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MINERAL INVESTIGATION OF THE BADLANDS WILDERNESS STUDY AREA, ELKO COUNTY, NEVADA

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This open file report summarizes the results of a Bureau of Mines wilderness study and will be incorporated in a joint report with the Geological Survey. The report is preliminary and has not been edited or reviewed for conformity with the Bureau of Mines editorial standards. Work on this study was conducted by personnel from Intermountain Field Operations Center, Denver Federal Center, Denver, Colorado 80225.

STUDIES RELATED TO WILDERNESS
Bureau of Land Management Wilderness Study Areas

The Federal Land Policy and Management Act (Public Law 94-579, October 21, 1976) requires the U.S. Geological Survey and the U.S. Bureau of Mines to conduct mineral surveys on certain areas to determine their mineral resource potential. Results must be made available to the public and be submitted to the President and the Congress. This report presents the results of a mineral survey of the Badlands Wilderness Study Area (NV-010-184), Elko County, Nevada.

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SUMMARY

The Tertiary Jarbidge Rhyolite is unaltered and unmineralized in the Wilderness Study Area, and no records or evidence of mining activity were found. Possible oil and gas reservoir rocks may occur at depth beneath the Wilderness Study Area; however, it is untested by industry. The Wilderness Study Area lacks the proper environment for the occurrence of geothermal resources.

INTRODUCTION

In 1983, the Bureau of Mines, in conjunction with the Geological Survey, investigated the mineral resources of the Badlands Wilderness Study Area (WSA) Elko County, Nevada, on lands administered by the Bureau of Land Management (BLM). This report presents the results of the Bureau of Mines study.

Geographic setting

The WSA comprises about 8,415 acres in northeastern Elko County, Nevada (fig. 1). The area is approximately 15 mi south of the Idaho State line, 60 mi south of Twin Falls, Idaho, and 65 mi northeast of Elko, Nevada.

The area is in the northern part of the Basin and Range province, a vast region of the western United States, including all of Nevada, that is characterized by subparallel mountain ranges separated by broad alluvium-filled valleys. Topography in the northern part of the province is more subdued than in the southern part and consists of low, usually rounded mountains and intermontane valleys that are not as well defined as they are in the southern part. The topography in the WSA consists of rough ridges of

