

State Department of Geology and Mineral Industries

702 Woodlark Building
Portland 5, Oregon

SNOW CREEK MINE (gold, silver, copper, lead) Baker County
Greenhorn District

Owners: Hubert S. Smith, Trustee, Bay City, Michigan. Bond and lease to W. A. Fenstermacher and H. Steinbauer, Portland.

Operators: Premium Gold, Inc. (Formerly Snow Creek Mining Co.) Present company - Delaware Corporation. Harold Steinbauer, President, 102 N.W. 9th, Portland; D. R. Dilley, Director, 1210 S.E. 51st, Portland; K. W. Ehrhardt, Sec.-Treas., Portland; H. D. Gill, Director, Gills Book Store, Portland; R. C. Keeney, Director, Keeney Electric Co., Portland. Capital Stock - \$500,000.00. Par value - \$1.00. 300,000 shares of preferred stock. 200,000 shares of common stock.

Location: In the NW $\frac{1}{4}$ sec. 16, T. 10 S., R. 35 E. About one mile southeast of the town of Greenhorn. Elevation, 6,150 feet.

Area: 15 fractional unpatented lode claims.

History: The mine was operated under bond and lease by the Oregon Consolidated Mining Co. for 5 years, between 1925 and 1930. One shipment of concentrates was made, totalling not over \$3,000 according to M. C. Carson.

Equipment: Ore goes direct to Dodge type crusher (no grizzly), then is lifted up to 30-ton bin, then to Southwestern 35-ton rotary ball mill, driven by an Atlas Imperial 90 h.p. diesel (started by compressor). Pulp to 4 by 4-foot amalgamation table, thence to Dorr classifier, then lifted to 3 by 4-foot amalgamation table. Concentrates to sand pit, whence pumped to 2 flotation cells, followed by Vanner table. Other equipment, an electric D.C. generator, 3 cars, 2,000 feet of track, forge and smithy equipment. Mill building, snowsheds to lower tunnel, etc. Water taken from mine.

The mine is developed by a main crosscut 1,600 feet, the vein is drifted upon for 600 feet. The older workings consist of the upper "Zelda" tunnel, with numerous ramifications, inaccessible. A 200-foot shaft now reaches a level only 9 feet above the lower crosscut. It is drifted upon for 1,000 feet. The vein has been stoped up for 80 feet on the main level, for a length of about 200 feet.

Geological features: The country rock is predominantly argillite, in places quite shaly, the attitude being east-west dipping steeply south. The vein strikes from N. 60° W. to W., and dips from 50 to 75° S. It varies in width from 2 to 10 feet, averaging perhaps 4 feet. The vein consists of large amounts of barren-appearing quartz, with some areas rich in galena, chalcopyrite, bornite(?), and pyrite. The quartz is much broken and crumbly.

Miscellaneous: Roads are not surfaced, and would not be passable during the winter months after December. The nearest highway is the Central Oregon

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Portland, Oregon

Highway, about 27 miles to the south. Timber fairly abundant. Water for the mill came from the lower tunnel.

Remarks: The width of the vein suggests that it might be continuous, and a careful study of the workings might lead to picking up the vein again along the strike, in spite of the faulting.

Informant: Prescott, M. C. Carson.

References: Swartley, 14:185
Hewett, 31:36
Parks & Swartley, 16:208

Date of Report: 1939

Location: In the NW 1/4 sec. 16, T. 10 N., R. 35 E. About one mile south-east of ~~the~~ town of Greenhorn. Elevation, 6,150 feet.

Area: 15 fractional unpatented lode claims.

History: The mine was operated under bond and lease by the Oregon Consolidated Mining Co. for 5 years, between 1905 and 1930. One shipment of concentrates was made, totaling over 20,000 according to M. C. Carson.

Equipment: Ore goes direct to Dodge type crusher (no grizzly), then is lifted up to 30-ton win, then to Southwestern 35-ton rotary ball mill, driven by an Atlas Imperial 40 H.P. Diesel (actuated by compressor). July to 4 by 4-foot amalgamation table, thence to Dorr classifier, then lifted up by 4-foot amalgamation table. Concentrates to sand pit, whence passed to 2 flotation cells, followed by Yankee table, other equipment, an electric D.C. generator, 3 bars, 2,000 feet of track, large and small equipment, mill building, snowsheds to lower tunnel, etc. Water taken from mine.

The mine is developed by a main crosscut 1,500 feet, the vein is drifted upon for 600 feet. The older workings consist of the upper "Golden" tunnel, with numerous ramifications, inaccessible. A 200-foot shaft now reaches a level only 9 feet above the lower crosscut. It is drifted upon for 1,000 feet. The vein has been stopped up for 50 feet on the main level, for a length of about 200 feet.

Geological Features: The country rock is predominantly argillite, in places quite shaly, the attitude being east-west dipping steeply south. The vein strikes from N. 60° W. to W., and dips from 50 to 75° S. Its width in places varies from 2 to 12 feet, averaging perhaps 4 feet. The vein consists of large amounts of barren-appearing quartz, with some areas rich in galena, sphalerite, bornite(?), and pyrite. The quartz is much broken and crumbly.

Miscellaneous: Roads are not surfaced, and would not be passable during the winter months after December. The nearest highway is the Central Oregon

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SNOW CREEK MINE

Baker County
Greenhorn District

Location and development: The Snow Creek mine is in the valley of Snow Creek in sec. 16, T. 10 S., R. 35 E., about 2 miles southwest of Greenhorn. The property has numerous adits and prospect pits. The largest adit is driven N. 37° W. and explores a zone of northeast-trending dikes and quartz veins. Workings are caved, but the size of the dumps indicates extensive underground development.

