

*WMS file*

801312



**DENVER ★ NEW YORK ★ CHICAGO ★ EL PASO ★ MEXICO, D.F.**

**LONDON ★ JOHANNESBURG ★ RICHMOND**

**TORONTO ★ VANCOUVER**

Silver Star

# Scranton Mines Ltd.

(N. P. L.)

~~AINSWORTH~~ INC.

6005 S. E. Flavel St.,  
Portland, Oregon.  
April 17, 1954

### OFFICERS

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PORTLAND 11, OREGON

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LYLE W. JESTLEY

Mr. Wm. Shappe.  
Ainsworth, B. C.

Dear Bill:

Enclosed is copy of test made by Denver Equip Co.  
and some copies of smelter returns. Hope this is what you want.

Weather here has really turned summerlike the past  
few days. It will start the snow running down hill.

Best regards to all,

Yours truly,

*Carl*

	3.78
45.98	17409
	13794
	36150
	32186
	39640

*-OVER-*

Calc'n to set sliding melting rate.

5 say 100 tons ore @ Au = 0.10, Ag = 8.0, Pb = 8%, Zn = 8% (Cd = .16)

Assume this net smelter value @ 90% Au = \$33.00

Net Mine @ \$30.00

90% Ag = 0.80

0.75

95% Pb \$1.95 per unit

\$1.85

97% Zn (Cd) \$1.15 per unit

\$1.05

Net Mine Value of Ore

Au = 0.10 @ 30.00 = \$3.00

Ag = 0.80 @ 0.75 = .60

Pb = 8.0 @ 1.85 = 14.80

Zn(Cd) = 8.0 @ 1.05 = 8.40 \$26.80 / Ton

100 tons ore Net Mine Value = \$2680.00

1.15  
 .92  
 ---  
 230  
 1035  
 ---  
 10580

* 100 tons Ore	Recoverable Metal Content	%	To Pb Conc	%	To Zn Conc	%	To Fe Conc
Au	9 g.	50	4.5 g.	20	1.8 g.	30	2.7 g.
Ag	720 g.	90	648 g.	5	36 g.	5	36 g.
Pb	760 units	95	722 units	5.0	38 units		
Zn (Cd)	738 units	5.0	38 units	95	700 units		

\* from Denver test sheet No 3.

8850  
 500  
 ---  
 9350



DENVER EQUIPMENT COMPANY  
ORE TESTING DIVISION  
Denver, Colorado

August 21, 1952

Scranton Consolidated Mining Company  
Ainsworth - Via Nelson, British Columbia  
Canada

Reference: Our Ore Test No. DT-22960  
Toronto Order No. TD-9146

PONTIAC ORE

Gentlemen:

We are pleased to submit the following report of laboratory ore tests conducted upon your sample of Pontiac gold-silver-lead-zinc ore. No work other than sample preparation and preliminary investigation has been done on your submitted sample of Sunset ore because of its very low head assay.

SAMPLE IDENTIFICATION

Our laboratory received two boxes containing three sacks each, of ore from Scranton Consolidated Mining Company, Ainsworth, British Columbia, Canada on 13 May 1952. This shipment of 490 pounds was sent via prepaid railroad freight. Three sacks contained ore from the Pontiac stope and three sacks contained ore from the Sunset stope.

OBJECT OF TESTS

The object of the tests was to arrive at a proper flowsheet for concentration, by selective flotation, of the gold-silver-lead-zinc values contained in the ore. The silica content of the zinc concentrate was to be less than 1-1/2 percent as an amount greater than this causes difficulty at the smelter with excess soluble silica. The zinc concentrate was to be assayed for gold, silver, lead, zinc and cadmium.

Samples of the lead and zinc concentrates produced in the tests were to be returned to you for submission to the smelter.

A mill with a capacity of 25 tons of head ore per 24 hours is planned.

The Pontiac and the Sunset ores were to be tested separately and also as a combination of the two ores.