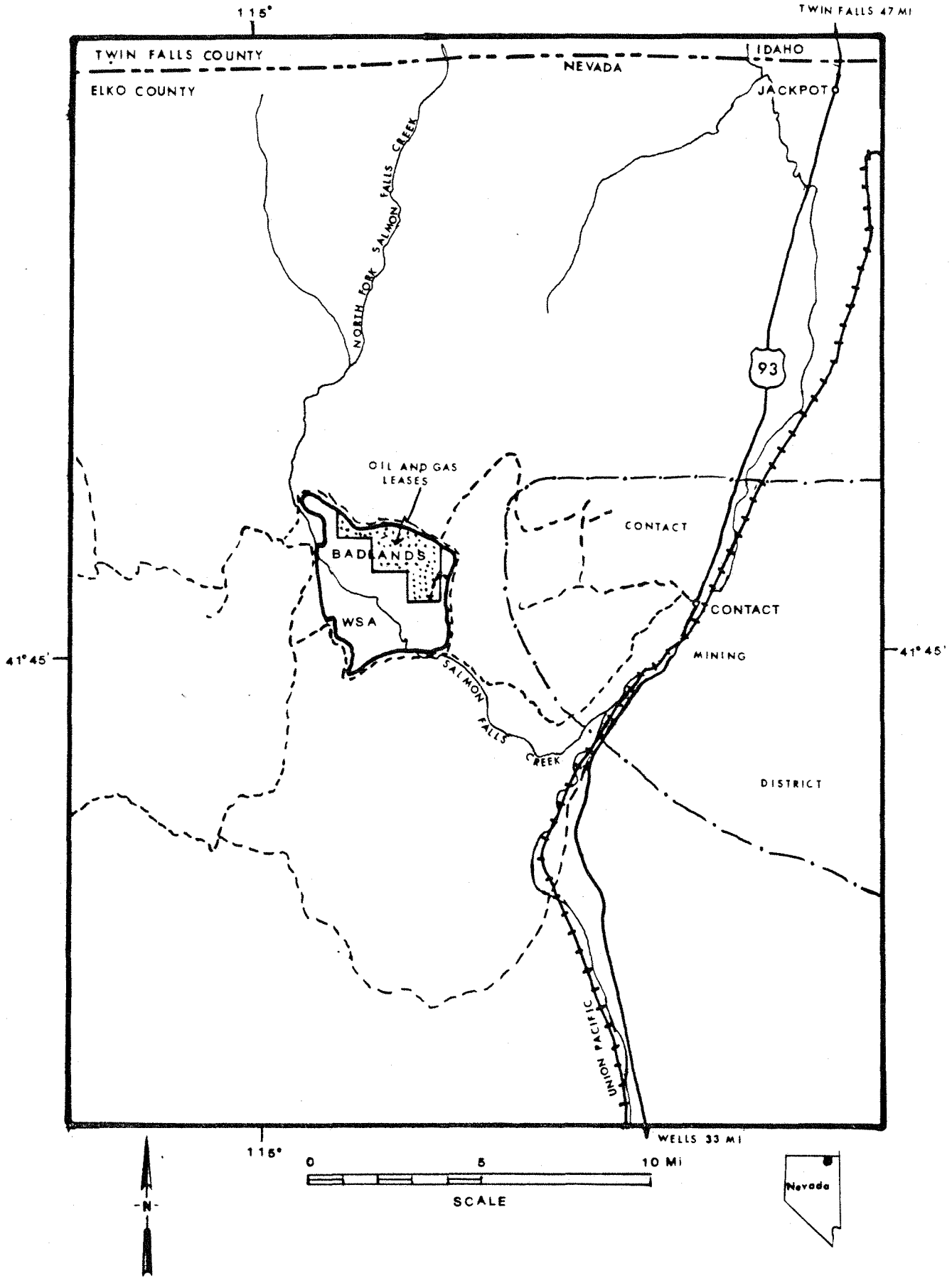

Figure 1.--Index map of the Badlands Wilderness Study Area, Elko County, Nevada.

Jarbidge Rhyolite dissected by dry stream beds; the only perennial stream in the WSA is Salmon Falls Creek, which flows to the southeast. Elevations range from nearly 7,000 ft along the northeast boundary to about 5,550 ft where Salmon Falls Creek flows out of the WSA in the southeast corner.

Except for two short sections on the west side (totaling about 1.5 mi), the boundaries of the WSA are along four-wheel-drive roads that are accessible from the old mining town of Contact, Nevada. Contact is on U.S. Highway 93, 16 mi south of Jackpot, Nevada, 52 mi north of Wells, Nevada, and about 5 mi east of the WSA. Access within the boundaries is limited to travel by foot or pack animal, except for one short stretch of four-wheel-drive road along the east side (fig. 1).

Previous work

Although the Contact mining district, east of the WSA, has been studied intermittently since the early part of this century (most notably by Schrader in 1935), no one had published a study that included the WSA until the BLM, as part of their comprehensive GEM program to assess the geology, energy, and minerals resources of wilderness study areas, contracted with TERRADATA of Lakewood, Colorado, to conduct a study (Mathews and Blackburn, 1983).

Present investigation

Bureau personnel reviewed various sources of minerals information including published and unpublished literature, Bureau files, and mining claim records at the Elko County courthouse in Elko and in BLM recordation files. BLM personnel in the Elko district office were interviewed. Field reconnaissance in November 1983, did not locate any mineral workings in, or within 2 mi of, the WSA. The author was assisted in the field by Diann D. Gese.

Mining activity

There has been no mining activity in, or within 2 mi of, the WSA. All mining in the vicinity has been 2 to 5 mi east of the WSA in the Contact mining district. As of November 1983, there were no mining claims within the WSA .

Oil, gas, and geothermal activity

No drilling or other oil and gas exploration is known to have occurred in the WSA, but about 3,200 acres of the northeastern part of the WSA were leased for oil and gas as of April 1983. The WSA is just east of the Devonian Antler Uplift, and favorable shelf facies within the Late Paleozoic marine sequence may occur at depth beneath the WSA (Mathews and Blackburn, 1983). This is probably the impetus behind the leasing activity.

According to Mathews and Blackburn (1983), the environment within the WSA is not favorable for the occurrence of geothermal resources. They cite the lack of recent volcanic activity, major fault zones, and known geothermal occurrences to support their conclusion.

MINING DISTRICTS AND MINERALIZED AREAS

The Badlands WSA includes no mining districts, but the Contact mining district is 2 to 5 mi east of the WSA. The district was organized in the late 1800's, but nearly one half of the production was made between 1952 and 1957. The deposits occur as either metasomatic replacement along the contact of Jurassic granodiorite with Paleozoic carbonate rocks or as quartz veins along faults, dikes, and the intrusive contact (Granger and others, 1957, p. 35). Copper was the major commodity mined along with lesser amounts of lead, silver, and gold. The contact between the granodiorite and carbonate sequence dips westward toward the WSA.

The Jarbidge Rhyolite exposed in the WSA is of unknown thickness and does not appear to be hydrothermally altered in hand specimen; no surface evidence of mineralization was observed. Elsewhere, the Jarbidge Rhyolite contains jasper and opal, often of gem quality (Steven Kluender, oral commun., 1983); however, these minerals were not seen in the WSA.

CONCLUSION

The Jarbidge Rhyolite within the WSA is apparently unaltered and unmineralized and no records or evidence of mining activity could be found. It is therefore unlikely that any metallic mineral resources occur within the WSA. However, if the mineralized contact zone of the Contact mining district occurs beneath the rhyolite in the WSA, then copper and lesser amounts of lead, silver, and gold may occur at depth beneath the WSA. Because of a lack of data on the subsurface nature of the contact, this is only speculation.

Because of its proximity to the Antler Uplift and associated possible reservoir rocks, oil and gas resources may underlie the WSA; however, the area is completely untested by industry.

The WSA lacks a favorable environment (recent volcanics and major fault zones) for the occurrence of geothermal resources.

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