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CONSULTING GEOLOGICAL ENGINEER
171 W. ESPLANADE, NORTH VANCOUVER, B.C.

April 26, 1974

Mr. Chester F. Millar, P.Eng.,
President,
C. F. Millar Limited,
2060 Granville Square,
200 Granville Street,
Vancouver, B. C.

Dear Mr. Miller:

With this, I am pleased to transmit my report, "PRELIMINARY INVESTIGATION & APPRAISAL of the TOM REED MINE PROPERTIES at OATMAN, MOHAVE COUNTY, ARIZONA" - pursuant to your recent authorization.

The report is, of necessity, based mainly on information derived from the Oatman office files and official government reports. However, selection of the more relevant data hinged, to a considerable extent on your personal explanations and on our general discussions and field inspections. Your assistance in these respects is hereby thankfully acknowledged.

As before, this visit was highly interesting, and your hospitality again very much appreciated.

Respectfully submitted,

W. M. Sharp

W. M. Sharp, P.Eng.

REPORT

PRELIMINARY INVESTIGATION & APPRAISAL

of the

TOM REED MINE PROPERTIES

at

OATMAN, MOHAVE COUNTY, ARIZONA

for

C. F. MILLAR, P.ENG.
of
C. F. MILLAR LIMITED, VANCOUVER, B. C.

by

W. M. Sharp, P.Eng.
Consulting Geological Engineer
North Vancouver, B. C.

April, 1974.

