58
77.ØØ	2.8	4.4	217.	2Ø.7	134.	Ø.76	78.ØØ	2.8	4.4	218.	2Ø.5	133.	Ø.77	79.ØØ	2.8	4.4	218.	24.8	123.	Ø.95
8Ø.ØØ	2.8	4.4	218.	28.1	125.	Ø.87	81.ØØ	2.8	4.4	219.	29.3	124.	Ø.71	82.ØØ	2.8	4.4	219.	32.9	127.	Ø.83
83.ØØ	2.8	4.4	219.	3Ø.7	134.	Ø.83	84.ØØ	2.8	4.4	219.	3Ø.2	12Ø.	Ø.59	85.ØØ	2.8	4.4	219.	69.7	13Ø.	Ø.35
86.ØØ	2.8	4.4	218.	69.1	136.	Ø.5Ø	87.ØØ	2.8	4.4	219.	65.7	257.	Ø.11	88.ØØ	2.8	4.4	219.	76.1	267.	Ø.15
89.ØØ	2.8	4.4	219.	77.3	27Ø.	Ø.25	9Ø.ØØ	2.8	4.3	218.	71.7	234.	Ø.14	91.ØØ	2.8	4.3	219.	66.5	316.	Ø.2Ø
92.ØØ	2.8	4.3	22Ø.	67.4	3Ø9.	Ø.36	93.ØØ	2.8	4.3	221.	75.3	263.	Ø.28							

Gamma Ray & Long Spaced Density Log
(Through Drill Rods)

REFERENCE: Ground Level (G.L.) 0
ELEVATION: Drill Floor (D.F.) [illegible]
AREA: Crowe Soil Reinforcement Expt. Site
COUNTRY: Ontario
DATE LOGGED: 27/Jun/80
RUN NO.: One
DEPTH-DRILLER: 1320
DEPTH-LOGGER: 1320
BTM. LOG INTERVAL: 1320
TOP LOG INTERVAL: 0
CASING-DRILLER: 1320 @ Surface
CASING-LOGGER: 1320 @ Surface
BIT SIZE: 96
TYPE FLUID IN HOLE: Air
DENSITY: N/A
VISCOSITY: 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: N/A
TIME CIRC. STOPPED: N/A
TIME LOGGER ON BOTTOM: N/A
MAX. REC. TEMP. DEG. F.: N/A
EQUIP. LOCATION: N/A
RECORDED BY: T.F.T.
WITNESSED BY: Crowe & Smith

BOREHOLE DATA

	RUN	BIT	FROM	TO
CASING DRILLER	1	96	0	1320
CASING LOGGER	1	96	0	1320
BIT RECORD	1	96	0	1320
DEPTH REACHED		96	0	1320

OPERATION DATA

EQUIP. NO.	3DGN
MAX. REC. TEMP.	N/A
EQUIP. LOCATION	3DGN
RECORDED BY	T.F.T.
WITNESSED BY	Crowe & Smith

TF. Tatum
8/21/80

240

EQUIPMENT AND RECORDING DATA

LOG	EQUIPMENT: SONDE	EQUIPMENT: SOURCE	EQUIPMENT: CALIBRATOR	TAPING: LOG RAPID	TAPING: RECORDING SPEED	TAPING: REPLAY SPEED	PANEL: SETTING	PANEL: NORM	CURVE SCALE	DEPTHS: FROM	DEPTHS: TO	DEPTHS: INTERVAL
1150		9502										
G/R		371	T	9in/s	9	9in/s	3		1-6	96	00	96
LSD		3986	T	9in/s	8	9in/s	3	8.09	=	96	00	96

ADDITIONAL SONDES RUN

SONDE	LOG	GENERAL SCALE/LOCATION	DETAIL SCALE/LOCATION
510	DGN	1:100	

REFER TO ADDITIONAL HEADINGS

REMARKS

Start Gp. 12:00
Finish Gp. 15:45
203 tool run through drill rods, scales have been adjusted accordingly.

Gamma Ray | DEPTH | Long Spaced Density

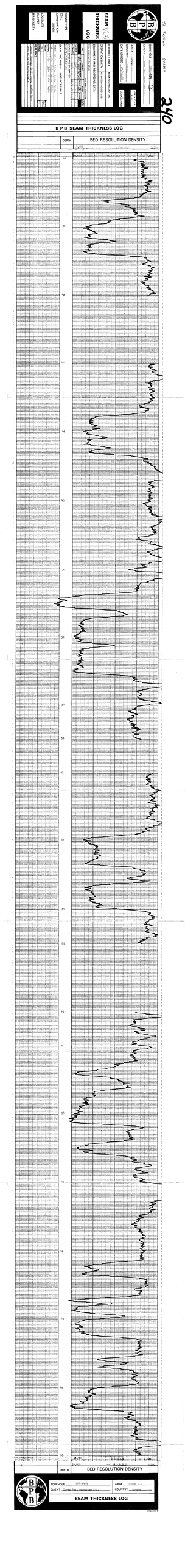
0 — 40 API — 120 | 3,000 — 2000 — 0

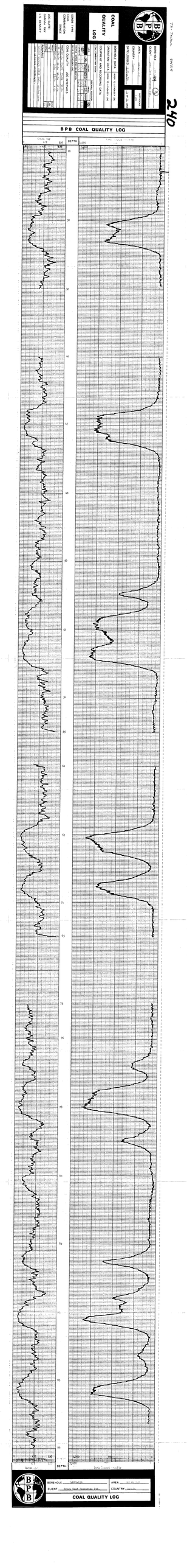
Water Level

Repeat Section...

Gamma Ray | DEPTH | Long Spaced Density

BOREHOLE: [illegible]
CLIENT: Crowe Soil Reinforcement Ltd.
AREA: Tables 1-2
COUNTRY: Canada


B P B
SEAM THICKNESS LOG
BOREHOLE
CLIENT
AREA
COUNTRY
DATE LOGGED
DEPTH
BED RESOLUTION DENSITY
240


COAL QUALITY LOG
BPB COAL QUALITY LOG
DEPTH
SCHEDULE
AREA
COUNTRY
CLIENT
COAL QUALITY LOG

Gamma Ray - Neutron Porosity log.

BOREHOLE [illegible] 4

CLIENT [illegible]

AREA [illegible]

COUNTRY [illegible]

DATE LOGGED [illegible]

	FROM	TO
LOG	[illegible]	[illegible]
	[illegible]	[illegible]
	[illegible]	[illegible]
	[illegible]	[illegible]
	[illegible]	[illegible]
	[illegible]	[illegible]
	[illegible]	[illegible]

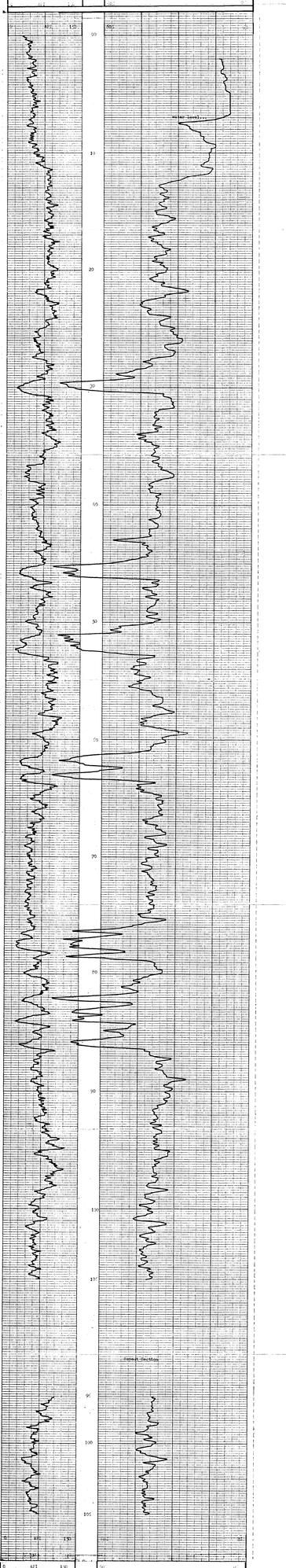
BOREHOLE DATA	Casing Diameter 100
	Casing Thickness 100
OPERATION DATA	Recorded Logging 100
EQUIPMENT AND RECORDING DATA	

LOG	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

REMARKS

TK-Tekum 84/03/08

240

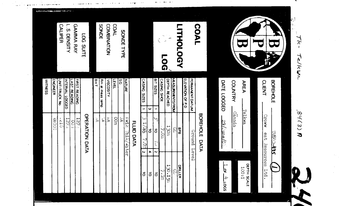


BOREHOLE [illegible]

CLIENT [illegible]

AREA [illegible]

COUNTRY Canada


COAL LITHOLOGY LOG
BPB
BOREHOLE
CLIENT
AREA
COUNTRY
EQUIPMENT AND RECORDING DATA
COAL COMPARISON SONDE
ADDITIONAL SONDES RUN
REMARKS
BPB COAL LITHOLOGY LOG
CALIBRATION DATA
GAMMA RAY
BULK DENSITY
CALIPER
HOLE SIZE CORRECTION DATA
DEPTH in FEET
COAL LITHOLOGY LOG

TK-Telkwa 84(3) A

240

GAMMA RAY NEUTRON POROSITY LOG

BOREHOLE TWRS-1435 (2)

CLIENT Cross East Resources Ltd

AREA Telkwa

COUNTRY Canada

DATE LOGGED 30/June/84

REFER TO LOG 2 of 2 LOGS

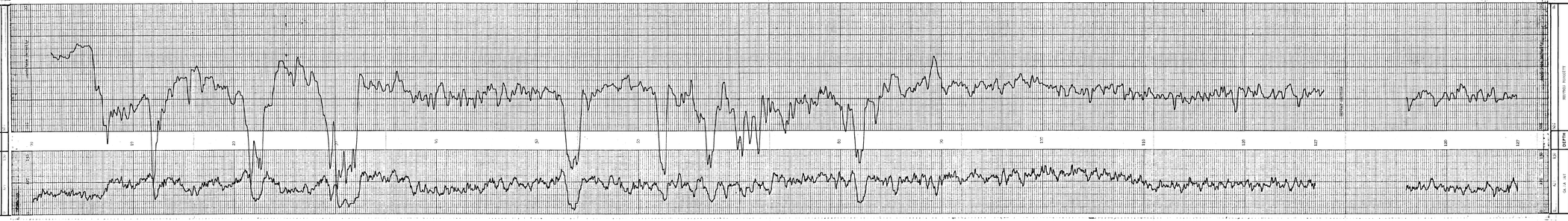
BOREHOLE DATA REFER TO LITHOLOGY LOG

OPERATION DATA REFER TO LITHOLOGY LOG

EQUIPMENT AND RECORDING DATA

LOG	TAPING		FAMEL		LOG
	LOG	RECORD	LOG	RECORD	
[illegible]	2	5%/6	5	5%/6	1
[illegible]	1	5%/6	2	5%/6	1
		LOG		RECORD	

REMARKS



NEUTRON POROSITY

AREA Telkwa

COUNTRY Canada

BOREHOLE TWRS-1435

CLIENT Cross East Resources Ltd

Tr. Tulsa

BP#

240

BPB COAL QUALITY LOG

BOREHOLE NO. 240

AREA Tulsa COUNTRY Canada

DATE RECORDED 1987

DATE LOGGED 1987

DEPTH LOGGED 0.0 - 0.0 m

OPERATOR Schlumberger

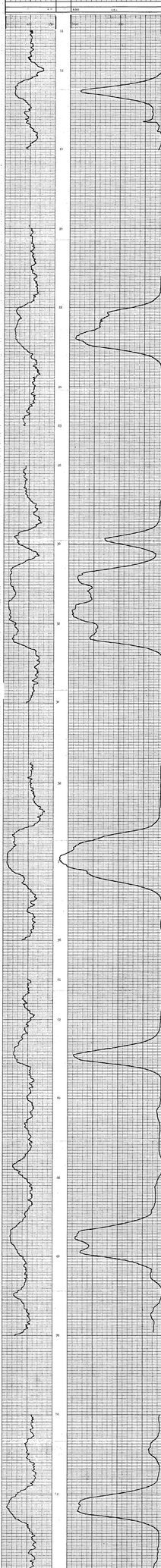
DRILLER Tulsa

COAL QUALITY LOG	
COAL BULK DENSITY	
COAL BULK DENSITY CORRECTION	
COAL ASH	
COAL MOISTURE	
COAL SULPHUR	
COAL CALORIFIC VALUE	
COAL VOLATILE MATTER	
COAL FIXED CARBON	
COAL HARDGROVE INDEX	
COAL SIZING	
COAL SPECIFIC GRAVITY	
COAL SPECIFIC ENERGY	
COAL SPECIFIC ENERGY (MOIST)	
COAL SPECIFIC ENERGY (MOIST, MINERAL MATTER FREE)	
COAL SPECIFIC ENERGY (MOIST, MINERAL MATTER FREE, ASH FREE)	
COAL SPECIFIC ENERGY (MOIST, MINERAL MATTER FREE, ASH FREE, SULPHUR FREE)	
COAL SPECIFIC ENERGY (MOIST, MINERAL MATTER FREE, ASH FREE, SULPHUR FREE, MOISTURE FREE)	
COAL SPECIFIC ENERGY (MOIST, MINERAL MATTER FREE, ASH FREE, SULPHUR FREE, MOISTURE FREE, VOLATILE MATTER FREE)	
COAL SPECIFIC ENERGY (MOIST, MINERAL MATTER FREE, ASH FREE, SULPHUR FREE, MOISTURE FREE, VOLATILE MATTER FREE, FIXED CARBON FREE)	
COAL SPECIFIC ENERGY (MOIST, MINERAL MATTER FREE, ASH FREE, SULPHUR FREE, MOISTURE FREE, VOLATILE MATTER FREE, FIXED CARBON FREE, HARDGROVE INDEX FREE)	
COAL SPECIFIC ENERGY (MOIST, MINERAL MATTER FREE, ASH FREE, SULPHUR FREE, MOISTURE FREE, VOLATILE MATTER FREE, FIXED CARBON FREE, HARDGROVE INDEX FREE, SIZING FREE)	
COAL SPECIFIC ENERGY (MOIST, MINERAL MATTER FREE, ASH FREE, SULPHUR FREE, MOISTURE FREE, VOLATILE MATTER FREE, FIXED CARBON FREE, HARDGROVE INDEX FREE, SIZING FREE, SPECIFIC GRAVITY FREE)	
COAL SPECIFIC ENERGY (MOIST, MINERAL MATTER FREE, ASH FREE, SULPHUR FREE, MOISTURE FREE, VOLATILE MATTER FREE, FIXED CARBON FREE, HARDGROVE INDEX FREE, SIZING FREE, SPECIFIC GRAVITY FREE, SPECIFIC ENERGY FREE)	
COAL SPECIFIC ENERGY (MOIST, MINERAL MATTER FREE, ASH FREE, SULPHUR FREE, MOISTURE FREE, VOLATILE MATTER FREE, FIXED CARBON FREE, HARDGROVE INDEX FREE, SIZING FREE, SPECIFIC GRAVITY FREE, SPECIFIC ENERGY FREE, SPECIFIC ENERGY (MOIST) FREE)	
COAL SPECIFIC ENERGY (MOIST, MINERAL MATTER FREE, ASH FREE, SULPHUR FREE, MOISTURE FREE, VOLATILE MATTER FREE, FIXED CARBON FREE, HARDGROVE INDEX FREE, SIZING FREE, SPECIFIC GRAVITY FREE, SPECIFIC ENERGY FREE, SPECIFIC ENERGY (MOIST) FREE, SPECIFIC ENERGY (MOIST, MINERAL MATTER FREE) FREE)	
COAL SPECIFIC ENERGY (MOIST, MINERAL MATTER FREE, ASH FREE, SULPHUR FREE, MOISTURE FREE, VOLATILE MATTER FREE, FIXED CARBON FREE, HARDGROVE INDEX FREE, SIZING FREE, SPECIFIC GRAVITY FREE, SPECIFIC ENERGY FREE, SPECIFIC ENERGY (MOIST) FREE, SPECIFIC ENERGY (MOIST, MINERAL MATTER FREE) FREE, SPECIFIC ENERGY (MOIST, MINERAL MATTER FREE, ASH FREE) FREE)	
COAL SPECIFIC ENERGY (MOIST, MINERAL MATTER FREE, ASH FREE, SULPHUR FREE, MOISTURE FREE, VOLATILE MATTER FREE, FIXED CARBON FREE, HARDGROVE INDEX FREE, SIZING FREE, SPECIFIC GRAVITY FREE, SPECIFIC ENERGY FREE, SPECIFIC ENERGY (MOIST) FREE, SPECIFIC ENERGY (MOIST, MINERAL MATTER FREE) FREE, SPECIFIC ENERGY (MOIST, MINERAL MATTER FREE, ASH FREE) FREE, SPECIFIC ENERGY (MOIST, MINERAL MATTER FREE, ASH FREE, SULPHUR FREE) FREE)	
COAL SPECIFIC ENERGY (MOIST, MINERAL MATTER FREE, ASH FREE, SULPHUR FREE, MOISTURE FREE, VOLATILE MATTER FREE, FIXED CARBON FREE, HARDGROVE INDEX FREE, SIZING FREE, SPECIFIC GRAVITY FREE, SPECIFIC ENERGY FREE, SPECIFIC ENERGY (MOIST) FREE, SPECIFIC ENERGY (MOIST, MINERAL MATTER FREE) FREE, SPECIFIC ENERGY (MOIST, MINERAL MATTER FREE, ASH FREE) FREE, SPECIFIC ENERGY (MOIST, MINERAL MATTER FREE, ASH FREE, SULPHUR FREE) FREE, SPECIFIC ENERGY (MOIST, MINERAL MATTER FREE, ASH FREE, SULPHUR FREE, MOISTURE FREE) FREE)	