Geology: The country rocks are serpentized pyroxenite, dunite, highly altered argillite, and greenstone. These rocks have been intruded by a quartz monzonite porphyry dike. The quartz veins, 1 to 6 inches thick, lie in or adjacent to the dike. Parts of the veins are made up of dolomitic calcite; other parts of quartz and sulphides. Except for a small amount of drusy and chalcedonic quartz, the carbonates seem to be the youngest minerals of the veins. Specimens of hand-sorted dump ore show pyrite, chalcopryite, and minor amounts of pyrrhotite, sphalerite, galena, and covellite. A sample by the author containing these sulphides and brecciated, grayish quartz assayed a trace of gold, 7.30 ounces of silver per ton, and 3.97 percent copper.

NAME

OLD NAMES

PRINCIPAL ORE

MINOR MINERALS

T10S

R35E

N1/2 Sec.16

T

R

S

PUBLISHED REFERENCES

Swartley 14:185
Hewett 13:36
Parks & Swartley 16:208
Ore. Metal Mines Handbook 14A pg-56

..... Baker COUNTY
..... Greenhorn AREA
..... 6150 ELEVATION
..... ROAD OR HIGHWAY
Central Ore. Hgwy
..... nearest hgwy 27 mi. distant DISTANCE TO SHIPPING POINT

MISCELLANEOUS RECORDS

PRESENT LEGAL OWNER (S) .. Hubert S. Smith ..
.....
.....
.....

Address ... Bay City, Mich.
.....
.....
.....

OPERATOR

Name of claims	Area	Pat.	Unpat.
15 fractions			x
lode claims			

Name of claims	Area	Pat.	Unpat.

EQUIPMENT ON PROPERTY

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.....

DEPARTMENTAL RECORDS on file in
Baker

DEPARTMENTAL RECORDS on file in

DEPARTMENTAL RECORDS on file in

Report #63

October 1, 1938

Snow Creek Mine Greenhorn District ^{Bahn} Grant County

Hulbert S. Smith Trustee
Owner: Fred D. Smith, Bay City, Michigan. Bond and lease to W.A. Fenstermacher and H. Steinhauer, Portland; ~~bond and lease to Wm. Cooper.~~

Operators: →
Location: In the NW¹/₄ sec.16, T 10 S, R 35 E. About one mile south east of the town of Greenhorn. El. 6150'.

15-Fraction
Area: ~~12~~ unpatented lode claims. *Oregon was sold at mining*

Insect yellow sheet
History: The mine was operated under bond and lease by ~~Wm. Cooper~~ for 5 years, between 1925 and 1930. One shipment of concentrates was made, totalling not over \$3000 according to M.C.Carson.

Equipment: Ore goes direct to Dodge type crusher (no grizzly), then is lifted up to 30 ton bin. then to Southwestern 35 ton rotary ball mill, driven by an Atlas Imperial 90 H.P. diesel (started by compressor). Pulp to 4 x 4 foot amalgamation table, thence to Dorr classifier, then lifted to 3 x 4 foot amalgamation table. Concentrates to sand pit, whence pumped to 2 flotation cells, followed by Vanner table. (Designed by W.C.Fellows) Other equipment an electric D.C. generator, 3 cars; 2000' track, forge and smithy equipment. Mill building, snow sheds to lower tunnel, etc. Water taken from mine.

upon
upon
The mine is developed by a main crosscut 1600 feet, the vein is drifted for 600 feet. The older workings consist of the upper "Zelda" tunnel, with numerous ramifications, inaccessible. A shaft 200' now reaches a level only 9 feet above the lower crosscut. It is drifted ~~from~~ for 1000'. The vein has been stoped up for 80' on the main level, for a distance of about 200'. Much of this from M.C.Carson, informant. *Alight*

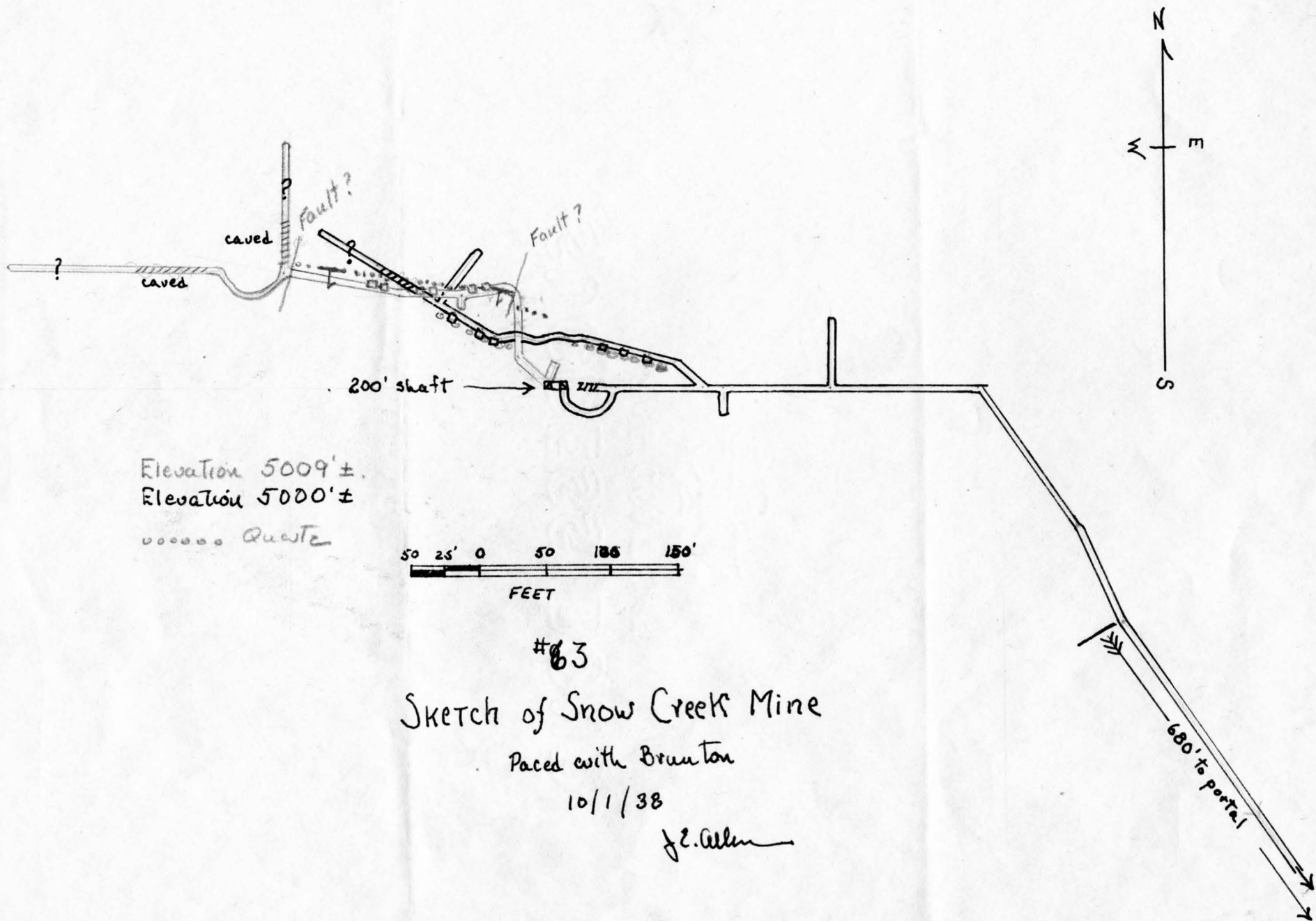
Geological features: The country rock is predominantly argillite, in places quite shaly, the attitude being east-west dipping steeply south. The vein strikes from N60°W to W, and dips from 50 to 75° S. It varies in width from 2 to 10 feet, averaging perhaps 4 feet. The vein consists of large amounts of barren-appearing quartz, with some areas rich in galena, chalcopyrite, bornite(?), and pyrite. The quartz is much broken and crumbly.

