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WESTERN UNION

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NT = Overnight Telegram

LC = Deferred Cable

NLT = Cable Night Letter

Ship Radiogram

R. B. WHITE, PRESIDENT — NEWCOMB CARLTON, CHAIRMAN OF THE BOARD — J. C. WILLEVER, FIRST VICE-PRESIDENT

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4410 0023

Copy of Night Letter: Mina, Nevada, 10:00 P. M., 10-3-43

Mrs. M. E. Dorr
U. S. Geological Survey
Washington, D. C.

Nevada Silver Dyke Tungsten Co. Thomle Pres. not Hegglands Tungsten Dyke requests permission to utilize Mineral County Power System surplus and obtain approximately 2 tons no. 4 copper wire for line to 100 ton mill recently equipped with motors, transformer, etc. Poles with insulators already standing. Reserves do not exceed 2000 tons 0.6 WO3 in mine. Tailings and waste dump leased to Herman Crowell estimated to contain respectively 3 or 4 thousand tons at 0.5% WO3 and 20000 tons at 0.1 to 0.2% WO3 from which possibly 3 or 4 thousand tons of 0.6 to 0.75% WO3 can be sorted. Can with delay convert to diesel and operate.

Klepper

Copy:
Nolan
Lemmon

(208)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Winnemucca, Nevada
October 5, 1943

Mr. T. B. Nolan
U. S. Geological Survey
c/o Ima Mines Corp.
Patterson, Idaho

Dear Mr. Nolan:

Subject: Silver Dyke and Tungsten Dyke Properties and Operation of Nevada-Silver Dyke Tungsten Company.

In following up the chore outlined in your wire of September 30 I found that Nevada Silver Dyke Tungsten Co. and not E. T. Heggland, owner of the adjacent Tungsten Dyke property , is attempting to obtain electric power from Mina. Consequently I devoted most of my time to Silver Dyke. The current Silver Dyke situation is summarized in the first few paragraphs; some details that might be of interest are expanded upon in the following.

The Nevada-Silver Dyke Tungsten Co. now owns the Silver Dyke mine and two mills and a camp at Sodaville, nine miles by road from the mine. A lessee is treating tailings in the smaller of the mills; the larger is being remodeled and refurnished. The company is equipping this mill to operate with electricity, hoping that a three mile power line will bebuilt from Mina.

Although the company has built large ore bins and remodeled a mill, it has apparently made no attempt to find ore. In fact there is a surprising lack of familiarity with the mine by those in charge. Work underground was started recently, and two men are now laying track and pipe.

I estimate that about 2000 tons of 0.5-0.6% WO_3 ore are partly developed and can be mined from the accessible underground workings. This ore is marginal to the two main shoots from which most of the past production has come. The only reserve of ore that can keep the rebuilt mill in operation for more than a few months is in tailings and waste dumps. Approximately 4000 tons of tailings are estimated, on the basis of a few assays and examination in ultra-violet light, to average near 0.5% WO_3. A larger volume of tailings, probably of lower grade, is scattered farther down the canyon. Of the waste dumps, possibly 20,000 tons may be amenable to sorting. From this, possibly 3 or 4 thousand tons of mill feed averaging between 0.5 and 0.75% WO_3 can be sorted.

To me it seems unlikely that a profitable 100-ton operation on tailings, waste dumps and mine ore will be attained under the present management. Under very efficient management, it might be possible to mill the tailings and sort and mill some of the dump rock profitably. At the same time judicious underground exploration might reveal a few thousand tons of ore. Treatment of the tailings on a small scale, as the lessee now does, is almost certain to be profitable.

Heggland's claim for ore is based on affadavits by former Silver Dyke miners. These affadavits are said to state that the Nevada Massachusetts Co. west drift penetrated Heggland's ground and there found high grade ore. This area is now

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

caved. O. F. Heizer and W. G. Emminger, however, inform me that the west drift was not pushed to the limit of Nevada Massachusetts (Silver Dyke) ground and that no ore that would be of interest at the present price was found beyond about 500' northwest of the Goodale shaft.

Supplement

Ownership.- Nevada-Silver Dyke Tungsten Co. is a stock company of which Magnus G. Thomle is president. Most of the stock is held by a few men. Jafet Lindeberg and Herman S. Crowell are in charge of different phases of the work at the property. Nevada-Silver Dyke, according to Thomle, has acquired title to the Silver Dyke mine from the Beane estate, although payment in full has not yet been made. The company also owns a small camp and two mills along U. S. highway 95 at Sodaville. The smaller mill, along with all tailings and dumps on the Silver Dyke property, is leased to Crowell. E. T. Heggland and George Thorswedt of Mina own the Tungsten Dyke property which includes the ground originally held by General Tungsten Co. and claims located by Heggland. This ground adjoins the Silver Dyke property on the northwest.

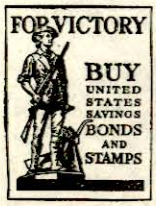
Current Operations.- Nevada Silver Dyke employs six men. Two are engaged in laying track and pipe at the mine. The others are installing equipment in the larger mill. This mill, now about halfway completed, will contain a jaw crusher, conveyors, classifier, ball mill, and five tables. This equipment, except for the tables which are reported to be in transit, is installed or now being installed. Electric motors and atransformer are also being installed.

Crowell has remodeled the smaller mill and operates it with diesel power. He employs two men and has, since early July, produced about two tons of concentrate from tailings. Currently he recovers about 160 pounds of concentrate from 10 tons of tailings daily. He hopes in the near future to operate three shifts daily and to mill 15 or 20 tons. No concentrte has yet been shipped, but I believe that grade is at least 50% WO_3.

Thorswedt and Heggland work for Nevada-Silver Dyke. When track and pipe have been laid, they will open the caved west drift and head for the supposed bonanza on their ground.

Requests.- Early in September Nevada-Silver Dyke filed application through the Mineral County Power Supply for three miles of line to be placed on poles now standing. The wire was taken from these poles last year and used at the Hawthorne Naval Base. This line would extend from the present terminus at Mina to the rebuilt mill. Mineral County Power Supply advises me that a triple line of no. 4 copper wire, about 3½ tons, would be needed for this project. I understand that a former and more ambitious request, a twelve mile line from mina to mill to mine, was denied.

Crowell would also like to have electric power at the smaller mill, about 600' distant from the larger one.