BPB COAL QUALITY LOG

DEPTH	
GR OR TAT	COAL BULK DENSITY

HOLE SIZE CORRECTION DATA

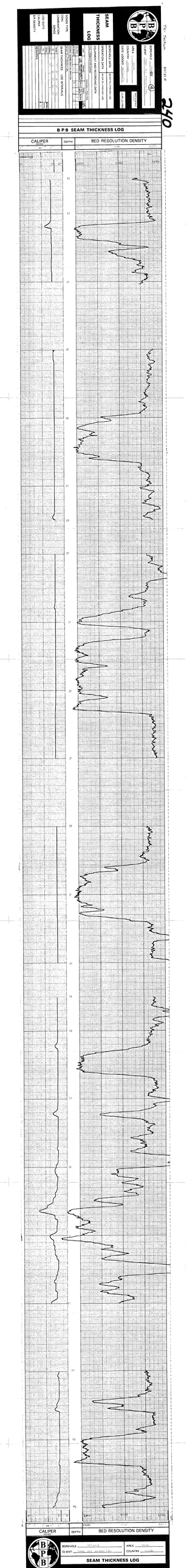


QUITA TAT	COAL BULK DENSITY
	DEPTH

BOREHOLE 240/240 AREA Tulsa

CLIENT Tenas Heat Resources Ltd. COUNTRY Canada

COAL QUALITY LOG


SEAM THICKNESS LOG
BPB
CALIPER
DEPTH
BED RESOLUTION DENSITY
240

COAL LITHOLOGY LOG

BPB

BOREHOLE 0
AREA
COUNTRY
DRIFT GOOD
BOREHOLE DATA
WATER LEVEL
DEPTH DRILLER
DEPTH LOGGER
CASING DRILLER
CASING LOGGER
BIT SIZE
FROM
TO
FLUID TYPE
FLUID LEVEL
MAX. REC. TEMP.
TIME SINCE CIRC.
TIME ON BOTTOM
DATE
RUN NO.
TYPE LOG
SERVICE CO.
OPERATING RIG TIME
OPERATION
RECORDED BY
WITNESSED BY
EQUIPMENT LOCATION
RECORDED BY
WITNESSED BY
TOOL TYPE
TOOL NUMBER
DIAMETER
WEIGHT
MAX. DIAMETER
MAX. SPEED
DENSITY STANDARD
CALIBRATION
CALIBRATION DATE
CALIBRATION OVERRIDE
GAMMA RAY
DENSITY
CALIPER
LOG
RUN
TIME
SPEED
DEPTH
REMARKS

EQUIPMENT AND RECORDING DATA

COAL COMBINATION SONDE

LOG	EQUIPMENT SONDE	EQUIPMENT SOURCE	EQUIPMENT CALIBRATOR	TAPING LOG RATE	TAPING RECORD SPEED	TAPING DENSITY DISPLAY	PANEL SET SPEED	PANEL SET DEPTH	CAL. CODE	DEPTH FROM	DEPTH TO	DEPTH INTERVAL	SEAM LOG RUN
GAMMA RAY	1151	3722		1	5/1	2	5/1	1	=	1.00	100.00	1.00	
DENSITY			371	1	5/1	2	5/1	0.5	=	1.00	100.00	1.00	
CALIPER	LOCKING POSITION		1666	1	5/1	2	5/1	0.5	=	1.00	100.00	1.00	
			24.5"	1	5/1	2	5/1	0.5	=	1.00	100.00	1.00	

COAL QUALITY/SEAM THICKNESS LOG INTERVALS (Refer to relevant log)

				INTERVAL TOTAL
FROM	21.58	29.		
TO	58.35	35.		
INTERVAL	36.77	6.		36.

ADDITIONAL SONDES RUN

SONDE	LOG	LENGTH & SERIAL NO. OF SONDE ON RUN LOG
310	301	3.0m(10')
221	212	2.0m
224	1666	2.0m

REFER TO ADDITIONAL HEADINGS

REMARKS

Start Up. 8:15
Finish Up. 21:20

BPB COAL LITHOLOGY LOG

CALIBRATION DATA

JIG No. 372 VALUE LOGGED 9.0AAM	JIG CAL DATE 27/11/84 JIG VALUE 2.95	SOIL @ 1.33g/cm³	7 ins 177 cms
JIG MARK SHOWN AT ABOVE VALUE 47.3	JIG No. 3999 SPAN 400	NONE 282 - 209	2 ins 127 cms

GAMMA RAY | DEPTH | BULK DENSITY | CALIPER INCHES

HOLE SIZE CORRECTION DATA

125 75 100 50 75 25 50 0 25 0 12 11 10 9 8

0 API 150 | 5000 kN/m³ 0 | 0" 2"

GAMMA RAY API | DEPTH | BULK DENSITY kN/m³ | CALIPER INCHES

0 150 | 5000 0 | 0" 2"

00 CASING SHOE
10
20
30
40
50
60
70
80
90
100
REPEAT SECTION
90
100

GAMMA RAY | DEPTH | BULK DENSITY | CALIPER

BPB

BOREHOLE [illegible] AREA Tellima
CLIENT Crows Nest Resources Ltd. COUNTRY Canada

COAL LITHOLOGY LOG

TK-Telkwa

84(33) A

240

GAMMA RAY — INTERPRETATION LOG

BOREHOLE TWMH-436 (2)

CLIENT Crow West Resources Ltd.

AREA telkwa

COUNTRY Canada

DATE LOGGED 26-Jan-86

SCALE 1:200

RUN 1

BOREHOLE DATA		
	MEASURED FROM	ELEVATION

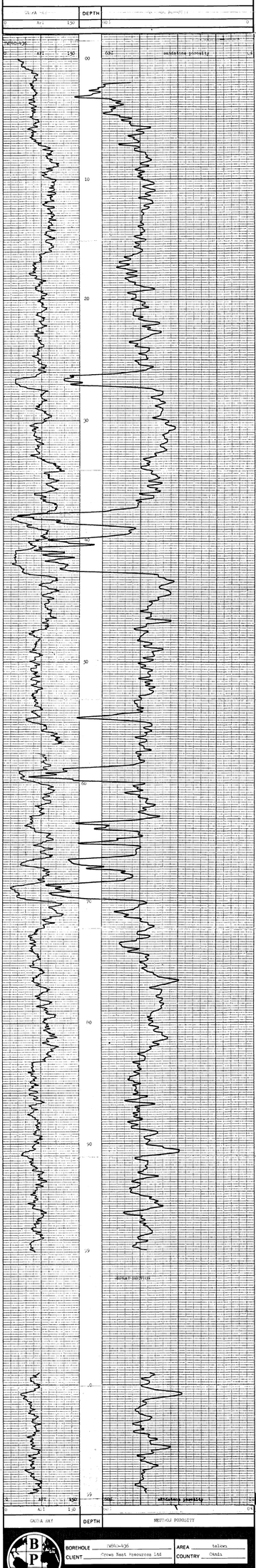
OPERATION DATA		
	MEASURED FROM	ELEVATION

EQUIPMENT AND RECORDING DATA		

LOG	FROM	TO	SCALE	RUN	NO.

PARAM.	VALUE	PARAM.	VALUE

REMARKS



BOREHOLE TWMH-436

CLIENT Crow West Resources Ltd

AREA telkwa

COUNTRY Canada

TK-Telkwa 89/3/8

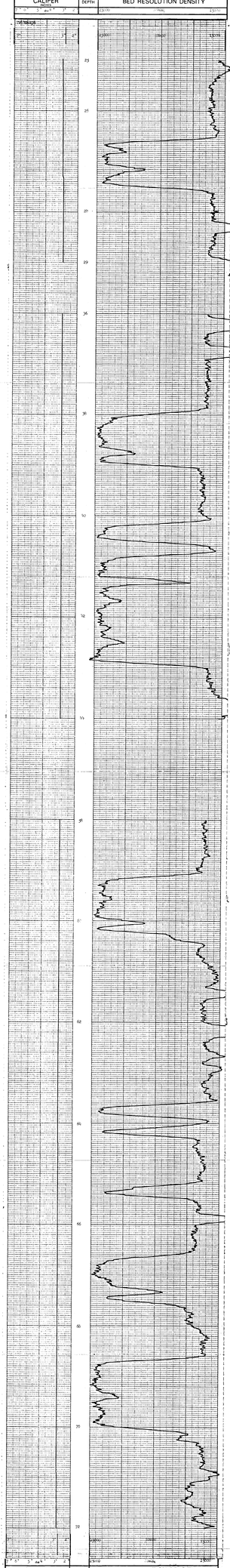
240

SEAM THICKNESS LOG

SONDE TYPE	
COAL CONDITION	
SEAM THICKNESS LOG INTERVALS	
LOG SUITE	
CALIPER	
BED RESOLUTION DENSITY	
REMARKS	

FORMATION	TOKWA-MAIN
CLIENT	Cities Service Minerals Corp.
AREA	Telkwa
COUNTRY	British Columbia, Canada
DATE LOGGED	20/Jun/86
LOGGING UNIT	Suite 1

BOREHOLE DATA	Hole No. 86-1
OPERATION DATA	Rig No. 1
COMPANY AND RECORDING DATA	Company: Cities Service Minerals Corp. Recorded by: Sonde No. 1
SEAM THICKNESS LOG INTERVALS	0.5 m
CALIPER	Scale: 0-5 in.
BED RESOLUTION DENSITY	Scale: 1.9-2.9 g/cm³



BOREHOLE 86-1
CLIENT Cities Service Minerals Ltd.
AREA Telkwa
COUNTRY Canada

SEAM THICKNESS LOG

TK-Telkwa

9/12/78

240

BOREHOLE	4
CLIENT	
AREA	
COUNTRY	Canada
DATE LOGGED	
DEPTH	

COAL QUALITY LOG

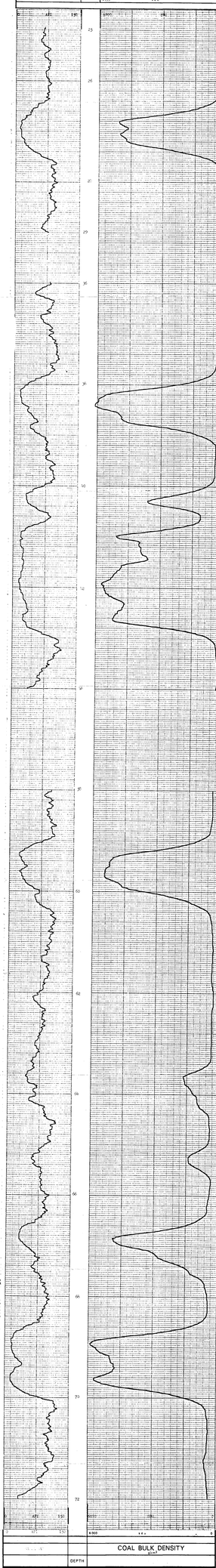
BOREHOLE DATA	REFER TO LITHOLOGY LOG
OPERATION DATA	REFER TO LITHOLOGY LOG
EQUIPMENT AND RECORDING DATA	
SIZE	
DEPTH	
DATE	
TIME	
LOG NO.	
LOG TYPE	COAL QUALITY LOG INTERVALS
CLIENT'S COAL QUALITY LOG NUMBER	
CONE TYPE	
CONE CORRECTION SIGNS	
LOG SUITE	GAMMA RAY, NEUTRON, C.S. DENSITY
REMARKS	

BPB COAL QUALITY LOG

DEPTH

COAL BULK DENSITY

HOLE SIZE CORRECTION DATA



COAL BULK DENSITY

DEPTH

BOREHOLE

CLIENT

AREA

COUNTRY Canada

COAL QUALITY LOG

DIPMETER ANALYSIS

240

TK- Telkwa 84/3/A

CLIENT C.N.R.L.
BOREHOLE TW-84D-436 (5)
AREA TELKWA B.C
COUNTRY CANADA

DATE LOGGED.....29-JUN-84
DATE PROCESSED..02-AUG-84

COMMENTS.....

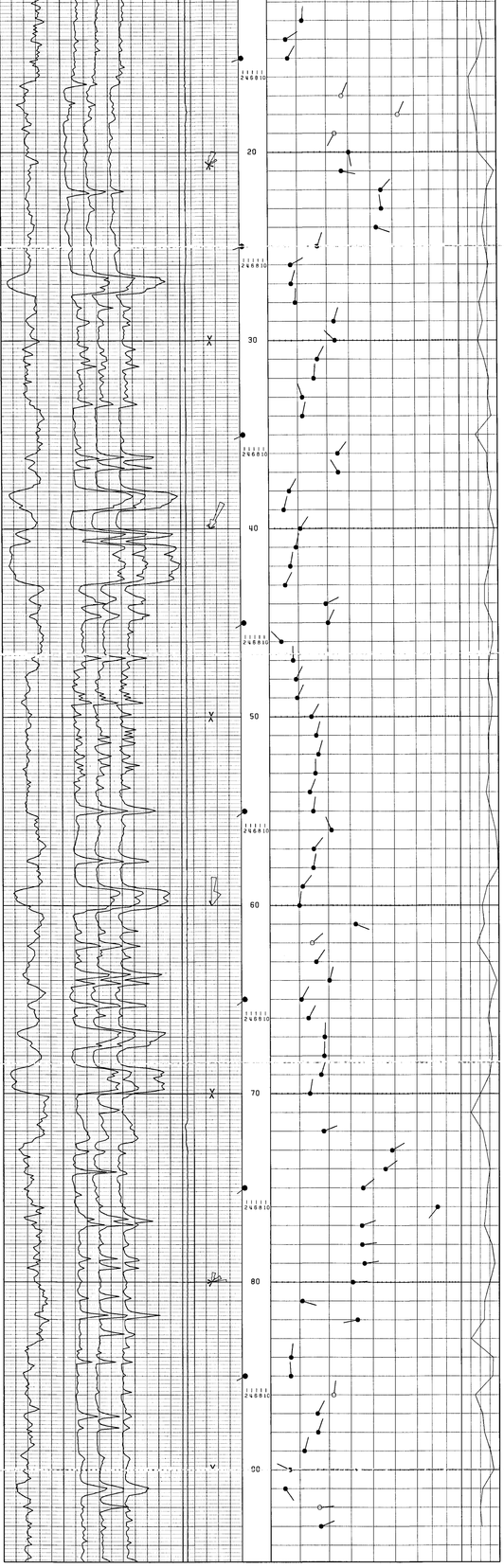
INTERPRETATION PARAMETERS

STEP 1.00M. DECLINATION 26.0 EAST
INTERVAL 2.00M. DEPTH RANGE 11.36 - 94.90M.
SEARCH ANGLE 80. DATE PROCESSED 02-AUG-84

AVERAGE BOREHOLE DEVIATION & DIRECTION ANNOTATED EVERY 10.0M.

ROSE DIAGRAMS SEGMENTED EVERY TEN DEGREES, .1" RADIUS PER DIP MARKER DISPLAYED

LEGEND:
GOOD (>0.50)
FAIR (>0.30)



436 (6) 240

BPB DIPMETER ANALYSIS
INTERPRETATION NOTES

1. All plots are correct to the resolution of the plotter used, ie. one hundredth of an inch. Vertical resolution may vary by up to one percent but each plot is correct within itself, the plotted data being dynamically merged with its gridded background
Plots exceeding eight metres in length will be split into multiples thereof, however there is no data loss associated with this subdivision.