Miscellaneous: Roads are not surfaced, and would not be passable during the winter months after December. The nearest highway is the Central Oregon Highway, about 27 miles to the south. Timber fairly abundant. Water for the mill came from the lower tunnel.

Remarks: The easily available ore above the lower tunnel level seems to have been pretty well stoped out. The width of the vein suggests that it might be continuous, and a careful study of the mine might permit picking it up again along the strike, in spite of the faulting. ~~At the present time no great amount of ore seems to be developed.~~

John Eliot Allen
John Eliot Allen
field geologist

See also



Elevation 5009'±
 Elevation 5000'±
 Quartz



#63
 Sketch of Snow Creek Mine
 Paced with Brunton
 10/1/38
 J. E. Allen

SNOW CREEK MINE

GREENHORN

BAKER

See report by Fred J. Rosenberg, Dec. 22, 1939, filed in Mine Report
File drawer.

Snow Creek + Banner
Mines

Mrs. Catharine E. Ehardt
416 NE 39th Portland
owns Banner Mine and
is partner with Hubert
Smith, Bay City, Mich.
in the Snow Creek Mine.

Frank McCulloch is
lawyer for these properties

Premium Gold, Inc.

(Formerly Snow Creek Mining Co.)

Greenhorn Dist.

Boke County

Mine: Snow Creek

Present Company - Delaware Corporation

Harold Steinhauer -- President --- 102 NW 9th - Portland
D. R. Dilley - - - - Director - 1210 ~~SW~~ SE 51st - Portland
K. W. Ehrhardt - - - - Secretary-Treas. - Portland
H. D. Gill - - - - ^{Director} Gill's Book Store - Portland
R. C. Keeney - - - - Director - Keeney Electric Co. - Portland

Capital Stock - \$500,000⁰⁰

Par Value - \$1⁰⁰

300,000 shares - preferred stock

200,000 " - common "

Present issue - \$100,000⁰⁰ -- not subscribed
as yet.

Location: Sec. 16 T 10 S R 35 E at head of Snow Creek
Elev. - 7000'

Mill & lining quarters reported to be on
property. Steinhauer promised a report for
our office.

[Signature] 4/23/38

SNOW CREEK MINE

Farther east in Sec. 16, T. 10 S., R. 35 E., at the head of Snow creek is the *Snow Creek Mine*. This property has a 10-stamp mill and three vanners and is developed by a shaft. It was not visited.

GREENHORN

MT. REGION

GREENHORN

CITY (Vicinity)

One-way road from Tipton by the property. 36 miles from Baker, via John Day Highway, branch off at Tipton. About 7 or 8 miles from nearest railroad at Tipton. 6 to 8 miles to John Day Highway. Sumpter Valley Railroad at Tipton. County road to property. Condition of roads--bad. County will fix up road if any activity up there. Trucking road seasonal. Telephone to Tipton.

Mountainous country, altitude 7000 feet about. Timber on claims. Snowfall heavy. Work all year round, if necessary. Water out of creek and mine. Spring for drinking purposes. Electric current 3 miles distant.

All work by hand heretofore. Nearest producer The Psyche. Baker nearest assay office.

HISTORY:

?

OWNERSHIP:

Hubert S. Smith owned it. Is in Michigan somewhere. Premium Gold, Inc., obtained lease from him. (Banner and Snowcreek)

SNOW CREEK MINE

2.

President, H. Steinhauer, -- 102 N.W. 9th Avenue, Portland.
Vice President D. R. Dilley, 302 Broadway Oak Bldg.,
H. D. Gill, Director Portland, Oregon.
R. C. Kenney, Director----all of Portland.

