

MONTHLY REPORT OF PURCHASES
 SUPPLIES, MAINTENANCE ITEMS AND REPAIRS UNDER
 PREFERENCE RATING ORDER P-56

NAME OF MINE OPERATOR OR AUTHORIZED AGENT FOR SUCH OPERATOR Bruce Dennis
Buffalo Mine at Granite, Oregon
 ADDRESS Office Address: 403 Pacific Bldg., Portland, Oregon. MINE SERIAL NO. 33-29

PURCHASES MADE IN MONTH OF February. 1942.

(INSTRUCTIONS: This report is to be filed with the Emergency Coordinator of Mines for your State, on or before the 10th day of the month following the month covered by this report. Group all orders for similar materials which were bought from the same supplier. Make as few separate entries as possible. However, purchases of the same material from different suppliers must be shown separately. In II, enter the authorization number which was issued to you by O.P.M., permitting the purchase of the material listed. Retain copies of all these reports in your files.)

I. PURCHASES TO WHICH RATING A-8 HAS BEEN APPLIED DURING MONTH

<u>MATERIAL</u>	<u>QUANTITY</u>	<u>SUPPLIER</u>
Through Bolt 2-3/8" Dia	1	Basche-Sage Hardware Co.
PRA9 Sm Piston Rings	2	Baker, Oregon
DS3B Rings for Main 13" Piston	2	"
PRA7 Piston Rod Sleeve Lower	2	"
PRA7 Piston Rod Sleeve Upper	2	"

II. PURCHASES TO WHICH RATING A-1-a HAS BEEN APPLIED DURING MONTH

<u>MATERIAL</u>	<u>QUANTITY</u>	<u>SUPPLIER</u>	<u>O.P.M. AUTHORIZ. NO.</u>
-----------------	-----------------	-----------------	-----------------------------

CERTIFICATION

The undersigned hereby certifies to the Office of Production Management, that

- (1) he executed the foregoing statement on behalf of and by authority of the above named Mine Operator;
- (2) the above named Mine Operator has, during the period covered by this report, complied with all the provisions of Preference Rating Order P-56;
- (3) during such period the Mine Operator's inventory of operating supplies and other material has not been greater than the minimum necessary for the efficient operation of his business, and the ratio of inventory (quantity) to current production has not exceeded the ratio of average year-end inventory (quantity) to average production for the years 1938, 1939, and 1940;
- (4) the facts stated herein are, to the best of his knowledge and belief, true and correct.

March 10, 1942
 (DATE)

Luida K. Humphrey
 (SIGNATURE OF AUTHORIZED OFFICIAL)

Secretary to Bruce
 Dennis, Owner of Mine.
 (TITLE)

**MONTHLY REPORT OF PURCHASES
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PREFERENCE RATING ORDER P-56**

NAME OF MINE OPERATOR OR AUTHORIZED AGENT FOR SUCH OPERATOR Bruce Dennis
Buffalo Mine at Granite, Oregon
ADDRESS Office address: 403 Pacific Bldg., Portland, Oregon **MINE SERIAL NO.** 33-29

PURCHASES MADE IN MONTH OF January **19**42.

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<u>MATERIAL</u>	<u>QUANTITY</u>	<u>SUPPLIER</u>
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----- NO PURCHASES -----

II. PURCHASES TO WHICH RATING A-1-a HAS BEEN APPLIED DURING MONTH

<u>MATERIAL</u>	<u>QUANTITY</u>	<u>SUPPLIER</u>	<u>O.P.M. AUTHORIZATION NO.</u>
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----- NO PURCHASES -----

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February 10, 1942
(DATE)

Linda K. Humphrey
(SIGNATURE OF AUTHORIZED OFFICIAL)

Secretary to
Bruce Dennis
(TITLE)

RECEIVED

MONTHLY REPORT OF PURCHASES
 SUPPLIES, MAINTENANCE ITEMS AND REPAIRS UNDER
 PREFERENCE RATING ORDER P-56

NAME OF MINE OPERATOR OR AUTHORIZED AGENT FOR SUCH OPERATOR Bruce Dennis

ADDRESS Buffalo Mine at Granite, Oregon MINE SERIAL NO. 33-29
Office address: 403 Pacific Bldg., Portland, Ore.

PURCHASES MADE IN MONTH OF December 19 41 .

(INSTRUCTIONS: This report is to be filed with the Emergency Coordinator of Mines for your State, on or before the 10th day of the month following the month covered by this report. Group all orders for similar materials which were bought from the same supplier. Make as few separate entries as possible. However, purchases of the same material from different suppliers must be shown separately. In II, enter the authorization number which was issued to you by O.P.M., permitting the purchase of the material listed. Retain copies of all these reports in your files.)

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<u>MATERIAL</u>	<u>QUANTITY</u>		<u>SUPPLIER</u>
4-inch cast steel balls	2 tons	(received December 10th)	P.R. Hines, agent 668 N. Tillamook Portland, Oregon
4-inch forged steel balls	4 tons	(order not yet received)	ditto
end liners and bolts	1 set	(order not yet received)	ditto

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 - (4) the facts stated herein are, to the best of his knowledge and belief, true and correct.

January 10, 1942
 (DATE)

Bruce Dennis
 (SIGNATURE OF AUTHORIZED OFFICIAL)

Owner
 (TITLE)

MONTHLY REPORT OF PURCHASES
SUPPLIES, MAINTENANCE ITEMS AND REPAIRS UNDER
PREFERENCE RATING ORDER P-56

NAME OF MINE OPERATOR OR AUTHORIZED AGENT FOR SUCH OPERATOR Bruce Dennis

ADDRESS 403 Pacific Building, Portland, Oregon MINE SERIAL NO. 33-29

PURCHASES MADE IN MONTH OF November 19 41.

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I. PURCHASES TO WHICH RATING A-8 HAS BEEN APPLIED DURING MONTH

<u>MATERIAL</u>	<u>QUANTITY</u>	<u>SUPPLIER</u>
Manganese Steel Scoop Tips	4	P. R. Hines, Agent 668 N. Tillamook Portland, Oregon

II. PURCHASES TO WHICH RATING A-1-a HAS BEEN APPLIED DURING MONTH

<u>MATERIAL</u>	<u>QUANTITY</u>	<u>SUPPLIER</u>	<u>O.P.M.</u> <u>AUTHOR-</u> <u>IZATION</u> <u>NO.</u>
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NAME OF MINE OPERATOR OR AUTHORIZED AGENT FOR SUCH OPERATOR Bruce Dennis

ADDRESS Buffalo Mine at Granite, Oregon MINE SERIAL NO. 33-29
403 Pacific Building, Portland.

PURCHASES MADE IN MONTH OF October 19 41 .

(INSTRUCTIONS: This report is to be filed with the Emergency Coordinator of Mines for your State, on or before the 10th day of the month following the month covered by this report. Group all orders for similar materials which were bought from the same supplier. Make as few separate entries as possible. However, purchases of the same material from different suppliers must be shown separately. In II, enter the authorization number which was issued to you by O.P.M., permitting the purchase of the material listed. Retail copies of all these reports in your files.)

I. PURCHASES TO WHICH RATING A-8 HAS BEEN APPLIED DURING MONTH

<u>MATERIAL</u>	<u>QUANTITY</u>	<u>SUPPLIER</u>
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NO PURCHASES MADE IN OCTOBER

II. PURCHASES TO WHICH RATING A-1-a HAS BEEN APPLIED DURING MONTH

<u>MATERIAL</u>	<u>QUANTITY</u>	<u>SUPPLIER</u>	<u>O.P.M.</u> <u>AUTHOR</u> <u>IZATION</u> <u>NO.</u>
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NO PURCHASES MADE IN OCTOBER

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- (4) the facts stated herein are, to the best of his knowledge and belief, true and correct.

REPORT

on

THE BUFFALO MINE
GRANT COUNTY, OREGON
SEC. 14, T.8S., R 35-1/2 E.

for

GREAT AMERICAN GOLD CORP.
475 HOWE STREET
VANCOUVER, BRITISH COLUMBIA

by

Charles K. Ikona, P.Eng.

October 1983

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1.0 INTRODUCTION

Great American Gold Corporation has purchased the Buffalo Mine located in Grant County, Oregon. This mine has been a small semi-continuous gold silver producer since the early part of the century.

The writer, together with representatives of Great American Gold Corp., examined the mine and property on September 23rd and 24th, 1983. Mr. G. Meyer of Baker, Oregon who was property superintendent during the last production in 1980 accompanied us on this examination.

This report is intended to summarize available information on the property and recommends a possible development program for Great American Gold Corporation.

2.0 GENERAL OBSERVATIONS AND CONCLUSIONS

The mine is a small underground operation which has been developed on three levels over a vertical distance of some 600 feet on four known semi-parallel veins. These veins, where mined, are of a relatively high grade nature (1/2 oz/ton gold and 4 to 5 oz/ton silver or better) and in general appear to be 2 to 3 feet in width. Sections 7.0 and 8.0 of this report discuss these in greater detail.

The mine has a complete flotation mill with a capacity of approximately 75 tons per day in place. With some modification this mill will most likely adequately service the property (Appendix B, this report). Electrical power is available on the property and is supplied by the local utilities company.

At the present time a majority of ore reserves have not been blocked out sufficiently to classify as proven in accordance with established engineering standards and are therefore classified as probable. Other authorities, notably Union Pacific Railroad Co., Natural Resources Division in 1965-66 projected in excess of 300,000 tons probable and possible ore in the area of the developed workings (Section 8.0). From Union Pacific's work, the writer's observations and discussion with Mr. G. Meyer it is anticipated that sufficient reserves for two years production (50 to 75 tons/day) could be developed fairly quickly off the existing workings and that additional reserves can be developed as the property progresses. These reserves may be located down dip and on strike from the existing workings and on other veins which are located on the property.

The writer is informed that Great American Gold Corp. is initiating a comprehensive sampling program of material in the stopes accessible from the 600 level. Should these confirm the results reported by the above authorities a program such as discussed in this report should be contemplated.

As with all mining properties of this nature the personnel employed will be critical for its success as grade control of mill feed will be of paramount importance.

Some consideration should be given to some metallurgical testing as some improvement on historical results may be able to be attained in recovery and concentrate grade.

In addition some preliminary sampling of the tailings and dumps on the property show values of possible economic interest (Appendix C). An expanded sampling program of these should be considered.

Sections 14.0 and 15.0 of this report contains a program and cost estimate for the further development of the Buffalo Mine by Great American Gold Corp.

3.0 LOCATION, ACCESS, TOPOGRAPHY AND CLIMATE

The Buffalo claim group is located about 5 miles northeasterly of the Village of Granite, Grant County, Oregon, near Granite Creek. The approximate legal description of location is Section 14, T.8S., R. 35-1/2E. The claim group consists of 4 patented and 25 unpatented 7 post mineral claims outlined in Figure 2 for a total of 500 acres. The property is in the Granite Mining District. Although the Granite Mining District is in Grant County, the commercial centre for the district is Baker, the county seat of Baker County. Granite is 41 miles by road from Baker via Sumpter. Sumpter is 24 miles from Baker over an all-weather road. The eastern half of the district is in the Wallowa-Whitman Forest and western half is in the Umatillo National Forest. The district lies within the outline of the Blue Mountains which have a relief of 2,600 feet.

The property is located on the Elkhorn Ridge between the 5,700 to 6,400 foot elevations. The Elkhorn Ridge is a prominent southeast trending prong of the Elkhorn Mountain range which is a part of the Blue Mountains.

The Elkhorn Mountains are topographically rugged, heavily timbered with the principal species being Larch, Lodgepole Pine and Jack Pine.

The climate is temperate; annual precipitation is approximately 35 inches of which two-thirds falls as snow during the winter season; the average January temperature is 20°F and the average June temperature is 62°F.

4.0 MINING HISTORY

During 1861 placer gold was discovered in the Powder River drainage to the east and the John Day drainage to the west of the Buffalo Mine property. Accounts of the history of mining in the Blue Mountains, eastern Oregon, prior to the turn of the century are largely available from the newspapers of the day. Some reports written several years later state that placer gold was discovered on Granite Creek in late 1861 (Pardee and Hewett, 1914, p. 9).

The first few years of mining in the district was mostly for placer gold, but later hardrock gold deposits have had eight low tonnage producing gold mines of which the Buffalo Mine has been considered the most important producer in the Granite Mining District.

The early history of the Buffalo Mine is uncertain. It would appear that it was discovered and located during the 1870's. Apparently underground developments began in the mid-1880's but no production records are available for the years prior to 1903. Records since then indicate that the mine had been almost continuously active, except for a period during World War II, when gold mining in the U.S. was suspended. For the most part annual production has

been small if not negligible. From 1959 to 1965 activity has been confined to exploration and development at lower levels. This work has been pursued only periodically and mill operations basically have been limited to treatment of ores from developments on the 600 foot level.

When operations were suspended during 1965 the underground developments consisted of about 10,000 feet distributed among crosscuts, drifts and adits on four levels. The ore between the upper two levels and surface has nearly been exhausted through stoping, but only minor amounts of stoping has been done between the 600 and 400 foot levels.

The recorded production of recovered precious metals from 1903 through 1964 has amounted to 33,138 ounces of gold, 239,305 ounces of silver from 42,245 dry short tons milled. In addition, minor amounts of copper, lead, and zinc have been recovered.

The Buffalo Mine has worked five roughly parallel silicified fissure zones. These are, from west to east, the Monitor, No. 1, No. 2, No. 3 and the Constitution vein. The Monitor is a silicified breccia zone, in argillite, up to 25 feet wide, which has so far yielded little or no ore. The other four are roughly parallel composite quartz veins having similar structure and mineralogy. All have been productive, although the No. 2 and the Constitution vein have accounted for the majority of tonnages.

Following 1952 the recovery of precious metals has been through bulk floatation of sulphide mineralization, using a 4 by 5 foot ball mill. The ore grinding equipment prior to that year appears to have been a stampmill.

Production recoveries pre-1952 consisted of direct shipment of high grade ores, and bulk floatation at the mine site.

The stoping method used up until 1965 has been cut and fill. The fill is assumed to have been slashed from the footwall of open stopes.

Exploration and development has consisted of driving adits from surface at progressively lower levels, intercepting the four productive veins. Crosscuts driven along the veins have delineated shoots and zones. These were then stoped upward until the ore had been exhausted. When all such stopes were completed above an existing level a lower level was explored and developed.

During 1980 the mill was rehabilitated and about 185 tons of ore processed. In the order of 10 tons of ore were sent directly to Trail, B.C. for smelting. In addition about 73 tons of concentrates were shipped to Trail.

Throughout the past 80 years the Buffalo Mine has had several owners. The most recent owner was the Buffalo Mining Co., Seattle, Washington, from whom Great American Gold Corp. has purchased the property and mining equipment.

Appendix D from Bulletin 49, Department of Geology and Mineral Industries, State of Oregon shows reported production of the Buffalo Mine.

5.0 GEOLOGY

The geology in the vicinity of the Buffalo Mine is shown in Figure 3 (after Koch, 1959). All the gold deposits of the Granite District occur in relative-

ly narrow silicified fissure zones. The following is a summary of the geology of the general area as established by Pardee, 1941, when a detailed mapping project was conducted in the Sumpter quadrangle.

The pre-Tertiary rocks of northeastern Oregon are a group of bedded metamorphic rocks that have been intruded by various igneous rocks. These originally consisted of Permian shales which were interbedded with basic volcanics. No attempts have been made to subdivide these rocks into formations because of intense metamorphism.

