

SOUTHWESTERN ENGINEERING CORPORATION

METALLURGICAL TESTING DEPT

DECEMBER 28, 1933

Report of tests conducted on sample of Ore

From

COLORADO JUNEAU MINES INCORPORATED

Submitted by

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SOUTHWESTERN ENGINEERING CORPORATION

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Lot N. 2561

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COLORADO SCHOOL OF MINES  
GOLDEN, COLORADO



Report of Flotation tests on a sample representing the low grade ore from the Colorado Juneau Mines Inc.

IDENTIFICATION OF SAMPLE.

Our Lot No. 2516. Customers mark; Low Grade.

DESCRIPTION OF SAMPLE.

The sample weighing approximately seventy-five pounds was a siliceous oxide ore.

Gold was present part as free gold and part associated with iron pyrite.

PURPOSE OF TESTS.

The sample was submitted, not as representative ore, as to gold content but representative as to character. The purpose was to determine, if possible on the low grade ores, to produce low tailings and a commercial grade of concentrates by flotation.

ASSAY.

The lot was sampled and assayed;  
Gold 0.26 ounces per ton.  
Silver 0.25 ounces per ton.

FLOTATION TEST NO. 1.

A 700 gram charge of minus 10 mesh ore was ground 15 minutes in a laboratory ball mill and a sizing test showed, 2.5% on 100 mesh and 89.0% minus 200 mesh. The test was run as bulk flotation.

RESULTS

From every 100 tons of ore there would be produced, 8.857 tons of flotation concentrates,

<u>Assaying</u>		<u>Containing</u>
Gold	17.45 oz.	74.77% of the gold
Silver	5.00 oz.	
and 2.85 ton of middlings,		
Gold	0.68 Oz.	9.07% of the gold
Silver	0.90 oz.	
and 96.28 tons of tailings,		
Gold	0.03 oz.	14.44 % of the gold
Silver	0.02 oz	

This test shows that a good grade of concentrate can be produced with a fair recovery of the gold in the concentrate.

FLOTATION TEST NO. 2.

A 700 gram charge was used in this test with the same grinding as in test #1.

The test was run as bulk flotation producing a rougher flotation concentrate.

The reagent adjustment was the same as test No. 1 with the exception of the use of soda ash instead of lime.

RESULTS



### RESULTS

<u>Assaying</u>		<u>Containing</u>
Gold	7.86 oz.	91.13% of the gold
Silver	3.05 oz.	99.00% of the silver
And 96.14 tons of tailings,		
Gold	0.03 oz.	8.88% of the gold
Silver	Trace	

In practice it can be expected that a higher grade concentrate could be made at no increase in tailing loss as in intermittent tests with ores of high ratio of concentration advantage of new incoming feed is not present and a lower grade concentrate is produced in order to make tailings.

#### FLOTATION TEST NO. 3.

A 700 gram charge with same degree of grinding as tests No. 1 and No. 2. The reagent adjustment differed from previous tests in that an excess of lime was used to determine what effect depressing some of the iron pyrite would have.

From the data sheet it will be observed that the tailings loss is high and that some of the gold is associated with the pyrite. That in order to make tailing the iron pyrite must be floated.

#### FLOTATION TEST NO. 4.

A 700 gram charge with same degree of grinding as previous tests.

Reagent adjustment same, except change in lime to 2 pounds per ton.

Test run as bulk flotation with cleaning the rougher concentrate as in test No. 1.

### RESULTS

From every 100 tons of ore there would be produced 1.21 tons of concentrates,

<u>ASSAYING</u>		<u>CONTAINING</u>
Gold	15.86 oz.	76.01% of the gold
and 13.143 tons of middling,		
Gold	0.34 oz.	17.22% of the gold
and 86.64 tons of tailings,		
Gold	0.02 oz.	6.77% of the gold

### CONCLUSION

THE ore is easily amenable to bulk flotation.

Plant practice should produce a concentrate assaying more than eight ounces of gold and containing more than 90% of the total gold.

Based on a hundred ton per day operation the direct cost of milling should not exceed \$1.25 per ton.

SOUTHWESTERN ENGINEERING CORPORATION.

D. L. Forrester.



SOUTHWESTERN ENGINEERING CORPORATION

Metallurgical  
Test

Lot No. 2561

Sample No. 1

Test No. 1

Sample from: COLORADO JUNEAU MINES INCORPORATED		Grinding 15Min.	
		Mesh:	Weight %
Date Received 11-28-33	Tested: 12-6-33	Plus 48	
Sample marked Los Grade		" 1 65	0
Character of ore Siliceous Oxide and Sulphide		-65 1100	0
Nature of test: Flotation		-100 1150	2.00
Rougher time-minutes: 10		-150 1200	2.50
Dry weight of ore tested: 700		-200 1	6.00
Conditioning time-minutes: For			89.50
Object of test: Recovery by bulk flotation			

A S S A Y S

Products	Weight	Gold Oz	Silver Oz.	Lead %	Zinc %	Iron %	Insol %
Assayed Head		0.26	0.25				
Calcul'd Head	100.0	0.20					
Conls	.857	17.45	5.00				
mids	2.857	0.68	0.90				
Tails	96.286	0.03	0.20				

% RECOVERY AND DISTRIBUTION ( Based on Calculated Head)

Products	Weight %	Gold	silver	Copper	Lead	Zinc	Iron	Insol
Cal								
Heads	100.00	100.00						
Conc	0.857	74.77						
Mids	2.857	9.07						
Tails	96.286	14.44						

REAGENTS EMPLOYED

Reagents:	Pounds per ton added and point of addition
Lime	4 Pounds at Ball Mill
Thio	0.10 " " " "
P. E.	0.20 " " " "
Xanthate	0.10 " " FLOTATION MACHINE
Pine Oil	0.10 " " " "

REMARKS: Concentrate Cleaned.

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