K-SHELL LODGE POLE 79(1)A



C.L. NOS. 490- 495 INCL 4729- 4735 INCL

THOMAS J. COLE

GEOLOGICAL BRANCH ASSESSMENT REPORT



LODGEPOLE PROJECT KODTENAY DISTRICT B.C.



Report on Coal Licences 490 to 495 incl. and 4729 to 4735 incl. GROUP #245 Kootenay Land District, Southeastern British Columbia work done from August to October, 1979

> Held by: SHELL CANADA RESOURCES LIMITED ~ Operated by: CROWS NEST RESOURCES LIMITED

Lat. 49º 18' to 49º 22' N, Long. 114º 13' to 114º 47' W N.T.S. 82 G/7

May, 1980

in the

Author Thomas J. Cole Crows Nest Resources Ltd.

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1.0 INTRODUCTION

1.1 General Introduction

The Lodgepole licence area is located approximately 32 air km southeast of Fernie (Enclosure 1). Geographically the licences are located between longitudes 114° 13' and 114° 47' and latitudes 49° 18' and 49° 22'. The property is situated south of the Flathead River and north of Lodgepole Creek. Foisey Creek is located in the central region of the property and McLatchie Creek forms the boundary to the east. Both creeks drain into the Flathead river to the north.

The topography in the area is of relatively high relief in the order of 600 metres. Elevations range from 1625 metres in the creek valleys to a maximum of 2265 on McLatchie Ridge and 2175 on West Ridge. The area is alpine covered except on the east side of McLatchie Ridge which is grass covered on the upper slopes.

Travelling via road the licences area is located some 50 km south east of Fernie B.C. Access is 13 km south from Fernie on highway No. 3 and then east on the Lodgepole Forestry road to kilometre 44.5 where the Lodgepole North Fork road joins the forestry road. From this point it is approximately 7 km to the southern portion of the coal licence area (Enclosure 2).

During the early part of the 1979 program access was via a Kaiser built road. The Kaiser road joins McLatchie road approximately 8 km north of the Lodgepole - McLatchie junction. The road then enters the northern portion of the property 3 km west of McLatchie road.

The CPR Crows Nest railway line parallels Provincial Highway No. 3 in the vicinity of Morrissey Station, a distance of 37 km from the Lodgepole property along Lodgepole forestry road.





1.2 Summary

1.2.1 Licences

The Lodgepole Property is comprised of 13 B.C. Coal Licences held by Shell Canada Resources Limited (SCRL) and operated under Crows Nest Resources Limited, a wholly owned subsidiary of SCRL (Appendix 1).

Licence numbers 490 to 495 inclusive were acquired in 1969 by Crows Nest Pass Oil and Gas Company and were transferred to SCRL in 1979.

Licences 4729-4735 inclusive were acquired by SCRL in 1979. Licences 490 - 495 and 4729 - 4735 are under group number 245 and occupy an area of 2958 hectares (Enclosure 3).

1.2.2 Geology - Reserves

Within the Coal Bearing Member of the Kootenay Formation are at least eight seams greater than one metre thick. At the present time it appears that the bulk of reserves are contained in two thicker lowermost seams.

Strata of the Lodgepole project area form part of the East Kootenay synclinal Fernie Basin. The average strike and dip of strata, based on three hundred forty one readings, is N 25.5°E/24° west. Preliminary geological in-place reserves in the surface mineable area are estimated to be sixty two million metric tonnes at a overburden ratio of 3.5:1 m³/tonne. The bulk of these reserves are contained within coal licence number CL 492.

The 1979 field program substantiated the existence of relatively low ratio coal reserves in the Lodgepole Project area. Additional drilling and adit work will be necessary in 1980 in order to determine more precisely the reserves, coal quality and structure.



1.3 Summary of Previous Work

1.3.1 Work Done Prior to 1979

Initial mapping of the Lodgepole area commenced in the late fifties and early sixties by R.A. Price for the Geological Survey of Canada and by the Columbia Iron Mining Company. Kaiser Resources also conducted some exploration activity in the late sixties and early seventies. (

Crows Nest Industries started mapping the Lodgepole area in 1975. A total of 168 m of stratigraphic section was measured on coal licence 493. Included in this total were 7 hand trenches totalling 38 m of section.

Hand trenching and mapping were continued during the 1976 field season. A total 610 m of stratigraphic section was measured including 23 hand trenches totalling 230 m of section. Activity was confined to coal licences 492-493.

Work was carried out on Coal Licences 490, 491 and 493 during the 1977 field season. Activities were confined to the measuring of 760 metres of stratigraphic section. This included 19 hand trenches and a number of pot holes totalling 350 m of section.

The 1978 field program consisted primarily of core drilling and road construction. Due to poor weather conditions road construction was very difficult resulting in only two of the proposed nine drill site locations being made (Table 1). The total length of new road constructed was 4.5 km with 7.2 km of existing road being upgraded. In all 495.3 metres of core were drilled in two holes; both holes were geophysically logged. Recovery of rock core exceeded 80% while coal recovery was 76% in LP-D101 and 21% in LP-D102. No trenching was attempted

TABLE 1

DRILLHOLE INFORMATION

IDENTIFICATION	NORTHING	EASTING	ELEVATION	HOLE ANGLE	AZIMUTH	T.D.
1978						
LP-D101	5,464,647.60	663,806.01	1931.8	6 1°	110°	368.8
LP-D102	5,465,071.98	664,449.34	2086.6	65°	110°	126.5
1979						
LP-R201	5,465,418.92	664,796.67	1891.10	Vert.		232.0
LP-D202	5,466,240.93	664,557.68	1825 .19	Vert.		156.0
LP-R203	5,465,638,94	664,510.10	1954.10	Vert.		200 .0
LP-R204	5,466,036.06	664,973.45	1898.38	Vert.		171.0
LP-R205	5,465,796.65	665,247.11	1992.35	Vert.		201.0
LP-R206	5,466,409.09	664,947.44	1903.14	Vert.		187.0
LP-R207	5,466,847.37	665,109.09	2029.45	Vert.		204.0

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and very little geological mapping was done.

In addition to the 1978 exploration program North West Survey Corporation Ltd. was contracted to produce a new series of air photographs and topographic maps of the project area. Air photos were flown at a scale of 1:20,000 and 1:40,000 from which topographic maps were produced at a scale of 1:2,000 and 1:5,000.

1.3.2 1979 Exploration Program

The primary purpose of the 1979 Lodgepole program was to determine preliminary coal reserves in the area of potential low ratio reserves. Other related data sought were coal quality, structure and stratigraphy as well as the approximate low-ratio coal boundary.

In order to gain access to drillsite locations 6.9 km of new road was constructed and 4.78 km of existing road was upgraded. Seven drillsites were made of which six were located within coal licence 492 and one in coal licence 493. All roads were sloped and ditched and culverts were placed wherever drainage was necessary.

Six percussion air holes and one core hole were drilled for a total of 1,263.5 metres and 166.4 metres respectively (Table 1). Garritty & Baker and Special Drilling Services Ltd. were responsible for air rotary drilling while Tonto Drilling Ltd. handled the one core hole. Overall core recovery was 80.81% with a recovery in the coal zone of 68.0%. Both core and air rotary holes were drilled vertically. Core hole diameter was 6.35 cm "HQ" as was the hole diameter for Carritty & Baker. Special Drilling Services Ltd. drilled a 13 cm diameter hole.

Two of the seven holes drilled, LD-D202 & LP-R207, flowed water. These were cemented off by Alta West Pressure Cementing Ltd. of Edmonton, Alberta.

British Plaster Board Company and Roke were both contracted to do downhole geophysical logging on the Lodgepole property. Due to poor hole conditions five of the seven holes were logged inside the drill pipe. In all cases a complete suite of logs were run with the exception of the caliper log which was only run in open holes (Appendix 2). A full suite of logs consisted of the following:

Neutron Neutron
High Resolution Density
Bed Resolution Density
Long Scale Density
Natural Gamma
Caliper

The general scale log was 1:100 and the detail scale 1:20.

Core descriptions

A lithologic and summary geotechnical description was performed on core hole LP-D202 (Appendix 3). Coal intervals were sampled and sent to Loring Laboratories for analysis (Appendix 4).

Drillhole cuttings from rotary holes are being stored in Crows Nest Resources Laboratory in Fernie, B.C.

Twenty-nine backhoe trenches were dug in coal seams on the ditched side of existing roads (Table 2). Eighteen of the 29 trenches were located in the area of potential low ratio reserves. Length of trenches totalled 255 metres with a maximum depth (mechanical reach) of 3 metres. All trenches were filled in after examination and sampling.

One adit site was constructed on McLatchie ridge for the upcomming 1980 field season. The adit site was located on an existing road and

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TABLE 2

BACKHOE TRENCH DATA 1979

TRENCH NO.	NORTHING	EASTING	ELEVATION METRES	LENGTH METRES	SEAM THICKNESS METRES
1	5,466,976.3	665,283.0	2170.0	7.4	1.8
2	5,466,855.0	665,405.0	2157.9	4.0	0.3
3	5,466,819.7	665,434.9	2156.6	24.6	3.0
4	5,466,743.4	665,487.0	2151.6	18.9	3.0
5	5,466,717.2	665,496.6	2149.5	10.0	2.9
6	5,465,420.0	665,460.0	2130.0	18.3	3.5
7	5,466,130.0	665,484.5	2106.9	7.1	3.5
8	5,466,100.0	665,495.0	2103.0	4.0	1.1
9	5,465,974.5	665,588.2	2078.7	5.0(Ad	it Site)4.8
10	5,465,690.6	665,270.1	2025.7	4.7	3.0
11	5,465,667.6	665,271.1	2025.7	32.2	2.8
12	5,465,810.0	664,895.0	1882.5	7.2	3.4
13	5,465,635.0	664,880.0	1876.5	4.1	5.2
14	5,465,600.0	664,875.0	1872.7	12.1	4.4
15	5,465,591.0	664,886.7	1872.7	3.0	Bloom
16	5,465,738.1	664,664.7	1864.3	5.0	1.5
17	5,465,795.5	664,677.0	1865.4	5.5	2.2
18	5,466,040.0	664,580.0	1848.9	4.0	1.0
19	5,465,739.1	664,558.5	1927.8	4.8	0.8
20	5,465,727.0	664,571.3	1926.3	2.5	0.5
21	5,465,720.0	664,575.0	1926.3	12.5	3.8
22	5,465,661.7	664,609.5	1918.1	4.8	2.1
23	5,464,638.5	663,870.3	1931.7	16.4	4.7
24	5,464,584.0	663,865.0	1921.7	8.0	4.2
25	5,464,555.4	663,893.0	1916.8	0.5	8.2
26	5,464,519.4	663,928.6	1914.5	2.0	0.4
27	5,464,473.3	663,978.8	1909.6	6.0	1.5
28	5,464,446.0	664.018.6	1908.0	10.0	Bloom
29	5,464,365.0	664,100 .6	1900.0	15.0	Bloom

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widened in order to allow passage of vehicles. A channel sample was taken and the coal seam was described lithologically (Appendix 4).

All surveying was contracted to Sheltech Canada. Two survey stations Gail and Fat were positioned in the Lodgepole area to be used in conjunction with stations established in 1978. Conventional survey methods using a 1 inch theodolite and electronic distance measuring equipment were used to obtain co-ordinates and elevations for the seven drillsites, 56 coal outcrops, and 13.5 km of road (Appendix 5).

All drillsites and access roads other than the main access road from the south were fertilized and seeded. Switchbacks and wide parts of the main access road to the south were seeded and fertilized. All access roads were ditched and the main access road was ditched and cross trenched.

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1.4 Cost Summary

1.4.1 List of Licences on which work was actually performed

CATEGORY OF WORK	APPORTIONED COST \$	LICENCE NOS.
Geological Mapping	54 284	490-495
Geophysical or Geochemical Surveys	-	
Topographic Location Survey	7 425	490-495
Road Construction	71 160	490-495
Surface Work	12 860	490-495
Underground Work	-	
Drilling	204 308	492-493
Logging, Sampling and Testing	16 456	490-495
Reclamation	28 095	490~495
Total 1979 Costs	395 584	490-495 4729-4735

A copy of Application to Extend Term of Licences is in Appendix 6.

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2.1 Regional Stratigraphy

The Kootenay Formation of Upper Jurassic-Lower Cretaceous period (Enclosure 4) consists predominantly of a nonmarine interstratified sequence of siltstones, sandstones, shales, coal and conglomerates. It conformably overlies the Passage Beds of the Jurassic Fernie Formation.

The Kootenay Formation has been subdivided into three main units. The lower Moose Mountain Member is composed of a basal ridge forming sandstone with minor beds of siltstone, shale, and coal. Overlying and in sharp contact with the Moose Mountain sandstone is the Coal Bearing Member, consisting of alternating beds of shale, sandstone, siltstone and coal.

The Elk Member forms the upper unit of the Kootenay Formation. This unit is made up of alternating siltstone, sandstone, shale, conglomeratic sandstones and conglomerates. The Cadomin conglomerate, (Blairmore Group) preserves the underlying Kootenay Formation which is otherwise an erosional surface.

2.2 Regional Structure

The property is located along the southeastern part of the Fernie Basin Coal Field separated by structural and erosional features from the Flathead Coal Field in the south and the Upper Elk Coal Field to the north. These three Coal Fields together are referred to as the East Kootenay Coalfields.

The Fernie Basin is a broad doubly plunging synclinorium comprised of Fernie, Kootenay, Blairmore and younger strata overlying the Lewis Thrust sheet. The McEvoy syncline is a secondary such structure on the southeast portion of the Basin, the Lodgepole property lying on its east limb.

PERIOD <u>OR</u> EPOCH	FORMATION	LITHOLOGY	THICKNESS (m)
LOWER CRETACEOUS	CADOMIN FORMATION (Blairmore Group) Pocaterra Creek Member	non-morine : sondstone, conglomerate and shale non-marine: sondstones, conglomerate -siltstone & shale	360 - 1980
	Z O - ELK MEMBER - Z	non-marine interbedded medium to coarse grain sandstone, chert-pebble conglomerate with minor siltstone, shale and coal	30 - 490
LOWER CRETACEOUS AND JURASSIC	O L ✓ ✓ COAL Z BEARING MEMBER · · · · · · · · · · · · ·	non-marine & brackish: interbedded coal, siltstones, shales and sandstones	. 70-610
	BASAL SANDSTONE UNIT <u>OR</u> MOOSE MOUNTAIN MEMBER (M M M)	non-marine: massive, cliff, forming sandstone	20 - 60
JURASSIC	FERNIE FORMATION	marine: shale, siltstone, sandstone d limestone	180-380

TABLE OF FORMATIONS

The Flathead Normal Fault forms a structural boundary to the northeast, the Squaw Thrust Fault to the east and the Harvey Normal Fault to the south (Enclosure 5).

2.3 Lodgepole Stratigraphy

On the Lodgepole property, the Jurassic Fernie shale and to a large degree the Jurassic-Cretaceous Kootenay Formation have been preserved in the McEvoy syncline.

A fairly well exposed section of the Coal Bearing Member is exposed on West Ridge (Enclosure 6). In the southeast portion of the property these are fully eroded, thus exposing the basal Moose Mountain sandstone while to the west and north, a full section of Kootenay Formation has been preserved by the overlying Cadomin conglomerate.

- Fernie Formation

In the Lodgepole area the lower unit of the Fernie Formation is a dark to very dark grey shale, massive and slightly silty in part. The upper portion of the lower unit is a fissile medium to dark grey slightly silty shale, with a few intermittent beds of medium grey silty dolomitic limestone. The limestone beds are approximately 0.4 metres thick and are well exposed in the much softer recessive Fernie shale.

The lower shale lies in sharp contact with the middle unit of the Grey Beds. This unit is composed of a medium grey slightly silty dolomitic limestone that weathers to a light buff color. It is quite resistant and is approximately 75 metres thick in the Lodgepole area. The unit is well exposed on the east side of McLatchie Ridge on the Kaiser held coal licences.



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LODGE POLE STRATAGRAPHIC SECTION SCALE 1:2500

ENCLOSURE 6

West Lover

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The upper Fernie unit consists of interbedded siltstones silty shales and fine grained sandstones of the Passage Beds. The unit is approximately 40 metres thick and is poorly exposed in outcrop. The strata in this unit represent a transition zone between the marine Fernie and the non-marine overlying Kootenay formation.

- Kootenay Formation

Approximately 530 metres of Kootenay strata have been preserved on the Lodgepole property, except on Coal Licence 492 and the southern half of 493 where erosion has stripped away the Elk and Coal Bearing units exposing the basal Moose Mountain Sandstone.

The Moose Mountain Member is a very resistant ridge forming sandstone that is well exposed along the east side of McLatchie Ridge. It is approximately 160 metres thick in the Lodgepole area and consists predominantly of fine to medium grained, medium to light grey sandstones, crossbedded on a medium to large scale. It weathers in places to a rusty brown and in close examination contains rusty orange specks. The upper portion of the unit contains a correlatable slightly silty, dark grey shale bed of approximately one metre in thickness, and the lower portion contains a correlatable coal seam about three metres in thickness. Moose Mountain strata are overlain by the Coal Bearing Member.

The Coal Bearing Member is approximately 200 metres thick and is made up of an interbedded sequence of siltstones, sandstones, shales and coal. Shales are usually dark grey carbonaceous and silty in part with a hardness of R3 according to the

Golder Associates hardness scale (Table 3). Siltstones are medium to dark grey, slightly carbonaceous in part and often interbedded with lighter grey fine to very fine grained sandstones. Hardness is noted at R4. Sandstones ranged from fine to coarse grained, light to dark grey, with some crossbedding. They are mainly salt and pepper type having a hardness of R5.

There are up to eight coal seams in the unit having thicknesses of one metre or greater. The bulk of the reserves in the surface mineable area are contained in the two lowermost thick coal seams, referred to in this report as the Upper and Lower seams. Both of these seams outcrop on West Ridge and on the east side of McLatchie Ridge.

The overlying Elk Member consists of approximately 170 metres of shales, siltstones, sandstones, conglomerates and conglomeratic sandstones. The lower boundary was considered to be the top of the uppermost coal seam, one metre or greater in thickness, and the upper boundary the base of the first thick coarse conglomerate. The lower portion of the unit is predominantly medium grained salt and pepper sandstones grading to siltstones and shales in the middle portion. The upper part is composed of fine to medium grained sandstones and some pebble conglomeratic sandstones.

2.4 Coal Stratigraphy

Overlying the Moose Mountain sandstone and directly beneath the lowermost coal seam is a unit of siltstones, shales and sandstones. They range in thickness from 20 to 40 metres and tend to thicken from west to east.

Golder Associates' Hardness Code	Field Estimation of Hardness
R 5	Requires many blows of geological hammer to break.
R4	Requires a few blows of geological hammer to break.
R3	Breaks under single blow of geological hammer.
R2	0.5 cm indentations with sharp end of geological pick.
	Too hard to cut by hand into triaxial specimen.
R1	Crumbles under firm blows of geological pick.
\$5	May be broken in the hand with difficulty.
S4	Indented by fingernail.
\$3	Cannot be moulded in fingers.
S2	Moulded with strong pressure of fingers.
S1	Easily moulded with fingers.

Rock Quality Desingation

The Rock Quality Designation or "RQD" is the total length of solid core pieces exceeding 10 cm. in length divided by the run length. RQD is usually expressed as a percentage, with the histogram shaded from the left.

All fractures, natural and mechanical, are considered in the calculations, and core lengths are measured from the centre of the fracture along the core axis.

Fracture Frequency

The number of natural fractures are counted in each 3 m increment and divided by the recovered increment length to determine the Fracture Frequency.

TABLE 3

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2.4

The siltstones are medium to dark grey, slightly sandy in part with occasional fine grained, light grey wavy crossbedded sandstones.

Shales are dark grey and carbonaceous in the upper part becoming medium to light grey and slightly silty in the lower portion of the unit.

The sandstones are very fine grained and light grey in the upper part, fine to medium grained and light to medium grey in the lower half.

- Overlying this unit is the Lower coal seam (Enclosure 8) which has an average aggregate thickness of 12.5 metres. The number and thicknesses of splits within the seam vary considerably throughout the project area, the average thickness being 1.7 metres.

Splits are comprised of dark to very dark grey shales which are carbonaceous to coaly with occasional pyrite traces.

Coal seam thickness in the southwestern and northwestern portion of the project area is approximately 20.0 metres and about 10 metres in the eastern portion. The coal is mainly dull with some bright bands in the upper part of the seam, and is often earthy and shaly in the lower portion. The hardness varies from S1 to S5.

- Between the Upper and Lower seams is approximately 60 metres of siltstones, sandstones, and shales with a few minor coal occurrences. The section can be broken down into five basic subunits. The upper 5 - 10 metres is a medium to dark grey carbonaceous shale which is in part coaly. Below this are 15-20 metres of siltstones and sandstones. The siltstones and silty sandstones form the upper part grading to fine and medium grained sandstones in the middle and medium to coarse grained sandstone in the lower portion. The sandstones are mainly dark grey with traces of coaly

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material throughout. The next lower 5 - 10 metres are composed of dark grey carbonaceous shales and silty shales followed by 5 to 15 metres of fine to medium grained mostly dark grey sandstones. The sandstone is calcareous often containing traces of carbonaceous and coaly material. Underlying this and directly above the Lower seam are 5 to 10 metres of dark grey carbonaceous slightly silty shale.

Thicknesses in the southern part of the project area range between 50 to 70 metres and to the north 50 to 100 metres. It has not yet been determined whether the variation in thicknesses in the north is due to deposition or structure.

The Upper coal seam has an average aggregate thickness of 7.2 metres. The eastern part of the project area has thicknesses in the order of 3.0-5.0 metres, the western portion about 8.0 metres, thickening to about 11 metres in the north. The number of splits vary from drillhole to drillhole and average 0.85 metres in thickness. They consist of dark grey carbonaceous and often coaly shales.

The coal is mainly dull with some bright bands and is broken stick and sometimes powdery. Hardness ranges from S1 to S5.

Overlying the Upper seam are up to six and possibly seven additional coal seams. Evidence to date indicate that they are greater than 1 metre in thickness in the area of West Ridge (Enclosure 7).

The first seam is located about 16.0 metres above the upper seam. It is dull at the top with some bright near the base and is approximately 20 metres in thickness (Seam #3). The underlying strata is predominantly a very dark grey siltstone. Moving up stratigraphically, the next seam is 1.9 metres thick and is dull and soft. It is underlain by 10 metres of dark grey siltstone. Above the seam are 9.0 metres of siltstone and shale which contacts a third 1.2 metres of shaly coal. Neither of these two seams

have been given numbers on the stratigraphic correlation section as their existence to the north is questionable and will be determined during the 1980 field season. The next coal seam (No. 4), overlies 13.0 metres of siltstone, fine grained sandstone and black carbonaceous shale. It is 2.5 metres of mainly bright coal. Seam No. 5 is 2.0 metres in thickness, it is bright and hard and overlies 7.0 metres of dark grey shale. A 22 metre unit of very dark grey to black shale containing traces of coal debris, overlies the coal seam and contacts a 5.0 metre thick section of fine grain dark grey sandstone. Above the sandstone is a 2.0 metre coal seam which is relatively hard and clean (seam 6). Overlying the seam is 5.0 metres of shale on which lies a coal seam of approximately 2.0 metres in thickness. Although this seam does not show up on the stratigraphic correlation section, it does appear in outcrop in the West Ridge area.

At the present time, correlation of these seams to the north is difficult due to lack of data. Further drilling and mapping is required in order to determine seam thickness variation in the area of low ratio reserves.

2.5 Lodgepole Structure

The north-south trending axis of the McEvoy syncline is located along the western boundary of the coal licence (Enclosure 5). Strata on the east limb dip at an average of 24° west and strike north 25.5° East. Geological mapping of the area shows a number of minor thrusts and folds in and around the surface mineable area (Enclosure 7). A slide area on the east face of McLatchie Ridge exposes a number of thrust and normal faults. Mapping and photogeological interpretation indicate a thrust directly above the lower coal seam which possibly cuts down section to the south, thickening the lower seam on West Ridge. There are

an undetermined number of normal faults striking in an east-west direction across the surface mineable area. Two of the faults have vertical displacements in the range of 30 to 40 metres, down-dropping strata on the south. The extent of lateral movement has not been determined, however another fault to the south appears to have little vertical movement but shows a lateral movement of approximately 50 metres.

At the present time there is insufficient data to comment further on the structural complexity of the Lodgepole property. Additional drilling and mapping are needed to determine more accurately the amount and direction of movement on these structures as well as proving or disproving other suspected structures on the property.

2.6 Reserves

Preliminary probable geological inplace reserves have been calculated to be 62.5 million tonnes at an overburden ratio of 3.5:1 tonnes per m^3 . Enclosures 11 to 14 are four structural cross sections, on which reserve calculations were based. Table 5 shows tonnages derived from these sections and the basic parameters used. Only the Upper and Lower seams were used to calculate reserves.

There are up to six and possibly seven additional seams in the area, however their exact location and thickness in the pit area are uncertain. Some or all of these seams may be used to add to reserves and reduce overburden ratio when additional drilling has been completed in 1980.

TABLE 5

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## LODGEPOLE RESERVES

Geological In-Place

| CROSS SECTION | TONNES     | RATIO (m <sup>3</sup> /Tonne) |
|---------------|------------|-------------------------------|
| 1400          | 8,058,332  | 3.2:1                         |
| 1800          | 15,466,048 | 2.5:1                         |
| 2200          | 19,035,136 | 3.6:1                         |
| 2600          | 20,076,600 | 4.1:1                         |
| Total         | 62,636,232 | 3.5:1                         |

| - | Cross Section Spacing             | 400 metres |
|---|-----------------------------------|------------|
| - | Specific Gravity of Coal          | 1.45       |
| - | Seams and Overburden planimetered |            |
| - | Map and Cross Section scale       | 1:5000     |

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3.0 COAL QUALITY

Table 4 show a summary of coal quality data based on two diamond drill holes in the Lodgepole project area. Core recovery in the coal intervals were:

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- LP-D101 76% - LP-D202 68%

- LP-D2O2 68%

At the present time analytical data are minimal, giving only an initial indication of the coal quality in the Lodgepole project area. More core samples as well as some bulk sampling are required in order to obtain more representative data to determine coal quality in the potential pit area.

Appendix 3 is a description of the Lower coal seam at the planned adit as well as core holes LP-D101 and LP-D202. Appendix 4 tabulates the analytical results of samples taken from the adit site and core holes LP-D101 and LP-D202.

## TABLE 4

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## COAL QUALITY SUMMARY

|      |              |               | WEIGHIED AV. | LINGE ( | AIN DAIE | D DAGIG | .,      |     |                    |
|------|--------------|---------------|--------------|---------|----------|---------|---------|-----|--------------------|
| HOLE | NO.          | SEAM<br>NO.   | THICKNESS    | VOL.    | ASH      | S       | KCAL/KG | FSI | YIELD<br>1.5 FLOAT |
| LP-D | 101          | Upper         | 6.7          | 19.9    | 9.3      | -       | -       | 1.5 | 68.5%              |
| LP-D | 202          | Uppe <b>r</b> | 3.2          | 19.6    | 11.0     | 0.6     | 7833    | 1-5 | 60.0%              |
|      |              |               |              |         |          |         |         |     |                    |
| LP-D | 101          | Lower         | 12.5         | 20.1    | 9.6      | -       | -       | 1-3 | 51.4%              |
| LP-D | 202          | Lower         | 16.2         | 19.3    | 14.2     | 0.45    | 7166    | 1-4 | 45.9%              |
|      |              |               |              |         |          |         |         |     |                    |
|      |              |               | UPPER AND I  | LOWER W | EIGHTED  | AVERAGE | 1       |     |                    |
| LP-D | 101 &<br>202 | Upper         | 9.9          | 19.2    | 9.9      | 0.6     | 7777    | 1-6 | 65.8%              |
| LP-D | 101 &<br>202 | Lower         | 28.7         | 19.7    | 12.2     | 0.45    | 7166    | 1-4 | 47.8%              |
|      |              |               | TOTAL        | WEIGHT  | ED AVERA | GE      |         |     |                    |

#### WEIGHTED AVERAGE (AIR DRIED BASIS)

LP-D 101 & Upper & 202 Lower 38.6 19.6 11.6 0.49 7322 1-6 52.4% Further exploration work is required on the Lodgepole

project and in brief should include the following:

- o Further drilling to define
  - (a) Reserves
  - (b) Overburden Ratio
  - (c) Coal Quality
  - (d) Structure
  - (e) Stratigraphy
  - (f) Boundary of Surface Mineable area
- o Geologic Mapping
  - (a) Detail mapping of new roads
  - (b) Correlation of Coal Seam Outcrops
  - (c) Reconnaissance Mapping of:
    - Lodgepole Ridge
      - Western Portion of the Property

#### o Geotechnical

- (a) Piezometer installations to determine aquifer behavior
- (b) Geotechnical Core Logging

#### o Trenching

- (a) Describe and sample all new coal seam outcrops
- o Adits Coal Quality
  - (a) Drive and bulk sample lower seam
  - (b) Drive and bulk sample upper seam

- Crabb, J.J., 1976, Preliminary Report Coal Licences Nos. 490 to 495 Inclusive, Kootenay District, B.C.
- Crabb, J.J., 1977, Second Report Coal Licences Nos. 490 to 495 Inclusive, Kootenay District, B.C.
- Horachek, J. & Fietz, D., 1979, Geological Report On The Lodgepole Project, Coal Licences Nos. 490-495 Inclusive, Kootenay District, Map Reference 82-67.
- Marsh, R., 1978, Third Report on Coal Licence Nos. 490-495 Inclusive, Lodgepole Area, Kootenay District, Map Reference 82 G/7
- Price, R.A., 1965, Flathead Map-Area, British Columbia and Alberta, G.S.C. Memoir 336.

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PROFESSIONAL VERIFICATION OF REPORT Entitled: Lodgepole Project Kootenay District, B.C., 1979 B.C. Coal Licences 490-495 Incl. and 4729 to 4735 Incl. Group # 245

Mr. Thomas J. Cole planned and carried out the 1979 geological field program on the Lodgepole B.C. Coal Licences held by Shell Canada Resources Ltd. and operated by Crows Nest Resources Ltd. He also prepared this report. Mr. Frank Martonhegyi supervised the activity of this program under the general direction of the undersigned.

Tom Cole, received a diploma in Exploration Technology (Petroleum Resource Major), from the Northern Alberta Institute of Technology in 1971. Previous work experience includes:

- Geoservices Overseas Ltd. 1971-1973
- Amoco Canada Petroleum Co. Ltd. 1973-1975
- Shell Canada Resources Ltd. (Coal Dept.) 1975-1979
- Crows Nest Resources Ltd. 1979 -

Frank Martonhegyi, N.E., graduated in Mining Geological Engineering from the University of the Heavy Industry, Hungary, in 1962; and received post-graduate training at the University of Saskatchewan, Saskatoon, in 1969-1971. His experience in Western Canadian coal exploration since 1971 includes positions with:

- CanPac Minerals Ltd., Calgary,. Alberta
- Shell Canada Resources Ltd., Calgary, Alberta
- Crows Nest Resources Ltd., Calgary, Alberta

His prior work experience includes underground coal mining geology, geotechnical engineering and geochemistry in Hungary, Austria and Canada.

He currently holds the position of Staff Geologist for Crows Nest Resources Ltd., supervising coal exploration in British Columbia.
I consider both the aforementioned geologists to be well qualified to undertake the responsibilities they were assigned on this project. I am satisfied that the attached report dated May 30, 1980 has been competently prepared and justly represents the information obtained from this project.

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J. J. Crabb, P.Eng.

May 30, 1980

APPENDICES

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### APPENDIX ONE

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B.C. Coal Licences Tenure Standing

### CROWS NEST RESOURCES LIMITED EXPLORATION

B.C. COAL LICENCES TENURE STANDING

#### YEAR: 1979-80 BLOCK: LODGEPOLE PROJECT: LODGE POLE KOOTENAY LAND DISTRAT DATE : A BRUARY 2000 GROUP: No. 245

|                                             |                                     | - <del>-</del>                                    |                                                                       |                                          | K I                                                         | <u> </u>                                                                                   | GROL                                       | P                                                          |                                                   |                                                      | LICENCE                                                                           |                                                       | icoi                                                                    | IISIT                                            | RENT                                               | ALS                                         |                                                                | RE                                           | OUIRE                                                            | MENT                                            | NORK                                                          |                                                                             | 9U                                         | DGET                                               | EXP                                                          | POTL                                                | CONTITUENTS. J. V.                                                                                                |                            |
|---------------------------------------------|-------------------------------------|---------------------------------------------------|-----------------------------------------------------------------------|------------------------------------------|-------------------------------------------------------------|--------------------------------------------------------------------------------------------|--------------------------------------------|------------------------------------------------------------|---------------------------------------------------|------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------|----------------------------------------------------|---------------------------------------------|----------------------------------------------------------------|----------------------------------------------|------------------------------------------------------------------|-------------------------------------------------|---------------------------------------------------------------|-----------------------------------------------------------------------------|--------------------------------------------|----------------------------------------------------|--------------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|----------------------------|
|                                             | LICS.                               | AREA                                              | NAME                                                                  | LIC                                      | AREA                                                        | ND -                                                                                       | TOTAL                                      | AREA                                                       | T                                                 | ND.                                                  | LEGAL                                                                             | AREA<br>TUTAL                                         | ,                                                                       | EES                                              | ANNUAL                                             | 10TAL TO<br>NEAT ANY                        | EXPIPLO                                                        | CUHP<br>LIC                                  | ENT YEAR                                                         | CF<br>YE BC                                     | EDT                                                           | ANN IVERSANT                                                                | CURIE<br>AFF                               | ні теля<br>#10-3                                   | 101AL<br>0103                                                | SHELL<br>CLASS                                      | DESCRIPTION                                                                                                       | RETARKS                    |
| NAME                                        | NÔ.                                 | ECTARES                                           |                                                                       | HD.                                      | HECTARES                                                    |                                                                                            | NO.                                        | ¥€C188E9                                                   | S YEAR                                            |                                                      |                                                                                   | HECTAPES                                              | YEPR                                                                    | •                                                |                                                    | ¥10 3                                       | •10 <sup>-3</sup>                                              | TLAP                                         |                                                                  | 10(15)                                          |                                                               |                                                                             | 41944                                      | 1 595                                              | 3 641                                                        | 5                                                   |                                                                                                                   | OHE LANS                   |
| DGEPOLE                                     | 13                                  | 2,958                                             | LODGEFOLE                                                             | 13                                       | 2,958                                                       | 245                                                                                        | 13                                         | 2,958                                                      |                                                   |                                                      |                                                                                   | F                                                     | 5879                                                                    | 2,901.6                                          | 14,790                                             | 42.9                                        | 139774                                                         | <b>581</b>                                   | 28,757                                                           | 0+(1 <b>1</b> /5)                               | 56Z,874                                                       | FC DRUAT (P                                                                 | 1011(4                                     | ø <u></u> .                                        | 7/1001                                                       | 7                                                   |                                                                                                                   | WOOK CTOM                  |
|                                             |                                     |                                                   |                                                                       | -                                        | 1                                                           |                                                                                            |                                            |                                                            |                                                   | ι                                                    |                                                                                   |                                                       | 75                                                                      | 2,9016                                           | 6,770                                              | 26.9                                        | 139,174                                                        | 5                                            | 16,725                                                           | 10                                              | 167,250                                                       | N                                                                           |                                            |                                                    |                                                              | Ŷ                                                   |                                                                                                                   | FULFILLE                   |
|                                             |                                     |                                                   | ·•·····                                                               |                                          |                                                             |                                                                                            |                                            |                                                            | 1                                                 | 440                                                  | UNAUEVEVED                                                                        | 264                                                   |                                                                         |                                                  |                                                    |                                             |                                                                |                                              |                                                                  |                                                 |                                                               |                                                                             |                                            |                                                    |                                                              |                                                     |                                                                                                                   | ITO FEB. 28                |
|                                             |                                     |                                                   |                                                                       | L                                        | · · · · ·                                                   |                                                                                            |                                            |                                                            | - <b> </b>                                        | <b>₩</b> 7₩                                          |                                                                                   |                                                       |                                                                         |                                                  |                                                    |                                             |                                                                |                                              |                                                                  | -                                               | <u> </u>                                                      |                                                                             |                                            |                                                    |                                                              |                                                     | · ,                                                                                                               | ACT 74                     |
|                                             |                                     | i                                                 |                                                                       |                                          |                                                             |                                                                                            |                                            |                                                            | 1                                                 | 491                                                  |                                                                                   | 71                                                    |                                                                         |                                                  |                                                    |                                             |                                                                |                                              | ļ                                                                |                                                 | · .                                                           |                                                                             |                                            |                                                    |                                                              | <u> </u>                                            |                                                                                                                   | <u>↓ · -</u>               |
|                                             | t                                   | •                                                 |                                                                       |                                          |                                                             |                                                                                            |                                            |                                                            |                                                   | 492                                                  |                                                                                   | 247                                                   |                                                                         |                                                  |                                                    |                                             |                                                                |                                              |                                                                  |                                                 |                                                               |                                                                             | <br>                                       |                                                    |                                                              |                                                     |                                                                                                                   |                            |
|                                             |                                     |                                                   |                                                                       |                                          |                                                             |                                                                                            |                                            | <u> </u>                                                   | 1                                                 | 403                                                  |                                                                                   | 259                                                   |                                                                         |                                                  |                                                    |                                             |                                                                |                                              |                                                                  |                                                 |                                                               |                                                                             |                                            |                                                    |                                                              |                                                     |                                                                                                                   | 1                          |
|                                             | L                                   | <b>_</b>                                          |                                                                       |                                          |                                                             |                                                                                            |                                            | <u> </u>                                                   |                                                   |                                                      |                                                                                   |                                                       |                                                                         |                                                  |                                                    | [                                           |                                                                |                                              |                                                                  | ╞                                               |                                                               |                                                                             |                                            | -                                                  | <u> </u>                                                     | 1                                                   | • • • • • • • • • • • • • • • • • • • •                                                                           | 1                          |
|                                             | ļ                                   |                                                   |                                                                       |                                          |                                                             |                                                                                            | ļ                                          |                                                            |                                                   | 494                                                  | #                                                                                 | 259                                                   | -                                                                       | ļ                                                |                                                    |                                             | ļ                                                              |                                              |                                                                  |                                                 | I                                                             |                                                                             |                                            |                                                    | <b>!</b>                                                     |                                                     |                                                                                                                   |                            |
| <u> </u>                                    | 1-                                  |                                                   |                                                                       |                                          |                                                             |                                                                                            | T                                          | ]                                                          |                                                   | 495                                                  | H.                                                                                | 259                                                   |                                                                         |                                                  | i                                                  |                                             |                                                                | 1                                            |                                                                  |                                                 |                                                               | 1                                                                           |                                            |                                                    |                                                              | 1                                                   |                                                                                                                   | <u> </u>                   |
|                                             | i –                                 |                                                   |                                                                       | +                                        |                                                             |                                                                                            |                                            | 1                                                          | 1                                                 | <u> </u>                                             |                                                                                   | -i'                                                   | 70                                                                      | 70                                               | 9 020                                              | 16                                          | - 1                                                            | 1                                            | 12.030                                                           | 8+                                              | 395.58                                                        |                                                                             |                                            | l –                                                |                                                              | Y                                                   |                                                                                                                   | WORK Sto                   |
|                                             | L                                   | ļ                                                 |                                                                       | <b>.</b>                                 |                                                             |                                                                                            |                                            | <b> </b>                                                   |                                                   | <u> </u>                                             |                                                                                   |                                                       |                                                                         | - "                                              | 0,000                                              |                                             |                                                                | +                                            |                                                                  | +                                               | 1                                                             | ł                                                                           | $\vdash$                                   | +                                                  | ł                                                            | +                                                   |                                                                                                                   | TO FED EN/                 |
|                                             |                                     | ļ                                                 |                                                                       |                                          |                                                             |                                                                                            |                                            |                                                            |                                                   | 4729                                                 | UNSURVEYED                                                                        | 227                                                   | i                                                                       |                                                  |                                                    |                                             | · ·                                                            | 1                                            |                                                                  |                                                 |                                                               | L                                                                           | <b> </b>                                   | -                                                  |                                                              |                                                     |                                                                                                                   | ACT 78                     |
|                                             |                                     |                                                   |                                                                       |                                          |                                                             |                                                                                            |                                            | ł                                                          |                                                   | 47 30                                                | *                                                                                 | 195                                                   |                                                                         |                                                  | i                                                  | ł                                           |                                                                |                                              |                                                                  |                                                 |                                                               |                                                                             |                                            |                                                    |                                                              |                                                     |                                                                                                                   |                            |
|                                             | <u> </u>                            |                                                   |                                                                       |                                          |                                                             |                                                                                            | +                                          | <b></b>                                                    | +                                                 | 47.51                                                | n                                                                                 | 146                                                   |                                                                         | 1                                                |                                                    |                                             | 1                                                              |                                              |                                                                  |                                                 | 1                                                             |                                                                             | 1                                          | Γ                                                  |                                                              |                                                     |                                                                                                                   |                            |
|                                             | 1                                   | ļ                                                 |                                                                       |                                          |                                                             |                                                                                            |                                            | <u> </u>                                                   |                                                   |                                                      |                                                                                   |                                                       | <b> </b>                                                                |                                                  | <b>↓</b>                                           | <u> </u>                                    |                                                                | +                                            |                                                                  | +                                               | +                                                             |                                                                             | ┢                                          |                                                    | 1                                                            | 1                                                   |                                                                                                                   | 1                          |
|                                             |                                     |                                                   | 1                                                                     |                                          |                                                             |                                                                                            |                                            |                                                            |                                                   | 4732                                                 | L                                                                                 | 294                                                   |                                                                         |                                                  | <u> </u>                                           |                                             |                                                                |                                              |                                                                  |                                                 |                                                               |                                                                             |                                            |                                                    | 1 -                                                          |                                                     |                                                                                                                   |                            |
|                                             | 1                                   |                                                   |                                                                       |                                          |                                                             |                                                                                            |                                            |                                                            |                                                   | 4733                                                 |                                                                                   | 259                                                   |                                                                         |                                                  | i i                                                |                                             | 1                                                              |                                              |                                                                  |                                                 |                                                               |                                                                             |                                            |                                                    |                                                              |                                                     |                                                                                                                   |                            |
|                                             | +                                   | <u> </u>                                          |                                                                       | 1.                                       | +                                                           |                                                                                            |                                            |                                                            |                                                   | 4734                                                 |                                                                                   | 259                                                   | 1                                                                       |                                                  |                                                    |                                             |                                                                |                                              |                                                                  | 1                                               | T                                                             |                                                                             |                                            |                                                    | 1                                                            | 1                                                   |                                                                                                                   | 1                          |
|                                             |                                     |                                                   | ļ                                                                     | . +                                      |                                                             | <b></b>                                                                                    | <u> </u>                                   |                                                            |                                                   |                                                      | +                                                                                 | +                                                     | <u> </u>                                                                |                                                  |                                                    |                                             |                                                                | +                                            |                                                                  | +                                               |                                                               |                                                                             |                                            | 1                                                  |                                                              |                                                     |                                                                                                                   |                            |
|                                             | 1                                   |                                                   |                                                                       |                                          |                                                             |                                                                                            |                                            |                                                            |                                                   | 4735                                                 | 4                                                                                 | 2 79                                                  |                                                                         |                                                  |                                                    |                                             | ╄                                                              |                                              |                                                                  | +                                               |                                                               |                                                                             | ╞                                          |                                                    |                                                              | +                                                   |                                                                                                                   |                            |
|                                             |                                     |                                                   |                                                                       |                                          |                                                             |                                                                                            |                                            |                                                            |                                                   |                                                      |                                                                                   |                                                       |                                                                         |                                                  |                                                    |                                             | Ì                                                              |                                              |                                                                  |                                                 |                                                               |                                                                             |                                            |                                                    |                                                              |                                                     |                                                                                                                   |                            |
| ··                                          |                                     |                                                   |                                                                       |                                          |                                                             |                                                                                            | +-                                         | -+                                                         | -                                                 | 1                                                    |                                                                                   | 1                                                     |                                                                         |                                                  |                                                    |                                             |                                                                |                                              |                                                                  | ·                                               |                                                               | 1                                                                           | 1                                          |                                                    |                                                              | 1                                                   |                                                                                                                   | ļ                          |
|                                             |                                     |                                                   |                                                                       | _                                        |                                                             |                                                                                            |                                            |                                                            | _                                                 |                                                      | •                                                                                 |                                                       |                                                                         |                                                  |                                                    |                                             |                                                                |                                              |                                                                  | +                                               | +                                                             |                                                                             | ╈                                          |                                                    |                                                              |                                                     |                                                                                                                   |                            |
|                                             | 1                                   |                                                   | · .                                                                   |                                          |                                                             |                                                                                            |                                            |                                                            | .   _                                             |                                                      | <u> </u>                                                                          |                                                       | <b>_</b>                                                                |                                                  | - <b> </b>                                         |                                             | ļ                                                              | _                                            |                                                                  | . <b> </b> -                                    | - <b> </b>                                                    |                                                                             |                                            | · •                                                | -                                                            | ╉┈                                                  |                                                                                                                   | _                          |
|                                             |                                     | 1                                                 |                                                                       |                                          |                                                             |                                                                                            |                                            | 1                                                          |                                                   |                                                      | 1                                                                                 |                                                       |                                                                         |                                                  |                                                    | 1                                           |                                                                |                                              |                                                                  |                                                 |                                                               |                                                                             |                                            |                                                    |                                                              |                                                     |                                                                                                                   | _                          |
| · · · · · · · · · · ·                       |                                     |                                                   |                                                                       | +                                        |                                                             | - <b></b>                                                                                  | -†                                         | 1                                                          | -                                                 |                                                      | 1                                                                                 | 1                                                     | 1                                                                       | 1                                                |                                                    |                                             |                                                                |                                              |                                                                  |                                                 |                                                               | 1                                                                           |                                            |                                                    |                                                              |                                                     | ļ                                                                                                                 |                            |
|                                             |                                     |                                                   |                                                                       | +                                        |                                                             |                                                                                            |                                            |                                                            | -                                                 |                                                      | <u>+</u>                                                                          |                                                       | +                                                                       |                                                  | ł                                                  | +                                           |                                                                | +                                            |                                                                  | 1-                                              | 1                                                             | +                                                                           | 1                                          | 1-                                                 | 1-                                                           | - -                                                 | 1                                                                                                                 | 1                          |
|                                             | 1                                   |                                                   |                                                                       |                                          |                                                             |                                                                                            |                                            |                                                            | _                                                 | <u> </u>                                             |                                                                                   |                                                       |                                                                         |                                                  |                                                    |                                             | 00.40                                                          | <b>7</b> 1                                   | _                                                                | +                                               |                                                               | ~                                                                           |                                            | +                                                  | -                                                            | +                                                   |                                                                                                                   |                            |
|                                             |                                     |                                                   |                                                                       |                                          |                                                             | P2102 . 74                                                                                 | •                                          |                                                            |                                                   |                                                      |                                                                                   | I                                                     |                                                                         |                                                  |                                                    | DON                                         | 197                                                            | 5                                            | 1978                                                             |                                                 | 1979                                                          |                                                                             |                                            |                                                    |                                                              |                                                     |                                                                                                                   |                            |
|                                             | -+                                  |                                                   |                                                                       | -+                                       |                                                             | 104                                                                                        |                                            | 1394                                                       | R.                                                |                                                      |                                                                                   |                                                       | 1                                                                       |                                                  |                                                    | 1                                           | \$2,65                                                         | 11                                           | 224 96                                                           | 1                                               | 1957                                                          | )4                                                                          |                                            |                                                    |                                                              |                                                     | ļ                                                                                                                 |                            |
| GENE<br>RESO<br>LICE<br>UNDE<br>THE<br>HOLD | RAL<br>URCE<br>NCES<br>R RE<br>TOTA | REMS<br>SLIM<br>ONLY<br>OUTRE<br>AL EXP<br>S IS ( | IRKS: FIL<br>HIED IS<br>FREEHOU<br>MENT WORL<br>ENDITURE<br>INTERED A | 1<br>THE<br>LD L<br>K-CU<br>S. S<br>CCOF | ECESSAI<br>HOLDER<br>ANDS A<br>IRRENT<br>SHELL-C<br>201NG 1 | RY LINES A<br>RY LINES A<br>RE TABULA<br>YEAR AND<br>NRL EXPEN<br>TO SHELL'S<br>TO SHELL'S | IND C<br>EST<br>TED<br>IS I<br>DITU<br>COA | UINA<br>OLUMA<br>RESOU<br>SEPAR<br>NCLUU<br>PES A<br>L PRE | IN DE<br>IRCES<br>IRCES<br>IRE E<br>IRE E<br>MIUM | I YJ S<br>LIMI<br>Y, 1F<br>N THE<br>NTEREI<br>I ALLO | HELL'S DEVI<br>IED IS THE<br>SUMMARY OF<br>TUTAL EXPE<br>ACCORDING<br>CATION, CN1 | FLOPME<br>OPERA<br>EXPEN<br>NDITUR<br>TO AC<br>'S #80 | N1<br>10R<br>10R<br>10R<br>10R<br>10R<br>10R<br>10R<br>10R<br>10R<br>10 | POTEN<br>OF AL<br>URES<br>DTHE<br>NTING<br>OD IN | TAL C<br>L LIC<br>SINCE<br>RWISE<br>AND 1<br>JTIAL | LASSI<br>ENCES<br>THE<br>THE<br>INE<br>ACQU | FICAT<br>UNLES<br>LAST /<br>HORK R<br>HELTS<br>ISITIC<br>FNDIT | 10N<br>SS C<br>ANN1<br>REQU<br>S (1)<br>ON C | 15 "Y<br>THERW<br>VERSAL<br>IREMEN<br>125 PE<br>OST OF<br>S PRI( | TY I<br>RY I<br>RY I<br>RY I<br>R M<br>CR<br>CR | PRIME:<br>51ATE<br>IS AVA<br>S SHO<br>AN-DA<br>OWN M<br>D FEB | UNLESS<br>D, THIS<br>ILABLE,<br>WN IN TH<br>YI, THE<br>TN., CEN<br>RUARY 24 | 6 OT<br>1 TAI<br>1 T<br>HIS<br>ACC<br>TRAU | HERWI<br>BULAT<br>IS EM<br>COLUM<br>IUISIT<br>BLOC | SE ST<br>IDN S<br>ITERED<br>N. HH<br>IUN C<br>INN C<br>IRA A | ATED<br>HOWS<br>) IN<br>IICH<br>OST<br>(CEP<br>PPRO | , SHELL CANADA<br>CROWN COAL<br>BRACKETS ( )<br>IS NOT INCLUDI<br>OF CN1'S COAL<br>CL.1259-1302<br>VAL OF CN1'S 1 | ED IN<br>INC.)<br>TAKEOVER |

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### APPENDIX FIVE

Lodgepole Location Survey

### INTER-OFFICE CORRESPONDENCE

Date APRIL 17, 1980

To CROWS NEST RESOURCES LIMITED

From SHELTECH CANADA - DAVE POULSOM

Subject LOCATION SURVEYS LODGEPOLE AREA SE, B.C.. REFER PREVIOUS MEMO DATED NOVEMBER 13, 1980

Be advised that the Control Number for the area should be 4951C and the final survey cost attributed to the Area is \$7425.

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Dave Poulsom

DPrng

Encl.

### INTER-OFFICE CORRESPONDENCE

DATE NOVEMBER 13, 1979

TO CROWSNEST RESOURCES LIMITED (C.N.R.L.)

FROM SHELTECH CANADA

SUBJECT LOCATION SURVEYS LODGEPOLE PROJECT - FERNIE SPARWOOD AREA S.E. BRITISH COLUMBIA 4915C

Two stations (Gail & Fat) were positioned in the Lodgepole area to be used in conjunction with stations established in 1978. These stations were tied by a closed traverse using the 1979 Doppler Satellite coordinates of Quest and Squaw as the datum for all location surveys in the area.

The 1979 co-ordinates of Squaw and Quest were established by simultaneous observations with Doppler Station, Shell-104 on Horseshoe Ridge as the monitor and holding its co-ordinates fixed.

The 1979 co-ordinates of Quest and Squaw are not the same as those used last year, therefore new co-ordinates were calculated for Grouse, Lodgepole, SCRL 78-49 and SCRL 78-44. The traverse combining all nine (9) stations had an accuracy of 1:50,000.

A comparison of new co-ordinates is on an enclosed attachment.

Conventional survey methods using a 1" theodolite and electronic distance measuring equipment were used to obtain co-ordinates and elevations for the various stations.

Seven drill holes (1 diamond and 6 rotary) and 56 coal outcrops were located along with 13.5 kilometres of roads.

Calculations were done using the U.T.M. system with distances and bearings converted to plane and results reported to C.N.R.L. in tabular form for plotting, a copy of which is enclosed.

The survey cost attributed to the Lodgepole Block was approximately \$8,550.00.

Dave Poulsom

Enclosures

DPrml

| STATION                          | YEAR     | NORTHING                          | EASTING                         | ELEVATION                          |
|----------------------------------|----------|-----------------------------------|---------------------------------|------------------------------------|
| QUEST<br>QUEST                   | 78<br>79 | 5478304.93<br>5478299.78          | 666183.58<br>666184.06          | 2444.50<br>2441.74                 |
|                                  |          | -5.15                             | +0.48                           | -2.76                              |
| squan<br>Squah                   | 78<br>79 | 5473620.36<br>5473613.92          | 669492.16<br>669492.35          | 2365.25<br>2364.26                 |
|                                  |          | -6.44                             | +0.19                           | -0.99                              |
| GROUSE<br>GROUSE                 | 78<br>79 | 5466347.63<br>5466342.61          | 660106.34<br>660104.42          | 2094.04<br>2091.28                 |
|                                  |          | -5.02                             | -1.92                           | -2.76                              |
| LODGEPOLE<br>LODGEPOLE           | 78<br>79 | 5464947.40<br>5464941.62<br>-5.78 | 664131.99<br>664139.11<br>-1.86 | 2176.00<br><u>2173.24</u><br>-2.76 |
| SCRL 78-49<br>SCRL 78-49         | 78<br>79 | 5464310.63<br>5464312.64          | 663906.27<br>663909.30          | 1843.43<br>1842.60                 |
|                                  |          | +2.01                             | +3.03                           | -0.83                              |
| SCRL <b>7</b> 8-44<br>SCRL 76-44 | 78<br>79 | 5468592.92<br>5468593.72          | 668469.22                       | 1556.55<br>1556.92                 |
|                                  |          | +0.80                             | +2.41                           | +0.37                              |
| FAT                              | 79       | 5465511.43                        | 651727.92                       | 1875.78                            |
| GAIL                             | 79       | 5467038.45                        | 665433.80                       | 2261.28                            |
|                                  |          |                                   |                                 |                                    |

(

€

## DRILL HOLES

A

| LP | 3201 | 5465418.92 | 664769.57 | 1891.10 |
|----|------|------------|-----------|---------|
| L۶ | D202 | 5466240.93 | 654557.68 | 1825.19 |
| LP | R203 | 5465635.94 | 664510.10 | 1954.10 |
| LP | R204 | 5466036.06 | 664973.45 | 1898.30 |
| LP | R205 | 5465796.65 | 665247.11 | 1992.35 |
| LP | R205 | 5466409.09 | 664947.44 | 1903.14 |
| LP | R207 | 5466847.37 | 665109.09 | 2029.45 |

### APPENDIX SIX

'

Application to Extend Term of Licence



#### DEPARTMENT OF MINES AND PETROLEUM RESOURCES

Coal Act (Sec. 19)

### APPLICATION TO EXTEND TERM OF LICENCE

| I. IBOLTON_AGNEW(Name) | agent forCROWS_NEST_RESOURCES_LIMITED |
|------------------------|---------------------------------------|
| {Address}              | P.O. BOX 2699 Stn. "M"<br>(Address)   |
|                        | CALGARY, ALBERTA T2P 2N7              |
|                        | Valid FMC No. 187621                  |

hereby apply to the Minister to extend the term of Coal Licences No(s) 490-495 inclusive and 4729-4735 inclusive A total 13 licences covering approximately 2958 hectares for a further period of one year.

2. I have performed, or caused to be performed, during the period \_\_\_\_\_ July 1\_\_\_\_ \_\_\_\_\_ to February 28 \_\_\_\_\_, 1980 , work to the value of at least \$ 395,584 on the location of coal licences as follows:

CATEGORY OF WORK

| Geological mapping               | Licence No(s).<br> | Apportioned Cost 54, 284               |
|----------------------------------|--------------------|----------------------------------------|
| Surveys: Geophysical             |                    | ······                                 |
| Geochemical                      | ·····              | ······································ |
| Othergeodetic                    | 490-495            | 7,425                                  |
| Road construction                |                    | 71,160                                 |
| Surface work                     | 490-495            | 12,860                                 |
| Underground work                 | ·                  |                                        |
| Drilling                         | 492-493            | 204,308                                |
| Logging, sampling, and testing   | 490-495            | 16,456                                 |
| Reclamation                      | 490-495            | 3,720                                  |
| Other work (specify) Tech Report | 490-495            | 24,375                                 |

3. I wish to apply \$ 395,584 \_\_\_\_\_ of this value of work on Coal Licence(s) = 430-495 and 4729-4735 Group #245

4. I wish to pay cash in lieu of work in the amount of \$\_\_\_\_\_on Coal Licence(s) NA No(s).\_\_\_\_\_

5. I wish to apply \$\_\_\_\_\_\_\_of this value of work to claim a refund of cash in lieu of work in the amount of 5 \_\_\_\_\_\_ which was paid to extend the term of Coal Licence(s) No(s).\_\_\_\_\_

from

, 19\_\_\_\_ Mining Receipt No.\_\_\_\_\_ for prior payment of cash in lieu of work is attached for adjustment.

6. The work performed on the location(s) is detailed in the attached report entitled. Lodgepole Coal Project - Annual Reclamation Reprot, 1979

| Geological_Report1979_will_be_submitted_unde | r separate covers in     |
|----------------------------------------------|--------------------------|
| less than ninety days                        | 4                        |
| February 28                                  | John                     |
| ······································       | (Srenstore and polition) |
|                                              | , hand inference         |
| (FORMS TO BE SUBMITTED IN DUPLICATE)         | 1                        |
|                                              |                          |

FOR DEPARTMENTAL USE ONLY

NA

to\_\_

Value of work applied on licences S Value of work reported \$ ..... Value of work approved \$\_\_\_\_\_

Value of credit remaining 5

| The program of operations detailed hereunder was carr<br>to February 28 19 80                                   | ried out during the period from <u>July 1, 1979</u><br>Total costs are \$ <u></u>                              |
|-----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| of \$ 133.73 per hectare                                                                                        | · · · · · · · · · · · · · · · · · · ·                                                                          |
| or <b>3</b> per                                                                                                 | E4. 204                                                                                                        |
| GEOLOGICAL MAPPING Yes 🕅 No 🗍 O                                                                                 | Cost \$                                                                                                        |
| Reconnaissance 1300                                                                                             | 1:5000 100 man-days                                                                                            |
| Detail: Surface 500                                                                                             | 1:5000 39 man-days                                                                                             |
| Linderground                                                                                                    |                                                                                                                |
| Other (merily)                                                                                                  |                                                                                                                |
|                                                                                                                 |                                                                                                                |
| GEOPHYSICAL OR GEOCHEMICAL SURVEYS                                                                              | Yes 🔲 No 💢 Cost S                                                                                              |
| MethodL                                                                                                         | ine miles                                                                                                      |
| OTHER SURVEYS Yes 🛐 No 🗍 Cost S                                                                                 | 7,425                                                                                                          |
| Grid Topographic                                                                                                | location Other                                                                                                 |
|                                                                                                                 | net \$ 71,160                                                                                                  |
| Lucrets On Linners 6 km                                                                                         | (off lighter) 4.5 km                                                                                           |
| Length: On Litences Access                                                                                      |                                                                                                                |
| SURFACE WORK Yes No Cost \$                                                                                     | 14,000                                                                                                         |
| Trenching 255 m                                                                                                 | 490-495                                                                                                        |
| Seam tracing                                                                                                    |                                                                                                                |
|                                                                                                                 |                                                                                                                |
|                                                                                                                 |                                                                                                                |
|                                                                                                                 | ······································                                                                         |
| UNDERGROUND WORK Yes 🛄 No 🕅 C                                                                                   | ost \$                                                                                                         |
| Test adits: Number Average length                                                                               | Total footage                                                                                                  |
| Other workings: Area                                                                                            | Total footage                                                                                                  |
| DRILLING Yes X No Cost \$ 204,30                                                                                | 8                                                                                                              |
| Hole Size                                                                                                       | Number of Holes Total Footage                                                                                  |
| Core: Diamond 🔂 Wireline 🗌                                                                                      |                                                                                                                |
| Rotary: Conventional                                                                                            |                                                                                                                |
| Reverse circulation                                                                                             |                                                                                                                |
| Other Air Drilling 10 cm                                                                                        | <u></u> <u></u>                                                                                                |
| Contractor Tonto, SDS, Garretty Baker Whe                                                                       | ere core stored Fernie, B.U.                                                                                   |
| LOGGING, SAMPLING, AND TESTING (check)                                                                          | Yes X No Cost \$ 16,456                                                                                        |
| Lithology: Drill samples Core samples [7]                                                                       | Bulk samples to date                                                                                           |
| Logs: Gamma-Neutron 🔽 Density 🕅                                                                                 |                                                                                                                |
| Textine: Prox analysis 🐨 FSI 🐨 Washabili                                                                        | <u> </u>                                                                                                       |
| progress Carbonization X Petrographic X F                                                                       | Plasticity [7] Other [7]                                                                                       |
| t not included                                                                                                  |                                                                                                                |
| OTHER WORK (specify details)                                                                                    | Cost \$                                                                                                        |
| REPORTS:                                                                                                        |                                                                                                                |
| Reclamation work (Permit No54) Detail                                                                           | of work*Erosion Bars, seeding,                                                                                 |
| Fertilizing Drill sties and side roads                                                                          | 3,720                                                                                                          |
| Geological Report                                                                                               | Cost \$28,095                                                                                                  |
| OPER ATIONS:                                                                                                    |                                                                                                                |
| Work was concreted by T. J. Cole                                                                                | Position Senior Geological Tech                                                                                |
| Frank Martonhegyj                                                                                               | Senior Staff Geologist                                                                                         |
| Is this person a registered of heeliscu Protessional E                                                          |                                                                                                                |
| NOTE-Where the licensee intends to perform, during<br>out in the plan of operations filed under section 15 (2). | (c), a supplemental plan of operations is to be                                                                |
| attached.                                                                                                       | And a sublimination of the second |

•

Work performed. Yes 🔀 No 📋

\* If reclamation work reported in separate report give details of report identification

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#### VALUATION OF WORK: COST STATEMENT (Sec. 27, B.C. Reg. 436/75)

a.

