

from NBMG OFR 83-9

See also 83-10 for geochemical results.

115

Item 16

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CARLIN DISTRICT

The Carlin district encompasses the southern end of the Independence Mountains north of the town of Carlin and the northern end of the Pinon Range immediately south of Carlin. There are reported occurrences of coal, manganese and lead-silver in the district but the location of these deposits are not known. The only known workings explore deposits of uranium, vanadium, diatomite and barite. A newly discovered disseminated gold property, the Rain claims, lies in the extreme southeast corner of the district.

Hot springs with temperatures recorded as 174° or boiling are located 3-4 miles southwest of Carlin (Garside and Schilling, 1979). Coal occurrences cited by early workers in the area (Lee, et al, 1916; E and MJ, 1887), could not be located by NBMG geologists who specifically searched for the deposits in 1975 (person. comm., Larry Garside, 1983). The only known production from the district is from diatomite deposits located in low hills about 3 miles northeast of Carlin. Mining of the deposits occurred between 1921 and 1952 (Smith, 1976). During a field trip to the Tri-O-Lite diatomite plant and mine in 1932, Smith and Stoddard (1932) made the following observation:

"Although the mill has a large capacity, depressed market conditions have resulted in only 10 or 12 carloads of specially prepared grades of diatomite being shipped during the past year."

The mines are presently inactive, but are covered by active claims.

Uranium occurrences are explored by shallow trenching at the Black Kettle and Deerhead prospects in the northern Pinon Range. On the Black Kettle claims, numerous exploration cuts and drill roads are located in the western half of section 34, T32N, R52E and in the central portion of section 4, T31N, R52E. The claims are currently held by Santa Fe Mining Co. However, the exploration work which is 5-10 years old was probably done by Union Carbide Corp. in their search



for vanadium in black shales.

In addition, there are several active claims for barite in the northern Pinon Range. Barite veins are present in minor amounts in the host rocks in Woodruff Creek (Deerhead Prospect) and Cole Creek Canyons, but the best developed deposit is at the Evans Mine located in section 36, T32N, R53E on the northeast slope of the range where barite occurs as replacement bodies in Devonian limestones. The property is developed by trenching and drilling. As yet, there has been no production.

In 1979, an area of disseminated gold mineralization was discovered on Newmont Explorations' Rain claims in the northern Pinon Range. There are two areas of exploratory drilling on the claims; one area is in section 3, T31N, R53E and the other more extensive drill area is in section 33, T32N, R53E. Drill results indicate reserves of 8.3 million tons at 0.083 oz. Au/ton and 3.4 million tons at 0.147 oz Au/ton (Bonham, 1982). Further development of the deposit is forestalled until production begins at Newmonts' Gold Quarry mine, located in the Maggie Creek district about 10 miles northwest of Carlin.

The diatomite deposit located less than two miles north of Vivian siding is explored by numerous open cuts, trenches and drifts. The deposit occurs within the Miocene Humboldt Formation and is best exposed in the area of the Try-Light and Great White Hope claims. The main diatomite bed is pure white in color, thinly bedded to platy in character and about 20' in widest total exposure. It strikes north-northwest and dips 30° to the northeast. Grey silty mudstones and layers of unconsolidated sand overlie, underlie and are interbedded with the deposit. The deposit is explored almost continuously for 1½ miles along strike. Several high-angle faults cause minor displacements of the bed but in general, the unit is undeformed. Several small prospects located a few miles northwest of the main working are also developed in diatomaceous sediments.



The northern Pinon Range is predominately underlain by Ordovician through Permian shales, siltstones, sandstones, limestones and conglomerates. The sediments are faulted along Antler-related thrusts and numerous high-angle structures. (Smith and Ketner, 1968). The host rocks in the vicinity of the Black Kettle and Deerhead prospect are black and tan shales, limey siltstones, and minor fine-grained quartzites and cherts of the upper plate Devonian Woodruff Formation. At the Deerhead prospect, yellow to yellow-green carnotite occurs as fracture fillings in a highly fractured and locally silicified shale. Moderate iron and manganese oxides are present. The 50' shaft on the Black Kettle claims (Garside, 1973) was never found since the original property is redeveloped by numerous exploration cuts and drill roads which extend for more than  $1\frac{1}{2}$  miles down Cole Creek canyon. The shales and siltstones exposed in the cuts are fractured, brecciated and veined by white crystalline calcite and barite. Although no uranium minerals were directly observed, anomalous radioactivity 2 to 3 time background was measured in the black shales (see Uranium occurrence report-Black Kettle). Samples of shale collected from the area in 1980 under the NURE program contain as much as 3500 ppm vanadium. "The area was determined privately to contain 20 million tons of measured, indicated, and inferred reserves of material averaging 0.8%  $V_2O_5$ " (Brooks and Potter, 1974).

Newmonts' new disseminated gold discovery, the Rain property, is located in the northern Pinon Range at the head of Ferdelford Creek. The host rocks for the deposit are siltstones, shales and minor sandstones of the lower Mississippian Webb Formation which is currently considered to be an allochthonous unit of the Roberts Mountains thrust (Ketner and Smith, 1982). In the drill areas, the rocks are notably bleached, iron-stained, fractured and silicified. Two separate areas were drilled, but the western drill roads are more numerous and closely spaced than the eastern area. A conspicuous outcrop of jasperoid breccia lies along the northern margin of the western drill area. The jasperoid contains abundant iron (hematite



and jarosite), barite, dussertite and quartz. The barite and quartz occur as late stage vug and vein fillings. The outcrop displays internal zones of veining and brecciation. Slicked surfaces have a persistent N40W strike. The jasperoid outcrop probably represents the siliceous cap to a northwest-striking fault zone which may have been a conduit for mineralizing fluids. Although the ore zone appears tightly structurally controlled, mineralization may extend southwest from the jasperoid body into favorable sedimentary horizons.

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