Heggland and Thorswedt state that all they wish is an opportunity to clear the caved drift and get to work on the supposed bonanza. The surface showings are unimpressive and accessible only by a two mile trail. The level of the caved west drift is 600' to 800' below the outcrop near the west end of the Silver Dyke property. Approximately the same backs would be had beneath Heggland's ground

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Ore Reserve.- After examining all accessible workings in the Silver Dyke mine I am convinced that former operators did not leave much developed ore behind. I believe that about 2000 tons of 0.5 or 0.6% WO_3 ore can be mined from the margins of the two main ore shoots. Most of this ore is near the bottom of the east shoot and could be mined from the lateral workings off the Wagner winze. A small drift stope might also be mined above the east drift southeast of the winze. Another small shoot might be stoped above the west drift near the Noble crosscut. In the rest of the accessible workings the vein is either stoped, barren or very low grade. No ore is exposed in accessible workings in the Noble vein.

It does not seem like that the west ore shoot continues below the west drift. Unfortunately, the winze in this area is inaccessible. There is a possibility, however, that some additional ore might be found around the margins, particularly near the bottom, of the east ore shoot. Careful geologic mapping might yield clues that would be valuable in guiding an exploratory campaign.

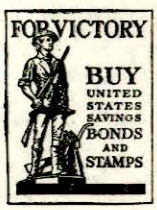
The most tangible reserve is in the tailings and in waste dumps. Very probably 2000 units of WO_3 can profitably be taken from the tailings. Sorting of the waste dumps is not as likely to be successful, although it is possible that a few thousand units might be recovered from them.

Predicted Future.- A production of 100 to 125 units of WO_3 per month is anticipated as long as Crowell runs tailings through the small mill. Ultimately the tailings may yield 1500 units or more. If and when the larger mill is completed, it may be necessary to run tailings through it to keep it in operation. I expect that after the tailings are exhausted, production will be rather small and erratic.

Sincerely yours,

Nolan
Dorr (2)
Lemmon
File

M. R. Klepper



August 10, 1943

TUNGSTEN PROSPECTS NEAR MARIETTA, MINERAL COUNTY, NEVADA

by
Paul C. Bateman

I revisited the tungsten prospects near Marietta, Nevada, August 2 and 3, 1943. C. W. Fletcher is now in the district with several men doing additional prospecting and development work. The Bishop Tungsten Company, which had an option on the Defender and Dough God prospects, dropped its option last December after making mill tests on the Dough God ore and after sampling the Defender claim.

Defender Prospect

The Bishop Tungsten Company's sampling of the Defender prospect indicated the ore averages less than 0.2% WO_3. All of the samples were, however, taken from the north or granite side of the tactite. The average grade of the tactite as a whole may be somewhat greater. Because of the very erratic mineralization a commercial product is possible by sorting. Fletcher plans to sort a carload of the ore and ship it to the Metals Reserve Company at Salt Lake City.

Fletcher has discovered a new tactite body on the Defender claim between the Defender and Dough God prospects. The tactite is poorly exposed and has not yet been prospected. Fletcher intends to strip or trench the area and to sample it. The tactite occurs along an irregular contact between marble and calc-hornfels and granite. The limestone beds intersect the contact at an angle, and there is some suggestion that only the favorable beds have been altered to tactite. There are scattered exposures of tactite for several hundred feet, but I was not able to draw any conclusions regarding continuity.

Bishop, California
August 6, 1943

Mr. T. B. Nolan
U. S. Geological Survey
Washington, D. C.

Silver Dyke and Tungsten Dyke Mines

Dear Tom:

During June I briefly examined the Silver Dyke and the Tungsten Dyke mines, both located on the Silver Dyke vein in the Excelsior Mountains near Mina, Nevada. I visited the Silver Dyke Mine on June 10, accompanied by Konnie Krauskopf, and the Tungsten Dyke mine which adjoins the Silver Dyke property on the northwest on June 12 with E. T. Heggland, the owner. Recently, I went thru two mills in Sodaville. One is now operating on tailings from the Silver dyke mine. The other is an old gold mill that the company now controlling the Silver Dyke mine intends using to mill newly mined ore.

The "Silver Dyke" is a thick and continuous quartz vein that extends for several miles through the northeastern part of the Excelsior Mountains. The vein strikes northwesterly and dips to the northeast at a high angle. Along most of its length on the Silver Dyke property it lies between diorite on the south and Triassic volcanic rocks of the Excelsior formation on the north. For a short distance near the northwestern end of the Silver Dyke property diorite forms both walls; on the Heggland property both walls are volcanics.

The vein varies considerably in thickness, due partly to shearing in the plane of the vein. Near the northwest end of the Silver Dyke property the vein is at least 50 feet thick. In many places two parallel veins, separated by brecciated country rock ribboned with quartz veinlets, lie 10 to 25 feet apart. Cross faults offset the vein short distances. Comb structure is prominent throughout the vein and brecciation is common.

Scheelite occurs in tabular shoots on the walls of the vein. The larger shoots lie on the south or footwall side, but smaller pods occur on the hanging wall. Away from the shoots the quartz contains little or no scheelite.

Silver Dyke Mine

Since the Nevada-Massachusetts Company stopped operations the Silver Dyke mine has reverted to Mrs. Beane, widow of Beane of the former operating company of Beane, Becke and Noonan. It is now leased to the Nevada- Silver Dyke Company of which Magnus G. Thomle is president. Persons interested in this company include George E. Berry, East Lynn, Mass.; Stanley R. Jordan, Huntington, L. I.; James J. Lynch, Brooklyn, N. Y.; Ben S. Allen, Palo

The scheelite occurs in the tactite in narrow high-grade streaks; away from these streaks the tactite contains little or no scheelite. The overall grade is probably low, but commercial shoots may exist.

Dough God Prospect

The mill tests of Dough God ore made by the Bishop Tungsten Company showed that the scheelite is too fine-grained to make either a good recovery or a satisfactory concentrate of WO_3 in their mill. The tests indicate the ore contains about 1.0% WO_3. No work has been done since December.

Alto, California.; A. N. Torkelson, Los Angeles; W. P. Stymus, New York; and Jafet Lindeberg, San Francisco. Lindeberg is in charge of their operations which at present are the rehabilitation of certain portions of the mine. Three men are employed.

The company has acquired an old mill at Sodaville which it proposes converting to a tungsten mill. This mill has not been used for several years and it is doubtful if much of the equipment, except the building and the bins, can be used.

Another mill, also at Sodaville, is actively operating on tailings from the Silver Dyke mine. The mill is operated by H. S. Crowell who has a sub-lease from the Nevada-Silver Dyke Tungsten Company on the old tailings and dumps. The mill includes a small jaw-crusher, a roller mill, and two tables. Crowell has no help. He hauls about 10 tons of tailings daily to the mill and from that recovers an estimated 3 to 4 units of WO_3. He intends shipping his concentrates to Salt Lake after cleaning them up with a magnetic separator. No concentrate has yet been shipped so the grade of the concentrates and consequently the exact number of units produced is not known. Crowell thinks he has about 1000 units of WO_3 now on hand that were milled since the first of July.

