QUILCHENNA
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A J Buckham

Letters on official business should be sent to the Director.

GEOLOGICAL SURVEY OF CANADA.

Robert Bell, M.D., D.Sc., (Cantab.), LL.D., F.R.S., F.G.S.,
ACTING DEPUTY HEAD AND DIRECTOR.

OPEN FILE

OTTAWA, 23rd Sept. *1904.*

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MR. T. J. SMITH,
Managing Director
Diamond Vale Coal and Iron Mines Ltd.,
Vancouver, B. C.

Dear Mr. Smith,

I forward you herewith a preliminary report on the Quilchenna Coal Basin. As the specimens have not yet arrived I am not able to furnish you details of analysis of the Coal, but you have already sufficient data on this point to establish their value. I have merely given you a fair statement of which I consider a very valuable coal property and one which should be thoroughly investigated by boring. The fact that the seams are located on a high bench makes them easy of development and is an advantage over the low lying Coals of Nicola Basin.

I am,

Yours very truly,

R W Ells

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PRELIMINARY REPORT

on

THE QUILCHENNA COAL BAISN,

Nicola Valley B. C.

(21)

MR. T. J. SMITH,

Managing Director

Diamond Vale Coal and Iron Mines Ltd.,

Vancouver, B. C.

Sir,

In accordance with the request of the Hon., the Minister of the Interior, I beg to submit herewith a preliminary report on the property owned by your Company on Quilchenna Creek and known as the Diamond Vale Coal and Iron Mines Limited.

The area included in this property is situated along the course of Quilchenna Creek which flows northerly from the vicinity of the Aspen Grove Copper Camp and empties into Lake Nicola at a point about eight miles east from the outlet near Nicola Village.

The geology of this district was examined some twenty five years ago by the late Dr.G.M. Dawson in whose reports several references are found to the area in question. At the date of his examination however practically nothing was known as to the extent of the Coal seams included in the Quilchenna district other than that the presence of coal or lignite was observed outcropping near theстream, the rock descriptions in the reports more particularly referring to the great series of volcanic rocks which have a very wide development in this district.

Quite recently the area has come into prominence as a possible source of supply for coal and a number of seams have been located, and to a limited extent opened up. The examinations of the present season by my assistant, Mr. R. A. A. Johnston, and by myself have served to outline the area of coal rocks very closely it is believed, taking into consideration the large amount of drift material which covers a large portion of the surface in this part of the province.

The surrounding rocks which underlie the sandstone, conglomerate and shale which make up the rocks of the coal basin proper consist of volcanics, which comprise diabase, porphyries, and basalts. They are similar to those which surround the Nicola coal area along the Coldwater, which is situated about 14 miles west of the Quilchenna, and small areas of limestone are seen at several points.

Generally speaking the Quilchenna coal basin may be said to extend from the northern margin southward for about eight miles along the course of the creek. It has a breadth of two to two and a half miles for the lower portion, and the entire area probably comprises about 14 square miles.

The greater part of this area lies to the east of Quilchenna creek and the sandstones and associated rocks pertaining to the coal formation terminate against the volcanics along a gully, situated about one mile and a half south-east of the post road at Quilchenna post-office. South of this the formation occurs as a rather prominent ridge facing steeply towards the creek and rising on the east side to an elevation of 750 to 900 feet above the creek bottom. On the west side of the creek the area of coal rocks is small. The volcanics are well outlined and approach within a short distance of the stream, except at one point in a gulley near the middle of the Indian reserve where they have a breadth of nearly one mile and here are reported to hold a small but much broken seam of coal.

Practically therefore the economic portion of this basin is confined to that portion lying to the east of the creek. In this area the rocks are exposed in a number of gullies which traverse the western slope of the area. In these a series of sandstones, conglomrates and shales are seen which have a general dip to the north-east and east at angles of twenty to forty degrees. At the northern end in an outcrop which is seen a short distance east of the road which traverses the Triangle ranch, and about one mile and three fourths from the post-road, the dip of the shales and contained coal is to the south-east, indicating the northern limit of the baisn in this direction, while at the south end, though there are indications of faults at several points in the sandstones the dip is to the east and the north-east.

This southern part of the basin is comparatively narrow. The volcanic rocks converge and apparently close round the basin near the line between lots 1282 and 1291. In the last two miles of this part of the basin the outcrops are mostly sandstone and conglomerate, and the contacts of these with the underlying volcanics, as seen on lot 1280 and on the Indian reserve, shew the breadth of the coal rocks to be scarcely more than one mile. Northward of this line however it widens out quite rapidly.