DEVELOPMENT:

Two tunnels, one 900 feet bearing northwest, then 500 feet westerly. Upper tunnel length unknown. Ore believed to be between these two tunnels. \$52,000 worth of gold said to have been taken out. Fred W. Hanson, Mining Engineer of Salt Lake City made the report. J. Cleveland Hass, Mining Engineer at Portland, etc.

NAMES OF CLAIMS AND TOTAL ACREAGE:

Mrs K. W. Ehrhardt, 302 Broadway, Oak Bldg., Portland. secretary and treasurer, nothing to do with Snow Creek. Fenstermacher is agent for Smith. Unknown no of claims and total acreage.

BUILDINGS:

50 ton mill---assay office---bunk house---cookhouse--- sawmill---About \$300,000 worth of work done;

MINE DEVELOPMENT--2 tunnels referred to.

10 stamp mill and 3 vanners an 80 H.P. steam plant and is developed by a vertical shaft 225 feet deep and 1315 feet of drifts which disclose a fair sized ore shoot 300 feet long

It has been under water for a few years.

REPORT ON SNOW CREEK MINE

BY: Fred J. Rosenberg, E.M.

GEOGRAPHY:

This property is situated in Sections 16, 21 and 22, Township 10 South, Range 35 East, Willamette Meridian, Greenhorn Mining District, Baker County, Oregon, about seven miles north of Tipton, a station on the Sumpter Valley R. R., and at an altitude of six thousand feet above sea-level, the locality and environs of which will be better understood by reference to the U. S. Dep't. of Agriculture Forestry Service map which is made a part of this report.

Climatic Conditions - The chief climatic characteristics of the district are a scanty rainfall, large ranges in temperatures, low absolute humidity, rapid evaporation and an abundance of sunshine.

Temperature and Precipitation - The U. S. Weather Bureau advises that the mean temperature ranges around 43 degrees. The warmest month as a rule is July, and the coldest is January. Average of readings taken at Sumpter, for a portion of the year, are quoted in the following table as indicative of average temperatures and total precipitation.

A large part of the precipitation occurs as snow and depths of from two to four feet are relatively common during the winter months. Precipitation is heaviest

during the winter months and lightest during July and August. The occasional heavy snows during the winter months should in no wise limit a well organized operation. Year around schedules are the rule in other mines of the district.

TABLE SHOWING
WEATHER OBSERVATIONS AT SUMPTER

<u>MONTH</u>	<u>AVER. TEMP.</u>	<u>TOTAL PRECIP.</u>
Jan.	17.4	6.50"
Feb.	29.8	3.77
Mar.	24.0	6.90
Apr.	32.4	1.90
May	42.0	.50
Oct.	41.6	.85
Nov.	27.6	4.21
Dec.	25.0	7.51

Accessibility - Supply point for the region is Baker, Oregon, from which the mine may be reached by good highway to Sumpter and thence by unimproved, but fair, dirt roads to the property. From Sumpter, alternate routes are available. One road comes in via Granite; the other, via Whitney. Still another route through Tipton connects with the John Day Highway. The distance from Baker is approximately 80 miles. From Sumpter, 24 miles. Local and long distance telephone connections are at the mine. Mail is routed through the Whitney, Oregon post office.

Transportation - Contract truck carriers are available at Baker and elsewhere in the district for truck haul of material and supplies at moderate rates.

The Sumpter Valley R. R. maintains combined freight and passenger service daily, except Sundays and holidays, from Baker, Oregon to Tipton. This is a narrow gauge line and shipments requiring trans-shipment at the Baker terminus are assessed a transfer charge, which, in the case of concentrates, is 12¢ per ton. Rates on concentrates from Tipton to Baker, Oregon over the Sumpter Valley R. R. are on the basis of \$1.60 per ton, car-lots, not exceeding a valuation of \$50.00 per ton.

Rail rates on car-lot shipments of concentrates from Baker, Oregon to the smelters at Bradley, Idaho and Tacoma, Washington are as follows:

ORE VALUES (not exceeding)	BRADLEY	TACOMA	
	Min. 20 Ton	Min. 20	Min. 50
\$20.00	--	--	3.50
30.00	4.40	5.50	4.40
40.00	4.95	6.05	5.50
50.00	5.50	6.60	6.05
60.00	6.05	7.15	6.60
70.00	6.60	7.70	7.15
80.00	7.15	8.25	7.70
90.00	7.70	8.80	8.25
100.00	8.25	9.35	8.80
300.00	8.25	9.35	9.35
350.00	9.08	10.18	10.18

GENERAL DESCRIPTION OF PROPERTY:

Claims - The Snow Creek Group embraces an area of approximately 306 acres, consisting of fifteen full and one fractional lode claims. The Banner Group embraces an area of about 60 acres and consists of three

full lode claims. All claims are held by right of location and in the case of the Snow Creek Group, the present ownership has been in undisputed possession since 1902.

In addition to the Snow Creek holdings above mentioned, there is also owned an undivided one-half interest in 450 acres of patented land, contiguous to the lode property on the south and in the same section, township and range. This is known as the California Gulch Placer and Timber Claim. It is reported as likely placer ground but was not visited by the writer.

The following is a list of the claims by name -

<u>SNOW CREEK GROUP</u>		<u>BANNER GROUP</u>
1. Snow Creek	9. Andy	1. Betsy
2. Snow Creek #1	10. Tom	2. Banner
3. Snow Creek #2	11. Lulu	3. Sunset
4. Snow Creek #3	12. Lulu #1	
5. Snow Creek #4	13. Lulu #2	
6. Snow Creek #5	14. Zelda	
7. Snow Ball	15. Z elda #1	
8. Heinie	16. Broken Pick (Frac.)	

The accompanying Claim Map was furnished me by Mr. W. A. Fenstermacher, Trustee for the owners of the property. It is obvious that this map was made from the notes of a transit survey and therefore should accurately represent the metes and bounds, and claim area of the property.

