PR-SUKUNKA RIVER 78(1)B.

MANALTA COAL LTD.

SUKUNKA RIVER AREA, 1978 EXPLORATION REPORT

NTS REFERENCE - 93P4/E
- 93P5/E

OPERATOR - MANALTA COAL LTD.

COAL LICENCE NO.'S

3530-3533, 3535-3540, 3541-3545
3547-3549, 3551, 3552 & 3608-3617

all held by Master Explorations Ltd.

By: G. W. Jackson
P. Geol.

March, 1979

TABLE OF CONTENTS

APPENDICES

APPENDIX I	-	FIELD LOGS OF DRILL HOLES
APPENDIX II	-	GEOPHYSICAL LOGS
APPENDIX III	-	STATUS OF RECLAMATION FROM BCMMPR
APPENDIX IV	-	CROSS SECTIONS
APPENDIX V	-	REGIONAL GEOLOGY MAP
APPENDIX VI	-	1978 EXPLORATION MAP

REFER TO: CONFIDENTIAL FILES
PR- SUKUNKA RIVER 78(1)B
FOR CROSS-SECTION A - A'

SUKUNKA EXPLORATION, 1978

INTRODUCTION

During the period August 14 through September 29, 1978, eight holes totalling 560.08M (1837.6ft.) of drilling were completed on the Sukunka River Coal Licences of Master Explorations Ltd. All holes were drilled by Manalta Coal Ltd.'s track mounted Mayhew 1000 rotary drill, employing water and mud as the circulating medium. Drill cuttings were continuously logged visually, and chip samples from the coal seams encountered were retrieved for possible later analysis (see Appendix I). Six of the eight holes were petrophysically logged by BPB Instruments Ltd. at both a general scale (1:200) for the entire hole depth and a detail scale (1:20) for the coaly sections over one metre in thickness. The general scale logs included natural gamma, long spacing gamma density and caliper, while the detail scale logs included only natural gamma and bed resolution gamma density. Additionally, one of the remaining two holes was petrophysically logged for resistivity by Manalta Coal Ltd,, at scale of 1:120.(See Appendix II).

Geological mapping of the Master Explorations' licences was carried out intermittently during the same time period.

No new trails were constructed during the course of the 1978 program, but approximately five miles of existing road were re-opened for access to the drill sites. Additionally, four drillsites were cleared and levelled. Reclamation of the five road miles and four drill sites was completed by September 29, 1978, and a letter from BCMMPR, Mineral Resources Branch, indicating the current status of the reclamation is included as Appendix III.

Accommodation for Manalta's four man field crew was obtained at BP's Sukunka camp for the period August 14 through 31, and a small trailer camp, operated by Manalta was rented for the remainder of the exploration period.

OBJECTIVES

Previous exploration by Manalta in 1971, 1975 and 1976 had outlined a surface coal reserve estimated to be seven million short tons recoverable at a ratio of seven cu. yds. of overburden per ton of coal. An independent consultant's report * commissioned during 1978, estimated the surface recoverable reserve over the same area to be fourteen million short tons at a ratio of ten to one, and showed the indicated and inferred underground reserves to be in excess of fourteen million tons with a further potential underground reserve in the order of three hundred million tons.

The stratigraphic nomenclature employed in the Manalta 1975 report and the consultant's 1978 report showed discrepancies concerning the age relationship of the surface mineable coals identified, but both agreed that some potential coals existed within the largely unexplored Gates member of the Commotion Formation.

Early in 1978, the B. C. Government lifted its moratorium on coal licencing, and Manalta was granted additional licences adjoining the Sukunka block.

The objectives of the 1978 program, then, were fourfold:

1. To explore those areas of coal seam subcrop potential noted on the 1975 and 1978 cross sections;
2. To examine the unworked portion of the licences;

* *Manalta Coal Ltd., Sukunka River Area by Techman Ltd., January, 1978.*

3. To clarify the stratigraphic terminology where possible;
4. To relate the geology of the newly acquired, adjacent licences to that of the original block of licences.