2. Rose diagrams are plotted between every major division and are delimited by two bold arrows. For certain replay scales it may be desirable to plot these less frequently; this option is available on request.

3. The borehole tilt and azimuth displayed on the plot are the average values over the whole major division.

4. The replay scale for pads 1, 2 & 3 are designed to give the maximum visual effect over the plotted interval. Replaying shorter sections of the curve will enhance this display.

5. The grid over which the computed dip information is displayed is locally linear. That is to say it is linear between Ø & 1Ø, degrees,1Ø & 2Ø,2Ø & 3Ø etc.

6. The correlation value will vary depending upon the interval size selected. Generally speaking the larger the correlation interval, the lower the value becomes. For this reason a direct comparison of this value for differing correlation intervals is meaningless, quality control being exercised with an appreciation of this effect.

7. For customised control of computed dipmeter analysis the following parameters must be specified:
correlation step and interval(s)
magnetic declination(ie. the difference between true and magnetic North)
search angle(s)
depth range(s)
replay scale(s)
the frequency for rose diagrams
(quality control is exercised in accordance with the correlation interval used,
alternatively all correlations may be displayed on request)

The following information is a listing of ALL the output from BPB's dipmeter analysis. The data is subdivided into three consecutive sets of data readings, being read from left to right. Below is a full description of each data item:

DEPTH	the depth corresponding to the centre of the correlation interval
CALIPER	the average borehole caliper recorded over the correlation interval
HOLE DRIFT	the average borehole deviation from vertical over the correlation interval
HOLE AZIMUTH	the average borehole azimuth over the correlation interval in degrees East of true North
DIP ANGLE	the computed formation dip in degrees, from the horizontal plane
DIP AZIMUTH	the formation azimuth in degrees East from true North
CORRELATION	a measure of the reliability of the computed result. This parameter is also used in the visual display to determine the quality of result

Further recorrelations over any step & interval size are available on any scale over any section of the log. Alternative methods of presentation, or analysis may be made available on request.

TW-84D-436 Magnetic declination 26.ØØ degrees East of North Ø2-AUG-84
********** Correlation step 1.ØØ metres ,interval 2.ØØ metres Search angle 8Ø. degrees PAGE 1

DEPTH metres	CAL. ins.	BOREHOLE TILT	BOREHOLE AZI	FORMATION DIP	FORMATION AZI	MIN. COR.	DEPTH metres	CAL. ins.	BOREHOLE TILT	BOREHOLE AZI	FORMATION DIP	FORMATION AZI	MIN. COR.	DEPTH metres	CAL. ins.	BOREHOLE TILT	BOREHOLE AZI	FORMATION DIP	FORMATION AZI	MIN. COR.
13.ØØ	3.Ø	1.1	252.	11.9	4.	Ø.57	14.ØØ	3.Ø	1.2	25Ø.	6.3	56.	Ø.65	15.ØØ	3.Ø	1.2	247.	7.Ø	29.	Ø.54
16.ØØ	3.Ø	1.1	249.	26.2	97.	Ø.28	17.ØØ	3.1	1.1	251.	27.9	23.	Ø.31	18.ØØ	3.1	1.1	251.	52.9	24.	Ø.43
19.ØØ	3.1	1.1	25Ø.	24.4	2Ø9.	Ø.5Ø	2Ø.ØØ	3.1	1.1	248.	3Ø.3	169.	Ø.53	21.ØØ	3.Ø	1.1	248.	27.8	1Ø1.	Ø.93
22.ØØ	3.Ø	1.1	251.	45.3	41.	Ø.73	23.ØØ	3.Ø	1.1	253.	45.6	352.	Ø.69	24.ØØ	3.Ø	1.1	249.	42.9	1Ø9.	Ø.63
25.ØØ	3.Ø	1.1	248.	16.9	18.	Ø.7Ø	26.ØØ	3.Ø	1.2	25Ø.	7.7	59.	Ø.77	27.ØØ	2.9	1.2	247.	7.9	16.	Ø.68
28.ØØ	2.9	1.2	247.	9.2	3.	Ø.54	29.ØØ	2.9	1.2	25Ø.	23.6	17.	Ø.62	3Ø.ØØ	2.9	1.2	251.	24.2	313.	Ø.5Ø
31.ØØ	2.9	1.2	248.	16.7	26.	Ø.66	32.ØØ	2.9	1.2	244.	15.5	5.	Ø.78	33.ØØ	2.9	1.2	243.	11.6	341.	Ø.75
34.ØØ	2.9	1.2	243.	11.7	11.	Ø.84	36.ØØ	2.9	1.2	244.	25.3	36.	Ø.72	37.ØØ	2.9	1.2	248.	25.6	328.	Ø.73
38.ØØ	2.9	1.3	249.	7.Ø	29.	Ø.83	39.ØØ	2.9	1.3	245.	5.1	13.	Ø.77	4Ø.ØØ	2.9	1.2	243.	1Ø.7	32.	Ø.9Ø
41.ØØ	2.8	1.3	243.	9.3	11.	Ø.85	42.ØØ	2.8	1.4	241.	7.3	9.	Ø.78	43.ØØ	2.8	1.3	242.	5.6	26.	Ø.65
44.ØØ	2.8	1.3	246.	19.4	63.	Ø.65	45.ØØ	2.8	1.3	249.	2Ø.1	24.	Ø.85	46.ØØ	2.8	1.4	248.	4.1	316.	Ø.86
47.ØØ	2.9	1.4	244.	8.1	359.	Ø.76	48.ØØ	2.9	1.4	24Ø.	9.1	26.	Ø.73	49.ØØ	2.8	1.4	24Ø.	9.5	25.	Ø.84
5Ø.ØØ	2.8	1.4	24Ø.	14.3	3Ø.	Ø.82	51.ØØ	2.8	1.4	239.	16.Ø	14.	Ø.73	52.ØØ	2.8	1.4	239.	16.6	16.	Ø.74
53.ØØ	2.8	1.4	241.	15.6	36Ø.	Ø.75	54.ØØ	2.8	1.4	245.	13.7	22.	Ø.67	55.ØØ	2.9	1.5	245.	14.9	8.	Ø.8Ø
56.ØØ	2.9	1.5	242.	21.5	336.	Ø.92	57.ØØ	2.9	1.5	239.	15.Ø	39.	Ø.98	58.ØØ	2.9	1.5	236.	14.9	9.	Ø.98
59.ØØ	2.8	1.4	235.	11.2	38.	Ø.69	6Ø.ØØ	2.8	1.5	236.	1Ø.1	7.	Ø.57	61.ØØ	2.8	1.5	236.	32.6	111.	Ø.62
62.ØØ	2.8	1.5	236.	14.4	48.	Ø.43	63.ØØ	2.8	1.4	236.	15.8	34.	Ø.75	64.ØØ	2.8	1.4	239.	2Ø.4	14.	Ø.94
65.ØØ	2.8	1.5	243.	1Ø.7	28.	Ø.8Ø	66.ØØ	2.8	1.6	243.	13.1	28.	Ø.71	67.ØØ	2.8	1.6	241.	18.6	2.	Ø.8Ø
68.ØØ	2.8	1.6	238.	18.5	1.	Ø.82	69.ØØ	2.8	1.6	236.	17.4	17.	Ø.75	7Ø.ØØ	2.8	1.5	234.	13.6	8.	Ø.51
71.ØØ	2.8	1.4	234.	65.4	334.	Ø.26	72.ØØ	2.7	1.4	234.	18.2	67.	Ø.57	73.ØØ	2.7	1.3	233.	49.7	59.	Ø.67
74.ØØ	2.8	1.3	232.	46.4	53.	Ø.76	75.ØØ	2.8	1.3	233.	36.1	5Ø.	Ø.69	76.ØØ	2.8	1.3	232.	74.Ø	218.	Ø.66
77.ØØ	2.8	1.3	231.	35.5	68.	Ø.61	78.ØØ	2.8	1.2	231.	35.7	82.	Ø.81	79.ØØ	2.8	1.2	231.	36.8	81.	Ø.88
8Ø.ØØ	2.8	1.2	232.	3Ø.9	86.	Ø.75	81.ØØ	2.8	1.2	233.	1Ø.9	1Ø7.	Ø.61	82.ØØ	2.8	1.2	234.	33.4	259.	Ø.61
83.ØØ	2.8	1.2	234.	18.3	75.	Ø.26	84.ØØ	2.8	1.2	235.	7.Ø	7.	Ø.84	85.ØØ	2.8	1.2	237.	6.9	356.	Ø.83
86.ØØ	2.8	1.2	238.	22.3	7.	Ø.36	87.ØØ	2.8	1.2	238.	16.Ø	26.	Ø.56	88.ØØ	2.8	1.3	238.	16.1	19.	Ø.6Ø
89.ØØ	2.8	1.3	239.	11.6	14.	Ø.76	9Ø.ØØ	2.8	1.3	242.	6.6	295.	Ø.85	91.ØØ	2.8	1.3	242.	5.Ø	146.	Ø.56
92.ØØ	2.8	1.3	243.	16.6	85.	Ø.49	93.ØØ	2.8	1.3	244.	17.2	67.	Ø.54							

BPB

GR-N 300 (1315) 5½" SLIM HOLE TOOL (36 Volt)

BOREHOLE 90BS-437
CLIENT Crows Nest Resources Ltd.
AREA Yellowknife
COUNTRY Canada
DATE LOGGED 90/Nov/06
RUN NO. 1
DEPTH-DRILLER 100 m
DEPTH-LOGGER 99 m
BTM LOG INTERVAL 99 m
TOP LOG INTERVAL 0 m
CASING-DRILLER 100 m @ Surface
CASING-LOGGER 99 m @ Surface
BIT SIZE 1 152mm 6" m
2 m
3 m
CASING SIZE 1 152mm 6" 50 m
2 m
3 m
DRILLING FLUID TYPE Water
DENSITY 1.0 g/cm³
VISCOSITY 50 s
PH 7
FLUID LOSS 0 ml
SOURCE OF SAMPLE Flowing
RM @ MEAS. TEMP. 0.0 Ω-m @ 0 °C
RMF @ MEAS. TEMP. 0.0 Ω-m @ 0 °C
RMC @ MEAS. TEMP. 0.0 Ω-m @ 0 °C
SOURCE OF RMF / RMC
RM @ BHT 0.0 Ω-m @ 0 °C
TIME SINCE CIRCULATION 0 hr
MAX. REC. TEMP. 0 °C
EQUIP. LOCATION Yellowknife
RECORDED BY J. Hamilton
WITNESSED BY

OPERATION DATA

BOREHOLE RECORD

BIT	FROM	TO
1	0	100
2		
3		

CASING	SIZE	WGT.	FROM	TO
1	152mm 6"	50	0	100
2				
3				

EQUIPMENT AND RECORDING DATA

LOG	SONDE	EQUIPMENT SOURCE	CAL/RM/VOM	TAPING LOG TAPED	RECORDING DIRECTION/ SPEED	PANEL RECAL/PLAY	CAL SONDE SPEED	CAL SONDE REC.	CAL SONDE MONIT.	DEPTHS FROM	TO	INTERVAL
	1159	3532										
GAMMA			371	T	9m/s	D	9m/s	1	1.5	96	00	96
LOG			1996	T	9m/s	D	9m/s	0.309	0.309	96	00	96

ADDITIONAL SONDES RUN

SONDE	LOG	GENERAL MODEL OR BACK-LOG	DETAIL MODEL OR BACK-LOG
210	TCU	1004	

REFER TO ADDITIONAL HEADING

REMARKS

Start open hole 96.0m
Finish open hole 0.0m

Logged through drill rods, scales have been adjusted accordingly.

GAMMA RAY
0 API 120

DEPTH

LONG SPACED DENSITY
3000 SPI 0

TEMPERATURE
0 API 120

3000 SPI 0

REPEAT SECTION

0 API 120

3000 SPI 0

GAMMA RAY

DEPTH

LONG SPACED DENSITY

BPB

BOREHOLE 90BS-437
CLIENT Crows Nest Resources Ltd.
AREA Yellowknife
COUNTRY Canada

MP 92160 B

Tk- Telkwa 84(3) A

240

GAMMA RAY & NEUTRON-NEUTRON
(In Rods)

BOREHOLE TW89A-437 (2)
CLIENT Crows Nest Resources Ltd.

AREA Telkwa
COUNTRY Canada
DATE LOGGED 30/June/84

DEPTH SCALE 1:100

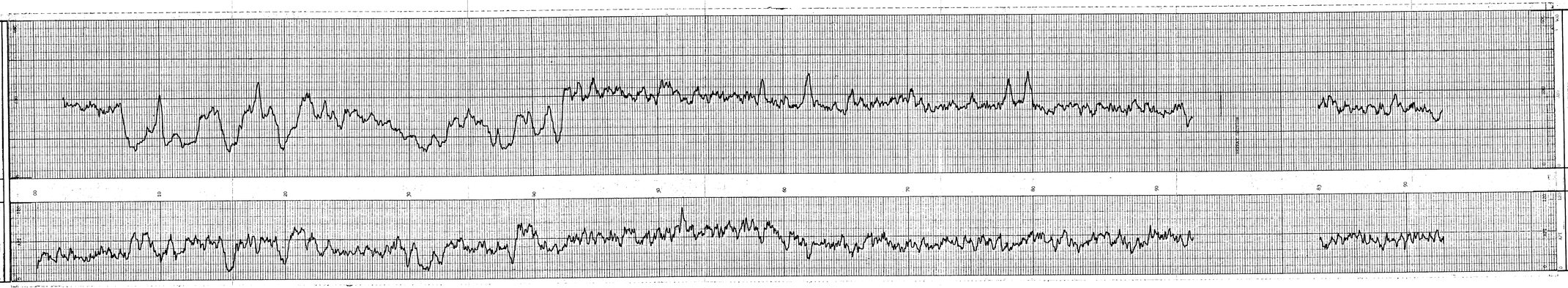
2 OF 4 LOGS

BOREHOLE DATA REFER TO LITHOLOGY LOG
OPERATION DATA REFER TO LITHOLOGY LOG

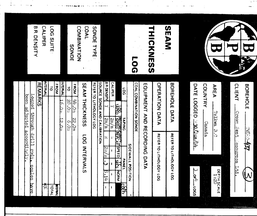
EQUIPMENT AND RECORDING DATA

LOG	TAPING			PANEL		FOLD LOGS
	LOG TAPED	RECORDING SPEED	SPEED	V.T. SECS	NORM	
GAMMA	F	9m/m	D	9m/m	1	1.0
GAMMA	F	9m/m	D	9m/m	1	8.70

REMARKS
Logged through drill rods, scales have been adjusted accordingly.



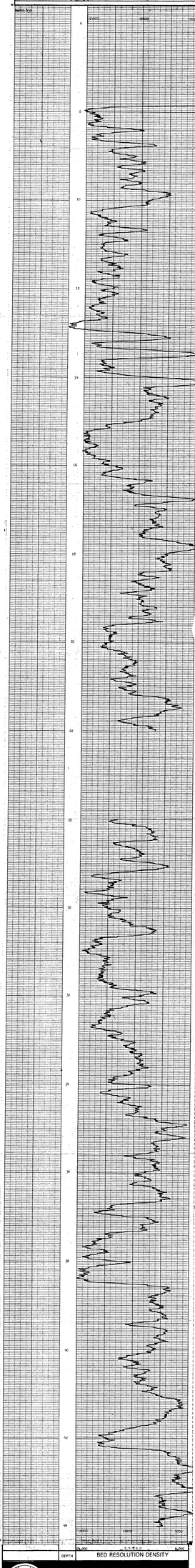
BOREHOLE TW89A-437
CLIENT Crows Nest Resources Ltd.
AREA Telkwa
COUNTRY Canada



240

B P B SEAM THICKNESS LOG

DEPTH BED RESOLUTION DENSITY

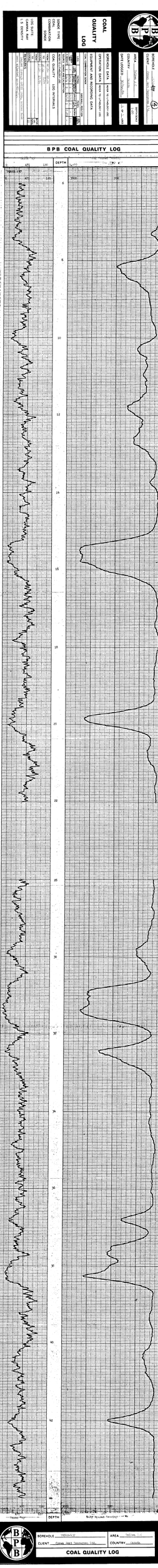


DEPTH BED RESOLUTION DENSITY

BOREHOLE MWD-502 AREA Telkwa B.C.