The portion of the vein on the Silver Dyke property was originally prospected and developed through several shafts and adits dug on the vein. When the Nevada-Massachusetts Company acquired the property they drove a long crosscut from near the bottom of Silver Dyke Canyon that intersects the vein several hundred feet below its outcrop. Drifts extend both northwest and southeast from the crosscut and connect by means of raises with the upper workings. Maps of most of these workings are included in Paul Kerr's publication on the mine. (Kerr, P.F., The Tungsten Mineralization at Silver Dyke, Nevada. Bull. Nev. St. Bur. of Mines. No. 5 June 1936) Since this paper was published the drift was extended farther to the northwest and two winzes were sunk below the main level. This extended part of the main drift is caved and not accessible.

There appear to be two main shoots in the mine, one developed in the workings east of the crosscut and one by the workings west of the crosscut. Kerr separated the east shoot into the Wagner and Beane shoots, but commented that they joined. He also divided the west ore shoot into the 600 West and the Goodale shoots, separated by the Goodale fault. Both shoots are on the footwall side of the vein and appear to rake vertically. It is my impression that no ore remains above the main level.

The two winzes prospect the downward extensions of the shoots. The winze on the east ore shoot has been sunk 100 feet below the main level where about 500 feet of drift explores the vein. Several underhanded stopes have been extended downward from the main level and there are a few small stopes and raises above the 100-foot level, but I believe only about half of the expected ore block between the levels has been removed. Under ultra-violet light very little ore can be seen on either level. The stoping above the main level has been very clean and little ore remains on the stope walls. On the 100-foot level I saw only small patches of scheelite which are not commercial. Apparently the east shoot does not continue much below the main level.

I did not get into the winze that explores the west shoot. It is rumored to extend about 200 feet below the main level.

I did not get into the winze that explores the west shoot. It is rumored to extend about 400 feet below the main level.

Tungsten Dyke Property

The Tungsten Dyke group of 15 unpatented claims is held by E. T. Heggland of Mina. Certain of the claims were formerly held by the General Tungsten Company which made a small production. The property is accessible from Mina by about 12 miles of dirt road and 2 miles of trail. The road does not pass thru or near the Silver Dyke claims.

Workings consist of open cuts, a 200-foot adit, several small adits and shafts, and a long drift that was dug for silver many years ago. Heggland reports that the General Tungsten Company produced 350 tons of ore that contained 3.5% WO_3. Heggland produced 22 tons of 1.5% ore that were milled by the Nevada-Massachusetts Company.

I examined the open cut from which the 350 tons are reported to have been dug, but saw only a few remaining crystals of scheelite. The cut is partially caved and not well exposed. The 22 tons were produced from the 200-foot adit which Heggland dug on a subsidiary vein south of the main structure. A good grade of ore in a band 3 to 6 inches wide is exposed in the roof of the adit for about 100 feet from the portal, where the vein is cut off by a cross fault. I saw no scheelite elsewhere in the adit. The other prospect diggings contain only scattered grains of scheelite.

Heggland's principal claim for ore rests in his claim to have affidavits by miners who worked in the caved portion of the main northwest drift in the Silver Dyke mine. I did not see the affidavits but they are said to state that the drift extended beyond the limit of the Silver Dyke property and into Heggland's property. High-grade ore is said to have been encountered there. Heggland contends the drift has not caved but was blasted when Nevada-Massachusetts abandoned the mine.

Heggland has applied for a road to replace the 2 miles of trail to his property. Such a road does not appear to me to be warranted by the showings.

Conclusions

We have some hope of getting the Nevada-Massachusetts Company's maps and records of the Silver Dyke mine. Several piles of drill cores indicate they did considerable diamond drilling before abandoning the property. After this information is made available it may be desireable to do additional geologic work.

Sincerely,

Paul C. Bateman

SILVER DYKE AND TUNGSTEN DYKE MINES

Mineral County, Nevada

Paul C. Bateman
August 6,1943

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SILVER DYKE, NEVADA

Vanderburg May 1937

"Value of scheelite conc close to $1,000,000

"In 1936, 55 tons of ore daily; 63-6% concs.

Min. cost $4.50, mill $2 Ton Power $1200/mo

"Ore mined averages about 1.0% scheelite

M.R.

1917 few tons concs-

1930 Operated short time

1931 Prod some scheelite

1935 "Shipments exp. in 1936"

193

1939 2dh.

1936
37
38
} 250 tons?

Edward Wagner
Winne Brane

Atkins, Kroll & Co.	1916	16,149	1,081,966	(includes other Nevada properties)
Silver Dyke Min Co. (also Atkins, Kroll & Co.?)	1917	641	$12,816	
Tungsten Dyke mine	1918	3,438	82,645	

General Tungsten	1926	782 u.	$7,820
Alex Ramon	1926	1,633 u	17,061
	1928	1,342	14,091
Nev. Mass	1930-31	6,732	67,320
	1936	15,000 (?)	
	1937	10,000	
	1938	6,000 ±	

55,000 u I

5,000

The Marietta District, Nevada: A Belt of Diverse Exploration Targets

by
George C. Copenhaver, Jr.
Geological Consultant
Western Gold & Uranium, Inc.
1933 Mt. Zion Drive
Golden, Colorado 80401

For more information see tungsten JCB

ABSTRACT

The Marietta district lies within the Virginia City-Tonopah mineral belt. Exposed and hidden deposits are controlled by linear belt-like fracture trends along two major systems striking N.80°W. and N.50°E., respectively.

Copper, tungsten, molybdenum, silver, gold, and uranium mineralization frequently occurs within, or adjacent to, the major fracture trends or their subcrops with contacts between Cretaceous Sierran granitoids and Mesozoic sediments. The Defender Mine is an example of a contact, or reaction skarn, deposit containing tungsten and molybdenum. In contrast, the Smith Mine exhibits stratiform copper-silver mineralization in metasediments at some distance from any Sierran intrusive source.

An example of a major target within the N.80°W. fracture trend in quartz monzonite country rocks is the Yellow Peak quartz-pyrite-sericite alteration and geochemical anomaly. Potential mineralization is characterized by petrologic and geochemical features; these are quartz stockwork-breccia sheets and pipes with high traces of copper, silver and tin. Weak, but notable traces of fluorine, molybdenum, tungsten and gold are also present. Further whole-rock composition and petrologic studies may confirm color and differentiation indices pointing to tin-silver or other mineralization at depth.