FIELD OBSERVATIONS

The Grizzly Valley pipeline, for collection and distribution of natural gas from N.E. British Columbia, was under construction towards the northeastern edge of the Master Licences. A lateral to this pipeline from gas well b-65B-93P5 was also under construction along the seismic line used to demark cross-section B-B in the 1975 exploration report. As such, the seismic line was trenched to a depth of nearly four feet and extended from the gas well to near the edge of Master's licences in block 73B-93P5. This afforded a unique opportunity to examine and record the subsurface geology across a two mile breadth of the Master licences. The details of this traverse are recorded on revised cross-section B-B, appended to this report, and a generalized summary is here presented.

East of the fault contact between Gething/Gates strata as shown on the Regional Geology Map, complex structure was noted with dips recorded between 45 degrees and vertical. Several thin and dirty coal seams were recorded, but none of the potential economic interest were noted. Lithologies noted were sandstone, mudstone and carbonaceous shale. The writer was unable to differentiate these from typical Gething sediments, except that the overall impression east of the mapped contact was of a darker color. West of the mapped fault contact, structure was generally more gentle, with recorded dips in the 30-60 degree range, except for one noted at

82 degrees. Again, several coals were noted, but only two had sufficient thickness to warrant drilling.

The conglomerate previously mapped as Cadomin was closely examined and the writer has retained the Cadomin terminology, primarily because of the clast sizes observed. One additional conglomerate outcrop was noted in grid block 55B-93P5 and this has helped to refine the geological map of the area.

Towards the southeastern limit of the Master licences, at gas well b-19A-93P5, a large clearing had been constructed to accommodate the "big rig".

Close examination of the exposed shales in this clearing lead the writer to conclude that they are Moosebar, although the basal pebble conglomerate was not found. Over seven hundred stratigraphic feet of nearly vertical shales were noted through the clearing and on either side of it. The basal contact is talus covered, while the upper contact is abrupt with massive, conglomeratic sandstones. This upper contact is contorted, with abundant evidence of slickensided and polished shales and the sandstones dip southwesterly at five to ten degrees, whereas the shales are near vertical. This evidence has led to the interpretation of still another fault within the Master licences and a redefinition of the geology as shown in plan and on cross-section E-E.

Lower down along the gas well access road in b-12B-93P5, a thin pebble conglomerate basal to a dark shale sequence was noted. Again the shales are interpreted to be Moosebar, but the section is terminated after a few feet by a gently dipping fault. (See revised cross-section E-E).

Also noted along this access road was one coal seam in C-9A-93P5, with undetermined thickness in excess of five feet. Attempts to expose this coal through its full stratigraphic thickness were abandoned because of potential hazard

to the access road and because the seam lies outside the Master licences. However, that portion of the seam that was uncovered appeared fairly clean, and the seam should be further explored.

A five foot plus coal seam on the west side of the Sukunka River at C-87B-93P5 was examined. Unfortunately, its stratigraphic position could not be determined from outcrop, but the thickness and "clean" nature of the seam suggests that it may be from the Upper Gething sequence, possibly the Skeeter seam. This seam cannot be considered for mining by surface methods, but its gentle dip may make it worthwile to investigate for possible underground exploitation.

In the central portion of the licences, no field evidence was found to repudiate previous interpretations.

DRILL SITES

SR-1-78 Location 868.7MS, 365.8MW of NE 45B-93P5
Elevation 365.8M

This location was chosen to investigate the coal potential within the first fault block west of the "Nuisance" fault. No coal was encountered in this hole and a comparision of the petrophysical logs with some of BP's logs, leads to the conclusion that the hole was drilled within the Middle Gething sequence. It therefore seems probable that little coal potential exists for the fault block containing this hole, at least to the east of the Sukunka River, but variations in structural attitude and topography may increase the potential along strike.