**DENVER EQUIPMENT COMPANY**  
**ORE TESTING DIVISION**  
 Denver, Colorado

PREPARATION OF SAMPLE

The three sacks of Pontiac ore were mixed and one-third was cut out with the Jones Riffle sampler and retained as received. The remaining two-thirds was crushed in the laboratory Denver 5 by 6-in. Jaw Crusher to minus 3/4 in. mixed and split into halves with the Jones Riffle sampler. One-half was crushed in the laboratory roll crusher to minus 1/4 in. and again split. One-half of this was roll crushed to minus 10 mesh and a head sample cut out for assay.

All portions were reserved for testing.

DESCRIPTION OF SAMPLE

The Pontiac ore as represented by the sample submitted is a high grade gold-silver-lead-zinc ore with the valuable minerals being galena and sphalerite. The silver is associated with the galena and the gold is associated with galena and pyrite.

The principal gangue constituent is quartz and considerable pyrite is present. The ore shows no evidence of oxidization.

The specific gravity of the ore is (3.4). The pH of the minus 10 mesh head ore is 7.5 when pulped with an equal weight of Denver City water having a pH of 7.4.

Following is a partial assay and chemical analysis of the Pontiac ore head sample:

Gold, ounces per ton . . . . .	0.44
Silver, ounces per ton . . . . .	11.86
Lead, percent . . . . .	11.15
Zinc, percent . . . . .	10.05
Iron, percent . . . . .	7.12
Sulphur . . . . .	11.98
Insoluble matter . . . . .	54.28

Following is a partial assay and chemical analysis of the Sunset ore head sample:

Gold, ounces per ton . . . . .	0.19
Silver, ounces per ton . . . . .	1.67
Lead, percent . . . . .	1.25
Zinc, percent . . . . .	0.29
Iron, percent . . . . .	3.70
Sulphur, percent . . . . .	3.19
Insoluble matter, percent . . . . .	88.84



**DENVER EQUIPMENT COMPANY**  
**ORE TESTING DIVISION**  
 Denver, Colorado

DESCRIPTIONS OF TESTS AND RESULTS

Following is a resume of the test conditions and results. Tabulated results and conditions of the tests are shown on the attached Data Sheets numbered D-1 through D-7.

TEST NUMBER 1

DENVER MINERAL JIG  
PONTIAC ORE

A 2500 gram charge of the prepared minus 10 mesh head ore was passed over the laboratory 1M Denver Mineral Jig as described on Data Sheet Number D-1. This operation produced a jig concentrate of galena at a ratio of concentration of the lead of 14.0 to 1. The jig concentrate assayed as follows and represented the following recovery based on the initial feed:

<u>GRADE</u>	<u>PERCENT RECOVERY</u>
79.80% Pb . . . . .	48.6
0.69% Zn . . . . .	0.5
0.34 oz. Au/ton. . . . .	4.4
74.30 oz. Ag/ton. . . . .	42.6

Tabulated results and additional assays are given on Data Sheet Number D-1.

TEST NUMBER 2

DENVER UNIT CELL FLOTATION  
PONTIAC ORE

A 2500 gram charge of the prepared minus 10 mesh head ore was ground in the laboratory ball mill and treated by flotation under the conditions shown on Data Sheet Number D-2. These conditions approximate the Denver Unit Flotation Cell operating in closed circuit with a ball mill and classifier.

The unit cell concentrate represented the following grade and recovery based on the initial feed:

<u>GRADE</u>	<u>PERCENT RECOVERY</u>
63.64% Pb . . . . .	70.3
4.22% Zn . . . . .	6.0
1.40 oz. Au/ton. . . . .	36.8
61.70 oz. Ag/ton. . . . .	65.1

Tabulated results and additional assays are given on Data Sheet Number D-3.



DENVER EQUIPMENT COMPANY  
 ORE TESTING DIVISION  
 Denver, Colorado

TEST NUMBER 3

DENVER "SUB-A" SELECTIVE  
 FLOTATION - PONTIAC ORE

A 2500 gram charge of the prepared minus 10 mesh head ore was treated by flotation under the conditions given on Data Sheet Number D-4 to produce a lead rougher concentrate and then a zinc rougher concentrate and a final tailing. The lead rougher concentrate was cleaned once by flotation to produce a cleaned lead concentrate and a lead cleaner tailing. The zinc rougher concentrate was cleaned once by flotation to produce a cleaned zinc concentrate and a zinc cleaner tailing.

