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PRELIMINARY FIELD REPORT ON THE

**DARLING MINE
YUMA COUNTY, ARIZONA**

BY: G. W. Corfield, Mining Engineer, P.E.

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LOCATION

The Darling Mine, which is located in Sections 28 and 33, Township 5N, Range 20W, SRB&M, Yuma County, Arizona, currently is owned by the "Rothco Mines" company. This property consists of five patented claims, the Copper Chief Group, Uncle Sam No. 1 and nine unpatented claims and lies approximately 11 miles Northwest of Quartzite, Arizona. The patent was on U.S. Mineral Survey 4019. The road to the property is passable at this time.

TOPOGRAPHY

This property lies in the Dome Rock Mountain range at an elevation of about 950 feet above sea level.

The area is characterized by typical desert topography with scant rainfall and sparse vegetation consisting mostly of a few cactus, greasewood bushes, mesquite and palo verde trees which are mostly in or near the washes. Summer daytime temperatures are high with very low humidity.

The Dome Rock Mountains in this area consist mainly of metamorphic rocks, schists, limestone, (marbled) and quartzite. These mountains are near locations of considerable intrusive activity.

The rugged dry washes indicate the presence of severe thunderstorm activity at times, mostly in the late summer.

HISTORY

Not much is available on the history of this property except that it apparently was first explored as a copper prospect.

There are several iron outcroppings on the property and since some copper stain is visible from time to time, these may have been mistaken for a gossan. Since a deep shaft was sunk to intersect one of these and its limestone contact at the water level, prior management may have been seeking a secondary enrichment copper deposit of the "Mountain City," Nevada type. However, since no quantity of copper was ever encountered, the property was abandoned.

It was later picked up at a tax sale by Mr. Joe Traver who later sold out to the present owners. During this time some scheelite was mined, however, by people who did not realize that the property was patented. A small shipment of ore placed out of tactite breccia ran 73.69% WO_3 . This was sold to the Pine Creek Mill of the Union Carbide Nuclear Corporation at Bishop, California in 1955. However, this shipment was for only 177 pounds.

GEOLOGY

The area involving these claims consists of an uplift of metamorphic rocks chiefly marbled limestone, sericite or micaceous schist and quartzite. A fault about the schist-limestone contact has been

mineralized with alteration in some locations penetrating deeply into the limestone and to a lesser degree, the schist.

This contact strikes N 50° W and dips about 40° north. The contact line is predominated by the tactite type occurrence with lenses of massive epidote, a little garnet and magnetite. Very little quartz is noted, but in some places massive calcite does occur.

Night prospecting with UV light shows the only economic mineral, scheelite, to be present along the strike of the contact at numerous locations. These occurrences appear to intensify in the vicinity of the magnetite depositions, but occur mostly in the epidote. Some cross faulting, which is pre-mineralization, shows biotite and scheelite which is locally rich. However, only one of these has been explored which shows the main contact intersecting a cross fault with biotite, massive epidote, some magnetite, and locally rich scheelite.

A 20 foot cut here discloses a shoot of scheelite-bearing epidote to be at least 12-15 feet wide and raking west but with undetermined length. This is controlled by a fault which strikes N 15° W and dips steeply SW.

MINERALOGY

The iron mineralization is primarily magnetite with no noticeable areas having any relics of sulfides. It is my opinion that while this looks somewhat like a gossan, it is not, but is simply a contact metamorphic impregnation (tactite) with massive magnetite lenses in the epidote. The following minerals were identified:

- 1) Magnetite
- 2) Epidote (major)
- 3) Garnet (minor)
- 4) Malacite (traces only)
- 5) Calcite
- 6) Scheelite
- 7) Biotite
- 8) Sericite
- 9) Hematite
- 10) Siderite
- 11) Limonite

There are no indications of powellite or apatite. No lead, zinc or moly minerals were observed.

The scheelite occurs in fractures in the epidote and is sometimes in massive coarse crystals which are finer grained when occurring with the biotite and more coarse near the limestone contact or hanging wall.

Scheelite was the only tungsten mineral noted although iron tungstate may exist with the magnetite.

Some scheelite crystals, white or light straw color, were seen which were over $\frac{1}{2}$ " across. Considering its mineralogy, this ore should process easily in a simple all-gravity type plant.

ANALYSIS OF PROPERTY

Except for the indeterminate presence of an intrusive, this prospect is an almost classic occurrence of a contact-metamorphic replacement (tactite) deposit. The property has a long contact 5000' to 6000' which shows very little evidence of systematic prospecting for scheelite.

Some short shafts and pits were noted in the iron areas which contain some quartz with limonite and a few green copper stains. These appear to be in the schist rather than the limestone.