SR-2-27 Location 213.4MS, 457MW of NE 87B-93P5
Elevation 725M

The potential "middle" Gething coals shown on cross-section A-A of the 1975 exploration report were the target. The very hard sandstone and minor conglomerate encountered at this

location indicate that the hole was drilled too close to the Cadomin contact. Additionally, fairly thick quaternary deposits were encountered. There appears to be very little opportunity for intersecting the middle coals at a depth amenable to surface mining in this locale.

SR-3-78 Location 579.2MS, 167.7MW of the NE 74B-93P5
Elevation 945.0M

The trench along B-B indicated a zone of carbonaceous shale and coal float with dips of 35-45° northeast, to the northeast of the conglomeratic ridge capping. The trench depth did not allow accurate seam description, so a drill hole was proposed to check the coal quality. As evidenced from the petrophysical logs and drillers log from this hole, there are two coal zones, each comprised largely of carbonaceous shale with several thin coal stringers, the thickest of which is only 1.2 metres vertical (about 0.9M true thickness at 40°dip) and includes a thin parting near the base of the seam. The coal quality, based on bulk density approximations from the petrophysical log, is not encouraging. Seams of this thickness cannot be considered for surface mining in mountainous areas, and the quality estimations preclude considering them for underground mining. Proximity of these zones to the Cadomin Conglomerate, as shown on revised cross-section B-B, indicates that they are from the lower Gething coals. The possibility exists that they may thicken and become cleaner, but there is no information available to indicate that lower Gething coals are being considered for exploitation on other properties.

SR-4-78 Location 76.2MS, 419.2MW of NE 64B-9P5
Elevation 934.4M

A ten foot zone of coal float and carbonaceous shale was noted in the trench along B-B on the west side of the

congomerate ridge capping. The revised cross-section through B-B indicates that these coals are possibly of a lower stratigraphic position than those encountered in SR-3-78, and the drill hole was targeted towards determining whether or not these coals attained acceptable thickness and quality at depth. Only 0.8 vertical metres of coal were encountered in the drill hole, and it is assumed that the coal zone has thinned to this thickness, as it typical of lower Gething.

SR-5-78 Location 274MS, 554.8MW of NE 61B-93P5
Elevation 1073.1M

Trench T-25 from the 1975 exploration program had indicated a few thin coal seams from within the same area as this drillhole but structure recorded was severe. Additionally, abundant coal float was seen on the road leading to this drill site. The lithologies were mapped as Gates, and the drill hole was intended to verify the Gates terminology and to deterime whether some thick seam not shown in the trench might occur. The thickest seam encountered was only two metres vertical thickness, and with the steep structure mapped in Trench T-25 this might be only a very thin coal stringer. Nothing diagnostic from the petrophysical log allows the Gates terminology to be positively assured.

SR-6-78 Location 45.7MS, 91.5MW of NE 53-93P5
Elevation 1054.8M

Trench T-21 in the 1975 exploration report indicated 4 feet of coal at shallow dip and drill holes SR-11 and SR-12-75 both encountered coal. SR-12 was apparently drilled through a near vertical coal seam and showed 418^{+} feet of coaly section. The true thickness of this section was not determined but could have been substantial. SR-6-78 was positioned stratigraphically lower than Trench T-21, and was targeted towards the correlation of the vertical coals shown in SR-12-75, to determine the true

thickness. No coal was encountered, indicating that the hole was positioned too low stratigraphically. The abundance of extremely hard sandstone within the hole might indicate that the lower Gething sequence, rather than the Gates formation as mapped, is present. There is, however, nothing diagnostic about the petrophysical log, and Gates terminology is retained pending further investigation.

SR-7-78 Location 314.0MS, 670.7MW of NE 22B-93P5
Elevation 1042.6M

Cross sections C-C' and D-D' from the 1975 exploration report show potential middle Gething coals in the vicinity of SR-7-78 location. Only one thin coal seam (1.58M) was encountered in this hole, and the extremely hard nature of the sandstone drilled, as well as the previously noted conglomerate outcrop in grid block 55B-93P5 have led to the conclusion that this hole was drilled in the lower Gething sequence and much closer to the Cadomin than previously mapped.

