

Progress Report No. 2.

President & Directors,
Scranton Mines Ltd.,
Portland, Oregon.

Geological and Engineering Examination

Scranton Mines Ltd., - 1953

Summary and Conclusions

Surveys and samples of the inner ore shoot in the S. W. Sunrise Drift have indicated an orebody of 8600 tons @ 0.0578%^{gold}; 2.32 g. silver; 9.10% lead; and 5.10% zinc for a net value of \$23.73 per ton. There is a good possibility of additional tonnage below the drift sill.

Diamond drill intersections, made during the recent Sunrise Basin program indicated the presence of an orebody of 16,400 tons at an average of 0.03402 gold; 7.80 oz silver; 5.50% lead; and 2.4% zinc. Calculated on the basis of current smelter returns and safe estimates of extraction costs this ore has a net value of \$18.05 per ton. There appears to be a considerable amount of possible ore adjacent to this orebody, but which could not be directly included without further drill exploration.

The tonnage and grade of the Basin orebody were estimated on data from seven rather widely spaced intersections, hence there will be some latitude to any estimates of tonnage and grade contained. However, all estimates are considered properly conservative and in accord with safe mining practice.

The Basin orebody lies closely to the southwest of the old N.E. Sunrise (Brandview) workings and penetrates to a depth of at least 200 feet vertically below them. The Basin orebody appears to extend on a line directed (pitch) to converge with the pitch of the Brandview orebody at depth. Hence there is a good possibility that fresh sulfide ore may be found at least to a depth of 200 feet below the lowest level of the old workings.

Extension of the 6040 drift showed the presence of ore in this section of the vein. In addition to samples

taken previously, a composite of three samples in the new section indicated the presence of fair milling-grade ore with encouragingly strong gold and silver content. The section of vein beyond the present face offers good possibilities for further exploration.

Within the Sunset workings, the extension of d.d.h. no. 1 failed to intersect the faulted segment of the vein. Information from the new work accomplished on the 6040 drift indicates that the vein lies at a considerable distance beyond the bottom of the drill hole. At present it appears that a future test of this section of the vein would be better accomplished by exploration directed from the 6040 area towards Sunset ground.

The recent drilling program and earlier underground development have investigated only a minor fraction of the whole potential area of the vein between the Sunset and Granite workings, as all existing evidence shows that ^{neither} the strength of the vein nor the grade of ore are adversely affected by increased depth, it is advisable to plan for a major exploration drift to start at an elevation closely below the 6040 adit. This would also have the advantage of starting in an area of known mineralization. From the results obtained in the recent drilling and drifting done on the property, by the expenditure of the relatively small sum of money directly applicable to the work done, I feel that there is ample justification for making longer range plans to explore the Sunset-Granite section by a through drift. An important factor in making this decision lies in the fact that there is a ~~mining~~ plant on the property which is quite

dedicate for carrying out the whole project.

A preliminary program of diamond drilling on the Pontiac section of the vein is recommended as a logical preliminary to active exploration of the Sunset-Granite section. Encouraging ore exposures were observed directly or have been reported in this section. Approximately 1500 feet of drilling would be sufficient to test the more important sub-surface extensions. The development of even a few thousand tons of sweetener ore in this area would facilitate the financing of the Sunset-Granite tunnel project, or do much to defray the cost of this project if operations had already started.

On the whole, though the usual risks of geology, costs, and fluctuating metals prices are involved, the indicated potential of the vein appears decidedly favorable to for further development and should, with close control, ~~stand~~ a very good chance of developing into a profitable mining operation.

Preliminary

Initially, the objective of the recent program of drilling was the exploration of ground below the old Grandview workings and, if possible, for ore extensions in the southwest Sunrise section. However, two drill holes in the ground below the old Grandview proved that additional drilling here would be both inconclusive and costly. Hence it was decided to test other geologically favorable sections to the southwest across Sunrise Basin. Upon completion of the initial surveys it was also apparent that drilling of the southwest Sunrise ore shoot would require excessively long holes for a satisfactory test within the limits of the scheduled program.

After sampling ~~plung~~ and calculating the size and grade of the southwest Sunrise ore body, the immediate objective of the program became the discovery of an additional 9000 tons of ore of equivalent grade, and which would immediately justify the expense of driving a through tunnel from the east slope of Sunset Ridge. ^{to avoid a too closely restricted search} At the same time, it was decided to extend the 6040 drift by at least 50 feet in order to test an apparently favorable section of the veins in the easterly half of Sunset Ridge and in the general portal area of a possible through-tunnel.