The cleaned lead concentrate represents the following grade and recovery based on the initial feed:

<u>GRADE</u>	<u>PERCENT RECOVERY</u>
73.90% Pb . . . . .	94.9
1.98% Zn . . . . .	3.0
1.54 oz. Au/ton. . . . .	44.9
71.66 oz. Ag/ton. . . . .	85.9

The cleaned zinc concentrate represents the following grade and recovery based on the initial feed:

<u>GRADE</u>	<u>PERCENT RECOVERY</u>
59.60% Zn . . . . .	88.6
0.70% Pb . . . . .	0.8
0.64% oz. Au/ton . . . . .	18.1
4.70 oz. Ag/ton . . . . .	5.4

The zinc concentrate also assayed 0.67 percent cadmium and 0.52 percent silica.

The combined lead and zinc concentrates would represent a gold recovery of 63.0 percent and a silver recovery of 91.3 percent.

Tabulated results and additional assays are given on Data Sheet Number D-5.

TEST NUMBER 4

DENVER "SUB-A" BULK  
 FLOTATION - GRAVITY  
 TABLE - PONTIAC ORE

A 2500 gram charge of the prepared minus 10 mesh head ore was treated by flotation under the conditions given on Data Sheet Number D-6. An uncleaned bulk concentrate containing most of



DENVER EQUIPMENT COMPANY  
ORE TESTING DIVISION  
Denver, Colorado

the galena and sphalerite, and a flotation tailing was produced. The flotation tailing was passed over the laboratory gravity table yielding a table concentrate, a table middling, and a table tailing. The table middling was retabled and its concentrate was combined with the first table concentrate and its tailing was combined with the first table tailing, to produce the final tailing.

The bulk flotation concentrate contained 45.61 percent of the gold in the initial feed with a grade of 0.72 ounces of gold per ton while the table concentrate, consisting mostly of pyrite, contained 50.88 percent of the gold in the initial feed with a grade of 3.14 ounces of gold per ton. The combined flotation concentrate and table concentrate would represent a gold recovery of 96.49 percent.

Tabulated results and additional assays are given on Data Sheet Number D-7.

REMARKS AND RECOMMENDATIONS

The results of the tests conducted show that the Pontiac ore represented by the sample submitted responds well to the production of a lead concentrate and a zinc concentrate, both of exceptionally high grade, by selective flotation in the Denver "Sub-A" flotation machine. The recoveries of silver, lead and zinc are very good but the recovery of gold is only fair. The reason for the lower than expected gold recovery is indicated by the high gold assay of the lead cleaner tails and the zinc cleaner tails of Test Number 3 and by the results of Test Number 4. A portion of the gold is associated with the pyrite content of the ore and in selective flotation this pyrite is purposely rejected from the lead and the zinc concentrates in order to keep the grade as high as possible.

Since the total silica content of the zinc concentrate was only 0.52 percent it was assumed that the soluble silica content would not be excessive.

The results of Test Number 1 indicate that the ore is amenable to the use of the Denver Mineral Jig to produce a lead concentrate containing about 50 percent of the lead content of the original feed and with a lead and silver grade slightly better than that produced by selective flotation. Also the zinc assay is considerably lower.





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ORE TESTING DIVISION  
Denver, Colorado

The results of Test Number 2 indicate that the use of the Denver Unit Cell in the flowsheet would not be warranted in view of the concentrates' appreciably lower lead assay and higher zinc assay than the lead concentrate produced by selective flotation.