Pardee has stated that before deformation the shales were intruded by basic magmas that formed sills, dikes and irregular bodies. Today these are seen as metagabbros, peridotite and serpentines.

Probably during early Cretaceous time acid magma was intruded to form a batholith that extends into the northern third of the Sumpter quadrangle. Lindgren, 1901, has described the intrusives as granodiorite. A more detailed investigation by Taubeneck, 1957, indicates that the intrusives range in composition from norite to quartz monzonite.

The pre-Tertiary rocks have undergone extensive structural deformation and metamorphism. The older sediments are known to have been compressed into close folds, many of which are isoclinal. The fold axes orient east-west and are nearly horizontal. An unknown amount of faulting accompanied or followed the folding.

At the time of intrusion of igneous bodies the argillites were further metamorphosed near the intrusive contacts. In addition, normal faulting of the

argillites have occurred. The breccia zones associated with these faults were flooded by hydrothermal fluids. Fracture fillings and replacements in the breccia zones are the present locations of known gold/silver deposits in the general area. Some of the above faults are extensive. The fault in the Cracker Creek Mining District, immediately to the east of the Buffalo Mine has been traced for more than 12 miles. Its attitude is virtually identical to that of the veins at the Buffalo Mine.

The argillites in the area are fine-grained and highly cherty or siliceous, most of these contain more than 90% quartz. Some of the argillite is white to light gray, but a majority is dark gray to black. The majority of the argillite is thin-bedded and for the most part, intensely deformed into sheared lenses or tight folds with crests a few inches to a few feet apart. In the vicinity of granodiorite contacts the argillite has been recrystallized into a coarse-grained schist. The schist is more resistant to erosion than the argillite or the granodiorite and consequently tends to form ridges. So far no gold deposits have been found in the argillite-schists.

The granodiorite in the Granite District is a part of the Monumental salient of the Bald Mountain batholith. In the eastern part of the district it is in several locations the wall rock for several quartz veins. In these locations the granodiorite is of medium-grained size and has a light gray colour. At the Buffalo Mine altered granodiorite is abundant along the No. 3 and the Constitution veins.

Pardee, 1941, recognized two ages of Tertiary volcanics in the Sumpter quadrangle, but only the younger group is present in the Granite District. Their only relationship to the gold deposits is to conceal them.

6.0 MINERAL DEPOSITS OF GRANITE DISTRICT

Since the early 1880's eight gold deposits have been discovered and operated in the Granite District. From the southwest to northeast these are the Courgar-Independence, New York, Ajax, Magnolia, Tillicum, Buffalo, Blue Ribbon, Standard and Continental Mines. The New York Mine is supposed to have been located in NE 1/4 Sec. 27, the Tillicum in NE 1/4 Sec. 23, the Standard in SW 1/4 Sec. 12, and the Continental in SW 1/4 Sec. 12.

The gold deposits in the Granite Mining District are typically mineralized fissure veins which are in argillite and altered granodiorite. The displacement of the fissure walls are not known but are probably not more than a few hundred feet. With a few exceptions, the veins strike approximately N25°E, with steep dips easterly or westerly.

According to available descriptions of each deposit, the principal veins are similar in size, having on the average, been explored to lengths of about 1,000 feet and depths of 400 to 600 feet. Mining operations immediately to the east of the Granite District have worked quite similar gold deposits over a vertical column of up to 2,500 feet. There exist no reason to suggest that the veins of the Buffalo Mine cannot persist to such depths.

The veins in the Granite District are of two types: 1) one type consists of abundant quartz and calcite gangue in fracture fillings and the nearly complete replacement of wall rock fragments within the veins, and 2) a type composed largely of dike material, fault gouge, and crushed argillite with sparse quartz and calcite material. The first type is exemplified by 4 of the 5 veins of the Buffalo Mine and the second type by the Monitor vein. The

principal metallic mineralization in the veins, of the first type, consists of pyrite, arsenopyrite, sphalerite, chalcopyrite, galena, and tetrahedrite. Minor amounts of free gold occur in particles up to 50 microns. These are for the most part intergrown with galena and/or sphalerite. The bulk of the gold is not visible and appears to be trapped within grains of the sulphide minerals. No silver minerals have been recognized and the silver is believed to be present in tetrahedrite.

The veins of the second type contain pyrite as the most abundant, if not the sole, metallic mineralization. Most of the gold in the pyrite is rarely observed in its native state.

The depth of oxidation in the veins of the Buffalo Mine has been reported as shallow, hence secondary enrichments are not considered important.

Lindgren, 1933, has classified the veins as mesothermal and similar to those of the Mother Lode District in California.

7.0 MINE WORKINGS AND PAST PRODUCTION

The 5 veins of the Buffalo Mine are shown by underground workings in plan by Figures 4, 5 and 6. Only Vein No. 1 and Vein No. 3 are exposed at surface, the others having been discovered through underground developments.

The access to the underground workings is via three adits known as the 200, 400 and 600 foot levels and a 500 foot sub-level. The approximate locations of the portals are shown on Figure 3. The plans of each level are shown by

Figures 4, 5 and 6. An isometric view of the underground workings and known stopes is illustrated in Figure 7.

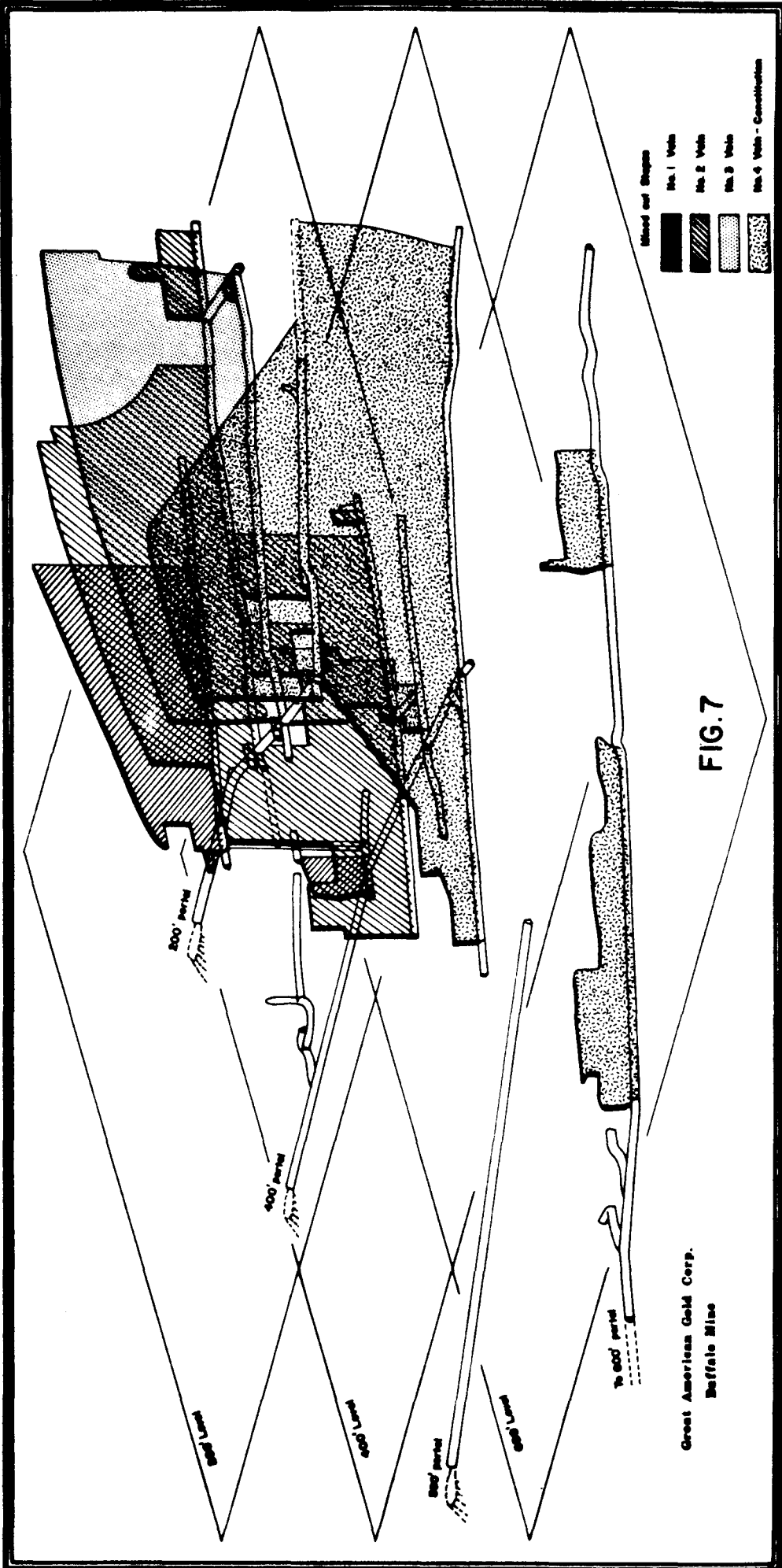
The veins have been reported to vary in width from 1 to 6 feet. Underground mappings have been restricted to vein material left in drift, stope and cross-cut backs. Underground mappings of ore zones is further complicated by timber sets and lagging.

The larger percentage of older workings have caved in and are inaccessible. The majority of the workings on the 200 foot level have been abandoned and until recently only the adit has been kept open for ventilation. On the 400 foot level production has, since 1947, been restricted to the Constitution vein. At the time of writing this report the 400 foot level requires rehabilitation prior to further examination and development. On the 500 and 600 levels minor rehabilitation is required, however, insufficient vein material has been exposed on this level to afford representative sampling.

The inaccessibility of most older stopes on the upper levels and mined out areas, as well as stoping method has not allowed resampling prior to the writing of this report. The following average grades are derived from past production records of recovered precious metals (Koch, 1959, Brooks and Ramp, 1968, Blanchard, 1981).

The above records do not all differentiate between direct shipping ore and mill concentrates.

The most reliable records are assumed to be from 1952 to present date. In order, on the average, to make some reasonable differentiation between direct



Great American Gold Corp.
Buffalo Mine

FIG. 7

shipping ore and milled tonnages it is assumed arbitrarily that annual tonnages of 250 tons or less were shipped directly to a smelter. Annual tonnages exceeding 250 tons are assumed milled with the concentrates shipped.

Brooks and Ramp, 1968, note that the mill recoveries from several operations using stampmills throughout the area did not exceed 67%. All milling prior to 1952 apparently was accomplished using a stampmill, after 1952 a 35 tons per day ball mill and bulk floatation was used to concentrate the ore. Mr. J. Jackson, Manager of Boaz Mining Co., has stated that the bulk floatation recoveries of sulphide mineralization was 90 to 94%. This is an optimistic rating for this size of a mill. In addition, according to the equipment inventory, Appendix B, it has been noted that the most recent mill circuit does not include a mineral jig for the recovery of free milling gold. Assay values of samples taken from tailings ponds during the September, 1983, property examination may indicate free gold losses in the past (Appendix C). It is, therefore likely that a more realistic mill recovery would have been 70 to 75%; however, for the following calculations 85% has been assumed in order to estimate previous millhead grades conservatively. For direct shipping ore precious metal content is based on 100% recovery in smelting.

The following is a summary of recorded production of the Buffalo Mine. The sources of these were noted earlier.

PAST PRODUCTION OF BUFFALO MINE

<u>Period</u>	Dry Tons	Dry Tons	<u>Oz. Au</u>		<u>Oz. Ag</u>	
	<u>Milled</u>	<u>Direct Shipping</u>	<u>Total</u>	<u>Average</u>	<u>Total</u>	<u>Average</u>
1903-1951	-	2,023	3,085.86	1.53	22,406	11.08
1903-1951	27,102	-	19,835.25	0.732	143,082	5.28
1952-1965	13,121	-	10,220.89	0.779	87,405	6.66
1980	-	10.5	6.11	0.582	163	15.5
1980	<u>175 est.</u>	<u>-</u>	<u>118.85</u>	<u>0.679</u>	<u>1,765</u>	<u>10.8</u>
Totals	40,398	2,033.5	33,266.96	0.784	254,821	6.0

(Appendix E presents all smelter return sheets for 1980 production.)

ESTIMATED MILLHEADS

(Recovery: pre-1952 of 67%, post-1951 of 85%)

GOLD

<u>Period</u>	<u>Dry Tons</u>	<u>Recovered</u>		<u>Millhead</u>	
		<u>Total Oz.</u>	<u>Average Oz./Ton</u>	<u>Total Oz.</u>	<u>Average Oz./Ton</u>
1903-1951	27,102	19,835.25	0.732	29,605	1.09
1952-1965	13,121	10,220.89	0.779	12,605	0.92
1980	175 est.	118.85	0.69	140	0.80

SILVER

1903-1951	27,102	143,082	5.28	213,555	7.88
1952-1965	13,121	87,405	6.66	102,829	7.84
1980	175 est.	1,765	10.08	2,076	11.87

8.0 MINING RESERVES

The sources of information of ore reserves of the Buffalo Mine are principally records of stoped out vein material and assay information in underground adit and crosscut developments.

During 1965-66, Union Pacific Railroad Co., Natural Resources Division, Los Angeles, California, conducted a preliminary geological evaluation of the Buffalo Mine. This project consisted of sampling underground workings on the Constitution Vein and exploration at depth for the continuity of the No. 1, No. 2 and No. 3 veins with three AQ wireline diamond drill holes.

The results of this work has been made available to the writer and forms the basis for the following comments and estimates.

On the basis of stoped-out tonnages above the 400 foot level, limited stoping above and sampling on the 600 foot level, Union Pacific geologists have estimated the following reserves:

<u>Vein</u>	<u>Level</u>	Tons <u>Indicated</u> (Probable)	Tons <u>Inferred</u> (Possible)	<u>Total</u>
4	Above 600	35,100	-	35,100
3	Above 600	-	28,000	28,000
2	Above 600	-	28,000	28,000
1	Above 600	-	28,000	28,000
4	Below 600	-	119,000	119,000
3	Below 600	-	66,000	66,000
2	Below 600	-	66,000	66,000
1	Below 600	-	66,000	66,000
		<u>35,100</u>	<u>301,000</u>	<u>336,000</u>

(No. 4 vein = Constitution vein.)

Union Pacific has estimated the average recoverable gold and silver as the average of the smelter return from 1952 to 1964 records. During this period 9,915 tons of vein material has been reported milled yielding an approximate of 1.03 oz. Au/ton and 8.2 oz. Ag/ton. This appears to take into account mill recovery, 70 to 75%, and smelter charges. It is not known if transportation costs of concentrates are included. In principal, however, none of the above information comes from disclosure and reporting requirements to county, state and federal authorities.

The Union Pacific results are believed reliable, however a sampling program by Great American Gold Corp. in accessible areas to confirm these is required prior to assigning full confidence to the estimates contained in this report.

A check of the cross-section of stoping on the Constitution vein has shown that for the period from 1952-1964, inclusive, a minimum of 19,440 dry short tons have been mined, about double that reported. On a conservative basis it is assumed that the unreported tonnages contained no gold and silver. The estimated tonnage weighed average millhead for the total tonnage mined has been calculated to be 0.65 oz. Au/ton and 5.20 oz. Ag/ton.