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|                                                                                                                                               | FEES, SALARIES                                                                                                                   | , AND WAG                                                                         | ES:                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
|                                                                                                                                               | *                                                                                                                                | of Employees                                                                      | Average<br>Rate                                                                             | Average Number<br>of Days                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Amouni                                   |
| Professional and                                                                                                                              | technical                                                                                                                        | <u>J</u>                                                                          |                                                                                             | /3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 27,375                                   |
| Machine operator                                                                                                                              | s and support                                                                                                                    |                                                                                   |                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                          |
| Miners                                                                                                                                        |                                                                                                                                  |                                                                                   |                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                          |
| Other                                                                                                                                         |                                                                                                                                  | <b>-</b>                                                                          |                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                          |
| 2. CONTRACTORS                                                                                                                                | S AND CONSULT                                                                                                                    | TANTS:                                                                            | Tot                                                                                         | al operator's costs \$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 27375                                    |
| lta West Press                                                                                                                                | ure Cementing                                                                                                                    | <u>0riill</u>                                                                     | iole Cementi                                                                                | ng                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 4,229                                    |
| lax Air Consult:                                                                                                                              | ants                                                                                                                             | <u>Geol.</u>                                                                      | Consulting                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 5,339                                    |
| al_Enterprises                                                                                                                                |                                                                                                                                  | Superv                                                                            | ising Bulld                                                                                 | ozer Work                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 3,122                                    |
| & R_Drilling_                                                                                                                                 |                                                                                                                                  | Superv                                                                            | ising Drill                                                                                 | ing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 5,473                                    |
| ath <u>finder</u>                                                                                                                             |                                                                                                                                  | Superv                                                                            | rising Bulld                                                                                | ozers etc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1,363                                    |
| amieson Consult                                                                                                                               | tants                                                                                                                            | Superv                                                                            | sing Machin                                                                                 | ery work ·                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3,438                                    |
| oke Oil Enterpr                                                                                                                               | rises                                                                                                                            | Downho                                                                            | le Geophysi                                                                                 | cal Logging                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 4,374                                    |
| rain Bros. Con:                                                                                                                               | s. 🔻                                                                                                                             | Earth                                                                             | Moving (Bul                                                                                 | ldozers etc.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 70,966                                   |
| PB-Instruments                                                                                                                                |                                                                                                                                  | Downho                                                                            | le Geophysi                                                                                 | cal_logging _                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 11_556_                                  |
| CRL Surveying L                                                                                                                               | )ept.                                                                                                                            | Locati                                                                            | on Survey                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 7,425                                    |
| arritty & Baker                                                                                                                               | Drilling                                                                                                                         | Rotary                                                                            | nauling<br>Drilling                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 51 747                                   |
| D <u>S Drilling</u>                                                                                                                           |                                                                                                                                  | Rotary                                                                            | Drilling                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 29,498                                   |
| 2_Albert_Cresce                                                                                                                               | ent (Ionto)                                                                                                                      | Diamon                                                                            | d Drilling                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 20,545                                   |
|                                                                                                                                               |                                                                                                                                  | Total                                                                             |                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 226 455                                  |
| FIELD CAMP CO                                                                                                                                 | OSTS:                                                                                                                            |                                                                                   |                                                                                             | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                          |
| Food _                                                                                                                                        |                                                                                                                                  |                                                                                   | ,                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Amount                                   |
| Accommodation _                                                                                                                               |                                                                                                                                  |                                                                                   |                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 28.300                                   |
| Fuel _                                                                                                                                        |                                                                                                                                  |                                                                                   |                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 13.383                                   |
| Other                                                                                                                                         | Communicat                                                                                                                       | ians                                                                              |                                                                                             | ·                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 2.100                                    |
|                                                                                                                                               |                                                                                                                                  |                                                                                   | Total                                                                                       | field comm posts \$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 43.783                                   |
|                                                                                                                                               |                                                                                                                                  | _                                                                                 | JULA                                                                                        | Belo callip costs 3_                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                          |
| SAMPLING, ANA                                                                                                                                 | LYSIS, AND TE                                                                                                                    | STING:                                                                            | Performed by                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 4                                        |
| o <u>ximate Analysi</u>                                                                                                                       | s, Test                                                                                                                          | Loring                                                                            | Laboratorie                                                                                 | 25                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 516                                      |
| -los tobes                                                                                                                                    | sent for anal                                                                                                                    | ysis and t                                                                        | ests to CNRL                                                                                | Lab -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                          |
| npres laken and                                                                                                                               |                                                                                                                                  |                                                                                   |                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                          |
| n <u>pies laken and</u><br>r <u>nie, Canadian</u>                                                                                             | Carbonization                                                                                                                    | Research -                                                                        | Ottawa, wor                                                                                 | k will                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                          |
| n <u>pies taken and</u><br>r <u>nie, Canadian</u><br><u>done and repor</u>                                                                    | <u>Carbonization</u><br>ted at the end                                                                                           | Research -                                                                        | Ottawa, wor<br>Dsequent ter                                                                 | <u>kwill</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                          |
| mpres laken and<br>rnie, Canadian<br>done and repor                                                                                           | Carbonization<br>ted at the end                                                                                                  | Research -<br>l of the sel                                                        | Ottawa, wor<br>Disequent ter                                                                | <u>kwill</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                          |
| npies laken and<br>rnie, Canadian<br>done and repor                                                                                           | Carbonization<br>ted at the end                                                                                                  | Research -                                                                        | Ottawa, wor<br>Dsequent ter                                                                 | *k will                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 516                                      |
| npies laken and<br>rnie, Canadian<br>done and repor                                                                                           | <u>Carbonization</u><br>ted at the end                                                                                           | Research -<br>I of the sel<br>Totals                                              | Ottawa, wor<br>Dsequent ter<br>, samplings, anal                                            | vk will                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 516                                      |
| supplies laken and<br>rnie, Canadian<br>done and repor                                                                                        | Carbonization<br>ted at the end                                                                                                  | Research -<br>1 of the sel<br>Totals                                              | Dttawa, wor<br>Dsequent ter<br>, samplings, anal                                            | vk will                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 516                                      |
| SUPPLIES AND N<br>Process supplies                                                                                                            | Carbonization<br>ted at the end<br>MATERIALS COS                                                                                 | Research -<br>l of the sel<br>Totals<br>ITS:                                      | Dttawa, wor<br>Dsequent ter<br>, samplings, anal                                            | *k will    TD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 516                                      |
| SUPPLIES AND N<br>Process supplies                                                                                                            | Carbonization<br>ted at the end<br>MATERIALS COS                                                                                 | Research -<br>i of the sel<br>Totals                                              | Ottawa, wor<br>Dsequent ter<br>, samplings, anal                                            | •k will                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <u>516</u><br>                           |
| SUPPLIES AND N<br>Process supplies<br>Operating and technical                                                                                 | Carbonization<br>ted at the end<br>MATERIALS COS<br>Menance supplies<br>supplies                                                 | Research -<br>1 of the sel<br>Totals<br>TTS:                                      | Dttawa, wor<br>Dsequent ter<br>, samplings, anal                                            | .k will                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 516<br><br>8,416<br><br>532              |
| SUPPLIES AND N<br>Process supplies<br>Operating and technical<br>Other supplies and n                                                         | Carbonization<br>ted at the end<br>MATERIALS COS<br>Ienance supplies<br>supplies<br>materials                                    | Research -<br>I of the sel<br>Totals,<br>ITS:                                     | Ottawa, wor<br>Dsequent ter<br>, samplings, anal                                            | •k will    Tb                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <u>516</u><br><u>8,416</u><br>532<br>722 |
| SUPPLIES AND N<br>Process supplies<br>Operating and main<br>Office and technical<br>Other supplies and m                                      | Carbonization<br>ted at the end<br>MATERIALS COS<br>Ienance supplies<br>supplies<br>materials                                    | Research -<br>I of the sel<br>Totats<br>ITS:                                      | Dttawa, wor<br>Dsequent ter<br>, samplings, anal                                            | •k will    TD    TD    Iysis, and testing \$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 515<br>                                  |
| SUPPLIES AND N<br>Process supplies<br>Operating and main<br>Office and technical<br>Other supplies and m                                      | Carbonization<br>ted at the end<br>MATERIALS COS<br>Ienance supplies<br>supplies<br>outerials                                    | Research -<br>1 of the sel<br>Totals<br>TTS:<br>d transportation                  | Dttawa, wor<br>Dsequent tes<br>, samplings, anal<br>Total, supplie<br>n details 1:          | tk will<br>TD<br>ysis, and testing S<br>usis, and testing | 516<br>                                  |
| SUPPLIES AND N<br>Process supplies<br>Operating and main<br>Office and technical<br>Other supplies and m                                      | Carbonization<br>ted at the end<br>MATERIALS COS<br>Innance supplies<br>supplies<br>materials<br>IN COSTS (Groun                 | Research -<br>1 of the sel<br>Totals,<br>TTS:<br>d transportation                 | Dttawa, wor<br>Dsequent ter<br>, samplings, anal<br>Total, supplie<br>n details);           | tk will<br>TD<br>ysis, and testing S<br>ysis, and testing S<br>sand materials S<br>email Base                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 516<br>                                  |
| SUPPLIES AND N<br>Process supplies<br>Operating and main<br>Office and technical<br>Other supplies and m<br>TRANSPORTATIO<br>Venture<br>1 424 | Carbonization<br>ted at the end<br>MATERIALS COS<br>tenance supplies<br>supplies<br>materials<br>ON COSTS (Groun<br>OR<br>RENT R | Research -<br>1 of the sel<br>Totals,<br>ITS:<br>d transportation<br>where<br>LTE | Dttawa, wor<br>Dsequent ter<br>, samplings, anal<br>Total, supplie<br>n details):<br>1000/m | tk will<br>TD<br>ysis, and testing S<br>ysis, and testing S<br>so and materials S<br>email Run<br>onth, 6 months                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 516<br>                                  |

|                 | Air support details:                                    |                                        |                            |                                      |     |
|-----------------|---------------------------------------------------------|----------------------------------------|----------------------------|--------------------------------------|-----|
| 1 <sup>-1</sup> | Aircraft Trac<br>2059. Helicopter                       | Owner<br>Yestigs                       | Charter                    | 45 572                               |     |
|                 |                                                         |                                        |                            |                                      |     |
|                 |                                                         |                                        |                            |                                      |     |
|                 | 2                                                       | • • •                                  | Total transportation costs | 53,523                               |     |
|                 | 8. RECLAMATION WORK:                                    |                                        |                            |                                      |     |
|                 | Interior Reforesta                                      | tion                                   |                            | <u>\$_3,720</u>                      |     |
|                 | 9. TRAVEL EXPENDITURE                                   | S (operator's costs only) :            |                            |                                      |     |
|                 | Number of Personnel                                     |                                        | Namber of Trips            | 3,412                                |     |
|                 |                                                         |                                        | Total travel expenditures  | 3,412                                |     |
|                 |                                                         |                                        | Total costs .              | 368,454                              |     |
|                 |                                                         |                                        |                            | 1971 y 1                             |     |
|                 |                                                         | (Secs. 28 and 29, B.C.                 | Reg. 436/75)               |                                      |     |
|                 | OFF-PROPERTY COSTS: P                                   | eriod from July 1,                     | 1979 to Feb. 28            | , 1: 8 <u>U</u>                      |     |
|                 | (a) Logistics and field sup                             | port                                   |                            | 3 750                                |     |
|                 | (b) Technical and feasibili                             | ty studies <u>Photogec</u><br>Staff 11 | 10gy<br>15 man days        | 14,375                               |     |
|                 | (c) Preparation of reports<br>(d) Supplies and services | Braiting                               | ]                          |                                      |     |
|                 | (e) Mobilization and demo                               | bilization of equipment                |                            |                                      |     |
|                 | (f) Travelling expenses                                 |                                        |                            |                                      |     |
|                 | (Stemizs)                                               |                                        |                            |                                      |     |
|                 |                                                         |                                        | <u> </u>                   |                                      |     |
|                 |                                                         |                                        |                            |                                      |     |
|                 |                                                         | <del>.</del>                           |                            | ·                                    |     |
|                 |                                                         |                                        |                            | ·····                                |     |
|                 |                                                         |                                        |                            |                                      |     |
|                 |                                                         | ·                                      |                            |                                      |     |
|                 | Supporting Cost States                                  | pents Attached                         | Total 3                    | s27,134                              |     |
|                 |                                                         |                                        | +                          |                                      |     |
|                 |                                                         |                                        |                            | <del></del>                          |     |
|                 |                                                         |                                        |                            | <u> </u>                             |     |
|                 |                                                         | · · · · · · · · · · · · · · · · · · ·  |                            |                                      |     |
|                 |                                                         | , , , , , , , , , , , , , , , , ,      |                            |                                      |     |
|                 |                                                         |                                        |                            |                                      |     |
|                 |                                                         |                                        |                            |                                      |     |
|                 |                                                         |                                        | Total supporting costs     | \$                                   |     |
|                 |                                                         |                                        | •.                         |                                      |     |
|                 |                                                         | SUMMAR                                 | Ŷ                          |                                      |     |
|                 | On-property costs                                       |                                        |                            | <u>, 300,454</u><br>. <b>27</b> ,134 |     |
|                 | Un-property costs                                       |                                        | , Total costs              | 395,588                              |     |
| •<br>•          | Statement of costs verified by                          | W.S. Kor                               | valski                     |                                      |     |
|                 | 20- 12/00                                               | ۲                                      | Anthan                     | oldi                                 |     |
|                 |                                                         | <i>(</i>                               |                            | and position                         | 4   |
|                 | 234-475-8196                                            |                                        | Chief lle                  | contro                               | A., |
|                 | :                                                       |                                        | 1                          |                                      | •   |
|                 |                                                         |                                        |                            |                                      |     |

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GEOLOGICAL BRANCH ASSESSMENT PRPORT



#### APPENDIX FOUR

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Analysis Data - LP-D 101 and LP-D 202 Adit Site

|            |         | •     |                      |           |                       | • ·                   |                  |                  |                  |                 |            |                                       |          |
|------------|---------|-------|----------------------|-----------|-----------------------|-----------------------|------------------|------------------|------------------|-----------------|------------|---------------------------------------|----------|
| AREA       | : LODGI | EPOLE |                      | HOLE NO   | LP-D101               | DATE:                 | Oct. 19          | /78              | ANAL             | YST: <u>Ken</u> | McCullou   | gh                                    |          |
| LAB<br>NO. | SAMPLE  | SEAM  | INTERVAL<br>(METRES) | FRACTION  | *<br>AIR DRY<br>MOIST | %<br>RESID.<br>MOIST. | %<br>ASH<br>d.b. | ADB<br>8<br>V.M. | ADE<br>8<br>F.C. | F.S.I.          | 8<br>YIELD |                                       |          |
| 78.263     | 22      |       | 325.63 -             | RAW       |                       | .30                   | 32.55            |                  |                  | 1               |            |                                       |          |
|            |         | · ·   | 326.14               | 1.4 FLOAT |                       |                       |                  |                  |                  |                 |            |                                       | -        |
|            |         |       |                      | 1.4 SINK  |                       |                       |                  |                  |                  |                 |            |                                       |          |
|            |         |       |                      | 1.5 FLOAT |                       | .69                   | 14.31            | 18.16            |                  | 3               | 35.10      |                                       |          |
|            |         |       |                      | 1.5 SINK  |                       |                       |                  |                  |                  |                 | 64.90      |                                       | _        |
|            |         |       |                      | 1.6 FLOAT |                       |                       |                  |                  |                  |                 |            |                                       |          |
|            |         |       |                      | 1.6 SINK  |                       |                       |                  |                  |                  |                 |            |                                       |          |
|            |         |       |                      |           |                       |                       |                  |                  |                  |                 |            |                                       |          |
| 78 264     | 23      |       | 326.14 -             | RAW       |                       | .33                   | 18.69            |                  |                  | 1               | $\geq$     |                                       | <u> </u> |
|            |         |       | 326.64               | 1.4 FLOAT |                       |                       |                  |                  |                  |                 |            |                                       |          |
|            |         |       |                      | 1.4 SINK  |                       | _                     |                  |                  |                  |                 |            |                                       |          |
|            |         |       |                      | 1.5 FLOAT | 1                     | ,66                   | 15,79            | 17.82            |                  | 15              | 70,58      |                                       |          |
|            |         |       |                      | 1.5 SINK  |                       | -                     |                  | <br>             |                  |                 | 29,42      |                                       |          |
|            |         |       |                      | 1.6 FLOAT | p                     |                       |                  |                  |                  |                 | _          |                                       |          |
|            |         |       |                      | 1.6 SINK  |                       |                       |                  |                  |                  |                 | · ·        |                                       |          |
|            |         |       |                      |           |                       |                       |                  |                  |                  |                 |            |                                       |          |
| 70 00      |         |       | 226 64               | RAW       |                       | . 31                  | 41.37            |                  |                  | 1               |            |                                       | _        |
| /0-20:     | 24      |       | 327.36               | 1.4 FLOA  | r                     |                       |                  | _                |                  |                 |            | <br>                                  |          |
|            |         |       |                      | 1.4 SINK  |                       |                       |                  | 1                | -                |                 |            |                                       |          |
|            |         |       |                      | 1.5 FLOA  | 'P                    | .67                   | 15.63            | 17.06            |                  | 1               | 15.19      | · · · · · · · · · · · · · · · · · · · |          |
|            | 1       |       |                      | 1.5 SINK  |                       |                       |                  |                  |                  |                 | 84.81      |                                       |          |
|            |         |       |                      | 1.6 FLOA  | т                     |                       |                  |                  |                  |                 | •          |                                       |          |
|            |         |       |                      | 1         |                       | l l                   |                  | 1                | 1. 1             |                 |            |                                       | i        |

### CROWS NEST RESOURCES ANALYSIS REPORT

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| AREA            | :LODGE        | POLE |                      | HOLE NO   | LP-D-101              | DATE:            | Oct. 19          | ), 1978          | ANAL             | YST: <u>Ken</u> | McCullou   | gh |
|-----------------|---------------|------|----------------------|-----------|-----------------------|------------------|------------------|------------------|------------------|-----------------|------------|----|
| LAB<br>NO.      | SAMPLE<br>NO. | SEAM | INTERVAL<br>(METRES) | FRACTION  | %<br>AIR DRY<br>MOIST | RESID.<br>MOIST. | %<br>ASH<br>d.b. | АДВ<br>8<br>V.M. | нъв<br>8<br>F.C. | F.S.I.          | %<br>YIELD |    |
| 78-25?          | 19            | 0    | 192.02               | RAW       |                       | .41              | 24.82            |                  |                  | 1               | $\square$  |    |
|                 | •             |      | 192.94               | 1.4 FLOAT |                       |                  |                  |                  |                  |                 |            |    |
|                 |               |      |                      | 1.4 SINK  |                       |                  |                  |                  |                  |                 |            |    |
|                 |               | {    | ;                    | 1.5 FLOAT |                       | 1.07             | 10.84            | 17.38            |                  | 15              | 57.93      |    |
|                 |               |      |                      | 1.5 SINK  | <br>                  |                  |                  |                  |                  |                 | 42.02      |    |
|                 |               |      |                      | 1.6 FLOAT |                       |                  |                  |                  |                  |                 |            |    |
|                 |               |      |                      | 1.6 SINK  |                       |                  |                  |                  |                  |                 |            |    |
|                 |               |      |                      |           |                       |                  |                  |                  |                  |                 |            |    |
| 78 <b>-2</b> 53 | 20            | ₩.   | 192.94 -             | RAW       | -                     | .30              | 33.27            |                  |                  | 1               | $\geq$     |    |
|                 |               |      | 194.16               | 1.4 FLOAT |                       |                  |                  |                  |                  |                 | -          |    |
|                 |               |      |                      | 1.4 SINK  |                       |                  |                  |                  |                  |                 |            |    |
|                 |               | ł    |                      | 1.5 FLOAT |                       | .96              | <u>h2.31</u>     | 17.50            |                  | 11              | 31.84      |    |
|                 |               | l.   |                      | 1.5 SINK  |                       |                  |                  |                  |                  |                 | 68.16      |    |
|                 |               |      |                      | 1.6 FLOAT |                       |                  | <u></u>          |                  |                  |                 |            |    |
|                 |               |      |                      | 1.6 SINK  |                       |                  | _                |                  |                  |                 |            |    |
|                 |               |      |                      |           |                       |                  |                  |                  |                  |                 |            |    |
| 78-262          | 21            |      | 324.85 -             | RAW       |                       | . 44             | 15.13            |                  | ·                | 1               | $\geq$     |    |
|                 |               |      | 325.63               | 1.4 FLOAT |                       |                  |                  |                  |                  |                 |            |    |
|                 |               |      | 1                    | 1.4 SINK  |                       |                  |                  |                  | · ,              |                 |            |    |
|                 |               |      |                      | 1.5 FLOAT |                       | .75              | 1.7.26           | 18.41            |                  | 35              | 23.21      |    |
|                 |               |      |                      | 1.5 SINK  |                       |                  |                  |                  |                  |                 | 76.79      |    |
|                 |               |      |                      | 1.6 FLOAT | ·                     |                  |                  |                  | ,                |                 |            |    |
|                 | 1             |      |                      | .5 SINK   |                       |                  |                  |                  | · · ·            |                 |            |    |

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| AREA: LODGEPOLE |               |      |                      | HOLE NO   | <u>LP-D-101</u>                       | DATE:                 | <u>Oct. 1</u>    | 9/78             | ANALYST: Ken McCullough |                                       |            |  |          |
|-----------------|---------------|------|----------------------|-----------|---------------------------------------|-----------------------|------------------|------------------|-------------------------|---------------------------------------|------------|--|----------|
| LAB<br>NO.      | SAMPLE<br>NO. | SEAM | INTERVAL<br>(METRES) | FRACTION  | %<br>AIR DRY<br>MOIST                 | %<br>RESID.<br>MOIST. | %<br>ASH<br>d.b. | АТВ<br>8<br>V.M. | нъв<br>%<br>F.C.        | F.S.I.                                | ¥<br>YIELD |  |          |
| 78-249          | 1 <u>6</u>    | G    | 187.45 -             | RAW       |                                       | . 4 7                 | 28.87            |                  |                         | 15                                    | $\geq$     |  |          |
|                 |               |      | 188.98               | 1.4 FLOAT |                                       |                       |                  |                  |                         |                                       |            |  |          |
|                 |               |      | :                    | 1.4 SINK  |                                       |                       |                  |                  |                         |                                       |            |  |          |
|                 |               |      |                      | 1.5 FLOAT |                                       | 1.51                  | 8.54             | 19.35            |                         | 23                                    | 54.40      |  |          |
|                 | 1             |      |                      | 1.5 SINK  |                                       |                       |                  |                  |                         |                                       | 45.60      |  |          |
|                 |               |      |                      | 1.6 FLOAT |                                       | -                     |                  |                  |                         |                                       |            |  |          |
|                 |               |      | : ;                  | 1.6 SINK  |                                       |                       |                  |                  |                         |                                       |            |  |          |
|                 |               |      |                      |           |                                       |                       |                  |                  |                         |                                       |            |  |          |
| 79 250          |               |      | 100.00               |           |                                       |                       | 0.7 53           | 1                |                         |                                       |            |  | <u> </u> |
| /8-200          |               | 5    | 190.50               | RAW       |                                       | . 3 3                 | 27.57            |                  |                         | ـــــــــــــــــــــــــــــــــــــ | $\geq$     |  | -        |
|                 |               | •    |                      | 1.4 FLOAT |                                       |                       |                  |                  | ·                       |                                       |            |  | <br>     |
|                 |               |      |                      | 1.4 SINK  |                                       |                       |                  |                  |                         |                                       |            |  | <u> </u> |
|                 |               |      |                      | 1.5 FLOAT |                                       | 1.19                  | 9.01             | 18.44            |                         | 15                                    | 38.77      |  |          |
|                 |               |      |                      | 1.5 SINK  |                                       |                       | +                |                  |                         | <u> </u>                              | 61.23      |  | <br>7    |
|                 |               |      |                      | 1.6 FLOAT | · · · · · · · · · · · · · · · · · · · |                       |                  |                  |                         |                                       |            |  |          |
|                 |               |      |                      | 1.6 SINK  |                                       |                       |                  |                  |                         |                                       |            |  | <u> </u> |
|                 |               |      |                      |           |                                       |                       |                  |                  |                         |                                       |            |  |          |
| 78,251          | 18            |      | 190 50 -             | RAW       |                                       | .41                   | 28.70            |                  |                         | 1                                     | $\searrow$ |  | +        |
|                 |               |      | 192.02               | 1.4 FLOAT |                                       |                       |                  |                  |                         |                                       |            |  | 1        |
|                 |               |      |                      | 1.4 SINK  |                                       |                       |                  |                  |                         |                                       |            |  | 1-       |
|                 |               |      |                      | 1.5 FLOAT | 1                                     | 1.22                  | 10.61            | 22.86            |                         | 14                                    | 32.64      |  | 1        |
|                 |               |      |                      | 1.5 SINK  |                                       |                       |                  |                  |                         |                                       | 67.36      |  | +        |
|                 |               |      |                      | 1.6 FLOAT | r l                                   |                       |                  |                  |                         |                                       |            |  |          |
|                 |               |      |                      | SINK      |                                       |                       |                  |                  |                         |                                       |            |  | 1        |

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| AREA           | LODGE      | POLE       |                      | HOLE NO.  | LP-D-101                              | DATE:                 | 0ct. 2           | 19 <b>, 1978</b>   | ANAL             | YST: <u>Ker</u> | McCullo    | ough |          |
|----------------|------------|------------|----------------------|-----------|---------------------------------------|-----------------------|------------------|--------------------|------------------|-----------------|------------|------|----------|
| LAB<br>NO.     | SAMPLE NO. | SEAM       | INTERVAL<br>(METRES) | FRACTION  | %<br>AIR DRY<br>MOIST                 | %<br>RESID.<br>MOIST. | %<br>ASH<br>d.b. | н D B<br>8<br>V.M. | нЪВ<br>8<br>F.C. | F.S.I.          | %<br>YIELD |      |          |
| 78-246         | 13         |            | 182.58 ~             | RAW       |                                       | .31                   | 17.08            |                    |                  | l               | $\geq$     |      |          |
|                |            |            | 184.28               | 1.4 FLOAT |                                       |                       |                  |                    |                  |                 |            |      |          |
|                |            |            |                      | 1.4 SINK  |                                       |                       |                  |                    |                  |                 |            |      |          |
|                |            |            | · · ·                | 1.5 FLOAT |                                       | .56                   | 7.32             | 18.05              |                  | 1               | 48.64      |      | -        |
|                |            | · · .      |                      | 1.5 SINK  |                                       |                       |                  |                    |                  |                 | 51.36      |      |          |
|                |            |            |                      | 1.6 FLOAT |                                       |                       |                  |                    |                  |                 |            |      |          |
|                |            |            |                      | 1.6 SINK  |                                       |                       |                  |                    |                  |                 |            |      |          |
|                |            |            |                      |           |                                       |                       |                  |                    | -                |                 |            |      |          |
| 78-247         | 14         |            | 184.28 -             | RAW       | · · · · · · · · · · · · · · · · · · · | .54                   | 21.74            |                    |                  | 25              | $\square$  |      |          |
|                |            | <i>4</i> . | 185.93               | 1.4 FLOAT |                                       |                       |                  |                    |                  |                 |            |      |          |
|                | ļ          |            |                      | 1.4 SINK  |                                       |                       |                  |                    |                  |                 |            |      |          |
|                |            |            |                      | 1.5 FLOAT |                                       | 1.31                  | 6,35             | 19.01              |                  | 3               | 58.52      |      | ţ        |
|                |            |            |                      | 1.5 SINK  |                                       |                       |                  |                    |                  | ¢.              | 41.48      |      | <u>،</u> |
|                |            |            |                      | 1.6 FLOAT |                                       |                       |                  |                    |                  |                 |            |      |          |
|                |            |            |                      | 1.6 SINK  |                                       |                       |                  |                    |                  |                 |            |      | l        |
|                |            |            |                      |           |                                       |                       |                  |                    |                  | 1               |            |      |          |
| 78-248         | 15         |            | 185 93 -             | RAW       |                                       | . 4 4                 | 25.49            |                    |                  | 14              | $\searrow$ |      |          |
| /8 <b>2</b> 40 |            | *          | 187.45               | 1.4 FLOAT |                                       |                       |                  |                    |                  |                 |            |      |          |
|                |            |            |                      | 1.4 SINK  |                                       |                       |                  |                    |                  |                 |            |      |          |
|                |            |            |                      | 1.5 FLOAT |                                       | 1.13                  | 9.02             | 17.89              |                  | 2               | 49.97      |      |          |
|                |            |            |                      | 1.5 SINK  |                                       |                       |                  |                    |                  |                 | 50.03      |      |          |
|                |            |            |                      | 1.6 FLOAT |                                       |                       |                  |                    |                  |                 | 2          |      |          |
| ,              |            | I          |                      | 1.6 SINK  |                                       |                       |                  |                    |                  |                 |            |      |          |

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| AREA       | :_LODGEI | POLE |                      | HOLE NO.  | LP-D-101                              | DATE:                 | October          | 19/78                                 | ANAL             | YST: Ken | <u>McCullou</u>      | qh                                     | ~ |
|------------|----------|------|----------------------|-----------|---------------------------------------|-----------------------|------------------|---------------------------------------|------------------|----------|----------------------|----------------------------------------|---|
| LAB<br>NO. | SAMPLE   | SEAM | INTERVAL<br>(METRES) | FRACTION  | %<br>AIR DRY<br>MOIST                 | ł<br>RESID.<br>MOIST. | %<br>ASH<br>d.b. | ИГЪВ<br>8<br>V.M.                     | ADB<br>&<br>F.C. | F.S.I.   | \$<br>YIELD          |                                        |   |
| 78-234     | 1        | *    | 42.4 -               | RAW       |                                       | .09                   | 22.72            |                                       |                  | 75       |                      |                                        |   |
|            | •        | ļ    | 43.3                 | 1.4 FLOAT |                                       |                       |                  |                                       |                  |          |                      |                                        |   |
|            |          |      |                      | 1.4 SINK  |                                       |                       |                  |                                       |                  |          |                      |                                        |   |
|            |          |      |                      | 1.5 FLOAT |                                       | .52                   | 5.78             | 21.84                                 |                  | 8        | 66.63                | ,                                      |   |
|            |          |      |                      | 1.5 SINK  |                                       |                       |                  |                                       |                  |          | 33.37                |                                        |   |
|            |          |      |                      | 1.6 FLOAT |                                       |                       |                  |                                       |                  |          |                      |                                        |   |
|            |          | ]    |                      | 1.6 SINK  |                                       |                       |                  | · · · · · · · · · · · · · · · · · · · |                  |          |                      |                                        |   |
|            |          |      |                      |           |                                       |                       |                  |                                       |                  |          |                      |                                        |   |
| 78-235     | 2        |      | 43.3 -               | RAW       |                                       | .19                   | 79.96            |                                       |                  | 0        | $\geq \triangleleft$ |                                        |   |
|            |          |      | 43.8                 | 1.4 FLOAT |                                       |                       |                  |                                       |                  |          |                      |                                        |   |
|            |          |      |                      | 1.4 SINK  |                                       |                       |                  |                                       |                  |          |                      |                                        |   |
|            |          | ł    |                      | 1.5 FLOAT |                                       |                       |                  |                                       |                  |          |                      |                                        |   |
|            |          |      |                      | 1.5 SINK  |                                       |                       |                  |                                       |                  | <u> </u> |                      |                                        |   |
|            |          |      |                      | 1.6 FLOAT | · · · · · · · · · · · · · · · · · · · |                       |                  |                                       |                  |          |                      |                                        |   |
|            |          |      |                      | 1.6 SINK  |                                       |                       |                  |                                       |                  |          |                      | ······································ |   |
|            |          |      |                      |           |                                       |                       |                  |                                       |                  |          |                      |                                        |   |
| 78-236     | 3        |      | 43.8 -               | RAW       |                                       | 0.5                   | 39.87            |                                       |                  | 5        | $\geq$               |                                        |   |
|            |          | •    | 44.2                 | 1.4 FLOAT |                                       |                       |                  |                                       |                  |          |                      |                                        | - |
|            |          |      |                      | 1.4 SINK  |                                       |                       |                  |                                       |                  |          |                      |                                        |   |
|            |          |      |                      | 1.5 FLOAT |                                       | .47                   | 10.62            | 22.24                                 |                  | 81       | 43.32                |                                        |   |
|            |          |      |                      | 1.5 SINK  |                                       |                       |                  |                                       |                  |          | 56.68                |                                        |   |
|            | 1        |      |                      | 1.6 FLOAT | •                                     |                       |                  |                                       |                  |          |                      |                                        |   |
|            |          |      |                      | 0.000     |                                       |                       |                  |                                       |                  |          |                      |                                        |   |

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| AREA       | LODG          | EPOLE |          | HOLE NO.  | Lp-D-101                              | DATE:                 | Oct.             | L9/78            | ANAL             | YST:Ken M     | lcCullou   | Jh     | <u> </u> |
|------------|---------------|-------|----------|-----------|---------------------------------------|-----------------------|------------------|------------------|------------------|---------------|------------|--------|----------|
| LAB<br>NO. | SAMPLE<br>NO. | SEAM  | INTERVAL | FRACTION  | %<br>AIR DRY<br>MOIST                 | %<br>RESID.<br>MOIST. | ¥<br>ASH<br>d.b. | АЪВ<br>8<br>V.M. | АЪВ<br>8<br>F.C. | <u>F.S.I.</u> | *<br>YIELD |        |          |
| 78-234     | 1,0           |       | 118.47 - | RAW       |                                       | .33                   | 16.08            |                  |                  | 13            |            |        |          |
|            |               |       | 119.15   | 1.4 FLOAT |                                       |                       |                  |                  |                  |               |            |        |          |
|            |               | 1     |          | 1.4 SINK  |                                       |                       |                  |                  |                  |               |            |        |          |
|            |               |       |          | 1.5 FLOAT |                                       | .45                   | 10.31            | 17.70            |                  | 15            | 73.39      |        |          |
|            |               |       |          | 1.5 SINK  |                                       |                       |                  |                  | -                |               | 26.61      |        |          |
|            |               |       |          | 1.6 FLOAT |                                       |                       |                  |                  |                  |               |            |        |          |
|            |               |       |          | 1.6 SINK  |                                       |                       |                  |                  |                  |               |            |        |          |
|            |               |       |          |           |                                       |                       |                  |                  |                  |               |            |        |          |
| 78-244     | 1.1           |       | 121.5 -  | RAW       |                                       | . 34                  | 20.89            |                  |                  | 4             | $\square$  |        | 1        |
|            |               |       | 122.9    | 1.4 FLOAT |                                       |                       |                  |                  |                  |               |            |        |          |
|            |               |       |          | 1.4 SINK  |                                       |                       |                  |                  |                  |               |            |        | ŀ        |
|            |               |       |          | 1.5 FLOAT |                                       | .27                   | 9.63             | 18.35            |                  | 5             | 67.58      |        |          |
|            |               |       |          | 1.5 SINK  |                                       |                       |                  |                  |                  |               | 32.42      |        |          |
|            |               |       |          | 1.6 FLOAT | · · · · · · · · · · · · · · · · · · · |                       |                  |                  |                  |               |            |        |          |
|            |               |       |          | 1.6 SINK  |                                       | <u> </u>              |                  |                  |                  |               |            |        |          |
|            |               |       |          |           |                                       | -                     |                  |                  |                  | ·             |            |        |          |
| 78-245     | 12            |       | 180.72 - | RAW       |                                       | .36                   | 20.15            |                  |                  | 1             | > <        |        | -        |
|            |               | •     | 182.58   | 1.4 FLOAT |                                       |                       |                  |                  |                  |               |            |        |          |
|            |               |       |          | 1.4 SINK  |                                       |                       |                  |                  |                  |               |            | ······ |          |
|            |               |       |          | 1.5 FLOAT |                                       | .71                   | 8.71             | 17.35            |                  | 2             | 55.44      |        |          |
|            |               |       |          | 1.5 SINK  |                                       |                       |                  |                  |                  |               | 44.56      |        |          |
|            |               |       |          | 1.6 FLOAT |                                       |                       |                  |                  |                  |               |            |        |          |
|            |               |       |          | STNK      |                                       |                       |                  |                  |                  |               |            |        |          |

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| AREA   | : LODGEN      | POLE |                      | HOLE NO.  | LP-D-101                              | DATE:                 | Oct. 19          | ), 1978          | ANAL              | YST: Ker         | McCullo    | ugh | •       |
|--------|---------------|------|----------------------|-----------|---------------------------------------|-----------------------|------------------|------------------|-------------------|------------------|------------|-----|---------|
| LAB    | SAMPLE<br>NO. | SEAM | INTERVAL<br>(METRES) | FRACTION  | 8<br>AIR DRY<br>MOIST                 | ۶<br>RESID.<br>MOIST. | %<br>ASH<br>d.b. | АДВ<br>8<br>V.M. | а ЪЗ<br>8<br>F.C. | F.S.I.           | 8<br>YIELD |     |         |
| 9-240  | 7.            |      | 84.55 -              | RAW       |                                       | 04                    | 48.18            |                  |                   | 1                |            |     |         |
|        |               | -    | 86.20                | 1.4 FLOAT |                                       |                       |                  |                  |                   |                  |            |     |         |
|        |               |      | • ,                  | 1.4 SINK  |                                       |                       |                  |                  |                   |                  |            |     |         |
| :      |               |      |                      | 1.5 FLOAT |                                       | .67                   | 6.48             | 20.84            |                   | 8                | 27.19      |     |         |
|        | • .           |      |                      | 1.5 SINK  |                                       |                       |                  |                  |                   |                  | 72.81      |     | <u></u> |
|        |               |      |                      | 1.6 FLOAT |                                       |                       |                  |                  |                   |                  |            |     |         |
|        |               |      |                      | 1.6 SINK  |                                       |                       |                  | ·····            |                   |                  | -          |     |         |
|        |               |      |                      |           |                                       |                       |                  |                  |                   |                  |            | 1   |         |
| 8-241  | 8             | c4., | 96.10 -              | RAW       |                                       | .37                   | 41.99            |                  |                   | 4                | $\searrow$ |     | <u></u> |
|        |               |      | 97.80                | 1.4 FLOAT |                                       |                       |                  |                  |                   |                  |            |     |         |
|        |               |      |                      | 1.4 SINK  |                                       |                       |                  |                  |                   |                  |            |     |         |
|        |               |      |                      | 1.5 FLOAT |                                       | .41                   | 9.20             | 19.44            |                   | 7 <sup>1</sup> 3 | 43.42      |     | · · ·   |
|        | • •           |      |                      | 1.5 SINK  |                                       |                       |                  |                  |                   |                  | 56.58      |     |         |
|        |               |      |                      | 1.6 FLOAT |                                       |                       |                  |                  |                   |                  |            |     |         |
|        |               |      |                      | 1.6 SINK  |                                       |                       |                  |                  |                   | _                |            |     |         |
|        |               |      |                      |           |                                       |                       |                  |                  |                   |                  |            |     |         |
| 78-242 | 9             |      | 113.88 -             | RAW       |                                       | . 42                  | 20.72            |                  |                   | 45               | $\geq$     |     |         |
|        |               | •    | 118.47               | 1.4 FLOAT | · · · · · · · · · · · · · · · · · · · |                       |                  |                  |                   |                  |            |     |         |
|        |               |      |                      | 1.4 SINK  |                                       |                       |                  |                  |                   |                  |            | -   |         |
|        |               |      |                      | 1.5 FLOAT |                                       | .63                   | 7.88             | 19.79            |                   | 6                | 67.73      |     |         |
|        |               |      |                      | 1.5 SINK  |                                       |                       |                  |                  |                   |                  | 32.27      |     |         |
| •      |               |      |                      | 1.6 FLOAT | n                                     |                       |                  |                  |                   |                  |            |     |         |
|        |               |      |                      | SINK      |                                       |                       |                  |                  |                   |                  |            |     |         |

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| AREA       | :LODO         | GEPOLE |                      | HOLE NO.  | LP-D-101              | DATE:                                 | Octobe           | er 19, 19                             | 978 ANAL                | YST: <u>Ken</u> | McCulla    | ough |   |
|------------|---------------|--------|----------------------|-----------|-----------------------|---------------------------------------|------------------|---------------------------------------|-------------------------|-----------------|------------|------|---|
| LAB<br>NO. | SAMPLE<br>NO. | SEAM   | INTERVAL<br>(METRES) | FRACTION  | %<br>AIR DRY<br>MOIST | ٦<br>RESID.<br>MOIST.                 | ¥<br>ASH<br>d.b. | АРЗ<br>8<br>V.M.                      | АDВ<br>8<br><b>F.C.</b> | F.S.I.          | *<br>YIELD |      |   |
| 78-237     | 4             | 4      | 57.9 -               | RAW       |                       | .08                                   | 6.18             |                                       |                         | 65g             |            |      |   |
|            |               |        | 59.4                 | 1.4 FLOAT | ·                     |                                       |                  |                                       |                         |                 |            |      |   |
| -          |               | } .    |                      | 1.4 SINK  |                       |                                       |                  |                                       |                         |                 |            |      | _ |
|            |               |        | ·                    | 1.5 FLOAT |                       | 1.14                                  | 3.68             | 21.25                                 |                         | 65              | 88.32      |      |   |
|            | •             |        |                      | 1.5 SINK  |                       |                                       |                  |                                       |                         |                 | 11.68      |      |   |
|            |               |        |                      | 1.6 FLOAT |                       | · · · · · · · · · · · · · · · · · · · |                  |                                       |                         |                 |            |      |   |
|            |               |        | •<br>•               | 1.6 SINK  |                       |                                       |                  | · · · · · · · · · · · · · · · · · · · |                         |                 |            |      | _ |
|            |               |        |                      |           |                       |                                       |                  |                                       |                         |                 |            |      |   |
| 78-238     | 5             |        | 59.4 -               | RAW       |                       | .40                                   | 25.98            |                                       |                         | 5 3             | $>\!\!<$   |      |   |
|            | Į             |        | 60.2                 | 1.4 FLOAT |                       |                                       |                  |                                       |                         |                 |            |      |   |
|            |               |        |                      | 1.4 SINK  |                       |                                       |                  |                                       |                         |                 |            |      |   |
|            | L<br>4<br>1   |        |                      | 1.5 FLOAT |                       | .57                                   | 6.06             | 20.50                                 |                         | 6               | 63.47      |      |   |
|            | · ·           | }      |                      | 1.5 SINK  |                       |                                       | ,                | <u> </u>                              |                         |                 | 36.53      |      |   |
|            |               | 1      |                      | 1.6 FLOAT |                       |                                       |                  |                                       |                         |                 |            |      |   |
|            |               |        |                      | 1.6 SINK  |                       |                                       |                  |                                       | <u> </u>                |                 |            | ļ    |   |
|            |               |        |                      |           |                       |                                       |                  |                                       |                         |                 |            |      |   |
| 78-239     | 6             |        | 60.2 -               | RAW       |                       | .11                                   | 87.90            |                                       |                         | 0               | $\geq$     |      |   |
|            |               |        | 60.5                 | 1.4 FLOAT |                       |                                       |                  |                                       |                         |                 |            |      |   |
|            |               | ł      |                      | 1.4 SINK  |                       |                                       |                  |                                       |                         |                 |            |      |   |
|            |               |        |                      | 1.5 FLOAT |                       |                                       |                  |                                       |                         |                 |            |      |   |
|            |               |        |                      | 1.5 SINK  |                       |                                       |                  |                                       |                         |                 |            |      |   |
| •          |               |        | - 4                  | 1.6 FLOAT | 2                     |                                       |                  |                                       |                         |                 | •          |      |   |
|            |               |        |                      | STNK      | ļ <u></u>             |                                       |                  |                                       |                         |                 |            |      |   |

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| AREA        | LODGI         | EPOLE |                    | HOLE NO.  | LP-D101                               | DATE:            | Oct. 1           | 9/78               | ANAL               | (ST: Ken | McCullou   | igh                                   |
|-------------|---------------|-------|--------------------|-----------|---------------------------------------|------------------|------------------|--------------------|--------------------|----------|------------|---------------------------------------|
| LAB<br>NO.  | SAMPLE<br>NO. | SEAM  | INTERVAL           | FRACTION  | ¥<br>AIR DRY<br>MOIST                 | RESID.<br>MOIST. | %<br>ASH<br>d.b. | А D В<br>&<br>V.M. | A 723<br>8<br>F.C. | F.S.I.   | %<br>YIELD |                                       |
| 78.263      | 22            | -     | 325.63 -<br>326.14 | RAW .     |                                       | .30              | 32.55            |                    |                    | 1        |            |                                       |
|             |               |       |                    | 1.4 FLOAT |                                       |                  |                  |                    | - <u></u>          |          |            |                                       |
|             |               |       |                    | 1.5 FLOAT |                                       | .69              | 14.31            | 18.16              |                    | 3        | 35.10      |                                       |
|             | •             |       |                    | 1.5 SINK  |                                       |                  |                  |                    |                    |          | 64.90      |                                       |
|             |               |       |                    | 1.6 FLOAT |                                       | •                |                  |                    |                    |          |            |                                       |
|             |               | 1     | E .                | 1.6 SINK  |                                       |                  |                  |                    |                    |          |            |                                       |
|             |               |       |                    |           |                                       |                  | 1                |                    |                    |          |            |                                       |
| 78.264      | 23            |       | 326.14 -           | RAW       |                                       | .33              | 18.69            |                    |                    | 1        | $\geq$     |                                       |
|             |               |       | 326.64             | 1.4 FLOAT |                                       |                  |                  |                    |                    |          |            |                                       |
|             | 1             | ĺ     |                    | 1.4 SINK  |                                       |                  |                  |                    |                    |          |            |                                       |
| •           |               |       |                    | 1.5 FLOAT | -                                     | .66              | 15.79            | 17.82              | <br>               | 15       | 70,58      | <u> </u>                              |
|             |               |       |                    | 1.5 SINK  |                                       |                  |                  | -                  |                    |          | 29.42      |                                       |
|             |               |       |                    | L.6 FLOAT |                                       |                  |                  |                    |                    |          |            | · · · · · · · · · · · · · · · · · · · |
|             |               |       |                    | 1.0 SINK  |                                       |                  |                  |                    |                    |          |            |                                       |
|             |               |       | ·                  |           |                                       |                  |                  |                    |                    |          |            | ļ                                     |
| 78-265      | 24            | •     | 326.64 -           | RAW       |                                       | .31              | 41.37            |                    |                    | 1        | $\geq$     |                                       |
| 6<br>]<br>] |               |       | 327.36             | 1.4 FLOAT |                                       |                  |                  |                    |                    |          |            | <u> </u>                              |
| <br>        |               |       |                    | 1.4 SINK  |                                       |                  |                  | <br>               |                    |          |            | <br>                                  |
|             |               |       |                    | 1.5 FLOAT | · · · · · · · · · · · · · · · · · · · | .67              | 15.63            | 17.06              |                    | 1        | 15.19      |                                       |
|             |               |       |                    | 1.5 SINK  |                                       |                  |                  |                    |                    |          | 84.81      |                                       |
|             |               |       | · •                | 1.6 FLOAT | <u>}</u>                              |                  |                  |                    |                    |          | ·          | <u> </u>                              |
| 1           | 1             | 1     | 1                  | UL.6 STNK | 1                                     |                  | 1                | 1                  | 4 1                | 1        | 1          | 1 1                                   |

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| AREA     | :LODGE | POLE | <u></u>              | HOLE NO.  | <u>LP-D-101</u>       | DATE:            | Oct. 19          | 9/78             | ANAL             | ST: Ken | McCullou    | gh            | •                   |
|----------|--------|------|----------------------|-----------|-----------------------|------------------|------------------|------------------|------------------|---------|-------------|---------------|---------------------|
| LAB      | SAMPLE | SEAM | INTERVAL<br>(METRES) | FRACTION  | %<br>AIR DRY<br>MOIST | RESID.<br>MOIST. | %<br>ASH<br>d.b. | АРВ<br>8<br>V.M. | ADB<br>8<br>F.C. | F.S.I.  | \$<br>YIELD |               |                     |
| 8-266    | 25     |      | 327.36 -             | RAW       |                       | .52              | 28.92            |                  |                  | 1       | $\square$   |               |                     |
|          | •      |      | 328.30               | 1.4 FLOAT |                       |                  |                  |                  |                  |         |             |               |                     |
|          | ļ      |      | }.                   | 1.4 SINK  |                       |                  |                  |                  |                  |         |             |               |                     |
|          |        |      |                      | 1.5 FLOAT |                       | 1.00             | 17.12            | 18.51            |                  | 3       | 39.02       |               |                     |
|          | •      |      |                      | 1.5 SINK  |                       |                  |                  |                  |                  |         | 60,98       |               |                     |
|          |        |      |                      | 1.6 FLOAT |                       |                  |                  |                  |                  |         |             |               |                     |
|          |        |      |                      | 1.6 SINK  |                       |                  |                  |                  |                  |         |             |               |                     |
|          |        |      |                      |           |                       |                  |                  |                  |                  |         |             |               |                     |
|          |        |      |                      |           |                       | ·                |                  |                  |                  | ·       |             |               |                     |
|          |        | ł    |                      | RAW       |                       |                  |                  |                  |                  |         |             |               | ·                   |
|          |        |      |                      | L.4 FLOAT |                       |                  |                  |                  |                  |         |             |               |                     |
| <i>,</i> |        |      |                      |           |                       |                  |                  |                  |                  |         |             | +             |                     |
|          |        |      |                      | 1 5 STNK  | +                     |                  | -                | - <u> </u>       |                  |         | ·           |               | <u>- Institutet</u> |
|          |        |      |                      | 1 6 FLOAT |                       |                  |                  |                  |                  |         |             | <del></del> † |                     |
|          |        |      |                      | 1.6 SINK  |                       |                  |                  |                  |                  |         |             |               |                     |
|          |        |      |                      |           |                       |                  |                  |                  | +                |         | =           |               |                     |
|          |        |      |                      |           |                       |                  |                  |                  | ļ                |         |             | <b></b>       |                     |
|          |        |      |                      | RAW       |                       | <br>             |                  |                  | =                | -       |             | ;             |                     |
|          | }      |      |                      | 1.4 PLOAT | •                     |                  |                  |                  |                  |         |             |               |                     |
|          |        |      |                      | 1.4 SINK  |                       |                  | _                |                  |                  | ÷       |             |               | <br>                |
|          |        |      |                      | 1.5 PLOAT |                       |                  |                  |                  |                  |         |             |               |                     |
|          |        |      |                      | 1.5 SINK  |                       |                  |                  | <br>             |                  |         |             |               |                     |
|          |        | ļ    |                      | 1.6 FLOAT | <u></u>               |                  |                  |                  |                  |         | _ <u>_</u>  |               | <b> </b>            |
|          |        |      | )                    | '. C SINK | l<br>l                | 4                | I.               |                  |                  |         |             |               |                     |

CROUSHE FOURCES LIMITED

# ATTH: F. Martin-Hagge

### LORING LABORATORIES LTD

CERTIFICATE of COAL TESTING

Page # 1

DATE:\_\_\_\_

FILE NO.: \_\_\_\_\_ Ocuster 2, 1979

|            |               | SAMPLE      | % REC | OVERY |                                       | REC'D          |                | %                       | %                       | %<br>EIXEO              | %                 | BTU                        |                | d,                   |
|------------|---------------|-------------|-------|-------|---------------------------------------|----------------|----------------|-------------------------|-------------------------|-------------------------|-------------------|----------------------------|----------------|----------------------|
| SAMPLE NO. |               | TYPE        | SINK  | FLOAT |                                       | -7₀<br>H₂O     | ж.<br>Н,О      | MATTER                  | ASH                     | CARBON                  | S                 | /L8.                       | F.S.I,         | Nitrogen             |
| #1         | Hole LP-D-202 | Raw Coal    |       |       | As Received<br>Air Dried<br>Dry Easis | 6.65<br>_<br>_ | -<br>.1,3<br>- | 18.54<br>19.77<br>19.86 | 12.37<br>13.19<br>13.25 | 62.14<br>66.61<br>66.89 | .75<br>.80<br>.80 | 12,551<br>13,387<br>13,145 | 5              | 1.19<br>1.26<br>1.27 |
| # 1        | Hole LP-D-202 | -1.50 Float | -     | 85.67 | Air Dried<br>Dry Basis                |                | •110           | 20.03                   | 9.57<br>9.61            | 70.00<br>70.28          | .83<br>.83        | 13,931<br>13,987           | 52             | 1.28<br>1.29         |
| #2         | Nole LP-D-202 | Raw Coal    |       |       | As Received<br>Air Dried<br>Dry Basis | 2.61           | -43<br>-       | 18.98<br>19.41<br>19.49 | 28.15<br>28.78<br>28.90 | 50.26<br>51.38<br>51.61 | .46<br>.47<br>.47 | 10,413<br>10,646<br>10,692 | 1              | 0.91<br>0.93<br>0.93 |
| #2         | Hole LP-D-202 | -1.50 Float | -     | 47.96 | Air Dried<br>Dry Basis                | -              | •37            | 19.46<br>19.53          | 10.89<br>10.93          | 69.28<br>69.54          | .61<br>.61        | 13,667<br>13,718           | 2늘             | 1.14<br>1.14         |
| # 3        | Hole LP-D-202 | Raw Coal    |       |       | As Received<br>Air Dried<br>Dry Basis | 16.14          | .56<br>-       | 12.18<br>14.45<br>14.53 | 37.82<br>44.85<br>45.10 | 33.86<br>40.14<br>40.37 | .26<br>.31<br>.31 | 6,616<br>7,845<br>7,889    | 1              | 0.74<br>0.88<br>0.88 |
| # 3        | Hole LP-D-202 | -1.50 Float | _     | 20.28 | Air Dried<br>Dry Basis                | -              | •56            | 19.11<br>19.22          | 12.35<br>12.42          | 67.98<br>68.36          | .48<br>.48        | 13,457<br>13,533           | 3.1            | 1.17<br>1.18         |
| # 1,       | Hole LP-D-202 | Raw Coal    |       |       | As Received<br>Air Dried<br>Dry Basis | 10.35          | -<br>.29<br>-  | 18.21<br>20.25<br>20.31 | 28.34<br>31.52<br>31.61 | 43.10<br>47.94<br>48.08 | .20<br>.22<br>.22 | 7,984<br>8,880<br>8,906    | 1 <del>1</del> | 0.67<br>0.75<br>0.75 |
| # 4        | Hole LP-D-202 | -1.50 Float | -     | 56.03 | Air Dried<br>Dry Basis                | -              | .55            | 20.03<br>20.14          | 10.87<br>10.93          | 68.55<br>68.93          | • /4/4<br>• /44   | 13,592<br>13,667           | 2              | 1.12<br>1.13         |

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CERTIFICATE : COAL TESTING

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Page # 2

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"ober 2, 1979

| <u>CC: K. Mc</u> | <u>Culloven</u> | 1              | #/ DCC/ | WERV       |                                       | BEC'D            |                  | D/                      | %                       | %                       | <b>P</b> (        |                            | (               |                      |
|------------------|-----------------|----------------|---------|------------|---------------------------------------|------------------|------------------|-------------------------|-------------------------|-------------------------|-------------------|----------------------------|-----------------|----------------------|
| SAMPLE NO.       | IDENTIFICATION  | SAMPLE<br>TYPE | SINK    |            |                                       | %<br>U 0         | %                | VCL                     | л <u>с</u> н            | FIXED                   | 5                 | BTU<br>/IR                 | E S I           | <b>9</b> .           |
|                  |                 |                | 2007    | FLOAT      |                                       | H <sub>1</sub> U | H <sub>2</sub> 0 | MATTER                  | АЗП                     | CANDUN                  |                   | ·                          | г, <b>д</b> ,I, | Nitro <u>gen</u>     |
| # 5              | Nole LP-D-202   | Raw Coal       |         |            | Λs Received<br>Air Dried<br>Dry Basis | 3.81<br>-<br>-   | •36              | 16.47<br>17.06<br>17.12 | 23.57<br>24.41<br>24.50 | 56.15<br>58.17<br>58.38 | •39<br>•41<br>•41 | 10,828<br>11,216<br>11,257 | 1               | 0.83<br>0.86<br>0.86 |
| # 5              | Nole LP-D-202   | -1.50 Float    | -       | 60,91      | Air Dried<br>Dry Basis                | -                | •45<br>-         | 19.09<br>19.18          | 11.76<br>11.81          | 68.70<br>69.01          | • /+/+<br>• /+/+  | 13,486<br>13,547           | 2ኔ              | 1.10                 |
| #6               | Hole LP-D-202   |                |         |            | As Received<br>Air Dried<br>Dry Basis | 4.37<br>-<br>-   | -<br>•41<br>-    | 17.39<br>18.11<br>18.18 | 22.05<br>22.97<br>23.06 | 56.19<br>58.51<br>58.76 | .41<br>.43<br>.43 | 11,103<br>11,562<br>11,610 | 21              | 0.88<br>0.92<br>0.92 |
| #6               | Hole LP-D-202   | -1.50 Float    | -       | 68.92      | Air Dried<br>Dry Basis                | -                | •45<br>          | 19.76<br>19.85          | 8.21<br>8.25            | 71.58<br>71.90          | .147<br>•47       | 14,229<br>14,293           | 4               | 1.15<br>1.16         |
| #7               | Hole LP-D-202   | Raw Coal       |         |            | As Received<br>Air Dried<br>Dry Basis | 6.71             | -47<br>-         | 17.29<br>18.44<br>18.53 | 31.67<br>33.79<br>33.95 | 44.33<br>47.30<br>47.52 | •36<br>•39<br>•39 | 8,930<br>9,527<br>9,572    | 1               | 0.76<br>0.81<br>0.81 |
| #7               | Hole LP-D-202   | -1.50 Float    | -       | 40.06      | Air Dried<br>Dry Basis                | -                | .67              | 18.45<br>18.57          | 21.28<br>21.42          | 59.60<br>60.01          | •50<br>•50        | 11,854<br>11,934           | 1               | 1.00<br>1.01         |
| # 8              | Hole LP-D-202   | Raw Coal       |         | .<br> <br> | As Received<br>Air Dried<br>Dry Basis | 2.98             | .36              | 23.95<br>24.60<br>24.69 | 47.98<br>49.27<br>49.45 | 25.09<br>25.77<br>25.86 | .19<br>.20<br>.20 | 5,095<br>5,233<br>- 5,252  | 1/2             | 0.53<br>0.55<br>0.55 |
| #8               | Hole LP-D-202   | -1.50 Float    | -       | 7.44       | Air Dried<br>Dry Basis                | -                | •74              | 21.21<br>21.37          | 13.50<br>13.60          | 64.55<br>65.03          | .45<br>.45        | 13,174<br>13,272           | 32              | 1.10<br>1.11         |

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CHOISHESHEST RESOURCES LIMITED

# LORING LABURATORIES LTD

CERTIFICATE of COAL TESTING

Page # 3

FILE NO .: .

DATE:\_\_\_

October 2, 1979

ATTIL: F. Martinellagge

| <u>00; 5, 5, 100</u> |                | SAMPLE      | % HECC | <b>WERY</b> |                                       | REC'D            | Q/_            | %<br>VC                 | %                       | %<br>FIXED              | %                 | στυ                        |        | %                    |
|----------------------|----------------|-------------|--------|-------------|---------------------------------------|------------------|----------------|-------------------------|-------------------------|-------------------------|-------------------|----------------------------|--------|----------------------|
| SAMPLE NO.           | IDENTIFICATION | TYPE        | SINK   | FLOAT       |                                       | H <sub>3</sub> 0 | н,0            | MATTER                  | ASH                     | CARBON                  | s                 | /LB.                       | F.Ş.I. | Nitrogen             |
| #9_                  | Hole LP-D-202  | Raw Coal    |        |             | As Received<br>Air Dried<br>Dry Basis | 10.92            | •45            | 16.0%<br>17.93<br>18.01 | 32.59<br>36.43<br>36.59 | 40.45<br>45.19<br>45.40 | .27<br>.30<br>.30 | 8,139<br>9,096<br>9,137    | 1      | 0.73<br>0.82<br>0.82 |
| # 9                  | Hole LP-D-202  | -1.50 Float | -      | 42.64       | Air Dried<br>Dry Basis                |                  | .86<br>-       | 19.02<br>19.18          | 12.31<br>12.42          | 67.81<br>68.40          | .40<br>.40        | 13,453<br>13,570           | 12     | 1.00<br>1.01         |
| # 10                 | Hole LP-D-202  | Raw Coal    |        |             | As Received<br>Air Dried<br>Dry Basis | 10.24            | -39<br>        | 15.78<br>17.51<br>17.58 | 40.18<br>44.59<br>44.76 | 33.80<br>37.51<br>37.66 | •19<br>.21<br>.21 | 6,631<br>7,359<br>7,388    | ÷      | 0.52<br>0.58<br>0.58 |
| # 10                 | Hole LP-D-202  | -1.50 Float | -      | 20.37       | Air Dried<br>Dry Basis                | (<br>            | 1.19           | 21.20<br>21.46          | 15.02<br>15.20          | 62.59<br>63.34          | .41<br>.41        | 12,414<br>12,564           | 1      | 0.96<br>0.97         |
| # 11                 | Hole LP-D-202  | Raw Coal    |        |             | As Received<br>Air Dried<br>Dry Basis | 21.27<br>-<br>-  | -<br>- 48<br>- | 14.56<br>18.40<br>18.49 | 8.04<br>10.16<br>10.21  | 56.13<br>70.96<br>71.30 | .41<br>.52<br>.52 | 10,925<br>13,809<br>13,876 | 1늄     | 0.81<br>1.03<br>1.03 |
| # 11                 | Hole LP-D-202  | -1.50 Float |        | 91.50       | Air Dried<br>Dry Basis                | -                | .97            | 19.03<br>19.22          | 7.58<br>7.65            | 72.42<br>73.13          | .51<br>.51        | 14,175<br>14,314           | 112    | 1.03<br>1.04         |
| # 12                 | Hole LP-D-202  | Raw Coal    |        |             | As Received<br>Air Dried<br>Dry Basis | 7.97             | .21            | 6.43<br>8.45            | 79.76<br>79.93          | 11.60<br>11.62          | .12               | 1,656<br>1,659             | 0      | 0.35<br>0.35         |
| # 12 ***             | Hole LP-D-202  | -1.50 Float | -      | 4.19        | Air Dried<br>Dry Basis                |                  | -              |                         |                         |                         |                   |                            |        |                      |

\* Ash over 50% in raw

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CROWSNEST RESOURCES

# LORING LABORATORIES LTD

FILE NO : \_\_\_\_\_18107\_\_\_\_

## ATTN: T, Cole

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### CERTIFICATE of COAL TESTING

DATE:\_\_October 31, 1979

| CC: Ke         | n McCuilougn-Fermi     | e              |               |                | 1                                     | · · · ·           |           |                         |                         |                         |                   |                           |        |                      |
|----------------|------------------------|----------------|---------------|----------------|---------------------------------------|-------------------|-----------|-------------------------|-------------------------|-------------------------|-------------------|---------------------------|--------|----------------------|
| SAMPLE NO.     | IDENTIFICATION         | SAMPLE<br>TYPE | % REC<br>SINK | OVERY<br>FLOAT |                                       | REC′D<br>%<br>H₂0 | %<br>H₂O  | %<br>VCL<br>MATTER      | %<br>ASH                | %<br>FIXED<br>CARBON    | %<br>S            | BTU<br>/LB.               | F.S.I. | %<br>N               |
| "COAL SAMPLES" | · ·                    |                |               |                |                                       |                   |           |                         |                         |                         |                   |                           |        | ,                    |
| #13            | HOLE LP-D-202          | Raw Coal       |               |                | As Received<br>Air Dried<br>Dry Basis | 1.51              | -47<br>-  | 12.87<br>13.01<br>13.07 | 50.86<br>51.40<br>51.64 | 34.76<br>35.12<br>35.29 | .47<br>.48<br>.48 | 6,850<br>6,922<br>6,955   | 17     | .65<br>.66<br>.66    |
| #13            | Hole lp-d-202          | -1.50 Float    | -             | 29.16          | Air Dried<br>Dry Basis                | -<br>-            | •34       | 20.97<br>21.04          | 10.09<br>10.12          | 68.60<br>68.84          | •79<br>•79        | 14,049<br>14,097          | 9      | 1.09<br>1.09         |
| #14,           | HOLE 1 <b>P-D-20</b> 2 | Raw Coal       |               |                | As Received<br>Air Dried<br>Dry Basis | •53<br>-<br>-     | .22<br>-  | 15.09<br>15.14<br>15.17 | 33.00<br>33.11<br>33.18 | 51.38<br>51.53<br>51.65 | .42<br>.42<br>.42 | 9.887<br>9,918<br>9,940   | 1      | - 54<br>- 54<br>- 54 |
| #14            | HOLE LP-D-202          | -1.50 Float    | -             | 25.12          | Air Dried<br>Dry Basis                | -                 | .14       | 17.00<br>17.02          | 14.65<br>14.67          | 68.21<br>68.31          | •55<br>•55        | 13,174<br>13,192          | 2늘     | 1.27<br>1.27         |
| ADIT #1        | ADIT SITE              | Raw Coal       |               |                | As Received<br>Air Dried<br>Dry Basis | 11.69<br>-<br>-   | 2.73<br>- | 17.39<br>19.15<br>19.69 | 24.51<br>27.00<br>27.76 | 46.41<br>51.12<br>52.55 | .32<br>.36<br>.37 | 9,228<br>10,165<br>10,450 | ı      | .65<br>.72<br>.74    |
| ADIT #1        | ADIT SITE              | -1.50 Float    | -             | 49.48          | Air Dried<br>Dry Basis                | -                 | 3.07      | 20.04<br>20.67          | 8.77<br>9.05            | 68.12<br>70.28          | .40<br>.41        | 13,789<br>14,226          | ᅽ      | .99<br>1.02          |
|                |                        |                | -             | -              |                                       |                   |           |                         |                         |                         |                   |                           |        |                      |
|                |                        |                |               | }              |                                       |                   |           |                         |                         |                         |                   |                           |        |                      |
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- K-SHELL LODGE POLE 79(2)A













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| 4800    |      |                                                                      |                                                | L. L                                                                                           |                                              |        |   |
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![](_page_75_Figure_5.jpeg)

| DENTIFICATION | NORTHINGS      | EASTINGS   | ELEVATION | HOLE ANGLE   | AZIMUTH | <u>I.D.</u> |  |
|---------------|----------------|------------|-----------|--------------|---------|-------------|--|
| LP-D101       | 5,464,647.60   | 663,806.01 | 1931.8    | 61•          | 110•    | 368.8       |  |
| LP-D102       | 5,465,071.98   | 664,449.34 | 2086.6    | 6 <b>5</b> • | 110•    | 126.5       |  |
| LP-R201       | 5,465,418.92   | 664,796.67 | 1891.10   | VERT.        |         | 232         |  |
| LP-D202       | 5,466,240.93   | 664,557.68 | 1825.19   | VERT.        |         | 156         |  |
| LP-R203       | 5,465,638.94   | 664,510.10 | 1954.10   | VERT.        |         | 200         |  |
| LP-R204       | 5.466.036.06   | 664,973.45 | 1898.38   | VERT.        |         | 171         |  |
| LP-R205       | 5,465,796.65   | 665,247 11 | 1992.35   | VERT.        |         | 201         |  |
| LP-R206       | 5, 466, 409.09 | 664,947.44 | 1903.14   | VERT.        |         | 187         |  |
| LP-R207       | 5, 466, 847.37 | 665,109.09 | 2029.45   | VERT.        |         | 204         |  |

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![](_page_76_Figure_0.jpeg)

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|     | O HORIZONTAL SCALE NONE<br>VERTICAL SCALE 1:400                                                       |
|-----|-------------------------------------------------------------------------------------------------------|
| 220 | METERS $4 \cdot 2 \cdot 7 \cdot 3 \cdot 7 \cdot 7$    |
|     | Crows Nest Resources Limited<br>EXPLORATION                                                           |
|     | S.E. BRITISH COLUMBIA<br>LODGEPOLE PROJECT<br>STRATAGRAPHIC CORRELATION<br>SECTION                    |
|     | AUTHOR: T. COLE SCALE; ENCLOSURE No : 8<br>DATE: 80 03 12 REVISED: DRAWING No: HA-501<br>To Accompany |
|     |                                                                                                       |

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![](_page_77_Figure_0.jpeg)

- K-SHELL-LOOGERGE 79(3)A

![](_page_78_Picture_1.jpeg)

![](_page_78_Picture_2.jpeg)

#### APPENDIX TWO

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. ب Geophysical Logs

LP-R 201 LP-D 202 LP-R 203 LP-R 204 LP-R 205 LP-R 206 LP-R 207

## GEOLOGICAL BRANCH ASSESSMENT DEPORT

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### APPENDIX THREE

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Core Descriptions With Analysis and Summary Geotechnical Data for LP-D 101 and LP-D 202 ADIT SITE - Lower Seam Description (McLatchie Ridge)

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| COPE & C       |              |                       | PROJECT    | LOOGEPOLE               | 12 | <b>BEGIN</b> | Sept. 11/79  |                      | PAGE 1    |
|----------------|--------------|-----------------------|------------|-------------------------|----|--------------|--------------|----------------------|-----------|
|                |              |                       | AREA       | S.C. 8.C.               | ľ  | END          | Sept. 18/79  |                      |           |
| HOLE PARTICULA | 85           |                       | LOGGING    |                         | CO | AL CORING    | PERFORMANCE  | EXAMINATION          |           |
| LOCATION       | N 5 466 240. | 93                    | LOGS RUN   | GR, NEU., LSD, HRD, BRD | C  | DRE DIAMET   | ER HQ        | LOG USED             | Litto.    |
|                | E 664 557.   | 68                    | 1 OGGED BY | ₽₽₿                     |    | CORE RECON   | /ERED 115.28 | No. OF SEAMS SAMPLED | 2         |
| ELEVATION      | 1825.19      | HOLE BEARING (AZ")    | OTHER      |                         | 15 | LENGTH CO    | RFE) 142.65  | EXAMINER (S)         | T. Cote   |
| TOTAL DEPTH    | 156.0        | HOLE ANGLE (*)* Vert. | TESTS      |                         | Ľ  | CORF RECO    | VEPY 80.81 % | DATE                 | Qcl. 1/19 |

