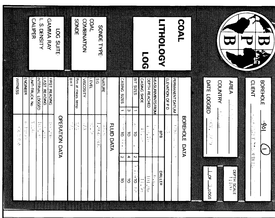


753

EQUIPMENT AND RECORDING DATA

COAL CONSTITUTION SONDE

LOG	EQUIPMENT			TAPING		PANEL		CAL. DATE	DEPTHS		DEAD LOG RUN
	SONDE	SOURCE	CALIBRATION	LOG UNITS	RECORD EARLY/ LATE	PURPOSE	SET. NORM	NORM	FROM	TO	MONITOR
GAMMA RAY	1.34		233	ft	N/A	8	70	8	[illegible]	[illegible]	Yes
BULK DENSITY	1.50		2093	ft	N/A	8	70	8	[illegible]	[illegible]	Yes
CALIPER	SEE MAIN EQUATION		N/A	ft	N/A	8	70	8	[illegible]	[illegible]	Yes

COAL SEAM/STREAM THICKNESS LOG INTERVALS (Refer to Interest log)

	FROM	INTERVAL
BS	[illegible]	TOTAL
INTERVAL	[illegible]	Yes

ADDITIONAL SONDES RUN

SONDE	LOG	GENERAL SCALE LOG/INCH	DETAIL SCALE LOG/INCH

WATER TO ADDITIONAL HEADING

REMARKS

SCALE CHANGE AT WATER LEVEL

BPB COAL LITHOLOGY LOG

CALIBRATION DATA

JIG No. 233 VALUE 72.0 @ 9.5MM

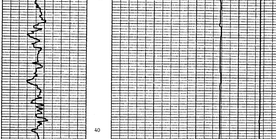
JIG MARK SHOWN AT ABOVE VALUE -

JIG CAL DATE [illegible] JIG VALUE [illegible] SOLID [illegible] μ_{ma} [illegible] cm

JIG No. [illegible] SPAN [illegible] NORM 2.50 μ_{ma} 0.34 cm

GAMMA RAY DEPTH BULK DENSITY CALIPER INCHES

HOLE SIZE CORRECTION DATA



0 API 150 | 1000 Kg/m³ 3000 | 1.0 g/cm³ 3.0

GAMMA RAY DEPTH BULK DENSITY CALIPER INCHES

BOREHOLE [illegible] AREA TIAKA

CLIENT CONSULTANT BUSINESS COUNTRY [illegible]

COAL LITHOLOGY LOG

755

BPB

BOREHOLE WP-901 (2)
CLIENT CROWSNEST RESOURCES

AREA TELKWA
COUNTRY CANADA
DATE LOGGED OCT 8/89

DEPTH SCALE 1:20
2 OF 3 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 TYPE	RECORD SPEED	DIRECTION	SPEED	T.C. SECS	NORM	CAL OFFSET
GAMMA RAY	Y	3	R	3	2		1.40
S.S. DENSITY	Y	3	R	3	1	7.00	-

SOURCE SONDE AND CALIBRATION
REFER TO LITHOLOGY LOG

COAL QUALITY LOG INTERVALS

FROM	88.0m	
TO	79.0m	
INTERVAL	09.0m	
FROM		INTER VAL
TO		TOTAL
INTERVAL		9m

REMARKS

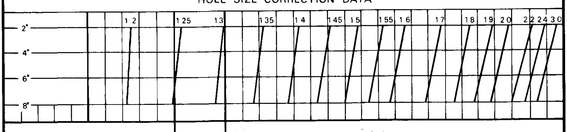
SONDE TYPE: COAL COMBINATION SONDE

LOG SUITE: GAMMA RAY L.S. DENSITY

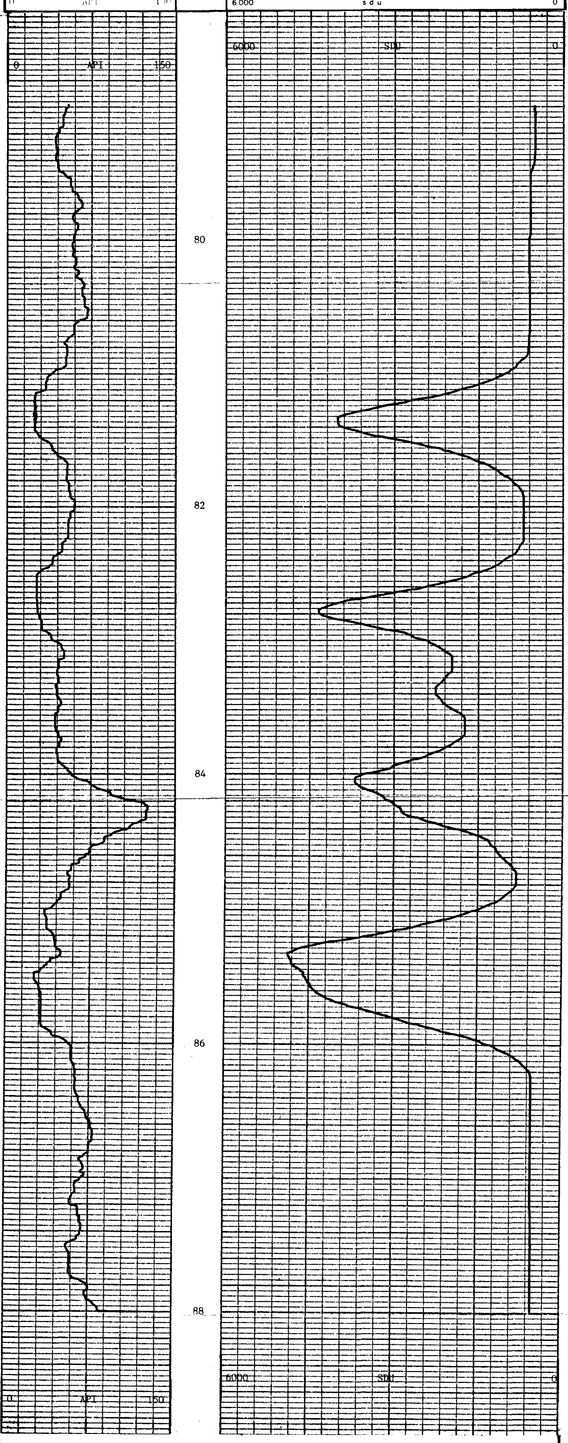
BPB COAL QUALITY LOG

	DEPTH	
GAMMA RAY		COAL BULK DENSITY g/cm³

HOLE SIZE CORRECTION DATA



0 API 150 | 6000 s d u 0



0 API 150 | 6.000 s d u 0

GAMMA RAY		COAL BULK DENSITY g/cm³
	DEPTH	

BPB

BOREHOLE WP-901
CLIENT CROWSNEST RESOURCES
AREA TELKWA
COUNTRY CANADA

COAL QUALITY LOG

MY 88002 R

755

BPB

SEAM THICKNESS LOG

SONDE TYPE
COAL COMBINATION SONDE

LOG SUITE
CALIPER
B.R. DENSITY

BOREHOLE WP-901 (3)
CLIENT CROWSNEST RESOURCES
AREA TELKWA
COUNTRY CANADA
DATE LOGGED OCT. 8/89
DEPTH SCALE 1:20
3 OF 3 LOGS

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

EQUIPMENT AND RECORDING DATA

COAL COMBINATION SONDE

LOG	TAPING			SIDEWALL POSITION			
	TAPED	RECORD SPEED	DIRECT SPEED	SPEED	PANEL SEC.	NORM	LAT. COEFF.
CALIPER	Y	3	3	3	—	—	1.0
B.R. DENSITY	Y	3	3	3	7.97		

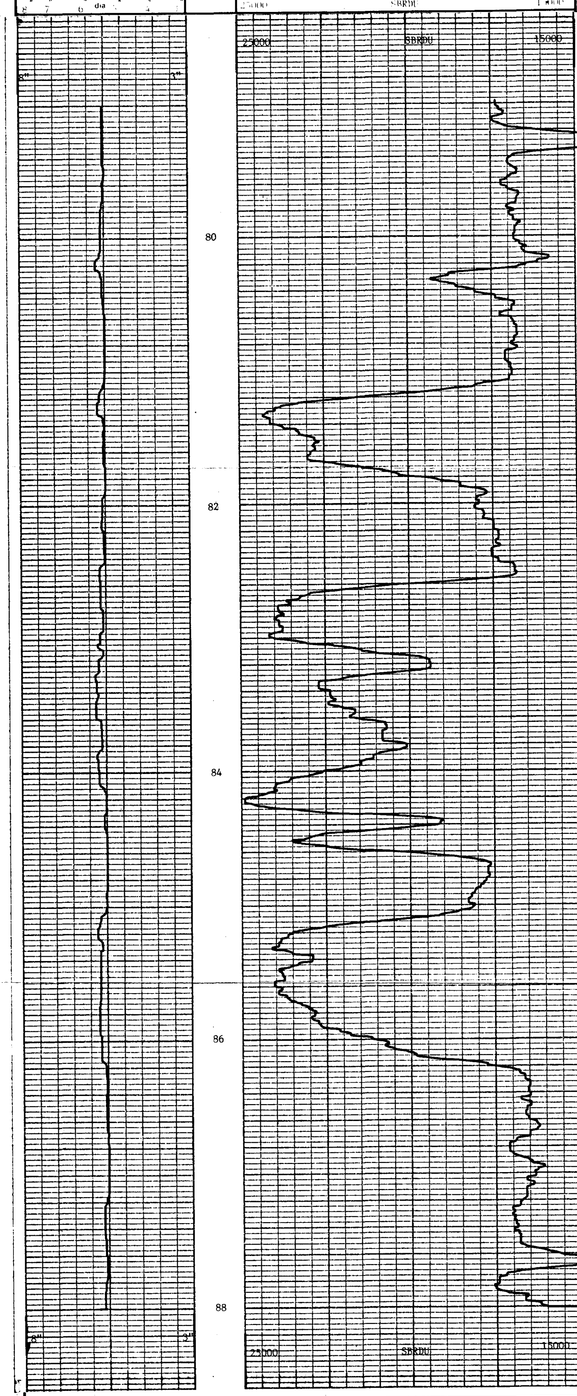
SOURCE SONDE AND CALIBRATION
REFER TO LITHOLOGY LOG

SEAM THICKNESS LOG INTERVALS

FROM	88.0m		
TO	79.0m		
INTERVAL	09.0m		
FROM		INTERVAL	
TO		TOTAL	
INTERVAL			≠ 9m

REMARKS

B P B SEAM THICKNESS LOG

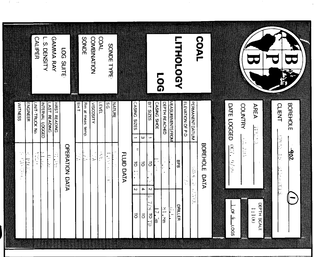


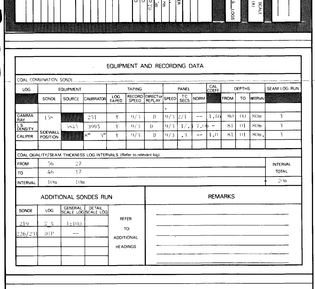
CALIPER
INCHES
DEPTH
BED RESOLUTION DENSITY

BOREHOLE WP-901
CLIENT CROWSNEST RESOURCES
AREA TELKWA
COUNTRY CANADA

SEAM THICKNESS LOG

MY 88002 R





EQUIPMENT AND RECORDING DATA

COAL COMBINATION SONDE

LOG	EQUIPMENT SONDE	EQUIPMENT SOURCE	EQUIPMENT CALIBRATOR	TAPING LOG SPEED	TAPING RECORDING OPTICAL	TAPING CORRECTION METHOD	TAPING DEPTH DRIVE	PANEL REC. MODE	PANEL NORM	COAL CLEAT ENHANCE	DEPTHS FROM	DEPTHS TO	DEPTHS WEIGHT	SEAM LOG RUN
GAMMA RAY	134	662	253	9	9/1	D	9/1	2/1	—	1,256	965	763	1936	3
DENSITY		663	3995	9	9/1	D	9/1	3,5	1,256	—	863	11	1936	3
CALIPER		VERTICAL POSITION	4"	9	9/1	D	9/1	,5	1,0	863	11	1936	3	

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

FROM	56	27	INTERVAL TOTAL
TO	44	17	
INTERVAL	1196	1196	2196

ADDITIONAL SONDES RUN

SONDE	LOG	GENERAL PURPOSE SCALE	LOG SCALE
256	GR	1:1000	
258/253	DEN	—	

REFER TO ADDITIONAL HEADINGS

REMARKS

BPB COAL LITHOLOGY LOG

CALIBRATION DATA

JIG No. 253 VALUE 1.5 GAPI DIAM

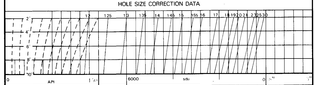
JIG MARK SHOWN AT ABOVE VALUE -

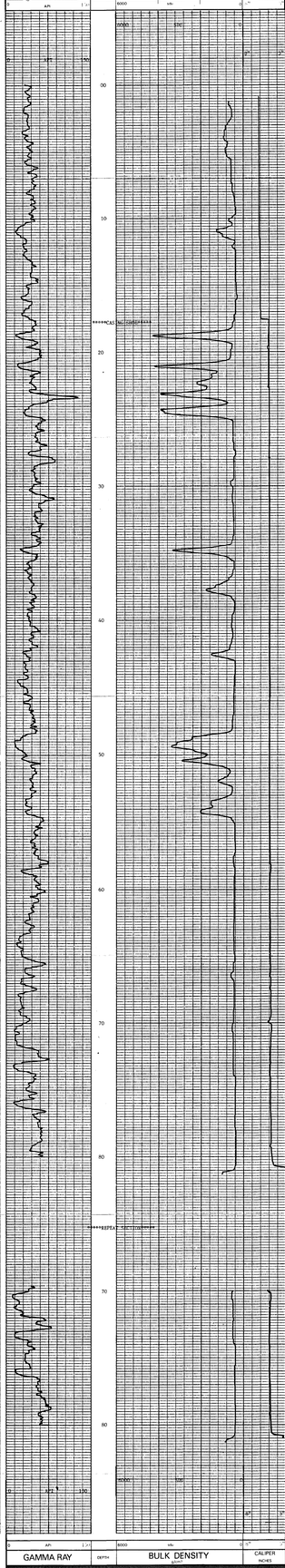
JIG CAL DATE 19/11/1990 JIG VALUE 1.51 GRAM/cm³ 38 mg 2.52 186

JIG No. 9995 SPAN 68881 NORM 2.56 37 mg 1.54 189

GAMMA RAY | DEPTH | BULK DENSITY | CALIBRATION NOTES

HOLE SIZE CORRECTION DATA





0 API 150 | 8000 kN/m³ 0 | GAMMA RAY | DEPTH | BULK DENSITY g/cm³ | CALIBRATION NOTES

BPB

BOREHOLE 256/662 AREA LIDDELL

CLIENT CROMWELL PROPERTIES COUNTRY CANADA

COAL LITHOLOGY LOG

REF 2222256/2

256

755

GAMMA RAY & LONG SPACED NEUTRON

BOREHOLE TW-902 (2)
CLIENT CROWSNEST RESOURCES

AREA TELKWA
COUNTRY CANADA
DATE LOGGED OCT. 9/89

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: LOG TAPED	TAPING: RECORD SPEED	PANEL: DIRECT or REPLAY	PANEL: SPEED	PANEL: T.C. SECS	PANEL: NORM	CAL COEFF
GAMMA	Y	9	R	9	1	—	1.46
NEUTRON	Y	9	D	9	1	7.97	

SONDE NO 219 158 SOURCE NO 4512

REMARKS
SCALE CHANGE AT WATER LEVEL

GAMMA RAY	DEPTH	LONG SPACED NEUTRON

GAMMA RAY	DEPTH	LONG SPACED NEUTRON

BOREHOLE TW-902
CLIENT CROWSNEST RESOURCES
AREA TELKWA
COUNTRY CANADA

MY 200081R

COAL QUALITY LOG

BOREHOLE TX-3012
CLIENT CONSOLIDATED BEAVERTECH (3)
AREA ELLANA
COUNTRY CANADA
DATE LOGGED 12DEC 1980
OPERATOR SPERRY SUN
1 in = 5 ft 1:60

BOREHOLE DATA — METRE TO LITHOLOGY LOG
OPERATION DATA — METRE TO LITHOLOGY LOG
EQUIPMENT AND RECORDING DATA
COAL COMBINATION SONDE — BOREHOLE DIAMETER — OVERALL POSITION

RUN	DRILLER'S DEPTH	LOGGER'S DEPTH	BIT SIZE	CASING SIZE	CASING WEIGHT	FLUID TYPE	FLUID DENSITY	FLUID LEVEL	MAX. REC. TEMP.	TIME SINCE CIRC.	TIME ON BOTTOM	UNIT NUMBER	WITNESSED BY
1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3	3	3	3

COAL QUALITY & LOG INTERVALS

FROM	TO
90	97
105	110

SONDE TYPE
COAL COMBINATION SONDE

LOG SUITE
GAMMA RAY
L.S. DENSITY

REMARKS

BPB COAL QUALITY LOG

DEPTH

CASING RAY

COAL BULK DENSITY
g/cm³

HOLE SIZE CORRECTION DATA

2"
4"
6"
8"

