DMA Form 1

DEFENSE MINERALS ADMINISTRATION
Control Slip

## CONTROLLED DOCUMENT

DMA Docket No. 2953

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## CONTROLLED DOCUMENT

MME Form 7
(10-58)

OFFICIAL FILE COPY

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JUL 2 0 1965

Mr. J. C. Nixon
P. O. Box 672
Canyonville, Oregon

Re: DMEA-2953 (Copper)
Pacific Minerals, Inc.
Silver Peak Mine
Douglas County, Oregon

Dear Mr. Nixon:

A copy of your letter of June 30, 1965, to the Office of Minerals Exploration in Spokane, Washington, has been referred to this office for reply to your request for certain information relating to the subject application.

This application for Aid in an Exploration Project was filed with the former Defense Minerals Exploration Administration on March 26, 1953. A copy of the application and supporting documents will be released to you upon receipt of written authorization from the Pacific Minerals, Inc. Our last correspondence with this concern was addressed to:

Mr. Wayne A. Brainard, President
Pacific Minerals, Inc.
P. O. Box 838
Kellogg, Idaho

If you are unable to obtain such authorization, but can furnish evidence that Pacific Minerals, Inc. has abandoned all interest in the property involved and that you are now the owner of it, we also can release a copy of the application and supporting documents to you.

There will be a charge of $15.00 to cover the cost of reproduction of this material.

FEJohnson/bih
7/20/65

Sincerely yours,

(signed) FRANK E. JOHNSON

Frank E. Johnson
Chief, Office of
Minerals Exploration

Copy to: Dir. file
Div. file
Economic Geo. file
OME file
OME reading file
OME Region I

43683

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O. M. E.
RECEIVED
JUL 12 1965

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| | 220 |

July 8, 1965

Mr. J. C. Nixon
P. O. Box 672
Canyonville, Oregon

Re: Docket DMEA-2953 (Copper)
Pacific Minerals, Inc.
Silver Peak mine
Douglas County, Oregon

Dear Mr. Nixon:

The accompanying booklet, Title 30, and application forms explain the purpose, scope, limitations, and operation of the OME program, and the information to be furnished with an application. You will note that copper is no longer eligible for OME assistance.

This office is not authorized to release any information in our files. Your letter is being forwarded to our Washington, D. C., office for reply to your request for this information.

Sincerely yours,

D. R. MacLaren
Acting Field Officer, OME
Region I

Enclosures

DRMacLaren:my

cc: OME w/cy incoming
Director's reading file
Resources Research Branch Chief

Canyonville,Oregon
June 30,1965.

Office of Minerial Exploration
O.M.E. Region Office ,1.
Spokane,Washington.

Dear Sir:

We have taken over,and purchased the mining property known as the,Silver Peak Mining & milling Co. of Riddle,Oregon.

I have some of the needed information up to the year 1937,but I understand that your office has some reports and maps that was made from an ,O.M.E. loan appilcation in 1951.

Would it possible to send to me a copy of this application along with any-Assays Reports, Maps, or Mining reports aviable from this study in ,1951. I would appreicate it very much.

Mr.Lester Harrison an Attorney from Kellogg,Idaho,was telling me about the information you have on hand.He was assicated with the Pacific Minerials Inc.,that applied for the O.M.E.loan.

We would also like to have the application forms on and,O.M.E.,loan,or any other information needed for this,that you may have on hand.

Will you please send to us the wanted Minerial List, as to what the Goverment,O.M.E. applies to,also any information would be appreicated.

Very truly yours,
J.C.Nixon
P.O.Box 672
Canyonville,Oregon

j/cn.

FILE COPY
SURNAME

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
WASHINGTON 25, D. C.

SEP 1 1953

Mr. Wayne A. Brainard, President
Pacific Minerals, Inc.
P. O. Box 838
Kellogg, Idaho

Re: Docket No. DMEA-2953 (Copper)
Pacific Minerals, Inc.
Silver Peak Mine
Douglas County, Oregon

Dear Mr. Brainard:

Your application for aid for an exploration project and other reports available to us in Washington referring to the above application have been reviewed.

Projects approved by the Defense Minerals Exploration Administration must, in its judgment, show definite promise of yielding materials of acceptable grade in quantities that will significantly improve the mineral supply position for the National Defense Program.

Careful study of all information, although noting a small amount of ore on your property, indicates to us that the probability of disclosing minable ore reserves by your proposed program is not sufficiently promising to justify Government participation. We regret to advise you, under these circumstances, that your application for exploration assistance is denied.

We wish to thank you for your interest in the Defense Minerals Program and for bringing your property to our attention.

Sincerely yours,

C. O. Mittendorf

Administrator

JWAlt/hmj (8/29/53)
CC to: Docket
Adm. R. File
Op. Committee
Base Metals Division
Mr. Kinkel
Mr. Bishop
Region II
Chron.

R.G.G. 9-1-53

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

August 28, 1953

Memorandum

To: The Administrator

From: Chief, Base Metals Division

Subject: Denial of application, Docket No. DMEA 2953
Pacific Minerals Inc., Douglas County, Oregon (Copper)

The field examination report of the subject application was received by this office on August 11, 1953.

The Applicant requested exploration assistance to explore the property for a copper deposit by a small amount of crosscutting and 4,000 feet of diamond drilling, total estimated cost of the project $50,702.55.

Mr. E. A. Magill, USBM, did not favor the Applicant's proposal because of the irregularity of the shoots and the erratic distribution of the ore minerals, but recommended sinking, drifting and short-hole diamond drilling. This proposed program would cost $34,750.00.

Mr. Magill states that the grade of the deposit is too low for direct shipping, and that by hand sorting the richest portions of the shipments assayed: gold, 0.076 oz. per ton; silver, 3.40 oz.; and copper, 5.65 per cent.

The ore-bearing lenses are irregular in form and most of them have been faulted. The nature of the deposit as lense-like ore bodies limits the possibility that substantial ore reserves would be discovered by the proposed exploration.

We concur with the commodity members of USGS and the USBM that this application be denied.

W. R. Griswold

W. R. Griswold

Attachment

FILE COPY
SURNAME: 500

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
WASHINGTON 25, D. C.

J. W. Alt
W. R. Griswold

August 29, 1953

Memorandum

To: The Administrator

From: Chief, Base Metals Division

Subject: Denial of application, Docket No. DMEA 2953
Pacific Minerals Inc., Douglas County, Oregon (Copper)

The field examination report of the subject application was received by this office on August 11, 1953.

The Applicant requested exploration assistance to explore the property for a copper deposit by a small amount of crosscutting and 4,000 feet of diamond drilling, total estimated cost of the project $50,702.55.

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W. R. Griswold

Attachment

JWAlt/hmj (8/29/53)
CC to: Docket
Adm. Committee
Op. Committee
Base Metals

R.C.G. 9-1-53

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
AUG 24 1953
8/26/53 - Received by Div. C.

August 24, 1953

Memorandum

To: W. R. Griswold, DMEA

From: C. H. Johnson, Chief, Base Metals Branch, Minerals Division

Subject: DMEA-2953 (Copper), Pacific Minerals Incorporated

I have reviewed the Field Team report by Magill, July 31, 1953, on the above-named application. If there were a fair chance of developing a large tonnage, I should not be bothereed much by the metallurgical problem, but it seems to me the liklihood of finding enough ore to justify construction of a milling plant is very slight. I should not recommend exploratory assistance.

C. H. Johnson

C. H. Johnson

Copy to - A. R. Kinkel, GSA, B-242-A
Minerals Division
Base Metals Branch
Files

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
AUG 24 1953

August 24, 1953

Memorandum

To: W. R. Griswold, DMEA

From: C. H. Johnson, Chief, Base Metals Branch, Minerals Division

Subject: DMEA-8953 (Copper), Pacific Minerals Incorporated

I have reviewed the Field Team report by Magill, July 31, 1953, on the above-named application. If there were a fair chance of developing a large tonnage, I should not be bothered much by the metallurgical problem, but it seems to me the liklihood of finding enough ore to justify construction of a milling plant is very slight. I should not recommend supplemetary assistance.

C. H. Johnson

C. H. Johnson

CHJohnson:ks

Copy to - A. R. Kimbal, OSA, R-602-A
Minerals Division
Base Metals Branch
Files

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

August 24, 1953

Re: DMEA-2953
Pacific Minerals, Inc.
Silver Peak District
Douglas County, Oregon
$50,702.55
Copper

Memorandum

To: W. R. Griswold

From: E. L. Newcomb

Subject: Recommendation for denial

The applicant requests assistance to explore a wide ore zone containing localized sulfide lenses by crosscutting and diamond drilling on the No. 4 level.

The field team is not in agreement with the applicant's proposed work. They propose that exploration should involve sinking, drifting and short-hole diamond drilling in the ore zone.

The Silver Peak property has been developed by five adit levels. However, the principal levels are the No. 3 and No. 4. Past production is reported by the Bureau of Mines to have been 6384 tons averaging 0.076 oz. gold, 3.4 oz. silver and 5.65 percent copper. This grade was obtained by hand sorting and therefore does not represent the grade of run of the mine ore. The zinc content of ore produced prior to 1936 is not known, as zinc was not paid for until 1936 at the Silver Peak. The 3090 tons produced in 1936-37, about one-half of the total reported production, averaged 6.3 percent zinc. The property has not produced any ore since 1937, and the only new work is a 110 foot crosscut driven in 1952 on the No. 4 level.

In 1942, O. H. Metzger, U. S. Bureau of Mines, sampled the No. 3 and No. 4 levels. Average grade of his 16 samples was 1.77 percent copper and 4.5 percent zinc. However, zinc assays ranged from 0.17 - 18.6 percent over assay widths of 1 - 15 feet. The range of the assays and widths indicates the extremely irregular character of the mineralization in the ore zone. Six samples taken by the DMEA examiners on the No. 3 and No. 4 levels average 2.89 percent copper and 5.53 percent zinc over a range of widths from 3 - 15 feet.

Copper and zinc mineralization occurs in lenses which are predominantly pyrite. These lenses are localized near the hanging wall and footwall of a 100 feet wide schistose ore zone. The ore-bearing lenses are irregular in form and most of them have been faulted. The nature of the deposit as lens-like ore bodies limits the possibility that substantial ore reserves would be discovered by the proposed exploration.

In 1951, mineral dressing tests were carried out by the Bureau of Mines on samples from the Silver Peak mine. The results of these tests indicated that in spite of fine grinding (-200 mesh) very poor recovery was obtained in the copper and zinc concentrates, because of the very intimate association and fine-grained character of the copper and zinc mineralization. Although these tests were run on only a limited amount of ore, they showed that the low mill recovery of copper and zinc does not permit profitable operation under present conditions.

As the mill recovery from the ore is very poor and the expectable reserves from further exploration are unlikely to warrant erection of a nearby smelter, there is very little chance that this property would make a significant contribution of copper and zinc to the present Defense effort.

I recommend the application be denied.

E. L. Newcomb

E. L. Newcomb

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

1201 N. Division St.
Spokane 2, Washington
August 4, 1953

Mr. George C. Selfridge, Chairman
Operating Committee, DMEA
Department of the Interior
Washington 25, D. C.

Subject: Docket No. DMEA 2953 (copper)
Pacific Minerals, Inc.
Douglas County, Oregon

Dear Mr. Selfridge:

Attached are 4 copies of a report by E. A. Magill, U. S. Bureau of Mines, of an examination made in connection with the subject application.

Magill does not favor the applicant's proposal because of the irregularity of the shoots and the erratic distribution of the ore minerals, but recommends sinking, drifting and short-hole diamond drilling if the application is approved.

As Magill points out, there is little possibility for immediate production in the event of a discovery because of the metallurgical complications, and the applicant is frank to admit this. He is investigating the possibility of installing facilities for treating the ore by the Sterling electric smelting process, and the proposed exploration is planned to extend the reserves sufficiently to justify such an installation.

Considered on a long range basis the property merits exploration. At present, however, the ore is not commercial and for that reason the Field Team feels that approval or disapproval of the application is a matter of policy for your office to decide. Your decision either way will be satisfactory to us.

By Field Team, Region II

A E Weissenborn

A. E. Weissenborn, Exec. Officer
U. S. Geological Survey

Thomas E Howard

Thomas E. Howard, Acting Member
U. S. Bureau of Mines

Reviewed by
DMEA OPERATING COMMITTEE
8-14-53
(date)

Enclosure

D.M.E. only.

MEMORANDUM July 31, 1953

To: DMEA Field Team, Region II

From: E. A. Magill, Mining Engineer, Bureau of Mines

Subject: Exploration loan application, Pacific Minerals, Inc.
Silver Peak Mine, Douglas County, Oregon
Docket No. DMEA 2953 (copper)

## APPLICANT

The applicant is Pacific Minerals, Inc., P. O. Box 838, Kellogg, Idaho.

## RECOMMENDATIONS

The exploration program as proposed by Pacific Minerals, Inc. for the Silver Peak mine is not considered satisfactory. The apparent low grade of the ore and the as yet unsolved metallurgical problems in making salable concentrates indicate that the possibility for immediate production in the event of a discovery is remote. If DMEA is not concerned with immediate production and can undertake long range possibilities an alternate program of sinking, crosscutting and drifting as indicated in the body of this report is recommended.

## EXAMINATION

The Silver Peak mine was examined on May 19, 1953, by E. A. Magill and Lewis Chichester, U. S. Bureau of Mines, and Gerald Fuller, U. S. Geological Survey. Six hours were spent on the property. There were no company representatives on the examination.

## LOCATION OF PROPERTY

The property is known as the Silver Peak Mine (also as the Silver Butte). It is located in Secs. 23, 26, 27, T. 31 S., R. 6 W., W.M., Silver Peak mining district, Douglas County, Oregon. The nearest town is Riddle, located 12 miles northwest of the mine. The Southern Pacific Railroad serves Riddle. The lowest mine working, No. 4 adit, has its portal at elevation 3327 feet.

The property may be worked all year although there is a period from November to April when snow and mud frequently make the road impassable.

## COMPETENCE OF APPLICANT

There are competent personnel with the applicant's organization who are capable of directing the exploration work.

Reviewed by
DMEA OPERATING COMMITTEE

8-14-53
(date)

## PROPERTY RIGHTS

Pacific Minerals, Inc. have consolidated the holdings of the Oregon Exploration Co. and the Silver Butte Mining and Milling Co. (see copies of lease agreements attached to application) and are purchasing the properties under a royalty agreement.

The Silver Butte Mining Co. is the owner of the N 1/2 of the NW 1/4 and the SW 1/4 of the NW 1/4 of Sec. 26, T. 31 S., R. 6 W., W.M. This parcel is known as Reeves Timber Tract.

The Oregon Exploration Co. owns unpatented mining claims located in Secs. 23, 26 and 27, T. 31 S., R. 6 W., W.M., as listed below.

| Claim | Recordation |
|---|---|
| Silver Peak #1 | All claims recorded in Book 10, County Recorder's Office, Douglas County, Oregon |
| Silver Peak #2 | |
| Silver Peak #3 | |
| Silver Peak #4 | |
| Silver Peak #5 | |
| East Silver Peak | |
| Silver Peak Fraction | |
| Lower Silver Peak | |
| Silver Peak Base | |
| Silver Peak North Base | |
| Lower Silver Peak North | |
| Lower Silver Peak #2 | |
| Helen | |
| Iron Dyke No. 1 | |
| Iron Dyke No. 2 | |
| Iron Dyke No. 3 | |
| Banner | |
| Canyon | |
| South Bound | |
| Victory Tunnel Site | |
| Oregon Tunnel Site | |

## DESCRIPTION OF PROPERTY

Surface facilities consist of several log cabins in a poor state of repair and an Ingersoll-Rand Model 10 (500 cfm) air compressor driven by a 2-cylinder Fairbanks Morse diesel engine.

The existing mine workings (see maps accompanying application) consist mainly of two long crosscuts, No. 3 and No. 4, with about 420 feet of drifting on the structure on No. 3 level and about 460 feet of drifting on the structure on No. 4 level. The crosscutting and drifting on these two levels total about 2,685 feet, all of which was done prior to 1937 excepting 110 feet which was driven in 1952. Above these levels are

levels designated as No. 2 and No. 1, along with a number of crosscuts and open cuts driven during the early exploration of the property.

## GEOLOGY

The geology of the deposit has been described by Philip J. Shenon in U. S. Geological Survey Circular 2, "Copper Deposits in the Squaw Creek and Silver Peak Districts and at the Almeda Mine, Southwestern Oregon."

Pyrite, chalcopyrite and sphalerite occur in massive tabular bodies and disseminations in a highly foliated schist which strikes N. 40° E. and dips 60° southeast. The schist zone is over 100 feet wide with the lenses of massive pyrite and associated sulfides localized near the hanging and footwalls. The pyrite lenses are offset by faults and vary in dip.

On the maps accompanying the application the pyrite lenses appear to be more veinlike than actually is the case. It appears that they should be considered more as lenses within a zone. Therefore, any exploration work should explore the width of the zone.

The property was examined in 1942 by O. H. Metzger, U. S. Bureau of Mines. In a War Minerals Report, Metzger estimates 28,000 tons of indicated ore above the No. 3 and No. 4 levels. His samples from these levels averaged 1.77 percent copper and 4.5 percent zinc. Metzger states: "Zinc assays ranged from 0.17% to 18.6%. They are, therefore, probably erratic and the average of 4.5% may be much higher than the average for run of mine ore." A copy of an assay map prepared by Metzger is attached. The samples taken by the DMEA examining team on May 19, 1953 are noted on this map.

## PAST OPERATIONS

The property was first discovered in 1910 by Robert Thomason. In 1912, J. E. Reeves purchased a patented timber claim adjoining the original discovery on which a large portion of the ore was later developed. Little work was done until 1920, when the Oregon Exploration Co. located mineral claims over part of the timber claim. From 1922 to 1929 the property was in litigation, but during this period and in the following year 3,256 tons of ore was shipped. In 1929 the Oregon Exploration Co. was reorganized as the Umpqua Consolidated Mining Co. This company shipped one 38-ton car of ore in 1930. The property was idle from 1930 to 1937.

During 1937 and 1938 the property was active and some 3,329 tons of ore was shipped.

The applicants claim a total production of 6,918 tons of ore with an average assay of 0.114 oz. per ton gold, 17.23 oz. per ton silver, and 7.41 percent copper. The last 3,151 tons shipped had an average zinc

content of 6.25 percent. Zinc was not paid for prior to this. These tonnage and grade figures are not substantiated in other available reports on the property.

Production figures compiled by V. C. Heikes of the U. S. Bureau of Mines as given in Shenon's report are tabulated below:

| Year | Tons ore produced | Ounces per ton Gold | Ounces per ton Silver | Percent Copper | Percent Zinc |
|---|---|---|---|---|---|
| 1926 | 389 | 0.12 | 7.3 | 6.0 | |
| 1928 | 937 | 0.044 | 2.7 | 6.7 | |
| 1929 | 1666 | 0.07 | 3.6 | 5.6 | |
| 1930 | 264 | 0.057 | 3.0 | 4.4 | |
| 1930 | 38 | 0.24 | 2.2 | 3.9 | |

Later production as given in a report by Alex Smith is tabulated below.

| | | | | | |
|---|---|---|---|---|---|
| 1936-1937 | 3090 | 0.083 | 3.03 | 5.5 | 6.3 |
| Total | 6384 | 0.076 | 3.40 | 5.65 | |

The property was inactive from 1937 until 1952 when the applicant, Pacific Minerals, Inc., drove a 110-foot crosscut on the No. 4 level. The property is inactive at present.

## MANPOWER AND SUPPLIES

Manpower and supplies are available in the Riddle area. Wages are high due to the logging industry and the construction work being carried on by Hanna Co. in developing the Riddle Mountain nickel project.

The mine makes sufficient water for exploration purposes.

Power will have to be supplied by diesel or gasoline engines.

## APPLICANT'S PROPOSAL

The work proposed by the applicant is:

1. Extend the No. 4 level main crosscut 150 feet into the hanging wall.

2. Drill 5 holes from the crosscut to intersect the ore zone at 60,130, and 230 feet below the No. 4 level.

3. Drill 3 horizontal holes from the No. 4 level under the No. 3 level to explore for the downward extension of the ore body exposed on the No. 3 level.

4. Drill 4 holes below the No. 4 level from the diamond drill station already cut.

5. If the drilling in paragraph 4 is successful, extend the crosscut another 100 feet into the hanging wall and drill two deeper holes from that position.

Maps accompanying the application illustrate this program.

The exploration program as proposed by the applicant is not considered by the examining team as the most economical. Because the ore zone dips into the hill, it is necessary for the purpose of diamond drilling to crosscut into the hanging wall for drill stations. Applicant proposes 13 diamond drill holes at a total cost of over $50,000, giving a cost of $12.67 per foot, including crosscutting, stations, supervision, and other items. Over half of these holes would not have good intersection angles, or would intersect the ore zone too near existing workings. Inasmuch as the sulfide lenses are irregular and faulted, drill holes through the zone might not give a true picture as to mineralization.

It appears that with this irregular type of ore body more information could be obtained by drifting and crosscutting on the ore zone. Drifting and crosscutting would give a better picture as to the mineralization and a better opportunity for sampling. Sampling is especially important because it appears from the assay maps accompanying the application that the ore minerals are erratic. If exploration on the property is considered it is believed that drifting on the No. 4 level southward under the No. 3 level ore body, along with sinking the existing 40-foot winze to the 100-foot level, followed by 300 feet of drifting on that level would be much more feasible. It would be desirable to prospect the footwall of the ore zone on the 100-foot level by a series of short diamond drill holes. A program of this type could be carried out at a cost of about $34,750, as shown on the attached cost estimate, and would give much more detailed information than the program proposed by the applicant.

## DISCUSSION

There are several factors which must be kept in mind when making an evaluation of this property.

1. Difficulty has been encountered in obtaining good recoveries in milling the ore. A series of ore dressing tests (see copies attached) were carried out in 1951 by P. H. Floyd, Acting Head, Minerals Dressing Section, U. S. Bureau of Mines, Region II. These tests indicated that the ore would have to be ground to minus 200 mesh, and that liberation was not complete even at this fine grind. Undesirable zinc and copper concentrates were produced in the tests.

2. The grade of the deposit is too low for direct shipping (see attached assay map). By hand sorting the richest portions of the deposit the shipments assayed: gold 0.076 oz. per ton, silver 3.40 oz. and copper 5.65 percent. This gives a gross value at present prices of $33.90 per ton, not taking into consideration the penalty which would be charged by the copper smelter for over 5 percent zinc content. Ore such as was shipped to the smelter in the past could not be shipped at a profit under present conditions.

3. In a milling operation it is possible that the pyrite could be recovered and would partially offset the poor recoveries of the other constitutents.

4. Though no testing has been done it is very probable that the ore or a bulk sulfide flotation concentrate would be amenable to the Sterling process. If such a plant were available in the area or if the applicant could increase the ore reserves sufficiently to justify construction of one, the deposit would have definite commercial possibilities.

Distribution:
DMEA, Wash. (4)
USGS (2)
USBM (6)

E. A. Magill

# COST ESTIMATE

## Unit Costs

| | | |
|---|---|---|
| 1. | Diamond drilling - 500 ft. @ $7.50/ft. | $ 3,750. |
| 2. | Rehabilitation and repair of existing winze - 40 ft. @ $20/ft. | 800. |
| 3. | Sink 60 ft. of winze and 15 ft. of sump - 75 ft. @ $100/ft. | 7,500. |
| 4. | 300 feet of drifting and crosscutting on 100 level @ $45/ft. | 13,500. |
| 5. | 150 ft. of drifting southward on No. 4 level under No. 3 level ore body @ $40/ft. | 6,000. |
| 6. | 100 level winze station and dump - 1 job @ | 500. |
| | Total | $32,050. |

## Actual Costs

| | | |
|---|---|---|
| 1. | Winze station on No. 4 adit level - 1000 cu.ft. @ $1/cu.ft., including all costs of breaking, mucking, timbering, and installation of equipment, chute, etc. | $ 1,000. |
| 2. | Rehabilitation and repair of existing buildings for change house and shop-storehouse | 500. |
| 3. | Rehabilitation and repair of air hoist and purchase of 200 feet of 5/8" hoist rope | 150. |
| 4. | Assaying 100 samples @ $5.00 | 500. |
| 5. | Contingencies | 150. |
| | Estimated total actual costs | $ 2,300. |
| | Estimated total cost of project | $34,750. |

U. S. BUREAU OF MINES
ALBANY, OREGON

Mineral Dressing Section

TABLE I

Summary of Results of Selective Flotation on Silver Peak Ore, Utilizing Pentasol Amyl Xanthate as Collector.

| Test No. | OD 2736 | OD 2746 | OD 2756 |
|---|---|---|---|
| Reagents in grind, lb/T | | | |
| CaO | 2.0 | 2.0 | 2.0 |
| $ZnSO_4$ | 1.0 | 1.5 | 3.0 |
| $Na_2SO_3$ | 1.0 | --- | --- |
| NaCN | --- | 0.5 | 1.0 |
| Rough Copper concentrate | | | |
| Collector used, lb/T | 0.06 | 0.06 | 0.03 |
| Percent Weight | 36.0 | 13.6 | 12.2 |
| Analysis: Copper, percent | 4.78 | 12.02 | 13.26 |
| Zinc, percent | 3.45 | 8.25 | 7.18 |
| Iron, percent | --- | --- | 33.63 |
| Distribution: Copper, percent | 73.5 | 84.1 | 79.6 |
| Zinc, percent | 35.8 | 32.5 | 25.7 |
| Rough Zinc Concentrate | | | |
| Collector used, lb/T | 0.04 | 0.04 | 0.07 |
| Percent weight | 18.3 | 11.9 | 31.5 |
| Analysis: Copper, percent | 2.80 | 1.17 | 0.94 |
| Zinc, percent | 11.37 | 13.40 | 7.70 |
| Iron, percent | --- | --- | 37.8 |
| Distribution: Copper, percent | 22.0 | 6.4 | 14.6 |
| Zinc, percent | 60.2 | 46.5 | 71.1 |
| Tailing | | | |
| Analysis: Copper, percent | 0.23 | 0.23 | 0.21 |
| Zinc, percent | 0.31 | 0.97 | 0.19 |
| Distribution: Copper, percent | 4.5 | 8.8 | 5.8 |
| Zinc, percent | 4.0 | 20.9 | 3.2 |

U. S. BUREAU OF MINES
Albany, Oregon
Mineral Dressing Section
Metallurgical Data

TABLE II

November 14, 1951

Test No. OD 2745
Test Engineer: Wessel
Head No. and Ore: 214 - Silver Peak
Treatment: Locked flotation test, 3-cycles. Ore ground to 90% - 200 mesh; rough copper float made with Z6 and R 23; rough zinc float made on copper tailing with Z6, R 23 and $CuSO_4$. Rough copper concentrate cleaned, cleaner tail reground, and returned to primary copper float. Rough zinc concentrate cleaned, cleaner tail returned to primary zinc float.

| Product | Weight Percent | Assay Percent Cu | Assay Percent Zn | Distribution Percent Cu | Distribution Percent Zn | Albany Assay No. |
|---|---|---|---|---|---|---|
| Copper Clnr. Conc | 7.7 | 16.9 | 10.8 | 67.2 | 24.3 | 24697-24698 |
| Copper Clnr. Tail | 5.9 | 5.60 | 4.82 | 16.9 | 8.2 | 24699 |
| Zinc Clnr. Conc | 10.2 | 1.22 | 15.5 | 6.4 | 46.1 | 24700 |
| Zinc Clnr. Tail | 1.7 | 0.87 | 0.73 | 0.8 | 0.4 | 24701-24703 |
| Rougher Tail | 74.4 | 0.23 | 0.97 | 8.8 | 20.9 | 24704 |
| Calculated Head | 99.9 | 1.75 | 3.45 | 100.1 | 99.9 | |
| Assayed Head | | 2.07 | 3.01 | | | 23576 |

Reagent Additions, lb/T

| Operation | | Time | pH | CaO | $ZnSO_4$ | NaCN | Z-6 | R 23 | $CuSO_4$ | $SO_2$ | MibA | $K_2Cr_2O_7$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Grind | | 30 min | 6.9 | 2.0 | 1.5 | 0.5 | | | | | | |
| Float | | 5 1/2 | | | | | 0.06 | 0.03 | | | | |
| Float | | 4 1/2 | | | | | 0.04 | 0.03 | 1.0 | | | |
| Cu R Conc: | Agitate | 3 | 2.7 | | | | | | | 1.62 | | |
| | Agitate | 2 | 3.1 | 2.0 | | | | | | | | |
| | Float | 5 | | | | | | 0.03 | | | 0.03 | |
| Zn R Conc: | Agitate | 15 | | | | | | | | | | 2.0 |
| | Float | | 11.3 | 3.0 | | | 0.03 | | | | | |

U. S. BUREAU OF MINES
Albany, Oregon
Mineral Dressing Section
Metallurgical Data

TABLE II

November 15, 1951

Test No: OD 2746
Test Engineer: Wessel
Head No. and Ore: 214 - Silver Peak
Treatment: Locked flotation test, 3 cycles. Ore ground to 90 percent - 200 mesh; rough copper float made with Z 6 and B 23; rough zinc float made on copper tailing with Z 6, B 23, and $CuSO_4$. Rough copper concentrate cleaned, cleaner tail returned to primary zinc float.

| Product | Weight Percent | Assay Percent Cu | Zn | Au | Ag | Distribution Percent Cu | Zn | Au | Ag | Albany Assay No. |
|---|---|---|---|---|---|---|---|---|---|---|
| Copper Clnr. Conc. | 7.7 | 16.9 | 10.8 | 0.17 | 6.0 | 67.2 | 24.3 | 28.9 | 36.6 | 24697-24698 |
| Copper Clnr Tail | 5.9 | 5.60 | 4.82 | 0.19 | 3.2 | 16.9 | 8.2 | 24.1 | 14.8 | 24699 |
| Zinc Clnr Conc. | 10.2 | 1.22 | 15.5 | 0.065 | 2.0 | 6.4 | 46.1 | 14.3 | 16.3 | 24700 |
| Zinc Clnr Tail | 1.7 | 0.87 | 0.73 | 0.02 | 2.2 | 0.8 | 0.4 | 0.7 | 3.0 | 24701-24703 |
| Rougher Tail | 74.4 | 0.23 | 0.97 | 0.02 | 0.5 | 8.8 | 20.9 | 32.1 | 29.4 | 24704 |
| Calculated Head | 99.9 | 1.95 | 3.45 | 0.046 | 1.27 | 100.1 | 99.9 | 100.1 | 100.1 | |
| Assayed Head | | 2.07 | 3.01 | 0.03 | 1.2 | | | | | 23576 |

REAGENT ADDITIONS, lb/T

| Operation | | Time | pH | CaO | $ZnSO_4$ | NaCN | Z 6 | B 23 | $CuSO_4$ | $SO_2$ | Min A | $K_2Cr_2O_7$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Grind | | 30 min | 6.9 | 2.0 | 1.5 | 0.5 | | | | | | |
| Float | | 5 1/2 | | | | | 0.06 | 0.03 | | | | |
| Float | | 4 1/2 | | | | | 0.04 | 0.03 | 1.0 | | | |
| Cu B Conc: | Agitate | 5 | 2.7 | | | | | | | 1.62 | | |
| | Agitate | 2 | 5.1 | 2.0 | | | | | | | | |
| | Float | 5 | | | | | | 0.03 | | | 0.03 | |
| Zn B Conc: | Agitate | 15 | | | | | | | | | | 2.0 |
| | Float | | 11.3 | 3.0 | | | 0.03 | | | | | |

U. S. BUREAU OF MINES
Albany, Oregon
Mineral Dressing Section
Metallurgical Data

TABLE III

November 14, 1951

Test No. OD 2732
Test Engineer: Vessel
Head No. and Ore: 214 - Silver Peak
Treatment: Ore ground without reagents, and agitated with $SO_2$, followed by CaO. Copper floated in acid circuit. Lime added and zinc floated in alkaline circuit. Copper and zinc concentrates each cleaned once.

| Product | Weight Percent | Assay Percent Cu | Assay Percent Zn | Distribution Percent Cu | Distribution Percent Zn | Albany Assay No. |
|---|---|---|---|---|---|---|
| Copper Conc. | 3.6 | 23.9 | 9.50 | 44.4 | 12.1 | 24155 |
| Copper Clnr Tail | 2.3 | 7.03 | 7.88 | 8.1 | 6.2 | 24156 |
| Zinc Conc. | 10.1 | 6.44 | 21.7 | 33.3 | 77.0 | 24157 |
| Zinc Clnr Tail | 1.8 | 1.80 | 4.73 | 1.7 | 3.0 | 24158 |
| Rougher Tail | 82.1 | 0.30 | 0.06 | 12.5 | 1.7 | 24159 |
| Calculated Head | 99.9 | 1.96 | 2.86 | 100.0 | 100.0 | |
| Assay Head | | 2.07 | 3.01 | | | 23576 |

REAGENT ADDITIONS lb/T

| Operation | Time Minutes | pH | $SO_2$ | CaO | Z 6 | P.O. | NaCN | $CuSO_4$ | Min A |
|---|---|---|---|---|---|---|---|---|---|
| Grind | 30 | | | | | | | | |
| Agitate | 2 1/2 | 4.4 | 21.4 | | | | | | |
| Agitate | 2 1/2 | 5.4 | | 4.0 | | | | | |
| Float (Cu) | | | | | 0.15* | 0.03 | | | |
| Condition | 2 1/2 | | | 18.0 | | | 0.5 | 0.6 | |
| Float (Zn) | 3 | | | | | | | | |
| Clean Cu Conc | 3 | | | | | | | | 0.03 |
| Clean Zn Conc | 2 | | | | | 0.03 | | | |

*Stage fed

U. S. BUREAU OF MINES
Albany, Oregon
Mineral Dressing Section
Metallurgical Data

TABLE IV

November 14, 1951

Test No. O.D. 2746
Test Engineer: Wessel
Head No. and Ore: 214 - Silver Peak - rougher zinc concentrate
Treatment: Zinc recleaner circuit only (See Table II)

The zinc concentrate, once cleaned, was treated with $SO_2$ and CaO, floated with sodium aerofloat and pine oil, and recleaned.

| Product | Weight Percent | Assay Percent Zn | Cu | Au | Ag | Distribution Percent Zn | Cu | Albany Assay No. |
|---|---|---|---|---|---|---|---|---|
| Rough Zinc Conc | 100 | 13.4 | 1.17 | 0.06 | 2.0 | 100.0 | 100.0 | 24700-24703 |
| Final Zinc Conc | 27.5 | 41.7 | 1.55 | 0.06 | 2.8 | 85.5 | 36.4 | 24700 |
| 2nd Recl. Tail | 6.2 | 10.3 | 2.55 | 0.04 | 2.8 | 4.7 | 13.4 | 24701 |
| 1st Recl. Tail | 52.1 | 2.3 | 0.89 | 0.07 | 1.5 | 8.9 | 39.6 | 24702 |
| Cleaner Tail | 14.2 | 0.73 | 0.87 | 0.02 | 2.2 | 0.8 | 10.6 | 24703 |

REAGENT ADDITIONS, lb/T

| Operation | Time Minutes | pH | $K_2Cr_2O_7$ | CaO | Z-6 | $SO_2$ | NaCN | NaAF | P.O. |
|---|---|---|---|---|---|---|---|---|---|
| Agitate | 15 | 6.9 | 2.0 | | | | | | |
| Float | | 11.4 | | 3.0 | 0.03 | | | | |
| Agitate | 5 | | | | | 1.95 | | | |
| Agitate | 3 | | | 4.0 | | | 0.5 | | |
| Float | 5 | 10.4 | | | | | | 0.05 | 0.03 |
| Float | 5 | | | | | | | | 0.03 |

Albany, Oregon
November 14, 1951

COPY

METALLURGICAL REPORT

MEMORANDUM

To: H. G. Poole, Chief, Nonferrous Metals Branch

From: F. H. Floyd, Acting Head, Mineral Dressing Section

Subject: Final report on ore-dressing test work on copper-zinc ore from Silver Peak Property, Douglas County, Oregon.