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| BOX      | 66,0794<br>- A7 | ) DE               | PTH                |               |                                         | LITHO DESCRIPTION                                          | A.0074     | SEAM     | SAMPLE   |        |          | ANAL     | TICAL  | DATA   | r            |                    |              |        |            |
|----------|-----------------|--------------------|--------------------|---------------|-----------------------------------------|------------------------------------------------------------|------------|----------|----------|--------|----------|----------|--------|--------|--------------|--------------------|--------------|--------|------------|
| No       | 20              | FROM               | to                 | пн            | MAIN                                    | AMPLIFIED ( INCLUDE COAL RECOVERY FOR EACH SEAM)           | AMOLE      | nesig.   | No.      | a.c.b. | st 74    | ASH %    | V.M. % | E.C. % | F.S.I.       | C.V.               | Fende        | MARK   | 'S'        |
|          |                 | 0                  | 19 83              |               |                                         | Reamed                                                     | <u>†</u>   | <u> </u> | t1       |        |          |          | - 0.0. | 0.0.   | ┝╼╾╺┼        |                    | ifcoe<br>I   | ROD    | Jiaca.     |
|          |                 |                    |                    |               |                                         |                                                            |            |          |          |        |          |          |        | -      | ├──-┦        | · ··               | ┝╌╴┨         |        | h          |
|          |                 | 19.83              | 20,05              | 0.22          | \$\$                                    | fine grain; salt and pepper; hard; rubble                  | {─-        |          |          |        |          |          |        |        |              |                    | $\vdash$     |        |            |
|          |                 |                    |                    |               | ••••••••••••••••••••••••••••••••••••••• |                                                            |            |          |          |        |          |          |        |        |              |                    | ¦∤           | $\neg$ | ps         |
|          |                 | 20,05              | 20,68              | 0,63          | Shala                                   | dark gray; carboneceous                                    |            |          |          |        |          |          |        |        |              |                    |              |        | R3         |
|          |                 |                    |                    | L             |                                         |                                                            | <u> </u>   | I        |          |        |          |          |        |        |              |                    |              |        |            |
|          |                 | 20.68              | 21.45              | 0.75          | Shale                                   | derk gray; carbonaceous                                    | [          |          | <b></b>  |        |          |          |        |        | ┞Ң           |                    |              | 0.38   | R3         |
|          |                 | 21 45              | 22 51              | 1 08          | Shalo                                   | derk gravt carbonacevic                                    | ╡───       |          | <b> </b> |        |          | ·        |        |        | <b> </b>     | · · _ ·            |              |        |            |
|          |                 | <u> </u>           |                    |               | 34018                                   |                                                            |            |          | I        |        |          |          |        |        | ┠───┟        |                    |              |        | <u>R5</u>  |
|          |                 | 22,51              | 22.71              | 0,20          | SS-SLST                                 | interbedded; light gray; very tine grain sendstone and     |            |          | 1        |        |          |          |        |        |              |                    | †            | D. 58  | R.         |
|          |                 |                    |                    |               |                                         | dark gray siltstone; mottley                               | <u> </u>   |          |          |        |          |          |        |        |              |                    |              |        | [ <u> </u> |
|          |                 | ·                  |                    | <b>!</b>      |                                         |                                                            |            |          | <u> </u> |        |          |          |        |        |              |                    |              |        |            |
|          |                 | 22,71              | 22.81              | 0, 10         | SLST                                    | dark gray; carbonaceous                                    | <b></b> .  |          | <u> </u> |        |          |          |        |        |              |                    | <u> </u>     |        | R5         |
|          |                 | 22.81              | 27.93              | <b>n</b> . 12 | 55                                      | light grav: very time grain with some silty bads           | 274        | ļ        | ┦──┤     |        |          |          |        |        |              |                    |              |        | <b> </b>   |
| <u> </u> |                 |                    |                    |               | <u> </u>                                |                                                            | <u> </u>   | <u> </u> |          |        |          |          |        |        |              |                    | <u> </u>     |        | R4         |
| 2        |                 | 22.93              | 23.00              | 0.07          | Shale.                                  | dark gray: carbonaceous                                    | 1          | <u> </u> |          |        |          |          |        |        |              |                    | }            |        | 83         |
|          |                 |                    |                    |               |                                         |                                                            |            |          |          |        |          |          |        |        |              |                    |              | -      |            |
|          |                 | 23.00              | 23.70              | 0,70          | \$\$                                    | light gray; very fine grain; becoming increasing shaly at  |            |          | ļ        |        |          |          |        |        |              |                    |              |        | R4         |
|          |                 |                    |                    |               |                                         | 100                                                        | <b></b>    | ·        |          |        |          |          |        |        | <b> </b>     |                    | L4           |        | ļ          |
|          |                 | 23.70              | 23.95              | 0.25          | Shale                                   | dark grav: carbonaceous: sandy to part                     |            |          |          |        |          |          |        |        |              | - · ·              |              |        |            |
|          |                 |                    |                    |               |                                         |                                                            | 1          |          | }        |        |          |          |        |        |              | · · ·              |              |        | <u></u>    |
|          |                 | 23,95              | 24,29              | 0.34          | SS                                      | light gray; very fine grain; some wispy cross-bedded sitt- |            |          |          |        |          |          |        |        |              |                    |              | 0.80   | R4         |
| L        |                 |                    |                    | <b> </b>      |                                         | stone beds                                                 | L          |          | <b>.</b> |        |          |          |        |        |              |                    |              |        |            |
|          |                 | 34 30              | 24 50              | 0 31          | Shari-                                  |                                                            | I          |          |          |        |          |          |        |        |              |                    | $\vdash$     |        | {          |
|          |                 | 2 . 2 9            | 24, 30             | V421          | 50818                                   | dark gray; carbonaceous snate                              |            | i        |          |        |          |          |        |        | ┝──┦         | ···                |              |        | <u>R3</u>  |
|          |                 | 24.50              | 25.43              | 0.93          | Sh-SS                                   | dark gray; cerbonaceous shale and light grey; very fine    |            |          |          |        | - 1      |          |        |        | +            |                    |              |        | h.         |
|          |                 |                    |                    |               |                                         | grain sandstone; cross-bedded                              |            | t —      |          |        |          |          |        |        |              |                    |              |        | <u> [</u>  |
|          |                 |                    |                    |               |                                         |                                                            |            |          |          |        |          |          |        |        |              |                    |              |        | <b>i</b>   |
|          |                 | 25,43              | 25,91              | 0.48          | Shale                                   | dark gray; carbonaceous                                    |            |          | L        |        |          |          |        |        |              |                    | 0.97         | 0.46   | R3         |
|          |                 | 25.01              | 26 27              | - 12          |                                         |                                                            |            | <u></u>  |          |        |          |          |        |        | └── <b>↓</b> |                    | <u> </u>     |        | <b> </b>   |
|          |                 | 23,91              | 20.23              | V+ 32         | LOST                                    |                                                            |            | ·        |          | ·      |          |          |        |        | $\vdash$     |                    | k∔           |        | <b> </b>   |
|          |                 | 26.23              | 27.13              | 0.95          | Shale                                   | dark gray; carbonaceous; rubbly                            | [ <u> </u> | L        | [        | n r    | · -·     |          |        |        | ┝╼╼╍╋        |                    | <del> </del> |        |            |
|          |                 |                    |                    |               |                                         |                                                            | t          |          | <u> </u> |        |          |          |        |        |              |                    | i – ľ        | 432.   | <u>р</u>   |
| 2        | <b>_</b>        | 27.13              | 27.36              | 0.13          | Shate                                   | dark gray; carbonaceous                                    |            |          |          |        |          |          |        |        |              |                    | i -t         | ·      | 83         |
|          |                 | 32.22              | 2.2.25             |               |                                         |                                                            | <b> </b>   |          | l        |        |          |          |        |        |              |                    |              |        |            |
| ⊦'       |                 | C1+20              | 21.05              | P•2/          | 5hale_                                  | dark gray; carbonaceous; brokan pieces                     |            |          |          |        |          |          |        |        |              |                    |              |        | 13         |
|          | ł               | 27.65              | 27.67              | 6.04          | Cont                                    | rubble                                                     |            |          |          |        |          | ·· · ·   |        |        | ┝───┠        | — — <del>-</del> . |              |        |            |
|          | t ·             |                    |                    | 1             |                                         |                                                            |            | l        | ··· •    | ,      | · · · -· | ·        |        |        | <b>-</b>  -  |                    |              |        |            |
|          | 1 1 14 5 4      | . 11846 T          |                    |               |                                         | # : MEASURED FRUM THE HORIZONTAL PLANE                     |            | GLE M    | EASURE   | DIROM  | CORE A   | 1<br>KIS |        |        | <u> </u>     |                    | <u></u>      |        | <u> </u>   |
|          |                 | 54 Q( <b>41</b> )2 | , 1991, 1991,<br>1 |               |                                         | E I+R &/OR S - GOLDER ASSOCIATES HARDNESS CODE             |            |          |          |        |          |          |        | 1      | нон          | <b>с</b> NI.       |              |        |            |
|          |                 |                    |                    |               |                                         |                                                            |            |          |          |        |          |          |        | - E    | in Ot        | L IN(              | ストリ          | 0.40.2 | /02        |

+ROD - ROCK QUALITY DESIGNATION (%)

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## CORE & COAL CORE DESCRIPTION

| PROJECT | LORGEPOLE | HOLE No   | PAGE 2 |
|---------|-----------|-----------|--------|
| AREA    | S.E. B.C. | CONTINUED | 07     |

| in a st     |             | 000      | <b>T</b> 11                             | · 1   |            | UDHO DESCRIPTION                                              |          |              |            |            |          | ANALYTICAL DATA |                                       |          |           |          | PEMARKS      |            | . 1      |
|-------------|-------------|----------|-----------------------------------------|-------|------------|---------------------------------------------------------------|----------|--------------|------------|------------|----------|-----------------|---------------------------------------|----------|-----------|----------|--------------|------------|----------|
| BOX         | AT          | UEP      | <u>IN</u>                               | ŤН    |            |                                                               | ANGLE    | DESIG        | No         | MOIS       | 1 %      | ASH %           | V.M. %                                | Ŧ.C. %   |           | - c v    | RE.<br>Fraca | MARKS      | ·        |
| No          | 10405       | FROM     | 10                                      |       | MAIN       | AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)               | (*)      |              |            | 0.r.b.     | residual | d.b.            | d.b.                                  | d.b.     | · · · · · |          | Erea.        | RUD        | Hard     |
|             |             | 37.63    | 33.35                                   | 0.00  | That has   | heaten alarm at dark anny enchangement thate                  | _        |              |            | 1          |          |                 |                                       |          |           |          | - T          |            | - 1      |
|             | —— <u>ł</u> | 27.07    | 21.15                                   | 0,00  | 20916      | eroken preces or unik gray caroonaceous shore                 |          |              |            |            |          |                 |                                       |          |           |          |              |            | <u> </u> |
|             |             | 27 76    | 27.95                                   | Ö 10  | Challe -   | heatan subble dark army carbonarcoust costy in part           |          | · · ·        |            | t          | t        |                 |                                       |          |           | -        |              |            | -1       |
|             |             |          | 27407                                   | 0,10  | 34014      | di de all, 1 boore, doire gray, cui condecenes, const in part |          |              |            |            |          |                 |                                       |          |           |          | T            | T          |          |
|             | ——ł         | 27.85    | 28, 15                                  | 0.30  | SH-Coal    | cuble                                                         |          |              |            |            | t        |                 |                                       |          |           |          |              |            |          |
|             |             | - 2/107  | 20117                                   | 0.20  | 5.1 00.01  |                                                               |          |              | <u> </u>   |            |          |                 |                                       |          |           |          | -1           |            |          |
| ⊢-1         |             | 79.15    | 79 40                                   | 0.25  | Shale      | broken: rubble                                                |          |              | t —        | 1          |          |                 |                                       |          |           |          |              |            |          |
|             |             | 20.17    | 20,40                                   |       | 11010      |                                                               |          |              | f -        | [          | <u>;</u> |                 |                                       |          |           |          |              |            |          |
|             |             | 28.40    | 28 60                                   | 0 20  | Sh-Corl    | rubhla                                                        |          |              |            | 1          | 1        |                 |                                       |          |           |          | I            |            |          |
|             |             | 20.40    | 20.00                                   |       | 34 0001    |                                                               |          |              | 1          | 1          | 1        |                 |                                       |          |           |          |              |            |          |
|             |             | 28,60    | 79.30                                   | 0.60  | Shala      | derk grav: carbonaceous: stightly silty                       |          |              | <b> </b>   |            | 1        |                 |                                       |          |           |          |              |            |          |
|             |             | 20100    | 27470                                   |       |            |                                                               |          |              | 1          | T          | 1        |                 |                                       |          |           |          | $\Box \Box$  | I          |          |
| $\vdash$    |             | 29,30    | 30.63                                   | 1.33  | Lost       | Anadstone-siltstone                                           |          |              | <u> </u>   | 1          |          |                 |                                       |          |           |          | []           |            |          |
| $\vdash$    |             |          |                                         | 1     |            |                                                               |          |              | <b></b>    | 1          |          |                 |                                       | [        |           |          |              |            |          |
| <u>  </u>   |             | 39.63    | 31.42                                   | 0.79  | Lost       | sandstone-siltstone                                           |          |              | 1          | 1          |          |                 |                                       |          |           |          |              |            |          |
|             |             |          |                                         | 1     |            |                                                               |          |              | <u> </u>   | 1          |          |                 |                                       |          |           |          |              |            |          |
|             |             | 31.42    | 31.67                                   | 0.25  | 12 12-22   | rubble                                                        |          | ·            | [          | 1          | 1        |                 |                                       |          |           |          |              |            |          |
|             |             | 21111    | 211491                                  | 1     | <u> </u>   |                                                               |          |              |            |            | 1        |                 |                                       |          |           |          |              |            |          |
|             |             | 31.67    | 31.96                                   | 0.79  | SS-SLST    | light grav: very fine orain and dark grav siltstone;          | 31*      |              |            | [          |          |                 |                                       |          | · · ·     |          |              |            | R3 -     |
|             |             |          | 2.070                                   | 1     | <u> </u>   | cross-bedded: mottely                                         |          | í –          | <u> </u>   | 1          | 1        |                 |                                       |          | i i       |          |              |            |          |
|             |             |          | • • • • • • • • • • • • • • • • • • • • |       | <b> </b>   |                                                               |          |              | 1          |            | Ι.       |                 |                                       |          |           |          |              |            |          |
|             |             | 31,96    | 32.25                                   | 0.29  | Lost       | shale                                                         |          |              |            | <u> </u>   |          |                 |                                       |          |           |          |              |            |          |
|             |             | 2.11.70  |                                         | 1     |            |                                                               |          |              | Γ.         |            |          |                 |                                       |          |           |          |              |            |          |
|             |             | 32.25    | 33.08                                   | 0.83  | Shale      | as below: not broken; sandy in places                         |          | I            |            |            |          |                 |                                       | [        |           |          |              | 0,60       | R3       |
|             |             |          |                                         | 1     |            |                                                               |          | Ι.           |            |            |          |                 |                                       | í        |           |          |              |            |          |
| 1           |             | 33-08    | 33, 33                                  | 0.75  | Stale      | as below: broken: with some rubble                            |          |              |            | [          |          | I               |                                       | L        | 1 .       |          | <u> </u>     |            | R3       |
| 1           |             |          |                                         |       |            |                                                               |          | [            |            |            |          |                 |                                       |          |           |          |              |            |          |
|             |             | 53.33    | 34.87                                   | 1.54  | Shale      | as befow                                                      |          | Ľ            |            | Ľ          |          |                 |                                       |          |           |          |              | 0.62       | 83       |
|             | t           | f        |                                         | 1     |            |                                                               | 1        | Γ            | T          |            | Į        |                 |                                       | 1        |           |          |              |            |          |
| <u>├</u> ─- |             | 34.87    | 35,61                                   | 0.74  | Shale      | dark grav; carbonaceous; blocky when broken with hammer       |          |              |            | 1          | {        | [               |                                       |          |           |          | 3.24         |            | R3       |
| <b>—</b>    |             |          |                                         | 1     |            |                                                               | I        |              |            | [          |          | L               | I                                     |          |           |          |              |            |          |
| <u> </u>    | 1           | 35.61    | 36.21                                   | 0.60  | SS-SUST    | light gray; very fine grain sandstone; dark gray slitstone    | 25*      |              | 1          |            | Ľ        | 1               |                                       |          | <u> </u>  |          |              | 0.92       | 84       |
| 1           | <b>}</b>    | 1        | 1                                       | 1     | 1          | cross-bedded; numerous calcite filled fractures;              | to 40    | 1            |            | I          |          |                 | 1                                     |          |           |          | ļ            |            |          |
|             |             | 1        | 1                                       | 1-    | 1          |                                                               | Γ        |              |            | l          |          |                 | L                                     | <u> </u> |           |          |              |            |          |
| <b>[</b>    | 1           | 36.21    | 36.39                                   | 0.18  | Shale      | as bolow; becoming silty and harder                           |          | T            |            | 1          |          |                 |                                       |          |           |          |              |            | R4       |
|             | t           |          |                                         | 1     | 1          |                                                               | 1        | L            |            |            |          |                 | L                                     | L        | I         |          |              | <b></b>    | ·        |
| 4           | 1           | 36.39    | 36,87                                   | 0.48  | Shele      | as below                                                      |          |              |            | 1          | I        |                 | <u> </u>                              | <b>.</b> | · · · · · |          |              | ļ          | R3       |
| 1           | 1           |          | 1                                       |       | 1          |                                                               |          |              | <u> </u>   |            | <u> </u> |                 |                                       | 1        | <u> </u>  |          | ļ            |            |          |
| 5           | <b>r</b>    | 36.87    | 37,96                                   | 11.09 | PShale     | as below                                                      | <b>I</b> |              |            | <u> </u>   |          | L               |                                       | L        |           |          | I            | 0.67       | R3       |
|             | 1           | <b>i</b> | T                                       | T     |            |                                                               | <u> </u> | <b>_</b>     |            |            |          |                 | ļ                                     |          |           |          | _            |            |          |
|             |             | 37.96    | 38.90                                   | 0.9   | Shate      | dark grav; carbonaceous; breaks blocky                        | <b>_</b> |              |            | <u> </u>   |          | ļ               |                                       | ļ        | <b>_</b>  |          | ↓            | 0.78       | 83       |
|             | t           | 1        | Γ                                       | 1     |            |                                                               |          | <u> </u>     |            | <u> </u>   |          |                 |                                       |          | L         |          | ₽_           | 1          |          |
|             | 1           | 38.90    | 39.13                                   | 0.2   | ss         | as below                                                      | <b>_</b> | <u> </u>     |            |            |          | L               | <b>_</b>                              | <b>I</b> | <u> </u>  |          | ·I           | Ļ'         | R4       |
| <b></b>     | 1           | 1        | T.                                      |       | 1          |                                                               | L        | L            | ļ          |            |          |                 |                                       | 1        | <b>I</b>  |          | <u> </u>     | <u> </u>   |          |
| Q           |             | 39.13    | 39, 35                                  | 0.2   | 2 55       | light gray; ver fine grain with some shaly slity beds and     | 1        | 1            | <b></b> _  | . <b> </b> | 1        | L               | <b> </b>                              | <b>↓</b> | <b>- </b> |          | 2.64         | <b>!</b>   | _R4      |
| [           |             | Γ        |                                         | Γ     | 1          | numerous calcite filled tractures                             | I        | ÷            | . <b> </b> | - <b> </b> | _{       |                 | <b></b>                               | <b>k</b> | <b>I</b>  | l        | ļ            | . <b>.</b> | _        |
|             | I           | I        | <u> </u>                                | 1.    | 1          | <u></u>                                                       | <b>.</b> | $\downarrow$ | <b>↓</b>   |            | -┣──-    | <b></b> .       | ·                                     | Į        |           | <b>4</b> | <b>↓</b>     | <b>i</b>   | ļ        |
| [           | 1           | 39.35    | \$9.75                                  | 0.4   | Shale      | dark gray; carbonaceous; stify in part                        | .l       |              | 4          | -1         |          | 1               | <b> </b>                              | <b>!</b> | ÷         | l        | 1            |            | 83       |
|             | 1           |          | 1                                       |       |            |                                                               | 4        | Į            |            | <b></b>    |          |                 | ÷                                     | ·        | <b>—</b>  | ł        | + ·          |            | <u>ا</u> |
| L           | L           | 39.75    | 40.12                                   | 0.3   | 7 55-51.57 | Interbodded; light gray sandstone; very film grain and        | 1        |              |            | <b></b>    |          | ·               |                                       | Ļ        | 4         |          |              | 0.81       | R3       |
|             | 1           |          |                                         | 1     | 1          | medium gray silfstone                                         | 27       |              | 1          | 1          | 1        | 1               | 1                                     | 1        | 1         |          | [            | Ł          | 1        |
| L           | <u> </u>    | <b></b>  | · · · · ·                               |       |            | J                                                             | · · · ·  | <u> </u>     |            |            | <u> </u> |                 | · · · · · · · · · · · · · · · · · · · | •        |           | -        |              |            |          |

ALL LINEAR UNITS IN METRES

1 INRE/OR 5 - GOLDER ASSOCIATES HARDNESS CODE INCO - ROCK QUALITY DESIGNATION (%) ANGLE MEASURED FROM CORE AXIS

HOLE No. 18-10 202

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FILE No BA - 212 A REVISED New 1978

FF ---- FRACTURE FREQUENCY

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### CORE & COAL CORE DESCRIPTION

| PROJECT | LONGEPOLE | HOLE No            | PAGE |
|---------|-----------|--------------------|------|
| AREA    | 5.E. B.C. | CONTINUED LP-D 202 | 01   |

| BOX        | DEPTH        | DEP            | TH             |          | l           | LITHO DESCRIPTION                                                          |          | SFAM     | SALUPLE  |             |             | ANAL     | TICAL  | ATA    |                |          | <b></b>      |          |                   |
|------------|--------------|----------------|----------------|----------|-------------|----------------------------------------------------------------------------|----------|----------|----------|-------------|-------------|----------|--------|--------|----------------|----------|--------------|----------|-------------------|
| No         | TOPO         | FROM           | TO             | TH       | MAIN        | AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)                            | ANGLE    | DESIG    | No.      | MO15        | 5 %         | ASH %    | V.M. % | F.C. % | <b>F.S.</b> I. | C.V.     | rac.         | MARK     | <u>, </u>         |
| $\square$  | <b>9</b> 0.4 | 40.17          | 40, 34         | 0.22     | Shale       | as balow                                                                   | <u> </u> |          |          | 1           |             |          |        |        |                |          | ليعمع        | RQU      | Hard              |
|            |              |                |                |          | 0.10.0      |                                                                            |          |          |          |             |             |          |        |        |                |          | $\vdash$     |          |                   |
| 5          |              | 40.34          | 40.62          | 0,28     | Shale       | dark grey; carbonaceous                                                    |          |          |          |             |             |          |        |        |                |          |              |          | R3                |
|            |              |                |                |          | • ··· · ·•• |                                                                            |          |          | <b></b>  |             |             |          |        |        |                |          | $\square$    |          |                   |
| <u>ه.</u>  |              | 40.62          | 40.96          | 0,34     | SLST        | medium - dark gray; carbonaceous                                           | <u> </u> |          |          | ļ           |             | <b> </b> |        |        | · •            |          | $\vdash$     |          | <u>R3</u>         |
|            |              | 40.96          | 41.08          | 0.12     | \$5         | light gray; ver fine grain with dark gray carbonaceous                     |          |          |          |             |             |          |        |        |                |          |              |          | RA                |
|            |              |                |                |          | · · ·       | sliistone: cross-beds                                                      |          |          |          |             |             |          |        |        |                |          |              |          |                   |
| i          |              | 41.08          | 41 70          | <u> </u> | CL CT       |                                                                            |          |          |          |             |             | <b> </b> |        |        |                |          |              |          |                   |
|            |              | 41.08          | 41.70          | 0.10     | 5151        | gark grey; cerbonaceous                                                    |          |          |          | -           |             |          |        |        |                |          |              | 0.49     | RJ                |
|            |              | 41.78          | 42,00          | 0,22     | \$5         | as below                                                                   |          |          |          |             |             |          |        |        | [              |          |              |          | R4                |
|            |              |                |                | L        | L           |                                                                            |          |          |          |             |             |          |        |        |                |          |              |          |                   |
| $\vdash$   |              | 42,00          | 42.50          | 0.54     | SLST        | dark gray; carbonaceous with very fine grain; light gray                   |          |          |          |             |             | <b> </b> |        |        |                |          | $\vdash$     |          | <u>R3</u>         |
|            |              |                |                | [        | ł           |                                                                            |          |          |          |             |             |          |        |        |                | -        |              |          | -                 |
|            |              | 42,50          | 45.03          | 0,49     | ss          | light gray; very fine grain with dark gray; carbonaceous                   |          |          |          |             |             |          |        |        |                |          | 3.30         | D.81     | R4                |
|            |              |                |                |          | <b> -</b>   | siltstone cross-bads; thin calcite band at 42,72                           | 23*      |          |          | <b> </b>    | · · · ·     | <b>_</b> |        |        |                |          |              |          |                   |
|            |              | 43.03          | 43.27          | 0.08     | ci et       | derk ateus gerhansgenung subbin                                            | · · · ·  |          |          |             |             |          |        |        |                |          | $\vdash$     |          |                   |
| <u> </u>   |              | 45.05          | *24,11         | 10.00    | 31.31       |                                                                            |          |          |          |             | -           | <u> </u> |        |        |                |          |              |          |                   |
|            |              | 43.11          | 43.34          | 0,23     | SS-SLST     | as below with few sandstone beds; more dark gray carbon-                   |          |          |          |             |             |          |        |        |                |          |              |          | R3                |
|            |              |                |                |          | <b> </b>    | aceous siltstone                                                           | <b> </b> |          |          | <b></b>     |             | <b>.</b> |        |        | ļ              |          |              | <u> </u> |                   |
|            |              | 43. 14         | 43.45          | 0.11     | 55          | as below: rubbly                                                           |          |          |          |             |             |          |        |        |                |          | ┝──┦         |          |                   |
|            |              |                |                | 1        | <u> </u>    |                                                                            |          |          |          | 1           |             |          |        |        |                |          |              |          |                   |
| Ϊ          |              | 43.45          | 43.66          | 0.21     | \$\$        | _as below; but not broken                                                  | 22*      |          |          |             |             |          |        |        |                |          |              | 0.37     | R3                |
|            |              | 47.44          | 44.06          |          |             |                                                                            |          |          |          | ł           |             |          |        |        |                |          | <b>↓</b>     |          |                   |
| P          |              | 43,00          | 14,00          | 0.40     | 35          | very time green; light grey; with medium grey sitty cross-<br>beds: rubbly |          |          | ·        |             |             |          |        |        |                |          | <u> </u>     |          | R3                |
|            |              | -              |                | <u> </u> | 1           |                                                                            |          |          |          |             |             |          |        |        |                |          |              |          |                   |
| 7          |              | 44,06          | 44, 16         | 0,10     | Sh-SS       | as below                                                                   |          |          |          | Į           |             |          |        |        |                |          |              |          | R3_               |
|            |              | 44, 16         | 44.81          | 0.65     | 22-42       | interheided modium grey shale and light gray, yor fine                     |          |          |          | <b>∤</b>    | ļ!          |          |        |        |                | ·        |              |          |                   |
| $\vdash$   |              |                |                | 1        | <u></u>     | grain sandstone; broken; very cross-bedded                                 | 18*      |          |          |             |             | <u> </u> |        |        |                |          |              |          | 10                |
|            |              |                |                |          | 1           |                                                                            |          |          |          | İ           |             |          |        |        |                |          |              |          |                   |
|            |              | 44,81          | 46,17          | 1.36     | Shale       | medium gray with some light gray; ver fine grain sendstone;                |          | <u> </u> |          | <b> </b>    | <u> </u>    | <b>_</b> |        |        | <b> </b>       |          | 4.04         | 0,89     | R3                |
|            |              |                | <u> </u>       | +-       | <u> </u>    | beds; cross-beddad                                                         |          |          |          |             |             | <b>∤</b> |        |        |                | <u>.</u> |              |          |                   |
|            |              | 46,17          | 46.30          | 0.13     | Shate       | medlum-dark gray; carbonaceous                                             |          |          |          | 1           | <b></b>     |          |        |        | <u>†</u>       |          | ·            | i — —    | R3                |
|            |              |                |                |          |             |                                                                            |          |          |          |             | [           |          |        |        |                |          |              |          |                   |
|            |              | 46.30          | 46.34          | 0.04     | Shale       | medlum-dark gray; carbonaceous; rubble                                     |          |          |          | ŧ           | <b> </b>    | <b> </b> | ļ      |        |                |          | <b>↓</b> !   |          | <u></u>           |
|            |              | 46.34          | 46.93          | 0. 59    | Shale       | medium-dark grav: carbonaceous                                             |          | <u>-</u> |          | <u></u> {·· |             | <u></u>  |        |        |                |          | <b>├</b> ──┤ | 00       |                   |
|            |              |                |                | T        | 1           |                                                                            | <u> </u> |          |          |             |             |          | ľ      |        | †              |          |              |          | <u>⊢~</u>         |
| <b> </b>   |              | 46.93          | 47.49          | 0.47     | Shole       | as abeya                                                                   | 1        | L        |          |             |             |          |        |        | 1              |          |              | 0.65_    | RJ                |
| <u> </u> - |              | 47 40          | AT 14          |          |             | Cont                                                                       | _−       |          | <b> </b> |             | <u> </u>    | <u> </u> |        |        | <b>-</b>       | <u> </u> | ┠            |          | <u>}</u> ∤        |
|            | ·            | */ <b>*</b> */ | t <u>*′</u> •∞ | 10.00    |             |                                                                            |          | ·        |          | ·           | <b>├</b> ── |          |        |        |                |          | <u></u>      |          | <u>{</u> <b> </b> |
| <b>E</b>   | L            | 47.96          | 48.04          | 0.08     | Shale       | dark gray; carbonacoous coaly plant material; brokon                       | · · · ·  | [        |          | L           |             | <b>-</b> |        |        |                |          |              | i        | 83                |
|            |              |                |                | 1        |             | rutibly                                                                    | 1        |          |          | 1           | 1           |          |        |        |                |          |              |          |                   |
|            | ^            |                |                |          | <u> </u>    |                                                                            |          | <b>.</b> |          | ·           | ·           | <u> </u> | ·      |        | A              | L        | <b></b> /    | 4        | 1                 |

ALL LINEAR UNITS IN METRES

1 IRE/ORS — GOLDER ASSOCIATES HARDNESS CODE +RQD --- ROCK QUALITY DESIGNATION [%] A ANGLE MEASURED FROM CORE AXIS

HOLE No. IP-D 202

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FILE No BA-212A REVISED Nov 1978

FF ---- FRACTURE FREQUENCY

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## CORE & COAL CORE DESCRIPTION

| PROJECT | LODGEPGLE | HOLE No 18-0 202 | PAGE 4 |
|---------|-----------|------------------|--------|
| AREA    | S.E. A.C. | CONTINUED        | 07     |

| in d     |              | 010      | 714          | · · · ·      |              | UTHO DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |          | CE A M         | SAMPLE             |               |              | ANAU                                    | TICAL D                                     | ATA U      | .5 Flo           | et)           |                                              |              | . I       |
|----------|--------------|----------|--------------|--------------|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------|--------------------|---------------|--------------|-----------------------------------------|---------------------------------------------|------------|------------------|---------------|----------------------------------------------|--------------|-----------|
| 007      | AT           |          |              | TH           |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ANGLE    | DESIG          | No.                | MOIS          | 7.           | ASH %                                   | V.M. %                                      | F.C. %     | F.S.I.           | C.V.          | Frac.                                        |              | <u>'</u>  |
| No       | 801          | FROM     | 10           |              | MAIN         | AMPLIFIED (INCLUDE COAL RECOVERY FUX EACH SEAM)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | (*)      |                |                    | 0.r.b.        | residuol     | 4, 9,                                   | d.b.                                        | d.b.       |                  | Kca1/Kn       | Freq.                                        | ROD          | Hard      |
| 1        |              | 48.04    | 48.20        | 0, 16        | Shale        | as #bova                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |          |                |                    |               |              |                                         |                                             |            |                  |               | L]                                           |              | R3        |
|          |              |          |              |              |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          |                |                    |               |              |                                         |                                             |            |                  |               | <b> </b>                                     |              |           |
|          | - 1          | 48,20    | 48, 50       | 0.03         | Shale        | medium-dark gray; blocky                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |          |                |                    |               | <b> </b>     |                                         |                                             |            |                  |               | ┝──╼╉                                        |              | R3        |
|          |              |          |              |              |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          |                |                    | <u> </u>      |              |                                         |                                             |            |                  |               | ┟┈━─┨                                        | <b>-</b> +   |           |
| 8        |              | 48,50    | 48.56        | 0.06         | Coal         | broken stick; bright and dull                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |          |                | L↑_                | <b> </b>      |              |                                         |                                             |            |                  |               | ┟───┥                                        | / <b>f</b>   | <u> </u>  |
|          |              |          |              | L            |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | _        |                | ┠━┠─               | <b></b>       | <b>}</b>     |                                         |                                             |            |                  |               |                                              |              |           |
|          |              | 48.56    | 49,02        | 0.46         | Coal.        | broken; dull                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |          |                | ┠╼╂┈               |               |              |                                         |                                             |            |                  |               | i                                            | t            | <u> </u>  |
|          |              |          | - <u>-</u>   |              |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          |                | 01                 | 6.65          | 0.40         | 9-61                                    | 20.11                                       | 70.28      | 5.5              | 7770          |                                              | <u> </u>     | SI I      |
| $\vdash$ |              | 49,02    | 49,19        | 0.1/         | Coal         | powdery; duit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |          |                |                    | t             |              |                                         |                                             |            |                  |               |                                              | t            |           |
| $\vdash$ |              | 40.10    | 40 19        | 0 10         | Cabl         | brokens dult with bright                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |          |                | 1 +-               | <u> </u>      |              |                                         |                                             |            |                  |               | [t                                           | []           | 55        |
| $\vdash$ |              | 43.19    | 49.00        | 0.17         | 0001         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1        |                | <u> </u>           | T             |              |                                         |                                             |            |                  |               |                                              |              |           |
| $\vdash$ |              | 49.38    | 49.80        | 0.42         | Lost         | Coat                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |                | 1                  |               | ·            |                                         |                                             |            |                  |               |                                              |              |           |
|          |              |          |              | 1            |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          |                |                    | I             | ·            |                                         |                                             |            |                  |               |                                              |              |           |
|          |              | 49,80    | 50.10        | 0.30         | Shale        | dark gray; carbonaceous; coaly wisps; broken to rubbly                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |          |                |                    | L             | I            |                                         | <u> </u>                                    |            |                  |               | <b></b>                                      |              | R4        |
|          |              |          |              | I            |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b></b>  | <b>I</b>       | <b></b>            | <u> </u>      | <b>i</b>     |                                         |                                             |            |                  |               |                                              | ┢━━┦         | <u> </u>  |
|          |              | 50,10    | 50.53        | 0.43         | Shale        | derk grey; carbonaceous; broken to rubbly; signs of                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>!</b> | <b>[</b>       | ļ                  | <b>I</b>      | <b>ļ</b>     |                                         |                                             |            |                  |               | <u>                                     </u> | ┣──┦         | <u>R2</u> |
|          |              |          |              | Į            |              | slickensides                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Į        |                | <u> </u>           | <u> </u>      |              |                                         |                                             |            |                  |               | <u></u>                                      | <u>├</u> !   | ├──┦      |
| ┝─┤      |              |          |              | L            |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          | <u> </u>       | ł                  | ł             | <b>}</b> - − | <u> </u>                                |                                             |            |                  | -             |                                              | ┟╌╌╼┥        | 55        |
|          |              | 50.53    | 50,60        | 0.07         | Coal         | dull; broken                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | _−       |                | ╂                  | <u>} ──</u>   | <u> </u>     |                                         |                                             |            |                  |               | <u> </u> − −                                 | <u>∤</u> !   | 2         |
|          |              |          |              |              |              | della superiore and an annual set debries tence                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          |                | I                  | <u> </u>      |              |                                         |                                             |            |                  |               | <u>}</u> ∤                                   | <sup>-</sup> | RS        |
|          |              | 50.60    | 50.87        | 10.25        | Share        | derk gray; carbonaceous; carbonaceous prant deu is, it dea                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |          |                | t                  | 1             | 1            | <u> -</u>                               |                                             |            |                  |               |                                              | <b></b>      |           |
| {}       |              |          |              | <del> </del> |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | t        | ·              | t                  | t             | <b>†</b>     | 1                                       |                                             |            |                  |               | <u> </u>                                     |              |           |
|          |              | 50.85    | 51.00        | 0.15         | Lost         | Shale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1        |                | 1                  | 1             | 1            |                                         | 1                                           |            |                  |               |                                              |              |           |
|          |              |          | <u> +</u> .  | 1            |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          |                | 1                  |               | 1            |                                         |                                             |            |                  |               |                                              | L'           |           |
|          |              | 51.00    | 51.22        | 0.22         | Coal         | broken to powdery; bright and dull                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | I        |                |                    | 1             |              | 1                                       | <b>_</b>                                    | L          | <u> </u>         |               | <b></b> !                                    | <b>_</b>     | 55_       |
|          |              |          |              | T ·          |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1        | <u> </u>       | 11                 |               | <u> </u>     | <u> </u>                                | L                                           |            | <b>.</b>         |               | <b></b> .                                    | <b>↓</b>     | Į/        |
|          |              | 51.22    | 51.45        | 0.23         | Cost         | broken; dull; shaly in part                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <u> </u> | <b>i</b>       |                    | <b></b>       | I            | <u> </u>                                | <b>[</b>                                    | <b>_</b>   | <b>[</b>         |               | <b>↓</b> ′                                   | <b> </b>     | 55        |
|          |              |          | [ <u>.</u> . | 1_           | L            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ┟───     |                |                    | 1.5 21        | <u> </u>     |                                         | 1                                           | 10 54      |                  | 1621          | <b>↓</b>                                     | <u> </u>     |           |
|          | <b></b>      | 51.45    | 51.62        | 0.20         | C001         | broken to broken stick; duti                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ł        | ╂              | 1 02               | 2.01          | 0,43         | 10.95                                   | 19.33                                       | 69.74      | 4.5              | 7021          | ╂──┥                                         |              | 32        |
| <u>ا</u> | <b></b>      | L        | ļ            | 1            | <b>_</b>     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>↓</b> |                | ╉╶╂╌               | <u> </u>      |              | <u></u>                                 |                                             |            |                  |               | +                                            | t            | 105       |
| <b> </b> | ·            | 51.65    | 51.73        | 10.08        | Shale        | very dark gray; carbonaceous                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1        | 1              | ┨┼╴┼╴              | ┨╌╌╌━         | -{           | <u>+</u>                                | t                                           |            | • •              | <u>├</u> ··── | <u> </u>                                     |              | ţ         |
| ┣—       | ł            | 1        | 1            | 1. 11        |              | bright, some overlie stalping on broken faces                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | f        | <b>{</b> ·−−   |                    | 1             | 1            | { ——                                    |                                             |            | <b>i</b>         |               | 1-1                                          | 1            | 55        |
| $\vdash$ | <b>!</b>     | 21.12    | 21.01        | 10.11        |              | or igan, some pyr tre stanting on or onen tages                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1 -      | <u> </u>       | ╏╺                 | 1             | 1            | f                                       | <u> </u>                                    | [          | 1                |               | 1                                            |              | 1         |
|          | <u> </u>     | 51.84    | 52.20        | 0. 16        | Lost         | Coel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1        | 1              |                    |               | 1            | 1                                       | 1                                           |            |                  |               |                                              |              |           |
| <b></b>  | <b>!</b>     |          |              |              |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1        | 1              | 1                  | T             | 1            |                                         | 1                                           | ļ          | ·                | [             |                                              |              | 1         |
|          |              | 52.20    | 52.36        | 0.10         | Shale        | dark gray; carbonaceous; some pyrite staining                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |          |                |                    |               |              |                                         | I                                           |            | <b>L</b>         | I             | ļ                                            | L            | R3        |
|          | 1            |          | 1            |              |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          | <u> </u>       | <u> </u>           | 1             | 1            | <b>_</b>                                | <u> </u>                                    | <u> </u>   | ↓                | <b></b>       | <b>_</b>                                     | <b> </b>     | _         |
|          | 1            | 52.56    | 52,46        | 0, 10        | Shale        | as above                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <u> </u> | . <u> </u>     | 1                  | <u> </u>      | ∔            | <u> </u>                                | <b></b>                                     | <b></b>    | -                | <b> </b>      |                                              | - <b>}</b>   |           |
| L        | I            | <u> </u> |              | 1            |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          | Ļ              | - <b> </b>         | <b>I</b>      | <b></b>      | <b>_</b>                                | ·                                           | <b> </b>   | <b>↓</b>         | <b> </b>      | +                                            | ·[           |           |
| L        | 1            | 32.46    | 42.70        | 0.2          | Lost         | Shate                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |                | 4                  |               | · I          | <b></b>                                 | ╂                                           | <b>}</b>   | <b>{</b>         | +             | +                                            |              | ╀         |
| <b>_</b> | <b></b>      | <b></b>  | ļ            |              | ·}           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          | ·              |                    | +             | · i          | ł                                       |                                             | ╂          | - <b>╁</b> ───-' | <u></u> +     | -1                                           | <u> </u>     | 1 35      |
| 1-       | <b>↓</b>     | \$2.70   | 52.11        | 0.0          | [Con1        | duli: shaly                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |          | - <del> </del> | - <del> </del>     |               | · {·         | f                                       | 1                                           | ł          | -f               | <u>+</u>      |                                              |              | f-*       |
| ł        | <u> </u>     |          | 1            |              |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | -{       | +              |                    | · • • • • • • |              |                                         | ╂───                                        | <u> </u>   | +                | ₽             | -+                                           |              | ·†        |
|          | +            | 52.77    | 122.10       | 194 2        | <u>, ost</u> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | -1       | 1              | - <del>1 - ·</del> |               | · + ·-       | 1                                       | <u>t</u>                                    | F          | 1                | t             | ·t                                           | 1            |           |
| -        | <b>+</b> · • | 1 53 10  | 53.74        | 10.1         | di Shala     | dark drav: carbosaceous                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | · †      | 1-             | 1                  | -f            | 1            | · • · · · · · · · · · · · · · · · · · · | 1                                           | 1          | 1                | 1             | 1                                            | F            | 83        |
| +°       | 1            | 1.29.16  | 1220-67      | 1.1          | · · · · · ·  | Count The State of the second state of the sec | 1        | 1              | 1 -                | 1             |              | 1                                       | 1                                           | 1          | 1                | 1             | <b>F</b>                                     | T            |           |
| 10       | †            | 53.74    | 53.34        | 0.1          | Shale        | as above                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1 ···    | - T            | T                  | <b></b> ^     | 1            |                                         | 1                                           |            |                  | 1             | 1                                            | [            | R3        |
| Ľ        | 1            |          | 1            | 1            |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1        | <u> </u>       |                    |               | _!           | 1                                       | <u>ــــــــــــــــــــــــــــــــــــ</u> | <u>ا</u> ا | 1                | L             | <u> </u>                                     | <u>-</u>     |           |

ALL LINEAR UNITS IN METRES

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1 HRA/OR 5 - GOLDER ASSOCIATES HARDNESS CODE HRQD - ROCK QUALITY DESIGNATION (%)

FE ----- FRACTURE FREQUENCY

A ANGLE MEASURED FROM CORE AXIS

HOLE No. UP-8 707

FILE No BA - 212 A REVISED New 1978

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# CORE & COAL CORE DESCRIPTION

| PROJECT | LODGEPOLE | HOLE No.  | 10.0.202      | PAGE 5 |
|---------|-----------|-----------|---------------|--------|
| AREA    | S.E. B.C. | CONTINUED | LP-0 202<br>V | 0,     |

| 201            |              |           |            | r—1      |               | UTHO DESCRIPTION                                          |            |             |          |                                         |              | ANAL     | TICAL       | DATA T                                      | 1.5 ETC    | at)               |                                               |              | . 1       |
|----------------|--------------|-----------|------------|----------|---------------|-----------------------------------------------------------|------------|-------------|----------|-----------------------------------------|--------------|----------|-------------|---------------------------------------------|------------|-------------------|-----------------------------------------------|--------------|-----------|
| 604            | 41           |           |            | 14       |               | THE SECONDER CONTRACTOR FACE FEAM                         | ANCLE      | DESIG       | No.      | MOIS                                    | 1 %          | ASH %    | V.M. 74     | f.C. 7                                      | F.S.I.     | C.V.              | Fract                                         | MARK:        | ' I       |
| No.            | 10404<br>105 | FROM      | TO .       |          | MAIN          | AMPLIFIED (INCLUDE COAL RECOVERT FOR EACH SEAM)           | (*)        |             |          | o.r.b.                                  | residual     | d.b.     | d.b.        | d.b.                                        |            | Kca17Kg           | free,                                         | ROD          | iar d. J  |
|                |              | 53, 34    | 54.30      | 0.96     | Lost          | Shale                                                     |            |             |          | <u> </u>                                |              |          |             |                                             |            |                   |                                               |              |           |
|                |              |           |            |          |               |                                                           |            |             |          |                                         | [            |          |             |                                             |            |                   |                                               | ł            |           |
| $\square$      |              | 54.30     | 54,63      | 0.33     | Cont          | powdery; dull                                             |            |             | <u> </u> |                                         | [            |          |             |                                             |            | r                 |                                               |              |           |
|                |              |           |            |          |               |                                                           |            |             | 03       | 16.14                                   | 0.56         | 12.42    | 19.22       | 68.36                                       | 3.0        | 7518              |                                               |              |           |
| ╞─┤            |              | 21,02     | 24.90      | U, 21    | .Coan         |                                                           |            |             | +        | 1.0.14                                  |              |          |             |                                             |            |                   |                                               | ·†           |           |
|                | (            | 34,90     | 55.40      | 0.50     | Lost          | Coa1                                                      |            |             |          |                                         | 1            |          |             |                                             |            |                   |                                               |              |           |
| <b> -</b> -†   |              |           |            |          |               |                                                           |            |             |          |                                         |              |          |             |                                             |            |                   |                                               |              |           |
|                |              | 55.40     | 55, 55     | 0.15     | Shalo         | dark gray; carbonaceous                                   |            |             |          | ļ                                       | <b> </b>     |          |             |                                             |            | ļļ                |                                               | <b>─</b> ─∔  | <u>R3</u> |
| ┡─┤            |              |           |            | <b> </b> |               |                                                           |            | -           |          | <b> </b>                                |              |          |             |                                             |            | ┟╴╴┈┙             |                                               | /- <b></b> - |           |
| ╞╴╞            |              | 55.55     | 55.02      | 0,27     | Lost          | Shale                                                     |            | <u> </u>    |          | ţ                                       |              |          |             |                                             |            | └─── <sup> </sup> | <u>  -                                   </u> | <u>⊢−</u> †  |           |
| ┝─╀            |              | 55 92     | 55.95      | 0.13     | Cont          | broken: dull                                              |            | <u> </u> −− | <u> </u> | t                                       |              |          |             |                                             |            | []                | · · · · 1                                     |              | \$5       |
|                |              |           | 37473      |          |               |                                                           | İ _        |             |          |                                         |              |          |             |                                             |            |                   |                                               |              |           |
|                |              | 55,95     | 56.14      | 0, 19    | Coal          | badly broken; rubbly                                      |            |             | 04       | 10.35                                   | 0.55         | 10.93    | 20,14       | 68,93                                       | 2.0        | 7593              | <u> </u>                                      | L            |           |
| []             |              |           | 4          |          |               |                                                           |            | ļ           | 1_1_     |                                         |              |          | 10.10       | 60.01                                       |            | 25.26             | <b> </b>                                      |              |           |
| ┟┈╸╿           |              | 56,14     | 56,69      | 0.55     | Cos1          | dull with some bright; hard; broken chunks                | <b> </b>   |             | 1 05     | <u>-3.81</u>                            | 0.45         | 11.81    | 19.16       | DA <sup>1</sup> 01                          | 4.7        | 1520              | <b>├</b>                                      | <b>├</b> ┤   | 102       |
| ┞╴┤            |              | 55 60     | \$7.02     | 10 11    | Shalo.        | medium areys some coaly wisns: slightly carbonaceous:     | -          | <b>├</b> ── | ┝┈       | f                                       | 1            |          |             |                                             | ·          |                   |                                               |              | R4        |
| ┝╼╌┦           |              | 20.07     | 21.02      | 22.22    | 20010         | solid core                                                | 1          | 1           | 1        |                                         | 1            | <b></b>  |             |                                             |            | [                 |                                               |              |           |
|                |              |           | 1          | t        |               |                                                           | <u> </u>   |             | ļ — —    |                                         |              | <u> </u> |             |                                             |            |                   |                                               |              |           |
|                |              | \$7.02    | 57.41      | 0.39     | Shale         | as above; becoming more carbonaceous; darker gray at base |            |             |          |                                         | <u> </u>     |          | ļ           | L                                           |            | ·                 |                                               |              | R4        |
|                |              |           | <b>.</b>   | <b> </b> | (             |                                                           | <b> </b>   |             | <b> </b> | <b> </b>                                | <b>↓</b>     | <u> </u> | <b> </b>    | í——                                         | <b> </b>   |                   |                                               |              |           |
| ┠              |              | 57.41     | 57.67      | 0.26     | Shale         | medium-derk gray; carbonaceous                            | ł          | ┟╌╼         | <b> </b> | ┟                                       |              | ┨-──     | <b>  .</b>  | <u> </u>                                    | ┨───╌┑     | <b>├</b> ─────'   | 1.00                                          | <u>├</u> ──- | 103       |
| <b> </b>       |              |           | 59.16      | 0 40     | l. Shala      | an above: closs of clickensides: few coaly wisps          | ł          | 1           | 1        |                                         |              |          |             |                                             | t—         | · · · · ·         | 1.00                                          |              | 83        |
| } <del> </del> |              | 57.07     | 1 20.10    | 10.77    | 31010         | as abore, signs of structure out, for abort where         | t          | t           | 1        | 1                                       | <u>  · −</u> | t        |             | 1                                           | t          | <u> </u>          |                                               |              |           |
| 5              |              | 58.16     | 58.52      | 0.36     | Shale         | as above                                                  |            |             |          |                                         | 1            |          |             | <u> </u>                                    |            |                   | 1.00                                          |              | R3        |
|                |              |           |            |          |               |                                                           |            |             | L        | <b></b>                                 | 1            | I        | I           | ļ                                           | <b>!</b> _ |                   |                                               |              |           |
| 10             |              | 58, 52    | 59.34      | 0.82     | Lost          | Shale                                                     | Į          | ┞──         | ┣──      | Į                                       | <b> </b>     | <b> </b> | ——          | <b> </b>                                    | <u> </u>   | l                 | <b>{</b> !                                    | ļ!           |           |
|                |              |           |            | +        | <u> </u>      |                                                           | ł          | +           | ł        | ╡┈╌╌╸                                   | <del> </del> |          |             | ł                                           |            |                   | ┨                                             | 0.65         | R4        |
|                |              | . 79, 54  | 00.24      | <u> </u> | 1 3231        | rendstone buts                                            | 26*        |             | 1        | 1                                       | 1            | t        |             | <b>†</b>                                    | 1          |                   |                                               |              |           |
| 1              |              |           | 1          | 1        | 1             | 301/03/0/10 00/03                                         | 1          | 1           |          | 1                                       | 1            | 1        |             | 1                                           |            |                   |                                               |              |           |
|                |              | 60.54     | 60.63      | 0.09     | SLST          | as above                                                  |            | 1           |          |                                         |              |          |             | [                                           |            |                   | 1.02                                          |              | R4        |
|                |              | <u> </u>  |            | <b></b>  | ·             |                                                           | ļ          | 1           | Į        | ┞-──                                    | <b></b>      | <b>I</b> | ł           | <b> </b>                                    | <u>↓</u>   | <u> </u>          | <u> </u>                                      |              |           |
|                |              | 60+63     | 61.04      | 0.4      | Shale_        | dark grey; carbonaceous                                   |            | ╂           | ╂        | <u>+</u>                                |              | <u> </u> | <u> </u>    | <u> </u>                                    | ╆          | <b> </b>          | <b> </b>                                      | 0.21         | 0         |
|                |              | +         | +          |          |               |                                                           | <u> </u>   |             | ┼──      |                                         | <u>+</u>     | t        | 1           | <u> </u>                                    | <u>+</u> - | i                 | <b>∱</b> ───┤                                 |              | 55        |
| 1              |              | 1 61.04   | 101.07     | 10.0     | <u>n cont</u> |                                                           | t —        | 1           | 1        | 1                                       | 1            | t        | t           | <b>†</b>                                    | t          |                   | 1                                             | i            |           |
|                |              | 61.07     | 61.20      | 0.1      | Lost          | Conl                                                      | 1          |             |          |                                         | 1            | I        |             | I                                           |            |                   |                                               |              |           |
|                |              |           |            |          | ]             |                                                           |            |             | <u> </u> | 4                                       |              | <u> </u> | ļ           |                                             | ļ          | <b></b>           | <b> </b>                                      | L            |           |
|                |              | 61.20     | 61.27      | 0.0      | 7 Shale       | dark gray; carbonaceous                                   |            | <u> </u>    | <b>.</b> |                                         | \$           | +        | <b> _</b>   | <u>ــــــــــــــــــــــــــــــــــــ</u> | ╂──        | <b>_</b>          | <b>_</b>                                      | <b> </b>     | 182       |
|                |              | <u> </u>  | +          | -        |               |                                                           | - <b>-</b> | - <u>}</u>  | <u> </u> | • • • • • • • • • • • • • • • • • • • • | ļ            | <u>.</u> | <b>-</b>    | ╂                                           | ╄          | <u> </u>          |                                               | 0 25         | 1 11      |
|                |              | 61.27     | 61.85      | 0.6      | 3 30010       |                                                           | 1          | · • · · · · | -        |                                         | · [          | <u>+</u> | ┨╌──        | ╂ ──                                        | +          | ╉───              | <u></u> +−-'                                  |              | <u> </u>  |
| }+             |              | 61.86     | 62.48      | 0.6      | 2 1051        | Shale                                                     |            | * <b>†</b>  | +        |                                         | · [          | t        | · • · · · · | <u>†</u>                                    |            | 1                 | ·†·· -· ∣                                     |              | t         |
| 1 -            |              | 1         | 1          | 1        |               |                                                           |            |             |          |                                         |              | 1        |             |                                             |            | <b>_</b>          |                                               |              |           |
| 10             |              | 62.48     | 63. 56     | 1.0      | n Shale       | medium-dark gray; carbonachous                            | 1          |             |          |                                         |              | J        | <u> </u>    | ļ                                           | <u> </u>   | 1                 |                                               | 1            | R3        |
| 1              |              | <b>.</b>  |            |          |               |                                                           | 1 .        |             | +        | ·                                       | <b>!</b>     |          | ł           | <b>∔</b> ·                                  | ╄─         |                   | 1                                             | l            |           |
| 11             |              | 65.56     | 63,65      | 0.0      | 9 Shate       | as above; becoming silty                                  |            |             |          |                                         | <u> </u>     | L        |             | 1                                           |            |                   |                                               | L            |           |
| •              | Atl 10       |           | HTC (51 14 |          |               | 1 -RE/OR 5 - GOLDER ASSOCIATES HARDNESS CODE              |            | ANO         | BLE ME   | ASURED                                  | FROM C       | ORE AX   | 15          | 1                                           |            |                   | <del></del>                                   |              |           |
|                | ALL 11       | 112MR ()0 |            |          | •             | +ROD - ROCK QUALITY DESIGNATION (%)                       | -          |             |          |                                         |              |          |             |                                             | HC         | ЛЕГ               | 10.                                           | (P-0 2       | 67        |
|                |              |           |            |          |               |                                                           |            |             |          |                                         |              |          |             |                                             | CON        | ITINUET           | 5                                             |              |           |

FF ---- TRACTURE FREQUENCY

FILE No BA - 212 A REVISED Nev 1978

# CORE & COAL CORE DESCRIPTION

| PROJECT | LODGEPOLE | HOLE No   | PAGE |
|---------|-----------|-----------|------|
| AREA    | S.E. B.C. | CONTINUED |      |

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|          | DEPTH       |          |         |            | LITHO DESCRIPTION                     |                                                            |                                               |              |            | 1          |            | ANAL         | TICAL       | ATA        |            |                 | ·                    |            |            |
|----------|-------------|----------|---------|------------|---------------------------------------|------------------------------------------------------------|-----------------------------------------------|--------------|------------|------------|------------|--------------|-------------|------------|------------|-----------------|----------------------|------------|------------|
| BOX      | 069TH<br>41 | DEP      | TH      | тн         |                                       |                                                            | ANGLE                                         | DESIG        | No.        | MOIS       | 1 %        | ASH %        | V.M. %      | F.C. %     | F.S.I.     | C.V.            | Frac.                | *****      |            |
| No       | 10707       | FROM     | ю       |            | MAIN                                  | AMPLIFIED (INCLUDE COAL RECOVERT FOR EACH SEAM)            | (*)                                           | ļ            | <u> </u>   | 0.1.5.     | ensidual   | <b>e</b> .b. | d.e.        | d.».       |            |                 | <del>التحم</del> م ا | 800 1      | iac.d      |
|          |             | 63,65    | 63.79   | 0.14       | SEST                                  | medium gray; slightly sandy (Core broken in Box 11)        |                                               | L.           | <b> </b>   | ļ          | 1          |              |             |            |            |                 | ┞──┤                 |            | <u>R4</u>  |
|          |             |          |         |            |                                       |                                                            |                                               |              | ┨───-      | ┇          | <u> </u>   |              |             |            |            |                 |                      | 0.32       | 83         |
|          |             | 63.79    | 63.92   | 0.13       | Shale                                 | medium gray; silty; rubbly                                 | ┨───                                          | <u>∔</u> … — | <u> </u>   | {          | <u> </u>   |              |             |            |            |                 |                      | 1          |            |
|          |             | 61 02    | 65 71   |            | Lort                                  | Shale                                                      | 1                                             | 1            |            |            | 1          |              | [           |            |            |                 | 1.72                 |            | <u>R3</u>  |
|          |             | 0.5. 92  | 07.17   |            |                                       |                                                            |                                               |              | <u> </u>   | Į          | <u> </u>   |              | <u> </u>    |            |            |                 | L                    |            |            |
|          |             | 65.23    | 66.28   | 1.05       | Shale                                 | medium gray; silty at base                                 | ļ                                             | <u> </u>     | <b>↓</b>   | <b> </b>   |            |              | ļ           | <b> </b> - |            |                 |                      |            | -14        |
|          |             |          |         | l          |                                       |                                                            | <b> </b>                                      | <b></b>      | -          | <u> </u>   | -          | <u> </u>     | <u>}</u>    | <b> </b>   |            |                 | <u></u> }∤           |            | R4         |
| 11       |             | 66.28    | 67.01   | 0.73       | SLST                                  | medium gray                                                | 1                                             |              | t          | 1          | 1          |              |             | İ          |            |                 |                      |            |            |
| 12       |             | 67.01    | 67.50   | 0.49       | SLST                                  | as above; siightly sendy                                   | <u> </u>                                      | 1            | T          |            | Ţ          | 1            | I           | Į          | ļ          |                 | <b>↓</b> !           | 1,03       | R4         |
|          |             |          |         | T I        |                                       |                                                            | <b> </b>                                      | <u> </u>     | ļ          | <u> </u>   | <b>.</b>   | <b>↓</b>     | ┨           | <b>}</b>   |            |                 |                      | 0.61       | 04         |
|          |             | 67.50    | 68, 38  | 0.88       | SEST                                  | medium-dark gray: slightly carbonaceous (most of box 12 is | ł—                                            | <u> </u>     |            |            | ·          |              |             |            |            | <b>}</b>        | ┥─┤                  | 0.01       | <u>_R</u>  |
|          |             | ┣━━━━    | ļ       | <b>!</b> - | ļ                                     | badiy brokan)                                              |                                               | +            | <u>+</u>   | 1          |            | 1            | 1           |            |            |                 |                      |            |            |
|          |             | 68.38    | 68.93   | 0.55       | SUST                                  | as above: rubble                                           | 1                                             |              | Ť.         |            |            |              |             |            |            | <u> </u>        | ļ                    |            | R4         |
|          |             | 1.00.30  | <u></u> | 1          |                                       |                                                            | <u> </u>                                      | 1            | <u> </u>   | <b></b> _  | ·I         | <u> </u>     | ļ           | <b> </b>   |            | <b> </b>        |                      | <b> </b>   |            |
|          |             | 68,93    | 69.43   | 0.50       | SLST                                  | as above; rubble                                           |                                               |              |            |            | +          |              |             | ŀ          | <u> </u>   | <b>}</b>        | ╀──                  |            |            |
|          |             | <u> </u> |         | 1          |                                       |                                                            | <b>†</b>                                      | 1            |            | <b></b>    | 1          |              | 1           | <u> </u>   | <u> </u>   | 1               | 1                    |            |            |
|          | <b>_</b>    | 69.43    | 70,10   | 0.67       | Lost                                  |                                                            | 1—                                            | 1            |            | 1          | 1          |              | 1           | L          | 1          |                 |                      |            | ·          |
|          | <u> </u>    | 70.10    | 70.30   | 0.20       | SLST                                  | as above: rubble                                           | 1                                             | 1            |            | Ţ          |            |              | L           |            |            | <b> </b>        | ÷                    |            | R4         |
|          | t           |          |         | 1          |                                       |                                                            | ·                                             | <b>_</b>     | <b> </b>   |            |            | l            | ·           | -          | ł          | ┨────           | ┨╌━━                 | ł          | Rå         |
| 12       |             | 70,30    | 10,72   | 0.42       | SLST                                  | as above; rubble                                           |                                               | +            | - <u>{</u> | 1          |            | 1            | <u> </u>    | f          | <u> </u> - | 1               | <u>+</u>             | <b>}</b>   | 1          |
| <u> </u> | ļ           | 10 10    | 11. 40  | 0 70       |                                       | Sandstone                                                  |                                               | 1            | 1          | 1          |            | 1            | 1           | 1          |            | 1               |                      |            |            |
| יין      |             | 10.12    | /1.40   | 10.10      |                                       | 3ands (one                                                 | 1                                             |              |            |            | · · · · ·  |              | <b>_</b>    |            | Ī          | 1               |                      | ļ          | <u> </u>   |
| ├──      |             | 71,48    | 71,94   | 0.40       | ss                                    | very dark gray; madium to coarse grained; some fine grain  | ⊥_                                            | <u> </u>     | .          | 1          | · <b> </b> | 1            |             |            |            | ╂────           | –                    | 0.10       | <u>[R5</u> |
|          |             | T        |         | <u> </u>   | <u> </u>                              | guartz grain                                               | -{                                            |              |            |            |            |              |             |            | ╂          |                 | ┼──                  | +          |            |
| L        |             | -        | 1       | 1          | <u></u>                               | Sandakana (Pou 1) wary subbly)                             | +                                             | +            | +          |            |            | -            | ·†          | 1          | 1          | 1               | 1_                   |            | 1          |
|          |             | 11.94    | 12.34   | 10.00      | LOST                                  | Sandstone (Box 1) very (0:00) /                            | 1                                             |              |            |            |            | 1            | 1           | T          | I          |                 | <u> </u>             | <u> </u>   |            |
| ┣        | 1           | 72.54    | 72.75   | 0.1        | ss                                    | rubble                                                     |                                               |              | 1          |            |            | <b></b>      | <b>.</b>    | ļ          | <b></b>    | <b>_</b>        | 1.06                 |            | R5 -       |
|          |             |          |         |            |                                       |                                                            | <u>                                      </u> |              |            | _          | +          | <u> </u>     |             | <b>₽</b>   | - <u>-</u> | <b></b>         | +                    | 1          | ┨          |
| ļ        |             | 12.13    | 72.84   | 0.1        | Lost_                                 | Sandstone                                                  | +                                             |              |            |            | -          |              | 1           | 1 —        | +          | 1               | +                    |            | 1          |
|          |             | -        | 75.28   |            |                                       | as shows with one swrite filled joint                      | 1                                             |              |            | 1          |            |              |             | <u> </u>   |            | 1               |                      | 0.32       | R5         |
| ŀ        | 1           | 14.04    | 1,200   | 10.0       | · · · · · · · · · · · · · · · · · · · |                                                            |                                               |              |            |            |            | 1            |             | <u> </u>   | 1          | 1               | ∔                    | <u> </u>   | <b></b>    |
| $\vdash$ | 1           | 73.28    | 73.65   | 0.3        | 7 55                                  | very dark grey with some very light gray grains; fine to   |                                               | 1            | <b>.</b>   |            | - <b>i</b> | ·            | - <b>-</b>  |            |            | - <b> </b>      |                      | +          | <u>R5</u>  |
|          | T           | <u> </u> | <b></b> | 4          |                                       | medjun grained                                             | <u></u>                                       | ·            |            | -          | _ {        | +            |             |            | +          | +               |                      | +          | <u> </u>   |
| 1        |             | 1 20 65  | 73.00   | 6.7        |                                       | Sandstone: core is broken to broken stick with some        |                                               | -            | 1          | +          |            | +            |             | -          | 1          | 1               |                      | 0.35       |            |
|          | ╂──╸        | +        |         | - [***     | 1                                     | calcite and some coaly material on broken plecas of core   |                                               |              |            | 1          |            |              |             |            | ļ          | -               | · <b>↓</b>           | - <b>j</b> | 4          |
| $\vdash$ |             |          | 1       | 1_         |                                       |                                                            |                                               | 4            | - <b> </b> |            |            |              |             |            |            |                 |                      |            |            |
|          | <u> </u>    | 73.90    | 74.28   | - 0.3      | 0 <u>55</u>                           | as above                                                   |                                               | 1            |            |            | - }        | -+·          | · <b>}-</b> | 1          | +          | 4               |                      | -+         | ·[         |
|          | -           | _        |         |            |                                       |                                                            |                                               |              | -          |            |            |              |             | 1          | +          | 1               | -                    | 1          | 1          |
|          |             |          | 174.84  | -10.5      | D. LOS                                |                                                            | 1                                             | 1            |            |            | 1          | 1            |             |            | 1          | 1               | - [                  | 1          |            |
|          | ·           | 74.84    | 75,40   | 0.5        | 6 55                                  | as above; badly broken; some pieces show coaty filled      |                                               |              |            | -          |            |              | <b></b> .   |            |            | -1 -            |                      |            | <u>R5</u>  |
|          | 1           |          |         | Į.         | 1                                     | tractures                                                  | -                                             |              |            | <b>. .</b> |            | -            |             | +          |            | - <u>+</u> ·-·· | · -                  | +          |            |
|          |             |          |         |            |                                       |                                                            |                                               |              |            |            |            |              |             |            |            |                 |                      |            |            |
| -        |             |          |         | AF 195     | 5                                     | T := R&/OR S - GOLDER ASSOCIATES HARDNESS CODE             | 4                                             | . AN         | GLE M      | EASUREI    | FROM       | CORE A       | x 15        |            | 10/        |                 |                      |            |            |
|          | ~~~ (       |          |         |            | -                                     | AROD - ROCK QUALITY DESIGNATION (%)                        |                                               |              |            |            |            |              |             |            | 민          |                 | <u>NO.</u>           | 10-0       | 207        |
|          |             |          |         |            |                                       |                                                            |                                               |              |            |            |            |              |             |            |            | NUMUL           | v 1                  |            |            |