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REPORT DRAWINGS

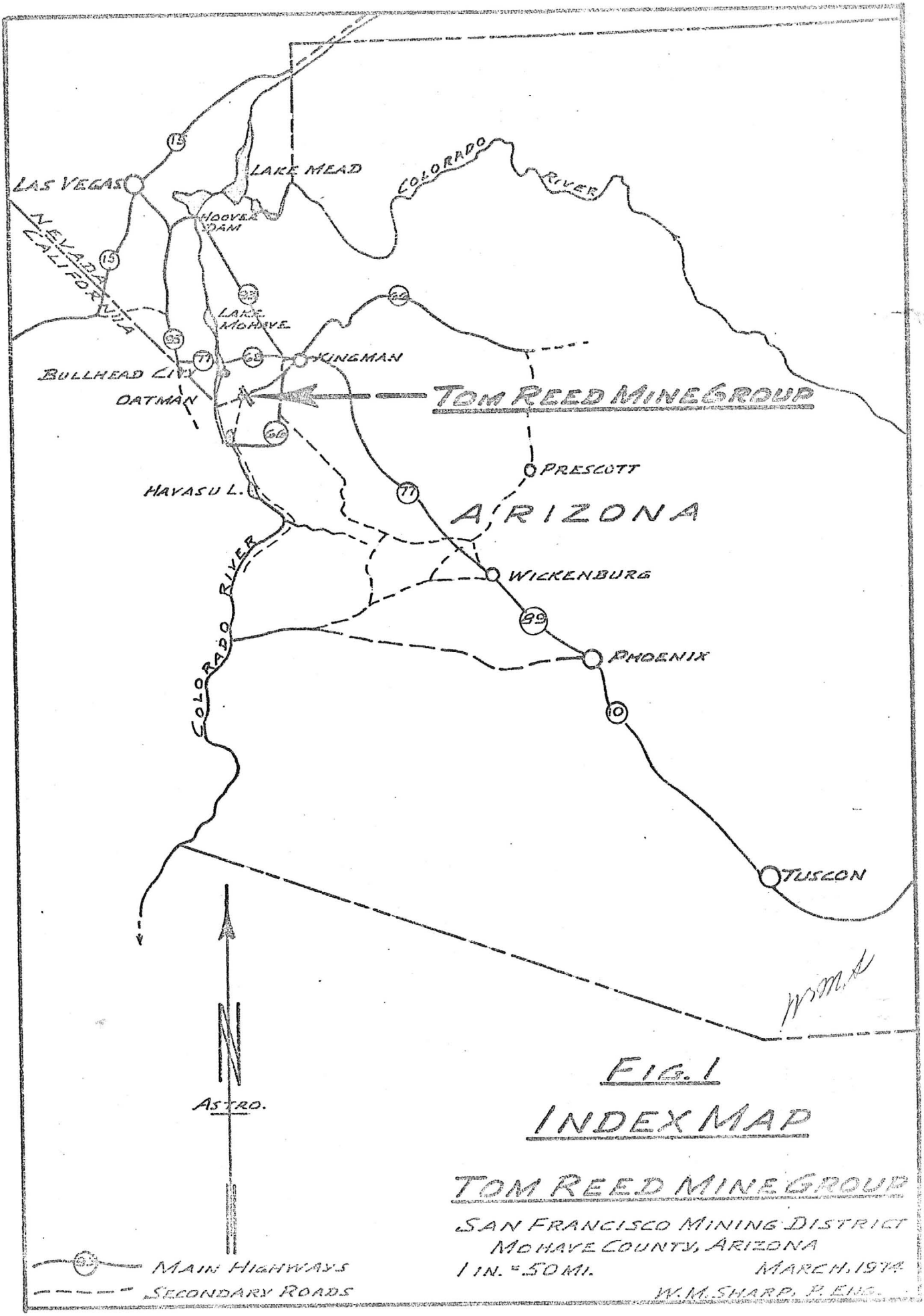

FIG. 1
INDEX MAP

TOM REED MINE GROUP

SAN FRANCISCO MINING DISTRICT
MOHAVE COUNTY, ARIZONA
1 IN. = 50 MI. MARCH, 1974
W. M. SHARP, P. ENG.

SUMMARY & CONCLUSIONS

The Tom Reed mine properties are located near the old mining town of Oatman in northwestern Arizona. The properties, recently optioned by Mr. C. F. Millar, comprise 43 patented mining claims, and include the principal, 29-claim Tom Reed Mines group and three subordinate groups. The Tom Reed group includes a known 15,000-foot length of the Tom Reed vein and important intervals of the Big Jim, Grey Eagle-Bald Eagle, and United Eastern veins. Underground development of the Tom Reed-Ben Harrison orebody was begun in 1901, and production commenced in 1904. Until its shut-down in 1939, the Tom Reed operation produced gold worth $14,100,000 from 1,070,090 tons of ore - mostly at the old $20.67/oz. gold price. At a unit value of $13.17 per ton of ore milled, the average yield of the total production of the consolidated mining operations amounted to approximately 0.62 oz./ton. During the same period, the total gold-production of the three principal mines at Oatman was in excess of $35,500,000 - also mainly at the $20.67 price-level.

Four major, and two minor orebodies within the Tom Reed vein system were developed and mined via the separate Black Eagle, Aztec-Big Jim, Ben Harrison, Tom Reed, and Bald Eagle-Grey Eagle mines, each of these being opened by shafts and successive levels of lateral workings.

The Ben Harrison and Tom Reed orebodies, mined together, had a total strike-length of about 1400 feet. The main mass of ore, ranging from 8 to 20 feet wide, was mined to the 700-level; below this, the Tip Top root-section was mined to the 1400-level, or deeper.

The Tom Reed Company's Aztec section of the general Aztec-Big Jim orebody was mined over an average strike-length of 850 feet, on ore widths of about 8 to 20 feet between the 200 and 700-levels. The two root-sections were mined down through the 1100-level.

The adjacent Black Eagle orebody was mined from the 100-level to the 1400-horizon. To depth, lengths of ore mined ranged from 100 feet, to 450 feet, and back to about 200 feet - resulting in a deep, relatively slender ore outline. Mining widths were generally under 8 feet.

In addition, a small amount of good ore, frequently assaying 1 oz./ton or better, was mined from the Bald Eagle-Grey Eagle orebodies.

The steeply-dipping Tom Reed vein-system has been traced for over 15,000 feet on its northwesterly trend through the claim group. All of the past production has derived from an 8000 foot strike-interval of the structures; the remaining 7000-foot length has not been explored to any significant extent, in spite of the generally favourable character of surface exposures along this segment of the vein.

Vein-fillings comprise massive to banded aggregates of quartz, calcite, and silicified andesite (wall rocks), and include subordinate, but economically-significant proportions of adularia and fluorite. Free-gold occurs as minute grains dispersed within the gangue and/or along minute fractures. The ore is an excellent example of epithermal-bonanza type mineralization.

Strong veins typical of the Oatman camp have been discovered on the Company's three outlying claim groups. To date, no significant amounts of exploratory or development work have been carried out on any of these prospects.

The existing Tom Reed mine records covering the main production period, and which largely relate to the near-surface portions of ore-bodies, indicate that over-all gold recovery was about 90%, total direct mining costs about $7.00 per ton, and the prevailing gold price was $20.67 per ounce. On the basis of the above factors, it is estimated that the cut-off grade of ore-in-place was about 0.30 oz./ton. Application of this grade to the several inferred ore blocks marginal to the existing stopes, results in the following ore reserve estimate:

(1) Inferred Ore, as direct extensions from stopes above 700-horizon
240,000 tons @ 0.30 oz./ton gold

For the remaining, relatively-unexplored 7000-foot continuation of the vein-system, the statistically-inferred ore reserve within the upper 700 feet of the vein is conservatively estimated as:

(2) Geologically-Inferred Ore, upper section of N.W. vein-extension
234,000 tons @ 0.31 oz./ton gold

Total Inferred Ore above 700-Horizon - - 474,000 tons @ 0.30 oz./t gold.