SR-8-78 Location 823.1MS, 396.3MW of NE 12B-93P5
Elevation 923.7M

This hole was located topographically lower than the Moosebar shales noted on the access road to Gas Well b-19A-93P5 and was targeted into the Upper Gething sequence. The coal seams were encountered, and their stratigraphic separation suggests that they are the Skeeter (upper) and Chamberlain (lower) seams. The upper seam (Skeeter) has thinned to about 1.1M thickness and does not warrant further consideration in this locale. The lower seam (Chamberlain) is 3.55M thick and not suitable for surface mining, but should be further investigated for potential underground recovery.

APPENDIX I

FIELD LOGS OF DRILL HOLES

DAILY REPORT OF EXPLORATION

ENGINEER Jackson
HOLE NO. SR-1-78
DRILL CONTRACTOR Manalta
LOCATION 868.7M S 365.8M W, NE 45B-93P-5
DRILLER Lepard
ELEVATION 716.3M
TYPE DRILL Mayhew
BIT SIZE 4 3/4
INCLINATION Vert
DIRECTION
SIZE & TYPE OF CASING 5 9/16 - 20 ft.
DATE August 16/78
LOGGED Yes
TYPE Gamma, LSD, C
SHIFT
DRILLING MUD OR BRAN 50 lbs. Mud
1 gal. liquid mud
WEATHER
JOB Sukunka River
COMPANY

SAMPLE ELEVATION DATA

Sample No	Type of Sample	Depth of Sample From	Depth of Sample To	Length of Sample	No Samples Saved

FIELD CLASSIFICATION

FIELD LOG OF HOLE

DEPTH FROM	DEPTH TO	Metres
0	3.6	Sand and Gravel
3.6	4.4	Clay and rocks
4.4	70.3	Dark grey mudstone
		Slightly silty
		0.3 bentonite at 70.0
70.3	102	Mudstone, dark grey slightly silty,
		stringers of quartz, calcareous
		in part.
102	119.28	Sandstone, grey and white,
		hard - minor soft partings.

REMARKS

Using water from 80.5

PROGRESS	AT START OF SHIFT	AT END OF SHIFT
DEPTH TO WATER LEVEL		
DEPTH OF CASING	0	20 ft.
DEPTH OF HOLE	0	119.28 M

Footage Drilled 119.28M

Samples ATTEMPTED
RECOVERED

TIME DISTRIBUTION

DRILLING MOVING
REPAIRING STAND BY

HOLE NO SHEET OF SHEET

DAILY REPORT OF EXPLORATION

ENGINEER Jackson
HOLE NO. SR-2-78
DRILL CONTRACTOR Manalta
LOCATION 213.4M S, 457M W, NE 87B-93P-
DRILLER Lepard
ELEVATION 725M
TYPE DRILL Mayhew
BIT SIZE 4 7/8-4 3/4
INCLINATION Vert
DIRECTION
SIZE & TYPE OF CASING 65' 5 9/16
DATE August 22/78
LOGGED Yes
TYPE G, LSD, C
SHIFT
DRILLING MUD OR BRAN
WEATHER
JOB Sukunka River
COMPANY

SAMPLE ELEVATION DATA

Sample No	Type of Sample	Depth of Sample From	Depth of Sample To	Length of Sample	No Samples Saved

FIELD CLASSIFICATION

FIELD LOG OF HOLE

DEPTH FROM	DEPTH TO	Metres
0	18.50	Gravel & clay (till)
18.50	26.40	Sandstone, grey
26.4	27.23	Bent, black
27.23	37.65	Sandstone, grey, silty, Minor soft layers
37.65	39.8	Sandstone, hard, minor conglomerate
39.80	44.80	Sandstone, silty, soft
44.80	50.0	Sandstone - quartzite viens hard.

