

TOBIN AND SONOMA RANGE MINING AREA

LOCATION

The Tobin and Sonoma Range mining area encompasses the northern end of the Tobin Range and the southern end of the Sonoma Range. It includes a few mines and prospects which are not part of any organized mining district. The area is bounded on the northeast by the Iron Hat district and on the north by the Black Diablo and Washiki districts (Johnson, 1977, pl. 2). It lies entirely to the north of Mount Tobin.

HISTORY

The Big Mike deposit was first discovered during the 1930's, but was not productive until 1967 when a leaching plant was installed. In 1969 Cerro Corp. discovered a high-grade copper sulfide ore body. Ranchers Exploration and Development Company made an agreement with Cerro, and mined the deposit in 1970. A leaching facility for low-grade ore operated from 1970 to 1978. The property has been inactive since then (Rye and others, 1984). The production consisted of 95,000 tons of high-grade, direct-shipping ore and 675,000 tons of low-grade oxide-sulfide ore (Intermountain Paydirt, October 1984).

The Horton mercury mine was first located in the 1950's, but was chiefly productive in 1967-1969. It is credited with about 500 flasks of production (Bailey and others, 1984). Manganese properties in Pollard Canyon are reported to have produced in excess of 600 tons of ore. This production was from an open pit operated in 1951 and 1953 on the Blackbird claim (Trengrrove, 1959, p. 36). The True American Mine was operated during World War II and the Korean War. Total production of scheelite is unknown, but was probably about 100 tons (Johnson, 1977, p. 96). The Bari barite claims were located in Pollard Canyon in 1973 (Papke, 1984, p. 120).

GEOLOGIC SETTING

The area included within the Tobin and Sonoma Range mining area is underlain almost entirely by Pennsylvanian and Permian Pumpernickel and Havallah Formations. These formations are often combined into the Havallah sequence. The lithology of the sequence is greenstone, chert, argillite, sandstone and limestone; these rocks are considered to be deep water oceanic or marginal sea deposits. A small part of the Tobin and Sonoma Range area is underlain by Triassic units, predominantly Koipato Group volcanic and volcanoclastic rocks. Jurassic granodiorite intrudes the Havallah sequence rocks in the northern Tobin Range.

ORE DEPOSITS

The ore deposits of the Tobin and Sonoma Range mining area are all in the Pennsylvanian-Permian Havallah sequence, and are rather widely dispersed in this unorganized mining area.

The Horton mercury mine is located in the hills just south of the mouth of Sheep Ranch Canyon in S20,T32N,R39E. The main working are in the vicinity of a N35°E, 65°-75°NW shear zone in greenstone of the Pumphernickel Formation. Ore (cinnabar) is found in the shear zone in breccia zones, as replacements of mafic minerals in greenstone, as complete rock replacements, or associated with calcite or quartz veinlets (Bailey and others, 1984). The mineralized zone is argillized, as is a considerable volume of rocks in the surrounding area. Limonite gossan commonly occurs with the ore, and sparse pyrite is present in unoxidized portions of ore and wallrock. Intense silicification of greenstone occurs locally, outside the main area of mineralization.

The Big Mike Mine, in S23,T31N,R39E, is an open pit mine on a high-grade, low tonnage, cupriferous pyrite volcanogenic massive sulfide deposit. The deposit occurs in the Havallah sequence, as a massive lens entirely within a thin, cherty, carbonaceous argillite. A stringer zone of sulfide minerals occurs in the footwall pillow basalt and a minor stringer zone occurs in hanging wall pillow basalt (Rye and others, 1984). The massive ore consists of pyrite and chalcopyrite with a little sphalerite. Quartz constitutes less than 10% of the ore, except near the top and bottom of the ore lens, where hydrothermal chert and jasper occur. Also reported from the sulfide ore are bornite and digenite; cuprite and tenorite are present in the oxide zone (Johnson, 1977, p. 95).

Three separate mines or mineral occurrences are located in the vicinity of Pollard Canyon, on the west side of the north end of the Tobin Range.

The Pollard Canyon manganese properties are located near the head of Pollard Canyon (one prospect is in S30,T31N,R40E). Black manganese minerals occur as massive ore as mixed with fine-grained chalcedony in beds which are interbedded with light gray chert and shale. The bedded manganese deposits are small, commonly about 1 m thick, 10 m wide and 10-60 m long (Trengrrove, 1959, p. 35, 36; Iverson and Holmes, 1954). Pyrolusite, psilomelane, and braunite have been identified in the ore. Within 1 m of the manganese bed (both above and below), red chert (jasper) bands occur within the gray chert. Low-grade manganese ore reportedly occurs along faults where surface supergene enrichment has concentrated manganese oxides (Johnson, 1977, p. 95).