Past mining operations, because of the large existing pool of experienced underground labour, were profitable - even at former gold prices. To achieve comparable success, a new operation would minimize production costs by maximizing the use of efficient mechanical equipment and mining methods.

An estimate of the possible profitability of a 250 t.p.d. mining operation is made on the basis of the currently-inferred ore potential, and on the basis of millheads of 0.23 oz./ton and gold at $160/oz. On this basis, the writer estimates:

Net mill-head value, @ 95% recovery	$34.96 per ton
Gross mining cost	$20.75 per ton
Indicated cash-flow	$14.21 per ton
Indicated cash-flow per year	$1,207,000
Cut-off grade, mill-heads	0.14 oz./ton

In summary, the Tom Reed property produced over a million tons of ore with an average gold content of 0.62 oz./ton from six distinct orebodies within an 8000-foot length of the vein system. At least 80% of this production was coincident with a $20.67/oz. gold-price. Consequently, at current price-levels, it is inferred that a substantial tonnage of ore occurs as extensions of the former orebodies. In addition the possibilities for the occurrence of new ore zones within the adjoining 7000-foot interval of the vein-system are rated as good - on the basis of the geological evidence provided by current vein exposures.

RECOMMENDATIONS

In view of the number of ore possibilities that are present over the 15,000-foot gross length of the Tom Reed vein-system, the writer recommends that these be tested via a staged program which will permit continuing flexibility in the selection of specific zones for more detailed exploration or development work. The available data generally indicate that exploration and sampling of the vein system should start on the Tom Reed-Ben Harrison interval and proceed to the Black Eagle interval and, from here, move to the 7000-foot N.W. extension of the Tom Reed vein. Decisions relating to Stages II and III of the program would be contingent on the results obtained in the preceding stages.

PROGRAM DETAILS & ESTIMATED COSTS

STAGE I

1 - Percussion-Drill Exploration/Sampling:

a) Road-Tom Reed air shaft, 12 holes @ 100' avg. 1200'		
b) Road-B. Harrison" " 12 holes @ 100' avg. 1200'		
c) W-1/4 of Rising Star claim, 2 sta @ 400'/sta. 800'		
d) W-1/2 of Black Eagle " 8 holes @ 100' 800'		
e) 7000 N.W. extens. T. Reed Vein: Drill Sta's. @ 100' spacing; 100' and 300' at alternate sta's. 30 sta's @ avg. 200' 6000'		
f) Allowance for fill-ins and extensions	5000' 15,000' @ $2.50-$	37,500
g) Provision for assaying and overhead, 4 months @ $3,000/mo.		12,000

2 - Geological Investigations:

a) Provision, shaft ladder repairs, etc.	2,000
b) Underground mapping & sampling	2,500
c) Geochemical orientation & sampling	500

3 - General:

a) Property payments, 4 months, incl. @ $5,000/mo.	20,000
b) Provision for extras & contingencies @ 15% of estim. costs	11,200
TOTAL, STAGE I	$ 85,700

STAGE II, per Stage I results:

a) Delineation diamond-drilling, 7000' @ $12/ft.	84,000
b) Development-decline, 8' x 10' @ $110/ft x 1200'	132,000
c) Property payments, 12 months @ $1000/mo.	12,000
d) Provision for general expense & contingency, @ 10%	22,800
TOTAL, STAGE II	$250,000

STAGE III - Open

Respectfully submitted,

W. M. Sharp

W. M. Sharp, P.Eng.

INTRODUCTION

During February-March, 1974, Mr. C. F. Millar, P.Eng. negotiated an option on the consolidated groups of lode claims containing the old Tom Reed mine, the unexplored extensions of the Tom Reed vein system, and the separate, lightly-explored 'Neglected', 'Red Creek', and 'Red Cloud' vein structures. His decision to acquire the above claim groups was based on preliminary investigations of their history of successful operation over a long period of low gold prices.

During recent months, a wider realization of the large ore potential of the Oatman gold camp has resulted in several acquisitions of properties by other mining and mining exploration groups. This interest has been stimulated by the current levels of gold prices, by the favourable physical and geological environment, and by the favourable attitude of the Arizona government towards exploration and mining - particularly in respect of operations of the type and scale contemplated for the Oatman area.

The writer carried out a general field investigation of the Company's properties during the period March 27-April 2, 1974. By reason of the general inaccessibility of the underground mine workings field work was limited to reconnaissance-inspections and sampling of surface exposures of the vein structures, studies of the extensive data on file at the Tom Reed mine office, and preliminary map preparation - with considerable help from Mr. Millar.