Summary

This sample was submitted by the Mining Division from their Project 516, with a request for general metallurgical investigation. A sample was submitted by Mr. E. L. Waite from the same property. These samples were practically identical, and the test work herein reported may be considered applicable to both. The investigation indicated the possibility of copper recovery at a fair grade, but the zinc concentrate is difficult to bring up to a market grade, with any reasonable recovery.

Description of the Ore

The ore submitted was sampled for chemical, petrographic, and spectrographic examination, with the following results:

Chemical Analysis

| Oz Per Ton | | Assay Percent | | |
|---|---|---|---|---|
| Au | Ag | Cu | Zn | Fe |
| 0.03 | 1.2 | 2.07 | 3.01 | 5.2 |

Spectrographic Analysis

| | |
|---|---|
| Over 10 percent | Fe |
| 5 to 10 percent | Al, Mn, Si |
| 1 to 5 percent | Cu, Mg, Ba |
| 0.1 to 1 percent | Cr, Pb |
| 0.01 to 0.1 percent | As, Sn, Ni, Ti, Mo, Zr |
| 0.001 to 0.01 percent | Ag, V |

Petrographic Examination

"Our examination showed sphalerite, chalcopyrite, and pyrite, associated with barite, quartz, hydronica, talc, chlorite, and a trace of limonite.

The sphalerite fluoresces salmon pink and occurs as stringers in the barite.

Grinding through 200 mesh will be necessary for maximum liberation."

Flotation Procedures

Rougher Circuits

Ten flotation tests were made on this ore, grinding to 90 percent minus 200 mesh in all cases.

Three general schemes were followed in the test work, which may be summarized as follows:

I. Grinding with pyrite-depressing reagents, and staging xanthate in the subsequent float to take advantage of the natural selectivity between chalcopyrite, sphalerite, and pyrite.

II. Grinding without reagents, and making a bulk sulfide flotation concentrate for subsequent selective flotation.

III. Grinding without reagents, making a rough copper concentrate in an acid circuit, then converting to an alkaline circuit to float a rough zinc concentrate.

Three tests were made using scheme I. The best copper concentrate made contained 84 percent of the copper at a grade of 12 percent. All copper concentrates made by this method, however, contained from 3.5 to 13.5 percent zinc, and accounted for from 25 to 35 percent of that metal.

Approximately 50 percent of the gold and silver present in the ore will report in the copper circuit, in products assaying up to 0.2 oz/T gold and 6 oz/T silver.

Subsequent zinc rougher concentrates ran from 8 to 13 percent zinc, and accounted for from 46 to 71 percent of the total zinc.

Test data is summarized in Table I, and a typical test given in Table II.

Two tests were made using scheme II. These were generally unsatisfactory. A high-grade copper concentrate was made, but with poor recovery and a high zinc content.

Three tests were made using scheme III. One of these was discarded for absence of selectivity. Results were comparable in the other two cases, in one of which sulfuric acid was used, while sulfurous acid was used in the other. Selectivity left something to be desired, as copper was depressed into the zinc circuit; nevertheless a copper concentrate of 17.5 percent Cu was made in one test, with over 50 percent recovery; and in the same test, 80 percent of the zinc was recovered in a 19 percent concentrate.

Data for this test is presented in Table III.

Cleaner Circuit - Zinc

Good zinc metallurgy in the cleaner circuit depends largely on the substantial removal of copper from the rougher circuit before zinc flotation begins.

All zinc cleaning was done in alkaline circuit, at pH values of 10.5 to 11.5. In some cases, the rough zinc concentrate was agitated with $K_2Cr_2O_7$ or $K_4Fe(CN)_6$; the value of these reagents, however, was not evident from the test work. In one case, the rough concentrate was treated with $SO_2$ and CaO and cleaned with sodium aerofloat and pine oil at pH 10.4. In this test, the zinc assay was raised through several steps from 13.4 percent to 41.7 percent while the copper content increased from 1.17 to 1.55.

In general, however, while copper was somewhat more readily dropped from a zinc rougher than vice versa, selectivity of copper and zinc was not very satisfactory in any of these tests. Fair selectivity could be established, however, between sphalerite and pyrite. Data showing the best results achieved are given in Table IV.

CONCLUSIONS

This ore may be best handled by grinding to 200 mesh, with pyrite-depressing reagents such as lime and cyanide, and floating with xanthate and a frother. By staging the xanthate addition, copper may be floated first, and zinc subsequently, leaving 40 percent of the pyrite in the tailing.

This procedure will result in a copper concentrate, containing about half the precious metal content, and making a fair copper recovery. An intermediate grade, low recovery zinc concentrate may be taken from the zinc circuit, although this is of doubtful value economically.

Beneficiation of this ore by flotation will be difficult for several reasons. The ore is a fine-grained massive sulfide, and liberation is not complete even at 90 percent through 200 mesh. Over half the ore is pyrite, which is present in all products and is difficult to depress selectively.

Bulk sulfide flotation, as a preliminary step to selective flotation, is of little value, as no selectivity is apparent in the subsequent treatment. It may prove of some value, however, as a preliminary step to a zinc fuming process, if the latter becomes desirable at a later date.

The results of this test work are representative only of the sample received, and the investigation is considered complete for this sample. No further work is anticipated unless specifically requested.

Sgd/ P.H. Floyd

Test Engineer:
F.W. Wessel
Report Written by:
F.W. Wessel

MF
RF
DF
PHF
Min. Div. (2)
J.D. Bardill (2)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

Acc
Betty

1201 N. Division St.
Spokane 2, Washington
August 4, 1953

Mr. George C. Selfridge, Chairman
Operating Committee, DMEA
Department of the Interior
Washington 25, D. C.

Subject: Docket No. DMEA 2953 (copper)
Pacific Minerals, Inc.
Douglas County, Oregon

Dear Mr. Selfridge:

Attached are 4 copies of a report by R. A. Hagill, U. S. Bureau of Mines, of an examination made in connection with the subject application.

Hagill does not favor the applicant's proposal because of the irregularity of the sheets and the erratic distribution of the ore minerals, but recommends sinking, drifting and short-hole diamond drilling if the application is approved.

As Hagill points out, there is little possibility for immediate production in the event of a discovery because of the metallurgical complications, and the applicant is frank to admit this. He is investigating the possibility of installing facilities for treating the ore by the Sterling electric smelting process, and the proposed exploration is planned to extend the reserves sufficiently to justify such an installation.

Considered on a long range basis the property merits exploration. At present, however, the ore is not commercial and for that reason the Field Team feels that approval or disapproval of the application is a matter of policy for your office to decide. Your decision either way will be satisfactory to us.

By Field Team, Region XI

A. L. Weissenborn, Exec. Officer
U. S. Geological Survey

Thomas R. Howard, Acting Member
U. S. Bureau of Mines

Enclosure

MEMORANDUM July 31, 1953

To: DMEA Field Team, Region II

From: E. A. Magill, Mining Engineer, Bureau of Mines

Subject: Exploration loan application, Pacific Minerals, Inc.
Silver Peak Mine, Douglas County, Oregon
Docket No. DMEA 2953 (copper)

## APPLICANT

The applicant is Pacific Minerals, Inc., P. O. Box 838, Kellogg, Idaho.

## RECOMMENDATIONS

The exploration program as proposed by Pacific Minerals, Inc. for the Silver Peak mine is not considered satisfactory. The apparent low grade of the ore and the as yet unsolved metallurgical problems in making salable concentrates indicate that the possibility for immediate production in the event of a discovery is remote. If DMEA is not concerned with immediate production and can undertake long range possibilities an alternate program of sinking, crosscutting and drifting as indicated in the body of this report is recommended.

## EXAMINATION

The Silver Peak mine was examined on May 19, 1953, by E. A. Magill and Lewis Chichester, U. S. Bureau of Mines, and Gerald Fuller, U. S. Geological Survey. Six hours were spent on the property. There were no company representatives on the examination.

## LOCATION OF PROPERTY

The property is known as the Silver Peak Mine (also as the Silver Butte). It is located in Secs. 23, 26, 27, T. 31 S., R. 6 W., W.M., Silver Peak mining district, Douglas County, Oregon. The nearest town is Riddle, located 12 miles northwest of the mine. The Southern Pacific Railroad serves Riddle. The lowest mine working, No. 4 adit, has its portal at elevation 3327 feet.

The property may be worked all year although there is a period from November to April when snow and mud frequently make the road impassable.

## COMPETENCE OF APPLICANT

There are competent personnel with the applicant's organization who are capable of directing the exploration work.

## PROPERTY RIGHTS

Pacific Minerals, Inc. have consolidated the holdings of the Oregon Exploration Co. and the Silver Butte Mining and Milling Co. (see copies of lease agreements attached to application) and are purchasing the properties under a royalty agreement.

The Silver Butte Mining Co. is the owner of the N 1/2 of the NW 1/4 and the SW 1/4 of the NW 1/4 of Sec. 26, T. 31 S., R. 6 W., W.M. This parcel is known as Reeves Timber Tract.

The Oregon Exploration Co. owns unpatented mining claims located in Secs. 23, 26 and 27, T. 31 S., R. 6 W., W.M., as listed below.

| Claim | Recordation |
|---|---|
| Silver Peak #1 | All claims recorded in Book 10, County Recorder's Office, Douglas County, Oregon |
| Silver Peak #2 | |
| Silver Peak #3 | |
| Silver Peak #4 | |
| Silver Peak #5 | |
| East Silver Peak | |
| Silver Peak Fraction | |
| Lower Silver Peak | |
| Silver Peak Base | |
| Silver Peak North Base | |
| Lower Silver Peak North | |
| Lower Silver Peak #2 | |
| Helen | |
| Iron Dyke No. 1 | |
| Iron Dyke No. 2 | |
| Iron Dyke No. 3 | |
| Banner | |
| Canyon | |
| South Bound | |
| Victory Tunnel Site | |
| Oregon Tunnel Site | |

## DESCRIPTION OF PROPERTY

Surface facilities consist of several log cabins in a poor state of repair and an Ingersoll-Rand Model 10 (500 cfm) air compressor driven by a 2-cylinder Fairbanks Morse diesel engine.

The existing mine workings (see maps accompanying application) consist mainly of two long crosscuts, No. 3 and No. 4, with about 420 feet of drifting on the structure on No. 3 level and about 460 feet of drifting on the structure on No. 4 level. The crosscutting and drifting on these two levels total about 2,685 feet, all of which was done prior to 1937 excepting 110 feet which was driven in 1952. Above these levels are

levels designated as No. 2 and No. 1, along with a number of crosscuts and open cuts driven during the early exploration of the property.

## GEOLOGY

The geology of the deposit has been described by Philip J. Shenon in U. S. Geological Survey Circular 2, "Copper Deposits in the Squaw Creek and Silver Peak Districts and at the Almeda Mine, Southwestern Oregon."

Pyrite, chalcopyrite and sphalerite occur in massive tabular bodies and disseminations in a highly foliated schist which strikes N. 40° E. and dips 60° southeast. The schist zone is over 100 feet wide with the lenses of massive pyrite and associated sulfides localized near the hanging and footwalls. The pyrite lenses are offset by faults and vary in dip.

On the maps accompanying the application the pyrite lenses appear to be more veinlike than actually is the case. It appears that they should be considered more as lenses within a zone. Therefore, any exploration work should explore the width of the zone.

The property was examined in 1942 by O. H. Metzger, U. S. Bureau of Mines. In a War Minerals Report, Metzger estimates 28,000 tons of indicated ore above the No. 3 and No. 4 levels. His samples from these levels averaged 1.77 percent copper and 4.5 percent zinc. Metzger states: "Zinc assays ranged from 0.17% to 18.6%. They are, therefore, probably erratic and the average of 4.5% may be much higher than the average for run of mine ore." A copy of an assay map prepared by Metzger is attached. The samples taken by the DMEA examining team on May 19, 1953 are noted on this map.

## PAST OPERATIONS

The property was first discovered in 1910 by Robert Thomason. In 1912, J. E. Reeves purchased a patented timber claim adjoining the original discovery on which a large portion of the ore was later developed. Little work was done until 1920, when the Oregon Exploration Co. located mineral claims over part of the timber claim. From 1922 to 1929 the property was in litigation, but during this period and in the following year 3,256 tons of ore was shipped. In 1929 the Oregon Exploration Co. was reorganized as the Umpqua Consolidated Mining Co. This company shipped one 38-ton car of ore in 1930. The property was idle from 1930 to 1937.

During 1937 and 1938 the property was active and some 3,329 tons of ore was shipped.

The applicants claim a total production of 6,918 tons of ore with an average assay of 0.114 oz. per ton gold, 17.23 oz. per ton silver, and 7.41 percent copper. The last 3,151 tons shipped had an average zinc

content of 6.25 percent. Zinc was not paid for prior to this. These tonnage and grade figures are not substantiated in other available reports on the property.

Production figures compiled by V. C. Heikes of the U. S. Bureau of Mines as given in Shenon's report are tabulated below:

| Year | Tons ore produced | Ounces per ton | | Percent | |
|---|---|---|---|---|---|
| | | Gold | Silver | Copper | Zinc |
| 1926 | 389 | 0.12 | 7.3 | 6.0 | |
| 1928 | 937 | 0.044 | 2.7 | 6.7 | |
| 1929 | 1666 | 0.07 | 3.6 | 5.6 | |
| 1930 | 264 | 0.057 | 3.0 | 4.4 | |
| 1930 | 38 | 0.24 | 2.2 | 3.9 | |

Later production as given in a report by Alex Smith is tabulated below.

| | | | | | |
|---|---|---|---|---|---|
| 1936-1937 | 3090 | 0.083 | 3.03 | 5.5 | 6.3 |
| Total | 6384 | 0.076 | 3.40 | 5.65 | |

The property was inactive from 1937 until 1952 when the applicant, Pacific Minerals, Inc., drove a 110-foot crosscut on the No. 4 level. The property is inactive at present.

## MANPOWER AND SUPPLIES

Manpower and supplies are available in the Riddle area. Wages are high due to the logging industry and the construction work being carried on by Hanna Co. in developing the Riddle Mountain nickel project.

The mine makes sufficient water for exploration purposes.

Power will have to be supplied by diesel or gasoline engines.

## APPLICANT'S PROPOSAL

The work proposed by the applicant is:

1. Extend the No. 4 level main crosscut 150 feet into the hanging wall.

2. Drill 5 holes from the crosscut to intersect the ore zone at 60,130, and 230 feet below the No. 4 level.

3. Drill 3 horizontal holes from the No. 4 level under the No. 3 level to explore for the downward extension of the ore body exposed on the No. 3 level.

4. Drill 4 holes below the No. 4 level from the diamond drill station already cut.

5. If the drilling in paragraph 4 is successful, extend the crosscut another 100 feet into the hanging wall and drill two deeper holes from that position.

Maps accompanying the application illustrate this program.

The exploration program as proposed by the applicant is not considered by the examining team as the most economical. Because the ore zone dips into the hill, it is necessary for the purpose of diamond drilling to crosscut into the hanging wall for drill stations. Applicant proposes 13 diamond drill holes at a total cost of over $50,000, giving a cost of $12.67 per foot, including crosscutting, stations, supervision, and other items. Over half of these holes would not have good intersection angles, or would intersect the ore zone too near existing workings. Inasmuch as the sulfide lenses are irregular and faulted, drill holes through the zone might not give a true picture as to mineralization.

It appears that with this irregular type of ore body more information could be obtained by drifting and crosscutting on the ore zone. Drifting and crosscutting would give a better picture as to the mineralization and a better opportunity for sampling. Sampling is especially important because it appears from the assay maps accompanying the application that the ore minerals are erratic. If exploration on the property is considered it is believed that drifting on the No. 4 level southward under the No. 3 level ore body, along with sinking the existing 40-foot winze to the 100-foot level, followed by 300 feet of drifting on that level would be much more feasible. It would be desirable to prospect the footwall of the ore zone on the 100-foot level by a series of short diamond drill holes. A program of this type could be carried out at a cost of about $34,750, as shown on the attached cost estimate, and would give much more detailed information than the program proposed by the applicant.

## DISCUSSION

There are several factors which must be kept in mind when making an evaluation of this property.

1. Difficulty has been encountered in obtaining good recoveries in milling the ore. A series of ore dressing tests (see copies attached) were carried out in 1951 by P. H. Floyd, Acting Head, Minerals Dressing Section, U. S. Bureau of Mines, Region II. These tests indicated that the ore would have to be ground to minus 200 mesh, and that liberation was not complete even at this fine grind. Undesirable zinc and copper concentrates were produced in the tests.

2. The grade of the deposit is too low for direct shipping (see attached assay map). By hand sorting the richest portions of the deposit the shipments assayed: gold 0.076 oz. per ton, silver 3.40 oz. and copper 5.65 percent. This gives a gross value at present prices of $33.90 per ton, not taking into consideration the penalty which would be charged by the copper smelter for over 5 percent zinc content. Ore such as was shipped to the smelter in the past could not be shipped at a profit under present conditions.

3. In a milling operation it is possible that the pyrite could be recovered and would partially offset the poor recoveries of the other constitutents.

4. Though no testing has been done it is very probable that the ore or a bulk sulfide flotation concentrate would be amenable to the Sterling process. If such a plant were available in the area or if the applicant could increase the ore reserves sufficiently to justify construction of one, the deposit would have definite commercial possibilities.

Distribution:
DMEA, Wash. (4)✓
USGS (2)
USBM (6)

E. A. Magill

# COST ESTIMATE

## Unit Costs

| | | |
|---|---|---|
| 1. | Diamond drilling - 500 ft. @ $7.50/ft. | $ 3,750. |
| 2. | Rehabilitation and repair of existing winze - 40 ft. @ $20/ft. | 800. |
| 3. | Sink 60 ft. of winze and 15 ft. of sump - 75 ft. @ $100/ft. | 7,500. |
| 4. | 300 feet of drifting and crosscutting on 100 level @ $45/ft. | 13,500. |
| 5. | 150 ft. of drifting southward on No. 4 level under No. 3 level ore body @ $40/ft. | 6,000. |
| 6. | 100 level winze station and dump - 1 job @ | 500. |
| | Total | $32,050. |

## Actual Costs

| | | |
|---|---|---|
| 1. | Winze station on No. 4 adit level - 1000 cu.ft. @ $1/cu.ft., including all costs of breaking, mucking, timbering, and installation of equipment, chute, etc. | $ 1,000. |
| 2. | Rehabilitation and repair of existing buildings for change house and shop-storehouse | 500. |
| 3. | Rehabilitation and repair of air hoist and purchase of 200 feet of 5/8" hoist rope | 150. |
| 4. | Assaying 100 samples @ $5.00 | 500. |
| 5. | Contingencies | 150. |
| | Estimated total actual costs | $ 2,300. |
| | Estimated total cost of project | $34,750. |

U. S. BUREAU OF MINES
ALBANY, OREGON

Mineral Dressing Section

TABLE I

Summary of Results of Selective Flotation on Silver Peak Ore, Utilizing Pentasol Amyl Xanthate as Collector.

| Test No. | OD 2736 | OD 2746 | OD 2756 |
|---|---|---|---|
| Reagents in grind, lb/T | | | |
| CaO | 2.0 | 2.0 | 2.0 |
| $ZnSO_4$ | 1.0 | 1.5 | 3.0 |
| $Na_2SO_3$ | 1.0 | --- | --- |
| NaCN | --- | 0.5 | 1.0 |
| Rough Copper concentrate | | | |
| Collector used, lb/T | 0.06 | 0.06 | 0.09 |
| Percent Weight | 36.0 | 13.6 | 12.2 |
| Analysis: Copper, percent | 4.78 | 12.02 | 13.26 |
| Zinc, percent | 3.45 | 8.25 | 7.18 |
| Iron, percent | --- | --- | 33.63 |
| Distribution: Copper, percent | 73.5 | 34.1 | 79.6 |
| Zinc, percent | 35.8 | 32.5 | 25.7 |
| Rough Zinc Concentrate | | | |
| Collector used, lb/T | 0.04 | 0.04 | 0.07 |
| Percent weight | 18.3 | 11.9 | 31.5 |
| Analysis: Copper, percent | 2.80 | 1.17 | 0.94 |
| Zinc, percent | 11.37 | 13.40 | 7.70 |
| Iron, percent | --- | --- | 37.8 |
| Distribution: Copper, percent | 22.0 | 6.4 | 14.6 |
| Zinc, percent | 60.2 | 46.5 | 71.1 |
| Tailing | | | |
| Analysis: Copper, percent | 0.23 | 0.23 | 0.21 |
| Zinc, percent | 0.31 | 0.97 | 0.19 |
| Distribution: Copper, percent | 4.5 | 8.8 | 5.8 |
| Zinc, percent | 4.0 | 20.9 | 3.2 |

U. S. BUREAU OF MINES
Albany, Oregon
Mineral Dressing Section
Metallurgical Data

TABLE II

November 14, 1951

Test No. OD 2746
Test Engineer: Wessel
Head No. and Ore: 214 - Silver Peak
Treatment: Locked flotation test, 3-cycles. Ore ground to 90% - 200 mesh; rough copper float made with Z6 and B 23; rough zinc float made on copper tailing with Z6, B 23 and $CuSO_4$. Rough copper concentrate cleaned, cleaner tail reground, and returned to primary copper float. Rough zinc concentrate cleaned, cleaner tail returned to primary zinc float.

| Product | Weight Percent | Assay Percent Cu | Assay Percent Zn | Distribution Percent Cu | Distribution Percent Zn | Albany Assay No. |
|---|---|---|---|---|---|---|
| Copper Clnr. Conc | 7.7 | 16.9 | 10.8 | 67.2 | 24.3 | 24697-24698 |
| Copper Clnr. Tail | 5.9 | 5.60 | 4.82 | 16.9 | 8.2 | 24699 |
| Zinc Clnr. Conc | 10.2 | 1.22 | 15.5 | 6.4 | 46.1 | 24700 |
| Zinc Clnr. Tail | 1.7 | 0.87 | 0.73 | 0.8 | 0.4 | 24701-24703 |
| Rougher Tail | 74.4 | 0.23 | 0.97 | 8.8 | 20.9 | 24704 |
| Calculated Head | 99.9 | 1.95 | 3.45 | 100.1 | 99.9 | |
| Assayed Head | | 2.07 | 3.01 | | | 23576 |

Reagent Additions, lb/T

| Operation | | Time | pH | CaO | $ZnSO_4$ | NaCN | Z-6 | B 23 | $CuSO_4$ | $SO_2$ | MIBA | $K_2Cr_2O_7$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Grind | | 30 min | 6.9 | 2.0 | 1.5 | 0.5 | | | | | | |
| Float | | 5 1/2 | | | | | 0.06 | 0.03 | | | | |
| Float | | 4 1/2 | | | | | 0.04 | 0.03 | 1.0 | | | |
| Cu R Conc: | Agitate | 5 | 2.7 | | | | | | | 1.62 | | |
| | Agitate | 2 | 5.1 | 2.0 | | | | | | | | |
| | Float | 5 | | | | | | 0.03 | | | 0.03 | |
| Zn R Conc: | Agitate | 15 | | | | | | | | | | 2.0 |
| | Float | | 11.3 | 3.0 | | | 0.05 | | | | | |

U. S. BUREAU OF MINES
Albany, Oregon
Mineral Dressing Section
Metallurgical Data

TABLE II

November 15, 1951

Test No: OD 2746
Test Engineer: Wessel
Head No. and Ore: 214 - Silver Peak
Treatment: Locked flotation test, 3 cycles. Ore ground to 90 percent - 200 mesh; rough copper float made with Z 6 and B 23; rough zinc float made on copper tailing with Z 6, B 23, and $CuSO_4$. Rough copper concentrate cleaned, cleaner tail returned to primary zinc float.

| Product | Weight Percent | Assay Percent Cu | Zn | Au | Ag | Distribution Percent Cu | Zn | Au | Ag | Albany Assay No. |
|---|---|---|---|---|---|---|---|---|---|---|
| Copper Clnr. Conc. | 7.7 | 16.9 | 10.8 | 0.17 | 6.0 | 67.2 | 24.3 | 28.9 | 36.6 | 24697-24698 |
| Copper Clnr Tail | 5.9 | 5.60 | 4.82 | 0.19 | 3.2 | 16.9 | 8.2 | 24.1 | 14.8 | 24699 |
| Zinc Clnr Conc. | 10.2 | 1.22 | 15.5 | 0.065 | 2.0 | 6.4 | 46.1 | 14.3 | 16.3 | 24700 |
| Zinc Clnr Tail | 1.7 | 0.87 | 0.73 | 0.02 | 2.2 | 0.8 | 0.4 | 0.7 | 3.0 | 24701-24703 |
| Rougher Tail | 74.4 | 0.23 | 0.97 | 0.02 | 0.5 | 8.8 | 20.9 | 32.1 | 29.4 | 24704 |
| Calculated Head | 99.9 | 1.95 | 3.45 | 0.046 | 1.27 | 100.1 | 99.9 | 100.1 | 100.1 | |
| Assayed Head | | 2.07 | 3.01 | 0.03 | 1.2 | | | | | 23576 |

REAGENT ADDITIONS, lb/T

| Operation | Time | pH | CaO | $ZnSO_4$ | NaCN | Z 6 | B 23 | $CuSO_4$ | $SO_2$ | Min A | $K_2Cr_2O_7$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Grind | 30 min | 6.9 | 2.0 | 1.5 | 0.5 | | | | | | |
| Float | 5 1/2 | | | | | 0.06 | 0.03 | | | | |
| Float | 4 1/2 | | | | | 0.04 | 0.03 | 1.0 | | | |
| Cu R Conc: Agitate | 5 | 2.7 | | | | | | | 1.62 | | |
| Agitate | 2 | 5.1 | 2.0 | | | | | | | | |
| Float | 5 | | | | | | 0.03 | | | 0.03 | |
| Zn R Conc: Agitate | 15 | | | | | | | | | | 2.0 |
| Float | | 11.3 | 3.0 | | | 0.03 | | | | | |

U. S. BUREAU OF MINES
Albany, Oregon
Mineral Dressing Section
Metallurgical Data

TABLE III

November 14, 1951

Test No. 9D 2732
Test Engineer: Wessel
Head No. and Ore: 214 - Silver Peak
Treatment: Ore ground without reagents, and agitated with $SO_2$, followed by CaO. Copper floated in acid circuit. Lime added and zinc floated in alkaline circuit. Copper and zinc concentrates each cleaned once.

| Product | Weight Percent | Assay Percent Cu | Assay Percent Zn | Distribution Percent Cu | Distribution Percent Zn | Albany Assay No. |
|---|---|---|---|---|---|---|
| Copper Conc. | 3.6 | 23.9 | 9.50 | 44.4 | 12.1 | 24155 |
| Copper Clnr Tail | 2.3 | 7.03 | 7.88 | 8.1 | 6.2 | 24156 |
| Zinc Conc. | 10.1 | 6.44 | 21.7 | 33.3 | 77.0 | 24157 |
| Zinc Clnr Tail | 1.8 | 1.80 | 4.73 | 1.7 | 3.0 | 24158 |
| Rougher Tail | 82.1 | 0.30 | 0.06 | 12.5 | 1.7 | 24159 |
| Calculated Head | 99.9 | 1.96 | 2.86 | 100.0 | 100.0 | |
| Assay Head | | 2.07 | 3.01 | | | 23576 |

REAGENT ADDITIONS lb/T

| Operation | Time Minutes | pH | $SO_2$ | CaO | Z 6 | P.O. | NaCN | $CuSO_4$ | Min A |
|---|---|---|---|---|---|---|---|---|---|
| Grind | 30 | | | | | | | | |
| Agitate | 2 1/2 | 4.4 | 21.4 | | | | | | |
| Agitate | 2 1/2 | 5.4 | | 4.0 | | | | | |
| Float (Cu) | | | | | 0.15* | 0.03 | | | |
| Condition | 2 1/2 | | | 18.0 | | | 0.5 | 0.6 | |
| Float (Zn) | 3 | | | | | | | | |
| Clean Cu Conc | 3 | | | | | | | | 0.03 |
| Clean Zn Conc | 2 | | | | | 0.03 | | | |

*Stage fed

U. S. BUREAU OF MINES
Albany, Oregon
Mineral Dressing Section
Metallurgical Data

TABLE IV

November 14, 1951

Test No. O.D. 2746
Test Engineer: Wessel
Head No. and Ore: 214 - Silver Peak - rougher zinc concentrate
Treatment: Zinc recleaner circuit only (See Table II)

The zinc concentrate, once cleaned, was treated with $SO_2$ and CaO, floated with sodium aerofloat and pine oil, and recleaned.

| Product | Weight Percent | Assay Percent Zn | Cu | Au | Ag | Distribution Percent Zn | Cu | Albany Assay No. |
|---|---|---|---|---|---|---|---|---|
| Rough Zinc Conc | 100 | 13.4 | 1.17 | 0.06 | 2.0 | 100.0 | 100.0 | 24700-24703 |
| Final Zinc Conc | 27.5 | 41.7 | 1.55 | 0.06 | 2.8 | 85.5 | 36.4 | 24700 |
| 2nd Recl. Tail | 6.2 | 10.3 | 2.55 | 0.04 | 2.8 | 4.7 | 13.4 | 24701 |
| 1st Recl. Tail | 52.1 | 2.3 | 0.89 | 0.07 | 1.5 | 8.9 | 39.6 | 24702 |
| Cleaner Tail | 14.2 | 0.73 | 0.87 | 0.02 | 2.2 | 0.8 | 10.6 | 24703 |

REAGENT ADDITIONS, lb/T

| Operation | Time Minutes | pH | $K_2Cr_2O_7$ | CaO | Z-6 | $SO_2$ | NaCN | NaAF | P.O. |
|---|---|---|---|---|---|---|---|---|---|
| Agitate | 15 | 6.9 | 2.0 | | | | | | |
| Float | | 11.4 | | 3.0 | 0.03 | | | | |
| Agitate | 5 | | | | | 1.95 | | | |
| Agitate | 3 | | | 4.0 | | | 0.5 | | |
| Float | 5 | 10.4 | | | | | | 0.05 | 0.03 |
| Float | 5 | | | | | | | | 0.03 |

Albany, Oregon
November 14, 1951

C
O
P
Y

METALLURGICAL REPORT

MEMORANDUM

To: H. G. Poole, Chief, Nonferrous Metals Branch

From: P. H. Floyd, Acting Head, Mineral Dressing Section

Subject: Final report on ore-dressing test work on copper-zinc ore from Silver Peak Property, Douglas County, Oregon.