The Bari barite property in Pollard Canyon is located in S31,T31N,R40E. Barite is poorly exposed in two trenches; the host rock is Pumphernickel Formation. The barite is white and coarse grained and probably occurs as a vein (Papke, 1984, p. 120).

A mercury prospect is reported from S30 or 31,T31N,R40E in Pollard Canyon. The claims were staked in the late 1950's, but no details of the mineralization are available. The wall rock is Pumphernickel Formation (Bailey and others, 1984).

The True American Mine is located on the west flank of the Tobin Range, approximately in S27 and 34,T30N,R40E. Scheelite occurs in quartz veins along the bedding planes of thin lenses of silicified limestone in shale near the contact with a granodiorite pluton (Johnson, 1977, p. 96).

SELECTED REFERENCES

- Bailey, E. H., and others (1984) Quicksilver in Nevada: unpublished manuscript, Nevada Bureau of Mines and Geology.
- Iverson, H. G., and Holmes, D. T. (1954) Concentration of oxide and silicate manganese ores from the vicinity of Winnemucca, Pershing County, Nevada: U. S. Bureau of Mines Report of Investigation 5022.
- Johnson, M. G. (1977) Geology and mineral deposits of Pershing County, Nevada: Nevada Bureau of Mines and Geology Bulletin 89.
- Papke, K. G. (1984) Barite in Nevada: Nevada Bureau of Mines and Geology Bulletin 98.
- Rye, R. O., Roberts, R. J., Snyder, W. S., Lahusen, G. L., and Motica, J. E. (1984) Textural and stable isotope studies of the Big Mike cupriferous volcanogenic massive sulfide deposit, Pershing County, Nevada: Economic Geology, v. 79, p. 124-140.
- Trengrove, R. R. (1959) Reconnaissance of Nevada manganese deposits: U. S. Bureau of Mines Report of Investigations 5446.

PROPERTY NAME: Big Mike Mine
OTHER NAMES: _____
MINERAL COMMODITY(IES): Cu (Zn)
TYPE OF DEPOSIT: Volcanogenic massive sulfide
ACCESSIBILITY: Good
OWNERSHIP: Ranchers Exploration (Hecla Mining Co.)
PRODUCTION: 100,000 tons of 10.5% copper ore
HISTORY: Discovered in 1930's

County: Pershing
Mining District: Tobin & Sonoma Range
AMS Sheet: Winnemucca
Quad Sheet: Leach Hot Springs 15'
NW/4 23 31N 39E
Sec. _____, T _____, R _____
Coordinate (UTM):
North * 4|4|8|8|6|7|5 m
East 0|4|5|2|3|0|0 m
Zone 11

DEVELOPMENT: Moderate-size open pit and dumps. A core storage building (walls missing) with thousands of meters of core.

ACTIVITY AT TIME OF EXAMINATION: None.

GEOLOGY: The following is from Rye and others (1984) . The Big Mike is a high-grade, low tonnage, cupriferous pyrite volcanogenic massive sulfide deposit which occurs in the late Paleozoic Havallah sequence of north-central Nevada. The Havallah sequence is an oceanic assemblage of pelagic chert, greenstone, and turbidite. The deposit consists of a massive lens that occurs entirely within a thin, cherty carbonaceous argillite. A stringer zone occurs in the footwall pillow basalt and a minor stringer zone occurs north of the massive lens in the hanging wall pillow basalt.

Much of the dumps and pit walls consists of pillow lava, chert, and argillite with varying amounts of limonite gossan and oxide copper minerals. A boulder of massive ore was sampled previously by H.F. Bonham, Jr., and a small piece of this makes up sample 2342. More of this material is in the personal collections of H.F. Bonham and L.J. Garside (NEMG)

REMARKS: Sample 2342 is massive sulfide ore (pyrite, chalcopyrite, sphalerite) from a sample collected by H.F. Bonham, Jr.

Photo LG 842-21 is of the dumps and heap leach pile.

