FILEGOPY

0 T T A W A April 29th, 1942.

REPORT

of the

ORE DRESSING AND METALLURGICAL LABORATORIES.

Investigation No. 1208.

Gold Ore from the Queenston Gold Mines Limited, Township of Gauthier, East Kirkland Lake Area, Northern Ontario.

election register from the second sec



BUREAU OF MINES
DIVISION OF METALLIC MINERALS
ORE DRESSING AND
METALLURGICAL LABORATORIES

DEPARTMENT
OF
MINES AND RESOURCES
MINES AND GEOLOGY BRANCH

OTTAWA April 29th, 1942.

REPORT

of the

ORE DRESSING AND METALLURGICAL LABORATORIES.

Investigation No. 1208.

Gold Ore from the Queenston Gold Mines Limited, Township of Gauthier, East Kirkland Lake Area, Northern Ontario.

STATEMENT OF THE STATEM

Shipment:

A shipment of 70 pounds of ore was received on March 27th, 1942. The ore was from the property of the Queenston Gold Mines Limited, comprising the group of claims formerly known as Murphy Mines Limited, three claims of the Upper Canada Mines Limited, and two claims of the Anoki Mines Limited (Oriole). The property is under the direct management of the Upper Canada Mines Limited and is located directly south of their property in the township of Gauthier, East Kirkland Lake area, northern Ontario.

The shipment was submitted by R. J. Henry, Resident

(Shipment, contid) -

Manager, Upper Canada Mines Limited, Dobie, Ontario, and contained the identification number 5955.

Purpose of the Investigation:

The shipment was submitted for the purpose of determining the results obtainable by cyanidation and concentration by flotation. The sample was examined to note whether tungsten and arsenic were present.

Characteristics of the Ore:

The ore was received in a finely ground condition and a screen test showed 55 per cent minus 200 mesh. Examination of the ore under ultra-violet light indicated that no scheelite was present.

Sampling and Analysis:

The ore was sampled by standard methods and was found to contain;

0.21 oz./ton Gold (Au) Silver (Ag) 0.045 Sulphur (S) 1.46 per cent Iron (Fe) 4,90 88 0,03 Pyrrhotite 0.02 Copper (Cu) None detected. Arsenic (As) Tungsten trioxide (WO3) -87

Investigative Procedure:

The ore was treated by straight cyanidation and by flotation.

Results of Test Work:

95 per cent of the gold was extracted by straight cyanidation at a grind of 87 per cent minus 200 mesh. The cyanide tailing assayed 0.01 ounce gold per ton.

90.5 per cent of the gold was recovered in a

(Results of Test Work, cont'd) -

flotation concentrate assaying 3,22 cunces of gold per ton, with a ratio of concentration of 17:1, at a grind of 36 per cent minus 200 mesh. The tailing assayed 0.015 cunce gold per ton.

Details of the Tests:

Straight Cyanidation.

Tests Nos. 1 to 3.

In Test No. 1, a sample of the ore as received was agitated in a 1.0 pound NaCN per ton solution for 24 hours, lime being added for protective alkalinity.

In Tests Nos, 2 and 3, the ore was ground in ball mills at a dilution of 4 parts of solids to 3 parts of cyanide solution (1.0 pound NaCN per ton) for different periods.

The pulps were agitated for 24 hours at a dilution of one part solids to $1\frac{1}{5}$ parts of solution made up to 1.0 pound NaCN per ton. Lime was added for protective alkalinity.

Resul	t	s of !	<u> Pesta Nos</u>	. 1 to 3	ŝ				
	ê	A	ssays,	Extract	ion:I		titration	i,: Reag	gents
Test	2	,	Au,	to ;	5 5	lb.	/ton	: const	umed,
No .	8	OZ	./ton	gold,	<i>t.</i>	solv	ti on	:lb./tor	ore
	3	Feed	:Tailing	per ce	nt :	Nach		: Nach	(a)
Control Character (Control	0	en et allegen et et e	The second secon		A A STATE OF THE PARTY OF THE P		Burgara Anton Caraca Ca	usamenter 2000an	THE COURT HAVE AND AND ADDRESS OF THE PARTY
1.	9	0.21	೦,೦೫	85.7		0.72	0.20	0.42	1.70
2	0	0.21	0.02	90.5		0.76	0.20	0.40	1.70
3	6	0.21	O.Ol	95.2		0.72	0.20	0.42	1.70
	9								

The reducing power of the solution in Test No. 3 was 32.0 ml. N/10 KMnO4 per litre.