CLIENT Crows Nest Resources Ltd. COUNTRY Canada

SEAM THICKNESS LOG


COAL QUALITY LOG
BPB COAL QUALITY LOG
DEPTH
BOREHOLE
CLIENT
AREA
COUNTRY
COAL QUALITY LOG

Tk-Telkwa 84(3)A

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COAL LITHOLOGY LOG

BPB

BOREHOLE	TW84D-438 ①
CLIENT	Crows Nest Resources Ltd.
AREA	Telkwa
COUNTRY	Canada
DATE LOGGED	30/June/84
DEPTH SCALE	100:1
	1 OF 4 LOGS

SONDE TYPE: COAL COMBINATION SONDE

LOG SUITE: GAMMA RAY, L.S. DENSITY, CALIPER

BOREHOLE DATA

	BPB	DRILLER
PERMANENT DATUM	Ground Level	
ELEVATION OF P D		
MEASUREMENTS FROM	G.L.	G.L.
DEPTH REACHED	148.1m	148.1m
CASING SHOE	8m	8m
BIT SIZES	1 3" TO TD	2 TO
	3 TO	4 TO
CASING SIZES	1 3 1/2 TO 8m	2 TO

FLUID DATA

NATURE	Kwik Thik/Water
SG	1.01 gmc/cc
LEVEL	5.5m
VISCOSITY	N/A
Rm at meas temp	N/A
BHT	N/A

OPERATION DATA

FIRST READING	146m
LAST READING	00m
INTERVAL LOGGED	146m
UNIT-TRUCK No	V216
ENGINEER	RW/WACCO
WITNESS	

EQUIPMENT AND RECORDING DATA

COAL COMBINATION SONDE

LOG	EQUIPMENT			TAPING			PANEL			CAL COEFF	DEPTHS			SEAM LOG RUN
	SONDE	SOURCE	CALIBRATOR	LOG TAPED	RECORD SPEED	DIRECT or REPLAY	SPEED	TC SECS	NORM		FROM	TO	INTERVAL	
	115B	5822												
GAMMA RAY	SIDEWALL POSITION		371	Y	9m/m	D	9m/m	1	-	1.66	146	00	146	
L S DENSITY			3996	Y	9m/m	D	9m/m	0.3	7.98	-	146	00	146	
CALIPER				Y	9m/m	D	9m/m	0.3	-	-	146	00	146	

COAL QUALITY/SEAM THICKNESS LOG INTERVALS (Refer to relevant log)

FROM	127	120	100	93	63	50	INTERVAL TOTAL
TO	122	112	95	77	59	46	
INTERVAL	5	8	5	16	5	5	= 44m

ADDITIONAL SONDES RUN

SONDE	LOG	GENERAL SCALE LOG	DETAIL SCALE LOG
510	DSN	100:1	
224	DIP	CDS	
231	VERT		

REFER TO ADDITIONAL HEADINGS

REMARKS

Start Op. 17:30

Finish Op. 0:30

BPB COAL LITHOLOGY LOG

CALIBRATION DATA

JIG No 371 VALUE 494 @ 5" DIAM

JIG MARK SHOWN AT ABOVE VALUE - x0.3

JIG CAL DATE 27/June JIG VALUE 6245 SDU @ 1.32 g/cm³

JIG No 3996 SPAN 6000 NORM SDU/CPS = 8.09

7 ins 875 cps

2 ins 423 cps

GAMMA RAY	DEPTH	BULK DENSITY g/cm³	CALIPER INCHES

HOLE SIZE CORRECTION DATA

0 API 150		6000 sdu 0	7" 2"
GAMMA RAY	DEPTH	BULK DENSITY g/cm³	CALIPER INCHES

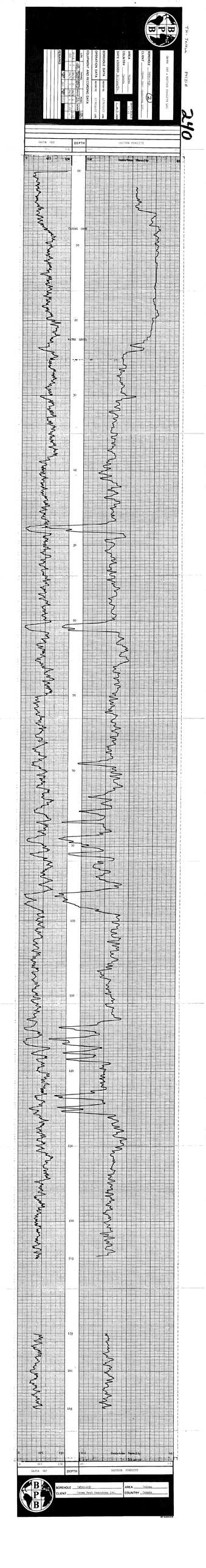
BPB

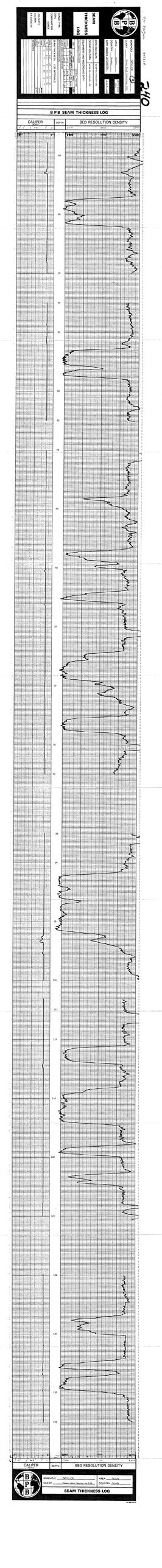
BOREHOLE TW84D-438 AREA Telkwa

CLIENT Crows Nest Resources Ltd. COUNTRY Canada

COAL LITHOLOGY LOG

MY (1)137483 R


BPB
SONIC DATA + NATURAL RADIOACTIVITY LOG
RUN No. (2)
DEPTH DRILLER 1600m
DEPTH LOGGER 1600m
CASING DRILLER 1600m
CASING LOGGER 1600m
BOTTOM LOGGED INTERVAL 1600m
TOP LOGGED INTERVAL 0m
TYPE FLUID IN HOLE WATER
DENSITY 1.0
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.
EQUIPMENT NO. AND LOCATION
RECORDED BY
WITNESSED BY
RUN NO.
DATE
TYPE LOG
DEPTH DRILLER
DEPTH LOGGER
BOTTOM LOGGED INTERVAL
TOP LOGGED 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.
EQUIPMENT NO. AND LOCATION
RECORDED BY
WITNESSED BY
RUN NO.
DATE
TYPE LOG
DEPTH DRILLER
DEPTH LOGGER
BOTTOM LOGGED INTERVAL
TOP LOGGED 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.
EQUIPMENT NO. AND LOCATION
RECORDED BY
WITNESSED BY
RUN NO.
DATE
GAMMA RAY
DEPTH
SONIC
CASING SHOE
WATER LEVEL
GAMMA RAY
DEPTH
SONIC
BPB
BOREHOLE 76RDU-930
CLIENT Tirnex East Resources Ltd.
AREA Telkwa
COUNTRY Canada


BPB
SEAM THICKNESS LOG
BPB SEAM THICKNESS LOG
CALIPER
DEPTH
BED RESOLUTION DENSITY
BOREHOLE
CLIENT
AREA
COUNTRY
SEAM THICKNESS LOG

TE-TONGA PHASE 1

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COAL QUALITY LOG

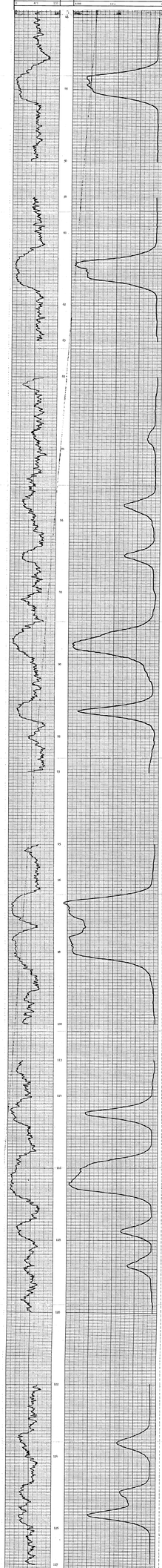
BORE	75TON-1-12
CLIENT	CONN. N.G.A. HOSTELLING LTD.
AREA	TONGA
COUNTRY	TONGA
DATE	1-5-85

SURVEY DATA	
DIP/AZIMUTH	
COMMENTS	
DENSITY DATA	
OPERATOR SITE	
COAL QUALITY	
COMMENTS	
DENSITY DATA	
OPERATOR SITE	
COAL QUALITY	
COMMENTS	

BPB COAL QUALITY LOG

DEPTH	
GAMMA	DEPTH
COAL BULK DENSITY	

HOLE SIZE CORRECTION DATA



GAMMA	DEPTH
COAL BULK DENSITY	

BORE	75TON-1-12
CLIENT	CONN. N.G.A. HOSTELLING LTD.
AREA	TONGA
COUNTRY	TONGA

COAL QUALITY LOG

DIPMETER ANALYSIS

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Tk- Telkwa 84(3)A

CLIENT C.N.R.L.
BOREHOLE TW-84D-438 (5)
AREA TELKWA B.C
COUNTRY CANADA

DATE LOGGED.....30-JUN-84
DATE PROCESSED..03-AUG-84

COMMENTS.....

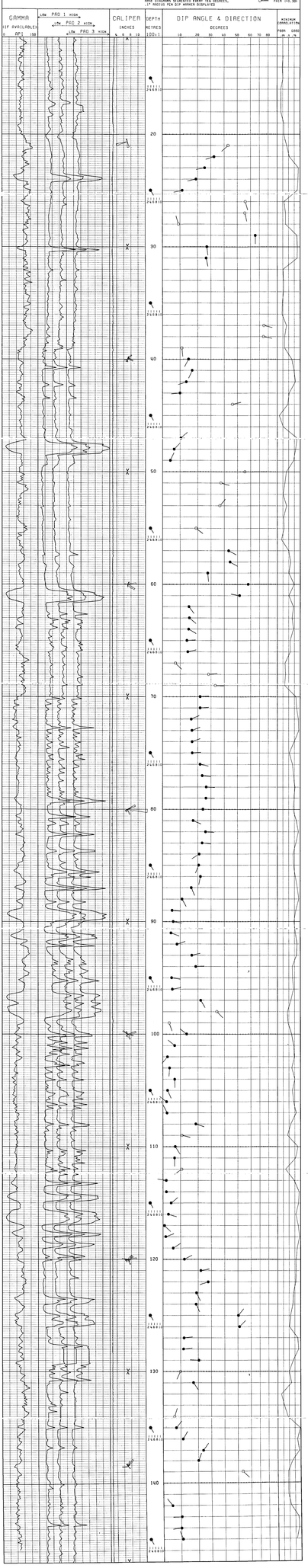
INTERPRETATION PARAMETERS

STEP 1.00M. DECLINATION 26.0 EAST
INTERVAL 2.00M. DEPTH RANGE 11.36 - 147.00M.
SEARCH ANGLE 80. DATE PROCESSED 03-AUG-84

AVERAGE BOREHOLE DEVIATION & DIRECTION
ANNOTATED EVERY 10.0M.

ROSE DIAGRAMS SEGMENTED EVERY TEN DEGREES.
1" RADIUS PER DIP MARKER DISPLAYED

LEGEND:
GOOD (>0.50)
FAIR (>0.30)



438 (6) 240

BPB DIPMETER ANALYSIS
INTERPRETATION NOTES

1. All plots are correct to the resolution of the plotter used, ie. one hundredth of an inch. Vertical resolution may vary by up to one percent but each plot is correct within itself, the plotted data being dynamically merged with its gridded background Plots exceeding eight metres in length will be split into multiples thereof, however there is no data loss associated with this subdivision.

2. Rose diagrams are plotted between every major division and are delimited by two bold arrows. For certain replay scales it may be desirable to plot these less frequently; this option is available on request.

3. The borehole tilt and azimuth displayed on the plot are the average values over the whole major division.

4. The replay scale for pads 1, 2 & 3 are designed to give the maximum visual effect over the plotted interval. Replaying shorter sections of the curve will enhance this display.

5. The grid over which the computed dip information is displayed is locally linear. That is to say it is linear between Ø & 1Ø, degrees,1Ø & 2Ø,2Ø & 3Ø etc.

6. The correlation value will vary depending upon the interval size selected. Generally speaking the larger the correlation interval, the lower the value becomes. For this reason a direct comparison of this value for differing correlation intervals is meaningless, quality control being exercised with an appreciation of this effect.

7. For customised control of computed dipmeter analysis the following parameters must be specified:
   correlation step and interval(s)
   magnetic declination(ie. the difference between true and magnetic North)
   search angle(s)
   depth range(s)
   replay scale(s)
   the frequency for rose diagrams
   (quality control is exercised in accordance with the correlation interval used,
   alternatively all correlations may be displayed on request)

The following information is a listing of ALL the output from BPB's dipmeter analysis. The data is subdivided into three consecutive sets of data readings, being read from left to right. Below is a full description of each data item:

DEPTH	the depth corresponding to the centre of the correlation interval
CALIPER	the average borehole caliper recorded over the corrleation interval
HOLE DRIFT	the average borehole deviation from vertical over the correlation interval
HOLE AZIMUTH	the average borehole azimuth over the correlation interval in degrees East of true North
DIP ANGLE	the computed formation dip in degrees, from the horizontal plane
DIP AZIMUTH	the formation azimuth in degrees East from true North
CORRELATION	a measure of the reliability of the computed result. This parameter is also used in the visual display to determine the quality of result

Further recorrelations over any step & interval size are available on any scale over any section of the log. Alternative methods of presentation, or analysis may be made available on request.

TW-84D-438 Magnetic declination 26.ØØ degrees East of North Ø3-AUG-84
********** Correlation step 1.ØØ metres ,interval 2.ØØ metres Search angle 8Ø. degrees PAGE 1

