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FK - COAL CREEK 68(1)A TELKWA

COAL CREEK, ZYMOETZ RIVER

WESTERN COAL + COKE LTD.

HARTLEY SARGENT 12th Mar. 1969

GEOLOGICAL BRANCH
ASSESSMENT REPORT

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COAL CREEK 68(1)A

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COAL LICENSES 462 - 474

Coal Creek, Zymoetz River,
Smithers Area, British Columbia.
54° - 127° N.W.

WESTERN COAL & COKE LTD., (N.P.L.)

Report on Work Done, May 1968 - January 1969.

by

Hartley Sargent, P. Eng.

Victoria, B.C.

February 15, 1968¹

Hartley Sargent

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K.B. Blakey, Esq., Deputy Minister,
Department of Mines and Petroleum Resources,
Victoria, B.C.

Dear Mr. Blakey,

Report of Work on Coal Licenses 462-474,
Coal Creek, Zymoetz R, B.C.
54° - 127° N.W.

Acting for Western Coal and Coke Ltd. (NPL) I submit here-
with my report on the work done, and a statement of expenditures on
work done on the above Coal Licenses.

The Licenses were issued to Willard D. Tompson, and I believe
have now been transferred to Western Coal and Coke Ltd. The work was
done in the months of July - October, 1968. Payments as shown by a
table in Appendix B of the report were made in the months September -
January.

The total expenditure amounted to \$26,835.57. Credit under
Section 24 (2) of the Coal Act, is requested for expenditure of
\$21,617.84 for diamond drilling, geological work and engineering studies.
The cost of moving the diamond drill by helicopter on the property amount-
ing to \$1,007.91 is included in the amount for which credit is requested.

I trust that the report is in acceptable form, and that you will
advise me of the credit allowed.

Yours very truly,

12 Mar. 1969.

Hartley Sargent.

Hartley Sargent, P. Eng.

A
work
see A

REPORT ON WORK DONE MAY 1968 - JANUARY 1969 on:-

Coal Licenses 462 - 474
 Coal Creek, Zymoetz River,
 Smithers Area, British Columbia.
 54° - 127° N.W.

Western Coal & Coke Ltd. (N.P.L.)

INTRODUCTION

This report refers briefly to preliminary investigations, and deals briefly with reconnaissance geological studies and with the preliminary diamond drilling done to date, on 13 coal Licenses, issued in 1968.

PROPERTY, LOCATION, ACCESS

The 13 coal licenses issued in May 1968 to Willard D. Thompson, cover ground on Coal Creek which enters Zymoetz River from the north at a point about 25 miles west of Smithers, B.C.

The coal licenses numbered 462-474 inclusive, cover old land lots, surveyed in 1911 and 1912, as Coal Leases. The old leases covered a greater area including 22 surveyed lots. The 1968 coal licenses and corresponding Land Lots are listed below and are represented on figure 1.

<u>Coal License</u>		<u>Land Lot</u>		<u>Area *</u>	
No.		No.			Acres
	462		5580	640	
	463		5579	640	
	464		5866	639	
	465		5570	640	
	466		5571	640	
	467		5572	640	
	468		5561	640	
	469		5560	640	
	470		5559	640	
	471		5554	480	
	472		5555	483#	
	473		5556	611	
	474		2277	640	
Total Area				7973	

* Taken from copies of plots of surveys or other record.

on plot of survey figure changed from "476 to 483 Acs."

The 13 coal licenses have a combined area of a little less than 12½ square miles. Title to them is in the process of being transferred from Willard D. Thompson to Western Coal & Coke Ltd. (N.P.L.).

The area occupied by the licenses is one of low relief except that Coal Creek is incised about a hundred feet below the general level and the tributary creeks fall moderately steeply to Coal Creek and are correspondingly incised. Considerable parts of the area are swampy or are occupied by lakes. Other parts are timbered with pine, spruce, and balsam. Much of the area west of Coal Creek had most of the trees killed years ago so that the present cover is of relatively young trees with many tall fire-killed snags still standing. The area with fire-killed snags, east of Coal Creek is much smaller.

Bedrock exposures vary widely, from excellent exposures of volcanic rocks in steep bluffs, to good or moderate exposures of sediments along creeks, to complete absence of exposures in most of the flat areas.

Access for the work done in 1968 was by helicopter from Smithers. A road from Smithers extends westward to a point 6 or 7 miles from McDonnell Lake, on Upper Zymoetz River. A private road continuing as a Forest Development Road continues westward to McDonnell Lake. It turns south near the south-eastern part of the property. A pack-trail used by hunters extends from McDonnell Lake to a campsite west of Coal Creek, not far from the old workings.