## Summary

This sample was submitted by the Mining Division from their Project 516, with a request for general metallurgical investigation. A sample was submitted by Mr. E. L. Waite from the same property. These samples were practically identical, and the test work herein reported may be considered applicable to both. The investigation indicated the possibility of copper recovery at a fair grade, but the zinc concentrate is difficult to bring up to a market grade, with any reasonable recovery.

## Description of the Ore

The ore submitted was sampled for chemical, petrographic, and spectrographic examination, with the following results:

### Chemical Analysis

| Oz Per Ton | | Assay Percent | | |
|---|---|---|---|---|
| Au | Ag | Cu | Zn | Ba |
| 0.03 | 1.2 | 2.07 | 3.01 | 5.2 |

### Spectrographic Analysis

| | |
|---|---|
| Over 10 percent | Fe |
| 5 to 10 percent | Al, Mn, Si |
| 1 to 5 percent | Cu, Mg, Ba |
| 0.1 to 1 percent | Ca, Pb |
| 0.01 to 0.1 percent | As, Ni, Mn, Ti, Mo, Zr |
| 0.001 to 0.01 percent | Ag, V |

Petrographic Examination

"Our examination showed sphalerite, chalcopyrite, and pyrite, associated with barite, quartz, hydromica, talc, chlorite, and a trace of limonite.

The sphalerite fluoresces salmon pink and occurs as stringers in the barite.

Grinding through 200 mesh will be necessary for maximum liberation."

Flotation Procedures

Rougher Circuits

Ten flotation tests were made on this ore, grinding to 90 percent minus 200 mesh in all cases.

Three general schemes were followed in the test work, which may be summarized as follows:

I. Grinding with pyrite-depressing reagents, and staging xanthate in the subsequent float to take advantage of the natural selectivity between chalcopyrite, sphalerite, and pyrite.

II. Grinding without reagents, and making a bulk sulfide flotation concentrate for subsequent selective flotation.

III. Grinding without reagents, making a rough copper concentrate in an acid circuit, then converting to an alkaline circuit to float a rough zinc concentrate.

Three tests were made using scheme I. The best copper concentrate made contained 84 percent of the copper at a grade of 12 percent. All copper concentrates made by this method, however, contained from 3.5 to 13.5 percent zinc, and accounted for from 25 to 35 percent of that metal.

Approximately 50 percent of the gold and silver present in the ore will report in the copper circuit, in products assaying up to 0.2 oz/T gold and 6 oz/T silver.

Subsequent zinc rougher concentrates ran from 8 to 13 percent zinc, and accounted for from 46 to 71 percent of the total zinc.

Test data is summarized in Table 1, and a typical test given in Table II.

Two tests were made using scheme II. These were generally unsatisfactory. A high-grade copper concentrate was made, but with poor recovery and a high zinc content.

Three tests were made using scheme III. One of these was discarded for absence of selectivity. Results were comparable in the other two cases, in one of which sulfuric acid was used, while sulfurous acid was used in the other. Selectivity left something to be desired, as copper was depressed into the zinc circuit; nevertheless a copper concentrate of 17.5 percent Cu was made in one test, with over 50 percent recovery; and in the same test, 80 percent of the zinc was recovered in a 19 percent concentrate.

Data for this test is presented in Table III.

Cleaner Circuit - Zinc

Good zinc metallurgy in the cleaner circuit depends largely on the substantial removal of copper from the rougher circuit before zinc flotation begins.

All zinc cleaning was done in alkaline circuit, at pH values of 10.5 to 11.5. In some cases, the rough zinc concentrate was agitated with $K_2Cr_2O_7$ or $K_4Fe(CN)_6$; the value of these reagents, however, was not evident from the test work. In one case, the rough concentrate was treated with $SO_2$ and CaO and cleaned with sodium aerofloat and pine oil at pH 10.4. In this test, the zinc assay was raised through several steps from 13.4 percent to 41.7 percent while the copper content increased from 1.17 to 1.55.

In general, however, while copper was somewhat more readily dropped from a zinc rougher than vice versa, selectivity of copper and zinc was not very satisfactory in any of these tests. Fair selectivity could be established, however, between sphalerite and pyrite. Data showing the best results achieved are given in Table IV.

CONCLUSIONS

This ore may be best handled by grinding to 200 mesh, with pyrite-depressing reagents such as lime and cyanide, and floating with xanthate and a frother. By staging the xanthate addition, copper may be floated first, and zinc subsequently, leaving 40 percent of the pyrite in the tailing.

This procedure will result in a copper concentrate, containing about half the precious metal content, and making a fair copper recovery. An intermediate grade, low recovery zinc concentrate may be taken from the zinc circuit, although this is of doubtful value economically.

Beneficiation of this ore by flotation will be difficult for several reasons. The ore is a fine-grained massive sulfide, and liberation is not complete even at 90 percent through 200 mesh. Over half the ore is pyrite, which is present in all products and is difficult to depress selectively.

Bulk sulfide flotation, as a preliminary step to selective flotation, is of little value, as no selectivity is apparent in the subsequent treatment. It may prove of some value, however, as a preliminary step to a zinc fuming process, if the latter becomes desirable at a later date.

The results of this test work are representative only of the sample received, and the investigation is considered complete for this sample. No further work is anticipated unless specifically requested.

Sgd/ P.H. Floyd

Test Engineer:
F.W. Wessel
Report Written by:
F.W. Wessel

MF
RF
DF
PHF
Min. Div. (2)
J.D. Bardill (2)

FILE COPY
SURNAME:

Mr. Selfridge.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
WASHINGTON 25, D. C.

Mr. C. E. Reissenborn
Executive Officer
DMEA Field Team, Region II
South 157 Howard Street
Spokane 8, Washington

APR 9 1953

J.C. 4/9/53

Re: Docket No. DMEA-2953 (Copper)
Pacific Minerals, Inc.
Reeves Timber Tract
Douglas County, Oregon

Dear Mr. Reissenborn:

Reference is made to Mr. Hillsgaard's letter of March 23, 1953, with which the above-captioned application was transmitted to Washington. Inasmuch as your office planned to have field examiners in the vicinity of this property the latter part of March who would contact the applicant and attempt to make an examination of the property, we will take no further action on this application until we receive the report and recommendations of the Field Team.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (JHB)

CONCUR:

J. H. Hedges (JHB)
Member, Bureau of Mines

A. R. Kinkel, Jr. (JHB)
Member, Geological Survey

GLAult/EWEllis/gla
4-6-53
cc to: Adm. Reading File
Operating Committee
Docket
DMEA Field Team, Region II
Messrs. ARKinkel, Jr., Rm. 4234 GSA
CHJohnson, Rm. 3621
Ellis

4/7/53 gla

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

April 7, 1953

Memorandum

Re: IMEA-2953
Pacific Minerals, Inc.
Douglas County, Oregon
$50,702.55
Copper

To: Mr. E. Wm. Ellis

From: E. L. Newcomb

Subject: Review of application

The field team has retained one copy of the application to facilitate a field examination of the Silver Peak property. They plan to contact the applicant and examine the property during the week, March 30 to April 3, 1953.

We are retaining our copy of the application and will further review the proposed work after we receive the field team examination report.

E. L. Newcomb
E. L. Newcomb
Geologist

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

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E. L. Newcomb
Geologist

4/10/53 gla

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
~~WASHINGTON 25, D. C.~~

1201 North Division Street
Spokane 2, Washington

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
APR 9 1953

April 1, 1953

Pacific Minerals, Inc.
P. O. Box 838
Kellogg, Idaho

Attention: Robert H. Svendsen

Subject: Field examination,
Pacific Minerals, Inc. (Silver
Peak mine, Douglas County, Ore.)
Docket No. DMEA 2953

Dear Mr. Svendsen:

This will acknowledge receipt of your letter of March 19, 1953 with the key for the No. 4 portal of the subject property.

Unfortunately snow conditions at the property were such that it was necessary for our engineer to postpone the examination. You will be informed as soon as another date is set. If it is at all possible, we should like to have a representative from your organization on the property at the time of the examination.

The key to No. 4 portal is being retained pending an examination.

Sincerely yours,

Thomas E. Howard
Chief, DMEA Section
Bureau of Mines, Region II

EAM/TEH/vf

cc: DMEA Wash. - 2
USGS - 2
DMEA
EAM
D/F

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
~~WASHINGTON 25, D. C.~~

1201 North Division Street
Spokane 2, Washington

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
APR 9 1953

April 1, 1953

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P. O. Box 838
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Thomas E. Howard
Chief, DMEA Section
Bureau of Mines, Region II

EAM/TEH/vf

cc: DMEA Wash. - 2
USGS - 2
DMEA
EAM
D/F

4/15/53 gla

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
~~WASHINGTON 25, D. C.~~

1201 North Division Street
Spokane 2, Washington

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
APR 9 1953

March 31, 1953

MEMORANDUM

To: DMEA Field Team, Region II

From: E. A. Magill, Mining Engineer

Subject: Field examination Pacific Minerals Inc. (Silver Peak Mine), Douglas County, Oregon, DMEA Docket No. 2953

A field examination in regard to the subject application was scheduled for March 26, 1953. However, due to weather conditions, it has been necessary to postpone it for a period of from three weeks to a month.

Mr. White of the State of Oregon Division of Mines and Geology stationed in Grants Pass was contacted by phone on March 24. He stated that several men had attempted to reach the property on March 22 but were unable to do so because of the depth of snow on the road.

Arrangements have been made with Mr. Appling, U.S.B.M., who is stationed at Grants Pass, Oregon to advise us as soon as weather conditions are favorable for an examination of the property.

The applicant will be informed that the examination was not made as intended and a request made that the applicant have a representative on the property at the time of the examination. The applicant had not intended to have a representative at the property on the March 26 examination.

E A Magill
E. A. Magill

Orig. & 3 - Wash.
USGS - 2
DMEA
M/D
EAM/vf

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
~~WASHINGTON 25, D. C.~~

1201 North Division Street
Spokane 2, Washington

March 31, 1953

[illegible]

To: DMEA Field Team, Region II

From: E. A. Nagill, Mining Engineer

Subject: Field examination Pacific Minerals Inc. (Silver Peak Mine), Douglas County, Oregon, DMEA Docket No. 2953

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E. A. Nagill

Orig. & 3 - Wash.
USGS - 2
DMEA
/D
EAN/vf

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

March 27, 1953

Memorandum

To: Executive Officer, DMEA Field Team, Region II

From: Chief, Operation's Control and Statistics Division

Subject: Assignment of Docket Number

There is listed below the assigned docket number to an application recently received from Region II.

DMEA-2953 Pacific Minerals, Inc.

ROBERT E. ADAMS

Robert E. Adams,
Chief, Operation's Control
and Statistics Division

33980

March 27, 1953

Mr. Wayne A. Brainard, Pres.
Pacific Minerals, Inc.
P. O. Box 838
Kellogg, Idaho

DMEA-2953
Subject: Exploration Assistance
Reeves Timber Tract

My dear Mr. Brainard:

The receipt of your application dated March 5, 1953 for exploration assistance under the Defense Production Act of 1950, as amended, is hereby acknowledged.

Your application has been assigned Docket Number DMEA-2953 and referred to the Rare and Miscellaneous Metals Division.

Kindly refer to DMEA-2953 in any future correspondence relating to your application.

Sincerely yours,

ROBERT E. ADAMS

Robert E. Adams, Chief
Operations Control and
Statistics Division

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D.C.
No. 157 Howard Street
Spokane 1, Washington

March 23, 1953

Mr. George W. Pelfridge, Chairman
Operating Committee, DMEA
Department of the Interior
Washington 25, D. C.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 30 1953

Dear Mr. Pelfridge:

Enclosed are the original and two copies of a DMEA application submitted by the Pacific Minerals, Inc., on the Silver Peak property, Douglas County, Oregon. The maps accompanying this application are too bulky to package and are, consequently, being forwarded under separate cover. One copy of the application is being retained at this office.

A DMEA examining team expects to be in Western Oregon during the week, March 30 to April 3, 1953. At that time they will contact the applicant and attempt to make an examination of the property. The Operating Committee will be advised of any action taken by the examining team.

Sincerely yours,

Thor C. Killsgaard
for F. J. Volin
Acting Executive Officer, DMEA
Field Team, Region II

Enclosure
cc: Sep. Cover(w/maps)
DMB(2)
Fuller

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
~~WASHINGTON 25, D.C.~~
So. 157 Howard Street
Spokane 4, Washington

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 26 1953

March 23, 1953

Mr. George C. Selfridge, Chairman
Operating Committee, DMEA
Department of the Interior
Washington 25, D. C.

Dear Mr. Selfridge:

Enclosed are the original and two copies of a DMEA application submitted by the Pacific Minerals, Inc., on the Silver Peak property, Douglas County, Oregon. The maps accompanying this application are too bulky to package and are, consequently, being forwarded under searate cover. One copy of the application is being retained at this office.

A DMEA examining team expects to be in Western Oregon during the week, March 30 to April 3, 1953. At that time they will contact the applicant and attempt to make an examination of the property. The Operating Committee will be advised of any action taken by the examining team.

Sincerely yours,

Thor H. Kiilsgaard

Thor H. Kiilsgaard
for M. E. Volin
Acting Executive Officer, DMEA
Field Team, Region II

Enclosure
cc: Sep. Cover(w/maps)
USBM(2)
Fuller

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MAR 6 1953
U. S. G. S.
SPOKANE, WASH.

# PACIFIC MINERALS, INC.

INDEX:

Form MF-103
Supplementary Sheets to MF-103 Pages 1 thru 4
Estimated Total Cost of the Project Pages 5,6,7,8
and Supporting Figures

Former Reports - Phillip J. Shenon
"Synopsis" - A compilation by Alex Smith for Ventures, Limited - includes report to ASARCO by Louis Levensaler, and report by F. Cushing Moore.

Metallurgical Report - by George H. Wigton.
Report and Recommendations - by H. Grattan Lynch
Report - by George Jamme

Copy of Contract with Silver Peak Mines Co.
" " " " Oregon Exploration Co.
and H. T. Meaney Estate.

Subordination Agreement with Silver Peak Mines Co.
" " " Oregon Exploration Co.

MAPS:

Key Map showing the Location of Pacific Minerals, Inc.

Claim Map - 1" = 600'

Composite Map of Levels with Assays - 1" = 40'
" " " " " " - 1" = 40'

Longitudinal Section A-A with Assays -1" = 40'

#3 Level with Geology and Proposed Diamond Drill Holes -1" = 40'

#4 Level with Geology and Proposed Diamond Drill Holes -1" = 40'

Section B-B with Geology and Proposed Diamond Drill Holes -1" = 40'

Section C-C with Geology and Proposed Diamond Drill Holes -1" = 40'

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 26 1953

Form Approved
Budget Bureau No. 42-R1035.2.

# APPLICATION FOR AID IN AN EXPLORATION PROJECT, PURSUANT TO DMEA ORDER 1, UNDER THE DEFENSE PRODUCTION ACT OF 1950, AS AMENDED

*Not to be filled in by applicant*

Docket No. DMEA-2953
Metal or Mineral
Date Received 3-26-53
Estimated Cost
Participation (Government %)

## INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: Pacific Minerals, Inc. An Idaho corporation.
P. O. Box 838
Kellogg, Idaho

(*b*) If other than an individual, add to your name above whether a corporation, partnership, etc., and the name of the State in which incorporated or otherwise organized.

(*c*) If a corporation, add to above statement, titles, names and addresses of officers. See attached sheet.

(*d*) If a partnership, add to the above statement the names and addresses of all partners.

2. *General.*—Read DMEA Order 1, "Government Aid in Defense Exploration Projects," before completing this application. Submit this application and all accompanying papers in quadruplicate (four copies), with your name and address on each sheet of the application and on all accompanying papers. Where sufficient space is not provided on the form for all required information, state it on an accompanying paper, with a reference in each case to the instruction to which it refers by number. Comply with all applicable instructions; or, if not applicable, so state. File the application with Defense Minerals Exploration Administration, Department of the Interior, Washington 25, D. C., or with the nearest field executive officer thereof.

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract

(*b*) State any mine name by which the property is known.

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise

(*d*) If you are not the owner, submit with this application a copy of the lease, contract, or other document under which you control the property.

(*e*) If you own the land, describe any liens or encumbrances on it

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice.

4. *Physical description.*—(*a*) Describe in detail any mining or exploration operations which have been or now are being conducted upon the land, including existing mine workings and production facilities. State your interest, if any, in such operations. Also describe accessibility of mine workings for examination purposes.

(*b*) State past and current production, and ore reserves, if any, giving quantities and grades.

(*c*) Describe the geologic features of the property, including mineralization, type of deposit (vein, bedded, etc.), and your reasons for wishing to explore. Illustrate with maps or sketches. Send with your application (but not necessarily as a part of it) any geologic or engineering report, assay maps, or other technologic information you may have, indicating on each whether you require its return to you.

(*d*) State the facts with respect to the accessibility of the project: Access roads, distances to shipping, supply and residence points.

(*e*) State the availability of manpower, materials, supplies, equipment, water, and power.

5. *The exploration project.*—(*a*) State the mineral or minerals for which you will explore .....

(*b*) Describe fully the proposed work, including a map or sketch of the property showing a plan (and cross sections if needed) of any present mine workings, and the location of the proposed exploration work as related to such features as contacts, veins, ore-bearing beds, etc.

(*c*) The work will start within 90 days and be completed within 12 months from the date of an exploration project contract.

(*d*) State the operating experience and background of the applicant with relation to the ability to carry out such exploration project, and also that of the person or persons who will supervise the operations.

6. *Estimate of costs.*—Furnish a detailed estimate of the costs of the proposed work (you will have to use a separate sheet), under the following headings. Add the totals under all headings to give the estimated total cost of the project:

(*a*) *Independent contracts.*—(Note.—If the applicant does not intend to let any of the work to contractors, write "none" after this item. To the extent that the work is to be contracted, do not repeat the cost of the contract-work in subsequent items.) State the cost of any proposed independent contracts for the performance of all or any part of the work, expressed in terms of units of work (such as per foot of drilling, per foot of drifting, per hour of bulldozer operations, per cubic yard of material moved, etc.).

(*b*) *Labor, supervision, consultants.*—Include an itemized schedule of numbers, classes and rates of wages, salaries or fees for necessary labor, supervision and engineering and geological consultants.

(*c*) *Operating materials and supplies.*—Furnish an itemized list, including items of equipment costing less than $50 each, and power, water and fuel.

(*d*) *Operating equipment.*—Furnish an itemized list of any operating equipment to be rented, purchased, or which is owned and will be furnished by the Operator, with the estimated rental, purchase price, or suggested use-allowance based on present value, as the case may be.

(*e*) *Rehabilitation and repairs.*—Furnish a detailed list showing the cost of any necessary initial rehabilitation or repairs of existing buildings, installations, fixtures, and movable operating equipment, now owned by the Operator and which will be devoted to the exploration project.

(*f*) *New buildings, improvements, installations.*—Furnish a detailed list showing the cost of any necessary buildings, fixed improvements, or installations to be purchased, installed or constructed for the benefit of the exploration project.

(*g*) *Miscellaneous.*—Furnish a detailed list showing the cost of repairs to and maintenance of operating equipment (not including initial rehabilitation or repairs of the Operator's equipment), analytical work, accounting, workmen's compensation and employers' liability insurance, and payroll taxes.

(*h*) *Contingencies.*—Give an estimate of any necessary allowances for contingencies not included in the costs stated above.

NOTE.—No items of general overhead, corporate management, interest, taxes (other than payroll and sales taxes), or any other indirect costs, or work performed or costs incurred before the date of the contract, should be included in the estimate of costs.

7. (*a*) Are you prepared to furnish your share of the cost of the proposed project in accordance with the regulations on Government participation (Sec. 7, DMEA No. 1)?

(*b*) How do you propose to furnish your share of the costs?

☑ Money ☑ Use of equipment owned by you ☐ Other

Explain in detail on acompanying paper.

## CERTIFICATION

The undersigned, whether as an individual, corporate officer, partner, or otherwise, both in his own behalf and acting for the applicant, certifies that the information set forth in this form and accompanying papers is correct and complete, to the best of his knowledge and belief.

Dated March 5, 1953

PACIFIC MINERALS, INC.
(Applicant)

By Wayne A. Brainard
President

**Title 18, U. S. Code (Crimes), Section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.**

U. S. GOVERNMENT PRINTING OFFICE 16—66551-1

Pacific Minerals, Inc.
P. O. Box 838
Kellogg, Idaho

1. (c)

Pacific Minerals, Inc., an Idaho corporation:

| | | |
|---|---|---|
| President | Wayne A. Brainard | P. O. Box 838, Kellogg, Idaho |
| Vice-President | D. Williams | P. O. Box 838, Kellogg, Idaho |
| Secretary | C. Whalen | P. O. Box 838, Kellogg, Idaho |
| Director | Wendell R. Brainard | P. O. Box 838, Kellogg, Idaho |

3. Applicant's Property Rights.

(a) The property in question comprises the following unpatented mining claims located in Sections 23, 26 and 27, T. 31 S., R. 6 W. Willamette Meridian, Douglas County, Oregon. These claims and tunnel sites are shown on figure 2:

| Name | Book | Page |
|---|---|---|
| Silver Peak #1 | 10 | |
| Silver Peak #2 | 10 | |
| Silver Peak #3 | 10 | |
| Silver Peak #4 | 10 | |
| Silver Peak #5 | 10 | |
| East Silver Peak | 10 | |
| Silver Peak Fraction | 10 | |
| Silver Peak Base | 10 | |
| Lower Silver Peak | 10 | |
| Silver Peak North Base | 10 | |
| Lower Silver Peak North | 10 | |
| Lower Silver Peak #2 | 10 | |
| Helen | 10 | |
| Iron Dyke No. 1 | 10 | |
| Iron Dyke No. 2 | 10 | |
| Iron Dyke No. 3 | 10 | |
| Banner | 10 | |
| Canyon | 10 | |
| South Bound | 10 | |
| Victory Tunnel Site (Section 27) | 10 | |
| Oregon Tunnel Site (Section 23 | 10 | |
| Reeves Timber Tract - Comprises NW¼ of NW¼; NE¼ of NW¼; SW¼ of NW¼ of Section 26, Twp. 31 S., R. 6 W. W. M. | 10 | |

(b) Reeves Timber Tract was formerly the Silver Peak Mining Company.

The above-listed unpatented claims (with exception of Reeves Timber Tract, Victory Tunnel Site and Oregon Tunnel Site) were formerly the holdings of a company variously known as Umpqua Consolidated Mining Company and later as Oregon Exploration Company.

All of the above holdings have been incorporated into Pacific Minerals, Inc., the present owners.

(c) Pacific Minerals, Inc. is purchaser of the various properties listed under long-term purchase contract.

(d) Copies of contracts attached. Also copies of owners "Consent to Lien".

Pacific Minerals, Inc.
P. O. Box 838
Kellogg, Idaho

(e) No liens or encumbrances.

(f) See description of unpatented claims under 3(a).

4. (a) The existing mine workings consist mainly of two long X-cuts, #3 and #4, with about 420 feet of lateral drifting on the structure on #3, and about 460 feet of drifting on the structure on the #4 level. The total feet of X-cutting and drifting on these two levels is approximately 2685 feet of which all had been done prior to 1937 excepting 110 feet which was driven September to November, 1952, to get in position for a diamond drill station. Above these two levels there are levels #2 and #1, along with other various X-cuts and open cuts driven during the early exploration days of the property. (Refer to map. "Composite".)

The Production Facilities. The surface buildings have all either been removed or caved by snow so that there are none of these suitable for use. The only two pieces of equipment on the property are 1 - 120 H.P. Fairbanks Diesel motor and 1 - Type M Ingersoll-Rand Compressor. All the main working levels are accessible with only minor replacing of timber and track and pipe to put them in operating order. The footwall high grade stopes are inaccessible.

Pacific Minerals, Inc. has acquired the ground under long-term purchase contracts, copies of which are included in this application. However, we had no interest in the past operation of the mine prior to 1952, at which time we drove the 110 feet of drift and X-cut mentioned in the first paragraph.

(b) Past Known Production. There is no current production, although milling ore is available for mining. From 1921 to and including 1937, lease production of shipping ore, mainly from the #3 and #4 levels comprised 6,918 tons of selectively-mined crude ore. Averaged smelter returns (the originals are available) gave Au. 0.114 oz.; Ag. 17.23 oz.; Cu. 7.41%. The zinc content was only credited to the last 3,151 tons produced from 1932 on. Average zinc content, 6.25%.

With regard to ore reserves, the higher grade material was taken in the operations between 1921 and 1937. As a result, sample maps prepared by Pacific Minerals' engineers show only the material unfit for shipping. Reference is made to the following statements from the report of L. A. Levensaler to his principals, the A. S. & R. Company (1927):

"The sixty foot section from sample 2 to the hanging wall, sample 9, and the samples from the 2 drifts and stope average 0.05 oz. gold, silver 1.64 oz., copper 3.33%. This sample includes samples 4, 5, and 6, 28 feet of pyritized schist in the center, that assays gold, 0.01 oz., silver 0.22 oz., copper 0.36%, and might represent as much as 47% by volume of the entire ore body. The present development, however, is insufficient to warrant any such statement.

"Excluding samples 4, 5 and 6, the average is gold 0.06 oz., silver 1.91 oz., copper 3.91%. The higher cost of selective mining and the chance of missing better values elsewhere along this zone does not justify excluding this area in a preliminary estimate if the property is to be considered as a straight milling operation. On this basis, the present development has defined an area sixty feet wide by one hundred feet long, 47% of which averages Au. 0.01 oz., Ag. 0.22 oz., Cu 0.36%, and 53% Au. 0.06 oz., Ag. 1.91 oz.,

Pacific Minerals, Inc.
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Section 4(b) Continued -

Cu. 3.91%. This would develop six hundred tons per foot of depth of an average grade of Au. .036 oz., Ag. 1.12 oz., Cu. 2.26%.

"The property is only a prospect, and the type of the deposit and amount of mineralization indicate that possibly quite a tonnage of this grade of ore might be developed.

"On the other hand, if the property is to be considered as a source of crude sulphide ore for Tacoma, selective mining will produce a grade of ore containing Au. 0.08 oz., Ag. 2.54 oz., Cu. 5.09%, Fe. 28.1%, S. 34.06%, Insoluble 24.2%; this can be benefitted by sorting to average 6.6% copper as per shipping record. About 110 tons per foot of depth can be expected within the limits of the present development. If the cross-section of the ore now exposed in the tunnel extends to the surface, and the indications are favorable that it does, this block of ground alone will take care of Tacoma's minimum requirements for this class of ore for a year or possibly two years.

"The development shows a hanging wall massive sulphide body 12' x 50' and a footwall massive sulphide body 4.67' x 60' at a depth of three hundred feet. This ore will average eight cubic feet per ton, and the two bodies should produce on the above dimensions 30,000 tons of ore between the tunnel level and the surface."

Mr. Levensaler estimated 16,500 tons, this tonnage giving a large allowable factor for insufficient development. At 16¢ copper, he calculated an operating profit of $95,000.00 from this block (by direct shipping).

Actual shipping records, as pointed out before, show ore shipped which would have yielded a gross of $484,260.00 at present metal prices.

Sampling by Pacific Minerals engineers and others (shown on the various sample sheets attached) represents the material <u>left</u> after this "high-grade" was shipped.

We believe that it is tentatively safe to estimate a possible 15,000 tons available above the #4 level of the following general average grade and average width of 6 feet:

Cu. 2.57%, Zn. 4.22%, Ag. 1.60 oz., Au. 0.15 oz.

This represents a gross head value of $29 per ton, or a gross head value for this block of $435,000.00.

By adding samples 22,23, 32 and 33, which represent approximately 24" of material in the footwall of the main shoot at its center, the averages became:

1.96% Cu. 3.32% Zn. 1.27 oz. Ag. 0.10 oz. Au.

This gives some idea of the future possibility of a much wider disseminated body, as suggested by Levensaler.

Pacific Minerals, Inc.
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Kellogg, Idaho

Section 4. (c). History, Geology, etc. The report by P. J. Shenon on the Silver Peak district written in 1933 for the U. S. Geological Survey is attached hereto and describes the history and geology of the two properties involved very adequately.

We agree essentially with Shenon's geology, insofar as present development allows correlation. Tentatively, we believe that the structure comprises infolded volcanics and sedimentary schists, and that the eventual structural picture will show steep isoclinal folds with a northeasterly axial trend and a general southeasterly dip to the limbs. If there is any correlation between the porphyritic "greenstones" (altered volcanics) and overlying siliceous schists near the portals of the two tunnels, with similar-appearing materials at and near the orebodies, an overturned fold is indicated within the mine area.

Repetition of sulphide replacement of siliceous schistose bands in the #4 crosscut northwest of the main ore-bodies, coupled with the tentative fold hypothesis given above, indicate that drilling of the southeast wall of the ore zone for further information is warranted. Accordingly, horizontal drilling of the hanging wall up to 500 feet has been asked for in this application.

Section 4. (d). Accessibility of the Mine. The mine is located approximately 12 miles by road south of Riddle (see figure ), of which 5 miles is good gravel road and 7 miles typical Forest Service one-way road, climbing from 700 feet to 3327 feet elevation at the mine. Due to relatively mild coastal climatic conditions, this Forest Service road is passable for 9 months of the year, and during the other 3 months, there are few times when the mine is not accessible by jeep. Winter operations will be entirely feasible when these warrant.

The Southern Pacific Railroad is available at Riddle. From Riddle it is 40 miles south to Grants Pass and 230 miles north to Portland.

Section 4. (e). Availability of Manpower. Men necessary for operation should be readily available as one would have the mining town of Grants Pass as a possible source for miners. Then Roseburg and Eugene should be a good source for the other necessary manpower. Experience of our engineers to date shows that excellent contract mining labor is readily available.

Material, such as mine timbers and lumber, are very handy as it is a lumber country with ample timber supply right on the mine property.

Supplies. There are no supplies at the mine, all necessary supplies for the project would have to be brought in. Portland, Oregon, is the nearest large center for mining supplies.

Equipment. Other than the 120 H.P. Fairbanks Diesel motor and the type M Ingersoll-Rand Compressor, there is no equipment at the property. Rather than set up this stationary compressor for the Exploration work, it would be cheaper to rent a suitable portable compressor. All other necessary equipment would have to be brought in for the project.

Water. There is ample water at the mine to carry out the present exploration work.