The ore reserves outlined by previous work are between the 400 and 600 foot levels on the Constitution vein. The reserve estimates in the following are based on surveyed plans and sections produced by the Union Pacific Railroad Co. during 1965 and 1966. A preliminary study of sample assays and average net smelter plans and sections between the two levels presently indicates three distinct ore shoots at a cut-off grade of 0.25 oz. Au/ton or five smaller ore shoots at a cut-off grade of 0.30 oz. Au/ton, over a horizontal

distance of 1,200 feet. The possible mining reserves are considered below the 600 foot level on the basis that the Constitution vein is continuous for at least 1,200 feet on the 600 foot level and is, therefore, at a minimum expected to persist another 250 feet below the 600 foot level. No lateral extensions have been taken into account.

The estimated preliminary mining reserves from the Union Pacific work for the Constitution vein only are:

Proven and Probable

<u>Tons</u>	<u>Average Oz. Au/Ton</u>	<u>Average Oz. Ag/Ton</u>	<u>Average Width of Vein (ft)</u>	<u>Totals</u>		
				<u>Tons</u>	<u>Average Oz. Au/Ton</u>	<u>Average Oz. Ag/Ton</u>
33,400	0.65	5.2	3			
<u>19,600</u>	<u>0.56</u>	<u>4.5</u>	<u>2.25</u>	<u>53,000</u>	<u>0.62</u>	<u>5.0</u>

Possible

33,400	0.65	5.2	3			
<u>26,000</u>	<u>0.56</u>	<u>4.4</u>	<u>2.25</u>	<u>59,400</u>	<u>0.61</u>	<u>4.8</u>
				112,400	0.614	4.9

The above reserve estimates are all subject to development work to be proposed in the following section.

The writer is not able to estimate extraction ratios at present, however at an extraction ratio of 60% and a production rate of 75 tons/day the proven and

probable mining reserves could be expected to provide reserves for some 15 months production. This leaves adequate time to explore for and develop ore reserves below the 600 foot level and on the other three previously productive veins.

A preliminary projected cash flow for 15 months production is presented in Section 16.0.

9.0 MINE DEVELOPMENT

The development work outlined in this report will have two purposes: one, establish grade estimates and mining widths, whereby to schedule proven and probable mining reserves; two, develop future mining reserves and schedules.

The vertical distance between the 400 and 600 foot levels is 270 feet and the grade averages above the 400 foot level have been estimated for mined out blocks ranging from 600 to 5,000 tons above the 400 foot level.

Due to mine inactivity over the more recent years, some rehabilitation should proceed a bulk sampling program and reactivation of mining operations. This program should be structured into two phases with the last being conditional on the previous phase.

9.1 Phase I: 600 Foot Level

The safe access to stopes above this level is in practice marginal, however, at last inspection during 1980 all mining conditions were approved by the U.S. Department of Labor. Support timbers along the main haulage way require blocking and wedging. The caps of timber sets have not been cut for posts and require 2 by 6 inch spreads spiked to the caps to prevent collapse. Proper blocking and lagging should be completed.

Along the first 600 feet from the portal the drift back is in places too low to operate a mucking machine properly. These areas must be slashed to proper heights for reasons of safety.

A proper drainage ditch should be dug and lined with 1 by 6 inch lumber on the track side.

The raises to the stope areas require new ladders throughout. These must be made from full 2 by 4 inch stock. A supply of spare rungs must be at hand. To insure mine safety, stagings must be installed approximately every 10 feet.

The millholes, chutes and raise entry areas should all be cleaned out. Where possible, stope floors should be levelled and cleaned to permit surveying and bulk sampling of existing stope backs.

Bulk sampling will be required in all stopes to confirm the grade of previous production and establish future reserves and mining schedules.

9.2 Phase II: Pre-Production Preparation

Subject to the results of Phase I, the 400 foot level should be rehabilitated for material handling, ventilation and escape ways. This will require mucking out caved sections, retimbering as above or driving by-pass drifts.

A mining contractor should be engaged to drive four 5 by 7 foot raises to the 400 foot level at the following locations:

1. UP Survey plug #629, plus 12 feet on 600 foot level.
2. From top of raise 6-4-11R.
3. From top of raise 6-4-9R.
4. From top of raise 6-4-4R.

The total amount of raising is 870 feet. The raises would include vein material for sampling purposes. The raises should be cribbed where necessary with timber slabbed on two sides. Stagings should be installed every 10 feet, and a separate timber slide installed. These raises will provide ventilation, escape ways, material handling to stopes, air and water lines and sand lines for back filling with mill tailings.

Since the 600 foot level will be the main haulage way of ore materials during all future operations, the 16 pound track must be replaced with 20 pound

rail. New ties cut from timber slabbed on two sides will be required. The old rails should be cut and stacked for use in slusher floors.

All switches should be standard manufacturers type and not flip switches.

The tressel extension from the 600 foot level should be levelled and fully winterized. A run-off prevention block should be installed at the end of the track. A 50 ton dump bin should be constructed with a primary crusher installed below the bin. Mine car dumping of ores into the bin can be done from each side of the bin by building a spur track. The discharge from the crusher should be onto a conveyor leading to a truck loading area.

In order to prevent potential hazards due to the embankment above the 600 foot level, the first 100 to 120 feet outside the portal should be covered by a reinforced concrete structure, in turn covered by 6 to 12 feet of soil and rock.

Mine communications to and between levels must be acquired and installed. In the vicinity of all working areas, stretcher stations must be built and kept dry.

The portals on the 500 and the 400 foot levels should be enclosed with structures and doors. An electrically powered ventilation blower should be installed in 400 foot level structure. A 20 inch plastic ventilation bag should be hung from the portal to the coarse ore storage shed during the winter season to keep the temperature above freezing in the shed.

10.0 MINING METHOD

The stoping method using during past operations has been cut and fill with the ore being breasted down. From an examination of existing stopes it would appear that the fill was derived by drilling and blasting the footwall. The set up time per ton of ore by miners on the size of veins of the Buffalo Mine adds considerably to mining costs. A far more cost efficient stoping method would be overhead stoping with blastholes inclined 10 degrees toward mill-holes. This would permit one set-up for drilling both ore and waste for as much as 75 feet of stope length and possibly longer distances. Each stope round would therefore consist of drilling off about 75 feet horizontally, load and blast the ore, slush the ore, build manways and millholes covered with burlap to new slusher floor height, load and blast waste, build slusher floor and back fill with mill tailings.

It is estimated that a lead miner, two miners, two mine helpers, two tram operators, two underground laborers and a timberman on two shifts can produce an average of 105 tons of ore per day.

Figures 8 and 9 illustrate the basic procedures of overhead stoping and mill tailings backfill.

Underground development work such as shafting, raising and drifting should be contracted in order to minimize fixed manpower and equipment.

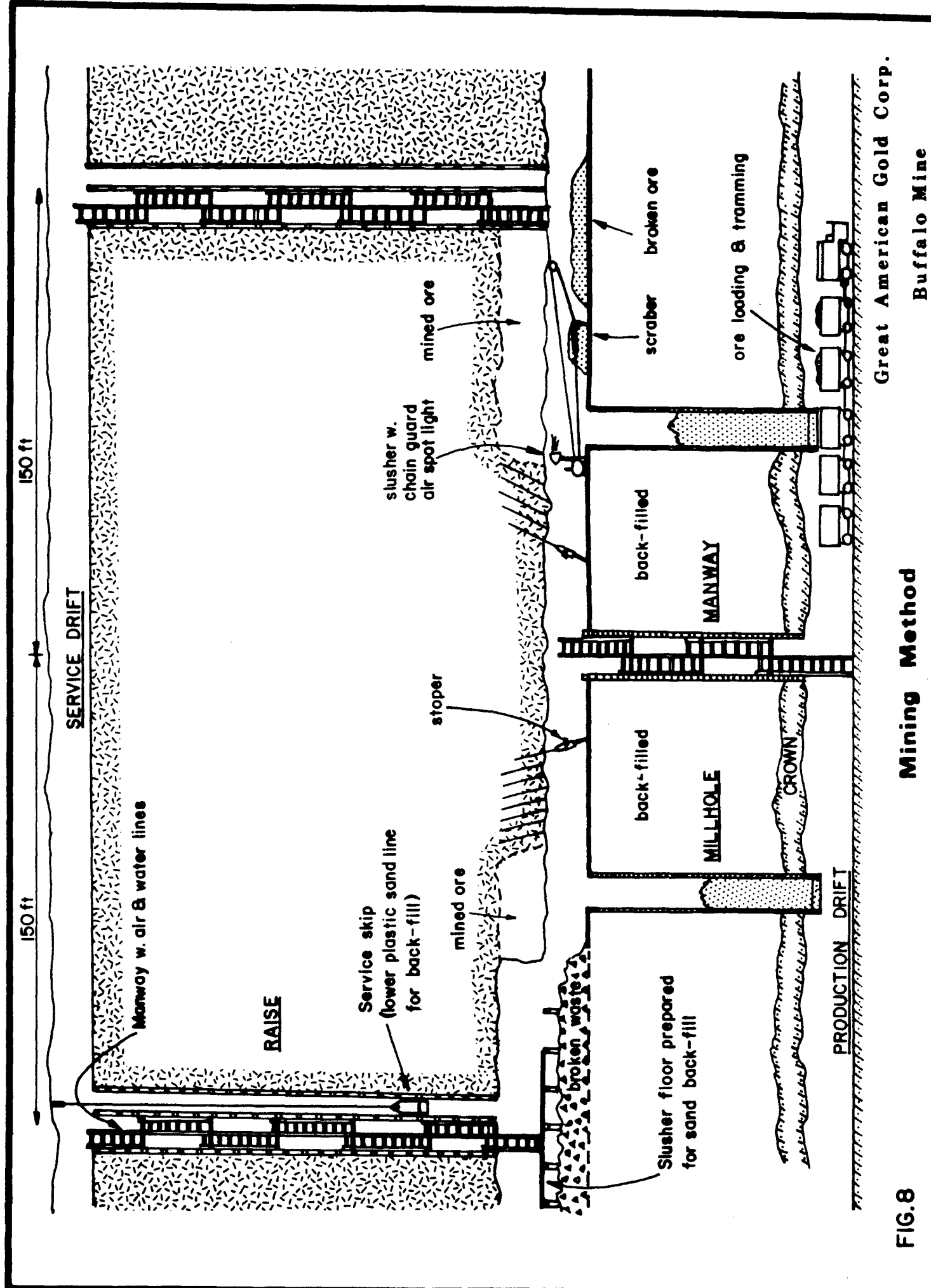


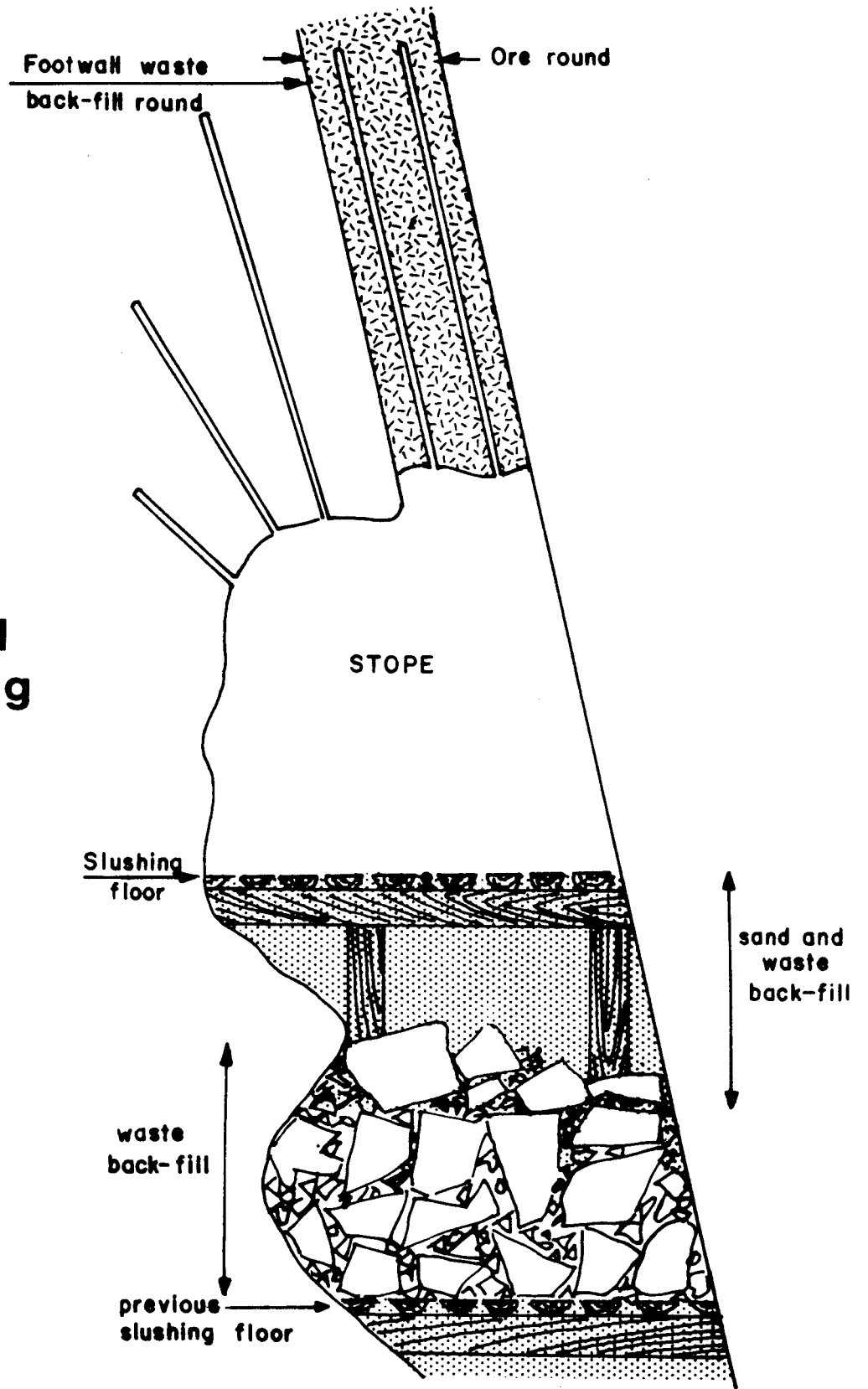
FIG. 8

Mining Method

Great American Gold Corp.

Buffalo Mine

Overhand Back-fill Stoping



Great American Gold Corp.

Buffalo Mine

FIG.9

11.0 MILLING AND CRUSHING

The present mill will require some changes in order to operate at a 70 to 75 ton per day capacity as well as provide coarse fraction tailings backfill to underground. The existing jaw crusher should be replaced by a cone crusher. The dump tressel at the 600 foot level should be enclosed, a 50 ton dump bin constructed and covered by a grizzly. A spur track should be constructed to dump into the opposite side of the bin. The jaw crusher would be moved to this location as mentioned earlier. The coarse crushed ore would be transported to a coarse ore storage shed immediately above the coarse ore bin at the mill. The capacity of the storage shed should be a minimum of 500 tons. As required, the coarse ore bin in the mill should be loaded from the shed with a frontend loader or similar. The feed to both crushers should be equipped with vibrating screens to by-pass fines.

Changes in the mill circuit may consist of replacing the rake classifier with a cyclone classifier, and adding a conveyor to the concentrate filter. A 10 ton concentrate storage bin should be added. A cyclone separator should be added to the tailings discharge to remove the coarse fraction for stope backfill through the 400 foot level. The remaining 30 to 40% fine fraction would be discharged to the tailings ponds. A duplex mineral jig should be added at the ball mill discharge to recover any free gold encountered. The ball size in the mill can be changed to 2-1/2 or 3 inches since the mill feed can be crushed to minus 1/4 inch. An electric generator should be purchased for purposes of stand-by during power failures of electricity supplied by the utility company. Power failure lights should be installed in the mill.

