PE-049-21

PE 49-21

Lundgren-Rowley Tungsten Prospect

Department of Natural Resources
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Mineral Analysis (Continued)

E. Accuracy of the atomic absorption analysis for gold, silver, copper, lead, and zinc is ±10% of the reported value. Same accuracy for tungsten.

D. Major - over 10%
Minor - 1 to 10%
Trace - under 1%

The rock studies were made because scheelite ore deposits usually occur in a crystalline limestone, pegmatite, or calcic rock. In the Fairbanks area the rich scheelite ore shoots occur at the intersections of pegmatite dikes or pegmatitic quartz veins within limestone beds of the Birch Creek schist.

SAMPLES

The samples that were taken by Mr. Stein are listed and described:

Sample No.	Description	Tungsten %
DRS-1	Cut #1 - 10 ft. horizontal channel across a vertical bleached QM or AD face	0.0450
DRS-2	Cut #1 - 6 ft. vertical channel down vertical bleached QM or QD face	0.1375
DRS-3	Cut #1 - 3 - 8" channels 3 ft. apart on an 8" seam projecting from right side of bleached QM or QD	0.2280
DRS-4	Cut #1 - 6 - 8" channels on 2-6 ft. long 8" wide seams projecting from left side of bleached QM or QD	0.3000
DRS-5	Cut #1 - 3 - 2 ft. vertical channels 4 ft. apart across low grade zone extension 6 to 14 ft. from bleached QM or QD	0.0750
DRS-6	Cut #2 - 3 - 2 ft. vertical channels across a 12 ft. long zone. Zone consists of C Horizon and mineralized bedrock	0.2100
DRS-7	Cut #3 - 4 ft. long channel in bedrock bottom of cut ⊥ to strike	0.1500
DRS-8	Cut #4 - 8" zone in ⊥ dipping schist. Zone is offset 3 ft. horizontally by a fault	0.3500

The mineral identification would indicate the rock is a quartz diorite.

A spectroscopic examination was made of 3 samples to determine the major, minor, and trace elements present. The metal content was analyzed by the atomic absorption method.

MINERAL ANALYSIS

Lab No.	Sample No.							
40827	CNC 1	E. Ounces Per Ton		E. Weight Per Cent				
		Gold	Silver	Copper	Lead	Zinc	Tungsten	
		0.003	0.02	0.0032	0.0050	0.8500	0.8500	
		D. Spectroscopic Examination						
		Major	Minor	Trace				
		Silicon	Sodium Calcium Aluminum Magnesium Titanium Iron Potassium	Barium Manganese Tungsten Lithium Chromium				
40828	CNC 2	E. Gold	Silver	E. Copper	Lead	Zinc	Tungsten	
		0.008	0.02	0.0022	0.0035	0.0060	0.4250	
		D. Major	Minor	Trace				
		Silicon	Aluminum Calcium Sodium Iron Potassium Magnesium	Titanium Tungsten Barium Manganese Chromium Lithium				
40829	CNC 3	E. Gold	Silver	E. Copper	Lead	Zinc	Tungsten	
		0.002	0.015	0.0027	0.0015	0.0095	0.1500	
		D. Major	Minor	Trace				
		Silicon	Aluminum Calcium Sodium Titanium Magnesium	Barium Chromium Iron Manganese Tungsten Lithium Stronium				

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INTRODUCTION

Don Rowley exposed bed rock by dozer trenches on the north side of a tributary to Pedro Creek sometimes known as Steamboat Creek. Donald Stein examined the area with an ultraviolet light and took 8 samples. The tungsten mineral scheelite was identified by the characteristic fluorescence when exposed to the ultraviolet light. The samples taken by Mr. Stein indicated tungsten was present in amounts varying from 0.045% to 0.35%. The area was re-examined by Mr. Stein accompanied by Mr. Conwell on September 13, 1972. All exposures in the cuts were examined for rock type and possible structures favorable for a tungsten deposit. After dark the area was examined with an ultraviolet light to locate the zones containing scheelite and 3 selected samples were taken.

LOCATION

The prospect is located north of Fairbanks and may be reached by driving north on the Steese Highway to Milepost 16. At Milepost 16 continue north for .2 of a mile and turn left. Follow the mine road along the stream drainage for .4 of a mile. At this point placer workings may be observed on the lefthand side. The dozer cuts were made along the right hand side nearly perpendicular to the road.

MINERALS AND METALS

The only ore mineral that was observed was scheelite which was readily distinguished by the characteristic fluorescence under a "black light." The assays also indicate that tungsten is the only metal of economic importance in the area sampled.

The rock forming minerals were identified by Mrs. Namok Veach using the petrographic microscope and X-ray techniques. The mineral identification shows:

	Identification		
Samp. No.	Major	Minor	Trace
CNC4	Quartz Plagioclase K-feldspar Biotite	Muscovite	Kaolinite (?)
CNC5	Quartz Plagioclase Amphibole	K-feldspar	Scheelite

Mr. Conwell only sampled 3 locations because the previous samples by Mr. Stein appeared to be representative of the deposit and the examination by ultraviolet light indicated limited lateral extent of the scheelite zones. The samples were correlated with those of Mr. Stein and are described as follows:

Sample CNC1, tungsten 0.85%, is in the same location as DRS4 - tungsten 0.30%, except only the 8" wide seam was sampled. The lateral extent would be about 2.5 feet as described by Stein, however the sample was taken in the trench wall and would extend east for an unknown distance.

Sample CNC2, tungsten 0.425%, was taken in approximately the sample location as DRS6, tungsten 0.21%, except only the center 4" which contained the highest concentration of scheelite was sampled.

Sample CNC3, tungsten 0.15%, was taken in approximately the same location as DRS8, tungsten 0.35%, and the same 8" zone sampled.

The samples indicate the mineralization is limited and the tungsten in the areas sampled does not occur in an ore body that is large enough and rich enough to have commercial importance.

GEOLOGY

In general the area is covered by alluvium and unconsolidated sediments. The principal basement rock in the area would be the Birch Creek Schist. The schist has been intruded by Mesozoic(?) granitic type rocks (Chapman, B. and Foster, 1969, p. D1). These rocks are highly weathered, and the weathering extends about 10 feet below the surface according to Byers, 1957, p. 192. The bedrock exposed in the trenches is highly weathered, and is probably a quartz diorite in which the feldspars are badly altered. Byers, 1957, p. 193, states that descending ground water, particularly if slightly acid may have dissolved the scheelite at Gilmore Dome. If this is true, then scheelite may have been leached in the Steamboat Creek area and a fresh exposure may contain higher percentages of scheelite.

RECOMMENDATIONS

1. The siliceous rock (quartz-diorite ?) is not a favorable environment for a scheelite deposit, and exploration should be directed to possible mineralization of the intrusive-schist contact, and in limestone within the schist.

2. On the basis that scheelite may have leached in the weathered zone these 2 recommendations are made:

a. Locate the occurrence of scheelite at night with an ultraviolet light. Mark the occurrences with tape for detailed mapping in the daylight. This should indicate if there is a significant trend to the mineralization.

b. Sink a shaft on the best showing of scheelite down past the zone of weathering. This should show if there has been leaching of the scheelite by downward perculating ground water.

References cited:

Byers, F., 1957, Tungsten deposits in the Fairbanks District, Alaska, U. S. Geological Survey, Bull, 1024-I

Chapman, R., and Foster, R., 1969, Lode Mines and Prospects in the Fairbanks District, Alaska, U. S. Geological Survey, P. P. 625-D