(Continued on next page)

(Tests Nos. 1 to 3, cont'd) -

Screen	ij,	asts on	Cyanide	Tailir	les .			
	9	We	eight. I	oer cer	16			
Mesh	1)	Test	: Test	រ ៖	Test			
CARL THE PROPERTY OF THE PROPE	0 0	No. I.	oM ;	2. :	No. 3.			
	0							
- 35+ 48	0	3.5	=		to			
- 48+ 65	0	5.7	0.8	Ŝ	(A)			
- 65+l00	6.0	10,5	2.8	2	0.4			
=100+150	\$ 0	14.0	8.4	1	4,3			
-150 +200	3	10.2	10.3	3	8.0			
-200	8	56.l	78.9	9	87,3			
MINISTER AND ASSOCIATED WITH STATES TO COMMUNICATE WATER STATES OF THE S	6 0	over 1970 to the second distribution of the	Danne vikamerende pedage greep					
	9				NE CONTRACTOR OF THE PROPERTY OF THE			
	٥	100.0	700°C)	100°0			
	0							
大元][[1][[1][[1][[1][[1][[1][[1][[1][[1][[

Straight Flotation.

Tests Nos. 4 and 5.

Test No. 4 was made on the ore as received. A sample was conditioned in a flotation machine with 2.0 pounds of scda ash and 0.2 pound of potassium amyl xanthate per ton. Then 0.10 pound of pine oil per ton was added and a concentrate was recovered.

Test No. 5 was made on one ground 78 per cent minus 200 mesh. A sample was ground in a ball mill, dilution 4:3, with 2.0 pounds of soda ash per ton. The pulp was placed in a flotation machine and floated with 0.2 pound of potassium amyl manthate and 0.1 pound of pine oil per ton.

R	0	S	ul	t	$\mathcal{E}_{\mathbf{j}}$	Ď

The second state of the second					_				
			Test	N.C) <u>4</u> .				
* しいなりないにはいないないないない。* というできるからはないないないないないないないないない。	Min a com sa			and the second	Tr) EndEd/Order=107/12/12/19/19/19	Matte	The ordered land of man	. 7	To do 2 a a S
	:Weight	្រុងក្នុង	inth b	č		3.	Distribution	ال ة و	expro or
Product	; per	; A	M,	e e	Units	3	per cent .	7	concen-
error a entrator deposavada en emparatamento esta esta esta esta esta esta esta esta	: cent	302.		Er.	AU	5 5	AU.	6 6	tration
energy of the property of the season which were the second expenses the second expense	D D	G G	arter factificação de 11 A	D D	ti Perfore to miteripo er se es gara e ve eta	å å	yn ig annau gantralaeth an gagarain annau 1804 an 1994 an 1997 Barran 1994 aith aith an 1994.	13. 13.	THE PROPERTY OF THE PROPERTY WILLIAMS TOTAL PROPERTY.
Feed	,100.0	§ () . 21	0	21,113	0	100,0	0	
Concentrate	5,9	7 % 0 %	01.8	5	18.290	3	86.6	9	17:1.
Tailing'	: 94.1	s ()	0.03	9	2.823	0	13.4	9	
e e e al manega e esta participa de la contra participa de la contradación de como es	Ö O O O O O O O O O O O O O O O O O O O	M harristing ward als and 31 Ng	fice a 18 d statement 20 (19 an ar	# 03.24.2 #:	ECENTRAL MEDITOR PART EXPEDITATION	D 44071		0 0	在Tio and Tiby Lines From a copyrighted blockers of the annies of second constitutions