SURFACE PROPERTY & IMPROVEMENTS:

Since the Snow Creek and Banner were once

separate operations, there are two sets of surface structures.

On the Snow Creek, all buildings are of frame construction. The camp facilities consist of an old two-story bunk house, 25' x 40' with sufficient quarters to house all the needed personnel of a small operation, and a Mess House, which is a one-story structure, with spacious, well designed and equipped kitchen, large cooler for storage of foods; dining room with seating capacity of forty and two rooms with shower between for quarters for mess attendants.

The mill building is of typical design, consisting of three levels or bays. Is single frame, wood sides, iron roofed and is in good shape.

All other structures such as blacksmith shop, framing shed, store rooms, etc., are part of the covered surface tramway, and open or front on the haulage tracks.

The Banner Group is approximately a quarter of a mile west of the Snow Creek camp and up the hill. The buildings are newer than the Snow Creek and consist of Office, Boarding and Bunk House, Timber, Oil, and Powder House and Mill Building. Since the location of this camp is too far removed from the scene of any development operations that might be engaged in on the consolidated

group, only the above passing notice is given to the Banner Group structures.

MINING & MILLING EQUIPMENT:

The purpose and scope of this examination did not require a detailed inventory of the equipment coming under this heading; our observations and inquiry, while general, were only specific in regard to that equipment which would be essential to any recommended program of development and milling.

The equipment for mining purposes is adequate, generally new, and in markedly good condition. All small tool, gear and repair parts are carefully stored. While the compressor capacity is too small for sustained operations, requiring simultaneous drilling, hoisting and pumping - it is sufficient for intermittent operations such as might be contemplated in the development phase of the property. In this connection, drifter and stoper drills, air hose and oilers are in excellent shape with a goodly supply of drill steel on hand. Ore cars are several in number and all in apparent good running order.

There is a timber dock alongside the covered tramway, with carriage way leading directly into the framing shed. This shed is well equipped with power driven cut-off and framing saws. The blacksmith shop

is large, containing necessary blacksmith equipment and tools. A large bay in the covered tramway at the approach to the mill is set aside for bulky storage. Covered tracks serve mill, ore dump and waste dump with trackage, including switches, both above the underground, in good shape. Small tools viz. framing and hand saws, hammers, sledges, pipe wrenches, dies, etc. are numerous and in good shape. In general the mine is exceptionally well equipped.

As concerns milling equipment - the mill is a Jig-Flotation Concentration plant with a probably capacity of 25-30 tons per day based on a medium hard ore at -65 mesh. The plant consists of Jaw Crusher; Elevator to Steel Ore Bin; automatic Ore Feeder; 4' x 4' Southwestern Engineering Works Ball Mill; two cell 24" Denver Jig; 24" Overflow Dorr Model C Classifier; four 24" Denver Sub A Flotation Cells and a Concentrate dryer. A 65 H.P. Atlas-Imperial diesel engine furnishes power. There is an independent gas-driven generator set for lights and power for motor driven re-agent feeders.

This equipment was installed new for the most part in 1929 - 1930; it is in excellent shape and ready for immediate operations, including sufficient flotation re-agents and generous stock of fittings and repair parts.

The transmission equipment, including the belting, is in good repair, having been well cared for in preparation for the present shut down period.

The original assay office was destroyed by fire and the present office is established in an old frame structure near the mill. The building is too small to be adequate but the equipment itself is generally new and in good shape with a plentiful stock of supplies. Balances are of good make and have been carefully stored in the Mess house. Crushing and pulverizing equipment for the preparation of samples is located in the mill building.

In conclusion, the camp buildings, camp roads, mill and mill buildings, and most of the Main Adit level are all wired for lights.

Timber - There is a sufficiency of good timber on and adjacent to the claims suitable for mining, fuel and building purposes.

Water Supply - The water supply for mining, milling and domestic purposes is deemed entirely adequate.

The domestic water supply comes from a spring located a short distance below the mill. It is pumped to the distribution system by a hydraulic ram.

Apparently the supply and storage is ample.

Water for mining and milling purposes comes from the mine. At the time of this examination, it was estimated that approximately $3/4$ of a cubic foot second of water was flowing through the waterway in the Main adit level. This is more than sufficient for mine and mill requirements.

Labor - Experienced workmen, such as miners and millmen, are available. Current wage scales are \$3.50 to \$4.00 for ordinary labor; \$4.00 to \$4.50 for muckers; and \$4.50 to \$5.50 per day for miners and millmen.

HISTORY:

The original holdings consisted of the Snow Creek, Z elda, Lulu and Snow Ball Claims. In 1902, Michigan and New York interests purchased these holdings for the sum of \$75,000.00 and organized the Oregon Exploration and Mining Company to conduct operations. At the time of purchase the development consisted of one short adit level called the "Snow Creek Tunnel" and a 70' shaft.

Mr. W. A. Fenstermacher, to whom I am indebted for most of the information under this heading, and whose interest in the property has been continuous since 1902, informed that the Oregon Exploration and Mining Company operated the property continuously for the next

three years or until 1905. During this period, they drove the Zelda adit level to the extent showing on the drawings accompanying this report; they sunk the two-compartment shaft 240' to its present terminus and drove on the Intermediate level for approximately 160 or 170 feet. They installed a 10 stamp mill, with amalgamation and gravity tables. Roads and buildings were constructed. Including the purchase price of \$75,000.00 this company expended, according to Mr. Fenstermacher, during this period, the sum of approximately \$200,000.00 with production amounting to about \$52,000.00 on an extraction basis of about 65%.

Outside of necessary assessment work, the property then remained dormant until 1919 when the same interests started the Drain or Lower Adit Level, which they completed in 1923.

