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EXAMINATION

of

THE SADDLE TUNGSTEN PROSPECT

HUMBOLDT COUNTY, NEVADA

by

KARL H. KUNDERT

AUGUST, 1971

RENO, NEVADA

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INTRODUCTION

At the request of Mr. Jay Noviack, of Alturas, Cal., a brief examination of the Saddle or Saddle Mt. tungsten property, in Humboldt Co., Nevada, was made for the possibility of tungsten production.
Field work was done on the 18th and 19th of July, 1971, with field location at the Noviack cabin to the southwest of the property, in the company of Mr. Noviack. Return was made to Alturas on the 20th of July.
Work consisted of examination, some magnetic stations occupied with a Sharpe A-3 magnetometer, and soil and rock samples were taken.

LOCATION-DESCRIPTION

The property was originally staked by Mr. Noviack and an associate, after they had traced float samples of scheelite rock to their source. The general area has sporadically produced small amounts of placer and lode gold, silver, copper, and tungsten from the districts known as Varyville, Warm Springs, and Leonard Creek. The main producer has been the Ashdown gold mine, located about 16 miles northerly.

The property is located on the east flank of the Pine Forest Range of northern Humboldt Co., Nevada, approximately 28 miles southerly from Denio, Nevada, and 10 miles westerly from Quinn River Crossing.

The land subdivisions in this sector of the county are quite indefinite, with Range 29 East, for instance, only 1.5 to 1.8 miles wide, and on the east range line of this township, the township numbers take a three-mile south offset. Many of the townships are not subdivided into sections.

Two mining maps give the property a location as two and three miles, respectively, to the west of the Woodward Ranch; the Geologic map accompanying N.B.M. Bulletin 59 (Willden, 1964) would suggest it to be in section 16-Twp. 43 N.-Rge. 30 E.(unsurveyed), on the basis of rock types. The 1/62,500 quad sheet, Duffer Peak, would put it in section 17 of that township.

Access to the property from Denio is by traveling 33 miles southeast on Nev. Hy. # 140 toward Winnemucca, then turning southerly and westerly on the Leonard Creek Ranch road for 22 miles to the ranch, and then nine miles northeasterly to the property-area, on trails and dozer roads.

Access may also be gained from the northwest, off Hys. 8-A and 140, from Cedarville, Cal., by turning southerly west of Continental Lake, and traveling down the west side of the Pine Forest Range, past the Ashdown mine, the Cove Camp mine, and the Varyville mines.

CLIMATE-TOPOGRAPHY-NATURAL RESOURCES

The claim-area, in common with most of the county, is characterized by relatively hot summers and cold winters. The normal annual precipitation is in the range of 5 to 10 inches, with most of it coming in the winter months. Often, in this part of the county and neighboring Washoe Co., only one inch of rain may fall in the summer months, in the valley elevations. This past winter and spring have been exceptionally wet; in many places, the trails are almost obscured by the profuse growth of grass, shrubs, and sagebrush.

Diurnal temperature variations are often extreme, in common with the higher portions of Nevada. Daily temperatures may range from near freezing at night to 90 in the daytime, in the summer months. Maximum variation extremes have exceeded 120 degrees, from Weather Station records. The growing season is usually only about three months, from June until early September.

Topographic relief in this part of the county is great. The Pine Forest Range has been well-described in various reports.

Suffice it to say here it is a range with a rather gentle west side, but with sharp relief in the extreme east margin, possibly fault controlled, by a Basin and Range down-to-the valley displacement. In the three and one half miles westward from the Woodward Ranch to Bishop Peak, the elevation rises about 3300 feet; Duffer Peak, 6 miles northwest of Bishop Peak attains the maximum elevation on the range, at nearly 9500 feet.

The Pine Forest Range is exceptionally well-watered. South-flowing Leonard Creek and north-flowing Alder Creek are the two main perennial streams; other creeks may flow intermittently after winter snow-melts or summer thunderstorms. There are some small glacier lakes in the higher elevations, near Duffer Peak.

Ground-cover in the lower elevations is restricted to grass, low shrubs, willows, and sagebrush. In the higher elevations, aspen is common and pine sparse.

To the west and northwest of the prospect, there are numerous springs and small meadows, similar to the one near the Noviack cabin. Most of the streams are high this year, with an exceptionally wet winter and spring.

Water for any type of milling should not be difficult to obtain, in case ore should be concentrated on the premises.

Surface elevation in the prospect-area is probably in the range of 6300-7000 feet above sea-level.

GEOLOGIC CONDITIONS- TYPE OF DEPOSIT

The area examined in detail measures about 1000 feet east-west by 800 feet north-south, based on a U.S.B.M. D.M.E.A. sketch-map made in about 1954. (Information from Mr. Noviack).