PREVIOUS HISTORY

References to coal on Coal Creek date back at least to 1907, and appear in many of the Reports of The Minister of Mines, British Columbia in the period 1907 - 1928. The most useful of these references are 1911, pp 93, 94 and 100; 1913, pp 110, and 111; 1914 pp 206-213; and 1922 pp 111-113. All the work on the property, described in these publications, was completed by the end of 1913 except three diamond drill holes, ranging from 824 to 863 feet in depth, drilled in 1922.

A thick coal seam near the base of the coal measures was recognized in the pre 1914 work, and was called The No. 1 Seam. A little higher another seam, about 6 feet thick was recognised and was called The No. 2 Seam. Other seams moderately higher in the section were also explored. They are thinner and were considered unimportant.

It is reported that in 1929 a forest fire destroyed the camp and the diamond drill, which had not been taken out after the 1922 drilling. The area where the camp stood, again had thick tree cover in 1968 but slopes rising from Coal Creek, part of the area to the east, and much of the area to the west of Coal Creek, showed many standing fire-killed snags. Presumably they were killed by a fire in 1942, indicated by the Forest Cover Map.

CONDITION OF THE OLD WORKINGS

None of the old adits remained open in 1968. The portal set of the drift on No. 1 Seam was still standing, and the sites of the portal of the crosscut to No. 1 Seam, and of the south portal of the drift on No. 2 Seam, on Balsam Creek, were recognizable. None of the other portals is obvious. The ruins of a small log building remained at the old campsite on a flat, on the west side of Coal Creek, a few feet above creek level.

WORK IN 1968

Following acquisition of the leases by Willard D. Thompson, a visit was made to the old workings by D.M. Cannon, P. Eng. Scouting and some line-cutting or trail-cutting and digging out of old cuts or pits were done under Mr. Thompson's direction. Mapping in the vicinity of the old workings, and geological reconnaissance in a considerably larger area were done by D.R. Morgan, P. Eng., and an assistant, in the periods, August 7-16 and September 3-13.

The writer having studied the information available from published and unpublished reports and having spent from September 6-10 at the property, wrote a report recommending a preliminary diamond drilling program, designed primarily to obtain samples of coal for coking tests. The samples were to be obtained by recovering diamond drill core from intersections of the two principal seams at such depth that the coal should be free from oxidation or other alteration that might affect its coking character. Three holes were recommended at sites designated as A, B and D, a fourth site "C" was indicated as an alternative if considered necessary.

THE 1968 DRILLING

Three holes were drilled, A, B and D at sites close to those recommended. The alternative site C was not used.

The positions of the collars of the three holes are shown on Figure 2, herewith, prepared to accompany my report dated December 2, 1968.

The holes were drilled in the period October 17 - 27 by Canadian Longyear Limited. Mr. Morgan was on the property during the drilling campaign, did the necessary surveying, logged the core, shipped the samples, and stacked the remaining core.

The writer spent October 23 and 24 on the property. At that time Holes D and B had been drilled, the drill was being torn down and clearing was being done preparatory to moving the drill to site A. The writer visited the drill sites and studied the core from holes D and B.

Figure 2 is based partly on Mr. Morgan's surveys and in part reproduces information from a 1914 map that showed the workings and lot boundaries. As fire and time had removed the old markers, the positions of the drill holes relative to the old workings and to lot boundaries, may be subject to some error.

The portals of the adits that explored No. 1 Seam, and the south portal of the drift on No. 2 seam, had been found, and they were surveyed in by Mr. Morgan, but the exact positions of the other portals were not obvious.

Results of the 1968 drilling are summarized in an appended table, and are given in Mr. Morgan's detailed logs of the three holes, following the summary. Core recovery was generally good, however some of the coal intersected was crushed in drilling and loss probably occurred in sections for which whole core was not recovered.

SAMPLING OF THE SEAMS, AND DISPOSITION OF SAMPLES.

Six core samples were taken, each including all the core recovered from a seam intersection, except that 0.6 ft. of shale was removed from the sample of No. 2 seam in Hole D. Two samples were obtained from each hole. Five of the samples are of intersections of 6 feet to 20.6 feet core length. The 6th from the upper seam in Hole A had a core length of 2.3 feet. The samples consisted mainly of whole core including narrow bands of shale or boney coal. They also included some crushed coal.