#### ALL HINEAR UNITS IN METRE

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## CORE & COAL CORE DESCRIPTION

| PROJECT | LODGEPOLE | HOLE No.  | 18-0 202 | PAGE |
|---------|-----------|-----------|----------|------|
| AREA    | S-E, B.G. | CONTINUED | u -o tot |      |

| 101         |          |                                                   | 74       |               |                 | UTHO DESCRIPTION                                         | -          | GAL      |              | L            |            | ANAL         | TICAL        | ATA       |            |          |                  | MARK4    | • 1         |
|-------------|----------|---------------------------------------------------|----------|---------------|-----------------|----------------------------------------------------------|------------|----------|--------------|--------------|------------|--------------|--------------|-----------|------------|----------|------------------|----------|-------------|
| 8OA         | AT       | Der                                               |          | тн            |                 | AUDITOR (HICHOF COAL DECOVERY FOR SACH SEAM)             | ANGRE      | DESIG    | No.          | MOIS         | <u> %</u>  | ASH %        | V.M. %       | F.C. %    | F.S.1.     | С.У.     | Fraç.            |          |             |
| No.         | 801      | FROM                                              | TO .     |               | MAIN            | AMPLIFIED INCLUDE COAL RECOVERT FOR EACH SEAM,           | 1 61       | ļ -      | <u> </u>     | 0.7.0.       | FOLIGUO)   | •. D.        |              |           |            |          | EL 66            | <u></u>  | Hard        |
|             |          | 75.40                                             | 75.52    | 0.12          | 55              | es sbove; rubble                                         | <b>.</b>   | I        |              | <b> </b>     | <b>.</b>   |              |              |           |            |          | ┝─╂              |          | <u> </u>    |
|             |          | 78.67                                             | 76.70    |               |                 | Cande tana                                               |            | ╉───     | <b></b>      | <b> </b>     | <u> </u>   |              |              |           |            |          | <u> </u>         |          |             |
|             |          |                                                   | /6.20    | U, 05         |                 |                                                          | <u>†</u>   |          | ţ            |              | i          |              |              |           |            |          |                  | [        |             |
| 14          |          | 76.20                                             | 76.32    | 0.12          | Lost            | Sandstone                                                | I          |          |              | <u> </u>     | 1          |              | <u> </u>     |           |            |          | <b> </b> ∔       |          |             |
|             |          |                                                   |          |               |                 |                                                          | <b> </b> . | ļ        |              | ┟───         | <b> </b>   | <b> </b>     |              |           |            |          |                  |          | 115         |
|             |          | <u>76,32</u>                                      | 76,66    | 0, 34         | \$5             | as above; rubble (Box 14 badly broken)                   | ┨──        | <u> </u> | ┦╼╌╶─        |              |            | <u> </u>     |              |           |            |          |                  |          |             |
|             |          | 76 66                                             | 76.95    | 0.29          | - 55            | es above: rubble                                         | -1         | † – –    | t            | 1            | ·          |              |              |           |            |          |                  |          | R5          |
| ┠╴┨         |          | 10.00                                             | 10177    | 1             | }- <u>*</u>     |                                                          |            |          |              | [            |            |              |              | I         |            |          |                  |          |             |
|             |          | 76.95                                             | 77,03    | 0.08          | <u>ss</u>       | as ebove; rubble                                         |            | <u> </u> |              | ╉────        | <b>}</b>   | ┨──-         | <b> </b>     |           |            |          | $\left  \right $ |          | <u>R5</u>   |
|             |          |                                                   |          | l             | <u> </u>        |                                                          |            |          |              |              | <b></b>    |              | <u> </u>     | <u>}</u>  |            |          |                  |          |             |
|             |          | 77.03                                             | 77.27    | 0.24          | Lost            |                                                          |            | <u> </u> | 1            | 1            |            | <b> </b>     | t            |           |            |          |                  |          |             |
| <u>├</u> ─- |          | 77.27                                             | 77.35    | 0.00          | SS              | rubble; but appears to be coarser grained                |            |          |              | [            |            |              | I            |           |            |          |                  |          | R5          |
|             |          |                                                   |          |               |                 |                                                          | ·          | <b> </b> |              | <b>i</b>     | <b> </b>   | <b> </b>     | <b> </b>     | <b> </b>  | <b> </b>   |          | <b>}</b> ∤       |          |             |
|             |          | <u>11.35</u>                                      | 77.88    | 0,53          | Lost            | Sandstone                                                |            | ╉───     | <u> </u>     | <del> </del> | {·         | ł            | <u></u>      | <b>{</b>  |            |          | <u></u> ††       | i — 1    |             |
|             |          | 17 89                                             | 78.07    | 10 14         |                 | as above: rubble                                         | +          | †        | 1            | 1            | 1          |              |              | 1         |            |          |                  |          | R5          |
|             |          | 11.00                                             | 10,92    | 1             |                 |                                                          | 1          | 1        |              |              | [          |              | ļ            | Ľ.        |            |          | Į                |          |             |
|             |          | 78,02                                             | 78.06    | 0,04          | 55              | medium-coarse grain; very dark gray; some quartz grain   |            |          | ļ            | <b>_</b>     |            | ╂            | <u> </u>     |           | <u>↓</u>   |          |                  |          | <u>P5</u>   |
|             |          |                                                   |          | <u> </u>      |                 |                                                          |            | ┨───     |              | ł            |            | <b>{</b>     |              |           | <u> </u>   |          | <u></u> {{       |          | R5          |
| $\vdash$    |          | 78.06                                             | 78,17    | 0.11          | 51.51           | medium-dork gray; carbonaceous; a ree coary ersps        | +          | †        | 1            | 1            | 1          | 1            | <u> </u>     |           |            | <b>.</b> | 1                |          |             |
| $\vdash$    |          | 78.17                                             | 78.33    | 0.10          | Lost            | Silfstone                                                |            |          |              |              |            | <b></b>      |              |           |            | [        |                  |          | <u>اا</u>   |
|             |          |                                                   | 1        | 1             |                 |                                                          |            |          | <b>I</b>     | Į            | ·          | -            |              | <u> </u>  | <b> </b>   |          | <b>}</b> !       | 0.65     |             |
|             |          | 70.33                                             | 78,45    | 10.13         | 2_55            | medium-coarse grain; very dark gray; rubbia              |            |          | ╉───         |              | <u> </u>   | <del>{</del> | <u> </u>     | - ·       |            |          | ·                | 0.07     | ┟──┤        |
|             |          |                                                   | 10 71    | 10.2          | E Charles       |                                                          | -          |          |              | 1            |            |              | †            |           | <b>i</b> • |          |                  |          | R4          |
|             |          | 10,42                                             | 10.13    | 10.20         | 9 <u>5</u> #818 | mediam bark gray, carbonacious di consistenty            | - T        |          |              | <u> </u>     | 1          | 1            | T            |           |            |          |                  |          |             |
|             |          | 78.75                                             | 79.42    | 0.6           | 9 Shale         | dark gray with plant debris and intermixed medium grain  | <b>_</b>   |          | <u> </u>     | <b>_</b>     | <b>!</b>   | <b>_</b>     | - <u> </u>   | <b>↓</b>  | ┨────      |          | <b> </b> '       | '        |             |
|             |          | I                                                 |          | <b>_</b>      |                 | sandstone                                                |            | + •      | <del> </del> | +            | 1          | 1            | · <b> </b> · | ╂──       |            |          |                  | <u> </u> | t           |
| }'          |          |                                                   | 10 62    |               |                 | dark grave medium to coarse grains rubble                | ╉╼╌        |          | 1            | +            | 1          |              | <u>+</u>     | · [       | 1          |          | 1                |          |             |
|             |          | 1 19.42                                           | 17.72    | 1             |                 |                                                          |            |          | 1            |              |            | <u> </u>     |              | 1         | <b>I</b>   |          |                  |          | <u> </u>    |
|             |          | 79.52                                             | 81.38    | 1.6           | 6 Lost          | Sandstone                                                | <u> </u>   | 4        | <u> </u> _   | <b>_</b>     |            | 1            | <b>.</b>     | <b>_</b>  | -          |          | <b>+</b>         |          | <u>R5</u>   |
|             |          | <b> </b>                                          | <b> </b> | -             |                 |                                                          | <u> </u>   |          |              | + -          | +          |              |              |           | ╂          | ┨────    | <u>+</u>         | 0.55     | RS          |
| 14          |          | 81.39                                             | 81.78    | - <u> 0,4</u> | <u>o ss</u>     | medium to coarse grained; dark gray; congiomerate samske | ***        |          | 1            | 1            |            | 1            |              |           | 1          |          | 1                | <u>t</u> |             |
|             |          | <del>                                      </del> | 1        |               | 1               | brokes with harmer                                       |            | 1        | 1            |              |            | 1            |              | T         |            | ļ        |                  | [        |             |
|             |          | i                                                 | 1 .      |               |                 |                                                          |            |          | <u> </u>     | . [          | _ <u>_</u> |              | 1            | ļ         | 4          | 4        |                  | <b> </b> |             |
|             | \$       | 81,78                                             | 82,47    | 0.6           | 9 SS            | modium to very coarse grained; derk gray; abundant chert |            | +        |              |              |            |              |              |           | +          | <u> </u> | <b>- </b> · ·    | <u> </u> | t≃́−        |
|             |          | <b>↓</b>                                          |          | +             |                 | with a few guartz grains                                 |            | -+       |              | - [          |            | +            |              |           | +          | t        |                  |          | 1           |
|             |          | 87-47                                             | 82.60    | 10.1          | 3 1.051         | Sandstona                                                | _t_        |          |              | - T          | 1          | 1            | 1            |           |            |          |                  | 1        |             |
|             |          | L                                                 | 1        | 1             |                 |                                                          |            | 4        |              |              |            | 1            | <b>.</b>     | <b></b>   |            |          |                  |          | 1           |
|             |          | 82.60                                             | 83.80    | 1.2           | 0 55            | modium grained; very dark gray; a few coaly slickensides | _{         |          | -            |              |            |              | · •          | - <b></b> |            | 4        | ··               | 1        | <u> [*?</u> |
| <b> </b>    |          |                                                   | 1        |               |                 | an above with a few coaly wisce                          |            | · {      |              |              |            | ł            | -+           | +         | +          | 1        | 2.91             | ł        | RS          |
| ł           | <b>.</b> | 83.80                                             | 84,35    | 10.5          | 55 55           | as arkive; with a tim clarity wrop?                      |            | 1        | 1            | · [          |            | 1            | 1            | t i       | <u> </u>   | 1        |                  |          |             |
| 1           | l        | 84.33                                             | 84.69    | 0.7           | 17.12.18        | modium gray; breeks blocky                               |            | 1        |              | T.           |            | T            |              | ſ         |            | 1        |                  | 0.57     | R4          |
| L           | !        |                                                   | 1        |               |                 |                                                          |            |          | 1            |              |            |              |              |           | _          | <u> </u> |                  | 4        | **          |

ALL LINEAR UNITS IN METRES

T := R&/OR S -= GOLDER ASSOCIATES HARDNESS CODE +RGD --- ROCK QUALITY DESIGNATION 1%}

HOLE No. 1P-0 202

FF ---- FRACTURE FREQUENCY

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### CORE & COAL CORE DESCRIPTION

| PROJECT | LODGEPOLE | HOLE No. 19-11 202 | PAGE 8 |
|---------|-----------|--------------------|--------|
| AREA    | 6.E. R.C. | CONTINUED          |        |

| Consul      |            | DEG      |              |             |                    | UTHO DESCRIPTION                                           | ANALYTICAL DATA                              |            |              |          |                                               |               |              |              |            | . 1        |                                              |          |               |
|-------------|------------|----------|--------------|-------------|--------------------|------------------------------------------------------------|----------------------------------------------|------------|--------------|----------|-----------------------------------------------|---------------|--------------|--------------|------------|------------|----------------------------------------------|----------|---------------|
| 1607        | AT         |          |              | тн          |                    |                                                            | ANGLE                                        | DESIG      | No.          | MOIS     | 1 %                                           | ASH %         | V.M. %       | F.C. %       | F.S.L      | C.V.       | Frac.                                        |          | <u> </u>      |
| No          | 10407      | FROM     | 10           |             | MAIN               | AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)            | (1)                                          |            |              | 0.7.6.   | residual                                      | d.b.          | d.b.         | e.b.         |            |            | ج ومع                                        | ROD H    | erd.          |
|             |            | R4. 69   | 84.77        | 0.08        | 51.53              | as above: becoming sandy                                   |                                              | 1          | 1            | ļ        |                                               |               |              |              |            |            |                                              | 1        | 84            |
|             |            |          |              |             |                    |                                                            |                                              |            |              |          |                                               |               |              |              |            |            | <u>                                     </u> |          |               |
| ┣           |            | 84.77    | 85,05        | 0.28        | SS                 | medium to coarse grain; some silty blabs; dark gray        |                                              |            |              | [        | L                                             |               |              |              |            |            | ↓                                            |          | <u>ns</u>     |
|             |            |          |              |             |                    |                                                            |                                              | L          | <b> </b>     | ļ        | ł                                             |               |              |              |            | <b></b>    | ┝                                            |          |               |
| 15          |            | 65.05    | 85.15        | 0,10        | 58                 | as above                                                   |                                              | ļ          | <b>I</b>     | ļ        |                                               |               |              |              |            |            | <b>├</b> ──┨                                 | ł        | <u>P</u> >    |
|             |            |          | _            |             |                    |                                                            |                                              | <b>_</b>   | <b> </b>     | ł        |                                               |               |              |              |            |            | ┟──┤                                         | ł        |               |
| 16          |            | 85.15    | 85.67        | 0.52        | SS                 | medium to coarse grain; very dark gray; some carby blebs;  |                                              |            | ┣───         | <b> </b> | [                                             |               |              |              |            |            |                                              |          | <b>DK</b>     |
|             |            | L        |              |             | ļ                  | and coaly wisps; massive; 3 joints at 23"                  |                                              |            | ┟┈╼╴         | ┨        | ╂                                             |               |              | {            |            | -          |                                              | <u></u>  | <u> </u>      |
|             |            |          |              | <b></b>     | L                  |                                                            |                                              | <b>i</b>   |              | }        | ł                                             |               |              | <u> </u>     |            |            | <u>├</u> ──┤                                 | 0.68     | R4            |
|             |            | 85.67    | 86.63        | 0,96        | Shale_             | dark gray; carbonaceous; slity with a tew right gray wity  | 78*                                          |            |              | <u> </u> | <u>                                      </u> |               | <u> </u>     |              |            |            |                                              |          |               |
| <b>├</b>    |            | <b>{</b> |              | · ·         | {                  | fine grain sandstone cross-begs                            | <b>*</b> ≚—.                                 |            | 1            | <u> </u> | ł                                             |               | l — —        | <b> </b>     |            |            |                                              |          |               |
|             |            |          |              |             |                    |                                                            | t                                            | t          |              | 1        | i                                             |               |              | <u> </u>     | 11         |            | 4.92                                         |          |               |
| }           | <u> </u>   | 80.02    | 87,04        | 10.41       | LOS7               |                                                            | 1                                            |            | t——          | 1        | 1 -                                           |               |              | 1            |            |            |                                              |          |               |
|             |            | 87.04    | 87.24        | 0.20        | Shale              | as above                                                   | 1                                            |            |              | 1        |                                               |               |              |              |            |            |                                              |          | R4            |
|             | <b>_</b>   |          |              |             |                    |                                                            |                                              |            |              |          |                                               |               |              | L            |            |            |                                              | L1       |               |
| [           | <b></b>    | 87.74    | 88.44        | 11.20       | SLST-SS            | dark gray stitstone with intermixed fine grain sandstone;  |                                              |            |              | L        |                                               | I             |              | L            |            |            | {'                                           | 0.89     | R4            |
|             |            |          |              | 1           |                    | slightly carboneceous: a catcling joints and i stickenside | Į                                            |            | ļ            |          | <u> </u>                                      | l             | I            | ļ            |            |            | <b>}</b> '                                   |          |               |
|             |            |          |              | ľ.          |                    | some cross-bedding                                         | <u>l                                    </u> |            | <b> </b>     | <b>_</b> | L                                             | <u> </u>      | Į            |              | { (        |            | <b>{</b> '                                   | <b>↓</b> | <u> </u>      |
|             |            | · · · ·  |              |             | L                  |                                                            | I                                            | <u> </u>   | <b> </b>     | ļ        | <b>i</b>                                      | <u> </u>      | ļ            | <b>!</b>     | Įi         | <b>-</b>   | <b>↓</b> '                                   | <u>↓</u> | <u>.</u>      |
|             |            | 88.58    | 88.92        | 0.24        | SEST-SS            | as above; calcific joint                                   | <u> </u>                                     | <u> </u>   | ļ            | <b>}</b> | <b> </b>                                      | ļ             | <b>∤</b>     | <u> </u>     | <u> </u>   | ļ          | ł                                            | ┣──┦     | N=            |
| L           |            | I        |              |             |                    |                                                            | <b>I</b>                                     | <u> </u>   | ╄─           | ┨        | <u> </u>                                      | <u> </u>      |              | <b>}_</b>    | ╂──┤       |            | <u>+</u> —-'                                 | 0.94     | Ré            |
|             | 1          | 88.92    | 89.52        | 0.60        | Shale              | dark gray; carbonaceous; breaks blocky; + calcific joint   | <u></u>                                      | ┨──        | ╉ ──         | <u> </u> | · {                                           | ┨             | ╂            | ┢┈──         | <u> </u>   | ·          | <b>}</b>                                     | <u></u>  |               |
| í           | <b>I</b>   | <b> </b> | ┞            | I           | <u> </u>           |                                                            | <u>{ · · ·</u>                               | ╉          | <u>{</u> ·── | ╉╼──     |                                               | <b>∱·</b> ─·· | <u> </u>     | f - ·-       | <u>+</u>   | <b></b>    | <u> </u>                                     |          | R4            |
| 16          | }          | 89.52    | <u>87.85</u> | 10,33       | <u>si si si si</u> | dark gray; carbonaceous; sandy to a rew very rine grate    | ╂                                            |            | <u>+</u>     | ┨╌───    | -t                                            | <u>+</u> ···  | <u>}</u> ─── | <u> </u>     |            |            | ł                                            |          |               |
| <b> </b>    | <b></b> .  | <u> </u> | <b>∤</b>     |             | ┫╌╍╌╌╼             | light gray sandstone cross-beas                            | t                                            | <b>}</b>   | 1            |          |                                               | t             | <u> </u>     | t            | 1          |            |                                              | 1        |               |
| 1.          |            | 80.85    | 00 27        | 1 47        | 1 9 97             | es abova: no iolsts                                        | t —                                          | <u>†</u>   | 1            | 1        | <u> </u>                                      | 1             | 1            | 1            | 1          |            |                                              |          | R4            |
| ۳-          | <u></u>    | 09.07    | 30.27        | 1           |                    |                                                            | 1                                            | 1          | 1            | 1        |                                               | 1             | 1            | 1            | T          |            | 1                                            |          |               |
|             |            | on 21    | 90.47        | 0.20        | SUST .             | dark grav: cerbonaceous                                    | 1                                            | 1          | 1            | 1        | T                                             | 1             |              | L .          |            |            |                                              |          | R5            |
|             | <u>+</u>   |          |              | 1           | 1                  |                                                            |                                              |            |              | 1        | <u> </u>                                      |               |              | I            | <u> </u>   | L          | 1                                            | <u> </u> | L             |
|             | f          | 90.47    | 91.06        | 0.59        | slst               | as above becomming sandy; I low angle calcific joints; I   | 1                                            |            | <b> </b>     |          | <u> </u>                                      | <u> </u>      | <u> </u>     | Į            | <b>.</b>   | L          | <b>!</b>                                     | 0.67     | 83            |
|             | t          | 1        | 1            | 1           |                    | colcite filled tracture; 1 slickenside                     | 1                                            |            | <b>I</b>     | ļ        |                                               | ↓             | <b>!</b>     | <b></b>      | <b> </b>   | ļ          | <b></b> -                                    | <b> </b> | I             |
|             |            |          | 1. –         | T           |                    |                                                            | 4                                            | 1_         | ┇            | <u> </u> | ·                                             | <u> </u>      |              | ļ            | ┨          |            | <b>-</b>                                     | ł        |               |
|             |            | 91.06    | 91.60        | 0,54        | 55                 | fine grain; salt and popper; slity; dark gray matrix; f    | - <b> </b>                                   | 1.         | <b>\</b>     |          |                                               | <b>↓</b>      | ļ            | <b>}</b>     | <b>∔_</b>  | <u> </u>   | <b></b>                                      | ╂        | H.2           |
|             |            | T        |              |             | ·                  | faint cross-badding                                        | ∔                                            |            |              | <u> </u> |                                               | - <b> </b>    | <u> </u>     | <u>+</u> -−- | - <b>}</b> | <b>}</b>   |                                              | <b>}</b> | <b>├</b>      |
|             | 1          |          | 4            | <b>.</b>    |                    |                                                            | ł                                            | ┢╌╌╸       | +            |          |                                               |               |              | <u> </u>     | ╉╼╍╌       | <b></b>    | 12 10                                        | 10.72    | 05            |
|             | ļ          | 91,60    | 92,16        | <u>0. ×</u> | 5 55               | as above; becoming more slity of base                      |                                              | <u></u> +  |              | +        |                                               | +             | <u> </u>     | <u>+</u>     | +          | <u> </u>   | 1                                            | 1º-'4    | 1 2           |
| 1-          | <b>!</b>   | +        | +            |             | t art              | test many and in anti- 3 anialtic lointer core is          | - <del>[</del>                               | -{         | <u>f</u>     | -        | ·{····                                        | f             | 1            | <del>[</del> |            | <b>-</b>   | ·f                                           | f        | 1 85          |
|             | ┦───       | 92.16    | 95,12        | 0.94        |                    | broken in part                                             | 1                                            | <u>+-</u>  |              |          |                                               | 1             | 1            | 1            | 1          |            | 1                                            | 1        |               |
| 1-          |            | ┨╼╌╼     |              |             | ·+                 |                                                            |                                              | 1          |              | 1        |                                               | 1             | 1            | 1            | 1          | 1          | 1                                            | 1        |               |
| 1.7         | · {        | 03.12    | 03.53        | - 1- A      | 1 59 51            | as above: 2 catcitic loigts                                | · [                                          |            |              | - [      | 1                                             |               | 1            | 1            |            |            | 1                                            | 0.74     | R5            |
| <u>+-</u> - | +          | 1 22.12  | 1            | +           |                    |                                                            | -j                                           | ·          | - <u></u>    | 1        | 1                                             | 1             |              | Ľ            |            |            | 1                                            |          | L             |
| IB          | 1          | 93.53    | 94.53        | ti.o        | SLST               | as above; 6 joints; sendstone gives core a mottle          |                                              | 1          |              |          |                                               | T             |              | Ι            | <u> </u>   | I          | 1                                            | .L       | R9            |
| 1           | +          | 1        | <u>†</u> ·-· |             | 1                  | appearance                                                 | 1                                            |            | 1            |          |                                               | 1             |              |              | 1.         | l          | · <b>!</b>                                   | 4        |               |
| -           | 1          | 1-1-     | 1            |             | 1                  |                                                            | 1_                                           | 4          |              |          | [                                             | L             | · +          | 4            | · [        | <b>.</b>   | .                                            |          | 1             |
| 1-          | - <b>[</b> | 94.53    | 94.64        | 0.1         | 1 Lost             | Sillstone                                                  |                                              | . <b>.</b> |              | - ···-   |                                               | · <b>↓</b> ·  | <b></b>      | ╉—           | · +        | 4          | 2.34                                         | 1        | <u>  85</u> - |
|             | T          | 1        |              | 1           |                    |                                                            |                                              |            |              | 4        |                                               | + ·           |              |              |            | ł          | +                                            | 1.       | 1             |
| L           | 1          | 94.64    | 95.02        | 0.3         | 8 SLST             | as above; 2 joints about 30*                               |                                              | I          | 4            | <b>.</b> | Į                                             |               |              |              |            | . <b> </b> | +                                            | 1.1.92   | 1 <u>K2</u> - |
|             |            | ł        | }            | 1           | ·                  |                                                            |                                              |            | 1            |          |                                               | 1             |              |              |            | <u> </u>   | <u> </u>                                     | <u>L</u> | 1_            |
| <u> </u>    |            |          |              |             |                    |                                                            |                                              | AN         | GIE M        | ASUPPO   | FROM                                          | ORE AN        | us           |              |            |            | <u> </u>                                     |          |               |

ALL LINEAR UNITS IN METRES

SIRE/ORS - GOLDER ASSOCIATES HARDNESS CODE +RQD - ROCK QUALITY DESIGNATION [%]

FF ---- FRACTURE FREQUENCY

![](_page_88_Picture_7.jpeg)

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FILE No BA - 212 A BEVISED Nov 1978

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## CORE & COAL CORE DESCRIPTION

| PROJECT | LOOGEPOLE | HOLE No. LP-D 202 | PAGE |
|---------|-----------|-------------------|------|
| AREA    | S.E. B.C. | CONTINUED         |      |

|          |            |           |            |           |                                       |                                                            |                                              |          |            | ANALYTICAL DATA  |                                              |             |                |                |                |            | <u> </u>            |            | . 1        |
|----------|------------|-----------|------------|-----------|---------------------------------------|------------------------------------------------------------|----------------------------------------------|----------|------------|------------------|----------------------------------------------|-------------|----------------|----------------|----------------|------------|---------------------|------------|------------|
| 60X      | DEPTH      | DEP       | тн         | тн        |                                       | LITHO DESCRIPTION                                          | HODING<br>ANGLE                              | SEAM     | SAMPLE     | MOIS             | 1/.                                          | ASH %       | V.M. %         | FC. %          | FSI            | C.V.       | Fraci               | MARKS      | ' . I      |
| No       | 107.0      | FROM      | TO         |           | MAIN                                  | AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)            | 1-1                                          | 2310     | 140.       | . e.r.b.         | residual                                     | d.b.        | d.b.           | d.b.           | 1              |            | r eq.               | RQ0 I      | dar d      |
|          |            | 95.02     | 96.17      | 1.15      | ss                                    | (4 joints with frace of calcite about 30°); dark gray      | l                                            |          |            | <u> </u>         |                                              |             |                | L              |                |            | <b>├</b> ──-        |            | R5         |
| ·· -     |            |           |            |           | · · · · · · · · · · · · · · · · · · · | matrix with some fight gray quartz grains; carbonaceous;   | I                                            |          |            |                  |                                              |             | <u> </u>       | ·              |                |            | ╉                   | 0,48       |            |
|          |            |           |            |           |                                       | some dark gray cross-bedded silfstone beds                 | 20°                                          |          |            | -                |                                              |             |                | <b>}</b>       |                |            | <b>{ )</b>          | <u>├</u>   |            |
| Ĩ        |            |           |            |           |                                       |                                                            | 151                                          | ┫        |            |                  | ł                                            | · · · · · · |                | {              |                |            | <b>†</b> · <b>!</b> | <u> </u>   | R5         |
| 18       |            | 96.17     | 97.31      | 1,14      | 55                                    | as above; 1 clean joint; some broken core in middle; (     | 21.0                                         |          | <b>-</b>   |                  |                                              |             |                | 1              |                |            | 1-1                 |            |            |
|          |            |           |            |           |                                       |                                                            | · ·                                          | i        |            | ·                |                                              | 1           |                |                |                |            |                     |            |            |
| 50       |            | 97.31     | QB 37      | 1.06      | 55                                    | (3 loints coety filled); medium to fine grain; dark gray   |                                              | I _      |            | [                |                                              |             |                | ļ              |                |            | <b>_</b>            | 0.65       | R5         |
| .,       |            |           |            |           |                                       | with some light gray quartz grains; some coaly faces       | 20 -                                         | [        | <u> </u>   | L                | <b>ļ</b>                                     | <b> </b>    | Į              |                | <b>↓</b>       |            | 2,43                |            |            |
|          |            |           |            | · · · · · |                                       | where broken with hemmer; light to dark gray cross-beds    | 30*                                          | <b>!</b> |            | <b> </b>         |                                              | <b> </b>    | <b> </b>       |                |                |            | 4                   |            |            |
|          |            |           |            | Ľ         |                                       |                                                            | <b> </b>                                     |          | ┣          | ╉╶╼━             |                                              | <b>∤</b>    | <b>}-</b>      | <u> </u>       | <b>├</b> ──┤   |            | +                   |            | 85         |
|          |            | 98, 37    | 98.60      | 0.23      | Lost                                  | Sandstona                                                  | I                                            | <u> </u> | ┨          | <b> </b>         | <b> </b>                                     |             | <u> </u>       | 1 —            | +              |            | · <b> </b>          |            |            |
| ┣—       | [          |           |            |           |                                       | 2 make toleter 1 clean joint: as shown with some coaly     |                                              | ╂━╌─     | 1          | <b> </b>         | <u>†</u>                                     | 1           |                | 1              |                |            | 1                   | 0,56       | R5         |
| <u> </u> | ┣—         | 40,60     | 99.80      | 1.20      | 22                                    | filled fractures                                           | 1                                            | t        | 1          |                  |                                              |             |                |                |                |            |                     |            |            |
|          | <b> </b> - | · · ·     |            | 1         |                                       |                                                            | 1                                            | I        | I          |                  |                                              |             | I              |                | <b>.</b>       |            | <u> </u>            |            |            |
| <u>-</u> |            | 99,80     | 100.62     | 0,82      | 55                                    | 2 coaly joints; 1 clean joint; medium to coarse grained;   | I                                            | 1        | L          | I                |                                              | L           | <b> </b>       | 4              |                | ·· -       | <b>_</b>            | 0.25       | R5         |
| t        | İ          |           | 1          |           |                                       | dark gray with some light gray quartz grains; massive      | <u>                                     </u> | <b>}</b> | <b>↓</b> — | <b>}</b>         | +                                            | <b> </b>    |                |                | ł              |            |                     | ╉──┤       |            |
| Ĺ        | L          | L         | <u> </u>   | Ļ         |                                       |                                                            |                                              | ł—       |            | }                |                                              |             | ╂────          | +              | {              |            | +                   | <b>†</b> ∔ | 85         |
| 19       | ļ          | 100,62    | 101.20     | 0.58      | 55                                    | as above; rubbly some coaly filled tracteres               |                                              |          | i          | <b></b>          | ┨                                            | <u>├</u> ── | <u> </u>       | +              | 1 .            |            | +                   |            |            |
|          | ļ          | <u> </u>  | 1.01.07    | 6 73      |                                       | an about subbly                                            |                                              | +        | 1          | <u> </u>         | 1                                            | 1           | † ·            | 1              |                |            | 1                   | · · · ·    | R5         |
| 20       | <u>} -</u> | 101.20    | 101+72     | 0.32      | 35                                    |                                                            | 1                                            |          | 1          | 1                | 1                                            |             |                |                |                |            | <u> </u>            |            |            |
|          | ╉───       | 101.52    | 102.24     | 0.72      | Shale                                 | Z clean joints; dark gray; carbonaceous; slightly slity;   | ]                                            |          | ļ          | <u> </u>         | l                                            | L           | <u> </u>       | <u> </u>       | ļ              | <u> </u>   | 2,19                | 0,98       | <u>R4</u>  |
| -        | t          |           |            | 1         |                                       | some small coally blebs                                    | Į                                            | 4        | <u> </u>   | <u> </u>         | <u> </u>                                     |             | ╂-──           | 1              | - <del> </del> | <b> </b>   |                     | <u> </u>   | ┨ ─┥       |
|          | t          |           | 1          |           |                                       |                                                            |                                              | 1        |            | · ·              | <u> </u>                                     | <b>-</b>    |                | - <del>[</del> |                |            |                     | ╉━━━       | ┨──┤       |
|          |            | 102.24    | 102.41     | 0.17      | Los?                                  | Shale                                                      | · {                                          |          | ·}         | ╆                | +                                            | ┼──         | <u></u>        | 1              | ┨              |            | -                   |            | ţ4         |
| <u> </u> | Ļ          | I         |            | <u> </u>  |                                       |                                                            | ╂                                            | <u> </u> | 1          | 1                | 1                                            | <u> </u>    | +              | 1              |                |            | 1                   | 0.26       | R4         |
|          |            | 102.41    | 102.80     | 0.39      | Shale                                 |                                                            | 1                                            | 1        | 1          | <u> </u>         | 1                                            | <u>†</u>    |                |                |                | <b>j</b>   |                     | T          |            |
| ⊢        |            | 102 80    | 103.02     | 10.22     | lost                                  | Shale                                                      |                                              | 1        | 1          | 1                |                                              |             | 1              | Ţ              | <u> </u>       | I          | _ <b>_</b>          | ļ          |            |
| $\vdash$ | 1          |           | 1.0.7.0    | 1         | <u> </u>                              |                                                            |                                              | <u> </u> | I          | L                | <u>                                     </u> | <b>.</b>    | . <b> </b>     | <b>!</b>       | 4              | <b> </b>   | <u>-</u> {          | 1          |            |
| <b>_</b> |            | 103.02    | 103.80     | 0. 18     | Shale                                 | as above                                                   | 1                                            | ļ        | <b>↓</b>   | <u> </u>         | <b>_</b>                                     | <u> </u>    | ··•••          |                |                | <b> </b>   |                     | 10.30      | <u> 84</u> |
|          |            |           |            |           | I                                     |                                                            | -                                            | +        | <b>.</b>   |                  |                                              | <u> </u>    | <u> </u>       |                |                | I          |                     | +          | +          |
|          |            | 103,80    | 103,93     | 0,13      | Lost                                  | Shale                                                      |                                              |          | <u> </u>   |                  | +                                            |             | - <del> </del> | +              | +              | 1          |                     |            | †          |
| I        | . <b> </b> | l         | 1          | +         |                                       |                                                            |                                              |          |            | 1                | +                                            | 1           | +              | 1 -            |                | 1          | -1                  | 0.82       | R4         |
| 20       | <b>₹</b>   | 103.95    | 1105.19    | 1:-29     | Sugar                                 | 2 Crean; r coarr, r crean jorni, us douro                  |                                              | 1        | 1          |                  |                                              |             |                |                |                | <b>I</b> . |                     |            |            |
| 1 21     | ╂──        | 105.19    | 105.37     | 0.2       | Shale                                 | as above                                                   |                                              |          |            |                  |                                              |             |                |                |                | 1          | _                   |            | R4         |
| <b>1</b> | +          | 1         | 103021     | 1         | 1                                     |                                                            |                                              |          |            | 1                |                                              | · <b> </b>  | <b>_</b>       | <b>_</b>       | -              | <b></b> .  |                     | 10.15      | -          |
| 1        |            | 105, 37   | 106.77     | 1.40      | Shala                                 | as abova; 9 joints but 1/2 of run is broken corn           | .                                            |          | <b>_}_</b> | <u> </u>         |                                              | +           | <u> </u>       |                |                | ┨╌──╴      | -                   | 0.42       |            |
|          |            |           | <u> </u>   |           |                                       |                                                            | · ]                                          | -        | _ <u>_</u> | · <del> </del> - |                                              | +           | +              | +              | -}             | ┨ · · · •  |                     |            | 1—         |
|          |            | 106.77    | 106.98     | 0,2       | Lost                                  | Shale; coaly on some fractures where broken with hammor    |                                              |          | - {        | · 🕂 · · — ·      |                                              |             | +              | -              | -              | +          |                     | +          | · [        |
| F        | -          | <u> </u>  |            | -         | <u> </u>                              |                                                            | : [                                          |          | 1          |                  |                                              | +           |                | 1              |                | 1          | -1                  | 10.37      | R4         |
|          | +          | 106.98    | 107.94     | -10.9     | Snare                                 | very ours groy, contains mady, court in party oddry proces | -1                                           | 1        | 1          | 1                | 1                                            |             |                |                |                | 1          |                     | ſ          |            |
| ł-       | +          | 107.94    | 108.51     | 6.5       | Lost                                  | Shale                                                      | ·                                            |          |            |                  |                                              |             |                |                | -              |            |                     |            | ·          |
| 1        |            | -t        | -          | 1         |                                       |                                                            |                                              | ļ        | . <b>.</b> |                  |                                              | _           | <b></b>        |                |                | - <b> </b> |                     |            | - 04       |
|          |            | 108,51    | 108.83     | 0.5       | Shale                                 | as above                                                   |                                              |          |            | - <b> </b> -     |                                              | - • ]       |                | +              |                | -          |                     | · ·        | <u> </u>   |
|          |            |           |            |           | ļ                                     |                                                            | ļ.                                           |          | <b></b>    | +                |                                              |             | +              |                | ··             | -1         | 1                   | · · ·      | 1          |
|          |            | 109.83    | \$ \$08.95 | 0.1       | 7 Shate                               | ns above                                                   | 1                                            |          |            | <u> </u>         |                                              |             |                |                |                |            | <u> </u>            |            | - <b> </b> |
| <u> </u> |            |           |            |           |                                       | t                                                          |                                              |          | GLE M      | EASURED          | FROM                                         | CORE A      | K15            |                |                |            | NI -                |            |            |
|          | ~~~        | LONG ON U |            | ne me .   | •                                     | -ROD - ROCK QUALITY DESIGNATION (%)                        |                                              |          |            |                  |                                              |             |                |                |                | ᅸ          | <u>1,10</u>         | 10-0       | 202        |
|          |            |           |            |           |                                       |                                                            |                                              |          |            |                  |                                              |             |                |                | COI            | NUNUE      | :U                  |            |            |

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## CORE & COAL CORE DESCRIPTION

| PROJECT | LOOGEPOLE  | HOLE No.  | PAGE 10 |
|---------|------------|-----------|---------|
| AREA    | \$.E. B.C. | CONTINUED | QF      |

| Fear       | -        |          | 74        | <b>,</b> |                     | LITHO DESCRIPTION                                                                |               | -          | CAMPIS          |          |          | ANAL     | TICAL          | DATA     | (1,5 F)  | 0.11     |               |                | ., ]       |
|------------|----------|----------|-----------|----------|---------------------|----------------------------------------------------------------------------------|---------------|------------|-----------------|----------|----------|----------|----------------|----------|----------|----------|---------------|----------------|------------|
| Ĩ.         | AT       | FROM     | 1 70      | тн       | MAIN                | AMPLIFIED LINCLUDE COAL RECOVERY FOR EACH SEAM)                                  | ANGLE         | DESIG      | No.             | MOIS     | T %      | ASH %    | V.M. %<br>d.b. | F.C. %   | F.S.J.   | C.V.     | Frac.         | 000            | 3<br>      |
| 140        | 801      | TROM     |           | <u> </u> |                     |                                                                                  | <u>  ` '</u>  | ┠──┤       | - *             |          |          |          |                |          |          | ACC 1760 |               | f              | SI         |
|            |          | 108,95   | 109,10    | 0.15     | <u>Coa</u> 1        | ······································                                           | <u></u> †·─── |            |                 |          |          |          |                |          |          |          |               | ·              |            |
|            |          | 109.10   | 009.21    | 0.11     | Coal                |                                                                                  | <u> </u>      |            |                 |          | <b> </b> |          | ļ              | <b> </b> |          |          | <u> </u>      |                | <u>R3</u>  |
|            |          | 109.21   | 109.27    | 0.06     | Shate               | derk grav: carbonaceous: rubble                                                  | <u>†</u>      | ┢──┤       | 13              | 1.51     | 0.34     | 10,12    | 21.04          | 68,84    | 9.0      | 7832     | <u> </u>      |                | R4         |
|            |          |          |           |          |                     |                                                                                  | I             |            |                 | ļ        |          |          |                |          |          |          |               |                |            |
| 21         |          | 109,27   | 109.39    | 0.12     | Shale               | very dark gray; black; carbonaceous to costy; rubbly                             |               |            | ╞┈┠╴            | <u>†</u> |          |          |                |          |          |          | <u></u> }     | r              | 194        |
| <b>Ž</b> 2 |          | 109.39   | 109.52    | 0,13     | Shale               | as above                                                                         | I             |            | <u> </u>        | 1        |          |          |                |          |          |          | 0.33          | μĽ             |            |
|            |          | 109.52   | 109.55    | 0.03     | Cost                | Dowdery                                                                          | <b></b>       |            |                 |          | <u> </u> |          |                |          |          | l        | <b>॑</b> ──┤  | ¦ <sup>∤</sup> |            |
|            |          |          |           | 1        |                     |                                                                                  | <b></b>       |            |                 | 4.       |          |          |                | [        |          |          | []            | <u> </u>       |            |
| }          |          | 109.55   | 109,66    | 0,11     | Casi                | shaly                                                                            | <b></b>       |            |                 | -        |          |          |                | ├        |          |          | <del>  </del> | 4.89           | <u> </u>   |
|            |          | 109.66   | 109,85    | 0.19     | Shale               | black; coaly                                                                     | 1             | 1          |                 |          | <b></b>  |          |                |          |          | <u> </u> |               |                |            |
|            |          | 100.95   | 110 17    | 1 33     | Cost                | dult with he labt: broken stick                                                  | 1             |            |                 | +        | ┟───     |          |                |          |          |          | +             | ┢──┘           | 55         |
|            |          |          |           | <b>1</b> |                     |                                                                                  | <b>I</b>      | ļ          |                 | 1        | 1        |          | ļ              |          |          | <b></b>  |               |                |            |
|            |          | 110.17   | 110,42    | 0.25     | Coal                | os ebove                                                                         |               |            | ╞╌┼╴            |          |          | · ·      |                |          |          |          | ┨╌╌╼┤         | '              | 55         |
|            |          | 110.42   | 110,62    | 0.20     | Cosl                | as above; broken                                                                 | 1             |            |                 | <u> </u> | <u> </u> |          |                | <u> </u> |          |          |               |                | 55         |
|            |          | 110 43   | 110.01    | 1 70     |                     | dult uith belaht. beakan stiski tenen purita stain                               |               | <b> </b>   | ╉╌╂             | +        |          |          |                | <b> </b> |          | ┨────    | <b></b>       |                | 55         |
|            |          | 110.02   | 110.91    | 0.29     |                     | durr with a that, a okan sites, trace pitte statt                                | 1             |            |                 |          | <u> </u> |          |                |          |          |          | 1             |                |            |
|            |          | 110.91   | 111.01    | 0.10     | Çoə1                | dull; rubbly                                                                     | 1             | <u> </u>   | ┟──┼╸           | +        | ┨        | <b> </b> |                | <u> </u> |          | <u> </u> | 5.80          | <u> </u>       |            |
|            |          | 111,01   | 111.21    | 0.20     | Coal                | dull; broken                                                                     | 1             |            |                 | 1        | 1        | <u>†</u> | <u> </u>       | 1        |          | <u> </u> | 1             |                | \$5        |
|            | <u> </u> |          | +         | 0.50     |                     | dutt utat he labor hadra atlaka danga purfés                                     | +             | <b> -</b>  | <u> </u>        | 4.17     | 0.45     | 8.25     | 19.85          | 71.90    | 4.0      | 7940     | - <b> </b>    |                | 155        |
|            |          | 101.21   | 1         | 0.50     | 0001                | ODIT WITH Dright; Droken Stick; trace pyrtie                                     |               |            | - <del>40</del> |          | (V. 1/   |          |                |          | *4¥      |          |               |                | <u> </u>   |
|            |          | 111.71   | 111,89    | 0,18     | Cool                | bright and dull                                                                  |               | <u> </u>   | ┝┼              | <b></b>  | <u> </u> |          |                | <u> </u> | <u> </u> |          | ╂             | ┣──            | RI         |
| <u> </u>   |          | 111.69   | 112,01    | 0.12     | Coal                | shaly; pyrite stained                                                            |               |            |                 | 1        |          |          | <u> </u>       | I        |          |          | 1             |                |            |
|            | [        |          |           |          | 0.11                |                                                                                  |               | <u> </u> . | ┨╌╍┥╴           |          | <u> </u> | <u> </u> | ┣───           | —        | ┣──      | <u> </u> | <b></b> -     | <u> </u>       |            |
|            | ┞───     | 112.01   | 112.71    | 0.10     |                     |                                                                                  | <u>†</u>      |            |                 |          |          |          | l              | 1        | <u> </u> | <u></u>  |               |                | 1          |
|            | I        | 112.11   | 112.19    | 0.08     | Shale               | dark gray; carbonaceous; a few coaly wisps                                       | ╡             |            | ┨╴╄             | -        | <u> </u> |          |                | <b></b>  | <u> </u> |          |               | I              |            |
|            | [        | 112.19   | 112.21    | 0.02     | Shafe               | es above                                                                         |               | <u> </u>   |                 |          |          | 1        |                |          | <u> </u> |          | 1             |                | 1          |
|            |          |          |           |          |                     |                                                                                  |               | <b>ļ</b>   | ╞╴╞             | -        |          |          |                | <u> </u> | _        | ┦───     | 8.10          | ł              | 55         |
| -          |          | 112.21   | 112.00    | 10.3%    | <u></u>             |                                                                                  | 1             |            |                 | 1        |          | <u> </u> |                |          |          |          |               |                |            |
|            |          | 112.60   | 112.73    | 0.1      | Shale               | coaly                                                                            |               |            |                 |          | ·}       | ·        |                |          |          | <b> </b> |               |                | <u>[11</u> |
|            |          | 112,76   | 113.09    | 0.36     | S Coel              | dull                                                                             |               | <u> </u>   | <b>¦∤</b>       |          | · - ·    | 1        |                | 1        | <u> </u> | 1        |               | <u> </u>       | 52         |
|            | 1        |          |           | 1        | 1                   |                                                                                  |               | - <b> </b> |                 |          |          | [        |                | <b>_</b> |          | 1        |               |                |            |
| <u> </u>   | ł        | 113,09   | 1113.39   | 0.3      | 1 <sup>Coal</sup> - | 1 pright; stick; pyrite stained                                                  | +-            |            | 1-1             |          |          |          | <u>+</u>       | 1        | 1        | †        | -+            |                | t          |
| <b> </b> - | <b>1</b> | 113,39   | 113, 57   | 0, 18    | Shate               | black; coaly                                                                     |               | 1          |                 |          |          |          |                | 1        | ļ        |          |               |                | Į          |
| 22         | <b>↓</b> | 113.57   | 113.79    | 0.2      | Z Coal              | dull with bright: ovrite staland                                                 | ·             | ··• ·      | ┨\$             | ;        | 1        |          |                |          | <b>.</b> |          | 11.5          | 1 ·            |            |
| Ľ          | <u> </u> | 1        | 1         |          |                     |                                                                                  | <u> </u>      | 1          |                 |          |          |          | <u></u>        |          | .l       | 1        | <u></u>       | <u> </u>       | !          |
|            | ALL LI   | INEAR UN | NITS IN N | IE TRE S | i                   | T INRA/OR 5 GOLDER ASSOCIATES HARDNESS CODE<br>+ROD ROCK GUALITY DESIGNATION (%) | •             | ANG        | SEE MI          | CASURED  | FRUME    | URE AX   |                |          | HC       | )LE N    | No.           | 10-0           | 202        |
|            |          |          |           |          |                     |                                                                                  |               |            |                 |          |          |          |                |          | CON      | ATINUE   | 57            |                |            |

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## CORE & COAL CORE DESCRIPTION

| PROJECT | LODGEPOLE | HOLE No 10-8 202 | PAGE. J1. |
|---------|-----------|------------------|-----------|
| AREA    | 5.E. 8.C. | CONTINUED        |           |

|          |          |          |          |              |               | UNO DESCRIPTION                                      |            |                |              |                |           | ANALY      | TICAL E       | ATA (1     | .5 Fla   | 3\$)       |              |               | ٦.,           |
|----------|----------|----------|----------|--------------|---------------|------------------------------------------------------|------------|----------------|--------------|----------------|-----------|------------|---------------|------------|----------|------------|--------------|---------------|---------------|
| BOX      | AT       |          | 111      | тн           |               |                                                      | ANGLE      | DESIG          | No           | MOIS           | 1 1/4     | ASH %      | V.M. %        | F.C. 74    | F.S.L    |            | [ rack       | MARKS         | 1             |
| No.      | 10P0F    | FROM     | 10       |              | MAIN          | AMPLIFIED (INCLUDE COAL RECOVERT FOR EACH SEAM)      | (*)        |                |              | n.r.ð,         | (miduol   | 4.b.       | d. o.         | <u> </u>   |          | vcat/vg    | reg.         | ROO T         | Hard          |
| 23       |          | 115.79   | 113.87   | 0.08         | Shale         | dark gray; cartemaceous                              |            |                | _1           |                | <b>↓</b>  |            |               |            |          |            | ;ł           | -+            | 83            |
|          |          |          |          | L            |               |                                                      | <b>[</b>   |                |              |                |           |            | {             |            |          |            | <b> </b>     | 1 10          | <u> </u>      |
|          |          | 113.87   | 114.02   | 0,15         |               | powdery; duil                                        |            |                |              | <b>-</b>       |           |            |               |            |          |            |              | 3             |               |
|          |          | 116 02   | 114.12   | -<br>- in    | . –<br>Cotl   | dulta broken                                         |            | · · · ·        |              |                |           |            |               |            |          |            |              |               |               |
| <u> </u> |          |          |          | <u> </u>     |               |                                                      |            |                |              |                | Į         |            |               |            |          |            | ]            |               |               |
|          |          | 114.12   | 114.40   | 0.28         | Coal          | dull: powdery                                        | <b>↓</b>   | ļ              |              | <b> </b>       | <u>}</u>  |            |               |            |          |            | ┢──┧         | -—}           | -\$3          |
|          |          |          |          |              |               |                                                      |            |                |              | <u> </u>       | ł         |            |               | <u> </u>   |          |            |              |               |               |
| <u>}</u> |          | 114.40   | 114,55   | 10,15        | Lost          |                                                      | t          | <b>∮</b> ∙−−−− |              | -              | 1         |            |               |            |          |            |              |               |               |
| I—       |          | 114,55   | 114.60   | 0.05         | Shale         | bfack; carbonaceous                                  |            | [              |              |                |           |            |               |            |          |            | $\square$    |               | RI            |
|          |          |          |          | 1.           |               |                                                      | Į          | <b> </b>       | ┠──┤-        | <b>↓</b>       | <b> </b>  |            |               |            |          |            |              | 5 50          | —             |
| <u> </u> | L        | 114.60   | 115.05   | 0.45         | Shale         | dark gray at top; black at base; carbonaceous; frace |            |                | ╞╴╞╴         | <b>├</b> ──    |           |            | · · · ·       |            |          |            |              | -4.20         |               |
| <b></b>  |          | <b> </b> |          | ╂            | -             |                                                      | t          | <b> </b>       |              | 1              | 1         |            |               |            |          |            |              |               |               |
| <b>}</b> |          | 115.05   | 115.25   | 0.20         | Coal          | dull; shaly; rubbly                                  |            |                |              |                |           |            |               |            |          |            |              |               |               |
|          |          |          |          |              |               |                                                      | ↓          | <u> </u>       | <u> </u>     |                | 1         | 21 42      | 18 57         | 60 61      | 1.8      | -7630-     |              |               | <u>¢1</u>     |
|          |          | 115,25   | 115,41   | 0,16         | Coal          | dull; earthy                                         | <b> </b>   |                | - 07         | <u>  6. / </u> | 10.0/     | 21.72      | 10.51         | 00.01      |          |            |              |               |               |
| ┢──      |          | 116 41   | 118 11   | 0 10         | Cont          | duit                                                 |            | <u> </u>       |              | <u> </u>       | + · ·     |            |               |            |          |            |              |               | 54            |
| <u>}</u> |          | 1        | 1.2.7    | 1.20         |               |                                                      |            | 1              |              | 1              |           |            |               |            |          |            |              |               |               |
|          | <u> </u> | 115.71   | 116.27   | 0.44         | Lost          | Coel                                                 |            | <b> </b>       | ₽            | ļ              |           | ļ          |               | <b> </b>   |          |            | ┟╌╍┙┥        | <sup> </sup>  |               |
|          |          | <u> </u> |          |              |               | t at a secolution of the second                      |            | <u> </u>       | ╏──┼         | <b></b>        | <b></b>   | <u> </u> - | <u> </u>      |            | · · -    | · ·        | ╂-──┦        | 5.30          | 57            |
|          |          | 116,27   | 117.00   | 0,73         | 0081          | duil; possibly shaly                                 | †          | t              |              | 1              | ·         | <u> </u>   |               | i          |          |            | 1            |               |               |
|          |          | 117.00   | 117.10   | 10.10        | Shale         | dark gray; carbonaceous                              | 1          | 1              |              |                |           |            |               |            |          |            |              |               |               |
|          |          |          |          |              |               |                                                      | <u> </u>   | <u> </u>       | ┞ ┞          | 1              | <b> </b>  |            | ļ             | ļ          | <u> </u> |            | $\vdash$     | <b>├</b> ──-' | 62            |
|          | <u> </u> | 117.10   | 117.18   | 0.00         | Coel          | dull; possibly shaly                                 |            | ┨              | ┥┤           |                | ╉━━━─     |            | · · ·         | }.——       |          |            | ╂──┘         | ┟╴───         | 32            |
|          |          | 1112 10  | 117 77   | 0 00         | East          | chalu                                                | 1          | <u> </u>       | ╁──┼╴        | -t             |           | 1          |               |            |          |            | t            | 5,90          | S1            |
|          |          |          | 11/12/   | 1.0          | 1 2001        |                                                      | 1          |                |              | 1              |           | <u> </u>   | <u> </u>      |            |          |            |              |               |               |
|          | 1        | 117.27   | 117.38   | 0,1          | Shale         | black; carbonaceous; broken                          | <b>I</b>   | <u> </u>       |              | 1              |           | <b> </b>   |               | ┣          | ┣───     | <b> </b>   | –            |               | <u> 83</u>    |
| <u> </u> | <u> </u> | <b>!</b> | <b>!</b> |              | · [           |                                                      |            |                | ╉╾╍┠         | ·]             |           | <b></b>    |               | }          |          |            | +            | <u> </u>      |               |
| $\vdash$ | ł —      | 117.38   | 118,25   | 0.0          | Lost          |                                                      | +          | <u> </u>       | ┼─┷          |                | <u>†</u>  |            | <u> </u>      |            | t        | 1          | 1            |               |               |
|          | ł —      | 118.23   | 118,90   | 0.6          | / Coal        | broken stick to powdery; dull                        |            |                |              | 1              |           |            | <u> </u>      | 1          |          | <u> </u>   | 1            |               | \$1-52        |
|          |          | 1        |          | 1            | <u> </u>      |                                                      |            | <u> </u>       | <u> </u>     | <b></b>        | 4         | <b> </b>   | <b> </b>      | <b> </b>   |          | <b> </b>   | ł            | <b>{</b>      |               |
| 23       | <u> </u> | 118.90   | 119.13   | 0,2          | Shale_        | dark gray to black; carbonaceous                     |            | +              | <b>I</b> ↑   |                | +         | <u> </u>   | <b> </b>      | <u> </u>   | ┼──      |            | ╀──          | <u> </u>      |               |
| ┣        | +        | 1.10.17  | 110.00   | 1            | 1 1 0 5 4     | Shale                                                |            |                | 08           | 2.98           | 0.36      | 13.60      | 21.37         | 65.0       | 3.5      | 7375       | 1            |               |               |
|          | +        | 1119.12  | 1113-00  | 10.7         |               | 5879                                                 |            |                |              |                |           |            | <b>I</b>      | ļ          |          | <u></u>    | 1            |               |               |
| 24       | 1        | 119.60   | 119.80   | 0, 2         | ) Shale       |                                                      | . <b>.</b> | 1_             | · <b>—</b> " | 4              |           | ∔          | <b> </b>      | ļ          | ┢───     | <b>!</b>   | <del> </del> | <b> </b>      | .             |
|          |          | <u> </u> | ·        |              | ·             |                                                      |            |                |              |                |           | ·}         | <b>.</b>      | ·          | ╉──      | <u></u> }  | +            | <u> </u>      |               |
| 1-       | <u> </u> | 119.80   | 119.90   | <u>0</u> , 1 | 0 <u>Coal</u> |                                                      | · • • —    | ┼╌             | ↑            |                | 1         | - <b> </b> | · · · · · · · | · <b> </b> |          | <u> </u>   | 1            | t             | t             |
|          | ŧ        | 119.90   | 120.54   | 0.6          | 1 Conl        | soft; dull; stick                                    | 1          |                | 1            | 1              |           | 1          |               | <u> </u>   | 1        | 1          | 1            | 0.40          |               |
|          | 1        | 1        |          |              | 1             |                                                      |            | - [            |              |                | Į         |            | ļ             | Į          | 1        |            | 1            | 1             | <u> </u>      |
|          |          | 120, 54  | 120,70   | 0,1          | 6 Shale       | dark groy: cerbonaceous                              |            |                | <b></b>      | ·              |           |            |               | ╂-—        |          | - · · · ·  | +            | ··· ··-       | . <u>  R4</u> |
|          |          |          |          | <b>.</b> .   | · ·           | Chain and Chain                                      | 1          |                |              |                |           | -t         |               |            | +        |            | -            |               |               |
| 1.       | +        | 120,10   | 1.120.05 | "P.'         | 2 1041        |                                                      | 1          | · • •          | · † †        |                | · · • • · | · f        | - <b>[</b>    | 1          | 1        | 1          | 1            | 1             | 1             |
| L.       | <u> </u> |          | L        | 1            | 1             |                                                      |            | 1.             | 1            |                |           | 1          | <b>_</b>      | .)         | -1       | . <b>L</b> | <u> </u>     | - <b>!</b>    | <u> </u>      |

ALL LINEAR UNITS IN METRES

1 :+R&/OR 5 - GOLDER ASSOCIATES HARDNESS CODE +RQD - ROCK QUALITY DESIGNATION 1%] ANGLE MEASURED FROM CORE AXIS

HOLE No. LUHO 202 CONTINUED

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FILE No 8A - 212 A BEVISED N~ 1978

FE ----- FRACTURE FREQUENCY

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## CORE & COAL CORE DESCRIPTION

| PROJECT | LODGEPOLE | HOLE No.  | (C-D 202 | PAGE |
|---------|-----------|-----------|----------|------|
| AREA    | 5.0. b.c. | CONTINUED |          | 0    |

| 0.01     |          | 010      | 1        | r        |           | UTHO DESCRIPTION                                                                   | BEOONIG SEAN |              |           | [            |            | ANAL                          | NALTTICAL DATA (1.5 Float) |          |               |           |                    |                           |           |
|----------|----------|----------|----------|----------|-----------|------------------------------------------------------------------------------------|--------------|--------------|-----------|--------------|------------|-------------------------------|----------------------------|----------|---------------|-----------|--------------------|---------------------------|-----------|
| 804      | AT       | 100      |          | тн       |           | AND LEED INCLUDE COAL RECOVERY FOR FACH SEAM)                                      | ANGRE        | DESIG        | N¢.       | MOI          | 51 %       | ASH %                         | V.M. %                     | F.C. %   | F.S.I.        | 5.Y       | Eračs              | MA863                     |           |
| No.      | 801      | PROM     | 10       | <b>.</b> |           | AMPLITIED INCERDE CORE RECOVERTION CACH SERVICE                                    |              |              | <b>•</b>  | 1            | . retiduar | 4.0.                          |                            |          |               | 101/10    |                    | ROD                       | Hard      |
|          |          | 120.85   | 120,93   | 0.08     | Coal      |                                                                                    |              | <b>_</b>     | · -•      | ┨────        |            |                               |                            |          |               |           | 1-1                |                           |           |
|          | ·i       | 120.93   | 121.53   | 0.60     | Coal      | dull; earthy                                                                       |              |              |           |              |            | 1                             |                            |          |               |           | [ ]                |                           | s'i       |
|          |          |          |          |          |           |                                                                                    |              | │ <b>-</b> i |           | 10.07        | 0.86       | 12 42                         | 10 19                      | 68 40    |               | 7530      | ┟                  |                           |           |
|          |          | 121,53   | 122,00   | 0.47     | Coal      | 92 900ve                                                                           |              |              | <u></u> - | 10.92        | 10.00      | 12.92                         | 17.10                      | 00.40    |               | ()))      |                    |                           |           |
|          |          | 122.00   | 123.40   | 1.40     | Lost      |                                                                                    | 1            |              |           |              | 1          | I                             |                            |          |               |           |                    |                           |           |
|          |          | 101.10   |          |          | - <u></u> |                                                                                    | <u> </u>     |              |           | <b>i</b> —   | ╂──        | <b>}</b> -                    |                            |          |               |           | $\left  - \right $ |                           |           |
| 123      | 40       | 123.40   | 125, 20  | 10. 16   | Shale     | rubbiy; dark gray; carbonacaous                                                    | <u> </u>     |              |           | $\vdash$     |            |                               |                            |          |               |           |                    |                           | 1         |
|          |          | 123,56   | 123.67   | 0.11     | Coal      | dull; earthy                                                                       |              |              | ╏──┟      | ₊            | 4          | <b> </b>                      |                            | <b> </b> |               |           | ┝──┥               |                           | <u>S1</u> |
|          | <b></b>  | 121 61   | 107.75   |          | Shala     |                                                                                    | <u> </u>     |              | ╞─┼       | <b> </b>     | -          | -{                            |                            |          |               |           |                    |                           | Ř1        |
| ┝─       |          | 123.67   | 123,13   | 10,00    | 211010    |                                                                                    |              |              |           | 1            |            |                               |                            |          |               |           |                    |                           |           |
| [        |          | 123,75   | 124.30   | 0.55     | Lost      | Shate                                                                              | <b>{</b>     |              | ╞╴┼       |              |            | ╂───~                         | <u> </u>                   | ┨───     |               |           | <b>├</b>           |                           |           |
| 24       | <u> </u> | 124.30   | 125.02   | 0.77     | Cost      | duil: earthy: some stick                                                           |              |              |           | <u>† – –</u> |            | 1                             | <u> </u>                   |          |               |           |                    |                           | 54        |
|          |          |          | _        | <u> </u> |           |                                                                                    | <b>↓</b> —   |              |           | I            |            | ┫━━━━                         | <b> </b>                   | <u> </u> |               |           | <b> </b>           | $\vdash$                  |           |
| 25       | <b> </b> | 125.02   | 125,58   | 0.56     | Cost      | dull; earthy                                                                       | -            |              | ┢───      | <b>!</b>     |            | 1                             |                            | <u> </u> |               |           |                    | i—†                       | 37        |
|          |          | 125.58   | 127.27   | 1.69     | Lost      | coal and shale                                                                     | 1            |              | L         |              |            | 1                             |                            |          |               |           |                    |                           |           |
|          | <u> </u> |          |          | I        | Į         |                                                                                    | <b> </b>     |              | - 10      | 10 24        | 1,19       | 15.20                         | 21.46                      | 65.34    | 1.0           | 6980      | <b>}</b> '         |                           | R3        |
| $\vdash$ |          | 127,27   | 127,50   | 10,23    | Shale_    | black; coaly                                                                       |              |              |           |              |            |                               |                            |          |               |           |                    |                           |           |
|          |          | 127.50   | 127.57   | 0.07     | Coal      | shely; earthy                                                                      | l            | ļ            |           | 1            | _          |                               | <b>_</b>                   | <u> </u> | <u> </u>      |           | <b></b>            |                           |           |
|          | ┨        | 127 57   | 127 80   | 10 10    | Cost      | dully shalwy soft                                                                  |              | <u></u>      |           | 21.27        | 0.97       | 7.65                          | 19.22                      | 73.13    | 1.5           | 7952      | <u>↓</u> …         |                           | 53        |
|          |          |          | 1        | 1        | 0007      |                                                                                    | <b>I</b>     |              | <u> </u>  | ·            |            | 1                             | 1                          | ļ        | ļ             |           | I                  |                           |           |
|          | <u> </u> | 127.89   | 128.     | 0.5      | Los‡      | Coal                                                                               | H            | <b> </b>     | ┝╌┿       | ╉──          |            |                               |                            | ┨───・    | <b> </b>      |           | ╂                  | $\vdash$                  |           |
| ┝        |          | 128.40   | 128.52   | 0.12     | Shale     | very dark gray; carbonaceous                                                       |              | 1            | 12        |              |            | 79,93                         | 1                          | 1        |               |           |                    |                           |           |
|          |          | İ        | 1        | <b>_</b> | ļ         |                                                                                    |              |              | ↓         | <u> </u>     |            |                               |                            | <u> </u> | <u> </u>      |           | +                  | ┥                         |           |
| ⊢        |          | 128.52   | 128,93   | 10.41    | Lost      | Shate                                                                              | +            | <u> </u>     | ┟━━━      | 4            |            |                               | <u> </u>                   |          | <u>├</u>      | 1         | +                  | ┫ <i>╍───</i> ╿           |           |
|          |          | 128,93   | 129.24   | 0.3      | Shate     | very derk grey; carbonaceous; coaly on some faces; where                           |              | ļ            |           |              |            |                               |                            |          | <b>—</b>      | <u> </u>  |                    |                           | R4        |
|          | 1        |          | <b>{</b> | _        |           | broken with hammer; mostly rubble; signs of slickensides                           |              |              | -         | • {          |            | - <u> </u>                    | ┼──                        | ╂        | ŀ             | 1         | ┼──                | ╂╍╌┤                      |           |
| F        | <u>+</u> | 129.24   | 129.84   | 10.60    | ) Shale   | Lost Core                                                                          | 1            |              |           |              |            |                               |                            |          | 1             | 1         |                    |                           |           |
|          |          | 1        | 1        | 1        |           |                                                                                    |              | <u> </u>     | <b></b>   |              |            | +                             | <b>_</b>                   |          | ┦             | ┨────     |                    | ·                         |           |
|          |          | 129.84   | 130.43   | 10.5     | 7 Shele   | inedium to dark gray; cerbonaceous; coaly biebs; 2 coaly<br>inlate: 7 stickonsides | -{           | 1            |           |              |            | <u> </u> .                    |                            |          |               |           |                    | 1                         | <u> </u>  |
|          |          |          |          | 1        |           |                                                                                    | <u> </u>     |              | Į         |              |            |                               | <u> </u>                   | <u> </u> | <b>_</b>      | <b>!</b>  | <u> </u>           | 10 15                     | <b>↓</b>  |
| <b> </b> |          | 130.43   | 130,45   | 0.0      | 2 Coal    | bright                                                                             |              |              |           | -            | ·          | ·                             | ╋╸╴╴                       | ·}       | +             | ╂         |                    | <b>F</b>                  |           |
|          | <u>+</u> | 130.45   | 131.07   | 0.6      | 2 Shale   | as above                                                                           | 1            | <u>t –</u>   |           | 1            | _          | · • • · · · · · · · · · · · · | 1                          | 1        | 1             |           |                    | <b>1</b> - • <del>-</del> |           |
|          |          | ļ        |          |          |           |                                                                                    |              | - <b> </b>   | -         |              |            |                               | · <b> -</b>                | ╂        | <b></b>       | <b>_</b>  |                    | ,                         | 12.4      |
| -        |          | 1131.07  | 131.18   | 0,1      | Shale     | as above; bill dark gray                                                           | -1           | 1—           | -         | · • • - ·    |            |                               | -                          | 1        | <u>†</u>      | · · · · · |                    |                           | <u> </u>  |
|          | 1        | 151.18   | 131,40   | 0.2      | Lost      | Shate                                                                              | 1            | <b>I</b>     |           | <b>_</b>     |            |                               |                            | <b>1</b> | ļ             |           |                    |                           |           |
|          | <b>.</b> |          | +        |          |           |                                                                                    |              | + -          |           |              |            | +                             |                            |          | +             | 1         | · •                | 1                         | 55        |
| 25       | 1        | 131.40   | 1 331.67 | , Z      | ( C641    |                                                                                    | 1            | J            | .L.''     | 10.53        | 10,14      | 114.67                        | 111*05                     | 168.51   | <u>1</u> 2, > | 1 1224    | <u> </u>           |                           | <u> </u>  |
|          | ALL U    | INEAR UN | ATS IN A | NE TRE : | 5         | 1 := R&/OR S - GOLDER ASSOCIATES HARDNESS CODE                                     |              | AN           | GLE MI    | EASURE       | DFROM      | CORE AN                       | 15                         |          | HC            | )LE N     | Vol                |                           | Î         |
|          |          |          |          |          |           | *ROD ROCK QUALIEF DESIGNATION 1 +1                                                 |              |              |           |              |            |                               |                            |          | 0             | TINUE     | 5                  |                           |           |

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## CORE & COAL CORE DESCRIPTION