The flowsheet shown on Print No. A-5566 is recommended for treatment of the Pontiac ore represented by the sample submitted. This flowsheet includes the Denver Mineral Jig in the grinding circuit followed by Denver "Sub-A" differential flotation of the classifier overflow. The Denver Mineral Jig is shown as an optional feature as it might be desired to keep the flowsheet as simple as possible because of the small mill size. The gravity table included in the flowsheet, following differential flotation, would serve the double purpose of recovering additional gold in a pyrite concentrate and being utilized as a pilot table to determine visually and continuously the effectiveness of selective flotation of the galena and sphalerite. However, the grade or recovery of gold would not be as great as that in the table concentrate produced in Test Number 4. Only the gold not recovered by the selective flotation of Test Number 3 would be recoverable by the gravity table. It is estimated that the gravity table in the mill flowsheet would effect approximately 15 to 25 percent additional recovery of the gold content of the head ore in a pyrite concentrate having a grade of from 1.0 to 1.5 ounces of gold per ton.

The capacity of the filters should be based on a filtering rate of the concentrates equal to normal filtering rates for this type of concentrates; i.e., 600 pounds per square ft. per 24 hours for thickened concentrates.

Settling rates of the cleaned concentrates are normal, but thickeners having 10 sq. ft. of surface area per ton of concentrates per 24 hours are recommended to provide storage ahead of the filters to permit short time repairs of the filters without closing down the entire mill. In a 25-ton mill thickeners are optional as the concentrates may be filtered direct provided adequate filter capacity is provided.

The size of the Denver Ball Mill selected should be based on a grindability of the ore of medium hard as compared to our standard ores. Grinding to all minus 48 mesh is sufficient for liberation of the valuable minerals as indicated by the screen analysis results given on Data Sheet Number D-5.



DENVER EQUIPMENT COMPANY  
ORE TESTING DIVISION  
Denver, Colorado

Samples of the lead concentrate and zinc concentrate produced in Test Number 3 are being sent to you through the Toronto, Canada office of the Denver Equipment Company.