The tungsten present here has been developed in a contact-metamorphic mass of scheelite-bearing tactite formed from the intrusion of sediments, mostly limestone, by stock-like masses of granodiorite and granite, and possibly dikes and sills of the same material, with scattered diorite and diorite porphyry. Aplite dikes

up to 150 feet in length in the map-area, are also common.

Most of the intrusive rock observed was true granodiorite, with up to 60 % plagioclase and 20 % quartz, and up to 10 % mafic minerals, with biotite and hornblende common, and less-frequent pyroxene and augite, by microscopic examination.

There is a great variation in both texture and composition of the intrusive rock, in some places approaching a true granite, and in others coarsening to a near-pegmatite structure.

This rock is described by Willden as being Cretaceous or Tertiary in age, and possibly Paleocene.

The sediments intruded, of probable Triassic and Jurassic age, are composed mostly of limestone, with minor shale and mudstone. This unit is described by Willden as being possibly 1,700 feet thick, and in other parts of the county is observed being overlaid by an Upper Member, of the same age (?) consisting of phyllite, quartzite, and slate, with little or no limestones.

As progress is made southerly in the Pine Forest Range, the sedimentary units overlie the Permian Happy Creek formation, and are in turn overlaid by what Willden calls "Tertiary Undivided" observed near the Leonard Creek Ranch; this unit is composed of both sediments and volcanics, with Sentinel Peak at 6,900 feet, its maximum elevation point, about four miles easterly from the Leonard Creek Ranch.

The main contact between the intrusives and sediments trends about N. 60 E. in the southwest prospect-area, and then turns more northerly in the northeastern part. In the northwest part of section 16 (?) it intersects an east-west fault contact that seems to tie in with a spring-line farther east, which is the headwaters of Buckaroo Creek, flowing eastward to the valley which runs northerly to Denio.

Along the main contact, the resultant rocks are a non-descript "Murphy's Stew" which is hard to define. In this zone are found hornfels, gneiss, schist, mudstone, granodiorite which has lost its original structure, and minor marbleized limestone. In places, this transition zone is as much as 100 feet wide, but is not all tactite.

At the north end of the prospect, near the "Discovery Corner", this contact is very sharp, and can be delineated within a few feet; in other locations, it is more indefinite.

As is common with tactite bodies of this type, in many places along the contact, scheelite does not appear. A sample taken from the zone and examined under a 200 X microscope showed the typical tactite zone minerals of mica, garnets, quartz, calcite, epidote, scheelite, pyrite, and minor chalcopyrite and magnetite, and possibly titanite.

From the observations of Mr. Noviack regarding the use of the Apex kit and panning of the ground material, it is evident that copper is present and also magnetite, in many cases.

Work at night with a "black-light" by Mr. Noviack and the writer disclosed many areas of disseminated scheelite and accompanying calcite, along the contact zone. In places where aplite

intrudes both the sediments and granodiorite, it also carries scheelite.

As in other deposits in the Western U.S., the form and size of the contact-metamorphic bodies depend on the size and form of the intrusives and sediments; the fractures and/or jointing in both types of rock; the quantity and character of the mineralizing solutions at the time of metamorphism; the susceptibility of certain beds to metamorphism and mineralization; and the structure of the sedimentary rocks.

According to Willden's Geologic map, this is the only locale in the Pine Forest Range exposed where the intrusives contact the Lower member of the Jurassic-Triassic sediment suite. This may indicate that this unit is a more favorable loci for mineralization than is the Upper Member of the same age, possibly due to the abundance of limestone.

Also, Willden mentions the possibility of an anticlinal structure existing in this part of the Range.

This would pertain to the favorable " structure of the sediments" as cited in the paragraph above. It has been well-established in other mining districts that structural flexure in sediments, either anticlinal or synclinal, often favors mineralizing solution-flow, due to the tensional and compressional avenues of permeability thus developed.

DEVELOPMENT WORKINGS- PREVIOUS EXPLORATION

The only area that has produced any sizable amount of tungsten is the pit shown near the center of the D.M.E.A. map.

This area was worked by leasers and has produced something like 500 tons of ore, shipped and stockpiled.

The structure here is exceedingly complex, with a northwesterly striking fault, dipping steeply to the southwest, intersecting the northeast-southwest contact zone, with other slip-faults exposed in the faces. The contact zone, as here-exposed, shows " horses" of barren rock. This condition, here well-shown, can be expected to prevail in other portions of the prospect-area.

