

Duplicate

GOLD EXTRACTION TESTS - GOLDEN GATE SLIMES, MATHINNA.

No 16.

Reg'd. Nos. 1278, 9/37 & 539, 880/1938.

16/7/38.

Two samples were received from Mr. J. Watson during September, 1937 for gold extraction tests, and two more samples were received this year to complete tests reported on the 24/12/37. Samples Nos. 1278 & 880, also 1279 & 539 are reported to be taken from similar positions, respectively, of the slime dump.

No responsibility is taken for the results given in this report, except in so far as they apply to the samples tested. This test deals mainly with the samples received on the 20th. May, 1938, Reg'd. No. 880.

The samples assayed as follows:

Table No.1.

<u>Reg'd. Nos.</u>	1278	1279	539	880
Gold, dwts./ton	2.0	2.0	1.8	2.0
Silver do.	1.3	2.0	1.6	0.7
Copper, %	Nil	-	Trace	Nil
Arsenic, %	0.57	-	0.73	0.52
Lead	Nil	-	0.05	0.03
Sulphate	1.14	-	0.13	0.91
Sulphur as sulphide	0.25	-	0.55	0.09
Acid soluble Iron	2.07	-	1.16	1.88
" " Lime	0.68	-	0.48	0.26
" " Magnesia	0.39	-	0.51	0.64

Table No.2.

Water Soluble Salts.

<u>Reg'd. Nos.</u>	1278	539	880
Copper	Nil	Nil	Nil
Arsenic	Minute trace	Minute trace	Minute trace
Iron Oxide & Alumina	0.08	0.03	0.04
Lime	0.51	0.05	0.16
Magnesia	0.39	0.02	0.34
Sulphate	1.14	0.10	0.88

FLOTATION.

Further tests were carried out on sample No. 880 and generally the results are similar to those reported previously.

CYANIDATION.Constant Treatment Conditions:

Agitation 20 hours
 Solid-solution ratio 1:2
 Barren Solution 0.1% KCN

Table No. 3.Sample No. 880/38.

Test No.	CaO added. lbs./ton	Pregnant Solution		Consumption lbs/ton		Indicated Gold Extraction	
		CaO %	KCN %	CaO	KCN	Dwts./ton	Percent
1.	Nil	-	0.006	-	4.21	0.7	35
2.	11.2	-	0.042	11.2	2.7	1.47	73.5
4.	17.9	0.005	0.08	17.7	0.9	1.47	73.5
5.	22.4	0.013	0.082	21.8	0.81	1.33	66.5
6.	28	0.008	0.079	27.6	0.94	1.25	62.5
7.	33.6	0.01	0.079	33.1	0.94	1.2	60.0
8.	44.8	0.076	0.078	41.4	0.99	1.0	50.0

Constant Treatment Conditions:

Solid-solution ratio 1:2
 Barren Solution 0.1% KCN
 Lime Added 17.9 lbs./ton.

Table No. 14Sample No. 880/38.

Variable time.

Test No.	Hours Agitation	Pregnant Solution		Consumption lbs/ton		Indicated Gold Extraction	
		CaO %	KCN %	CaO	KCN	Dwts./ton	Percent
13.	2	0.014	0.086	17.3	0.6	1.17	58.5
14.	4	0.011	0.084	17.4	0.7	1.2	60.0
15.	8	0.010	0.083	17.5	0.76	1.33	66.5
16.	12	0.008	0.082	17.6	0.81	1.37	68.5
4.	20	0.005	0.08	17.7	0.90	1.47	73.5

Constant Treatment Conditions:

Solid-solution ratio 1:2
 Barren Solution 0.1% KCN.

Water wash: Solids, water ratio 1:2. Agitation for 1 hour and filtered. Variable time and lime.

Table No. 5.

Table No. 5.

Sample No. 880/38.

Test No.	Hours Agitation	CaO added lbs./ton	Pregnant Solution		Consumption lbs./ton		Indicated Gold Extraction	
			CaO %	KCN %	CaO	KCN	Dwts./ton	Percent
11.	4	11.2	0.02	0.093	10.3	0.31	1.4	70
12.	8	11.2	0.016	0.093	10.5	0.31	1.57	78.5
3.	20	11.2	0.01	0.091	10.75	0.40	1.61	80.5
10.	20	33.6	0.10	0.09	29.1	0.45	1.65	82.5

EDQUIST PROCESS.Reagents:

CaO 33 lbs./ton.

KCN 4.48 lbs./ton. (consumption 0.8 lbs./ton)

Agitation with CaO and KCN - 20 hours.

Charcoal 10 lbs./ton, treatment time 15 minutes

Pine Oil for both tests

Flotation time 5 minutes

Flotation machine - Fagergren

Test A. Reagent 301, 0.4 lb./ton

Test B. Ethyl Xanthate, 0.2 lb./ton.

Product	%	Assay Value	Gold
			% Distribution
	Weight	dwts./ton	
Test A Concentrate	3.06	52.1	79.7
A Tails (calculated)	96.94	0.42	20.3
Test B Concentrate	1.67	90.4	75.6
B Tails (calculated)	98.33	0.5	24.4

Cyanidation Tests with Samples 1279 & 539.

Table No. 6.

Sample No.	CaO added lbs./ton	Consumption lbs./ton		Indicated Gold Extraction	
		CaO	KCN	Dwts./ton	Percent
1279	13.4	12.7	0.96	1.7	85
1279	17.9	16.1	0.96	1.7	85
539	811	-	1.7	1.6	89
539	4.5	4.4	0.76	1.5	83

Long ton (2,240 lbs.) used throughout.

SUMMARY.

This report is a continuation of tests reported on the 24th. December, 1937, and in general confirms the summary of that report.

Sample No. 850, stated to be similar to No. 1278, does not respond to the extraction obtained with the latter, being 0.23 dwts./ton lower, but with variable lime lower consumptions of cyanide have resulted, improving from 1.7 lbs./ton to 0.9 lbs./ton. It would appear that as these results were obtained with similar amounts of lime, the samples are not entirely comparable. Water wash to remove soluble salts as set out in table 5 resulted in an increased extraction of 9% to 1.65 dwts./ton with 0.45 lbs./ton consumption of cyanide as compared with 0.9 lbs./ton in table 3. Table 4. shows the effects of variable time.

Continuation of tests with No. 1279 (table 6.) produced similar results to those previously reported. An extraction of 1.5 dwts./ton (83%) with a cyanide consumption of 0.76 lbs./ton was obtained with sample No. 539.

GOVERNMENT CHEMIST & ASSAYER.