

REPORT ON BORING CAMPAIGN ON ARBA LEAD, BRANXHOLM

Between 6th February and 21st May, 1937 a boring campaign was undertaken by means of the Mines Department Surge Drill on Section 9787/M, 117 acres, G.D. Gardner, Lessee, one mile and a half north-east of Branzholm; with the object of intersecting and testing the Arba or Branzholm Creek lead.

In 1930 and 1931 eight bores were drilled on the same section (see "Report on the Boring Campaign on the Arba Lead, Branzholm" by P.B. Nye, 21.6.33). Six of these bores extended along a north-westerly line some 15 chains to the north-east of No. 2 Bore (1937) and the remaining two (Nos. 7 and 8, 1931) occur at two chains and $5\frac{1}{2}$ chains respectively west of No. 1 (1937).

In 1937 nine holes were completed, numbers 1 to 6 of which extend along a general east and west line about north boundary of section 160P/M, S.F. Diprose Lessee. Bores 7, 8, and 9 constitute a line $3\frac{1}{2}$ chains north of these as illustrated on the accompanying plan.

The bores were fixed and the drilling controlled by the Secretary for Mines, Mr. J.B. Scott. The total depth of the 9 holes was 1060 feet, and the average depth of the alluvial ground bored was 114 feet. All holes were drilled to rock bottom with the exception of No. 4 Bore which was completed at a depth of 144 feet while still in wash.

The ground in each hole was sampled in lengths of $11\frac{1}{2}$ feet which, with a hole diameter of 4 inches, represents a volume of approximately one cubic foot. The samples were concentrated on the site and the resulting concentrates weighed and assayed for tin in the Mines Department Laboratory. The results were calculated by the staff of the Geological survey and the tin contents of each sample and each hole determined.

Results: Table No. 1 below shows the average results of each hole.

TABLE NO. 1

No. of Bore	Depth		Nature of Rock Bottom	Average value of ground in ozs. of tin oxide per cubic yard. (70% Sn.)	
	to Hole bottom	of deposit		To Depth of	To Bottom
1	153	148	Sandstone		1.100
2	145	142	Granite	79½ ft. -	4.200
3	105	99	"	68 " -	3.021
4	144	144	Unbottomed	79½ " -	3.035
5	106	102	Granite	68 " -	1.931
6	58	54	"		0.642
7	58	54	"		1.325
8	142	138	"	79½ " -	4.960
9	149	146	"	79½ " -	3.041
					1.640

The complete results of the separate sections in each bore are given in Table No.2 below.

TABLE NO. 2

<u>NO.1 BORE</u>		
Number of Sample	Sectional Depth (in feet)	Amount of Tin Oxide in Ozs. per cubic Yd. (70% Sn)
	0 - 20	Nil
1	20 - 25	0.33
	25 - 126	Trace
2	126 - 148	7.19
<u>NO.2 BORE</u>		
	0 - $222\frac{2}{3}$	Nil
1	$222\frac{2}{3}$ - 34	0.918
2	34 - $45\frac{1}{3}$	5.920
3	$45\frac{1}{3}$ - $56\frac{2}{3}$	0.591
4	$56\frac{2}{3}$ - 68	12.721
5	68 - $79\frac{1}{3}$	9.240
	$79\frac{1}{3}$ - $124\frac{2}{3}$	Nil
6	$124\frac{2}{3}$ - 136	6.920
7	136 - 142	2.909
<u>NO. 3 BORE</u>		
	0 - $22\frac{2}{3}$	Nil
1	$22\frac{2}{3}$ - 34	10.254
2	34 - $45\frac{1}{3}$	1.791
3	$45\frac{1}{3}$ - $56\frac{2}{3}$	1.578
4	$56\frac{2}{3}$ - 68	4.506
5	68 - 99	Trace
<u>NO.4 BORE</u>		
	0 - $22\frac{2}{3}$	Nil
1	$22\frac{2}{3}$ - 34	2.089
	34 - $45\frac{1}{3}$	Nil
2	$45\frac{1}{3}$ - $56\frac{2}{3}$	1.093

TABLE NO.2 (continued)