The core from each seam intersection duly identified, was wrapped in plastic garbage bag, enclosed in core boxes, and on October 29 was shipped by express from Smithers to:-

Dr. V. Visman, Head of Western Regional Laboratory
Department of Energy, Mines and Resources
Clover Bar,
Edmonton, Alberta.

The laboratory assigned the identifying number WRL 6829. After preliminary study, the samples were crushed and given sink-float treatment at 1.6 specific gravity. Samples from all six seam intersections were shipped December 11, from the Western Regional Laboratory to:-

The Fuels Research Centre,
Department of Energy, Mines and Resources,
Ottawa, Ontario.

We are still awaiting a report from the Fuels Research Centre. <

DISPOSITION OF REMAINING CORE

All the core, except the six samples, was stacked in boxes with lids nailed down, and duly labeled. The core is stored near the temporary camp on a bench at about 2700 feet elevation, on the west side of Coal Creek. This bench a little below the general level of the area west of Coal Creek, was also the site of the helicopter landing. The core boxes were laid on poles, successive tiers of boxes being separated by poles. A cover of plywood was left on top of the stacked core boxes.

The core from Holes A and D includes coal intersections 1.4 ft. to 3.0 ft. long from seams above those sampled.

DISCUSSION OF RESULTS OF 1968 DRILLING

As indicated in the summary and in the drill logs, Holes A, B and D obtained intersections with core lengths from 10 feet to 20.6 feet, believed to be not far above the volcanic rocks considered to form the floor of the sedimentary basin. These intersections accord reasonably with the No. 1 Seam of the old reports. Holes A and D are indicated as penetrating volcanics but Hole B was terminated after passing through 3.7 feet of conglomerate with pebbles and matrix derived from volcanics, and penetrating for 6.8 feet into a dark coloured rock, consisting of sand-size grains of volcanic rock and thin, frayed, larger pieces of carbonaceous shale.

Higher in the section, Holes B and D have coal-seam intersections of 7 feet and 6 feet respectively, according reasonably with the "6 foot", or "No. 2 seam", of the old reports. A seam giving a 2.3 foot intersection in Hole A may also represent the No. 2 seam.

The seams vary considerably in section and the intervals between seams also vary. The seams in Hole B are at shallower depth than had been anticipated. The volcanic floor of the basin although not reached in Hole B is also probably at lesser depth here than had been anticipated.

Victoria, B.C.
February 15, 1969.

Hartley Sargent
Hartley Sargent, P. Eng.

APPENDIX A

Summary re 1968 Drilling

Logs of Holes A, B, & D.

Drilled October, 1968.

SUMMARY RE 1968 DRILLING *

<u>Designation</u>	<u>Hole A</u>	<u>Hole B</u>	<u>Hole D</u>
Date started	26 Oct. 68	22 Oct. 68	17 Oct. 68
Completed	27 Oct. 68	23 Oct. 68	19 Oct. 68
	<u>Feet</u>	<u>Feet</u>	<u>Feet</u>
Elevation of hole collar	2657	2637	2725
Total length hole	246.0	76.5	223.0
<u>Seams Intersected</u>			
Depth	98.7 - 100.9		58.7 - 61.7
Intercept	2.2		3.0
Coal Cut	2.2		3.0
Depth	135.9 - 138.0		92.1 - 94.6
Intercept	2.2		2.5
Coal cut	2.2		2.5
Depth	165.1 - 167.4	29.0 - 36.0	143.0 - 149.0
Intercept	2.3	7.0	6.0
Coal cut	2.2	6.7	5.1
Depth	213.0 - 225.7	56.0 - 66.0	178.4 - 199.0
Intercept	12.5	10.0	20.6
Coal cut	11.5	8.6	16.4
Elevation of floor of lowest seam	2431	2571	2526

* from logs by D.R. Morgan, P. Eng.

DIAMOND DRILL LOGS (A, B & D)

COAL CREEK PROPERTY

SMITHERS AREA

BC

by

D. R. MORGAN, P. ENG.

NOVEMBER 1968

Note to accompany D.D.H. Logs

The following abbreviations and terms are used in these drill logs:

Mg	Medium grained, grain size greater than 1 m.m.
Fg	Fine grained, grain size less than 1 m.m., but visible without a lens
Siltstone	Grains visible with lens
Shale	Aphanitic, grains not visible with a 10 x lens
CEC	Clean bituminous coal.