11.1 Metallurgy

No recent metallurgical tests have been conducted on ore materials and concentrates from the Buffalo Mine. Subject to the milling of ores between the 400 and 600 foot levels such tests may be scheduled. This task could be accomplished during the previously proposed Phase I.

The only source of metallurgical information is by Brooks Minerals Inc., 1982. The tests are for gold-silver ores in identical geological environments and of identical characteristics to those of the Buffalo Mine and from locations relatively close to the property location.

Principally bulk rougher floatation followed by a single cleaner of sulphide mineralization has been optimized by Dawson Laboratories, Salt Lake City, Utah and Lakefield Research of Canada, Colorado School of Mines Research Institute, and AMAX Metallurgical Research facilities, Golden, Colorado. These tests would appear to be of value to similar tests of the Buffalo Mine ores by providing basic guide lines.

Free gold recovery by cyanidation and leaching has successfully been used during past operating history of the area. The recovery characteristics of gold associated with the sulphides has been through bulk rougher floatation followed by a single cleaner. No hard information, however, is available about recovery characteristics at the Buffalo Mine.

The metallurgical tests on ores from other operations have identified two types of ores also known to exist at the Buffalo Mine. These have been identified as curly quartz and sheared footwall ores. Tests on curly quartz

ores have indicated recoveries of gold and silver in the 95% range, and tests on the sheared footwall ores showed recovery in the 70% range. The sheared footwall and hanging wall ores at the Buffalo Mine generally would appear to average about 10% or less of the total amount of ore, and locally up to a maximum of 20%. Examination of tailings indicate that losses are due to free gold and sulphides, with the losses mainly in the slime fraction. By crushing finer, retention time of ore in the ball mill should be decreased which may alleviate some of the sliming problems.

Autoclave leaching tests have been investigated on ores similar to those of the Buffalo Mine. These tests would appear to have been successful and may, therefore, be considered at a later date.

12.0 PERMITS

The proposed mining operation will not involve federal lands, and consequently will not require federal permits involving environmental impact statements.

No water usage permit will be required since all domestic and industrial water can be supplied from underground diamond drill holes.

The permits required by the Oregon Department of Environmental Quality (DEQ) or the Grant County government have been issued and kept in good standing.

The land status should be established with the Grant County Land Use Planning Commission. This may involve the application of a variance from "Forest" to

"Industrial" classification. This application may refer especially to patented claims.

13.0 SURFACE AND UNDERGROUND EXPLORATION

Some allowance has been made in the capital-cost estimates (Section 14.0) for exploration. This amount will not be sufficient for the scope of the program outlined below. The balance is expected to be financed from operating proceeds.

Preliminary exploration and development of the reserves below the 400 foot level should be done using approximately 6,660 feet of diamond drilling from crosscuts. The crosscuts should be driven a maximum of 100 feet into hanging walls and footwalls of the Constitution vein at 200 foot intervals. At the end of each crosscut diamond drill equipment can be set up and from each set-up a maximum of nine diamond drill holes collared at appropriate attitudes. For each such set-up a block of downward projection of the Constitution vein sectionally measuring 200 by 250 feet can be explored. In addition, 2,250 feet of diamond drilling should be scheduled for the exploration of the No. 1, No. 2 and No. 3 veins. Preliminary indications of work done by Koch, 1959, and Union Pacific Railroad Co., 1965, suggests that about 325 feet east of the Constitution vein there exists a possibility of locating a sixth vein which may not necessarily be traceable to surface. In order to explore this possibility a total of 750 feet of diamond drilling should be scheduled.

Since the structural attitudes of the veins of the Buffalo Mine have been established the costs of diamond drilling can be minimized by restricting the coring to projected vein intersections, e.g. drilling of argillites in between veins do not require coring and may be done using bullnose bits if cost justifiable.

The horizontal continuity of the veins of the Buffalo Mine is at the time of writing of this report unknown. On the 600 foot level ore grade material has been found at each end of the existing crosscut along the Constitution vein, thereby delineating 1,200 feet of reasonably continuous mineralization horizontally. According to the stoped portions of the Constitution vein, it would appear that the lateral extent of mineralization increases with depth. Geological investigations conducted by Union Pacific Railroad Co. indicate that the limits of commercial mineralization plunges southerly. The presently indicated limit of the northerly end dips 55 degrees south and that of the southerly end dips 35 degrees south. Furthermore, the strike of the Constitution vein averages N35°E whereas the other veins strike approximately N20°E. The difference in strike could suggest a convergence of the No. 2 and No. 3 veins with the Constitution vein. At the moment there exists no information regarding the geological impact of this observation. On the basis that the above potential convergence could be related to a broader fracture zones with mineralization similar to that in the known veins an exploration program to the south of the existing underground developments should be undertaken. The preliminary assessments of the above hypothesis can be done with geological mapping, geophysical ground surveys and surface diamond drilling. Simultaneously with geophysical exploration for the southerly continuities of the veins, as well as the exploration for northern continuities of the veins, the

program should include an area overlying the potential sixth vein to the east. Approximately 6 line miles of magnetic and induced electromagnetic surveying should be undertaken. At the moment this work should be scheduled in two phases with the second phase being optional.

Phase I would consist of detailed geological mapping, a magnetic survey using a nuclear precession magnetometer and an induced electromagnetic survey using a VLF-EM 16 receiver tuned to the Seattle transmitter, 24.8 kHz. The surveys should be conducted along survey lines separated by 125 feet and the geophysical observations should be made at 25 foot intervals. These surveys would measure magnetic susceptibility and induced electromagnetic conductivity contrasts which are expected to be associated with the breccia zone alterations. In principle the above surveys would detect responses due to relatively near surface sources. Subject to the interpretations of Phase I the second geophysical exploration phase may be executed. This work would explore the geophysical responses to greater depth, about 200 to 300 feet. The survey instrumentation should be specified as MaxMin equipment and should be carried out over the same survey lines as for Phase I.

The results of the geological mapping and geophysical surveys are expected to outline diamond drill targets in which event a total of 3,000 feet of drilling has been scheduled to test the target areas for commercial mineralization.

The total footage of exploratory diamond drilling at surface and underground is planned at 12,600 feet with the core size being NQ.

14.0 CAPITAL COSTS ESTIMATES

The following presents a preliminary cost estimate to prove a minimum of 15 months reserves, rehabilitate production facilities and workings and start to explore for additional reserves. Appendix H presents a detailed breakdown of estimated expenditures on a monthly basis from a possible start on March 1, 1984 through to production commencing October 1, 1984.

SUMMARY OF CAPITAL COSTS

Underground mining equipment and materials	\$ 118,250
Mill and assay equipment and materials	32,500
Fuel, power and consumables	35,000
Surface vehicles	45,500
Rentals	12,000
Underground rehabilitation and bulk sampling	70,469
Mill and surface wages	102,410
Management, G & A, etc.	51,800
Mill and assay oper. costs	64,350
Geophysical surveys	12,000
Diamond drilling	160,000
Raises	87,000
Geological services	20,700
Ore reserve engineering	12,000
Metallurgical testing	20,000
Mine payment	<u>200,000</u>
	Total \$US
	1,043,979
	Required Capital \$Cdn
	<u>1,280,956</u>
+ Contingency and Operating Capital	<u>\$1,500,000</u>

15.0 OPERATING COSTS

The mine site fixed manpower will handle only stope mining in order to minimize manpower turnover and scheduling problems due to the size of the mining operation (Appendix G). All development work has been planned to be done through bid tender contracts.

The average width of vein material to be stoped is estimated at 2-1/2 feet, ranging from 1.4 feet to 4 feet in width. The average overhead stope cut has been planned at 8 feet, therefore, a daily average of 2-1/2 man shifts will be required to drill and blast 105 tons of ore materials. Slushing will require 1 man shift, scaling and equipment movement 1/4 shift, waste blasting, slusher floor and backfill set up 2-1/4 man shifts. This make the daily total of 10 man days on 2 shifts.

The daily average 8 foot stope cut advance is planned at 75 to 78 feet on 2 shifts with all blasting done on the second shift.

15.1 Stope Mining Costs

Drills, slusher, steel, bits, hoses, etc.	\$ 402.00	(annual replacements and parts 67% base costs)
Tools	40.00	(10% drilling costs)
Explosives	105.00	(\$1.0/ton ore)
Ground support and materials	182.00	(33% basic stoping costs)
Pipe, ventilation	7.00	
Wages	1,321.32	
+ 10% wages; sickness, absenteeism, unexpected delays	132.13	
	<u>\$2,189.45/day</u>	= \$21.90/ton

15.2 Development Costs

The average annual development work required for an annual production of 25,000 tons of ore is as follows:

Development

1. 100 feet shaft sinking @ \$300/foot	\$ 30,000	
2. 600 feet drifting @ \$100/foot	60,000	
3. 600 feet raising @ \$100/foot	<u>60,000</u>	
	150,000	
Supplies and support 65% base cost	<u>97,500</u>	
	\$247,500	
Development costs		\$ 9.01/ton
Hoisting cost contributions		<u>2.00/ton</u>
	Total	\$11.01/ton

15.3 Stope Preparation

1. 16 box holes and manways 18 feet @ \$100/foot	\$ 28,800	
2. 1st stope cut 600 feet @ \$120/foot	<u>72,000</u>	
	\$100,800	
Supplies and support 55% base costs	<u>55,500</u>	
	\$156,300	
Stope Preparation Costs		\$ 5.69/ton

15.4 Milling Costs (75 tpd)

	<u>per ton ore</u>
Wages	\$ 7.16
Maintenance and parts (33% base pay)	2.40
Reagents (after BMI, 1982)	1.05
Metal Wear (after BMI, 1982)	<u>1.04</u>
Total	\$11.65

15.5 Surface

	<u>per ton ore</u>	
Mechanical (33% millwright wages)	\$ 0.33	
Est. Overtime 20%	0.07	
Wages (staff and hourly)	7.60	
Auxiliary costs (55% base cost)	<u>4.44</u>	
	\$12.44	
Power and fuel		\$ 2.95/ton
Tailings disposal		\$ 1.75/ton

15.6 General and Administration (G & A)

Vancouver office	\$ 50,000	
Insurance (liab., prop., etc.)	24,000	
Office supplies	4,000	
Vehicle Opr. Exp. (3 units)	15,000	
Travel	18,000	
Taxes	10,000	
Telephone	5,000	
Utilities	6,000	
Legal and professional	5,000	
Environmental	<u>5,000</u>	
Total	\$142,000	\$ 5.17/ton

15.7 Operating Costs Summary

		<u>\$US/ton</u>
Total mining		\$ 38.60
Milling		11.65
Surface		12.44
Power, fuel		2.95
Tailings		1.75
G & A		<u>5.17</u>
Total		\$ 72.56
+ 15% Contingency		<u>10.88</u>
Grand Total		\$ 83.44 US
		<u>\$102.38 Cdn</u>

16.0 ESTIMATED PROJECTED CASH FLOW (15 months production)

Employing costs from the previous section the following table presents cash flows for three average grade of ore models as follows:

<u>Model</u>	<u>Average Oz. Au/Ton</u>	<u>Average Oz. Ag/Ton</u>
#1	.65	5.2
#2	.50	4.0
#3	.40	3.2

It is assumed that a full capacity of 2,288 tons per month will be milled. Up until October, 1984, it is assumed that no development costs and stope preparation costs will be assigned to the mining cost per ton, since the purchase of the mine includes existing developments, and since any further developments and rehabilitations are included in the pre-production capital costs. In preparation of production below the 600 level, subject to the results of the exploration program during 1984, a development program will be commenced starting July, 1985. The total cost of the development is currently estimated at \$714,000 and is subject to more detailed studies. It would include shaft sinking, raising, drifting, hoist, ore passe, and stope preparation. The parameters included in the cash flow are:

1. 10% annual interest on deposited capital funds.
2. Depletion allowance 50% net earnings.
3. Depletion allowance 15% gross revenue.

BUFFALO MINE
PRELIMINARY PROJECTED CASH FLOW
MARCH 1984 TO DECEMBER 1985

1984	Capital Cost		Model #1		Model #2		Model #3		Development Fund	
	Incremental	Cumulative	Revenue	Cumulative Earnings	Revenue	Cumulative Earnings	Revenue	Cumulative Earnings	Cumulative	Applied
March	291,847	291,847	-	-	-	-	-	-	-	-
April	61,097	352,944	-	-	-	-	-	-	-	-
May	54,847	407,791	-	-	-	-	-	-	-	-
June	193,297	601,088	-	-	-	-	-	-	-	-
July	137,297	738,385	-	-	-	-	-	-	-	-
August	185,297	923,682	-	-	-	-	-	-	-	-
September	120,297	1,043,979	-	-	-	-	-	-	-	-
October	-	-	288,895	288,895	187,437	187,437	99,954	99,954	38,200	-
November	-	-	288,895	580,197	187,437	374,875	99,954	200,741	76,721	-
December	-	-	288,895	873,927	187,437	565,436	99,954	302,368	115,561	-
Post Tax Earnings				554,052 (2)		369,566 (2)		221,485 (3)	28,561	87,000
1985										
January	-	-	288,895	288,895	187,437	187,437	99,954	99,954	38,200	-
February	100,000	-	288,895	480,197	187,437	276,436	99,954	100,741	76,718	-
March	-	-	288,895	773,094	187,437	466,177	99,954	201,534	115,558	-
April	-	-	288,895	1,068,432	187,437	657,498	99,954	303,168	154,721	-
May	-	-	288,895	1,366,230	187,437	850,415	99,954	405,648	194,210	-
June	-	-	288,895	1,666,510	187,437	1,044,938	99,954	508,983	234,023	-
July	300,000	-	288,895	1,669,293	187,437	941,083	99,954	313,178	194,978	79,200
August	100,000	-	288,895	2,174,599	187,437	1,036,362	99,954	315,742	155,603	79,200
September	-	-	288,895	2,481,615	187,437	1,232,436	99,954	418,327	115,900	79,200
October	-	-	288,895	2,791,191	187,437	1,430,143	99,954	521,767	119,866	35,200
November	-	-	288,895	3,103,346	187,437	1,629,498	99,954	626,069	88,665	70,400
December	-	-	288,895	3,418,102	187,437	1,830,514	99,954	731,240	57,204	70,400
Post Tax Earnings				2,153,597 (2)		1,304,341 (2)		577,535 (3)		

Footnotes

(2) 15% gross revenue depletion allowance.

(3) 50% net operating revenue depletion allowance.

Does not include recapture of capital funds.

10/17/83

The cash flow revenues are based on \$400 per oz. gold and \$10 per oz. silver. Mill recovery is assumed at 92%, smelter charges at 12% gross value of concentrates, and concentrate shipping costs at \$100/ton, with the mill concentration ratio being 1:20.

17.0 CONCLUSIONS AND RECOMMENDATIONS

The Buffalo Mine appears to offer an excellent potential to develop a small but profitable gold producer. It is recommended that Great American Gold Corp. commence a program of development leading to production as recommended in the preceding sections of this report.

Yours sincerely,



Charles K. Ikona, P.Eng.