REMARKS

Driller marks coal from 27.60-28.93, Not evident on log. Castings show dark grey mud and sandstone, probable from bentonite layer at 26.4-27.3

PROGRESS	AT START OF SHIFT	AT END OF SHIFT
DEPTH TO WATER LEVEL		
DEPTH OF CASING		
DEPTH OF HOLE		

Footage Drilled 50.0 metres

Samples ATTEMPTED
RECOVERED

TIME DISTRIBUTION

DRILLING MOVING
REPAIRING STAND BY

HOLE NO SR-2-78 SHEET 1 OF 1 SHEETS

DAILY REPORT OF EXPLORATION

ENGINEER Jackson
HOLE NO. SR-3-78
DRILL CONTRACTOR Manalta
LOCATION 579.2M S, 167.7M W, NE74B-93P-5
DRILLER Lepard
ELEVATION 945.0
TYPE DRILL Mayhew
BIT SIZE 4 7/8-4 1/2
INCLINATION vert.
DIRECTION
SIZE & TYPE OF CASING 10' 5 9/16
DATE August 25, 1978
LOGGED Yes
TYPE G, LSD, BRD, C
SHIFT
DRILLING MUD OR BRAN
WEATHER
JOB Sukunka River
COMPANY

SAMPLE ELEVATION DATA

Sample No	Type of Sample	Depth of Sample From	Depth of Sample To	Length of Sample	No Samples Saved
		10.25	10.75		
		10.75	11.25		
		11.25	11.75		

FIELD CLASSIFICATION

FIELD LOG OF HOLE

DEPTH FROM	DEPTH TO	Metres
0	0.9	Sand and rocks
0.9	1.75	Sandstone
1.75	2.37	Hard sandy clay
2.37	8.65	Sandstone/minor coal trace at
		6.85-6.87
8.65	9.05	Brown soft shale
9.05	10.15	Sandstone, alt. hard & soft
10.15	10.63	Coal
10.63	11.40	Carb. shale/minor coal
11.40	11.80	Shale, brown
11.80	12.40	Coal
12.40	12.80	Shale, brown, carbonaceous
12.80	14.00	Coal/minor p. at 13.7
14.00	15.20	Shale, brown
15.20	15.60	Coal
15.60	16.20	Shale
16.20	17.00	Coal
17.00	19.30	Sandstone & shale
19.30	19.60	Coal
19.60	20.45	Shale
20.45	21.00	Coal
21.00	29.10	Sandstone & shale/soft clayey

REMARKS

PROGRESS	AT START OF SHIFT	AT END OF SHIFT
DEPTH TO WATER LEVEL		
DEPTH OF CASING		
DEPTH OF HOLE		

Footage Drilled
Samples ATTEMPTED
RECOVERED

TIME DISTRIBUTION

DRILLING MOVING
REPAIRING STAND BY

DAILY REPORT OF EXPLORATION

ENGINEER _____ HOLE NO. SR-3-78

DRILL CONTRACTOR _____ LOCATION _____

DRILLER _____ ELEVATION _____

TYPE DRILL _____ BIT SIZE _____ INCLINATION _____ DIRECTION _____

SIZE & TYPE OF CASING _____ DATE _____

LOGGED _____ TYPE _____ SHIFT _____

DRILLING MUD OR BRAN _____ WEATHER _____

JOB _____

COMPANY _____

SAMPLE ELEVATION DATA

Sample No	Type of Sample	Depth of Sample From	Depth of Sample To	Length of Sample	No Samples Saved

FIELD CLASSIFICATION

FIELD LOG OF HOLE

DEPTH FROM	DEPTH TO	
29.10	33.7	Sandstone/minor shale
33.7	35.2	Coal/parting 34.4-34.8
35.2	36.1	Shale, soft
36.1	36.5	Coal
36.5	39.6	Sandstone & shale/carbonaceous layers
39.6	40.8	Coal/minor carb. p. at 40.2
40.8	45.0	Sandstone, hard/quartz streaks & minor soft layers

