

ALL OFFICIAL CORRESPONDENCE
SHOULD BE ADDRESSED TO THE DIRECTOR.
DIVISION OF ORE DRESSING AND
METALLURGY

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MINES BRANCH
EUGENE HAANEL, PH. D.
Director.

OTTAWA, Ont., July 22nd, 1918.

REPORT OF ORE DRESSING AND METALLURGICAL LABORATORIES.

Test No. 97

A shipment of two bags of Tailings of approximately 200 pounds from a former Molybdenite Plant at Hull, Que., was received on June 18th, 1918, from the Wood Molybdenite Co., Ottawa, Ont.

These two bags were sampled in Jones Riffled Samplers and samples cut out for analysis, screen test and concentration tests on the Laboratory Flotation Machines.

Analysis of Shipment-----0.87% MoS₂.
-----0.07% MoO₃.

The results of the screen test are shown on the accompanying Scale Sheet.

The results of the Flotation tests are given in the following table.

Conclusion:-

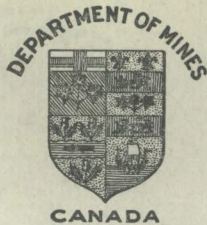
The screen test was made to determine just where the Molybdenite Values were. It was thought that practically all the values were in the Coarse Sizes. From the test it has been proven that 33% of the tailings by weight is finer than 65 mesh and contain 25.4% of the Molybdenum Values.

From the table giving the results of the Flotation tests it will be seen that the tailings do not readily lend themselves to oil Flotation. In all cases the froth was not good, resulting in poor recoveries. Even on the washed tailings good results could not be obtained. The only reason for this being that the floating properties of the flake have been

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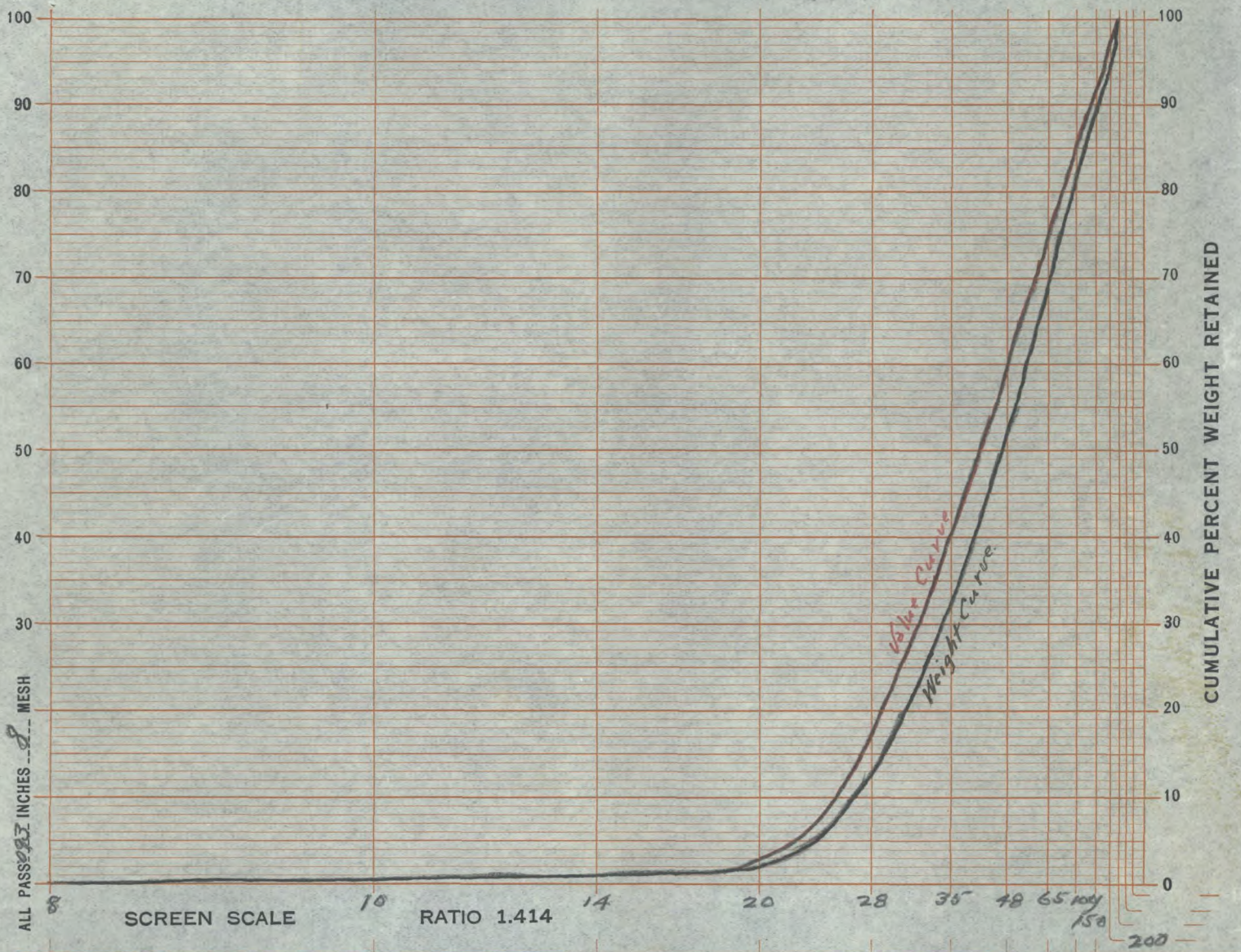
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destroyed. This has been proven by the large amount of values contained in the middlings, which range between 25 and 40% of the values in the crude. On an ordinary ore these values would not be above 10% and generally are around 5%. Recoveries in the table have been calculated on Recovering 70% of these values, which is permissible with the raw ore, but it is doubtful if this can be obtained on these Tailings.