DIAMOND DRILL LOG

PROPERTY: Coal Creek, Near Smithers, B.C.
HOLE NO: "A"
LOCATION: 60' S - 7' E of Corner West of Lots 5554, 5555, 5560, 5561
ELEVATION: 2657'
INCLINATION: Vertical
HOLE STARTED: 26 October, 1958
HOLE FINISHED: 27 October, 1958
TOTAL LENGTH: 246 feet
RECOVERY: 100%
LOGGED BY: D. R. Morgan

HOLE "A"

From	To	Width	
0	15.6	15.6	Casing
15.6	22.8	7.2	Sandstone: mg whitish grey coal partings at 58° to axis
22.8	28.5	5.7	Sandstone: fg " " " "
28.5	30.0	1.5	Sandstone: mg " " " "
30.0	33.2	3.2	Sandstone: fg " " " "
33.2	34.1	0.9	Siltstone: grey coal partings
34.1	42.1	8.0	Sandstone: fg as at 22.8
42.1	52.4	10.3	Shale: Dark grey
52.4	67.7	15.3	Sandstone: fg as at 22.8 (65°)
67.7	69.2	1.5	Shale as at 42.1
69.2	74.0	4.8	Sandstone: fg upper contact 65°
74.0	81.7	7.7	Siltstone: pale grey, few coal partings. Upper contact 60°
81.7	98.7	17.0	Shale: Grey, massive
* 98.7	100.9	2.2	Coal
100.9	101.8	0.9	Siltstone
101.8	101.9	0.1	Grey mud
101.9	102.7	0.8	Shale: Dark carbonaceous
102.7	102.8	0.1	Coal
102.8	104.2	1.4	Shale: Dark carbonaceous
104.3	104.5	0.2	Coal
104.5	105.5	1.0	Sandstone: fg greywhite, coal partings
105.5	106.5	1.0	Shale: pale grey, coal partings upper contact 70°
106.5	107.5	1.0	Sandstone: as at 104.5, parting at 70° at 107'
107.5	113.1	5.6	Siltstone: pale grey, coal partings
113.1	115.7	2.6	Sandstone: fg
113.7	116.0	0.3	Sandstone: mg grey
116.0	117.1	1.1	Sandstone: fg
117.1	119.8	2.7	Conglomerate: purple and green volcanic pebbles from 1/2" - 1", avg 3/4"
119.8	120.3	0.5	Sandstone: fg'

HOLE "A"

From	To	Width	
120.3	123.2	2.9	Sandstone: mg, coal partings
123.2	124.1	0.9	Conglomerate as at 117.1
124.1	126.0	1.9	Siltstone: fg, few coal partings at 65° to axis.
126.0	134.4	8.4	Sandstone: fg grey
134.4	135.9	1.5	Shale: Dark grey carbonaceous
* 135.9	138.0	2.1	Coal (CBC)
138.0	139.2	1.2	Shale: pale grey
139.2	140.0	0.8	Sandstone: fg, grey carb partings
140.0	140.7	0.7	Sandstone: fg.
140.7	141.7	1.0	Sandstone: fg
141.7	142.1	0.4	Sandstone: fg.
142.1	147.2	5.1	Shale: pale to dark grey, carbonaceous partings, especially 143.1-144.9 at 60° to axis
147.2	149.1	1.9	Shale: Dark grey, broken up, many coal partings up to ½"
149.1	152.0	2.9	Shale: as at 142.1
152.0	157.4	5.4	Sandstone: fg grey
157.4	159.3	1.9	Sandstone: Mg grey
159.3	163.5	4.2	Sandstone: Fg
163.5	165.1	1.6	Shale: Gray becoming increasingly dark and carbonaceous towards lower contact
165.1	165.8	0.7	Coal (#2 Seam?)
* 165.8	165.9	0.1	Shale: gray, soft
165.9	167.4	1.5	Coal
167.4	170.6	3.2	Shale
170.6	180.0	9.4	Sandstone: Fg grey 60° to axis at 175
180.00	182.5	2.5	Sandstone: Mg, fine coal partings
182.5	197.3	14.8	Sandstone: Fg, grey fine coal partings 60° to core axis at 194'
197.3	197.7	0.4	Sandstone: Mg
197.7	210.2	12.5	Sandstone: fg as at 182.5 60° to core axis at 209.5 *

*Note: HW of #2 seam here is strong eg. 207-209.5 one piece of core. Elsewhere also massive.