A favorable setting for ore deposits is indicated by eroded domes or windows through a series of thrust nappes and folds in the Paleozoic and/or Mesozoic sections.

About the Author

Mr. Copenhaver graduated with his B.S. and M.S. degrees in geology from California State University San Diego. Academic work and specialities were directed toward economic geology and geochemical exploration.

His professional background includes 5 years in engineering geological consulting in California and Baja California. This was followed by 10 years in mineral exploration for CONOCO, Inc. in the western U.S.; this work generated over 100,000 acres of acquired prospects for the company.

During the last year, after leaving CONOCO fully vested, his activities have centered on precious metals exploration in the Front Range and the Great Basin.

Mr. Copenhaver is a registered geologist and engineering geologist in California, Oregon and Georgia and resides with his wife and three children in Littleton, Colorado.

INTRODUCTION

The purpose of this paper is to review the mineral occurrences and geology in the vicinity of the Marietta mining district, Mineral County, Nevada. Descriptions of a variety of precious-strategic metal occurrences and prospects will be confined to the boundaries of properties held by Western Gold and Uranium Corporation. WGU is a Colorado Corporation engaged in mineral exploration and development in the western United States.

HISTORY

The Marietta district (Silver Star, Black Mountain, Excelsior) was associated with the early mining activity of Aurora and Candelaria in the period 1860-1863 (Ross, 1961). Early mining district maps of the region first described the area as the Excelsior District (Ransom, 1865) which was then known as a silver and gold producer. Production was small, probably amounting to less than $2,000,000. Documentation of the early mining would have been listed under Esmeralda County and a different political subdivision than that of the present Mineral County. Mining even into the 20th Century has been sporadic and confined to hand-worked high grade veins and shoots, mostly in search of argentiferous galena. The latest industry activity consists of exploration for uranium during the mid-1970s along the western margins of Teels Marsh, and exploration for precious metals in veins cutting Jurassic sediments along the northeast margins of WGU properties in 1980-1981.

GEOLOGY

Mineral and Structural Belts

The Marietta area is located in south-central Nevada within the Basin and Range Province. More specifically, it lies within a northwest-to-southeast trending regional cluster of precious and base metal mining districts and pros-

pects known as the Virginia City-Tonopah mineral belt (Roberts, 1966). Figure 1 shows the location in relation to other Nevada mineral belts. The recent mining developments at Borealis (Houston International) and Candelaria (Occidental Minerals) also bracket Marietta along a similar NW-SE trend (Figure 1).

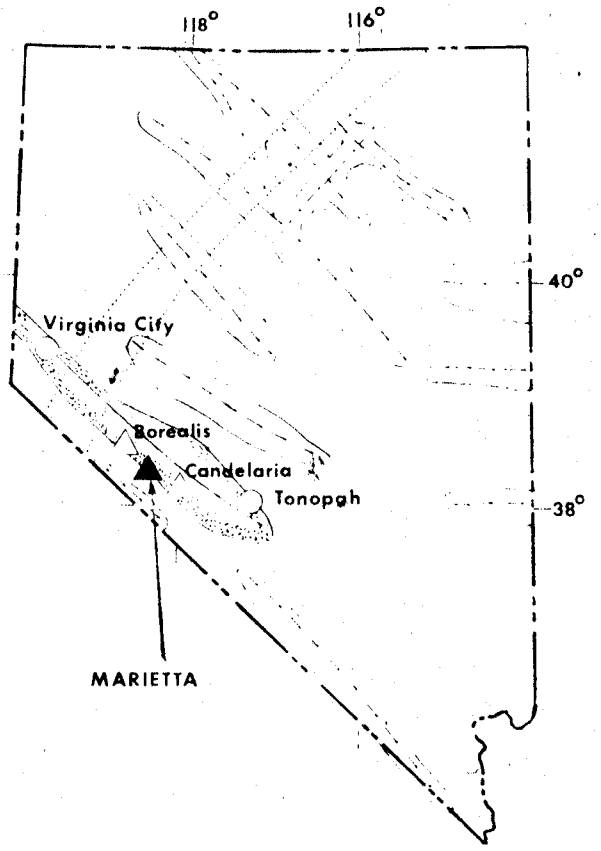

FIGURE 1. Location map and major mineral belts of Nevada (After Roberts, 1966).

Physiographically, the Virginia City-Tonopah belt overlaps the Walker Lane, a series of anomalously trending mountain ranges extending from northern California to Death Valley. This zone of structural deviation from the usual NNE basin and range alignment has been attributed to sigmoidal bending and right-lateral faulting in the western Great Basin (Albers, 1967).

Recent geologic mapping by Western Gold, and by university theses projects in the Marietta area has better defined structural and lithologic trends which control a variety of precious and strategic metal exploration targets (Figure 2). Gold, silver, copper, tungsten, molybdenum and uranium occurrences were found to be clustered or oriented along two major structural corridors: (1) a set of steeply dipping faults and fractures striking N.45°W., N. 80°W., and E.-W., most easily observable in an erosional window of Cretaceous quartz monzonites in the central portion of the area, and (2) a set of steeply dipping faults striking N.35°E. to N.55°E. Metallic occurrences generally clustered along a N.80°W. corridor (here called the Marietta Corridor) and a N.50°E. corridor (called Bass Mountain Corridor). Overall occurrences and trends are summarized in Figure 3. Mineralization and alteration (usually quartz-pyrite-sericite) appear to be controlled by the major structural "feeder" systems, brecciated wallrocks, intrusive contacts (and subcropping contacts), and favorable sedimentary and volcanic host rocks. This may apply particularly to a zone of intersection between the two corridors which corresponds to contact-mineralization and stratiform skarns immediately NW of the village of Marietta (Figures 2 and 3). The potential for contact or infiltration skarn targets in this locale may be enhanced by the presence of imbricated thrust nappes through the Paleozoic-Mesozoic section (Bowen, 1981).

Examples of Mineralization

Defender Mine. The Defender mine lies west of Teels Marsh on Bass Mountain and represents a reaction skarn or garnetite in Jurassic(?) calcareous sediments near an intrusive contact of Cretaceous quartz monzonite (Figure 2). A small open pit mine exposes approximately 30 feet of stratiform garnetite containing tungsten, molybdenum, and a little copper mineralization. The mineralized body of sediments dips about 30° into a faulted intrusive contact which contains quartz veins. The veins also carry notable amounts of gold, silver, and molybdenum. One sample ran 0.09 oz/t gold, 3.9 oz/t silver and 0.15% molybdenum. The fault system carrying the veins and doubtless feeding the skarn strikes N.40°E. and lies within the previously described Bass Mountain Corridor (Figure 3).