Very little detailed geological data pertaining to the Tom Reed and other properties is available, and it appears that detailed geological mapping was seldom done during the 1908-1938 operating period of the mine. Most of the available geological data derives from the rather general regional studies carried out by government agencies. In spite of the lack of ore reserve records, the writer thinks that it is reasonable to suppose that substantial tonnages of mineralized vein material, which could be classified as ore at present gold prices, must have been left in place or only slightly explored at the old $20.67 per ounce and $35.00 per ounce price-levels.

Publications serving as references during the field investigation and for the preparation of this report are:

(1) Ore Deposits of the Western States, Lindgren Vol, pub. A.I.M.E., 1933.

(2) Arizona Lode Gold Mines, Bull. 137, Arizona Bureau of Mines.

(3) Geology and Ore Deposits of the Oatman and Katherine Districts, Arizona, Bull. 131, Arizona Bureau of Mines, 1931.

LOCATION & ACCESS

The Tom Reed property straddles the old mining town of Oatman in Mohave County, Arizona. The 'Neglected' and 'Red Creek' claim groups lie closely northwest and east of the 'Tom Reed' group. All claims are located in T.19N, R20W in Mohave County.

The Oatman mining district situates within the westerly slopes of a southern portion of the Black Mountains, in a westerly part of Mohave County. Oatman is approximately 130 road miles southeast of Las Vegas, Nevada and may be reached via U.S. Route 95 and branch roads. Most of the old gravel roads linking the individual mines and prospect workings within the claims groups are still useable.

Phoenix, Arizona, at about 200 road miles to the southeast of Oatman, is the regional centre for mining equipment, supplies, and services.

The Oatman terrain is one in which roundly to sharply eroded relatively low ridges and mounts rise from a sloping and locally hummocky (erosional) plain. The latter generally has a relatively shallow cover of bedrock debris and coarsely stratified alluvial material.

The local climate is arid, and the sparse desert vegetation is typical of the region. Water for mining operations is provided by pumping from deep wells and certain deep mine workings which penetrate the water table. Rainfall, which occurs only rarely, averages less than 12 inches per year. The highest and lowest temperatures recorded, as of 1967, are plus-3 and plus-117 degrees. Surface exploration and mining work would be only very rarely interrupted by climatic conditions.

PROPERTY

Report Fig. 2 supplements the following text.

All claims are Patented. A total of 43 claims is distributed within the following groups:

(A) Tom Reed Mines Group

Mineral Survey No. 2610 - Rising Star, Bessell, Olla Oatman, Benjamin Harrison, Thos. B. Reed.
Mineral Survey No. 4135 - Dower No. 1 Lode, Dower No. 2 Lode, Dower No. 3 Lode.
Mineral Survey No. 3196 - Starlight Lode.
Mineral Survey No. 3312 - Nancy Hanks, French American, Pasadena.
Mineral Survey No. 3199 - Grey Eagle, Bald Eagle, Black Eagle, Aztec Center, Aztec Center Southeast.
Mineral Survey No. 3311 - Jack Rabbit.
Mineral Survey No. 2903 - Rising Sun.
Mineral Survey No. 3775 - Tom Reed Fraction.
Mineral Survey No. 2904 - Cone View, Cone View No. 2.
Mineral Survey No. 2710 - Tip Top.
Mineral Survey No. 4136 - Velvet Lode, New Year Lode, Wedge Lode, Gold Road West Extension Lode, Fall No. 4 Lode, Ella Mitchell Lode.

(B) Neglected Group

Mineral Survey No. 3338 - Neglected No. 1, Neglected No. 2, Neglected No. 3, Dixie Queen, Portland, Cactus Lode.

(C) Red Cloud Group (1)

Mineral Survey No. 3198 - Red Cloud.

(D) Red Creek Group

Mineral Survey No. 4137 - Red Creek No. 1 Lode, Red Creek No. 2 Lode, Midnight Lode, Zoraster Lode, B.C.C. Lode, Lizzie Lemen Lode, Strip Fraction Lode.

The following exclusions are noted:

1. Lovin's subdivision, Oatman from the Tip Top claim.
2. Other subdivisions comprising the town of Oatman.
3. The entire Tom Reed tailings dump located in Sect. 23, Township 19N, Range 20 West.
4. Surface rights of way and easements for public roads, canals, laterals, ditches, etc.

The Tom Reed Mines Group is the principal mining property. It covers an established 15,000 ft. strike-length of the Tom Reed vein, including its established but relatively unexplored 7000-foot westerly extension beyond the mine workings. The group also covers important intervals of the Big Jim, Grey Eagle-Bald Eagle, and United Eastern veins - - all of which have a history of localized development, but large production.

The 'Neglected' and 'Red Creek' groups each have 4000 foot and 4500 foot indicated strike-coverages of their respective gold vein/lode structures.

