ATMIRE

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Modern Gold Placer
? El Paso County, Colorado

BC-184

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GOLDEN, COLORADO

October 6, 1937

Dr. A. J. Kiser
Colorado Springs
Colorado.

Dear Doctor:

In further discussion of the Modern Gold Placer ore.

In cleaning the Elutriator we noticed a heavy sediment in the bottom. We saved this separately and assayed it. There was one-fifth pound which assayed 2.36 ounces gold, equaling $82.60 per ton, representing $1.32 per ton of crude ore.

The washed residue, namely that part which we tested with cyanide, assayed .03 ounces gold. The tailings from the cyanide treatment assayed .01 ounce gold. The details are shown on an accompanying page.

We made a fluxing test on the ore and found that the ordinary assayers flux produces such a viscous slag that only a portion of the gold will settle into the button. To make an accurate assay it is necessary to use a large excess of litharge and a high heat. This refractory characteristic of the ore probably accounts for a large part of the erratic assays obtained in the past.

Mr. Stroud made a very careful amalgamation test on a new sample of unwashed material. This sample all passed through a twenty mesh screen. It was deflocculated by the

addition of one pound hydrated calcined lime per ton of ore. It was then agitated for ten minutes in the cyanide agitator to break up aggregations of clay. It was then divided in two equal parts and carefully amalgamated in a copper pan. The material was rubbed with the hand, simulating the action of a pan amalgamator. A recovery of 65% was effected. The details are shown on another page.

SUMMARY

The knowledge gleaned so far may be briefed as follows:

The gold is probably free gold but in very fine particles embedded in clay. The coarser particles are readily caught either with gravity concentration or amalgamation.

The finer particles are easily recovered with cyanide, but it is an open question whether the essential factor in this operation was the cyanide or the long continued agitation. (eight hours)

Our present bent of thought is that the primary essentials in treating this ore are deflocculation and disintegration of the clay aggregates.

The cyanide agitator and the elutriator are both useful machines for this step, but the clay industry has developed a machine for this purpose known as a "log washer."

The Broadmoor Pottery has one. There are probably many others in the State. A long rough sluice box will accomplish the same thing.

I understand that Mr. Womack's experiments are confirmatory. That he found that agitation by means of a centrifugal pump and a crooked pipe, followed by impinging the pulp on an amalgamation plate, produced a fair extraction.

Our tests thus far show that a high recovery can be made by elutration and cyanidation (84%), but cyanide is a relatively expensive process. Furthermore we anticipate great difficulties and additional expense in filtering such a colloidal pulp. Hence we feel that further tests should be made along the line of deflocculation and disintegration, followed by gravity concentration and intensive amalgamation. For instance, a dozen waterfalls of one inch each into amalgamation plates is an old Central City scheme and a good one. The Pierce amalgamator was invented to catch gold suspended in a colloidal pulp. It is worthy of a test. Mercury intensifiers such as sodium amalgam are worth a trial.

Mr. Stroud's discovery that a small amount of lime will deflocculate or settle the pulp is very important. This agent will probably be used in any process that may be worked out.

The local conditions of operation, such as water supply, grade of gulches, power and fuel supply etc,etc, must all be kept in mind in perfecting a process.

Sincerely

GJB/MH

Kiser

No. of test - -1

Date of starting, September 25, 1937

Character of ore, Placer dirt, largely clay.

Name of client, Dr. A. J. Kiser, et al

Address of client, Colorado Springs, Colo.

Screendd wet to 100 mesh

Elutriated to remove rotten wood, etc.

Amount lime added, 2.5 lbs per ton ore

Amount K O H added none

Amount NaCn per ton of ore 1 lb

Amount of solution per ton of ore , 2 tons

Amount of ore tested 12.5 lbs

Amount and kind of oxidizers, none

Time started , 6 A. M.