Shown in the west-central part of the map is the portal of an "Exploration Tunnel", that was started in this lower-elevation part of the prospect, on the " contact-zone", and was driven about 365 feet northeasterly, to intersect the fault cutting the main pit, at depth.

This adit was driven on contract, and by description of Mr. Noviack, the contractor drove off the contact to the west in the "granite" side, where work was faster and less timbering required, later returning to the tactite zone.

This workings, then, failed of its purpose, and can be considered as inconclusive as testing the grade of the tactite zone.

No systematic assay-results of the adit are available. When Mr. Noviack and the writer were here, the portal had caved, and the displacement of the timbering indicated that the rock was extremely " heavy".

At the time the D.M.E.A. map was made, a series of trenches, at right angles to the "contact" and trending northwesterly, was recommended, to expose rock where it was alluvium-covered. 11 of these are shown on the portion of the map available. From work with a Brunton compass and pacing, these were generally put in as shown, and some samples were taken from them, at that time. These samples varied in grade from a few tenths of a percent to a maximum of nearly 3 % tungsten.

By now, about 17 years later, time has taken its toll, and between sliding of alluvium and a profuse growth of brush and grass, the trenches are indistinct.

The " contact" line, as shown in red, on the Report Map, is felt by the writer to have been placed mostly on the map in general where rock was exposed by dozing, and not necessarily on a "tactite" outcrop. Generally, the west side of this line is indicated as being " granite" and the east side as "limestone" or "tactite".

As stated before, in the northern part of the prospect, this line is sharp; to the southwest, it is more indistinct, and merely a zone of metamorphism, possibly without consistent mineralization.

EXPLORATION WORK- SAMPLING

During the short time on the property no systematic gridding nor sampling was done.

First, a series of readings was taken with a Sharpe A-3 magnetometer, on both sides of the contact zone. This was done to attempt to establish a differential between the intrusive and sediments sides of the " contact" zone.

Overall, a maximum difference of about 1,000 gammas was noted, by conversion of A-3 "units", between the two general rock-types. This change was partly inconclusive, and may be due partly to the heterogenous nature of the metamorphic zone. The change here is not always a sharp one, as between a granite and limestone, as might be desirable. There may be magnetic changes within the metamorphic zone as the rock changes from hornfels to argillite or slate to limestone.

In general, it can be said that the west side of the contact zone (supposedly the granodiorite side) shows a higher magnetic susceptibility that the east side(the limestone side).

It is thought that the use of a five gamma susceptibility magnetometer(Jalander or McPhar 700) would give better results than the A-3 (about 50 gamma sensitivity).

Secondly, samples were taken along the trenches to determine if there were any migration of tungsten from the rock into the soil. If there were, this method could be used to trace tungsten-present outcrops where covered by alluvium, as used for the tracing of copper-lead-zinc in covered areas. Also, one rock sample was taken, with nearby soil-samples.

The complicated geochemistry necessary for tungsten determination in soil-samples does not lend itself to field or cold-extraction testing, as can be done for copper-lead-zinc, as with the

Jones Apex kit, for instance. Any assaying must be done by a commercial lab, and not on the site.

The sample locations and assay results, by colorometric methods, are shown on the Report Map, made from the D.M.E.A. map.

If we use 5 parts per million(p.p.m.) tungsten as "background" for normal(unmineralized) soil, six of our nine samples can be considered anomalous and above that level. The three "background" samples were taken from Trenches 1, 2, and 3, and from pacing distances, should have been from the D.M.E.A. map " contact" zone. This result lends credence to the idea that this line was not established from the presence of scheelite, but by the presence of an outcrop only, in the trenches. It is felt, therefore, that if there is scheelite present in these trenches, it must be off the line as delineated, and to the northwest or southeast.

Sample JN-XS was taken from near the small pit at the top of the prospect, near the "Discovery Monument". This pit, by visual observation, is close to the actual "contact"; the sample seems to show migration of tungsten in the soil (25 p.p.m., or five(?) times background.)

Sample 5-S, from Trench 4, is also at the 25 p.p.m. level, is anomalous, and suggests the scheelite zone may be nearby.

In Trench 5, the 130 p.p.m. level of sample 6-S is indicative of tungsten mineralization, and augmented by the two samples taken earler (D.M.E.A. map) shows an anomalous width of possibly 80 feet. This is the best-established width of the tungsten zone, and should be explored further.

Near Trench 6, sample 1-R, at 2.05 % tungsten (rock-sample) is possibly on the contact zone, and samples 1-S and 7-S, from an area showing tungsten as"lamped" the night before, establish a definitely anomalous zone. Also, to the northwest, from Trench 6, an earlier-taken sample at a level of 0.2% tungsten indicates mineralization on the "granite" side.