Respectfully submitted,

DENVER EQUIPMENT COMPANY

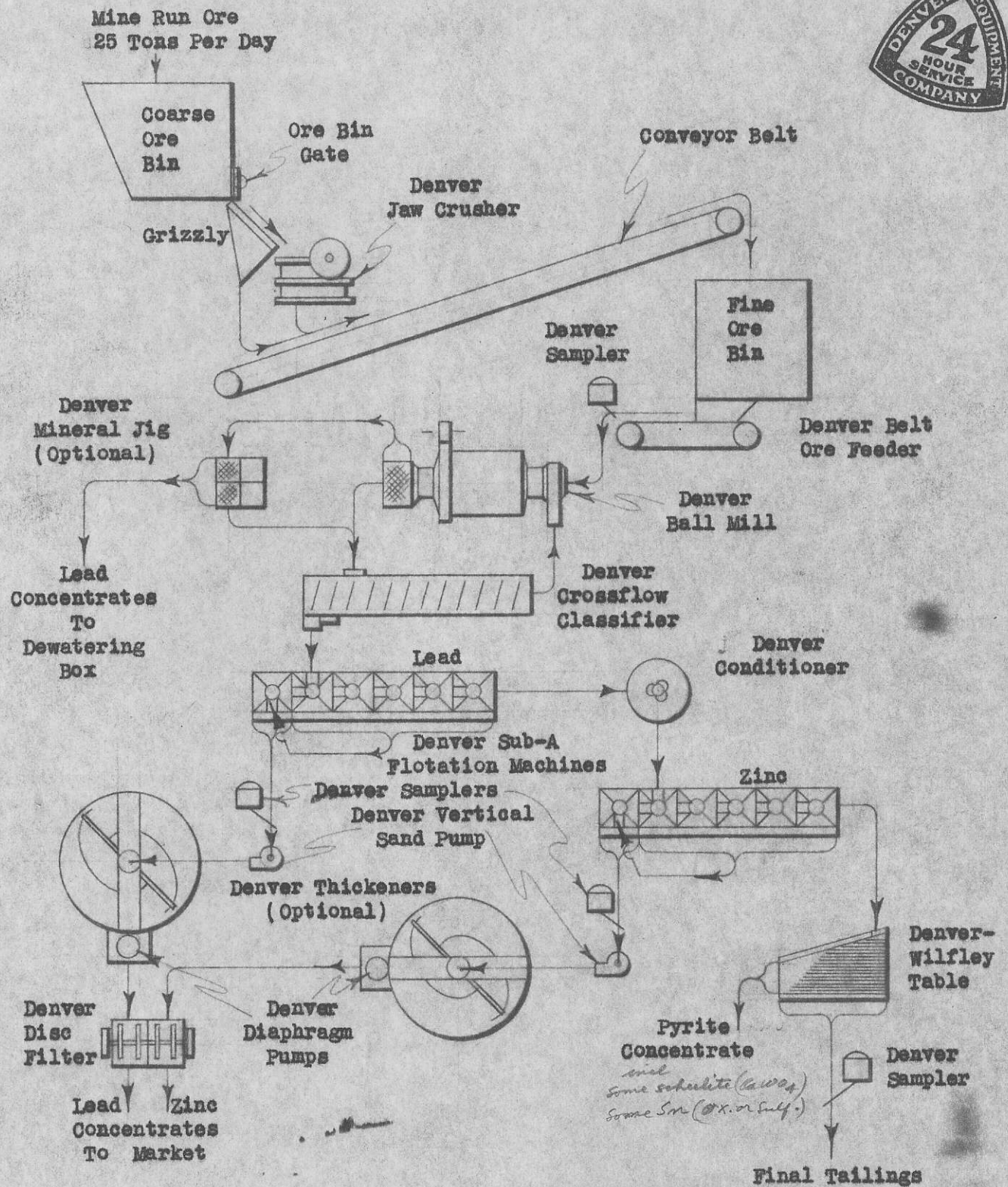
Guinn E. Metzger

Guinn E. Metzger  
Metallurgical Engineer

Clarence Thom

Clarence Thom, Director  
Ore Testing Division

Three copies to customer



This print loaned subject to return upon demand and under the express condition that it is not to be used, directly or indirectly, detrimental to Denver Equipment Co.

PRINTED

ORDER NO.

AUG 14 1952

Ore Test No. DT-22960

**DENVER EQUIPMENT CO.**  
1400 - Seventeenth St. - Denver, Colo.



Scranton Consol. Mining Co.  
Pb-Zn Selective Flotation  
Recommended Flowsheet

SCALE None

DRAWN BY EPA 5/14/52  
CHECKED BY \_\_\_\_\_

**A-5566**



**DENVER EQUIPMENT COMPANY  
ORE TESTING DIVISION**

Denver, Colorado

Report No. DT-22960

Test No. 1

**DENVER MINERAL JIG TEST DATA**

**SAMPLE IDENTIFICATION:** Ore from the Pontiac stope received from Scranton Consolidated Mining Company of Ainsworth, British Columbia on 13 May 1952.

**GRINDING:**

Preliminary grinding time, minutes      No grinding  
Final grinding time, minutes  
Percent solids

**JIG TEST PROCEDURE:** A 2500 gram charge of the prepared minus 10 mesh head ore was passed over the laboratory 1M Denver Mineral Jig to produce a rougher concentrate and a rougher tailing. The rougher concentrate was passed over the jig again to produce a final jig concentrate and a cleaner tailing. The rougher tailing and the cleaner tailing were recombined to form the final jig tailing.

PRODUCT	Percent Weight	oz/t ASSAYS			PERCENT RECOVERY			Zn
		Au	Ag	Pb	Au	Ag	Pb	
Head Sample Assay		0.44	11.86	11.15				
Calculated Hd. Assay	100.0	0.46	12.50	11.78	100.0	100.0	100.0	100.0
Jig Concentrate	7.17	0.34	74.30	79.80	4.4	42.6	48.6	0.5
Final Jig Tailing	92.83	0.48	7.72	6.53	95.6	57.4	51.4	99.5

**NOTES:**

	Additional Assays	%Zn
Head Sample Assay		10.05
Calculated Head Assay		10.37
Jig Concentrate		0.69
Final Jig Tailing		11.12

Jig ratio of concentration of lead was 14.0 to 1.  
The jig concentrate also assayed 2.50 percent iron and 0.66 percent insoluble matter. Note the low gold content of the jig concentrate. This indicates very little free gold in the ore.