Power. There is no available electric power at the mine, so all necessary power would have to be gas or diesel for the present

Pacific Minerals, Inc.
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Kellogg, Idaho

Section 4. (e) Continued -

project. If future development warrants, a long operating crosscut (3000 feet plus or minus) from a point in the valley at lower elevation to the north or south of the central ridge will be necessary. Since a concentrating plant will of necessity be located at lower elevation, also, if it probable that from 2-3/4 to 3-1/2 miles of power line will service mill and lower future operating tunnel.

Section 5. (b). Proposed Work.

#1. The proposed work is to extend the #4 level main X-cut 150 feet into the hanging wall and cut a diamond drill station to drill 5 proposed holes to crosscut the orebody at 6o feet, 130 feet, and 230 feet and below the #4 level to further explore the existing ore shoot in this area. (See Maps of #4 level.)

#2. The proposed work is to drill three horizontal holes from the #4 level out under the #3 level to X-cut or explore the orebody outlined by the workings on the #3 level. And to drill 4 holes below the #4 level from the diamond drill station already cut to further explore the orebody. If this drilling shows satisfactory results, it is proposed to extend this X-cut another 100 feet into the hanging wall from this diamond drilling station for two deeper diamond drill holes to explore the orebody at greater depth. (Refer to maps included in application.)

Section 5. (d). Operating Background and Ability of the Applicant. The personnel of the applicant who will supervise the work all have 20 years or more of mining and operation background in the Coeur d'Alene mining district in Idaho and throughout the northwest. Transcripts of their records will be furnished upon request.

Section 6. Estimated Total Cost of the Project . . . . . .$50,702.55.

Section 6. (a) Independent contracts - Yes.

250' of 5' x 7' crosscut @ $45 per foot. . . .$11,250.00
2 diamond drill stations at 1000 cu. ft. of excavation per station, which would give 2000 cu. ft., @$0.75/cu. ft. . . . . 1,500.00
Diamond drilling 4000 feet of Ax hole, 4000 feet at $6.50 per foot. . . . . 26,000.00

Section 6. (b) Labor, Supervision, Consultants.

Labor is taken care of in contract prices.

Supervision. The above work to be completed in 6 months from date of start.
Supervisor for 6 months at $650.00/mo. . .$ 3,900.00
Consultants (Engineer and geologists). . . 1,250.00
Traveling expenses and expense accounts for 6 months . . . . . 2,500.00

Section 6. (c) Operating Material and Supplies. This item taken care of in contract price per foot of cross-cut and per foot of diamond drill hole.

Pacific Minerals, Inc.
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Kellogg, Idaho

Section 6. (d) Operating Equipment. This item taken care of in contract price.

Section 6. (e) Rehabilitation and Repairs. None.

Section 6. (f) New Buildings, Improvements and Installations.

| | |
|---|---|
| One small building 8' x 16' frame construction, for change house and supplies . . . . . | $ 500.00 |

Section 6. (g) Miscellaneous.

| | |
|---|---|
| Sampling and assaying, 250 samples @ $5.00/sample. . . . . | $ 1,250.00 |
| Accounting, 6 months @ $75/month . . . . . | 450.00 |
| Workman's Compensation @ 1½% of $5,150.00 . . . . | 77.25 |
| Employers' Liability Insurance @ 7½% of $5,150.00 | 386.25 |
| Payroll Taxes @ 2.7% of $5,150.00 . . . . . | 139.05 |
| Total Miscellaneous . . . . . | $ 2,302.55 |

Section 6. (h) Contingencies . . . . . $ 1500.00

Pacific Minerals, Inc.
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Kellogg, Idaho

Section 6. Estimate of Costs.

To include 250' of cross-cutting and the cutting of two diamond drill stations, one at each end of the crosscuts. This work to be completed in 3 months from time of start.

Equipment to be rented:

| | | |
|---|---|---|
| 1 - 315 cu.ft. Compressor @ $470/month | $1410.00 | |
| 2 - Jack legs complete (hoses, etc., @ $100/month | 300.00 | |
| 1 - Water pump (air) @ $35/month | 105.00 | |
| 2 - mine cars, 20 cu.ft. @ $25/month | 75.00 | |
| | | $ 1,890.00 |

Supplies:

| | | |
|---|---|---|
| 250'- 2" pipe @ $.44/ft. | $ 110.00 | |
| 350'- 1" pipe @ $.21/ft. | 73.50 | |
| Pipe fittings | 50.00 | |
| 1 - ton 12 pound rails @ $166/ton. | 166.00 | |
| Track spikes, bolts & ties | 75.00 | |
| Drill steel and bits @ $2/foot | 500.00 | |
| Powder and primers @ $5/foot | 1250.00 | |
| Small tools (pikes, shovels, etc.) | 75.00 | |
| Diesel fuel and oil @ $8/day | 624.00 | |
| Machine and Equipment repairs | 500.00 | |
| Transportation of equipment to and from the job | 750.00 | |
| Contingencies | 500.00 | |
| | | $ 6,563.00 |

Labor, Itemized:

Labor required to drive 250' of crosscut and to cut two diamond drill stations to be completed in 3 months, or 13 weeks.

Labor:

| | | |
|---|---|---|
| 1 - miner @ $14.34/day, $93.21/wk. | $1211.73 | |
| 2 - muckers @ $13.54/day, $88.01/wk. | 2288.26 | |
| 1 - laborer for 4 wks. @ $88.01/wk. | 352.03 | |
| | | $ 3,852.02 |

Supervision:

| | | |
|---|---|---|
| 1 - Supervisor for 3 months @ $650.00/month | $1950.00 | |
| Transportation and expense account | 1250.00 | |
| | | $ 3,200.00 |

Crosscutting:

| | | |
|---|---|---|
| 250' of crosscut @ $45/foot. | $11,250.00 | |
| 2000 cu. ft. diamond drill station @ $.75/foot (cu. ft.) | 1,500.00 | |
| | | $12,750.00 |

Diamond Drilling:

Diamond drilling to be completed in 3 months. 4000' of Ax holes.

| | |
|---|---|
| 4000' @ $6.50/foot | $26,000.00 |
| Supervision, $650/month | 1,950.00 |
| Engineer and geology (consultants) | 750.00 |

Pacific Minerals, Inc.
P. O. Box 838
Kellogg, Idaho

Section 6. Estimate of Costs - Continued:

Transportation and Expense Accounts . . . $ 1,250.00

$29,950.00

Miscellaneous:

250 samples, assaying @ $5/sample . . . . $ 1,250.00

$ 1,250.00

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

CIRCULAR 2

# COPPER DEPOSITS IN THE SQUAW CREEK AND SILVER PEAK DISTRICTS AND AT THE ALMEDA MINE SOUTHWESTERN OREGON WITH NOTES ON THE PENNELL & FARMER AND BANFIELD PROSPECTS

BY

PHILIP J. SHENON

- - - - - - - - - - - - -

## Silver Peak District

### Location and Access

The copper deposits of the Silver Peak district lie in the southern part of Douglas County, Oregon., in secs. 23 and 26, T. 31 S., R. 6 W. By air line the mines are about 7 miles directly south of Riddle, a shipping point on the Southern Pacific Railroad, but by road the distance is about 9½ miles. The road is steep and narrow but except during stormy periods is readily passable.

### Topography

The surface of the Silver Peak district is made up chiefly of the steeply sloping sides of many valleys and intervening narrow ridges with fairly flat tops. Altitudes range from 4,000 feet on Silver Peak to less than 2,000 feet in some of the valleys slightly more than a mile distant. Silver Peak is the highest point in the immediate region, and from it a splendid view can be had of the surrounding country. The valley slopes are generally covered with dense growths of timber and underbrush, and hence most of the trails and roads tend to follow the wider valleys or ridge tops.

The three principal streams that rise on the slopes of Silver Peak--The West Work of Canyon Creek, Middle Creek, and Russell Creek--flow respectively eastward, westward, and northward. This radial drainage pattern is of small extent, however, because all three streams join the Umpqua River. The streams have dissected the region to a stage in which the canyon areas prevail over the rather narrow divides, and the topography of the region can therefore be described as mature.

### General Geology

The rocks in the vicinity of Silver Peak belong principally to the Dothan formation, described by Dillor, 12/ and to a group of highly altered igneous rocks of several types which are termed greenstones because of their prevailing green color. The contact between the Dothan rocks and the greenstones is irregular but in general strikes northeast and, in the vicinity of Silver Peak, dips at steep angles to the southeast. No quartz diorite or related intrusive rocks are known to crop out in the immediate region.

12/ Diller, J. S., U. S. Geol. Survey Geol. Atlas, Riddle folio (no. 218), p. 3, 1924.

## DOTHAN FORMATION

The Dothan formation, of Jurassic age, in the Riddle quadrangle consists predominantly of sandstone but includes also shale, conflomerate, and chert. The strata are usually thin-bedded, yet in places beds about 100 feet thick are found. Some of the rocks have a schistose structure and many of them contain veinlets of quartz parallel to the schistosity. The sandstone is gray and weathers to a yellowish brown and where not strongly metamorphosed breaks with a somewhat rough surface. The shale is usually gray to dark gray and is distinctly slaty. The conglomerate, which occurs in thin beds, contains pebbles that are predominantly siliceous. The Chert forms small lentils.

Near the Silver Peak mines the Dothan formation is composed principally of dark-gray to almost black thin-bedded schist and highly altered fine-grained argillite. Many of the Dothan rocks are so completely altered that it is difficult to differentiate them in the field from the altered greenstones. Near the ore bodies the schist is bleached to light gray or almost white and, because of the abundance of sericite, has a talcose appearance. In addition, the ore-bearing schist commonly contains considerable quartz, barite, and disseminated sulphides. Strike faults are numerous, some of which agree with the dip of the formation and some do not. The schist lies between dark-gray rocks that are shown by the microscope to be very fine grained, highly altered argillites composed largely of small rounded quartz grains in a fibrous groundmass of sericite and chlorite. The quartz grains are small, on an average about 0.135 millimeter across, and many are partly recrystallized. In the argillite near the ore bodies there are numerous grains of disseminated sulphides.

### Greenstones

Irregular bodies of greenstone are widely distributed in the Riddle quadrangle. According to Diller 13/ they include altered gabbro, diorite, and diabase and finer-grained altered basaltic rocks all of which show evidence of crushing and veining.

The greenstones in the immediate vicinity of the Silver Peak mines are prevailingly fine-grained, although some are porphyritic. All contain abundant epidote, fine-grained quartz, chlorite, zoisite, saussurite, and other alteration products. Some retain a suggestion of igneous texture, but others are entirely changed to rocks composed essentially of epidote and quartz. Ore was not observed in greenstone in the Silver Peak district, although elsewhere in southwestern Oregon ore is generally associated with that rock.

## Ore Deposits

### Geographic Distribution

Three mines have been worked in the vicinity of Silver Peak. Two of these belonging to the Silver Peak Copper Co. and the Umpqua Consolidated Mining Co., lie south of Silver Peak. They include portions of the same ore body and for convenience are described together. The third, the Golden Gate mine, lies about half a mile to the north.

### Deposits south of Silver Peak

#### History and Development

The mines of the Silver Peak Copper Co. and the Umpqua

13/ Diller, J. S., op. cit. (Riddle folio), pp. 4-5.

Consolidated Mining Co. are on a steep slope south and slightly west of Silver Peak, at a mean altitude of about 3,300 feet. The property of the Silver Peak Copper Co. is in sec. 26, T. 31 S., R. 6 W., and that of the Umpqua Consolidated Mining Co., which adjoins it on the north, is in sec. 23 14/. Ore was first discovered here in 1910 by Robert Thomason, on what is now Silver Peak Copper Co.'s ground.15/ In 1912 J. E. Reeves purchased a patented timber claim which included a large portion of the ore that has since been developed. Little work was done until 1920, when the Oregon Exploration Co. located mineral claims over part of the timber claim. From 1922 to 1929 the property was in litigation, but during this period and in the following year 3,256 tons of ore was shipped from workings now owned by the Silver Peak Copper Co.16/ In 1929 the Oregon Exploration Co. was reorganized as the Umpqua Consolidated Mining Co. This company shipped one car of ore (38 tons) in 1930. Both mines were idle at the time the writer visited them in September 1930. The gross value of the ore shipped, not including zinc, is estimated at $73,000.

The ore bodies have been explored on three principal levels. The lowest, the main level of the Umqua Consolidated Mining Co., is a cross-cut adit 600 feet long with two drifts aggregating about 600 feet. The main level of the Silver Peak Copper Co., 55 feet higher than the working mentioned and connected to it by a raise, is another crosscut adit about 480 feet long with 550 feet of drifts. The third level, known as No. 1, 195 feet above the Umpqua level, is an adit 170 feet long driven near the dividing line of the properties. There are in addition several shallow workings including a 30-foot shaft at a point 75 feet higher than level 1 and 270 feet above the main level of the Umpqua Consolidated Mining Co. Comfortable camps have been built on both properties, and at the Silver Peak Copper Co.'s mine a No. 10 Ingersoll-Rand compressor and a Fairbanks-Morse 120-horsepower engine, both new, were installed in 1930.

## Ore bodies

The ore minerals occur as massive tabular bodies and disseminated in highly foliated schist. The two principal workings expose a zone of mineralized schist more than 100 feet wide. Across most of this zone sulphide minerals are rather sparsely distributed, but in at least two places bodies of nearly solid sulphide ore occur. One of these, in the main crosscut of the Silver Peak Copper Co., the "northwest band," is about 15 feet wide and another, the "southeast band," is over 20 feet wide. Both pince out to the northeast, one within a distance of 200 feet and the other within 60 feet. Two sulphide bodies are exposed also on the main level of the Umpqua Consolidated mine, but there the northwest body is only about 10 inches wide, whereas the southeast body is about 10 feet wide. Normally the massive ore grades into schist with disseminated sulphides, but in some places, especially where the massive ore pinches, one or both walls are slickensided fault surfaces commonly lined with several inches of gouge.

The massive sulphide ore is distinctly banded, probably in part because the ore minerals have replaced schistose rocks and in part because the minerals were introduced along parallel fractures in the rock. The sulphides include pyrite, sphalerite, chalcopyrite, and covellite, named in the relative order of their abundance. The last four mentioned occur in relatively small amounts. In addition the occurrence of native copper is reported by Mr. Reeves. The gangue minerals are principally quartz, barite, and sericite. Epidote was seen in one thin section of the ore.

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14/ The broken line shown on plate 4 as dividing the two properties was pointed out underground as the boundary line.
15/ Historical data furnished by J. E. Reeves.
16./ Production data furnished by Victor C. Heikes, of the U. S. Bureau of Mines.

At the surface oxidation is almost complete. Level 1, for example, follows a porous, iron-stained, and greatly leached gossan in which no sulphides are visible. A short distance from the portals sulphides became visible and are abundant near the face. Sulphides were struck also in the 30-foot shaft on the Umpqua Consolidated property. Traces of oxidation extend as deep as the lower levels, as shown by thin films of oxide minerals along fractures.

Quartz was the first gangue mineral to be deposited. It is everywhere fine-grained but tends to be coarser in the fractures along which it was introduced. Barite was introduced next, then fracturing occurred, and pyrite was deposited. After a second fracturing sphalerite, tennantite, chalcopyrite, bornite, galena and chalcocite were deposited as an overlapping series and probably in the order names, although the relation of galena and chalcocite was not well established.

The mineral composition differs in the different ore bodies and within the layers of a single ore body, as shown by the northwest and southeast ore bodies in the Umpqua Consolidated mine. The sulphides of the northwest ore body are associated with abundant quartz but very little barite, whereas the southeast ore body contains much barite and smaller amounts of quartz. The southeast body in the stopes above the level consists of nearly solid sulphides with some layers of barite. The barite is lenticular in outline, and any one layer does not persist very far. The sulphides are distinctly banded. One stope shows seven distinct bands with parallel structure. The composition of the northwest ore body resembles that of layers 3 and 6 of the southeast ore body as shown in the illustration. The ore exposed on the Silver Peak Copper level more nearly resembles the ore of the southeast ore body of the Umpqua Consolidated level. However, in some places -- for example, near the top of the connecting raise -- the copper sulphides are less abundant and the proportion of barite is greater than normal. At the turn in the drift, 30 feet northwest of the raise, the rocks are largely replaced by very fine grained silica that has irregular red jasperlike streaks.

Four carefully cut samples taken at selected places serve to show the relative proportions of the metals to one another but do not necessarily illustrate the average metal content of the ore, which may be more closely determined from the production figures that follow. Analyses of the samples made in the chemical laboratory of the United States Geological Survey are given below:

Analyses of ores from the Silver Peak district, Oregon
(E. T. Erickson, analyst).

| Sample no. | Silver (ounces per ton) | Gold (ounces per ton) | Copper (percent) | Zinc (percent) |
|---|---|---|---|---|
| 8..... | 0.59 | 0.09 | 4.05 | 5.5. |
| 9..... | .30 | .01 | .90 | .9 |
| 10..... | 4.58 | .03 | 5.13 | 7.5 |
| 11..... | .46 | .01 | .93 | .6 |

8. Silver Peak Copper tunnel, northwest ore body. Sample taken in stope 33 feet above tunnel level across 5½ feet of massive sulphide ore.

9. Umpqua Consolidated tunnel, main crosscut immediately northwest of massive sulphide band. Sample taken across 9 feet of schist with disseminated sulphides.

10. Umpqua Consolidated tunnel. Sample taken across 7 feet of massive sulphide ore in stope along line A-A; plate 4.

11. Silver Peak Copper tunnel, 30 feet northwest of top of connecting raise. Sample taken across 6 feet of intensely silicified rock containing some visible sulphides.

The results show that copper and zinc increase and decrease together, but indicate no similar relations between those metals and gold and silver or between the gold and silver themselves.

The following table is based on the production figures furnished by V. C. Heikes, of the United States Bureau of Mines:

Average metal content of ore from Silver Peak and Umpqua Consolidated mines

| Year | Ore produced (tons) | Gold (ounces per ton) | Silver (ounces (perton) | Copper percent |
|---|---|---|---|---|
| Silver Peak | | | | |
| 1926. . . . . | 389 | 0.12 | 7.3 | 6.0 |
| 1928. . . . . | 937 | .044 | 2.7 | 6.7 |
| 1929. . . . . | 1666 | .07 | 3.6 | 5.6 |
| 1930. . . . . | 264 | .057 | 3.0 | 4.4 |
| Umpqua Consolidated | | | | |
| 1930. . . . . | 38 | .24 | 2.2 | 3.9 |

## Origin of the ore

The mineralogy of the ores described above is evidence of their hypogene (deep-seated) origin -- that is, the mineral assemblage as shown by the careful observations of many geologists belongs to Lindgren's mesothermal type, deposited at moderate depths by hot solutions. The source of the solutions is not evident from the geology in the immediate vicinity of the deposit, but quartz diorite and related rocks, which are believed to be the sources of many ore deposits in southwestern Oregon, are exposed a few miles distant and are probably not far below the surface at Silver Peak.

The ore-bearing solutions, whatever their source, deposited gangue and sulphide minerals as they moved through the schistose rocks. The solutions apparently rose along planes of schistosity and replaced the adjoining material. Certain beds in the schist were apparently either more susceptible to replacement or were more readily penetrated by the solution than others, because solid sulphides occur interbedded with schist in which sulphides are sparsely distributed. The composition of the ore-bearing solutions probably changed during the period of deposition, because minerals of different composition have been deposited in an overlapping succession. Movements occurred within the rocks during the mineralization, once after the gangue minerals were deposited and again after the deposition of the pyrite. The later sulphides were deposited as a continuous series. After the deposition of the sulphides, strains within the rocks were relieved along faults, some of which have displaced the ore. More recently the sulphides near the surface have been oxidized, and much of the metal content of the outcrops has been removed by leaching. Erosion has kept pace fairly well with the oxidation, for at no place in the vicinity are oxide minerals known in abundance very far beneath the surface.

## Economic aspects

The ore bodies at the Silver Peak Copper and Umpqua Consolidated mines have not been sufficiently developed to permit exact tonnage estimates, nor has the ground in the immediate vicinity been sufficiently explored to indicate the probability of undiscovered ore bodies nearby, but enough work has been done to demonstrate the fairly large bodies of good-grade massive sulphide ore are present. Also sampling shows that there is a possibility, when metal prices recover, of mining and milling lower-grade disseminated ore along with the higher-grade material.

Only a very small percentage of the sulphides found on the lower levels are supergene (descended from above), and therefore it follows that there is not much likelihood of any material change in the metal content of the ore for some little distance below the present deepest level. However, owing to the fact that the outcrop has been almost entirely oxidized and much of the metallic content removed, more or less sulphide enrichment is to be expected immediately below the zone of oxidation.

The facts available permit some conclusions as to the probable vertical and horizontal extent of the ore. Foliated schists similar to those containing the ore are exposed at the surface for some distance north and south of the known ore bodies. In places they are mineralized--for example, at the Golden Gate mine, to the north, described below. Some mineralization was also noted in the schist of similar appearance about half a mile to the southwest. Underground the ore has been followed along the strike for a total distance of over 450 feet, and in at least two places it continues beyond the present workings. Both bodies of solid sulphide ore were sheared off in the northeast drifts of the Silver Peak Copper Co.'s main level but continue into the walls to the southwest of the present workings. The southeast ore body on the Umpqua Consolidated level appears to turn into the southeast wall of the drift about 50 feet from the face. It appears also to have undergone shearing, and further work may prove that it is displaced. At the south end of the same drift the ore appears to end against an east-west, southward-dipping fault. Sulphide ore interlayered with barite is exposed on one side of this drift about 20 feet from the face, and it seems likely that the ore body may continue southwestward from this point. Thus the evidence underground does not suggest that the horizontal limits of the ore bodies have been reached. Even where the ore is sheared off by faulting there is no known reason why the segments may not be recovered. Outcrops of partly oxidized sulphide ore occur 140 and 270 feet above the ore bodies found on the two main levels. No raises have been driven through to the surface to prospect the ground between these outcrops, although at one place ore has been stoped above the Silver Peak Copper Co.'s level for a vertical distance of about 90 feet. It seems reasonable, however, to expect the ore to continue to the surface, though not necessarily as one continuous body, because of the possibility of fault displacement. It is generally recognized that there is usually a relationship between the horizontal extent of an ore body and its downward extension, and as the ore bodies under discussion are exposed on the lower levels over a horizontal distance of 450 feet without having ended, they can reasonably be expected to extend for some distance below the present workings.

# S Y N O P S I S

NAME: SILVER PEAK MINE, also known as the Silver Butte and Reeves Property.

LOCATION: Near Riddle, Douglas County, Southern Oregon. Elevation 3500 to 3800 feet. Access by truck road 8 miles long. Riddle is on the Siskiyou line of the Southern Pacific Railway, 28 miles south of Roseburg and 70 miles north of Grants Pass.

OWNERS: Owned by the Oregon Exploration Company and the Silver Peak Mining and Smelting Company. The principal individuals therein are Dr. P. T. Meaney, Dentist of Portland, and Mrs. Reeves. Development of the property was retarded because of dispute over extra-lateral rights between the two companies. This was settled in court in 1929. It is necessary to obtain both properties to cover the ore shoots.

GEOLOGY: The area is one of north easterly trending volcanics, (Reeve and Franciscan formations ?) cut by north easterly trending extensions of the Siskiyou batholith. Judging from the U.S.G.S., and tectonic maps it appears structurally favorable. The deposits are in a shear zone also striking northeast, 60 feet wide, cutting basaltic rocks associated with serpentine. This shear has been traced for over 1,000 feet in length. Surface exposures are poor.

ORE DEPOSITS: The ore is a replacement of the sheared greenstone of basaltic rock. Lenses of massive pyrrhotite, pyrite and chalcopyrite are irregularly distributed throughout the leaner pyritized rock of the shear zone. Development is by four tunnels covering a length of 600 feet along the zone. The principal work has been done on the higher grade footwall and hangwall veins in the shear. These veins were evidently about 5 feet in width. One stopewall being worked in 1937 averages width 4.9 feet, au. 0.05, ag. 0.7, cu. 4.1%, zn. 6.1%.

Levensaler in 1929 estimates that the 60 foot width of shear averages au. 0.05, ag. 1.64, cu. 3.3%.

PRODUCTION: Production has been almost entirely from the hanging and footwall veins. The records available indicate most of the production was in two periods, 1929 and 1936-7:

| | Tons. | Au. | Ag. | Cu. | Zn. |
|---|---|---|---|---|---|
| 1929 | 1,247 | 0.067 | 3.99 | 6.3% | |
| 1936-7 | 3,090 | 0.083 | 3.03 | 5.5% | 6.3% |
| Totals | 4,337 | 0.079 | 3.33 | 5.75 | |

Freight and smelter charges on the crude ore shipments were $3.00 and $3.50 respectively. The net smelter returns for the 1929 shipments averaged $13.00 per ton, but in 1936-7, because of the lower price of copper, the average was reduced to $6.80 per ton. No income was obtained from the 6.3% zn. contained in the ore.

TERMS: Total purchase price $365,000.00 for the properties of the two companies. Frobisher or Ventures to draw up a tentative option agreement covering terms. No cash payments will be required until after the optionors have had adequate time to examine and test the properties.

OUTLOOK: The type of deposit is attractive. Gossan deposits found to the southwest along the line of the shear zone indicate that mineralization may occur in places along a belt two or three miles in length. If such is found to be the case a low level tunnel at an elevation of about 1800' could be driven from the south fork of Middle Creek northeasterly along the shear zone.

In addition to the attractive copper and zinc values, precious metal values are in places substantial, and there might be the possibility with such massive sulphides of making some recovery of sulphur. With the pyrrhotite accompanying the ore, presence of other ore shoots might be quickly detected by a simple magnetometer survey along the strike of the shear zone. A successful operation would require a mill and complete mining plant.

REPORTS AND MAPS: Accompany this Synopsis are two reports, one by L. A. Levensaler, to his principals, the American Smelting and Refining Company. The other by F. Cushing Moore, a Mining Engineer of Spokane, Washington. The bulk of the production has taken place since these reports were written. Also attached are a series of photostats and white prints showing the various workings and assay results up to 1937. The area has been described in U.S.G.S. folio No. 218 "The Riddle Quadrangle" by J. S. Diller and G. F. Kay in 1924. If a copy of this can be obtained it will be forwarded.

ALEX SMITH

- - - - - - - - - - - -

February 28, 1929

Phillips Brothers
82 West Park Street
Portland.

Gentlemen:

Pursuant to your instructions, I have examined the mining property on Silver Butte, Douglas County, Oregon, known as the Oregon Exploration Company and Silver Peak Mines Company, the former being in Sections 23, 27 and 34, and the latter in the Northwest Quarter of Section 26, Township 31 South, Range 6 West.

The properties mentioned are found along a northeast-southwest shear zone in a basaltic rock associated with serpentine. The ore is a sulphide carrying a very high content of iron with low values in copper gold and silver. Accompanying this letter is a map showing the relation of the workings of the Oregon Exploration Company and the Silver Peak Mines Co., known as the Reeves property.

The relation of the two workings was established by pocket compass survey, and may not be absolutely correct, but is substantially so. The reeves tunnel is approximately 50 ft. higher than the Oregon Exploration Tunnel No. 3.

On the map you will observe the north side line of the timber claim, which is the Northwest quarter of Section 26(?) passes through near the northeast and of the ore body in tunnel No. 3. This line is the boundary between the two properties, as the Oregon Exploration Company lost their suit to quiet title to extra lateral rights to this vein apexing in their ground on the north side of this line. Therefore, all of the ore thus far developed is within the timber

claim owned by the Silver Peak Mines Company, and as the vein dips to the southeast the ore body at depth will remain in that property.

In the Reeves tunnel an ore shoot has been developed for about 80 feet of length and 20 inches of ore remains in the southwest face. The width of this ore varies from 18 inches to 4 feet.

In tunnel No. 3 of the Oregon Exploration Company, the ore shoot is exposed for about 125 feet of length, and varies in width from 8 inches to 5 feet. The ore in both of these tunnels is massive, but of very irregular mineralization in copper, gold and silver. Streaks of ore of massive sulphide lying side by side vary very materially in value, so that it will be impossible to do any selective mining.

Samples of ore taken at various points are as follows:

Montana Assay Office, Portland, Oregon.

Metal Quotations:- Gold $20.67. Silver $0.60. Copper $0.18.

| Reeves Property: | Gold Ozs-Ton | Silver Oz.-ton | Copper % | Value |
|---|---|---|---|---|
| Sample #1 (Our #100) 2' wide (Center of Stope) | .08 | 14.80 | 20.88 | $85.65 |
| Sample #2 (Our #101) NE end of stope 18" wide | .06 | 6.80 | 18.02 | 70.25 |
| Sample #3 (Our #102) SW end of drift, 20" wide | .03 | 6.00 | 12.14 | 47.90 |
| Oregon Exploration Tunnel #3 | | | | |
| Sample #4 (Our #103) HW streak 8" wide | .24 | 97.00 | 7.43 | 89.75 |
| Sample #5A (Our #104) NW side drift at SW end of stope | .02 | .40 | 16.76 | 60.98 |
| Sample #5B (Our #105) Back of Stope, 5' wide | .04 | 4.00 | 4.40 | 19.04 |
| Sample #6 (Our #106) H.W.Streak stope back 8" wide | .06 | 12.40 | 14.53 | 60.95 |
| Sample #7 (Our #107) 20 ft. in last crosscut SW of main | .04 | Trace | | .80 |
| Sample #8 (our #108) tunnel Sulfide footwall 30' NE crosscut | .02 | .40 | .14 | 1.14 |
| Sample #9 (Our #109) Sulfide along drift 60' NE X cut | .08 | .20 | None | 1.72 |
| Sample #10 (Our #110)-Reeves Average car being loaded at Riddle | .20 | 9.80 | 15.79 | 66.72 |
| Sample #11 (Our 111) Section 34 Croppings upper showing Sec. 34 | .04 | Trace | | .80 |

You will observe the sample of ore taken from the car being loaded by the Oregon Exploration Company had only a gross value of $66.72. This value, of course, is based upon 100% of the metals contained and is a higher figure than could be derived from shipments, to say nothing of freight and treatment.

The road at the time of the examination of the property was practically impassable owing to being trucked over at this time of the year when the frost is coming out of the ground. The road can be put in good shape for summer hauling, however, and no doubt material tonnage could be moved over it most of the year.

The vein system runs diagonally across the N.E.-S.W. ridge, from a north slope in Sections 23 and 26 to a south slope in Sections 27 and 34, the latter being on the watershed of Middle Creek. On Section 34 there are two conspicuous gossan outcrops on which no development has been performed. These showing justify development, but owing to their inaccessibility their prospecting could be taken up only in conjunction with other work.

If the Reeves property were acquired in conjunction with the Oregon Exploration Company's holdings, and Section 34, then in that event the consolidated group would probably justify deeper development.

There are some serious handicaps to this, however: First, the vein dips to the southeast and the ground in the vicinity of the Oregon Exploration Company's workings and camp slope to the northwest. If the showing on Section 34 justified extensive development, of course, the tunnel driven directly on the vein would pass under these workings at great depth, but that would require a new road out Middle Creek to the railroad, some 12 or 14 miles.
9

Owing to the low value of the ore exposed and the high price of the property and severe terms exacted by the owners, I cannot recommend any work at this time. But if the owners are willing to waive the payment of any existing debts and come down materially on their price, give good terms, and the Reeves property is brought into the group under favorable terms and conditions, I feel that a second investigation of the property should be undertaken before the matter is entirely dropped.