Sample JN-TNL, taken from the east side of the adit-portal, showed only 10 p.p.m. tungsten. This value was disappointing, and does not correlate well with the 2.88% value shown on the map as possibly taken from the west side of the portal, earlier. The soil sample taken here may be on the extreme eastern side of the mineralized zone.

In considering these soil-sample results, it must be considered that we do not have much of a background-history for determining what makes an "anomalous" value for soil for tungsten, as we do have in the case of copper, for instance.

In Bloom's work on Geochemical Exploration, he assigns a lower value of 1-2 p.p.m. for igneous rocks and 2 p.p.m. for shale, for "average" chemical composition, for tungsten. With the soil content usually only a portion of the rock content, in the case of other metals, even 5 p.p.m. may be anomalous. To properly evaluate these results, a few soil samples from areas where tungsten has not been found may be necessary. If these show a concentration of less than 1 p.p.m., even the lesser values gotten here may be indicative. In this case, 5 p.p.m. may be five times "background", instead of "background". Therefore, the interpretation of the meaning of our results may be extremely conservative.

RECOMMENDATIONS FOR EXPLORATION

From the results gotten in the earlier work and this work, it can be concluded that we have in this prospect definite areas of tungsten mineralization.

Only additional work can establish the area of mineralization and whether mining could be profitably feasible.

Most tungsten deposits are, as here, associated with a steeply-dipping contact between igneous and sedimentary rocks, and do not lend themselves to open-pitting, the cheapest form of mining operation.

Considering the isolated nature of this deposit and its elevation and general climatic environment, it is estimated that a sizable reserve of ore running at least 0.5% to 1.0% would be necessary for a profitable mining and milling operation.

The lowest grade tungsten profitably produced in the U.S., (circa 1954), was about 0.25%. At that time, a STU was priced at $ 64.00. (Today $ 55.00) Some areas producing low-grade ore, such as in Idaho, for example, get added values from gold/silver content. This situation may exist here; it is better not to figure on it.

Indicated on the accompanying Report Map are a series of purple lines, coinciding partly with the trenches that were recommended in 1954.

It is recommended that these lines be run, with 20 foot stationing. Each of these stations should be occupied with a magnetometer, and a soil or rock sample taken at that point.

As these are shown on the map, this work would consist of about 100 stations, with about 90 on the lines, and allowing another 10 for contingency.

On the basis of work done by Rocky Mountain Geochemical Co., the assay-cost on these samples would run about $4.50 each, or an estimated $450.00 for the job.

It is estimated that magnetometer rental would be about $100.00 for the job, from either Jordan International of San Francisco or McPhar Insts. of Tucson, Ariz.

Consulting fees and expenses could be held to something like $ 600.00 for the job, with work done by the undersigned.

Thus for an estimated cost of about $ 1150.00, at the most, it is felt that definitive limits for the mineralized zone could be established.

It is thought that if these results should be largely negative, additional work would not be justified.

If positive results were gotten by this procedure, drill-holes would be indicated for depth-figures.

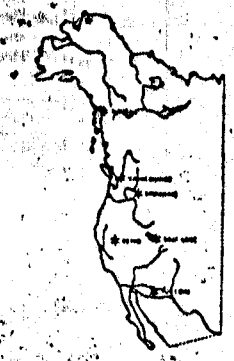
Any geophysical method or the use of geochemistry is subject to errors and weaknesses, but if two methods show anomalous results, drill-hole costs can be justified, if "targets" can be shown.

All of the expense suggested above could be applied to the Assessment Work requirements for the current year.

Respectfully submitted,

Karl H. Kundert

Karl H. Kundert - August, 1971



Rocky Mountain Geochemical Corporation

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CERTIFICATE OF ANALYSIS

Date: August 6, 1971

Client: Mr. Jay Noviack
Box 624
Alturas, California

Report on: 10 samples

Submitted by: Mr. Karl Kundert

Date Received: August 2, 1971

Analysis: Tungsten

Remarks: Analyses determined colorimetrically.

Job No. 71-24-14SL & 71-16-3R Invoice No. SL 6503

cc: Mr. Kundert, Reno
File- Reno
File- SLC (2)

LRR:ktg

Sample No.	ppm Tungsten	Sample No.	ppm Tungsten
JN 1-S	255	JN 6-S	130
JN 2-S	5	JN 7-S	25
JN 3-S	5	JN X-S	25
JN 4-S	5	JN TNL	10
JN 5-S	25	JN-1	+500=2.058

By Lawrence R. Reid

Lawrence R. Reid

ND = None Detected 1 = 0.0001% 1 Troy oz./ton = 34.28 ppm % Mo x 1.6683 = %MoS$_2$