Smith Mine. The Smith mine is located in Jurassic(?) calcareous sediments about three miles southwest of the Defender mine (Figure 2). A 5 to 10 foot thick stratiform zone containing disseminated copper and silver mineralization is exposed in a cut and by several old adits along the strike of mineralized beds. The mineralization appears to be localized along an argillized and silicified tuff member intercalated with a thick (500'+) calcareous sedimentary section. The silicification, including some skarnification, appears to be a stratiform replacement and infiltration feature extending along the strike of bedding for over a mile. Values in several samples taken from this zone ran over 1% copper and several ounces per ton silver. The trend of mineralization is about N.30°E. and may be related to a low-angle reverse fault which also parallels bedding near this locality. Another source of mineralization could be a lobate tongue of Cretaceous quartz monzonite which invades the Jurassic(?) section about one-half mile northeastward (Figure 2). Again, this occurrence lies within the previously described Bass Mountain Corridor (Figure 3). A number of other prospects also occur on faults or faulted contacts which subparallel or cluster along this corridor, generally carrying veins, stockworks, or skarns with anomalous gold and silver. An average of perhaps a dozen vein

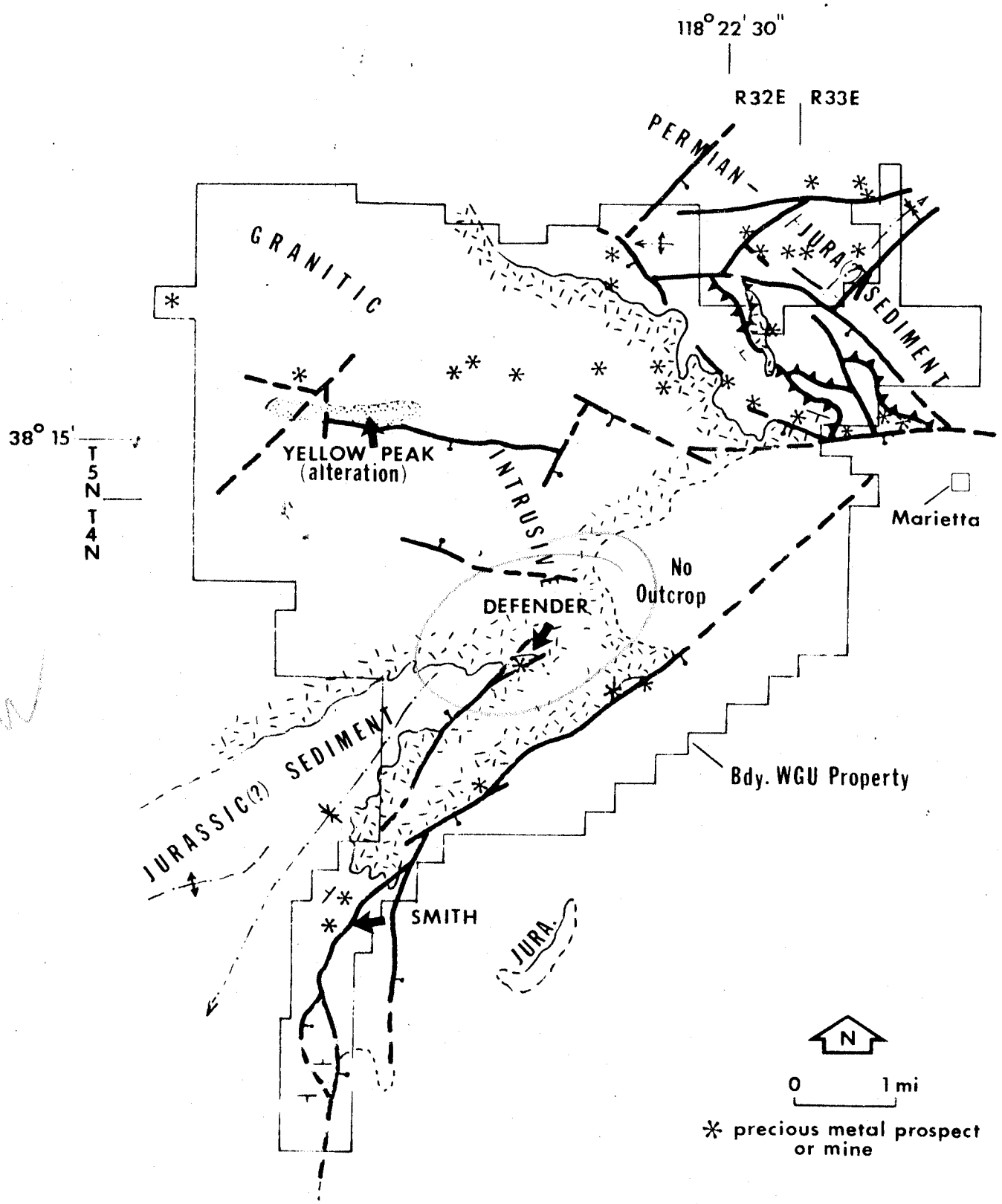

FIGURE 2. Geologic Map of the Marietta Area showing Mineral Occurrences (Northeast portion of map adapted from Bowen, 1981)

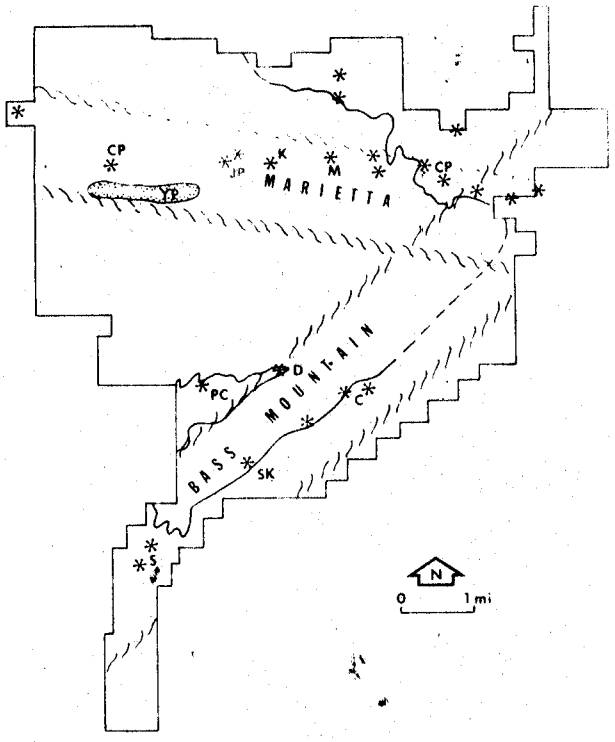

FIGURE 3. Major Mineralized Structural Corridors of the Marietta Area

samples taken sporadically along the Bass Mountain Corridor ran in excess of 0.1 oz/t gold and 4 oz/t silver.