Yours very truly,

F. CUSHING MOORE
Mining Engineer
Spokane, Washington

SILVER PEAK MINING AND MILLING CO. SMELTER STATEMENT 1929.

| Date | Car # | Tons | Oz. Gold | Oz. Silver | % Copper | Amount Net | Net Per Ton |
|---|---|---|---|---|---|---|---|
| Feb. 4 | 21363 | 49.420 | .15 | 17.00 | 15.39 | $2,110.73 = | $42.71 |
| Mar. 26 | 3315 | 62.609 | .20 | 12.00 | 12.28 | 2,723.14 = | 43.34 |
| Jul. 5 | 53071 | 34.402 | .24 | 4.74 | 7.58 | 622.37 = | 18.00 |
| 11 | 45628 | 50.316 | .06 | 3.33 | 5.65 | 513.56 = | 10.25 |
| 12 | 53751 | 53.135 | .12 | 3.54 | 6.27 | 707.38 = | 13.34 |
| 15 | 45679 | 58.751 | .02 | 3.50 | 6.68 | 721.23 = | 12.25 |
| 23 | 63842 | 51.515 | .05 | 3.61 | 6.40 | 665.10 = | 12.90 |
| 27 | 27112 | 57.296 | .04 | 2.73 | 5.00 | 463.89 = | 8.10 |
| 27 | 40013 | 56.029 | .03 | 2.74 | 4.82 | 411.88 = | 7.35 |
| Aug. 3 | 43095 | 58.423 | .03 | 2.93 | 5.97 | 638.65 = | 10.90 |
| 7 | 63824 | 56.159 | .08 | 2.99 | 5.82 | 634.54 = | 11.30 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Aug. | 14 | 58381 | 61.088 | .09 | 2.59 | 4.69 | 480.65 | = 7.87 |
| | 19 | 1039 | 62.439 | .10 | 3.16 | 5.80 | 702.88 | = 11.25 |
| | 30 | 20113 | 52.420 | .06 | 3.50 | 6.34 | 635.49 | = 12.20 |
| | 30 | 20189 | 58.805 | .035 | 3.13 | 5.92 | 640.59 | = 10.88 |
| Sep. | 3 | 45871 | 64.389 | .04 | 3.04 | 6.17 | 750.89 | = 11.70 |
| | 7 | 52836 | 54.380 | .05 | 3.04 | 5.59 | 551.92 | = 10.15 |
| | 9 | 53846 | 54.036 | .04 | 2.57 | 4.97 | 424.59 | = 7.85 |
| | 11 | 47074 | 35.122(?) | .025 | 2.06 | 4.14 | 222.75 | = 6.35 |
| | 17 | 93020 | 56.967 | .00 | 2.30 | 4.68 | 348.53 | = 6.10 |
| | 20 | 53476 | 54.854 | .04 | 2.25 | 4.39 | 324.89 | = 5.95 |
| | 25 | 41961 | 54.705 | .03 | 2.45 | 4.88 | 396.48 | = 7.25 |
| | 26 | 54121 | 50.089 | .06 | 2.87 | 5.85 | 548.67 | = 10.95 |
| Total . . . | | | 1247.4 | | | | $16,240.81 | $13.03 |

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Seattle, Washington
December 6th, 1928

Mr. H. A. Guess,
120 Broadway,
New York City.

SILVER PEAK MINING & MILLING CO., RIDDLE, OREGON.

Dear Sir:

A complete sampling of this property has revealed a few conditions not noted at the time of my first visit in August.

The ore body has been crosscut at one place only with two drifts north and south on the best of the ore for a length of 100 feet. The maximum width is seventy-five feet, the detail value of which is reflected by samples 1 to 9.

Sample No. 1 is practically barren massive pyrite on the footwall of the deposit. No. 2 is the next four-foot section and is composed of barren pyrite schist. These have been omitted from the estimates, although further prospecting might show the fifteen-foot section represented by samples 1 and 2 to contain values at some other place along the lode. I do not believe the values or absence of values will be continuous, although the lode is fairly continuous.

The deposit is a replacement type in green stone schist containing lenses of massive pyrite, pyrrhotite and chalcopyrite irregularly distributed throughout a pyritized shear zone of forty to seventy feet wide and traceable on the surface by a very few exposures indicating a possible length of a thousand feet. Insufficient work has been done to determine the size, frequency or recurrence of the massive sulphide lenses.

The sixty foot section from sample 2 to the hanging wall, sample 9, and the samples from the 2 drifts and stope average .05 oz. gold; silver 1.64 oz.; Copper 3.33%. This sample includes

samples 4, 5 and 6, 28feet of pyritized schist in the center, that assays gold .01 oz., silver 0.22 oz., copper 0.36%, and might represent as much as 47% by volume of the entire ore body. The present development, however, is insufficient to warrant any such statement.

Excluding samples 4, 5 and 6, the average is gold .06 oz., silver 1.91 oz., copper 3.91%. The higher cost of selective mining and the chance of missing better values elsewhere along this zone does not justify excluding this area in a preliminary estimate if the property is to be considered as a straight milling operation. On this basis, the present development has defined an area sixty feet wide by one hundred feet long, 47% of which averages Au. 0.01 oz., Ag. 0.22 oz., Cu. 0.36%, and 53% Au. 0.06 oz., Ag. 1.91 oz., Cu. 3.91%. This would develop six hundred tons per foot of depth of an average grade of au. .036 oz., Ag. 1.12 oz., Cu. 2.26%.

The property is only a prospect, and the type of the deposit and amount of mineralization indicate that possible quite a tonnage of this grade of ore might be developed.

On the other hand, if the property is to be considered as a source of crude sulphide ore for Tacoma, selective mining will produce a grade of ore containing Au. .08 oz., Ag. 2.54 oz., Cu. 5.09%, Fe. 281%, S. 34.06%, Insoluble 24.2%; this can be benefited by sorting to average 6.6% copper as per shipping record. About 110 tons per foot of depth can be expected within the limits of the present development. If the cross-section of the ore now exposed in the tunnel extends to the surface, and the indications are favorable that it does, this block of ground alone will take care of Tacoma's minimum requirements for this class of ore for a year, or possibly two years.

The development shows a hanging wall massive sulphide body 12' x 50' and a footwall massive sulphide body 4.67' x 60' at a depth of 300 feet. This ore will average eight cubic feet per ton and the two bodies should produce on the above dimensions 30,000 tons of ore between the tunnel level and the surface.

If this ore is mined during the development of the property, the outcome will be about as follows:

30,000 tons Au. .08 oz. Ag. 2.54 oz. Cu. 5.09%
Copper at 15¢ and silver at 56¢.

| | | | |
|---|---|---|---|
| Pay for copper 5,09% | 101.80# | at 15¢ | $15.27 |
| Less 20# at .15¢ | $3.00 | | |
| 81.8# at 2-3/4¢ | $2.25 | | 5.25 |
| | | Pay for Copper | $10.02 |
| 95% of gold at $20.00 | | | 1.52 |
| 95% of silver at 56¢ | | | 1.42 |
| | | Pay for Au. Ag. and Cu. | $12.96 |
| Less Smelter treatment | | $2.50 | |
| R. R. haul | | 4.50 | |
| Truck haul | | 2.50 | |
| Mining | | 3.00 | $12.50 |
| | | Operating Profit | $ 0.46 per ton |

This grade of ore raised to 6.6% copper as per shipment record would return:

| | | | |
|---|---|---|---|
| Copper 6.6% | 132# at 15¢ | | $19.80 |
| Less 20# at 15¢ | | $3.00 | |
| 112# at 2-3/4¢ | | 3.08 | 6.08 |
| | | Pay for Cu. | $13.72 |
| | | Pay for Au. and Ag. | 3.72 |
| | Pay for Au. Ag. and Cu. | | $17.44 |
| Less Costs | $12.50 | | |
| Sorting | 666.56 | | 13.00 |
| | | Operating profit | $ 4.44 |

22,000 tons less 25% account of inssuficient development - 16,500 tons at $4.44 - $67,260. On 16 ¢ copper this calculated operating profit would be $95,000.

It is to be emphasized that the above figures are not intended to be a reliable forecast of the ore in the block of ground under consideration but as a possible outcome to compare with the investment.

For a moderate scale operation, I believe that the property will develop sufficient tonnage to justify a mill, or it can be considered as a shipper of crude sulphide ore for Tacoma. However, all that can be said at this time is that it has these possibilities and warrants systematic development.

At least five hundred or six hundred feet of drifting will crosscuts every hundred feet and a few raises with intermediate levels should be run. The type of deposit calls for frequent exploratory crosscuts.

The deposit is traversed by many slips that have a tendency to terminate the ore; on the other side of the slip, there is sometimes ore and sometimes only pyritized schist. I believe that the ore will not be continuous for any great length, but there will be a recurrence of bodies along a fairly continuous zone for probably a thousand feet. A few scattered exposures on the surface indicate this.

The present equipment on the property is of little value as it has already served its purpose. A new camp and equipment will have to be provided, sufficient to do, say, 1,200 feet of drifts and crosscuts at $25.00 per foot, or $30,000., and seven hundred feet of raises at $30.00 per foot, or $21,000. To this must be added cost of camp, road and equipment divided as follows: $5,000. for road work; $4,000. on camp and improvement of bunkers and sorting facilities, $2,500 for drills and steel, $8,000. for compressor and engine, and $500. for small tools. Also $10,000 required by owners for account of their indebtedness, or a total initial investment will be $55,000. with a possibility of spending $80,000 distributed over about one year.

During this time probably 16,000 tons of crude ore could be shipped that would net an amount equal to the investment. In addition the property has good speculative possibility.

If the proposed development on the present level is satisfactory, some diamond drilling should be done preparatory to driving a deeper tunnel from the opposite or east side of the mountain. A tunnel approximately 1,800 feet long will gain 1,000 feet depth (no measurement of this was made however, as the vein dips toward the portal of the proposed tunnel. This tunnel will be about four miles from a railroad and a rail connection can be made at this point.

The following is a complete list of samples taken and estimates used in this report. (See accompanying map.)

| Sample No. | Width Ft. | Au. oz. | Ag. oz. | Cu. % | Character | Location |
|---|---|---|---|---|---|---|
| X | | | | | | |
| 1 | 11 | Tr. | .22 | .36 | Pyrite | Footwall Main Crosscuts |
| 2 | 4 | .01 | .26 | .52 | Schist | do |
| 3 | 9 | .01 | .40 | 3.77 | Pyrite | do |
| 4 | 13 | .01 | .28 | .06 | Schist | do |
| 5 | 10 | .01 | .15 | .43 | Quartz | do |
| 6 | 5 | .015 | .21 | 1.00 | Fe. & Qtz. | do |
| 7 | 7 | .05 | .69 | 1.87 | " | Do |
| 8 | 8 | .09 | 1.59 | 2.43 | Pyrite | do |
| 9 | 8 | .02 | 1.92 | 3.45 | " | Hanging Wall Main Crosscut |
| 10 | 5 | .01 | .16 | .07 | Schist | South Face No. 2 Drift |
| 11 | 6 | .02 | .63 | 1.42 | Pyrite | South No. 2 Drift |
| 12 | 5 | .015 | .94 | 1.94 | " | do |
| 13 | 3 | .01 | .43 | 1.33 | " | do |
| 14 | 5 | .01 | .90 | 1.49 | " | do |
| 15 | 3 | .02 | .71 | 1.38 | " | do |
| 16 | 8 | .03 | .71 | 1.22 | " | do |
| 17 | 8 | .01 | .69 | 1.65 | " | do |
| 18 | 5 | .02 | .29 | .12 | Schist | West Half North Face |
| 19 | 3 | .02 | 1.34 | 2.56 | Pyrite | East Half North Drift |
| 20 | 6 | .03 | 1.00 | 2.58 | " | No. 2 North Drift |
| 21 | 6 | .02 | 1.18 | 2.93 | " | do |
| 22 | 6 | .02 | 1.74 | 3.23 | " | do |
| 23 | 5 | .04 | 1.55 | 4.51 | " | do |
| 24 | 1.5 | .09 | 8.02 | 21.26 | " | North Face No. 1 Drift |
| 25 | 1.8 | 2.51 | 16.39 | 14.04 | " | No. 1 North Drift |
| 26 | 3 | .04 | 13.80 | 13.48 | " | do |
| 27 | 4 | .01 | 2.19 | 5.28 | " | Stope |
| 28 | 4 | .025 | .64 | 4.51 | " | do |
| 29 | 5.5 | .02 | .69 | 4.92 | " | do |
| 30 | 5.5 | .01 | .69 | 2.39 | " | do |
| 31 | 3 | .02 | .74 | 3.86 | " | do |
| 32 | 3 | .02 | .47 | 2.39 | " | do |
| 33 | 3.5 | .02 | 9.94 | 14.14 | " | do |
| 34 | 3 | .16 | 7.63 | 10.86 | " | do |
| 35 | 4 | .03 | 2.45 | 8.68 | " | do |

Samples included in estimate, shipping crude sulphide.

| No. | Width Ft. | Au. oz. | Ag. oz. | cu. % | Location |
|---|---|---|---|---|---|
| 19 | 3 | .06 | 4.02 | 7.68 | Hanging Wall Ore Body |
| 20 | 6 | .18 | 6.00 | 15.48 | do |
| 21 | 6 | .12 | 7.08 | 17.58 | do |
| 22 | 6 | .12 | 10.44 | 18.48 | do |
| 23 | 5 | .20 | 7.75 | 22.55 | do |
| 8 | 8 | .72 | 12.72 | 19.44 | do |
| 9 | 8 | .16 | 15.36 | 27.60 | do |
| 24 | 1.5 | .135 | 12.03 | 31.89 | Footwall Ore Body |
| 25 | 1.5 | 3.765 | 24.58 | 21.06 | do |
| 26 | 3 | .12 | 41.40 | 40.44 | do |
| 3 | 9 | .09 | 3.60 | 33.93 | do |
| 27 | 4 | .04 | 8.76 | 21.12 | do |
| 28 | 4 | .10 | 2.56 | 18.04 | do |
| 29 | 5.5 | .11 | 3.80 | 27.06 | do |
| 30 | 5.5 | .05 | 3.80 | 13.14 | do |
| 31 | 3 | .06 | 2.22 | 11.58 | do |
| 32 | 3 | .06 | 1.41 | 6.87 | do |
| 33 | 3.5 | .56 | 34.79 | 49.59 | do |
| 34 | 3 | .63 | 22.89 | 32.58 | do |
| 35 | 4 | .12 | 9.80 | 34.72 | do |

Average of both ore bodies .08 oz Au. - 2.54 oz. Ag. - 5.09% Cu.

General Average all samples

| Sample No. | Total Widths | Ft. Au. oz. | Ft. Ag. Oz. | Ft. Cu. % | Location |
|---|---|---|---|---|---|
| ~~XXXXXXXX~~ | | | | | |
| 3,7,8,9,23 | 31 | 1.27 | 37.98 | 99.15 | Main Crosscut Pyrite |
| 24, 25, 26 | 6 | 4.02 | 78.01 | 93.39 | No. 1 North Drift |
| 19,20,21,22,23 | 26 | .68 | 35.29 | 82.07 | No. 2 North Drift |
| 11,12,13,14,15, 16, 17, 7 | 45 | 1.00 | 32.43 | 70.55 | No. 2 South Drift |
| 27,28,29,30,31, 32 | 25 | .42 | 22.55 | 97.81 | South Limit of Stope |
| 33, 34, 35 | 10 | 1.31 | 67.48 | 116.69 | North Limit of Stope |
| 4, 5, 6 | 28 | .30 | 6.19 | 10.08 | Main Crosscut Schist |

General Average .05 oz. Au. - 1.64 oz. Ag. - 3.33% Cu.

Ore shipments as per smelter returns.

| Date | Amount (Dry Tons) | Au. | Ag. | Cu. |
|---|---|---|---|---|
| Aug-Nov. Inc. 1928 | 880 | .04 oz. | 2.51 oz. | 6.60% Average Per Ton |

Ore shipped from North End of property.
Ground contested by adjoining claim owner.

| Date | Amount (Dry Tons) | Au. | Ag. | Cu. |
|---|---|---|---|---|
| July-Nov. 1926 | 290 | .16 oz. | 10 oz. | 8% Average Per Ton |

(This better grade probably due to closer sorting)
It is undoubtedly from same vein and 400-500 feet north of section that produced ore shipped in August to November this year.

Litigation: The property of the Silver Peak Mining and Milling Company consists of the NW¼ of Sec. 26 T.31 S.R. 6W. This is patented timber land. The present workings of the Silver Peak Mining & Milling Company, measured along the strike of the lode, are 450 feet southeast of the east-west line between Section 23 and Section 26.

The lode dips southeast about 65 to 70 degrees. The lode after it passes into Section 23 appexes and is covered by lode locations. It will, therefore, be seen that that portion of the vein or veins that apex in the south half of the southwest 1/4 of Section 23 passes into the north half of the NW 1/4 of Section 26 on this dip; also that the law of "extra-lateral rights" grants the right to follow the vein on its dip limited in strike or length by the vertical projection of the end lines of the claims.

I have secured the accompanying photostat from the claim owners (Oregon Exploration Company), who are trying to establish their rights under the patented timber-land (Silver Peak Mining & Milling Company. This map was used in the law-suit. It will be noted that Silver Peak Lode No. 2 is located so that the area within the projection of its end lines includes the orebody or vein developed by the Silver Peak Mining and Milling Company; also, the area within the projection of the end lines of Silver Peak No. 1 includes the orebody developed by the Oregon Exploration Company in the NE 1/4 of Section 26 (the patented timber land owned by the Silver Peak Mining & Milling Company. In the County Court at Roseburg, Oregon, the Silver Peak Mining & Milling Company was awarded the case; i.e. the vertical projection of an end line of the patented timber land held; and it was held that the Oregon Exploration Company had no extra-lateral rights in this case.

On Nov. 14th the case was heard at the State Capital, Salem, Oregon. No decision has been given and none is expected before the first of the year. If the Oregon Exploration Company lose, they are expected to carry the case to the Supreme Court of the United States. On the other hand, should they get a favorable decision, the property of the Silver Peak Mining and Milling Company has little value as a mining property.

No extra-lateral rights under patented timber lands will mean an embarrassing condition for mining claims in the forest areas of Oregon and Washington.

Right now neither company can deliver clear title. The Silver Peak Mining & Milling Company are willing to do business, but the Oregon Exploration Company wishes to await the outcome of the case.

I am in touch with both parties and will be given the first opportunity to consider the deal.

Yours very truly,

L. A. Levensaler.

H. GRATTAN LYNCH
Engineer & Geologist

Elliott 7973

NORTH AMERICAN MINES, INC.
2014 Smith Tower
Seattle, Washington

Sept. 6, 1937

Mr. R. W. Wiley
Silver Butte Mine
Riddle, Ore.

Dear Bob:

After studying the underground and surface maps that Hutchinson made, the following seems to be what should take place in the Silver Butte Mine:

1. Winze should continue in ore and a drift run either way should continue in ore for some time.

2. The raise along the fault in the south drift should get into ore at a point about 65' above the level.

3. The footwall vein should be at the point where the fault crosses the old drift.

4. The south drift will get into the vein if driven a few more rounds along the fault.

5. The face of the OE drift is now where it should get the ore if the ore continues down on the 70° dip. However, if there is any rake to the south you may have to drift 50 feet or more to the south without getting into ore.

My suggestion would be to continue the raise 15 feet higher to 65'. This should get you into the ore shoot which outcrops on the surface, beyond the fault, providing there is not much rake to the shoot. This seems to me to be the quickest and cheapest development at the moment. If it does not get into ore at 65-70 feet, try a few rounds in the south drift marked (4) on the sketch.

I would put a round or two in the stringer shown at point marked (3).

I believe it advisable to push the OE tunnel ahead one or two rounds to see if the greenstone is only a horse. It is possible that the ore is beyond the greenstone as Harry believes but I am afraid that you will have to drift to the south.

At the moment I believe your best chances to get quick ore is 1. from the winze as we discussed in Portland, 2, in the raise, 3 stringer at point marked (3), 4 drifting south at (4) and 5 by drifting south from OE level.

I am enclosing a sketch of the workings with places marked.

Sincerely,

/s/ H. GRATTAN LYNCH

H. Grattan Lynch

GEORGE H. WIGTON
Metallurgical Engineer

Eureka, Utah
May, 8, 1937.

Mr. N. C. Willmore,
Eureka, Utah.

Dear Sir:

Following is an estimate of the economic value of milling as applied to ore from the Silver Peak Mine near Riddle, Oregon. The estimate is based on results of flotation tests reported in my letter of April 29, and on grade of ore shown on a smelter settlement dated Nov. 9, 1936, and on what data on freight and smelter treatment I could get from that settlement, together with a few necessary assumptions on smelter and freight rates based on my own experience. As the ore tested varied greatly in grade from the ore shown on the smelter settlement, and as I have no accurate data on freight rates on various grades of ore or smelter rates on concentrate, the following estimate must be considered as approximate only.

Assumed Metallurgical Results
(Based on Experimental Work)

| | % Wt. | Assay | | | | % Recovery | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Gold | Silver | Copper | Zinc | Gold | Silver | Copper | Zinc |
| Ore | 100 | .10 | 2.35 | 4.98 | 4.2 | 100 | 100 | 100 | 100 |
| Conc't. | 20 | .47 | 10.10 | 22.2 | 5.2 | 94 | 86 | 89 | 25 |
| Tailing | 80 | .0075 | .40 | 0.7 | 4.0 | 6 | 14 | 11 | 75 |

Value of Concentrate

| | Copper 9.525 ¢ | | Copper 14¢ |
|---|---|---|---|
| Pay for Gold | $14.92 | | $14.92 |
| Silver | 7.39 | | 7.39 |
| Copper | 27.10 | | 45.00 |
| Total | 49.41 | | 67.31 |
| Treatment estimate | 5.00 | | 5.00 |
| Net Smelter Value | 44.41 | | 62.31 |
| Freight, est. $5.50 | | $6.60 | |
| Trucking 1.50 | 7.00 | 1.50 | 8.10 |
| Net Value 1 ton conc't. at mine | 37.41 | | 54.21 |
| Net value of conc't. per ton ore | 7.48 | | 10.84 |
| Val 1 ton ore at mine | 2.57 | | 5.48 |
| Milling Margin | 4.91 | | 5.36 |
| Milling Cost | 2.00 | | 2.25 |
| Estimate Milling Profit | 2.91 | | 3.11 |

The foregoing estimate indicates an increased yield by milling of approximately $3.00 per ton ore. From this must be deducted a suitable charge for amortization of plant cost.

Provided you have the quantity and kind of ore you have mentioned, I consider this ore body very promising for a commercial development. Therefore I recommend a mine examination to get a conservative estimate of the tonnage available as well as to obtain a representative sample on which final metallurgical tests can be made.

I shall be glad to discuss this with you when you are feeling able.

Very truly yours,

/s/ GEORGE H. WIGTON

COPY

# REPORT

ON THE

# SILVER ~~PEAK~~ Butte MINE

DOUGLAS COUNTY, OREGON

BY

GEO. JAMME MINING ENGINEER

SEATTLE, WASHINGTON. DEC. 5TH, 1923

# INTRODUCTION

THE following report on the Silver Peak Mine is made at the request of the president of the Oregon Exploration Company whose instructions were "to size up the general situation surrounding their copper lode property near the town of Riddles and advise as to what the conditions are and the possibilities may be."

The statements made herein are based on personal observations taken on the ground and on the writer's knowledge of the general geology of the region; also, on information given by officers of the company, and technical sources.

**********

## SUMMARY & CONCLUSIONS

Copper ore occurs on the Silver Peak property in a greatly sheared and metamorphosed, porphyritic dike which is an intrusion in the greenstone country rock of the immediate region.

The linear extent, width, and physical structure of this dike are such as to make it the possible repository of a large deposit of ore. Development work, however, has not been sufficient to demonstrate just what form the deposit has taken - whether in more or less dissemination or in seggregated masses; geological conditions rather favor the latter.

The present showing, although small, is an unusually good one - ore occurring not only in considerable width, but also of high grade. If this showing of high grade ore continues for 100 feet more of further drifting - as it is likely to do - there will then be sufficient available to cover the cost of whatever equipment may be necessary for its extraction and conversion, and at the same time leave a very good profit.

The proposition, however, must as yet be considered as a prospect. It is the kind of a proposition which will probably prove out to be a series of fairly large masses of high grade copper ore. These are desirable undertakings and, when operated intelligently and on a reasonable scale, are generally highly remunerative.

Physical conditions and the present showing fully justify whatever outlay may be necessary to prove the conditions as above outlined.

Geo. Jarme

Mining Engineer.

Seattle, Washin ton.
December 6th, 1923.

## DATA OF PHYSICAL CONDITIONS

EXTENT & LOCATION.

The company's holdings consist of 8 full lode claims, taken up as shown on the accompanying map. These lay on and near the crest of Silver Peak mountain about 9 miles south from the town of Riddles, Douglas County, Oregon. The claims occupy portions of Section 23, 26 and 27, township 31 south, range 6 west. The camp and principal workings are reached from a good dirt and gravel road which runs direct from Riddles. The town of Riddles is on the main line of the Portland Division of the Southern Pacific Railway.

TITLE.

Title to the various claims is by possessory right which, under the law, requires a certain amount of work to be done annually. All of which requirements have been complied with.

DEVELOPMENT & EQUIPMENT

Development on the claims consists of a series of prospect holes, open cuts, short tunnels, open cuts, short tunnels, and several shallow shafts, at and near the surface and along the strike of the dike so as to disclose its continuity and characteristics; also the present working crosscut and drift. These are shown on the accompanying blueprint and aggregate, in all, about 1500 feet of work.

Equipment consists of a small gas-driven, belted compressor for jack-hammer drill; all the cars, tools, stell, etc. etc. necessary for a small operation; and an assay outfit. Improvements embrace a temporary tipple and sorting frame; forge, camp for accomodation of 15 persons; roads, trails, etc.

All of this work has been intelligently and well done. Roughly, it represents an outlay somewhere in the neighborhood of $50,000.

TOPOGRAPHY

The Riddles District lies in the northern part of the Rogue River Range of mountains which consist of an elevated, well dissected plateau of medium high relief. The valley of the Umpqua river, at the town of Riddles, is about 700 feet above sea; Silver Peak Mountain, on which the claims lay, rises about 3000 feet higher. In the immediate vicinity of the claims, the slopes are steep - rising at angles in the neighborhood of 35 degrees. The slopes are well wooded with merchantable timber, suitable for all mining purposes, and covered with a light growth of underbrush.

Water is available in the valleys and for a short distance up the slopes, but does not flow in quantity at the higher elevations. While the soil is of the nature that will absorb and hold water, the slopes are so steep that the runoff is rapid. Annual rainfall in the region is around 30 inches and mostly during the winter months. Snowfall is light, except at the higher elevations. Water for power and milling purposes, therefore, is available only at the lower elevations or close to the valleys. Climatic conditions are such that work can be carried on throughout the entire year.

GEOLOGY

Geologically, the region consists of a great complex, in which igneous rocks of varying kinds and natures have invaded or overflowed ancient, thin-bedded sediments, or have invaded or overflowed previously deposited igneous rocks. These invasions have brought about the uplifts of the region which subsequently, due to several oscillations of level and destructive atmospheric agencies, have been carved into their present relief. Structurally, the forces acting to produce these movements have not only brought about the northerly-southerly direction of the mountain and valley system, but have tended to compress, distort and greatly shatter much of the rock material; thus, forming, at many places, physical conditions favourable for the accumulation of ore deposits. One of these favourable places is occupied by the claim here described.

The bedrock in the immediate vicinity of the claims is a granular-grained, highly metamorphosed greenstone having the general composition and structure of a gabbro. This bedrock has been invaded by a rock of similar nature but containing more silica and of porphyritic structure, technically, it would probably be classed as a quartz-porphyry. Differentiation between the two rocks is clear - the former is dark green in color, whereas the latter is a gray. The dike rock has been greatly shattered and sheared, and mineralization has taken place in the sheared areas and along the line of contact of

the two neighboring rocks. The dike extends in a general northerly and southerly direction, through and beyond the claims, for a distance of several miles; it stands at an angle of about 80 degrees and, where measurable, ranges in width in the neighborhood of 60 feet.

The history of the region shows that where copper deposits occur they are of two different types, namely; contact deposits, in which an igneous rock - generally a porphyry - is in contact with some of the ancient sediments; or deposits in shear zones in the greenstone. The Almeda mine near Grants Pass represents the former type, and the Joseph Ball, in the Riddles District, the latter. The mode of occurrence of the ore in the Silver Peak mine, while showing in quantity and high grade along the line of contact of the dike rock and the enclosing greenstone, is properly of the "shear Zone" type; the sheared effect being due to the shrinkage strains at the time of cooling and movements which have subsequently taken place in the general vicinity.

MINERALIZATION

On the accompanying blueprint is a sketch of plan and workings of the lower tunnel on the claims. The cross-sectional sketch shows the relations of the enclosing greenstone and the sheared, ore-bearing, porphyry dike.

The dike rock itself is a white and gray quartz, intermixed. The parts exposed, besides being greatly fractured, are much altered. At places it is highly silicous, at others it has kaolenized. Besides silica and alumina, it carries lime, soda, iron, barite and manganese as its principal constituents. Copper occurs chiefly as bornite and chalcopyrite; there are some alteration products in the form of carbonates and silicates, but these are of trifling amount. Gold and silver occur in association with the copper and iron. Silver also occurs separately, as a sulphuret; it is found where the barite is most abundant, so this association is probably merely a secondary deposit. Spalerite and galena are also present, but sparingly. Tin, tungsten and several other metallic minerals are reported, but the writer observed no indication of them.

Mineralization, here, has been brought about through the medium of hot, ascending solutions which have filtered up along the hanging wall and through the intensely fractured areas of the dike, where deposition of the metallic minerals has taken place. Deposition has also taken place by replacement of some of the more soluable minerals of the dike with copper and iron. In addition, at certain horizons, there has probably been a lateral movement of the solutions, which would tend to enrich some portions of the ore-body at the

expense of others. Leaching and oxidation has taken place in the upper portions of the dike-rock, at and near the surface; the leachings being carried down for short distances and there probably enriching the already deposited ore. The brown and yellowish capping at the surface being the oxidized remains of the leached material, and its development on the surface indicates the presence and trend of the dike. Nowhere in the district is the oxidized zone known to penetrate deeper than 200 feet below the surface; here, it apparently is about 120 feet. Enrichment, therefore, by descending solutions, is not likely to be great.

EXTENT OF DEPOSIT

The above described conditions of the porphyry dike-rock, on the claims, are conditions which admit of extensive ore bodies. Porphyritic intrusions in ancient rocks of any kind, when greatly sheared and fractured as the dike-rock is here, are very good repositories; and, when mineralized, are frequently well mineralized.

Here, the superficial extent of the dike, both in length and in bredth, would indicate a considerable depth for the shattered area - a depth probably exceeding 1000 feet below the present showing. Whether this area is mineralized, as an ore, throughout, depends upon the original source of supply and whether ascending solutions, other than metal bearing, may not have filled in and healed much or little of it; also, whether there has been any great amount of faulting and healing prior to the advent of the metal-bearing solutions. One such fault occurs just north of the point where the crosscut tunnel enters the main drift; its throw is about 15 feet, and apparently it was accompanied by some crushing on the north side. It has healed over and contains but little ore; just how far this condition exists is not shown, but probably not far. This was the only fault observable over the entire length of the claims. From the fact that fracturing and healing prevail throughout the region - in the gold deposits as well as in the copper - it would not be unreasonable to expect them to occur here; none have as yet been found or observed, but they may occur.

Under the conditions as shown, where an ore body lies at some depth below the surface, there is no way to define its form or arrive at a measure of its extent except by prospecting of some kind, or by development work. Here, it is possible that the ore is disseminated more or less uniformly throughout the fractured area, or may be seggregated in pipes or lenticular masses of irregular shape. Thus far, the prospect and development work on the claims has not been sufficient to give an idea as to what form the deposits have taken; neither is there any surface showing that would aid in forming an opinion. The only indication one may be guided by, in this respect, is the fact that fracturing and healing prevail in the region, generally, and this is a condition which lends itself to the formation of lenticular masses.

At the time of the writer's visit copper ore had been found only in the two lower tunnels. In the upper of these, the showing is small - the point is just about on the dividing line of the oxidized and sulphide zones, so would not be apt to be large. In the lower tunnel, however, the showing is very good indeed, and gives an idea of what the possibilities may be. At the time, the face of the tunnel was entirely in ore. This consisted of 27 inches of bornite and 60 inches of massive chalcopyrite; while adjoining this, as was developed in the crosscut 75 feet back, there is 20 feet of low grade ore. The showing here, is positive and definite; it has the appearance of being the edge or on the rim of a large body of ore. The conditions at this point are pictured on the accompanying blueprint in the cross sectional sketch through A - B. The following is the writer's estimate of the ore mined or actually available, there. (see blueprint).

| | | |
|---|---|---|
| Bornite-Silver | 150 | tons |
| Massive Chalcopyrite | 350 | " |
| Low grade milling | 1500 | " |

If the tunnel were driven 100 feet further, and the high grade ore continues the same width as it is now - which is quite likely - there would then be in the neighborhood of 7000 tons of it available. This will convey the idea of what the tonnage possibilities may be.