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| PROJECT | LODGFPOLE | HOLE No 18-0 202 | PAGE 13 |
|---------|-----------|------------------|---------|
| AREA    | 5.E. A.C. | CONTINUED        | 0,      |

|                                              | and much pratu |          |           |              | LITTLO DESCRIPTION |                                                            |              |          | <u>,                                     </u> |            | ANAL           | TICAL I        | ATA            | _          |           |              |                |          |            |
|----------------------------------------------|----------------|----------|-----------|--------------|--------------------|------------------------------------------------------------|--------------|----------|-----------------------------------------------|------------|----------------|----------------|----------------|------------|-----------|--------------|----------------|----------|------------|
| BOX                                          | AT             | DEP      | TH        | тн           |                    | LINO DESCRIPTION                                           | ANGLE        | DESIG    | No                                            | MOIS       | 3 %            | ASH %          | V.M. %         | ¥.C. %     | ESI       | C.V.         | Frac.          | MARKS    | · '        |
| No                                           | 109-08         | FROM     | TO 1      |              | MAIN               | AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)            | 111          | [        |                                               | 0.1.6.     | residual       | d.b.           | d,b.           | d.b.       |           |              | Freq.          | 800      | Hard       |
| 76                                           |                | 131.62   | 131.88    | 0.26         | Coal               | as above has a shaly appearance on surface but is dull wit | h .          |          |                                               | L          | l              |                |                |            |           |              | 0.66           | 0.54     | {          |
| · - +                                        |                |          |           |              |                    | with bright when broken with hermer                        |              |          | <u> </u>                                      | 1          | 1              |                |                |            |           |              | • ·            |          |            |
|                                              |                |          |           |              |                    |                                                            |              | <b>!</b> |                                               | <b>_</b>   | <b> </b>       |                |                | L          |           |              |                | ·        |            |
|                                              |                | 131.88   | 132.37    | 0.49         | Shale              | dark gray at base becomming to dark gray at top; carbon-   | ļ            |          | ┟                                             | ┟┈━╌╸      | <b>{</b>       |                |                |            |           |              |                |          |            |
|                                              |                |          |           |              |                    | 809005                                                     | <b> </b>     | <b> </b> | ŧ                                             | <u>}</u>   |                |                |                |            |           | · ·          |                |          |            |
|                                              |                |          |           |              |                    |                                                            | 74.          | <u> </u> | <u>}</u>                                      | <u>}</u>   | <b></b>        | i              |                | ·          |           |              |                |          | R5         |
|                                              |                | 132.37   | 132.56    | 0.19         | <u>\$5</u>         | very time grained; light gray; with a tew dark gray cross  | <u> </u>     |          | <u>├</u> ──                                   | <u> </u>   | t              |                | t              |            |           |              |                | r t      |            |
|                                              |                |          |           | {––⊣         | {                  | Dedded STITSTONE Deds                                      | <u>├</u> ─── | t        | t                                             | 1          | 1              | <u>}- · ·−</u> |                |            |           |              |                |          |            |
|                                              |                | 132.56   | 132.83    | 0.27         | Shala              | medium gray: breaks biocky: rubbly                         |              |          | 1                                             |            |                |                |                |            |           |              | L              |          | R4         |
|                                              |                |          |           | <u> </u>     |                    |                                                            | I            |          | [                                             | 1          | L              | l              | ļ              | <b> </b>   |           | <b></b>      | <b> </b>       |          |            |
|                                              |                | 132.83   | 132,93    | 0.10         | Shele              | as above; stity                                            | <b>!</b>     | L        | Ì                                             | <b>!</b>   | <b> </b>       | <b></b>        | ļ              |            |           |              | <b> </b>       | 0.75     | R4         |
|                                              |                |          |           |              |                    |                                                            |              | <b> </b> | <b></b>                                       | <u> </u>   | ·{             | <u>}</u>       | {              | <b> </b>   |           |              | <u> </u>       | -        | DS.        |
|                                              | _              | 132.93   | 133,28    | <u>0,35</u>  | <u>\$5</u>         | very tine grained; medium to light gray                    | <u> </u>     | ┢──      | <u> </u>                                      | +          | ┫━━━━          | <u> </u>       | ┨───           | <u>}</u>   |           |              | <u> </u>       |          | <u> </u>   |
|                                              |                |          |           |              |                    |                                                            |              | ╂───     | ł                                             | <u> </u>   | ╉╾╼╌           | <u> </u>       |                | t          |           |              | <u>†</u>       |          | 84         |
|                                              | -              | 133.28   | 134.27    | 10.98        | 1 5651             | madium to dark gray; massive; saidy in proces, very rise   | (            | <b>∱</b> | f —                                           | f          | 1              | f              | 1              | f          | [         |              | ţ              |          |            |
|                                              | -              |          | ┨━───・    | ╂──          | ╆╌╶──━─            | grained; Srightly chi donaceous at tiese                   | <u> </u>     | 1        | 1                                             |            |                |                | 1              | 1          |           |              | I              |          |            |
|                                              |                | 114.27   | 139.65    | 1. 36        | SLST               | as above: sandy: shaly in places                           | ] _          | 1        | I                                             |            | <u> </u>       | <u> </u>       | l              |            | <u> </u>  | L            | L              | 0.80     | 83         |
| - 1                                          |                |          |           | 1            |                    |                                                            | [            | <u> </u> |                                               | ļ          |                | 1              | <u> </u>       | <b>I</b>   | <b>I</b>  |              | <u> </u>       |          | ļ          |
| 26                                           |                | 135.63   | 135.78    | lo, 15       | SS                 | light gray; very fine grained; silty                       | <u> </u>     | I        | I                                             | <u> </u>   | - <b> </b>     | <b> </b>       | ļ              | <b> </b>   | {         |              |                |          | R5_        |
|                                              |                |          |           |              |                    |                                                            | Į            | _        | <b>!</b>                                      | <u>  </u>  | ·}             | ┨───-          | <b>!</b>       | ┡───       | <b>}-</b> |              | ╂╾╌╾           |          | 05         |
| Z7                                           |                | 135.78   | 135,88    | 10.10        | 55                 | as above                                                   | <u> </u>     | ·}       |                                               |            | ·              | · · · -        | <b>∮</b>       | <u>↓</u>   | ┨────     | <b>-</b>     | ╂              | f        | <u> ~</u>  |
|                                              | . <u>.</u>     | L        |           | 1            | <b>↓</b>           |                                                            |              | ┨───     | <b>↓</b>                                      |            | ┥╾╼╴           | ╉───           | +              | <b>∤</b>   | <u>├</u>  | <u> </u>     | · [            | t        | R4         |
| I                                            |                | 135.88   | 136.30    | 0.50         | N SLST             | medium gray; sandy; 2 clean joints                         | <u> </u>     | <u>+</u> | 1                                             | +          | 1              | <u> </u>       | <u>† – – –</u> | t          | [         |              | 1              | t        |            |
| <u>}                                    </u> |                | 136 39   | 137 24    | 0.86         | Shala              | medium to dark grav: carbonaceous: sility                  | 1            | +        | 1                                             |            | 1              |                | 1              | · · · ·    |           |              | 1.31           | 0.80     | R4         |
| ┠                                            |                | 1,20, 30 | 1         | 1            | 3918.10            |                                                            |              |          | 1                                             | 1          |                |                | 1              |            |           | <u> </u>     |                | 1        | <u> </u>   |
| <b>├</b> ──┤                                 |                | 137.24   | 137.46    | 0.22         | Lost               | Shale                                                      |              |          | T                                             |            | 1              |                |                | ļ          | 1         | <u> </u>     | <b>_</b>       | <b></b>  | L          |
|                                              |                | 1        |           | 1            |                    |                                                            |              | 1        | <u> </u>                                      | <b>_</b>   | +              | <u>-</u>       | <u> </u>       | <b> </b>   | <b>ļ</b>  | ļ            | <u> </u>       | 10.01    | -          |
|                                              |                | 137,46   | 139,08    | 1.6          | SLST               | medium to dark gray                                        |              |          | - <u> </u>                                    |            | . <b>}</b>     |                |                | <u> </u>   | ╄───      | <u></u>      | · <del> </del> | 10.91    | 1 **       |
| <b></b>                                      |                | <b></b>  |           | <b>-</b> -   | 1                  |                                                            | 1            | + -      | <del>}</del>                                  | ┢┈━─       | ╶┨╶╴╶╸         | <u> </u>       |                | ┨          | <u> </u>  | ┣            |                | 0.52     | 128        |
| 27                                           |                | 139.08   | 139.86    | 10.7         | SLST               | modium to dark gray with a few fight gray; very time       | <u>+</u>     | +        | ·                                             |            | -              | <u>{</u>       | ┨┈╼╾┙          | 1          | 1         |              | 1              | 10.7     | <u>†~-</u> |
|                                              |                | <u>↓</u> | <u> </u>  |              | ╉╼╌╾╌╸             | granned salids (inte deus; > conditing praim to dats       | +            | +        | + • •                                         | +          |                | +              |                |            | 1         | 1            | +              | †        | 1          |
|                                              |                | 1 10 06  | 140 32    | to e         | र्ध सं र म         |                                                            | 1            | 1-       | 1                                             |            | -1 -           | 1              | 1              |            |           |              |                |          | R3         |
| 10                                           |                | 1,25+00  | 1 190, 24 | 14.2         | 1                  |                                                            |              |          |                                               |            |                | <b>.</b>       |                |            |           | <u> </u>     |                | <u> </u> | <u> </u>   |
| <b> </b>                                     | - · ·          | 140.32   | 140.55    | 0.2          | 5 55               | light gray; fine to medium grained; some dark gray slity   |              | <u> </u> | 1                                             | <b>_</b>   | 1              | 1              | <b>_</b>       |            | <b>_</b>  | <u> </u>     | 0.65           | <b></b>  | [R4        |
|                                              |                | 1        |           | 1            | 1                  | bands and numerous fractures                               | ┫            | +.       |                                               | · <b> </b> | - <del> </del> | <b> </b>       | -l             | +          |           | ┫-┅───       |                | ╉╼╍      | ┣—         |
|                                              |                |          |           |              | <u> </u>           |                                                            | <b>}</b>     |          | 4                                             | _}         | +              | +              | - <b> </b>     | <u> </u>   |           | <u>↓</u>     | +              | 10.95    | RA         |
|                                              | ļ              | 140.55   | 140,78    | 0.2          | <u>s ss</u>        | as above; badly fractured                                  | -l           |          |                                               | +          |                | +              | -{             | <u> </u>   | +         | ┫            |                | 1        | <u> </u>   |
|                                              | ┡───           | 1        | -{        | -            | {                  | behavior deals are altighter and flott or as serve flot.   |              | · f      | +                                             | +          |                |                | 1              | 1          | 1         | 1            | <u>†</u>       | 1        | R4         |
| <u> </u>                                     |                | 140.78   | 142.14    | <u>. p.s</u> | <u>5151-5</u>      | Interbedded dark gray stittstone and tigen drar very they  | 20*          |          |                                               | +          |                |                |                |            | 1         | 1            | -1             | 1        |            |
| 1-                                           | <u> </u>       | ł        | · †- ·    | -            | -t                 | theorement                                                 | 1            | 1        | 1                                             |            |                | 1              | 1              |            |           | 1            |                | 1        | -          |
|                                              | +              | -t·      | +         | -†           | -t                 |                                                            |              |          |                                               | 1          |                |                | 1              |            |           | 1            |                | 1        | 1_         |
| 1                                            | †              | 142.14   | 143.66    | 1.5          | 2 51.51            | 2 joints along core axis running length 2 core with trees  | 5            |          |                                               |            |                | . <u> </u>     | 4              | 4          | ·         | <b>.</b>     |                | 0.88     | R4_        |
|                                              | 1              |          | T .       |              |                    | of calcite: dark gray; carbonaceous; a few wispy very th   | ···          |          | - <b>k</b>                                    |            |                |                |                | +          |           | <b>-</b>   · |                |          |            |
| <b>_</b>                                     | Į              |          | 1         | 1            |                    | grain sandstone bods; becoming shaly                       |              |          |                                               | - <b>-</b> |                |                | · •            | - <u>+</u> | -+        | - <b> </b>   |                | 1        |            |
| <b>↓</b>                                     | Ļ              | <b>.</b> |           |              |                    |                                                            | +            |          |                                               |            |                | -+             | ·              | - +        | -+        | 4            | -1 -           | 0.91     | 1-         |
| 28                                           | 1_             | 143.66   | 143.78    | 10.1         | 2 Shele            | dark gray; carbonaceous; silty                             | 1            | 1        | <u> </u>                                      | <u> </u>   | _ <b>_</b>     | <u> </u>       | <u> </u>       |            | 1_        | 1            |                |          |            |
|                                              | ALL 1          |          |           |              |                    | T                                                          | 4            | AN       | GLE M                                         | EASURED    | FROM           | CORE A         | 45             |            | 1.17      |              |                |          |            |
|                                              |                | UNCER OF |           |              | -                  | -ROD - ROCK QUALITY DESIGNATION (%)                        |              |          |                                               |            |                |                |                |            | LH(       | <u>, ne</u>  | NO.            | (P=I)    | 202        |
|                                              |                |          |           |              |                    |                                                            |              |          |                                               |            |                |                |                |            | I CŌ      | VTINUE       | D              |          |            |

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## CORE & COAL CORE DESCRIPTION

| PROJECT | LODGEPOLE | HOLE No. 19-0 202 | PAGE 14 |
|---------|-----------|-------------------|---------|
| AREA    | 5+8+ D+C+ | CONTINUED         | 01      |
|         |           |                   |         |

| 801      | BOX OFFICE DEPTH |                | тн       |               |             | ILIHO DESCRIPTION                                                                    |          |                                                   |          |              |          | ANAL                                         | TICAL    | DATA         |          |            | <b></b>                                      |              |           |
|----------|------------------|----------------|----------|---------------|-------------|--------------------------------------------------------------------------------------|----------|---------------------------------------------------|----------|--------------|----------|----------------------------------------------|----------|--------------|----------|------------|----------------------------------------------|--------------|-----------|
| N-       | AT<br>TOPOT      | 5004           | 10       | тн            | MAIN        | AMPLIFIED LINCLUDE COAL RECOVERY FOR FACH SEAM)                                      | ANGLE    | DESIG                                             | No.      | MOIS         | 1 %      | ASH %                                        | V.M. %   | 9.C. %       | F.S.I.   | C.V.       | Frac.                                        | MARK         | S         |
| 110      | 003              | raom.          |          | <u> </u>      |             |                                                                                      |          |                                                   |          | 0.7.0.       | festavo: |                                              |          | 0.0.         |          |            | <u>r r eq.</u>                               |              | наго      |
| _29_     |                  | <u>143, 78</u> | 145.28   | 1.50          | Shale       | as above                                                                             |          |                                                   | <b>-</b> |              | ┫───┤    |                                              |          |              |          |            |                                              |              | 84        |
|          |                  | 145.28         | 146.66   | 1.30          | Shale       | as above                                                                             |          | ┣┈─                                               |          |              |          |                                              |          |              |          | ŀ          | 0.65                                         | 0.83         | R4        |
|          |                  |                |          |               |             |                                                                                      |          |                                                   |          |              |          |                                              |          |              |          |            |                                              |              |           |
| 29       |                  | 146,65         | 147,84   | 1,18          | Shale       | becoming more slify with some light gray very line grain.                            | 29*      | <u> </u>                                          | L        |              | <b> </b> |                                              |          |              |          |            |                                              | $\vdash$     | <u>R4</u> |
|          |                  |                |          |               |             | sandstone beds                                                                       |          | i                                                 | <u> </u> | ł            |          | -                                            |          |              |          | · · ·      |                                              |              | d         |
| 30       |                  | 147.84         | 148,11   | 0.27          | Shale       | dark gray; carbonaceous                                                              |          |                                                   |          |              |          |                                              |          |              |          |            |                                              | 0.87         | R4        |
|          |                  |                |          |               |             |                                                                                      |          |                                                   | I        |              |          |                                              |          |              |          |            |                                              |              | $\square$ |
|          |                  | 148,33         | 149,65   | 1.54          | <u>stst</u> | medium to dark gray; with light gray very fine grain                                 | ┣──      | ┨───                                              | ┨────    | <u> </u>     |          |                                              |          |              | -        |            | 0.65                                         | 0.45         | $\vdash$  |
|          |                  |                |          |               |             | sandstona Interbeds                                                                  | ·        | <b>¦-</b> -                                       | <u> </u> | <b></b>      |          |                                              |          |              | i        |            | !                                            |              |           |
|          |                  | 149.65         | 150.77   | 1.12          | SLST        | as above; becomming sandy at base                                                    |          |                                                   |          |              |          |                                              |          |              |          |            |                                              |              | R4        |
|          |                  |                |          |               |             |                                                                                      |          |                                                   |          |              |          |                                              |          |              |          |            | <u>                                     </u> |              | $\vdash$  |
|          |                  | 150,77         | 151,18   | 0.41          | Lost        | Siltstone                                                                            | [        |                                                   |          | } ·          |          |                                              | <u> </u> |              |          | • •        |                                              | 0.00         |           |
|          |                  | 151.18         | 151.64   | 0.46          | SS          | light grov; with a few thin dark gray siltstone beds;                                |          |                                                   |          | 1            | f        |                                              |          | ·            |          |            |                                              |              | R5        |
|          |                  |                |          |               |             | cross-bedded                                                                         | <b>.</b> |                                                   | ·        | [            |          |                                              |          |              |          |            |                                              |              |           |
|          |                  |                |          |               |             | ······································                                               | ┨───     | <b> </b>                                          |          | <b> </b>     | <b> </b> |                                              |          |              |          |            | ┣──                                          | <b> </b>     |           |
| 20       |                  | 121,64         | 151.08   | 0.01          | 55          |                                                                                      | ł        | <u> </u>                                          | <u> </u> | <u> </u>     |          |                                              |          |              |          |            |                                              |              | R9        |
| 31       |                  | 151.68         | 151.62   | 0.14          | SEST        | medium - dark gray; sandy                                                            |          |                                                   | †        | 1            |          |                                              |          |              |          |            |                                              | 0,28         | 84        |
|          |                  |                |          |               |             |                                                                                      |          | I                                                 | ļ        | I            | Į        | <u> </u>                                     | <b> </b> |              |          | -          |                                              |              |           |
| <b> </b> |                  | 151.82         | 152,62   | 0.80          | SS          | light gray; finn grain; a few dark gray slity bods; some                             |          | +                                                 | -        | {            | ł        | <b> </b>                                     |          |              | -        |            | <b> </b>                                     | <b>├</b> ──┤ | 85        |
| <b>¦</b> |                  |                |          | <u> </u>      |             |                                                                                      | t —      | <del>                                      </del> | †        | <b> </b>     | 1        | Ì                                            |          |              |          |            | <u> </u>                                     | <u>†</u> !   |           |
|          |                  | 152.62         | 153.74   | i. 12         | . SS        | as above; numerous coely fractures                                                   | 18*      |                                                   |          |              | <u> </u> |                                              |          |              |          |            |                                              | 0.83         | R5        |
|          |                  | <b>!</b>       |          | <b> </b>      |             |                                                                                      | <u> </u> | ļ                                                 | ļ        |              | <b> </b> | ļ                                            | <b> </b> |              |          |            | <u> </u>                                     | ┡            | <u> </u>  |
| <b> </b> |                  | 153.74         | 154.18   | 0.44          | SEST        | dark gray; sandy in part                                                             | ╂───     | ╂—                                                |          | <b>}</b>     | <b> </b> |                                              |          |              | ┨───     |            | 1.30                                         | ┨───         | R4        |
|          |                  | 154.18         | 154.46   | 0,28          | SLST        | as above; cubbly                                                                     | t        | ļ — -                                             | <u>†</u> | <u>•</u> ••  | 1        |                                              | t        |              | 1 -      |            |                                              | 0.24         |           |
|          |                  |                |          | L             | <u> </u>    |                                                                                      | <u> </u> | I                                                 |          | I            |          |                                              | [        |              |          |            | <u> </u>                                     | [            |           |
| <u> </u> |                  | 154.45         | 154,74   | 0.47          | <u>\$\$</u> | fine to coarse grained; salt and pepper with a very dark                             | ┨        | <u> </u>                                          |          |              | <b> </b> | <b> </b>                                     | <u> </u> |              |          |            | _                                            | ┞──          | R5        |
| <u> </u> |                  | <b>₽</b> ───   | }        | 1—            |             | <u>cray matrix; numerous coaly tilles tractures; rubbiy</u>                          | <u> </u> | <u> </u>                                          | ╂───     | <u> </u>     |          |                                              | <u> </u> |              | ┨───     |            | ╂                                            | <b> </b>     |           |
|          |                  | 154.74         | 155, 30  | 0.56          | Lost        | Sandstone                                                                            |          | 1                                                 |          |              |          | <u>                                     </u> | t        |              |          |            |                                              |              |           |
| ļ        | <u> </u>         | <b> </b>       |          |               |             |                                                                                      | <b> </b> | <u> </u>                                          | ļ        | <b> </b>     | <b> </b> | <b> </b>                                     | <b>ļ</b> |              | 1        | L          | ₋                                            | <b> </b>     | l         |
| 131      | ╞───             | 155, 30        | 155.62   | 0.32          | \$5         | medium grained; modium gray matrix; sait and pepper;                                 |          | <u> </u>                                          | ┨        | <b>↓</b> · · |          | <u> </u>                                     | <b> </b> | <u> </u>     |          | <u> </u>   | ╂—                                           | ╂────        | 82        |
|          |                  | <u> </u>       | <u> </u> |               | i           |                                                                                      | í—       | 1                                                 |          |              | <u> </u> | 1                                            | <u> </u> |              |          | <b>t</b> ─ | 1                                            |              |           |
| 32       |                  | 155.62         | 156.02   | 0.40          | 55          | as above; rubble                                                                     | 1        |                                                   |          | 1            | <u> </u> |                                              | L        |              |          |            |                                              |              | [         |
|          | Ļ                | +              |          | - -::         |             |                                                                                      | I        |                                                   | <u> </u> | <b> </b>     |          | I                                            | <b> </b> |              | <b> </b> | <b> </b>   | <b>_</b>                                     | 1            |           |
|          |                  | 136.02         | 157.45   | 1.13          | 55          | es above; rubbie                                                                     |          | <u> </u>                                          | ┨───     | ╉            | +        |                                              | 1        |              |          | <b>}</b> · | - <u> </u>                                   | 10.11        | 1 83      |
|          | 1                | 157.45         | 157.95   | 0.50          | 55          | as above; pyritic joint                                                              | [        |                                                   | <u></u>  |              | <b></b>  | <u> </u>                                     | 1        | t            | t        |            |                                              | 0.21         | RS        |
|          | [                | [              | ļ        |               |             |                                                                                      |          |                                                   |          | <b> </b>     |          | L                                            |          |              |          | l          | <u> </u>                                     | J            | I         |
| <u> </u> | ┨───             | 157-95         | 185,19   | <u>10, 21</u> | <u></u>     | Lost Core                                                                            |          | +                                                 | <u> </u> | <b> </b>     | ┣──      | <u> </u>                                     | <b>-</b> |              | ╂───     | <b>∔</b>   |                                              | <b></b> -    | ł—        |
| $\vdash$ | ┨── - ·          | 158-19         | 158.69   | 0.50          | 55          | as above; rubbin                                                                     |          | +                                                 | +        |              | ł        | 1                                            | +        | <u></u> +−−− | +        |            |                                              | 1            | R5        |
| <u> </u> |                  | 1              |          |               | l           |                                                                                      | 1        |                                                   | 1        | 1            | <u> </u> |                                              | 1        |              | 1        | <b>.</b>   | 1                                            | 1            | <u> </u>  |
|          |                  | 158.69         | 159.10   | 0.41          | Lost        | Sandstone                                                                            |          |                                                   |          |              |          |                                              | 1        |              |          |            |                                              |              |           |
|          | ALL LI           | NEAR UN        | ITS IN M | ETRES         |             | 1 :+##/OR 5 - GOLDER ASSOCIATES MARDNESS CODE<br>+RGD - ROCK QUALITY DESIGNATION (%) | •        | ANG                                               | GLE ME   | ASURED       | FROM C   | ORE AX                                       | 15       |              | HC       | LE N       | <u>jo</u>                                    | LP-0 2       | 202       |

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## CORE & COAL CORE DESCRIPTION

| PROJECT | LOBGEPOLE | HOLE No   | PAGE |
|---------|-----------|-----------|------|
| AREA    | S.E. 8.C. | CONTINUED | 01   |

| BOX DEPTH |            |          |                                              |          | MODING SEA       | SEAM                                                                             | CHIC SEAM SAMP |            |              |                                              | ANAL                | TICAL    | ATA      |                                             |          |              |               |          |             |
|-----------|------------|----------|----------------------------------------------|----------|------------------|----------------------------------------------------------------------------------|----------------|------------|--------------|----------------------------------------------|---------------------|----------|----------|---------------------------------------------|----------|--------------|---------------|----------|-------------|
| 004       | AT }       |          | ,                                            | [TH      | L                | CHIO DESCRIPTION                                                                 | ANGLE          | DESIG      | No           | MOIS                                         | 1 %                 | ASH %    | V.M. %   | F.C. %                                      |          | C V          | Frac.         | MARK     | 2,          |
| No        | 10401      | FROM     | TO                                           |          | MAIN             | AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)                                  | 111            | <u>[]]</u> |              | a.r.b.                                       | residual            | d,b.     | d.6      | d.b.                                        |          |              | F1 89         | RQD      | Hard        |
| -         |            | 159, 10  | 159.26                                       | 0.16     | ss               | rubble                                                                           | 1              | l 1        |              |                                              |                     |          |          |                                             |          |              |               |          | RS          |
|           | ··         |          |                                              |          |                  |                                                                                  | I              | [          |              |                                              |                     |          |          |                                             |          |              |               | i        |             |
| 32        | 1          | 159,26   | 1 59.36                                      | 0.10     | <b>S</b> 5       | rubbłe                                                                           |                | I          |              |                                              |                     |          |          |                                             |          |              | 1             | ]        |             |
|           |            |          |                                              |          |                  |                                                                                  | ļ              |            |              |                                              | ļ                   |          |          |                                             |          |              | ┞┦            | <b> </b> |             |
| 33        | _          | 159, 36  | 160,63                                       | 1.30     | <u>_\$\$</u>     | silty in part; some rubble                                                       | ļ              | ļ          |              | ļ                                            | 1                   |          |          |                                             |          |              | ┥╴╺┥          | 0.26     | <u>. R5</u> |
|           |            |          |                                              | ·!       |                  | · · · · · · · · · · · · · · · · · · ·                                            |                |            | <b> </b>     | I                                            | ļ                   |          |          |                                             |          |              | ┨───┤         | i∤       | $\vdash$    |
|           |            | 160.63   | 160,93                                       | 0.30     | Lost             | Sandstone                                                                        | Į              |            | <b>!</b> — · | <b></b>                                      |                     |          |          |                                             |          | _ <b>.</b>   |               | ┟───┦    |             |
|           |            |          |                                              | L        |                  |                                                                                  | ┨───           |            | }            |                                              |                     |          |          |                                             |          |              | 1-1           | 0.43     | 05          |
|           |            | 100.95   | 101.11                                       | 10.18    | ->>              | 85 900Ve; FUDDIe                                                                 | {·             | £          | ł—––         | }                                            | ·                   |          |          |                                             |          |              | <u>+</u> ∤    |          | <u> </u>    |
|           |            | 161 11   | 161 23                                       | n. 12    | Lost             | Sandstone                                                                        |                |            | 1 -          |                                              |                     |          |          |                                             |          |              | t+            | I        |             |
|           |            |          | 101,25                                       | 1.1      | 2057             |                                                                                  | <b> </b>       | F          |              | <b>†</b>                                     |                     |          |          |                                             |          |              |               |          |             |
|           |            | 161.23   | 162.37                                       | 1.14     | ss               | fine to course grain; light and dark gray; rubbly in part                        | 1              | <b>—</b> — |              | 1                                            |                     |          |          |                                             |          |              |               | 0.57     | R5          |
|           |            |          |                                              | 1        |                  | some coaly fractures                                                             |                |            |              |                                              |                     |          |          |                                             |          |              |               |          |             |
|           |            |          |                                              |          |                  |                                                                                  | [              |            | L            | L                                            |                     |          |          |                                             |          |              | <b></b> /     | L        |             |
|           |            | 162.37   | 162.76                                       | 0.39     | Lost             | Sandstone                                                                        | ļ              | <u> </u>   | ļ            | ļ                                            | <b>!</b>            | ,        |          |                                             |          |              | <b> </b>      | Į        | $\vdash$    |
|           |            |          |                                              | L        | <u> </u>         |                                                                                  | <b>!</b>       | <b> </b>   | Į            |                                              |                     | <u> </u> |          | <b>_</b>                                    |          |              | <b>↓</b> !    | <u> </u> | $\vdash$    |
| 33        |            | 162+76   | ┣──                                          | <b> </b> | <b>{</b>         | END OF HOLE                                                                      | ł              | +          | <u>↓</u> ·   |                                              | <u>↓</u>            |          |          |                                             |          |              |               |          | ┟───┤       |
|           |            | <u> </u> |                                              | <b>}</b> | ļ                | <b></b>                                                                          | ┝              | <u> </u>   | ╂            | <u>-</u>                                     | <u> </u>            |          | ļ        |                                             |          | ·            | ┟──┘          | <u> </u> | <b>L</b>    |
|           |            | <u> </u> | <b> </b>                                     |          |                  |                                                                                  | l              |            | <u> </u>     | <u>                                     </u> |                     |          |          |                                             |          |              | <u>+</u>      |          |             |
|           |            |          | <b></b> -                                    |          | · -              |                                                                                  |                |            | t -          |                                              |                     |          |          |                                             |          |              | 1             |          |             |
|           |            |          | <u>}                                    </u> | +        | <b>├</b> ── ── ┤ |                                                                                  | t –            | †          | 1            |                                              | [                   |          | <u> </u> |                                             |          |              | 1             |          |             |
|           |            |          | f                                            | f"       | [                |                                                                                  | <b> </b>       | 1          | 1            | [                                            | <u> </u>            |          | <b>i</b> |                                             |          |              | 1             |          |             |
|           |            |          | 1                                            |          |                  |                                                                                  |                | 1          |              | <u> </u>                                     |                     |          |          |                                             |          |              |               |          |             |
|           |            |          | 1                                            | t-       |                  |                                                                                  | <u> </u>       | 1          | 1            |                                              |                     |          |          |                                             |          |              |               |          |             |
|           |            |          | i                                            | 1        |                  |                                                                                  | Ι              | <b>_</b>   | L            |                                              | L                   |          | l        |                                             | I        |              | ∔             |          |             |
|           |            |          |                                              |          |                  |                                                                                  | L .            | Į          |              |                                              |                     |          | I        |                                             | ļ        |              | <b>İ</b>      |          |             |
|           |            |          | I                                            | $\bot$   |                  |                                                                                  | <u> </u>       | <b>I</b>   | ┥            | ļ                                            | ↓                   |          | <b> </b> |                                             | <b> </b> |              | <b>↓</b>      |          |             |
|           |            |          | <u> </u>                                     | ┇        | <u> </u>         |                                                                                  | <b> </b>       | +          | ļ            | ļ                                            | Ļ                   | <b>_</b> | <b> </b> |                                             | <u> </u> |              | <b>ł</b>      |          |             |
|           | ·          |          | <u> </u>                                     |          |                  |                                                                                  | <u></u>        | <u> </u>   | <b>↓</b>     | <u> </u>                                     | <b>∔</b>            |          |          |                                             | I        |              | ╉╍──          |          |             |
|           |            |          | <b> </b>                                     | +        |                  |                                                                                  | <b></b>        |            | ┨───         | <u> </u> ···                                 | <u> </u>            |          | i        |                                             | ł ——     |              | +             |          |             |
|           |            |          |                                              | ╂╍──     | ┦────            | ······································                                           | +              | +          | ┨────        | <u> </u>                                     | <u> </u>            | <u></u>  | }        |                                             |          |              | +             |          |             |
|           |            | <u> </u> | t                                            | +-       |                  |                                                                                  | 1              | +          | t i          | t                                            | <u>+</u>            | t        | t        |                                             | t        | <u>  · -</u> | 1             |          |             |
|           | 1-         | <u> </u> | <u> </u>                                     | 1-       | 1                |                                                                                  | t              | 1          | 1            | t                                            | 1                   | <u> </u> | 1        |                                             | 1        | 1            | 1             |          |             |
|           | t          | t·       | 1                                            | 1        | 1                |                                                                                  |                | Γ          |              | 1                                            |                     | · · ·    |          |                                             |          |              | <u> </u>      |          |             |
|           | <b>.</b>   | <b></b>  | 1                                            | 1        | <u> </u>         |                                                                                  |                |            | I            |                                              |                     |          | 1        |                                             |          |              |               |          |             |
|           | ľ          |          |                                              |          | 1                |                                                                                  |                |            | I            |                                              | L                   | I        |          |                                             |          | L            |               |          |             |
|           |            | L        | 1                                            |          |                  |                                                                                  |                | -          | <b></b>      | <u> </u>                                     | <b></b>             | ļ        | <b>}</b> | <b>L</b>                                    | <b> </b> | }            | <u>↓.    </u> |          |             |
|           | ļ          | Į        | 1                                            | 1        | <b>_</b>         | <b>_</b>                                                                         | ·              | ·+         |              | <b>↓</b>                                     | ╄                   | <b>↓</b> |          | <b>{</b>                                    | ╂        | ł            | <b>+</b>      |          |             |
|           | <u> </u>   | <b></b>  | <u> </u>                                     |          |                  | <b>_</b>                                                                         |                |            |              | <b>├</b> ───                                 | <u> </u>            | <u> </u> | <u> </u> | <b> </b>                                    | <b> </b> | <b>↓</b>     | +-            |          |             |
| · —       | <b>I</b>   | <b> </b> |                                              | +        |                  |                                                                                  | · [            | - <b>ł</b> | - <b>{</b>   |                                              | <b></b>             | ļ        | ·} ·     | <b>∤</b>                                    | 1        | <u>†</u> ·   | ·             |          |             |
| —         | <u> </u>   |          | ·                                            |          | ·                | f                                                                                |                |            | +            | f ··                                         | +                   | I        | 1        | <u> </u>                                    | <u>†</u> | t—           | <u>+</u>      |          | <u> </u>    |
|           | <b>}</b> — | <b>{</b> | / <b>-</b> -                                 | +        | +                |                                                                                  |                | +          | +            |                                              | +                   | <b>∤</b> | ╉──      | <u> </u>                                    | 1        | <b>┦</b> ┛── | · [ ·         | ····- •  |             |
| }         | <b> </b>   | <u>+</u> | f                                            |          |                  | ······································                                           | +              | - <u>t</u> | t            | 1                                            | · • • • • • • • • • | i        | I        | i                                           | t        | 1            | 1.            | ···      |             |
|           | E          | f        | t                                            | -        | 1                |                                                                                  | · [            | t t        | · f          | 1                                            | 1                   | 1        | 1        | 1                                           | 1        | t            | 1             |          |             |
|           | 1          | · · ·    | 1                                            | ł        | 1                | • · · · · · · · · · · · · · · · · · · ·                                          | t              | 1          |              | 1                                            |                     |          | 1        | 1                                           | 1        | 1            | Į.            |          |             |
| t i       | T          | 1        | 1                                            | 1        | 1                | 1 · · · · · · · · · · · ·                                                        |                |            |              | T                                            | [                   | [        | 1        | I                                           | 1        | I            | 1.            |          |             |
| <b>F</b>  | 1          | 1        | 1                                            |          | 1                |                                                                                  | 1              | 1          | T            | T                                            |                     | T        | T        | [                                           |          | 1            | T             |          |             |
| L         | 1          | L        | <u> </u>                                     | 1        | <u> </u>         |                                                                                  |                | J          | 1            | <u> </u>                                     | <b>-</b> -          | ł        | <u> </u> | <u>ــــــــــــــــــــــــــــــــــــ</u> |          | <u> </u>     | <u> </u>      |          |             |
|           | ALL U      | NEAR UN  | 015 IN <i>N</i>                              | ETRE S   | <b>;</b>         | 1 :=R&/OR 5 GOLDER ASSOCIATES WARDNESS CODE<br>=RQD ROCK QUALITY DESIGNATION (%) | •              | AN         | GLE ME       | ASURED                                       | FROM C              | ORE AX   | 15       |                                             | HC       |              | <u>10.</u>    |          |             |

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FF ----- FRACIURE FREQUENCY

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NOTE: LODGEPOLE LP - D 101 (180.1 - 194.4 m)

because the core (consisting of coal and shale) in the interval 180.1 m (top of Box 41) to 194.4 m (top of Box 44) was badly broken, sheared and pulverized, it was not possible to determine the core recovery per litho unit; it is for the same reason that depth intervals were not derived per litho unit\*, it should be noted, therefore, that:

o the figures in the "TH" column are RECOVERED THICKNESSES
as observed & measured in the core boxes

o % RECOVERY = Length of core recovered between marker blocks(m)
Core cut between marker blocks (m)

\* APPROX depths were determined when interval was subject to sampling

> D. W. Fietz October 26/78

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|                                                                            | PA P        |
|----------------------------------------------------------------------------|-------------|
| CORE & COAL CORE DESCRIPTION                                               | ₽ OF 21     |
| HOLE PARTICULARS COAL CORING PERFORMANCE EXAMINATION                       |             |
| LOGS RUN FE, Gamma, LSD, Neutrol CORE DIAMETER HU LOG USED                 | . 1         |
| LOCATION REL METICIAL II/ 1 J. 404 047. BIT WILL LOGGED BY Verticality     | 0 8         |
| ELEVATION LIGH GRED HOLE BEARING (AZ <sup>o</sup> ) 110 <sup>o</sup> OTHER | JH. DWF, AN |
| TOTAL DEPTH 368 8 0 HOLE ANGLE (*)* 61° TESTS                              | <b>]</b>    |

| -          | 1 H 5 2 |          |        |             |           | LITHO DESCRIPTION                                | L.A.               | SEAM       | SAMFLE   |                                         |                  | ANAL        | YTICAL       | UAIA       | · · · ·  |          | are a constant                                                                      |
|------------|---------|----------|--------|-------------|-----------|--------------------------------------------------|--------------------|------------|----------|-----------------------------------------|------------------|-------------|--------------|------------|----------|----------|-------------------------------------------------------------------------------------|
| BOX.       |         |          | PIH    | тн          | · · · · · | CITHO DESCRIPTION                                | ANGLE              | USIG       | No       | <u>wo</u> i                             | <u>s 4</u>       | ASH 7       | /.M. 8       | F.C.8      | F.S.I.   |          | REMARKS                                                                             |
| - NO 1     | BUK     | FROM     | TO I   |             | MAIN      | AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)  | (*)                | į          |          | 0.e.b.                                  | residuat         | 98 1        | a.d.b.       | a.d.b      |          | Yield    |                                                                                     |
|            | 1       |          |        |             |           | NOTE, Top 15.8 m (52 feet) drilled with tri-     |                    |            |          |                                         |                  |             | <b>.</b>     |            |          |          | a Gas? Note: Note:                                                                  |
| -          | 1       |          |        |             |           | cope rock bitsurface casing sets cored           | 1                  |            |          |                                         |                  |             |              |            |          |          | Indicole Liepik                                                                     |
|            |         |          |        |             |           | interval begins at \$15.8 m                      |                    | 1          | Į        | ļ -                                     |                  |             |              |            |          |          |                                                                                     |
| ł          |         |          |        | ł           |           | THEELVOI NEGINA OC TANA                          | 1                  | ι.         | 1        |                                         | []               |             |              |            |          |          |                                                                                     |
|            |         |          | 15.0   | L .         | CT MCTR   | wary fine grains blacks core is badly broken     |                    | 1          | ]        | <b>[</b> ]                              |                  |             |              |            |          |          | R4; RQD: 29                                                                         |
|            | 12.8    | 15.0     | 15.9   | 0.1         | 36132     | very line gruing bruch, but agenerit sins i .    | 1 · ·              | 1 ···      |          |                                         | I                |             |              |            | <b>_</b> |          |                                                                                     |
| · 1        |         | 16.0     | 171    | 1 2         | ee .      | very five grain; grey to dark; calcite infillin  | s75                | 1          |          |                                         | 1                |             |              |            |          | -        | R4                                                                                  |
| 1          | 1       | 10.9     | 1/11   | 1.2         | 50 .      | In fractures                                     | 1                  | I          |          |                                         | <u> </u>         |             |              |            |          |          |                                                                                     |
| ·- ·       |         | 17 1     | 17 4   | 0.3         | 55        | very fine grain to fine grain; grey to dark gre  | 70                 | I          |          |                                         | Į                |             |              |            |          |          | R4; R <u>0</u> L 32                                                                 |
|            |         | 17.1     |        |             |           |                                                  | 1.                 | 1          |          | <b>.</b>                                | <b>.</b>         |             |              |            |          |          |                                                                                     |
| 1          |         | 17 4     | 17 5   | <u>a 1</u>  | \$5       | very fine grain: dark grey; core is badly broke  | đ                  | i          | l        | L                                       | L                |             |              |            |          |          | R4                                                                                  |
|            |         | ****     | 1.12   | •••÷        |           |                                                  |                    |            | 1        | I                                       |                  |             |              | I          | L        |          |                                                                                     |
|            | -       | 17.5     | 17 6   | 0.1         | 55        | fine grain: white grey to dark grey; cross-      | <b>!</b>           | 1          | I        | <b></b>                                 | ļ                |             |              |            |          |          |                                                                                     |
| - T        |         | 1.1.5    | 1/10   | ř           |           | bedded                                           | .79                |            | 1        | L                                       | <b>.</b>         |             |              |            | 1        |          | R4                                                                                  |
|            |         |          |        |             |           |                                                  |                    |            |          | I                                       |                  |             |              | l          |          |          |                                                                                     |
|            |         | 17.6     | 17.7   | 0.i         | SS        | fine grain; dark grey to black                   | 80                 | 1          |          | <u> </u>                                |                  |             |              | ÷          | <b> </b> |          | K4                                                                                  |
| 1          | ·       | <b>1</b> |        |             |           |                                                  |                    |            |          |                                         | ·                |             | <u>ا</u>     | l —        | <b>↓</b> |          |                                                                                     |
| i i        |         | 17.7     | 17.9   | 0.2         | SS .      | fine grain; dark grey to black: core is badly    |                    | 4          |          |                                         |                  |             | <b>]</b> · · |            | ╊        |          |                                                                                     |
| . [        |         |          |        |             |           | broken                                           | 90                 |            |          | . <b></b>                               |                  |             |              | ·          | <b>-</b> |          | 1 Ka                                                                                |
| . [        | -       |          |        | 1.          |           |                                                  |                    | ļ          |          | ł                                       |                  | <b>1</b>    | <b>↓</b>     | ₽. v       | 4        |          |                                                                                     |
|            |         | 17.9     | 18.0   | 0.1         | COAL      | bright; friable; badly crushed                   |                    | · ·        |          |                                         |                  |             | <u> </u>     | ] <b>-</b> | ╉        |          |                                                                                     |
| , I        |         |          |        |             |           | · · · · · · · · · · · · · · · · · · ·            | 4.                 | •          |          | <u></u>                                 |                  | · ·····     | ł – –        | ł          | h        |          | n                                                                                   |
| 1          |         | 18.0     | 18.1   | 0.1         | SH/COAL   | interbedded; black; core is badly broken         |                    | <b>!</b>   | <b>.</b> |                                         | · <b> </b> · · · |             |              |            | <u>}</u> |          | <u></u>                                                                             |
|            |         |          |        |             |           |                                                  | +                  | . <b>.</b> |          |                                         | ·                |             |              | ·          | <b>-</b> |          |                                                                                     |
| 1 I        |         | 18.1     | 18.1   | 0.2         | SHALE     | black; minor calcite infillings                  | ·                  | · • • • •  | ·        | ·                                       |                  | <b> </b>    | ╂───         | · · · ·    | +        | ┠─╴──    | 1 K3                                                                                |
| ( . I      |         |          |        |             |           |                                                  |                    | 1          | · ·      | +                                       |                  | f · · · · · | i            | +          |          | i        |                                                                                     |
| 1 1        |         | 18.3     | 18.4   | 0.1         | <u>SS</u> | very time grain; black to grey; calcice infili   |                    | 1          |          |                                         | •                | t           | I            | 1          | t        | i        |                                                                                     |
| 1 I        |         | <u>ا</u> |        | ·           |           | ings in fractures                                | · <del> </del> ··· | · † ·      | ł ·      | +                                       |                  | ŀ ──··-     | †            | <u>†</u>   | 1        |          | · · · · · · · · · · · · · · · · · · ·                                               |
| 1          | -       | i        |        | L           | <u>.</u>  |                                                  | -                  |            |          | · • • • • • • • • • • • • • • • • • • • | 1                | i           | <u>}</u>     | i          | 1        | t        | R4; RQD: 71                                                                         |
| I          |         | 18.4     | 119.0  | <b>0</b> .6 | <u>ss</u> | very time drain; black to drey; massive          | +                  | 1.         |          | +                                       | 1                | 1           | i            | 1          | 1        |          | · · · · · · · · · · · · · · · · · · ·                                               |
| 1          | -       |          |        |             | ·         | and the table dial white wrow to black           | 1 60               | i i        | 1 · ·    | i                                       | • - • • •        |             | 1            | 1 .        | t        | 1        | R4                                                                                  |
| l I        |         | 19.0     | 19.2.  | 10.4        | . \$5     | Tipe grain; incerbedded white drey to black,     |                    | - <b>1</b> | 1        | h                                       | ···              | t           | _            | 1          | 1 .      | i        | 1                                                                                   |
| 1          |         |          |        |             |           | cross-bedded, lower nait incerval of core is     | • [ •              | ì          | · ·      | · • • • • • • • • • • • • • • • • • • • |                  | i i         | 1-           | 1          | 1        | ţ        | 1                                                                                   |
| 1          |         | 1        | 1      | 1           | 1         | broken; slickensided surfaces                    |                    |            |          |                                         | 1                | · · ·       | 1            | 1          | 1        |          | <b>]</b>                                                                            |
| ł – ł      |         | 1.0 0    | 30.0   |             |           | where fine grains black to grave calcite infills | .1                 | 1          |          | 1                                       | 1                | 1           | 1            | 1          | 1.       | 1        |                                                                                     |
|            |         | 19.2     | 20.0   | 10.8        | 55        | very the grain; black to grey; calcree inter-    | 1                  |            | 1        |                                         | 1                | 1           |              | 1          | 1        | I        |                                                                                     |
|            |         | - · ·    |        | 1           | · ·       | inga Th fighter and the second                   | · • • • •          | ţ.         | 1.       | T ·                                     | 1                | 1           | 1            | Γ          | 1        | · ·      |                                                                                     |
| <b> </b> , | 20.7    | 20.0     | 20.7   | 0.7         | ss        | very fine grain; black to grey; calcite infill-  | -                  | ł          |          |                                         | 1                | 1           | Γ            | 1          | 1        | I        | 1                                                                                   |
| <b>1 4</b> | 20.0    | 1 20.0   | 1      | ľ"'         | 1         | ings in fractures                                | 1                  |            |          | Γ                                       | 1                |             |              |            |          |          | R4; RQD: 63                                                                         |
| 1 1        |         | 1        | 1      | 1           |           |                                                  | ł                  | 1          | 1        |                                         | 1                |             |              | 1          | 1        | <b>!</b> |                                                                                     |
| 1          |         | 20.7     | 21.0   | 0.3         | SLTST     | very fine grain; black; grading to a black       | I                  |            | 1        | L                                       |                  | I           | I            |            |          | 4        | R3                                                                                  |
| 1 1        |         | 1        | 1      | 1           | 1         | shale at bottom of interval: unit not as hard    |                    | ļ          | 1        |                                         |                  | 1           | 1            | .1         | 1        | Į        |                                                                                     |
| t /        |         | L        | 1      | 1           | l I       | as sandstone interval above it                   | 1                  | <u> </u>   | 1        |                                         | <u> </u>         | <u> </u>    |              | <u> </u>   | 1        | ļ        | <u> </u>                                                                            |
| ليبيك ال   | N175 +  | ISED - m | DX FIC | •           | <u> </u>  | # MEASURED FROM THE HORIZONTAL PLANE             | A 4                | NGLE       | MEASU    | RED FROM                                | A CORE /         | NI 5        |              | i          |          |          |                                                                                     |
| Ŭ          |         |          |        |             |           | I I + R &/OR S GOLDER ASSOCIATES HARDNESS CODE   |                    |            |          |                                         |                  |             |              |            | IHO      | le n     | <b>O</b> . $\begin{bmatrix} \mu \mu & -\nu \mu \\ \mu \mu & -\nu \mu \end{bmatrix}$ |
|            |         |          |        |             |           | POD - POCK ONALITY DESIGNATION 1%                |                    |            |          |                                         |                  |             |              | ļ          |          |          | 101                                                                                 |

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FILE No. BA - 231

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## CORE & COAL CORE DESCRIPTION

| PROJECT | HOLE NO                            | ט - יוב | PAGE 2<br>OF 21 | i. |
|---------|------------------------------------|---------|-----------------|----|
| AREA    | WEST RIDGE - SOUTH SLOPE CONTINUED | 101     |                 |    |

| iOX n    | 4974    | DEP       | TH     |          |           | LITHO DESCRIPTION                                                                                      | MEDDING | SEAN     | SAMPLE |              |                 | ΑΝΛΙ    | TICAL   | DATA<br>11 - 1. 1 |                 |                          | BEMARKS!                               |
|----------|---------|-----------|--------|----------|-----------|--------------------------------------------------------------------------------------------------------|---------|----------|--------|--------------|-----------------|---------|---------|-------------------|-----------------|--------------------------|----------------------------------------|
| Na A     | AT .    | FROM      | iO     | тн       | MAIN      | AMPLIFIED LINCLUDE COAL RECOVERY FOR EACH SEAM                                                         | ANGLE   | DESIG    | No     | MOIS         |                 | ASH 74  | ad b    | a d 1             | F.S.L           | N<br>Viela               |                                        |
|          | 80)     | 21.0      | 21.1   | 0.1      | SHALE     | black; with minor very thin coaly bands (ie,                                                           | 80      | <u> </u> | 1      |              | (Clubo)         |         |         |                   |                 |                          | How of Winter Ye<br>or Gol? N          |
| -        |         | - · · · · |        |          |           | < 0.01 m thick) R3                                                                                     |         |          | ł      |              |                 |         |         |                   |                 |                          | Indicate Depth                         |
|          | -       | 21.1      | 21.6   | 0.5      | SHALE     | black; minor coaly debris; pyrite infiling in<br>fractures                                             |         |          |        |              |                 |         |         |                   |                 |                          | RJ                                     |
|          |         | 21.6      | 21.6   | ō.1      | SHALE     | black: minor coaly debris; core is badly broke                                                         | a       |          | Į      |              |                 |         | · -     |                   | ···             |                          |                                        |
|          | [       |           |        |          |           | and rubbly                                                                                             |         |          |        |              |                 | -       |         | [                 |                 |                          |                                        |
|          |         | 21,6      | 23.0   | 1.4      | SS        | fine grain; grey to black; calcareous cement;<br>cross-bedded; very minor coaly debris through-<br>out |         |          |        |              | · · · · · · · · | · · · · |         |                   |                 |                          | R4                                     |
| -        | • •     | 23.0      | 24.0   | 1.0      | ss        | fine grain: grey to black: calcareous cement:                                                          |         | -        | · · -  | <u>}</u>     |                 | -       |         | <u> </u>          | ••• • • • • • • | · · · · · <b>-</b> · - · | R4; R0D: 6                             |
|          |         |           |        |          |           | calcite infillings in fractures; cross-bedded                                                          |         |          |        | }            |                 |         | · ·     |                   |                 |                          |                                        |
| 3 2      | 4.Ö     | 24,0      | 24.4   | 0.4      | SHALE     | black; very minor coaly debris throughout; cal                                                         |         | <b>]</b> | ·      | <b>]</b>     |                 |         |         | l                 |                 |                          | 84                                     |
|          |         | 24 4      | 24 5   | 0.1      | COAL      | interhedded: coaly units \$ 0.02 m thick                                                               |         |          |        |              |                 |         |         |                   |                 |                          |                                        |
|          |         |           |        |          |           |                                                                                                        |         |          |        |              |                 |         |         |                   | <u>.</u>        |                          | R3 - ROD - 5                           |
| ····     |         | 24.5      | 25.6   |          | SHALE     | minor pyrite infillings in fractures; calcite                                                          |         | <b>.</b> | ·      | ţ            |                 |         | · · · - |                   |                 |                          |                                        |
| •.   ·   |         |           | · · ·  |          |           | infillings in fractures                                                                                |         |          |        | <u></u><br>↓ |                 | • · ·-  |         | 1                 |                 |                          | · · · · · ·                            |
|          |         | 25.6      |        | 0.5      | SH/COAL   | val is badly crushed; coal core at top of inter-                                                       |         |          |        |              |                 |         |         |                   | <u> </u>        | · · · ·                  | ······································ |
| - f-     | · · · - |           |        | <u> </u> |           | K0.10 m thick; calcareous cement                                                                       |         | l        |        |              | <u>.</u>        | <br>    | l       |                   |                 |                          | R3                                     |
|          | ·       | 26.1      | 26.7   | 0.6      | SHALE     | with minor coal; black; calcareous cement; cal<br>cite infillings in fractures; core is badly          |         |          | -      | <u> </u>     |                 |         |         |                   |                 |                          |                                        |
|          |         | · -·-     | ·      |          |           | broken                                                                                                 | · [ •   | <b>.</b> |        | <b>.</b>     |                 |         |         | ·                 |                 |                          | R4; RQD: 3                             |
|          | ·       | 26.7      | 27.6   | 0.9      | SHALE     | with minor coaly debris; black; calcaroeus                                                             |         | +        |        |              |                 |         |         |                   |                 |                          | R3                                     |
|          | · • •   |           |        |          | · · · · · | rubble interval 0.47 m below top of unit                                                               | -       |          |        |              |                 |         |         | ļ                 | [               |                          | · ··· ·· ·                             |
| 4        | 28.1    | 27,6      | 28.9   | 1.3      | SLTST     | very fine grain; black; calcite infillings in fractures; calcareous cement                             |         |          |        |              |                 |         |         |                   | ·               |                          | R3                                     |
|          |         | 28.9      | 29.1   | 0.2      | SHALE     | dark brown to black; core is badly broken and                                                          |         |          |        |              |                 | -       |         |                   | <br>            |                          | R3                                     |
| -        | -       |           |        |          |           | rubbly                                                                                                 |         |          |        | <b>]</b>     | -               |         |         |                   | <b> </b>        |                          |                                        |
|          |         | 29,1      | 29,6   | 0.5      | SHALE     | black; core is badly broken and rubbly                                                                 |         |          |        |              | •               |         |         |                   |                 |                          | RQD: (                                 |
| [        |         | 29.6      | 1 30 3 | Q.7      | ss        | fine grain; grey to beige; calcareous cement;                                                          |         | ł        |        |              |                 |         |         | L                 |                 | 1                        |                                        |
| <b> </b> |         | 1         |        |          | 1         | and more silty at top of interval                                                                      | 1 .     |          |        | · ·          | 1               | 1       |         |                   | +               | 1                        | •                                      |
|          |         | 30.3      | 30.7   | 0.4      | SLTST     | fine grain; grey to black; calcareous cement:<br>core is broken and rubbly                             |         |          | 1      |              |                 |         | · · ·   |                   | +               |                          | R3; RQD: S                             |

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FILE Nº BA 212

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# CORE & COAL CORE DESCRIPTION

| PROJECT | LOIXEPOLE                | HOLE No LP - H | PAGE 3     |
|---------|--------------------------|----------------|------------|
| AREA    | WEST RIDGE - GOUTH SLOPE | CONTINUED 101  | <u>,</u> , |

| 80)              | DEPTH                                  | DEP     | ғн              |             | I      | LIHO DESCRIPTION                                                                                  | NEOENTZI     | SFAM                 | SAMPLE |                                        |        | ANAL    | TICAL          | ATA           | <br>1             | u                 | REMARKS                                                                                                         |
|------------------|----------------------------------------|---------|-----------------|-------------|--------|---------------------------------------------------------------------------------------------------|--------------|----------------------|--------|----------------------------------------|--------|---------|----------------|---------------|-------------------|-------------------|-----------------------------------------------------------------------------------------------------------------|
| No               | TOPO                                   | FROM    | ю               | тн          | MAIN   | AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)                                                   | ANGIE<br>1*1 | <b>DE SIG</b>        | No     | - MOIS                                 | 70     | dib     | d.d.b.         | a.d.b         | f,5 f             | Yield             |                                                                                                                 |
| 5                | 32114                                  | 30.7    | 32,9            | 2.2         | SHALE  | black; calcareous cement; calcite infilling in<br>fractures; minor coaly debris within interval;  |              | ĺ                    |        | -                                      |        |         | ·<br>· · · · · |               |                   |                   | llow of Water Yes()<br>as (ius? No()<br>Indicate Depth                                                          |
| ļ - <sup>-</sup> |                                        | []      |                 |             |        | <u>R4; R0</u> D: 41                                                                               |              |                      | ļ      | ]                                      | ]      |         |                |               | ·                 |                   |                                                                                                                 |
|                  | - · · -                                | 32.2    | 33.5            | 0 <u>.6</u> | SHALE  | with coal; black; a of coaly debris increases<br>with depth                                       |              |                      |        |                                        |        |         |                | · ·           | · · · · · · · · · | · · ·             | R3                                                                                                              |
|                  | <u> </u>                               | 33.5    | 34.8            | i.3         | SHALE  | with coal; black; coal bands 40.02 m thick                                                        |              |                      |        |                                        |        |         |                | <br>          | · _ •//           |                   | R3; RQD: 48                                                                                                     |
|                  |                                        | 34.8.   | 35.1            | 0.3         | SLTST  | fine grain; black; minor pyrite along fracture                                                    | [<br>  .     |                      |        | [                                      | <br>   | [       |                | ····· ·· ·· · |                   |                   | R3                                                                                                              |
| 6                | 1<br>. 36. 3                           | 35.1    | 36.4            | 1.3         | SLTST  | fine grain; black; minor coaly debris through-                                                    | 70           | <br>                 | <br>   |                                        |        |         |                |               | · _ · _ ·         |                   | R3, RQD: 73                                                                                                     |
| 1                |                                        |         | ·               |             |        | out interval                                                                                      |              | · <b> </b> - · · · · | <br>   | L                                      |        | <br>  . |                |               |                   |                   | ··· = · · - ·                                                                                                   |
| .                |                                        | 364     | 37.4            | 12.0        | SLTST  | fine grain; black; alightly calcareous cement;<br>evidence of slickensiding near base of interval |              |                      |        | <u> </u>                               |        |         |                |               |                   | ··· · · · · · · · | · · · · · ·                                                                                                     |
| 1                |                                        | 37.4    | 38.0            | 0.6         | SLTST  | fine grain; black; slightly calcareous cement;                                                    |              | -                    |        | <u></u>                                |        |         |                | · • •         |                   |                   | R3; RQD: 62                                                                                                     |
|                  | ]                                      |         |                 | [ .         |        | minor coaly debris throughout interval                                                            |              |                      |        | ·                                      | ·      |         |                |               |                   |                   |                                                                                                                 |
|                  |                                        | 38.0    | 38.5            | 0.5         | SLIST  | fine grain; black; small fractures infilled                                                       | <b>.</b>     | -                    |        |                                        |        |         |                |               |                   | · · · · ·         | R3                                                                                                              |
|                  |                                        | 38,5    | 39.0            | 0.5         | SHALE  | black; small fractures infilled with calcite;                                                     |              | -                    |        | ·                                      | · ·    |         |                | · · .         | ↓                 | · · · ·           | · · · · · · · · · · · · · · · · · · ·                                                                           |
|                  | · · · ·                                |         | · • • • • · · · |             |        | glightly <u>calcareous cement;</u> <u>core is broken</u> and<br>rubbly                            |              |                      | · ·    | ·                                      |        |         |                |               | {                 | ··· <b>-</b>      |                                                                                                                 |
|                  | -                                      | 39.0    | <u>39.9</u>     | 0.9         | SHALE  | black; small fractures infilled with calcite;<br>slightly calcareous cement                       |              | <br>                 |        |                                        |        |         |                |               |                   |                   | R3; RQU: 51                                                                                                     |
|                  | ······································ | 39.9    | 40.1            | 0.2         | SHALE. | black; iron staining along fractures; core is<br>broken and rubbly                                |              |                      |        | ······································ |        |         |                | <br>          |                   | ······            | R3                                                                                                              |
| i                | . io. ż                                | 40.1    | 40.8            | 0.7         | SHALE  | black; core is broken and rubbly                                                                  | -+           | <u></u><br><u> </u>  |        | - , -                                  | ·      |         |                |               |                   |                   |                                                                                                                 |
|                  |                                        | 40.9    | 42.1            | <u>.</u>    | SHALE  | black; slickensided surface abundantcore is mulverized                                            |              |                      |        |                                        | <br>+  |         |                | ·             | <br>              |                   |                                                                                                                 |
|                  |                                        |         | A1 6            |             | SHATE  | black- small fractures infilled with calcite:                                                     |              |                      |        |                                        | 1      |         |                |               |                   |                   | R3; RQD: 27                                                                                                     |
| · · · ·          |                                        |         |                 |             |        | slightly.calcareous cement, core is broken and                                                    |              | - <b>1</b>           | 1      |                                        |        |         |                |               |                   |                   |                                                                                                                 |
|                  |                                        | 1 41 6  | 41.9            |             | SHALF  | hlack                                                                                             |              |                      |        | 1                                      |        |         |                |               |                   | 1                 |                                                                                                                 |
|                  | · • • • •                              | 44.19   | 41.0            |             |        |                                                                                                   |              |                      | •      |                                        |        | i i     |                |               |                   |                   |                                                                                                                 |
|                  |                                        | 141.1   | 42.0            |             |        | ······································                                                            |              |                      |        |                                        |        | 1       |                |               | <br> - ,, -       | 1                 | 83                                                                                                              |
|                  |                                        | 42.0    | 42.3            | 0.1         | SHALE  | · · ·                                                                                             | -            |                      |        | 1                                      |        | 1       |                | f: · - ·      | · • · · · · •     |                   |                                                                                                                 |
|                  |                                        | 42.3    | 42.3            | 0.1         | COAL S | TRINGER                                                                                           |              |                      |        |                                        |        |         |                |               |                   |                   |                                                                                                                 |
|                  | UNITS                                  | USED: m | a 110           |             |        | 1 R&/OR S GOLDER ASSOCIATES HARDNESS CODE                                                         |              | AN                   | SCE ME | ASURED                                 | FROM ( | ORE AX  | 15             |               |                   |                   |                                                                                                                 |
|                  |                                        |         |                 |             |        | •RQD ROCK QUALITY DESIGNATION 1%}                                                                 |              |                      |        |                                        |        |         |                |               |                   | TINUE             | $\begin{array}{c c} \mathbf{NO}, & \mathbf{LP} = \mathbf{D} \\ \hline \mathbf{NO}, & 10, \\ \hline \end{array}$ |

FILE No \$4 - 212

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# CORE & COAL CORE DESCRIPTION

| PROJECT | LODGEPOLE HOLE NO LP - D               | PAGE 4.<br>01 21 |
|---------|----------------------------------------|------------------|
| AREA    | WEST RIDGE - SOUTH SLOPE CONTINUED 101 |                  |

| <b>BOX</b> | 05010           | DEP          | TH               |            | · -      | LITHO DESCRIPTION                               | ILFERDING   | SEAM       | SAMPEF   |                     |                 | ANAL             | THCAL I      | ATA         |            |            | REMARKS                                                                                     |
|------------|-----------------|--------------|------------------|------------|----------|-------------------------------------------------|-------------|------------|----------|---------------------|-----------------|------------------|--------------|-------------|------------|------------|---------------------------------------------------------------------------------------------|
| Na         | AT<br>TOPOL     | ERUM         | <u>ю</u>         | าห         | MAIN     | AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | ANGLE       | DESIG      | No.      | MOIS                | reuduol         | A513 7/0<br>d.b. | VM. 7.       | a d h       | £.S.I      | ¥<br>Yiald |                                                                                             |
| 140        | 601<br>1        | 42.3         | 43.4             |            | CUALE    |                                                 |             |            |          | <u> </u>            |                 |                  |              | <u>u.u.</u> | ·          | 11619      | Claw of Woler Yes ()                                                                        |
|            | -               | 92.3         | 42.4             | 0.1        | SUNTE    | . <u> </u>                                      | •••         |            |          |                     |                 |                  |              |             |            |            | Indicate Depth                                                                              |
|            |                 | 42.4         | 42.4             | 0.1        | COAL     | dull                                            |             |            |          |                     |                 |                  |              |             |            |            |                                                                                             |
|            |                 |              |                  |            |          | ······································          |             |            |          |                     |                 |                  |              |             |            | ·          |                                                                                             |
| F          |                 | 42.4         | 42.4             | <u>0.1</u> | COAL     | Danded                                          | · ·         |            |          | ···· •·· — ·        | · ·             |                  |              |             | ÷          |            |                                                                                             |
| łi         |                 | 42.4         | 42.5             | 0.1        | SHALE    |                                                 |             |            |          | · · · · · · · · · · |                 |                  |              |             |            |            |                                                                                             |
|            |                 |              |                  |            |          |                                                 |             |            | ,·       |                     | a és i          | =                |              |             |            | 22 23      |                                                                                             |
|            |                 | 42.5         | 42.5             | 0.1        | SHALY C  | OAL                                             |             |            | -        | j ·                 | V, 54.,         | .2 • (0          | 41.04.       |             | · · · · ·  | 00.03      | · · · · · ·                                                                                 |
|            |                 | 42.5         | 42.7             | 0.2        | COAL     | bright: hard                                    |             |            |          |                     |                 |                  |              |             |            |            |                                                                                             |
|            |                 |              |                  | ļ          |          |                                                 | <b> </b>    |            | · ·      | <b>.</b>            | <u> </u>        |                  | <i></i>      |             |            |            | ···· <b>-</b> - · · <b>-</b>                                                                |
|            |                 | 42_7         | 42.9             | 0.2        | COAL     | bright to bright handed                         |             | •          | · — · —  | <u>}</u>            |                 |                  | ·            |             |            |            |                                                                                             |
| <u></u>    |                 | 42.9         | 42.9             | ō.1        | COAL     | dull banded                                     |             | t i        |          |                     | 1               | <b></b>          |              |             |            |            |                                                                                             |
|            |                 |              |                  |            |          |                                                 |             | · ·        |          | <b></b>             | <b>{</b>        | <b>{</b>         | <b>├</b> ──- |             |            | . <u> </u> |                                                                                             |
| 1          |                 | 42,9.        | 43.3             | 0.4        | COAL     | bright; friable; separation with shale below is | <b> </b> —- |            |          |                     |                 | <u></u> +        |              |             |            |            |                                                                                             |
|            | · · · · ·       |              |                  | 1          | <b>¦</b> |                                                 | i           |            |          |                     | · · · · · · · · | <b>I</b>         |              |             |            |            |                                                                                             |
|            |                 | 43.3         | 43.5             | 0.2        | SHALE    |                                                 |             |            |          |                     |                 | <b>ļ</b>         |              |             | ·          |            |                                                                                             |
| ļ          |                 |              |                  | <u> </u>   | COM - SK |                                                 | ļ.          | · · ·      | <u>2</u> |                     | $\bar{0.19}$    | 9.96             | ŀ            | i           | 6          | ··· ·      |                                                                                             |
| <b> </b>   | }·              | 43.3         | 43.5             | 10.1       | 0.010-51 |                                                 |             |            |          |                     |                 | [                | i            |             |            |            | · · · · · · · · · · · · · · · · · · ·                                                       |
| <u> </u>   | - <u></u>       | 43.5         | 43.8             | 0.3        | SHALE    |                                                 | <u> </u>    | I          |          |                     |                 | Į                | ļ            | ļ           |            |            | · ·-··                                                                                      |
|            | <b> </b>        | <u> </u>     |                  |            |          |                                                 |             |            | · · ·    | ┣                   |                 | ↓ ·              |              |             |            |            |                                                                                             |
| ┢          |                 | <u>113.8</u> | 43.9             | <u>0.1</u> | COAL.    |                                                 |             |            |          | · -· ·              | t               |                  |              |             |            |            |                                                                                             |
|            | i               | 43.9         | 44.0             | 0.1        | COALY S  | HALE                                            |             |            | 3        |                     | 0.47            | 10.62            | 22.24        | L           | 8.5        | 43.32      |                                                                                             |
| ļ          |                 | <b>{</b>     | ·                | <u> </u>   | f        | · · · · · · · · · · · · · · · · · · ·           |             |            | ·        | i                   | <b> </b>        | <b> </b>         | l ·          | <b> </b>    |            |            |                                                                                             |
| ┣          | <b>-</b> -, - , | 44.0         | 44.1             | 0.1        | COAL     | banded, hard                                    |             | ł          | <b>I</b> | <b></b>             |                 | ·· ·             |              | • •         | ┟╌╌╺       |            |                                                                                             |
|            | t               | 44.1         | 44.2             | 0.1        | COAL     | dull banded to dull; lower interval may be      |             |            |          | 1                   |                 |                  |              |             |            |            |                                                                                             |
|            | ŀ               |              | <u> </u>         | - I        |          | shaly(7)                                        |             | <b>-</b>   | <b></b>  | <b>.</b>            |                 |                  |              |             |            |            |                                                                                             |
| <b>-</b>   | 4 3             |              | A5 6             | 1 4        | CUNCE    | black with minor coal stringers                 | ·           |            | [        | · f · ·             | <b>∤</b>        | ÷                | ··· - ···    | <u></u>     | •···•      |            | · · ·                                                                                       |
| [.°.       | 1 1             |              |                  | 1          |          |                                                 |             | 1          |          |                     | <b>1</b>        | · · · · · ·      | ·····        |             |            |            | ······································                                                      |
| <b>.</b> ' | · · · ·         | 45.6         | 45.7             | 0.1        | COAL     | recovered only 0.08 m                           | <u>}</u>    | · <b>!</b> | <u> </u> | <b>_</b>            |                 |                  |              | <b>]</b>    | ]          |            |                                                                                             |
|            | • • • • • • •   | ,            | 1 10 1           |            | CU ICON  | required only 0 36m, observed lithe and thick   |             |            | NOTE -   | Samol               |                 | Lai 5            | malli        | v dat       |            | ased       | <u> </u>                                                                                    |
| 1          |                 | 45.1         | 40.4             | 10.3       | SHILOW   | ness: Th(m) Description                         |             | 1          |          | lon wa              | shed (          | oul at           | S,G.         | 1.5         | Ĩ          |            |                                                                                             |
|            |                 | 1            | ļ                |            |          | 0.08Coal                                        | ·           | - <b>.</b> |          | Sampl               | e 2 g           | ality            | lata         | lsbas       | d on       | the        |                                                                                             |
| 1          | <b>.</b>        | f            | į                | {          | 1        | 0.04 Shale                                      | {           | 1          | ł        | ray.s               | dmple.          | 1                | ·            |             | <u>∔</u> — |            |                                                                                             |
|            | l · ·           |              | i                | 1          | 1        | 0.02 Shale                                      |             |            | • • •    |                     |                 | 1                | · ·          |             | <u>†</u>   |            |                                                                                             |
| 1          | Ţ'              |              | <b>1</b>         |            |          | 0.02                                            |             |            |          |                     | 1               |                  |              |             | Į          |            |                                                                                             |
| <b> </b>   |                 |              |                  | Į          |          | daub coloreque generate (nercoulor ciltu        | -76         | 1          |          | <b>+</b>            | Į               | 1                |              |             |            |            | <br>Ng 3                                                                                    |
|            |                 | 190.4.       | 19775            | 1+-6       | SUMPR    | material at base of unit                        | 1-''        |            | · ·      |                     | 1               |                  | i            | <b>†</b>    | t          |            | f                                                                                           |
|            | 1               | 1            | 1                | 1          |          |                                                 | 1           | 1          | [        | 1                   |                 | Ĩ                |              | ļ           | Ţ          | l          |                                                                                             |
| 9          | 48.6            | 47.2         | 50.4             | 3.2        | SHALE    | silty interbedded with fine grain sandstone and | 1           |            |          | · · ·               |                 | Í                |              | ┣           |            | ļ          | 1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1 |
|            | L               | 1            | 1                | <u> </u>   | <u> </u> | stitstone; grey; core very solid                | <u>(</u>    | Ĺ.         | Í        | <u> </u>            | Ĺ.              | 1                | ĺ            | <u> </u>    | l          | I          | I                                                                                           |
|            | UNITS           | USED: #      | <b>GL</b> 11 (3) |            |          | T INRE/OR 5 - GOLDER ASSOCIATES HARDNESS CODE   |             | ANC        | HE ME    | ASURED              | FROM            | ORE AX           | 15           | 1           | L          |            |                                                                                             |
|            |                 |              |                  |            |          | +RQD ROCK QUALITY DESIGNATION 1%)               |             |            |          |                     |                 |                  |              |             |            | TINUE      | 101                                                                                         |