Yellow Peak. The Yellow Peak quartz-pyrite-sericite alteration and geochemical anomaly is located along the N.80°W. trending Marietta Corridor (Figures 2, 3). It represents perhaps the largest single alteration feature cropping out on WGU acreage, measuring 500 to 1000 feet wide and over one mile in length (Figure 4). Brecciation, quartz veining, silica flooding, sericitization, and argillization of a coarse-grained quartz monzonite are prominent features of the outcrop. The siliceous character of the outcrop has caused Yellow Peak to be topographically positive, with a relief of over 600 feet on its eastern flank. Although highly leached on its surface, enough secondary iron minerals (from pyrite and other sulfides) remain to produce a yellow or orange color-anomaly which contrasts with surrounding unaltered country rocks.

Petrographic study of the breccia comprising the center of Yellow Peak shows it to be composed mostly of quartz and alkali feldspar (Borbas, 1977). Embayments of K-feldspar in albite, which are both in turn embayed by quartz, suggests late stage replacement reactions. Sericite replaces both K-feldspar and albite. The coarse-grained quartz monzonite and other wallrocks from which the breccia was derived often display plagioclase with patchy zoning and sodic rims, indicating a period of "second boiling" of the original melt (Vance, 1962). Myrmekite is also well developed in several samples, suggesting a rapid loss of volatiles (Borbas, 1977).

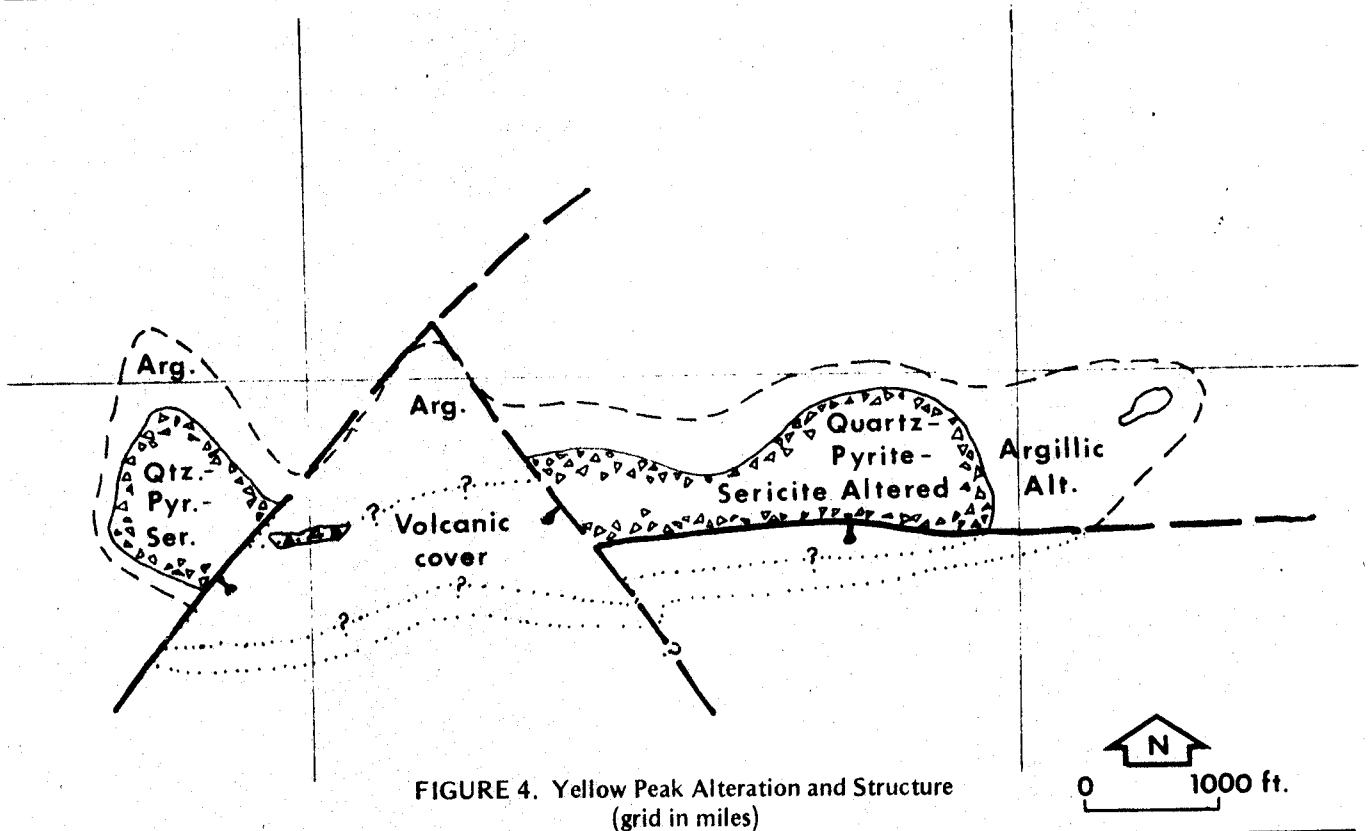

FIGURE 4. Yellow Peak Alteration and Structure (grid in miles)

Table 1 shows whole-rock and trace element distribution for the fresh and altered rocks of Yellow Peak. Early reconnaissance in the area indicated anomalous values of silver, gold, molybdenum and other metals proximal to the altered zones. This prompted WGU to conduct a more systematic sample survey, which was completed in 1981. The results were plotted, and when contoured showed anomalous values of copper, silver, and tin (Figures 5-7). Weaker traces of gold, tungsten, molybdenum, fluorine, and other elements were also noted.