The Red Cloud claim covers an important 1400 to 1500 foot interval of the United Eastern vein. This has been partly explored by a plus-900 ft. shaft and some open cuts; however, the results of this work are unknown to the writer.

The property is held by the Company via terms of an 'Exploration Agreement and Option to Purchase' drawn up between Americana Investments, Inc., an Arizona corporation, and Mr. C. F. Millar - respectively designated as 'Owner' and 'Licensee'. The exploration commitment is for $50,000 of exploratory work to be done in 24 months from the date of signing. The option privilege may be exercised at any time during this period by mutual consent and with an initial cash payment of $100,000 by the licensee.

MINE WORKINGS

Dwgs. No. TR-1 and TR-2 supplement the following text.

The through-going Tom Reed vein has been productive over much of its length within the group. From southeast to northwest, separate, generally extensive orebodies were mined via the Black Eagle, Aztec (-Big Jim), Bald Eagle, Grey Eagle, and Ben Harrison (Tom Reed) underground workings. Topographic relief along the course of the vein is relatively slight; hence exploration and development of the indicated mineralized zones was done through shafts, crosscuts, drifts, and occasional raises. Levels were established at approximately 100 foot shaft-intervals.

The Ben Harrison, Tom Reed, and Tip Top orebodies, comprising the original Tom Reed mine, were developed by the Ben Harrison shaft, Tip Top winze and 1400 levels. Above the 500 level, the drifts opened an average 1400 foot strike-length of ore. Between the 500 and 700 levels, lateral development was divided between the Tom Reed and United Eastern (split) veins, and shorter ore lengths were opened. From the 700 to 1400 level, development was largely restricted to the United Eastern branch up to the United Eastern boundary; ore-lengths developed, in the down-dip direction, decreased from about 300 ft. to 100 ft.

The Company's Aztec portion of the larger Aztec-Big Jim orebody was developed by the Aztec and Bald Eagle shafts and connecting drifts from the 200-level to the 1100-level. Within the upper, main part of the orebody an average 850 ft. length of ore was opened. This was extended to nearly 1600 feet under a joint agreement with the Big Jim company.

The Black Eagle orebody, near the south end of the group, was developed via the Black Eagle shaft, winze, and connecting drifts down through the 1300-level. This orebody, however, was essentially pipe-like in form, with a maximum strike dimension of about 450 feet.

The Grey Eagle and Grey Eagle-Bald Eagle orebodies have been explored, developed, and mined to a relatively minor extent by a similar system of shafts, crosscuts, and drifts.

To the northwest of the Tom Reed/United Eastern vein-junction, the Tom Reed vein was explored by means of the Olla Oatman and No. 6 shafts, and by drifts on the 300- and 500-levels. Reportedly, both drifts followed a wide quartz vein which was not significantly mineralized. However, this assessment of the vein mineralization was made on the basis of a $20.67/oz. gold price. It was also based on the assumption that the mineralization tested by the drifts was representative of the full width of the structure that, as is indicated by its outcrops, is often more than double the drift width. To date the vein has not been explored or tested below the 500-level.

Most of the old mine shafts within the property - at least their near-surface sections - have stood up remarkably well. The generally

good condition of the shaft timbers is probably the result of the arid climate and general stability of the local country rocks. It appears that some of the underground workings and vein exposures might be made accessible by making the more essential repairs to ladders and man-ways. Currently, natural outcrops ('ledges') and a few near-surface mine workings provide the only vein exposures - principally over the Ben Harrison-Olla Oatman interval of the Tom Reed vein.

GENERAL HISTORY & PRODUCTION

The first discoveries of gold/silver mineralization in the region were made during the early 1860's by Camp Mohave military personnel. After an outbreak of Indian hostility in 1866, prospectors generally abandoned the region until late in the century.

The discovery of rich gold ore in the Gold Road vein in 1900 led to a revival of activity in the Oatman district. In 1901, development of the Tom Reed claims started with the sinking of the Tom Reed and Ben Harrison shafts to a depth of 100 feet. The Blue Ridge Gold Mines Company bonded the property in 1904, built a 10-stamp mill, and operated the property for about 2 years. In 1906, the Tom Reed Gold Mines Company purchased the property and continued development and production. In 1908, this Company built a new mill which incorporated the then-new cyanidation process, and which was progressively expanded and improved in the following years. The mine operated until the spring of 1939. During the 35-year period production was intermittently suspended, in order to carry out necessary developments, for a total of only 6 years.

The estimated total production from the Oatman area mines is as follows:

Gold Road	, 1897-1915, & 1923	- 737,926	tons, tot.	$ 6,654,050
United Eastern	, 1916-1926	- 697,038	" "	14,853,395
Tom Reed	, 1908-1939	- 1,070,090	" "	14,100,000
Other	, 1860-1940	- ?	" "	350,000
Total, with 95% on gold @ $20.67/oz.				$35,957,445

For the Tom Reed Gold Mines properties, the average grade of the total ore produced is estimated at 0.62 oz. per ton gold (including silver values). At a gold price of $160 per ounce, the net value of this ore is $99.20 per ton.