From an examination of a number of outcrops it would appear that there are at least six seams of coal and probably a seventh.

What is probably the lowest of these seams is disclosed in a small excavation on the north flank of the hill in the triangle ranch, already referred to as about two miles south-east of the Post-road. The outcrop at this place is at an elevation of about 100 feet above the flat and includes a considerable thickness of dark-grey and black carbonaceous shales with a dip of S.65 E. at an angle of 40 degrees. In this outcrop several seams of coal appear, resting on a brown shale at the base. This was opened up by an excavation extending into bank for about eight feet and the coal became much more pronounced in this distance, shewing a thickness of coal with shale partings of about six feet. Above this outcrop at a further elevation of fifty feet is another outcrop of brown and black carbonaceous shale, also holding thin bands of coal, but this was not opened up at the date of my visit, so that its actual coal content was not ascertained. It may possibly indicate another well defined coal seam and is worth proving. These two outcrops apparently represent the lowest seams in this part of the basin.

Ascending the creek, in a gully to the east on lot 1267, official plan, greyish sandtone and shale similar to those seen in the Nicola basin and the coal gully, are exposed, with beds of conglomerate and carbonaceous shale. These dip N.60 E. 20 degrees. Thin beds of coal also occur but owing to the clay deposits it is impossible to determine the exact succession of beds at this place. Similar rocks are seen in several parallel side gullies, and seams of coal from 4 to 6 feet in thickness are reported as outcropping at elevations of about 350 feet above the creek bottom.

In the gully further to the south on the same lot, the shales and sandstones contain several beds of coal. One of these has been opened to some extent by a tunnel of 45 feet driven in transversely across tee seam, which here has an exposed thickness of about six feet. Though the coal at the outcrop is weathered the greater part appears to be a bituminous coal of good quality. The seam has a dip to the north-east at an angle of about thirty degrees and the coal contains two thin partings of one to two inches of sandy shale. The elevation of the mouth of the tunnel is said to be 275 feet above the creek. The roof and floor of this coal is a greyish sandstone.

Above this on the gully outcrops of coal and shale are seen indicating the presence apparently of several seams, the thickness of which could not be definitely ascertained, but one bed near the top of the gully is stated to have a thickness of about six feet. The sandstone and shale are similar to what is seen in the Nicola coal area. These rocks are exposed to the top of the gully at intervals the top of the bench being about 420 feet above the creek bottom. It would appear that above the tunnel seam there are thus three other seams of coal, the exact dimensions of which could not be made out owing to clay covering, and the upper one apparently consists of several small beds with shale partings, aggregating from six to seven feet of coal.

The highest exposed seam in this area is that near the top of the bench exposed in a gully near the camp. This has an elevation of 775 feet above the creek bottom and 500 feet above the tunnel seam outcrop. This seam as exposed in the gully has a thickness of about 15 feet but the outcrop is crushed owing to the pressure of overlying beds. It was also struck in a shaft sunk to the north-east to a depth of 52 feet, and was also opened by a short drift which had however fallen in places so it could not be entered. The coal in so far as it could be examined appeared to be of good quality for surface shewings.

The outcrop of the lowest or Triangle ranch seam is probably seen on the slope of the hill about half-a-mile to the south, of the place where opened, and also on the west side of the creek in the broken exposure on the Indian reserve.

The outcrops of the several seams being on the side of a bench which rises to a height of nearly 1000 feet above the creek bottom renders the mining of these coals comparatively easy. That there is a large body of good coal in this part of the basin is quite evident, and though the contact of the sandstones and shales with the volcanics along the eastern margin is for the most part concealed the structure of the whole of the coal bearing rocks is probably basin shaped, and the seams which outcrop in the face of the hill should underlie the generally level area of the highland east and north-east of the camp. This basin is certainly an important one and well worth careful development by boring.

To do this I would recommend several holes. The diamond drill will probably furnish the best means of testing the areas, and one hole should be put down above the outcrop of the tunnel seam, while one or more should be bored to the north-east of the 16-foot seam near the camp. If these are properly located and the boring carefully conducted, the thickness of the several seams throughout the whole extent of the measures should be ascertained. I would also recommend that one at least of these hole should penetrate the sedementary rocks to the underlying volcanics, as other seams may exist the outcrop of which is concealed by clay deposits.

Geological Survey Dept.
Ottawa, Sept. 23, 1904.

R. W. Ells

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