1.2 1.25 1.3 1.35 1.4 1.45 1.5 1.55 1.6 1.7 1.8 1.9 2.0 2.2 2.4 2.6

0 API 150

6000 SNU 0

CASING SHOE

18
20
22
24
26
46
48
50
52
54
56

0 API 150

6000 SNU 0

CASING RAY

COAL BULK DENSITY
g/cm³

DEPTH

BPB COAL QUALITY LOG

BOREHOLE TX-3012
CLIENT CONSOLIDATED BEAVERTECH
AREA ELLANA
COUNTRY CANADA

755

SEAM THICKNESS LOG

BOREHOLE TN-002 (4)
CLIENT CROWNEST RESOURCES
AREA TEXADA
COUNTY CANADA
DATE LOGGED OCT 10/89
DEPTH LOGGED 1120 LOG 1000

LOG SUITE
CALIPER
BR DENSITY

SONDE TYPE
COAL COMBINATION SONDE

DIAMETER 76 mm
TOTAL DEPTH 1126
DATE 10/89
SEAM THICKNESS LOG INTERVALS
FROM 26 TO 27
FROM 1126 TO 1128

DORNHOLE DATA
REFER TO LISTING OF LOG

OPERATION DATA
REFER TO LISTING OF LOG

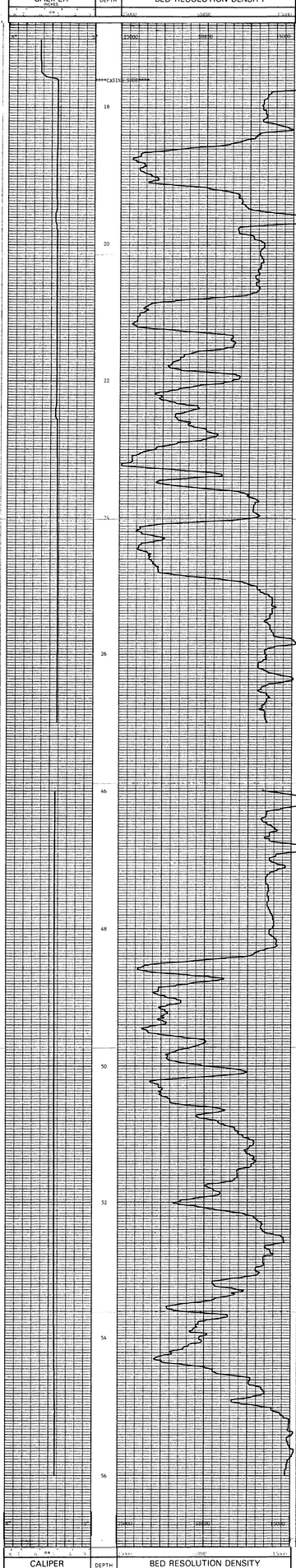
EQUIPMENT AND RECORDING DATA
COAL COMBINATION SONDE

LOG	MAKING	SERIAL NO.	INTERFACE	PANEL
CALIPER	MAXON	7500-002	7500-002	7500-002
BR DENSITY	MAXON	7500-002	7500-002	7500-002

SPEED	SENSITIVITY	TIME CONSTANT
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8

SPEED	SENSITIVITY	TIME CONSTANT
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8

B P B SEAM THICKNESS LOG



CALIPER INCHES | DEPTH | BED RESOLUTION DENSITY

BOREHOLE TN-002
CLIENT CROWNEST RESOURCES
AREA TEXADA
COUNTRY CANADA

SEAM THICKNESS LOG

STICK PLOT

CLIENT___ CROWSNEST RESOURCES

BOREHOLE_ TW-902 (5)

AREA_____ TELKWA

COUNTRY__ CANADA

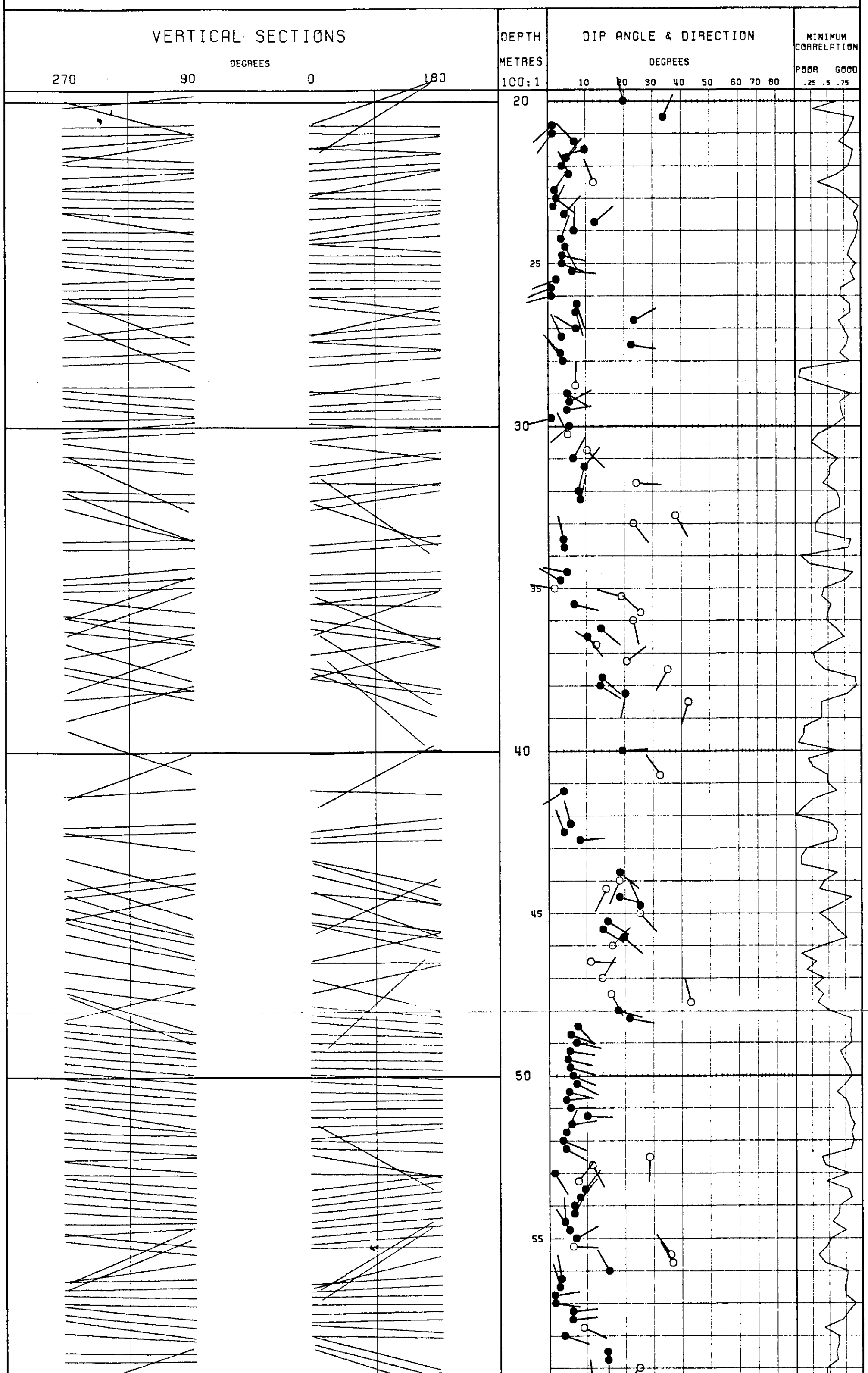
DATE LOGGED : 09-OCT-89

COMMENTS.....

INTERPRETATION PARAMETERS

STEP 0.25M.
INTERVAL 0.50M.
SEARCH ANGLE 45.
DECLINATION 26.0 EAST
DEPTH RANGE 19.64 - 60.00M.
DATE PROCESSED 13-OCT-89

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



DIPMETER ANALYSIS

CLIENT___ CROWSNEST RESOURCES
BOREHOLE_ TW-903 (1)
AREA_____ TELKWA
COUNTRY__ CANADA

454

DATE LOGGED.....10-OCT-89
DATE PROCESSED..13-OCT-89

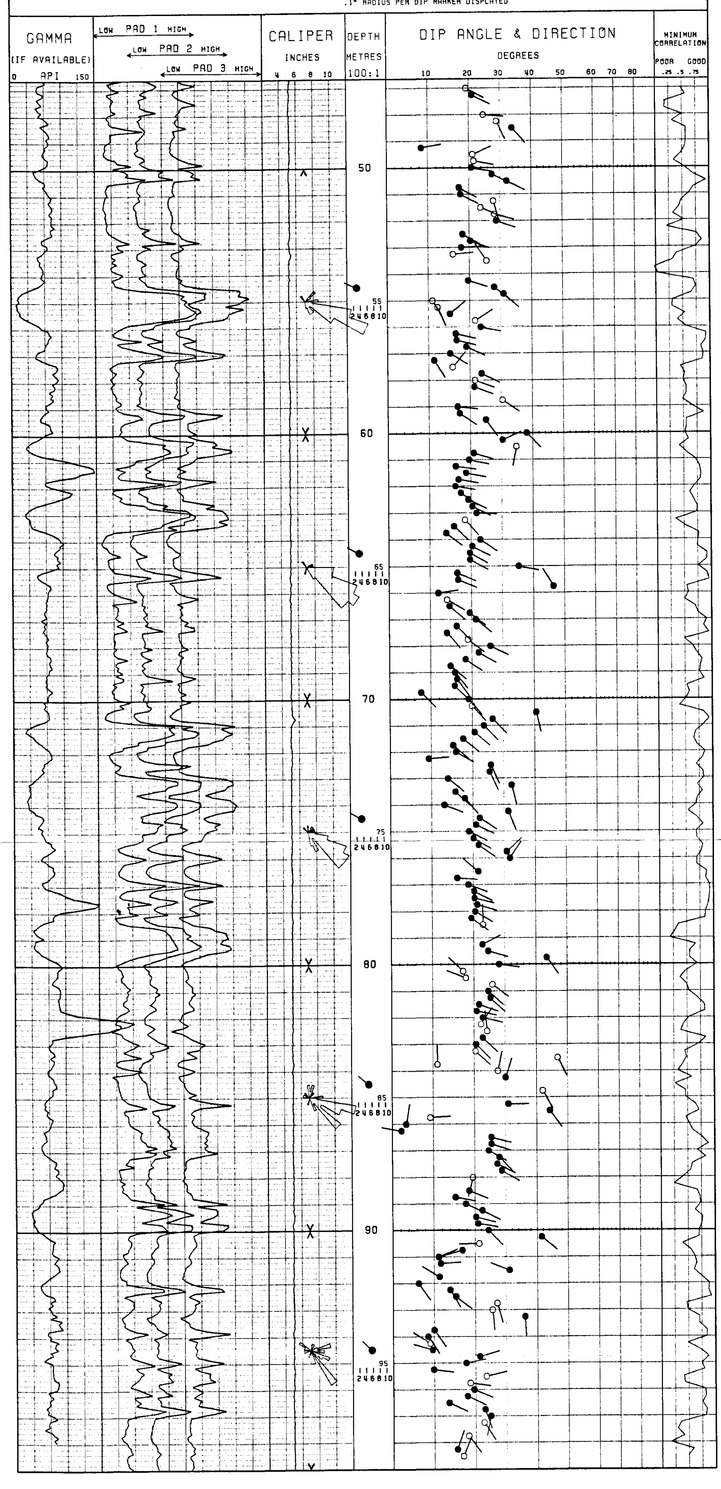
COMMENTS.....

INTERPRETATION PARAMETERS

STEP 0.25M.
INTERVAL 0.50M.
SEARCH ANGLE 45.
DECLINATION 26.0 EAST
DEPTH RANGE 46.65 - 99.00M.
DATE PROCESSED 13-OCT-89

AVERAGE BOREHOLE DEVIATION & DIRECTION ANNOTATED EVERY 10.0M.
ROSE DIAGRAMS SEGMENTED EVERY TEN DEGREES, .1" RADIUS PEN DIP MARKER DISPLAYED.

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



STICK PLOT

CLIENT CROWSNEST RESOURCES
BOREHOLE TW-903 (2)
AREA TELKWA
COUNTRY CANADA

257

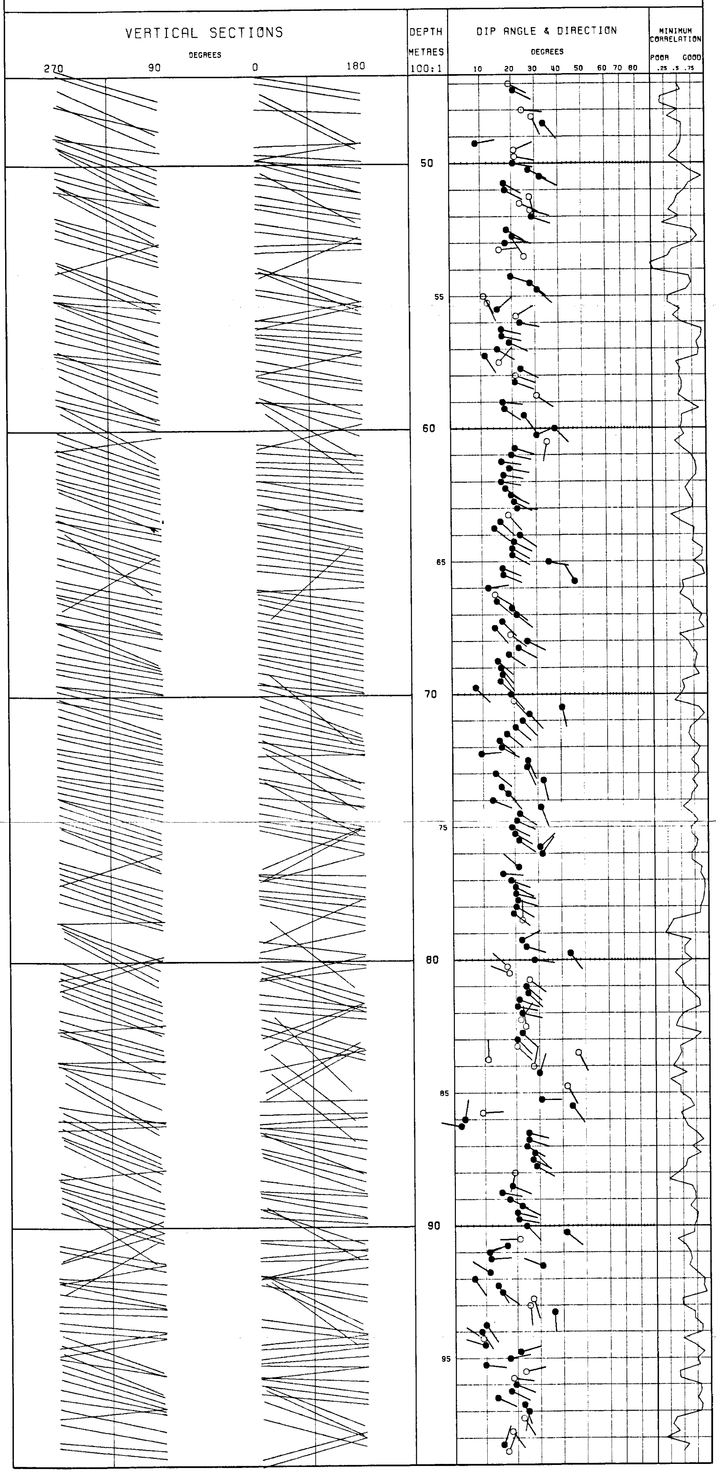
DATE LOGGED : 10-OCT-89

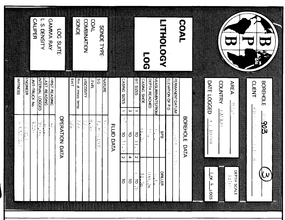
COMMENTS.....

INTERPRETATION PARAMETERS

STEP 0.25M.
INTERVAL 0.50M.
SEARCH ANGLE 45.
DECLINATION 26.0 EAST
DEPTH RANGE 46.65 - 99.00M.
DATE PROCESSED 13-OCT-89

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





EQUIPMENT AND RECORDING DATA

COAL CONSOLIDATION SONDE

LOG	EQUIPMENT SONDE	SOURCE	CALIBRATION	TAPPING LOGG. LOGG.	TAPPING WATER MUD	TAPPING UPHOLE	PANEL ATT. NORM	COL. CONT.	DEPTHS FROM	TO	SEAM LOG RUN
GAMMA GAMMA DENSITY	1106	662	731	X	0.15	35	10.1	2.13	1.40	706	1347	1
	1106	662	731		0.15	35	10.1	2.13	1.40	706	1347	1
NORMAL CALIPER	POSITION	662	731	X	0.15	35	10.1	2.13	1.40	706	1347	1

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

FROM	m	ft		INTERVAL
TO	m	ft		TOTAL
INTERVAL	m	ft		m

ADDITIONAL SONDES RUN

SONDE	LOG	GENERAL SCALE	VERTICAL SCALE ORIGINAL LOG
219	Yes	1:1000	
220/219	BLU		

REMARKS

REFER TO ADDITIONAL HEADINGS

BPB COAL LITHOLOGY LOG

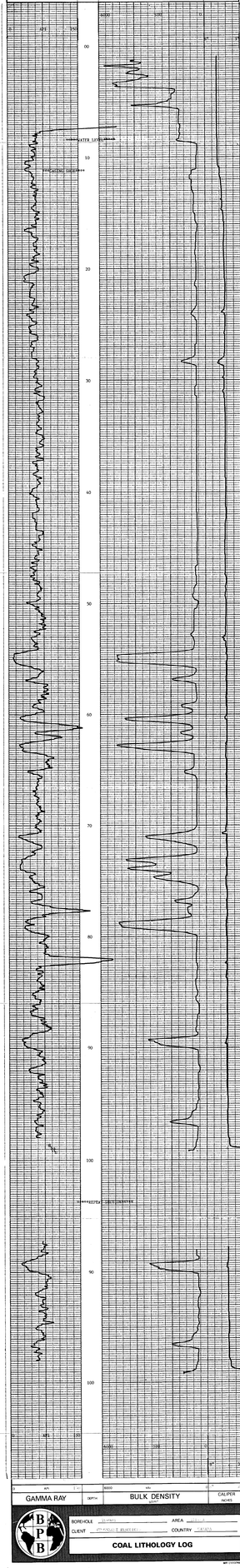
CALIBRATION DATA

JIG No. 332 VALUE (1.00) @ 10 AM
JIG MARK SHOWN AT ABOVE VALUE

JIG CAL. DATE (DD/MM/YY) JIG VALUE (CPS) @ (HH:MM) 100 @ 21:25 18/11/87 1/4" dia. 1.22 105
JIG No. 999 SPAN (MAX) NORM 700 7,100 1/8" dia. 1.75 125

GAMMA RAY — DEPTH — BULK DENSITY (g/cc) — CALIPER (INCHES)

HOLE SIZE CORRECTION DATA



GAMMA RAY — DEPTH — BULK DENSITY (g/cc) — CALIPER (INCHES)