DEPTH metres	CAL. ins.	BOREHOLE TILT	BOREHOLE AZI	FORMATION DIP	FORMATION AZI	MIN. COR.	DEPTH metres	CAL. ins.	BOREHOLE TILT	BOREHOLE AZI	FORMATION DIP	FORMATION AZI	MIN. COR.	DEPTH metres	CAL. ins.	BOREHOLE TILT	BOREHOLE AZI	FORMATION DIP	FORMATION AZI	MIN. COR.
13.ØØ	3.2	3.9	152.	62.7	253.	Ø.26	14.ØØ	3.1	3.9	152.	63.4	5Ø.	Ø.23	15.ØØ	3.Ø	3.9	152.	61.9	24.	Ø.25
16.ØØ	3.Ø	3.9	152.	73.3	251.	Ø.17	19.ØØ	3.Ø	3.8	152.	78.4	54.	Ø.29	2Ø.ØØ	3.Ø	3.8	152.	49.8	139.	Ø.29
21.ØØ	3.Ø	3.7	152.	43.4	227.	Ø.42	22.ØØ	2.9	3.7	152.	32.6	253.	Ø.53	23.ØØ	2.9	3.7	151.	25.9	259.	Ø.93
24.ØØ	2.8	3.7	151.	19.Ø	258.	Ø.9Ø	25.ØØ	2.8	3.7	151.	11.2	258.	Ø.88	26.ØØ	2.8	3.7	151.	56.6	164.	Ø.3Ø
27.ØØ	2.9	3.7	151.	56.4	168.	Ø.37	28.ØØ	2.9	3.7	151.	9.1	344.	Ø.37	29.ØØ	2.9	3.7	151.	65.3	18Ø.	Ø.86
3Ø.ØØ	2.8	3.8	151.	27.8	173.	Ø.88	31.ØØ	2.8	3.7	151.	27.2	169.	Ø.88	32.ØØ	2.8	3.7	151.	9.8	58.	Ø.26
33.ØØ	2.9	3.8	151.	1Ø.7	69.	Ø.27	34.ØØ	2.9	3.8	15Ø.	12.5	119.	Ø.27	35.ØØ	2.9	3.8	151.	72.8	113.	Ø.23
36.ØØ	2.9	3.8	151.	72.Ø	15Ø.	Ø.21	37.ØØ	2.9	3.7	151.	74.9	1Ø3.	Ø.41	38.ØØ	2.8	3.6	151.	74.4	1Ø1.	Ø.32
39.ØØ	2.8	3.6	151.	11.Ø	174.	Ø.33	4Ø.ØØ	2.9	3.6	152.	14.8	2Ø7.	Ø.64	41.ØØ	2.9	3.6	152.	16.8	2Ø5.	Ø.74
42.ØØ	2.8	3.6	152.	13.5	252.	Ø.79	43.ØØ	2.9	3.6	152.	9.9	265.	Ø.52	44.ØØ	2.9	3.6	152.	47.Ø	76.	Ø.46
45.ØØ	2.9	3.7	151.	76.2	83.	Ø.1Ø	46.ØØ	2.9	3.7	151.	44.2	275.	Ø.26	47.ØØ	2.8	3.7	151.	1Ø.4	49.	Ø.86
48.ØØ	2.8	3.7	151.	6.6	43.	Ø.8Ø	49.ØØ	2.8	3.7	151.	4.4	25.	Ø.72	5Ø.ØØ	2.8	3.7	151.	56.3	91.	Ø.4Ø
51.ØØ	2.9	3.7	151.	38.5	1Ø6.	Ø.34	52.ØØ	2.9	3.6	151.	42.8	58.	Ø.25	53.ØØ	2.9	3.6	151.	37.6	39.	Ø.41
54.ØØ	2.9	3.6	151.	43.6	57.	Ø.28	55.ØØ	2.9	3.6	15Ø.	19.Ø	128.	Ø.3Ø	56.ØØ	2.9	3.6	15Ø.	48.8	279.	Ø.19
57.ØØ	2.9	3.6	15Ø.	43.7	118.	Ø.5Ø	58.ØØ	2.8	3.6	15Ø.	45.Ø	121.	Ø.58	59.ØØ	2.8	3.6	15Ø.	28.4	175.	Ø.51
6Ø.ØØ	2.8	3.6	149.	59.Ø	27Ø.	Ø.74	61.ØØ	2.8	3.6	149.	51.7	28Ø.	Ø.51	62.ØØ	2.8	3.6	149.	14.9	144.	Ø.7Ø
63.ØØ	2.8	3.6	149.	15.2	131.	Ø.65	64.ØØ	2.7	3.6	149.	14.8	121.	Ø.7Ø	65.ØØ	2.8	3.5	149.	13.8	86.	Ø.56
66.ØØ	2.8	3.5	149.	14.3	77.	Ø.57	67.ØØ	2.8	3.5	149.	7.3	135.	Ø.35	68.ØØ	2.8	3.5	148.	29.2	85.	Ø.36
69.ØØ	2.8	3.5	148.	33.6	92.	Ø.33	7Ø.ØØ	2.8	3.5	147.	22.Ø	86.	Ø.81	71.ØØ	2.8	3.5	147.	22.Ø	85.	Ø.85
72.ØØ	2.8	3.5	147.	16.3	65.	Ø.92	73.ØØ	2.8	3.5	147.	16.7	67.	Ø.93	74.ØØ	2.8	3.5	147.	16.7	69.	Ø.74
75.ØØ	2.8	3.5	147.	16.8	85.	Ø.53	76.ØØ	2.7	3.5	147.	21.9	1Ø1.	Ø.67	77.ØØ	2.7	3.5	147.	23.8	97.	Ø.71
78.ØØ	2.8	3.5	147.	27.2	92.	Ø.77	79.ØØ	2.7	3.5	147.	26.9	91.	Ø.73	8Ø.ØØ	2.7	3.5	147.	24.3	91.	Ø.69
81.ØØ	2.7	3.5	147.	17.3	113.	Ø.83	82.ØØ	2.7	3.5	147.	26.6	93.	Ø.92	83.ØØ	2.8	3.5	147.	23.7	95.	Ø.82
84.ØØ	2.8	3.5	147.	21.Ø	236.	Ø.69	85.ØØ	2.7	3.5	147.	2Ø.7	2Ø2.	Ø.71	86.ØØ	2.7	3.5	147.	22.1	191.	Ø.79
87.ØØ	2.7	3.5	147.	16.2	158.	Ø.87	88.ØØ	2.7	3.5	147.	1Ø.9	151.	Ø.94	89.ØØ	2.7	3.5	147.	5.3	95.	Ø.81
9Ø.ØØ	2.7	3.5	148.	6.Ø	1ØØ.	Ø.73	91.ØØ	2.7	3.5	148.	4.7	11Ø.	Ø.79	92.ØØ	2.7	3.5	148.	8.1	72.	Ø.86
93.ØØ	2.7	3.5	148.	16.5	76.	Ø.83	94.ØØ	2.7	3.4	149.	18.7	87.	Ø.65	95.ØØ	2.7	3.4	149.	5.Ø	98.	Ø.66
96.ØØ	2.7	3.4	15Ø.	5.5	79.	Ø.7Ø	97.ØØ	2.7	3.4	15Ø.	22.3	151.	Ø.59	98.ØØ	2.8	3.4	15Ø.	34.8	136.	Ø.44
99.ØØ	2.8	3.3	15Ø.	3.6	161.	Ø.46	1ØØ.ØØ	2.8	3.3	15Ø.	13.5	31Ø.	Ø.62	1Ø1.ØØ	2.7	3.3	15Ø.	6.7	31Ø.	Ø.7Ø
1Ø2.ØØ	2.7	3.3	15Ø.	2.7	22Ø.	Ø.74	1Ø3.ØØ	2.7	3.3	15Ø.	3.9	185.	Ø.62	1Ø4.ØØ	2.7	3.3	15Ø.	6.7	179.	Ø.76
1Ø5.ØØ	2.7	3.3	15Ø.	2.7	157.	Ø.65	1Ø6.ØØ	2.7	3.3	15Ø.	2.1	3Ø7.	Ø.7Ø	1Ø7.ØØ	2.7	3.3	15Ø.	2.4	334.	Ø.81
1Ø8.ØØ	2.7	3.2	151.	18.7	1Ø8.	Ø.57	1Ø9.ØØ	2.7	3.2	151.	1Ø.7	1Ø3.	Ø.43	11Ø.ØØ	2.7	3.2	151.	7.Ø	149.	Ø.89
111.ØØ	2.7	3.2	151.	6.6	181.	Ø.78	112.ØØ	2.7	3.2	151.	1Ø.6	234.	Ø.35	113.ØØ	2.7	3.2	151.	1.8	28Ø.	Ø.72
114.ØØ	2.7	3.2	151.	1.9	9Ø.	Ø.94	115.ØØ	2.7	3.2	15Ø.	4.6	5Ø.	Ø.91	116.ØØ	2.7	3.1	151.	3.1	1Ø6.	Ø.8Ø
117.ØØ	2.7	3.1	151.	Ø.9	134.	Ø.9Ø	118.ØØ	2.7	3.1	15Ø.	1.6	69.	Ø.96	119.ØØ	2.7	3.1	15Ø.	5.8	57.	Ø.85
12Ø.ØØ	2.7	3.1	15Ø.	12.1	61.	Ø.8Ø	121.ØØ	2.8	3.1	15Ø.	22.2	79.	Ø.8Ø	122.ØØ	2.8	3.1	15Ø.	28.4	251.	Ø.79
123.ØØ	2.7	3.1	15Ø.	19.Ø	155.	Ø.69	124.ØØ	2.7	3.1	149.	18.8	156.	Ø.66	125.ØØ	2.7	3.1	149.	5Ø.3	38.	Ø.56
126.ØØ	2.7	3.Ø	15Ø.	51.3	43.	Ø.51	127.ØØ	2.7	3.Ø	15Ø.	11.9	83.	Ø.88	128.ØØ	2.7	3.Ø	149.	11.7	84.	Ø.91
129.ØØ	2.7	3.Ø	148.	2Ø.5	273.	Ø.67	13Ø.ØØ	2.7	3.1	149.	9.8	2Ø5.	Ø.5Ø	131.ØØ	2.7	3.1	149.	17.2	146.	Ø.6Ø
132.ØØ	2.7	3.1	149.	42.5	67.	Ø.17	133.ØØ	2.7	3.1	149.	54.6	288.	Ø.29	134.ØØ	2.7	3.1	149.	6.5	18.	Ø.44
135.ØØ	2.7	3.1	149.	7.5	37.	Ø.97	136.ØØ	2.7	3.1	149.	11.3	3Ø.	Ø.86	137.ØØ	2.7	3.1	149.	24.2	35.	Ø.94
138.ØØ	2.7	3.1	15Ø.	2Ø.1	18.	Ø.65	139.ØØ	2.7	3.1	15Ø.	54.1	134.	Ø.45	142.ØØ	2.7	3.1	15Ø.	5.1	322.	Ø.56
143.ØØ	2.7	3.1	15Ø.	1Ø.3	268.	Ø.89	144.ØØ	2.7	3.Ø	15Ø.	1Ø.1	264.	Ø.9Ø	145.ØØ	2.7	3.Ø	151.	1Ø.9	34Ø.	Ø.81

EQUIPMENT AND RECORDING DATA

COAL COMBINATION SONDE

LOG	EQUIPMENT			TAPING			PANEL			CAL COEFF	DEPTHS			SEAM LOG RUN
	SONDE	SOURCE	CALIBRATOR	LOG TAPED	RECORD SPEED	DIRECT or REPLAY	SPEED	TC SECS	NORM		FROM	TO	INTERVAL	
[illegible]	1153	5622												
GAMMA RAY	SIDEWALL POSITION		371	Y	9m/m	D	9m/m	1	-	1.63	139	00	139	
L S DENSITY		5622	3996	Y	9m/m	D	9m/m	0.3	8.09	-	139	001	139	
CALIPER			2"..7"	Y	9m/m	D	9m/m	0.3	-	-	139	00	139	

COAL QUALITY/SEAM THICKNESS LOG INTERVALS (Refer to relevant log)

				INTERVAL TOTAL
FROM	111	98	57	
TO	103	69	43	
INTERVAL	8	29	14	= 51

ADDITIONAL SONDES RUN

SONDE	LOG	GENERAL SCALE LOG	DETAIL SCALE LOG
510	[illegible]	100:1	

REFER TO ADDITIONAL HEADINGS

REMARKS

Start ops: 0130

Finish ops: 0330

BPB COAL LITHOLOGY LOG

CALIBRATION DATA

JIG No 271 VALUE 94 @ 5" DIAM

JIG MARK SHOWN AT ABOVE VALUE x0.3

JIG CAL DATE 27 June 86 JIG VALUE 6245 SDU @ 1.38 g/cm³

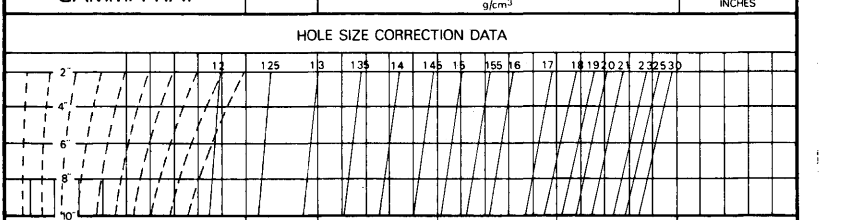
JIG No 3996 SPAN 6000 NORM SDU/CPS = 8.09

7 ins 675 cps

2 ins 823 cps

GAMMA RAY	DEPTH	BULK DENSITY g/cm³	CALIPER INCHES

HOLE SIZE CORRECTION DATA



0 API 150 | 6000 sdu 0 | 7" 2"

0 API 150 | 6000 sdu 0 | 7" 2"

GAMMA RAY	DEPTH	BULK DENSITY g/cm³	CALIPER INCHES

BOREHOLE TW84D-440 AREA Telkwa

CLIENT Crows Nest Resources Ltd. COUNTRY Canada

COAL LITHOLOGY LOG

MY (1)137483 R

TK-Talkum 84133 A

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BPB

GAMMA-RAY & DIFFERENTIAL TEMPERATURE LOG

BOREHOLE Fahrt 440 (2)

CLIENT Cyber Tech Resources Ltd.

AREA Talkum

COUNTRY Canada

DATE LOGGED 17 July 86

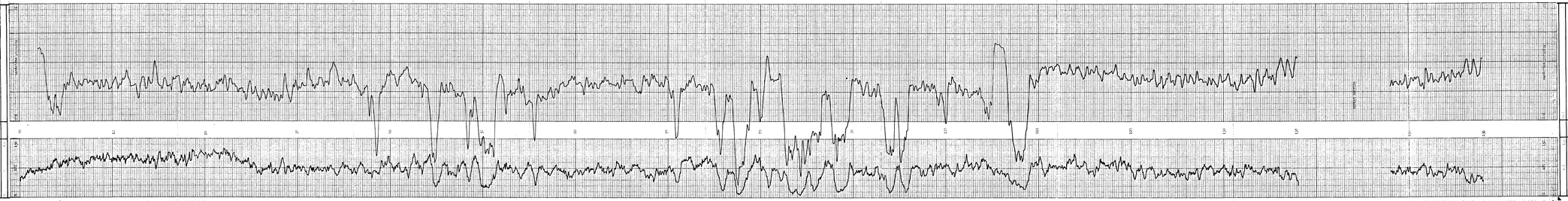
DEPTH SCALE

BOREHOLE DATA	REFER TO	13 FEBRUARY 1986
OPERATION DATA	REFER TO	13 FEBRUARY 1986

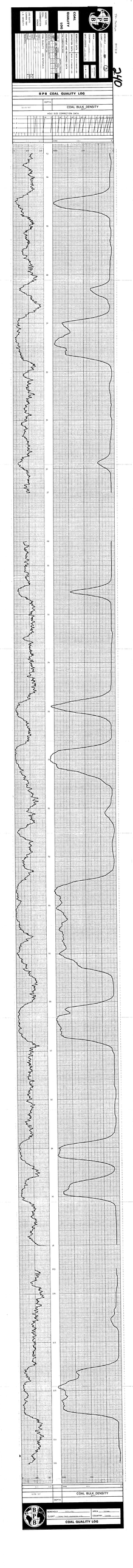
EQUIPMENT AND RECORDING DATA

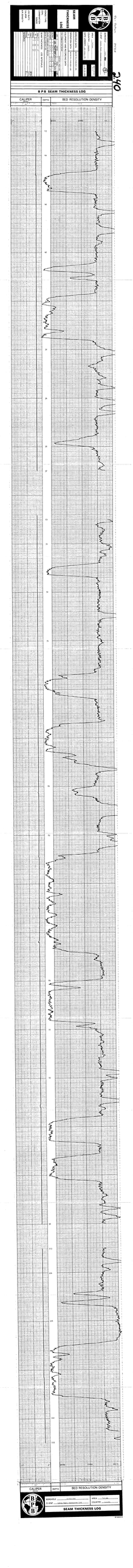
LOG	PANEL	PANEL	LOG
GAMMA-RAY	1	1	1
DIFFERENTIAL TEMPERATURE	1	1	1

REMARKS



BOREHOLE
CLIENT
AREA
COUNTRY


BPB
COAL QUALITY LOG
BPB COAL QUALITY LOG
COAL BULK DENSITY
HOLE SIZE CORRECTION DATA
COAL BULK DENSITY
COAL QUALITY LOG


BPB
SEAM THICKNESS LOG
CALIPER
DEPTH
BED RESOLUTION DENSITY
240

240

COAL LITHOLOGY LOG

WELL	78-TH-BP-1
FIELD	
COUNTY	
STATE	
LOCATION	
API NO.	
OTHER SERVICES	
DATE	
RUN NO.	1
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 RMF / RMC	
RM @ BHT	
TIME CIRC. STOPPED	
TIME LOGGER ON BOTTOM	
MAX. REC. TEMP.	
EQUIPMENT NO.	
LOCATION	
RECORDED BY	
WITNESSED BY	

EQUIPMENT AND RECORDING DATA

TOOL	SERIAL NO.	TYPE	SPEED	TIME CONSTANT	SENSITIVITY	DEPTH	TOOL	DEPTH	TOOL
GAMMA RAY									
BULK DENSITY									

TIME CORRECTION DATA

TIME DIFFERENCE TRAVELS ON MEMORY TAPE & PRINTED LOG

NORMAL SCALE

ADDITIONAL SCALES RUN

SCALE	LOG	DEPTH	SCALE

REMARKS

START: 1984-07-27
FINISH: 1984-07-27

NO. OF ADDITIONAL PRINTS: 1

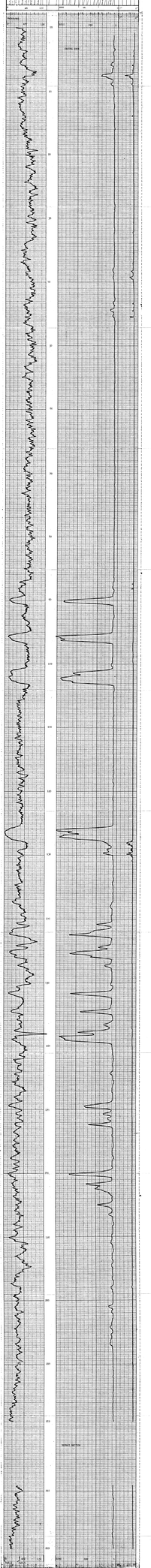
BPB COAL LITHOLOGY LOG

CALIBRATION DATA

GR API UNITS	AT 0 API UNITS	AT 100 API UNITS	AT 200 API UNITS
BULK DENSITY UNITS	AT 0 G/CC	AT 2.5 G/CC	AT 5 G/CC

GAMMA RAY	API	BULK DENSITY	G/CC

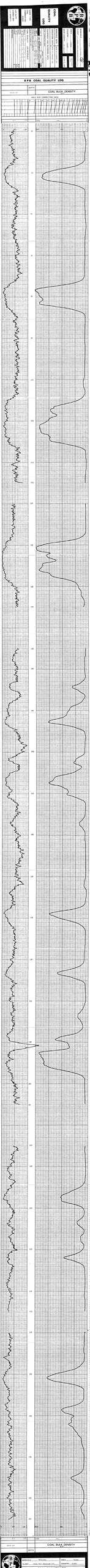
HOLE SIZE CORRECTION DATA



GAMMA RAY	API	BULK DENSITY	G/CC

BPB	SURVEYED	DATE	CLIENT
	COUNTY	STATE	COUNTRY
	COAL LITHOLOGY LOG		

TR-Tatum 84131A 240



BPB COAL QUALITY LOG
COAL BULK DENSITY
COAL QUALITY LOG

Elevation	
Log Measured From	
Drilling Measured From	
Permanent Datum	
Elev. Perm. Datum	
Elev. Log Measured From	
Elev. Drilling Measured From	
Date	
Run No.	
Depth Driller	
Depth Logger	
Bottom Log Interval	
Top Log Interval	
Casing Driller	
Casing Logger	
Bit Size	
Type Fluid in Hole	
Density / Viscosity	
pH / Fluid Loss	
Source of Sample	
Rm @ Measured Temp.	
Rmf @ Measured Temp.	
Rmc @ Measured Temp.	
Source Rmf / Rmc	
Rm @ BHT	
Time Since Circulation	
Time Since Stop	
Max. Rec. Temp.	
Equipment Location	
Recorded By	
Witnessed By	

BAKER HUGHES

B P B

Tex. Gulf Inc.

