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SOME RECENT DISCOVERIES OF URANIUM IN SIERRA COUNTY, NEW MEXICO

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Increased prospecting activity in Sierra County, New Mexico, as in the rest of western United States, has resulted in the discovery of many new uranium occurrences. To date, no sizable tonnages of uranium ore have been developed in this area, but it is probable that at least a small production will be forthcoming from the more promising discoveries now known.

In eastern Sierra County on the east flank of the Caballo Mountains secondary uranium minerals are associated with secondary copper minerals and carbon trash in siltstones of the Abo formation of Permian age. Uranium minerals are most commonly found along vertical fractures and around carbon trash in small lenticular beds of light green siltstone. The size of these deposits varies from a few inches to eight feet in thickness and from a few feet to 40 or more feet in length. Uranium minerals commonly are spottily distributed within these zones.

Uranium minerals are found in a fissure vein of fluorite located 3 miles southeast of Truth or Consequences on the west side of the Caballo Mountains. The deposit is in a northwest-trending fault zone which separates Precambrian granite from the Bliss sandstone of Cambrian age. Purple fluorite with finely disseminated uraninite (?) and with minor uranophane and secondary copper minerals is in the vein adjacent to the Precambrian granite hanging wall.

A minor occurrence of brannerite, an oxide of uranium and titanium, has been found in a small shear zone in Precambrian schist and granite on the east side of the Rio Grande opposite Carrie Tingley Hospital in Truth or Consequences.

In southeastern Sierra County, uranium occurs locally in the Garfield fault zone four miles east of Derry. At this point, the fault separates Paleozoic sediments of the Montoya group from Paleozoic sediments of the Abo formation and the Magdalena group. Secondary uranium minerals, associated with limonite and calcite, coat fractures and cavities in a boxwork of quartz. Uranium minerals are sparsely distributed through the 10-to 20-foot wide fault zone at two widely separated points along the fault.

In western Sierra County, occurrences of secondary uranium minerals in the Abo formation, generally similar to those of eastern Sierra County, are found in the Sierra Cuchillo near the town of Chise and in the Iron Mountain District about seven miles northeast of Winston. The occurrences in the Sierra Cuchillo generally are present in small limestone lenses 1 to 2 feet in thickness and 10 to 15 feet in length. Uranium minerals present are usually secondary, with one notable exception, in which uraninite, closely associated with pyrite and chalcopyrite, is disseminated through a small lenticular zone in limestone.

Secondary uranium minerals, associated with secondary copper minerals, are found in silicified siltstone and limestone in moderately east-dipping beds near the Iron Mountain fault block. According to Jahns (1944) these beds represent the west flank of a syncline. A number of felsic Tertiary intrusives are closely associated with the occurrences, suggesting a possible genetic relationship.

Although no detailed study has yet been made, preliminary field and laboratory evidence suggests a probable hydrothermal origin and a Tertiary age for most of these deposits in Sierra County.

Based on the deposits thus far discovered, certain geologic conditions or environments appear to merit particular attention in future search for new deposits in Sierra County. Fault, fracture, or shear zones and the rocks adjoining them, particularly in or near established mining districts and/or near intermediate to felsic intrusives, should receive primary consideration in this area as favorable hosts for uranium deposits. New discoveries in this type of geologic environment are increasing in and along the Rio Grande trench in central and south-central New Mexico. Where the above-mentioned geologic conditions exist, further search of the Abo formation appears to be particularly warranted.

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