BOREHOLE
CLIENT
AREA
COUNTRY

COAL LITHOLOGY LOG

755

GAMMA RAY
LONG SPACED NEUTRON

BOREHOLE IN-003
CLIENT CROWNEST RESOURCES
AREA TILKWA
COUNTRY CANADA
DATE LOGGED OCT 10/89

DEPTH SCALE
1:100
0 50 100

LOG	TOP	BOTTOM	INTERVAL
GAMMA RAY	0	150	150
LONG SPACED NEUTRON	0	500	500

BOREHOLE DATA
MEASURED FROM GROUND LEVEL
LITHOLOGY LOG

OPERATION DATA
MEASURED FROM GROUND LEVEL
LITHOLOGY LOG

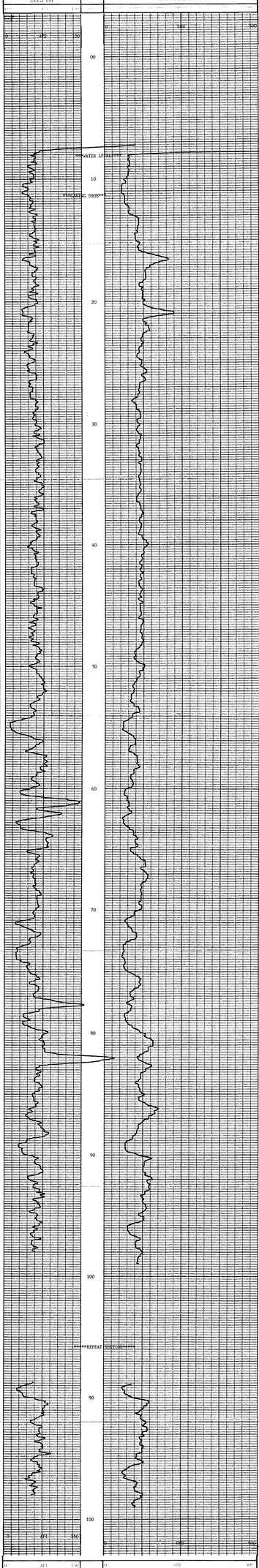
EQUIPMENT AND RECORDING DATA

LOG	TOOL	DIAMETER	TOOL SPACING	RECORDING SPEED	SCALE
GAMMA RAY					
LONG SPACED NEUTRON					

LOG	TAPING	PANEL	LOG
GAMMA RAY			
LONG SPACED NEUTRON			

LOG	LATITUDE	LONGITUDE	ELEVATION
GAMMA RAY			
LONG SPACED NEUTRON			

REMARKS



GAMMA RAY	DEPTH	LONG SPACED NEUTRON
0 API 150		0 CPS 500

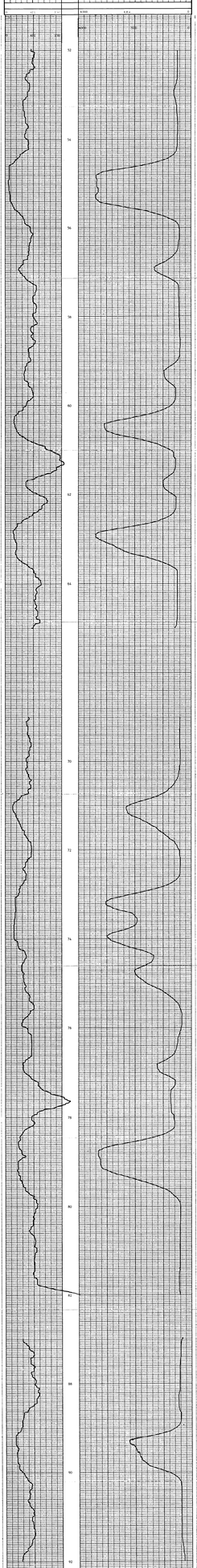
BOREHOLE IN-003
CLIENT CROWNEST RESOURCES
AREA TILKWA
COUNTRY CANADA

755

BPB COAL QUALITY LOG

DEPTH	COAL BULK DENSITY
0.0 1.0	g/cm³

HOLE SIZE CORRECTION DATA



DEPTH	COAL BULK DENSITY
0.0 1.0	g/cm³

SCREHOLE DUNING
AREA DUNING
CLIENT
COUNTRY CANADA
COAL QUALITY LOG

755

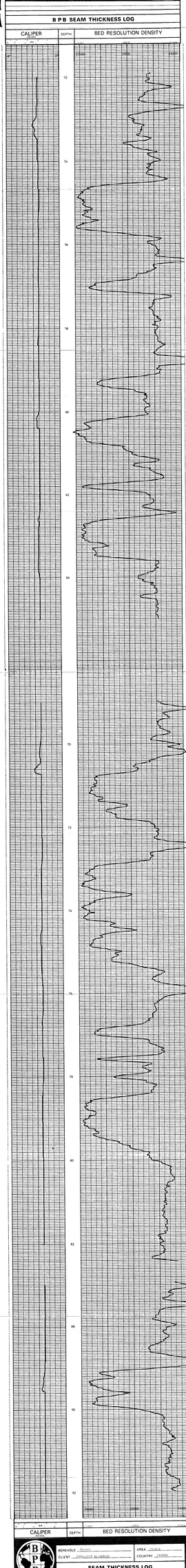
SEAM THICKNESS LOG

BOREHOLE	75-3
CLIENT	CONSOLIDATED BEAVERBROOK COAL
AREA	TELKWA
COUNTRY	CANADA
DATE LOGGED	7-8-75
RUN NO.	1
DEPTH	0
DEPTH LOGGED	0
OPERATOR	
RECORDED BY	
WITNESSED BY	
REMARKS	

BOREHOLE DATA	MAKE NO. DIAMETER DEPTH
OPERATION DATA	MAKE NO. CASING DIA.
EQUIPMENT AND RECORDING DATA	

SEAM THICKNESS LOG INTERVALS			
SEAM	FROM	TO	THICKNESS

DENSITY TYPE	COAL
COAL DENSITY	1.35
CALIPER	
IN DENSITY	



BOREHOLE	75-3
CLIENT	CONSOLIDATED BEAVERBROOK
AREA	TELKWA
COUNTRY	CANADA

SEAM THICKNESS LOG

STICK PLOT

CLIENT CROWSNEST RESOURCES
BOREHOLE TW-904 (1)
AREA TELKWA
COUNTRY CANADA

DATE LOGGED : 11-OCT-89

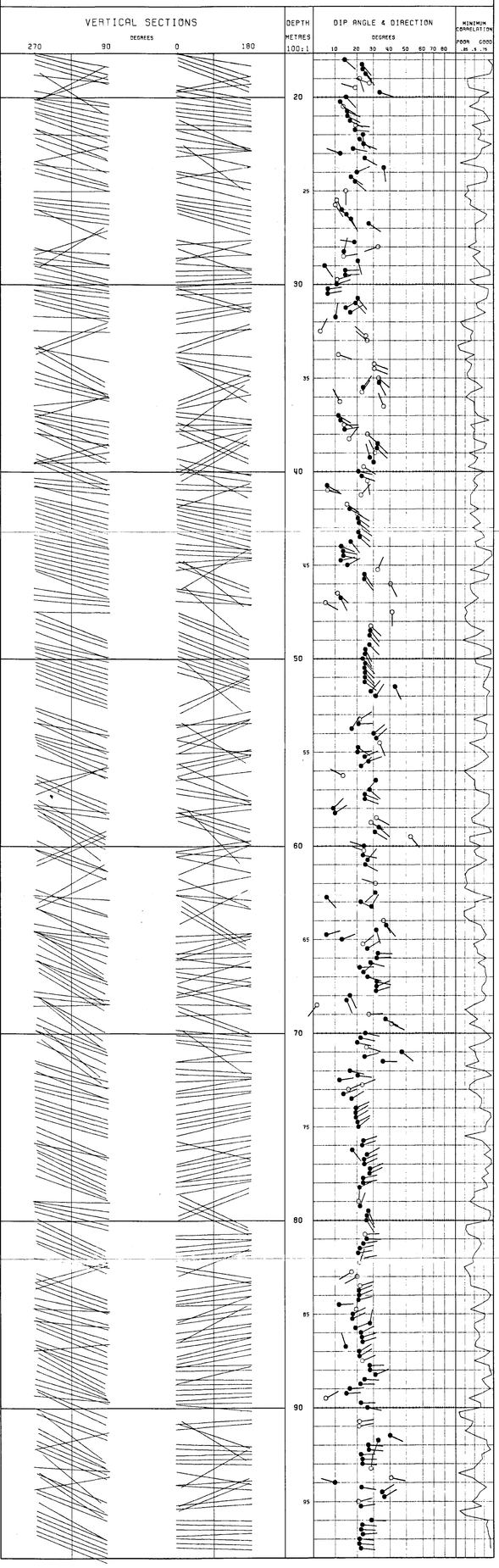
COMMENTS.....

INTERPRETATION PARAMETERS

STEP 0.25M.
INTERVAL 0.50M.
SEARCH ANGLE 45.

DECLINATION 26.0 EAST
DEPTH RANGE 17.64 - 98.00M.
DATE PROCESSED 17-OCT-89

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



DIPMETER ANALYSIS

CLIENT___
BOREHOLE_
AREA_____
COUNTRY__

CROWSNEST RESOURCES
TW-904 (2)
TELKWA
CANADA

355

DATE LOGGED.....11-OCT-89
DATE PROCESSED..17-OCT-89

COMMENTS.....

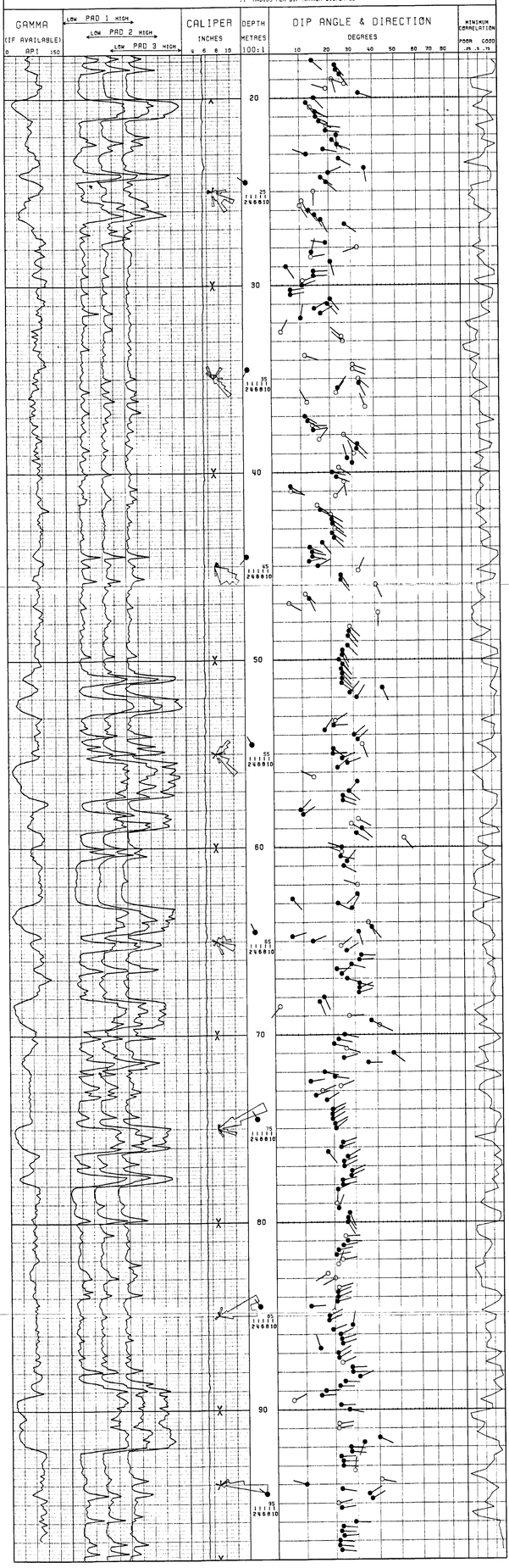
INTERPRETATION PARAMETERS

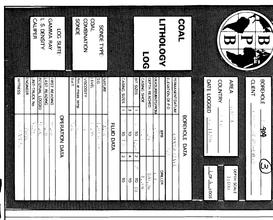
STEP 0.25M.
INTERVAL 0.50M.
SEARCH ANGLE 45.
DECLINATION 26.0 EAST
DEPTH RANGE 17.64 - 98.00M.
DATE PROCESSED 17-OCT-89

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)





755

EQUIPMENT AND RECORDING DATA

COAL COMBINATION SONDE

LOG	EQUIPMENT			TAPING		PANEL			DEPTHS		SCALE (OD) RUN
	SONDE	SOURCE	CALIBRATION	TAPE/DATA LENGTH	SPEED	PLAY-BACK SPEED	DATA	NORM	FROM	TO	NORMAL
GAMMA Ray	1 1/4	1									
DENSITY											
CALIPER	SOCAL/PROBE										

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

FROM			
TO			
INTERVAL			

INTERVAL TOTAL

ADDITIONAL SONDES RUN

SONDE	LOG	GENERAL DETAIL (INCLUDING SOURCES)

REMARKS

ABOVE
TO
ADDITIONAL READINGS

BPB COAL LITHOLOGY LOG

CALIBRATION DATA

JIG No. ... VALUE ... @ ... AM

JIG CAL DATE ... JIG VALUE ... SOLID ... UNITS

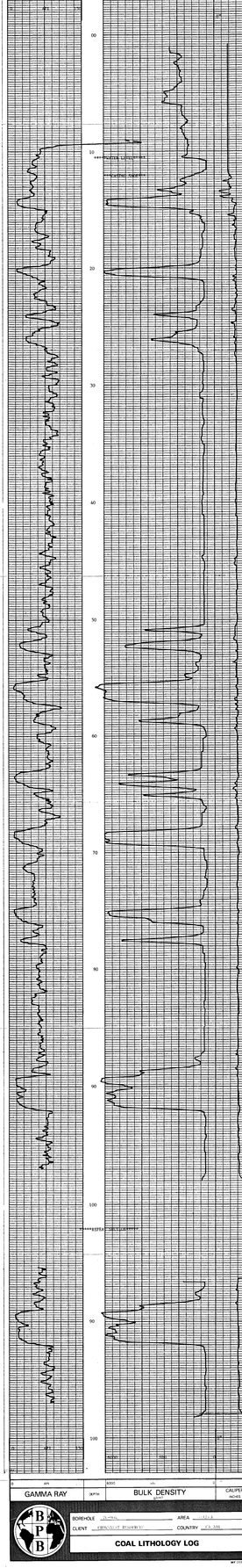
JIG No. ... SPAN ... NORM ... UNITS

AT ABOVE VALUE ...

GAMMA RAY — DEPTH — BULK DENSITY — CALIPER INCHES

HOLE SIZE CORRECTION DATA

API — 0 — 150 — 3000 — KG/M³ — 2000 — 3000 — INCHES — 6 — 24



API — 0 — 150 — 3000 — KG/M³ — 2000 — 3000 — INCHES — 6 — 24

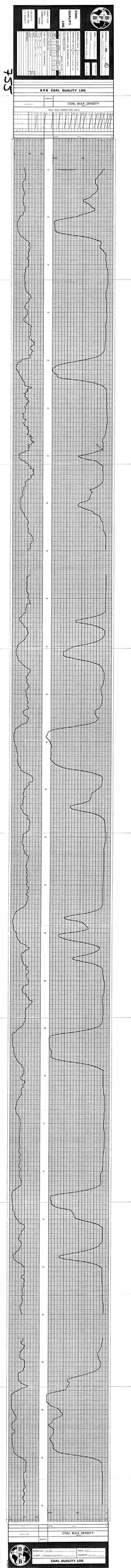
GAMMA RAY — DEPTH — BULK DENSITY — CALIPER INCHES

BPB

BOREHOLE ... AREA ...

CLIENT ... COUNTRY ...

COAL LITHOLOGY LOG

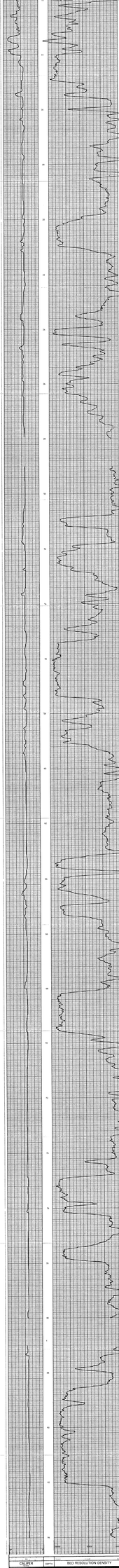

BPB COAL QUALITY LOG
COAL BULK DENSITY
HOLE SIZE CORRECTION DATA
COAL QUALITY LOG
COAL BULK DENSITY
COAL QUALITY LOG

755

BPB	
SEAM THICKNESS LOG	
COMPANY	BP PETROLEUM DEVELOPMENT LTD
WELL	22/12-1
FIELD	
COUNTY	
STATE	
LOCATION	
OTHER SERVICES	
SECT	TWP	RGE
PERMANENT DATUM	GL
ELEV.	
LOG MEASURED FROM	KB 25 FT ABOVE PERM. DATUM
DRILLING MEASURED FROM	KB
DATE	1-Nov-1987
RUN NO.	ONE
DEPTH-DRILLER	2100
DEPTH-LOGGER	2100
BTM LOG INTERVAL	2100
TOP LOG INTERVAL	1800
CASING-DRILLER	13 3/8 @ 1800
CASING-LOGGER	
BIT SIZE	12 1/4
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 SINCE CIRC.	
MAX. REC. TEMP.	
EQUIP. LOCATION	
RECORDED BY	
WITNESSED BY	

B P B SEAM THICKNESS LOG

CALIPER	DEPTH	BED RESOLUTION DENSITY
6		0
16		1000



CALIPER	DEPTH	BED RESOLUTION DENSITY
6		0
16		1000

BPB

SEAM THICKNESS LOG

COMPANY	BP PETROLEUM DEVELOPMENT LTD	WELL	22/12-1
FIELD		COUNTY	

DIPMETER ANALYSIS

CLIENT___ CROWSNEST RESOURCES
BOREHOLE_ TW-905 (1)
AREA_____ TELKWA
COUNTRY___ CANADA

DATE LOGGED.....11-OCT-89
DATE PROCESSED..17-OCT-89

COMMENTS.....

