

OPEN FILE

DIAMOND VALE

Vancouver, B. C. 20th October, 1909

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June 25/18.

MESSRS. THE DIAMOND VALE COLLIERIES, LIMITED.

T. J. SMITH, ESQ., President

VANCOUVER, B. C.

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Dear Sir:-

In pursuance of your request to condense and bring up to date the various reports and records of your coal mining property in the Nicola Valley, I have the honor to submit the following:-

LOCATION AND EXTENT.

1. The property is situated within the rough triangle formed by the confluence of the Nicola and Coldwater rivers, its greatest extent from south to north being 2 miles, and the greatest width from west to east is about two and three-quarter miles ($2\frac{3}{4}$).

The area held by your Company is 2067 acres.

2. Adjoining your property on the South are the lands of the Nicola Valley Coal & Coke Co. Ltd., and on the north adjoins the holdings of the Nicola Development Co., Limited, and west of the N.V.C. & Co. are the prospect workings of Jos. Graham; and the four properties seem to embrace all the lands upon which coal in considerable quantities has been proven, although further prospecting will likely prove some extension to the field.

3. The new town of Merritt is the centre of this district, and is a rapidly growing community of some 500 people, its beginning dating back about 2 years, or about the time development of your Company was undertaken.

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2 -
Being situated in the centre of the coal field, also at the centre of a rich agricultural district, and at the gateway of the Tulameen and Similkameen Valleys, it is destined to become a town of considerable size and importance.

SURFACE VALUES.

4. The Nicola Valley in the vicinity of Merritt is about three miles wide, and extends in a north east direction about 8 miles to the town of Nicola at the foot of Nicola lake, and this valley is occupied by irrigated ranches of exceptional fertility.

5. The greater part of this land is still owned and worked by the original owners (mostly as cattle ranches) but some insignificant portions have been subdivided and sold at prices ranging from \$200. per acre upwards.

Town lots in that portion of the Merritt townsite situated on lots 124 and 125 have been nearly all sold at prices amounting to about \$750. per acre.

That portion of the townsite situate on Lot 123 has not yet been opened for sale.

6. The climate is ideal, and with the abundance of irrigation water furnished by the rivers, intensive agriculture and horticulture is already receiving attention, and will undoubtedly become of great importance.

7. The elevation of Merritt above sea level is about 1950 feet.

The greater portion of the Diamond Vale Company's area lies in the level bottom land, but on the east it rises on the foot hills.

The surrounding mountains are heavily timbered with fir and pine, and plenty of timber for all purposes is available.

RAILWAYS AND MARKETS.

8. The C. P. R. have completed the Nicola Branch from Spence's Bridge to Nicola, the tracks extending some three miles through your property, making all the north eastern portion accessible, and have also built a spur to Shaft #2, tapping the southern portion, and at the same time reaching the Nicola Valley Coal & Coke Co's mines.

9. At the present time the following are the distances and freight rates from Merritt to some of the coal markets:-

<u>Name</u>	<u>Miles</u>	<u>Rate per ton</u>
Spence's Bridge	40	\$1.15
North Bend	90	1.75
Mission Junction	175	2.00
New Westminster	210	1.80
Vancouver	218	1.80
Ashcroft	65	1.55
Kamloops	112	2.00
Vernon	242	2.50
Revelstoke	241	2.50
Seattle	312	

10. The Nicola Branch of the C. P. R. will ultimately be extended to connect with the Columbia and Western branch at Midway, B. C. and complete the new through line from Vancouver up the Coldwater.

11. This line will place your mines within 200 miles of the Boundary Smelters, the present coal and coke haul from the Crow's Nest Pass being about 325 miles by C. P. R. (Fennie to Greenwood) and 419 miles by Great Northern (Fennie to Grand Forks).

12. The Boundary Smelters use about 300,000 tons of coal (both as coal and coke) per annum, and on the same per ton mile rate, the Nicola Valley Mines should have a substantial advantage in that market.

13. The Great Northern Railway Company are steadily advancing construction on their V. V. & E. line, which has reached Princeton, 50 miles south of Merritt, and as this route crosses the head waters of the Coldwater river about 20 miles from Merritt, it is probable that a connection will be made with the Nicola Valley Mines.