It is possible that a method of treatment could be worked out that would be satisfactory but the amount of tailings to be treated would hardly warrant the installation of a plant and the preparatory work necessary before the plant would be in condition to give a satisfactory recovery.

The Tyler Standard Screen Scale

Cumulative Direct Diagram of Screen Analysis on Sample of Hull Tailings (O.E. Wood)
 Name W.B. Timney Date June 17th 1918



Indicate the Screen Crushed through and also First Retaining Screen	SCREEN SCALE RATIO 1.414										
	Openings		Mesh	Diameter Wire Inches	Sample Weights grams	Per Cent	Per Cent Cumulative Weights	Analysis Content % MoS ₂	% Fe	% Mn	Cumulative % T Values
	Inches	Milli-meters									
	1.050	26.67		.149							
	.742	18.85		.135							
	.525	13.33		.105							
	.371	9.423		.092							
	.263	6.680	3	.070							
	.185	4.699	4	.065							
	.131	3.327	6	.036							
	.093	2.362	8	.032							
	.065	1.651	10	.035							
	.046	1.168	14	.025	3.2	1.2	1.2	1.12	0.60	2.0	
	.0328	.833	20	.0172	2.2	0.9	2.1	1.12	0.60	2.0	
	.0232	.589	28	.0125	28.0	10.9	13.0	0.97	4.91	22.6	
	.0164	.417	35	.0122	50.6	19.2	32.8	0.86	4.19	19.3	
	.0116	.295	48	.0092	48.7	19.0	51.8	0.84	3.34	15.4	
	.0082	.208	65	.0072	3.98	15.6	67.4	0.66	5.50	25.4	
	.0058	.147	100	.0042	37.4	14.6	82.0	0.66	5.50	25.4	
	.0041	.104	150	.0026	20.0	7.8	89.9	0.66	5.50	25.4	
	.0029	.074	200	.0021	11.6	4.6	94.4	0.66	5.50	25.4	
	.0029	.074	200	.0021	14.4	5.6	5.6	0.66	5.50	25.4	
Pass											
			Totals,		253.9	100.0		0.85	21.68	100.0	

Weight of Tailings used for each test.- 1,000 grams.

Oil mixture in each case.- 1/2 lb. pine oil and 1 lb. coal oil per ton

TEST NO.	TREATMENT OF TAILINGS BEFORE CONCENTRATION.	Mesh ground to	CONCENTRATES.				MIDDINGS.				TAILINGS.				RECOVERY FIGURING 20 PERCENT OF LOSS. Total Recovery figuring 70% of values in Middlings Recovered.
			Weight grams.	Analyses % MoS ₂ .	Content MoS ₂ Grams.	Percent. MoS ₂ Values.	Weight Grams.	Analyses % MoS ₂ .	Content MoS ₂ Grams.	Percent. MoS ₂ Values.	Weight Grams.	Analyses % MoS ₂ .	Content MoS ₂ Grams.	Percentage of MoS ₂ Values.	
1	Unwashed Tailing.	48	5.8	71.07	4.12	48.2	217	1.08	2.34	27.4	772.2	0.27	2.08	24.4	67.4
2	Unwashed Tailing.	65	5.0	61.08	3.05	37.2	223	1.41	3.14	38.3	772.0	0.26	2.01	24.5	64.0
3	Washed 15 min., decanted, dried and ground.	48	3.5	85.53	2.99	37.9	163	1.79	2.92	36.9	833.5	0.24	2.00	25.3	63.7
4	Washed 15 min., decanted, washed 15 min., decanted, dried and ground.	48	5.6	86.70	4.80	58.9	191	1.62	3.09	37.5	803.4	0.16	1.29	15.6	85.1
5	Same as #4, but ground to	65	4.6	65.60	3.02	37.1	202	1.47	2.97	36.5	793.4	0.27	2.14	26.4	62.6
6	3 washings of 15 mins. each, decanting after each wash, finally dried and ground to	48	12.7	33.80	4.29	43.5	193	1.16	2.24	22.7	794.3	0.42	3.34	33.8	59.4
7	Same as #6 but ground to	65	6.7	38.16	2.56	32.2	304	1.02	3.10	39.1	689.3	0.33	2.27	28.7	59.6