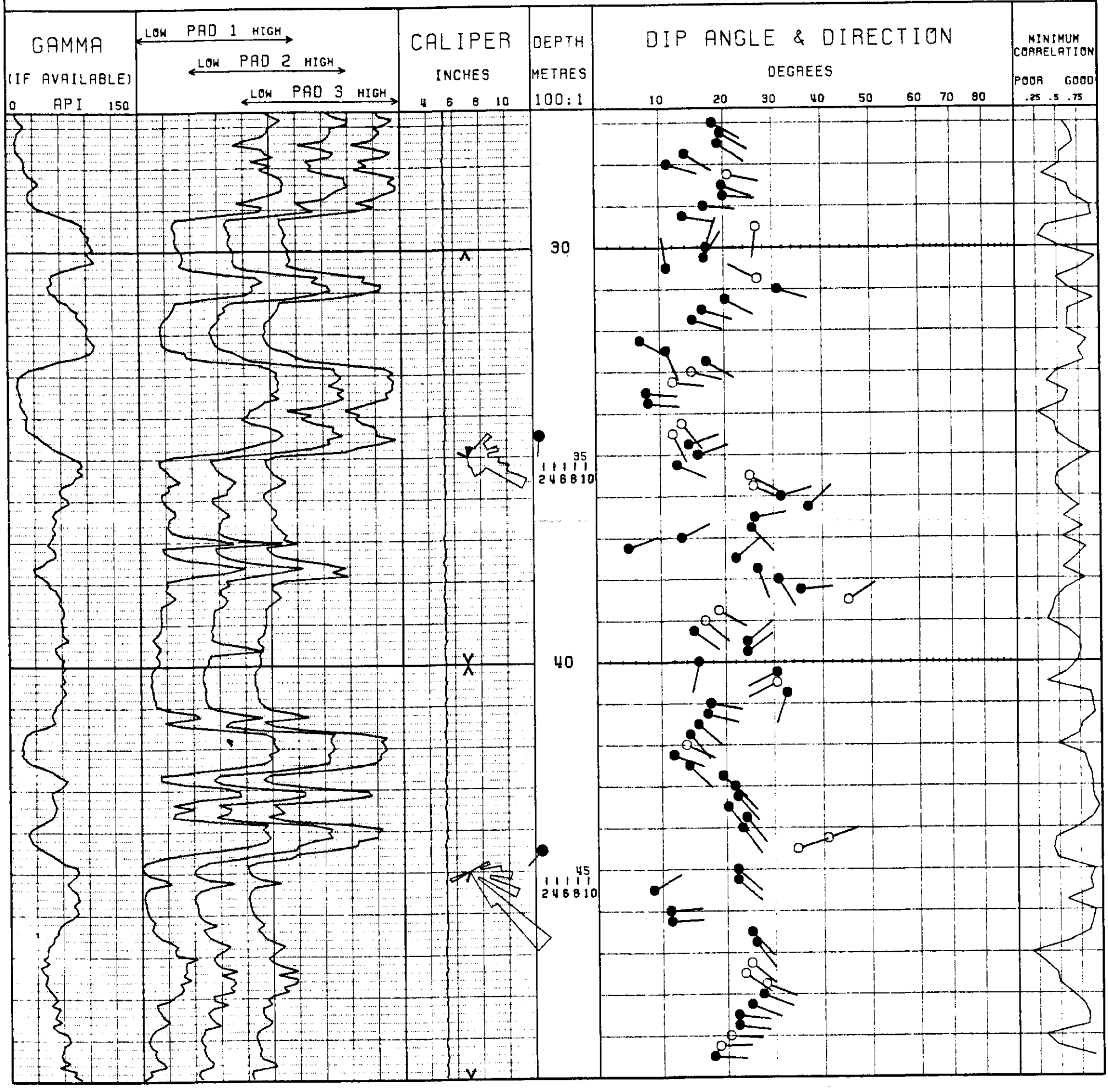
INTERPRETATION PARAMETERS

STEP 0.25M.
INTERVAL 0.50M.
SEARCH ANGLE 45.
DECLINATION 26.0 EAST
DEPTH RANGE 26.64 - 50.00M.
DATE PROCESSED 17-OCT-89

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)



STICK PLOT

CLIENT___ CROWSNEST RESOURCES

BOREHOLE_ TW-905 (2)

AREA_____ TELKWA

COUNTRY__ CANADA

355

DATE LOGGED : 12-OCT-89

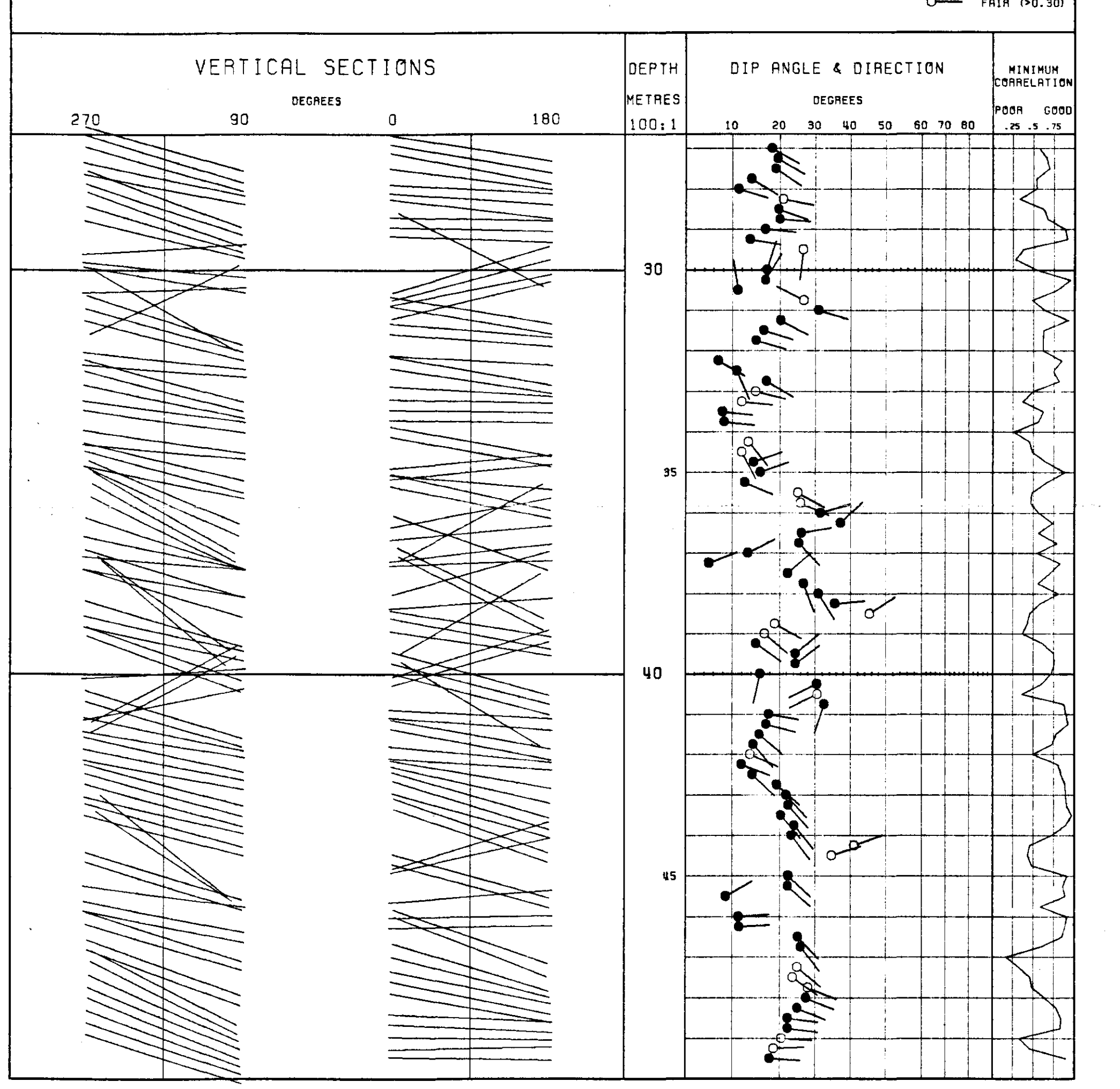
COMMENTS.....

INTERPRETATION PARAMETERS

STEP 0.25M.
INTERVAL 0.50M.
SEARCH ANGLE 45.

DECLINATION 26.0 EAST
DEPTH RANGE 26.64 - 50.00M.
DATE PROCESSED 17-OCT-89

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



COAL LITHOLOGY LOG

BPB

SONDE TYPE
COAL COMBINATION SONDE
LOG SUITE
GAMMA RAY
DENSITY
CALIPER

BOREHOLE
AREA
COUNTRY
DATE LOGGED
SURFACE -RSS
ELEVATION
DATUM

RUN NUMBER
DEPTH DRILLER
DEPTH LOGGER
BOTTOM LOGGED INTERVAL
TOP LOGGED INTERVAL
CASING TYPE
CASING DEPTH
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 & RMC
RM @ BHT
TIME SINCE CIRC.
MAX. REC. TEMP.
EQUIP. LOCATION
RECORDED BY
WITNESSED BY

BOREHOLE DATA

OPERATION DATA

EQUIPMENT AND RECORDING DATA

COAL COMBINATION SONDE

TOOL	EQUIPMENT SONDE	EQUIPMENT SOURCE	EQUIPMENT CALIBRATOR	TAPING LOG GATES	TAPING RECORDING SPEED	TAPING CORRECTION (METRE)	PANEL SPEED	T.C. MINS	NORM	CAL CHECK	DEPTHS FROM	DEPTHS TO	DEPTHS INTERVAL	SEAM LOG RUN
GAMMA RAY	134	0888	253	9	9/1	0	9/3	2/1	**	1,63	701	693	378m	1
DENSITY		1463	7093	9	9/1	0	9/3	1/2	4	2,04	71	693	378m	1
CALIPER	SIDEWALL POSITION	1218	8"	8"	9	9/1	0	9/3	1	**	1,63	71	693	378m	1

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

FROM	693	66	36
TO	54	29	17
INTERVAL	639m	37m	19m

INTERVAL TOTAL 695m

ADDITIONAL SONDES RUN

SONDE	LOG	GENERAL SCALE LOG	DETAIL SCALE LOG
219	1-5	1:1:01	
224/223	017		

REFER TO ADDITIONAL HEADINGS

REMARKS

BPB COAL LITHOLOGY LOG

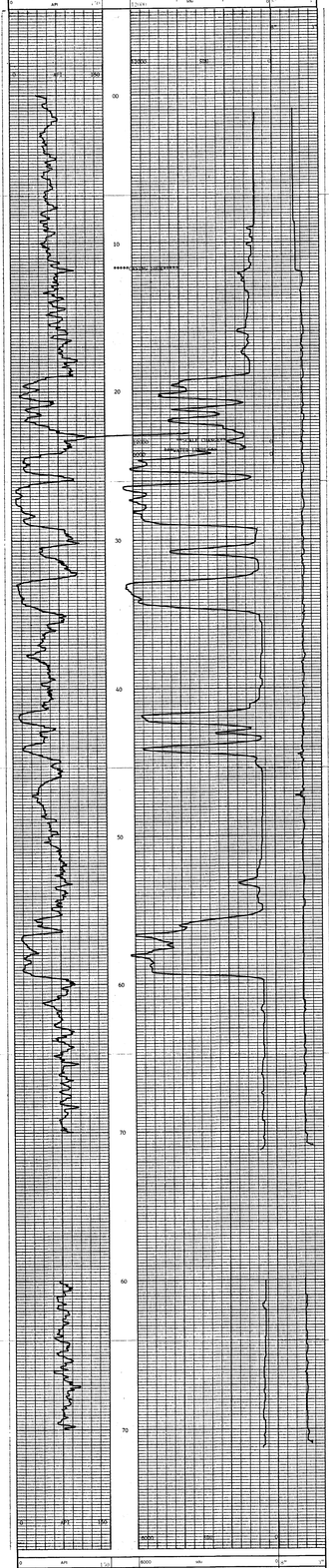
CALIBRATION DATA

JIG No. 255 VALUE 1.00 g/cm³ GAMMA
JIG MARK SHOWN AT ABOVE VALUE -

JIG CAL DATE 08/11/1990 JIG VALUE 64.21 SOLID 2.18 g/cm³ 1" ins 765 cps
JIG No. 7095 SPAN 6080 NORM 2.04 1" ins 6041 cps

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

HOLE SIZE CORRECTION DATA



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

BPB

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

COAL LITHOLOGY LOG

755

GAMMA RAY & LONG SPACED NEUTRON

BOREHOLE TW-905 (4)

CLIENT CROWSNEST RESOURCES

AREA TELKWA

COUNTRY CANADA

DATE LOGGED OCT 12/89

DEPTH SCALE 1:20

2 OF 4 LOGS

BOREHOLE DATA REFER TO LITHOLOGY LOG

OPERATION DATA REFER TO LITHOLOGY LOG

EQUIPMENT AND RECORDING DATA

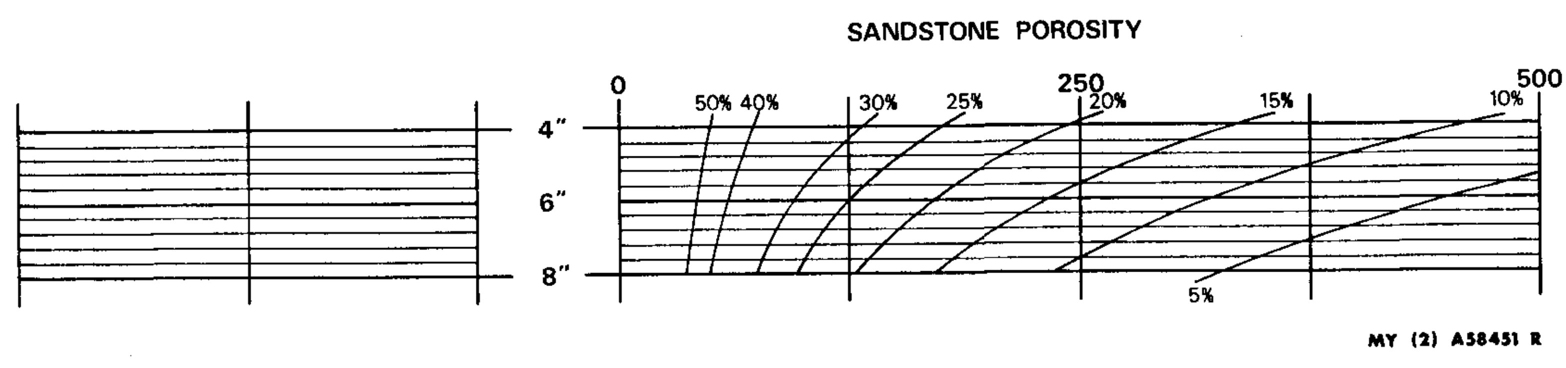
LOG	LOG TAPED	RECORD SPEED	DIRECT or REPLAY	SPEED	T.C. SECS	NORM	CAL COEFF
GAMMA	Y	9	R	9	1	—	1.63
NEUTRON	Y	9	D	9	1	8.14	

SONDE NO	158	SOURCE NO	
	219		4512

REMARKS

GAMMA RAY	DEPTH	LONG SPACED NEUTRON
0 API 150		500 SNU 2000

SANDSTONE POROSITY



GAMMA RAY	DEPTH	LONG SPACED NEUTRON
0 API 150		500 SNU 2000

BOREHOLE TW-905

CLIENT CROWSNEST RESOURCES

AREA TELKWA

COUNTRY CANADA

755

COAL QUALITY LOG

BOREHOLE TV-905 (5)

CLIENT CROWSNEST RESOURCES

AREA TELKWA

COUNTRY CANADA

DATE LOGGED OCT 12/89

DEPTH SCALE 1:20

3 OF 4 LOGS

SONDE TYPE: COAL COMBINATION SONDE

LOG SUITE: GAMMA RAY, L.S. DENSITY

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 or REPLAY	PANEL: SPEED	PANEL: T.C. SECS	PANEL: NORM	CAL COEFF
GAMMA RAY	Y	3	R	3	2	—	1.63
L.S. DENSITY	Y	3	R	3	1	7.08	

SOURCE, SONDE AND CALIBRATION: REFER TO LITHOLOGY LOG

COAL QUALITY LOG INTERVALS

FROM	61	46	36	
TO	54	39	17	
INTERVAL	07m	07m	19m	INTERVAL TOTAL 33m
FROM				
TO				
INTERVAL				

REMARKS

BPB COAL QUALITY LOG

GAMMA RAY	DEPTH	COAL BULK DENSITY g/cm3

HOLE SIZE CORRECTION DATA

0 API 150		6,000 s.d.u. 0
GAMMA RAY		COAL BULK DENSITY g/cm3
	DEPTH	

BOREHOLE TV-905

CLIENT CROWSNEST RESOURCES

AREA TELKWA

COUNTRY CANADA

COAL QUALITY LOG

MY 88002 R

755

B P B

SEAM THICKNESS LOG

BOREHOLE NO. 76-1
CLIENT CONSOLIDATED RESOURCES
AREA TISDALE
COUNTRY CANADA
DATE LOGGED 05-11-2006

SONDE TYPE
DUAL GAMMA
DUAL DENSITY
CALIPER
DUAL DENSITY
LS DENSITY

LOGGING UNIT
COAL LOGGING
DIAMOND DRILLING

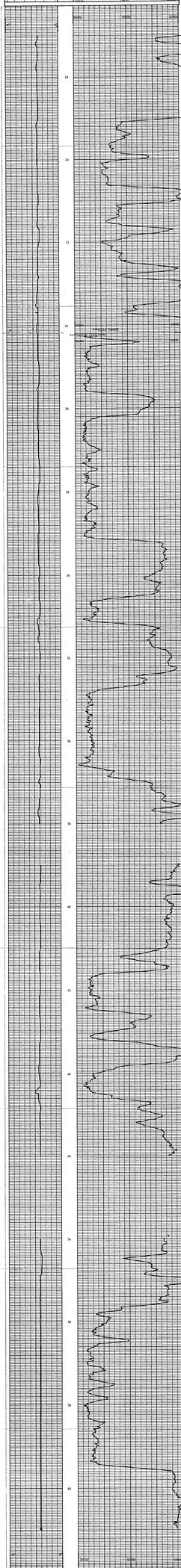
SEAM THICKNESS LOG INTERVALS
SEAM NO. FROM TO THICKNESS
NOTES

OPERATOR DATA
NAME BRIAN SCHMIDT
COMPANY BPB
DATE 05-11-2006
UNIT LOGGER 6

INVERSION DATA
INVERSION DATE 05-11-2006
INVERSION NO. 1

EQUIPMENT AND RECORDING DATA
EQUIPMENT NO. 1
RECORDING NO. 1

BPB SEAM THICKNESS LOG



BOREHOLE 76-1
CLIENT CONSOLIDATED RESOURCES
AREA TISDALE
COUNTRY CANADA

SEAM THICKNESS LOG

STICK PLOT

CLIENT ___ CROWSNEST RESOURCES

BOREHOLE_ TW-906 (1)

AREA ____ TELKWA

COUNTRY__ CANADA

4

4

DATE LOGGED : 13-OCT-89

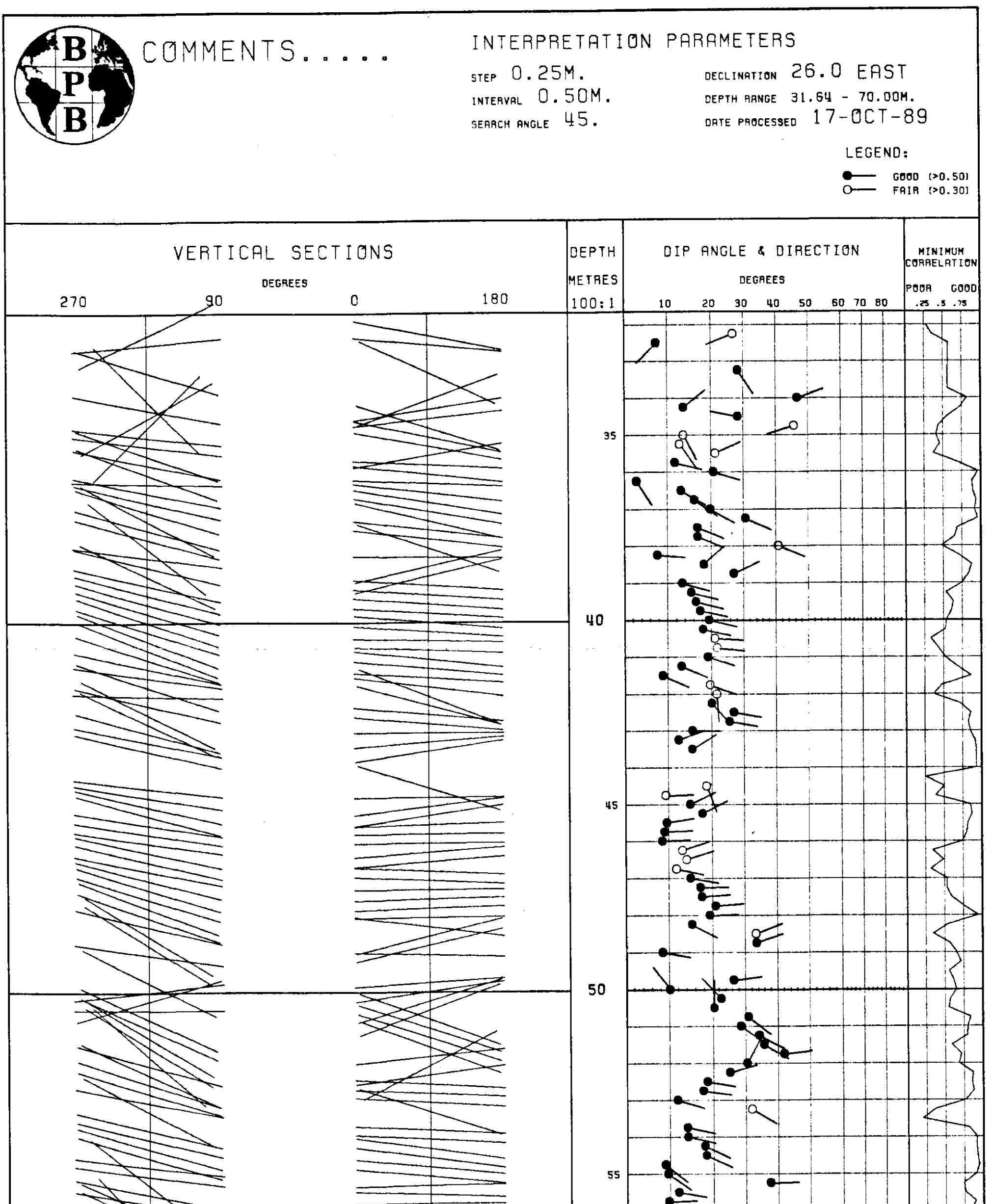
COMMENTS.....