14. The C. N. R. and G. T. P. Railways have announced their intention of building down the North Thompson River to Kamloops, thence to Vancouver. Survey work is being done, and with rich coal, mineral, and agricultural resources of the Nicola Valley offering traffic to railways, it is expected that this route will be adopted rather than through the Fraser River canyon.

15. I submit the following tentative estimate of annual consuming capacity of your markets on completion of the boundary connection:

C.P.R. Kamloops to Vancouver	150,000 tons
City of Kamloops	8,000 "
City of Vernon	4,500 "
City of Revelstoke	10,000 "
Okanagan Lake Town	4,000 "
Small town along C. P. R.	1,200 "
200 miles railway to boundary	30,000 "
Boundary Mines & Smelter	300,000 "
Domestic coal, boundary towns	<u>20,000</u> "
	520,000 "

This territory is more nearly tributary to the Nicola Valley than to any other bituminous mines, and whilst it is not to be expected that the Nicola Valley can supply this territory exclusively, you should be able to sell as much coal outside of your territory as other mines can sell in yours.

16. The above estimate does not take into account any markets made available by the Great Northern, Canadian Northern, or Grand Trunk Pacific, but undoubtedly good markets will develop along the lines proposed.

GEOLOGY

17. The Nicola Valley is surrounded by eruptive mountains, and the sedimentary rocks forming the coal measures appear to be formed of detritus washed down from the surrounding elevations; and by the Dominion Government Survey have been named as belonging to the Laramie-Cretaceous period. The total area of these rocks in the Nicola Valley proper, as shown by the survey, is about 24 sq. miles (exclusive of the Ten Mile Basin on the west and the Quilchena Basin on the East). Only a portion of this 24 sq. mile area has been proven to coal up to date, namely an area of about 9 sq. miles, of which your property is the centre. This is shown graphically by the annexed lithograph:-

18. The sedimentary rocks extend westward to and north along the valley of Ten Mile Creek, but although extensive prospecting by Diamond drilling has been done in the latter valley, no merchantable coal has so far been made manifest.

Apparently also the same series of coal measures continued to the eastward joining with and continuing with the rocks of the Quilchena Coal Basin, where valuable coal deposits have been proven, but across the divide between the

two valleys the sediments have been eroded away entirely except in a few isolated patches. Limestones are found in a few places, notably on the hill between the Nicola and Quilchena Valleys where a good grade of quicklime is burned for local use, and near the McInnis Ranch, a few miles south of Merritt.

19. Movement subsequent to the deposition of the coal beds caused a bending of the strata so that a number of synchines and antichines have been formed. In a general way the coal seams dip towards the centre of the basin, but there appears to be local exceptions to this rule.

20. The geological section may be summarized and condensed as follows:

SEAM "F"		Coal 4 ft.
Coal measures	150 ft.	
SEAM "E"		" 4 ft.
Coal measures	100 ft.	
SEAM "D"		" 3½ ft.
Coal measures, about	1000 ft.	
Coal		" 4 ft.
Shale	2' 10"	
Coal		" 4½ ft.
Coal measures	153 ft.	
Coal		" 13 ft. 3 in.
Shale	3' 6"	
Coal		" 3 ft. 8 in.
Coal measures	296 ft.	
SEAM "C"		" 14 ft. 0 in.
Coal measures	146 ft.	
SEAM "B"		" 4 ft. 6 in.
Coal measures	136 ft.	
Coal - SEAM "A"		" 17 ft. 6 in.

3' 2"
 4'
 4' 2"
 3' 5"
 3' 8"

 20' 1"

14

[illegible][illegible]

64.

28

20.

MINE NO. 2

In the spring of 1908 surface prospecting was started on the Northern half of the property, resulting in the discovery of the outcrops shown on cross section, and that they were north of a synclinal fold or trough.

The following work has been done in this vicinity to date:-

21.