GEOLOGY & MINERALIZATION

The Oatman region situates within a southwesterly part of the Black Mountains. The latter consist of a thick, ruggedly dissected, gently eastward-dipping succession of Tertiary rhyolites, trachytes, latites, and andesites over a basement complex of Pre-Cambrian granite and gneiss. During a Late Tertiary period of mountain-building the gross bedrock assemblage was tilted and block-faulted, and the regional mineral deposits were emplaced in the more persistently 'open' fractures, and principally within the volcanic rock units. In the Oatman district, the Oatman andesite unit (green chloritic andesite) comprises the most favourable host for the local gold/silver mineralization. As a result of the intense fracturing of this unit a large number of veins developed within the Oatman locality. The Tom Reed vein comprises one of the strongest and most productive members of the total vein system.

The Tom Reed vein is traceable for over 15,000 feet through the main claim group. It has a slightly sinuous northwesterly trend and dips steeply northeasterly over most of its length. However, where it outcrops for over a 1000 feet along the small sharp ridge northwest of the Olla Oatman shaft, it dips steeply southwestward, but may return to its more general northeasterly dip somewhere below the elevation of the Olla Oatman 500-level.

The vein fillings are typical epithermal ('bonanza-type'), in that they comprise massive to banded, and frequently vuggy, very fine-grained quartz and calcite with only sparse amounts of pyrite or other base-metal sulphides. Free gold occurs as minute grains enclosed by the gangue minerals or along minor fractures traversing them. Where thin calcite partings and/or adularia occur within (colour) banded vein-fillings, gold values tend to be much higher than average. Vein out-crops are rather strongly weathered and, locally, highly leached; the latter feature is evidently related to the amount of calcite in the

gangues, as pyrite is too sparse to account for it. Mined vein-widths appear to have had a general range of about 4 feet to 20 feet; locally, they ranged up to 50 feet.

The Ben Harrison orebody was mined over an average strike-length of 650 feet over a dip-extent of about 800 feet. Old records indicate that much of the ore along the shaft was 16-20 feet wide, and that 8'-14' widths were mined through the 500-700 levels. The shaft reportedly started on weathered vein material with 'lean' gold values, but at a depth of 50 feet values increased to $7.57 per ton (0.366 oz./ton). At a depth of 90 feet they increased to $9.00 per ton (0.435 oz./ton); at 185 feet they decreased to $1.24 per ton (0.167 oz./ton); at 240 feet they increased to over $20 per ton (approx. 1 oz./ton), and included one 60 ft. strike-length averaging over $300 per ton (14.5 oz./ton).

The general Ben Harrison-Tom Reed vein-segment strikes about N50°W and, to the 700 level, dips about 70°N.E.; the over-all dip appears to steepen significantly going northwestward into the Tom Reed orebody, and towards the Tom Reed/United Eastern vein-split.

The Tom Reed orebody, above 700-level, is continuous with, or at least a westerly part of the Ben Harrison orebody. Above Tom Reed 500-level it was mined over an average strike-length of about 500 feet. On the Tip Top claim it was mined down to the 1400-level. From 700-level through 1400-level it narrowed from about 300 ft. to less than 150 ft. in strike length, and is significantly pipe-like at these depths. The Tip Top extension of the Tom Reed orebody appears to relate to the United Eastern vein rather than to the Tom Reed vein, but appears to have been structurally controlled by their strong(?) intersection. The possibility that the United Eastern vein may have provided the most control in the formation of both the Tom Reed/Tip Top and Ben Harrison orebodies is enhanced by the fact that it yielded a $6,000,000 (Au @ $20.67/oz.) orebody closely northwest, on the United Eastern property.

The writer cut three samples of weathered vein material over the surface of the Tom Reed orebody (Dwg. No. T.R-2), which gave the

following assays:

6.0'	@	Au,	0.13	oz./ton;	Ag,	0.06	oz./ton
6.0'	"	"	0.65	"	"	0.69	"	"
9.0'	"	"	0.02	"	"	0.19	"	"

The opportunity for further sampling was restricted by the scarcity of accessible and representative exposures of the vein. The variation in the above assay results is in general accordance with the expected variations relating to epithermal vein mineralization. With this in mind, the writer feels that they provide a tangible basis for recommending further sampling of stope pillars and vein intervals adjacent to the former orebodies.