Time of Testing	Lbs. Cyanide per Ton of Solution
6 A. M.	2
8 " "	1.80
10" "	1.78
12 Noon	1.70
2 P. M.	1.60

Lbs. Cyanide lost per ton of ore .40

	Gold, Ozs.
Assay value of heads	.03
Assay value of 8 hour tails	.01

Total cyanide extraction, 66%

Assay value of coarse discard - Trace

Assay Value of slime " -Trace

" " " Elutriator concentrate $82.60 per ton = $1.32 per ton of crude ore.

No of test - - 2

Date of Starting - -September 28, 1937

Character of ore Apparently unscreen placer dirt

Name of client, Dr. A. J. Kiser, et al

Address of client, Colorado Springs, Colo.

Screened dry to 20 mesh, agitated 10 min. only in agitator

Amalgamated with manipulation in copper pay in two equal parts

Amount lime added, 1 lb. per ton ore

Amount K O H added, none

Amount K Cn or NaCn per ton of ore none

Amount of solution per ton of ore , 3 tons (= 15 lbs)

Amount of ore tested, 5 lbs.

Amo nt and kind of oxidizers, none

	Gold, ozs.	
Assay value of heads	.13	= $4.55
Assay value of amal. tails. Gold recovered 1st part		$2.95
Assay value of hour tails " " 2nd "		$2.97

Total extraction, per cent 65%

45) 309 16

GEORGE J. BANCROFT & CO.

CLARENCE STROUD
CHIEF METALLURGIST

35
13
105
95
455

No. of test

Date of starting Sept 28

Character of ore unscreened 20 mesh

Name of client Mr A. J. Kiser

Address of client Colo Spgs

Ground {wet / dry} to ~~agitated~~ mesh 10 mins in agitator to break clay.

Amalgamated

Amount lime added 1 lb per ton of ore per ton ore.

Amount KOH added per ton ore.

Amount {K Cn / Na Cn} per ton of ore none

Amount of solution per ton of ore 15 lbs

Amount of ore tested 5 lbs

Amount and kind of oxidizers amalgamated in copper pan with diligent agitation

Time started

Time of Testing	Lbs. Cyanide per Ton of Solution	Lbs. Cyanide Added	Alkalinity
1st test	$2.95	gold per	ton of ore.
2nd "	$2.97	"	
Heads ran	.13 ozs.	per ton	= $4 55

Lbs. Cyanide lost per ton of ore

	Gold, Ozs.	Silver, Ozs.
Assay value of heads		
Assay value of ____ amal. tails		
Assay value of ____ hour tails		
Assay value of ____ hour tails		
Assay value of ____ hour tails		
Assay value of ____ hour tails		
Assay value of ____ hour tails		
Assay value of ____ hour tails		
Total extraction, per cent.		

GEORGE J. BANCROFT & CO.

CLARENCE STROUD
CHIEF METALLURGIST

No. of test 1

Date of starting September 25th 1937

Character of ore Placer dirt, largely clay.

Name of client Mr. A. J. Kiser et al

Address of client Colorado Springs Colo.

~~Ground~~ Screened { ~~wet~~ / ~~dry~~ } to 100 mesh.

~~Amalgamated~~ Elutriated to remove rotten wood, etc.

Amount lime added 2.5 lbs per ton ore.

Amount KOH added none per ton ore.

Amount { ~~K Cn~~ / Na Cn } per ton of ore 1 lb. per ton of ore

Amount of solution per ton of ore 2 tons

Amount of ore tested 12.5 lbs

Amount and kind of oxidizers none

Time started 6 A.M.