TABLE 1. Major and Trace Element Analyses and Mineral Modes for Coarse-grained Quartz Monzonite from Yellow Peak Area, Marietta Project, Mineral County, Nevada

Sample No.	10	29	2
Alt.	Fresh	Argillic	Qtz-Pyr-Seric.
Major Elements (%)			
SiO_2	72.30	80.00	79.90
Al_2O_3	14.20	10.40	8.90
Fe_2O_3	1.10	0.50	2.30
FeO	0.96	0.15	0.11
MgO	0.93	0.16	0.12
CaO	2.20	0.12	0.06
Na_2O	3.80	2.40	2.00
K_2O	4.20	4.40	4.80
P_2O_5	0.04	0.02	0.07
F	0.03	0.05	0.08
Trace elements (ppm)			
Sn	2	2	37
Au	.02	.02	.06
Ag	.02	.2	.8
Mo	2	1	26
Mineral modes (% vol.)			
Quartz	28	46	50
K-spar	25	29	30
Plagioclase	41	20	17
(Avg. AN Cont.)	22	2	0
Biotite	2	1	1
Chlorite	1	1	1
Sericite	1	2	1
Hornblende	2	1	1
Apatite	1	1	1
Amorph. clys.	1	1	1
Jarosite	1	1	1
Opaques	2	1	2

The most interesting geochemical anomaly obtained on Yellow Peak was that of tin, its values ranging from less than 1 ppm in unaltered country rocks to as high as 95 ppm in the quartz breccia and argillic zones. The average tin content of 77 samples taken at Yellow Peak was 13 ppm. This is very close to levels indicating granitoids containing tin mineralization (Beus and Sitnin, 1972; Flinter, Hesp and Rigby, 1972). Although high geochemical values were found in the Yellow Peak alteration feature, which was fortuitously exposed by erosion, there is some evidence that this approach may not be so successful in less dissected country rock. For example, investigations in Australian granitoids indicated that such alteration features with associated tin mineralization occurred in rocks with normal or even quite low values (Flinter, Hesp and Rigby, 1972). They found that purely geochemical or mineralogical techniques were inadequate. The Australian studies, however, did find that the ferromagnesian content (color index) and supplemental data on silica content (differentiation index) can successfully indicate the presence of favorable host units of a granitoid complex. If the Yellow Peak anomaly does indeed host tin-silver, or other mineralization, at depth, then it is recommended that further studies based on color and differentiation indices be employed in this area.

CONCLUSION

The Marietta area and the southern Excelsior Mountains exhibit a diversity of mineral occurrences and associated exploration targets. Alignment of occurrences, structural trends, and configuration of adjacent intruded sedimentary rocks suggest the presence of eroded domes or windows through a succession of thrust nappes and folds in the Paleozoic-Mesozoic sections. Such features along deep fracture zones of the Virginia City-Tonopah belt could provide a favorable setting for ore deposits.

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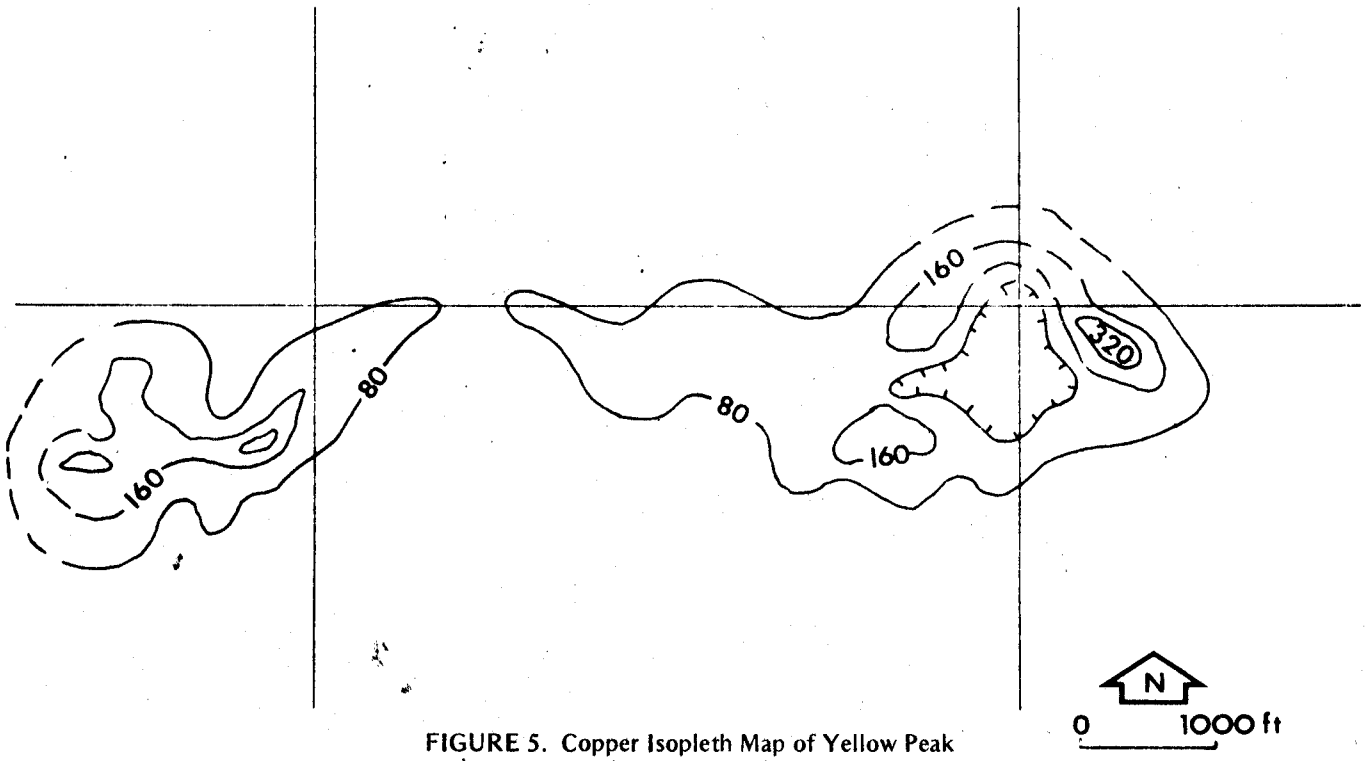

FIGURE 5. Copper Isopleth Map of Yellow Peak
(values in ppm)