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## CORE & COAL CORE DESCRIPTION

HOLE No. LP - D CONTINUED 101 PAGE 5 PROJECT LODGEPOLE WEST RIDGE - SOUTH SLOPE AREA

| न्दिन    |             | DCD         | TL2            |               |                   | UTHO DESCRIPTION                                       |               | er s u     |              | [            |              | ANAL      | TICAL           | ATA            |               |                         | a descente t                           |
|----------|-------------|-------------|----------------|---------------|-------------------|--------------------------------------------------------|---------------|------------|--------------|--------------|--------------|-----------|-----------------|----------------|---------------|-------------------------|----------------------------------------|
| 001      | AT          |             |                | тн            |                   | AUDITOR DE COAL DE CONERY COD EACH SEAML               | ANGIE         | DESIG      | No           | MOIS         | %            | ASH %     | V.M. 7          | F.C. %         | e,s.i         | 8                       | KEWAKK2                                |
| No       | 802         | FROM        | 10             | L             | MAIN              | AMPEITED TINCLUDE COAL RECOVERT FOR FACE SPANN         |               | <b> </b>   | į            | 01.6         | rendool      | d.b.      | a.a.b.          | a. <u>a.</u> n | •             | Areta                   | fluw of Water Yerl I                   |
| 10       | 52.7        | 50.4        | 54.9           | 4,5           | SHALE             | somewhat silty; dark grey to black; 0.3 m core         |               | ļ          | <b>!</b>     |              |              |           |                 |                | ·             |                         | or Gos ? NofT                          |
|          |             |             |                |               |                   | broken into larger fragments at 52.8 m; fractur        | ųα            |            | ł            |              |              |           |                 |                | ···· •···     |                         | ROD: 70: R3                            |
|          |             |             |                | ·· ··         |                   | COTE at 55.5 In \$ 100% recovery                       |               |            | l            |              |              | · ·       |                 |                |               |                         |                                        |
|          |             | 54.9        | 56.4           | 1.5           | H/COAL            | recovered/cut: 0.40m/1.5m: 27% recovery; upper         |               | ].         | NOTE:        | Sampl        | s' 4         | s gu      | ality           | data           | l <u>s ba</u> | sed                     |                                        |
| t_ 1     |             | 4 3 4 4     |                |               |                   | portion shale - then cual                              |               | ·          |              | on wa:       | hed c        | bal at    | S.G:            | 1.5.           |               |                         |                                        |
|          |             |             |                | <b>.</b>      |                   | δ. •<br>                                               | . <u> </u>    |            | i            | <b> </b>     | Į            | · ·       |                 | I              |               |                         |                                        |
| -        |             | 56.4        | . 579          | <b>]</b> 1.5¢ | OAL/SH            | _recovered/cut:_0.30m/1.50m; 20% recovery; main1       | K             |            |              | <b>↓</b>     |              |           | ·· <del>-</del> | <u>}</u>       |               |                         | ··· —                                  |
| ŀ ·      |             |             |                |               |                   | shale; carbonaceous; few coal fragments recovere       | f             |            |              |              |              |           |                 | "              |               |                         |                                        |
|          |             |             | -              |               | ŧ                 | in upper part of interval                              | ·             | t          |              |              |              |           | ·····           |                |               | · · · · · · · · · · · · |                                        |
|          |             | 57.9        | 58.0           | 0.1           | COAL              | recovered/cut: 0.14m/0.10m: 140% recovery; larg        | <u>k</u>      | ļ.         |              | 1            |              |           |                 | l              |               |                         |                                        |
| []       |             |             |                | ļ             |                   | fragments; some may belong to previous core cut        | <b> </b>      | <b>ļ</b>   |              |              |              |           |                 | <b>.</b>       | ļ             |                         | · · · · · ·                            |
| ŀ        |             | ·           |                | ļ             | <b>_</b>          | [7]; coal is bright banded                             | l—            | <b></b>    |              | ┠            |              |           | ···             | <u></u> +      | ┠             |                         |                                        |
|          |             |             | io a           | i i           | CONT              | recovered/out: 0 20m/0 40m; 50% recovery: brigh        |               | } ·        | 4            |              | 1.14         | 3.68      | 23.25           | <u> </u>       | 6.5           | 88.32                   |                                        |
| - · · -  | • •=••      |             |                | 0.1           |                   | throken                                                | F             | † -        | · · · · ·    | ·            | 1            |           |                 | <u> </u>       |               |                         |                                        |
|          |             |             |                | Í             |                   |                                                        |               | Ľ          |              | 1            |              |           |                 | [              |               |                         |                                        |
|          |             | 58.4        | 58.8           | 0.4           | COAL              | recovered/cut: 0.40m/0.40m = 100%; bright; soft        | <u>ا</u>      | <u> </u>   | I            | <b>!</b>     | ļ            | ļ         |                 | <b>i</b>       | <b> </b>      | <b></b> .               | · ·· · ·                               |
| L        |             |             |                | 1             |                   | small fragments to pulverized                          | <b>.</b>      |            | ·            | I            | <b>_</b>     |           |                 | ···            |               |                         |                                        |
| ŀ        |             |             | 50 4           | 6-            | CON               | $r_{accurrent/outs} = 0.60 m/0.60 m^{2} 1000 recovery$ |               |            | i            |              | <u> </u>     |           | ł ——            | ł              |               | · ·                     |                                        |
| <u> </u> | 29.1        | 20.8        | 39.4           | 10.0          |                   | sheared to pulverized: 0.03 m harder coal in           | <u>†</u> • ·· | <u> </u>   | i            |              | 1            | f         | <b>i</b>        | <b> </b> ·     | <u></u>       |                         | t                                      |
|          |             | f ···-·     | l ~ - —        |               | 1                 | lower half: bright                                     |               | 1          |              |              | <u></u>      | 1         | <b>I</b>        | <u> </u>       |               | I                       |                                        |
|          |             |             | [              |               |                   |                                                        | <b>[</b>      |            |              |              | 1            | 1         | [               | f              | <u>بہ</u> ہے۔ |                         | <b>.</b>                               |
| L        |             | 59,4        | 60.2           | 0.8           | COAL              | recovered/cut: 0.80m/0.80m = 100% recovery;            |               | <b>I</b> . |              |              | 0.57         | 6.06      | 20.50           | <b> </b>       | 6.0           | 63.47                   |                                        |
|          |             |             |                | ł —           | <b> </b>          | <u>bright(?)</u> ; sheared with some slightly harder   |               | <b>.</b>   | [ _ <u>?</u> | · ·          | ·            |           |                 |                | <u>}</u>      | <u></u> ~               |                                        |
|          |             | <u></u>     | <b>}</b> -•·── |               |                   | thin sections                                          |               | h          |              |              | 1            |           |                 |                | <u> </u>      | <u> </u>                | ····                                   |
| ţ        | · ·· —      | 60.2        | 60.4           | 0.2           | SHALE             | carbonaceous                                           |               | 1          | 6            | 1            | 0.11         | 37.90     |                 | <u> </u>       | 0             |                         |                                        |
| <u>t</u> |             | YY A        |                |               | 1                 |                                                        | ĺ             | 1          |              | 1            | ·            |           | [               |                |               | <u> </u>                |                                        |
|          |             | 60.4_       | 60.5           | 0.1           | COAL_             |                                                        | <b> </b>      | I          | ļ            | ╡───         | <u> </u>     |           |                 | <b> </b>       | +             | <b>ļ</b>                |                                        |
|          |             |             |                | 1             |                   | ft. make som to black, som (s broken and               |               | <b>.</b>   |              | ·            |              |           | ŀ ·             | <u> </u>       | ·             | <b>∤∙</b> —… →          |                                        |
| μ2       | 62.5        | 60.5        | 64.0           | 13.5          | 55                | Tine grain; grey to black; core is broken and          |               | ·          | i            | <b>↓</b> · − | f            | ·         |                 | 1              |               |                         | MOD: 10; K3-                           |
| }        | - — ·       | <u></u> } ─ | <u>+-</u> ·•   | ╉──           | <b>+</b>          |                                                        |               | †          | · [          |              |              | ţ         |                 | †              |               | j                       | •••••••••••••••••••••••••••••••••••••• |
|          |             | 64.0        | 65.5           | 11.5          | SS                | as above                                               | <u> </u>      |            | NOTE         | Samp         | le 6 d       | pality    | data            | is ba          | sed o         | h                       | <u>R3</u>                              |
|          |             |             | I              |               | 1                 |                                                        | <u>L</u> .    | <u> </u>   | <b>_</b>     | the          | aw se        | pie.      |                 | ļ              |               | ļ                       | <b>.</b>                               |
|          |             |             |                | - <b> </b>    |                   | <u></u>                                                |               |            |              | +            |              |           |                 | <b> </b>       | ╀──           | 4                       |                                        |
| 13       | <u>66.3</u> | 65.5        | 67.4           | 11.9          | <u>ss</u>         | fine grain; grey to black; calcareous cement;          | 1_70          | ·          |              | <u>}</u>     | - · · ·      | +         |                 | ŧ              | -+            | +                       | 1400; 65; <u>83</u>                    |
|          | ·           |             | ł              | · • • - •     |                   | <u>calcite infitting in itactures; cross-pended .</u>  | <b>j</b>      | ·          |              | <b></b>      |              | · • · · · |                 | <b>1</b> ·- ·  |               | 1                       |                                        |
| <b>I</b> | · .         | 67.4        | 67.5           | 0.1           | SHALE             | with minor coaly debris: black; slickensided           | 1             |            | 1            | 1            | 1            | † .       |                 |                |               | 1.                      |                                        |
|          |             | 1           | _              |               | 1                 | surfaces; core is rubbly and broken                    |               |            |              |              | 1            |           |                 | .L             | 4             | <b>I</b>                | · · · ·                                |
|          | ļ           |             |                | 1             |                   | 1                                                      |               | <b>.</b> . | 1            |              | 1            |           |                 | <b>.</b>       |               | -                       |                                        |
|          |             | 67.5        | 67.7           | Q, 2          | SHALE             | black; calcareous cement; minor coaly debris           |               |            |              | · • • •      | - ·          |           |                 | ┨              |               | 4 ·                     |                                        |
| - ··-    | Į .—        | ł           | <u>+</u>       | · • ·         | · [ · · · · · · · | Within interval                                        | ÷.            |            | 1            |              | •            |           |                 | <u>+</u>       | · † · ·       | 1                       |                                        |
|          | <u>۱</u>    | 67.7        | 68.0           | 0.3           | SLTST             | very fine grain; black; calcareous cement              | ł             |            |              | 1 · · ·      | 1            | 1         | 1               | 1              | -             | 1                       | 1                                      |
| 1        | -·          |             |                | [             | I                 | 1                                                      | ł             |            |              | 1            |              | 1         |                 |                | 1             |                         |                                        |
| Ĩ.       | ]           | 68.0        | 70.6           | 2.6           | ss                | fine grain; dark grey; calcareous cement; cal-         | 1             |            |              |              |              |           |                 | -              |               | Į                       | l                                      |
| <b>L</b> | *           |             |                |               | •                 | - CIES INFILLING OF FRACEWORF LANDAUSS CODE            | н <b>с</b> .  |            | :<br>        |              | 1.<br>1808 - |           |                 | <b>.</b>       |               |                         | · ···································· |
|          | V/113       | V3LV: #     |                |               |                   | +ROD ~ ROCK QUALITY DESIGNATION (%)                    | -             | -          |              |              |              |           |                 |                | HC            | DLE N                   | <b>10</b> . LP - D                     |

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FRE No 84 -212

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# CORE & COAL CORE DESCRIPTION

LODGEPOLE WEST RIDGE - SOUTH SLOPE

PROJECT

AREA

HOLE No LP - D CONTINUED D

|               |                             | 50               | The        |     | ·        |                                                                                                                                            |                  | SEAM    | SAMPLE                                |                                       |           | ANALY           | HCAL D                                | ATA         | <u> </u> |            | REMARKS'                                              |
|---------------|-----------------------------|------------------|------------|-----|----------|--------------------------------------------------------------------------------------------------------------------------------------------|------------------|---------|---------------------------------------|---------------------------------------|-----------|-----------------|---------------------------------------|-------------|----------|------------|-------------------------------------------------------|
| 8U/           | AI<br>TOPOF                 | EPOM             | ил<br>ИЛ   | 1H  |          | AMPLIFIED LINCLUDE COAL RECOVERY FOR EACH SEAM)                                                                                            | ANGLE<br>[*]     | DESIG   | No                                    | MOIS                                  | residual  | a.b.            | 1.d.b.                                | 1.d.b.      | г, 5 н   | Yield      |                                                       |
|               | NON<br>ONT.                 | 68. <u>0</u>     | 70.6       | 2.6 | ŞS .     | at 69.22 - 69.95 m depth core is disturbed;<br>slickensided; badly broken ; RQD: 21                                                        |                  |         |                                       |                                       |           |                 |                                       |             |          |            | Flow at Water YesEl<br>or Gas? No[]<br>Indicate Depth |
| · ·           | · ·-                        | 70,6             | 70.7       | 0.i | SLTST    | ······································                                                                                                     |                  |         |                                       |                                       | ĺ         |                 |                                       |             |          |            |                                                       |
| .14           | 70.7                        | 70.7             | 71.6       | 0.9 | SLTST    | fine grain; dark grey to black; very homogeneou solid core                                                                                 | 80               |         | · · · · · · · · · · · · · · · · · · · | · · · · · · · · · · · · · · · · · · · |           | <br>            |                                       |             |          |            | · · · · ·                                             |
| · ··          | <br>                        | 71.6             | 73.6       | 2.0 | SLTST/S  | 5 siltstone and fine grain sandstone interbedded<br>fine grain; dark grey with light grey sandstone<br>laminations                         | <br><br>         |         | <br>                                  |                                       |           | · -<br>···<br>  | · · · · · · · · · · · · · · · · · · · |             |          |            | R3; RQD: 93                                           |
|               | ·····                       | 73.6             | 73.6       |     | COAL S   | TRINGER                                                                                                                                    |                  |         |                                       |                                       |           |                 |                                       |             |          |            | · · · · · · · · · · · · · · · · · · ·                 |
|               |                             | 73.6             | 74.0       | ö.  | SHALE    | plack; hard                                                                                                                                |                  |         |                                       |                                       |           |                 |                                       |             |          |            | · · · · · · · · · · · · · · · · · · ·                 |
|               |                             | 74.0             | 74.2       | a.: | COAL     | banded                                                                                                                                     | <u> </u> −       | ·       |                                       |                                       |           |                 |                                       | ·•          | ·        |            | · · · · · · · · · · · · · · · · · · ·                 |
|               |                             | 74.2             | 74.3       | 0.  | SHALE    | black; hard                                                                                                                                |                  |         |                                       |                                       | +         |                 |                                       |             |          |            | · · · · · · · · · · · · · · · · · · ·                 |
|               |                             | 74.3             |            | 0.1 | COAL     | with minor black shale partings                                                                                                            | - <b> </b> -<br> |         | · ·                                   | ·\$                                   |           |                 | <br>                                  | ·i          |          | ,<br>,     | · · · · · · · · · · · · · · · ·                       |
| -             |                             | 74.5             | 74.6       |     | CONL     | sheared with thin shale partings                                                                                                           |                  |         |                                       |                                       |           | ļ-<br>          |                                       |             |          |            |                                                       |
| .15           | 74.9                        | 74.8             | 75.4       | 0.  | 6 SHALE  | with two minor coal stringers                                                                                                              |                  |         |                                       |                                       |           |                 |                                       |             |          | ··· _··· · |                                                       |
| 16<br>17      | 79.7<br>83.4                | 75.4             | 84.6       | 9.  | 2 SLTST  | fine grain; dark grey to black; interbedded<br>with fine grain sandstone; very homogeneous;<br>solid core • 2 joints in close prominity at | 85               | - 4<br> | · · · · · ·                           |                                       |           |                 |                                       |             | <br>     |            | R3; RQD: 87                                           |
|               |                             | -                |            | -   |          | 77.7.m.at.10 to core axis                                                                                                                  | <br>             |         |                                       | ·                                     | -         | <b>†</b>        | <br>                                  | <br>        |          |            | · · · · · · · · · · · · · · · · · · ·                 |
|               | ···-                        | 84.6             | 85.0       | 0.  | 4 COÁL   | recovery: 50%; sheared to pulverized; bright                                                                                               | 1_               |         |                                       |                                       |           | 1               |                                       |             |          |            |                                                       |
|               |                             | 85.0             | 85.6       | 0.6 | COAL     | recovery: 42%; coal and shale fragments;<br>shale is slickensided; coal is dull                                                            |                  |         | . 7                                   |                                       | 0.63      | 6.48            | 20.84                                 |             | B<br>    | 27.19      | ······································                |
| <br>          |                             | 85,6             | 86,2       | 0.6 | COAL     | recovery: 23%; flaky and sheared; very soft; shiny                                                                                         |                  |         |                                       |                                       | · · · · · |                 |                                       |             | -1       |            |                                                       |
|               |                             | 86,2             | 86.3       | 0.1 | SHALE    | black; hard; silty                                                                                                                         |                  |         | NOTI                                  | Sar<br>Was                            | iple 7    | qualit<br>ai at | data<br>S.G.                          | is b<br>1.5 | ased     | ðn<br>-    | · · · · · · · · · · · · · · · · · · ·                 |
| 10<br>1'<br>2 | 88.<br>92.<br>9 <b>96</b> . | 2 86.3<br>1<br>0 | 96.1       | 9.4 | 3 SLTSTŽ | SH siltstone and fine grain - medium grain sand-<br>stone interbedded; fine grain; dark grey with<br>light grey sandstone laminations      | · · · · ·        |         |                                       |                                       |           |                 | · ····                                |             |          |            | R3; RQD: 55                                           |
|               |                             | -                |            |     |          | 10 promiment fractures in this interval;<br>measured from core axis: 1 set is at 40;                                                       |                  |         | _                                     |                                       |           |                 |                                       |             |          |            |                                                       |
| <b>L</b> _    | UNIT                        | USED             | m 29 ft C? |     |          | t #R&/OR 5 GOLDER ASSOCIATES HARDNESS CODE<br>+RQD ROCK QUALITY DESIGNATION 1%}                                                            | 4                | A AN    | GLE M                                 | EASURED                               | FROM      | CORE AX         | 15                                    |             | HC       |            | <b>VO</b> . LP - D<br>101                             |

FILE No BA 212

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## CORE & COAL CORE DESCRIPTION

 PROJECT
 LODGEPOLE

 AREA
 WEST RIDGE - SOUTH SLOPE

HOLE No LP - D OF 21

| 1001       |          |                                       |                  |          |               |                                                                                                                                                                     |             |                      |          | r              |             | ANAL           | VIICAL O     | ATA      |                    |                                            |                                               |
|------------|----------|---------------------------------------|------------------|----------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|----------|----------------|-------------|----------------|--------------|----------|--------------------|--------------------------------------------|-----------------------------------------------|
| BOX        | AT 14    |                                       | 1.11             | тн       |               |                                                                                                                                                                     | ANGLE       | DESIG                | No       | MOIS           | %           | ASH 7          | VM. %        | FC %     | E.S.I              | 8                                          | REMARKS                                       |
| No.        | 8070     | FROM                                  | 10               | L        | MAIN          | AMPLIFIED (INCLUDE COAL RECOVERT FOR EACH SEAM)                                                                                                                     | <u>  !!</u> | <u>i</u>             | i        | <u>a ; b.</u>  | residuol    | d.b.           | a.d.b.       | a.d.h    | <u> </u>           | Yield                                      | Slow of Wester Yest                           |
| []         | ont_     | 86.3                                  | 96.1             | 9,8      | SLST/SS       | 1 set is at 20 ; 1 fracture lies walong core                                                                                                                        | Ļ           |                      |          | <b>_</b>       |             |                |              |          |                    |                                            | or Gos ? No[]                                 |
| ┡╶┤        |          | · · · · · · · · · · · · · · · · · · · |                  |          |               | axis; 1 fracture at 88                                                                                                                                              |             |                      |          |                |             | ·              | ·            |          |                    |                                            |                                               |
| <b>}</b> ∤ |          |                                       |                  | [ ·· ]   |               | ■ at 89.2 m - 89.8 m > Joint's at in to core                                                                                                                        | í           | (                    |          | <b>}</b> —     |             | ĺ              |              |          |                    | ··· – –                                    |                                               |
| 1 ··· 1    |          |                                       |                  |          |               | axis                                                                                                                                                                |             | 1                    |          | ···· ·         |             |                |              |          |                    |                                            |                                               |
| 1          | •        |                                       |                  | ·        |               | • at 93.3 - 93.9 m 3 joints at 10 to core                                                                                                                           |             |                      |          |                | -<br>-      |                |              |          |                    |                                            | <u> </u>                                      |
| [`` [      |          |                                       |                  | ļ        |               | axis broken core                                                                                                                                                    |             | ļ !                  | ·        | ļ              |             |                | l            |          |                    |                                            |                                               |
| Į          |          |                                       |                  |          |               | • at 94.3 m joint at 10                                                                                                                                             |             | · _ ·                |          | 4 —            |             |                |              |          |                    | · · · ·                                    |                                               |
| [[         |          | { ·                                   | ſ                |          | f             | • at 95.7 m minor movementslickensided                                                                                                                              | 1           | 1                    |          | f · · ·        | [-·· ·      | f · ·· -       | [            |          | f- ·               | · ·                                        |                                               |
|            |          | f                                     | i                |          |               |                                                                                                                                                                     |             | ·                    |          | <u> </u>       | · ···       |                |              |          |                    |                                            |                                               |
|            |          | 96.1                                  | 97.8             | 1.Z      | COAL          | recovery: 91                                                                                                                                                        | <u> </u>    |                      |          | ]              |             |                |              | ·        |                    |                                            |                                               |
|            |          |                                       |                  | Į        |               | Th(m) Description                                                                                                                                                   |             |                      |          | <b>_</b>       |             |                |              |          |                    |                                            | · · · · · ·                                   |
| 1          | •        |                                       | <b>.</b>         |          | }             | 0.30 Shale and coal fragments                                                                                                                                       | ·           |                      |          | ┨────          |             | <b>i</b> .     |              | ┣───     |                    | · — -                                      | /                                             |
| 1          | · · •    | f · -··                               | {·· ··           | 1        |               | $\begin{array}{cccccccccccccccccccccccccccccccccccc$                                                                                                                | 1           |                      | [ ·      | f              | f ·         | · ··           |              | [···     | t ——               |                                            |                                               |
| · -        |          |                                       | <u>.</u> .       |          | ····          | 0.12 Coal; dull banded                                                                                                                                              |             |                      |          |                | <b>I</b>    |                |              |          |                    |                                            |                                               |
|            |          | 1                                     |                  |          |               | 0,14 Shale; hard; slickensided; black                                                                                                                               |             |                      | I        | <b></b>        | 1           |                | ·            |          | L                  |                                            |                                               |
| L          |          |                                       | <b>.</b>         | l        | <b> </b>      | 0.05 Shaly Coal                                                                                                                                                     |             |                      | .8       | ·              | 0.41        | 9.20           | <u>19.44</u> | i        | 7.5                | 43.42                                      |                                               |
|            |          | <b> </b>                              | ¦                |          | L             | 0.18 Coal; flaky; soft; bright; sheared                                                                                                                             | 4           |                      |          |                | · ·         | ł. –           |              | <u>-</u> |                    |                                            |                                               |
| I          |          | · ·                                   | f                |          |               | <u>10.64 Coaly Shale</u>                                                                                                                                            | {···-       | [· · ·               |          |                |             | <u></u> {- · · | {··          | [        | <b> </b>           |                                            | ··- · ··-                                     |
| 1          |          | t                                     | <u>+</u>         | · • ·    | · ··-         | 0.33 recovered 0.17 m only; coal; dull                                                                                                                              | 1           | <b>i</b>             | [        | 1              |             |                | 1            |          | 1:                 |                                            |                                               |
|            |          | 1                                     | 1                |          | 1             | banded                                                                                                                                                              |             |                      |          | <b>.</b>       |             | l              |              |          | <u></u>            | <b>_</b>                                   | <b>]</b>                                      |
| I          |          | <u> </u>                              |                  | <b> </b> | Į             |                                                                                                                                                                     |             |                      | NOTE     | Sam            | ple B       |                | y data       |          | ased               | pn<br>//////////////////////////////////// | 500. J2                                       |
|            | ·        |                                       | <b>}</b>         |          | <b> </b>      | NOTE: separation with floor> GOOD                                                                                                                                   | • • • • •   | · <del> </del> - · · |          | was            |             |                | <u>p</u>     |          | <b>∤</b> .−−−      |                                            | KUU. 12                                       |
| <b>[</b>   |          | 97.8                                  | 99.3             | fi.s     | SLTST         | fine grain; grey to black; core is broken and                                                                                                                       | f           | 1                    |          | 1              | t           | 1              | (            | f        | [                  | f                                          | 1                                             |
|            |          |                                       | 1                |          |               | rubbly                                                                                                                                                              |             | <u> </u>             |          | 1              | 1           | 1              | I            |          |                    | [                                          |                                               |
|            |          |                                       | [                |          | 1             | ······                                                                                                                                                              | - <b>L</b>  | 1                    |          |                |             | ļ              | ÷            | <b> </b> | <b>-</b>           | <b>]_</b>                                  |                                               |
|            |          | 29.3                                  | 99.8             | 0.5      | SLTST         | fine grain; grey to black                                                                                                                                           |             | +                    |          | ·+· _ ··       |             | <u>∔</u>       | ╊—           | <b> </b> | ┧                  | ┣───                                       | <b>_</b> ·· <b>_</b> ·· <b>_</b> · <b>_</b> - |
|            | - 1      | 66 8                                  | - <u>69. 9</u> . | 10.1     | COAL          | 9TRINGER                                                                                                                                                            |             | - <u>†</u>           | <u> </u> |                | ·           | <u>}</u>       |              |          | ╉┈──               | ┨                                          | <b></b>                                       |
|            |          | 22.00-                                | · ·····          | 1        | 1             |                                                                                                                                                                     | -           |                      |          | 1              |             | 1              |              | 1        | 1                  | •                                          |                                               |
| 21         | 100.3    | 99.9                                  | 100.6            | 0.7      | SLTST         | fine grain; grey to black • at 99.4 m shale                                                                                                                         |             |                      |          | <b></b>        |             |                |              |          | Į                  | L                                          | R3                                            |
| 1          |          | <b>.</b>                              | l                |          |               | stringer; slickensided; sheared to flakes                                                                                                                           |             |                      | {        | -{·· ·         | . <b>.</b>  | 4              | ·}•          | <u> </u> | +                  | <b> </b>                                   | . <u> </u>                                    |
|            |          |                                       |                  |          |               | e in total, interval has 9 joints                                                                                                                                   |             | · • •                |          | +              | · · · · ·   | ·              | }            | <b>-</b> |                    | 1                                          | ·                                             |
| 1          |          | }                                     | · · ····         | <u>j</u> | • • • • • • • | W IN COLARY INCOLVER HAS 7 JOINED                                                                                                                                   | -}          |                      | }        | - <del>[</del> | •••••       | · • • • •      | ·            | t        | <u>†</u>           | <b>j</b>                                   | t                                             |
| 1          | ··       | 100.6                                 | 102.9            | 12.3     | SLTST         | as above • at 100.6 m disturbance bro                                                                                                                               | ken         | 1                    |          | 1              | 1           | 1 .            |              |          | 1                  | 1                                          |                                               |
|            |          | I                                     | I                |          | 1             | core                                                                                                                                                                | 70          | _                    |          | <b>.</b>       |             |                |              | l        | - <b> </b>         |                                            |                                               |
|            |          |                                       |                  |          |               | • at 100.8 m coaly shale sheared                                                                                                                                    |             | 1                    |          | ł              |             |                | 1            |          | · <b>-</b> · · · - |                                            | · { · · · · · · · · · · · · · · · · · ·       |
|            |          |                                       |                  | 1        |               | L flaky 0.03 m thick                                                                                                                                                | · • -       | ł                    |          |                | ł           | · · ·          |              | <b>}</b> | +                  | <b>∔</b> =                                 | · · · · · · · · · · · · · · · · · · ·         |
| }          |          | · ···                                 | 1 · · ·          | 1.       | · · · · ·     | AC 104.1 B DIDKES COLE                                                                                                                                              | <u>}</u> :  | ·   ·                |          | · •            |             | ţ              | ·            | ţ—-      | <b>1</b>           | j - ···                                    |                                               |
| Ľ          |          | 102.9                                 | 103.5            | 10.6     | SLTST         | fine grain; grey to black, very badly broken                                                                                                                        |             | 1                    | 1        |                | 1           | Į              | 1            | 1        | 1                  | 1_                                         | 1                                             |
|            | [        |                                       | 1                | 1_       | ļ             | core: at 103.2 m clay brown soft                                                                                                                                    |             | _                    | 1        |                | <b>I</b> .  | Į .            | I            | 1        |                    | 1 <sup></sup>                              | ļ                                             |
| <b> </b>   | <b>.</b> |                                       |                  | 1        | 1             | 0.03 m thick                                                                                                                                                        |             |                      | -        |                | 1           |                | 1            |          | - <b>-</b>         | ł                                          |                                               |
| +          |          | lui -                                 | line a           | <b>.</b> |               | black, ditty, slickensided, core broken into                                                                                                                        |             |                      | 1 ·      |                | 1           | 1              | <b>1</b>     | +        | ł —                | 1                                          |                                               |
| F          |          | 1 18512                               | 104.3            | 10.6     | ) STALL       | 1 0.02 - 0.04 m thick intervals: slickensided                                                                                                                       | ł           | 1                    | ļ        | 1              |             | ţ              | ·            | ]        | 1                  | 1                                          |                                               |
|            | L        | J                                     | I,               | L        | 1             | planes at 60 78 to core akis                                                                                                                                        |             | <b>.</b>             | 1        | 1              | 1_          | J              | <u> </u>     | <b></b>  | 1                  | L                                          | <u> </u>                                      |
|            | UNITS    | U\$ED: #                              | GR €D            |          |               | t -R&/ORS - GOLDER ASSOCIATES MARDNESS CODE                                                                                                                         |             | ANG                  | REME     | ASURED         | FROM (      | ORE AX         | 15           |          | Гис                | NE N                                       |                                               |
|            |          |                                       |                  |          |               | *ROD - ROCK QUALITY DESIGNATION (%)                                                                                                                                 |             |                      |          |                |             |                |              |          |                    | TINGT                                      | 101                                           |
|            | UNIIS    | USED: "                               | Gr fi D          | <u> </u> | <u> </u>      | 0.02 - 0.04 m thick intervals; slickensided<br>planes at 60 - 78 to ope and a<br>t arg/ors - golder associates mardness code<br>argo - rock quality designation (%) |             | ANI                  | не ме    | ASURED         | L<br>FROM ( | ORE AX         | 15           | ]        |                    |                                            | <b>NO.</b> LP - D<br>101                      |

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## CORE & COAL CORE DESCRIPTION

| PROJECT | LODGEPOLE                | HOLE No.  | 1,P - 1) | PAGE H |
|---------|--------------------------|-----------|----------|--------|
| ARFA    | WEST RIDGE - SOUTH SLOPE | CONTINUED | 101      |        |

| 8OX              | NEPTH    | DE                | ртн          | T                | <u> </u>                                 | LITHO DESCRIPTION                                | MOON       | SFAM       | SAMPLE            |            |              | ANAL     | TICAL     |               |                                       |                                        | DEMARK                  | . I              |
|------------------|----------|-------------------|--------------|------------------|------------------------------------------|--------------------------------------------------|------------|------------|-------------------|------------|--------------|----------|-----------|---------------|---------------------------------------|----------------------------------------|-------------------------|------------------|
|                  | AT       |                   |              | [1H]             |                                          | AND LET LANGUAR COAL RECOVERY SOR FACH SEAMS     | ANGIF      | DESIG      | No                | MOIS       | %            | ASH %    | V.M. %    | [f C /4       | F.S.E                                 | 8<br>Mi - 1.4                          | REALINES.               | ŕ                |
| No               | NON      | FROM              | 10           | <u> </u>         | MAIN                                     | AMPLIFIED FINCLUDE COAL RECOVERT FOR EACH SEAMIN | <u>,</u>   | Į          | !                 | 0.6.0      | Lerignoj     | 000      | .a.b.     | a.o.c         | •                                     | 31610                                  |                         | <u>()</u>        |
| 21               | 104.4    | 104.3             | 110.6        | 6.3              | SLTST                                    | fine grain: dark grey to light grey: laminated   |            |            |                   | L          |              |          |           |               |                                       |                                        | er 6017                 | Null             |
| 23               | 108.5    |                   |              |                  | 1                                        | with thin; fine grain, sandstone beds            |            | 1          |                   |            |              |          | <b>.</b>  |               |                                       |                                        | Indicate Depit          | · 1              |
|                  |          |                   |              | i                |                                          | • at 107.6m - 108.8 m interval is somewhat.      |            |            | Í                 |            |              |          |           | 1.0.1         |                                       |                                        | 4                       |                  |
|                  |          |                   |              | 1 -              |                                          | shaly                                            |            |            | l .               |            |              |          |           |               |                                       |                                        | 1                       |                  |
|                  | -        |                   | Ι            |                  |                                          | • at 106.6 m - 106.7 m 0.10 m coal               | 1          | Í          |                   |            |              |          |           |               | <b>_</b>                              | ·_ ·                                   |                         |                  |
|                  |          |                   |              | 1                |                                          | • at 105.5 m                                     | + 75       | <b>!</b>   | ·                 |            |              |          |           |               | <b> </b>                              |                                        | RJ                      |                  |
|                  |          |                   | L            |                  | 1                                        |                                                  |            | <u> </u>   | I                 |            |              |          |           | <u>ــــــ</u> |                                       |                                        |                         |                  |
|                  |          | 110.6             | 111.4        | 0.8              | SS                                       | fine grain; grey; minor fractures infilled with  | 1          |            |                   | Į          |              |          |           | ┦──           | ···                                   |                                        | 5A                      |                  |
|                  |          |                   | 1            | 1                | 1                                        | calcite                                          |            | ļ          | 1                 |            |              |          |           | ·             | · · · · · • • •                       |                                        | 1.1.1                   | <b>-</b> -       |
|                  |          |                   | 1            | <b>.</b>         |                                          | ·····                                            |            |            |                   | I          |              | <b>.</b> |           |               | <u></u>                               |                                        |                         |                  |
| 4                | 112.8    | 111.4             | <u>h13.8</u> | 2.4              | SLTST.                                   | fine grain; dark grey; with fine grain, thin     |            | 1          |                   |            |              | <b>↓</b> | l         |               |                                       |                                        | KODI TOO                | ÷                |
|                  |          |                   | l            | · <b>↓</b> · _ · | \$                                       | sandstone laminations; more shaly at bottom of   | i          |            | ·                 | <u>}</u>   | · · -•       | [· ···   | ł         | ┫───          | ╂───                                  | •••••••••••••••••••••••••••••••••••••• |                         | A                |
|                  |          | <b> </b>          | <b>1</b>     |                  | <b>↓</b>                                 | interval                                         |            |            |                   | ł          | <b>-</b> - · |          |           |               |                                       |                                        |                         |                  |
| ·                |          |                   | 1.555        | 10.00            | -                                        | black, carbon scouge, good separation with roof  |            | <b>∤</b>   | NOTE              | - Same     | le 9         | dualit   | ÿ "da€a   | 15 b          | sed a                                 | ā                                      | BOD . 0 . 12            | <u></u>          |
| .                | · - ·    | 112.8             | 1775'8       | 10-1             | 1 <u>ຈໍຄາກມະ</u>                         | of coal seam                                     | ·   · · ·  | 1          | · · · · · · · · · | µaeł       | ed co        | ai at    | 6.G. 1    | 1.5           | t                                     | <b>i</b> · <b>-</b> · · · · ·          | 1 1 1 2 2 2 2 2 3 1 2 2 |                  |
| •                |          |                   | 1 · ·        | ·t ··            |                                          |                                                  | -[         | ł          | 1                 | 1          | <u> </u>     | <u> </u> | [ <u></u> | 1             | 1                                     | <b>-</b> '                             | 1                       | ·                |
| 5                | 18 3     | 111.0             | 1119.2       | 5.3              | CONL                                     | Recovered/Cut:3.80/5.27 m : 72% recovery         | 1          | 1          | ···               | 1          | ···          | l        | [ ···     | 1             | [                                     | 1                                      |                         |                  |
| <del>،</del> ، • |          | 1***** <u>*</u> _ | 1 *****      | T T              |                                          | Th(m) Description                                | 1          | 1          | 1                 | 1          | [            | I        | 1         |               |                                       | [                                      | 1.                      |                  |
| :                |          | 1· · ·            | 1            |                  | t- · · · · · · · · · · · · · · · · · · · | Cut Lost                                         | -          | 1          |                   |            |              | 1        |           |               | [                                     | 1                                      |                         |                  |
|                  |          | t                 | t ·····      | -1               | 1                                        | 0.40 0.15 Coal: lost core probably in mid        |            |            |                   | 1          |              | 1        | Γ         | 1             | 1                                     | 1                                      |                         |                  |
| • •              | ··· ·    |                   | 1            | 1                | T                                        | interval: recovered 0.25 m                       |            | Ĩ          |                   | Ľ          |              | I        |           | [             | 1                                     | <b>]</b>                               |                         |                  |
|                  |          |                   | 1            |                  | 1                                        | 0.80 0.30 Coal:                                  |            | <b>.</b>   |                   | <u> </u>   |              | L        | I         | . <b>.</b>    | ļ                                     | <b>!</b>                               | 1                       |                  |
|                  |          |                   |              | 1                |                                          | 0.13m Coal; dull; flaky                          | 1          |            | I                 | <b></b>    | <b>.</b>     |          | Į         |               | <b>.</b>                              | L                                      |                         | ]                |
|                  |          | <u> </u>          |              |                  | I                                        | 0.12m Shale; slickensided                        |            | <b>_</b>   |                   |            |              | I        | <b> </b>  | · · ·         |                                       | <b>.</b>                               | ·                       |                  |
|                  |          | 1                 | <u> </u>     |                  | 1                                        | 0.25m Coal; shiny; flaky; sheared                |            |            | 1.                |            |              |          |           | <b>i</b>      | ·                                     |                                        |                         |                  |
|                  | l        | ļ                 |              | . [              |                                          | 0.70 0.12 Coal, lost core probably at top of .   |            | . <b>.</b> | 1                 | -          |              | <b></b>  | ŧ         | <b> </b>      | - <u>}</u>                            | <b>∤</b>                               | -{                      |                  |
|                  |          | <b>.</b>          | I            |                  | 1                                        | interval                                         | -1         |            |                   |            |              | ····     |           |               | ·}                                    | {                                      | ·                       | {                |
|                  |          |                   | 4            | - <b> </b>       |                                          | 0.48m Coal; bright to bright-banded              | <b>; .</b> | . <b>!</b> |                   |            | ┫            |          |           |               | 1                                     | ┫                                      |                         | ·· ·· <b>_</b> . |
|                  |          | · [               |              | +                |                                          | good core but FRAGILE; SOIL a                    | nd         | +          |                   |            | 1 5 2 3      | 7 99     | 10 70     |               | 6 0                                   | 67 73                                  |                         | {                |
|                  |          | ·                 | · <b> </b>   |                  | -{ <i>-</i>                              | pyritic at top of interval                       |            | - <b>-</b> | 3                 |            | 1.0.03       | 1,100    | f 219     | +             | 10.0                                  | 101112                                 | · ·                     |                  |
|                  |          |                   |              |                  | -{                                       | 0.02 Cash bright                                 |            | -          |                   | +          | 1            | · ·      |           | ·†—           |                                       | <b>i</b>                               |                         |                  |
|                  |          | f                 |              | -f-              | ·{                                       | V CO O CO O Cool, bright handed, hard            | - †        | · f ·      | - E               | ·í ·       | f            | 1        | f ·       | f             | ·                                     | f · · · · · ·                          | t · ·                   | ·1               |
|                  | •••••    | 1                 | <b>₽</b>     | · • ·            |                                          | 0 15m Coal; bright banded; fragile               | 1          | -          |                   |            | t            | 1        | 1         |               | 1                                     | <b>†</b>                               |                         | · 1              |
|                  |          | t                 |              |                  |                                          | 0.80m Coal: banded to bright banded              | 1          | · [·       |                   | <b> </b>   | 1            | 1        | 1         | 1             | · · · · · · · · · · · · · · · · · · · | 1                                      |                         |                  |
| • •              | 1        | 1                 | 1 ·          | 1                | }                                        | soft: fragile: crumbles to sm                    | ali        | 1          | I.                |            |              | 1        | 1         |               |                                       | 1                                      |                         |                  |
|                  | 1        | 1                 | 1            | 1                |                                          | fragments: good core                             | T          |            | 1                 |            | E.           | 1        |           |               |                                       | L                                      | 1                       |                  |
| -                | 1        | J                 |              | 1 7              |                                          | 0.30m Coal; crushed; pulverized at               |            | 1          |                   |            | 1            | 1 .      | 1         |               |                                       | ļ                                      | ]                       |                  |
|                  | 1        | 1                 | 1            |                  | ]                                        | base of unit                                     |            | 1          | <b>.</b>          |            | I            |          | <b>.</b>  | 1             | . <b>j</b>                            | <b>.</b>                               |                         | <b>_ ]</b>       |
|                  | I        | 1                 | 1            | 1                | 1                                        | 1.60 0.68 Coal; lost core probably at top of     | Į          |            |                   | 1          |              | 1        | [         |               |                                       |                                        |                         |                  |
| -                |          |                   |              | 1                | I .                                      | interval, lower segment of core                  |            |            | 1 -               |            | 1            | ·        | <b>!</b>  | Ļ             |                                       |                                        | <b>.</b>                |                  |
|                  | <b>.</b> | 1.                |              | Į.,              | 1                                        | relatively solid                                 |            | 1          | <b>.</b>          |            | 1            | 1        | <b> </b>  |               |                                       |                                        |                         |                  |
|                  |          |                   |              | - L              |                                          | O.O5m.Coal; fragments.                           |            | ļ          | 1                 | 1          | 1            |          | 1.        | 1             |                                       | 4                                      |                         | ·                |
|                  | Į        | ļ                 |              |                  |                                          |                                                  | <b></b>    | <b>.</b> . | · · · · ·         |            | 1            | 1        |           | ·             |                                       | 4                                      | }                       |                  |
|                  | <b>.</b> | ·                 |              | <b>_</b>         |                                          |                                                  |            | 1.         | <b>i</b>          |            | 1            |          |           | - <b> </b>    | · I                                   |                                        | . <b>.</b>              |                  |
|                  | + ··     | <b>+</b>          | +            |                  | ·                                        |                                                  |            | -          |                   |            | 1            | 1        | Į         | ·· ·          | +                                     | 4                                      | <b>4</b> ·              |                  |
|                  | <b>i</b> | 1                 | 1            | 4                | 1                                        | 0.07m Coal; dull banded                          |            |            | i i               | · ·        | 1            | 1        | 1         |               |                                       | 4                                      |                         |                  |
|                  |          | . I.              | •            |                  |                                          | 0.03m Coal                                       | i          | 1          | 1                 |            | Į            | Į        | - · · -   | · } · _ ·     | -+                                    | - <b>I</b>                             |                         |                  |
|                  | 1        | . h               |              |                  | 1                                        | 0.02m Shale                                      | ł          | ł          | ł                 |            | 1            | 1        |           | . <b>.</b>    |                                       | -                                      |                         | 1                |
|                  |          | 1                 | ļ            |                  | ]                                        |                                                  | 1          |            | 1                 |            | ]            | ]        | 1         |               |                                       | <u> </u>                               | 1                       |                  |
| _                |          |                   |              |                  | -                                        | t BE (OF 5 - COLDER ASSOCIATES MARDNESS CODE     |            |            | <br>              | A 5118 601 | FROM (       |          | ······    |               |                                       |                                        |                         |                  |
|                  | QNIIS    | 0260: 4           | 100 NU       |                  |                                          |                                                  | -          |            | 015 7915          | HJURED     |              | - UNE MA |           |               | I H(                                  | )1 F 1                                 |                         | _ 1              |
|                  |          |                   |              |                  |                                          | FROD RUCK UDALITE PESIGNATION (747               |            |            |                   |            |              |          |           |               |                                       | TING                                   | 5 ···· ···              | ,  I             |
|                  |          |                   |              |                  |                                          |                                                  |            |            |                   |            |              |          |           |               | <ul> <li>COT</li> </ul>               | V FINYUE!                              | w i 10.                 | , 1              |

FILE No BA - 212

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## CORE & COAL CORE DESCRIPTION

| PROJECT | LODGEFOLE                | HOLE No LP - D PAGE 9 |
|---------|--------------------------|-----------------------|
| AREA    | WEST RIIXE - SOUTH SLOPE | CONTINUED 101         |

| BOY          | TIE BTH      | DEE          | 19             | <b>[</b> | -              | LINO DESCRIPTION                                           |           | LCAN.              | AND       | [          |                     | ANAL            | TICAL    | DATA                                |                    |          |                                       | 1          |
|--------------|--------------|--------------|----------------|----------|----------------|------------------------------------------------------------|-----------|--------------------|-----------|------------|---------------------|-----------------|----------|-------------------------------------|--------------------|----------|---------------------------------------|------------|
| 507          |              | r nou l      | ···            | тн       |                | AND ISTO LINCHIDE COAL RECOVERY FOR FACH SEAM              | ANGLE     | DESIG              | No        | MOIS       | · %                 | ASH %           | V.M. 76  | ۲C %                                | F.SI               |          | NEWARKS'                              |            |
| No.          | 80)          | FROM         |                |          | MAIN           | AMPETER TINCEDDE COAC RECOVERT TOR CACH SEAM               | 1 11      | 1                  | <b></b>   | 01.0       | residuol            | μ.e.<br>- · · · | a.a.p.   | a.a.q                               | ÷                  | riera    | flow of Woter Yes                     | 1          |
| <u> </u>     | cont         | 115.0        | 119.2          |          | COAL           | Th(m)                                                      | 1         | ł                  |           | ·          |                     |                 |          |                                     |                    |          | or Gas? NoF                           |            |
|              | •• = •       | · - · ····   |                |          |                | Lost Description                                           | · • • •   |                    | 9         | 1 A 44 A   | 1                   |                 |          | <u>}</u> - ···−                     |                    | · j      |                                       |            |
| <u></u> ⊢    | ··· <b>-</b> |              |                | CONC     | *****          | 0.15m Coal: dull banded: hard                              | 1         |                    |           |            |                     | • -             |          |                                     |                    |          |                                       |            |
|              |              |              |                |          |                | 0.07m Coal; dull                                           |           |                    |           |            |                     |                 |          |                                     |                    |          |                                       | h., .      |
| L            |              |              |                |          | . I            | . 0.14m Coal, dull_banded                                  |           |                    | 10.       |            | 0.45                | 10.31           | 17. 70   |                                     | -1.5-              | 73.39    |                                       | 14         |
|              |              |              |                | <b>i</b> |                | 0.05m Coal; dull                                           | - <b></b> | }                  |           | · · · ·    | · ·                 |                 |          | <u>}</u> {                          | · ·                | · · ·    |                                       | -          |
|              |              |              |                | ł        |                | 0.16m Coal; sheared                                        | ·         | · ··               | · -       |            |                     | t               | ·        | f1                                  |                    |          | - · · -··                             | 1          |
|              |              |              |                |          |                |                                                            |           | L .'               |           |            | 1                   | · · ·           |          |                                     |                    |          |                                       |            |
|              |              | 119.2        | 119.6          | 0.4      | SHALE          | black; hard; silty                                         | 1.        | 1                  |           | ↓          | <b>↓</b>            |                 |          |                                     |                    |          | 83                                    | . <b>j</b> |
| <b> </b>     |              | 110 6        | 110 0          |          | CUALE          | with this coaly interhole                                  |           |                    | ł         | ╂───       | ŧ                   |                 |          |                                     |                    |          |                                       | {          |
| <b>}</b> −−· |              | 112.0        | 119.0          | <u></u>  | Surger :       | With this today interbeds                                  | · [ ·     | <b>}</b> − ·       |           | <b>1</b>   |                     |                 |          | · ··-                               |                    |          |                                       | 1          |
|              |              | 119.8        | 120.1          | 0.3      | COAL           | with coaly shale interbeds                                 |           | 1                  | I         | ļ          |                     | 1               |          | T                                   |                    |          |                                       |            |
| ļ            |              |              |                | <b>.</b> | <b>.</b>       | ·····                                                      | .         |                    |           |            | ļ                   | <b> </b>        | <b> </b> | I                                   |                    |          |                                       | ł          |
| f            | i <u></u> .  | 120.8        | 120.5          | 0.4      | COAL           | recovered/cut: 0.10m/0.40m: 25% recovered                  | • [       | [·/ -·             |           | ·₽· ·      | f                   |                 | ·        |                                     | fi                 |          | - · · ·                               | 1          |
| ł –          | - • •        | 120.5        | 120.7          | 0.2      | SHALE          |                                                            | ·         | ·                  | NOTE      | : Sam      | les'                | ō š 1           | qual     | ity da                              | ta is              | based    |                                       | 1          |
|              |              |              |                | 2.1      |                |                                                            |           |                    |           | on v       | ashed               | coal            | t S.G    | : 1.                                |                    |          | · · · · · · · · · · · · · · · · · · · | 1          |
|              | · · ·        |              | · · ·          | J        |                |                                                            |           | J                  | ļ         | ·}         | <b>_</b> <i></i>    | <b>.</b>        |          | <b>↓</b> →-                         | ļ                  |          |                                       | ļ          |
|              |              | 120.7        | 121.1          | 10-4     | ER/COAL        | interbedded; core fragmented                               |           |                    | ·         | ·          |                     | <b> </b>        |          | •••••• —•                           | <u> </u>           |          |                                       | -          |
| -            |              | 121.1        | 121.8          | 10.7     | COALY          | ZONE recovered/cut: 0.66m/0.70m = 94% recovery             | · · [     | · • • • • •        |           |            | · · ·               | f <b>_</b> .    |          |                                     | <b>i</b> i         |          |                                       | 1          |
|              |              |              |                |          |                | Th(m) Description                                          | _         | 1                  |           |            |                     |                 | 1        | 1                                   |                    | · · ···· |                                       |            |
| }            | <b>!</b>     | 1            | L              | ]        | . <b></b>      | Cut Lost                                                   |           |                    |           |            | .Į                  | <b>J</b>        | <b>↓</b> | Į                                   |                    |          |                                       | _          |
|              | <u></u>      |              |                |          | ł              | 0.70 0.04 0.05m Coal; fragmented                           |           |                    |           | · <b> </b> | ·}                  | · ·             | <u> </u> | <u> </u>                            | <b>├</b> ──        | •        |                                       | -          |
|              | }··−         | <u></u>      | ·              | t—       | ╉╌╍┈╵┯──       | 0.09m Coaly Shale                                          |           | <b>1</b>           |           |            |                     | ł               | <u>├</u> |                                     |                    |          |                                       | -1         |
| [·····       |              |              | t              | 1        |                | 0.08m Shale                                                | ·· •      | 1                  |           |            | 1                   | 1               | Ĺ        | 1                                   |                    |          |                                       | 1          |
|              | I            |              | 1              |          |                | 0.03m Coal                                                 |           |                    | I         |            |                     |                 | [        | 1                                   |                    |          |                                       |            |
| ļ            | ·            |              | { -··          |          |                | 0.08m Coaly Shale.                                         | ·         | ·   ·              |           |            |                     | 1               | [        | <u> </u>                            | ╂-—-               |          |                                       | -          |
| ł.           | ļ            |              | <u> </u>       | +        | <u> </u>       | 0.05m Shalov carbonaccours                                 | - {       | -                  | [·        |            | · [ • · · · · · · · | ·               | •        | ·]- — ·—                            | ┨                  |          | ··· <b>_</b>                          | -          |
|              |              | i            | <b>1</b> ••• • | 1        |                | 0.13m Coal: banded                                         |           | 1                  |           |            |                     | 1               | 1        |                                     | 1                  |          |                                       | _1         |
| <b>{</b> .   | Į –          |              |                | Ţ        |                | ·····                                                      |           | <b>[</b>           | <b>I</b>  |            | 1                   |                 |          | <b></b>                             | 1                  | 73725    |                                       | -1114      |
| 26           | 122.         | <u>121.8</u> | 123.2          | 11.4     | I CO <u>AL</u> | here 1.5 m of core was recovered but the block             |           | - <b> </b>         | <u>11</u> | ·          | 10.21               | 19.63           | 118-35   | <b>`</b>                            | ╄╌ <sup>╕</sup> ᠄╩ | 67.58    |                                       | -1'        |
|              | · · -        |              |                |          |                | (399.5  ft) to 123.1 m (404 ft) - error <sup>2</sup> 1.4 m |           | •                  |           | 1          |                     | ·} ··           | ł        |                                     | ł                  | · · · ·  |                                       | -1         |
|              |              | 1            | <u> </u>       | 1        |                | coal - with a few shale partings                           | ·         | <u> </u>           | 1         |            |                     |                 |          |                                     | 1                  |          |                                       | 1          |
| _            |              |              | 1              | 1.       |                | • 0,10 m of fissile shale below coal seam                  | ·         |                    | [         | <b>T</b>   | 1.                  |                 |          |                                     | I                  |          |                                       |            |
| 1            |              |              | 1.75 0         | 1.       | CONTR          | with alway this goal stylegors                             |           | -                  | ·         | <b></b>    |                     |                 |          | ·  —                                | ·+·-·-             |          | ROD 10                                | -          |
| · · ·-       | •            | 123.2        | 123.9          | 14.      | 1 SUMLE        | with almor, this coar stringers                            | •         |                    |           | ł          |                     |                 |          | ·                                   | ·†                 | <u> </u> | <u></u>                               | -          |
| 1            | ···          | 125.9        | 126.0          | 0.       | COAL           |                                                            | 1         |                    | 1         | 1          | 1                   | 1               |          | 1-1                                 | 1                  | <b>1</b> | [·····                                | 1          |
| h            | ļ            |              |                |          |                |                                                            |           | 1                  |           | 1          |                     | 1               |          |                                     | <u> </u>           | 1        |                                       |            |
| ŀ.           |              | 126.0        | 126.3          | 10.1     | A SHALLE       |                                                            |           | 4 -                |           |            |                     |                 |          | <b> </b>                            | 1                  | ł        |                                       | -          |
| -            | · ·- ·       | 126.3        | 126.5          | to.      | 2 COAL         | speared                                                    |           |                    | ł         |            |                     | 1               |          | +                                   | · <del>†</del>     | 1        | ·                                     | · •        |
|              | 1            | 1            | 1              | 1        | 7              | 1                                                          |           | 1                  | 1         | ì          |                     | 1               | 1        | -                                   | 1                  | 1        |                                       |            |
| 27           | 126.         | 126.5        | 127.1          | 0.0      | ESH/COAL       | recovered/cut: 0.40m/0.60m = 6/% recovery                  |           | Ì                  | 1         |            | 1                   | i               | 1        |                                     | 1 1                |          |                                       | 1          |
| <u> </u>     |              |              | 4<br>10. 6-73  | -        | <u> </u>       | 1 182/09 5 COLDER ASSOCIATES HARDNESS CODE                 | l         | ، . ساست<br>۱۸۰۸ م | . К       |            | LL.<br>FROM F       | 1 .<br>ORF 44   | · •      | ،ــــــــــــــــــــــــــــــــــ | L                  | ·        | <u> </u>                              | า          |
|              | 11113        | U32U - M     |                |          |                | +ROD ROCK QUALITY DESIGNATION 1%1                          | -         | - A191             |           | -30420     |                     |                 |          |                                     | HC                 | DLE N    | <b>JO</b> . LP - D                    | 1          |
|              |              |              |                |          |                |                                                            |           |                    |           |            |                     |                 |          |                                     |                    | ITINUED  | 101                                   | 1          |

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FILE NO BA -212

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# CORE & COAL CORE DESCRIPTION

| PROJECT | LODGEPOLE HOLE NO. LP - D              | PAGE 10<br>OF 21 |
|---------|----------------------------------------|------------------|
| AREA    | WEST RIDGE - SOUTH SLOPE CONTINUED 101 |                  |

| 0.04          | ]           |                  | ти                                    |             |               | HING DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | REDORNO      | SFAM       | SAMPLE                  | L                 |                                         | ANAL        | TICAL E                               | AIA          |       |                    | REMARKS!                                                                          |
|---------------|-------------|------------------|---------------------------------------|-------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|------------|-------------------------|-------------------|-----------------------------------------|-------------|---------------------------------------|--------------|-------|--------------------|-----------------------------------------------------------------------------------|
| 004           | 47          |                  | ···                                   | тн (        |               | AND LEED UNCLUDE COAL RECOVERY FOR FACH SEAMS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ANGLE        | DESIG      | No                      | MOIS              |                                         | ASH %       | VM. 7.                                |              | r.s.i | 1                  |                                                                                   |
| No            | NO»         | FROM             | 0                                     |             | MAIN          | AMPLIFIED INCLODE COAL RECOVERTION EACH SEAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1-3          | ┢          | <u> </u>                | L                 | 14510001                                | <b></b>     | a. <u>a.</u> D.                       | <u>a.u.u</u> | ·     | 11010              | New of Woter Yeal?                                                                |
| COT           | t.,,        | 126.5            | 127.1                                 | 0.6         | SH/COAL       | Th(m) Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |              |            |                         | – – ·             |                                         |             |                                       |              |       |                    | or Got? No∏<br>Inducate Death                                                     |
|               |             |                  |                                       |             |               | 0.30 Shale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |              | ļ          | 1                       | <b></b> ···       | }                                       | • • • •     |                                       | ····•        |       | - · <b>-</b> · · · |                                                                                   |
|               |             |                  |                                       | ·           |               | 0.10 Coal; sheared                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |              | I.         |                         |                   | 1 ·                                     |             |                                       | · /··•       |       |                    |                                                                                   |
| -             |             | 103.1            | 1 22 6                                |             | CH (CONT      | recovered/cut: $0.40m/(0.50m) = 80\%$ recovered                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | · ·          | 1 ···      | 1 <sup></sup> .         | h                 | 1 <sup>.</sup>                          |             |                                       |              |       |                    | ROD: 16                                                                           |
|               | · • •       | 14/11            | 12 <u>(</u> .9.                       | 0.3         | Sh/COAL       | Th (m) Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | [ <u>.</u>   | 1          |                         | · · · · · · · ·   |                                         |             |                                       |              |       |                    |                                                                                   |
|               | ···         |                  |                                       | ~           |               | 0.07 Shale: slickensided                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              |            |                         |                   |                                         |             | {                                     |              |       |                    |                                                                                   |
|               | 1           |                  |                                       |             | <b>i</b>      | 6.14 Coal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | L            |            | <u> </u>                |                   |                                         |             |                                       |              |       |                    |                                                                                   |
|               |             |                  |                                       | 1           |               | 0.05 Shale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1            | ļ          | •                       |                   |                                         |             | <u> </u> ~                            |              |       | ··· <u>—</u> · ·   |                                                                                   |
|               |             |                  |                                       |             |               | Coal Coal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |              |            |                         | · ·               |                                         | ···         |                                       |              |       | ·                  | · · · · · · ·                                                                     |
|               |             |                  |                                       |             |               | 0.12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |              | 1          | <b>}</b> · − · −        | <b>+</b>          | <b>}</b>                                |             | <b> </b>                              |              |       |                    |                                                                                   |
|               | ·           |                  | 100.0                                 |             | CUNIC         | black, computed disturbed at base of interval                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | - •—-        |            |                         |                   |                                         | · · · ·     | <b> </b>                              |              |       |                    |                                                                                   |
| ·             |             | 127.0            | 120.0                                 | 1.9         | BRALLS        | Diack, Sumewhat discurbed de bobd of inter our                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>†</b>     |            | ·                       | · [               | ·                                       |             |                                       |              |       |                    |                                                                                   |
| ·             |             | 128 0            | 1130.6                                | 2.6         | ss            | fine grain to very fine grain; grey                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 90           | 1.         |                         |                   |                                         |             |                                       |              |       |                    |                                                                                   |
| i i           | ·           | 1                | *****                                 |             | 1             | • at 128.0 - 129.2 m 4 - 5 fractures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | L.           |            | 1                       | l                 | l                                       | L           | ┇                                     |              |       | _~                 |                                                                                   |
|               |             |                  |                                       | <b>I</b> .  |               | running at 15 to core axis and intersecting                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ·            | <b>.</b>   | I                       | <b>_</b> ^        | L                                       |             |                                       |              |       |                    | - <u> </u>                                                                        |
| []            |             |                  |                                       | 1           | l             | one another                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>}</b>     | - <b>}</b> |                         | ╂────             | 4                                       | <b>-</b>    | · [· -· ·                             |              |       |                    |                                                                                   |
| L             |             |                  |                                       | l           |               | the second states of the second states and t |              |            |                         |                   | ┫───                                    |             | 1                                     | }            |       | ·                  | R3                                                                                |
| 28            | 130.8       | 130.6            | 131.5                                 | 0.9         | SLTST         | Tine grain; grey at base of interval joint                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ·- ·         |            | 1 · ···                 | ł                 | ·i — · · · · ·                          | l · · ·     |                                       |              |       |                    |                                                                                   |
|               | ···         |                  |                                       | -l          | ·             | at 10 to core axis                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>j</b> - · | · [- ·     |                         | ·                 | 1                                       | 1           | · · · · · · · · · · · · · · · · · · · | i            | [     | · ·                |                                                                                   |
| 1             |             | 1 11-5           | 112.5                                 | 0.0         | SHALE         | grey to black: silty • at ~ 132m: disturbe                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 4,           | ·· • - ·   | 1                       |                   |                                         |             | [                                     | I            |       |                    |                                                                                   |
| [ · · ·       |             |                  | 1                                     | †. <u>~</u> |               | sheared; 0.05m of very soft shale and/or clay                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1            |            |                         |                   |                                         | 1           | 1                                     |              | ļ     | 1                  | . <b>.</b>                                                                        |
| ł             | 1           |                  | t                                     | 1           | 1             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | l            |            |                         | 1                 |                                         |             |                                       |              |       |                    | • · ·                                                                             |
| 29            | 135.6       | 132.3            | 138.7                                 | 6.4         | 4 SS          | fine grain at top of interval but primarily                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 85           | 1          |                         | <u> </u>          |                                         |             | ·I                                    |              | ┢     | ļ                  |                                                                                   |
| [             | <u> </u>    |                  |                                       | 1           | <u> </u>      | medium grain; grey to off-white; laminated                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 90           | - [        | <b></b>                 |                   | - <b>}</b>                              | <b>}</b>    |                                       | <b></b>      | ┨───  | <b>}</b> _·        |                                                                                   |
| ļ             | <b>↓_</b>   |                  | <b>+</b>                              | ┦           | ┇             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 70           | -          |                         |                   |                                         | <b>!</b>    | -+                                    | }            | ł     | <b></b>            | · ···                                                                             |
| 130           | 138.3       | .138.7           | 4142.3                                | 3.0         | g_ss          | coarse grain; grey-aimost sait and pepper; very                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 12           |            | · · · · · · · · · · · · | <b>─┟╌╼</b> ┉╾ ─┄ |                                         | ·           | [                                     | ŧ            | 1     | í——–               | + · - · - · - · - · - · - · - · · - · · - · · · · · · · · · · · · · · · · · · · · |
| <b>├</b>      |             | <u>↓</u>         |                                       |             | • [           | hard; lightly laminated - a few joints studiet                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1            | 1          | <u>†-</u>               | ·· <b>¦ -</b> ·   |                                         | ·           |                                       | t            | t—    |                    | 1                                                                                 |
|               | 1           |                  | · · · · ·                             | ┨╼╍         | ╂             | 140.3 - 140.8 m:including silt and coal frag-                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1            |            | 1                       |                   |                                         |             |                                       |              | 1     | <b>_</b>           | · · · · · · · · · · · · · · · · · · ·                                             |
| 1             | 1           | 1                | 1                                     | 1           |               | ments fractured at 140.7m: 2 cm of coal at 140.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 8m :         |            |                         |                   |                                         |             | I                                     | L            | 1     | <b>_</b>           | R4; RQD: 60                                                                       |
| [ –           |             |                  | 1                                     | <u> </u>    | I             | last 50 cm of core is broken into 2 to 5 cm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1            | 1_         | · [                     |                   |                                         | 1           |                                       | <u> </u>     | ∔     | <b>↓</b>           | l                                                                                 |
| [             |             | I                | ſ                                     |             |               | long pieces                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | · <b></b> ·  |            | <b>[</b>                | <b> </b>          |                                         |             |                                       | Ì            |       |                    |                                                                                   |
| 1             |             | 1                | 1.75 5                                |             | 1             | and couletone as above - this interval highly                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |              |            | ·                       | ·                 | - <b> </b>                              | ł ·         |                                       | ţ            |       | t·                 | · · · · · · · · · · · · · · · · · · ·                                             |
| <b>}</b>      | ļ ·         | 142.             | 1197.7                                | 1           | 9 35          | fractured concrially the upper balt - includes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | - <b>i</b>   |            | ţ                       |                   | · • • • • • • • • • • • • • • • • • • • | 1           | -†                                    | t            | ţ     | 1                  | 1                                                                                 |
|               | +           | · ·              | · • · · · - • · · ·                   |             | · + · · · · · | traces of coali initial 30 cm of core is very                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1            | ╅ -        | 1                       | -t                | -                                       | 1           | 1                                     | t            | †     | 1                  |                                                                                   |
| 1             | <u>†</u> '  | <b>1</b>         | t                                     |             |               | broken into fragments of varying sizes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | - <b>1</b>   | 1          | 1                       |                   |                                         | · · · · · · |                                       | 1            | 1     | L                  |                                                                                   |
| 1-            | †—…         | -                | 1                                     | 1           | - <b> </b>    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              | _          |                         | [                 |                                         |             |                                       | ļ            |       | 4                  |                                                                                   |
| [             | 1           | 143.             | 5 144.3                               | 0.          | 6 SHALE       | very homogeneous; no bedding; black; broken                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ļ            | 1          |                         | ļ                 |                                         | - 1         |                                       | . <b>.</b>   | -     | <b>.</b>           | R3; RQD: 0                                                                        |
| <b>I</b>      | I           |                  | I.                                    |             |               | into larger fragments; there appear to be 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |              | 1          | -                       | . ]               |                                         | 1           | ·                                     | ·            |       | 4                  | 4                                                                                 |
| ·-            | . <b>L</b>  |                  | l                                     | <b>.</b>    |               | joint systems: 1st nearly parallel with core                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ł            |            | 1                       | · ]               | 1                                       | 1           | · · -                                 | +            | -1    | 4                  | · · · · · · · · · ·                                                               |
|               | 4           | ¥ ·              | · · · · ·                             | 4.1         | i ··          | (5-10.); 2nd at 35; 3rd at 140                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | - <b> </b>   |            |                         |                   |                                         | 1           |                                       | + —          | -     | 1                  |                                                                                   |
| <b> </b> -··· | <b>}-</b> · |                  | 1 144 5                               | 1'n         | ASSECHA       | E this interval is a part of a thrust of saud-                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ·   -··-     | • • •      | · • •                   | <b> </b>          | 1.                                      | 1           | t                                     | <u>†</u>     | 1-    | 1 .                |                                                                                   |
|               | +           | +- <u>+-44</u> + | <u>'  * "? • '</u>                    | +**         | - Diagoni     | stone into the upper shale unit - fractured:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1            | 1          | ·   · ·                 | 1                 |                                         | 1           |                                       | ţ            | 1     | 1                  | · · · · · · · · · ·                                                               |
| 1-            | 1           | 1                | 1                                     | 1           | · ·           | calcite and clay filled                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1            | 1          | 1                       |                   | 1                                       | 1           |                                       | Ţ            | . [   | ]                  |                                                                                   |
| 1             | 1           | 1                | 1                                     | 1           | ļ             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1            |            | 1                       | <b>.</b> .        | 1                                       |             |                                       | <b>.</b>     |       | 1                  |                                                                                   |
| 1             | 1           |                  | 1                                     |             | 1             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1            |            | 1                       | 1                 |                                         |             | 1                                     | 1            |       | 1                  | ]                                                                                 |
| <u> </u>      |             | <u> </u>         | · · · · · · · · · · · · · · · · · · · |             | <u> </u>      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              |            | G1 E . 44               |                   | 1004                                    |             |                                       | ·····        |       |                    |                                                                                   |
|               | UNITS       | USED : 4         | *B) ††()                              |             |               | T PROVING S GOLDER ASSOCIATES HARDNESS CODE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | -            |            | GLC M                   |                   |                                         |             |                                       |              | I HC  | ) I E I            | No. LP - D                                                                        |
|               |             |                  |                                       |             |               | #RWD ROLK ODALIIII DESIGNATION 1761                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |              |            |                         |                   |                                         |             |                                       |              | co    | VIINUE             | 5 101                                                                             |