INTERPRETATION PARAMETERS

STEP 0.25M.
INTERVAL 0.50M.
SEARCH ANGLE 45.

DECLINATION 26.0 EAST
DEPTH RANGE 31.64 - 70.00M.
DATE PROCESSED 17-OCT-89

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



DIPMETER ANALYSIS

CLIENT___ CROWSNEST RESOURCES

BOREHOLE_ TW-906 (2)

AREA_____ TELKWA

COUNTRY__ CANADA

DATE LOGGED.....13-OCT-89
DATE PROCESSED..17-OCT-89

COMMENTS.....

INTERPRETATION PARAMETERS

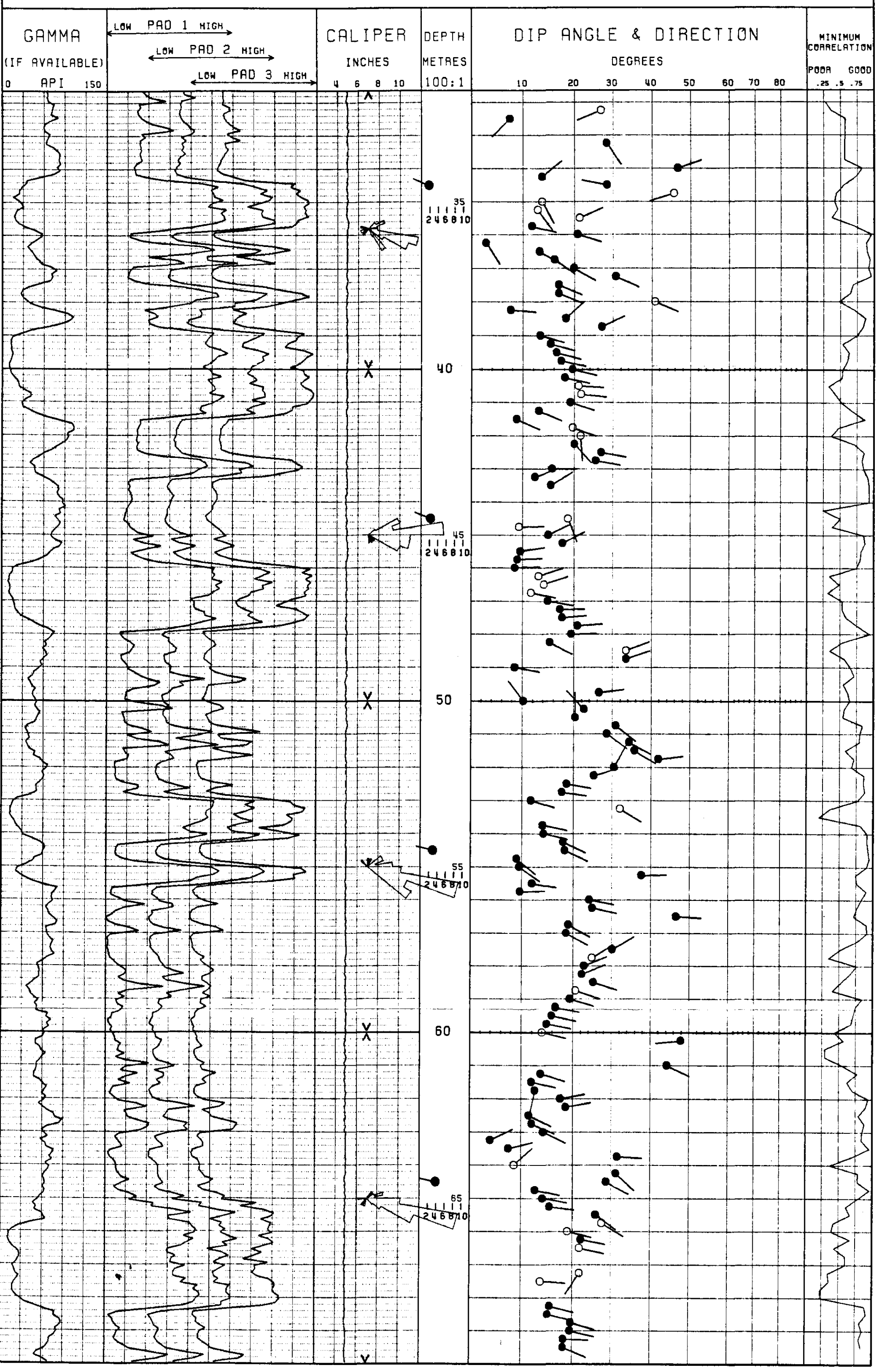
STEP 0.25M.
INTERVAL 0.50M.
SEARCH ANGLE 45.

DECLINATION 26.0 EAST
DEPTH RANGE 31.64 - 70.00M.
DATE PROCESSED 17-OCT-89

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)



COAL LITHOLOGY LOG

BPB

LOG SUITE: GAMMA RAY CALIPER

CONVENTIONAL SERVICE

DIRECT TYPE COMBINATION

BOREHOLE: 496 (3)
CLIENT:
COUNTRY:
AREA:
DATE LOGGED:
DRILLER:
LOGGING ENGINEER:

BOREHOLE DATA

	DRILLER'S DEPTH	LOGGER'S DEPTH
DEPTH		
CASING SIZE		
CASING WEIGHT		
BIT SIZE		

FLUID DATA

	TOP	BOTTOM
FLUID TYPE		
FLUID DENSITY		
FLUID LEVEL		
VISCOSITY		
PH		
FLUID LOSS		
SOURCE OF SAMPLE		
RM @ MEAS. TEMP.		
RMF @ MEAS. TEMP.		
RMC @ MEAS. TEMP.		
SOURCE RMF & RMC		
RM @ BHT		
TIME SINCE CIRC.		
MAX. REC. TEMP.		
EQUIP. LOCATION		
RECORDED BY		
WITNESSED BY		

OPERATION DATA

	RUN NO.	DATE	TD (DRILLER)	TD (LOGGER)	TOP LOGGED INTERVAL	BOTTOM LOGGED INTERVAL	TYPE LOG	SCALE INTERVAL	MAX. REC. TEMP.	EQUIPMENT NO.	LOCATION	RECORDED BY	WITNESSED BY
1													
2													
3													

EQUIPMENT AND RECORDING DATA

COAL COMBINATION SONDE

LOG	EQUIPMENT SONDE	EQUIPMENT SOURCE	CALIBRATION	RATING LOG SPEED	RATING RECORD SPEED	RATING DIRECT/REPLAY	PANEL SPEED	PANEL S.C. SCALE	PANEL NORM	LOW COUNT CORRECTION	DEPTHS FROM	DEPTHS TO	SEAM LOG RUN INTERVAL
GAMMA RAY	156		231	1	9/1	1	9/1	2/1	=	1.20	76	181	76m 1
DENSITY			7945	1	9/2	1	9/1	2/1	=	=	79	181	79m 1
CALIPER	MIDWALL POSITION		6"	1	9/3	1	9/3	2/1	=	1.20	79	181	79m 1

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

	FROM	TO	INTERVAL TOTAL
FROM	70	57	
TO	69	32	
INTERVAL	1m	25m	37m

ADDITIONAL SONDES RUN

SONDE	LOG	GENERAL / DETAIL SCALE LOG/FACE LOG
219	7m	1/100
220/23	90'	

REFER TO ADDITIONAL HEADINGS

REMARKS

BPB COAL LITHOLOGY LOG

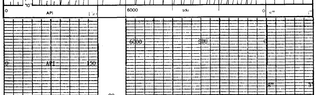
CALIBRATION DATA

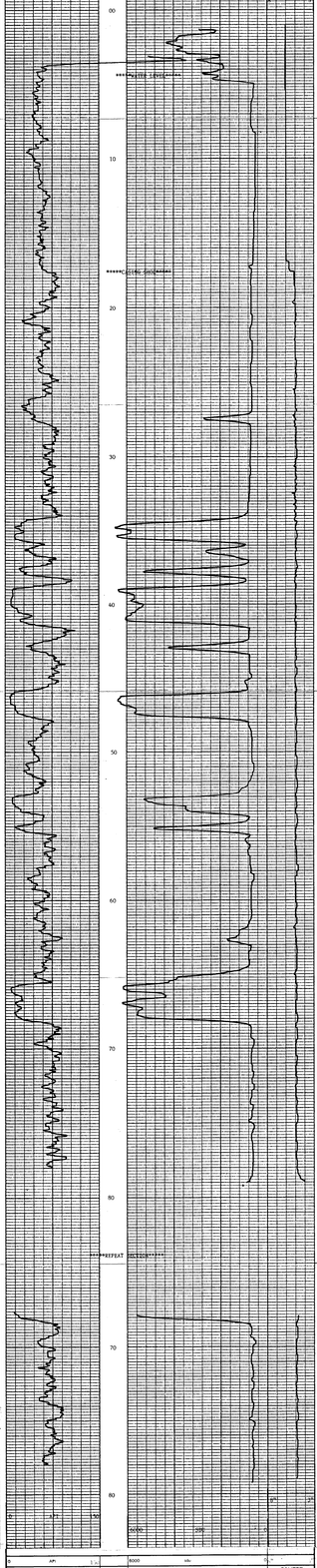
JG No. 231 VALUE 33 GR/BOMM
JG MARK SHOWN AT ABOVE VALUE =

JG CAL DATE 11/11/70 JG VALUE 1.01 SENSE 1.01 GR/M³ ∴ M³ = 99.121 GR
JG No. 2005 SPAN 64.61 NORM PAY = 2.0% ∴ M³ = 64.61 GR

GAMMA RAY | DEPTH | BULK DENSITY | CALIPER INCHES

HOLE SIZE CORRECTION DATA



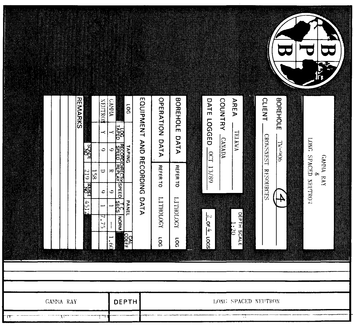


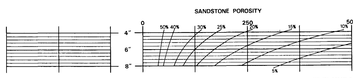
GAMMA RAY | DEPTH | BULK DENSITY (g/cm³) | CALIPER INCHES

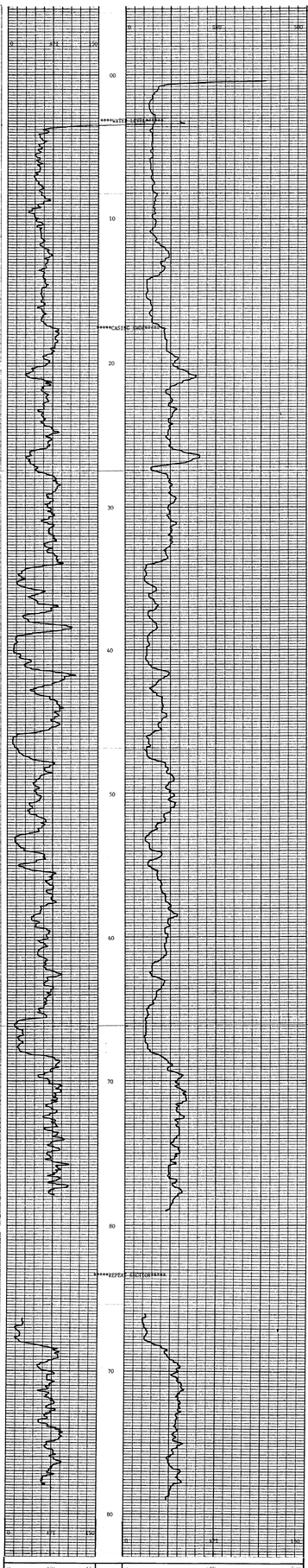
BPB

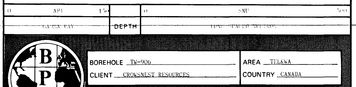
BOREHOLE 496 (3) AREA [illegible]
CLIENT [illegible] COUNTRY [illegible]

COAL LITHOLOGY LOG

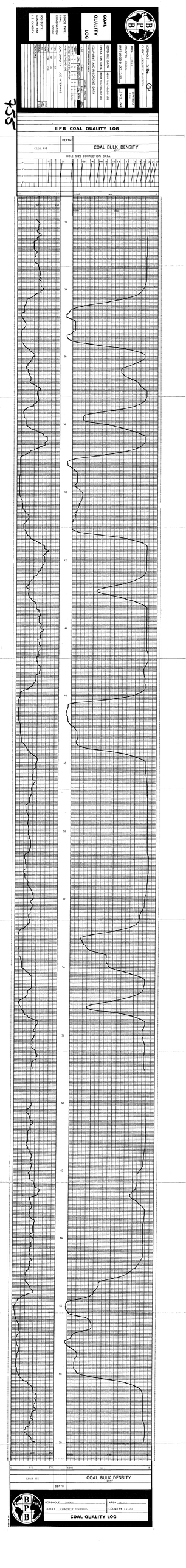

BPB
GAMMA RAY
LONG SPACED NEUTRON
BOREHOLE TP-90b
CLIENT CHINOOK RESOURCES (4)
AREA TIJANA
COUNTRY CANADA
DATE LOGGED OCT 11/90
RUN ONE
DEPTH DRILLER 2,500'
DEPTH LOGGER 2,500'
BOTTOM LOGGED INTERVAL 2,500'
TOP LOGGED INTERVAL 1,600'
CASING DRILLER 8 5/8" @ 600'
CASING LOGGER 600'
BOREHOLE DATA
BIT SIZE 7 7/8"
TYPE FLUID LIGNOSULFONATE
DENSITY 9.8
VISCOSITY 45
PH 10.5
FLUID LOSS 6.0
SOURCE OF SAMPLE PIT
RM @ MEAS. TEMP. .75 @ 70°F
RMF @ MEAS. TEMP. .55 @ 70°F
RMC @ MEAS. TEMP. 1.0 @ 70°F
SOURCE OF RMF & RMC MEASURED
RM @ BHT .35 @ 150°F
TIME SINCE CIRC. 12 HRS
MAX. REC. TEMP. 150°F
EQUIP. LOCATION 100
RECORDED BY L.STERLETZ
WITNESSED BY L.STERLETZ
OPERATION DATA
EQUIPMENT AND RECORDING DATA
SCHLUMBERGER
TYPE LOG DIL
RUN NO. ONE
DEPTH-DRILLER 2,500'
DEPTH-LOGGER 2,500'
BTM. LOG INTERVAL 2,500'
TOP LOG INTERVAL 600'
CASING-DRILLER 8 5/8" @ 600'
CASING-LOGGER 600'
BIT SIZE 7 7/8"
TYPE FLUID IN HOLE LIGNOSULFONATE
DENSITY 9.8
VISCOSITY 45
PH 10.5
FLUID LOSS 6.0
SOURCE OF SAMPLE PIT
RM @ MEAS. TEMP. .75 @ 70°F
RMF @ MEAS. TEMP. .55 @ 70°F
RMC @ MEAS. TEMP. 1.0 @ 70°F
SOURCE OF RMF & RMC MEASURED
RM @ BHT .35 @ 150°F
TIME SINCE CIRC. 12 HRS
MAX. REC. TEMP. 150°F
EQUIP. LOCATION 100
RECORDED BY L.STERLETZ
WITNESSED BY L.STERLETZ
REMARKS
GAMMA RAY
DEPTH
LONG SPACED NEUTRON


SANDSTONE POROSITY
0
50% 40% 30% 25% 20% 15% 10%
500
4"
6"
8"
1%
MV (S) A36401 S


0
150
-30
+30
00
****WATER LEVEL MARKER****
10
****CASING SHOE MARKER****
20
30
40
50
60
70
80
****REPEAT SECTION MARKER****
70
80


APT
150
-30
+30
500
GAMMA RAY
DEPTH

BPB
BOREHOLE TP-90b
CLIENT CHINOOK RESOURCES
AREA TIJANA
COUNTRY CANADA
MV 2000015



BPB COAL QUALITY LOG

CASE KIT

DEPTH

COAL BULK DENSITY

HOLE SIZE CORRECTION DATA

CASE KIT

DEPTH

COAL BULK DENSITY

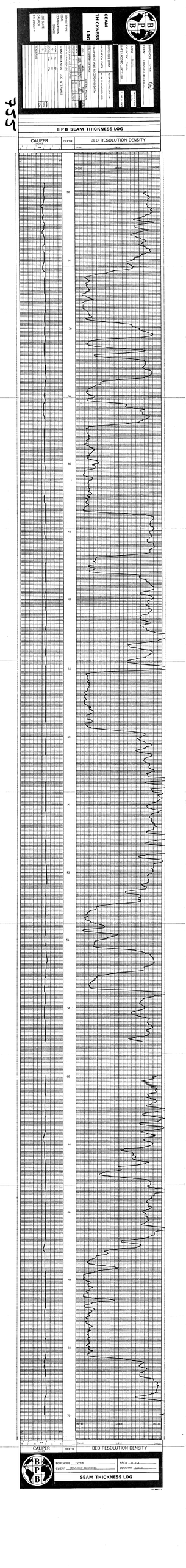
BOREHOLE 'BOL'

AREA TEXAS

CLIENT CONTINENTAL RESOURCES

COUNTRY TEXAS

COAL QUALITY LOG


B P B
SEAM THICKNESS LOG
BOREHOLE
CLIENT
AREA
COUNTY
CALIPER
DEPTH
BED RESOLUTION DENSITY
SEAM THICKNESS LOG
B P B SEAM THICKNESS LOG
CALIPER
DEPTH
BED RESOLUTION DENSITY
BOREHOLE — SECTOR
CLIENT — PETROLEUM DEVELOPMENT
AREA — ILLIZA
COUNTY — LIBYA
SEAM THICKNESS LOG

DIPMETER ANALYSIS

CLIENT___ CROWSNEST RESOURCES
BOREHOLE_ TW-907 (1)
AREA_____ TELKWA
COUNTRY__ CANADA

DATE LOGGED.....13-OCT-89
DATE PROCESSED..17-OCT-89

COMMENTS.....