VALUE OF THE ORE

Following are analyses of the samples of ore taken by the writer:

| | GOLD Ozs | Value | SILVER Ozs | Value | COPPER % | Value | TOTAL |
|---|---|---|---|---|---|---|---|
| #1 Bornite | .052 | $1.04 | 37.3 | $24.25 | 14.28 | $42.78 | $68.07 |
| #2 Chalcopyrite | .021 | $0.42 | .51 | $0.33 | 15.19 | $47.19 | $47.94 |
| #3 Low grade | .110 | $2.20 | .13 | $0.08 | 00.78 | $ 2.34 | $ 4.62 |

The above analyses should be taken simply as a measure of the value of the ore immediately available, and only as a guide as to what the value of the future ore may be. Generally, in copper deposits, the proportion of copper in the ore minerals themselves is characteristic; here, the ore has crystalized out as of fairly high grade, so it is fair to presume that it will continue more or less of this grade throughout.

A study of the analyses shows that the silver and gold content, as compared to the copper, is a variable, and may be

more or less according to local conditions. The probabilities are that the silver content will increase a little with depth, for some distance, then gradually decrease; most of it is associated with the barite which is an alteration product deposited with the descending solutions and, therefore, having no great depth. The gold content will probably remain about as it is. The surprise, however, is as to the gold content of the low grade ore; this should be given further extended investigation.

COSTS

Under the general situation, with the showings and primary development high up on a steeply-sloped mountain, and other features favorable, conditions are such that operations should be conducted at a minimum cost. In a general way, actual mining can probably be done for about 75 cents per ton; to this, however, should be added development and overhead charges, which would make the cost of production run up much more. Roughly, on the basis of 50 tons output per day, the following is the writer's estimate of costs:

| | |
|---|---|
| Mining | $3.00 |
| Shipping and Transportation | 4.50 |
| Smelting | 4.50 |
| Total . . . . . | $12.00 |

| | |
|---|---|
| Basis average value of ore | $40.00 |
| Less cost of conversion | 12.00 |
| Paper profit . . . . . | $28.00 |

POSSIBILITIES

In considering the general nature and characteristics of this proposition, as thus far disclosed, it is patent that its possibilities lie in a continuation of what the present conditions and showings are. It is known that the fractured area of the dike extends through the length of the claims, and what its width is; from these a deduction is made that it descends to a depth exceeding 1000 feet below the present tunnel level. Just how mineralization has taken place - whether more or less disseminated throughout, or in irregular masses - cannot now be stated. What little evidence there is on this point, would favor the latter. Such being the case, considerable masses of high grade ore would be the expectation. In the light of the general knowledge of these conditions, it is the writer's judgement that the company is fully warranted in the development of the present showing, with the expectation that it is a large mass of high grade copper ore; and, also, that it is fully warranted in prospecting for other similar bodies which, under the conditions, probably do exist.

RECOMMENDATIONS

Inasmuch as the showing of high grade ore in the present workings is so good, there will, very naturally, be a temptation to begin shipping at once. It is, of course, possible to ship in a small way - that is, by teams or trucks, etc. - and, no doubt, the funds derived could be used to advantage in development work. The writor, however, ventures the suggestion that the proper policy to pursue at the present timo is to cintinue the development on the lower tunnel with all the energy and xxx speed possible. A hundred feet more ofdrifting will pretty well define the nature of this particular deposit and, if conditions continue - which is quite likely - it will not only be possible to decide intelligently on thesize and kind of plant needed for shipping facilities, but there will probably be sufficient ore available to cover all the costs, etc.

On the accompanying blueprint the writer has outlined the suggested development. It contemplates, simply, the blocking out of an area of 100 x 100 feet, the cost of which will probably not exceed $2,500 and can be done within the next few months. Should the present conditions continue through this area, there will then be sufficient ore available to satisfy all requirements within the scope of the undertaking.

*****************************************

MEMORANDUM OF AGREEMENT

THIS AGREEMENT, made and entered into this 12th day of June, 1952, by and between OREGON EXPLORATION COMPANY, an Oregon corporation, with its principal place of business at Portland, Oregon, party of the first part, and HOMER B. MORRIS, of Portland, Oregon, party of the second part:

RECITALS

First party is the owner, in possession, and entitled to the possession of certain unpatented lode mining claims located in the County of Douglas, State of Oregon, and more particularly described as follows:

Silver Peak #1
" " #2
" " #3
" " #4
" " #5
Silver Peak Fraction
Silver Peak Base
Lower Silver Peak
Silver Peak North Base
Lower Silver Peak North

Also, Iron Dyke No. 1, Iron Dyke No. 2 and Iron Dyke No. 3, Banner, Canyon, South Bound, Silver Peak Mining District of Douglas County, Oregon. Recorded in Book 10 of Claim Records, Douglas County, Oregon.

All said lode mining claims are located in Section 23, T. 31, S.R. 6, W.W.M. in Douglas County, Oregon, and original location notices are recorded in Volume 10 of Mining Claim Records of Douglas County, Oregon, at Roseburg, Oregon. That said mining claims and mining property are unencumbered.

That the party of the second part is a resident of the State of Oregon but is holding the interest in this agreement for himself and other associates, names of whom will not in this agreement be disclosed.

That the above parties have agreed upon a plan wherein second party will engage in prospecting for mineral upon and within the mining claims hereinbefore described and, if justified, conduct a later development and finally the mining of the ores, if any be found therein.

IMPROVEMENTS

The said mining claims have, in the past, been partially developed and a certain amount of actual mining has been done.

NOW, THEREFORE, BY VIRTUE OF THE PREMISES, THE PARTIES HERETO AGREE, ONE WITH THE OTHER, AS FOLLOWS:

1. INTERESTS. Party of the first part hereby grants to the party of the second part the exclusive and perpetual right to take immediate possession of all said property and premises along with all development, equipment, if any, and improvements, water rights, timber, roads and any and every right which party of the first part has, or owns, in connection with the said mining claims hereinbefore

described, as well as the mining claims including all property, real, personal and mixed, and all rights of every kind belonging thereto, owned by the said first party herein whether or not referred to above, or correctly described. Second party agrees to immediately enter upon and take charge of the same for the purpose of prospecting, geologizing, developing and finally mining any minerals that may be found therein, if justified, and under such a program as may be warranted from the standpoint of a sound mining venture and for such purpose is hereby given the quiet, peaceful, complete, undisturbed, and perpetual possession of all of said property, and all improvements, and any and everything located thereon or belonging to the same. All work done and performed shall be done in accordance with good and practical mining examinations and prospecting and mining methods with the end in view to developing first party's mining property into a workable and productive mine. Second party shall have complete charge of all exploration, development and mining of said property so long as it shall comply with the terms of this agreement.

2. DIVISION OF INCOME. Second party, the co-tenant in possession shall have the right to take for himself 90% of the net smelter returns of all ores extracted and shipped from said mining property, and the party of the first part shall receive 10% of the net smelter returns from all ores extracted and shipped from said property until it has received $ 75,000.00 as hereinafter provided.

3. RATE OF PROGRESS. Second party agrees to proceed by geological reconnaissance with a later prospecting program and finally the exploration and development of the property under the terms of this agreement as diligently as existing conditions will permit but shall not be obligated to perform any specific amount of mining work until he has had a sufficient period not exceeding 18 months to thoroughly examine, geologize and test the mining land for possible ore deposits. Following the 11th day of January, 1954, and thereafter, second party shall be obligated as a minimum requirement to expend not less than $3,000.00 per year in actual work for the benefit of said mining property. Second party will do and perform all annual assessment work including the year 1952 and record proper proofs of labor therefor when required.

4. COSTS OF OPERATION. All costs of examinations, prospecting andmining, shall be borne entirely by second party and first party shall not be obligated for any such cost and expenses, and second party agrees to assume and pay any and all such obligations to be hereinafter incurred, and further agrees that he will protect and save harmless the first party and said property from any and all such obligations and from claims for personal injury or property damage.

5. REPORTS. Party of the second part agrees that he will furnish to party of the first part annually a statement and report of the condition of the work done. If the property is in production, reports shall contain the amount of production, assays, mill results, and smelter returns. On request of first party the original supporting records shall be made available to first party's agents or accountants for purposes of inspection. First party is to furnish second party with all its available maps, reports, and data of every kind and character upon the signing of this agreement.

6. RIGHT OF INSPECTION. First party, through its duly authorized representative, shall be entitled to inspect all work done on the property but said inspection shall be at reasonable and seasonable times and after notice to second party to make said inspection.

7. FORFEITURE. In case the party of the second part fails to comply with the terms of this agreement, then and in that event, second party shall be in default and first party may then declare second party in default and give to second party notice of said default, specifying definitely, and with clarity, wherein second party is in default, and unless said default is corrected in a period of 90 days thereafter, said first party may then declare a forfeiture against second party and, if the default is not corrected within 30 days following service of the forfeiture notice then, and in that event, first party may enter upon and take possession of said premises and declare all the rights of the second party terminated and the same shall, in that event, cease and determine and the party of the second part agrees that in such event it will surrender up and deliver over the premises to first party but in any event of either forfeiture or abandonment second party shall have the right to remove any and all equipment of every kind and character which he has placed upon said premises.

Any default or forfeiture as in this section provided is predicated upon the fact that no default or forfeiture can be declared against second party if the cause of default by second party has been due to War, seizure and operation by the Government in either War or Peace, scarcity of labor or materials, strikes, lockouts, mining casualty, extremely low metal prices, or causes beyond the control of second party, and, in all such events, second party is to be excused from performance of the contract for such period as such disability may exist, and the time for performance under said agreement in any and all such events shall be automatically extended for such time as such disability may exist, protection of the property by doing the annual assessment work if required alone excusing.

8. FIRST PARTY OBLIGATIONS. It is understood and agreed between the parties hereto, and first party agrees that in the past it has entered into and engaged in several optional agreements for the sale of said property, working contracts and other engagements, and has outstanding certain debts and obligations, all of which will not and cannot now become a cloud upon first party's title in any way. It is agreed, however, that in case any such loanees, creditors, optionees, lessees, contractees, or otherwise, should hereafter assert or claim any rights or interests in the said mining claims or mining property that then and in that event, first party agrees that the settlement and disposal of any such obligations shall be the obligation of first party and said first party agrees that it will assume the burden of settling and disposing and protecting the mining claims and premises and property from and against any such obligations. In the event that title to said mining claims or mining property is now or becomes involved on account of relocations by third parties heretofore made, and that first party after using its best efforts to do so is unable to clear the title to said property for the benefit of second party, second party agrees to waive any claim for damages against first party based upon the failure of first party to so clear said title.

9. PASSING OF TITLE. It is agreed between the parties hereto, and the party of the first part agrees that upon receipt of an amount of $ 75,000.00 in net smelter returns, or otherwise, that the title to all of said property and premises shall automatically pass to the party of the second part or his assigns and that upon the receipt of said last mentioned amount, without interest, first party will make, execute, and deliver to second part or his assigns a good and sufficient mining deed to all of said property.

10. RIGHT TO DISCONTINUE. The party of the second part, or his assigns, may at any time after date hereof, if he so elects, discontinue any preliminary examinations, prospecting operations, mining or development operations on said property. In case second party desires to abandon the property and discontinue as above stated, he shall, in such event, give to first party 90 days notice of his intention so to do, and upon said abandonment leave the property and premises in good state and condition and any and all permanent improvements in the way of underground development that may have been made thereon by second party shall be and become forfeited by second party to said first party as and for liquidated and stipulated damages for failure of the party of second part to fulfill and carry out this agreement. But party of the first part shall have no other recourse against party of the second part other than the said forfeiture. In case of such abandonment second party is to have the right to remove any and all equipment of moveable improvements either above or below the surface which he has placed thereon within 90 days following the date of abandonment.

11. ASSIGNMENT. As in this contract before stated, second party has associated with him certain silent associates and it is also contemplated by second party that if the preliminary explorations and examinations are successful and that he desires to conduct further and extensive developments on said property that he may desire to assign this contract to a corporation now in existence, or hereafter to be incorporated and in such event the party of the second part is to have the right and privilege of assigning this contract to any such parties without the consent or approbation either oral or in writing of first party.

12. NEW CLAIMS. It is further agreed between the parties hereto that in case the second party herein acquires other mining rights or interests in mining ground in the vicinity of the land made the subject of this agreement, that the first party herein will have no rights or interests of any kind or character in and to the same, whether acquired by lease, contract, purchase, or location.

13. FEDERAL LOANS. It is anticipated that in the prospecting, development and mining of ore deposits from the land made the subject of this agreement, that financial assistance may be made available by the Federal Government to the extent of at least 50% of certain expenditures which the party of the second part, or his assigns, are planning to make on said property; that this assistance may be of great benefit in getting the property into production, and in that manner greatly benefit all parties. Should this assistance become available, first party herein agrees to such a loan and that the Federal Government hold a lien on the ore and subject to repayment of any amounts advanced on a graduated royalty not exceeding a maximum of 5% of any ores shipped from the property until paid, and for a period of not more than ten (10) years duration. This amount would be in addition to the 10% royalty herein agreed to be paid by second party to the owner. First party, therefore, agrees that in case second party desires to obtain said assistance from the Federal Government, that the first party corporation, through its proper officer, will sign and execute a "Subrogation Agreement" when duly presented for this purpose, and the president of the corporation is hereby authorized to sign and execute the same on behalf of this corporation when requested by second party.

Each and every clause and covenant herein contained, where the context requires it, shall extend to and become binding upon the successors and assigns of the party of the first part and upon the

heirs, executors, administrators and assigns of the party of the second part.

IN WITNESS WHEREOF, the party of the first part acting by and through a resolution heretofore passed by its stockholders authorizing its officers to execute this agreement has hereunto caused its corporate name to be signed by its proper officers and has hereto affixed its corporate seal and the party of the second part has hereunto set his hand and seal the day and year in this agreement first above written.

OREGON EXPLORATION COMPANY

By /s/ R. E. Parsons President
Party of the First Part

ATTEST:

/s/ C. L. Chandler
Secretary

By /s/ Homer B. Morris
Party of the Second Part

STATE OF OREGON )
) ss
COUNTY OF MULTNOMAH )

Be it remembered that on this 11th day of June, 1952, before me the undersigned, a notary public in and for the State of Oregon, personally appeared the within named R.E. Parsons and C. L. Chandler personally known to me to be the president and secretary of Oregon Exploration Company, the corporation that executed the within and foregoing instrument and acknowledged to me that said corporation executed the same freely and voluntarily.

In testimony whereof, I have hereunto set my hand and affixed my notarial seal the day and year in this certificate first above written.

/s/ A. E. Lucas
Notary Public in and for the
State of Oregon
Residing at Portland, Oregon

(Notary Seal)

My Commission expires: April 30, 1955

STATE OF OREGON )
) ss
COUNTY OF MULTNOMAH )

Be it remembered that on the 11th day of June, 1952, before me the undersigned, a notary public in and for the State of Oregon, personally appeared the within named Homer B. Morris who is known to me to be the identical individual described in and who executed the within instrument, and acknowledged to me that he executed the same freely and voluntarily.

In testimony whereof, I have hereunto set my hand and notarial seal the day and year in this certificate first above written.

/s/ A. E. Lucas
Notary Public in and for the
State of Oregon
Residing at Portland, Oregon

(Notary Seal)

My Commission expires: April 30, 1955

# MEMORANDUM OF AGREEMENT

THIS AGREEMENT, made and entered into this 9th day of June, 1952, by and between SILVER BUTTE MINING AND MILLING CO., an Oregon corporation, with its principal place of business at Hillsboro, Oregon, party of the first part, and HOMER B. MORRIS, of Portland, Oregon, party of the second part:

RECITALS

Silver Butte Mining and Milling Co. is the owner in possession and entitled to the possession of that certain tract of land located in the county of Douglas, State of Oregon, and more particularly described as follows:

> The North half of the Northwest Quarter and the southwest quarter of the northwest quarter of Section 26, T. 31 S. R6W.W.M.

That in addition to the title to said land there is a water right appurtenant thereto, together with a right-of-way agreement for ingress and egress therefrom, and there is located upon the land approximately 1,500,000 feet of merchantable timber, 16 inches DBH.

That the party of the second part is a resident of the State of Oregon but is holding the interest in this agreement for himself and other associates names of whom will not at this time be disclosed.

That the above parties have agreed upon a plan wherein second party will engage in prospecting for mineral upon and within the land hereinbefore described and, if justified, conduct a later development and finally the mining of the ores, if any be found, from said land.

IMPROVEMENTS

The said mining land has, in the past, been partially prospected and a limited amount of mining has been done. The development as of this date consists of an open cut tunnel driven at a depth of 150 feet, or thereabouts, and for a length of about 100 feet; a second tunnel called Tunnel No. 1, driven at a depth of approximately 300 feet and about 130 feet in length; a third tunnel, driven at a depth of 445 feet and in length about 815 feet; a portion of a fourth tunnel, which extends into an adjoining property, at a depth of approximately 500 feet and 300 feet in length, or thereabouts; that a raise has been driven connecting number three tunnel with the number four level and a winze has been sunk on the number four level to a depth of about 60 feet, all of which improvements have been examined by the second party and no warranties concerning the same have been made by the first parties.

In the past shipments of approximately 6000 tons of ore have been made from the property but no mining work of importance has been done since 1937. The ore is that of gold, copper, silver and zinc.

Located upon said property is certain mining equipment consisting of an Ingersol Rand 500 cubic foot compressor with a Fiarbanks Morse two cylinder diesel engine and a portion of the tunnels are also equipped with rails and pipe. There are two old buildings that have heretofore been used in connection with mining operations upon the property. There is but one road giving access to the property from the highway which is a Forest Service road. No electric power has ever been installed upon the property.

NOW THEREFORE, BY VIRTUE OF THE PREMISES, THE PARTIES HERETO AGREE, ONE WITH THE OTHER, AS FOLLOWS:

1. INTERESTS. For and in consideration of the premises and the covenants herein contained and the payments herein provided for the first party hereby contracts and agrees to sell to the second party all of its right, title, and interest in and to the above described real property, including the water rights, mining, mineral rights, and all rights-of-way to and from said property to the highways, and any and all and every right which the first party has or owns in connection with the lands hereinabove described, including the right to follow all veins of minerals to their apex, excepting only the timber rights hereinafter set forth.

Second party agrees to immediately enter upon and take charge of said premises for the purpose of prospecting, geologizing, developing, and finally mining any minerals that may be found or developed thereon, if justified, and under such program as may be warranted from the standpoint of a sound mining venture, and for such purpose the second party is hereby given the right of quiet, peaceful, and complete and undisturbed perpetual possession of said property and all improvements and equipment located thereon and belonging to the same, except as hereinafter specifically reserved. All work done and performed shall be done in accordance with practical examination, prospecting and mining methods, and with good mining practice, with the end in view of developing the property into a workable and productive mine. Second party shall have complete charge of all explorations, development, and mining of said property so long as it shall comply with the terms of this agreement.

2. DIVISION OF INCOME. Second party, the co-tenant in possession, shall have the right to take for himself 90% of the net smelter returns of all ores extracted and shipped from said mining property, and the party of the first part shall receive 10% of the net smelter returns from all ores extracted and shipped from said property.

3. RATE OF PROGRESS. Second party agrees to proceed by geological reconnaissance with a later prospecting program and finally the exploration and development of the property under the terms of this agreement as diligently as existing conditions will permit but shall not be obligated to perform any specific amount of mining work until he has had a sufficient period not exceeding 18 months to thoroughly examine, geologize and test the land for possible ore deposits. Following the 9th day of January, 1954, and thereafter, second party shall be obligated as a minimum requirement to expend not less than $5,000.00 per year in actual work for the benefit of the mining property.

4. COSTS OF OPERATION. All costs of examinations, prospecting and mining, shall be borne entirely by second party and first party shall not be obligated for any such cost and expenses, and second party agrees to assume and pay any and all such obligations to be hereinafter incurred, and further agrees that he will protect and save harmless the first party and said property from any and all such obligations. Second party also agrees that he will not suffer or permit any liens to be filed against said property which may have or take precedence over the interest of the first party in and to said premises.

5. RESERVATIONS BY FIRST PARTY. As hereinbefore stated, thereis standing upon the land herein described approximately 1,500,000 board feed of mature merchantable saw logs above 16 inches

DBH, which is not to include the smaller timber and the unmerchantable timber, which may be suitable for mining purposes. First party reserves unto itself said merchantable saw-log timber and the right to sell the same. There is also reserved the right to use all rights-of-way and roads constructed upon said premises for the purpose of cutting and removing said merchantable timber from the premises; the same to be removed within three years from the date of this agreement. In this connection, however, the first party agrees that in cutting and removing said timber the loggers shall not block the roads or use them in such manner that they cannot be conveniently used by the second party in its mining operations. Each of said parties are to co-operate with a view toward the use of said roads jointly in logging said timber and in mining said property. It is understood and agreed that the second party assumes no obligation of any kind or character for the protection and preservation of said timber from fire hazard or other elements. In the logging and removing of said timber the first party or his contractors, agents, representatives, or assigns are to conduct said logging operations and the removal of said timber in a manner so as not to interfere with the mining operations of the second party in any unreasonable manner. First party agrees that in said logging operations the same will be conducted in a careful, workmanlike manner in accordance with the rules and regulations of the state forestry department, federal forester, and with the logging practices of the area where the same is located. In removing said timber the first party is not to damage or destroy any of the smaller timber except such as necessarily must be damaged or destroyed in performing said logging operations in a careful and reasonable and prudent manner. Immediately following the removal of said timber the first party or its contractors or agents are to comply with the rules and regulations of the state forester respecting the burning and removal of the slash and brush that shall result from said logging operations. During the life of this operation, however, both parties agree that they will comply with all of the fire laws of the state of Oregon having to do with the forest areas of the state of Oregon. During the logging operations the first and second parties agree that they will co-operate in the maintenance and upkeep of the road that shall be used by both of said parties in proportion to the use that each of them are making of the same.

If the first party does not remove the merchantable saw timber herein reserved within the stipulated period of three years, then and in that event the second party shall have an option for a period of one year thereafter to purchase said mature saw timber at the then prevailing stumpage rate per thousand for like timber in the area. The cruise is to be based upon a cruise of a timber cruiser approved by the Douglas Protective Association. If said second party shall not exercise said option within one year, then the first party is to be at liberty to sell said timber to any third party and to give him the right and permission to remove the same upon the same terms and conditions as herein set forth.

6. <u>REPORTS.</u> Party of the second part agrees that he will furnish to party of the first part annually a statement of report of the condition of the work done. If the property is in production, reports shall contain the amount of production, assays, mill results, and smelter returns. On request of first party the original supporting records shall be made available to first party's agents or accountants for purposes of inspection. First party is to furnish second party with all its available maps, reports, and data of every kind and character upon the signing of this agreement.

7. RIGHT OF INSPECTION. First party, through its duly authorized representative, shall be entitled to inspect all work done on the property but said inspection shall be at reasonable and seasonable times and after notice to second party to make said inspection.

8. FORFEITURE. In case the party of the second part fails to comply with the terms of this agreement, then and in that event second party shall be in default and first party may then declare second party in default and give to second party notice of said default, specifying definitely, and with clarity, wherein second party is in default, and unless said default is corrected in a period of 90 days thereafter, said first party may then declare a forfeiture against second party and, if the default is not corrected within 30 days following service of the forfeiture notice then, and in that event, first party may enter upon and take possession of said premises and declare all the rights of the second party terminated and the same shall, in that event, cease and determine and the party of the second part agrees that in such event it will surrender up and deliver over the premises to first party but in any event of either forfeiture or abandonment second party shall have the right to remove any and all equipment of every kind and character which he has placed upon said premises. Provided, however, this shall not include the right to remove any improvements which shall have become attached to and a part of the real property, including all tunneling and bracing of the same and all tracks which shall have been constructed into said tunneling and all other improvements which shall have been incorporated as part of the real property.

Any default or forfeiture as in this section provided is predicated upon the fact that no default or forfeiture can be declared against second party if the cause of default by second party has been due to War, seizure and operation by the Government in either War or Peace, scarcity of labor or materials, strikes, lockouts, mining casualty, extremely low metal prices, or causes beyond the control of second party, and, in all such events, second party is to be excused from performance of the contract for such period as such disability may exist, and the time for performance under said agreement in any and all such events shall be automatically extended for such time as such disability may exist, protection of the property, payment of taxes and maintenance costs alone excepted.

9. PAYMENT OF ANNUAL TAXES AND OTHER OBLIGATIONS. Party of the second part agrees that he will pay all taxes now due against said land and that he will keep up and pay all subsequent taxes hereinafter levied or assessed against said land and premises legally levied by any authorized taxing body. Said second party will likewise pay all personal property taxes now due or subsequently levied against the improvements now or hereafter placed on said property and will also pay the annual license tax of the first party corporation as well as any fees or dues that may become due and owing to any fire protective association for the protection of the timber located on said land but following the removal of said timber as in this agreement provided by first party. Until said timber is removed by first party, said first party shall be obligated to pay such fees for fire protection or other hazards to said timber providing it desires to protect itself against such hazard.

10. FIRST PARTY OBLIGATIONS. It is understood and agreed between the parties hereto, and first party agrees that in the past

it has entered into and engaged in many optional agreements for sale of said property, leases, working contracts and other engagements, all of which are presumed to have been forfeited and expired and that such contracting parties, other than first party herein, have no rights of any kind or character now existing. But in case any such parties as optionees, lessees, contractees, or otherwise, should hereafter assert or claim any rights or interest, then and in that event first party agrees that the settlement and disposal of any such obligations shall be the obligation of first party and said first party agrees that it will assume the burden of settling and disposing and protecting the lands and premises and property from and against any such obligations, and will protect and save harmless the party of the second part against the same.

11. PASSING OF TITLE. The consideration to be paid by the second party to the first party for these premises is to be $75,000. When the first party shall have received from the second party $75,000 in net smelter returns or other payments, not including the timber or the taxes, then the first party agrees to convey to the second party all of its right, title, and interest, in and to the property above described and herein set forth. Said $75,000 is not to draw interest during the life of this agreement. First party is to give to the second party a good and sufficient deed of conveyance and a bill of sale to any and all personal property. If the second party shall have placed upon the property equipment and improvements to the extent of $50,000 in value, then and in that event the second party shall have the right to demand, and the first party agrees that it will make and execute the conveyances hereinabove mentioned and place the same in escrow at the Commercial Bank of Oregon, Hillsboro, Oregon, along with a copy of this agreement to be delivered to the second party or his assigns at the time the said amount paid to the first party accumulates to an amount of $75,000 without interest.

12. RIGHT TO DISCONTINUE. The party of the second part, or his assigns, may at any time after date hereof, if he so elects, discontinue any preliminary examinations, prospecting operations, mining or development operations on said property. In case second party desires to abandon the property and discontinue as above stated, he shall, in such event, give to first party 90 days notice of his intention so to do, and upon said abandonment leave the property and premises in good state and condition and any and all permanent improvements in the way of underground development that may have been made thereon by second party shall be and become forfeited by second party to said first party as and for liquidated and stipulated damages for failure on the part of second party to fulfill and carry out this agreement. But party of the first part shall have no other recourse against party of the second part other than the forfeiture hereinbefore enumerated. In case of such abandonment second party is to have the right to remove any and all equipment or moveable improvements either above or below the surface which he has placed thereon within 90 days following the date of abandonment.

13. ASSIGNMENT. As in this contract before stated, second party has associated with him certain silent associates and it is also contemplated by second party that if the preliminary explorations and examinations are successful and that he desires to conduct further and extensive developments on said property that he may desire to assign this contract to a corporation now in existence, or hereafter to be incorporated and in such event the party of the

second part is to have the right and privilege of assigning this contract to any such parties without the consent or approbation either oral or in writing of first party.

14. SALE OF PERSONAL PROPERTY. It is agreed between the parties hereto and the first party agrees that the compressor and engine, track, pipe and any other personal property, now located on the property, is old and antiquated and may not be suitable for use in a modern mining operation. Said second party is given the right herein to the perpetual use of the same. However, if the said personal property or any part thereof is determined to be nonusable in a mining operation then, and in that event, said second party shall have the right and privilege of selling and disposing of the same but he shall be obligated to use any amounts he receives for the same to replace the same with other and more modern equipment of equivalent value.

14A. NEW CLAIMS. It is further agreed between the parties hereto that in case the second party herein acquires other mining rights or interests in mining ground in the vicinity of the land made the subject of this agreement, that the first party herein will have no rights or interests of any kind or character in and to the same, whether acquired by lease, contract, purchase, or location.

15. ARBITRATION. The parties hereto agree that they desire that this contract shall be fulfilled without litigation, if possible. Except as to the payment of the purchase price herein set forth, and on all agreements not herein specifically mentioned, the parties agree that any differences that shall arise between then as to the construction of this agreement or any other matters are to be submitted to a board of arbitration to be composed of three arbitrators, each party to select one, and the two so selected to choose a third, and their award to be binding upon each of the parties hereto, the cost of arbitration to be borne equally between the parties. In the event that one party desires to arbitrate some point, he is to give the other party a notice of his intention to arbitrate and to give him the name of the arbitrator that he has selected. The other party is then to have 15 days in which to choose its arbitrator and upon its failure so to do, then the arbitrator first selected is to be empowered to proceed to determine the question in dispute, and his award shall be binding upon both of the parties. Each party covenants and agrees that they will not resort to legal action over any question or difference arising out of this contract other than the failure to pay the money herein provided for until the same has been submitted first to arbitration as herein provided.

16. GENERAL. It is agreed between the parties hereto that there are no oral terms, promises, statements, conditions or inducements not contained herein and that each party hereto is entering into this agreement without reliance upon any representations, statements, conditions or inducements of the other; that this agreement represents the voluntary and clear understanding of both parties fully and completely.

Each and every clause and covenant herein contained, where the context requires it, shall extend to and become binding upon the successors and assigns of the party of the first part and upon the heirs, executors, administrators and assigns of the party of the second part.

IN WITNESS WHEREOF, the party of the first part acting by and through a resolution passed by the stockholders at a special meeting duly and lawfully called and authorizing its officers and directors to execute this agreement has hereunto caused its corporate name to be signed by its proper officers and has hereto affixed its corporate seal and the party of the second part has hereunto set his hand and seal the day and year in this agreement first above written.

SILVER BUTTE MINING AND MILLING CO.

ATTEST:

By /s/ John W. Bernards President
Party of the First Part

/s/ George Hermens
Secretary

By /s/ Homer B. Morris
Party of the Second Part

(Corporate Seal)

STATE OF OREGON )
) ss
County of Washington )

Be it remembered that on this 9th day of June, 1952, before me, the undersigned, a notary public in and for the State of Oregon, personally appeared the within named John Bernards and George Hermens personally known to me to be the president and secretary of Silver Butte Mining and Milling Co., the corporation that executed the within and foregoing instrument and acknowledged to me that said corporation executed the same freely and voluntarily.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my notarial seal the day and year in this certificate first above written.

(Notary Seal)

/s/ Carrell F. Bradley
Notary Public for Oregon
My Commission Expires: 12-18-54

STATE OF OREGON )
) ss
County of Washington )

BE IT REMEMBERED That on this 9th day of June, 1952, before me, the undersigned, a notary public in and for said county and state, personally appeared the within named Homer B. Morris, who is known to me to be the identical individual described in and who executed the foregoing instrument, and acknowledged to me that he executed the same freely and voluntarily.

IN TESTIMONY WHEREOF, I have hereunto set my hand and notarial seal the day and year in this certificate first above written.

(Notary Seal)

/s/ Carrell F. Bradley
Notary Public for Oregon
My Commission Expires: 12-18-54

OWNER'S CONSENT TO LIEN

WHEREAS, the undersigned, as owner, co-owner, lessor, or seller has an interest in certain property in the State of Oregon, County of Douglas, which is the subject of a proposed Exploration Project Contract, hereinafter called the "Contract", between the United States of America, hereinafter called the "Government", and 1/ Pacific Minerals, Inc.

hereinafter called the "Operator"; and

WHEREAS, under certain provisions of said Contract which are set forth on the reverse side hereof, the Government will acquire certain rights and equities which do or may conflict with or be adverse to the interest of the undersigned in said property;

NOW THEREFORE, the undersigned, in consideration of said Contract and as an inducement to the Government and Operator to enter into same, undertakes and agrees as follows:

1. The Government's equity in and right to remove facilities, buildings, fixtures, and equipment, as provided in the Contract, shall prevail over and be prior and superior to any conflicting or adverse rights of the undersigned.

