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OTTAWA
BATCH TESTS
ON
BURNABY ISLAND ORE

DECEMBER, 1963

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Introduction:

The purpose of this additional test work done by the staff of the Mineral Processing Division, Department of Mines and Technical Surveys, was to investigate the magnetic concentration of ore samples of a lower grade than those used in the original test work described in Appendix "D" of the "Production Plan, Burnaby Island Ore Property."

Origin of Samples:

Samples for metallurgical testing were weighted composites of diamond drill core assay sample rejects, which had been crushed to 3/8", and samples from those sections of the cores which had not been sampled for assay. Nothing was sorted or discarded from the samples.

Those sections and tonnages of the orebody represented by the samples are listed in Appendix 2.

Observations:

These tests confirm the results of the previous work done at Ottawa.

It should be noted that, in both series of tests, low grade concentrates were produced from ore samples of Section 21 North. However, the represented ore from this section amounting to 58,375 tons with a calculated grade of 35.56% Fe represents only 25% of Section 21, the remaining 75% of Section 21 not represented in these tests has a calculated grade of 50.77% Fe. Further, this 58,375 tons of ore which is not readily concentrated by a simple dry magnetic separation process represents only 2.5% of the "Red" ore.

In Sections 14, 15 and 16, where the calculated grade is lowered by reason of dilution by limestone and greenstone, these tests show that a 62% Fe concentrate can readily be made by dry magnetic separation.

Screen Tests on Ore Samples as Received

<u>Mesh</u>	<u>Sample 1</u>	<u>Sample 2</u>	<u>Sample 3</u>
	<u>Test 1</u>	<u>Test 8</u>	<u>Test 15</u>
+3	2.7	2.5	5.2
+4	15.2	6.9	11.5
+6	15.3	14.4	13.5
+8	17.1	16.4	18.3
+10	12.4	13.6	13.8
+14	6.8	7.2	6.9
+20	5.7	5.8	5.2
+28	4.2	4.5	3.5
+35	3.4	3.9	2.8
+48	2.6	3.1	2.1
+65	2.2	3.1	1.9
+100	2.3	3.4	2.1
+150	1.8	3.1	1.8
+200	1.6	3.2	2.1
-200	6.7	8.9	9.3
	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>

Sample No. 1 40.99% Fe

(Test 2) Cobbing as received (i. e. at screen size in Test 1)

	<u>Wt. (gm)</u>	<u>% Fe</u>	<u>Units</u>	<u>% Dist</u>
Head sample (assay)		40.99		
Concentrate	841	53.52	45,010	90.4
Tailing	362	13.28	4,807	9.6
Head sample (calc.)	1,203	41.4	49,817	100.0

Ratio of Concentration 1.43:1

(Test 5) Concentrate from Test 2 crushed to -10 mesh and reconcentrated on Ball Norton dry belt separator.

	<u>Wt. (gm)</u>	<u>% Fe</u>	<u>Units</u>	<u>% Dist</u>
Head sample (assay)		53.52		
Concentrate	666	56.03	37,316	97.7
Tailing	99	18.11	887	2.3
Head sample (calc.)	715	53.4	38,203	100.0

Ratio of Concentration 1.07:1

(Test 3) Ore sample crushed to -3/8" and separated to produce a cobber concentrate and a tailing.

	<u>Wt. (gm)</u>	<u>% Fe</u>	<u>Units</u>	<u>% Dist</u>
Head sample (assay)		40.99		
Concentrate	400	53.52	21,408	90.0
Tailing	180	13.18	2,372	10.0
Head sample (calc.)	580	41.0	23,780	100.0

Ratio of Concentration 1.45:1

(Test 6) Concentrate from Test 3 crushed to -10 mesh and reconcentrated on Ball-Norton separator.

	<u>Wt. (gm)</u>	<u>% Fe</u>	<u>Units</u>	<u>% Dist</u>
Head sample (assay)		53.52		
Concentrate	266	55.13	14,665	97.4
Tailing	20	19.42	388	2.6
Head sample (calc.)	286	52.6	15,053	100.0

Ratio of Concentration 1.08:1

(Test 4) Ore sample crushed to -1/4" and separated to produce a cobber concentrate and a tailing.

	<u>Wt. (gm)</u>	<u>% Fe</u>	<u>Units</u>	<u>% Dist</u>
Head sample (assay)		40.99		
Concentrate	396	51.41	20,358	89.9
Tailing	183	12.47	2,282	10.1
Head sample (calc.)	579	39.1	22,640	100.0

Ratio of Concentration 1.46:1

(Test 7) Cobber concentrate from Test 4 crushed to -10 mesh and reconcentrated on Ball-Norton separator.