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APPENDIX A

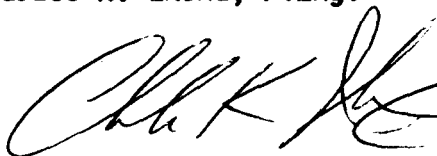
ENGINEERS CERTIFICATE

I, CHARLES K. IKONA, of 5 Cowley Court, Port Moody, in the Province of British Columbia, DO HEREBY CERTIFY THAT:

1. I am a Consulting Mining Engineer with offices at 215, 543 Granville Street, Vancouver, British Columbia.
2. I am a graduate of the University of British Columbia with a degree in Mining Engineering.
3. I am a member in good standing of the Association of Professional Engineers of the Province of British Columbia.
4. This report is based on my examination of the property on September 22 and 23, 1983 and on material supplied to me by Great American Gold Corp.
5. I have no interest in the property reported on or in the securities of any company associated with the property nor do I expect to acquire any such interest.
6. I consent to the use by Great American Gold Corp. of this report in a Prospectus or Statement of Material Facts or any other such document as may be required by the Vancouver Stock Exchange or the office of the Superintendent of Brokers.

DATED at Vancouver, British Columbia, this 26th day of October, 1983.

Charles K. Ikona, P.Eng.



APPENDIX B

INVENTORY SUMMARY

MINE

- 9 mine spot battery chargers
- 2 single unit mine spot chargers
- 12 mine spot lamps
- 9 MSA self rescuers
- 1 bench grinder
- 1 mill water supply pump with 2 tanks
- 1 Gardner-Denver slusher
- 1 Sullivan tugger hoist
- 1 air chain saw
- 1 Worthington 7-1/2 x 7-1/2 x 6 x 5 compressor, 65 hp, electric
- 1 Lincoln 225 amp welder
- 3 Gardner-Denver S53F jackleg drills
- 2 Joy stopers
- 12 1-ton ore cars
- 2 1-ton electric trammers
- 2 Eimco 12-B muckers
- 2 Barrett trammer chargers
- 1 underground electric water pump

MILL

- 1 Jaw crusher, Kulin No. 20 with conveyor
- 1 48" duplex rake classifier
- 1 4 x 5 foot ball mill with 100 hp electric motor
- 6 No. 24 Morse-Weining floatation cells
- 4 Fahrenwald 32" x 32" floatation cells
- 2 2" Wifley sand pumps
- 1 Reagent conditioner tank
- 1 Thickner tank
- 2 Blowers
- 1 3' Oliver drum filter
- miscellaneous items and reagents

BUILDINGS

- 1 mine shop at 600 foot level
- 1 small mine shop at 400 foot level
- 1 complete mill building

APPENDIX C

**BUFFALO MINE, GRANT COUNTY, OREGON
SAMPLE DESCRIPTION
OCTOBER, 1983**

<u>New Samples</u>	<u>Description</u>
GAG-001-83	20 lbs. grab sample along crest of dump from 200 foot level
GAG-002-83	20 lbs. bulk sample on 200 foot level dump 50' south of chute
GAG-003-83	20 lbs. bulk sample on 200 foot level dump 175' SSE of chute and 30' above road at bottom of dump
GAG-004-83	12 lbs. bulk sample mill sump
GAG-005-83	15 lbs. bulk sample classifier coarse sands
GAG-006-83	30 lbs. bulk sample at bottom of 400 foot level dump
GAG-007-83	15 lbs. bulk sample mill tailings just below discharge
GAG-008-83	#1 tailings pond surface bulk in centre of pond
GAG-009-83	#1 tailings pond bulk sample from centre of bank
GAG-010-83	#2 tailings pond bulk sample from middle of pond
GAG-011-83	#2 tailings pond bulk sample from SE side
GAG-012-83	#3 tailings pond bulk sample from middle of pond

Previous Mill Samples: MS-series.



CHEMEX LABS LTD.

212 BROOKSBANK AV
NORTH VANCOUVER, B.C.
CANADA V7J 2C
TELEPHONE (604) 984-027
TELEX 043-525E

• ANALYTICAL CHEMISTS

• GEOCHEMISTS

• REGISTERED ASSAYERS

CERTIFICATE OF ASSAY

TO : GREAT AMERICAN GOLD CORP.

**

CERT. # : A8315238-001
INVOICE # : I8315238
DATE : 11-OCT-83
P.O. # : NONE
ELDEN 1337

1103 - 475 HOWE ST.
VANCOUVER, B.C.
V6C 2B3

Sample description	Prep code	Ag FA oz/T	Au FA oz/T				
GAG-001-83-A	208	5.96	0.026	--	--	--	--
GAG-001-83-B	208	6.80	0.042	--	--	--	--
GAG-002-83-A	208	2.18	0.296	--	--	--	--
GAG-002-83-B	208	2.24	0.234	--	--	--	--
GAG-003-83-A	208	0.44	0.110	--	--	--	--
GAG-003-83-B	208	0.54	0.112	--	--	--	--
GAG-004-83	208	1.18	0.186	--	--	--	--
GAG-005-83	208	1.48	0.320	--	--	--	--
GAG-006-83-A	208	0.52	0.034	--	--	--	--
GAG-006-83-B	208	0.54	0.060	--	--	--	--
GAG-007-83	208	0.34	0.036	--	--	--	--
GAG-008-83-A	208	0.64	0.094	--	--	--	--
GAG-008-83-B	208	0.70	0.088	--	--	--	--
GAG-009-83	208	0.62	0.146	--	--	--	--
GAG-010-83	208	0.28	0.054	--	--	--	--
GAG-011-83	208	0.34	0.018	--	--	--	--
GAG-012-83-A	208	0.38	0.022	--	--	--	--
GAG-012-83-B	208	0.40	0.026	--	--	--	--
MS-229 Cons. Mill*	208	11.64	1.248	--	--	--	--
MS-232 Cons. Mill	208	11.12	0.972	--	--	--	--
MS-234 Tail Mill	208	0.30	0.022	--	--	--	--
MS-235 Cons. Mill	208	16.90	1.714	--	--	--	--
MS-238 Cons. Mill*	208	9.68	1.100	--	--	--	--
MS-243 Tail Mill	208	0.48	0.034	--	--	--	--
MS-247 Cons. Mill	208	11.18	0.836	--	--	--	--
MS-249 Tail Mill	208	0.26	0.016	--	--	--	--
MS-344 Tail Mill*	208	0.32	0.020	--	--	--	--

NOTE: Mill* = Mill Swing

Registered Assayer, Province of British Columbia



Table 3.
 Production from Burrato Mine
 (in terms of recovered metal)
 (Gold and silver in fine ounces; copper, lead, and zinc in pounds)

<u>Year</u>	<u>Tons</u>	<u>Gold</u>	<u>Silver</u>	<u>Copper</u>	<u>Lead</u>	<u>Zinc</u>	<u>Owners</u>
1903	10	24.19	---	---	---	---	W. K. Cooper, Susanville, Oregon
1904	50	48.38	69	---	---	---	Cooper & Simpson, Susanville, Oregon
1906	134	362.81	567	---	---	---	Wilmer, Granite, Oregon
1907	230	498.74	7,703	---	---	---	J. C. Haskill, Susanville, Oregon
1908	400	870.75	15,094	---	---	---	G. R. Wiegand, Granite, Oregon
1909	10	61.87	300	---	---	---	Buffalo - Monitor, Granite, Oregon
1919	325	1,378.69	6,473	---	---	---	Buffalo Development Company
1921	800	347.19	1,011	---	---	---	Beaver G. M. Company, Mr. Peterson
1922	50	379.09	1,293	---	---	---	" "
1923	102	617.90	2,866	---	---	---	" "
1924	553	701.80	3,974	947	513	---	" "
1925	1,082	1,450.05	6,896	---	---	---	John Wilson, Granite, Oregon
1926	2,487	2,399.56	15,392	2,566	11,273	---	" "
1927	4,310	1,959.79	10,963	1,691	5,300	---	Blaine Hallock, Granite, Oregon
1928	2,233	900.54	10,159	1,103	9,552	752	" "
1929	3,035	1,449.00	20,037	2,835	22,300	---	" "
1930	981	602.89	4,803	773	6,163	---	" "
1931	212	284.36	3,869	473	1,801	---	R. G. Amidon, Seattle, Washington
1932	104	243.14	1,385	142	1,351	---	Buffalo G. M. Company
1933	75	30.20	493	67	171	---	" "
1934	242	93.94	652	226	1,156	---	Tillicum Cons. & Mining, Baker, Oregon
1935	1,000	304.18	3,890	989	1,799	---	Granite G. M. Company, Seattle, Wash.
1936	50	9.24	104	---	---	---	Constitution Mining Company
1938	250	63.00	2,123	238	1,530	---	Amidon & Gibson G.M.Co., Granite, Ore.
1939	862	1,006.00	3,798	2,506	4,600	5,348	Bruce Dennis, Portland, Oregon
1940	1,483	1,013.00	4,335	1,116	6,006	---	" "
1941	3,072	2,261.00	11,695	2,142	10,684	---	" "
1942	540	315.00	1,795	368	1,022	---	" "
1944	23	110.00	900	152	---	---	" "
1946	31	259.00	82	167	1,054	---	" "
1947	622	332.00	1,976	590	4,149	779	" "
1948	1,634	1,396.00	10,302	2,369	14,577	16,078	" "
1949	749	626.00	3,703	1,103	6,924	8,286	" "
1950	574	599.00	4,221	1,092	6,317	4,659	Florence J. Dennis, Vancouver, Wash.
1951	360	270.00	2,565	353	1,719	2,001	" "
1952	286	428.00	2,568	487	2,370	3,190	Boaz Mining Company, Seattle, Wash.
1953	1,034	1,032.00	10,242	1,976	8,868	---	" "
1954	2,004	1,002.00	12,814	2,300	9,100	---	" "
1955	1,824	1,117.00	8,583	1,600	6,000	---	" "
1956	1,390	2,147.00	12,412	2,200	9,400	---	" "
TOTALS	35,213	28,994.30	212,107	32,571	155,699	41,093	

LEAD SETTLEMENT-(PRELIMINARY)
 OUR SERIAL NO. 1968

Pat Whelan
Gene Husar
John Carley
John P. ...
 COMINCO LTD
 TRAIL B.C.
 03 22 80
 #1

IN ACCOUNT WITH-W. BLANCHARD
 BOX 398 NORTHGATE STATION
 SEATTLE WASH USA 98125

FOR LEAD ORE - OPEN770 - LOT 1 CAR NO. RECEIVED
 1 TRUCK 03 26 80
 WEIGHT OF SHIPMENT - LBS. 3.20% MOISTURE

NET WET WT NET DRY WT DRY TONS
 21700 21006 10.5030

ASSAYS

GOLD	SILVER	COPPER	LEAD	ZINC	SULPHUR	SILICA
0.5820	15.5000	0.1400	0.9000	0.8000	4.8000	72.0000
0Z / DRY TON	%	%	%	%	%	%
ALUMINA	IRON	LIME	ANTIMONY	ARSENIC	BISMUTH	
6.6000	4.9000	2.6000	0.0900	0.8000	0.0100	
%	%	%	%	%	%	

QUOTATIONS	QUOT DATE	04 11 80	US EXCHANGE	17.96000X
GOLD	530.50000 US \$/OZ.	LESS 5.00\$/OZ	NET 620.77780	\$/OZ CAN
SILVER	15.29550 US \$/OZ.	LESS 0.085\$/OZ	NET 17.95757	\$/OZ CAN

CONTENTS AND VALUE

AL	CONTENT	DEDUCTIONS	NET	VALUE
GOLD	6.113 OZS	0.428	5.685 OZS \$	3529.12
SILVER	162.80 OZS	11.40	151.40 OZS \$	2718.78

	TOTAL GROSS VALUE \$	6247.90
LESS: BASIC TREATMENT @	55.00 \$/T	577.67
LESS: TREATMENT RATE @	-5.17 \$/T	-54.30 \$
	TOTAL NET VALUE \$	5724.53
	ADVANCED (75%) \$	4290.00

TREATMENT RATE

LABOUR RATE ADJ	234.0000 AT \$ 0.060	\$ 14.04
TRUCK CHARGE		\$ 4.00
ARSENIC PENALTY	0.7000 AT \$ 1.000	\$ 0.70
ALUMINA PENALTY	6.1000 AT \$ 0.350	\$ 2.14
MOISTURE PENALTY	0.0000 AT \$ 0.000	\$ 0.00
SILICA CREDIT	72.0000 AT \$ -36.000	\$ -25.92
LIME CREDIT	2.6000 AT \$ -0.050	\$ -0.13
TOTAL TREATMENT RATE		\$ -5.17

ADDITIONAL ARSENIC PENALTY. INDICATED

ACCOUNT WITH
 BUFFALO MINING CO.
 BOX 398 NORTHGATE STA.
 SEATTLE, WASH. 98125

LOT NUMBER: 1

SERIAL NUMBER: 2268

CAR NUMBERS
 1 TRUCK

DATE RECEIVED
 06 26 80

NET WET WEIGHT 7380 LBS MOISTURE 11.6000 %
 NET DRY WEIGHT 6524 LBS SHORT DRY TONS 3.2620

ASSAYS:	GOLD	SILVER	COPPER	LEAD	ZINC	SULPHUR	SILICA
	2.0370	18.7500	0.2300	1.4000	1.9000	14.9000	49.5000
	OZ/ DRY TON		%	%	%	%	%
ALUMINA	IRON	LIME	ANTIMONY	ARSENIC	BISMUTH	MAGNESIA	CADMIUM
4.9000	15.7000	1.9000	0.0900	1.7000	0.0100	0.0000	0.0000
%	%	%	%	%	%	%	%

METAL PRICES: JULY 80 AVERAGE
 EXCHANGE: \$US TO \$CDN = 1.15190 STERLING TO \$US = 2.37316
 WAGE GRADE 7 = 9.750 HH UNREFINED = 0.990 * REFINED

COMINCO CDN PRICE 41.045 * 0.450 = 18.47025
 COMINCO USA PRICE 35.909 * 1.15190 * 0.300 = 12.40907
 LME PRICE 346.087 * 2.37316 / 2204.6 * 1.15190 * 0.250 = 10.72846
 CALCULATED LEAD PRICE = 41.60778

PB PRICE 41.60778 - 4.75 - 0.25 (41.60778 - 23.00) = 32.20583 @/LB
 ZN PRICE 780.000 / 2204.6 * 1.15190 - 16.50 = 24.25488 @/LB
 AG PRICE 16.05932 * .990 * 1.15190 - 0.08500 = 18.22874 \$/OZ
 AU PRICE 644.28300 * 1.15190 - 5.000 = 737.14959 \$/OZ

PAYMENTS PER TON	DEDUCTIONS	PAID FOR	
PB 28.00 LBS	20.00 LBS	8.00 LBS	= \$ 2.58 LEAD
ZN 38.00 LBS	20.00 LBS	18.00 LBS	= \$ 4.37 ZINC
AG 18.7500 OZ	1.3125 OZ	17.4375 OZ	= \$ 317.86 SILVER
AU 2.0370 OZ	0.1426 OZ	1.8944 OZ	= \$ 1396.46 GOLD
		TOTAL PAYMENT	= \$ 1721.27

DEDUCTIONS

BASIC TREATMENT CHARGE	= \$ -107.30
ARSENIC	= \$ -1.60
ALUMINA	= \$ -1.54
LABOR: WAGE GRADE 7 = 9.750	= \$ -16.68
TRUCKING CHARGE	= \$ -4.00
MOISTURE	= \$ -2.40
CREDITS:	

STO2	= \$ 7.35
NET DEDUCTIONS	= \$ -126.17
VALUE/S.D.T. -- F.O.B. TADANAC	= \$ 1595.10
VALUE/S.D.T. * 3.2620 S.D.T.	= \$ 5203.22

