

# Record of Ore-Treatment by the Lockwood Copper Recovery Process at Vancouver, B. C.

Mine—Regal, Princeton, B. C.

Mining Co.—W. C. M. & Co.

Date Kind of Ore:

Sept. Sulphide

23

1919

Percentage of Commercial Minerals:

Copper 1.9% Gold: oz. Silver: oz.  
Lead: % Zinc: %

Analysis: Insoluble	77.72%	Iron	6.30%	Magnesia	3.71%
Alumina	2.10%	Lime	2.65%	Oxygen, Loss and	
Copper	1.92%	Sulphur	1.44%	Undetermined	4.16%

Ore Roasted 8 Hours at 1200° Fahr.

Showing,— Copper as Sulphide 0.09%

Showing,— Copper as Oxide 1.83%

Remarks:

Amount of charge	1,000 lbs of ore.
Amount of solution	3,000 lbs.
Amount of acid	30 lbs.
Proportion of ore to solution, as	1 to 3
Percentage of acid, H <sub>2</sub> SO <sub>4</sub> , 66° Baume	1.0 % of solution.
Percentage of acid used	70.0 %
Proportion of acid regenerated	30.0 %
Duration of agitation before current on	2 hours.
Resulting solution	1.92 % cu.
Duration of deposition	24 hours.
Total duration of agitation, including the time of deposition	26 hours.
Direct current. Average amperage	242 amperes.
Direct current. Average voltage	2.08 volts.
Direct current. Total amperes used	5808 amperes.
Amount of copper deposited on cathodes	18.3 lbs.
Total amount of current used	13.04 K.W.H.
Amount current used per lb. copper recovered	0.712 K.W.H.
Amount of copper recovered per K.W.H. used	1.40 lbs.
Percentage of recovery from solution	100. %
Net recovery from ore	94.26 % of entire as-say content.
Copper remaining in tails, unextracted	0.11 %
66° B. acid used per lb. copper recovered	1.63 lbs.

Costs of treatment, based on treating 100 tons of copper ore per day of 24 hours:

Crushing, 20 mesh	\$0.00700	per lb. of copper recovered
Roasting	\$0.00750	" " " "
Leaching, acid 66 deg. H <sub>2</sub> SO <sub>4</sub> @ \$30 ton	\$0.02245	" " " "
Recovery, current @ \$0.01 per KWH used	\$0.00712	" " " "
Power	\$0.00750	" " " "
Labor, 5 men at \$6.00 per day	\$0.00819	" " " "

Total cost of treatment \$0.05976 per lb. of copper recovered

Mining costs, taxes, office—overhead, etc., extra.

Assay of product, pure electrolytic copper 99.76 % cu. GLC