TOOL STUCK @ 55.37M TO 53.6M EXPECT DATA BREAK.

INTERPRETATION PARAMETERS

STEP 0.25M.
INTERVAL 0.50M.
SEARCH ANGLE 45.
DECLINATION 26.0 EAST
DEPTH RANGE 20.64 - 60.00M.
DATE PROCESSED 17-OCT-89

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)

GAMMA (IF AVAILABLE) 0 API 150

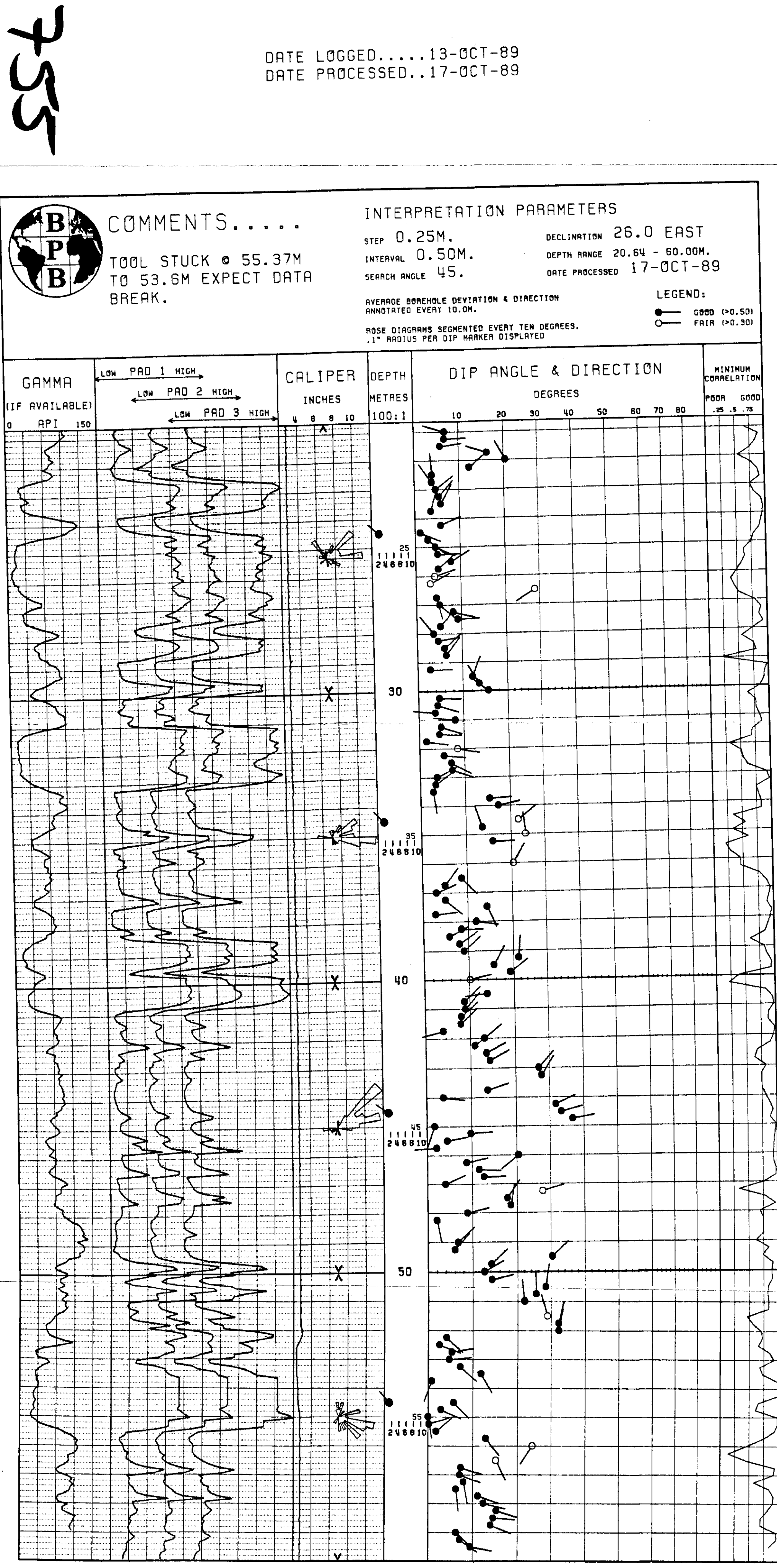
LOW PAD 1 HIGH
LOW PAD 2 HIGH
LOW PAD 3 HIGH

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 GOOD .25 .5 .75



STICK PLOT

CLIENT____ CROWSNEST RESOURCES

BOREHOLE_ TW-907 (2)

AREA_____ TELKWA

COUNTRY___ CANADA

TSS

DATE LOGGED : 13-OCT-89

COMMENTS.....

INTERPRETATION PARAMETERS

STEP 0.25M.
INTERVAL 0.50M.
SEARCH ANGLE 45.

DECLINATION 26.0 EAST
DEPTH RANGE 20.64 - 60.00M.
DATE PROCESSED 17-OCT-89

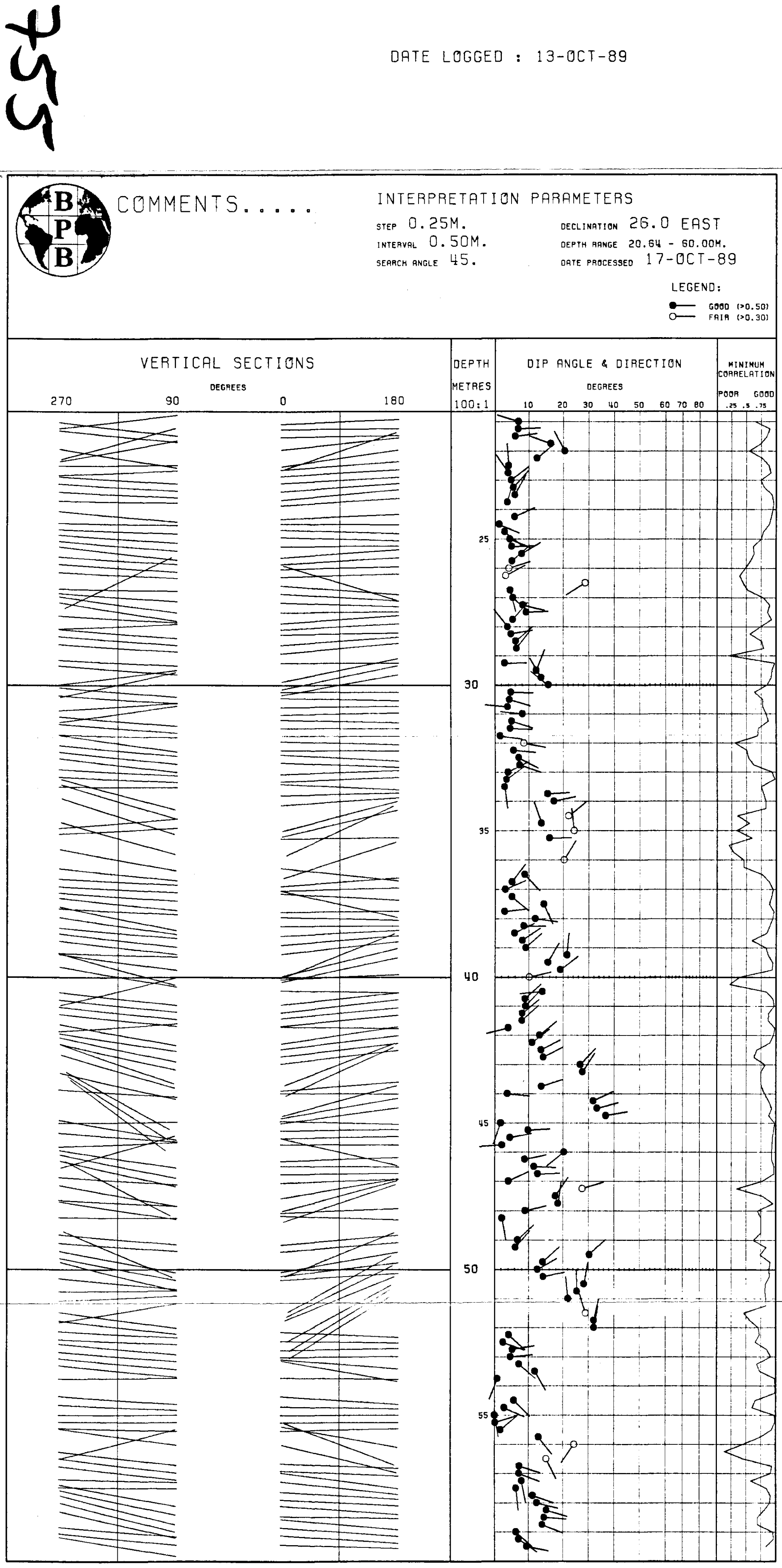
LEGEND:
GOOD (>0.50)
FAIR (>0.30)

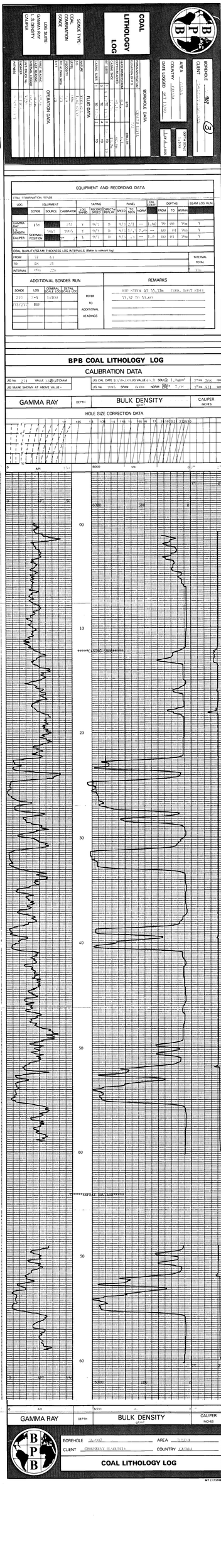
VERTICAL SECTIONS — DEGREES: 270, 90, 0, 180

DEPTH METRES 100:1

DIP ANGLE & DIRECTION — DEGREES: 10 20 30 40 50 60 70 80

MINIMUM CORRELATION — POOR GOOD: .25 .5 .75




COAL LITHOLOGY LOG
BPB
BOREHOLE 307
CLIENT
AREA
COUNTRY
DATE LOGGED
LOG NUMBER
RUN NUMBER
SONDE TYPE
COAL COMBUSTION SONDE
LOG SUITE
GAMMA RAY
L.S. DENSITY
CALIPER
EQUIPMENT
SONDE
SOURCE
CALIBRATOR
TAPING
LOG TAPED
RECORDED SPEED
DIRECT REPLAY
PANEL
SPEED
GAIN
NORM
DEPTHS
FROM
TO
REMARKS
SEAM LOG RUN
GAMMA RAY
DENSITY
CALIPER
SONDE/WELL POSITION
COAL QUALITY/SEAM THICKNESS LOG INTERVALS (Refer to relevant log)
FROM
TO
INTERVAL
INTERVAL TOTAL
ADDITIONAL SONDES RUN
SONDE
LOG
GENERAL / DETAIL SCALE / LOG/SCALE LOG
REFER TO ADDITIONAL HEADINGS
REMARKS
BHP STUCK AT 55.17m DRU, BHCT 1DRU
55.37 TO 53.60
OPERATION DATA
HOLE RECORD
CASING RECORD
MATERIAL LOGGED
WATER
FLUID DATA
DENSITY
VISCOSITY
PH
CHLORIDES
MANUFACTURER
CALIBRATION DATE
BOREHOLE DATA
DEPTH
BIT
CASING
FLUID LEVEL
CORE DATA
CORE No
FROM
TO
RECOVERY
CORE DIAMETER
CORE ORIENTATION
CORE LOGGED
CORE SAMPLED
CORE STORED
EQUIPMENT AND RECORDING DATA
COAL FORMATION SYNOPSIS
BPB COAL LITHOLOGY LOG
CALIBRATION DATA
JIG No. 218 VALUE 15.80 LB/DIAM
JIG MARK SHOWN AT ABOVE VALUE -
JIG CAL DATE 11/11/99 JIG VALUE 6.1 SDU @ 1.7g/cm³
JIG No. 9995 SPAN 66283 NORM 80%
GAMMA RAY
DEPTH
BULK DENSITY g/cm³
CALIPER INCHES
HOLE SIZE CORRECTION DATA
API
BULK DENSITY
CLIENT
COAL LITHOLOGY LOG
307
3
255

755

BOREHOLE 90-97 (4)
CLIENT CONSOLIDATED RESOURCES
AREA ARUNA
COUNTRY INDONESIA
DATE LOGGED 27-12-90
TIME 2.30

COAL QUALITY LOG

DOWN HOLE CONDITIONS
CASING TYPE
CASING DIAMETER
CASING DEPTH
FLUID LEVEL
FLUID TYPE
FLUID DENSITY
FLUID VISCOSITY
FLUID PH
FLUID RESISTIVITY
FLUID TEMPERATURE
TIME SINCE CIRCULATION
MAXIMUM RECORDED TEMPERATURE

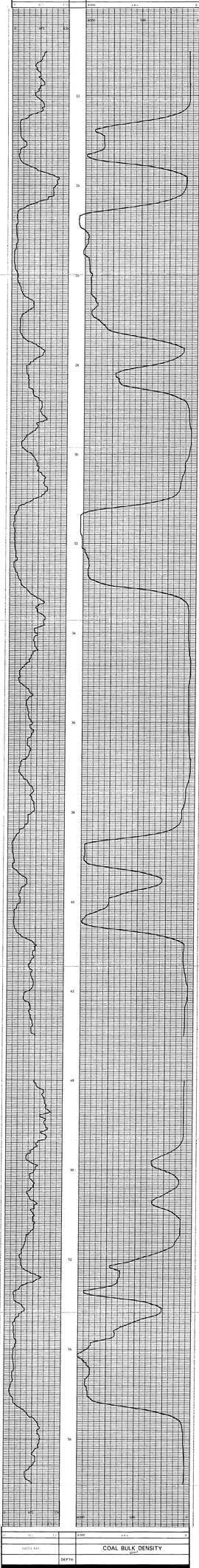
OPERATOR DATA
OPERATOR
RIG NO
DRILLER
LOGGING ENGINEER
WITNESS

EQUIPMENT AND RECORDING DATA
TOOL TYPE
TOOL NUMBER
DIST. TO BIT
DIST. TO CENTRE OF SOURCE
DIST. TO CENTRE OF DETECTOR
SOURCE STRENGTH
DETECTOR TYPE
DETECTOR SIZE
DETECTOR WINDOW
SOURCE TYPE
COMPENSATION
SOURCE SIZE
DATA SAMPLING INTERVAL
LOG SCALE
LOG SPEED
TIME CONSTANT
DATA TRANSMISSION
RECORDING MEDIUM
INTERPRETATION
INTERPRETATION PROGRAM
INTERPRETATION DATE
INTERPRETATION BY

BPB COAL QUALITY LOG

DEPTH	COAL BULK DENSITY
GAMMA RAY	

HOLE SIZE CORRECTION DATA



DEPTH	COAL BULK DENSITY
GAMMA RAY	

BOREHOLE 90-97
CLIENT CONSOLIDATED RESOURCES
AREA TIUANA
COUNTRY INDONESIA

COAL QUALITY LOG

SEAM THICKNESS LOG

755

B P B SEAM THICKNESS LOG

CALIPER (INCHES)	DEPTH	BED RESOLUTION DENSITY
7" 6" 5" dia 4" 3" 2"		26000 SBRDU 16000

CALIPER (INCHES)	DEPTH	BED RESOLUTION DENSITY

BOREHOLE TW-907
CLIENT CROWSNEST RESOURCES
AREA TELKWA
COUNTRY CANADA

SEAM THICKNESS LOG

MY 88002 R

755

GAMMA RAY
&
LONG SPACED NEUTRON

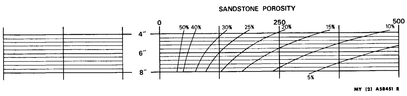
BOREHOLE TW-007 6
CLIENT CROWNEST RESOURCES

AREA TELKWA
COUNTRY CANADA
DATE LOGGED OCT 11/89

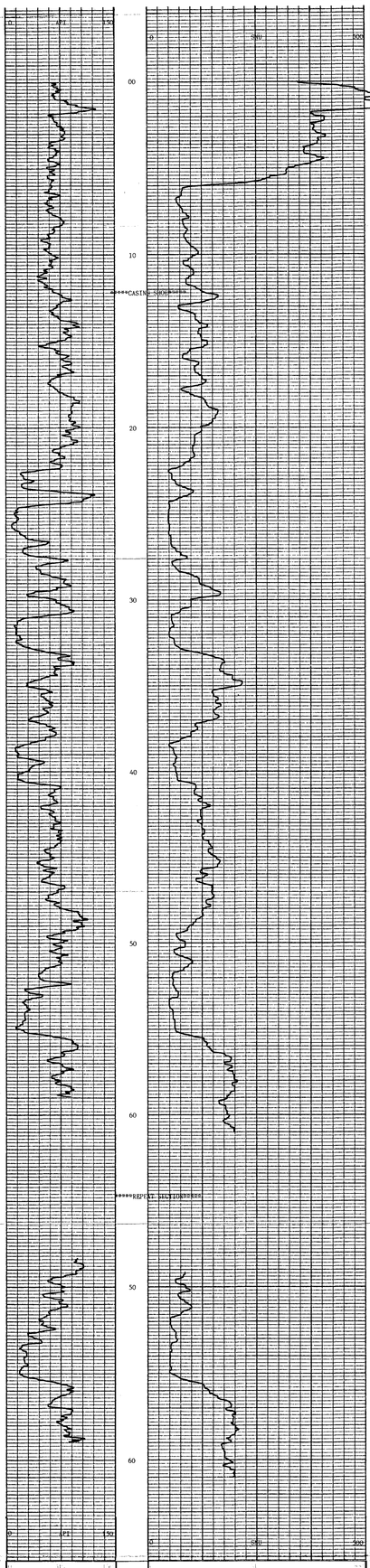
DEPTH SCALE 1:100
2 of 2 1/1000

BOREHOLE DATA	REFER TO	LITHOLOGY	LOG
OPERATION DATA	REFER TO	LITHOLOGY	LOG
EQUIPMENT AND RECORDING DATA			
LOG	TAPING	PANEL	
CANADA	TRICKSON SPECIAL	SPECIAL	
LITHOLOGY	SPECIAL	SPECIAL	
Y	9	1	7.90
Y	9	1	7.90
TOOL	1.50	POST	
TOOL	1.50	POST	
REMARKS			

GAMMA RAY	DEPTH	LONG SPACED NEUTRON



MY (3) A58451 R



GAMMA RAY	DEPTH	LONG SPACED NEUTRON

BOREHOLE TW-007
CLIENT CROWNEST RESOURCES
AREA TELKWA
COUNTRY CANADA

MY 3000818

DIPMETER ANALYSIS

CLIENT___ CROWSNEST RESOURCES
BOREHOLE_ TW-908 ①
AREA_____ TELKWA
COUNTRY__ CANADA

DATE LOGGED.....14-OCT-89
DATE PROCESSED..20-OCT-89

COMMENTS.....