REMARKS

PROGRESS	AT START OF SHIFT	AT END OF SHIFT
DEPTH TO WATER LEVEL		
DEPTH OF CASING		
DEPTH OF HOLE		

Footage Drilled 45.0M

Samples ATTEMPTED _____

RECOVERED _____

TIME DISTRIBUTION

DRILLING _____ MOVING _____

REPAIRING _____ STAND BY _____

HOLE NO SR-3-78 SHEET 1 OF 2 SHEETS

DAILY REPORT OF EXPLORATION

ENGINEER Jackson
HOLE NO. SR-4-78
DRILL CONTRACTOR Manalta
LOCATION 762M S, 579.2M W., NE64B-93P-
DRILLER Lepard
ELEVATION 934.4M
TYPE DRILL Mayhew
BIT SIZE 4 7/8 - 4 1/2
INCLINATION vert.
DIRECTION
SIZE & TYPE OF CASING 10 ft. 5 9/16
DATE August 28, 1978
LOGGED Yes
TYPE G, LSD, C
SHIFT
DRILLING MUD OR BRAN
WEATHER
JOB Sukunka River.
COMPANY

SAMPLE ELEVATION DATA

Sample No	Type of Sample	Depth of Sample From	Depth of Sample To	Length of Sample	No Samples Saved

FIELD CLASSIFICATION

FIELD LOG OF HOLE

DEPTH FROM	DEPTH TO	Metres
0	1.75	Sandy clay and rocks
1.75	10.40	Sandstone, brown/shale layers
10.40	11.20	Coal
11.20	25.8	Sandstone & shale/soft layers
25.8	45.2	Sandstone/quartz chips, quite hard
45.2	47.8	Shale, bentonitic
47.8	61.0	Sandstone/quartz viens and minor shale

REMARKS

Gamma log through coal at 10.40 - 11.20 shows high radioactivity - possibly bentonite within the coal.

PROGRESS	AT START OF SHIFT	AT END OF SHIFT
DEPTH TO WATER LEVEL		
DEPTH OF CASING		
DEPTH OF HOLE		

Footage Drilled
Samples ATTEMPTED
RECOVERED

TIME DISTRIBUTION

DRILLING MOVING
REPAIRING STAND BY
HOLE NO SR-4-78 SHEET 1 OF 1 SHEETS

DAILY REPORT OF EXPLORATION

ENGINEER Jackson
HOLE NO. SR-5-78
DRILL CONTRACTOR Manalta
LOCATION 274.4M S, 554.8M W, NE61B-93P-
DRILLER Lepard
ELEVATION 1073.1M
TYPE DRILL Mayhew BIT SIZE 4 7/8
INCLINATION Vert DIRECTION
SIZE & TYPE OF CASING 10 ft 5 9/16
DATE Sept. 12/78
LOGGED No TYPE
SHIFT
DRILLING MUD OR BRAN
WEATHER
JOB Sukunka
COMPANY

SAMPLE ELEVATION DATA

Sample No	Type of Sample	Depth of Sample From	Depth of Sample To	Length of Sample	No Samples Saved
	chip	79.58	90.00	0.5M	11
			no. sample 80.60-		
				81.20	

FIELD CLASSIFICATION

FIELD LOG OF HOLE

DEPTH FROM	DEPTH TO	Metres
0	2.7	Sandy clay and rocks
2.7	2.9	Gravel
2.9	4.0	Carb shale/coal stringers
		~~Crooked hole skid~~

REMARKS

skid hole -
unable to set casing

PROGRESS	AT START OF SHIFT	AT END OF SHIFT
DEPTH TO WATER LEVEL		
DEPTH OF CASING		
DEPTH OF HOLE		

Footage Drilled
Samples ATTEMPTED
RECOVERED

TIME DISTRIBUTION

DRILLING MOVING
REPAIRING STAND BY
HOLE NO SHEET OF SHEETS

DAILY REPORT OF EXPLORATION

ENGINEER Jackson
HOLE NO. SR-5A-78
DRILL CONTRACTOR Manalta
LOCATION 274.4M S, 554.8M W, NE61-B-93P-5
DRILLER Lepard
ELEVATION 1073.1M
TYPE DRILL Mayhew
BIT SIZE 4 7/8-4 1/2
INCLINATION vert
DIRECTION
SIZE & TYPE OF CASING 10 ft 5 9/16
DATE Sept. 13, 1978
LOGGED Yes
TYPE G, LSD, BRD, C
SHIFT
DRILLING MUD OR BRAN
WEATHER
JOB Sukunka River
COMPANY