HOLE "A"

<u>From</u>	<u>To</u>	<u>Width</u>	
210.2	211.0	0.8	Siltstone
211.0	213.0	2.0	Shale
213.0	214.6	1.6	Coal (#1 Seam)
214.6	215.0	0.4	Shale
* 215.0	215.2	0.2	Coal
215.2	215.8	0.6	Shale
215.8	225.5	9.7	Coal: CEC
225.5	225.6	0.1	Clay
225.6	230.0	4.4	Siltstone
230.0	238.5	8.5	Conglomerates: Angular fragments of volcanics up to 1.5" coal partings
238.5	246.0	7.5	Volcanics

DIAMOND DRILL LOG

PROPERTY: Coal Creek, Near Smithers, B.C.
HOLE NO: "B"
LOCATION: 422 S - 26 E of Corner Post of Lots 5554, 5555, 5560, 5561
ELEVATION: 2637
INCLINATION: Vertical
HOLE STARTED: 22 October, 1968
HOLE FINISHED: 23 October, 1968
TOTAL LENGTH: 76.5 feet
RECOVERY: 100% except 32.5-34.2 ft where coal badly broken and
recovery poor.
LOGGED BY: D. R. Morgan

HOLE "B"

From	To	Width	
0	9.0	9.0	Casing through creek sediment
9.0	10.0	1.0	Sandstone: fg grey, coal partings
10.0	10.6	0.6	Sandstone: as above but broken and muddy
10.6	11.9	1.3	Siltstone: Fg, grey. Upper 0.2 massive and hard with some calcite filled fractures. Remainder has fine coal partings at 50° to axis
11.9	15.0	3.1	Shale: Grey. Many coal partings. From 13.7-14.0 core is very gougy and soft.
15.0	15.3	0.3	Coal: Fine shale layers
15.3	16.6	1.3	Shale: Pale grey coal partings
16.6	23.3	6.7	Siltstone: Many coal partings Pale grey, some short sections of fine grained sandstone
23.3	25.0	1.7	Shale: Pale grey, many coal partings at 70° to core axis
25.0	25.5	0.5	Coal: Dirty bituminous. Approx 30% shale
25.5	29.0	3.5	Shale: Grey. Many coal partings
* 29.0	36.0	7.0	Coal. (#2 seam). Generally clean bituminous, but pyrite observed on joint planes at: 29.7/31.9/32.3 Coal badly broken and poor recovery from 31.3-34.2 34.2-34.5 Clay
36.0	37.3	1.3	Shale: Pale grey. Upper contact (with coal) at 60° to core axis Shale (cont): A vertical fracture filled in places with a hairline calcite filling extends from 36.0-37.0 and reappears lower down.
37.3	39.3	1.5	Sandstone: Fg, some coal partings. Vertical fracture extends from 38.1-40.3, calcite filled in places.
39.3	40.3	1.0	Siltstone: Grey, coal partings
40.3	42.0	1.7	Shale: Grey massive, few coal partings Grey mud: 41.6-41.7

SOLC "B"

From	To	Width	
42.0	50.7	8.7	Sandstone: Fg grey 44.4-45.4 Coal layer 1 cm thick <u>PARALLEL</u> to core axis. Also 3- 2 mm seams from 45.3-45.6 sub parallel to axis. Coal partings
50.7	56.0	5.3	Shale: Grey, coal partings. The lower 0.2 black and carbonaceous
56.0	57.6	1.6	Coal (Seam #1)
57.6	58.0	0.4	Shale: Dark grey carbonaceous
58.0	59.3	1.3	Clean Bituminous coal
* 59.3	59.5	0.2	Shale
59.5	60.0	0.5	GEC
60.0	60.8	0.8	Shale: Muddy black, many coal partings
60.8	66.0	5.2	GEC
66.0	69.7	3.7	Conglomerate: Whitish green bleached looking, pebbles 1/8"-3" of trachyte with pyrite nodules
69.7	76.5	6.8	Greenish-grey foliated sandstone, with black markings on partings. Contains black shabby inclusions, presumably of carbonaceous shale.
76.5			End of hole

DIAMOND DRILL LOG

PROPERTY: Coal Creek, Near Smithers, B.C.
HOLE NO: "D"
LOCATION: 800 S - 312 W of Corner Post of Lots 5554, 5555, 5560, 5561
ELEVATION: 2725
INCLINATION: Vertical
HOLE STARTED: 17 October, 1968
HOLE FINISHED: 19 October, 1968
TOTAL LENGTH: 223 feet
RECOVERY: 100%
LOGGED BY: D. R. Morgan