Details of the preliminary engineering and geological work prior to actual drilling have been sufficiently well outlined in Progress Report No. 1. The apparent geological controls have also been outlined. The relative location of the various workings on the parts of the

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The foregoing estimates assume sufficient ore below the level to compensate for possible barren sections within the ore shoot above drift level. However, there is a good possibility that extensions below the level will be sufficient to increase the total tonnage estimated. Structural conditions are apparently favorable for mineralization to a considerable depth below the drift level.

In addition to the above ore shoot, a 60-foot section of promising mineralization lies closer to the portal of the drift. This could not be tested economically by diamond drilling, but remains an important target for deeper exploratory drifting.

Sunrise Basin Exploration

Preliminary surveying and mapping indicated three possible areas of mineralization on the vein and which might be drilled within the scope of the program. These were (a) the section below the old N.E. Sunrise (Grandview) workings, (b) the section below the 60-foot length of mineralization which lies approximately 50 feet beyond the portal of the Southwest Sunrise drift and (c) the section of the vein immediately southwest of the old Grandview workings. A few old open cuts on this section showed the presence of a favorable warp in the vein structure.

Extensive drilling on (a) proved unadvisable in view of the soft, deeply oxidized character of the vein filling at this point. However, although good core recovery was impossible, drilling (holes no. 1 and 2) did indicate appreciable values in an apparently strong vein structure.

On (c) a single drill hole (no. 8) intersected only sparse mineralization but was aimed to intercept a possible downward and northwesterly extension of the raise and tunnel mineralization. To investigate possible vertical

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or southwestwardly pitching extensions would have required the expenditure of more drill footage than was warranted in this area; hence drill holes 9 to 11 were put down to complete the earlier testing of (C).

Brief logs of holes drilled in the recent program are presented below (see accompanying maps).

D.D.H. No. 1

- 0-74' - fractured granite
- 83.5' - Fragments quartz and oxidized vein matter - 9' caved.
- 169' - Granite with occasional quartz stringers

Summary - insufficient recovery, not sampled.

D.D.H. No. 2

- 0-91' - closely fractured granite.
- 99 - mud + quartz fragments - indic. cross-fault.
- 123 - fractured granite.
- 128 - broken bleached granite and fragments of vein material - indicate minor hanging-wall vein.
- 135 - siliceous altered granite.
- 140; 0.18 g Au; 3.85 oz. Ag; nil Pb & Zn - Net \$8.28
- 142; 0.1902 Au, 4.25 oz Ag; 0.10% Pb; nil Zn. Net \$8.88
- 179 - altered to fresh granite.

D.D.H. No. 3

- 0-77' - granite
- 80.5' - bleached granite with sparse ZnS and pyrite.
- 80.5' - quartz with sparse Zn-Pb; sub-ore.
- 83.0' - bleached granite.
- 87.5' - 0.05 g Au; 5.0 oz Ag; 4.16% Pb; 1.02% Zn.
- 88.9' - bleached granite.
- 93.6' 0.04 g Au; 6.25 oz Ag; 5.12% Pb; 1.65% Zn
- 141 - altered to fresh granite.

D.D.H. No. 4.

- 0-95' - granite.
- 96' - quartz with pyrite only (10%).
- 111 - altered granite.
- 113.5' - bleached, altered granite with minor quartz and trace PbS.
- 118.5' - bleached granite with sparse pyrite
- 119.0' - strong pyrite mineralization
- 138.0' - bleached granite; mild seam @ 136.5' - 137.0'
- 143.0' - Fresh granite.

D.D.H. No. 5

- 0-78' - granite
- 80 - Quartz and altered granite with scant Pb-Zn-Fe.
- 82' - mud seam
- 87.5' - altered granite with sparse pyrite.
- 91.0 - 0.03 oz Au; 7.40 oz Ag; 5.9% Pb; 0.9% Zn.
- 97.0 - 0.05 g " ; 11.55 oz " ; 6.3% " ; 1.5% "
- 99-103 - 0.03 g " ; 9.60 oz " 7.45% " ; 0.96% "
- 105-109 - 0.06 g " ; 10.50 oz " 8.65% " ; 1.10% "
- 114 - granite.

D.D.H. No. 6

- 0-72.5 - granite
- 75.5 - 0.0302 Au; 7.80 oz Ag; 5.2% Pb; 0.65% Zn.
- 82.0 - altered granite with sparse pyrite.
- 103.1' altered granite with sparse pyrite and 1" Pb-Ze.
- 118.0' - mildly-bleached and fresh granite.

