1305-TRANS

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PYRITE PROSPECT - BRANCH CREEK

(2nd Report)

On the 26th November, last, a short report was prepared on pyrite bearing black slates, that may be seen outcropping along Branch Creek near the Seven Mile Beach road on the eastern side of Port Sorell. At that time no development work had been commenced on these deposits and it was recommended that certain trenches be cut by the Ben Lomond Mining Company so that adequate sampling could be carried out. The Company have now cut one trench of 100 by 15 feet and commenced a second one. These trenches are on the north side of the Creek and have been cut approximately at right angles to the strike of the rocks.

The first trench is 25 feet from the creek and is cut for 101 feet on a bearing of 28°, the average strike of the rocks being 315°. At the north-eastern end of the trench, the over-burden of soil and creek alluvium is six feet, of which the bottom two feet consists of a heavy wash cemented by iron oxide into a solid material that requires shooting. Twenty feet of the trench, at the south-western end, do not contain this cemented wash and the overburden is 4 feet of normal alluvium.

The second trench is closer to the creek and the operators have difficulty in keeping out water. At the northern end is eight feet of overburden, mainly detrital material but cemented wash occurs overlying the slates at the southern end. At the time of my visit the trench was not completed and the sampling was rather sporadic at the southern end.

The rock types exposed in the trenches consist mainly of slates, but narrow beds of quartzites up to 2" in thickness occur here and there. Black slate is the commonest variety but grey slates do occur interbedded with the black. In general, the black has greater percentages of pyrite than the grey. Both varieties are very soft, almost clay-like in places, where exposed in the trench near the surface, although harder beds do occur. Small irregular seams and bunches of both calcite and quartz traverse the slates but rather infrequently. At 24 and 63 feet in the first trench are bands of a foot in thickness carrying much fine white clayey material.

SAMPLING

METHOD. A channel about 9 inches in width was first cleared along the centre of the bottom of the trench and then continuous samples of about 1 inch square were taken from the base of this channel. The samples were taken about every ten feet except where obvious changes of grade (as at Sample 5) occurred. In one or two places the slates were not cut; so samples could not be taken. These only amounted to a few feet overall and are shown blank in the attached plan. The strip along which the samples were taken is shown in red.

RESULTS. These may be set out in the form of a table.

1	2			3	4	5
Sample No.	From	To	Length	% S	% Fe	% Pyrite (Calc).
1	0'	9'	9 feet	23.1	21.5	43.2
2	9'	18'	9	20.1	20.6	37.6
3	18'	27'	7	11.4	15.0	21.3
	(excluding 24-26')					
4	27'	37'	10	14.5	14.5	27.2
5	37'	40'	3	0.8	5.3	1.5
6	40'	50'	10	20.7	18.9	38.8
7	50'	58'	8	22.8	21.2	42.7
8	61'	67'	6	13.9	16.9	26.0
9	67'	76'	9	2.4	4.4	4.5
10	76'	89'	13	0.2	5.0	0.4
11	89'	101'	12	10.8	11.3	20.2
12 x	0	14'	14	10.4	10.3	19.5
13 x	14'	28'	14 ≠	19.9	18.5	37.2

x Trench 2
≠ Intermittent Sample.

An explanation of this table is as follows:-

Column 2 shows the horizontal length of the sample and, as the beds are very steeply dipping, it is not much greater than the actual width of the beds sampled. Samples 1 to 11 are from trench 1 and samples 12 and 13 from trench 2; measurements are from the southern end of trench 1 and the northern end of trench 2. Sample 13 is not a true channel sample as the slates were only exposed intermittently here.

Columns 3 and 4 are actual results of determinations by the Department of Mines Laboratory in Launceston. Column 5 shows the amount of pyrite present calculated from the percentage of sulphur. The theoretical ratio of sulphur to iron in pyrite is 53.4 to 46.6 so that it can be seen that in all the samples the actual percentage of sulphur compared to iron is less than the theoretical ratio. This may be due to the fact that, as the samples had been taken near the surface, oxidation of some of the pyrite had occurred; however it would be necessary to establish whether any improvement of pyrite values actually occur at depth.

A glance at the tables shows that the pyritic content of the slates varies considerably from bed to bed, from 0.4 to 43.2%. An effort was made to confine the samples, within reasonable limits, to similar grade beds as far as

could be determined by eye. Particular notice should be taken of the two very low grade samples. For 13 feet at 76 to 89 feet from the southern end of the trench the percentage was only 0.4 and a second poor bed containing 1.5% for three feet was found at 37 to 40 feet.

Now that the first stage in the possible development of this project has been completed it is time to outline the next two steps. In the first place it must be remembered that the pyrite is in an extremely fine state of crystallization and careful tests of bulk samples would be necessary to determine the best methods of concentration. This would mean the breaking of a bulk sample from the trench and the conducting of various flotation and gravity tests on it to find if an economic material could be produced at reasonable cost.

Should these tests prove satisfactory, then the third stage of the development could be carried out. Now it should be emphasised that although careful sampling of the slates exposed in the trenches was carried out, the results provide no real figures to calculate actual reserves or to ascertain what volumes of pyritic material would be available for opencut mining. In other words, the sampling has determined the grade in one dimension and, in order to know that it is in the other two, a planned programme of core-drilling would be necessary. Particular care would have to be exercised in the siting of the holes, including their angle and direction of dip, as well as in the logging, examination and assay of the cores.

When all these data obtained during the two stages mentioned above, are compiled, then an accurate costing based on mining, milling, transporting and marketing costs could be worked out and the sum of these compared with the price obtainable for the finished product in order to determine the economic potentialities of the deposits.

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