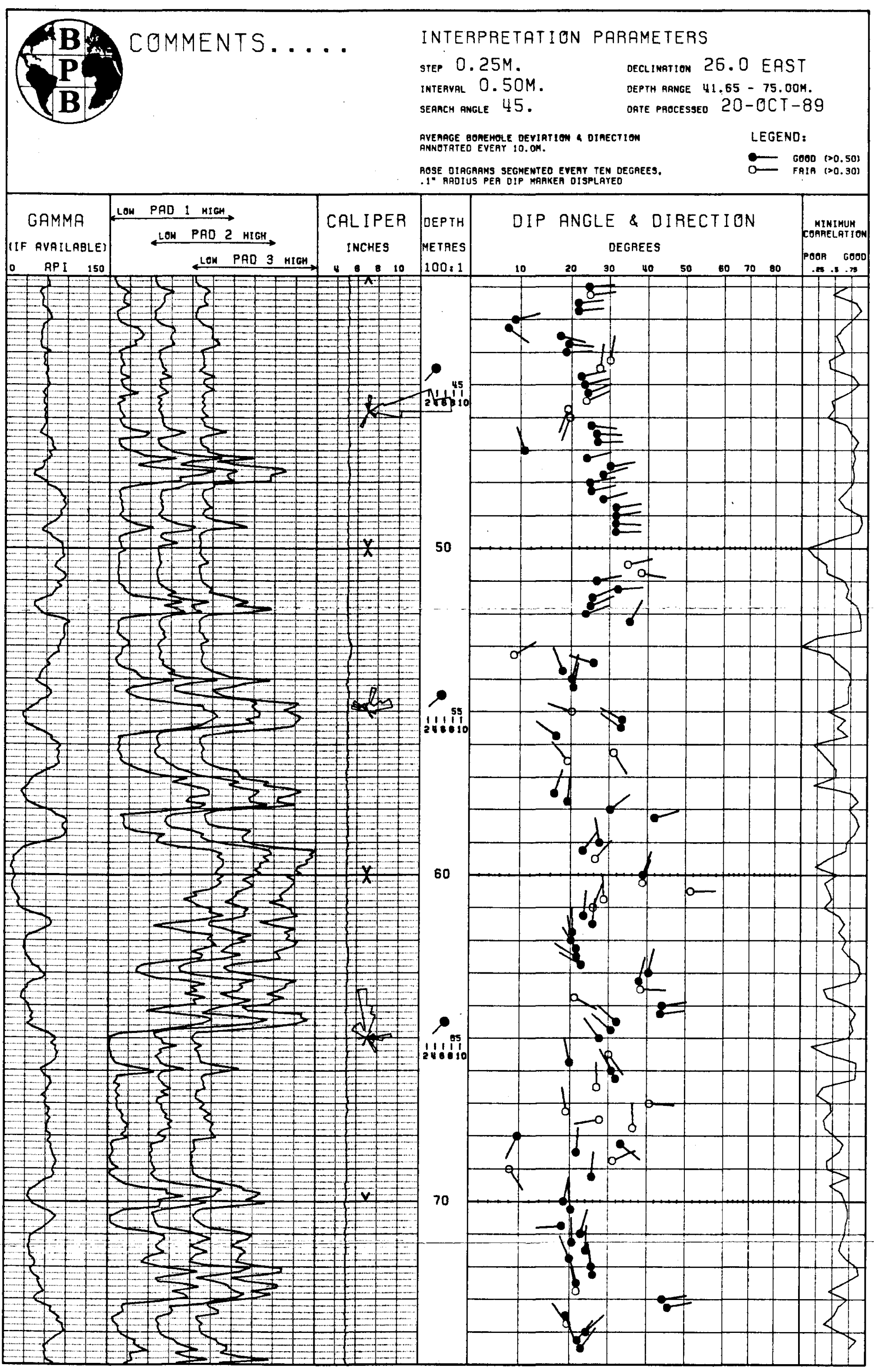
INTERPRETATION PARAMETERS

STEP 0.25M.
INTERVAL 0.50M.
SEARCH ANGLE 45.
DECLINATION 26.0 EAST
DEPTH RANGE 41.65 - 75.00M.
DATE PROCESSED 20-OCT-89

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)



STICK PLOT

CLIENT____ CROWSNEST RESOURCES

BOREHOLE_ TW-908 (2)

AREA_____ TELKWA

COUNTRY___ CANADA

SSE

DATE LOGGED : 14-OCT-89

COMMENTS.....

INTERPRETATION PARAMETERS

STEP 0.25M.
INTERVAL 0.50M.
SEARCH ANGLE 45.

DECLINATION 26.0 EAST
DEPTH RANGE 41.65 - 75.00M.
DATE PROCESSED 20-OCT-89

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

VERTICAL SECTIONS

DEGREES
270 90 0 180

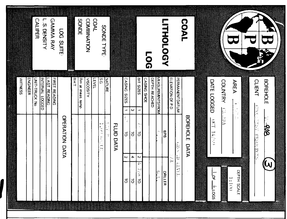
DEPTH METRES 100:1

DIP ANGLE & DIRECTION

DEGREES
10 20 30 40 50 60 70 80

MINIMUM CORRELATION
POOR GOOD
.25 .5 .75

45 50 55 60 65 70



ESS

EQUIPMENT AND RECORDING DATA

COAL COMBINATION LOGS

LOG	EQUIPMENT			TAPING			PANEL			CAL CHECK	DEPTHS		SEAM LOG RUN
	SONDE	SOURCE	CALIBRATOR	LOG SPEED	RECORDING FACTOR	PLAY SPEED	LOG SPEED	N.S. MODE	NORM		FROM	TO	NORMA
GAMMA RAY													
DENSITY													
CALIPER													

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

FROM	INTERVAL TOTAL
TO	
INTERVAL	

ADDITIONAL SONDES RUN

SONDE	LOG	GENERAL "K" DETAIL (FOR ALL CHECKS) LOG

REFER TO ADDITIONAL LEADINGS

REMARKS

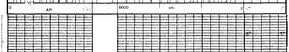
BPB COAL LITHOLOGY LOG

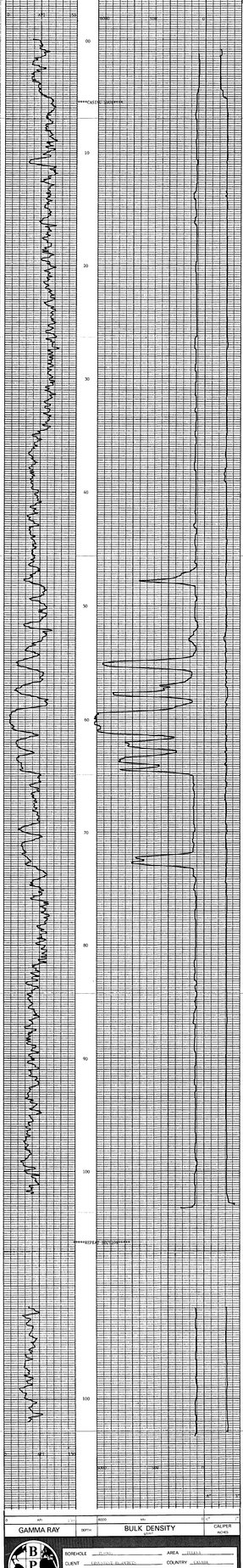
CALIBRATION DATA

JIG No.	VALUE	JIG CAL DATE	JIG CAL VALUE	SEN	UNITS
JIG MARK SHOWN AT ABOVE VALUE =		JIG No.	SPAN	NORM	UNITS

GAMMA RAY	DEPTH	BULK DENSITY	CALIPER
			INCHES

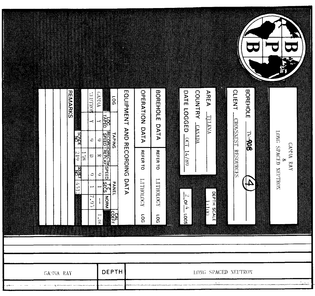
HOLE SIZE CORRECTION DATA

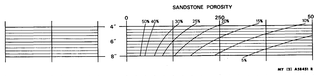


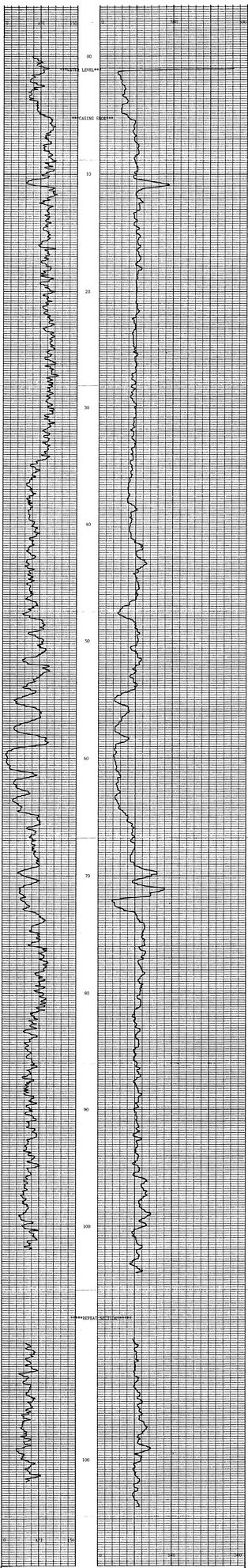


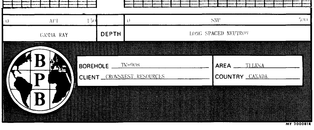
GAMMA RAY | DEPTH | BULK DENSITY | CALIPER INCHES

BOREHOLE
AREA
CLIENT
COUNTRY
COAL LITHOLOGY LOG


BPB
BOREHOLE
CLIENT
DATE LOGGED
RUN NUMBER
DEPTH DRILLER
DEPTH LOGGER
CASING SCHLUM.
CASING DRILLER
BIT SIZE
TYPE FLUID
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.
EQUIP. LOCATION
RECORDED BY
WITNESSED BY
GAMMA RAY
DEPTH
100ft SPACED NEUTRON


SANDSTONE POROSITY
0
50% 40%
30%
20%
15%
10%
5%
200
100
4"
6"
8"
CN
API UNITS API


FLUID LEVEL
CASING SHOE
REPEAT SECTION
0
10
20
30
40
50
60
70
80
90
100
100
GAMMA RAY
DEPTH
100ft SPACED NEUTRON


BPB
BOREHOLE TWYNHAM
CLIENT CROSSKEY RESOURCES
AREA TEXAS
COUNTRY CANADA

COAL QUALITY LOG

LOG SUITE: COAL QUALITY, COAL DENSITY, L & DENSITY

SONDE TYPES: COAL QUALITY COMBINATION SONDE

BOREHOLE 994

CLIENT [illegible]

AREA [illegible]

COUNTRY [illegible]

DATA LOGGED AT [illegible]

REFERENCE HIGH

REFERENCE DATA: DEPTH TO DRILLER'S DR

OPERATOR DATA: DEPTH TO LOGGER'S DR

EQUIPMENT AND RECORDING DATA

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 @ MEASURED TEMP			
RMF @ MEASURED TEMP			
RMC @ MEASURED TEMP			
SOURCE OF RMF & RMC			
RM @ BHT			
TIME SINCE CIRC			
MAX REC TEMP			
EQUIP LOCATION			
RECORDED BY			
WITNESSED BY			

COAL QUALITY LOG INTERVALS

CASING	FROM	TO
OPEN HOLE		

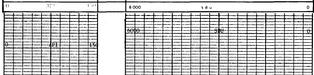
REMARKS

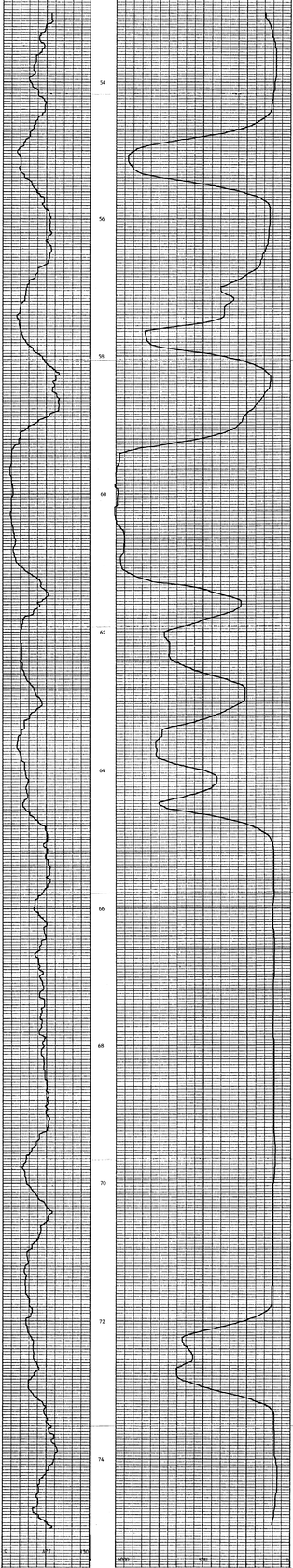
RUN NO.		
PASS NO.		
DATE		

BPB COAL QUALITY LOG

CAVITY RAY | DEPTH | COAL BULK DENSITY g/cm³

HOLE SIZE CORRECTION DATA





CAVITY RAY | DEPTH | COAL BULK DENSITY g/cm³

BOREHOLE [illegible] | AREA [illegible]

CLIENT [illegible] | COUNTRY [illegible]

COAL QUALITY LOG

755

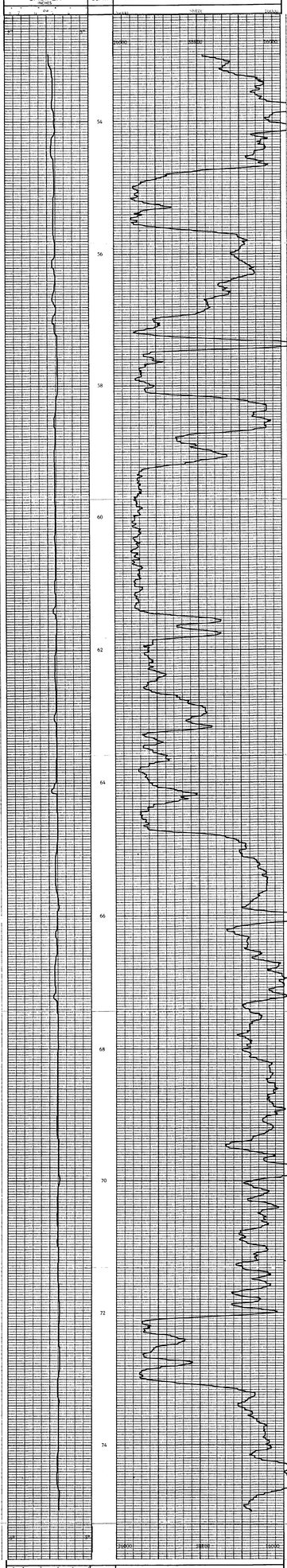
BOREHOLE TV-008 6
CLIENT CROWNEST RESOURCES
AREA TELKWA
COUNTRY CANADA
DATE LOGGED OCT 15/90
DEPTH SCALE 1:200
LOG SCALE 1:1000

SEAM THICKNESS LOG

BOREHOLE DATA
OPERATION DATA
EQUIPMENT AND RECORDING DATA
SEAM THICKNESS LOG INTERVALS
REMARKS

SONDE TYPE							
COAL COMBINATION SONDE							
LOG SUITE							
CALIPER							
B R DENSITY							

B P B SEAM THICKNESS LOG



CALIPER INCHES | DEPTH | BED RESOLUTION DENSITY

BOREHOLE TV-008
CLIENT CROWNEST RESOURCES
AREA TELKWA
COUNTRY CANADA

SEAM THICKNESS LOG

DIPMETER ANALYSIS

CLIENT____ CROWSNEST RESOURCES

BOREHOLE_ TW-909 (1)

AREA_____ TELKWA

COUNTRY__ CANADA

DATE LOGGED.....16-OCT-89
DATE PROCESSED..20-OCT-89

COMMENTS.....

INTERPRETATION PARAMETERS

STEP 0.25M.
INTERVAL 0.50M.
SEARCH ANGLE 45.