LESS:	
EXTRA HANDLING	= \$ 92.54
NET AMOUNT	= \$ 5110.68
AMOUNT ADVANCED	= \$ 3950.00
SETTLEMENT AMOUNT	= \$ 1160.68

BUFFALO MINING CO
 BOX 398 NORTHGATE STA.
 SEATTLE, WASHINGTON
 98125

LOT NUMBER: 2

SERIAL NUMBER: 2382

CAR NUMBERS
 1 TRUCK

DATE RECEIVED
 08 01 80

NET WET WEIGHT 18880 LBS
 MOISTURE 11.6000 %

NET DRY WEIGHT 16690 LBS
 SHORT DRY TONS 8.3450

ASSAYS:	GOLD 1.8940 OZ/ DRY TON	SILVER 26.5500 OZ/ DRY TON	COPPER 0.3600 %	LEAD 2.3000 %	ZINC 2.2000 %	SULPHUR 27.4000 %	SILICA 31.6000 %
ALUMINA	IRON	LIME	ANTIMONY	ARSENIC	BISMUTH	MAGNESIA	CADMIUM
3.2000 %	24.3000 %	1.0000 %	0.1000 %	3.0000 %	0.0100 %	0.0000 %	0.0000

METAL PRICES: SEPT 80 AVERAGE
 EXCHANGE: \$US TO \$CDN = 1.16460
 WAGE GRADE 7 = 9.970
 STERLING TO \$US = 2.40124
 HH UNREFINED = 0.990 * REFINED

COMINCO CDN PRICE 48.167 * 0.450 = 21.67515
 COMINCO USA PRICE 42.143 * 1.16460 * 0.300 = 14.72392
 LME PRICE 375.401 * 2.40124 / 2204.6 * 1.16460 * 0.250 = 11.90469
 CALCULATED LEAD PRICE = 48.30376

PB PRICE 48.30376 - 4.75 - 0.25 (48.30376 - 23.00) = 37.22782 \$/LB
 ZN PRICE 780.000 / 2204.6 * 1.16460 - 16.50 = 24.70421 \$/LB
 AG PRICE 20.14381 * .990 * 1.16460 - 0.08500 = 23.13989 \$/OZ
 AU PRICE 673.62500 * 1.16460 - 5.000 = 779.50367 \$/OZ

PAYMENTS PER TON	CONTENT	DEDUCTIONS	PAID FOR		
PB	46.00 LBS	20.00 LBS	26.00 LBS	= \$	9.68 LEAD
ZN	44.00 LBS	20.00 LBS	24.00 LBS	= \$	5.93 ZINC
AG	26.5500 OZ	1.8585 OZ	24.6915 OZ	= \$	571.36 SILVER
AU	1.8940 OZ	0.1326 OZ	1.7614 OZ	= \$	1373.03 GOLD
			TOTAL PAYMENT	= \$	1960.00

DEDUCTIONS

BASIC TREATMENT CHARGE	= \$	-50.00
ARSENIC	= \$	-2.90
ALUMINA	= \$	-0.94
LABOR: WAGE GRADE 7 = 9.970	= \$	-18.00
TRUCKING CHARGE	= \$	-4.00
MOISTURE	= \$	-2.40
CREDITS:		
SIOZ	= \$	3.00
NET DEDUCTIONS	= \$	-75.24

VALUE/S.D.T. -- F.O.B. TADANAC	= \$	1884.76
VALUE/S.D.T. * 8.3450 S.D.T.	= \$	15728.32
AMOUNT ADVANCED	= \$	10470.00
SETTLEMENT AMOUNT	= \$	5258.32

IN ACCOUNT WITH
 BUFFALO MINING CO
 BOX 399 NORTHGATE STA
 SEATTLE WASHINGTON
 98125

Bu

LOT NUMBER: 003 SERIAL NUMBER: 2432

CAR NUMBERS DATE RECEIVED
 1 TRUCK 08 20 80

NET WET WEIGHT MOISTURE NET DRY WEIGHT SHORT DRY TONS
 25220 LBS 10.4000 % 22597 LBS 11.2985

ASSAYS:	GOLD	SILVER	COPPER	LEAD	ZINC	SULPHUR	SILICA
	1.2800	15.4000	0.2300	1.3000	1.6000	26.2000	37.4000
	OZ/ DRY TON		%	%	%	%	%
ALUMINA	IRON	LIME	ANTIMONY	ARSENIC	BISMUTH	MAGNESIA	CADMIUM
3.6000	23.2000	0.9000	0.1000	7.2000	0.0100	0.0000	0.0000
%	%	%	%	%	%	%	%

METAL PRICES: SEPTEMBER 1980
 EXCHANGE: \$US TO \$CDN = 1.16460 STERLING TO \$US = 2.40124
 WAGE GRADE 7 = 9.970 HH UNREFINED = 0.990 * REFINED

COMINCO CDN PRICE 48.167 * 0.450 = 21.67515
 COMINCO USA PRICE 42.143 * 1.16460 * 0.300 = 14.72392
 LME PRICE 375.401 * 2.40124 / 2204.6 * 1.16460 * 0.250 = 11.90469
 CALCULATED LEAD PRICE = 48.30376

PB PRICE 48.30376 - 4.75 - 0.25 (48.30376 - 23.00) = 37.22782 £/LB
 ZN PRICE 780.000 / 2204.6 * 1.16460 - 16.50 = 24.70421 £/LB
 AG PRICE 20.14381 * .990 * 1.16460 - 0.08500 = 23.13989 \$/OZ
 AU PRICE 673.62500 * 1.16460 - 5.000 = 779.50367 \$/OZ

PAYMENTS PER TON	DEDUCTIONS	PAID FOR	
PB 26.00 LBS	20.00 LBS	6.00 LBS	= \$ 2.23 LEAD
ZN 32.00 LBS	20.00 LBS	12.00 LBS	= \$ 2.96 ZINC
AG 15.4000 OZ	1.0780 OZ	14.3220 OZ	= \$ 331.41 SILVER
AU 1.2800 OZ	0.0896 OZ	1.1904 OZ	= \$ 927.92 GOLD
		TOTAL PAYMENT	= \$ 1264.52

DEDUCTIONS

BASIC TREATMENT CHARGE	= \$ -50.00
ARSENIC	= \$ -7.10
ALUMINA	= \$ -1.08
LABOR: WAGE GRADE 7 = 9.970	= \$ -18.00
TRUCKING CHARGE	= \$ -4.00
MOISTURE	= \$ -1.20
CREDITS:	
SIO2	= \$ 4.20
NET DEDUCTIONS	= \$ -77.18

VALUE/S.D.T. -- F.O.B. TADANAC	= \$ 1187.34
VALUE/S.D.T. * 11.2985 S.D.T.	= \$ 13415.16
AMOUNT ADVANCED	= \$ 8940.00
SETTLEMENT AMOUNT	= \$ 4475.16

ACCOUNT WITH:

BUFFALO MINES
BOX 398 NORTHGATE
SEATTLE, WASH 98125

LOT NUMBER: 4

SERIAL NUMBER: 2597

CAR NUMBERS

DATE RECEIVED

1 TRUCK

09 30 80

NET WET WEIGHT	MOISTURE	NET DRY WEIGHT	SHORT DRY TONS				
21440 LBS	11.1000 %	19060 LBS	9.5300				
ASSAYS: GOLD	SILVER	COPPER	LEAD	ZINC	SULPHUR	SILICA	
1.2580	19.6500	0.2900	1.1000	1.4000	25.5000	39.4000	
OZ/ DRY TON		%	%	%	%	%	
ALUMINA	IRON	LIME	ANTIMONY	ARSENIC	BISMUTH	MAGNESIA	CADMIUM
3.6000	22.4000	0.9000	0.1000	1.5000	0.0100	0.0000	0.0000
%	%	%	%	%	%	%	%

METAL PRICES: OCTOBER AV, 1980

EXCHANGE: \$US TO \$CDN = 1.16900 STERLING TO \$US = 2.41645
 WAGE GRADE 7 = 9.970 HH UNREFINED = 0.000 * REFINED

COMINCO CDN PRICE 51.500 * 0.450 = 23.17500

COMINCO USA PRICE 45.000 * 1.16900 * 0.300 = 15.78150

LME PRICE 367.846 * 2.41645 / 2204.6 * 1.16900 * 0.250 = 11.78334

CALCULATED LEAD PRICE = 50.73984

PB PRICE 50.73984 - 4.75 - 0.25 (50.73984 - 23.00) = 39.05488 ¢/LB

ZN PRICE 800.454 / 2204.6 * 1.16900 - 16.50 = 25.94447 ¢/LB

AG PRICE 20.18100 * .990 * 1.16900 - 0.08500 = 23.27067 \$/OZ

AU PRICE 661.14800 * 1.16900 * 1.00 - 5.000 = 767.88201 \$/OZ

PAYMENTS PER TON

CONTENT	DEDUCTIONS	PAID FOR	
PB 22.00 LBS	20.00 LBS	2.00 LBS	=\$ 0.78 LEAD
ZN 28.00 LBS	20.00 LBS	8.00 LBS	=\$ 2.08 ZINC
AG 19.6500 OZ	1.3755 OZ	18.2745 OZ	=\$ 425.26 SILVER
AU 1.2580 OZ	0.0881 OZ	1.1699 OZ	=\$ 898.38 GOLD
		TOTAL PAYMENT	=\$ 1326.50

DEDUCTIONS

BASIC TREATMENT CHARGE	=\$ 70 -50.00
ARSENIC	=\$ -1.40
ALUMINA	=\$ -1.08
LABOR: WAGE GRADE 7 = 9.970	=\$ -18.00
TRUCKING CHARGE	=\$ -4.00
MOISTURE	=\$ -1.90
CREDITS:	

SIO2 = \$ 4.66
NET DEDUCTIONS = \$ -71.72

VALUE/S.D.T. -- F.O.B. TADANAC = \$ 1254.78

VALUE/S.D.T. * 9.5300 S.D.T. = \$ 11958.05

AMOUNT ADVANCED = \$ 9100.00

SETTLEMENT AMOUNT = \$ 2858.05

BUFFALO
F

IN ACCOUNT WITH:

BUFFALO MINES
BOX 398 NORGATE STA
SEATTLE WASH 98125

LOT NUMBER: 5

SERIAL NUMBER: 2630

CAR NUMBERS

DATE RECEIVED

1 TRUCK

10 08 80

NET WET WEIGHT

MOISTURE

NET DRY WEIGHT

SHORT DRY TONS

21900 LBS

13.3000 %

18987 LBS

9.4935

ASSAYS:

GOLD

SILVER

COPPER

LEAD

ZINC

SULPHUR

SILICA

0.8190

11.9000

0.2000

0.7000

0.9000

20.6000

45.1000

OZ/ DRY TON

%

%

%

%

%

ALUMINA IRON

LIME

ANTIMONY

ARSENIC

BISMUTH

MAGNESIA

CADMIUM

5.1000

19.3000

1.4000

0.1000

1.2000

0.0100

0.0000

0.0000

%

%

%

%

%

%

%

%

METAL PRICES:

NOVEMBER 80 AVERAGE

EXCHANGE: \$US TO \$CDN =

1.18600

STERLING TO \$US =

2.39409

WAGE GRADE 7 =

10.180

HH UNREFINED =

0.990 * REFINED

AG PRICE 18.64824 * .990 * 1.18600 - 0.08500 =

21.81064 \$/OZ

AU PRICE 623.46300 * 1.18600 * 1.00 - 5.000 =

734.42712 \$/OZ

PAYMENTS PER TON

CONTENT

DEDUCTIONS

PAID FOR

AG 11.9000 OZ

1.0000 OZ

10.9000 OZ

=\$ 237.74 SILVER

AU 0.8190 OZ

0.0573 OZ

0.7617 OZ

=\$ 559.39 GOLD

TOTAL PAYMENT

=\$ 797.13

DEDUCTIONS

BASIC TREATMENT CHARGE

=\$ -50.00

ARSENIC

=\$ -1.10

ALUMINA

=\$ -1.61

LABOR: WAGE GRADE 7 = 10.180

=\$ -19.26

TRUCKING CHARGE

=\$ -4.00

MOISTURE

=\$ -4.10

CREDITS:

SIO2

=\$ 6.10

NET DEDUCTIONS

=\$ -73.97

VALUE/S.D.T. -- F.O.B. TADANAC

=\$ 723.16

VALUE/S.D.T. * 9.4935 S.D.T.

=\$ 6865.32

AMOUNT ADVANCED

=\$ 5530.00

SETTLEMENT AMOUNT

=\$ 1335.32

12. But

BOX 398 NORGATE ST
SEATTLE WASH. 981

LOT NUMBER: 6

SERIAL NUMBER: 2680

CAR NUMBERS		DATE RECEIVED					
1 TRUCK		10 24 80					
NET WET WEIGHT	MOISTURE	NET DRY WEIGHT	SHORT	DRY TONS			
17080 LBS	12.6000 %	14928 LBS		7.4640			
ASSAYS: GOLD	SILVER	COPPER	LEAD	ZINC	SULPHUR	SILICA	
1.2450	24.4000	0.2800	1.6000	1.8000	29.0000	31.4000	
	OZ/ DRY TON	%	%	%	%	%	
ALUMINA	IRON	LIME	ANTIMONY	ARSENIC	BISMUTH	MAGNESIA	CADMIUM
3.2000	25.2000	1.1000	0.1500	2.2000	0.0100	0.0000	0.0000
%	%	%	%	%	%	%	%

METAL PRICES: NOVEMBER 80 AVERAGE

EXCHANGE: \$US TO \$CDN	=	1.18600	STERLING TO \$US	=	2.39409
WAGE GRADE 7	=	10.180	HH UNREFINED	=	0.990 * REFINED
COMINCO CDN PRICE	50.800 * 0.450			=	22.86000
COMINCO USA PRICE	44.368 * 1.18600 * 0.300			=	15.78613
LME PRICE	346.310 * 2.39409 / 2204.6 * 1.18600 * 0.250			=	11.15065
			CALCULATED LEAD PRICE	=	49.79678
PB PRICE	49.79678 - 4.75 - 0.25 (49.79678 - 23.00)			=	38.34758 ¢/LB
ZN PRICE	825.000 / 2204.6 * 1.18600 - 16.50			=	27.88220 ¢/LB
AG PRICE	18.64824 * .990 * 1.18600 - 0.08500			=	21.81064 \$/OZ
AU PRICE	623.46300 * 1.18600 * 1.00 - 5.000			=	734.42712 \$/OZ

PAYMENTS PER TON

CONTENT	DEDUCTIONS	PAID FOR		
PB 32.00 LBS	20.00 LBS	12.00 LBS	=\$	4.60 LEAD
ZN 36.00 LBS	20.00 LBS	16.00 LBS	=\$	4.46 ZINC
AG 24.4000 OZ	1.7080 OZ	22.6920 OZ	=\$	494.93 SILVER
AU 1.2450 OZ	0.0871 OZ	1.1579 OZ	=\$	850.36 GOLD
		TOTAL PAYMENT	=\$	1354.35

DEDUCTIONS

BASIC TREATMENT CHARGE	=\$	-50.00
ARSENIC	=\$	-2.10
ALUMINA	=\$	-0.94
LABOR: WAGE GRADE 7 = 10.180	=\$	-19.26
TRUCKING CHARGE	=\$	-4.00
MOISTURE	=\$	-3.40
CREDITS:		