The Tom Reed vein continues northwestward beyond the Tom Reed orebody for about 7500 feet to the N.W. end of the Pasadena claim. Of this a 2200 foot interval extending through the Olla Oatman claim has been rather broadly explored via drifts from the Tom Reed mine section on the 300- and 500-levels, and by the Olla Oatman shaft and other workings. No details relating to the character or mineralization of this vein segment could be found in the Company records, and it can only be assume that any mineralization discovered by this work must have been submarginal at that time - but not necessarily so at current gold prices. Within the Olla Oatman claim the vein outcrop is over 1000 feet long. The vein filling is typical quartz/calcite over 8-12 foot widths. In the writer's opinion, sampling of its outcrop is not warranted because of its weathered and leached character. In his October, 1915 report, F. W. Sperr, M.E., notes --- "the spread vein system on the Olla Oatman and to the northwest should unite at depth; hence depth exploration on full cross-sections is recommended.".

Over its remaining 5300-foot continuation to the N.W. boundary of the Pasadena claim, the existing maps indicate that it trends on a broad northerly-curving arc, and has an even more arcuate hanging-wall branch departing from, and rejoining the main vein at 400 ft. and 5000 feet, respectively, west of the Olla Oatman shaft (Fig. 2). With the exception of a note to the effect that vein splits at the far boundary of the Pasadena claim, no other detail is recorded.

The general Aztec-Big Jim orebody was mined over an indicated maximum length of 1600 feet, and on 10'-20' vein widths. The main mass of ore extended, from the Mallery fault at the 200-horizon, downward to the 600-level, or a dip-distance of 450 feet on its indicated 70°N.E. dip. All of its four roots (Dwg. No. T.R-1) provided a further dip-range of at least 300 feet.

The Aztec-Big Jim ore was deduced, by the Tom Reed Company engineers to be the faulted extension of the Grey Eagle-Bald Eagle segment of the Tom Reed vein, with a throw of 400 to 500 feet occurring on the southwesterly-dipping Mallery fault; however, this was not definitely proved. The general orebody situates where the vein bends to a more northerly strike during its general northwesterly trend through the property - a situation which may have provided the requisite structural control of mineralization.

Data from the Tom Reed Company files indicates that its Aztec ore-body was mined over a 900-foot strike-length, and over widths of 10 to 20 feet. Most of the ore occurred in complexly-banded quartz, with adularia, and was estimated to grade in excess of $12 per ton (over 0.58 oz./ton).

The partly mined-out Grey Eagle and Bald Eagle orebodies reportedly averaged greater than $20 per ton (1 oz./ton, or higher). The maximum dip-extent, as determined by the Mallery fault, is in the vicinity of 500 feet; hence up-dip and down-dip ore-extensions are possible. However, the greatest potential for ore extensions appears to lie along the strike of the Tom Reed vein, at shallow to intermediate depths - possibly towards the old Telluride mine workings.

Other than that which could be derived from old maps, there is very little information on the deeply-ranging Black Eagle orebody. That give notes that "it was developed (interim period) to the 1100 level, was ove 400 feet long and averaged 7 feet in width on the 900 level, and that much of the ore was high grade with visible free gold.".

Concerning the separate Neglected claim group (Fig. 2), F. W. Sperr M.E., notes in his October, 1915 report that --- "it is apparently on a structure other than the Tom Reed vein, and that since its acquisition

by the present owners, a vein with many of the Tom Reed characteristics has been opened to an interesting extent.".

Concerning the Red Creek group (Fig. 2), no information was provided by the Company's files. The situation with regard to the Red Cloud claim was the same. However, the writer attaches some significance to its location, in that it lies on United Empire vein - from only 500 ft. to about 2000 feet northwest of the position of the former United Empire $6,000,000 orebody.

ORE POTENTIAL

On the accompanying 100-scale drawings, the shaded areas represent former orebodies which are now mined out; hence, can be alternatively designated as stopes. The old production records suggest that grade-control was not very rigorously exercised; hence, the stoped areas depicted on the accompanying 100-scale drawings represent a major area of former ore with, probably, a selvedge of sub-marginal mineralized vein material. The probable grade of the vein material at the strike and dip-limits of the stopes depicted is estimated as follows:

Gold price @ $20.67/oz. (estim. applicable to 80% of gross production).
Mill-recovery @ 90%; direct mining cost @ $7.00/ton.
Required mill heads @ 90% recov. = $7.77/ton = 0.375 oz./ton.
Probable cut-off grade accepted = 0.30 oz./ton.

Per Dwgs. No. T.R.-1 and 2:

(1) Possible Ore on Direct Extensions, rep. by total of areas (A)-(N), inclusive — 240,000 tons @ 0.30 oz./ton Au.

