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U. S. ATOMIC ENERGY COMMISSION
DIVISION OF RAW MATERIALS
SALT LAKE EXPLORATION BRANCH

MEMORANDUM REPORT ON THE
URANIUM OCCURRENCE AT THE LULU BELLE CLAIMS,
GILA COUNTY, ARIZONA

by

R. L. Wells

Dodge

January, 1955
(Salt Lake City, Utah)

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MEMORANDUM REPORT ON THE
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MEMORANDUM REPORT ON THE
URANIUM OCCURRENCE AT THE LULU BELLE CLAIMS,
GILA COUNTY, ARIZONA

ABSTRACT

The Lulu Belle Claims, about 6 miles south of Globe, Gila County, Arizona, are owned by Mr. Delbert H. Fuller and are leased to the Thornburg Uranium Company.

Uranium-bearing vein material was discovered on the dump of an old shaft and the workings were cleaned out in an effort to locate the source of the radioactive material.

Some weak radioactivity was found associated with copper sulphides in a thin coating on the footwall plane of the main quartz vein. Assays from areas showing the strongest radioactivity were very low in uranium content.

INTRODUCTION

Location and Ownership

The Lulu Belle claims, in the Pinal Mountain Mining District, are owned by Mr. Delbert H. Fuller of 577 South Broad Street, Globe, Arizona. The claims, in Section 21 (unsurveyed) T. 1 S., R. 15 E., may be reached from Globe by following the Pioneer Pass road for $4\frac{1}{2}$ miles southwesterly to a junction and then by following the right hand fork for about 1 mile. All of the roads are either black topped or county maintained dirt roads.

Topography

The Lulu Belle claims are in the foothills of Pinal Mountain at an elevation of approximately 4000 feet. The hills are rounded but the canyon slopes are moderately steep. The vegetation consists of grass, some cacti and sparse to dense growths of scrub oak trees.

Fig. 1

INDEX MAP SHOWING LOCATION OF
LULU BELLE CLAIMS, GILA COUNTY, ARIZONA

0 50 100 MILES

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History and Production

The claims were worked in the period 1924-1927 and approximately \$12,000 in copper, gold and silver was reportedly produced. The ore was apparently mined from a relatively small pocket in the shaft and further exploration was unsuccessful.

The claims, inactive for a number of years, were relocated by the present owner in 1949 and 1953, when radioactive material was found on the dump from the main shaft.

In May 1953, the owner attempted to rehabilitate the shaft. The Thornburg Uranium Company leased the property in June 1953 and completed the shaft project.

Mine Workings

The underground workings consist of several short adits and two inclined shafts, both of which are caved. In the main shaft there are three drifts, one to the west and two toward the northeast. All are at different elevations and have a combined length of approximately 200 feet. The shaft reached a vertical depth of 80 feet on an average dip of 55°.

No effort was made to clean out any of the other workings, as they were no more than prospect pits.

GEOLOGY

General Geology

The northern flank and foothills of Pinal Mountain consist mainly of pre-Cambrian granites, diorites, and schist. The Lulu Belle claims lie within an area of extensive Pinal schist exposures. The Pinal schist has

been described by Ransome (1).

Mine Geology

Rock Types

The rocks in the mine may be divided into the following three types according to their megascopic characteristics: (1) sericite schist, (2) an altered semi-schistose rock showing granitic texture and (3) a highly altered, dark grey, sandy textured rock.

The predominant rock in the mine is a sericite schist which exhibits no remnant of the original texture.

A rock showing granitic texture occurs in small irregular and apparently discontinuous zones throughout the workings. A highly altered dark grey, sandy textured rock has been faulted against the sericite schist and is exposed in the northeast drift on the 71' level. It is chloritized, sericitized and weakly silicified.

Structure

The vein on which the shaft was excavated is rather weak near the surface. It is extremely variable in strike, dip, and width. The vein strikes generally east-west but may vary locally as much as 45° . The average dip is 50° to the north. In places, the vein widens to nearly four feet, but is usually no more than four inches in width.

The vein is displaced near the bottom of the shaft by a fault which strikes N 26° E and dips 49° to the southeast. This fault shows normal movement with a minimum of $2\frac{1}{2}$ feet of movement.

(1) Ransome, F. L.: Geology of the Globe Copper District, Arizona, U. S. G. S. Prof. Paper No. 12, 1903.

The fault causing the displacement of the dark gray rock on the 71' level strikes N 85° E and dips 51° to the north. The thickness of the gouge (2 feet) suggests that this may be the strongest structure in the mine. No criteria were observed that would indicate the direction of movement.

Other apparently minor fractures were observed but, due to the intense alteration, no attempt was made to assign them to fracture or joint systems.

Mineralogy

The uranium mineralization is apparently closely associated with the copper sulfides in and along the vein. The sulfide minerals identified are pyrite, chalcopyrite, chalcocite, covellite, bornite, galena, and tetrahedrite. Uranophane was identified in a sample from the dump. Uraninite is the only other uranium mineral found.

In samples from the dump, the uraninite is associated with quartz. In the mine, the observed uranium mineralization is confined to a sooty black coating on the footwall plane of the vein. This coating is no more than $\frac{1}{4}$ inch in thickness and is not continuous along the footwall surface. The minerals identified in the bluish black coating were chalcocite and chalcopyrite with minor covellite, bornite, galena and pyrite. It is assumed that uraninite, intimately associated with these sulfides, accounts for the radioactivity.

RADIOACTIVITY AND SAMPLE DATA

At the collar of the main shaft the radioactivity (25 counts per second) is below the average background (60 cps) for the area on the

surface. In the shaft, the average background is approximately 60 cps and the maximum radioactivity is 2000 cps. This reading was obtained from a small spot in the footwall of the vein on the 71' level. Although several other "hot spots" were observed (Fig. 2), the average reading was approximately 125 cps.

Assays of four selected samples from the dump showed radiometric values of 0.190%, 0.314%, 0.41%, and 0.689% U_3O_8 . However, no selected or chip samples from underground had a radiometric assay value of greater than 0.02% U_3O_8 equivalent. The sample from the dump appeared to be the same material as that in the workings. Chemical assays of two of the dump samples were nearly the same as the radiometric values.

All of the areas showing high radioactivity in the mine are confined to a very thin zone, usually no thicker than $\frac{1}{4}$ ", on the footwall of the vein. This zone is typified by a dark bluish-black coating on the footwall surface. The anomalous radioactivity does not extend into the wall rock, nor does it commonly extend into the vein material.

CONCLUSIONS AND RECOMMENDATIONS

The uranium mineralization occurs in a thin coating in relatively small spots along the footwall of the vein. The vein is weak and has been offset at the bottom of the shaft by a cross-structure. There is not enough uranium-bearing vein material exposed in the workings to encourage further exploration at this time.