SIO? = \$ 2.96

NET DEDUCTIONS = \$ -76.74

VALUE/S.D.T. -- F.O.B. TADANAC = \$ 1277.61

VALUE/S.D.T. * 7.4640 S.D.T. = \$ 9536.08

AMOUNT ADVANCED = \$ 6860.00

SETTLEMENT AMOUNT = \$ 2676.08

NORTHGATE STA
SEATTLE WASH
98125

LOT NUMBER: 7
CAR NUMBERS
1 TRUCK

SERIAL NUMBER: 2698

DATE RECEIVED

10 31 80

NET WET WEIGHT 16600 LBS
MOISTURE 16.1000 %
NET DRY WEIGHT 13927 LBS
SHORT DRY TONS 6.9635

ASSAYS:	GOLD	SILVER	COPPER	LEAD	ZINC	SULPHUR	SILICA
	0.5950	10.5500	0.1700	0.6000	0.8000	19.3000	46.5000
	OZ/ DRY TON		%	%	%	%	%
ALUMINA	IRON	LIME	ANTIMONY	ARSENIC	BISMUTH	MAGNESIA	CADMIUM
5.0000	18.0000	1.3000	0.1000	1.1000	0.0100	0.0000	0.0000
%	%	%	%	%	%	%	%

METAL PRICES: NOVEMBER 80 AVERAGE

EXCHANGE: \$US TO \$CDN = 1.18600
WAGE GRADE 7 = 10.180
STERLING TO \$US = 2.39409
HH UNREFINED = 0.990 * REFINED

AG PRICE 18.64824 * .990 * 1.18600 - 0.08500 = 21.81064 \$/OZ

AU PRICE 623.46300 * 1.18600 * 1.00 - 5.000 = 734.42712 \$/OZ

PAYMENTS PER TON

CONTENT	DEDUCTIONS	PAID FOR	
AG 10.5500 OZ	1.0000 OZ	9.5500 OZ	\$ 208.29 SILVER
AU 0.5950 OZ	0.0417 OZ	0.5533 OZ	\$ 406.40 GOLD
		TOTAL PAYMENT	\$ 614.69

DEDUCTIONS

BASIC TREATMENT CHARGE	=\$ -50.26
ARSENIC	=\$ -1.00
ALUMINA	=\$ -1.57
LABOR: WAGE GRADE 7 = 10.180	=\$ -19.26
TRUCKING CHARGE	=\$ -4.00
MOISTURE	=\$ -6.90

CREDITS:

SIO2	=\$ 6.49
NET DEDUCTIONS	=\$ -76.50
VALUE/S.D.T. -- F.O.B. TADANAC	=\$ 538.19
VALUE/S.D.T. * 6.9635 S.D.T.	=\$ 3747.69
AMOUNT ADVANCED	=\$ 2690.00
SETTLEMENT AMOUNT	=\$ 1057.69

BUFFALO MINING CO
 BOX 398 NORTHGATE STATION
 SEATTLE, WASH. 98125

LOT NUMBER: 8 SERIAL NUMBER: 2746

CAR NUMBERS	DATE RECEIVED						
1 TRUCK	11 12 80						
NET WET WEIGHT	MOISTURE	NET DRY WEIGHT	SHORT DRY TONS				
19940 LBS	13.4000 %	17268 LBS	8.6340				
ASSAYS: GOLD	SILVER	COPPER	LEAD	ZINC	SULPHUR	SILICA	
1.3870	20.7500	0.2800	1.3000	1.8000	28.0000	31.8000	
OZ/ DRY TON	%	%	%	%	%	%	
ALUMINA	IRON	LIME	ANTIMONY	ARSENIC	BISMUTH	MAGNESIA	CADMIUM
3.6000	24.8000	1.4000	0.1000	2.4000	0.0100	0.0000	0.0000
%	%	%	%	%	%	%	%

Buffalo
F8

METAL PRICES: Dec 80 Ave

EXCHANGE: \$US TO \$CDN =	1.19680	STERLING TO \$US =	2.34594
WAGE GRADE 7 =	10.180	HH UNREFINED =	0.990 * REFINED
COMINCO CDN PRICE	46.262 * 0.450	=	20.81790
COMINCO USA PRICE	39.762 * 1.19680 * 0.300	=	14.27615
LME PRICE	322.117 * 2.34594 / 2204.6 * 1.19680 * 0.250 =		10.25563
	CALCULATED LEAD PRICE =		45.34968
PB PRICE	45.34968 - 4.75 - 0.25 (45.34968 - 23.00) =		35.01226 ¢/LB
ZN PRICE	825.000 / 2204.6 * 1.19680 - 16.50 =		28.28636 ¢/LB
AG PRICE	16.39333 * .990 * 1.19680 - 0.08500 =		19.33834 \$/OZ
AU PRICE	594.92100 * 1.19680 * 1.00 - 5.000 =		707.00145 \$/OZ

PAYMENTS PER TON			
CONTENT	DEDUCTIONS	PAID FOR	
PB 26.00 LBS	20.00 LBS	6.00 LBS	=\$ 2.10 LEAD
ZN 36.00 LBS	20.00 LBS	16.00 LBS	=\$ 4.53 ZINC
AG 20.7500 OZ	1.4525 OZ	19.2975 OZ	=\$ 373.18 SILVER
AU 1.3870 OZ	0.0971 OZ	1.2899 OZ	=\$ 911.97 GOLD
		TOTAL PAYMENT	=\$ 1291.78

DEDUCTIONS

BASIC TREATMENT CHARGE	=\$ -50.00
ARSENIC	=\$ -2.30
ALUMINA	=\$ -1.08
LABOR: WAGE GRADE 7 = 10.180	=\$ -19.26
TRUCKING CHARGE	=\$ -4.00
MOISTURE	=\$ -4.20
CREDITS:	

SIO2	=\$ 3.03
NET DEDUCTIONS	=\$ -77.81
VALUE/S.D.T. -- F.O.B. TADANAC	=\$ 1213.97
VALUE/S.D.T. * 8.6340 S.D.T.	=\$ 10481.42
AMOUNT ADVANCED	=\$ 7320.00
SETTLEMENT AMOUNT	=\$ 3161.42

IN ACCOUNT WITH:

BUFFALO MINES
 BOX 398 NORGATE STA.
 SEATTLE WASHINGTON
 98125

LOT NUMBER: 9

SERIAL NUMBER: 2783

CAR NUMBERS

DATE RECEIVED

1 TRUCK

11 21 80

NET WET WEIGHT	MOISTURE	NET DRY WEIGHT	SHORT DRY TONS				
21360 LBS	12.0000 %	18797 LBS	9.3985				
ASSAYS: GOLD	SILVER	COPPER	LEAD	ZINC	SULPHUR	SILICA	
1.7660	29.2500	0.3400	1.6000	2.1000	32.4000	27.9000	
	OZ/ DRY TON	%	%	%	%	%	%
ALUMINA	IRON	LIME	ANTIMONY	ARSENIC	BISMUTH	MAGNESIA	CADMIUM
2.7000	27.2000	1.2000	0.1000	2.9000	0.0100	0.0000	0.0000
%	%	%	%	%	%	%	%

METAL PRICES:

Doc 80 Ave

EXCHANGE: \$US TO \$CDN	=	1.19680	STERLING TO \$US	=	2.34594
WAGE GRADE 7	=	10.180	HH UNREFINED	=	0.990 * REFINED
COMINCO CDN PRICE	46.262 * 0.450			=	20.81790
COMINCO USA PRICE	39.762 * 1.19680 * 0.300			=	14.27615
LME PRICE	322.117 * 2.34594 / 2204.6 * 1.19680 * 0.250			=	10.25563
			CALCULATED LEAD PRICE	=	45.34968
PB PRICE	45.34968 - 4.75 - 0.25 (45.34968 - 23.00)			=	35.01226 €/LB
ZN PRICE	825.000 / 2204.6 * 1.19680 - 16.50			=	28.28636 €/LB
AG PRICE	16.39333 * .990 * 1.19680 - 0.08500			=	19.33834 \$/OZ
AU PRICE	594.92100 * 1.19680 * 1.00 - 5.000			=	707.00145 \$/OZ

PAYMENTS PER TON

	CONTENT	DEDUCTIONS	PAID FOR		
PB	32.00 LBS	20.00 LBS	12.00 LBS	=\$	4.20 LEAD
ZN	42.00 LBS	20.00 LBS	22.00 LBS	=\$	6.22 ZINC
AG	29.2500 OZ	2.0475 OZ	27.2025 OZ	=\$	526.05 SILVER
AU	1.7660 OZ	0.1236 OZ	1.6424 OZ	=\$	1161.17 GOLD
			TOTAL PAYMENT	=\$	1697.64

DEDUCTIONS

BASIC TREATMENT CHARGE	=\$	-50.00
ARSENIC	=\$	-2.80
ALUMINA	=\$	-0.77
LABOR: WAGE GRADE 7 = 10.180	=\$	-19.26
TRUCKING CHARGE	=\$	-4.00
MOISTURE	=\$	-2.80
CREDITS:		
SIO2	=\$	2.34
NET DEDUCTIONS	=\$	-77.29
VALUE/S.D.T. -- F.O.B. TADANAC	=\$	1620.35
VALUE/S.D.T. * 9.3985 S.D.T.	=\$	15228.86
AMOUNT ADVANCED	=\$	11990.00
SETTLEMENT AMOUNT	=\$	3238.86

LEAD CONCENTRATE

COMINCO LTD.

FEBRUARY 06, 1981

TRAIL, B.C.

IN SETTLEMENT: BUFFALO MINING-PB CN

JAN 30

ACCOUNT WITH: BUFFALO MINING
BOX 398 NORTHGATE STATION
SEATTLE, WASHINGTON 98125

LOT NUMBER: 10 SERIAL NUMBER: 2872

CAR NUMBERS DATE RECEIVED
1 TRUCK 12 23 80

NET WET WEIGHT MOISTURE NET DRY WEIGHT SHORT DRY TONS
23320 LBS 13.7000 % 20125 LBS 10.0625

AYS: GOLD SILVER COPPER LEAD ZINC SULPHUR SILICA
2.0470 38.2000 0.4300 1.9000 2.2000 29.4000 29.6000
OZ/ DRY TON % % % % % %

MINA IRON LIME ANTIMONY ARSENIC BISMUTH MAGNESIA CADMIUM
0000 25.8000 1.1000 0.1500 3.0000 0.0100 0.0000 0.0000
% % % % % % % %

METAL PRICES: JANUARY 1981, AVERAGE

EXCHANGE: \$US TO \$CDN = 1.19070 STERLING TO \$US = 2.40289
WAGE GRADE 7 = 10.180 HH UNREFINED = 0.990 * REFINED

COMINCO CDN PRICE 42.310 * 0.450 = 19.03950

COMINCO USA PRICE 35.905 * 1.19070 * 0.300 = 12.82563

LEAD PRICE 298.866 * 2.40289 / 2204.6 * 1.19070 * 0.250 = 9.69668

CALCULATED LEAD PRICE = 41.56181

LEAD PRICE 41.56181 - 4.75 - 0.25 (41.56181 - 23.00) = 32.17136 \$/LB

ZINC PRICE 825.000 / 2204.6 * 1.19070 - 16.50 = 28.05808 \$/LB

SILVER PRICE 14.75150 * .990 * 1.19070 - 0.08500 = 17.30396 \$/OZ

GOLD PRICE 557.38800 * 1.19070 * 1.00 - 5.000 = 658.68189 \$/OZ

PAYMENTS PER TON

CONTENT	DEDUCTIONS	PAID FOR	
38.00 LBS	20.00 LBS	18.00 LBS	=\$ 5.79 LEAD
44.00 LBS	20.00 LBS	24.00 LBS	=\$ 6.73 ZINC
38.2000 OZ	2.6740 OZ	35.5260 OZ	=\$ 614.74 SILVER
2.0470 OZ	0.1433 OZ	1.9037 OZ	=\$ 1253.94 GOLD
		TOTAL PAYMENT	=\$ 1881.20

DEDUCTIONS

BASIC TREATMENT CHARGE = \$ -50.00
ARSENIC = \$ -2.90
ALUMINA = \$ -0.87
LABOR: WAGE GRADE 7 = 10.180 = \$ -19.26
TRUCKING CHARGE = \$ -4.00
MOISTURE = \$ -4.50

CREDITS:

SIO2 = \$ 2.63
NET DEDUCTIONS = \$ -78.90
VALUE/S.D.T. -- F.O.B. TADANAC = \$ 1802.30
VALUE/S.D.T. * 10.0625 S.D.T. = \$ 18135.64
AMOUNT ADVANCED = \$ 12600.00
SETTLEMENT AMOUNT = \$ 5535.64

APPENDIX F

MINING CLAIMS

Patented Claims

<u>Twp. 8S., R. 34-1/2E., Section 14</u>	<u>Lot</u>	<u>Book Page</u>	<u>Patent Date</u>
Buffalo Consolidated Quartz Mining Claim (Buffalo and Monitor Lode Claims)	412	U-354	June 3, 1902
Buffalo Mill Site Claim	822	36-88	June 18, 1925
Boston Quartz Mining Claim	107	E-392	September 24, 1883

Unpatented Claims

<u>Name</u>	<u>ORMC Number</u>
Constitution	41073
American	41074
Oregon	17181
Woodrow Wilson	41076
Defender	41077
Fitchberg (Fitchburg)	41078
Massachusetts	41079
Worcester	41080
Whelan #1 to #11	41053 to 41063
Whelan Fraction #1 to #9	41064 to 41072
Fitchberg Fraction	40858
Massachusetts Fraction	40857

APPENDIX G

FIXED MANPOWER (75 tpd)

Payroll Burden: 1. monthly 35%, 2. hourly 43%, Includes FICA, FUTA, SAIF, medical/dental, pension, holidays and vacation.