REFERENCES: Rye, R.O. and others (1984) Textural and stable isotope studies of the Big Mike cupriferous volcanogenic massive sulfide deposit, Pershing County, Nevada: Economic Geology, V. 79, p. 124-140

EXAMINER: L.J. Garside

DATE VISITED: 11 Sep 84

PROPERTY NAME: Horton Mercury Mine

OTHER NAMES: Ricky Boy claims (1982)

MINERAL COMMODITY(IES): Hg

TYPE OF DEPOSIT: Mineralized fractures

ACCESSIBILITY:

OWNERSHIP: Jay McDonald (1982)

PRODUCTION: 487 Flasks (Johnson, 1977)

HISTORY: Discovered in 1967

County: Pershing

Mining District: Tobin & Sonoma Range Area

AMS Sheet: Winnemucca

Quad Sheet: Leach Hot Springs 15'
E/2 SE/4 NE/4

Sec. 20, T 32N, R 39E

Coordinate (UTM):

North 4 4 9 8 2 5 0 m

East 0 4 4 8 8 2 5 m

Zone 11

DEVELOPMENT: A small open pit with a few shallow underground workings in it, and numerous bulldozer trenches. At least 2 rotary drill holes.

ACTIVITY AT TIME OF EXAMINATION: None.

GEOLOGY: Cinnabar occurs in irregular fractures filled with ocherous gossan in greenstone of the Pennsylvanian-Permian Pumpernickel Formation. Shallow underground workings follow a N35E, 55NW fault zone which flattens to near horizontal near the ground surface. Other workings are along a N35E, 75NW fault. The greenstone is argillically altered near the fault; this zone of argillic alteration may contain cinnabar, although it was not observed. The cinnabar observed occurred in 1-4 cm wide, irregular, vertical to horizontal fractures and open spaces filled with powdery limonite. Some boxworks after a sulfide mineral were noted in a prospect trench near the corner of S16, 17, 20, 21. 1-3mm quartz veinlets rarely occur in the limonite zones. The sparse cinnabar seen occurs more commonly with dark brown limonite or with the quartz veinlets. The alteration noted in other pits in an area of over 1 km² is argillic, with strong limonite staining. Silicification seems to underlie the argillic alteration at the pit at the corner of S16, 17, 20, 21. This silicification is intense, completely replacing the greenstone, and resembles the opalite in replacement opalite mercury deposits.

REMARKS: Photo LG 842-12 is of the open pit and retorts. Sample 2320 is select ocherous gossan with sparse disseminated cinnabar.

REFERENCES: Johnson, M.G. (1977) Geology and Mineral Deposits of Pershing County, Nevada: Nevada Bureau of Mines and Geology, Bulletin 89, p. 94.

EXAMINER: L.J. Garside

DATE VISITED: 27 Jul 84

PROPERTY NAME: Pollard Canyon Manganese property

OTHER NAMES: MG claims

MINERAL COMMODITY(IES): Mn

TYPE OF DEPOSIT: bedded syngenetic

ACCESSIBILITY: good

OWNERSHIP: L. G. Deans, Salt Lake City (1984)

PRODUCTION: small

HISTORY:

County: Pershing

Mining District: Tobin & Sonoma Range

AMS Sheet: Winnemucca Area

Quad Sheet: Leach Hot Springs 15'
C SE/4

Sec. 30, T 31N, R 40E

Coordinate (UTM):

North 4 4 8 6 2 0 0 m

East 0 4 5 6 5 5 0 m

Zone

11

DEVELOPMENT: A 10 m long adit and several bulldozer roads.

ACTIVITY AT TIME OF EXAMINATION: None, but claims staked 1 week ago.

GEOLOGY: Massive black manganese oxides and mixed black oxides and fine-grained silica occur in a 0-2 m bed in the Pennsylvanian Havellah Formation. The unit is obviously strata bound and of submarine exhalative origin. The bedding is N20E, 60NW. The manganese-rich bed lies between light gray chert units. Within 1 m of the manganese bed (on both top and bottom) the gray chert contains bands and irregular areas of red chert (jasper). Papke (1984) reports a vein barite locality (the Bari claims, #178) nearby.

REMARKS: Sample 2331 is select Mn-rich material from the dump of the adit. Photo 25 is of outcrops of massive manganese oxides.

REFERENCES: Johnson (1977, p. 95)

Papke (1984) Barite in Nevada: Nevada Bureau of Mines and Geology Bulletin 98, p. 120.

EXAMINER: L. J. Garside

DATE VISITED: 12 Sep 84