(2) Possible Ore - Statistical Basis:
- (a) Estab. gross length — 15,000'
- (b) Mined + semi-developed length — 8,000'
- (c) Unexplored length — 7,000'
  Gross production — 1,070,000 tons @ 0.62 oz./ton
- (d) Gross ore potential of (c) = $\frac{7000}{8000}$ x 1,070,000 = 935,000 " " " " "
- (e) Gross ore potential of (c) above 600-horizon = 467,500 " " " " "

Cut per geological probability of 50% on tonnage & grade:

Total Possible Ore — 234,000 tons @ 0.31 oz./ton

TOTAL SHALLOW-ORE POTENTIAL, TOM REED VEIN-SYSTEM
= 474,000 tons @ 0.30 oz./ton

MINING ESTIMATES

Records of past mining operations at the Tom Reed mine indicate that the bulk of the production derived from steeply-dipping orebodies with widths generally exceeding 6 feet, and commonly ranging between 8-12 ft. Shrinkage and cut-and-fill methods, in about equal proportions, were employed in mining the ore. During the main period of production, the milling rate was 200-250 tons per day; during the final period, it was increased to 275-300 tons per day. The mine and mill generally operated 6 and 7 days per week, respectively, prior to (approx.) 1934. Excluding bonuses, the average wage rate for hourly-rated employees was about $5.50 per day.

Any future mining operation at the property would probably include mechanized underground mining - basically involving the use of drill jumbos, load-haul-dump units, hydraulic-filling of stopes and, initially, at least, shared, or custom-milling facilities, etc. With the resumption of mining operations being the longer-range objective of the currently-recommended program, the writer believes that the economic possibilities are most clearly presented by way of a tentative mining estimate, as follows:

Potential shallow ore reserves - 474,000 tons @ 0.30 oz./ton
Mine/mill production rate, 250 t.p.d., or 85,000 tons per year
Gross mine production @ 30% dil. = 616,000 tons @ 0.23 oz./ton
Gross operating period - 7-1/4 years
Gross value of ore, with gold @ $160/oz. - $36.80/ton

Net mill-head value, at 95% gold-recovery $34.96 per ton

Costs per ton:		
Provision - general development	$2.50	
Underground mining	8.00	
Milling, custom or shared-basis	4.50	
Water supply, initial + operating	.50	
General & Overhead	1.00	
Reserve @ 5% net mill-value	1.75	
Reserve for county taxes & assessments	.50	
Miscellaneous	.50	
Capital or Financing	1.50	$20.75 per ton

Indicated Cash-Flow $14.21 per ton

Possible Cash-Flow per year $1,207,000

Cut-off grade for broken ore 0.14 oz./ton

The above estimates are based on the assumption that mining and milling would be on a continuous basis, and that current mining and milling methods and plant would be employed. However, the results of the proposed exploration might indicate a different approach. Conceivably, the latter could involve intermittent (contract) mining, ore-stockpiling, and batch-treatment of the ore by heap-leaching methods. With this system, direct mining costs could be higher, but the investment in plant much smaller - possibly as much as $500,000.

Respectfully submitted,

W. M. Sharp

W. M. Sharp, P.Eng.

WMS.

CERTIFICATE

I, WILLIAM M. SHARP, with business and residential addresses in North Vancouver, B. C., DO HEREBY CERTIFY THAT:

1. I am a graduate of the University of British Columbia with an M.A.Sc. (1950) degree in Geological Engineering.

2. I am a registered Professional Engineer in the Province of British Columbia.

3. I have practised my profession for 24 years, including 10 years as a geological and mining consultant.

4. I personally examined the Tom Reed Mine property in Mohave County, Arizona and available reference data before preparing this report of date April 26, 1974.

5. The Tom Reed Mine properties comprise 43 surveyed and patented mining claims.

6. I have no direct or indirect interest in the properties of C. F. Millar Limited, nor do I expect to acquire any such interest.

W. M. Sharp

W. M. Sharp, P.Eng.

WMS

'NEGLECTED' GROUP

'RED CREEK' GROUP

Astro.

TOM REED MINES GROUP

TOM REED VEIN

JACK RABBIT

No. 6 SHAFT

OLLA OATMAN SHAFT

DRAIN

RED CLOUD

OATMAN

BEN HARRISON SHAFT

DWG. NO. T.R.-2

GREY EAGLE SHAFT

AZTEC SHAFT

BALD EAGLE SHAFT

DWG. NO. T.R.-1

BLACK EAGLE SHAFT

5 4 3 2 1

8 9 10 11 12

17 16 15 14 13

20 21 22 23

FIG 2-MAP

TOM REED, ETC. CLAIM GROUPS

OATMAN, MOHAVE COUNTY, ARIZONA

REF.-1916 MAP BY HAFF & COLWELL PER C.F. MILLAR

SCALE: 1 IN. = 2000 FT.

MARCH, 1974

W.M. SHARP, P. ENG.