D.D.H. No. 7

- 0-108 - fresh granite with minor bleached sections.
- 115.2' - 0.03 oz Au; 6.50 oz Ag; 4.50% Pb; 0.85% Zn
- 119.0' - altered granite.

DDH No. 8.

- 0-48 - fresh granite.
- 57.5' - bleached "
- 60.5' - bleached granite and quartz with sparse Pb-Ze.
- 85.7 - mainly fresh granite
- 87.1' - Quartz with sparse pyrite and trace Pb-S.
- 136' - mainly fresh granite.

D.D.H. No. 9

- 0-148.5' - Fresh granite
- 154.0' - 0.02 oz Au; 4.80 oz Ag; 2.75% Pb; 1.5% Zn.
- 159.5-164.0' - 0.06 g " ; 7.58 g " ; 4.90% " 1.05% "
- 175.0' - 0.04 g " ; 27.05 g " ; 19.5% " 12.25% "
- 185.0 - Barren altered granite.
- 189.0 - 0.03 g Au; 18.50 g Ag; 10.85% " ; 7.50% Zn.
- 192.6' - Moderately bleached granite.

D.D.H. No. 10.

- 0-156 - broken fresh granite
- 163 - bleached granite.
- 164 - quartz with heavy pyrite and scant PbS.
- 202 - fresh granite with minor sections bleached.
- 206' - Bleached granite with scant quartz and pyrite; 1.5' core

Note: ^{lost.} Severe weather prevented the desired extension of this hole.

D.D.H. No. 11

- 0-147 - Fresh granite.
- 154 - 0.02 of Au; 4.20 of Ag; 2.8% Pb; 3.1% Zn.
- 190 - Fresh granite.
- 198 - Fresh and bleached granite; mud seam at 192'.
- 201 - 0.03 of Au; 2.10% Ag; 2.25% Pb; 0.95% Zn.
- 202.6' - fresh granite.
- 208' - trace Pb-Fe.
- 212 - pale altered granite
- 218 - " " " with trace Pb-Fe.
- 224.2 - Quartz and alt. granite with sparse patchy Pb-Zn-Fe.
- 231.0 - altered granite.
- 238 - Strong patchy finegrained pyrite in quartz.
- 242.3' - Quartz and altered granite with traces Pb-Zn-Fe.
- 245.0 - Cracked altered granite.
- 259' - Bleached to fresh granite.

Sunrise Basin Orebody

Weighted drill hole assays.

D.D.H. No.	Assigned Width	Oz. Au.	Oz. Ag	% Pb	% Zn
3	6.0'	0.04	4.90	4.0	1.1
5	10.0'	0.04	8.10	5.7	0.9
6	2.3	0.03	7.00	5.1	0.6
7	5.0'	0.03	6.50	4.5	0.85
9	10.5	0.025	11.00	7.5	4.5
Avg.	6.7'	0.034	7.80	5.5	2.4

Apparent projected areas of ore shoot = 16,638 sq. ft.
 " solid volume " " " = 16,638 x 6.7 = 111,474 cu. ft.

Indicated Orebody 10,400 tons @ 0.034 oz Au
 7.80 oz Ag
 5.5 % Pb
 2.4 % Zn
 Estimated net smelted value - \$18.05 per ton.

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With the drill holes shown in the above table, holes no. 4, 10, and 11 were also used to delimit the projected area of the ore shoot.

Direct Costs

Core drilling 1720.2 ft @ \$4.00 =	6880.80
No. 11 extension 56.4 ft @ 6.00 =	338.40
Casing 18.0 ft @ 1.30 =	23.40
	<u>\$7242.60</u>
Moving allowance D.D.H. No. 9 - - - -	140.00
Moving in equipment - - - -	198.60
Moving out " - - - -	48.80
Packing Core Boxes - - - -	20.00
Packing allowances - - - -	116.80
Feed for horses, extra supplies - - -	129.30
Meals to company acct. - - - -	51.00
	<u>\$7947.10</u>

Direct cost of drilling = \$4.61 per foot.

With consideration of the difficulties caused by winter weather in this high basin, during the last half of the program, this cost is favorably low. Excellent cooperation from the drilling contractor assisted greatly in this respect.

General Notes on Orebody

Following the completion of D.D.H. no. 11, it was evident that more drilling could be done for a wider test of the area. However, in view of the uncertainty of success with progressively deeper holes, it is probable that further information will be gained most efficiently by actually drifting and raising on the vein below this and other possible ore shoots.