From 1923 to 1925, the property was inactive and from 1925 to 1927 it was under lease to interests who retimbered and regraded the Lower Level and extended it practically to the faces now indicated on the drawings of this level. They constructed the present mill building, installed a specially designed mill, which for lack of a better name, I would describe as a mechanical arrastra. They are reported to have expended a total of

\$85,000.00 , and I am advised that there was no production from milling; and the sole revenue was from three carloads of ore shipped of which there is no record to show their value.

For the year 1928-1929, the property was again leased, but, outside of doing necessary assessment work, the lessees were forced to abandon their lease-hold on account of the financial conditions in 1929.

In 1929, the Oregon Consolidated Mining Company, who were working the Banner Group, took over the Snow Creek Group under lease and bond. This is the company who enlarged the mill building and installed most of the present milling equipment. Little or no production was had and the lease reverted to the owners in 1931 or 1932.

The last work was done during the current year under special contract with Mr. W. C. Cooper and associates. These interests rehabilitated some of the workings, made some development advances and some changes in the milling equipment and produced about \$3,000.00. This working contract has now expired.

On the Banner Group, the Banner claim was located in 1920, and the other two claims now making up the present group were filed on sometime in the interim prior to 1926. The Oregon Consolidated Mining Co., who had the property

under lease prior to 1929, are responsible for the present extent of the development work. Under this regime, the property was opened up by shaft to a depth of 190' and a length of 280' by 300 feet of drifts on two levels and with approximately 100 feet of exploratory cross cuts. They also constructed a modern camp and a small mill. No production is recorded.

DISTRICT GEOLOGY:

Including A. M. Swartley's "Ore Deposits of Northeastern Oregon", geologic literature on the district is scant and the following observations are from the writer's notes. That part of the district within the immediate geological horizon is occupied by two important rock types, i.e. the granodiorite intrusive, which borders several miles to the west, and the metamorphosed sedimentary argillite, the main body of which lies to the east bordering on and striking northwesterly near the old Bonanza mine at Geiser.

Between these flanks, especially in the vicinity of Greenhorn, the geology is complex. The rock types are greenstone, serpentine and gradients of the intrusive granite together with remnants of shales and argillites.

The principal mines have been in argillite. The veins are mainly of the fissure filling type and most of

them strike in the Northwest quadrant and nearly all of them dip steeply. This represents what I believe is the major vein system and strongly suggest radiation from a central point. Southwest of Greenhorn the veins have various local strikes probably due to the influence of complex structural formation.

The chief primary minerals are quartz limonite and free gold after pyrite with galena, chalcopyrite and sphalerite. No grouping of properties is sufficiently localized to permit a study of zonal mineralized distribution and as a consequence zonal relations cannot be defined, but the scattered distribution of complex relations suggests the probability of several mineralizing centers.

Geology, Mine:

The following brief description of the main topographic features in the mine area is considered an essential preliminary to the discussion of the mine geology.

The mine lies within a narrow valley, traversed by Snow Creek on a moderately steep gradient. The ridges on either side are spurs with rounded slopes and whose crest lines gradually increased from truncated terminals near the southeasterly claim limits to merge with the gently curved, fan like base of the abruptly rising and

convex slope leading to the prominent crest, locally designated as "The Greenhorn".

This crest is definitely connected with and a consequence of the intrusive batholith that created that portion of the Greenhorn range known as Vinegar Hill. The structural deformation effected at the time this granitic cupola penetrated the older rocks contributes largely to the geologic conditions of the mine as we find them today.

The rock types as noted on the geological map of the underground workings are the metamorphosed sedimentaries shale and argillites; serpentine and gabbro.

Correlation of the formations as mapped shows the development is largely confined to a serpentine plug between the contact of shale and argillite on the one side and gabbro on the other.

A cross section of the horizontal plane of the lower workings would reveal this serpentine plug as a wedge shape out-lier from a main sill of serpentine which first shows on the surface in a stock like outcrop following the peripheral base of the abrupt slope which leads to "The Greenhorn".

Beyond this arc of serpentine, as we look upwards to the crest, the intervening surface shows the remnants

of cover rocks mixed with frequent serpentine croppings. Near the crest, where erosion has been most effective, is a prominent band of serpentine readily visible from a distance of several miles. From this occurrence the crest derives its name. These exposures indicate that this tabular segment is the serpentinized product of an original intrusive sheet or sill of an igneous rock that was rich in magnesian silicates.

The strike of this tilted sill is approximately North and South with a dip to the east averaging 65 degrees. Underground where the drift faces encounter its projection the dip angle still prevails. It will be noted, therefore, that the plane of this sill is at right angles to the East-West strike of the fissured zone. As a consequence this uplift constitutes a terminal for the sedimentaries and limits any further westerly extension of the fissure zone, which, as has been previously stated, is confined to the easily fractured plane of contact between the sedimentaries and the intrusive rock. Therefore, further longitudinal exploration in this direction does not, in my opinion, appear warranted.

With regard to exploration to further depth, any reasonable expectancy of finding further commercial ore in this direction must also be based on geological

criteria and the characteristics of the ore in the various developed levels represents part of the evidence to be submitted in this regard.

The mineralized material from the upper, or old Snow Creek level, is essentially oxidized and consists of quartz and limonite with free gold.

The mineralized material from the Zelda level, insofar as it was open, is practically the same as the Snow Creek level, except that some carbonates and sulphates were noted and scattered and unaltered sulphide residuals began to appear.

In the lower levels, primary and secondary minerals are intermingled. In my opinion, this is unquestionably the secondarily enriched sulphide zone and thus indicates the approach of the primary ore zone. The above reference to secondary enrichment applies only to the sulphide minerals. I doubt that there has been any secondary gold enrichment due to lack of the needed factors for the migration of this mineral.