DECLINATION 26.0 EAST
DEPTH RANGE 21.64 - 64.90M.
DATE PROCESSED 20-OCT-89

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)

GAMMA (IF AVAILABLE) 0 API 150

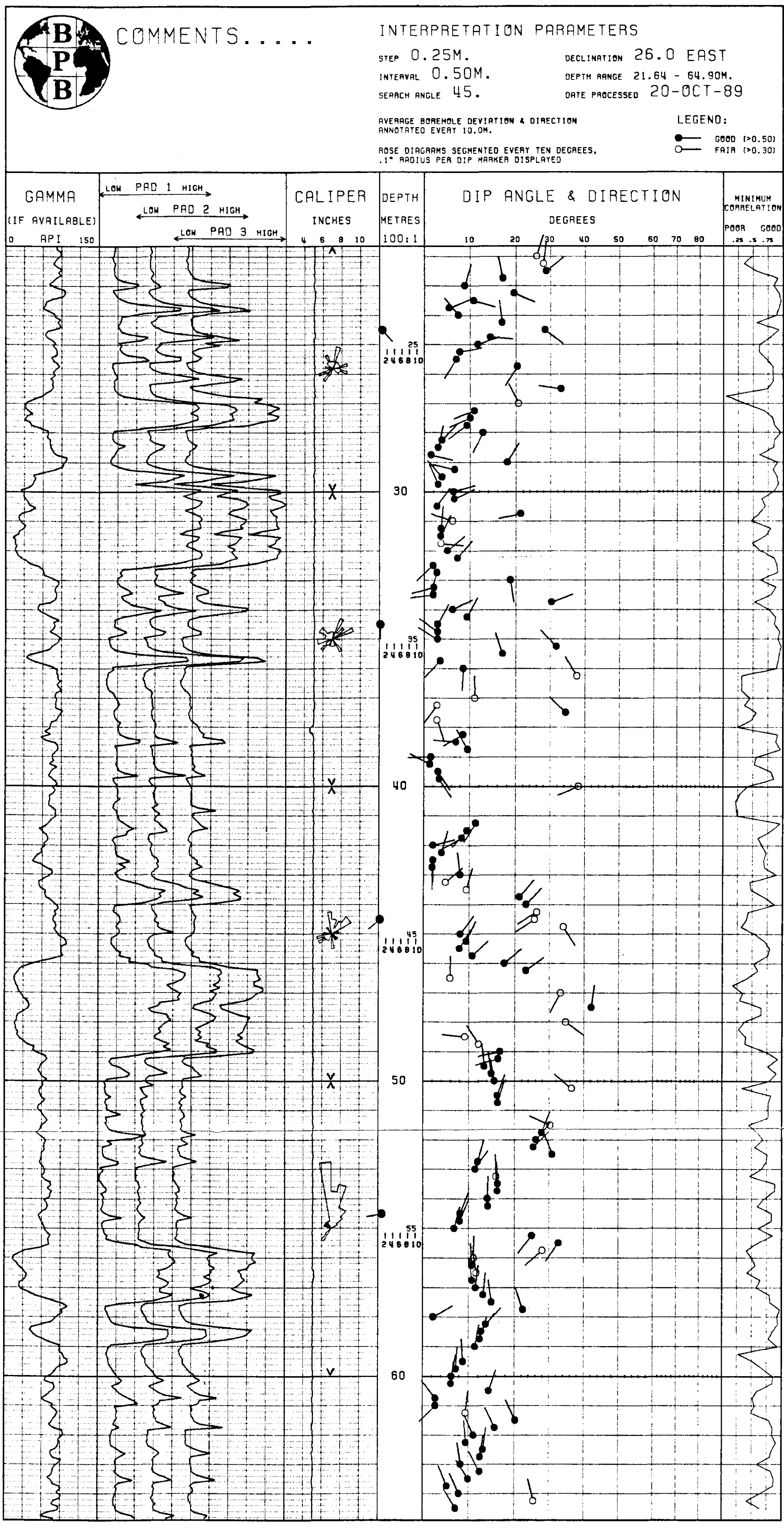
LOW PAD 1 HIGH
LOW PAD 2 HIGH
LOW PAD 3 HIGH

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 GOOD .25 .5 .75



STICK PLOT

CLIENT___
BOREHOLE_
AREA_____
COUNTRY__

CROWSNEST RESOURCES
TW-909 (2)
TELKWA
CANADA

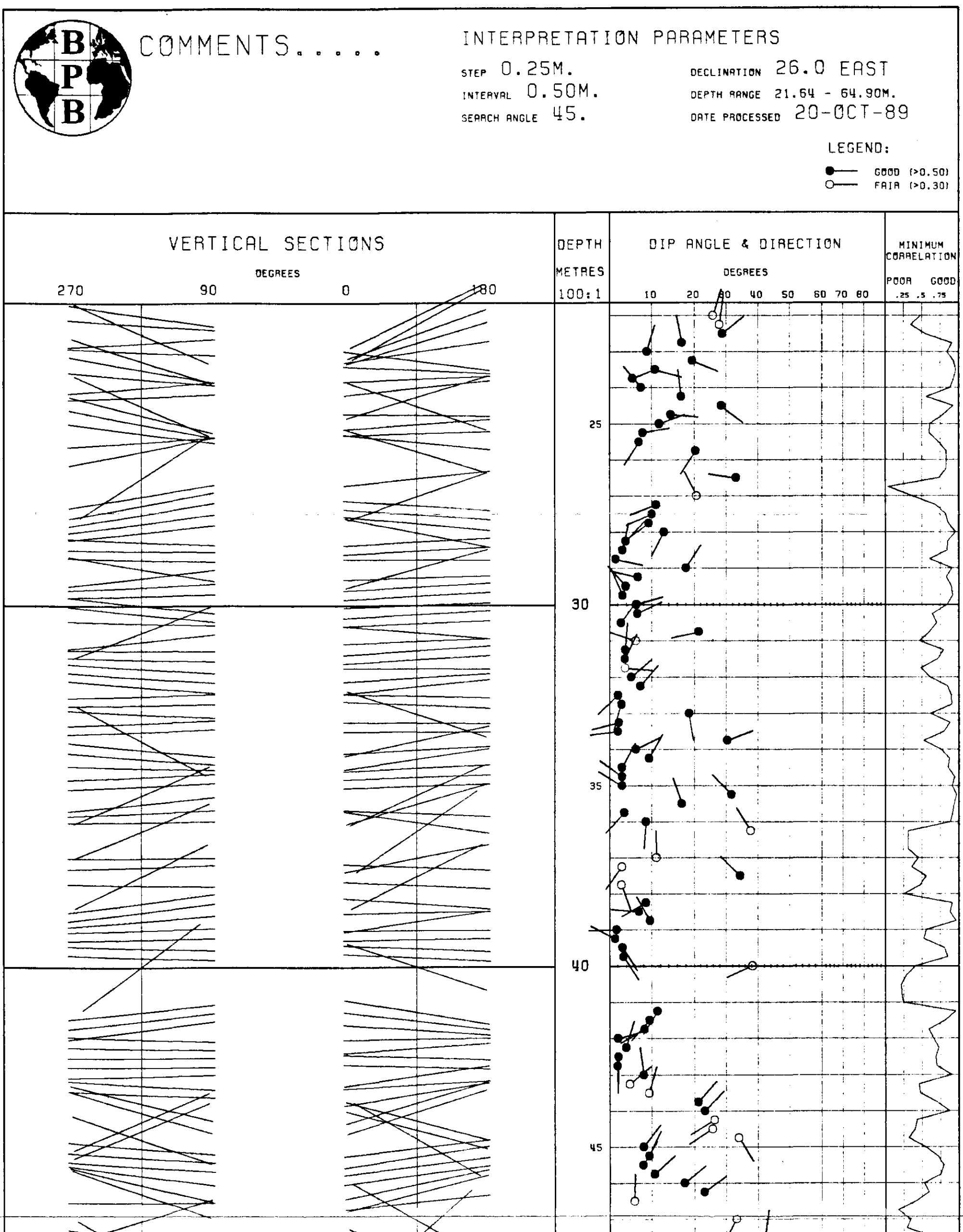
DATE LOGGED : 16-OCT-89

COMMENTS.....

INTERPRETATION PARAMETERS

STEP 0.25M.
INTERVAL 0.50M.
SEARCH ANGLE 45.
DECLINATION 26.0 EAST
DEPTH RANGE 21.64 - 64.90M.
DATE PROCESSED 20-OCT-89

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



EQUIPMENT AND RECORDING DATA

COAL COMBINATION SONDE

	EQUIPMENT			TAPING			PANEL		CAL. LOOP	DEPTHS		SEAM LOG RUN
LOG	SONDE	SOURCE	CALIBRATOR	LOG METRES	RECORD SPEED	DIRECT PLOT METRES	SPEED	SEL. SCALE	NORM	FROM	TO	
GAMMA RAY	156		231	Y	9/1	D	9/1	2/1	—	1.0V	74	180	3
DENSITY		661	3995	Y	9/1	D	9/1	1/.5	T.UM	35	115	180	3
CALIPER	HORIZ. POSITION		3"	Y	9/1	D	9/1	1	—	1.0	35	115	180	3

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

FROM	63	36	INTERVAL TOTAL
TO	63	23	
INTERVAL	0m	13m	13m

ADDITIONAL SONDES RUN

SONDE	LOG	GENERAL / DETAIL PURE LITHOLOGICAL LOG
219	SVC	1:1(40)
233/219	HIT	

REFER TO ADDITIONAL HEADINGS

REMARKS

BPB COAL LITHOLOGY LOG

CALIBRATION DATA

JG No. 231 VALUE 2.5@1.85DAM

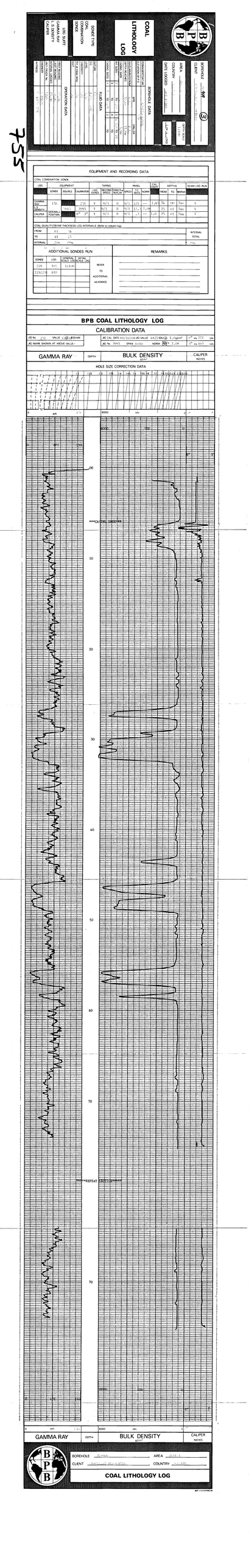
JG MARK SHOWN AT ABOVE VALUE: -

JG CAL DATE 09/10/1984 JG VALUE 6923.80AU@ 2.45gm/cm³ 3" eq 771 cps

JG No. 3995 SPAN 84.82 NORM 84.82 @ 2.45 3" eq 665 cps

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

HOLE SIZE CORRECTION DATA



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

BPB
BOREHOLE
AREA
CLIENT
COUNTRY
COAL LITHOLOGY LOG

755

GAMMA RAY
&
LONG SPACED NEUTRON

BOREHOLE TN-009 (4)
CLIENT CROSSWEST RESOURCES

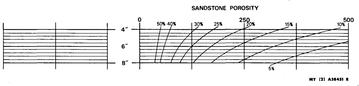
AREA TILENA
COUNTRY CANADA
DATE LOGGED OCT 16/89

DEPTH SCALE
1:1000

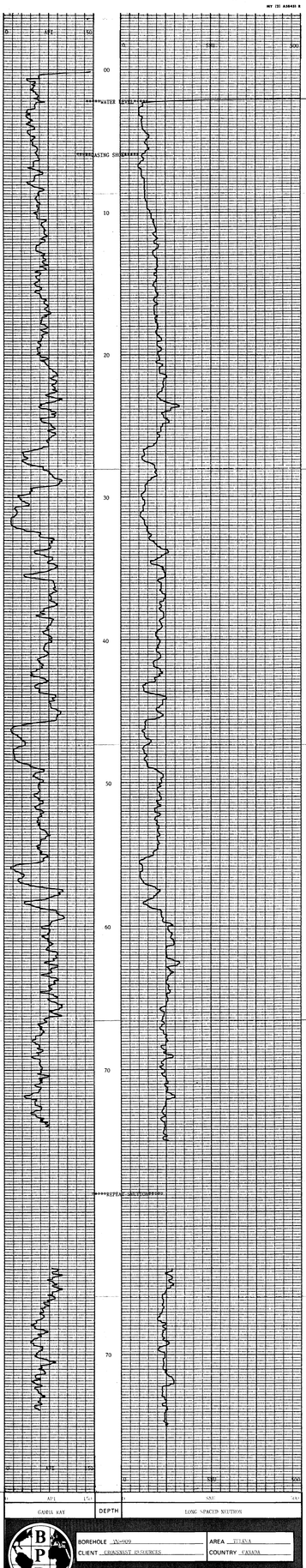
2 OF 4 LOGS

LITHOLOGY							
OPERATION DATA	METER TO LITHOLOGY	100					
EQUIPMENT AND RECORDING DATA							
LOG	TOOL NAME	TYPE	SERIAL NO.	DIAMETER	MEASURE POINT	RUN NO.	LOG OCCUR
GAMMA RAY							
LONG SPACED NEUTRON							
REMARKS							

GAMMA RAY	DEPTH	LONG SPACED NEUTRON
API 0 150		SSU 0 500



MT (3) A38481 R



GAMMA RAY	DEPTH	LONG SPACED NEUTRON
API 0 150		SSU 0 500

BOREHOLE TN-009
CLIENT CROSSWEST RESOURCES
AREA TILENA
COUNTRY CANADA

MT 3000818

755

BPB

BOREHOLE TL-997
CLIENT [illegible]
AREA TEXAS
COUNTRY [illegible]
DATE LOGGED [illegible]

OPERATION DATA
MADE TO [illegible]
MADE TO [illegible]

EQUIPMENT AND RECORDING DATA
[illegible]

COAL QUALITY LOG

SIDE TYPE
COAL CORRIDOR
SIDE
LOG TYPE
GAMMA RAY
L.S. DENSITY

COAL QUALITY LOG INTERVALS
[illegible]

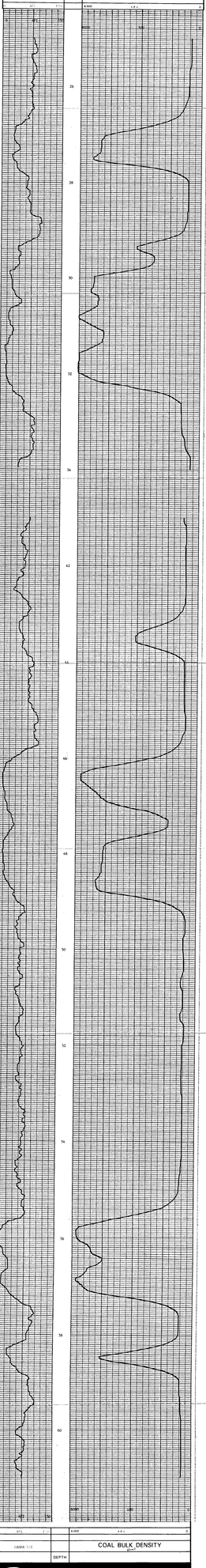
COAL QUALITY LOG INTERVALS
[illegible]

HOLE SIZE CORRECTION DATA
[illegible]

BPB COAL QUALITY LOG

	DEPTH	
CAVING SIZE		COAL BULK DENSITY

HOLE SIZE CORRECTION DATA



CAVING SIZE	DEPTH	COAL BULK DENSITY

BPB

BOREHOLE TL-997
CLIENT [illegible]
AREA TEXAS
COUNTRY [illegible]

COAL QUALITY LOG

755

BOREHOLE 76-1050 (6)
CLIENT CRONSSEST RESOURCES
AREA TILLICA
COUNTY CASSIAR
DATE LOGGED 12-11-76

RECORDED BY: G.A. WILSON

SEAM THICKNESS LOG

BOREHOLE DATA
HOLE NO. 76-1050 (6)
OPERATION DATA
HOLE NO. 76-1050 (6)
EQUIPMENT AND RECORDING DATA
LOG COMPUTATION METHOD
SEAM THICKNESS LOG INTERVALS
CALIPER CALIBRATION
DENSITY CALIBRATION
REMARKS

1	1976	12	11	1	1
2	1976	12	11	1	1
3	1976	12	11	1	1
4	1976	12	11	1	1
5	1976	12	11	1	1
6	1976	12	11	1	1
7	1976	12	11	1	1
8	1976	12	11	1	1
9	1976	12	11	1	1
10	1976	12	11	1	1
11	1976	12	11	1	1
12	1976	12	11	1	1
13	1976	12	11	1	1
14	1976	12	11	1	1
15	1976	12	11	1	1
16	1976	12	11	1	1
17	1976	12	11	1	1
18	1976	12	11	1	1
19	1976	12	11	1	1
20	1976	12	11	1	1
21	1976	12	11	1	1
22	1976	12	11	1	1
23	1976	12	11	1	1
24	1976	12	11	1	1
25	1976	12	11	1	1
26	1976	12	11	1	1
27	1976	12	11	1	1
28	1976	12	11	1	1
29	1976	12	11	1	1
30	1976	12	11	1	1
31	1976	12	11	1	1
32	1976	12	11	1	1
33	1976	12	11	1	1
34	1976	12	11	1	1
35	1976	12	11	1	1
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37	1976	12	11	1	1
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39	1976	12	11	1	1
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56	1976	12	11	1	1
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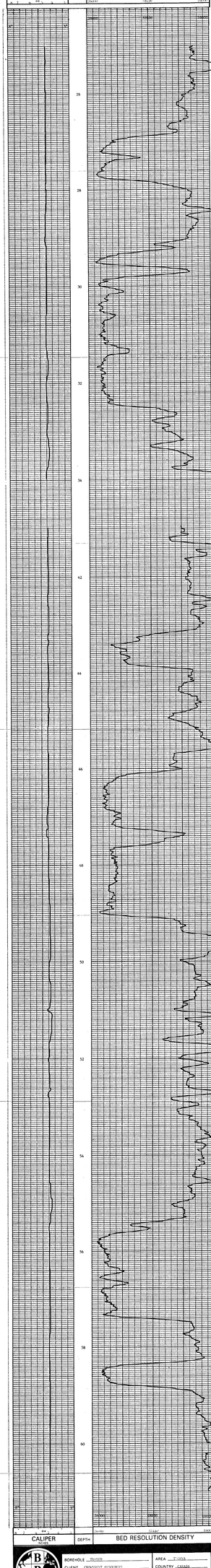
60	1976	12	11	1	1

B P B SEAM THICKNESS LOG



BOREHOLE 76-1050
CLIENT CRONSSEST RESOURCES
AREA TILLICA
COUNTRY CANADA

SEAM THICKNESS LOG