The vein structure within and adjacent to the Basin orebody is composite, with a typical cross-section showing that the mineralized zones consist of two or more parallel ore veins. Locally these are so spaced as to produce a wide, well-mineralized cross-section, or may converge rather suddenly to a single tight barren fracture. This "pinching" and "swelling", on a large or small scale, is typical of

N 29-09-00 E

+ 24-18-30

N 52-27-30 E

- 18-55

N 34-32-30 E

+ 06-11-30

N 40-44-00 E

+ 20-54

N 61-38-00 E

71-38-30

N 10-50-30 W

16-50

N 26-50-30 W

179-00

141-05

18-55

179-59-00

108-21-30

71-38-30

179-00

163-10

16-50

11.
veins in this part of the district. The net result is that ore is generally found as frequently occurring small to ^{medium} sized flathy lens-like bodies. Consequently ore bodies of this type are more efficiently prospected by drifting and raising rather than by diamond drilling. However, where surface exposures provide a fairly definite target for drilling the latter method is less costly, though less conclusive, in investigating shallow ore occurrences.

Both drill intersections (no's 1 and 2) below the old Grandview workings indicated a strong vein structure in this area. In spite of the poor recovery obtained in hole no. 2 the assays on those fragments of core recovered indicated appreciable mineralization (\$8.50 net) in this area at a depth well below the old workings. On the basis of structure the southwest extension of the vein for 200 to 300 feet beyond the Basin orebody is particularly favourable for exploration. Although only tested by one hole (no. 7), this intersection shows that appreciable mineralization does exist in this area. The apparent discontinuity of the vein between holes no. 7 and 8, as shown by plots of intersections made by these holes, suggests the presence of a right-hand vein offset by cross-faulting or, perhaps, a strong westerly bend of the strike - a favourable indication.

From a broad point of view the ~~showed~~ frequency of ore and mineralization along the strike of the vein across the whole property and the extensive vertical range shown between certain occurrences justifies consideration of a more comprehensive development plans than have been previously undertaken. Until an adequate exploration program has been completed on a geologically favorable section of the vein the actual potential of the property will not have been proved.

N68-64-00 E
- 31-17

N 37-47-00 E.
+ 00-12-30

N 37-59-30 E
+ 01-23-30

N 39-23-00 E
- 30-

N 09-23-00 E.
+ 75-16

N 84-38-60 E.
- 07-27-30

N 70-71-30 E
- 04-17-30

N 72-54-00 E
+ 07-35-30

N 80-29-30 E
- 36-02-30

N 44-27-00 E
+ 01-02

N 45-29-00 E
+ 18-45-30

N 64-14-30 E
- 64-23-60

N. 00-09-30 W
59-54-30

N 59-45-00 E
- 52-36

N 07-09-00 E
+ 22-00

N 29-09-00 E

179-59-60
172-32-30
07-27-30

179-59-60
175-42-30
4-17-30 L.

179-59-60
143-57-30
36-02-30

179-60-~~60~~
115-36-
64-24

179-59-60
09-50-30
70-09-30 L

N 74-14-30 E

179-60
127-24
52-36

6040 Drift

This old working, which had been advanced only a short distance before being abandoned by former prospectors, lies in a geologically favorable section of the Scranton vein ~~and intermediate~~ between the Sunset and Grandview areas. It was decided to advance this heading ^{by hand} at least 50 feet for a brief examination of the vein in this locality, following favorable indications from preliminary sampling (map). Within the first four feet advanced appreciable lead-zinc mineralization was discovered. The latter 20 feet exposed a fair grade of milling ore. A composite of three samples along the best section gives a length of 15 feet with an average width of 3.0' assaying 0.24 oz gold; 4.15 oz silver; 5.2% lead; 2.7% zinc for a net value of \$21.57 per ton.

In the face of the drift the ore band pinches down to about 6 inches of good lead-zinc ~~ore~~. The over-all strength and structural trend of the vein in this area show this section of ground to be particularly worthy of further exploration - and the logical vicinity in which to start exploration of the Sunset - Granite section of the Scranton vein.

Sunset Underground Drilling

The old D.D.H. no. 1 was extended from 140 to 303.5 feet without intersecting the offset westerly segment of the vein in Sunset area (plan). Recent information gained from the 6040 drift ~~indicates~~ shows the vein to lie still further beyond the bottom of the hole. However, further drilling was deemed inadvisable in view of the probable depth required.