Since a deep shaft cut the limestone contact with epidote at about 485 feet, it appears that the contact replacement remains to this depth at least in one location. Samples in the dump from this formation reportedly show scheelite, although this author did not have time to closely examine this in his few hours stay on the property.

Considering the extent of the epidote and the length of contact, I feel that a systematic prospecting of this property is advisable.

While some of the scheelite is very good as noted above, the depth or length of this shoot is not known. Scheelite "lamps" strongly at many locations along the contact, but since much of this is buried its extent is not easily determined.

While one bureau of mines report states that "30,000 units of scheelite exist on the property" there is not enough development to prove this.

RECOMMENDATIONS AND CONCLUSIONS

To properly prospect this property will require resources well beyond that of the average small company. However, I do recommend the following approach to further evaluation:

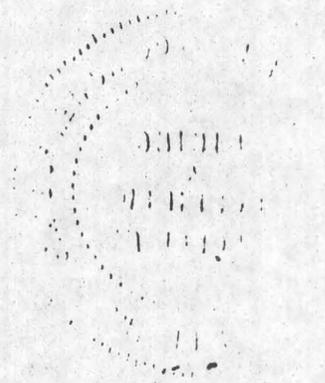
- 1) By means of a D-8 class cat dozer, with ripper, repair the current roads to obtain better access to the property. This will require only 2 or 3 days.
- 2) Use the cat to uncover the outcrops along the strike for proper sampling, assaying and evaluation of ore shoots, if any.
- 3) Use the cat to extend the workings on the established ore shoot to determine its surface length.
- 4) Sample, wall to wall, all shoots which appear to warrant and assay for WO_3 - a composite of these can be submitted for a mill test later.

- 5) Descend the old deep shaft and study all structures cut, particularly the zone of epidote on the hanging wall. Sample and assay for WO_3 .
- 6) Study all results of the sampling to see if further exploration and/or development is justified. This could include diamond drilling and drifting in the deep shaft as well as sinking on the known ore shoot.

The above program should place this property in a position for maximum exposure at minimum cost such that further development can be properly analyzed.

I feel that, with all facts considered, the Darling Mine does offer above average potential as a prospect to become a successful tungsten producer.

G. W. Corfield
Mining Engineer



PURCHASE STATEMENT, Tungsten Ore Concentrate

June 30, 1955

Wm. A. Dumas, Quartzsite, Arizona

Seller

Serial 177 lbs. 2 Producer's Lot or Delivery Number.

Ways: Tungstic Oxide 73.69 % WO₃ \$ _____ Penalty for under 60% WO₃

Phosphorous 03 % P _____ P Penalty for Excess

Sulphur _____ % S _____ S " " "

Copper _____ % Cu _____ Cu " " "

Lead 03 % Pb _____ Pb " " "

Zinc _____ % Zn _____ Zn " " "

_____ % _____ " " "

\$ _____ Total Deductions per Unit

Pay per Unit \$ 60.00 less \$ _____ Net pay per Unit 60.00

Total Units, WO₃: 6.522 @ \$ 60.00 \$ 392.32

Charges: Freight \$ _____ Screening \$ _____

Upgrading \$ 9.07 Sampling \$ 2.50 Assaying \$ 7.00 \$ 28.57

Net to Seller \$ 372.75

Advance Payment June 25, 1955 6250.00

\$ 250.00

To Seller: Bal. Provisional _____ Final 2 Chk. No. 8932 \$ 122.75

Receipt of Final Settlement Payment closes this Sales-Purchase Transaction. Seller Warrants unencumbered ownership and to assign, sell and transfer to the undersigned Consignee and/or Buyer.

Wm. A. Dumas

C. W. JONES

[Signature]
Consignee and/or Buyer

Owner or Authorized Agent, Seller



UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
REGION III

SOUTHWEST
EXPERIMENT STATION

P. O. BOX 4097
UNIVERSITY STATION
TUCSON, ARIZONA
December 27, 1957

Mr. Joseph Treuer
P. O. Box 1521
Phoenix, Arizona

Dear Mr. Treuer:

The United States Bureau of Mines is presently investigating tungsten deposits in Yuma County, Arizona.

Our field engineer was told by residents of Quartzsite that you own the old Darling mine in Secs. 28 and 33, T. 5 N., R. 20W. about 10 miles northwest of Quartzsite. A discovery of scheelite ore has been made on this property recently.

If you own this property may we have your residence address in Phoenix so that our field engineer may discuss with you the tungsten occurrence?

Sincerely yours,

Walter R. Storms

Walter R. Storms, Superintendent
Southwest Experiment Station

*Replied 3-21-58
Mr. Vernon Dale called
3-31-58*

U. S. BUREAU OF MINES
SOUTHWEST EXPERIMENT STATION
DEC 30 1957
TUCSON, ARIZONA