"BROWITT" SEAM (Seam "F")

Opened by a surface pit about 20 feet deep. It shows about 4 feet of coal, including a 2" parting 1 foot from the bottom, but the depth is not sufficient to indicate the true character of the seam. It is well worthy of immediate development, sufficient to prove its character in any event. The output could be handled over the tippie of No. 3 slope.

22.

SLOPE NO. 3 (Seam "E")

This is the principal working of the Diamond Vale Collieries, and is marked: "Diamond Vale Mine, No. 2", on map attached to this report. Slope No. 3 starts on the outcrop of the seam, and follows it down an average dip of 32° 20' for 428 feet. The main level is turned to the east at 325 feet below the portal and driven 348 feet from the slope and a main level to the west at 418 feet driven 91 feet. Return airways have been driven on each side of the main slope, leaving 50 feet pillars, and several rooms turned off to the rise from the levels and air connections made to return air courses.

23.

The seam is approximately 5 feet thick and contains 3' 7" coal exclusive of partings. The following is an average section:-

Roof 5 feet shale, hard and an excellent roof
 Soft Coal 8"
 Sandstone 6"
 Coal 1' 2" fairly hard and friable
 Clay 0' $\frac{3}{4}$ "
 Sandstone 5"
 COAL 1' 3" bright and hard
 Total Coal 3' 7"

24. During the past winter some 2300 tons of coal have been shipped from this development work. It is pre-eminently a coking coal but the lower portion makes a desirable domestic lump and it all steams well.

QUALITY OF COAL

25. The coal herein mentioned is all true bituminous coking coal of excellent quality.

26. The following tabulated abstract of analysis by various parties fairly represents its quality and characteristics:

<u>LOCALITY</u>	<u>SAMPLED BY</u>	<u>MOISTURE</u>	<u>VOLATILE</u>	<u>FIXED CARBON</u>	<u>ASH</u>	<u>QUALITY OF COAL</u>
D.V. #3 across seam.	F. KEEFER	3.0	35.3	52.2	12.3	good
-do- lump from Ry. cars	-do-	2.4	37.5	48.3	14.2	good
-do- slack pile	-do-	2.7	34.0	51.3	14.7	good
-do- washed slack	-do-	.0	36.8	52.9	10.3	good
NICOLA C & C Co. #5 seam	-do-	2.8	37.5	55.3	7.2	good
NICOLA CO. #2 Seam	-do-	2.9	40.15	51.00	8.85	good

<u>LOCALITY</u>	<u>SAMPLED BY</u>	<u>MOISTURE</u>	<u>VOLATILE</u>	<u>FIXED CARBON</u>	<u>ASH</u>	<u>QUALITY OF COAL</u>
NICOLA CO. #1 Seam Lump Coal	Prof. Roberts University of Washington School of Mines	4.89	36.89	51.06	7.36	Good trace Sulphur
-do- #2 Seam Lump Coal	-do-	3.31	40.71	50.30	5.68	Good
-do- #5 Seam	-do-	3.44	38.86	49.42	8.46	Good
DIAMOND VALE #3 Seam Lump Coal	-do-	2.66	37.84	55.14	4.36	Good
DIAMOND VALE #3 Slack	-do-	2.69	34.67	47.18	15.46	Good Sulphur!

NICOLA C.C. Co. Seam #1	Dr. R.W. Ellis Canadian Geological Survey	3.04	37.18	52.05	7.73	Good
NICOLA CO. #2 Seam	-do-	3.17	35.73	55.25	5.85	Good
DIAMOND VALE Top Section #3 Seam	B.P. Little Engineer of Diamond Vale Coal Co.	1.00	43.7	50.7	4.0	not stated
-do- Bottom Section #3	-do-	1.5	38.1	55.6	4.0	"

27. BUILDINGS, PLANT & MACHINERY

The following inventory of Buildings, Plant, Equipment, etc. includes what was purchased with the property by your Company in July 1908 as well as what has been added since that time.

In some cases the cost of machinery, etc. given is the total cost erected in place, but in some cases I find the freight and erective charges were not distributed, and are included in the item marked: "Undistributed".

All this Plant and Machinery is adapted to its purpose, and should be worth the cost to the Company, and the same may be said of the exploration.