(Tests Nos. 4 and 5, contid) -

Re	9	u1	ł.	53	٥
75.7		V1.1.	٠,,		ó

We there are the same of the s			Test	NO.	o. 5.			
A training of the Character and the State of	:Weight	3	Agsay	9) 9)	A STATE OF THE PARTY OF THE PAR	e I	latribution	1,:Ratio of
Product	; per	B D	Au,	0	Units	0	per cent	:concen-
	; cent	0	oz./to		Au	n n	Αv	:tration
AUGUSTUS ANTONIO A	ANGESTERMINES SELECTION OF THE PROPERTY OF THE	D D	CITA CA CARTE A	म् व	i denta lational nucleon	0 5.27.2430	AND THE PROPERTY OF THE PROPERTY OF THE PARTY.	a Annual management and a series.
Feed	1200.0	3	0,24	b	24,152	0	100.0	0
Concentrate	: 7.8	0	ຂູ່ 86	8	808,88	00	92.4	: 12.8:1.
Tailing	: 92,2	0	0.02	o o	1.844	6	7.6	e c
•	0	0	-	9		9		9
CONTRACTOR	4	200	refere Central Reprint	X 13.25	THE RESERVE TO STATE OF THE PARTY OF THE PAR		Charles of the Control of the Contro	

The flotation tailings in Tests Nos, 4 and 5 have the same values as the cyanide tailings in Tests Nos. 1 and 2.

Test No. 6.

This test was made on ore ground 86 per cent minus 200 mesh. The flotation concentrate was recleaned.

A sample was ground in a ball mill, dilution 4:3, with 2.0 pounds of soda ash per ton. The pulp was floated with 0.2 pound of potassium amyl xanthate and 0.1 pound of pine oil per ton.

The flotation concentrate was recleaned in a separate flotation machine without the use of any reagents.

RO	S	u_{\perp}	ζ.	3	0
ACM AND THE TOTAL	*	ABET 157.	23.20	ttI+1	

ಕಮಾರ್ಟ್ ಬಡುವುದ ವಿಕೃತಿ ಕ್ರೀವಿಸಿದ್ದರು ಅಂತಿಯ ಮಾಡಲಾಗುವಾದಾದ ಕ್ರೀವೆ ಬಿಲ್ಲಿದ್ದರು. ಬ್ಯಾಟ್ ಕ್ರೀಡೆಯ ಪ್ರಸ್ತಿಕ್ಕೆ ಪ್ರೀಡಿಸಿದ	0	Weight,	: Assay,	: Distrik	oution,	: Ratio of
Product	9	per	au,	per c	ent	: concen-
nder tilber Cardinerorkheren kyrkeren kræsken kar	O O		oz./ton	e Au		nemental :
CONTRACTOR	9	the Engineering Transmit State Court	EST EN IN STITUTE AND			
Food	3	100.0	0,20	100,0	100.0	
Rougher conc.	3	11.9	1.60	93,5	em em	8.4:1.
Cleaner conc.	e e	5.7	3,22	e;3	90.5	17,4:1.
Cleaner tailing	6	6.8	0.10	631	3,0	16.2:1.
Flot, tailing	o P	88.1	0.015	6,5	6.5	
es el susception de la companya del companya de la companya del companya de la companya del la companya de la c	5	n on the comment of t	veviandenski kalikika ma		u voi kautologias valtuus ka	en antigen en pariste participales.

The cleaner concentrate assayed:

0.44 oz./ton. Silver (Ag) 0,20 per cent Copper (Cu) Arsenic (As) Trace.

Summary and Conclusions:

The ore represented by the sample submitted for the investigation does not present any difficulties to treatment by straight cyanidation. There was no appreciable fouling of the solution and an 0.01 ounce gold per ton tailing was obtained at a grind of 87 per cent minus 200 mesh.

At a similar grind the flotation tailing was 0.015 cunce gold per ton, indicating a lower recovery by flotation.

The use of flotation would require treatment for the concentrates which would possibly result in additional losses.

The method that will give maximum recovery from ore of this type and character, therefore, is straight cyanidation.

No tungsten minerals were detected in the shipment. A trace of arsenic was detected in a flotation concentrate.

In the absence of hand specimens of the ore from which to make polished sections, in this investigation no microscopic examination of the shipment was made to determine the character of the ore.

The results of the investigation apply only to ore similar to that submitted in the shipment.

O

WSJ:GHB.