	<u>Wt. (gm)</u>	<u>% Fe</u>	<u>Units</u>	<u>% Dist</u>
Head sample (assay)		51.41		
Concentrate	318	55.83	17,754	98.0
Tailing	19	19.21	365	2.0
Head sample (calc.)	337	53.8	18,119	100.0

Ratio of Concentration 1.06:1

Sample No. 2

48.35% Fe

(Test 9) Ore sample cobbled as received (Screen Analyses on Page 2) to produce a cobber concentrate and a tailing.

	<u>Wt. (gm)</u>	<u>% Fe</u>	<u>Units</u>	<u>% Dist</u>
Head sample (assay)		48.35		
Concentrate	1,056	64.79	68,418	95.8
Tailing	437	6.94	3,033	4.2
Head sample (calc.)	1,493	47.9	71,451	100.0

Ratio of Concentration 1.41:1

(Test 12) Cobber concentrate from Test 9 crushed to -10 mesh and re-concentrated on Ball-Norton separator.

	<u>Wt. (gm)</u>	<u>% Fe</u>	<u>Units</u>	<u>% Dist</u>
Head sample (assay)		64.79		
Concentrate	878	65.97	57,922	99.5
Tailing	20	15.69	314	0.5
Head sample (calc.)	898	64.9	58,236	100.0

Ratio of Concentration 1.02:1

(Test 10) Ore sample crushed to -3/8" and cobbled to produce a cobber concentrate and a tailing.

	<u>Wt. (gm)</u>	<u>% Fe</u>	<u>Units</u>	<u>% Dist</u>
Head sample (assay)		48.35		
Concentrate	1,033	65.69	67,858	96.0
Tailing	420	6.74	2,831	4.0
Head sample (calc.)	1,453	48.7	70,689	100.0

Ratio of Concentration 1.41:1

(Test 13) Cobber concentrate from Test 10 crushed to -10 mesh and re-concentrated on Ball-Norton separator.

	<u>Wt. (gm)</u>	<u>% Fe</u>	<u>Units</u>	<u>% Dist</u>
Head sample (assay)		65.69		
Concentrate	866	67.40	58,368	99.5
Tailing	19.4	15.69	304	0.5
Head sample (calc.)	885.4	66.3	58,672	100.0

Ratio of Concentration 1.02:1

(Test 11) Ore sample crushed to -1/4" and cobbled to produce a cobber concentrate and a tailing.

	<u>Wt. (gm)</u>	<u>% Fe</u>	<u>Units</u>	<u>% Dist</u>
Head sample (assay)		48.35		
Concentrate	1,058	65.59	69,394	96.3
Tailing	422	6.34	2,675	3.7
Head sample (calc.)	1,480	48.7	72,069	100.0

Ratio of Concentration 1.40:1

(Test 14) Cobber concentrate from Test 11 crushed to -10 mesh and re-concentrated on Ball-Norton separator.

	<u>Wt. (gm)</u>	<u>% Fe</u>	<u>Units</u>	<u>% Dist</u>
Head sample (assay)		65.59		
Concentrate	878	67.30	59,089	99.3
Tailing	23	17.40	400	0.7
Head sample (calc.)	901	66.0	59,489	100.0

Ratio of Concentration 1.03:1

Sample No. 3

47.79% Fe

(Test 16) Ore sample cobbed as received (Screen Analyses on Page 2) to produce a cobber concentrate and a tailing.

	<u>Wt. (g)</u>	<u>% Fe</u>	<u>Units</u>	<u>% Dist</u>
Head sample (assay)		47.79		
Concentrate	996	64.69	64,431	95.9
Tailing	390	7.14	2,785	4.1
Head sample (calc.)	1,386	48.5	67,216	100.0

Ratio of Concentration 1.39:1

(Test 19) Cobber concentrate from Test 16 crushed to -10 mesh and re-concentrated on Ball-Norton separator.

	<u>Wt. (g)</u>	<u>% Fe</u>	<u>Units</u>	<u>% Dist</u>
Head sample (assay)		64.69		
Concentrate	838	65.69	55,048	99.7
Tailing	14	13.18	171	0.3
Head sample (calc.)	852	64.8	55,219	100.0

Ratio of Concentration 1.02:1

(Test 17) Ore sample crushed to -3/8" and cobbed to produce a cobber concentrate and a tailing.