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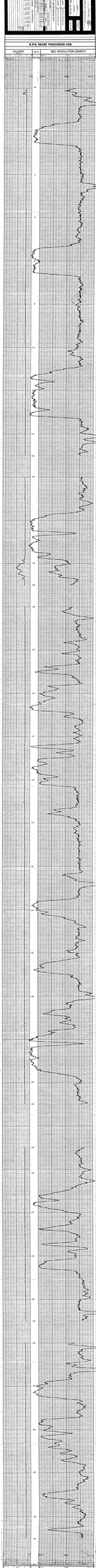
B P B SEAM THICKNESS LOG

CALIPER	DEPTH	BED RESOLUTION DENSITY



CALIPER	DEPTH	BED RESOLUTION DENSITY

BPB	Company: Tex. Gulf Inc.	Date: None
	Field: Cable Hills, Pennsylvania, USA	County: Clearfield
	SEAM THICKNESS LOG	

DIPMETER ANALYSIS

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CLIENT C.N.R.L.
BOREHOLE TW-84D-441 (5)
AREA TELKWA B.C
COUNTRY CANADA

DATE LOGGED.....11-JUL-84
DATE PROCESSED..03-AUG-84

COMMENTS.....

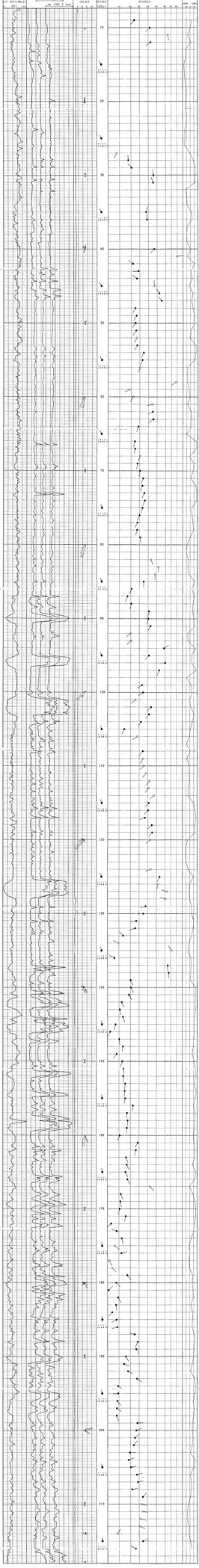
INTERPRETATION PARAMETERS

STAT 1.00M. DECLINATION 26.0 EAST
MATERIAL 2.00M. DEPTH MODE 7.50 - 214.00M.
SCHEMA ANGLE 80. DATE PROCESSED 03-AUG-84

SCHEMA ANGLE: ANGLE OF DIPMETER & DIRECTION
MAGNETIC DIRECTION: MAGNETIC DIRECTION

LEGEND.
DOWN: DOWN AND RIGHT
UPWARD: UPWARD AND RIGHT

GAMMA OF RAYS/MILLI	CALIPER INCHES	DEPTH METRES	DIP ANGLE & DIRECTION DEGREES	DIP ANGLE
0	6	10	0 10 20 30 40 50 60 70 80 90	0 10 20 30 40 50 60 70 80 90



441 (6) 240

BPB DIPMETER ANALYSIS
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3. The borehole tilt and azimuth displayed on the plot are the average values over the whole major division.

4. The replay scale for pads 1, 2 & 3 are designed to give the maximum visual effect over the plotted interval. Replaying shorter sections of the curve will enhance this display.

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6. The correlation value will vary depending upon the interval size selected. Generally speaking the larger the correlation interval, the lower the value becomes. For this reason a direct comparison of this value for differing correlation intervals is meaningless, quality control being exercised with an appreciation of this effect.

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correlation step and interval(s)
magnetic declination(ie. the difference between true and magnetic North)
search angle(s)
depth range(s)
replay scale(s)
the frequency for rose diagrams
(quality control is exercised in accordance with the correlation interval used,
alternatively all correlations may be displayed on request)

The following information is a listing of ALL the output from BPB's dipmeter analysis. The data is subdivided into three consecutive sets of data readings, being read from left to right. Below is a full description of each data item:

DEPTH	the depth corresponding to the centre of the correlation interval
CALIPER	the average borehole caliper recorded over the corrleation interval
HOLE DRIFT	the average borehole deviation from vertical over the correlation interval
HOLE AZIMUTH	the average borehole azimuth over the correlation interval in degrees East of true North
DIP ANGLE	the computed formation dip in degrees, from the horizontal plane
DIP AZIMUTH	the formation azimuth in degrees East from true North
CORRELATION	a measure of the reliability of the computed result. This parameter is also used in the visual display to determine the quality of result

Further recorrelations over any step & interval size are available on any scale over any section of the log. Alternative methods of presentation, or analysis may be made available on request.

TW-84D-441
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Magnetic declination 26.ØØ degrees East of North
Correlation step 1.ØØ metres ,interval 2.ØØ metres Search angle 8Ø. degrees

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PAGE 1

DEPTH metres	CAL. ins.	BOREHOLE TILT	BOREHOLE AZI	FORMATION DIP	FORMATION AZI	MIN. COR.	DEPTH metres	CAL. ins.	BOREHOLE TILT	BOREHOLE AZI	FORMATION DIP	FORMATION AZI	MIN. COR.	DEPTH metres	CAL. ins.	BOREHOLE TILT	BOREHOLE AZI	FORMATION DIP	FORMATION AZI	MIN. COR.
9.ØØ	3.3	5.Ø	333.	24.3	219.	Ø.6Ø	1Ø.ØØ	3.3	4.8	331.	42.1	224.	Ø.53	11.ØØ	3.2	4.8	332.	64.2	171.	Ø.35
12.ØØ	3.2	5.1	331.	43.2	236.	Ø.55	13.ØØ	3.1	5.Ø	327.	9.2	26Ø.	Ø.19	14.ØØ	3.Ø	4.9	326.	77.1	7Ø.	Ø.22
15.ØØ	3.Ø	4.8	326.	76.3	57.	Ø.Ø8	16.ØØ	3.Ø	4.8	327.	33.6	231.	Ø.11	17.ØØ	3.Ø	4.8	327.	43.5	198.	Ø.17
18.ØØ	3.1	4.8	328.	66.6	326.	Ø.22	19.ØØ	3.1	4.8	328.	77.5	14Ø.	Ø.24	21.ØØ	3.Ø	4.9	329.	8.9	23Ø.	Ø.19
22.ØØ	3.Ø	4.9	329.	63.5	3Ø1.	Ø.25	23.ØØ	3.Ø	4.9	33Ø.	28.Ø	18Ø.	Ø.23	24.ØØ	3.Ø	5.Ø	33Ø.	28.4	168.	Ø.13
25.ØØ	3.Ø	4.9	329.	61.1	156.	Ø.16	26.ØØ	3.Ø	4.7	33Ø.	69.5	124.	Ø.12	27.ØØ	2.9	4.9	332.	7.5	2Ø3.	Ø.46
28.ØØ	2.9	5.2	33Ø.	17.6	356.	Ø.71	29.ØØ	2.9	5.1	327.	2Ø.5	32Ø.	Ø.82	3Ø.ØØ	2.9	5.Ø	326.	46.6	354.	Ø.82
31.ØØ	2.9	4.9	326.	46.3	339.	Ø.81	32.ØØ	2.9	4.8	327.	59.7	122.	Ø.18	33.ØØ	3.Ø	4.8	328.	58.4	1Ø8.	Ø.26
34.ØØ	3.Ø	4.8	329.	58.2	2Ø9.	Ø.27	35.ØØ	3.Ø	4.8	329.	38.3	18.	Ø.55	36.ØØ	3.Ø	4.9	33Ø.	39.4	359.	Ø.62
37.ØØ	3.Ø	5.Ø	331.	7Ø.3	1Ø1.	Ø.28	38.ØØ	3.1	5.Ø	331.	51.8	1Ø5.	Ø.25	39.ØØ	3.2	5.Ø	33Ø.	41.5	228.	Ø.26
4Ø.ØØ	3.1	5.Ø	33Ø.	47.5	223.	Ø.51	41.ØØ	3.Ø	4.8	329.	79.8	78.	Ø.31	42.ØØ	2.9	4.8	331.	22.3	311.	Ø.77
43.ØØ	2.8	5.1	331.	29.5	265.	Ø.52	44.ØØ	2.8	5.2	328.	27.5	3Ø8.	Ø.62	45.ØØ	2.8	5.1	327.	47.7	358.	Ø.42
46.ØØ	2.8	5.Ø	327.	53.1	328.	Ø.66	47.ØØ	2.8	4.9	327.	55.8	319.	Ø.59	48.ØØ	2.8	4.9	327.	25.5	21Ø.	Ø.66
49.ØØ	2.9	4.9	328.	26.9	21Ø.	Ø.77	5Ø.ØØ	2.9	4.9	328.	25.6	216.	Ø.75	51.ØØ	2.9	4.9	329.	26.5	214.	Ø.55
52.ØØ	2.9	4.9	329.	27.5	21Ø.	Ø.47	53.ØØ	2.9	5.Ø	33Ø.	27.7	21Ø.	Ø.86	54.ØØ	2.8	5.Ø	331.	35.2	2Ø6.	Ø.87
55.ØØ	2.8	5.Ø	331.	33.5	2Ø5.	Ø.79	56.ØØ	2.8	5.1	331.	3Ø.4	199.	Ø.32	57.ØØ	2.8	5.1	33Ø.	73.Ø	298.	Ø.3Ø
58.ØØ	2.8	4.9	332.	77.8	235.	Ø.31	59.ØØ	2.8	5.1	334.	18.6	242.	Ø.41	6Ø.ØØ	2.8	5.3	332.	22.5	2Ø9.	Ø.46
61.ØØ	2.8	5.3	329.	45.8	259.	Ø.31	62.ØØ	2.8	5.2	328.	45.8	246.	Ø.55	63.ØØ	2.8	5.2	328.	46.4	235.	Ø.6Ø
64.ØØ	2.8	5.1	328.	29.4	198.	Ø.59	65.ØØ	2.8	5.1	328.	27.9	199.	Ø.25	66.ØØ	2.8	5.1	328.	25.Ø	194.	Ø.91
67.ØØ	2.8	5.1	328.	25.3	19Ø.	Ø.92	68.ØØ	2.8	5.1	329.	3Ø.7	2Ø3.	Ø.45	69.ØØ	2.8	5.1	329.	28.5	191.	Ø.75
7Ø.ØØ	2.8	5.1	329.	3Ø.5	191.	Ø.68	71.ØØ	2.8	5.1	33Ø.	34.6	2Ø3.	Ø.53	72.ØØ	2.8	5.2	33Ø.	33.6	199.	Ø.87
73.ØØ	2.8	5.2	331.	36.1	2Ø7.	Ø.92	74.ØØ	2.8	5.2	331.	36.8	2Ø2.	Ø.92	75.ØØ	2.8	5.2	332.	33.7	194.	Ø.6Ø
76.ØØ	2.8	5.3	333.	3Ø.Ø	2Ø5.	Ø.62	77.ØØ	2.8	5.4	334.	28.6	2Ø7.	Ø.68	78.ØØ	2.8	5.5	334.	28.2	197.	Ø.71
79.ØØ	2.8	5.3	333.	3Ø.9	177.	Ø.51	8Ø.ØØ	2.8	5.3	336.	21.1	2Ø4.	Ø.29	81.ØØ	2.8	5.6	337.	38.6	193.	Ø.24
82.ØØ	2.8	5.7	334.	43.6	157.	Ø.38	83.ØØ	2.8	5.6	333.	52.2	183.	Ø.35	84.ØØ	2.8	5.5	332.	49.Ø	181.	Ø.43
85.ØØ	2.8	5.4	332.	35.4	181.	Ø.8Ø	86.ØØ	2.8	5.4	332.	2Ø.8	199.	Ø.62	87.ØØ	2.8	5.4	333.	17.2	2Ø4.	Ø.78
88.ØØ	2.8	5.4	333.	2Ø.6	194.	Ø.7Ø	89.ØØ	2.8	5.4	333.	41.4	194.	Ø.65	9Ø.ØØ	2.8	5.4	334.	4Ø.4	194.	Ø.78
91.ØØ	2.8	5.4	334.	43.4	212.	Ø.81	92.ØØ	2.8	5.5	335.	19.6	23Ø.	Ø.34	93.ØØ	2.8	5.5	335.	2Ø.1	226.	Ø.36
94.ØØ	2.8	5.5	337.	59.6	56.	Ø.88	95.ØØ	2.8	5.6	337.	41.2	223.	Ø.61	96.ØØ	2.8	5.4	337.	6Ø.1	271.	Ø.63
97.ØØ	2.8	5.4	339.	53.3	2ØØ.	Ø.92	98.ØØ	2.9	5.7	341.	48.5	2Ø5.	Ø.26	99.ØØ	2.9	5.8	339.	33.6	235.	Ø.61
1ØØ.ØØ	2.8	5.7	337.	35.Ø	235.	Ø.65	1Ø1.ØØ	2.8	5.5	336.	26.3	228.	Ø.49	1Ø2.ØØ	2.7	5.5	337.	44.2	223.	Ø.56
1Ø3.ØØ	2.7	5.5	338.	41.7	223.	Ø.79	1Ø4.ØØ	2.7	5.6	34Ø.	32.4	21Ø.	Ø.67	1Ø5.ØØ	2.7	5.6	341.	14.6	2Ø9.	Ø.52
1Ø6.ØØ	2.7	5.4	341.	28.7	236.	Ø.47	1Ø7.ØØ	2.7	5.4	344.	43.2	195.	Ø.27	1Ø8.ØØ	2.7	5.8	346.	34.7	219.	Ø.51
1Ø9.ØØ	2.7	6.Ø	344.	35.Ø	2Ø8.	Ø.31	11Ø.ØØ	2.7	5.8	342.	36.2	228.	Ø.45	111.ØØ	2.7	5.7	341.	39.Ø	22Ø.	Ø.45
112.ØØ	2.7	5.7	341.	42.4	217.	Ø.47	113.ØØ	2.7	5.6	341.	41.3	221.	Ø.42	114.ØØ	2.7	5.6	341.	47.7	228.	Ø.38
115.ØØ	2.7	5.6	342.	41.2	225.	Ø.74	116.ØØ	2.7	5.6	342.	4Ø.3	224.	Ø.83	117.ØØ	2.7	5.6	342.	37.3	251.	Ø.91
118.ØØ	2.8	5.6	343.	45.1	226.	Ø.84	119.ØØ	2.8	5.6	343.	45.7	221.	Ø.85	12Ø.ØØ	2.8	5.7	343.	42.9	23Ø.	Ø.34
121.ØØ	2.8	5.7	343.	6Ø.3	236.	Ø.23	122.ØØ	2.7	5.7	344.	6Ø.7	232.	Ø.2Ø	123.ØØ	2.7	5.7	344.	49.8	243.	Ø.25
124.ØØ	2.8	5.7	345.	43.9	254.	Ø.4Ø	125.ØØ	2.8	5.8	345.	54.1	2Ø4.	Ø.73	126.ØØ	2.7	5.8	346.	51.8	19Ø.	Ø.5Ø
127.ØØ	2.7	5.8	347.	63.2	289.	Ø.47	128.ØØ	2.9	5.7	347.	6Ø.4	29Ø.	Ø.49	129.ØØ	3.Ø	5.6	346.	38.5	254.	Ø.63
13Ø.ØØ	2.9	5.5	346.	35.4	272.	Ø.63	131.ØØ	2.8	5.5	346.	27.5	259.	Ø.76	132.ØØ	2.8	5.5	346.	26.1	252.	Ø.73
133.ØØ	2.8	5.5	346.	13.5	319.	Ø.61	134.ØØ	2.8	5.5	346.	9.5	295.	Ø.46	135.ØØ	2.8	5.5	346.	71.2	327.	Ø.37
136.ØØ	2.8	5.5	347.	6.Ø	299.	Ø.58	137.ØØ	2.8	5.5	347.	64.8	182.	Ø.59	138.ØØ	2.8	5.5	347.	66.3	18Ø.	Ø.58
139.ØØ	2.8	5.5	348.	2Ø.1	157.	Ø.53	14Ø.ØØ	2.8	5.5	347.	2Ø.5	154.	Ø.89	141.ØØ	2.8	5.6	347.	18.7	151.	Ø.87
142.ØØ	2.8	5.6	347.	12.4	156.	Ø.85	143.ØØ	2.8	5.7	346.	1Ø.7	17Ø.	Ø.88	144.ØØ	2.7	5.7	346.	13.4	163.	Ø.83
145.ØØ	2.7	5.8	346.	7.Ø	195.	Ø.81	146.ØØ	2.8	5.9	347.	2.4	215.	Ø.81	147.ØØ	2.8	6.Ø	347.	1Ø.2	172.	Ø.75
148.ØØ	2.8	6.Ø	347.	13.3	186.	Ø.73	149.ØØ	2.8	6.Ø	347.	8.Ø	217.	Ø.66	15Ø.ØØ	2.8	6.Ø	347.	12.9	2Ø3.	Ø.79
151.ØØ	2.7	6.Ø	347.	14.Ø	178.	Ø.89	152.ØØ	2.7	6.1	348.	13.8	174.	Ø.88	153.ØØ	2.7	6.2	348.	15.4	188.	Ø.81
154.ØØ	2.7	6.2	348.	14.9	185.	Ø.92	155.ØØ	2.7	6.2	348.	15.3	19Ø.	Ø.88	156.ØØ	2.7	6.1	348.	23.Ø	187.	Ø.75
157.ØØ	2.8	6.1	348.	16.9	182.	Ø.86	158.ØØ	2.8	6.1	348.	17.5	18Ø.	Ø.85	159.ØØ	2.8	6.2	349.	16.8	181.	Ø.81