HOLE "D"

From	To	Width	
0	26.0	26.0	Casing through overburden
26.0	27.1	1.1	Sandstone: Fg grey occasional fine coal partings
27.1	34.3	7.2	Siltstone: Fg, grey, massive, irregular banding at $\frac{1}{2}$ " intervals, bedding at 70° to core axis
34.3	45.7	11.4	Shale: aphanitic, grey, massive coning but fragile
45.7	47.3	1.6	Siltstone
47.3	49.3	2.0	Shale: as at 34.3 Bedding 60° to axis (i.e. Dip 30°)
49.3	58.7	9.4	Siltstone: as at 27.1
*58.7	61.7	3.0	Coal: clean bituminous
61.7	62.3	0.6	Shale: brownish grey
62.3	62.4	0.1	Coal: clean bituminous
62.4	64.4	2.0	Shale: Pale grey some carbonaceous partings
64.4	65.0	0.6	Shale: dark grey 3 mm carbonaceous partings each 3 c.m.
65.0	65.7	0.7	Siltstone: massive grey
65.7	72.0	6.3	Shale: dark grey to black abundant coal partings
72.0	73.5	1.5	Shale: Pale grey massive
73.5	77.9	4.4	Siltstone
77.9	80.6	2.7	Shale pale grey massive
80.6	83.3	2.7	Sandstone: pale grey Fg, fine carbonaceous bands
83.3	85.7	2.4	Shale: pale grey cloudy buff coloured irregular layer from 83.7-83.9, also 4 mm spots of same substance 84.3-84.5
85.7	86.2	0.5	Shale: pale grey 3- $\frac{1}{2}$ " coal partings
86.2	92.1	5.9	Shale: pale grey, carbonaceous partings
*92.1	94.6	2.5	Coal: bituminous, broken, a total of 0.8' shale inter-beds
94.6	103.1	8.5	Sandstone: As 80.6
103.1	103.7	0.6	Sandstone: Mg fragments 1-4 mm
103.7	106.7	3.0	Siltstone: pale grey, carbonaceous partings
106.7	108.0	1.3	Shale: dark grey, $\frac{1}{2}$ " coal partings at $\frac{1}{2}$ to 4" intervals

HOLE "D"

From	To	Width	
108.0	110.0	2.0	Siltstone: Pale grey
110.0	117.0	7.0	Shale: Dark grey: Closely spaced carbonaceous partings (appear at each break)
117.0	137.2	20.2	Sandstone: Fg, grey, many fine (1 mm) carbonaceous bands bedding at 65° to core axis (Dip 25°) (Note this sandstone is the most competent and massive formation in this drill hole. Between 117-137 (20') the core was in 25 pieces. The longest piece was 2.1 ft. Grades into siltstone below.
137.2	138.5	1.3	Siltstone: grey (banded as above)
138.5	143.0	4.5	Shale: Dark grey, carbonaceous partings
143.0	143.6	0.6	Clean bituminous coal contact at 70° to core
143.6	143.65	.05	Shale partings at 65° to core axis (dip 25°)
143.65	144.0	0.35	Clean bituminous coal
* 144.0	144.4	0.4	Coal fractured to 3 mm. particles
144.4	145.4	1.0	Coal fractured to 2-3 cm fragments
145.4	145.6	0.2	Black plastic mud with 5 mm x 1 mm flakes of coal in it.
145.6	145.7	0.1	Clean bituminous coal in 2-4 cm fragments
145.7	146.3	0.6	Shale: Massive, aphanitic pale grey, upper contact at 65° to core axis (dip 25°) minor streaks and wisps of coal forming less than 1%. Lower contact at 55° to core axis.
146.3	148.0	1.7	CDC. Core in 2" fractured cylinders
148.0	149.0	1.0	CDC. Cylinder fragments 2-5 cms Resin: Glassy yellow flat avoid 8 mm across at 148.3
149.0	150.0	1.0	Shale: Pale grey massive
150.0	151.7	1.7	Sandstone: Fg, grey
151.7	152.9	1.2	Shale: Pale grey, occasional hairline coal partings
152.9	161.0	8.1	Sandstone: Fg whitish grey, fine carbonaceous banding
161.0	162.7	1.7	Shale: Dark grey, abundant carbonaceous partings