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FILE No BA -217

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# CORE & COAL CORE DESCRIPTION

PAGE 11 OF 21 HOLE No LP - B PROJECT LODGEPOLE. .\_\_ . ... AREA WEST RIDCE - SOUTH SLOPE

| 60          |              | DEPTH    |                 |                   |               | HINO DESCRIPTION |                                                  | SEAM           | SAMPI F        | l                                       | 、                                       | ANAL                    | TICAL C       | ATA      |                                       |                                              | DEMARKS !          |                                        |
|-------------|--------------|----------|-----------------|-------------------|---------------|------------------|--------------------------------------------------|----------------|----------------|-----------------------------------------|-----------------------------------------|-------------------------|---------------|----------|---------------------------------------|----------------------------------------------|--------------------|----------------------------------------|
| P           | 17           | i i      | . 1             | ····              | ТН            |                  | THE AND THE CONTRACT FOR FACH SEAM               | ANGLE          | DESIG          | No                                      | MOIS                                    |                         | ASH %         | V.M. %   | £C. 74                                | F.S.1                                        | *                  | remains.                               |
| N           | 기업           | »]       | FROM            | IO                |               | MAIN             | AMPLIFIED (INCLUDE COAL RECOVERT FOR EACH SEAM)  | (*)            | ļ              | į                                       | 0.+ 8.                                  | teridual                | d.b.          | a.d.b.   | a.d.u                                 | <u>·                                    </u> | Yield              |                                        |
| 31          | 14           | 2.4      | 144.7           | 145.2             | 0.5           | SS               | medium grain; lightly laminated; grey; including |                |                | ł –                                     |                                         |                         |               |          |                                       |                                              |                    | or Gas? No[]                           |
|             | 1            |          |                 |                   |               |                  | 2 calcite filled joints (at 13)                  | 70             |                |                                         | <b> </b>                                |                         |               |          |                                       |                                              |                    | Indicole Depth                         |
| r · •       | 1            | - 1      |                 |                   | 1             | <b>i</b>         |                                                  | !              | ļ –            |                                         | 1                                       |                         |               | ·        |                                       |                                              | -                  |                                        |
| <u>†</u> –  | 1            |          | 145.2           | 145.7             | 0.5           | SHALE            | disturbed; stressed interval; shale mixed with   | 1              | 1              |                                         |                                         | <u> </u>                |               |          | ·                                     |                                              | - ·                |                                        |
|             | 1            | ]        |                 |                   |               |                  | sandstone; core fragmented RQD=0                 |                | ļ              | L                                       |                                         |                         |               | · · · ·  |                                       |                                              |                    |                                        |
| i -         | 1-           | 1        |                 |                   | I             |                  |                                                  | . <u>.</u>     | j              | ļ                                       |                                         | 1.                      |               |          |                                       |                                              |                    |                                        |
| <b>i</b> 32 | 114          | 5.1      | 145.7           | 146.8             | 11.1          | SHALE/S          | silty shale interbedded with sandstone - more    |                | ↓ ,            | <b>↓</b>                                | <b> </b>                                |                         | <b>.</b>      |          |                                       |                                              |                    |                                        |
|             |              |          |                 |                   |               | [                | sandstone to the end of the interval             | 1.72.          | <b>.</b>       | ļ                                       | ·                                       |                         |               |          |                                       |                                              |                    | 1622 KXNT ON                           |
| [           |              |          |                 |                   | 1             | ] _              |                                                  |                |                | 1 ·                                     | Į                                       |                         |               |          |                                       | ·                                            |                    | 55. 2010 0-1                           |
| <b>.</b>    |              |          | 146.8           | 149.0             | <u>] 2.</u> 2 | <u>SHALE</u>     | black or dark grey; overall guite broken core ,  | 4 .            |                |                                         | <b> </b>                                | . <b>!</b>              |               |          |                                       |                                              | ·                  | 10. 100 0-3                            |
| Ł.          | 1            | - 1      |                 |                   | I             |                  | breaking caused by 2 or 3 fracture systems one   | ł              | ł              |                                         |                                         | l                       |               | }·       |                                       |                                              |                    | ···· · · · · · · · · ·                 |
| Ι_          | .I           | 1        |                 | L                 | 1             | ļ                | at 20, other ? ; also along bedding at 148.3 t   | <b>4</b>       |                |                                         | · {                                     | ļ                       | ·             |          |                                       |                                              |                    |                                        |
|             | -!           |          |                 |                   |               | L                | 148.5m the shale is very sheared, almost flaky   | <b>!</b>       | · <b>ļ</b>     |                                         | +                                       |                         |               | l        |                                       | ┝╺╌╶┛                                        |                    |                                        |
| l           | _            |          |                 |                   | ļ             |                  | fault plane?                                     | <b></b>        | - <b> </b> · · |                                         |                                         | - <b> </b> <i>•</i> - • |               |          |                                       |                                              |                    | • · · · · · • • • • •                  |
| <u>[</u>    | -            |          |                 |                   |               | • • <u> </u>     |                                                  |                |                |                                         | <u> </u>                                |                         |               | <b>-</b> | <u></u> ·                             |                                              |                    |                                        |
| ļ.3.        | 3  14        | રાવ      | 149.0           | 149.5             | ] 0.5         | <u>ELTST/S</u>   | S siltstone grading quickly into sandstone       |                | -Į-            | ··                                      | · }                                     | - <b>j</b>              | <u>}</u>      |          |                                       | <b></b>                                      |                    | •••••••••••••••••••••••••••••••••••••• |
| 1.          | · •          | <u>_</u> |                 | 1.72.2            |               |                  | L                                                |                | - i · ·        | · · · ·                                 |                                         |                         | ·-·           |          | · · · · · · · · · · · · · · · · · · · |                                              |                    | · · ·                                  |
| 34          | i <u>µ15</u> | 3.4      | 149.5           | 1154.8            | 1 2.1         | 55               | medium grain; fightly laminated; in places       | 75             | -1             | ·                                       | -┞                                      | -1                      | +             | }·       | <u>}</u>                              |                                              | · ·= =-            | R4: ROD: 30                            |
| I—          | 4-           | _        |                 |                   |               | <b> </b>         | crosspedded: a rew joints: carcice search over   | 1              |                |                                         |                                         | I                       | ·             | ł        |                                       |                                              |                    | ·-·· · ···                             |
| 1           |              |          | <b></b>         |                   | <b>-</b>      | · ·              | all the core is fairly solid: more bloken at     |                | 1              | · · ·                                   | 1                                       | ·· <b>····</b>          | £             | <u> </u> |                                       | •                                            | · · · · · · · ·    | · · · · · · · ·                        |
| <b>J</b>    |              |          |                 |                   | ł.—-          |                  | 154./-154.9m and at 153.4-153.9m at 151.4m, 15   | <b> </b> - · · | • • •          |                                         | ╶┠╌╍╾╌╴                                 |                         | <b>.</b>      | t        | <u>}</u>                              | <u> </u>                                     |                    | ··                                     |
| l -         |              |          |                 |                   | 4             | ┨᠃───            | I cm zone of fine multidirectional calcite iille |                | +              | ╉──ॱ                                    | - <b> </b>                              |                         |               | ł ·      | ·                                     | f —                                          | •••••              | i                                      |
| - I         |              | _        |                 |                   | +-            | ╂───             | fractures-fine, web-like - istress; similar      | · }            |                | <u>+</u>                                | · • • • • • • • • • • • • • • • • • • • |                         | <u>}</u> - ·− | 1        |                                       |                                              |                    | · · · · · · · · · · · · · · · · · · ·  |
| 1 -         | ·            |          |                 | <u> </u>          |               | <b> </b>         | [feature_at_153_9 - 154_1 m                      | -1 ··          |                | · • • · · · · · · · · · · · · · · · · · | <u>+</u>                                |                         | + ··-         |          | ·                                     | i                                            | <u>-</u>           | + ·· · ·· · ···                        |
|             |              |          | 164 0           | 1166 6            |               |                  | came candetone as shove, more disturbed and      |                | ╂              | 1                                       |                                         | 1                       | t             | j        | t                                     | 1                                            |                    |                                        |
| <u> </u> _  | +-           |          | 124.0           | 122.2             | <u>+v</u> .   | 1 55             | brokens slickensided, initial 15 cm almost       | · ·            | 1              |                                         | i                                       |                         | 1             | t        | t — —                                 | <u>ا ا</u>                                   |                    | 1                                      |
|             |              |          | <b></b> • ··• · |                   | +             |                  | Probent site strengthen, inforat is on ormore    |                | · Į            | 1                                       |                                         |                         | F             | †        | t                                     | 1                                            | 1                  | 1                                      |
| -           |              |          | •               | ··                | t             | 1                |                                                  | -1             | 1 ·            | ł                                       | 1                                       | 1                       | i             | 1        | f                                     | 1                                            | <b>-</b> · - · · · | · · · · · · · · · · · · · · · · · · ·  |
| + -         |              |          | 155 5           | 157 0             | <u>+</u> -,   | d ce             | this interval obviously a fault zone: rock is    | -1             | -1             | 1                                       | ·                                       | · [                     | 1             |          | i                                     | 1                                            | 1                  | 1                                      |
|             |              |          | 100.0           | 1 21.0            | ┢╧┷           | 1 <sup></sup>    | Lucry broken to crushed; core is a form of frag  |                | 1              | 1                                       |                                         | - <b> </b>              | - ···         | 1        | 1                                     | 1                                            | t                  | 1                                      |
| - I         | +            |          |                 |                   | +             | <u>+</u>         | ments of very small size - the rock is saturate  | -d             | 1              | ·                                       | -1                                      | 1                       | 1             | 1        | 1                                     | Ţ                                            | Ι                  | ROD: 0                                 |
| 1           | -            | - · ·    |                 | t                 | 1             | j                | with water bedding is rankly changing:           | 72             | 1              | 1                                       | 1                                       | 1                       | 1             |          | 1                                     |                                              | Γ                  |                                        |
| <b></b>     | 1-           | · ·· -   |                 | t                 | +…            | 1                | 70 cm of core was lost                           | 40             | <b>†</b>       |                                         | 1                                       |                         |               | 1        |                                       |                                              |                    |                                        |
| 1           |              |          |                 | f ·               | 1             | l                |                                                  | 1              | Ţ- "           |                                         | 1                                       | T                       | I             |          |                                       |                                              | I                  |                                        |
|             | ~t-          |          | 157.0           | 157.4             | 0.            | 4 55             | very sheared; fractured; bedding                 | 40             | 1              |                                         |                                         | 1                       |               | 1        |                                       |                                              | L                  |                                        |
| 1           |              |          | 200.00          |                   | 1             |                  |                                                  |                |                |                                         | L                                       | 1                       | L             |          | 1                                     | L                                            | ].                 |                                        |
|             | · • •        |          | 157.4           | 158.1             | 10.           | 7 55             | fairly solid core at 157.7 to 158m; the bedding  |                |                |                                         |                                         |                         | L             | <u>}</u> | <u> </u>                              | L                                            | <u> </u>           |                                        |
| 1           | · † -        |          |                 |                   | 1             | <b></b>          | turns: last 10 cm very broken                    |                | _              |                                         |                                         | .L                      | 1             |          | I                                     | 1                                            | Į –                |                                        |
| 1           |              | · — ·    |                 | 1                 | <b></b>       |                  | ······································           | 1              |                |                                         | 1                                       |                         | <b>_</b>      | <b>!</b> |                                       |                                              | <b>]</b>           |                                        |
| _           | 1            |          | 158.1           | 158.3             | 0.            | 265 <u>s</u> ha  | aly similar to sheared sandstone from 157 - 157. | <u>.</u>       |                | 1                                       |                                         |                         |               | ·        |                                       |                                              | 4                  |                                        |
|             | Ľ            |          |                 | 1.                |               | 1 _              | myvery soft; at 158.3 m change to solid rock     |                |                | 1                                       | <b>1</b>                                | <b>i</b>                |               | l        |                                       | 1                                            |                    |                                        |
|             |              | -        |                 | 1.                | 1.            | 1                | bedding                                          | 60             | 1              |                                         |                                         | ļ                       | 1 .           | <b>1</b> |                                       | ļ                                            | . I                |                                        |
|             | ··· [-       |          |                 |                   |               | 1                |                                                  | 1.             | 1              |                                         | ļ                                       | •                       | Į             | · · · ·  | Į                                     | . <b> </b>                                   | Į                  |                                        |
| I.          | 1            |          | 158.3           | 159.1             | 0.            | 8 <u>\$5.</u>    | laminated; disturbed; bedding at 158.6 m; at t   | <u>ne</u> 46   |                |                                         |                                         |                         |               | i        |                                       | _ <b>_</b>                                   | 4                  |                                        |
| 1           |              |          | [               |                   | 1             | 4.000            | end an abrupt change of bedding                  | 65             |                |                                         | <b>.</b>                                |                         |               | ·        | ↓ ·· _ ·· ·                           |                                              |                    |                                        |
| 1           |              |          | <b>!</b>        | . <b>.</b>        |               | ·                |                                                  | 40             |                |                                         |                                         |                         | 1             | <b> </b> | · · · · ·                             | ł                                            | 4                  | . RQU: 0                               |
| ļ           |              |          | 1               | 1                 | 1             | ł                |                                                  |                | 1              | . 1                                     |                                         |                         |               |          | <b>↓</b>                              | <b>i</b>                                     | 4                  |                                        |
| Į.,         | <b>j</b>     |          | 159.1           | L <b>  1</b> 59.3 | ļ0.           | 2 55             | 20 cm of more solid sandstone                    |                | į              | 1                                       | 1                                       | }                       | 1             | +        | ·]                                    |                                              |                    |                                        |
|             | 1            |          |                 |                   |               |                  | <u> </u>                                         |                |                | 1                                       |                                         | 1                       | •             |          |                                       | <b>-</b>                                     | 1                  | -                                      |
| [           |              |          | 159.3           | 3 159.5           | 0.            | Z SHALE          | silty very sheared; slickensided; almost flaky   | 35             |                |                                         |                                         |                         |               | 1        |                                       |                                              | 1                  |                                        |
| <u> </u>    |              |          |                 | • • • • •         | <u> </u>      |                  |                                                  | <u> </u>       |                | C) E                                    |                                         |                         |               |          | • <u> </u>                            | <u> </u>                                     | · · · · ·          |                                        |
|             | UN           | 415      | USED : N        | NG 60             |               |                  | T HEADER S - GOLDEN ASSOCIATES HANDNI SS CODE    |                | AN AN          | OLC MI                                  |                                         |                         | UNE AN        |          |                                       | 1 HC                                         | )  F               | Vole - D                               |
|             |              |          |                 |                   |               |                  | +RQD ROCK QUALITY DESIGNATION ( %)               |                |                |                                         |                                         |                         |               |          |                                       |                                              |                    | 101                                    |
|             |              |          |                 |                   |               |                  |                                                  |                |                |                                         |                                         |                         |               |          |                                       |                                              | VIIIVUC            | v , ,                                  |

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### CORE & COAL CORE DESCRIPTION

 PROJECT
 LODGEPOLE
 HOLE No
 PAGE 12

 AREA
 WEST RIDGE - SOUTH SLOPE
 CONTINUED
 101

|                  | 7                                            |                 | 1             | 1-         |                                       | UTHO DESCRIPTION                                                                                                     | ٨               |                |            |                  | -        | ANALI    | TICAL E                   | AIA                                     |                                         |                                         |                                              |
|------------------|----------------------------------------------|-----------------|---------------|------------|---------------------------------------|----------------------------------------------------------------------------------------------------------------------|-----------------|----------------|------------|------------------|----------|----------|---------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|----------------------------------------------|
| KOX] ∩€+14<br>TA | · ] DE                                       | РІН             | 114           | Į          | · · · · · •                           | LINO DESCRIPTION                                                                                                     | ANGLE           | DESIG          | No         | MOIST            | %        | ASH %    | VM. %                     | FC %                                    | 151                                     | ۹.<br>                                  | REMARKS '                                    |
| No 1000          | FROM                                         | 0               |               | N          |                                       | AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)                                                                      | 1.1             |                |            | o.∢.b.           | residual | d.b.     | a.a.b.                    | a.d.u                                   |                                         | ¥161/1                                  | (Laure of Martine Ver (7)                    |
|                  | 159.5                                        | 161.0           | 1.9           | 5 5        | ss [                                  | upper part somewhat disturbed; lower broken into                                                                     |                 |                |            |                  |          | 1        |                           |                                         |                                         |                                         | or Gas? No                                   |
| · · · ·          | 1                                            |                 | · · ·         | 1          | ··· ·· ·· /                           | larger pieces at 160.2 m                                                                                             | 22              |                | . 1        |                  |          |          |                           |                                         |                                         |                                         | Indicole Depth                               |
| 5 160.           | 7                                            |                 | I             | 1          |                                       |                                                                                                                      |                 |                |            |                  |          |          | · —––                     |                                         |                                         | - · ·                                   | · · · ·                                      |
|                  | 161.0                                        | 161.2           | 0.1           | 2 5        | SS                                    | fine grain; broken into small fragments (disture                                                                     | ed)             |                |            |                  |          |          |                           |                                         |                                         |                                         |                                              |
| 36 161           | <u>.                                    </u> | 1               | <b></b>       | 4          |                                       |                                                                                                                      |                 |                |            |                  |          |          |                           | ·                                       |                                         |                                         | R3: ROD: 0                                   |
|                  | . <b>µ61.2</b> .                             | 162.6           | 11.4          | 4 5        | SLIST                                 | calcareous; with shale interpeds; occasional                                                                         | <u>, 10</u>     |                |            | ·· _ · - · - · · | • • • •  | ··· ··   | · · · · · · · · · · · · · |                                         |                                         |                                         |                                              |
| 1                |                                              | · <b>}</b> ·    | ╀             | <b>+</b> - |                                       | carby fragments; some calcite filled fractures;                                                                      | ·               |                | ·          |                  |          |          |                           |                                         |                                         | t ·                                     |                                              |
| l – ·            |                                              | <b>}</b> −      | 1             |            | ··· ··                                | ricks, 33 - bedding plane'Rec. <sup>4</sup> ]. Gm/1.34m=754                                                          |                 | •              |            |                  |          |          |                           |                                         |                                         | <u> </u>                                |                                              |
| · • • • •        |                                              |                 |               |            |                                       | Sticks: 55 bedatig Prairy noor from all a                                                                            |                 |                |            |                  |          |          |                           |                                         |                                         | L                                       |                                              |
| 17 164           | 9162.6                                       | 1165.3          | 2.            | 7          | ss                                    | fine grained; calcareous; carbonaceous; with                                                                         | 50              |                |            |                  |          |          |                           |                                         |                                         |                                         | R3-4: RQD:37                                 |
|                  | 1                                            | 1               |               | 1          |                                       | well developed bedding defined by carbonaceous                                                                       |                 |                |            |                  | <u> </u> |          | ·····                     |                                         |                                         | <b> </b>                                | • · · · · · · · · · · · ·                    |
|                  |                                              | J               |               | 1          |                                       | material; occasional calcite filled fractures;                                                                       | <b>.</b>        | <b>]</b>       | <u>ا</u>   |                  |          |          |                           | · • ·                                   | <u></u>                                 | <b>↓</b>                                | + ···                                        |
|                  |                                              |                 |               |            |                                       | shaley zones; abrupt below; Joints: 20, 50 -                                                                         | ·· · ·          |                |            | ļ                |          |          |                           |                                         |                                         | <b>∮</b> ·· <b>−</b> - <b>−</b> - · · · |                                              |
|                  |                                              |                 |               | 4          |                                       | bedding plane; sheared zone 163,18 - 163,26 m                                                                        | - •             | ł              | Į          | <u> </u>         | +        |          |                           |                                         | i                                       | Ì∵                                      | ··· ···                                      |
| · ·              |                                              | 1.              |               | +          |                                       | Rec. 100%                                                                                                            |                 | l              | Į · ··     | <b></b>          |          |          | <b></b> _                 |                                         | 1                                       | ·· ·                                    | t · · · · · 1                                |
|                  | 128 3                                        | 170 7           | 130           | الم        | es                                    | medium grained: moderately calcareous; moderate                                                                      | 55              | 1 ·            | {-···-     | ·- ·             |          |          |                           |                                         |                                         | T                                       | R4: ROD: 28                                  |
| 69 69            | 1 03.3                                       | 1.000           | ¦             | 1          | <u> </u>                              | hedding defined by carbonaceous material; some                                                                       |                 | - ·            |            | 1                |          |          |                           |                                         | I                                       |                                         |                                              |
| <u>e foo</u>     |                                              |                 | · •           | Ť.         |                                       | disturbance of bedding; abrupt below; joints =                                                                       |                 |                |            | ·                |          |          | L                         |                                         | 1                                       | L                                       |                                              |
| ····             | -1                                           | · • • • • · · · | - <u>+</u>    | 1.         |                                       | 27° - calcite and slicks: 55° - bedding plane                                                                        |                 | <b>I</b> .     | 1          | I                |          | L        | L                         |                                         | ! <b>-</b>                              | <b>.</b>                                |                                              |
|                  |                                              | · · ·           | <u> </u>      |            |                                       | 60 calcite: Rec. 1001; broken zone 166.67                                                                            |                 | 1              | L          | ┞                | ···      |          | ↓·                        | Į /                                     | i                                       | <b>.</b>                                |                                              |
| <u> </u>         |                                              | I               |               |            |                                       | <u>166.87 m</u>                                                                                                      |                 | ļ              | <b>!</b>   |                  |          |          | Į                         | Į,                                      | <u>}</u>                                | <b>.</b>                                | · · · · · · · · · · · · · · · · · · ·        |
|                  |                                              |                 |               |            |                                       | - the second after                                                                                                   |                 | <b>∤</b>       | ļ          | <b>Į</b>         | <u> </u> | {        | <b> </b>                  |                                         | ł                                       | +                                       |                                              |
| <u>39 172</u>    | .2170.7                                      | 175.5           | 4.            | Ц.         | SHALE                                 | silty at top; becoming very carbonaceous arter                                                                       | <u>}</u> ·      | <u>}</u> · · - |            | <u></u>          | <b>1</b> |          | ·                         | i                                       | <b>₹</b>                                | <b>∮</b> · · ·                          | 101: 1000: TT -1                             |
|                  | _ <b>_</b>                                   | . <b></b>       |               | ╉          |                                       | hard and broken core between 173 10 - 175.46                                                                         | <b>.</b> -      |                | 4          |                  | <b>1</b> | <u> </u> | <u>+</u>                  |                                         | t                                       | <u> </u>                                | · [ · · · · · · · · · · · · · · · · · ·      |
| ·-· +·           | <b>ŀ</b> ·                                   | · · · · · ·     |               | -1-        | - •                                   | no bedding transitional below: Joints: 20, 0:                                                                        | ••••            | ŀ -            | <u> </u>   | † — — — ·        |          | i        | 1                         | 1                                       | 1                                       | 1                                       |                                              |
|                  |                                              | [               |               | -†-        |                                       | $Poc \pm 4  (m/4.76m \neq 85)$                                                                                       | } ~~···         | 1              | 1          | 1                | 1        | l        | -                         | [                                       | 1                                       | ]                                       |                                              |
| ·                |                                              | ·               | ; <b>†</b>    | - †-       |                                       |                                                                                                                      |                 |                |            |                  | Ţ        |          | 1                         | I                                       | 1                                       |                                         |                                              |
| 40 176           | . 2175.5                                     | 180.            | 4.            | 8          | SHALE                                 | homogeneous: silty with occasional very carbon-                                                                      | I               | 1              | [          | I                | I        |          |                           | <b> </b>                                | Ļ                                       | 4                                       | R3: RQD: 40                                  |
| -                |                                              |                 |               | T          |                                       | accous and coaly zones: these appear to control                                                                      | ļ               |                | ł          |                  |          |          | i                         | ┣                                       | - <b>!</b>                              | <b></b>                                 |                                              |
|                  |                                              |                 |               | 1          |                                       | shearing: slicked in part: no bedding: Rec.                                                                          | <b>.</b>        |                | ·{· - ·    | <b> </b>         | ł        | l        | ·                         | ł                                       | .]                                      | ·                                       | -{                                           |
|                  |                                              | <b>_</b>        |               | .          |                                       | 4.5m/4.75m = 951: Joints: 60 - bedding plane?                                                                        | ↓               |                | ·          |                  |          |          |                           | ╂───                                    | -}                                      |                                         |                                              |
| ·                |                                              |                 | -+            | -ŀ         | 001                                   | sheared, broken                                                                                                      | · [ · — · —     |                |            |                  |          |          |                           | i                                       | -t                                      |                                         | · · · · · · · · · · · · · · · · · · ·        |
| 41 180           | •••                                          | ·               | <u>.e</u> .   | • 4        | COAL                                  | sneared: proken Recovery                                                                                             | 1               |                | ł          | <b>-</b>         | ł·       |          | t                         | †                                       | 1                                       | 1 -                                     |                                              |
| · · [·—          | -   •-•• •                                   |                 | -             | j          | CHM P                                 | $p_{\rm carbonaceous}$ brokep: 0.7m/3.0m = 70%                                                                       | · • · ·         | †· -           |            | f=               | ·        | 1        | 1                         | 1                                       | 1                                       |                                         | 1                                            |
| · · †            | -                                            |                 | -1            | 1          |                                       | slickensided                                                                                                         |                 | 1              | 1          |                  | 1        |          |                           |                                         | 1                                       | 1                                       |                                              |
|                  |                                              |                 |               | -†         |                                       |                                                                                                                      | 1               | [              |            | 1                | 1.       | l        |                           | <u> </u>                                | 1                                       | 1                                       |                                              |
| 1-               | 180.7                                        | ·               | 10            | .1         | COAL                                  | sheared: broken to powdery                                                                                           | i               |                |            | <b>.</b>         |          | Į        | . <b>.</b>                |                                         |                                         | 4                                       | 4                                            |
|                  |                                              |                 |               |            |                                       |                                                                                                                      |                 |                |            | <b>1</b>         | 10.94    | 0 71     | 17 30                     |                                         | -l <u>5-</u> n-                         | 55 44                                   |                                              |
|                  | 181.2                                        | MARK            | ER BI         | ц¢         | СК                                    | ≩a a a la la la la la la la la la la la l                                                                            | - I             |                | 12         | - ·              | 10.71    | 0.1      | · <b>  *.'.</b>           | 1                                       |                                         | 1.2.2                                   | .                                            |
|                  | -                                            |                 | <u> </u>      |            | · · · · · · · · · · · · · · · · · · · |                                                                                                                      | ł               | } ···- ·       |            | ł                |          |          |                           | · · · ·                                 |                                         | · + ·                                   | · <b>i</b> · · · · · · · · · · · · · · · · · |
| · · •            |                                              | ł               | . p.          | 4          | COAL                                  | dull: sneared: proken Recovery:                                                                                      | ·               | ł              | <b>.</b>   | 1                |          |          |                           | <u>}</u>                                |                                         | ł                                       | 1 1                                          |
| ·                |                                              |                 | <u>k</u>      | . 1        | 001                                   | $\frac{1}{2}$ aboarod, mudaru, ghalu2 $\frac{1}{2}$ $\frac{2m}{1}$ $4m = 868$                                        | ł ·             |                |            |                  | ŀ        |          | -i                        | · • • • • • • • • • • • • • • • • • • • | · • • • • • • • • • • • • • • • • • • • | - i · · · ·                             |                                              |
| ···              |                                              |                 | - <b>H</b> -' | чŀ         |                                       | Blear chi Powder to Dudit                                                                                            | 1               | 1              |            | Į ·              | 1        | 1        | ·†                        | ·† · ·                                  | 1                                       | -                                       |                                              |
|                  |                                              |                 | ĥ             | 51         | COAL                                  | duil: sheared: powdery                                                                                               | 1               | 1              | L          | 1                | 1        | i        |                           | [                                       | T                                       | ]                                       |                                              |
| · • † - ·        |                                              |                 |               |            |                                       |                                                                                                                      |                 |                |            |                  |          |          |                           |                                         |                                         |                                         |                                              |
|                  | 182                                          |                 | ERA           | K          | СК                                    | <u>بة المحمد المحمد المحمد المحمد المحمد المحمد المحمد المحمد المحمد المحمد المحمد المحمد المحمد المحمد المحمد ا</u> | 1               | 1              | 1          | 1                |          |          | 1                         | 1                                       |                                         |                                         | 1                                            |
|                  |                                              | - <u> </u>      | -10           | -1         |                                       | <u> </u>                                                                                                             | · <b>I</b> ···· | <b>.</b>       | - <b>k</b> | <u> </u>         | 1        | 1        |                           |                                         | <br>                                    |                                         | · · · · · · · · · · · · · · · · ·            |
| UNI              | IS USED :                                    | m 29 fi-C       |               |            |                                       | T =R&/OR S - GOLDER ASSOCIATES HARDNESS CODE                                                                         | -               | ANI            | DEE ME     | ASURED           | PROM €   | URE AX   | 12                        |                                         | <b>1</b> HC                             |                                         |                                              |
|                  |                                              |                 |               |            |                                       | FRQD — ROCK QUALITY DESIGNATION [%]                                                                                  |                 |                |            |                  |          |          |                           |                                         | 65                                      | NTINIF                                  | 101                                          |

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### CORE & COAL CORE DESCRIPTION

|         |                                       |               | -     |
|---------|---------------------------------------|---------------|-------|
| PROJECT | LODGEPOLE                             |               | PAGE  |
|         | ····· ··· ··· ··· ··· ··· ··· ··· ··· |               | 04 51 |
| AREA    | WEST RIDGE - SOUTH SLOPE              | CONTINUED 101 |       |

| 001        |          |             |               | <u> </u>      | <u> </u>  | UTHO DESCRIPTION                                                               | MEDIAN         | TSFAM      | SAMPLE     |            |            | ANAL                                  | TICAL L        | AIA          | 1            |              | PEMARKST                              |
|------------|----------|-------------|---------------|---------------|-----------|--------------------------------------------------------------------------------|----------------|------------|------------|------------|------------|---------------------------------------|----------------|--------------|--------------|--------------|---------------------------------------|
| 507        | 47       |             |               | 111           |           | THE FOR THE CONTRACT TO FACH SEAM                                              | ANGLE          | DESIG      | No         | MOIS       | <u> </u>   | ASH %                                 | V.M. %         | FC. 74       | F.S.I        | 8            |                                       |
| No.        | 80×      | FROM        | to            |               | MAIN      | AMPLIFIED (INCLUDE COAL RECOVERT FOR EACH SEAMI)                               | 10             | <u> </u>   | į.<br>     | 0,0.0      | 10001      | 0.0                                   | a.a.b.         | <u>а.о.ц</u> |              | ¥1610        | Clow of Woter Ym()                    |
| . [        |          |             |               | 1.6           | COAL      | sheared: powdery: shaly?                                                       |                | 1          | 13         |            | 0.56       | 7.32                                  | 18 <u>.</u> 03 |              | 1.0          | 48.64        | ar Gas? Na(1)<br>Indicate Depth       |
|            |          | 101-3       | MADVER        |               |           |                                                                                | <u>†</u>       | ļ          |            |            | ļ···       |                                       |                | · · ·        |              |              |                                       |
|            |          | 104.3       | PHINEP        | . <u></u>     | <u>~~</u> | Recovery                                                                       | 1              | 1          |            | ·          |            |                                       |                |              |              |              |                                       |
|            |          |             |               | p.7           | COAL      | sheared                                                                        |                | 1          |            | ·          |            |                                       |                |              |              |              | · · ·· ·                              |
|            |          |             |               |               |           |                                                                                | · · ·          | <u> </u>   |            | ]          | -          | 6 35                                  |                | Į ·}         | 10           | 58 52        |                                       |
| 42         |          | l           | ··            | <b>p.</b> 3.  | COAL      | sheared: shaly                                                                 | · • · · · ·    | 1          | - 124-     | 1          | A.1 24     |                                       |                |              |              |              |                                       |
|            |          | [           | - · · - · · · | <b>b.</b> 1   | SHALE     | broken                                                                         |                | 1          |            |            |            | 1                                     | -···           |              |              |              | ]                                     |
|            |          | [           |               | <b>L</b>      | ····      | ang a sa <u>ang ang ang ang ang a</u> ng ang ang ang ang ang ang ang ang ang a |                | . I        | ł.         |            |            | (· )                                  | <b>∮</b>       | ₹-→→         |              |              | ···· ·· ·                             |
|            |          | · •         | - 1           | 0.4           | COAL      | sheared; broken to powdery                                                     | 1              | ļ          | <b></b>    | †          |            |                                       | ····           | 1            |              |              |                                       |
|            |          | 185.9       | MARKEI        | BLA           | СК        |                                                                                |                | 1          |            |            |            |                                       | <b>_</b>       | []           |              | <u> </u>     |                                       |
|            |          | [           |               |               |           |                                                                                | · [            | . <b>(</b> | <b></b>    |            | {          |                                       | [              |              |              |              | {                                     |
|            | · ·      |             |               | <b>р.</b> 1   | COAL      | dull; sheared: powdery                                                         |                |            | • ·        |            | · · ·      | f                                     | <u></u> †−−−   | 1            |              |              |                                       |
|            |          |             |               | <b>5</b> .1   | COAL      | shaly: powdery $1.4m/1.5m = 938$                                               | <u> </u>       | 1          | 15         |            | 1.13       | 9.02                                  | 17.89          | 1            | 2.0          | 49.97        |                                       |
|            |          |             | <b>!</b>      |               |           |                                                                                |                | - F        | Į          |            | +          |                                       |                |              | ··· · •      |              |                                       |
|            |          | ···_ ·      |               | <u>þ.ə</u>    | CONL      | sheared; powdery                                                               | -{             |            | +          |            | · ·        | <b>!</b>                              | ╅┄╾╾           |              |              |              |                                       |
|            |          | {           | <u> </u>      | 6.4           | COAL      | sheared                                                                        | · • •          |            |            |            | 1          |                                       | 1              |              |              |              |                                       |
|            |          | t           | 1             | Ĩ.,           |           |                                                                                |                | L          |            | T          |            |                                       |                |              |              |              |                                       |
|            |          | 187.4       | MARKE         | BL            | ск        | <b>*</b>                                                                       |                | . <b>.</b> |            |            | -{·        | · · ·                                 | ł              |              |              |              |                                       |
|            |          | <u> </u>    | }             | <u>h</u> -    | CON       | aboared, broken to powdery                                                     | ·              |            | <u> </u>   | ┥╌┈┈       | · [        | t                                     | <u>↓</u>       | l            |              |              |                                       |
|            |          | <b>†</b>    | 1             | <b>K</b>      |           |                                                                                |                |            | <b>I</b>   |            |            |                                       | l              | 1            |              | [            |                                       |
|            |          |             | <b></b>       | p.1           | SHALE     | broken                                                                         | · <b> </b> · · |            |            |            |            | ·}                                    | <b>-</b>       |              | ļ            |              | <b>. </b>                             |
| [ <u> </u> |          | ۰ ۱         |               | h -           |           | $\frac{1}{16\pi/16\pi} = 1003$                                                 | · [· · ·       | • [ •      | 1 <u>.</u> |            | 1.51       | 8.54                                  | 19.35          | ;f           | 2.5          | 54.40        | {-····                                |
| ŀ ·        |          | 1           | <b></b>       | 1.0           | CUAL      |                                                                                |                | <u> </u>   |            | 1          |            |                                       | L              | I            |              |              |                                       |
|            |          | 1           |               | þi            | SHALE     | broken                                                                         | _]             | .          | <u> </u>   |            | _]         | · ]                                   | <b> </b>       |              | <b>.</b>     | <b>↓</b>     | · <b>-</b>                            |
|            |          |             |               | <b>h</b> 2    | CONT      | sheared, broken, powdery                                                       |                |            |            | 1          |            |                                       | I              | 1            | <u> </u>     | <u>∔</u>     |                                       |
| -          | <u></u>  | }           | · · ·         | <u></u>       | L'CONT    | Sheareu: Droken: Dowdory                                                       |                |            |            |            |            | 1                                     |                | <b>.</b>     | 1            | <b>1</b>     |                                       |
| <u> </u>   | <b>.</b> | 189.0       | MARKE         | R BU          | dcx       | <u> </u>                                                                       | 4              |            |            | · <b>!</b> | +          | ·                                     |                | <u> </u>     |              | <b>}</b>     | · · · · · · · · · · · · · · · · · · · |
|            | <b>.</b> |             | <b>.</b>      | -Ł -          |           |                                                                                |                |            |            | <b>.</b>   | +          | · · · · · · · · · · · · · · · · · · · |                | <b>{</b>     |              | +            | ┨─╴ ·── · -¬                          |
| -          |          |             | -}            | -P**          | I SHALE   | Recovery                                                                       | -              |            |            |            |            | 1                                     | -              | 1            | <u> </u>     | 1            |                                       |
| { <u>`</u> | <u> </u> | 1           |               | b.2           | COAL      | sheared: powdery 0.9m/1.5m = 60%                                               | _              |            | .17        |            | 1.19       | 9.01                                  | 18,44          | <b>۱</b> ۲   | 1.5          | 38.77        |                                       |
|            |          |             | +             | -             |           |                                                                                | - {            |            |            | i          | <b>.</b> . |                                       |                | · • · · -    |              | <b></b> · ·· |                                       |
| 1.2        |          | <u> </u> ·  | -{            | - <u>p.e</u>  | COAL      | snary: sneared                                                                 | - [            |            |            |            |            | 1                                     | ·· [ ···       | 1            | 1            | 1            |                                       |
| [ `        | <b>[</b> | 190.5       | MARKE         | R BL          | фк        |                                                                                | 1              | [          | <b>!</b> . | [          | · [- ]     |                                       | · [            | NB           | unle         | ss oti       | erwise noted_                         |
|            | <b>[</b> |             | ļ _           | _             |           |                                                                                |                |            | -          | -          | ł          |                                       |                |              | 1 <u>all</u> | icoat i      | 180.21m -<br>                         |
|            | <b>!</b> |             |               | - <b>p</b> -5 | COAL      | sheared                                                                        | 1              |            |            | 1          | 1          | 1                                     |                | +            | пер          |              | JE IN Hat (2-                         |
|            | <u>†</u> | 1           |               | _b.i          | COAL      | sheared and powdery: shaley                                                    |                | -          |            |            |            |                                       |                | 1            | Ţ            |              | · · · · · · · · · · · · · · · · · · · |
|            | ]        | 1           | T             | - T           |           | Recovery                                                                       |                | <b>.</b>   |            |            | -          | bicz                                  | 1 22 0         | <u> </u>     |              | 12 64        |                                       |
| ł          | <b>.</b> | . <b>.</b>  | ł             | p.1           | SHALE     | carbonaceous: sheared 1.0m/1.5m = 67%                                          |                |            | 18         | ·          | 1          | 10.0                                  | 144.0          | <sup>2</sup> | <u>-</u>     | 32.04        |                                       |
| ł          | 1        | · • • • • • | •             | Į             | ł         |                                                                                |                | 1          | 1          | 1          | 1          | -                                     | 1              |              | 1            | 1            |                                       |
| L.,        | L        | <b>_</b>    |               | <b>.</b>      | 1         |                                                                                |                |            |            | _ <b>_</b> | L          |                                       | _ <u>}</u>     | ·            |              | . <u>L</u>   | - <u>L</u>                            |
|            | UNIT5    | ₩SED ÷ →    | •8 HO         |               |           | T HEB/DR 5 - GOLDER ASSOCIATES HARDNESS CODE                                   | -              |            | ULL MI     | CASUKED    | TRUM       | CURE A                                | ~13            |              | I HC         | DLE I        | No. 🖙 - 🖻                             |
|            |          |             |               |               |           | ANAD KOCK ADMOUS DESIGNATION ( 18)                                             |                |            |            |            |            |                                       |                | :            | CO           | TINUE        | D 101                                 |

FILE No BA -212

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### CORE & COAL CORE DESCRIPTION

| PROJECT | LODGEP01.E               | HOLE No LP - P | PAGE 14 .  |
|---------|--------------------------|----------------|------------|
| AREA    | WEST RIDGE - SOUTH SLOPE | CONTINUED 101  | <b>,</b> " |

|          |             |                                       | 14       |                | ī <u> </u>   | LIHO DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |             | -        | SAMPLE      | <b></b>                                 |             | ANAL                                    | TICAL                                   | AIA               |              |                 |                                              | Dest 1         |      |
|----------|-------------|---------------------------------------|----------|----------------|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------|-------------|-----------------------------------------|-------------|-----------------------------------------|-----------------------------------------|-------------------|--------------|-----------------|----------------------------------------------|----------------|------|
| 004      | AT          |                                       |          | ŦН             |              | AUDITOR UNCLUDE COAL RECOVERY FOR EACH SEAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ANGLE       | DESIG    | No          | MOIS                                    | */•         | ASH %                                   | V.M. %                                  | F.C %             | E.S.F        | <b>%</b>        |                                              |                |      |
| No.      | 500 G       | FROM                                  | 10       |                | MAIN         | AMPLIFIED INCLUDE COAL RECOVERT FOR EACH SEAMI                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1           | <b>!</b> | <b>i</b> —- | 0.1 B                                   | renauai     | 0.0,                                    | a.d.b.                                  | a.d.u             | ·]           | Yield           | lilow of W                                   | uler Yest J    |      |
|          |             |                                       |          | 0.2            | COAL         | powdery                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |             | }        |             |                                         | -           |                                         |                                         |                   | ·            |                 | or Gos?                                      | NoF            |      |
|          |             |                                       |          |                |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |             |          | 18          |                                         | - 1         | · _ ··=·                                |                                         |                   |              |                 |                                              | 1910 <u>-</u>  |      |
|          |             |                                       |          | <u>[0.1</u>    | <u>SHALE</u> | carbonaceous; broken                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |             |          |             |                                         | }· ·        |                                         | · - · -                                 | · · ·             |              |                 | l ·                                          |                |      |
|          | · · ·       | 100 0                                 |          |                |              | ······································                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ŀ           | -        |             |                                         | <b>1</b> -  |                                         |                                         | ·                 |              |                 | 1                                            |                |      |
|          |             | 192.01                                | MARKE    | K <u>B</u> L   | <u> </u>     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1           | 1        |             |                                         | 1.          |                                         |                                         |                   |              |                 |                                              |                |      |
|          |             | •• ••••                               |          | 0.9            | COAL         | broken to powdery Recovery                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |             | 1        | 10          |                                         | 1.07        | 10.84                                   | 17.30                                   |                   | 1.5          | 57.98           | L                                            |                |      |
|          |             |                                       |          | 1212           | 00100        | .9m/0.9m = 100%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1           | 1        |             |                                         |             |                                         |                                         | <b>L</b>          |              |                 |                                              |                |      |
| ۳.       |             | 192.9                                 | MARKE    | R BL           | оск          | l                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>I</b> .  | 1        |             | l ·                                     | l           |                                         | I                                       |                   |              |                 |                                              |                |      |
| (        |             |                                       |          | <b>i</b>       | [            | [                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>.</b>    | 4        | <u> </u>    |                                         | <b>.</b>    |                                         | <b>↓</b>                                | <u>∔</u>          |              |                 |                                              | -·· ·          |      |
|          |             |                                       |          | 0.1            | SHALE        | carbonaceous; broken:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |             | Ì        | · ·         | ł                                       | 1           | ·                                       | <u>ا</u>                                | <b>↓</b>          |              | · <b>—</b> ··-· | <b></b> · · · ·                              |                |      |
| l        | l           | ·                                     |          | Ļ              | <b>I</b>     | sheared                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ╁╼╌──       | -        |             | <b></b>                                 |             | ···                                     | ╞╴╾╌╸                                   | ł                 |              |                 | f - · - · · -                                |                |      |
| [ · ·    |             | ·                                     |          | <u> </u>       |              | · · · · · · · · · · · · · · · · · · ·                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1           | - · · ·  |             |                                         | 1           | 1                                       |                                         | I—–               | f /-         |                 |                                              |                |      |
|          |             |                                       |          | 10-1           | COAL         | Recovery Recovery                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 1           | f        | [ ]         | t                                       | 1           |                                         | <b></b>                                 |                   |              |                 | t i                                          |                |      |
|          | · i         |                                       |          | 0. ż           | COAL         | very shaly; broken stick 1.2m/1.3m = 92%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |             | 1        | 20          |                                         | 0.96        | µ2.31                                   | 17.50                                   |                   | 1.0          | 31.84           | R2                                           |                |      |
|          | }··I        |                                       | ·        | 1              |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |             | Ι        | I           | 1                                       | I           | 1                                       | l                                       | L                 | ļ            |                 | 1                                            |                |      |
| [        | 1           |                                       |          | 0.1            | COAL         | shaly; sheared; broken                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |             | . [      | ļ           | . <b>ļ</b>                              | .Į          |                                         |                                         |                   | <b>}</b>     | ···             | Į · ·-                                       |                |      |
|          | [ ]         |                                       |          | I              |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b> </b>    |          | ~           |                                         | <b> -</b>   |                                         |                                         | ł-—-              | ╂───         |                 | • <b>•</b> • • • • • • • • • • • • • • • • • |                |      |
| <u> </u> | <b></b>     |                                       |          | 0.3            | COAL         | sheared; powdery                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |             | 1        |             | ·} ··                                   |             | 4                                       |                                         | · [               | }·           | <b></b>         | ·} `                                         | ····           |      |
|          | <b></b>     |                                       |          |                | +            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |             |          | 1           | ł                                       | }           |                                         | }                                       | <u>ا</u>          | <u> </u>     | - ··            | + ··· ···                                    |                | Land |
|          | ]           |                                       |          | 0.2            | COAL         | very snaly; broken; sneared                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             | 1        | <u> </u>    | ╉                                       |             | · ··                                    | • • · · · · · · · · · · · · · · · · · · |                   | ŧ−−          | ]               |                                              |                |      |
|          |             | 104 2                                 | MADYL    | - BT           |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | · • · · · • |          |             | · • • • • • • • • • • • • • • • • • • • |             |                                         | <u>├</u>                                | 1                 |              | \$              | RJ RJ                                        |                |      |
| Ì ~      | +           | 124.2                                 | PPRAL    | <u>r - P</u>   |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1           |          | 1           | 1                                       | 1           | 1                                       |                                         | <u> </u>          | <u> </u>     | I               | 1                                            |                |      |
| l        |             |                                       | · · ···  | 10.1           | SHALE        | carbonaceous Recovery                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1           | Τ        | L           |                                         |             |                                         |                                         | <u> </u>          | 1            | l               |                                              |                | l .  |
| t:-      |             |                                       |          | 1              | 1            | <u>0,1m/0,3m = 338</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |             |          | NOTE        | (Samp)                                  | es' 1       | 2 to 2                                  | (inc                                    | usiv              | d) quai      | ity             |                                              |                | ł    |
|          | 1           |                                       |          |                | L            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |             |          |             | data                                    | <u>s ba</u> | s <u>ed on</u>                          | washe                                   | <u>e coa</u>      | l at S       | 1.6 1           |                                              |                |      |
| ĺ        | 1           |                                       |          | ـــــ          | . <b> </b>   | L                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |             |          |             | .                                       |             |                                         | ·                                       | <b>-</b>          |              |                 | · · · · · ·                                  |                |      |
| 44       | 194.4       | 194.4                                 | 202.8    | 8.             | 1 SHALE      | silty with siltstone interbeds; poorly bedded;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 657         |          | ·           |                                         |             |                                         | ·{                                      | ł                 |              | <u> </u>        | KÖD: \                                       | ۲.۶.ــود       | ł    |
| (45      | 1197.1      | <b> </b>                              | <u> </u> | -              |              | Itransitional below: proken shear zones at:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | -+          |          | ·{-~-       | -{·                                     | ·f·         | 1                                       | 1                                       | - f · · • • • • • | -{           | <u>†</u> ─-'    | f                                            |                | 1    |
| 46       | 202.6       |                                       |          | +              |              | 197.86 - 198.16m ( 201.57 201.67m; carcon-                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |             |          |             |                                         |             |                                         |                                         |                   |              | t               |                                              |                | 1    |
| <u></u>  | <u>}</u> —– | l                                     |          | +-             | · {          | (hedding plane), 20 (3) recovery: 1803                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1           | 1.       | 1           |                                         | 1           |                                         | [· · · —                                | 1                 |              | 1               | 1 · · · ·                                    |                | 1    |
| j        | t           |                                       |          | 1-             | · •          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |             | 1        |             |                                         |             |                                         | 1                                       | I                 | I            | I               |                                              |                |      |
| 1 ·      | t           | 202.8                                 | 204.2    | 11,            | 4, SHALE     | as above: broken core: jointing at 20, 70                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |             | _        | 1           | 1                                       | L           |                                         | <u> </u>                                | . <b>.</b>        | ļ            | <b>.</b>        | 62.5                                         | <b>.</b>       | ]    |
|          | <b>I</b>    | [                                     |          |                |              | (bedding plane)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | _ <b> </b>  | ·        | ·[          |                                         | · •         |                                         | · <b>ļ</b>                              | ┫                 | · i          | 4               | - ROD :                                      | ·              | 1    |
| <b>.</b> | 1           |                                       |          | 1              | . <b></b> .  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | _           |          | <b></b>     |                                         |             |                                         | -                                       |                   |              | ╀──             |                                              |                | 4    |
| } _      |             | 204.2                                 | 205.2    | +1.            | O CLAY       | sandy: numerous sub angular rock fragments:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | - <b> </b>  |          | ·           | +                                       |             | · • • • • • • • • • • • • • • • • • • • | -{                                      |                   | +            | -               | SZ -                                         |                | 1    |
| 1        | ·{·         |                                       | ·        | <b>-</b> ⊦     | ·            | TRAUET GOUGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ··[-·-      |          | · {         | · · · · ·                               |             |                                         | · / ···~·                               |                   | fr           | ·               | · • · · -                                    |                | 1    |
|          | 1000        | 205 2                                 | 207 5    |                | 2 CC         | wave medium to fine grain: mod bedded with                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 65          | - t- · · | {· · ·      |                                         | · · · ·     |                                         |                                         |                   | 1            | 1 .             | RODE                                         | 19; 64 "       | 1    |
| 41       | 200.        | 1_ <u>20</u> 5.4                      | 201.5    | 1.             | 3 33         | grey, medium to find grant, the fight way up:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |             | i i      | 1           | 1                                       | -           |                                         | 1                                       |                   | 1            | 1               |                                              |                | ]    |
| ł        | 1           | <u>∤</u> · -                          |          | ŧ.             | {·           | [slightly calcite cement; interbedded with occas                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | H           | 1        |             |                                         |             | 1                                       |                                         |                   |              | 1               |                                              |                |      |
|          | † ~~        | · · · · · · · · · · · · · · · · · · · | ť        | - <b>†</b> · · | 1            | ional minor shale bedscontacts abrupt below;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |          | 1           | <b>1</b>                                |             | <b>.</b>                                | <u> </u>                                |                   |              |                 |                                              |                |      |
| 1_       | 1           | [                                     |          |                |              | jointing: at 25 (3); at 68 (4bedding plan                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 2,          |          | ļ           |                                         |             |                                         |                                         | <b>_</b>          |              | 4               |                                              |                | 1    |
|          | 1           | Į                                     | <u> </u> | 4              | <b>.</b>     | Recovery: 100%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 4 -         |          | · · -       |                                         |             |                                         |                                         |                   | 1            | 4               | -+ ·                                         | - · · · -      | 4    |
| -        | · .         | <b>!</b>                              | 1        |                |              | the second secon | 1 70        |          | 1           | ł                                       | 1           | 1                                       |                                         | · • • - · •       |              | -{              | ROTH                                         | 45: 6A -       | 1    |
| .46      | 209,9       | 9 <u>,207</u> .5                      | 210.2    | 12.            | / SLIST      | with very fine grain sandstone interpedded: mod                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ʻ' 1′°      |          |             |                                         |             |                                         |                                         | -{                | ··•• ··· -   | ·ł              | Line .                                       | - <b>1</b> ( ) | 1    |
| ŀ        | <u>∔</u>    | F = · · ·                             | • ·      | 1              |              | erate fine bedding: small scale cross-bedding:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |             |          | 1           | 1                                       | i i         |                                         | ł··                                     | - 🛔               | · -   · ·    | 1 I             | 1                                            |                | 1    |
| L        |             |                                       | <u> </u> | 1_             | <u> </u>     | Traces of carbonaceous material: adrupt below:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |             | <u> </u> | L           |                                         | 1_          | <u>ا</u>                                | <u> </u>                                | <u> </u>          | .d           |                 | <u> </u>                                     | ·              | 1    |
|          | UNITS       | USED: #                               | Q 10     |                |              | 1 HRE/OR 5 - GOLDER ASSOCIATES HARDNESS CODE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 4           |          | GLE ME      | EASURED                                 | FROM        | CORE A                                  | 45                                      |                   | <b>[</b> ]]2 |                 |                                              |                |      |
|          |             |                                       |          |                |              | •ROD - ROCK QUALITY DESIGNATION (%)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |             |          |             |                                         |             |                                         |                                         |                   | LH(          | <u>, nt [</u>   | <b>10</b>                                    | 9 - 9          |      |
|          |             |                                       |          |                |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |             |          |             |                                         |             |                                         |                                         |                   |              | ATINUE          | 0                                            | 101            | ļ    |

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FILE No BA 1212

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### CORE & COAL CORE DESCRIPTION

| PROJECT | LODGEPOLE HOLE NO LP - D               | PAGE 15<br>OF 21 |
|---------|----------------------------------------|------------------|
| AREA    | WEST RIDGE - SOUTH SLOPE CONTINUED 101 |                  |

| BOX        | OF BILL         | INFR    | <u>1</u>   |                 |             | LITHO DESCRIPTION                                       | AL DOM: 1       | SFAM         | SAMPLE     | ·               |            | ANAL       | TICAL E       | AIA             |                                       |                                              | DEMAGYST                              |
|------------|-----------------|---------|------------|-----------------|-------------|---------------------------------------------------------|-----------------|--------------|------------|-----------------|------------|------------|---------------|-----------------|---------------------------------------|----------------------------------------------|---------------------------------------|
|            | AT .            |         | ···        | 1H              |             | AND ISTED UNCLUDE COAL DECOVERY FOR FACH SEAML          | ANGLE           | <b>DEStG</b> | No         | MOIS            | *          | ASH %      | VM %          | f.C. %          | F.S.L                                 | 8                                            | RE MARKS                              |
| No         | 000             | FROM    | <u>0</u>   |                 | MAIN        | AMPETPIED INCLUDE COME RECOVER FOR EACH APPIN           | 1-1             | <u> </u>     | <u> </u>   | 0.r. 0          | resiavor   | J.U.       | <u>a.a.p.</u> | a.a.n           | ·                                     | <u>rield</u>                                 | Flow of Water Yes[]                   |
| con        |                 | 207.5   | 210.2      | 2.7             | SLTST       | jointing: at 20 (2); 70 (3) bedding plane;              |                 |              |            | - A.0           |            |            |               |                 |                                       | ·                                            | or Gos? Nof)                          |
| .          |                 |         |            |                 |             | Recovery: 86%                                           | - · · ·         | }            | }          |                 |            |            |               |                 |                                       |                                              | indicolar Creptin                     |
|            |                 |         | and 12     | 2.2             |             | many modium to fine grain; moderatoly bedded in         | 40              |              | ton        |                 |            | -          |               |                 |                                       |                                              | ROD: 20, R4                           |
| 49.        | 14'6            | 210.2   | 216.7      | 6-5             | 55          | grey, medium to time grain, moderateri addadu i         | - 60            | at           | base       |                 |            |            |               |                 |                                       |                                              | ·····                                 |
|            |                 | •       |            |                 | · · · · · · | calcarcour coment in places; fault bredia at            | :               |              | ,•         |                 |            |            |               | ·               |                                       |                                              |                                       |
| · · · 1    |                 |         |            |                 |             | 216.0 m depth: jointing: 27 (5) with some               |                 | Ľ.           |            |                 |            |            |               |                 |                                       |                                              | · · · · · · · ·                       |
| . 1        |                 |         |            |                 |             | calcite infilling                                       |                 | <b>_</b>     |            |                 |            |            |               |                 |                                       |                                              |                                       |
|            |                 |         |            |                 |             |                                                         |                 |              |            |                 |            | ···· —     |               |                 |                                       | <u> </u>                                     | ionis, o                              |
|            |                 | 216.7   | 217,6      | ა.9             | នុន         | as above; very broken core                              | -               | i            |            |                 |            |            |               | <u>ا</u>        | ┣────                                 |                                              |                                       |
|            |                 |         |            |                 |             | A A A A A A A A A A A A A A A A A A A                   | · ·             |              |            | {               | +          |            |               | ·               |                                       |                                              | 800 - 60                              |
|            |                 | 217.6   | 218.2      | 0.0             | 33          | as abovepopriy bedded: joincing. 25 / 45 (1)            | Y               | •            | I          | <b> </b>        |            |            |               |                 | <b>i</b>                              |                                              | ··· ¥=·· ···                          |
|            |                 |         | L ,        | f               |             | <u> Concerce minor</u>                                  | <b></b> · ·     | ·-           | t          | † · · ·         | ľ          |            |               | 1               |                                       |                                              |                                       |
| 50         | 218.2           | 218.2   | 218.8      | 0.6             | ss          | grey; medium grain to coarse grain; occasional          | 1               | · · ·        | 1          | [               | I          |            |               |                 |                                       |                                              | ROD . 50; RJ                          |
|            | · <b>H</b> = 1. |         |            |                 |             | grit size bands; trace carbonaceous stringers;          |                 | Į –          |            | <b>[</b>        |            | . <u> </u> |               | Ì               | ļ                                     | ·                                            |                                       |
|            |                 |         |            |                 |             | poorly bedded; jointing at: 20 (2), 40, 68              |                 | 1            |            |                 |            | i          |               | ·               | <b> </b>                              |                                              |                                       |
|            |                 |         |            | <b>-</b> -      | <b> </b>    | 17. may be bedding plane); occasional shale in          | <u>er-</u> -    |              | ····~      |                 | ·          |            | <b>∮-</b>     |                 | <u></u> -                             |                                              |                                       |
| <b>_</b>   |                 |         |            | <b>.</b>        |             | clasts; abrupt below                                    | ┨               |              | }          | ┨               |            | ·          | <u> </u>      | ł               | ł                                     |                                              |                                       |
|            |                 | 219 8   | 219-1-     | 0.3             | ŝŝ          | grey, fine grain; with siltstone interbeds;             | ſ               | 1            | [          | <b>∮</b> ·      | [····      |            | f             |                 | f                                     |                                              | f1                                    |
| ·          |                 | 210.0   |            | <u> </u>        |             | well bedded defined by carbonaceous layers;             | 70              | † * ···      | <u> </u>   |                 |            |            | ·             | t               | 1                                     |                                              | R3                                    |
|            |                 |         |            | †—-             | <u>†</u>    | abrupt below                                            |                 |              |            | <b>I</b>        |            |            | l             |                 |                                       |                                              |                                       |
|            |                 |         |            |                 |             |                                                         |                 |              |            | I               |            |            |               | Į               | ļ                                     | L                                            |                                       |
| 51         | 221.9           | 219.1   | 222.3      | 3.2             | SS          | grey; medium grain; mod well bedded; homogeneou:        | <u>1 / _</u>    |              | 4 .        |                 |            | · •        | <b></b>       | <b> </b>        | <u>-</u>                              |                                              | ROD: 73; R3                           |
|            |                 | · · · · | <b>_</b>   | ļ               | l           | throughout; carbonaceous in part; transitional          |                 |              | ł –        | }               | ·          | ł — ·-     | ····-         | <u>}</u>        | <u></u> ∦ —                           | <u> </u>                                     | · · · · ·                             |
|            |                 | Į       | <b> </b>   | <b>∔</b>        | <b>∤</b> —  | below; jointing at 20 (3), 70 (5. hedding plan          | <b>1</b>        | · · ·        |            |                 | 1 · · · ·  |            | i             | <u></u> ⊦       | ł                                     |                                              | <u> </u>                              |
| ]          |                 |         | ]          | <u>+</u>        | 1           | Recovery 1001                                           | 1—-             | - <b>-</b>   |            |                 |            |            | ţ             | <u>+</u>        | 1                                     | ∮ •                                          | t                                     |
|            | • ••            | 222 3   | 222 8      | 0 5             | SS          | grey, medium orain to coarse grain, with numerou        | 16 65           | 1            | 1          | [               |            | t          | ţ             | 1               | 1                                     | i                                            | ROD: 40: R4                           |
| t          |                 |         | 1          | 1               |             | clasts: occasional coaly stringers; grain size .        |                 | 1            |            | 1               |            |            |               | I               |                                       |                                              |                                       |
| <b></b>    |                 |         |            | I               |             | becoming more coarse at base; abrupt below              | <b>!</b>        |              | · <b>k</b> | ∔               | ·          |            | l             | <b></b>         | ↓                                     | <b> </b>                                     | · · / / / /                           |
| <b>i</b>   |                 |         | 1          |                 |             |                                                         |                 | · 🖡 .        |            | ·[              | ╂──        |            | } ·           | <u> </u>        | ·                                     | }                                            | D()D, 100                             |
|            |                 | 222.8   | 222.9      | 0.1             | SHALE       | black; with coarse grain sandstone interbeds;           | <u> </u>        | +            | · {        | · - · · · - · · | ·          | l- ·       | +             | ┨────           | <b>i</b>                              | <b></b>                                      | KUD: 100                              |
| <u>⊦</u>   | <u> </u>        |         | ╂          | ╋               |             | <u>laisturpea: trace of slickensides; Recovery; 100</u> | *               |              | ·1         | t               | 1          | t·         | t             | <u>+</u>        | <b>†</b>                              | t                                            | · · · · · · · · · · · · · · · · · · · |
| <b>⊦</b> … |                 | 222.9   | 225.3      | 2.4             | ss –        | very fine grain; shaly; grey to black; broken t         | 3               |              | 1          | 1               | 1          | t          | 1             | 1               | 1                                     | 1                                            | RQD: 12                               |
| 1          |                 | 1       |            | 1               | <b>Г</b>    | powdery; with 0.05msoft clay at base; Recovery          |                 | 1            |            | 1               | 1          | 1          | I             |                 |                                       |                                              |                                       |
|            |                 | 1       | 1          |                 | 1           | 57%                                                     |                 |              |            |                 | <b></b> .  | ļ          |               | ļ               | <u> </u>                              | ļ .                                          |                                       |
| I          |                 |         |            |                 | 1           | · · · · · · · · · · · · · · · · · · ·                   |                 |              |            | - <b>-</b>      | 1          | h          |               | · <b> </b> · ·  | <u> </u>                              | <b>↓</b>                                     | .                                     |
| 52         | 226.7           | 225.3   | 226.6      | <b>. J.L.</b> 3 | <u>ss</u>   | grey; medium grain; carbonaceous; yery broken;          | -{ -· ·         |              |            | ł               | ·          | Į., .,-    |               | ·· •            |                                       | <b>!</b>                                     |                                       |
| 1          |                 | · · -   |            |                 | 1 .         | transitional below; jointing at 206}                    |                 |              | 1          | f               | <b>}</b> - | 1          |               | 4               |                                       | ┦ ·                                          | KUD: V; K2.                           |
| 127        |                 | 222.2   |            |                 |             | where medium evals to coarse grains proving hedd        | .  <br>   70    | . I - '      |            | 1               |            | ł          |               | · • • • • • • • | · - · ·                               | <b>1</b> ·                                   | ROD: 44: R3                           |
| 127        | ¥.29••4         | 440.3   | 1230.7     | -1-a+1          | 100         | jorganional carby stringers toward base, borger         | : <b>r</b> • '` | · † ·        | 1          | 1 -             | 1          | l · · ·    | 1             | 1               | 1                                     | 1                                            | [                                     |
| 1 · ·      | • •             |         |            | <b>†</b> ⁻      | 1           | ous with minor scattered shalv clasts throughout        |                 | 1            |            | L               | .1         |            | 1             | 1               |                                       | 1                                            | 1                                     |
| 1          | <b>1</b>        |         |            | T.              |             | transitional below at 227.12 - 227.22 m; is             |                 |              |            |                 |            | I          | 1             | 1               |                                       |                                              |                                       |
| 1          | 1               | 1       | 1          |                 |             | weathered along joints; soft; broken zone at            | 1               | Į            | 1.         |                 |            |            | ļ             | ·I              | -                                     | 4                                            |                                       |
| F          | <b>.</b>        | I       | . <b>.</b> |                 |             | 227.42 - 227.82 m; recovery 1003;                       |                 | İ            | · .        | -               |            |            | f             |                 | · }                                   | -                                            | f · · · -                             |
| 1          | ļ               |         | <b>i</b>   |                 | 1           | jointing at 20, 70 (5,,,bedding plane)                  |                 |              | 1          | +- ·            |            | ۰ I        | ·             | - {             | -                                     | 4                                            | 1 · · · · ·                           |
|            | Í               |         | <u> </u>   | 1               | <u>í</u>    |                                                         | <u> </u>        | 1            | . L        | 1               | ⊥          | 1          |               | 1               | ⊥                                     | <u>í                                    </u> |                                       |
|            |                 |         | A 110      |                 |             |                                                         |                 | 4.50         |            | ASHRED          | 1004 0     |            | 14            |                 | · · · · · · · · · · · · · · · · · · · |                                              |                                       |