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Magnetic declination 26.ØØ degrees East of North
Correlation step 1.ØØ metres ,interval 2.ØØ metres Search angle 8Ø. degrees

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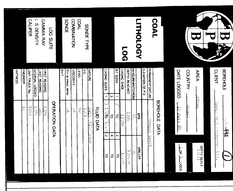
PAGE 2

DEPTH metres	CAL. ins.	BOREHOLE TILT	BOREHOLE AZI	FORMATION DIP	FORMATION AZI	MIN. COR.	DEPTH metres	CAL. ins.	BOREHOLE TILT	BOREHOLE AZI	FORMATION DIP	FORMATION AZI	MIN. COR.	DEPTH metres	CAL. ins.	BOREHOLE TILT	BOREHOLE AZI	FORMATION DIP	FORMATION AZI	MIN. COR.
16Ø.ØØ	2.8	6.3	349.	1Ø.5	199.	Ø.75	161.ØØ	2.7	6.2	349.	29.5	21Ø.	Ø.79	162.ØØ	2.7	6.2	349.	27.1	196.	Ø.86
163.ØØ	2.7	6.3	349.	16.2	16Ø.	Ø.83	164.ØØ	2.7	6.3	349.	16.8	155.	Ø.69	165.ØØ	2.7	6.3	349.	15.7	157.	Ø.92
166.ØØ	2.7	6.3	349.	17.3	152.	Ø.84	167.ØØ	2.7	6.4	349.	42.9	135.	Ø.48	168.ØØ	2.7	6.4	349.	11.4	156.	Ø.71
169.ØØ	2.7	6.5	349.	11.2	171.	Ø.86	17Ø.ØØ	2.7	6.5	349.	1Ø.5	191.	Ø.89	171.ØØ	2.7	6.5	349.	15.8	19Ø.	Ø.91
172.ØØ	2.7	6.5	348.	3.2	229.	Ø.83	173.ØØ	2.7	6.5	348.	8.1	293.	Ø.79	174.ØØ	2.7	6.5	348.	12.5	167.	Ø.59
175.ØØ	2.7	6.5	348.	6.4	127.	Ø.46	176.ØØ	2.7	6.5	348.	12.1	75.	Ø.5Ø	177.ØØ	2.7	6.5	347.	1.6	154.	Ø.47
178.ØØ	2.7	6.4	347.	4.1	135.	Ø.48	179.ØØ	2.7	6.4	347.	17.3	141.	Ø.7Ø	18Ø.ØØ	2.7	6.4	347.	7.7	135.	Ø.67
181.ØØ	2.7	6.4	347.	Ø.9	46.	Ø.7Ø	182.ØØ	2.7	6.4	347.	9.3	152.	Ø.74	183.ØØ	2.7	6.4	347.	7.5	178.	Ø.56
184.ØØ	2.7	6.4	347.	4.2	222.	Ø.69	185.ØØ	2.8	6.5	347.	7.9	241.	Ø.69	186.ØØ	2.8	6.5	347.	8.6	255.	Ø.66
187.ØØ	2.8	6.6	348.	25.6	287.	Ø.79	188.ØØ	2.7	6.5	347.	29.4	2Ø3.	Ø.83	189.ØØ	2.7	6.2	347.	27.6	15Ø.	Ø.78
19Ø.ØØ	2.7	6.1	35Ø.	15.9	151.	Ø.75	191.ØØ	2.7	6.5	351.	14.4	115.	Ø.67	192.ØØ	2.7	6.8	349.	17.8	117.	Ø.54
193.ØØ	2.7	6.6	347.	28.5	126.	Ø.82	194.ØØ	2.7	6.5	346.	9.2	122.	Ø.88	195.ØØ	2.7	6.4	346.	9.3	264.	Ø.85
196.ØØ	2.7	6.3	346.	8.6	145.	Ø.71	197.ØØ	2.7	6.3	345.	8.2	125.	Ø.82	198.ØØ	2.7	6.3	345.	8.Ø	16Ø.	Ø.75
199.ØØ	2.7	6.3	345.	29.Ø	85.	Ø.67	2ØØ.ØØ	2.7	6.3	346.	27.5	68.	Ø.67	2Ø1.ØØ	2.7	6.3	347.	25.7	46.	Ø.7Ø
2Ø2.ØØ	2.7	6.3	347.	24.2	37.	Ø.67	2Ø3.ØØ	2.7	6.3	348.	19.5	87.	Ø.54	2Ø4.ØØ	2.7	6.3	348.	18.3	68.	Ø.86
2Ø5.ØØ	2.7	6.3	348.	2Ø.4	78.	Ø.77	2Ø6.ØØ	2.7	6.3	348.	28.3	75.	Ø.54	2Ø7.ØØ	2.7	6.3	348.	29.6	78.	Ø.61
2Ø8.ØØ	2.7	6.3	348.	22.1	78.	Ø.61	2Ø9.ØØ	2.7	6.3	348.	34.9	41.	Ø.55	21Ø.ØØ	2.7	6.3	348.	33.1	1Ø1.	Ø.41
211.ØØ	2.7	6.3	348.	34.1	97.	Ø.34	212.ØØ	2.7	6.3	348.	31.8	1Ø2.	Ø.31	213.ØØ	2.7	6.3	347.	3Ø.7	113.	Ø.46
214.ØØ	2.7	6.3	347.	8.6	3Ø.	Ø.44	215.ØØ	2.7	6.3	347.	34.9	62.	Ø.53	216.ØØ	2.7	6.5	348.	26.7	298.	Ø.64



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EQUIPMENT AND RECORDING DATA

COAL COMBINATION SONDE

USE	EQUIPMENT			TAPING		PHASE		CAL	DATING		SHAM USE N/A
	SONDE	SOURCE	% ABSORPTION	SOURCE (METRES)	SPACING (METRES)	SOURCE	SPACING	RUN	FROM	TO	
DENSITY											
MS											
GAMMA											
CALIPER											

COAL RUN / TUNNUM THICKNESS LOG INTERVALS (Refer to relevant log)

	INTERVAL TOTAL
FROM	
TO	
INTERVAL	

ADDITIONAL SONDES RUN

SONDE	USE	LOGGING / TOTAL DEPTH / CASING

METER TO ADDITIONAL HEADINGS

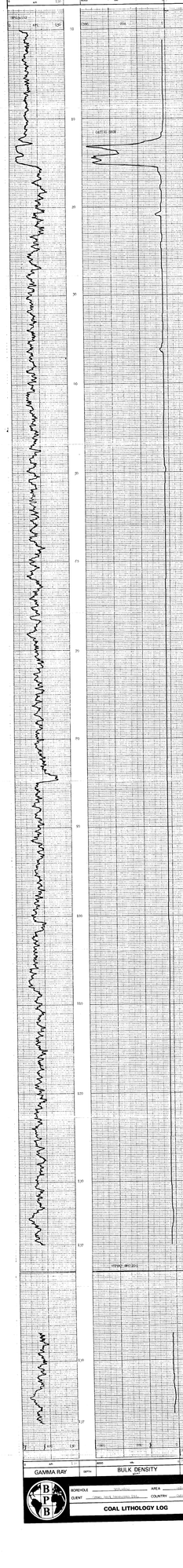
REMARKS

BPB COAL LITHOLOGY LOG

CALIBRATION DATA

AS No. [illegible] VALUE [illegible] @ [illegible] °C RAW		AS CAL DATE [illegible]	AS VALUE [illegible]	SOURCE [illegible]	MAT [illegible]
AS NORM SERIAL AT WELL VALUE [illegible]		AS No. [illegible]	SPAN [illegible]	NORM [illegible]	

GAMMA RAY	DEPTH	BULK DENSITY	CALIPER
		HOLE SIZE CORRECTION DATA	



BOREHOLE [illegible] AREA [illegible]

CLIENT [illegible] COUNTRY [illegible]

COAL LITHOLOGY LOG

JK Talhun 84(3)A

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BPB

GAMMA RAY + SPECTRAL GAMMA RAY LOG

BOREHOLE Talhun 492 (2)

CLIENT Canada Lands Development Ltd.

AREA Talhun

COUNTRY Canada

DATE LOGGED 17 July 85

DEPTH SCALE 1:500

LOG NO. 1000

BOREHOLE DATA	REFER TO	14 Shelley LOG
OPERATION DATA	REFER TO	14 Shelley LOG

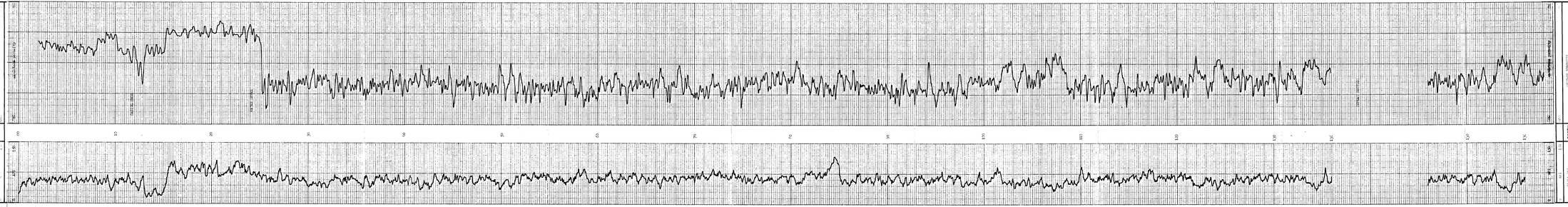
EQUIPMENT AND RECORDING DATA

LOG	TYPE	PANEL	ROTI
GAMMA RAY	2	9	1
SPECTRAL GAMMA RAY	2	9	1

LOG	TAPE		PANEL		SCALE	
	SPEED	DEPTH	SPEED	DEPTH		
GAMMA RAY	1	25/10	2	25/10	1	1:500
SPECTRAL GAMMA RAY	1	25/10	2	25/10	1	1:500

NOW	15	15	15

REMARKS



BOREHOLE Talhun 492 (2)

CLIENT Canada Lands Development Ltd.

AREA Talhun

COUNTRY Canada

BPB

Tk-Telkwa 84(3)A

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COAL QUALITY LOG

SONDE TYPE: COAL COMBINATION SONDE

LOG SUITE: GAMMA RAY, L.S. DENSITY

BOREHOLE: TW84D-442 (3)

CLIENT: Crows Nest Resources Ltd.

AREA: Telkwa

COUNTRY: Canada

DATE LOGGED: 12 July 84

DEPTH SCALE: 20:1

3 OF 4 LOGS

BOREHOLE DATA — REFER TO LITHOLOGY LOG

OPERATION DATA — REFER TO LITHOLOGY LOG

EQUIPMENT AND RECORDING DATA

COAL COMBINATION SONDE

LOG	TAPING	RECORD SPEED	DIRECTION RELAY	SPEED	PANEL SELS	SIDEWALL POSITION NORM	CAL COEFF
GAMMA RAY	Y	2m/m	8	2m/m	1	-	1.53
L.S. DENSITY	Y	2m/m	8	2m/m	1	7.92	-

SOURCE: SONDE AND CALIBRATION

REFER TO LITHOLOGY LOG

COAL QUALITY LOG INTERVALS

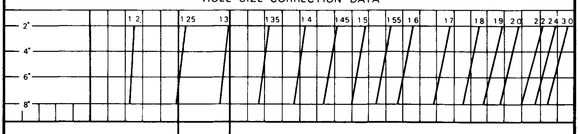
	FROM	TO	INTERVAL	FROM	TO	INTERVAL
	17	11	6			

REMARKS

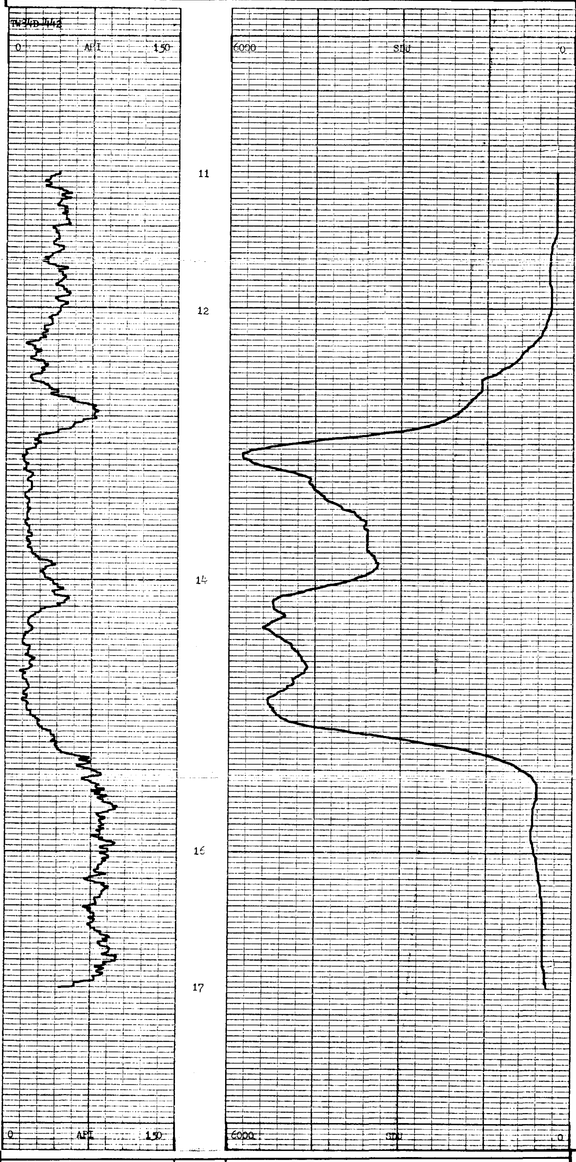
BPB COAL QUALITY LOG

	DEPTH	
GAMMA RAY		COAL BULK DENSITY g/cm³

HOLE SIZE CORRECTION DATA



0 API 150 | 6000 sdu 0



0 API 150 | 6000 sdu 0

GAMMA RAY		COAL BULK DENSITY g/cm³
	DEPTH	

BOREHOLE: TW84D-442 | AREA: Telkwa

CLIENT: Crows Nest Resources Ltd. | COUNTRY: Canada

Tk- Telkwa 84(3)A 240

BPB

BOREHOLE TW84D-442 (4)

CLIENT Crows Nest Resources Ltd.