A.

DENVER EQUIPMENT COMPANY



ORE TESTING DIVISION

Denver, Colorado

## FLOTATION TEST DATA: CONDITIONS AND REAGENTS

SAMPLE IDENTIFICATION **Ore from the Pontiac stope received from Scranton** REPORT NO. **DT-22960** TEST NO. **2**  
**Consolidated Mining Co. of Ainsworth, B.C. on 13 May, 1952**

TEST PROCEDURE: A 2500 gram charge of the prepared minus 10 mesh head ore was ground in the laboratory ball mill to approximately 28 mesh and treated by flotation under the conditions shown on this data sheet. These conditions approximate the Denver Unit Flotation Cell operating in closed circuit with a ball mill and classifier.

Grinding and Treatment				Reagents: Pounds per ton heads—(2)								NOTES: GRINDING PERFORMED IN STANDARD DENVER 12"x 5" DENVER BALL MILL. BALL CHARGE = 40 POUNDS, R.P.M. = 54.  CLASSIFICATION BY DECANTATION THROUGH LIMITING SCREEN, UNDECANTED SANDS REGROUND.  FLOTATION PERFORMED IN DENVER "SUB-A" LABORATORY FLOTATION MACHINE.	
Operation	Time Min.	Percent Solids	pH	S.A.	ZnSO <sub>4</sub>	S.S.	NaCN	A-31	Z-3	D250			
Grinding (1)	5	67	8.8	2.0	1.0	0.5	0.2	0.05					
Unit Cell Flot.	3	41	8.8						0.05	0.02			

Grinding (1)

Time, minutes **5**Classification, mesh **No Classification**Sands reground, minutes **No regrind**

(2) Reagent Symbols:

S.A. - Soda Ash

ZnSO<sub>4</sub> - Zinc Sulphate

S.S. - Sodium Sulphite

NaCN - Sodium Cyanide

A-31 - Aerofloat 31

Z-3 - Potassium Xanthate

D-250 Dowfroth 250

B.

DENVER EQUIPMENT COMPANY



ORE TESTING DIVISION

Denver, Colorado

## FLOTATION TEST DATA: METALLURGICAL RESULTS

SAMPLE  
IDENTIFICATION

As described on Data Sheet No. D-2

REPORT NO. DT-22960 TEST NO. 2

PRODUCT	Percent Weight	ASSAYS							
		Au	Ag	Pb	Zn	Fe	S	Insol	
Head Sample Assay		0.44	11.86	11.15	10.05	7.12	11.98	54.28	
Calculated Head Assay	100.0	0.57	14.00	13.38	10.37				
Unit Cell Flot. Conc.	14.75	1.40	61.70	63.64	4.22	7.78	19.46	1.44	
Final Tailing	85.25	0.42	5.74	4.67	11.44				

PRODUCT	Percent Weight	PERCENT RECOVERY				SCREEN ANALYSIS OF			
		Au	Ag	Pb	Zn	Mesh	Percent Weight	ASSAYS	
Head Sample	100.0	100.0	100.0	100.0	100.0				
Unit Cell Flot. Conct.	14.75	36.8	65.1	70.3	6.0				
Final Tailing	85.25	63.2	34.9	29.7	94.0				

DATA SHEET NO. D-3

A.

DENVER EQUIPMENT COMPANY



ORE TESTING DIVISION

Denver, Colorado

**FLOTATION TEST DATA: CONDITIONS AND REAGENTS**

 SAMPLE  
IDENTIFICATION

As described on Data Sheet Number D-2

REPORT NODT-22960

TEST NO. 3

TEST PROCEDURE: 2500 gram charge of the prepared minus 10 mesh head ore was ground in the laboratory ball mill and treated by flotation under the conditions shown on this data sheet. A lead rougher and a zinc rougher concentrate and a final tailing were first produced. Then the lead rougher concentrate and the zinc rougher concentrate were each cleaned once by flotation to produce a finished concentrate and a cleaner tailing from each.