Microscopic examination reveals that, of ore samples from the lower levels, while some of the gold remains free, its increasing frequency of intimate association with the sulphides becomes apparent. Some was noted with cerussite, thus indicating a primary

inclusion with galena, but, for the most part, the preferential sulphide is an auriferous pyrite. As a consequence, any diminution in the occurrence of this primary sulphide, which ordinarily can be expected with increase in depth, will cause a decrease in the gold content of the ore.

Excepting under certain peculiar conditions, most primary deposits show decreased values with depth; therefore, the question of whether or not to sink must be considered in the light of somewhat adverse geological conditions and resolved in the affirmative only in case the average value of the ore exposed in the lower level is sufficiently high to counter-balance any possible shrinkage and still maintain a commercial grade; if the average values of the exposed ore in the lower workings are marginal, then the conclusion should be negative.

As a foreword to the description of the vein system, attention is called to the fact that the previously mentioned serpentine plug is exposed by the accessible development work to a maximum depth of 300 feet, and in length for approximately 300 feet with about 80 feet of width at the maximum horizontal cross-section.

The rocks enclosing this plug are shale and gabbro: The attitude of these formations are not constant but in both types the trend of contact is East-West. The shale, which is the hanging wall of the plug, dips in general

48 degrees South, while the gabbro, which constitutes the foot-wall, dips in general 65 degrees to the South; the development mentioned in the preceding paragraph consists principally of a series of adits and a two compartment vertical shaft reaching 240 feet in depth.

The Vein is the fissure type, striking generally East-West with varying angles of dip to the South. Due to the complete inaccessibility of the Snow Creek adit and a cave-in which precluded inspection of most all of the vein in the Zelda level, the following remarks refer to the Vein as observed in the lower levels.

The Vein is intersected in the main adit level by Cross Cut 401 North. At the point of intersection, the dip, predicated solely on the superimposed relation of the vein in the Zelda level, is nearly vertical. From this point, also, the prevailing strike is due West. Modulations in the trend are essentially due to the local influence of the enclosing rock structure. Very few dip angles could be measured, but, wherever taken, confirmed the diagramatic dip indicated by the plane of vertical projection on the map.

As indicated by the geological sketch of the main level, between Survey Stations 12 and 25, or for the first 150 feet, this fissure follows the contact.

plane between gabbro as a foot-wall and serpentine as a hanging wall; from the latter station it cuts into the serpentine plug, heretofore described, and remains in this formation to where cut off by the tilted sill. To avoid confusion, the strike of this latter portion of this vein is shown on the geological sketch of the main level by a dotted line which exemplified the trend actually established by the course of the drift in the Intermediate level.

At Station 25, a branch vein diverges on a strike of North 70 West. The fracture plane is quite regular as to strike despite the fact that it penetrates a highly serrated contact plane between serpentine and gabbro. The regularity of this strike line, together with other criteria, leads me to believe that this branch fissure is the result of localized compressive stresses and that, as a consequence, the range of this branch fissure is very limited.

In the matter of vein width, a vertical cross section of the vein in serpentine is exposed to inspection at the station cut for the "New Winze" and by the main raise leaving from the Intermediate level 13 feet above. This cross section plainly defines a lenticular shaped ore body with lower and upper culminations on the 5th and

8th floors respectively. The upper tip of a lower lens shows above a pile of broken ore on the fourth floor. Its position in relation to the first mentioned suggests the lenses occur in echelon.

Lenticular ore bodies are usually the rule when both walls are in serpentine. This can be attributed to the fact that any open fissures existing in the original igneous intrusive at the time it was undergoing serpentinization would become partially closed due to the pressure and increase in volume exerted by the hydration of the iron magnesium silicates of the original rock, resulting with the walls in contact but leaving lens like openings more or less connected throughout the original plane of fracturing.

Therefore, I believe that wherever both walls of the vein are serpentine the ore will be found in more or less closely connected lens like pockets. That on those portions of the vein where serpentine constitutes only one wall the effect of serpentinization will not be so pronounced an influence on the shape of the vein and, as a consequence, this latter conclusion also implies that the best ore shoot might be expected between stations 12 and 25, which prediction is to a certain extent confirmed by factual data.

The ground, including both vein matter and wall rocks, as a rule, is very wet, heavy and weak. In general, the walls are soft and altered and the pressure exerted by the weight of the hanging wall will be a constant media for sloughing and squeezing. Heavy timbering throughout, including stopes, will be mandatory and, as a further precautionary measure, the employment of a retreating system will be essential in mining.

In conclusion of this geological estimate of the situation, the gravity drainage of mining waters is effective to the elevation of the main adit. Below this level pumping will have to be employed and the cost thereof will be a considerable factor to be reckoned with in any plan of exploration of further depths.

Sampling and Assays -

Inasmuch as we were precluded from close sampling, due largely to tightly lagged openings, the sampling and assay data of independent engineers and the Mine Staff was of particular concern. A study of these exhibits was made to determine their reliability, at the completion of which it was readily apparent that, in a majority of the cases, the sampling and the conclusions from results of same were by methods contrary to the very fundamental principles pertaining thereto.

In one lot of 123 samples, the records of which, at least, are quite complete, clearly indicate that only five samples represented the vein. Any sample that does not represent the vein, or portion of the vein, from which taken, is valueless.

In the above lot, as well as two other lots, the conclusions from results of sampling were computed on numerical averages instead of proportional averages. It is a primary tenet that the quantity of material represented by an assay should be as much a factor in calculating an average as is the assay itself.

As a consequence, estimates of the value of ore reserves, predicated heretofore on either a single or collective application of results from the sample lots above are erroneous and misleading.

This is illustrated by assay Tables 1 and 2. In Table 1 the values for each lot are computed by the methods commented on in the preceding paragraph. In Table 2 the values for each lot give effect to re-computation by correct proportional methods.

In Table 1, the computations shown are those from the records.