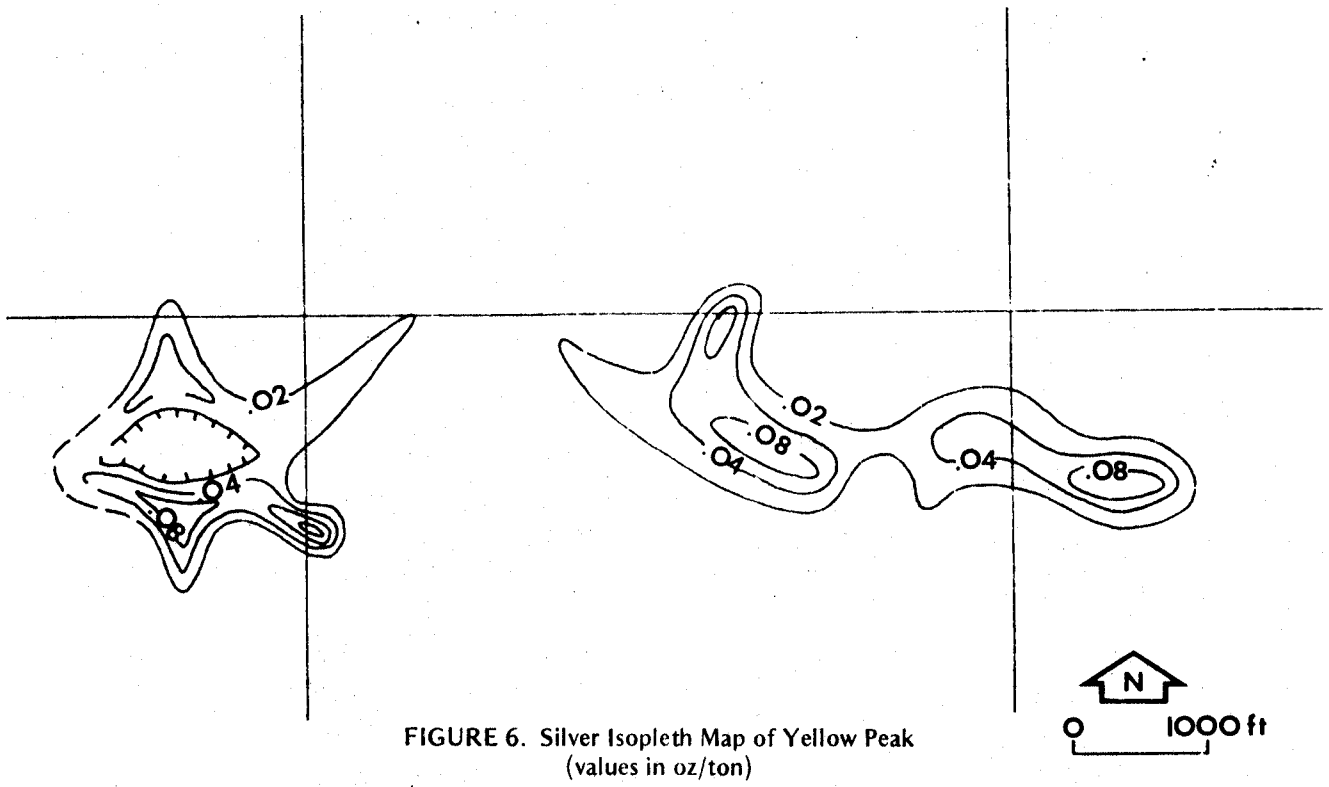

FIGURE 6. Silver Isopleth Map of Yellow Peak
(values in oz/ton)

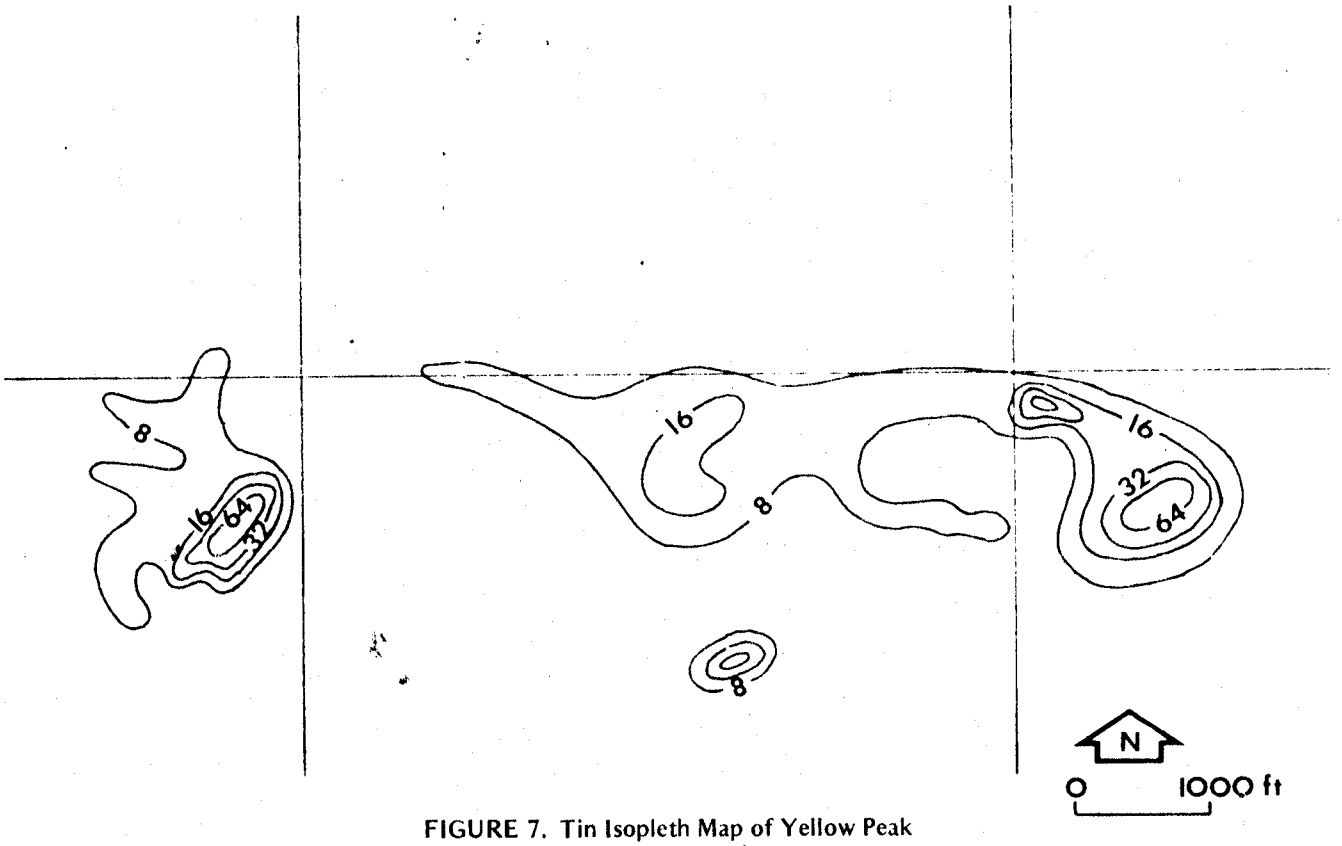

FIGURE 7. Tin Isopleth Map of Yellow Peak
(values in ppm)