SAMPLE ELEVATION DATA

Sample No	Type of Sample	Depth of Sample From	Depth of Sample To	Length of Sample	No Samples Saved

FIELD CLASSIFICATION

FIELD LOG OF HOLE

DEPTH FROM	DEPTH TO	Metres
0	2.7	Sandy clay and rocks
2.7	2.9	Gravel
2.9	3.2	Carb shale
3.2	20.0	Shale, brown & grey, small coal
20.0	22.3	Coal , no sample
22.3	26.7	Shale, black, carbonaceous
26.7	37.2	Sandstone, soft shale layers
37.2	40.3	Sandstone, hard, quartz streaks
40.3	55.2	Sandstone/shale layers
55.2	55.6	Coal
55.6	57.8	Sandstone/shale layers
57.8	64.8	Sandstone, hard/shale layers
64.8	76.8	Sandstone/shale & bentonite layers
76.8	77.3	Coal
77.3	79.2	Shale, soft
79.2	79.9	Coal
79.9	81.0	Shale, soft
81.0	81.6	Coal
81.6	86.0	Shale and sandstone
86.0	88.0	Coal, parting 87.0-87.5
88.0	92.8	Shale, soft, bentonitic?

REMARKS

~~Coal from 87.5 - 88.0 has high gamma count.~~ Possibly bentonite within seam layers

PROGRESS	AT START OF SHIFT	AT END OF SHIFT
DEPTH TO WATER LEVEL		
DEPTH OF CASING		
DEPTH OF HOLE		

Footage Drilled
Samples ATTEMPTED
RECOVERED

TIME DISTRIBUTION

DRILLING MOVING
REPAIRING STAND BY
HOLE NO SHEET OF SHEETS

DAILY REPORT OF EXPLORATION

ENGINEER G. W. Jackson
HOLE NO. SR-6-78
DRILL CONTRACTOR Manalta
LOCATION 45.7M S, 91.5M W, NE 52B-93P-
DRILLER Lepard
ELEVATION 1054.8M
TYPE DRILL Mayhew BIT SIZE 4 7/8
INCLINATION Vert. DIRECTION
SIZE & TYPE OF CASING 10 ft. 5 9/16
DATE Sept. 17, 1978
LOGGED Yes TYPE G, D, C
SHIFT
DRILLING MUD OR BRAN
WEATHER
JOB Sukunka
COMPANY Manalta

SAMPLE ELEVATION DATA

Sample No	Type of Sample	Depth of Sample From	Depth of Sample To	Length of Sample	No Samples Saved

FIELD CLASSIFICATION

FIELD LOG OF HOLE

DEPTH FROM	DEPTH TO	Metres
0	5.4	Sandy clay and gravel
5.4	10.7	Sandstone/clay stringers
10.7	16.8	Sandstone, grey & black
16.8	34.0	Sandstone, black & grey/qtz. stringers
34.0	35.6	Sandstone/clay streaks
35.6	48.2	Sandstone, brown, grey & black/ qtz. stringers