ASSAY TABLE NO. 1

Showing Computation of the Numerical Average Value
of Three Sample Lots

LOT NO.	NO. SAMPLES IN LOT	LOT WIDTH	LOT VALUE
1	5#	2.4'	\$17.02
2	8	2.3	17.40
3	5	2.4	8.79
TOTAL	3	7.1	43.21
AVERAGE##		2.36'	14.40

#Using only the 5 samples of Lot of 123 mentioned
in paragraph, page 22.

##The average is obtained by dividing the sum of the
values by the sum of the widths.

-00000-

ASSAY TABLE NO. 2

Showing Computation of the Proportional Average Value
of Three Sample Lots

LOT NO	WIDTH	VALUE	WIDTH X VALUE (Foot-Dollars)
1	2.4'	\$7.09	\$17.02
2	2.3'	9.19	21.14
3	2.4'	9.51	22.82
TOTAL	3	7.1	60.98
AVERAGE##	2.36'	8.59	

#The average is obtained by dividing the sums of the
Foot-Dollars by the sum of the widths.

To relate the details in connection with this particular phase of our examination would entail too long a recital. Suffice it to say, that from the various records, all the reliable sampling and assay data was abstracted, correlated and summarized. Due weight was also given to the results indicated by milling, in particular, a test run conducted by Mr. Fenstermacher in September, 1939. Including the results from our own limited sampling in the recapitulation of all these factors, there is established an average vein width of 1.9 feet and an average value of \$9.10 per ton for the area represented by these factors.

In this latter connection, it was estimated that the factors involved represent 27 per cent of the vein area with the sample factor predicated on each sample as indicative of a five foot interval.

While only complete sampling at close intervals is a true index to the average factors; I doubt whether the results therefrom would materially alter the average factors as they have been partially determined. As a consequence I believe, these partial averages very closely approximate the whole and that they can consistently be used in computing the value of the probable ore reserves to which they pertain.

ORE RESERVES:

The ore reserves are placed in two classifications defined as follows:

- (a) Probable Ore, or ore not fully developed, by being sampled on at least three sides within reasonable distance.
- (b) Possible Ore, or ore reasonably assumed to exist, but not sampled on more than one side or on no side.

The estimates relating to the two classifications are based on these factors-

<u>Description</u>	<u>Probable Ore</u>	<u>Possible Ore</u>
Length of Block	300'	300'
Height of Block	106'	25'
Width of Block	1.9'	1.9'
Tonnage Factor in cubic feet	13	13
Value Factor per ton	\$9.10	\$9.10
Less - Already mined in tons	400	

Computation of the above factors result in the following estimate:

PROBABLE ORE	4735 Tons	\$39,000.00
POSSIBLE ORE	<u>1100 Tons</u>	<u>10,000.00</u>
Total	5835 Tons	49,000.00

CONCLUSIONS:

In conclusion, I am led to believe from the facts herein given that-

1st - Further exploration will not result in the discovery of other commercial ore bodies.

And - After carefully computing cost factors, no profit can be made from extracting and milling the existing Ore reserves.

Finally, I agree, for and in consideration of the conditions herein named, to assist any interested party at any convenient time in making a re-examination of this property. And if all statements shown or made in this report cannot be reasonably corroborated in said joint examination, I hereby agree, in that event, to make no charges for my expenses and services while thus engaged, but shall receive a fair compensation for such service providing my work is found practically correct.

Respectfully submitted,

Signed by: FRED J. ROSENBERG

Fred J. Rosenberg, E.M.

Portland, Oregon,
Dec. 22, 1959

Power line
Transformer

2400
~~1000~~
3500

1.20

Compressor
Habit

7500
3500
11000

H. Steinbauer
108 NW. 9th Ave
Baker Co

BUCK SILVER BRAND
XRAY FILMS

BUCK DARK ROOM
SUPPLIES & EQUIPMENT

Premium Gold Inc
H. STEINHAUER

~~Green Creek & Baker Mines~~
BUCK XOGRAPH CO. SUPPLY BRANCH
ROOM 306 GRAPHIC ARTS BLDG.
108 N. W. 9TH AVE., COR. COUCH
PORTLAND, OREGON

TELEPHONE
BROADWAY 2407
RES. GARFIELD 7842

MINING JOURNAL FINE SHEET
Phoenix, Arizona

August 23, 1943

Oregon

The 35-ton mill at the Snow Creek mine is being moved to the Bald Mountain property which is being reopened by W. C. Fellows of Baker, Oregon. The Snow Creek is a gold property in the Greenhorn district, owned by W. A. Fenstermacher, 1211 South East Fifty-second Street, Portland, and was last operated by C. W. Cooper of Portland and associates. The Bald Mountain ore is siliceous and is therefore in demand at the Tacoma smelter. Mining equipment has been installed and some production is being made. However, when the mill is in operation output will be boosted.

✓ SNOW CREEK: Greenhorn District.

Development: Tunnel 1,400 ft. to shaft 250 ft. with levels.

Relationships: Vein in serpentine. **Baker County** Beie Quartz, chalcopryrite, galena.

Milling & Production: No milling records or production recorded. (Hewett, 31; 19)

Snow Creek Placers

Gold
PRINCIPAL ORE

MINOR MINERALS

NAME

OLD NAMES

T

R

S

PUBLISHED REFERENCES

..... Baker COUNTY

..... Greenhorn AREA

..... ELEVATION

..... ROAD OR HIGHWAY

..... DISTANCE TO
SHIPPING POINT

MISCELLANEOUS RECORDS

PRESENT LEGAL OWNER (S) Milton Knudsen

..... William Switzer

Address Whitney, Oregon

..... Umatilla, Oregon

OPERATOR

Name of claims Area Pat. Unpat.

Name of claims Area Pat. Unpat.

EQUIPMENT ON PROPERTY

REPORTS

Assorted Press Clips

X

SHIPMENT AND ASSAY RECORDS

MAPS