AREA Telkwa

COUNTRY Canada

DATE LOGGED 12 July 84

DEPTH SCALE 20:1

4 OF 4 LOGS

SEAM THICKNESS LOG

BOREHOLE DATA	REFER TO LITHOLOGY LOG
OPERATION DATA	REFER TO LITHOLOGY LOG

EQUIPMENT AND RECORDING DATA

COAL COMBINATION SONDE

SIDEWALL POSITION

LOG	TAPING			PANEL			CAL COEFF
	LOG TAPED	RECORD SPEED	DIRECT or REPLAY	SPEED	T.C. SECS	NORM	
CALIPER	Y	2m/m	R	2m/m	1	-	-
B.R. DENSITY	Y	2m/m	R	2m/m	0.3	8.14	-

SOURCE SONDE AND CALIBRATION

REFER TO LITHOLOGY LOG

SEAM THICKNESS LOG INTERVALS

FROM	17
TO	11
INTERVAL	6
FROM	
TO	
INTERVAL	

INTERVAL TOTAL = 6

REMARKS

SONDE TYPE: COAL COMBINATION SONDE

LOG SUITE: CALIPER B.R. DENSITY

B P B SEAM THICKNESS LOG

BED RESOLUTION DENSITY
14000
SERIAL
24000
DEPTH
CALIPER INCHES
2"
3"
4"
5"
6"
7"

BOREHOLE TW84D-442

CLIENT Crows Nest Resources Ltd.

AREA Telkwa

COUNTRY Canada

SEAM THICKNESS LOG

MY 88002

Tk- Telkwa 84(3)A

240

COAL LITHOLOGY LOG

BOREHOLE: TW84D-443 (1)
CLIENT: Crows Nest Resources Ltd.

AREA: Telkwa
COUNTRY: Canada
DATE LOGGED: 13 July 84

DEPTH SCALE: 100:1
1 OF 4 LOGS

SONDE TYPE: COAL COMBINATION SONDE

LOG SUITE: GAMMA RAY, L.S. DENSITY, CALIPER

BOREHOLE DATA

PERMANENT DATUM	Ground Level	
ELEVATION OF P.D.		
	BPB	DRILLER
MEASUREMENTS FROM	GL	GL
DEPTH REACHED	110m	110m
CASING SHOE	13.4m	13.4m
BIT SIZES	1: 3" TO TD	2: TO
	3: TO	4: TO
CASING SIZES	1: 3 1/2 TO 13.4m	2: TO

FLUID DATA

NATURE	Kwik thik/water
S.G.	1.00
LEVEL	00
VISCOSITY	NA
Rm at meas temp	NA
BHT	NA

OPERATION DATA

FIRST READING	108m
LAST READING	00m
INTERVAL LOGGED	108m
UNIT-TRUCK No	V216
ENGINEER	BW
WITNESS	

EQUIPMENT AND RECORDING DATA

COAL COMBINATION SONDE

LOG	SONDE	SOURCE	CALIBRATOR	LOG TAPED	RECORD SPEED	DIRECT or REPLAY	SPEED	TC SECS	NORM	CAL COEFF	FROM	TO	INTERVAL	SEAM LOG RUN
CCS	115B	5822												
GAMMA RAY	SIDEWALL POSITION		371	Y	9m/m	D	9m/m	1	-	1.5	108	00	108	
L.S. DENSITY			3996	Y	9m/m	D	9m/m	0.3	7.92	-	108	00	108	
CALIPER			2"..7"	Y	9m/m	D	9m/m	0.3	-	-	108	00	108	

COAL QUALITY/SEAM THICKNESS LOG INTERVALS (Refer to relevant log)

FROM	94	69	58	38	17	INTERVAL TOTAL
TO	85	65	48	32	12	
INTERVAL	9	4	10	6	5	= 34

ADDITIONAL SONDES RUN

SONDE	LOG	GENERAL SCALE LOG	DETAIL SCALE LOG
510	DSN	100:1	

REFER TO ADDITIONAL HEADINGS

REMARKS

Start ops: 1400
Finish ops: 1530

BPB COAL LITHOLOGY LOG

CALIBRATION DATA

JIG No 371 VALUE 94 @ 5" DIAM
JIG MARK SHOWN AT ABOVE VALUE - x0.3
JIG CAL DATE 27 June JIG VALUE 6245 SDU @1.32 g/cm³
JIG No 3996 SPAN 6000 NORM SDU/CPS = 7.92
7 ins 775 cps
2 ins 423 cps

GAMMA RAY	DEPTH	BULK DENSITY g/cm³	CALIPER INCHES

HOLE SIZE CORRECTION DATA

GAMMA RAY	DEPTH	BULK DENSITY g/cm³	CALIPER INCHES
0 API 150		6000 sdu 0	7" 2"

BOREHOLE: TW84D-443 AREA: Telkwa
CLIENT: Crows Nest Resources Ltd. COUNTRY: Canada

COAL LITHOLOGY LOG

MY (1)137483 R

TK - Telkwa 94/03/18

240

GAMMA RAY & NEUTRON POROSITY LOG

BOREHOLE TW94-04W3 (2)

CLIENT Crown West Resources Ltd.

AREA Telkwa

COUNTRY Canada

DATE LOGGED 1994-03-18

OPERATIONAL DATA

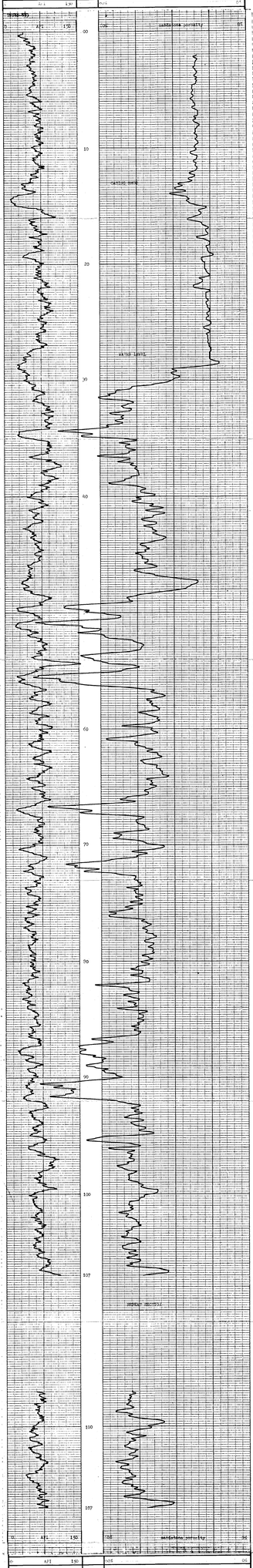
RUN NO. LITHOLOGY LOG

INTERVAL LITHOLOGY LOG

EQUIPMENT AND RECORDING DATA

LOG	TAPE	PAPER	
100	100	100	
1	1	1	
1	1	1	
1	1	1	

REMARKS



GAMMA RAY 0 API 150 | DEPTH | NEUTRON POROSITY 60% 0%

BOREHOLE TW94-04W3

CLIENT Crown West Resources Ltd.

AREA Telkwa

COUNTRY Canada

Telkwa 84(3)A

240

BOREHOLE TW84D-443 ③
CLIENT Crows Nest Resources Ltd.
AREA Telkwa
COUNTRY Canada
DATE LOGGED 13 July 84
DEPTH SCALE 20:1
3 OF 4 LOGS

COAL QUALITY LOG

BOREHOLE DATA — REFER TO LITHOLOGY LOG
OPERATION DATA — REFER TO LITHOLOGY LOG
EQUIPMENT AND RECORDING DATA
COAL COMBINATION SONDE — SIDEWALL POSITION

LOG	TAPING LOG TAPED	TAPING RECORD SPEED	TAPING DIRECT/ REPLAY	PANEL SPEED	PANEL T.C SECS	PANEL NORM	CAL COEFF
GAMMA RAY	Y	2m/m	R	2m/m	1	-	1.59
LS DENSITY	Y	2m/m	R	2m/m	1	7.92	-

SOURCE SONDE AND CALIBRATION — REFER TO LITHOLOGY LOG

COAL QUALITY LOG INTERVALS

FROM	94	69	58	38	17	
TO	35	65	48	32	12	
INTERVAL	9	4	10	6	5	
FROM						
TO						
INTERVAL						INTERVAL TOTAL # 34

REMARKS

BPB COAL QUALITY LOG

GAMMA RAY	DEPTH	COAL BULK DENSITY g/cm3

HOLE SIZE CORRECTION DATA

0 API 150		6000 sdu 0

0 API 150		6 000 0
GAMMA RAY		COAL BULK DENSITY g/cm3
	DEPTH	

BOREHOLE TW84D-443
AREA Telkwa
CLIENT Crows Nest Resources Ltd.
COUNTRY Canada

COAL QUALITY LOG

MY 88002 R

B P B SEAM THICKNESS LOG

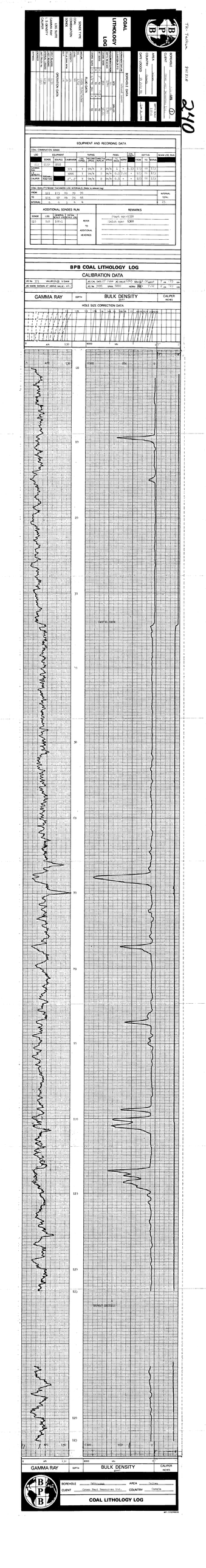
CALIPER INCHES	DEPTH	BED RESOLUTION DENSITY
7" 6" 5" dia 4" 3" 2"		24000 SBRDU 14000

CALIPER INCHES	DEPTH	BED RESOLUTION DENSITY
7" 6" 5" dia 4" 3" 2"		24000 SBRDU 14000

BOREHOLE TW84D-443
CLIENT Crows Nest Resources Ltd.
AREA Telkwa
COUNTRY Canada

SEAM THICKNESS LOG

MY 88002 R


COAL LITHOLOGY LOG
BPB
GAMMA RAY
BULK DENSITY
CALIPER
DEPTH
CALIBRATION DATA
EQUIPMENT AND RECORDING DATA
COAL COMBINATION SONDE
ADDITIONAL SONDES RUN
REMARKS
BOREHOLE
AREA
CLIENT
COUNTRY
COAL LITHOLOGY LOG

TK- Telkua 84(3)A. 240

GAMMA RAY & WESTERN POROSITY LOG

BOREHOLE Telkua (2)

CLIENT Crown Steel Resources Ltd.

AREA Telkua

COUNTRY Canada

DATE LOGGED 29 July 89

SPEED UNIT LOG 1

Z or Y axis

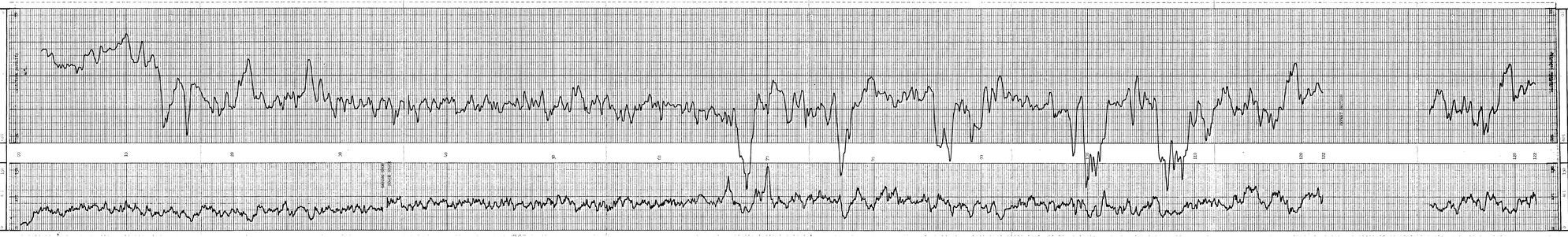
BOREHOLE DATA	REFER TO	LITHOLOGY LOG
OPERATION DATA	REFER TO	LITHOLOGY LOG

EQUIPMENT AND RECORDING DATA

LOG	TAPING		PANEL			LOG
	LOG DEPTH	RECORD DEPTH	SPEED	SPEED	SCALE	NORM
WRDR	T	PN/A	1	PN/A	1	+ 1.00
CDR	T	PN/A	0	PN/A	1	1.00 +

NOM 1.13 NOM 1.00

REMARKS

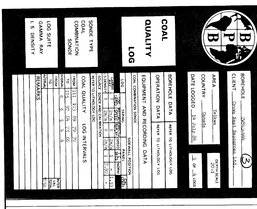


BOREHOLE Telkua (2)

CLIENT Crown Steel Resources Ltd.

AREA Telkua

COUNTRY Canada



TR-Tarkwa 8/9/18

2-40

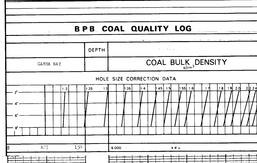
BPB COAL QUALITY LOG

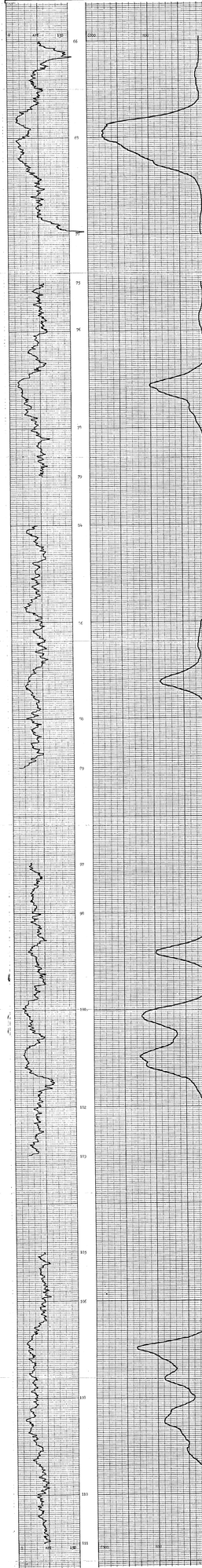
DEPTH

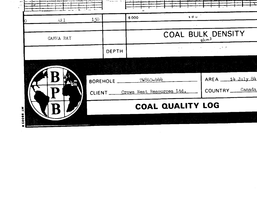
GAMMA RAY

COAL BULK DENSITY

HOLE SIZE CORRECTION DATA







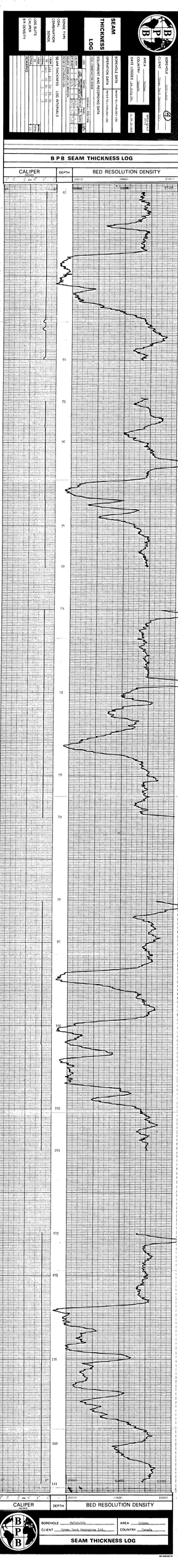
COAL BULK DENSITY

DEPTH

BOREHOLE Tarkwa-005 AREA 14 July 05

CLIENT Gross Real Resources S.A.L. COUNTRY Ghana

COAL QUALITY LOG


B P B
SEAM THICKNESS LOG
BOREHOLE
CLIENT Crows Nest Resources Ltd.
AREA Ogilvie
COUNTRY Canada
SEAM THICKNESS LOG INTERVALS
CALIPER
BED RESOLUTION DENSITY
DEPTH
B P B SEAM THICKNESS LOG
CALIPER
BED RESOLUTION DENSITY
DEPTH
BOREHOLE
CLIENT Crows Nest Resources Ltd.
AREA Ogilvie
COUNTRY Canada
SEAM THICKNESS LOG