2. The Government's percentage royalty on net smelter returns or other net proceeds realized from ore, concentrates, or metal produced within ten (10) years from the date of the Contract, and the Government's lien for the payment of said percentage royalty shall attach to the mineral deposit and the production therefrom, in the amount of the Government's contribution, not in excess of 2/ $ 51,000.00, all upon the terms and conditions set forth in said Contract.

3. The undersigned shall commit no act nor assert any claim that may contravene or conflict with the lien, claim, or rights of the Government under the provisions of the said Contract. This agreement shall be binding upon the heirs, executors, administrators, successors, and assigns of the undersigned.

Dated this 9th day of March, 1953.

SILVER BUTTE MINING AND MILLING CO.

By John W. Reynolds
President

1/ Insert the name of the Operator as it will appear in the Exploration Project Contract.

2/ Insert the maximum amount of the Government's contribution.

OWNER'S CONSENT TO LIEN

WHEREAS, the undersigned, as owner, co-owner, lessor, or seller, has an interest in certain property in the State of Oregon, County of Douglas, which is the subject of a proposed Exploration Project Contract, hereinafter called the "Contract", between the United States of America, hereinafter called the "Government", and

1/ PACIFIC MINERALS, INC.

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3. The undersigned shall commit no act nor assert any claim that may contravene or conflict with the lien, claim, or rights, of the Government under the provisions of the said Contract. This agreement shall be binding upon the heirs, executors, administrators, successors, and assigns of the undersigned.

Dated this 2 day of March, 1953.

OREGON EXPLORATION COMPANY

By N. Parsons
President

1/ Insert the name of the Operator as it will appear in the Exploration Project Contract.

2/ Insert the maximum amount of the Government's contribution.

OWNER'S CONSENT TO LIEN

WHEREAS, the undersigned, as owner, co-owner, lessor, or seller has an interest in certain property in the State of Oregon, County of Douglas, which is the subject of a proposed Exploration Project Contract, hereinafter called the "Contract", between the United States of America, hereinafter called the "Government", and 1/ Pacific Minerals, Inc.

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3. The undersigned shall commit no act nor assert any claim that may contravene or conflict with the lien, claim, or rights of the Government under the provisions of the said Contract. This agreement shall be binding upon the heirs, executors, administrators, successors, and assigns of the undersigned.

Dated this 5th day of March, 1953.

SILVER LUTTE MINING AND MILLING CO.

By John W. Bernards
President

1/ Insert the name of the Operator as it will appear in the Exploration Project Contract.

2/ Insert the maximum amount of the Government's contribution.

OWNER'S CONSENT TO LIEN

WHEREAS, the undersigned, as owner, co-owner, lessor, or seller has an interest in certain property in the State of Oregon, County of Douglas, which is the subject of a proposed Exploration project Contract, hereinafter called the "Contract", between the United States of America, hereinafter called the "Government", and 1/ PACIFIC MINERALS, INC.

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Dated this 7 day of March, 1953.

OREGON EXPLORATION COMPANY

By [signature]
President

1/ Insert the name of the Operator as it will appear in the Exploration Project Contract.

2/ Insert the maximum amount of the Government's contribution.

OWNER'S CONSENT TO LIEN

WHEREAS, the undersigned, as owner, co-owner, lessor, or seller has an interest in certain property in the State of Oregon, County of Douglas, which is the subject of a proposed Exploration Project Contract, hereinafter called the "Contract", between the United States of America, hereinafter called the "Government", and 1/ Pacific Minerals, Inc.

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Dated this 5th day of March, 1953.

SILVER BUTTE MINING AND MILLING CO.

By John W. Bernath
President

1/ Insert the name of the Operator as it will appear in the Exploration Project Contract.

2/ Insert the maximum amount of the Government's contribution.

# OWNER'S CONSENT TO LIEN

WHEREAS, the undersigned, as owner, co-owner, lessor, or seller, has an interest in certain property in the State of Oregon, County of Douglas, which is the subject of a proposed Exploration Project Contract, hereinafter called the "Contract", between the United States of America, hereinafter called the "Government", and 1/ PACIFIC MINERALS, INC.

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Dated this 7 day of March, 1953.

OREGON EXPLORATION COMPANY

By [signature]
President

1/ Insert the name of the Operator as it will appear in the Exploration Project Contract.

2/ Insert the maximum amount of the Government's contribution.

PACIFIC MINERALS, INC.
DOUGLAS CO., OREGON

INDEX MAP

CLAIM MAP

MAP OF 3 LEVEL

MAP OF 4 LEVEL

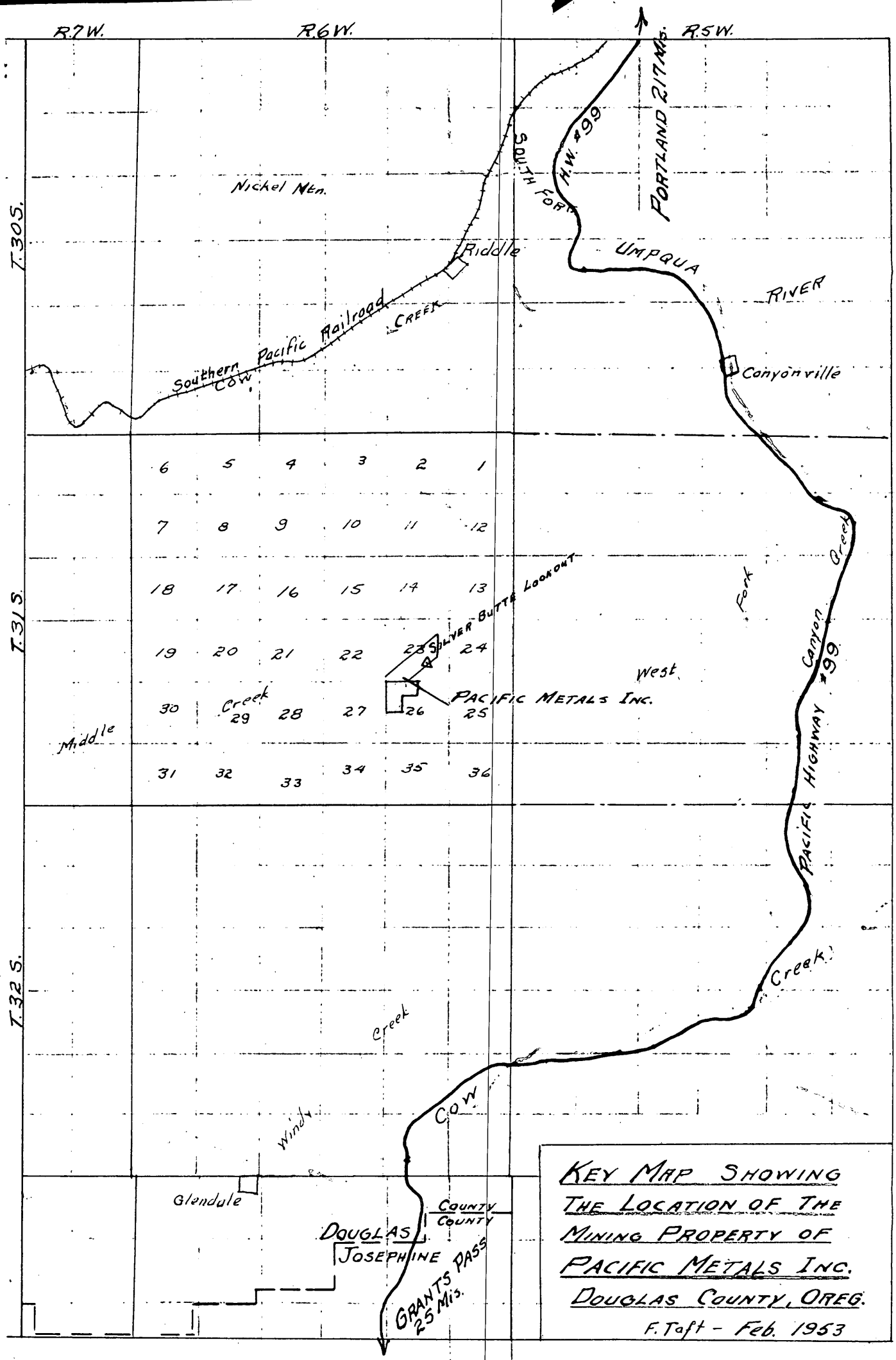
GEOLOGIC SECTION B-B'

GEOLOGIC SECTION C-C'

COMPOSITE LEVEL MAP

SAMPLE MAP

LONGITUDINAL SECTION A-A'




KEY MAP SHOWING THE LOCATION OF THE MINING PROPERTY OF PACIFIC METALS INC. DOUGLAS COUNTY, OREG.

F. Taft - Feb. 1953

PACIFIC MINERALS, inc.
P.O. Box 838
KELLOGG, IDAHO

PACIFIC MINERALS, inc.
P.O. Box 838
KELLOGG, IDAHO

# U. S. Government Messenger Envelope

Standard Form No. 65 (Rev. 1/46)

1. Use blocks consecutively, one at a time.
2. Void previous block.
3. Write clearly.

| NAME OR TITLE OF PERSON, DEPARTMENT, ADDRESS, AND ROOM | | NAME OR TITLE OF PERSON, DEPARTMENT, ADDRESS, AND ROOM | |
|---|---|---|---|
| [illegible] | RUN | [illegible] | RUN |
| [illegible] | STOP | [illegible] | STOP |
| [illegible] | RUN | [illegible] | RUN |
| [illegible] | STOP | [illegible] | STOP |
| [illegible] | RUN | Mr. M. [illegible] Room 2423 | RUN |
| | STOP | | STOP |
| [illegible] | RUN | ~~Mr. W. P. Truswold Room 2616 DMEA~~ | RUN |
| | STOP | | STOP |
| ~~Mr. Daffelle Room 1061~~ | RUN | Maps | RUN |
| | STOP | | STOP |
| ~~Mrs. Pons Rm. 338 National Museum~~ | RUN 11 | Docket file | RUN |
| | STOP 217A | DMCA - 2953 | STOP |
| Mrs. Jean Laybert Room 1327 ~~Interior Bldg.~~ | RUN | | RUN |
| | STOP | | STOP |
| ~~Frank W. Stewart Employee Rm.~~ | RUN | | RUN |
| | STOP | | STOP |
| ~~Mr. C. J. Larrand, Jr.~~ | RUN | | RUN |
| ~~Mr. Robert J. Mussal~~ | STOP | | STOP |
| ~~Department Room 2619~~ | RUN | | RUN |
| CH ~~Johnson Interior~~ | STOP | | STOP |

*Send surplus envelopes to supply room for reissue.*

Use other side

16—38949a-2

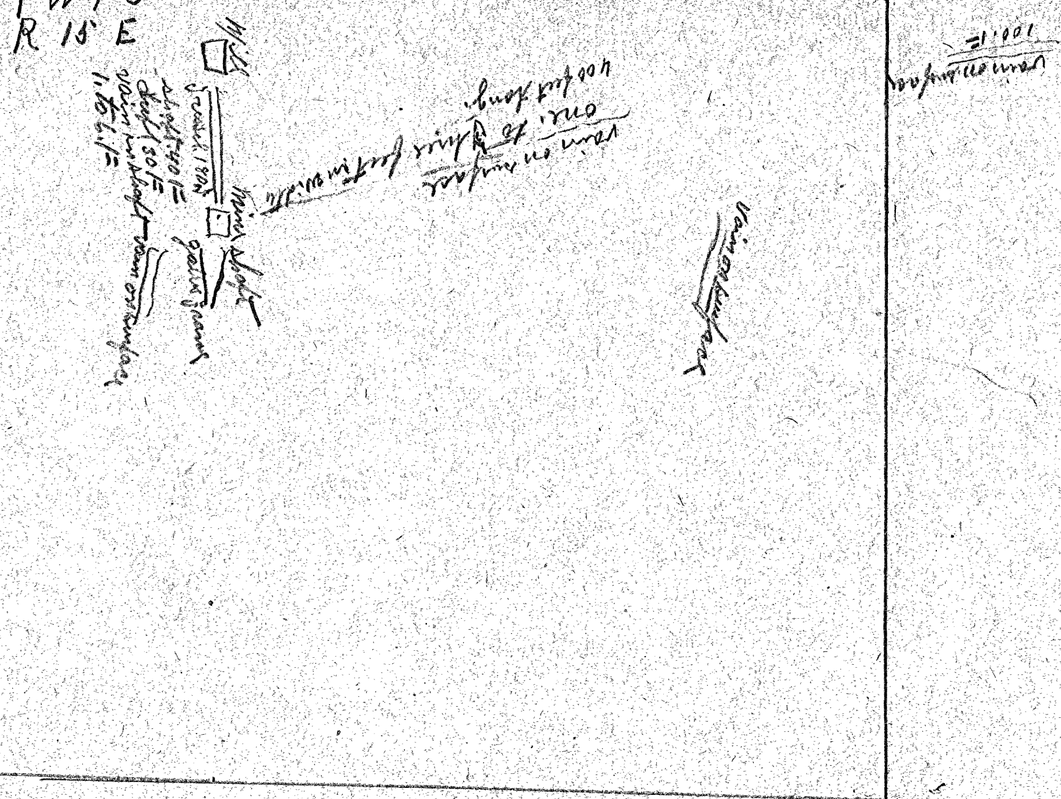
**Use RUN and STOP only when messenger service between Government buildings in Washington is required. Your mail room has RUN and STOP information.**

Mariposa County

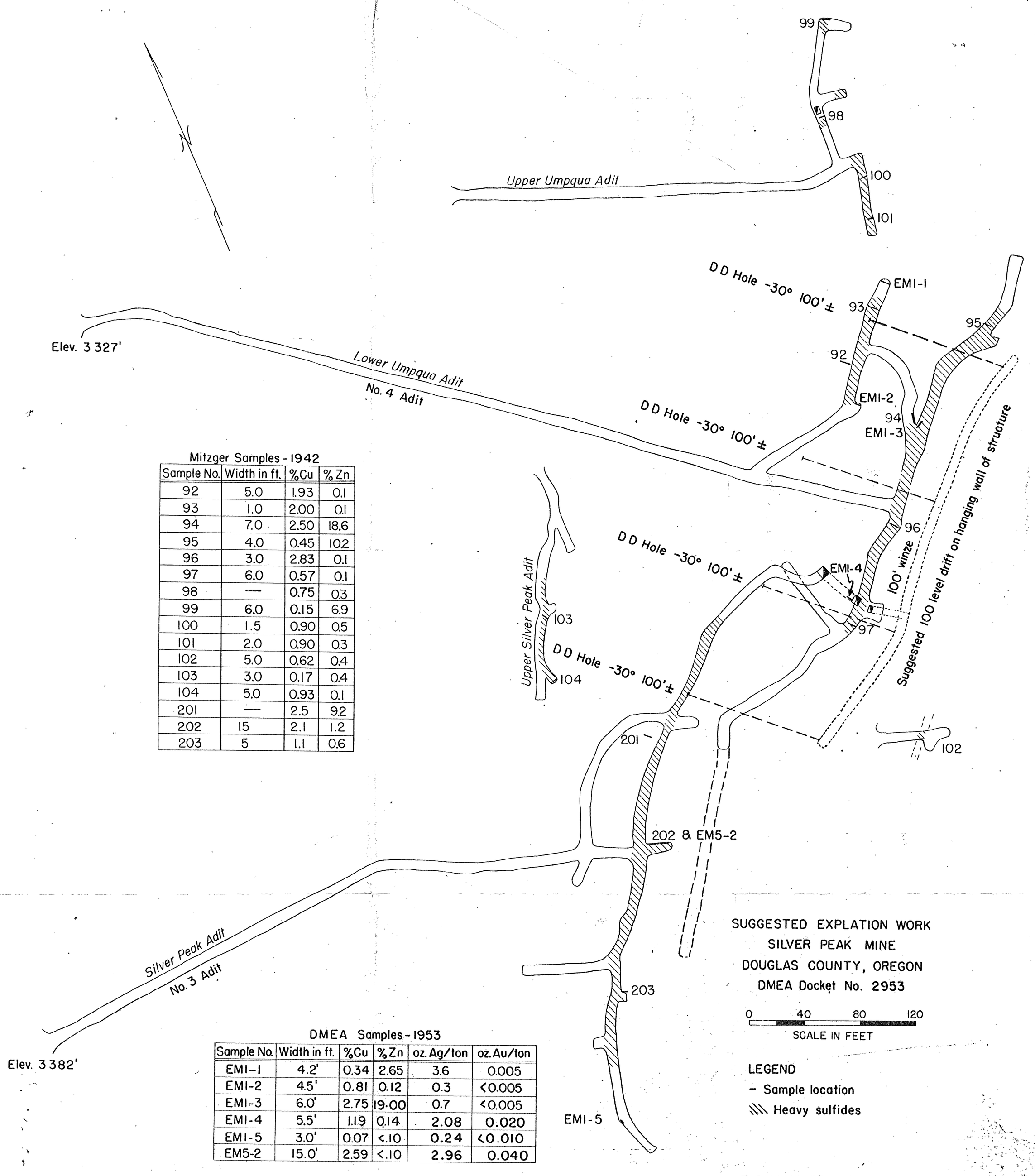
Caldwell (Daly) Mine
F.A.R.
See Calif Stat Mines
Bull. 150, pp106-108, 1950

BE¼
Sec 14
TWP3
R 15 E

N.W.¼
SEC. 11.
T.W.P. 3
R. 15.E




drwn 1952

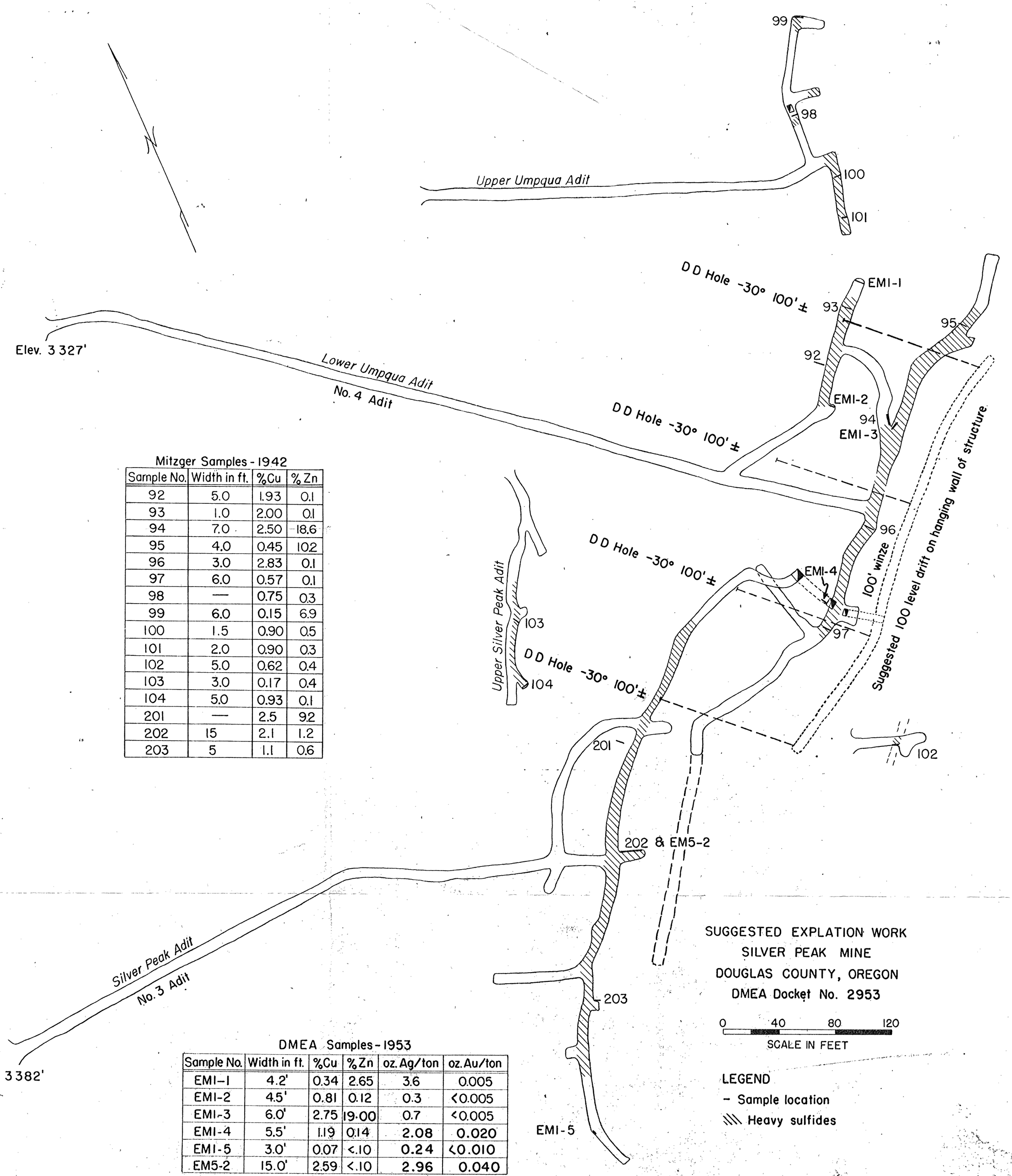



Mitzger Samples - 1942

| Sample No. | Width in ft. | %Cu | % Zn |
|---|---|---|---|
| 92 | 5.0 | 1.93 | 0.1 |
| 93 | 1.0 | 2.00 | 0.1 |
| 94 | 7.0 | 2.50 | 18.6 |
| 95 | 4.0 | 0.45 | 10.2 |
| 96 | 3.0 | 2.83 | 0.1 |
| 97 | 6.0 | 0.57 | 0.1 |
| 98 | — | 0.75 | 0.3 |
| 99 | 6.0 | 0.15 | 6.9 |
| 100 | 1.5 | 0.90 | 0.5 |
| 101 | 2.0 | 0.90 | 0.3 |
| 102 | 5.0 | 0.62 | 0.4 |
| 103 | 3.0 | 0.17 | 0.4 |
| 104 | 5.0 | 0.93 | 0.1 |
| 201 | — | 2.5 | 9.2 |
| 202 | 15 | 2.1 | 1.2 |
| 203 | 5 | 1.1 | 0.6 |

DMEA Samples - 1953

| Sample No. | Width in ft. | %Cu | %Zn | oz. Ag/ton | oz. Au/ton |
|---|---|---|---|---|---|
| EMI-1 | 4.2' | 0.34 | 2.65 | 3.6 | 0.005 |
| EMI-2 | 4.5' | 0.81 | 0.12 | 0.3 | <0.005 |
| EMI-3 | 6.0' | 2.75 | 19.00 | 0.7 | <0.005 |
| EMI-4 | 5.5' | 1.19 | 0.14 | 2.08 | 0.020 |
| EMI-5 | 3.0' | 0.07 | <.10 | 0.24 | <0.010 |
| EM5-2 | 15.0' | 2.59 | <.10 | 2.96 | 0.040 |




Mitzger Samples - 1942

| Sample No. | Width in ft. | %Cu | % Zn |
|---|---|---|---|
| 92 | 5.0 | 1.93 | 0.1 |
| 93 | 1.0 | 2.00 | 0.1 |
| 94 | 7.0 | 2.50 | 18.6 |
| 95 | 4.0 | 0.45 | 10.2 |
| 96 | 3.0 | 2.83 | 0.1 |
| 97 | 6.0 | 0.57 | 0.1 |
| 98 | — | 0.75 | 0.3 |
| 99 | 6.0 | 0.15 | 6.9 |
| 100 | 1.5 | 0.90 | 0.5 |
| 101 | 2.0 | 0.90 | 0.3 |
| 102 | 5.0 | 0.62 | 0.4 |
| 103 | 3.0 | 0.17 | 0.4 |
| 104 | 5.0 | 0.93 | 0.1 |
| 201 | — | 2.5 | 9.2 |
| 202 | 15 | 2.1 | 1.2 |
| 203 | 5 | 1.1 | 0.6 |