<u>1. Monthly</u>	<u>Yearly (\$US)</u>	<u>Monthly</u>
1 Mine/Mill Manager	29,000 x 1.35	\$ 3,262.50
1 Assayer/Mill Foreman	27,000 x 1.35	3,037.50
1 Eng. Helper/Sampler	20,000 x 1.35	2,250.00
1 Secretary/Gate Keeper	16,000 x 1.35	<u>1,800.00</u>
		\$10,350.00

<u>2. Hourly</u>	<u>Daily</u>		
1 Lead Miner	(9.00 + 50% bonus) x 1.43 x 8	= 154.44	\$ 3,397.61
2 Stope Miners	(8.00 + 50% bonus) x 1.43 x 8 x 2	= 274.56	6,040.32
2 Slusher Opr.	(7.50 + 50% bonus) x 1.43 x 8 x 2	= 257.40	5,662.80
2 Tram Opr.	(7.50 + 50% bonus) x 1.43 x 8 x 2	= 257.40	5,662.80
2 Mine Labourers	(6.50 + 50% bonus) x 1.43 x 8 x 2	= 154.44	4,907.76
1 Timberman	(9.00 + 50% bonus) x 1.43 x 8	= 154.44	3,397.68
4 Mill Opr. (30.5 days per month)	8.00 x 1.43 x 8 day 8.40 x 1.43 x 8 afternoon 8.64 x 1.43 x 8 night	= 91.52 = 96.10 = 98.84	8,737.03
4 Mill Helpers	7.00 x 1.43 x 8 day 7.35 x 1.43 x 8 afternoon 7.56 x 1.43 x 8 night	= 80.08 = 84.08 = 86.49	7,644.83
1 Millwright	9.00 x 1.43 x 8	= 102.96	2,265.12
2 Truck Drivers	7.50 x 1.43 x 8 x 2	= 171.60	3,775.20
2 Labourers	6.50 x 1.43 x 8 x 2	= 148.62	<u>3,271.84</u>
		Total Monthly	\$65,102.99

Mill production 2,288 tons/month = \$28.45/ton

APPENDIX H

1984
PREPRODUCTION CAPITAL COSTS

Month	Item	\$US	
March	Underground mining equipment	\$118,250	
	Underground rehabilitation - wages	10,067	
	Mill and assay equipment	32,500	
	Mill and surface wages	14,630	
	Management, G & A, security, legal	7,400	
	Mine payment #1	100,000	
	Rentals	4,000	
	Fuel, power and consumables	5,000	\$ 291,847
April	Underground rehabilitation - wages	\$ 10,067	
	Mill and surface wages	14,630	
	Management, G & A, security, legal	7,400	
	Metallurgical testing	20,000	
	Rentals	4,000	
	Fuel, power and consumables	5,000	61,097
May	Clean stopes - wages	\$ 6,700	
	Bulk samples - wages	3,367	
	Mill and assay O.C.	1,750	
	Mill and surface wages	14,630	
	Management, G & A, security, legal	7,400	
	Geophysical surveys	12,000	
	Rentals	4,000	
	Fuel, power and consumables	5,000	54,847
June	Bulk samples - wages	\$ 10,067	
	Mill and assay O.C.	15,800	
	Mill and surface wages	14,630	
	Management, G & A, security, legal	7,400	
	4,500' NQ DDH @ \$24/foot	108,000	
	Geological services	6,000	
	Raises (contract) sampling and assaying	26,400	
	Fuel, power and consumables	5,000	193,297
July	Bulk sampling - wages	\$ 10,067	
	Mill and assay O.C.	15,800	
	Mill and surface wages	14,630	
	Management, G & A, security, legal	7,400	
	2,160' NQ DDH @ \$24/foot	52,000	
	Geological services	6,000	
	Raises; sampling and assaying	26,400	
	Fuel, power and consumables	5,000	137,297

APPENDIX H (Continued)

Month	Item	\$US	
August	Bulk sampling - wages	\$ 10,067	
	Mill and assay O.C.	15,800	
	Mill and surface wages	14,630	
	Management, G & A, security, legal	7,400	
	Geological services	6,000	
	Raises; sampling and assaying	26,400	
	Mine payment #2	100,000	
	Fuel, power and consumables	5,000	\$ 185,297
September	Stope preparation - wages	\$ 10,067	
	Mill and assay O.C.	12,200	
	Mill and surface wages	14,630	
	Management, G & A, security, legal	7,400	
	Geological services	2,700	
	Raises; sampling and assaying	7,800	
	Fuel, power and consumables	5,000	
	Surface vehicles	45,500	
	Ore reserve and schedules	12,000	
Mill tune-up	3,000	120,297	
	TOTAL		\$1,043,979

APPENDIX I

TAXES SUMMARY

OREGON STATE TAX

Corporate Excise Tax

A tax for the privilege of doing business in Oregon and is measured by net income. The tax rate is 7-1/2% of Oregon taxable income. A minimum tax of \$10.00 must be paid each year. There are no severance taxes in Oregon, therefore, there will be no tax of mineral production until the bullion or ore concentrate is sold.

COUNTY TAX

Property Tax

According to the Grant County Assessor, property values are calculated at approximately 85% of the true cash value. The tax rate is based upon the county budget needs. The 1981-82 tax rate was \$16.08 per \$1,000 assessed value. The existing milling plant and other buildings would, therefore, be taxed at \$4,500, while other property taxes are estimated at \$3,000.

UNITED STATES TAX

Income Tax @ 46% of Taxable Income

Percent depletion @ 15% of gross revenue for gold and silver or 50% of net income, whichever is smaller.

Additional federal tax consequences such as the election to expense capital costs with later recapture should be based upon corporate tax strategy for the current year.

Tax depreciation will be calculated on a double declining balance over the property life (subject to findings of exploration program).

Investment Tax Credit

To a maximum of 10% of eligible assets.

A Minimum Tax

At 10% of preference items less income tax.

Buffalo Mine See

Buffalo Monitor

NAME

OLD NAMES

^{Gold}
PRINCIPAL ORE

MINOR MINERALS

8 S

T

351 E

R

SW 1/4 14

S

PUBLISHED REFERENCES

.....Grant..... COUNTY

.....Granite..... AREA

.....5800..... ELEVATION

..... ROAD OR HIGHWAY

..... DISTANCE TO
SHIPPING POINT

MISCELLANEOUS RECORDS

PRESENT LEGAL OWNER (S)

Address

.....
.....
.....
.....

.....
.....
.....
.....
.....

OPERATOR

Name of claims Area Pat. Unpat.

Name of claims Area Pat. Unpat.

EQUIPMENT ON PROPERTY

REPORTS

Buffalo Mine J.E.A. June 28, 1938

X

Ore - Bin Reprint of Record - Courier

X

SHIPMENT AND ASSAY RECORDS

MAPS

See Granite Creek Map - Grant Co.

X

The Porter Brothers Dredge having reached a turning point 4 miles up Bull Run Creek from Granite, has now gone about 1 mile back down the creek to the west. 9/22/39.

BUFFALO MONITOR

BALD MIT-
ELKHORN R.
GRANITE D.

According to
Swartley (14:137)
the mine ---

Visited 6/29/38
JEA

~~The Buffalo-Monitor.~~—The Buffalo-Monitor, situated on the southern slope of the divide between Granite creek and the north fork of the John Day river and about 5 miles from Granite, has two types of veins, the one narrow and frequently frozen to the walls and of high grade, and the other a broad shear zone about 50 feet wide, of crushed argillite of low value. The narrow high-grade veins are between walls of a dense highly siliceous argillite and close to the granodiorite intrusion which was observed in the development of the No. 3 vein, the farthest one in. These small veins are made up of gouge and fragments of argillite cemented together with quartz and hardened by silicification.

~~The ore minerals are pyrite, galena, tetrahedrite, chalcopyrite, and some stibnite, although occasional bunches high in galena contain gold and silver up to several hundred dollars a ton. Most of the ore shipped contained about \$100 in silver and gold in the ratio of 16 to 1 by weight. The widest of all the various lenses was 30 inches, they were rarely more than half that and frequently only a few inches wide. Their stope and pitch length were usually only a few feet.~~

The Monitor vein approximately 50 feet wide, made up of crushed argillite with occasional seams of quartz, has been developed by one crosscut and some drifting and other incomplete crosscuts. The channel samples in the one crosscut taken in 5-foot section averages for the full width between \$1 and \$2.

~~The property has not produced for 5 years. The total production is said to amount to about \$75,000, entirely from the 3 small veins.~~

BUFFALO MINE

The Eastern Oregon News reports:

W. A. Boyse, Baker, has acquired the Buffalo mine in the Granite district. The new owner also controls the adjoining Silver Cloud claims. He plans to develop at a lower level.

Visited 6/29/38 JEA

4/30/38 A small crew has been employed at the Buffalo mine near Granite, Oregon, throughout the winter and preparations for full operations are now under way. R. G. Amidon of Granite is the owner and operator.

0-1938
May 30

The Gibson Gold Mining Company has been employing a small development crew at the Buffalo Consolidated Gold Quartz mines near Granite, Oregon, since January 10, 1938. Regular shipments of gold, silver, lead, and copper concentrates will be started soon from the flotation mill on the ground. R. G. Amidon of Granite, who has long been interested in the property, is vice-president and manager. Roy Gibson is president and C. D. Buckner is secretary.

Granite District: The Buffalo Mine is continuing production and developement on the new Constitution vein. Ore is being shipped, the lower grade being stored for a futire mill run. 9/23/39.

State Department of Geology and Mineral Industries

JUL 22 1941

702 Woodlark Building
Portland, Oregon
July 18, 1941

STATE DEPT OF GEOLOGY
& MINERAL INDS.

Buffalo Mine

Granite Area

Grant County

Mr. W. F. Allen, Jr., started milling on July 14. He is running the mill on two shifts of eight hours each. Shipped one car of ore to the smelter on July 14. He is employing twelve men at the present time.

Hugh K. Lancaster

Hugh K. Lancaster,
Field Engineer

ANNUAL REPORT TO THE CORPORATION DEPARTMENT

FOR THE YEAR ENDING JUNE 30, 1936

Of GRANITE GOLD MINING CO. (Give legal name in full)

a corporation organized and existing under and pursuant to the laws of the State of Oregon.

The location of its principal office is at No. 1107 Public Service Bldg. Street, in the city of Portland, in the state of Oregon.

The names and addresses of principal officers, with the postoffice address of each, are as follows:

Table with 3 columns: NAMES, OFFICE, BUSINESS ADDRESS. Rows include Franz Jevne (President), Irving Rand (Secretary), and Franz Jevne (Treasurer).

The date of the annual election of officers is 29 Monday in June

The date of the annual election of directors is do

Table with 4 columns: Description, Common With Par Value, Common No Par Value, Preferred. Rows include authorized capital stock, subscribed, issued, and paid up amounts.

State amount of capital, represented by stock of no par value, with which the corporation began business \$ XXX

IN WITNESS WHEREOF, I, R. G. Amidon, vice president

of said corporation, have signed this report, this

[CORPORATE SEAL]

29 day of June, A. D. 1936

(signed) R. G. Amidon

STATE OF OREGON, County of } ss.

I, of the above and foregoing named corporation, being first duly sworn, depose and say, upon oath, that the foregoing

NUMBER - see Buffalo Monitor
 NAME MONITOR OLD NAMES BUSINESS MONITOR
 BS 85 1/2 E SW 1/4 14
 T R S

2019
 PRINCIPAL ORE AC
 MINOR MINERALS 6/40

PUBLISHED REFERENCES

Part COUNTY
 Grant AREA
 5800 ELEVATION
 ROAD OR HIGHWAY
 DISTANCE TO SHIPPING POINT

MISCELLANEOUS RECORDS

PRESENT LEGAL OWNER (S) *J. M. Davis*

Address *Patent Agency*

OPERATOR
 Name of claims Area Pat. Unpat.

Name of claims Area Pat. Unpat.

EQUIPMENT ON PROPERTY

BUFFALO-MONITOR MINE (Gold and silver) Granite District Granite Area

Owner and operator: Bruce Dennis, 403 Pacific Bldg., Portland, Oregon.
W. F. Allen Jr., Granite, Oregon, superintendent.

Location: SW $\frac{1}{4}$ sec.14, T.8 S., R.35 $\frac{1}{2}$ E.; 5 miles north of Granite.

Area: 3 unpatented claims and patented millsite (including Constitution vein).

History: The ownership of the property has undergone many changes since the early days of Oregon mining. Operations under the present management started in June 1939. The ore was sorted; high-grade was shipped directly to the smelter and lower-grade ore was milled in a 30-ton mill. On November 2, 1939, the mill burned.

After the mill burned, mining was continued. High-grade ore was sorted and shipped to the railhead during the summer. Mill ore was stored on the surface and underground until the new mill was completed on November 1, 1940. This mill, which is a 35-ton flotation plant, is now in operation.

Development: In the Buffalo-Monitor section of the mine about 4000 feet of work has been done on several levels to a point over 400 feet below the outcrop. Three veins have been developed on two main levels (200 feet difference in elevation), and are now stoped above the lower level.

A crosscut 190 feet long was driven from the old Buffalo workings in 1938 and 1939 to cut the Constitution vein. About 200 feet along this vein is being stoped at present. The north face of the drift is being continued.

General description: The Constitution is the only vein being mined at present. The camp at the old Buffalo campsite contains a mill, shop, compressor house, mess hall, several cabins, and bunkhouse. Camp elevation is about 5800 feet. Water is sufficient for camp and mill, but is not plentiful. There is abundant timber on the claims. Snowfall varies from four to six feet.

The mine employs 15 men.

Geology: The ore minerals consist of blue quartz, chalcopyrite, pyrite, calcite, stibnite, tetrahedrite, and proustite (?). The tetrahedrite is said to appear in the lower levels. Textural relations show that the calcite was in place first, then the quartz. Chalcopyrite appears in some places. Azurite and chrysocolla also occur in the upper levels. The best values are said to occur in the blue quartz with fine sulphides in ribbon structure. Values here run up to \$600 a ton or more. The ore bodies then vary considerably in width, sometimes pinching down to 1 inch or so and then widening out to a maximum of 3 feet; they are more or less continuous. All veins strike north and south, and dip steeply to the west.

Mill: The new mill, which was completed November 1, 1939, was constructed on the site of the old Buffalo mill. It has foundations, retaining walls and floors all of concrete. All floors drain to a sump. The framework of the crushing plant, as well as coarse and fine ore bins, was constructed of round native timber. The mill building proper was framed with sawn lumber and was completely covered with galvanized iron. Each piece of equipment has an individual electric motor and V-belt drive.

Mill flow sheet: Mill ore is trammed to the mill storage bin. From the storage bin it is drawn over a 1-inch grizzly. Oversize is fed to a 7"x10" Gates crusher. Undersize and crushed product pass to a 14" belt conveyor to a fine ore bin (200 ton). From the fine ore bin, ore is fed by an adjustable feeder conveyor into a 5'x4' grate discharge ball mill in closed circuit, with a type C Dorr duplex classifier. Classifier overflow passes into a 5'x6' conditioner to 6 24-inch Weinig sub A flotation cells each equipped with a 3 h.p. motor. A finished concentrate is taken from the first two cells and a rougher concentrate from the last four. Rougher concentrate is returned to the head of the flotation circuit. Flotation tails pass to two 16-foot Allen pneumatic flotation cells. Tailing goes to waste and froth goes to 2-inch Wilfley sump pump.

Finished concentrate goes to a bucket elevator and to an 11-foot Dorr thickener. Thickener overflow goes to the 2-inch Wilfley sump pump which discharges to the feed water tank where the amount of fresh water needed for the grinding circuit is added by a float valve from the water storage tank. Underflow goes to a 3'x4' Oliver thickener. Thickened concentrate is dried to 1 to 2 percent moisture on a dryer, sacked and shipped to the smelter. Mill heads vary from \$15 to \$20 per ton.

According to Hewett: (31:22)

"The three parallel veins explored in the Buffalo mine have general resemblances. There is generally a persistent footwall strand of quartz 6 to 15 inches wide, with coarse and fine sulphides, and less persistently a hanging

wall strand. The examination of a suite of polished specimens from veins 2 and 3 indicates that dolomite, possibly with some quartz, was the earliest mineral; this was crushed, and quartz was deposited, followed by coarse pyrite and arsenopyrite. After further crushing, sphalerite, then chalcopyrite, tetrahedrite, and galena were deposited. Thin sections indicate that after the early crushing some quartz fragments were secondarily enlarged; in other places long blades of quartz seem to have grown in the breccia but there has not been widespread recrystallization. Pyrite and arsenopyrite seem to have been deposited largely by replacing quartz".

Hewett (31:15) gives a milling record as follows:

"Milling and Production: Concentration ratio about 10:1; tends to decrease with depth. Bullion: gold 600 silver 350. Gold 20 percent free. Ratio of gold to silver, 1:10. Production estimated at \$350,000."

Informant: W. F. Allen, Jr., Granite, Oregon. H.K.L. 12/4/40.

References: Lindgren 01:685

Swartley 14:137

Parks and Swartley 16:46

Pardee and Hewett 14:106

Hewett 31:8,10,15,22,25,33,35,39,42 (quoted in part)