28.

BUILDINGS.

		Cost
STABLE	14 x 20	\$174.21
BLACKSMITH SHOP	16 x 20	308.40
BUNK HOUSE	30 x 36	897.24
ICE HOUSE	20 x 30	160.03
WAREHOUSE	20 x 30	561.81
OFFICE BUILDING	28 x 36	3714.28
SUPERINTENDENT'S OFFICE	16 x 16	334.73
ENGINE & BOILER HOUSE #1 Shaft	40 x 68	2346.78
OIL HOUSE	14 x 14	162.36
POWDER THAW MAGAZINE	12 x 12	197.37
BOARDING HOUSE	30 x 36	2609.47
Temporary Tipple & Buildings #3 Slope		1182.04
Old Temporary Boarding House	16 x 30	<u>248.15</u>
		\$12,896.87

29.

OTHER STRUCTURES

TIPPLE & TRESTLE, #2 Shaft	\$1759.37
Gallows Frame, No. 1, 60 ft. high	1374.48
-do- No. 2, 60 ft. high)	
ENGINE ROOM, No. 2	1575.04
TEMPORARY TIPPLE, Slope No. 3 -	
MILL BUILDING	1348.13
TEMPORARY WASH HOUSE at #1 Shaft	<u>92.86</u>
	\$6,149.88

30.

EQUIPMENT

BOARDING HOUSE, Stove, dishes, utensils, furniture, etc.	989.29
BLACKSMITH SHOP, tools, etc., etc.	360.73
GENERAL, Mine Cars, track, pipe, tools, etc)	
HORSES & VEHICLES, Small Fan & Engine)
DIAMOND DRILL OUTFIT, with 12 H.P.)
Boiler, casing, rods, pump and accessories.)
Pumps - 1 #5 Cameron)12098.58
2 #7 ")
1 #9 ")
1 - 13 x 7 x 12)
Duplex Snow,	<u></u>
	\$13,448.60

31.

MACHINERY

1 - 300 H. P. Babcock & Wilcox Water
Tube Boiler set at Shaft #1
1 - Forced Draft Apparatus for same
1 - Open Feed Water Heater and
Purifier for same
1 - 40 H. P. Vertical Boiler now at
No. 3 slope
2 - Feed Water Pumps, accessories, etc.
COST \$9,070.44

32. 1 - 12 x 18 Dbl. Cylinder Single Drum
Hoisting Engine and 500 feet
with 1" Steel Hoisting Cable
at #2 Shaft, and 60" Head
Sheave
1 - 7 x 10 Dble Cylinder Single Drum
Hoist at #3 Slope with 1000
feet 5/8 Steel Cable and
Head Sheave 6,041.20

33. 1 - 4 K.W. Electric Light Dynamo Engine
switchboard and accessories
complete 624.12

34. 1 - 14 x 12 x 18 Straight Line Air
Compressor at No. 1 Shaft
Engine House 1,673.41

35. 1 Complete Saw Mill Machinery,
30 H. P. Locomotive Type
Boiler, 13 x 12 Simple Engine,
24 H. P. Westinghouse Double
Cylinder.
High Speed Engine, Log Carriage
3 Gang Edger, Cut off Saw,
Planer & Matcher,
2 Circular Saws - 52" & 56" etc.
And Sawmill accessories 469.84
Now in operation at Lumber Camp 4,584.66

GRAND TOTAL - \$54,959.02

36. Construction of Roads, Flumes,
Telephones, etc. \$642.07

37.

STORES

1 Lot stores, such as pipe fittings,
extra machine parts
2 Air Drills and attachments and
accessories
Picking Belt Machinery for Coal Tipple
Bar Iron, Steel, etc. etc. 2,545.77

38. EXPLORATION.

Diamond Drilling	\$3946.24
Shaft No. 1	6294.87
Shaft No. 2 & Mine #1	28602.87
Slope No. 3 etc.	23281.03
Undistributed items, covering Superintendence, Insurance, Salaries, and incidental expenses from Sept. 1906 to date	<u>17343.11</u> \$79,468.12

39. ESTIMATE OF GROSS TONNAGE.

On a basis of 1100 tons recovery per acre foot, this property should produce in the neighbourhood of 80 million tons of coal.