Grinding and Treatment				Reagents: Pounds per ton heads—(2)									NOTES: GRINDING PERFORMED IN STANDARD DENVER 12"x 5" DENVER BALL MILL. BALL CHARGE = 40 POUNDS, R.P.M. = 54.  CLASSIFICATION BY DECANTATION THROUGH LIMITING SCREEN, UNDECANTED SANDS REGROUND.  FLOTATION PERFORMED IN DENVER "SUB-A" LABORATORY FLOTATION MACHINE.  Xanthate was stage added.
Operation	Time Min.	Percent Solids	pH	S.A.	ZnSO <sub>4</sub>	S.S.	NaCN	A-31	CaO	CuSO <sub>4</sub>	Z-3	D250	
Grinding (1)	20	67	8.4	2.0	1.0	0.5	0.2	0.05					
Lead Rougher	7	25	8.4								0.08	0.02	
Lead Cleaner	5	16	10.7				0.05		0.1				
Zinc Conditioner	8	21	11						3.0	1.5	Z-5	P.O.	
Zinc Rougher	8	21	11								0.06	0.02	
Zinc Cleaner	6	15	11				0.05		0.25				

## Grinding (1)

 Time, minutes 12  
 Classification, mesh 48  
 Sands reground, minutes 8

## (2) Reagent Symbols:

 S.A. - Soda Ash  
 ZnSO<sub>4</sub> - Zinc Sulphate  
 S.S. - Sodium Sulphite  
 NaCN - Sodium Cyanide  
 A-31 - Aerofloat 31

 CaO - Lime  
 CuSO<sub>4</sub> - Copper Sulphate  
 Z-3 - Potassium Xanthate  
 Z-5 - Amyl Xanthate  
 D250 - Downfroth 250  
 P.O. - Pine Oil

B.

DENVER EQUIPMENT COMPANY



ORE TESTING DIVISION

Denver, Colorado

## FLOTATION TEST DATA: METALLURGICAL RESULTS

SAMPLE IDENTIFICATION **As described on Data Sheet No. D-2**

REPORT NDT-22960 TEST NO. 3

PRODUCT	Percent Weight	oz/ton		%		ASSAYS		
		Au	Ag	Pb	Zn	Fe	S	Insol.
Head Sample Assay		0.44	11.86	11.15	10.05	7.12	11.98	54.28
Calculated Head Assay	100.0	0.53	12.79	11.94	9.96			
Lead Concentrate	15.33	1.54	71.66	73.90	1.98	4.49		0.68
Lead Cleaner Tails	2.16	4.34	25.56	15.60	8.66			
Zinc Concentrate	14.79	0.64	4.70	0.70	59.60	4.28		0.72
Zinc Cleaner Tails	1.27	2.22	8.18	2.32	22.88			
Final Tails	66.45	0.11	0.69	0.22	0.54			

PRODUCT	Percent Weight	PERCENT RECOVERY				SCREEN ANALYSIS OF Final Tails		
		Au	Ag	Pb	Zn	Mesh	Percent Weight	ASSAYS
Head Sample	100.0	100.0	100.0	100.0	100.0	48	0.6	
Lead Concentrate	15.33	44.9	85.9	94.9	3.0	65	3.5	
Lead Cleaner Tails	2.16	17.9	4.3	2.8	1.9	100	14.6	
Zinc Concentrate	14.79	18.1	5.4	0.8	88.6	150	16.4	
Zinc Cleaner Tails	1.27	5.3	0.8	0.3	2.9	200	14.8	
Final Tails	66.45	13.8	3.6	1.2	3.6	200	50.1	

DATA SHEET NO.

D-5



A.