From	To	Width	
162.7	163.4	0.7	Sandstone: Fg, greyish white
163.4	168.3	4.9	Shale: Dark grey to black, many carbonaceous partings some shaley coal from 165.4-167
168.3	170.4	2.1	Sandstone: Fg greyish white massive partings as at 163.4
170.4	171.3	0.9	Shale: Grey carbonaceous partings
171.3	172.9	1.6	Sandstone: As at 168.3*
			*Note: These sandstones are competent Other lower formations in NW of #1 seam are incompetent
172.9	173.3	0.4	Shale: as at 170.4
173.3	173.5	0.2	Sandstone: Fg as at 168.3
173.5	173.8	0.3	Shale: Dark grey as at 170.4
173.8	174.3	0.5	Coal
174.3	175.0	0.7	Siltstone: Dark grey carbonaceous partings
175.0	175.5	0.5	Sandstone: Fg as at 168.3
175.5	178.4	2.9	Shale: Dark grey to black, many coal partings
178.4	181.1	2.7	GBC: Massive, 6-8" lengths. Upper yellow white resin at contact at 65° to axis 179.8
181.1	182.0	0.9	Shale: Massive aphanitic pale gray. Lower contact at 50° to axis.
182.0	182.5	0.5	GBC: Massive upper contact 55° to axis Yellow whitish resin at 182.5
182.5	182.57	0.07	Shale: Massive aphanitic brownish gray
* 182.57	182.8	0.23	GBC: Massive
182.8	182.9	0.2	Shale as at 182.5
183.0	183.3	0.3	GBC
183.3	183.5	0.2	Shale as at 182.5
183.5	186.15	2.65	GBC: Upper contact at 65° to axis.
186.15	189.15	3.00	GBC: Massive
189.15	189.3	0.15	Shaly coal
189.3	190.4	1.1	Massive GBC (190.0 and 190.5 feathery white 1/2" wide calcite stringers at 50° to axis)
190.4	190.5	0.1	Shale: as at 182.5
190.5	190.9	0.4	Massive GBC
190.9	191.05	0.15	Shale: as at 182.5

From	To	Width	
191.05	191.25	0.2	Massive EC 15% shale
191.25	191.85	0.6	Shale: as at 182.5 minor coal bands at 50° to axis
191.85	193.0	1.15	CDC
193.0	193.3	0.3	Shale: Massive, aphanitic, dark carbonaceous. Upper contact 52° to axis
193.3	194.3	1.0	Massive CBC (3-4-cm sections)
* 194.3	195.4	1.1	Shale: As at 182.5 Lower contact 55° to axis
195.4	197.0	1.6	Massive CBC (1-5 cm fragments)
197.0	197.2	0.2	Black plastic mud with 1-2 mm coal fragments in it
197.2	197.35	0.15	Shale as at 182.5
197.35	199.0	1.65	EC broken into 1-2 cm fragments) Lower contact at 63° to axis
199.0	200.6	1.6	Shale: Dark grey to black, carbonaceous partings, 1" coal partings at 200.2
200.6	202.0	1.4	Sandstone: Massive, Fg, grey fine coal partings
202.0	203.5	1.5	Siltstone: gray massive
203.5	205.1	1.6	Shale: gray massive carbonaceous partings
205.1	206.8	1.7	Sandstone: Fg grading down to Fg massive
206.8	206.9	0.1	Coal
206.9	207.7	0.8	Shale: pale grey
207.7	208.5	0.8	Sandstone: Mg grey massive
208.5	208.7	0.2	Shaly coal
208.7	209.5	0.8	Sandstone: Coarse grained formed from fragments of volcanics from 1-8 cm
209.5	210.0	0.5	Coal, clean bituminous
* 210.0	210.2	0.2	Shale: Black
210.2	211.2	1.0	Coal, shaly pyritic
211.2	214.3	3.1	Shale: Dark grey to black carbonaceous
214.3	214.7	0.4	Sandstone as at 208.7
214.7	215.2	0.5	Siltstone
215.2	215.7	0.5	Shale: Dark grey to black carbonaceous
215.7	219.3	3.6	Siltstone
219.3	223.0	3.7	Volcanics, andesite flow breccia
Note *	173.4 - 199.0	-	Coal Sect #1

APPENDIX B

Statement of Expenditures

Request for Credit under Section 24 (2) of the Coal Act.