	<u>Wt. (g)</u>	<u>% Fe</u>	<u>Units</u>	<u>% Dist</u>
Head sample (assay)		47.79		
Concentrate	896	63.98	57,326	96.2
Tailing	350	6.54	2,289	3.8
Head sample (calc.)	1,246	47.8	59,615	100.0

Ratio of Concentration 1.39:1

(Test 20) Cobber concentrate from Test 17 crushed to -10 mesh and re-concentrated on Ball-Norton dry belt separator.

	<u>Wt. (g)</u>	<u>% Fe</u>	<u>Units</u>	<u>% Dist</u>
Head sample (assay)		63.98		
Concentrate	752	65.39	49,173	99.6
Tailing	16	13.28	212	0.4
Head sample (calc.)	768	64.3	49,385	100.0

Ratio of Concentration 1.02:1

(Test 18) Ore sample crushed to -1/4" and cobbled to produce a cobber concentrate and tailing.

	<u>Wt. (g)</u>	<u>% Fe</u>	<u>Units</u>	<u>% Dist</u>
Head sample (assay)		47.79		
Concentrate	1,046	64.18	67,132	96.3
Tailing	406	6.44	2,615	3.7
Head sample (calc.)	1,452	48.0	69,747	100.0

Ratio of Concentration 1.39:1

(Test 21) Cobber concentrate from Test 18 crushed to -10 mesh and re-concentrated to produce a concentrate and a tailing.

	<u>Wt. (g)</u>	<u>% Fe</u>	<u>Units</u>	<u>% Dist</u>
Head sample (assay)		64.18		
Concentrate	877	65.19	57,172	99.6
Tailing	16	13.58	217	0.4
Head sample (calc.)	893	64.3	57,389	100.0

Ratio of Concentration 1.02:1

Screen Tests on -10 Mesh Concentrates

	Sample 1			Sample 2			Sample 3		
Mesh	Test 5	Test 6	Test 7	Test 12	Test 13	Test 14	Test 19	Test 20	Test 21
+14	16.2	12.6	15.4	10.4	9.6	9.4	11.0	7.4	8.5
+20	22.6	20.2	20.8	14.6	14.3	14.8	17.8	15.1	16.2
+28	16.7	17.6	17.8	14.0	14.0	14.8	16.8	16.3	16.4
+35	11.5	12.5	12.4	11.0	12.0	11.7	12.0	12.4	12.2
+48	7.0	7.7	7.4	7.8	8.0	8.0	7.0	7.7	7.6
+65	5.2	6.1	5.5	7.1	7.0	7.2	5.5	6.0	6.0
+100	4.1	5.0	4.4	6.6	6.6	6.6	4.4	5.0	4.6
+150	3.0	3.6	3.0	6.0	6.0	5.9	3.5	4.2	4.0
+200	2.8	3.2	2.7	6.4	6.0	6.0	4.1	4.6	4.5
-200	10.9	11.5	10.6	16.1	16.5	15.6	17.9	21.3	20.0
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Respectfully submitted,

January 13, 1964
Vancouver, B. C.

R. C. Smith

APPENDIX 1

SAMPLE NO. 1

Section 21 North

Sample Nos.	15372, 15373, 15416, 15418, 15380 to 15392
plus 329.1' - 337.5' (S-12)	376.8' - 380.3'
382.0' - 385.0'	

SAMPLE NO. 3

Section 14 North S-17

Sample Nos.	15452 to 15462 15465 to 15478
plus 246' - 248'	
516' - 530'	
550' - 562.8'	
available core in section	296.5' - 346.5'

SAMPLE NO. 2

Section 15 North S-1, 2, 3

Section 16 North S-4, 5, 6

Sample Nos.	1486 to 1493 535 to 545 526 to 534 1492 to 1499 546 to 550 1451 to 1463 1464 to 1479 3667 to 3670 3653 to 3659 3671 to 3675 3660 to 3666 3630 to 3644 3645 to 3651
plus 194.5' - 201.5' (S-3)	195' - 201' (S-1)
458.5' - 464' (S-2)	L.S. Block F
G.S. Block G 200.8' - 200.8' (S-6)	

APPENDIX 2

Sample	Section	Tons in Section	% Fe. Calc.	Tons in Section rep. in tests	% Fe		Tons in Section NOT rep. in tests	% Fe Calc.
					Calc.	Assay		
1	21	243,812	47.14	58,375	35.56	40.99	185,437	50.77
2	15, 16	833,864	48.29	614,099	44.47	48.35	219,765	58.97
3	14	165,078	42.40	165,078	42.40	47.79	-	-