



Department of Geology and Mineral Industries

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Morrow County, Oregon

Madison Butte (Au?, Hg?)
Reported by: Mark L. Ferns
October 22, 1986

Property owner: U. S. Forest Service

Location: Sec. 28, 33, T5S, R27E

History: There is no mention of gold or mercury prospecting activity in the area. The Madison (Matterson?) brothers were reported by Allen (1938) to have had prospected for coal on the east side of Madison Butte in the 1880's. Contemporary newspaper articles indicate that the Matteson brothers property was on the side of Black Butte. There is some confusion whether this Black Butte is the present-day Madison Butte or the present-day Black Mountain. In any case, while searching for the reported Matteson coal prospect in late November of 1985, a large area of argillic alteration and silicification was discovered.

General Geology: Madison Butte lies along the crest of the Blue Mountain anticline. Walker, 1973 tentatively correlates exposures at Madison Butte with his T₁s unit; an Oligocene Miocene series of tuffs, tuffaceous sediments, and siliceous lava flows. The unit overlies a sequence of altered andesite flows that in turn overlie a sequence of altered andesite flows that in turn overlie a sequence of Paleocene to Eocene arkosic sands tones.

At Madison Butte, the rocks appear to be altered plagioclase phyrlic rocks, possibly andesites. Hydrothermal alteration has been intense enough to obscure primary igneous textures. The original igneous protolith is inferred from the presence of kaolinized feldspars that are set in a micro-crystalline quartz groundmass.

Mineralization is widespread and encompasses most of sections 28 and 33. Extensive forest and soil cover makes it uncertain how continuous the mineralization is. The more resistant silicified ribs strike from N35E to N60E and comprise limonitic silicified breccia zones up to 30' across in exposure. Relatively patches of unaltered dark blue to gray andesites that occur between the silicified ribs along the southern flank of the alteration zone may be either late of post-mineralization dikes. Alteration appears most intense in the area west of Lucky Spring where quartz veining occurs in red chalcedonic breccias (jasperoid). The northern, western and eastern extent of mineralization was not determined.

Development: Previous exploration efforts appear to have been desultory. A number of shallow prospect pits are scattered about with the largest pits located in the SW $\frac{1}{4}$, SW $\frac{1}{4}$, Sec. 28. These are but a few feet in depth. The remains of an old cabin lie above Lucky Springs.

General Comments: This is an extensive area of hydrothermal alteration, the extent of which is not known. A single grab sample (ATB-43) submitted during the coal study ran

nil Au; 2.1 ppm Hg; 0.2 ppm Ag; 14 ppm Cu; 127 ppm Mn; 10 ppm Pb; <1 ppm Mo and 30 ppm V. These results, while not overly exciting, are nevertheless anomolous. Colloform quartz textures in some of the limoninitic breccias may be indicative of an epithermal environment. The wide areal extent of the alteration may also be indicative of an epithermal environment.

This area should be noted in the Umatilla National Forest and Morrow County land use plans as a potential gold exploration/extraction are..

Reported by: Mark L. Ferns

Area visited by M.L. Ferns and D.G. Avery, U.S. Forest Service Geologist on October 22, 1986

References: Walker, G.W., 1973, Reconnaissance Geologic map of the Pendleton quadrangle, Oregon and Washington; U.S. Geological Survey Map I-727, Scale 1:250,000.