Number of Sample	Sectional Depth (2 ft.)	BORE NO.2		Amount of Tin Oxide in Oxs. per cubic Yd. (10% Sn).
3	^{56 2/3} 45 1/3	-	⁶⁸ 56 2/3	3.900
4	68	-	79 1/3	14.160
5	79 1/3	-	136	N11
6	136	-	144	10.728
<u>NO. 5 BORE</u>				
	0	-	22 2/3	N11
1	22 2/3	-	34	0.248
2	34	-	45 1/3	0.806
3	45 1/3	-	56 2/3	4.367
4	56 2/3	-	68	6.166
	68	-	102	N11
<u>NO. 6 BORE</u>				
	0	-	22 2/3	N11
1	22 2/3	-	34	1.139
2	34	-	45 1/3	1.375
3	45 1/3	-	54	0.909
<u>NO. 7 BORE</u>				
	0	-	22 2/3	N11
1	22 2/3	-	34	3.260
2	34	-	45 1/3	N11
2	45 1/3	-	54	2.660
<u>NO. 8 BORE</u>				
	0	-	11 1/3	N11
1	11 1/3	-	22 2/3	20.740
2	22 2/3	-	34	4.830
	34	-	45 1/3	N11
3	45 1/3	-	56 2/3	1.425
4	56 2/3	-	68	2.320
5	68	-	79 1/3	5.400
	79 1/3	-	138	N11

TABLE NO.2 (continued)

NO. 9 BORE		
Number of Sample	Sectional Depth (2 ft)	Amount of tin Oxide in Ozs. per cubic yard (10% Sn).
	0 - 11 $\frac{1}{3}$	Nil
1	11 $\frac{1}{3}$ - 22 $\frac{2}{3}$	10.630
2	22 $\frac{2}{3}$ - 34	2.910
3	34 - 45 $\frac{1}{3}$	5.040
4	45 $\frac{1}{3}$ - 56 $\frac{2}{3}$	0.584
5	56 $\frac{2}{3}$ - 68	1.276
6	68 - 79 $\frac{1}{3}$	0.850
	79 $\frac{1}{3}$ - 146	Nil

The Deposit:

The material passed through is very similar in all holes except that no bottom wash occurs in Bores numbered 3, 5, 6 and 7. The thickness of the several corresponding layers varies considerably as illustrated by the following general section.

Material	Range in thickness	Average thickness
Tailings	3 - 10 feet	7
Clay	9 - 17 "	12
Shingle & wash	3 - 9 "	5
Drifts & pug	28 - 117 "	81
Wash	7 - 22 "	16

The tailings are the result of past mining operations. The clay represents the sub-soil of the alluvial plain along Ringarooma River. The upper wash and shingle is a deposit over the above plain formed by the present Ringarooma River. The drifts and pug represent the deep lead deposit, and the lower layers of wash, where it occurs, represent the coarser material towards the bottom of the lead.

Value of the Lead - The values of the deposit, as illustrated by the boring results, are low. Certain sections of the bore holes contain no tin or only a trace, while other sections are tin-bearing in varying degrees. Of the latter only 7 samples out of 38 are below 1 oz. per cubic yard. Fourteen of the remainder are between 1 and 4 oz. 9 between 4 and 8 ozs., 5 between 8 and 12 ozs., and 2 are over 12 ozs. per cubic yard.

The average values for each hole, as disclosed in Table No. 1, are generally low and range from 0.642 to 2.910 ozs. per cubic yard. When taken to depths of 68 - 79½ feet instead of the full depth the values are higher, but only in No. 2 and 8 bores slightly exceed 4 ozs. per cubic yard

Distribution of the Values - The distribution of the values was unusual since appreciable tin oxide content only occurred in the bottom layers in the case of No. 1 and No. 4 bores, while in numbers 5, 8 and 9 the lower sediments contained no tin, and in No. 3 only a trace.

The best values in bores No. 2 to 7 were between 22 2/3 and 79½ feet, and in bores 8 and 9 between 11½ and 79½ feet.

Conclusions -

This boring campaign has proved that the greater portion of the deposit tested is tin bearing, but that the values are not high enough to enable the deposit to be worked economically, either in part or as a whole.

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