REMARKS

PROGRESS	AT START OF SHIFT	AT END OF SHIFT
DEPTH TO WATER LEVEL		
DEPTH OF CASING		
DEPTH OF HOLE		48.2

Footage Drilled 48.2

Samples ATTEMPTED
RECOVERED

TIME DISTRIBUTION

DRILLING MOVING
REPAIRING STAND BY
HOLE NO SHEET OF SHEETS

DAILY REPORT OF EXPLORATION

ENGINEER G. W. Jackson
HOLE NO. SR-7-78
DRILL CONTRACTOR Manalta
LOCATION 314.0M S, 670.7M W, NE22B-93P-
DRILLER Lepard
ELEVATION 1042.6M
TYPE DRILL Mayhew BIT SIZE 4 7/8
INCLINATION Vert. DIRECTION
SIZE & TYPE OF CASING 10 ft, 5 9/16
DATE Sept. 21/78
LOGGED No TYPE
SHIFT
DRILLING MUD OR BRAN
WEATHER
JOB Sukunka
COMPANY Manalta

SAMPLE ELEVATION DATA

Sample No	Type of Sample	Depth of Sample From	Depth of Sample To	Length of Sample	No Samples Saved

FIELD CLASSIFICATION

FIELD LOG OF HOLE

DEPTH FROM	DEPTH TO	Metres
0	0.3	Clay and rocks
0.3	3.25	Sandstone
3.25	5.80	Sandstone/traces of quartz & hard brown sandstone
5.80	8.40	Sandstone/clay streaks & hard black & grey bands
8.40	9.98	Coal
9.98	31.20	Sandstone, hard black, grey & brown minor quartz stringers
31.20	45.70	Sandstone/soft clay streaks
45.70	47.05	Sandstone/quartz stringers
47.05	49.85	Sandstone/clay streaks
49.85	60.00	Sandstone - grey, black & brown quartz stringers

REMARKS

PROGRESS	AT START OF SHIFT	AT END OF SHIFT
DEPTH TO WATER LEVEL		
DEPTH OF CASING		
DEPTH OF HOLE		60M

Footage Drilled
Samples ATTEMPTED
RECOVERED

TIME DISTRIBUTION

DRILLING MOVING
REPAIRING STAND BY
HOLE NO SHEET OF SHEETS

DAILY REPORT OF EXPLORATION

ENGINEER G. W. Jackson
HOLE NO. SR-8-78
DRILL CONTRACTOR Manalta
LOCATION 823.1M S, 396.6M W, NE12-B93P
DRILLER Lepard
ELEVATION 923.7M
TYPE DRILL Mayhew BIT SIZE 4 7/8
INCLINATION Vert DIRECTION
SIZE & TYPE OF CASING 12 ft 5 9/16
DATE Sept. 25, 1978
LOGGED Yes TYPE Res. only
SHIFT
DRILLING MUD OR BRAN
WEATHER
JOB Sukuna
COMPANY Manalta

SAMPLE ELEVATION DATA

Sample No	Type of Sample	Depth of Sample From	Depth of Sample To	Length of Sample	No Samples Saved

FIELD CLASSIFICATION

FIELD LOG OF HOLE

DEPTH FROM	DEPTH TO	Metres
0	1.3	Clay & Rocks
1.3	5.0	Shale
5.0	8.75	Shale, hard with stringers of soft shale
8.75	10.25	Coal & carb. shale - dirty
10.25	11.75	Shale/minor coal stringers @ 11.20
11.75	12.80	Coal
12.80	13.20	Carb. shale
13.20	16.10	Shale
16.10	16.75	Dirty Coal
16.75	17.70	Shale, soft
17.70	19.00	Coal, dirty
19.00	21.60	Shale.sandstone stringers
21.60	25.15	Coal/several thin shale partings
25.15	32.75	Shale thin sandstone stringers
32.75	40.50	Sandstone/shale stringers & Minor soft shale
40.50	45.70	Shale/sandstone layers
45.70	73.70	Sandstone/shale layers & clayey streaks
73.70	79.80	Sandstone, hard/quartz viens

REMARKS

PROGRESS	AT START OF SHIFT	AT END OF SHIFT
DEPTH TO WATER LEVEL		
DEPTH OF CASING		
DEPTH OF HOLE		

Footage Drilled
Samples ATTEMPTED
RECOVERED

TIME DISTRIBUTION

DRILLING MOVING
REPAIRING STAND BY
HOLE NO SHEET OF SHEETS