DENVER EQUIPMENT COMPANY



ORE TESTING DIVISION

Denver, Colorado

### FLOTATION TEST DATA: CONDITIONS AND REAGENTS

SAMPLE IDENTIFICATION **As described on Data Sheet Number D-2**

REPORT NO. **DT-22960** TEST NO. **4**

TEST PROCEDURE: A 2500 gram charge of the prepared minus 10 mesh head ore was treated by flotation under the conditions given on this data sheet to produce an uncleaned bulk concentrate and a flotation tailing. The flotation tailing was passed over the laboratory gravity table yielding a table concentrate, middling and tailing. The table middling was retailed to produce additional table concentrate and table tailing.

Grinding and Treatment				Reagents: Pounds per ton heads—(2)							NOTES: GRINDING PERFORMED IN STANDARD DENVER 12"x 5" DENVER BALL MILL. BALL CHARGE = 40 POUNDS, R.P.M. = 54.  CLASSIFICATION BY DECANTATION THROUGH LIMITING SCREEN, UNDECANTED SANDS REGROUND.  FLOTATION PERFORMED IN DENVER "SUB-A" LABORATORY FLOTATION MACHINE.  <b>The xanthate was stage added.</b>
Operation	Time Min.	Percent Solids	pH	CaO	S.S.	NaCN	A-31	Z-3	D250	CuSO <sub>4</sub>	
Grinding (1)	15	67	9.0	1.0	0.5	0.1	0.05				
Bulk Flotation	14	25	9.0	0.5				0.14	0.02	1.5	

#### Grinding (1)

Time, minutes **15**

Classification, mesh **No classification**

Sands reground, minutes

#### (2) Reagent Symbols:

CaO - Lime  
 S.S. - Sodium Sulphite  
 NaCN - Sodium Cyanide  
 A-31 - Aerofloat 31  
 Z-3 - Potassium Xanthate

D250 - Dowfroth 250  
 CuSO<sub>4</sub> - Copper Sulphate



DENVER EQUIPMENT COMPANY — ORE TESTING DIVISION

Denver, Colorado

METALLURGICAL RESULTS

REPORT NO. DT-22960 TEST NO. 4

TYPE OF TEST Bulk Flotation Followed by Gravity Tabling of the Tailing

SAMPLE IDENTIFICATION: As described on Data Sheet Number D-2.

TEST PROCEDURE: As given on Data Sheet Number D-6.

PRODUCT	Percent Weight	ASSAYS							PERCENT RECOVERY		
		Au	Ag	Pb	Zn	Fe	S	Insol	Au	Ag	
Head Sample Assay		0.44	11.86	11.15	10.05	7.12	11.98	54.28			
Calculated Head Assay	100.00	0.57	14.79								
Bulk Flot. Conct.	35.95	0.72	38.18						45.61	92.83	
Table Conct.	9.20	3.14	6.10			38.26	44.36		50.88	3.79	
Table Tailing	54.85	0.04	0.91						3.51	3.38	

REMARKS:

# PACKING LIST

**DENVER EQUIPMENT CO.**  
1400 - Seventeenth St. - Denver, Colo.



Customer Order No. \_\_\_\_\_

Our Order No. DT-22960  
TD-9146

Packed at Denver, Colorado Springs, Colorado, U. S. A.

13 Aug. 1952

Consigned to

Packages Marked

Denver Equipment Co., Canada, Ltd.  
220 Bay St.  
Toronto, Ontario

Routed

Car No.

Page No.

of

Pages

NUMBER OF PACKAGE	KIND OF PACKAGE	DESCRIPTION OR CONTENTS	WEIGHT IN POUNDS UNLESS MARKED KG FOR KILOGRAMS			DIMENSIONS IN INCHES
			GROSS	TARE	NET OR LEGAL	
1	Envelope	Lead concentrate and zinc concentrate produced in Test No 3	12 1/2	02		1 x 5 x 8

**BACK ORDERED:**

Your order has been carefully checked and packed by us, and we hope entirely satisfactory to you. Your suggestions will be appreciated.

Checked by:

H. E. Metzger

Packed by:

H. E. Metzger

DENVER EQUIPMENT CO.

Packing List No. \_\_\_\_\_