

from NBMG OFR 83-9

See also 83-10 for
geochemical results.

COAL MINE DISTRICT

Elko Co. - general
NE of 70

Item 50

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The Coal Mine district is located about 25 miles north of Elko in the north end of the Adobe Range. On the earliest map made of the area, King (1876) located a coal mine on the east side of the range north of the mouth of Coal Mine Canyon. The early reported coal occurrence resulted in a plethora of coal-related geographic names for this part of the Adobe Range. Although oil shale and phosphatic rocks occur in the southern and northern Adobe Range, there is no known occurrence of coal in the Coal Mine district.

"Oil shale in the Tertiary deposits is exposed in places along the east side of the Adobe Range and around the Elko Hills" (Ketner, 1970). In 1969, the U.S. Geological Survey cut a 500' long trench between Sec. 2, T37N,R56E and Sec. 35, T38N,R56E approximately one-half mile northeast of Coal Mine Road. The trench exposes "Tertiary kerogen-bearing sediments" correlative with the upper portion of the Elko Formation (Moore, 1983). Moore (1983) concluded that since the deposit is faulted and of "low-oil-yield oil shale," it is not likely to be further developed "at this time nor in the foreseeable future".

According to Ketner's preliminary geologic map of the Coal Mine Basin 7 1/2' quadrangle, this part of the Adobe Range is composed as a sequence of Ordovician through Triassic clastic sediments, cherts and limestones. The sediments generally strike northeast but are cut by numerous northeast and northwest-striking, high-angle faults. Several northeast-striking thrust faults occur in the central portion of the quadrangle. The thrusts bring older Ordovician shales and cherts in contact with younger Mississippian and Silurian clastic rocks. Southeast of the thrust rocks, younger Paleozoic and Triassic clastic rocks are folded into a northeast-trending syncline, named the Adobe Range syncline (Ketner and Ruben, 1983). Oil shale and volcanic rocks of Tertiary age are exposed southeast of the Paleozoic rocks in the area of the Coal

Mine Canyon prospect.

The only significant workings in the district are the Coal Canyon and Garamendi mines located in the south half of section 18, T38N, R56E on the lower west flank of the range. The mines are closely spaced and appear to explore the same oxidized sulfide replacement zone developed along an undulatory, but generally east to northeast striking, north to northwest-dipping fault. Ketner, 1983, has mapped the structure as a pre-fold thrust fault between upper plate Silurian shales and cherts (undifferentiated) and lower plate sandstones and quartzites of the Mississippian Chainman shale. South of the thrust, the Chainman Formation is intruded by several northeast-trending Tertiary dikes (Ketner and Ruben, 1983). The mines are located just north of the thrust in brecciated, silicified and replaced host rocks of the upper plate.

The host rocks at the Garamendi mine are well exposed in a north-south trench about 100' long and 25' wide. They consist of fine-grained quartzites interbedded with limey shales and limestones. The beds are relatively flat-lying but are fractured along several east-west structures. Within the trench the rocks are highly altered to gouge and gossan. Replacement deposits (gossan) have formed along bedding and parallel to the east-west fault structures. The replaced horizon is entirely oxidized to gossan. Jagged "jasperoid" outcrops occur on the ridge above and south of the mine. The silicified and brecciated outcrops mark the trace of the north-dipping thrust fault mapped by Ketner (1970).

Silicification of the sediments is even more evident at the Coal Canyon mine located less than one-half mile east of the Garamendi. Dump rock on the lower adit is mostly composed of recrystallized or silicified limestone and siliceous hematitic gossan. The gossan is quite dense, displays boxwork structures and contains pods of partially oxidized pyrite and minor galena. Vugs in the gossan are filled with finely crystalline barite. An open cut at the top of the hill explores a

northeast-striking, northwest-dipping fault zone in Ordovician cherts and shales. The fault is more steeply inclined than a thrust and may represent an imbricate high angle structure developed parallel to the thrust in the upper plate rocks. The fault is capped by a very resistant rib of siliceous breccia or "jasperoid". The "jasperoid" has a highly siliceous matrix and contains breccia fragments of cherts, siltstones and shales. The body outcrops boldly along the entire trace of the structure east and west of the mine.

At the mine site, the "jasperoid" is cut by numerous gossan and breccia zones. A gossany replacement deposit occurs directly below the siliceous cap. The replaced horizon parallels the bedding of the host and dips about 45° to the north (west). West of the open cut, the "jasperoid" contains vugs and fracture coatings of opaline silica and is cut by banded opaline veins which range from 1" to 1' in width. Minor sulfides were observed in the opaline veins, but were too fine-grained to identify with a hand lens. Although no unoxidized ore minerals were observed at the mine and no known production is recorded for the deposit, the considerable gossan found along the thrust fault indicates the former presence of abundant sulfides.

The area surrounding and including the Garamendi and Coal Canyon mines was staked by Texasgulf Western, Inc. (Golden, Co.) in July 1980. During 1981 they drilled the central part of the district. Most of the drilling occurred at the mine sites and continued northeast along the western range front. At the time of our examination of the area in June, 1982, Texasgulf was conducting geophysical studies in the area. Results of their work indicate the presence of a massive sulfide deposit. The sulfide deposit is possibly the unoxidized extension of the oxidized sulfide replacement deposit observed on the surface.

The Q-Bar prospect is located less than 4 miles north of the central part of the district. Six or eight lens-shaped units of barite occur within black cherts

of the Ordovician Vinini Formation (Papke, in preparation). The barite units are conformable with the bedding of the host rocks. Brecciated and silicified chert "jasperoids", like those observed in the main part of the district, occur south and parallel to the barite-rich interval.

Selected References:

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