40. OPERATIVE COSTS.

On an output of 600 tons per day the cost of mining, loading, and incidental expenses, including superintendence, will be about \$1.47 per short ton, with a first class, up to date plant.

41. MARKET VALUE OF COAL.

The prices realized for coal, f.o.b. cars at mine have varied considerably owing to the unsettled business conditions since your Company entered the market, and the fact that you have not been in a position to enter into contracts for regular deliveries has probably not been to your advantage.

42. It would seem that the following would be about the average prices you may expect to obtain:

Run of Mine Coal	\$2.60 to \$2.85 per ton of 2000 lbs.	
Lump, over 3" screen	\$3.50 to \$4.00	-do-
Nut, " 1½" "	\$2.50 to \$3.00	-do-
No. 2 " 1" "	\$1.75 to \$2.00	-do-
Screenings	.75 to \$1.25	-do-

43. If the slack coal should be washed and made into coke it would probably require approximately 2 tons of slack to produce one ton of coke, including loss in washing operations, and should produce coke with a maximum of about 11% ash, worth, say \$4.24 at mine.

Allowing 60 cents per tons of coke for cost of washing and burning coal, loading coke, etc. this would leave \$3.65 for two tons of coal, or \$1.82½ per ton raw slack, and this would certainly be the most profitable way to handle the fine coal.

44. TIMBERING LIMITS.

Your Company holds 4 Timber limits of approximately 640 acres each, located at the head of Godey Creek, about 4 miles east of the mining property, heavily covered with pine and fir, suitable for both saw and mine timber. While these limits have not been estimated by a timber cruiser, I would venture the opinion that they will cut at least 10,000 feet per acre, and probably very much more, say a total of 25 to 35 million feet.

With a Wagon Road constructed up Godey Creek, this timber will ^{be} easily accessible. This Timber is subject to an annual tax or fee of \$460.00.

45. WATER RIGHTS.

Your Company holds records for 1000 inches of water (approximately 1600 cu. ft. per minute) from the Coldwater River, to be used for mining purposes, power, domestic, and general purposes. This water is subject to an annual charge by the Provincial Government of \$22.00.

46. SURFACE LANDS.

In addition to the Coal Rights, your Company hold fee simple title to the following parcels of land.

37 - 99/100 acres surrounding shaft #1.		
10	-do-	#2.
<u>17</u>	-do-	#3.
64-99/1000 acres.		

47. RAILWAY SIDING.

A Siding has been constructed to the Tipple at No. 3 slope, affording shipping facilities.

TAXES.

The direct Government Tax of 10¢ per long ton for coal, and 15¢ per long ton for coke, covers all land tax except the local school tax, which this year amounts to \$12.50.

Respectfully submitted,

"B. P. Little"

Engineer,

LOG OF BOREHOLE NO. 11.

Wash and Gravel	96' 01"
Sandstone and Conglomerate	205' 11"
Coal	1' 09"
Sandstone and Conglomerate and Shale	167' 00"
Coal	4' 00"
Dark Shale	2' 10"
Coal	4' 06"
Dark Shale	2' 03"
Coal	09"
Dark Shale	1' 10"
Coal	6 $\frac{1}{2}$ "
Dark Shale	7-1/3"
Coal	1' 06"
Shale	4' 05"
Coal	07"
Dark Shale	9' 03"
Coal	02"
Dark Shale	04"
Coal	04"
Dark Shale	02"
Coal	06"
Sandstone and Shale	32' 04"
Coal	08"
Shale	1' 00"
Coal	03"
Conglomerate, Sandstone and Shale	95' 06"
Coal	6' 05"
Bone	06"
Coal	6' 03"
Shale	3' 04"
Coal	3' 08"
Sandstone and Shale	12' 06"
Coal	10"
Sandstone and Shale	47' 10"
Coal	1' 10"
Dark Shale	02"
Coal	09"
Sandstone and Shale	42' 03"

750' 07"