Time of Testing	Lbs. Cyanide per Ton of Solution	Lbs. Cyanide Added	Alkalinity
6 A.M.	2.		
8 "	1.80		
10 "	1.78		
12 noon	1.70		
2 P.M.	1.60		

Lbs. Cyanide lost per ton of ore .40

	Gold, Ozs.	Silver, Ozs.
Assay value of heads	.03	
Assay value of ____ amal. tails		
Assay value of ____ hour tails		
Assay value of ____ hour tails		
Assay value of ____ hour tails		
Assay value of ____ hour tails		
Assay value of ____ hour tails		
Assay value of 8 hour tails	.01	
Total cyanide extraction, per cent. 66%		

Assay Value of Coarse discard – Trace
" " " Slime " – Trace
" " " Elutriator concentrate $82.60 per ton $1.32 per ton of crude ore

GEORGE J. BANCROFT & CO.

CLARENCE STROUD
CHIEF METALLURGIST

No. of test 2

Date of starting September 28th, 1937

Character of ore apparently unscreen placer dirt.

Name of client Mrs A J Kiser et al.

Address of client Colorado Springs, Colo.

Ground / ~~Screened~~ { ~~wet~~ / dry } to 20 mesh mesh. agitated 10 min. only in agitator.

Amalgamated with manipulation in copper pan, in two equal parts

Amount lime added 1 lb. per ton ore.

Amount KOH added none per ton ore.

Amount { K Cn / Na Cn } per ton of ore none

Amount of solution per ton of ore 3 tons (= 15 lbs)

Amount of ore tested 5 lbs.

Amount and kind of oxidizers none

Time started

Time of Testing	Lbs. Cyanide per Ton of Solution	Lbs. Cyanide Added	Alkalinity

Lbs. Cyanide lost per ton of ore

	Gold, Ozs.	~~Silver, Ozs.~~
Assay value of heads	.13	= $4.55
Assay value of ____ amal. tails Gold recovered 1st Part		$2.95
Assay value of ____ hour tails " " 2nd "		$2.97
Assay value of ____ hour tails		
Assay value of ____ hour tails		
Assay value of ____ hour tails		
Assay value of ____ hour tails		
Assay value of ____ hour tails		
Total extraction, per cent. 65 %		

GEORGE J. BANCROFT & CO.

CLARENCE STROUD
CHIEF METALLURGIST

No. of test _____

Date of starting _____

Character of ore _____

Name of client _____

Address of client _____

Ground {wet / dry} to 100 mesh.

Amalgamated _____

Amount lime added 2.50 lbs per ton ore per ton ore.

Amount KOH added _____ per ton ore.

Amount {~~K Cn~~ / Na Cn} per ton of ore 25 cc = 1 lb per ton.

Amount of solution per ton of ore 2 tons

Amount of ore tested 12½ lbs 25 lbs Water

Amount and kind of oxidizers _____

Time started 6 00

Time of Testing	Lbs. Cyanide per Ton of Solution	Lbs. Cyanide Added	Alkalinity
6 00	2.	2.00	2.10
8	1.80		1.60
10	1.75		1.55
12	1.70		1.50
2	1.60		1.50

Lbs. Cyanide lost per ton of ore _____

	Gold, Ozs.	Silver, Ozs.
Assay value of heads		
Assay value of _____ amal. tails		
Assay value of _____ hour tails		
Assay value of _____ hour tails		
Assay value of _____ hour tails		
Assay value of _____ hour tails		
Assay value of _____ hour tails		
Assay value of _____ hour tails		
Total extraction, per cent.		

ASSAYERS
CHEMISTS
MICROSCOPISTS

1948 BROADWAY

MINING ENGINEERS
ORE TREATMENT
TESTS

Wilfley & Bribach

1731 ARAPAHOE STREET
(CLUB BUILDING)
DENVER, COLORADO

CERTIFICATE OF ASSAYS

FOR Mr. Geo. Bancroft.

DATE Sept. 30,1937.

DESCRIPTION OR NUMBER	OUNCES PER TON				
	GOLD	SILVER			
Over-flow	0.01				
100 Mesh Washed	0.01				
Coarse	Trace				
Kiser					

CHARGES ~~$1.50~~ 03
~~$1.50~~ 1.53

Wilfley & Bribach

BY O.H. Bribach