DEPARTMENT OF MINES AND RESOURCES BUREAU OF MINES CANADA

Ottawa, November 13, 1946.

REPORT

of the

ORE DRESSING AND METALLURGICAL LABORATORIES.

Investigation No. 2138.

Preliminary Report on Jigging and Flotation Tests on Lead-Zinc Ore from the Candego Mines Limited, Marsoul River, Gaspe Nord, Quebec.

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### Shipmont:

BUREAU OF MINES

DIVISION OF METALLIC MINERALS

ORE DRESSING AND

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A shipment of 100 pounds of ore from the Candego Mines, Marsoul River, Gaspe Nord, Quebec, was received at these Laboratories on September 23, 1946. In a covering letter dated October 4, 1946, Mr. E. H. Monroe, Candego Mines Limited, 1085 Beaver Hall Hill, Montreal 1, Quebec, requested that test work be undertaken on the sample to obtain both lead and zinc concentrates of marketable grades.

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#### Chemistry and Mineralogy:

The iron and lead sulphides are coarsely crystalline; zine is the resinous type of sphalerite. Pyrite is intersporsed through both the lead and zine, but from the various specimens examined there would not appear to be any close or intimate association of the lead and zinc. Quartz stringers veined the various samples examined.

Analysis of the head sample gave the following results:

oz./ton 0.05 Gold ¢.) Silver 10,51 12.3 par cont 15,30 Zîne **673** 9.70 Lead -4 19 15,50 Iron 10 0,18 Arsenic 66 0.07 m Coppsr B1smuth ֥ N.d.

N.d. = None detected.

#### TEST WORK:

Small-scale jigging and flotation tests were made on this ore. Unfortunately, the sample submitted was too small for proper jig testing at a coarse size and had to be crushed to minus 20 mesh. This was found to be too fine to give the best results.

On the basis of the jig tests made on the minus 20 mesh ore, this method of treatment shows promise of yielding a high-grade load concentrate.

The ore is readily amonable to concentration by selective flotation.

### Tost No. 5 - Jig Test.

Five thousand grams of minus 20 mesh ore was fed to a Denver Mineral Jig fitted with a 48-mesh screen and an artificial bed of 20-mesh magnetite. The results of this test are shown in Table I.

> (Table I follows,) ( on Page 3. )

(Post Work, contid) -

TABLE I, - Results, fest No. 5.

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This calculated head is higher than the head sample analysis but it was noted, in all tests, that the calculated head approximated 10.3 per cent lead rather than 9.70 per cent lead as analysed.

Test No. 9. - Flotation Test.

Two thousand grams of one at 60 per cent solids was ground in a ball mill to 57 per cent minus 200 mesh. The pulp was then transferred to a flotation cell, where the following flotation concentrates were removed:

- (a) lead rougher concentrate (at a pH. of 7.4),
- (b) lead scavenger concentrate,
- (c) zinc rougher concentrate (at a pH. of 10.8), and
- (d) sinc scavenger concentrate.

Both rougher concentrates were then cleaned by flotation.

Table II shows the amount and point of addition of the various reagents used, while Table III gives the results obtained on this test.

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TABLE II. - Reagent Consumption, Test No. 9.

(Test Work, contid) -

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TABLE III. - Results, Test No. 9.

# Summary of Results:

This ore is very easily treated, by flotation, to obtain both a lead and a zinc concentrate. Most of the silver in the ore is recovered in the lead concentrate.

Analysis of finished concentrates:

		Lead	Zinc
		Concentrate	Concentrate
Gold, oz./ton	-	0.04	0.01
Silver, "	¢,	73,08	0,45
Lead, per cent	m	80.22	0.27
Zino "	*16	0,20	60.33
Iron "	1,25	3,75	3.15
Copper "	63.Q	0.23	0.03
Arsenic "	~3	0,083	0.012

## Recommendations:

This ore is readily treated by flotation, and in all probability any mill constructed on the property should be a flotation operation. However, jigging tests (Recommendations, contid) -

indicated a definite possibility of concentrating most of the lead at a coarse grind, and it is felt that further test work on a larger sample should be undertaken. It is quite possible that a cheaper overall operation could be obtained by installing jigs ahead of the flotation circuit and lt is strongly recommended that further test work on a continuous basis, along these lines be undertaken before a mill is installed on the property. A continuous test of this nature, using a two-compartment jig, would require a minimum of 1,000 pounds of ore.

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