DMEA Samples - 1953

| Sample No. | Width in ft. | %Cu | %Zn | oz. Ag/ton | oz. Au/ton |
|---|---|---|---|---|---|
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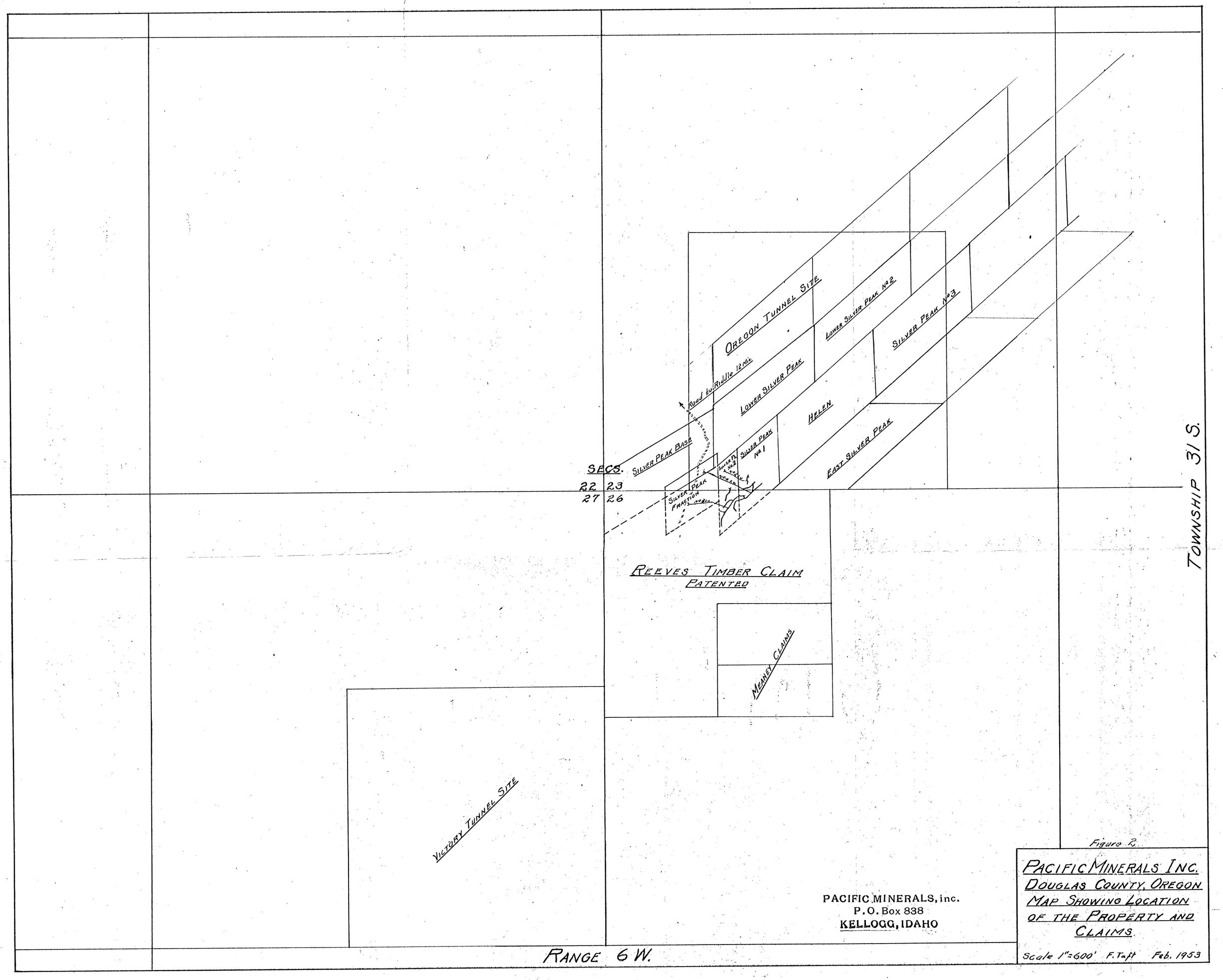
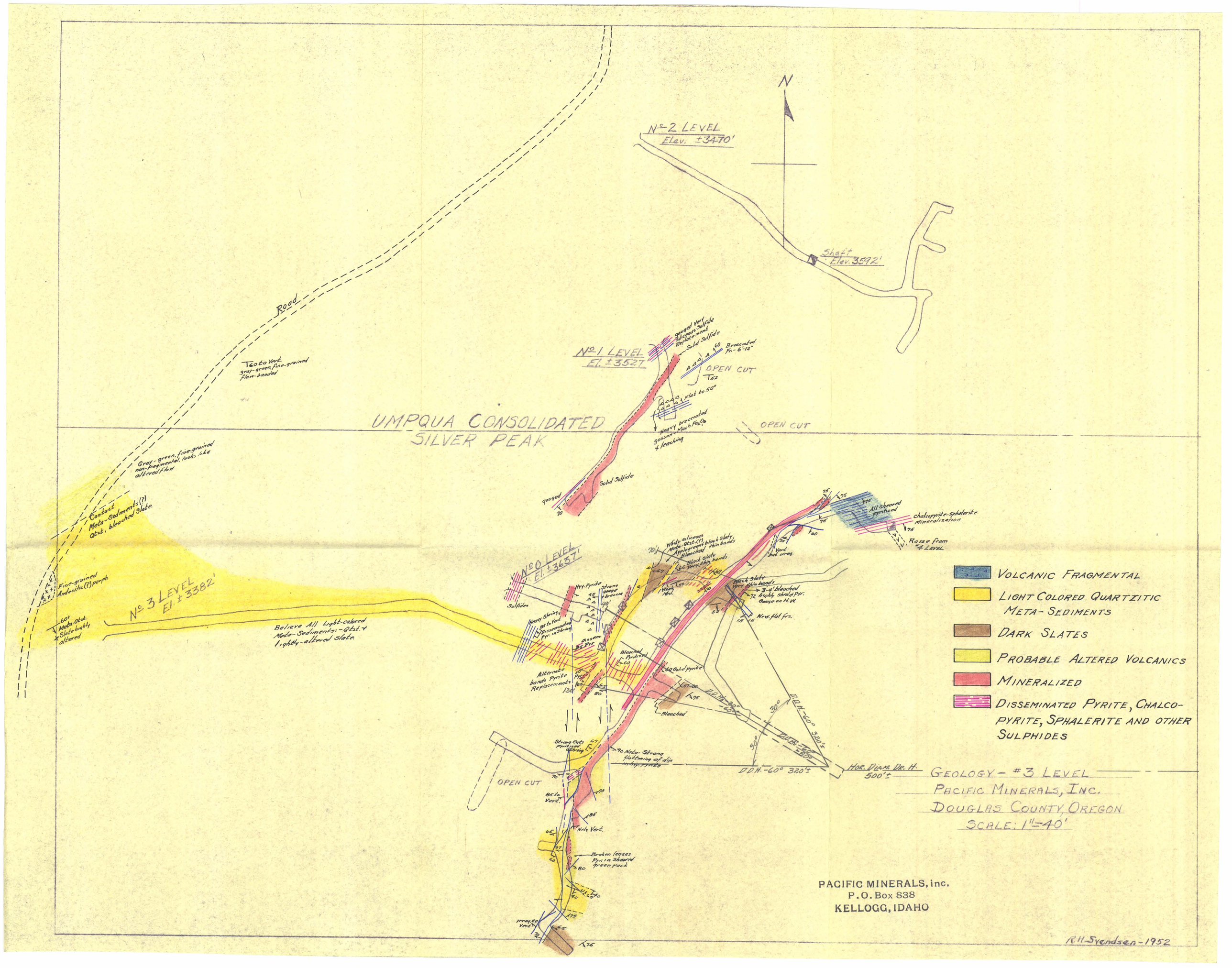
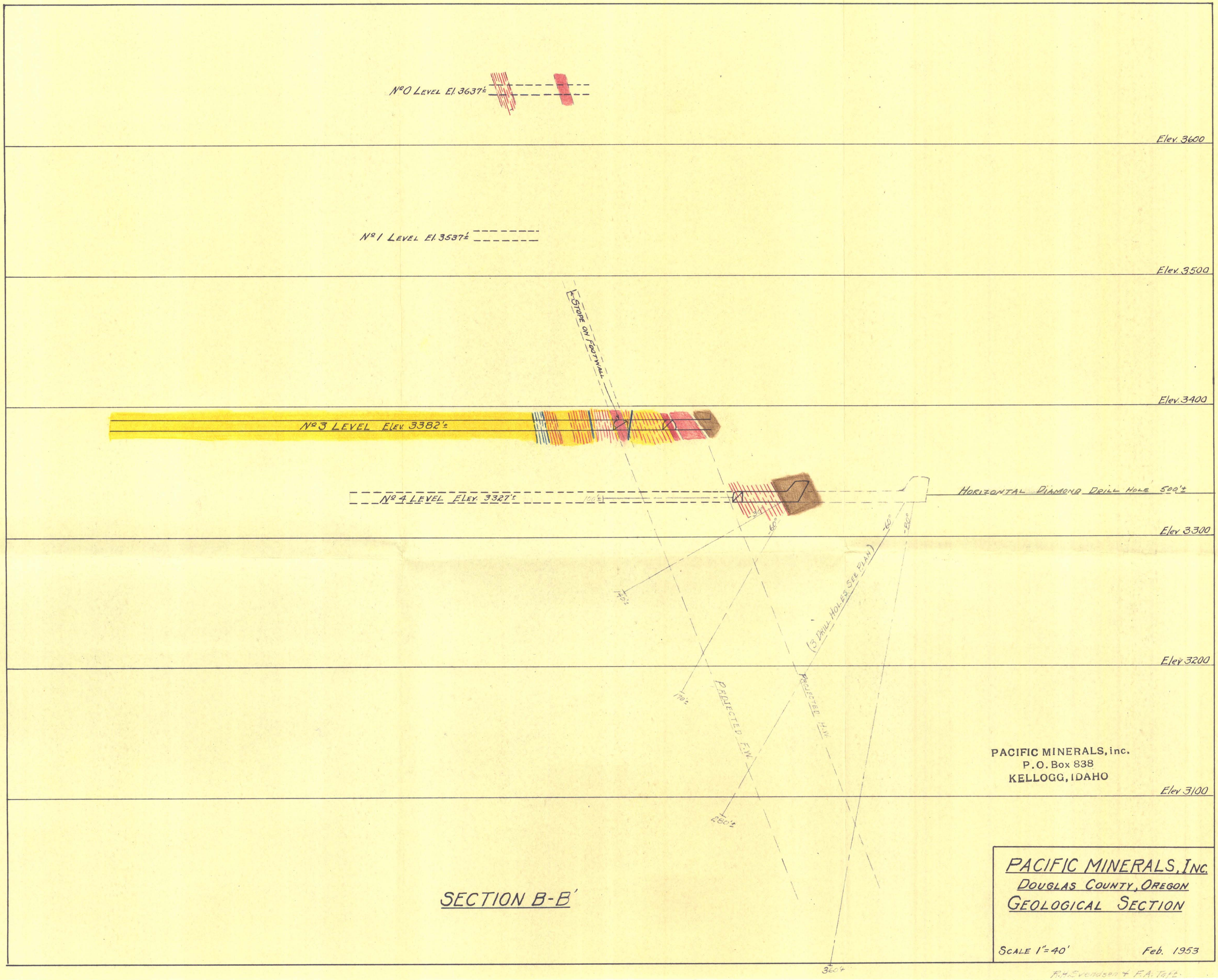
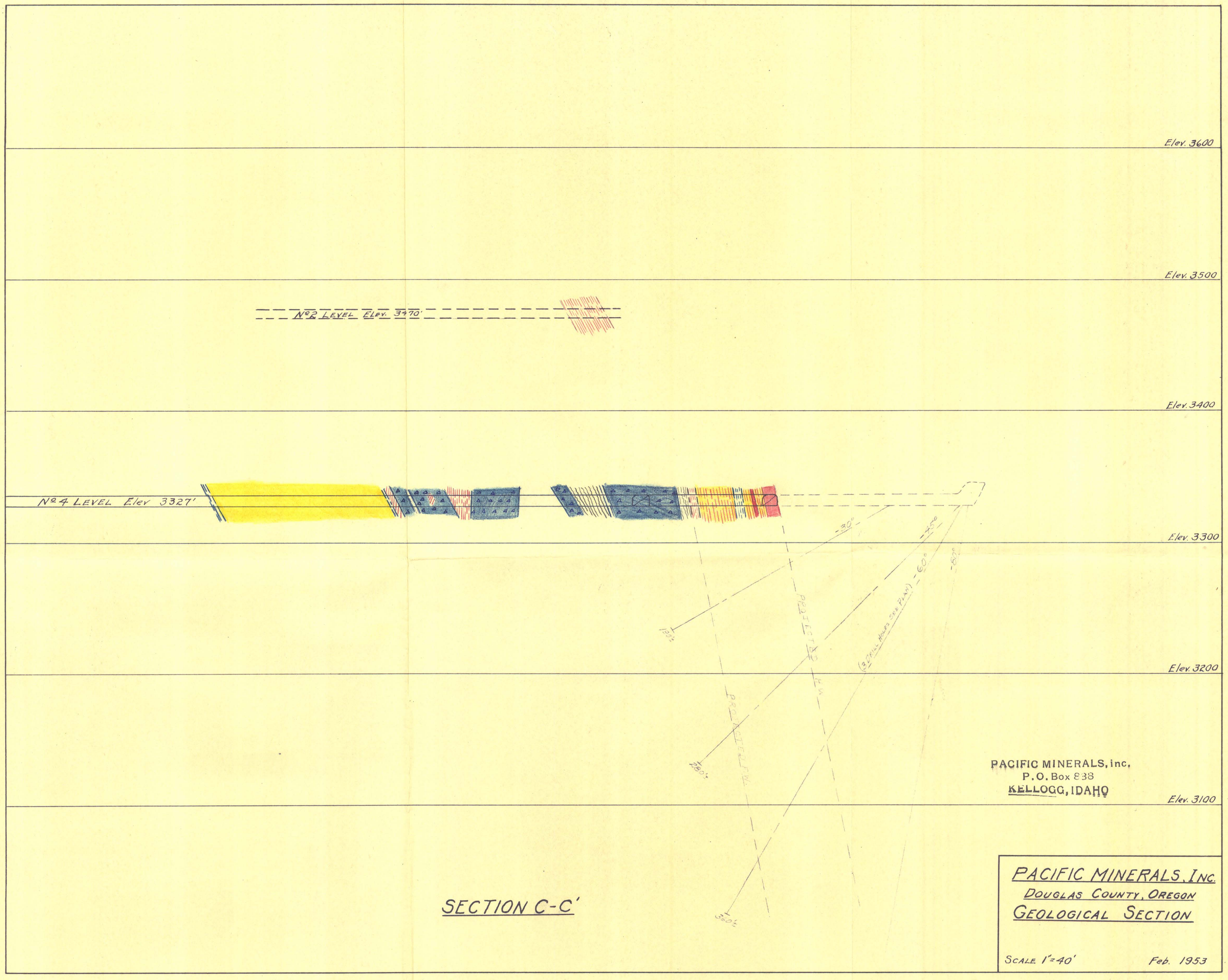
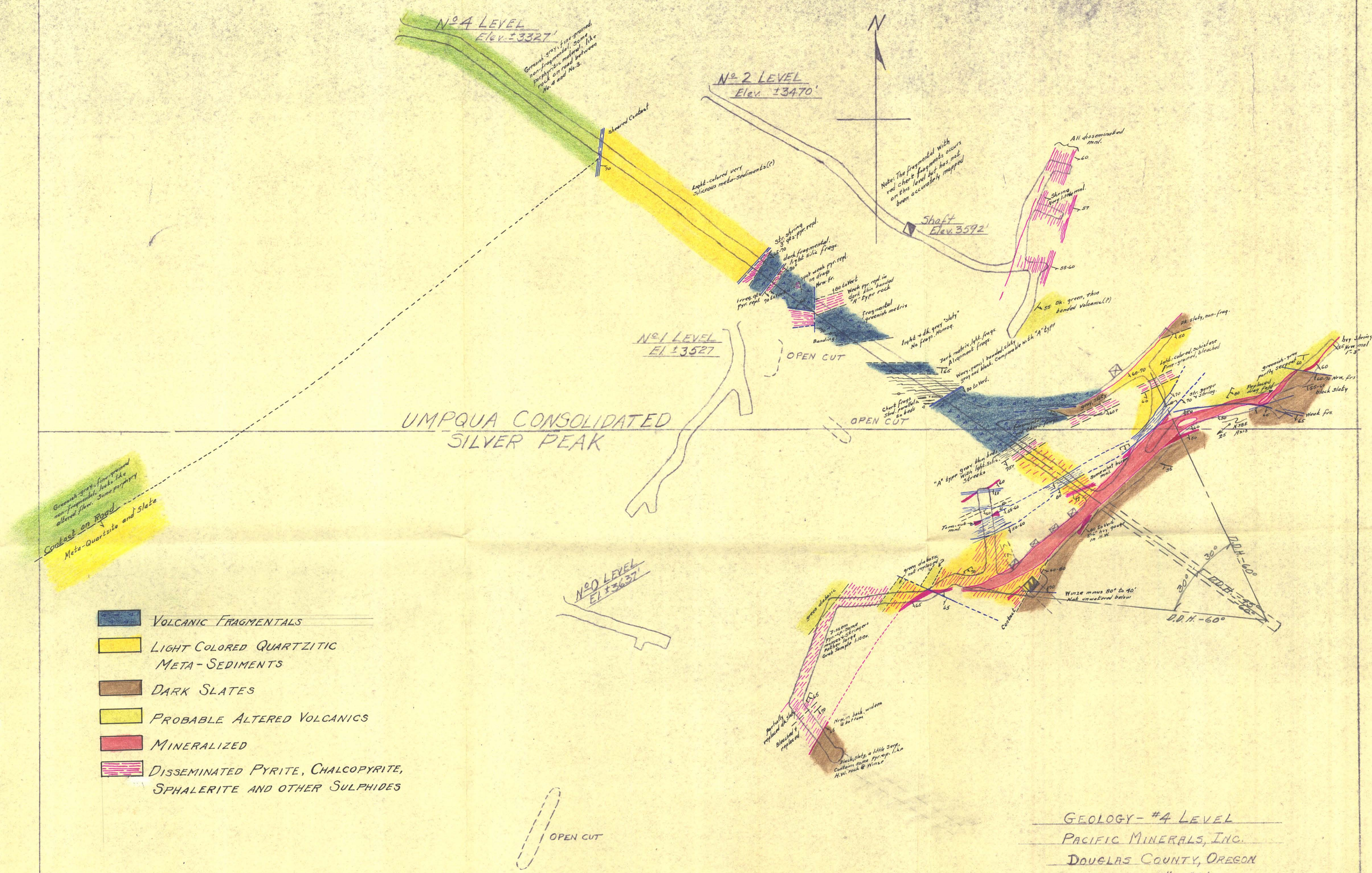

OREGON TUNNEL SITE
LOWER SILVER PEAK No 2
SILVER PEAK No 3
Road to Riddle 12 mi.
LOWER SILVER PEAK
HELEN
SILVER PEAK BASE
SILVER PEAK No 1
EAST SILVER PEAK
SECS.
22 23
27 26
SILVER PEAK FRACTION
REEVES TIMBER CLAIM
PATENTED
MEANEY CLAIMS
VICTORY TUNNEL SITE
TOWNSHIP 31 S.
RANGE 6 W.
PACIFIC MINERALS, inc.
P.O. Box 838
KELLOGG, IDAHO
Figure 2.
PACIFIC MINERALS INC.
DOUGLAS COUNTY, OREGON
MAP SHOWING LOCATION
OF THE PROPERTY AND
CLAIMS.
Scale 1"=600' F. Taft Feb. 1953


N
No 2 LEVEL
Elev. ±3470'
Shaft
Elev. 3592'
Road
No 1 LEVEL
El. ±3527
OPEN CUT
UMPQUA CONSOLIDATED
SILVER PEAK
OPEN CUT
Solid Sulfide
gouged
No 0 LEVEL
El. ±3637'
No 3 LEVEL
El. ±3382'
Believe All Light-colored Meta-Sediments:- Qtzt. + lightly-altered slate.
Contact Meta-Sediments (?) Qtzt. bleached Slate.
Fine-grained Andesitic (?) porph
Gray-green, fine-grained non-fragmental, looks like altered flow
Alternate bands Pyrite Replacements
Bleached
Solid pyrite
Bleached
Strong Qtzt. Pyritized Shiny
Note: Strong flattening of dip in hty. pyrite
OPEN CUT
Broken lenses Pyr. in Sheared green rock
Raise from 4 Level
All Sheared pyritized
Chalcopyrite-Sphalerite Mineralization
Vert but irreg.
Nrw. flat frs.
D.D.H. -60° 320'±
HOR. DIAM. DR. H. 500'±
VOLCANIC FRAGMENTAL
LIGHT COLORED QUARTZITIC META-SEDIMENTS
DARK SLATES
PROBABLE ALTERED VOLCANICS
MINERALIZED
DISSEMINATED PYRITE, CHALCOPYRITE, SPHALERITE AND OTHER SULPHIDES
GEOLOGY - #3 LEVEL
PACIFIC MINERALS, INC.
DOUGLAS COUNTY, OREGON
SCALE: 1" = 40'
PACIFIC MINERALS, inc.
P.O. Box 838
KELLOGG, IDAHO
R.H. Svendsen - 1952


Nº 0 Level El. 3637±
Elev. 3600
Nº 1 Level El. 3537±
Elev. 3500
Stope on Footwall
Elev. 3400
Nº 3 Level Elev. 3382'±
Nº 4 Level Elev. 3327'±
Horizontal Diamond Drill Hole 500'±
Elev 3300
(3 Drill Holes See Plan)
Elev 3200
Projected F.W.
Projected H.W.
Elev 3100
PACIFIC MINERALS, inc.
P.O. Box 838
KELLOGG, IDAHO
SECTION B-B'
PACIFIC MINERALS, INC.
DOUGLAS COUNTY, OREGON
GEOLOGICAL SECTION
SCALE 1"=40'
Feb. 1953
R.H. Svendsen & F.A. Taft


Elev. 3600
Elev. 3500
No 2 LEVEL ELEV. 3470'
Elev. 3400
No 4 LEVEL Elev 3327'
Elev. 3300
-30°
-45°
-60°
-80°
190'
PROPERTY LINE
(3 DRILL HOLES SHOWN PLAN)
Elev. 3200
PROPERTY LINE
260'
PACIFIC MINERALS, inc.
P.O. Box 838
KELLOGG, IDAHO
Elev. 3100
360'
SECTION C-C'
PACIFIC MINERALS, INC.
DOUGLAS COUNTY, OREGON
GEOLOGICAL SECTION
SCALE 1"=40'
Feb. 1953
F.H. Svendsen & F.A. Taft

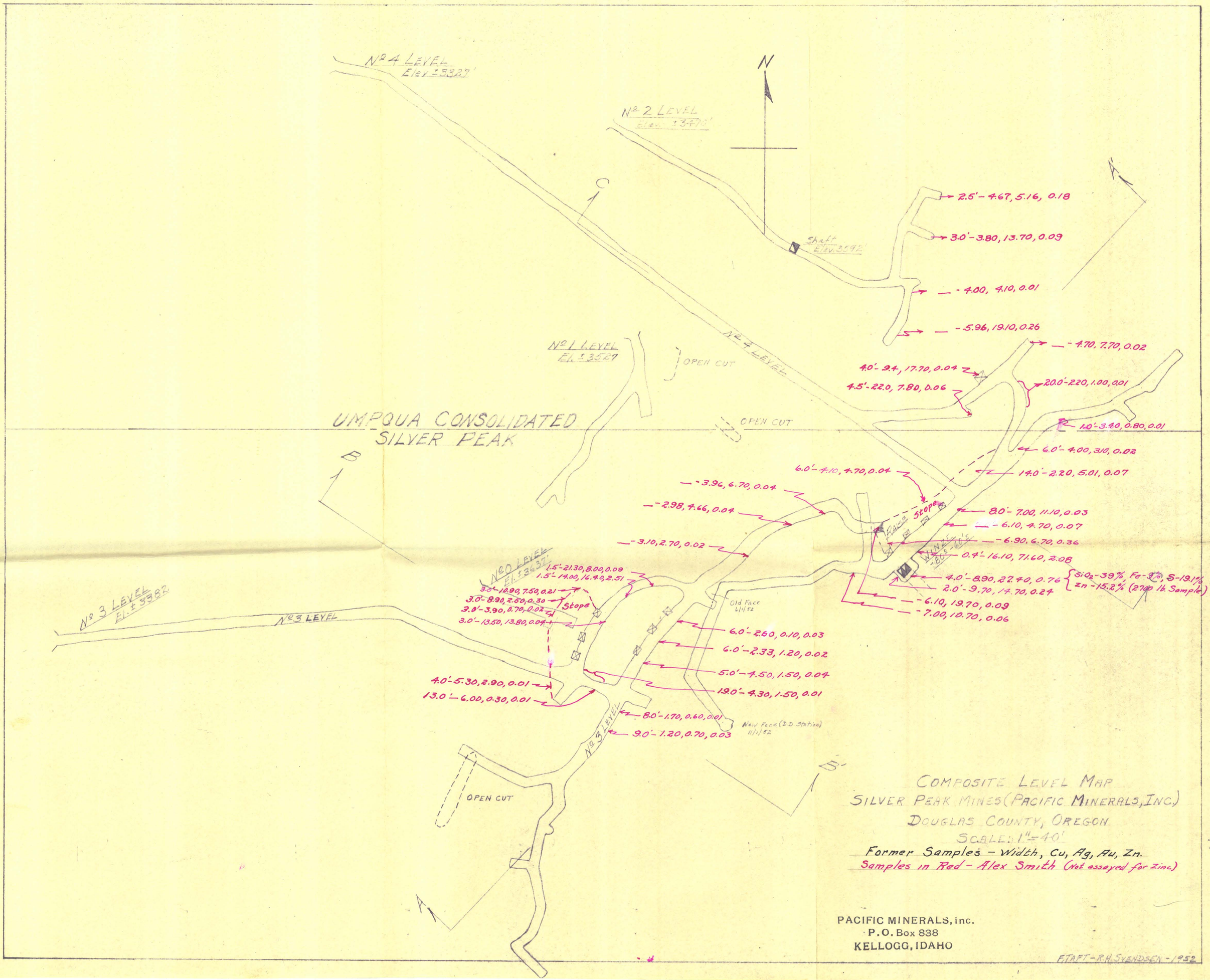


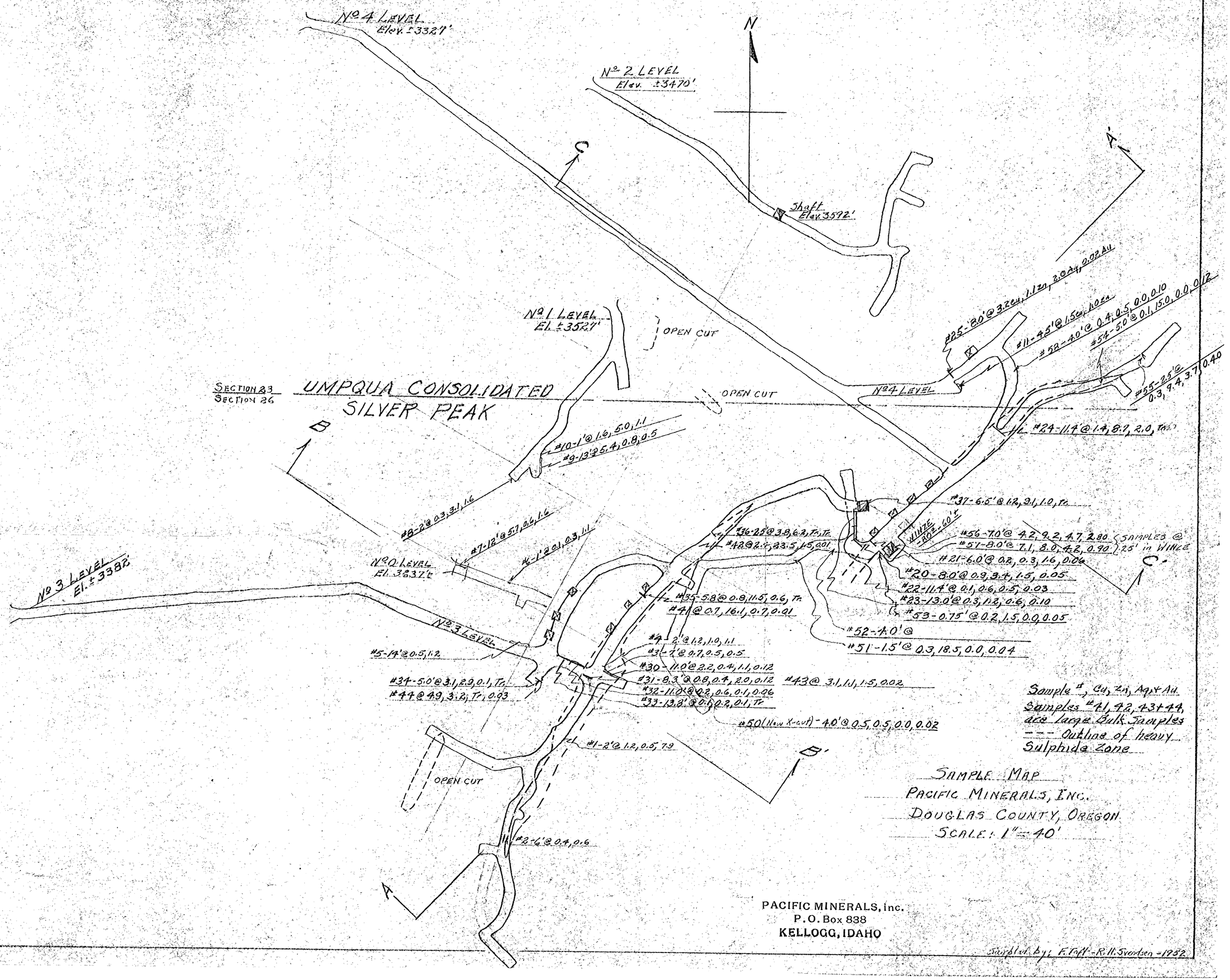

- VOLCANIC FRAGMENTALS
- LIGHT COLORED QUARTZITIC META-SEDIMENTS
- DARK SLATES
- PROBABLE ALTERED VOLCANICS
- MINERALIZED
- DISSEMINATED PYRITE, CHALCOPYRITE, SPHALERITE AND OTHER SULPHIDES

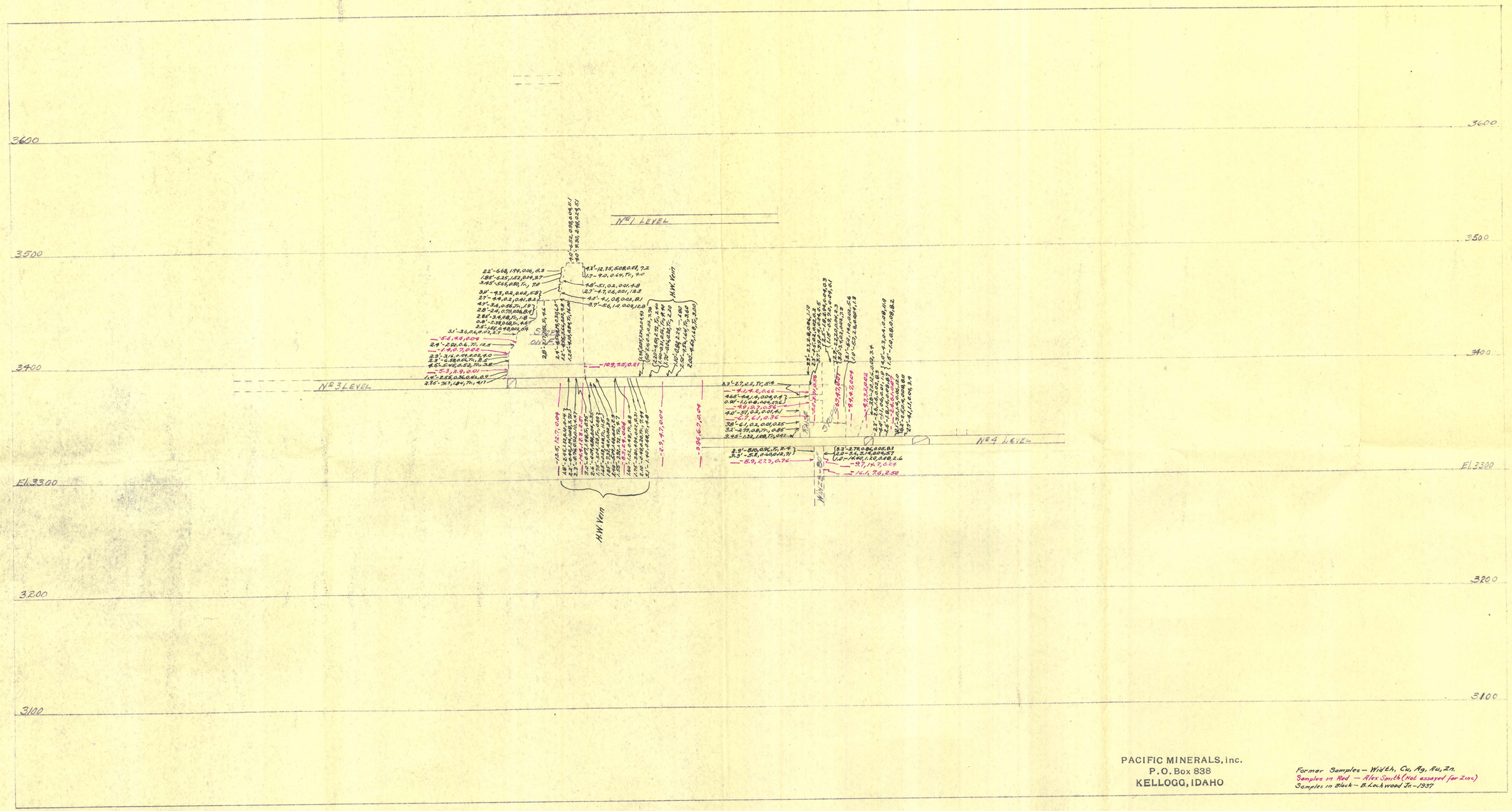
GEOLOGY - #4 LEVEL
PACIFIC MINERALS, INC.
DOUGLAS COUNTY, OREGON
SCALE: 1" = 40'

PACIFIC MINERALS, inc.
P.O. Box 838
KELLOGG, IDAHO

R.H. Svendsen - 1952


N
Nº 4 LEVEL
Elev. ±3327'
Nº 2 LEVEL
Elev. ±3470'
Shaft
Elev. 3592'
C
C'
2.5'-4.67, 5.16, 0.18
3.0'-3.80, 13.70, 0.09
-4.00, 4.10, 0.01
-5.96, 19.10, 0.26
-4.70, 7.70, 0.02
Nº 4 LEVEL
Nº 1 LEVEL
El. ±3529
OPEN CUT
4.0'-9.4, 17.70, 0.04
4.5'-22.0, 7.80, 0.06
20.0'-2.20, 1.00, 0.01
UMPQUA CONSOLIDATED
SILVER PEAK
OPEN CUT
1.0'-3.40, 0.80, 0.01
6.0'-4.00, 3.10, 0.02
14.0'-2.20, 5.01, 0.07
B
6.0'-4.10, 4.70, 0.04
-3.96, 6.70, 0.04
-2.98, 4.66, 0.04
Raise Stope
8.0'-7.00, 11.10, 0.03
-6.10, 4.70, 0.07
-6.90, 6.70, 0.36
-3.10, 2.70, 0.02
0.4'-16.10, 71.60, 2.08
Nº 0 LEVEL
El. ±3637'
1.5'-21.30, 8.00, 0.09
1.5'-14.00, 16.40, 2.51
4.0'-8.90, 27.40, 0.76
2.0'-9.70, 14.70, 0.24
SiO2-39% Fe-9%, S-19.1%
Zn-15.2% (270 lb. Sample)
3.0'-10.90, 7.50, 0.21
3.0'-8.90, 2.50, 0.30
3.0'-3.90, 0.70, 0.02
3.0'-13.50, 13.80, 0.04
Stope
Old Face
6/1/52
-6.10, 19.70, 0.09
-7.00, 10.70, 0.06
Nº 3 LEVEL
El. ±3382
Nº 3 LEVEL
6.0'-2.60, 0.10, 0.03
6.0'-2.33, 1.20, 0.02
5.0'-4.50, 1.50, 0.04
19.0'-4.30, 1.50, 0.01
4.0'-5.30, 2.90, 0.01
13.0'-6.00, 0.30, 0.01
8.0'-1.70, 0.60, 0.01
9.0'-1.20, 0.70, 0.03
New Face (D.D. Station)
11/1/52
Nº 3 LEVEL
B'
OPEN CUT
A'
COMPOSITE LEVEL MAP
SILVER PEAK MINES (PACIFIC MINERALS, INC.)
DOUGLAS COUNTY, OREGON
SCALE: 1" = 40'
Former Samples - Width, Cu, Ag, Au, Zn.
Samples in Red - Alex Smith (Not assayed for Zinc)
PACIFIC MINERALS, inc.
P.O. Box 838
KELLOGG, IDAHO
F.TAFT - R.H. SVENDSEN - 1952


N
No 4 LEVEL
Elev. ±3327'
No 2 LEVEL
Elev. ±3470'
Shaft
Elev. 3592'
No 1 LEVEL
El. ±3527'
OPEN CUT
OPEN CUT
OPEN CUT
SECTION 23
SECTION 26
UMPQUA CONSOLIDATED
SILVER PEAK
No 4 LEVEL
No 3 LEVEL
El. ±3382
No 0 LEVEL
El. 3837'±
No 3 LEVEL
A
A'
B
B'
C
C'
#25-8.0'@ 3.2 Cu, 1.1 Zn, 2.0 Ag, 0.02 Au
#11-4.5'@ 1.5 Cu, 1.0 Zn
#52-4.0'@ 0.4, 0.5, 0.0, 0.10
#54-5.0'@ 0.1, 15.0, 0.0, 0.12
#55-2.5'@ 0.3, 9.4, 3.7, 0.40
#24-11.4'@ 1.4, 8.7, 2.0, Tr.
#10-1'@ 1.6, 5.0, 1.1
#9-13'@ 5.4, 0.8, 0.5
#8-2'@ 0.3, 3.1, 1.6
#7-12'@ 5.7, 0.6, 1.6
#6-1'@ 0.1, 0.3, 1.1
#5-14'@ 0.5, 1.2
#34-5.0'@ 3.1, 2.9, 0.1, Tr.
#44@ 49, 3.2, Tr, 0.03
#36-2.5'@ 3.8, 6.2, Tr, Tr.
#42@ 2.1, 33.5, 15, 0.01
#35-5.8'@ 0.8, 11.5, 0.6, Tr.
#41@ 0.7, 16.1, 0.7, 0.01
#4-2'@ 1.2, 1.0, 1.1
#3-7'@ 0.7, 0.5, 0.5
#30-11.0'@ 2.2, 0.4, 1.1, 0.12
#31-8.3'@ 0.8, 0.4, 2.0, 0.12
#32-11.0'@ 0.2, 0.6, 0.1, 0.06
#33-13.8'@ 0.1, 0.2, 0.1, Tr.
#43@ 3.1, 1.1, 1.5, 0.02
#50 (New X-cut) - 4.0'@ 0.5, 0.5, 0.0, 0.02
#1-2'@ 1.2, 0.5, 7.9
#2-6'@ 0.4, 0.6
#37-6.5'@ 1.2, 9.1, 1.0, Tr.
WINZE
-40'± - 60'±
#56-7.0'@ 4.2, 9.2, 4.7, 2.80
#57-8.0'@ 7.1, 8.0, 4.2, 0.90
SAMPLES @ 25' in WINZE
#21-6.0'@ 0.2, 0.3, 1.6, 0.06
#20-8.0'@ 0.9, 3.4, 1.5, 0.05
#22-11.4'@ 0.1, 0.6, 0.5, 0.03
#23-13.0'@ 0.3, 1.2, 0.6, 0.10
#53-0.75'@ 0.2, 1.5, 0.0, 0.05
#52-4.0'@
#51-1.5'@ 0.3, 18.5, 0.0, 0.04
Sample #, Cu, Zn, Ag, & Au.
Samples #41, 42, 43 & 44, are large Bulk Samples
--- Outline of heavy Sulphide zone
SAMPLE MAP
PACIFIC MINERALS, INC.
DOUGLAS COUNTY, OREGON
SCALE: 1" = 40'
PACIFIC MINERALS, inc.
P.O. Box 838
KELLOGG, IDAHO
Sampled by: F. Taff - R. H. Svendsen - 1952




ELEVATION ON A-A'
Scale 1"=40'