UNITS USED : ME IIO

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1 := R#/OR 5 -- GOLDER ASSO vie s +ROD - ROCK QUALITY DESIGNATION [%]

HOLE No. LP - D CONTINUED 101 FILE No BA - 212

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### CORE & COAL CORE DESCRIPTION

PROJECT LODGEPOLE . . . \_ WEST RIDGE - SOUTH SLOPE

AREA

PAGE 16 OF 21 HOLE No LP - D CONTINUED 101

|          |                     |            |                   | - 1            |                  | UTHO DESCRIPTION                                 | A              | Istan      | SAMPLE       |                    |                                       | ANAL          | TICAL                                   | A1A          |                    |                | PEMARES                          |
|----------|---------------------|------------|-------------------|----------------|------------------|--------------------------------------------------|----------------|------------|--------------|--------------------|---------------------------------------|---------------|-----------------------------------------|--------------|--------------------|----------------|----------------------------------|
| BOX      | AT                  |            | 181               | тн             |                  | AUDITED LINCLUDE COAL RECOVERY FOR FACH SEAM     | ANGLE          | DESIG      | No           | MOIS               | i %<br>Gaudani                        | ASH %         | VM. %                                   | FC %         | 1,5,1              | %<br>Viold     |                                  |
| No.      | 10PU<br>80>         | FROM       | 1Q                |                | MAIN             | AMPEIFIED TINCEODE COAL RECOVERS TOR EACH SCHMIT | 1 1-1          |            | <u> </u>     |                    | 1010001                               | 0.0.          | <u>a.c.p</u> .                          | <u>a.a.u</u> | ·                  | <u>iieiu</u>   | llow of Woler Yes()              |
|          |                     | 230.7      | 231.8             | 1.1            | ទទ               | as above; broken; with occasional carbonaceous   |                | <u>ا</u> . | · ·          |                    |                                       |               |                                         |              |                    | · •            | or Gas ? Na())<br>Indicate Depth |
|          | ·                   | i          |                   |                |                  | zones abrupt below hyp: 40; 65                   |                | ţ          |              |                    |                                       |               |                                         |              |                    |                |                                  |
|          | · -                 | 231.8      | 231.9             | 0.1            | CONGL            | sub-angular; shaly pebbles in sandy matrix;      | ·              |            |              |                    |                                       |               |                                         |              |                    |                |                                  |
|          |                     |            |                   |                |                  | carbonaceous at base; some slickensided sur-     |                | <b>.</b>   |              |                    |                                       |               | <u> </u>                                |              |                    |                |                                  |
| ]        |                     | }          |                   | · -            | · -·             | faces                                            | <b>}</b>       | ╂          |              |                    |                                       |               | <b>_</b>                                |              |                    |                | 1                                |
| ון       |                     | 231 0      | 233.4             | 1.5            | SHALE            | silty to carbonaceous; black; becoming increas-  | i              | 1          |              | ·····              |                                       |               |                                         |              |                    |                | RQD: 0; R1-3                     |
| Ì -      |                     | ******     |                   |                |                  | ingly sheared at base; Recovery: 57%             | 1              |            |              |                    | l                                     |               |                                         |              |                    |                |                                  |
| ].       |                     |            |                   |                |                  |                                                  | <u> </u>       | 1:         |              |                    |                                       |               |                                         | ł            |                    |                | ROD: 8: 83                       |
| 1        |                     | 233.4      | 234.7             | 1.3            | <u>ss</u>        | fine grain; grey; carbonaceous stringers; pour;  | 1              | 1          | (            | <u>⊦</u>           | i                                     |               | Ľ                                       |              |                    |                |                                  |
|          | <u></u><br><u> </u> | +          | <u></u> }- · _··· | <b>{</b> − ·   |                  | Detracat Moven and to Toxusting Propriet         | 1              | 1.         |              |                    |                                       |               |                                         |              |                    | · ··           | 505 J 6-                         |
| 54       | 234                 | 234.7      | 235.3             | 0.6            | SS               | medium grain; grey; numerous carbonaceous        | <b></b>        |            | <b>_</b>     |                    | <b></b>                               |               | <b>.</b>                                | <b>-</b>     |                    |                | KOP: TO                          |
| ]        | Į                   |            |                   | ļ              | <b> </b>         | stringers; transitional below; broken; Recovery  | · • · · ·      | -          |              |                    | • • • • • • • • • • • • • • • • • • • |               | - <u></u>                               | ł ——         | <b> </b>           | h              |                                  |
| · · ·    |                     | ł          | - · -             | ŧ              | · · ·            |                                                  | 1              | 1          | [            | <u> </u>           | <u> </u>                              | Ľ             |                                         |              |                    |                |                                  |
|          | t                   | 235.3      | 238.1             | 2.8            | SS               | grey; medium grain to fine grain; moderatly      |                |            | ļ            | ·                  | Į                                     |               | Į                                       |              | <u> </u>           | · • • • • • •  | 800. 67. 83                      |
| L.       |                     |            | 1                 | L              |                  | bedded; occasional minor carbonaceous wisps;     | 1 70           | +          | ╄            |                    | <b></b> ··                            |               | <u> </u>                                |              | <b> </b>           |                | 125. 01 L H                      |
| ļ        | ļ                   | ╉          | ¢                 | <b>∮</b>       |                  | shale clasts; abrupt below; jointing; at 45      |                | 1          |              |                    | · * *                                 |               | 1                                       | ŧ            |                    |                | · ·                              |
|          | · · · · ·           |            |                   | } ·            | <u></u>          | Recovery: 100%                                   | T'+            | · [        | <u> </u>     |                    | 1                                     | l             |                                         | 1            |                    |                |                                  |
| <b>–</b> | 1                   | 1          |                   |                | [                |                                                  |                | <u> </u>   | <u> </u>     |                    | . <b> </b>                            |               | <b></b>                                 |              | <b> </b>           |                | 800-96.83-                       |
|          | 1                   | 238.1      | 238.9             | 0.8            | SS               | grey; fine grain; with interbedded shales; well  | <u>//</u> .    |            | - <u>-</u>   | · <b>-</b> - · - · |                                       | <u>}</u> ··—— |                                         |              | ·}                 | +              | 1                                |
|          | ł                   | .          |                   |                | <b>{</b> ·· -−−− | bedded with minor carbonaceous layers; zone of   | · <del> </del> |            |              | <b> </b>           |                                       | <u>↓</u>      | +                                       | 1            | 1                  | t              |                                  |
| ·        | ┨───                |            | <u>}</u>          | +-             |                  | Recovery: 100%: jointing at 70 15, bedding       |                |            | <u> </u>     |                    |                                       | ļ             | <b></b>                                 |              |                    |                |                                  |
|          | 1                   |            | 1                 |                |                  | plane), 25°, 30°                                 |                | -   -      | - <b> </b>   |                    |                                       | ·             | <b> </b>                                |              |                    | ╞╴───          | ·] · · · —                       |
| Į        | l                   | -          | 4                 | <b> </b>       | l                |                                                  | · [ ·          |            |              | ·                  | <b>-</b>                              |               | +                                       |              | +                  | <b>{</b> ∎- −  | RUD: 0: R3                       |
| 155      | 238.                | 9.238.9    | 239.3             | 10.4           | \$\$             | Igrey medium grain, carbonaceous in part, with   | -i —           |            | <u>†</u>     | 1                  |                                       | t             |                                         | 1            |                    |                |                                  |
| <b>-</b> | <b>†</b> ~~ -       |            | · · · · ·         | <u>†</u>       | 1                |                                                  |                |            | <u> </u>     | ļ                  |                                       |               |                                         | · <b>l</b>   | · <b> </b>         | <u> </u>       | 1000 - 75 - 8"1 -                |
| 56       | 242.                | 7 239.     | 244.1             | 4.8            | SS _             | hedium grain; Accessional carbonaceous partings; | 70             |            | <b></b>      |                    |                                       | }             | · • · · —·                              |              | ·}                 | <u>↓</u> · · - | N201 007 No                      |
|          | <b>.</b>            |            | <b>.</b>          | 1              | I                | with moderate to poor bedding; transitional      | -              |            |              |                    |                                       |               | · • • • • • • • • • • • • • • • • • • • |              | +                  | † · · · · · ·  | 4 · · ·                          |
| +        | · • • - · - ·       |            |                   | ┨──            | · [              | inge scattered small shalv clasts: jointing at   |                | -          | t            |                    |                                       | t             |                                         | 1            | 1                  | 1              |                                  |
| 1        |                     | 1. · ·     | l                 | 1              |                  | 28 (3 calcite infilled),70 (5 bedding plan       |                | _          | 4            | 1                  |                                       | l             |                                         | · • · · ·    | - <b> </b>         | <b>-</b> -     |                                  |
|          | <u> </u>            |            |                   | 1.             | ļ                |                                                  |                |            | ·+           | ·                  |                                       |               |                                         | 1            |                    | f              | ROD: 0                           |
| -        |                     | . 244.3    | 245.4             | $\mathbf{\mu}$ | s <u>s .</u>     | as above; broken; Recovery 100%                  |                | +          | -{           | · † · · · · ·      |                                       | 1             |                                         | †            | -                  | 1              |                                  |
| 57       | 246                 | 9 245      | 251               | 15.3           | ss -             | grey; medium grain; homogeneous with occasional  |                |            | ••• <b>[</b> | <b>I</b>           |                                       |               |                                         |              | 1                  | I              | ROD: 17; 83                      |
| 1"       | 1. 1.               |            |                   | <u>ו</u>       | 1                | carbonaceous partings; no bedding; broken by     | ,              |            | 1            |                    | .]                                    | Į .           | ļ                                       |              |                    |                | • <b>•</b> • • • • • • • •       |
| ļ        |                     | <b>.</b>   | ļ                 | 4              |                  | numerous joints, Recovery 100%; jointing at 25   |                |            |              | 1                  | 1 I                                   | -             | <b>.</b>                                |              |                    |                |                                  |
|          |                     | - I        | · · ·             |                | - I              | iwith calcite and gypsum[/) infiliing( 45 With   |                |            | -† -         | 1                  |                                       | 1             | 1                                       | 1            | ··· <b>þ</b> ····· | 1 .            |                                  |
| 1        | ł                   |            | 1                 | ł              | ·[ -· -          | There's dist dated with Turtition                |                |            | ·            | 1                  |                                       | 1             |                                         |              |                    | 1              |                                  |
|          | 1                   | 251.       | 251.2             | 10.            | I SHALE          | grey-black; very homogeneous; with minor calci   | :e             |            |              |                    | ł                                     |               | L                                       | <b>.</b>     |                    | 4              | ROD: 0, R3                       |
| ļ        |                     |            |                   | 1              | 1                | infilled fractures                               |                |            | 1            |                    |                                       |               | · <b></b> · · · · ·                     |              |                    | -1             | - · ·                            |
| + -      | -                   | 251        | 251.4             | 0.             | 2 SUALE          | silty: carbonaceous; minor coaly stringers;      |                |            | ļ            | 1                  | !                                     |               |                                         | 1            |                    | 1              | RQD: 65, 83                      |
| ł.       | 1                   | 1 2.24     |                   | 1              |                  | slickensided; abrupt below                       |                |            |              | i i                | }                                     | 1 "           |                                         |              | 1                  | ŀ              |                                  |
| L        | 1                   | · <b>L</b> |                   |                | L                |                                                  |                |            |              |                    | 1                                     | 1             |                                         | <u> </u>     |                    |                |                                  |
|          | UNIT                | S USED :   | ₩Q <b>K</b> 80    |                |                  | T PROFUR S - GUIDER ASSOCIATES MAXDNESS CODE     | -              | - AN       | VAC M        |                    |                                       |               |                                         |              | I HC               | DLE I          | NO, LP - D                       |
|          |                     |            |                   |                |                  | TRUE - RUCK OUR(11) DEJONATION ( /8)             |                |            |              |                    |                                       |               |                                         |              | CO                 | VTINUE         | 5 101                            |

FILE No BA 212

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# CORE & COAL CORE DESCRIPTION

| PROJECT | LODGEPOLE                | HOLE No LP - D | PAGE 17<br>OL 21 |
|---------|--------------------------|----------------|------------------|
| AREA    | WEST RIDGE - SOUTH SLOPE | CONTINUED 101  |                  |

| <b></b>  |                |                   |                 | <b>—</b> 1 |                                         | UTHO DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |            | SEAM       | SAMPLE     |                 |             | ANAI         | TICAL C              | ATA                  | -<br>- · •   |                | PEMARKS                 |
|----------|----------------|-------------------|-----------------|------------|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------|------------|-----------------|-------------|--------------|----------------------|----------------------|--------------|----------------|-------------------------|
| BOX      | DEPTH<br>AT    |                   | 161             | тн         | · · · · ·                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ANGLE      | DESIG      | No         | MOIS            | · %         | ASH %        | VM %                 | FC %                 | F.S.I        | 8              | R. means /              |
| No       | 10901<br>603   | FROM              | IQ I            |            | MAIN                                    | AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | (*1        | Ļ          | <u>i .</u> | 015             | residual    | 0.6          | <u>a.d.b.</u>        | <u>a.d.b</u>         | •            | <u>Yigld</u>   | Now of Woter and I      |
|          |                | 251.4             | 252.3           | 0.9        | SS                                      | grey; medium grain to fine grain; numerous shaly                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |            | i          | }          |                 |             |              |                      | 1                    |              | - · · ·        | vr Goi? Nof]            |
|          | -              | 1                 |                 |            |                                         | clasts, jointing at 35°calcite infilled;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |            | ļ          | !          | ·               |             |              | · <b>_</b> · · · · · | 4                    |              |                |                         |
| []       | L              |                   |                 |            |                                         | ROD: 84; R4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |            |            | i i        | · -             |             |              |                      |                      |              |                |                         |
| ļ        | ļ              |                   |                 |            |                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |            | 1          |            | i               | ł           |              |                      | - 1                  | ·            |                | ROD: 0; R2              |
| 1        |                | 252.3             | 253.1           | 0.8        | 55                                      | grey; numerous shale incerbeds and clusts; cours                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |            |            | · ·        | <u>}</u> -      | · ·         |              |                      |                      |              | -              |                         |
| ÷ .      | · ·            | łł                |                 |            |                                         | Stringers; Droken; sheared tone                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |            |            | j ···      | 1 · -·          |             |              |                      |                      |              |                |                         |
| Ì        |                | 251 1             | 253.4           | ò.3        | SS                                      | grey: medium to coarse grain; occasional minor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |            |            | 1          | 1               | 1           |              |                      |                      | · ·          |                |                         |
|          | ¦·             | 1.5.7.7.5         | ÷ • • • •       |            | • <del>·</del>                          | carbonaceous stringers; Recovery 100%; jointing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |            |            | l          |                 |             |              |                      |                      |              |                | BOD. 50. 04             |
| 1.       | l .            |                   |                 |            | - · ·                                   | at 30°, 52°, 50° (carbonaceous infilling)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |            |            |            | l               | <u></u> ,   | ··· -· -     |                      | · ·· · •             |              |                | NY0. 501. 1.            |
|          |                | I I               |                 |            |                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |            |            |            | (               | ·{ ···      | <b>.</b>     | Į —                  |                      |              | · .—- ·        |                         |
| <b>L</b> | L              | 253.4             | 253.5           | 0.1        | SHALE                                   | carbonaceous; sheared; broken; coaly stringers_                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>-</b>   |            |            |                 | ¦ ·         |              |                      |                      |              |                |                         |
| <b> </b> | ļ              |                   | · ·             |            |                                         | - the second to second graint shrupt below                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | į.         | · -        |            |                 |             | -            | [ <u> </u>           |                      |              |                | ROD: 59: R4             |
|          | <b>∤</b> · -—  | 253.51            | 254-7           | 11.6       | <u></u>                                 | grey: medium drain to coarse drain, astupe beide                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |            | · • · · -  |            | 1               | 1           | j            |                      |                      |              |                |                         |
| i i      |                |                   |                 |            |                                         | tointing at 30 (4calcite infilled). 45.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>[</b>   | l          | 1          |                 |             | l            | L                    |                      |              |                |                         |
| t -      |                |                   | i · -           | ]·         | 1                                       | (2bedding plane?)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |            | . <b>i</b> |            | _ <b>.</b>      |             | <b>.</b>     | ·                    |                      |              |                |                         |
| T .      | ·              |                   |                 | <b>I</b>   |                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |            | -+         |            | -}              | ·           |              |                      | ·                    |              |                | ROD: 0                  |
| 59.      | 255.           | 254.7             | 256.0           | 1.3        | SHALE                                   | grey; silty in parts; sheared throughout;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | }          |            |            |                 | •••••••     | <b>∤</b>     | <u> </u>             |                      | · · ·        | ·              |                         |
|          | <b>-</b>       |                   |                 |            |                                         | slickensided at base with soft falcite infilin                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1          | 1          | 1          | ·               | ·           |              | ·                    | t                    | i            |                |                         |
|          |                | -                 |                 | [;         |                                         | arous modium                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <u>ь</u> - |            | ł          |                 | +           | · · -·       |                      | f                    | 1            |                |                         |
| 1        |                | 1225.0            | 757 <u>.</u> 9. | 11-0       | . 55                                    | innaceous etringene: very broken with numerous                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | T          | 1          |            | 1               |             | 1            |                      |                      | [            |                | RQD: 0; R2              |
| -        |                | +                 | · ·             | t          | 1                                       | sheared surfaces: calcite infilled joints;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>F</b>   |            |            | ]               | <b>I</b>    |              | i                    | <b>.</b>             | <b>!</b>     |                | · ·                     |
| 1        |                |                   |                 |            |                                         | Recovery: 100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Ì          | . ]        |            |                 |             |              |                      |                      |              |                |                         |
|          | 1              |                   |                 | Ι          | I                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 110        |            | l          | <b></b>         | –           |              |                      | l                    | +            | ł              | ROD 41: R3              |
| 60       | 258.           | 5 257.8           | 259.5           | 11.7       | <u>ss</u>                               | grey; medium to coarse grain; moderate bedding                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1.1        |            |            |                 | -1          | ł            |                      | <b>├</b>             | <u></u> ╉ •™ | <b>i</b>       | 1985.L                  |
|          | ļ              | ·                 |                 |            | <b></b>                                 | defined by carbonaceous stringers; broken with                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |            |            | ·          | · ·             | · · · ···   | <u>†</u> · · |                      | ┟╴┈╶┥                | +            | <b>1</b> − · · |                         |
|          | · · -          |                   |                 | ł          |                                         | numerous joints and slickensided suitaces;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ;          | -          |            | ·               | · - · · - · | · · · · · ·  |                      | f "                  | 1            | <b>†</b> · -   |                         |
|          |                | ·                 | {               |            |                                         | Recovery 100s, jointful at 10 12.15 Herenstere                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 'I '       | 1          |            |                 |             | 1            |                      |                      | 1            | L              |                         |
| <u>}</u> | <u>†</u>       | 259.5             | 259.8           | 0.3        | ss                                      | as above; very broken                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 25         |            |            | 1               | 1           |              |                      | l                    | <b>↓</b>     | <b>↓</b>       |                         |
| Ĩ        |                |                   | I               |            |                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | · <b> </b> |            |            | · ]             | .+          |              |                      | j                    | ·            | <b></b> -      |                         |
|          |                | 259.8             | 260.0           | 0.         | SHALE                                   | silty; very sheared                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            | ·          |            |                 | -+          |              | ·· ·                 | <b>}</b> −           |              | <b> </b>       | 1 YO                    |
|          |                |                   | <b>_</b>        |            |                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | · ·        |            | }          |                 |             | · • · · · ·  | i ·                  |                      | +            | · · - · ·      | · · · · · · · · · · · · |
|          |                | . 260 <b>.</b> .Q | 260.3           | . Q. I     | 3 <b>\$</b> \$                          | grey; medium grain; numerous carbonaceous                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ł          |            | 1          | ·               | -1          | -            |                      | ·}                   | ·            | †··            | ROD: 0                  |
|          |                | -                 | - ·-·           | 1          | · · · ·                                 | stringers; calcite infilled joints                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1          | ·   -      |            |                 | · •         | 1            |                      | 1                    | 1            | 1              |                         |
| Ł        | + • •          | 260.3             | 260.5           | 18.3       | SHALE                                   | sheared; broken                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | · [        |            |            | -               | 1           |              | ·                    |                      |              | 1              |                         |
| 1 -      | · · -          | 1                 | 1               | 1          | · • • • • • • • • • • • • • • • • • • • |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |            | 1          |            | [               |             |              |                      |                      |              | L              | 505 T 6 53 T            |
| 61       | 262.           | 2 260.5           | 263.0           | 2.         | 5 SS                                    | grey; medium grain; carbonaceous stringers;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 80         |            |            |                 |             | 4 .          |                      |                      |              | -              | KOD: 01 K3              |
| 1 -      | . <b>L</b> . – |                   | ļ               |            | 1                                       | broken by numerous joints several of which show                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |            |            |            |                 |             | 4 -          | · ·                  |                      | · · · · · ·  | -}             |                         |
| 1        |                | ł                 | ļ               |            |                                         | weathering R2 hardness; recovery: 100%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1          |            |            | · •             |             | 1            | [· · · ·             | 1                    |              | 1              | · · · · · · ·           |
|          | ·  ·           | 1                 | 20.1            |            |                                         | arous fine grains broken carbonareous stringer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 5          | ·          | 1 ·        | 1               | f           |              | 1                    | 1                    | -1           | 1              | · · · ·                 |
| ł        | 1 -            | 20.2.0            | 403.4           | 12.        | * 29 <u>-</u>                           | teppared at top                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | - <b>1</b> | ŀ          |            | I               | 1           | l            |                      | 1                    | 1            | 1              | RQD: 0, 82              |
|          | 1              |                   | 1               | 1          | 1                                       | perspectation with the with the second | 1          | 5-         |            |                 |             |              |                      | 1                    | 1            | 4              | 1                       |
| 1        | 1              | 263.4             | 264.0           | 10.        | 6 COAL                                  | dull with bright bands; sheared; broken;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1          |            | 1          | ]. <sup>`</sup> |             | 1            | l                    |                      |              | 4              | 0.000                   |
|          | 1              |                   | 1               | 1          |                                         | Recovery: 80%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |            |            |            |                 |             | 1            | Į                    | - <b>-</b>           |              | - <b>j</b>     | KQD: 01 55              |
|          | ļ              | 1                 | 1               |            | 1                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1          |            | ł          |                 |             | ł            | .                    | · <b> </b> · · · · · |              | -1             |                         |
|          | l              |                   |                 | 1          |                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |            |            | Í          | L               | 1           | 1.           |                      |                      |              | 1              |                         |
|          | 115-174        | ustr              | 0. 10           |            |                                         | t +R&/OR S GOLDER ASSOCIATES HARDNESS CODE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |            | IGLE M     | EASURED         | FROM        | CORE A       | 95                   |                      | <u> </u>     | 21.5           |                         |
|          | August.        |                   |                 |            |                                         | ROD ROCK QUALITY DESIGNATION (%)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |            |            |            |                 |             |              |                      |                      | LH(          |                | NO. LP - D              |
|          |                |                   |                 |            |                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |            |            |            |                 |             |              |                      |                      | 00           | NTINÜĒ         | D 101                   |

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#### CORE & COAL CORE DESCRIPTION

 PROJECT
 LODGEPOLE

 AREA
 WEST RIDGE - SOUTH SLOPE

| 60X      | 0E#1#     | DEP           | тн              |          |          | LITHO DESCRIPTION                                         | AFORNIZA      | SEAM       | SAMPLE       |                                       |           | ANA    |                 | AIA     |            |           | PENADES                         |
|----------|-----------|---------------|-----------------|----------|----------|-----------------------------------------------------------|---------------|------------|--------------|---------------------------------------|-----------|--------|-----------------|---------|------------|-----------|---------------------------------|
| No       | TOPO      | FROM          | 10              | н        | MAIN     | AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)           | ANGLE         | DESIG      | No           |                                       | residual  | ASH 7. | V.M. 7.         | adh     | F.S.I      | 3<br>Mate | ET MORES                        |
|          | - 003     | 264 0         | 266 0           | 2 0      | CUALE    | carbonaccoust with coaly stringers; abrunt below          |               | 1          | 1            | L                                     |           |        |                 | <u></u> | <u></u> }  | 11010     | How of Woter Yest J             |
| - ·      | ł         | 204.0         | 290.0           |          | Starms   | sheared with numerous listric surfaces; Recovery          | ľ -           | ł          |              | <b>~</b>                              | · ·       |        |                 |         | · · {      |           | indicale Depth                  |
| · · ·    | · · 1     |               |                 |          |          | 80%                                                       | i .           |            |              |                                       | 1         |        | -               | •       |            |           | -                               |
| 62       | 266.7     | 266.0         | 269.8           | Э.В      | S5       | grey; medium grain; very carbonaceous with                | Į             |            |              | <b>.</b>                              |           |        | ·               |         |            |           |                                 |
|          |           |               |                 |          |          | numerous carby stringers and coaly wisps; broken          | i             |            | i .          | <b>i</b>                              | í         |        |                 |         |            |           | RJ .                            |
| .        |           |               |                 |          |          | with slickensided surfaces; numerous joints;              |               |            |              | · · ·                                 | }         |        |                 |         |            |           |                                 |
|          |           |               | · • · · · · · · |          |          | transitional below; recovery inut; jointing at            |               | ł          |              | <u>↓</u>                              | ł ·       |        | • • • • • • • • |         |            | · · · ·   | ·                               |
| · -      |           |               |                 |          |          | 22. (5                                                    | · _ ·         | <u>∤</u>   |              | ÷ · · · · · · · · ·                   | · • • • • |        | · ~ · ·         |         |            |           |                                 |
| 1        |           |               |                 |          |          | ob (comparing plane. 11)                                  |               | 1          | 1            |                                       |           |        |                 |         |            |           |                                 |
| 63       | 271.0     | 269.8         | 272.0           | 2.2      | SHALE    | with interbedded medium grain-fine grain; sand-           | I             | ľ          |              |                                       |           |        |                 |         |            |           |                                 |
| · · - ·  |           | 4             |                 |          |          | stone; moderately well bedded; abrupt below;              | 85            | 1          |              | L                                     | <b>.</b>  |        |                 |         |            |           | ROD: 17 R3                      |
| (        | ·         |               |                 |          | [        | contains 2 shear zones at 269.81 - 269.91m,               | f             | ļ          | l            | ·                                     | [ · ]     |        |                 |         |            |           |                                 |
|          |           |               | •••             |          | · ·      | 2/1.00 - 4/1.50 p; recovery 90%                           |               |            | ÷            | · ·                                   |           |        |                 |         |            |           | ··· -·· · · · · · · · · · · ·   |
|          |           | 272.0         | 274.4           | 2,4      | ss       | grey; medium grain; poorly bedded with numerous           | 65            | 1          | 1            | ·                                     |           |        |                 |         |            |           | RQD: 29;"R3"                    |
|          |           |               |                 | ł        | ľ        | large shaly clasts; carbonaceous stringers                |               | 1          | l            |                                       |           |        |                 |         |            |           |                                 |
|          |           |               |                 | <b> </b> |          | defining bedding; broken by numerous joints;              |               | <b>L</b> . | <b>.</b>     |                                       |           |        |                 |         |            |           |                                 |
|          |           |               |                 |          | ··· -··· | Recovery 1001; jointing at 65 17slickensided              |               | ÷          |              | <b>_</b>                              | <b> </b>  |        |                 |         |            |           |                                 |
| ·        |           |               |                 |          |          | bedding plane), 20 (4 with carbonaceous                   |               |            |              |                                       |           |        |                 |         |            |           |                                 |
| • •      |           | [             |                 |          |          |                                                           |               | Ì          |              | · · · · · · · · · · · · · · · · · · · |           |        |                 |         |            |           |                                 |
| 64       | 274.8     | 274.4         | 279.2           | 4.8      | 5S       | grey; medium grain to coarse grain; carbonaceous          |               | †          |              | t                                     |           |        |                 |         | <b> </b>   |           | · · · · · · · · · · · · · · · · |
| 65       | 278.9     |               |                 |          |          | poorly bedded; transitional below; broken with            | 70            | ]          | [            | 1                                     | [         |        |                 |         |            |           | ROD: 23, R3                     |
| -        |           |               |                 | <b> </b> |          | joints; occasional weathered zones R2; jointing.          | <u> </u>      | <b>..</b>  | ł            |                                       | ļ         |        |                 |         | ┟──┈╺┥     |           |                                 |
|          |           |               | <del>.</del>    |          | ·        | at 20, (4calcite infilled in part), 50                    | ł             |            | · ·          | ··                                    |           |        |                 |         |            | · · ·     |                                 |
| }·- !    |           | · · · · · · · | · · ·           |          |          | [4., Slickensided); shear zone: 270,95 - 277,15m          | · ·           | ł          | · · · · ·    |                                       | ·         |        | · ·             |         | ╏╍╴╌──┤    | •         |                                 |
| <u>[</u> |           |               |                 | t        | <b>-</b> | STICKENSIGER IN DELC, LOVE RECOVERY                       |               | 1          | 1            |                                       | 1         |        |                 |         | <u></u> }} |           |                                 |
| 66       | 283,2     | 279.2         | 287.1           | 7.9      | SS       | grey; medium grain; occasional carbonaceous               | 75            | 1 -        |              | [                                     | }         | ·      |                 | ř       |            |           | RQU: 27; R3 -                   |
| ļ        |           |               |                 | ļ        |          | stringers; mod. bedded; broken in part with               |               | I          |              | ļ                                     | 1         |        |                 |         |            |           |                                 |
|          |           |               |                 |          | ··· ··   | softer weathered zone along joints 285.3 - 285.4          | Б <u>ю</u>    |            | <b></b>      | <b></b>                               |           |        |                 |         | <b> </b>   | L.        | ·                               |
| •        |           |               |                 | <u> </u> | [        | jointing at 20 (12), 75 (6., bedding planes);             | ł             |            |              |                                       |           | ·      | I               | · ·     |            |           |                                 |
|          |           |               |                 | ·        | · · ·    | Recovery love                                             |               | +          |              | i                                     | 1         |        | l               | ·- ·    | { }        |           |                                 |
| 67       | 287.1     | 287,1         | 294.2           | 7.1      | SS       | grey; medium grain; occasional carbonaceous biel          | ŧ;∵           |            | <b>i</b>     |                                       | 1         |        | t               |         |            |           | RUD: 29, R3-                    |
| 68       | 291.      |               |                 | į        |          | mod bedded; some fractures infilled with calcit           | 70            |            |              |                                       | L         | 1      |                 |         |            |           |                                 |
| ļ        | ·         |               |                 | {        |          | some fractures infilled with pyritic material;            | l             |            | <b> </b>     | <u> </u>                              | ļ         |        | <b>.</b>        |         |            |           |                                 |
|          | <b>-</b>  |               |                 | $\vdash$ |          | broken; broken with softer weathered material a           | <b>1</b>      | + -        |              | · · · · · · · · · · · · · · · · · · · |           | l      | <b> </b>        |         | ┢──┤       |           | l                               |
| 1-       |           | · {           | · ···           |          | ·        | 1289.10 - 200.00 m depth; 3010130 af 34 (5).              |               |            | ·            | ·                                     | · ·       | · .    | • ··· •         |         | —··        |           | · · · · ·                       |
| [ -      |           |               |                 | f ··· ·  |          | W. A. Co. A. Phone Weindmith Strander 1575, no. 19411 and | 1             | 1          | ţ.           | f                                     | í.        | t      | <b>i</b>        |         | ti         |           | ∫·· · - ·                       |
| 69       | 295.2     | 294.2         | 296.9           | 2.7      | ss       | grey; medium grain; occasional carbonaceous               | 80            | ļ          | 1            | 1                                     | 1         | 1      |                 |         |            |           | ROD 4 R3                        |
| <b>i</b> |           |               |                 |          |          | stringers at bottom of interval; transitional             | 1             |            |              | 1                                     |           |        |                 |         |            |           |                                 |
| 1        |           | J             |                 | ł        | £        | below; in part, core is broken with softer                |               | 1          | <u>.</u>     | 1                                     |           |        | .               |         | ļ          |           |                                 |
|          |           |               |                 | ł        | <b> </b> | weathered zone at 294.2 - 294.6 m depth; good             | • •           | }          | l            | ł                                     |           |        |                 |         | <u> </u>   | •         | +                               |
| [····    |           | •             |                 | 1.       |          | bedding plane)                                            | 1 · · ·       |            |              | 1                                     |           |        | ·               |         | t          |           | }                               |
|          |           |               |                 | ļ        |          |                                                           | 1             | 1          | İ            | 1                                     | l         | i i    | j               |         | † <b> </b> |           | ) · · · ·                       |
| ļ        |           | 296.9         | 297.1           | 0.2      | BLTST/S  | 5 interbedj_grey; fine grain - medium grain; car          | ł             | l          | 1            | 1                                     | 1         | 1      | 1               |         |            |           | [ • * *                         |
|          |           |               |                 |          |          | onaceous at top of interval with minorocoaly              | 50            |            |              |                                       |           |        |                 |         | · · · ·    |           | RODI OF RI                      |
|          |           |               |                 |          | ·        | t HEL/OR 5 ~ COUDER ASSOCIATES HARDARY STOP               | . <u>.</u> ⊻⊻ | <br>مىمۇر  | <u>للارم</u> | A                                     | .1        | ·      | 1               | <br>#   | 1          |           | Texter Al P. A                  |
|          | webri # 1 |               | e "D"           |          |          | #200 - ROCK OHATTY DESIGNATION (%)                        | •             | ANG        | NC MC        | A 308 E 0                             |           | URE AN | >               |         | HO         | IE N      |                                 |
|          |           |               |                 |          |          |                                                           |               |            |              |                                       |           |        |                 |         | CON        | TINUED    | 101                             |

FILE No BA -212

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### CORE & COAL CORE DESCRIPTION

AREA WEST RIDGE - SOUTH SLOPE

| 807            |              | ,           | The      |              | í          |                                                   |           |          |                          |                |                | ANAD     | TICAL C           | ATA                |          |                           | ······································ |
|----------------|--------------|-------------|----------|--------------|------------|---------------------------------------------------|-----------|----------|--------------------------|----------------|----------------|----------|-------------------|--------------------|----------|---------------------------|----------------------------------------|
|                | 41           | r no u      |          | TH           |            | AND LEED INCLUDE COAL RECOVERY FOR EACH SEAM)     | Anzeitt   | DESIG    | No                       | MOIS           | %              | ASH %    | V.M. %            | F€ %               | F.S.I    | ۹.                        | PEMARKS'                               |
| No             | 801          | FROM        |          |              | MAIN       | AMPEIPED TINCEDDE COAL RECOVERTOR ENCLY SERVICE   |           | <u> </u> | í                        | a r. b         | residual       | a, b.    | a.d.b.            | a.d.b              |          | <u>Yield</u>              | How of Woter YesEll                    |
| 70             | 299.0        | 297.1       | 300.4    | 3.3          | LTST/S     | very fine grain; dark grey to black; shaly in     | 85        |          |                          |                |                |          |                   |                    | -        |                           | or Gos? His()                          |
|                | · ·          |             |          |              |            | fractures infilled with chart (2); mod bedding    | ••        |          |                          | ····-          | · ·            |          |                   |                    |          |                           |                                        |
|                |              | · · – – · · |          | -            |            | cross-bedded in portions: cure is badly broken:   |           |          |                          |                |                |          |                   |                    |          |                           |                                        |
|                |              |             |          |              |            | slickensided, jointing at 85 (9bedding plane)     |           | ]        |                          |                |                |          |                   |                    |          |                           | ROD: 20; RJ                            |
|                |              |             |          |              |            | 15, 74 (3chert. filled)                           |           |          |                          |                |                |          |                   |                    |          |                           |                                        |
|                | · ··· ·      |             |          |              |            |                                                   |           | <b> </b> | • • <u> </u>             |                |                |          | · _ · · ·         |                    |          |                           |                                        |
|                |              | 300.4       | 300.6    | 0.2          | 55         | as above; but very badiy broken                   |           | •••••    |                          |                |                |          | · · _ ·           |                    | · ·——-   | - ·                       |                                        |
|                | ··· ·        | 300.6       | 300.7    | 0.1          | SHALE      | carbonaceous; silty; pyrite blebs <0.01 m in      | ļ         |          |                          | ·              | ···· ···       |          |                   |                    | · — —    |                           |                                        |
|                |              |             |          | · _ ·        |            | diameter throughout                               |           |          | 1                        |                | <b>I</b>       |          |                   |                    |          | ·<br>-·· ·=·              | RQD: 0, 55                             |
| L              |              |             |          |              |            |                                                   |           | Į        |                          | l              | <b>.</b>       |          |                   |                    |          |                           |                                        |
| • • • •        |              | 300.7       | 303.3    | 2.6          | SS         | fine grain; dark grey to black; occasional        | 80        | · -      | <b>∮</b> ·· <u>—</u> — · |                |                |          |                   |                    |          |                           |                                        |
|                |              |             |          | } ;          |            | carbonaceous blebs; good bedding; bloken with     |           | {·       | <u> </u>                 |                |                |          |                   |                    |          |                           | · · · · ·                              |
|                |              |             | - · - ·  |              | · - ·      | depthi cross-bedded: very minor coaly debris at   | 1         | 1        |                          |                |                |          |                   |                    |          |                           |                                        |
|                |              |             | -        |              |            | base of interval; jointing at 80 (9 hedding       |           | <b>.</b> |                          |                |                |          |                   |                    |          |                           |                                        |
|                |              |             |          | <u> </u>     |            | plane), 10, 0                                     |           | ļ        | <b>!</b>                 | <u> </u>       |                |          |                   |                    |          |                           |                                        |
| -;; ·          | 202 1        | 202 2       | 307 4    | 7            |            | medium grain. moderatly bodded: broken: with      | 74        | -        | u                        |                | ·· · ·         |          |                   | · · - •            |          |                           | 1000 7 B                               |
| 72             | 307.0        | <u> </u>    |          |              | f          | weathered zones at 303.78 - 303.91 m. at 305.9-   | · · ·     | l        | · ·-                     |                |                |          |                   | ···· –             |          |                           | Y97. '.3. K.                           |
|                |              |             |          |              | <b>i</b>   | 306.05 m: both are 52 in hardness: Recovery 90%:  | İ         | Į        | 1                        | [              | 1              |          | · · · · · · · · · | f                  |          |                           |                                        |
|                |              |             |          |              | ]          | jointing at 74° (7bedding plane), 10° (3),        | [         | <b>.</b> |                          |                |                |          |                   |                    |          |                           |                                        |
|                |              |             | <b> </b> | <b> </b>     |            | 26 (4)                                            | <b> </b>  |          |                          | <b>_</b>       |                |          | · ·               |                    |          | ··                        |                                        |
| 72             | 311 0        | 307 4       | 118 5    | <del>1</del> |            | medium grain to coarse grain; mod to poorly       | -<br>AD   |          |                          | <i>.</i>       | ł · ·          |          |                   |                    |          |                           | 800- 69 84                             |
| $\frac{7}{74}$ | 315.5        | 307.4       | 510.5    | <b>1</b>     |            | bedded: with occasional carbonaceous stringers:   |           | · ·      | 1.                       | f              | <b>†</b>       | ·        |                   |                    | ·        |                           | ······                                 |
|                |              |             |          | I            |            | abrupt below; some calcite infilling of fracture  | k         | ľ        | [                        | · · · ·        |                |          |                   | [                  |          |                           |                                        |
|                |              |             | ↓        | ↓            | ·          | some pyriteand quartz infilling of fractures; Re  |           | <u>↓</u> | l                        | <b> -</b>      | 4              |          |                   | <b>-</b>           | <u> </u> | · ·                       |                                        |
| <b>├</b> ──    |              |             | <b></b>  | ╀───         | ··· - ·· · | covery 95%; jointing at 10_15calcite/guartz/      |           |          | ÷                        | h              | +····          |          |                   | • • • • • • • • •  |          |                           |                                        |
|                | <u></u> −    |             | <b> </b> | <u>†</u>     | <u> </u>   | 30 (6pyrite infilling in some), 80 (9             | † ··· •-  |          |                          | <b>!</b>       | ·              | · -      |                   |                    |          | · · · · · · · · · · · · · | <b> </b>                               |
| <u> </u>       | [            |             |          |              |            | hedding plane)                                    | L         |          | [                        | [ <u> </u>     |                |          |                   |                    |          |                           |                                        |
| l              |              | 1.7.177     |          |              |            |                                                   | ļ         | ļ        | <b>!</b>                 |                |                |          |                   | <b>.</b>           | <b>.</b> |                           | <b>.</b>                               |
| <u>-</u>       |              | 318.5       | 319.7    | 1,2          | SHALE      | carbonaceous; black; homogenous with some very    | <b></b> · |          | <b>∤</b> ·               | ┥──੶੶          |                |          |                   | <u> </u>           | <b> </b> |                           | POD, 20, P4                            |
| · ·            | i            | - ·         |          | ł-           | · · ·      | poorly derived beddingst risce of stickewsiding.  | -         |          | r · · · - ·              | f              | +              | •••••••  | ·                 |                    |          | •• • •                    | NUD: 201 NY                            |
| 75             | <b>b19.7</b> | 319.7       | 322.4    | 2.7          | SHALE      | carbonaceous at base; black; slickensided and     | 1         | ĺ.       | [                        | I              | 1              | 1        | l                 | 1                  |          |                           | RUD: LLI R3                            |
| Į              | L            |             | ļ        | <u>[</u>     | ļ          | broken at 320.00 - 320.18 in depth; light colored | l         |          | <b>_</b>                 | L              |                |          |                   |                    | <b></b>  |                           |                                        |
|                | <b>1</b>     |             |          | - <b>!</b>   | ļ          | shale clasts showing stress? MYLONITE; abrup      |           |          |                          | <b>)</b> .     |                | ·        | <b> </b>          |                    | <b>↓</b> |                           | <b>-</b>                               |
|                |              |             | ₹····    |              |            | [below; jointing at 55 [6. carbonaceous?          | 1         | ł ·      |                          |                |                | · ·      |                   |                    |          |                           |                                        |
| 1              | ŀ            |             | 1        |              | 1 ·        |                                                   |           |          | 1                        | †              |                |          |                   | ł · — -            |          |                           | t ··- ··-·-                            |
| 76             | 322.4        | 322.4       | 324.9    | 2.5          | SS         | carbonaceous; no bedding planes evident; homo-    | Ι.        |          |                          | i i            | 1              |          |                   | [                  |          | · ·                       | L                                      |
| <u> </u>       | <b>!</b>     | ]           |          |              |            | geneous throughout; abrupt below numerous slicke  | n-        |          |                          | 1              |                | <b>.</b> |                   |                    | <b>L</b> |                           | ROD: 0; R4                             |
|                | <b>∤</b>     |             |          | -l· ·        |            | sided surfaces; broken by jointing; minor calcito |           |          | + · - ·                  | ł .            | ł              | -        | <b>↓</b>          | <b>{</b> ·- ··     | <b></b>  |                           | -                                      |
| [              | t ·          | <b> </b>    | t        |              | 1          | (4): both are alickensided                        | † •       | ·        | · -                      | 1 <sup>.</sup> | 1 <sup>.</sup> | 1        |                   | <u></u> <b>-</b> − | ł        |                           | · · · · · · - ·                        |
|                | t:           | l '         | 1        | 1            | ł          | 14, Muller Brichenstucu                           | 1         | 1        | 1                        | 1              | · ···          |          |                   | · ··               | t —      |                           |                                        |
| 1              | [. ·         | ļ           | <b>.</b> | 1            | 1          |                                                   |           |          |                          | 4              |                | · .      | Į                 |                    |          |                           |                                        |
|                |              |             |          |              | 1          | <u> </u>                                          | 1         | Į        |                          |                |                |          |                   |                    |          |                           | 1                                      |
|                | UNITS        | USED : m    | 07.110   |              |            | T HALOR S - GOLDER ASSOCIATES HARDNESS CODE       |           | ANC      | LE ME                    | ASURED         | FROM C         | ORE AXI  | <br>S             |                    |          |                           |                                        |
|                |              | "           |          |              |            | -RQD - ROCK QUALITY DESIGNATION (%)               | _         |          |                          |                |                |          | •                 | 1                  | HC       | IE N                      | O. LP - D                              |
|                |              |             |          |              |            |                                                   |           |          |                          |                |                |          |                   |                    | CON      | TINUED                    | tor                                    |

 $\mathbf{LP} - \mathbf{D}$ 

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HOLE No

CONTINUED

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# CORE & COAL CORE DESCRIPTION

| PROJECT | LODGEPOLE                | HOLE No. LP - D | PAGE 20 |
|---------|--------------------------|-----------------|---------|
| AREA    | WEST RIDGE - SOUTH SLOPE | CONTINUED       |         |

| BOX        | OFF         | DEF         | тн        |               |             | LITHO DESCRIPTION                                                                       | AROUN        | C SEAM           | SAMPLE     |           |                | ANAL       | ICAL I            | AIA      |          | _               | REMARKST                               |
|------------|-------------|-------------|-----------|---------------|-------------|-----------------------------------------------------------------------------------------|--------------|------------------|------------|-----------|----------------|------------|-------------------|----------|----------|-----------------|----------------------------------------|
| No         | AT<br>TOPOF | FROM        | 10        | ін            | MAIN        | AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)                                         | ANG1F        | DESIG            | No         | a r. 6    | 7n<br>residuol | d.6.       | a.d.b.            | a.d.b.   | F.S.)    | Yield           |                                        |
| H          | - 001       | 124.9       | 325.0     | 0.1           | SHALE       | carbonaceousi slickensided; broken, gon: 0: 82                                          |              | 1                |            | 1         |                |            |                   | -        |          |                 | llaw of Water Yest !<br>or Gos ? No[]  |
|            |             |             | <u></u>   | ••=           | · · · · · · |                                                                                         |              | 1                | 1          |           |                |            |                   |          |          |                 | Indicate Depth                         |
|            | · · · · · • |             |           | <u>0,</u> 1   | COAL        | shaly; very broken and sheared                                                          | }            |                  |            | · - ·     |                |            |                   |          |          | •               |                                        |
| ·          | • •         |             |           | 0.1           | COAL .      | shaly; very broken and sheared                                                          | į .          | 1                | 21         |           | 0.75           | 17,26      | 18,41             |          | 3.5      | 23,21           |                                        |
|            |             |             |           |               |             | hatu broken and cheared                                                                 | <b> </b>     |                  | 1          |           |                | · -        | · ·               | ···      |          |                 |                                        |
|            |             |             |           | <u>10'- 7</u> | COAL        | Recovery                                                                                |              | 1                |            |           |                | ····       |                   |          |          | · · · · · · · · | ······································ |
|            |             |             |           | 0.1           | COAL        | dull; broken 1.0m/1.2m = 83%                                                            | ļ .          | 1                |            |           |                |            | ·-·· <b>-</b> · - |          |          | - · ·           |                                        |
|            | ·           |             |           | 0.1           | COAL        | dull: very sheared                                                                      |              | 1 · ·            | 22         |           | <u>0.69</u>    | 14.31      | 18.16             |          | 3.0      | 35.10           |                                        |
| <u> </u>   |             |             | ····-     |               |             |                                                                                         | ļ            | -                |            |           | ↓ <b>_</b> 、   |            |                   |          |          |                 |                                        |
|            | ·           |             |           | 0.3           | COAL        | dull: shaly in part; proken                                                             | {            |                  | '          |           | · · · ·        |            |                   |          | •        |                 |                                        |
| ļ          |             | 326.1       | MAR       | ER_           | LOCK        |                                                                                         | [            |                  |            | ţ         | Į              |            |                   |          |          | ·               |                                        |
| ļ          |             | · · = = ·   | <b>[.</b> | م<br>آ م      |             | dulla brokon                                                                            |              | - <del> </del> · | 23         | ┫···──··· | 0.66           | 15.79      | 17.82             |          | 1.5      | 70.58           | . ,                                    |
| 1"         |             | · · · · · · | ·         | <u></u>       |             | Recovery                                                                                | [            |                  |            |           | ·              |            |                   |          |          | ·               |                                        |
|            |             |             | ļ         | 0.1           | COAL        | dull; sheared; powdery 0.9m/1.3m = 69%                                                  |              |                  | <b>F</b>   | ┫         |                | { · ·      |                   |          |          |                 |                                        |
|            |             | <b>∤</b> ·  | F         | 0.3           | COAL        | with shaly interbeds; sheared                                                           | 1            |                  |            | Í         | <b>_</b>       |            |                   |          |          |                 | · · · · · · · · · · · ·                |
| <u> </u>   |             | ļ           | l         |               |             | and broken                                                                              | ļ            | _                | 24         |           | 0.67           | 15.6       | 17.06             |          | 1.0      | 15.19           |                                        |
| ļ          | <b>.</b>    | <b>}</b>    |           | 0.2           | COAL        | "soupy"; as above; powdery                                                              |              | _                |            |           |                |            |                   |          |          |                 |                                        |
| j          | ļ           |             |           |               |             |                                                                                         | Į            |                  |            | <u> </u>  |                |            | ]                 |          |          |                 |                                        |
|            | <u></u>     | 327.4       | MAR       | KER_          | BLOCK .     |                                                                                         | ł · ·        | · •              | · ·        |           |                | l          |                   |          |          |                 |                                        |
| <u> </u>   |             |             |           | 10.1          | COAL        | as above                                                                                | 1            | -                |            |           |                |            |                   | [        |          |                 | ·                                      |
| ŀ          | 1           | <b> </b>    | £         |               | 0.00        | $\frac{\text{Recovery}}{100000000000000000000000000000000000$                           | · · ·-       |                  | 25         | <b> </b>  | 11.00          | 17.12      | 18.5              |          | 3.0      | 39.02           | {···                                   |
| ۲ <u>۴</u> | 327.0       | 1 '         | · · · · · | 10            | COAL        |                                                                                         |              |                  |            | <u>+</u>  |                |            |                   |          |          |                 | ·····                                  |
|            | Į           |             | <b> </b>  | 0.            | COAL        | shaly; sheared; broken to powdery                                                       |              |                  | <b>}</b>   | <b></b>   | ·              |            | {                 |          | <b>!</b> |                 | ł · ···· - · · · ·                     |
| 78         | hu. 7       | 328.3       | 347.2     | 18.9          | ss          | medium grain; grey; homogeneous; very poorly                                            | 80           |                  | ·····      |           | 1              |            |                   | <b>.</b> |          |                 | RQD: 10: R4                            |
| .29        | p.6.0       |             |           | <b>_</b>      |             | defined bedding in part; extremely broken and                                           | Ţ            |                  | NOTE       | Sam       | les            | to         | 25 (in            | lusiv    | e) qu    | ality           | 5                                      |
| 80         | 337.7       | <u>/</u>    |           | ·             |             | of weathering core becomes very soft                                                    |              |                  |            | Gala      | 115 00         | isea_o     | Wash              |          | 1        | p               | 1                                      |
| <b>.</b>   |             | 1           |           |               |             | numerous slickensiding on joint surfaces with                                           |              |                  |            |           |                |            | 1                 |          | ļ        |                 | l                                      |
|            | <b> </b>    |             | ·         | <b></b>       |             | frequent calcite fracture infillings especially                                         | - <b> </b> - |                  |            |           |                |            | <u></u> }         |          |          | ł               |                                        |
|            | l           | 1           | 1         |               |             | 331,53 - 333,95m , 334,58 - 334.98 m , 336.2 -                                          | 1            |                  | <b>–</b> . |           |                |            |                   | · · · ·  |          |                 |                                        |
|            |             | ļ           |           |               | ļ           | 336.5 m, 342.9 - 343.4 m ; jointing at 45                                               |              |                  |            |           |                |            |                   | <u> </u> | - 1      | 1               |                                        |
| ·          |             | 1           |           | 1             |             | 120 , which are calcule initiated in part with in some slickensiding, 80 bedding planet |              |                  | 1          |           |                | ]          |                   |          | <u> </u> | <b>†</b>        |                                        |
|            |             |             |           | <b>.</b>      |             | Recovery 1001                                                                           |              |                  | <b> </b>   | 1.        |                | 1 .        |                   | <b> </b> |          | ļ               | 1                                      |
| 83         | 351.0       | 4 347.2     | 356.4     | j.            | 2 55        | medium grain; dark grey; guite homogeneous (no                                          | 1            | ·                |            | 1         | 1              |            |                   |          | t        |                 |                                        |
|            |             | 1           |           | 1             | 1           | lamination); overall little solid core; this                                            | 1            |                  | 1          |           |                | <b>.</b> . |                   |          | ļ        | 1               |                                        |
| <b>.</b>   | +           |             |           |               | 4           | interval is disturbed in the followingpositions                                         | 1            | Ì                |            |           |                | 1          | +                 | · · · ·  | }        |                 |                                        |
|            | t · ·       | 1           | -t"       | 1             | 1           | · · · · · ·                                                                             |              |                  |            |           | 1              |            | - <b> </b>        | i        | t        | [               |                                        |
| L          |             |             |           |               |             |                                                                                         |              | <u></u>          |            |           |                |            |                   |          |          |                 |                                        |
|            | 00113       | 0360 - 1    |           |               |             | +RQD ROCK QUALITY DESIGNATION (%)                                                       | •            |                  |            |           | י חייביהי      |            |                   |          | HC       | )LE N           | <b>O</b> . LP - D                      |
|            |             |             |           |               |             | · · ·                                                                                   |              |                  |            |           |                |            |                   |          | CON      | ITINUEL         | 101                                    |

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### CORE & COAL CORE DESCRIPTION

| PROJECT | LODGEPOLE                | HOLE No. LP - D | PAGE 21 |
|---------|--------------------------|-----------------|---------|
| AREA    | WEST RIDGE - SOUTH SLOPE | CONTINUED 101   | Gr 21   |

| BOX      | OFFTH                                                                                            | DEP       | тн          |              | · · · · ·  | LITHO DESCRIPTION                                   | ALDOINT                                       | SEAM           | SAMPLE   |          |                                         | ANAD       | HCAL D        | ATA          |          |                 | DE MARYS 1                            |
|----------|--------------------------------------------------------------------------------------------------|-----------|-------------|--------------|------------|-----------------------------------------------------|-----------------------------------------------|----------------|----------|----------|-----------------------------------------|------------|---------------|--------------|----------|-----------------|---------------------------------------|
| N        | 10-0                                                                                             | FROM      | IO          | н            | ΜΔΙΝ       | AMPLIFIED LINCHIDE COAL RECOVERY FOR FACH SEAML     | ANGIT                                         | DESIG          | No       | MOIS     | %                                       | ASH %      | V.M. %        | FC %         | E.S.1    | 8               | REMARAS                               |
| 140.     | 60>                                                                                              |           |             |              |            |                                                     | <u>, , , , , , , , , , , , , , , , , , , </u> | <u>.</u>       | <u> </u> |          | • • • • • • • • • • • • • • • • • • • • | 0.0        | <u>a.d.b.</u> | <u>a.d.b</u> |          | Tield           | How of Muter You Like                 |
| cor      | Ľ                                                                                                | 347,2     | 356.4       | 9.2          | SS         | • at 347.9m: 5 cm thick zone-very sheared;          |                                               | ault           |          |          |                                         |            |               |              |          |                 | or Gos Nofi                           |
| 84       | 35 <u>5.1</u>                                                                                    |           |             |              |            | flaky to pulverized, shale-like material            |                                               | ł              |          |          |                                         |            |               |              |          |                 | Indicale Depth                        |
|          | · ·                                                                                              |           | · · · ·     |              |            | angled at 60 to the hole                            |                                               | 1              |          |          |                                         |            |               |              | ·        | when t          | he sandstone                          |
|          |                                                                                                  |           |             |              | }          | • at 348.4 to 348.8m: zone of powdery, soaked       |                                               | 12010          |          |          |                                         |            | · - · · ·     |              |          | 15 501<br>Uborn | 10 K-J-4 BISC                         |
|          |                                                                                                  | · ··· — · |             |              |            | sand with fragments of sandstone in the lower       |                                               | zond           |          |          |                                         |            |               |              |          | where           | it is sorter                          |
|          |                                                                                                  |           |             | • •          |            | part of the segment (below this is solid sand-      |                                               | · • · •        |          | · · — ·  |                                         |            | ·             |              |          | as a u          | esure of cect                         |
|          |                                                                                                  |           |             |              |            | at 152 ] to 152 9m- yery broken to sheared          |                                               | ·              |          | t        |                                         |            | · ·           | •            | · /      | of scor         | Dance                                 |
| • = •    |                                                                                                  | -         |             |              | •          | core upper 25 cm shale slickensided                 | ŧ.                                            | 1              | f        |          |                                         | 14.1.11    |               |              |          | ·- ·            | `                                     |
|          |                                                                                                  |           |             | ļ            |            | • solid, good core (sandstone) down to 353.9m;      | ļ                                             | i i            |          |          | · ·                                     |            |               |              |          | • •             | pon. 10                               |
|          |                                                                                                  |           |             |              | 1          | at 354m; 20 cm very fragmented core                 | i.                                            |                | [        |          |                                         |            |               |              |          |                 | Ngu.                                  |
|          |                                                                                                  |           |             |              |            | • at 354.8 - 355.2 m: very broken, fragmented,      | I                                             | 1.             |          |          |                                         |            |               |              |          |                 |                                       |
|          |                                                                                                  |           |             | []           |            | aimost_flaky_sandstone                              | <b>I</b>                                      |                | I        |          |                                         |            |               |              |          |                 |                                       |
|          |                                                                                                  |           |             |              |            | • 355.6 - 356.1m, very fractured; easy breaking     | I.,                                           | <b>.</b>       |          | <b>.</b> |                                         |            |               |              |          |                 |                                       |
|          | · _ · - · · ·                                                                                    |           |             | <b>i</b> . 1 |            | soft, semi-soaked_zone_of_sandstone (core stil      | <u>1</u>                                      | 4              |          |          |                                         |            | ·             |              |          |                 |                                       |
|          |                                                                                                  |           |             | [            |            | - holding together)                                 |                                               |                |          | <b>.</b> |                                         |            |               |              |          |                 |                                       |
|          |                                                                                                  | 386 4     | 267.2       |              |            |                                                     | }                                             |                |          | {·       | - · ·                                   |            |               |              |          |                 |                                       |
|          |                                                                                                  |           | 22/144      |              | 29         | zone of weathered, purverized sandscone with a      | ··                                            |                | <u> </u> | <u> </u> | · · -·                                  |            |               | ·            |          |                 | · ···· ·                              |
|          | ·                                                                                                |           |             | • • •        |            | framents of candstone                               | ŧ                                             | aur            | 1        | <u> </u> |                                         |            |               |              |          |                 | · · · ·                               |
| <u> </u> |                                                                                                  |           | ⊢· <b>-</b> | ·            |            | Trayments of sandstone                              |                                               | 4,0116         | 1        |          | ····· -·                                | · ·        |               |              |          |                 |                                       |
|          |                                                                                                  | 357.2     | 357.6       | 0.4          | SS         | fine grained: broken                                |                                               | Î.             | t - ·· · | <b></b>  |                                         |            |               |              |          | •               |                                       |
|          |                                                                                                  |           |             |              |            |                                                     |                                               | 1              |          |          | [                                       |            |               |              | t        |                 |                                       |
|          |                                                                                                  | 357.6     | 357.9       | 0.3          | SS         | very fine grain; appears shaly; very slicken-       | <u> </u>                                      |                |          |          |                                         |            |               |              |          |                 |                                       |
|          |                                                                                                  |           |             | <b>[</b>     |            | sided; breaking into shiny somewhat flaky frag-     | <b>!</b>                                      | <u>au</u> l 1  | 4        | <b></b>  |                                         |            |               |              | l        |                 |                                       |
| ·        | · · · · · ·                                                                                      |           |             | <u> </u>     |            | ments                                               | ļ                                             | zone           | <b>ŧ</b> |          |                                         |            |               |              |          |                 |                                       |
|          | · · ·                                                                                            |           |             | ł            | · ·        |                                                     | <b>.</b>                                      | <b>1</b> .     | ·        |          |                                         |            |               |              |          |                 |                                       |
| <b>!</b> |                                                                                                  | - 157.9   | 361.3       | 13.4         | 55         | fine grain; grey - most of the core quite broke     | <b> </b>                                      | ÷ i            |          | <b> </b> |                                         |            |               |              | [        |                 |                                       |
| ŧ∙       |                                                                                                  |           |             | <u> </u>     |            | lexcept somewhat more solid positions at 358.5-     | <u> </u>                                      | · ·            | f        |          | ···                                     |            |               |              |          |                 |                                       |
| n        | t                                                                                                |           |             | 1            | · _ · ·    | Job. /mi at Joy. 300. 40, ang at Joy. 0 - Jol. Vn - | 1                                             | <b>+</b> -· ·− | <u>+</u> |          |                                         |            |               |              | <u> </u> |                 |                                       |
|          |                                                                                                  |           |             | t·           | h ——       | ular, larger pieces.                                | 60                                            | -  ·· ·        | [        | 1        |                                         | • •        | · · · - •     |              |          |                 |                                       |
|          |                                                                                                  |           |             |              |            | sheared zones are at: 358.8-359.0m, small frag-     | <b>1</b>                                      | 1              | 1        | t        |                                         |            |               |              | † 1      |                 |                                       |
| <b>.</b> |                                                                                                  |           |             |              |            | ments, to powdery; 359.2-359.3m, almost flaky;      |                                               | 1              |          |          |                                         |            |               |              |          |                 | [······                               |
| l        |                                                                                                  |           |             | L            | l          | 360.4-360.6m, very broken to crushed; 361.1-        | 1                                             | 1              | I        | 1        |                                         |            |               |              |          |                 |                                       |
|          |                                                                                                  |           |             |              |            | 361.3m, shale-very slickensided, breaking into .    | 1                                             |                | ļ        | <b>-</b> |                                         |            |               |              | Į        |                 |                                       |
|          | · · ·                                                                                            | •···•     |             | ŧ.           | · · · ··   | larger flaky fragments                              | <u>+</u>                                      |                |          | <b>.</b> |                                         |            |               |              |          |                 |                                       |
| ···      |                                                                                                  | 265 3     | 263         | ha-5         |            |                                                     | <u> </u>                                      | - <b>-</b>     |          |          |                                         |            |               |              |          |                 | · ·· ·· · · · · · · · · · · · · · · · |
| • • •    | <b> </b>                                                                                         | 301.3     | 301.4       | <u>⊢∙.</u>   |            | Anth Trin Argin                                     | P0                                            |                | ······   | <b>!</b> | <b>├</b> ───                            |            |               |              | ł        | <b>1</b> .      | - · - · - · · · · - · ·               |
| ŧ        | 1                                                                                                | 361.4     | 362.6       | 11.2         | sŝ         | fine grain; slightly laminated, with some, thin     |                                               | +              | f        | † ·      |                                         |            | · · ··        |              | } - ·    | <u></u> +∙— ∙∙  | ·                                     |
| 1        | 1                                                                                                |           | [           | ľ.           | 1 ·· • · · | calcite infilled fractures at 15°, 68°, 133° and    | i                                             | Ť              | 1        | f        | 1                                       | -          | ·             |              | 1        | · ·             | <u>†</u> 1                            |
| Ε.       | [                                                                                                |           |             |              |            | along the bedding planes                            |                                               |                | 1        | 1 · ··-  | · · ·                                   |            |               |              | t        |                 |                                       |
|          | ·                                                                                                |           |             |              |            |                                                     | [                                             | 1              | 1        | 1        |                                         | İ          |               |              | 1        | 1               |                                       |
| 1.       |                                                                                                  | 362.6     | 368.8       | 6.2          | SHALE      | interbedded with a few thin sandstone lay           |                                               | 1              | l        |          |                                         | ł          |               | · · · · ·    | 1        |                 | RQD: 0                                |
|          |                                                                                                  |           |             | <b>.</b>     |            | ers; the core is quite broken or sheared; inter     | <b>t</b>                                      | 1              | ļ        | <b>]</b> |                                         | <b>j</b> . |               |              | <b></b>  | <b>.</b> .      |                                       |
|          | <b> </b>                                                                                         |           | <u> </u>    | <b>.</b>     |            | isiye slickensiding: flaky at 363.8 - 365.1 m       |                                               | 4              |          |          |                                         |            |               |              | +        | Į               | shales <u>\$2-51</u>                  |
| I        | -                                                                                                |           |             | ł            | } ·        | (aimost powdery)                                    |                                               |                | -        |          |                                         | !          |               |              | +        | 1               |                                       |
| ł        | }··                                                                                              |           | 260.0       | ł            |            |                                                     | 1                                             | 1              |          | 1 ·      |                                         | ł          |               |              |          | 1               |                                       |
| I I      | i                                                                                                | t -'      | 308.8       | t            |            | LAND AR THE RULE                                    | 1                                             |                |          | ł        | i                                       | ł          |               |              |          |                 | 5 · · · •                             |
| L_       |                                                                                                  |           |             |              |            |                                                     |                                               |                |          |          |                                         |            |               |              |          |                 |                                       |
|          | UNITS USED : m 😥 AD T := R#/OR S GOLDER ASSOCIATES HARUNESS CODE 🔺 ANGLE MEASURED FROM CORE AXIS |           |             |              |            |                                                     |                                               |                |          |          |                                         |            |               |              |          |                 |                                       |
|          |                                                                                                  |           |             |              |            | •RQD — ROCK QUALITY DESIGNATION (%)                 |                                               |                |          |          |                                         |            |               | 1            | HC       | <u>IL N</u>     | <b>IO</b> . LP - D                    |
|          | CONTINUED 101                                                                                    |           |             |              |            |                                                     |                                               |                |          |          |                                         |            |               |              |          |                 |                                       |

FILE No 84-212

1

#### LODGEPOLE PROJECT

#### ADIT SITE

|  | LOCATION: | McLatchie | Ridge |
|--|-----------|-----------|-------|
|--|-----------|-----------|-------|

SEAM: Lower Seam (1)

DESCRIPTION:

.

4

Measuring from top to bottom

| г<br><u>)</u> | HICKNESS<br>metres) |         | DESCRIPTION                                                                 |
|---------------|---------------------|---------|-----------------------------------------------------------------------------|
|               | 2.3                 | Coal -  | soft, weathered with one thin shale<br>split near middle; erosional surface |
|               | 0.3                 | Shale - | coaly                                                                       |
|               | 1.8                 | Coal -  | firm with two .05 m shale splits at base                                    |
|               | 1.0                 | Coal -  | moderately hard with a 0.1 m shale split at base                            |
|               | 2.2                 | Coal -  | moderately hard and clean                                                   |
|               | 0.4                 | Shale - | very dark gray; carbonaceous;<br>blocky                                     |
|               |                     |         | This is Footwall                                                            |
| Total         | 8.0                 |         |                                                                             |