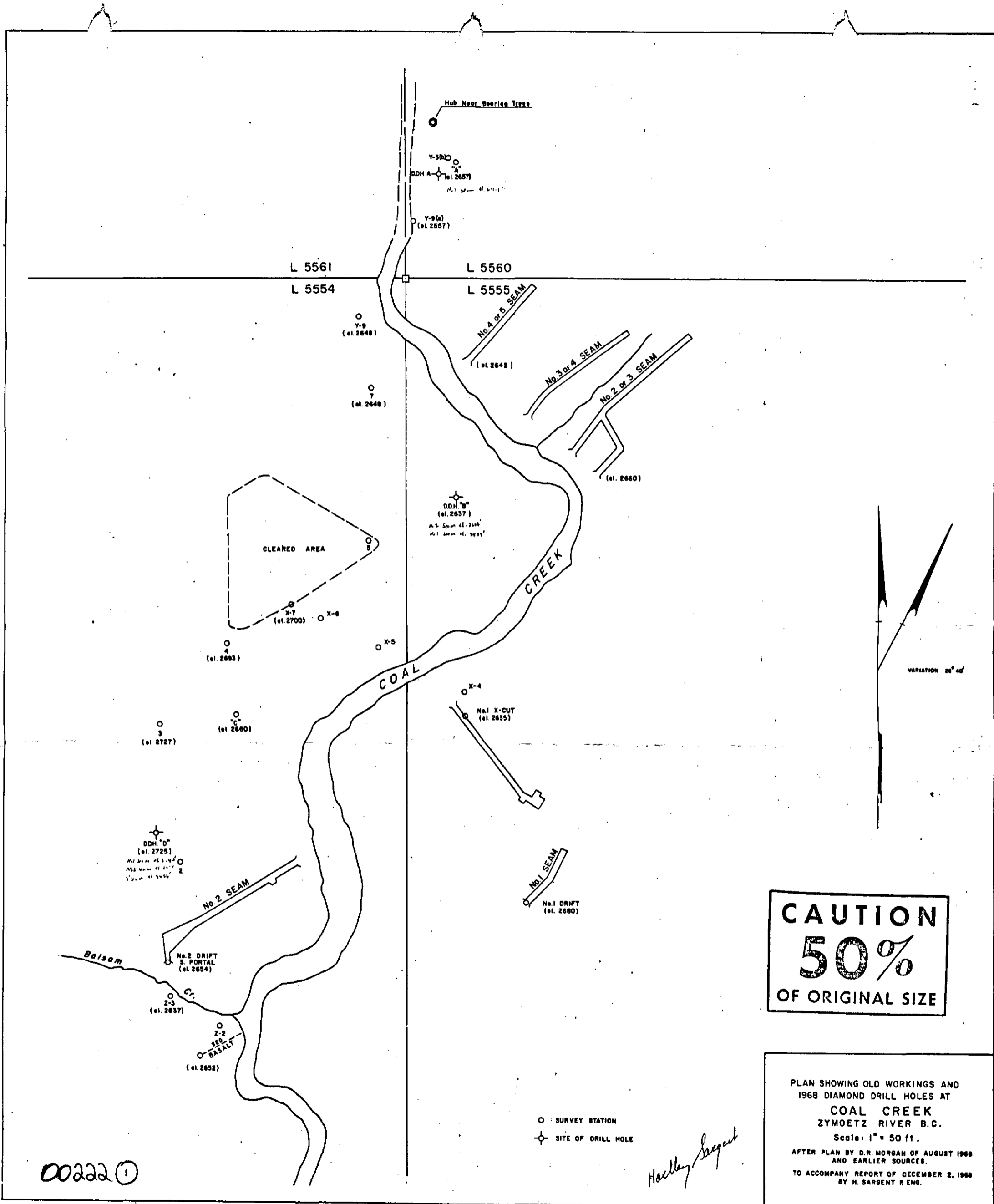
From the payments made by Western Coal and Coke Ltd. (NPL), shown on the attached Table, credit is requested for the following payments for work done in the period July-October, inclusive, 1968.

Summary of Selected Payments.

Administration, Professional Fees, Salaries and wages	\$7,883.46	
Less Administration	<u>657.58</u>	
Cost of Fees, Salaries and Wages	\$7,225.88	\$7,225.88
Prints, Maps and supplies		1,269.00
Okanagan Helicopter, moving drill on property		
	Oct. 539.16	
	Nov. <u>468.75</u>	1,007.91
Lockwood Survey Corporation		213.39
Canadian Longyear Ltd. 536 feet. NQ Wireline Diamond Drilling		<u>11,901.66</u>
	TOTAL	\$21,617.84

12 Mar. 1969

Hartley Sargent.



COAL CREEK (80A) Figure 2.