At present it appears that cheaper and better exploration of this segment will be had by drilling short

S 49-58-00 E
+ 66-48

S 116-46-00 E
179-60

N 63-14-00 E

+ 90-14

N 153-28-00 E
179-60

S 26-32-00 E

S 26-32-00 E

+ 89-58-30

S 116-30-30 E

179-59-60

N 63-29-30 E

+ 84-49

N 148-18-30 E

179-59-60

S 31-41-30 E

+ 79-14-30

S 110-56-00 E

N 69-04-00 E

179-60

113-12

66-48

10° counterclock

179-59-60

- 90-01-30

89-58-30 L

179-59-60

100-45-30

79-14-30 L

179-60

110-56

69-04

surface holes downward from the 6040 area towards 13.
 sunset ground.

Cost Estimates

The following estimate is submitted as a breakdown of the unit extraction cost used in the determination of net ore values in this report.

It is based on the preparation, ore-block development, mining, transportation, and milling costs likely to be incurred in ~~the~~ shrinkage stoping an orebody of 10,000 tons. An extraction rate of 1500 tons per month is used as the basis of these calculations. Road construction is estimated at $\frac{3}{4}$ miles.

(A) <u>Surface Installations</u>		
Preparation of road construction and maintenance, ore bins	\$ 0.50	
Pumps and portal installations	0.05	<u>0.55</u>
(B) <u>Stope Preparation</u>		
Back slashing 150' x 5' x 6'	0.20	
Timbering for stope stall and chutes	0.18	
Chute raising	0.15	<u>0.53</u>
(C) <u>Mining - Direct</u>		
Breaking & tramming; by contract	3.00	
General labor charges	0.50	
Steel and bits	0.20	
Caps and fuel	0.05	
Power	0.45	
Machinery maintenance	0.20	
Haulage maintenance	0.05	
Timbering - occasional	0.20	* 4.65
(d) <u>Trucking</u> (a) ore (assuming lower road re-routed)		
	3.50	
(b) concentrate (per ton of ore)	0.70	<u>4.20</u>
(e) <u>milling</u> (Custom)		
		<u>6.00</u>
(f) <u>Management, Departmental, & Engineering Staff</u>		
		<u>1.25</u>
(g) <u>General</u>		
Snowplowing & road maintenance	0.10	
Car maintenance	}	0.50
Taxes		
Office expense		
Cook house	0.25	<u>0.85</u>
Total		<u>\$ 18.03</u>

* Direct cost - excluding some overhead and general charges listed elsewhere in schedule.

It is important to note that this cost estimate is based on the assumption that a possible operation would operate at a preliminary output of 50 tons daily. Should the extraction rate be increased, the ore milled on the property, and power generated by a hydroelectric installation, the unit mining costs might easily be reduced to a figure of approximately \$12.00 per ton. ~~at the present stage of development of the~~

It is true that at the present stage of development of the property the above are only possibilities, but should be kept in mind during the planning of a comprehensive exploration program.

The initial step recommended is a limited program of exploration on Pontiac ground. This is considered necessary for two reasons: First, the possibility of quickly developing even a few thousand tons of sweetener ore would greatly assist the longer-range development of the property. Secondly, it is advisable to assess the relative potential of the Pontiac area before making a final decision on the section of ground on which a larger exploration program is to be concentrated.

The Pontiac drilling program would consist of:

- (a) Preliminary surveying, mapping, and sampling.
- (b) Trail improvement and new construction where required.
- (c) Diamond drilling - tentatively estimated at 1500 feet. The cost of this program is estimated at about \$10,000.

Following the completion of the drill program, or while it is in progress, preliminary surveys up the lower east slope of Sunset Ridge should be made to investigate the most desirable location for a portal site and access road, in the event that a ~~the Sunset Granite development program is to start~~

decision is made to start underground exploration of the Sunset-Granite section this year. Following these surveys, cost estimates of road and portal construction could be submitted to the Soranton directors.

Ainaworth, B.C.
January 15, 1954.

Respectfully submitted,
W.M. Sharp, P. Eng.
per Kootenay Mining Service.

4-57A N79-07-00E

+ 01-48

N 81-05-00E

179-00

140-51

39-09

• N80-55-00E

- 39-09

N 41-46-00E

- 23-24

N 18-22-00E ✓

179-00

156-76

23-24

N 19-18-00E

+ 30-53-00

N50-11-00E

N 49-71-00E

- 09-16

N 40-55-00E

- 08-19

N 32-36-00E

+ 10-57-

N 43-33-E

01-31

N 42-02-00E

+ 09-49-00

N 51-51-00E

00-04

N 51-47-00E

- 06-46

N 45-01-00E

N 44-61-00E

09-09

N 35-52-00E

+ 02-06

N 37-58-00E

+ 61-53-30

N 99-51-30E

179-59-60

5 80-08 30E

- 579-68-30E

- 30-11

• 5 49-57-30E