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Mineral Investigation of the Far South Egans Wilderness Study Area,
Lincoln and Nye Counties, Nevada

By
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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 U.S. Geological Survey. The report is preliminary and has not been edited or reviewed for conformity with the U.S. Bureau of Mines editorial standards. Work on this study was conducted by personnel from Intermountain Field Operations Center, Building 20, Denver Federal Center, Denver, CO 80225

STUDIES RELATED TO WILDERNESS

The U.S. Geological Survey and the U.S. Bureau of Mines are required by the Federal Land Policy and Management Act (Public Law 94-579, October 21, 1976) to conduct mineral surveys within wilderness study areas, as designated by the Bureau of Land Management, to determine the mineral values, if any, that are present. The 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 Far South Egans (NV-040-172) Wilderness Study Area, Lincoln and Nye Counties, Nevada.

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MINERAL INVESTIGATION OF THE FAR SOUTH EGANS WILDERNESS STUDY AREA,
LINCOLN AND NYE COUNTIES, NEVADA

By Steven E. Tuftin, Bureau of Mines 1/

SUMMARY

No near-surface metallic mineral occurrences were found within the Far South Egans Wilderness Study Area. Industrial rocks are present in the area but they have no unique features that would lead to their development in the near future. Sandberg (1982) has rated the Wilderness Study Area as having a medium potential for petroleum.

INTRODUCTION

In November 1983, the Bureau of Mines, in conjunction with the U.S. Geological Survey, conducted a mineral investigation of the Far South Egans Wilderness Study Area (WSA) in east-central Nevada on lands administered by the Bureau of Land Management. The Bureau of Mines surveys and studies mines, prospects, and mineralized areas to evaluate identified resources. The Geological Survey studies sub-economic resources and assesses undiscovered mineral resources based on geological, geochemical, and geophysical surveys. This report presents the results of the Bureau of Mines study.

Geographic setting

The Far South Egans WSA, which includes approximately 42,316 acres of the southern Egan Range, is about 50 to 60 miles south of Ely, Nevada. In the Egan Range, the WSA lies south of the road through Shingle Pass, and north of the road through Trough Spring Canyon (fig. 1). The western

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boundary of the WSA closely follows the base of the western edge of the southern Egan Range (roughly 1-2 miles east of Stage Highway 38). The eastern boundary of the WSA lies along and near various dirt roads along the base of the eastern side of the southern Egan Range (fig. 1).

Geologic setting

The Far South Egans WSA is underlain by an uplifted fault-block of Paleozoic sedimentary rocks which dip to the southeast. The exposed rocks in the vicinity of the WSA range from Upper Cambrian through Pennsylvanian, and include about 18,000 feet of section (estimated from Kellogg, 1963, plate 1). Laketown Dolomite, Sevy Dolomite, Simonson Dolomite, Guilmette Formation, and Eureka Quartzite underlie most of the ridges and cliffs in the WSA. Middle Tertiary volcanic quartz latite porphyry flows and ignimbrites occur within the northern portion of the WSA, along a concealed fault (Kellogg, 1964, p. 956-957).

Previous investigations

The stratigraphy and structure of the southern Egan Range is well documented by Kellogg (1960, 1963 and 1964), and by Tschanz and Pampeyan (1970), in their paper on the geology and mineral deposits of Lincoln County, Nevada.

Present investigation

Prior to field work, a literature search was conducted for minerals information on the Far South Egans WSA. Oil and gas plats were examined for leases. Bureau of Land Management records were checked for current mining claims within or near the WSA; none had been filed. The Bureau of Mines conducted a field examination of the Far South Egans WSA in November 1983. Foot traverses were conducted but no mines, prospects, or mineralized areas were located within the WSA; no samples were taken.

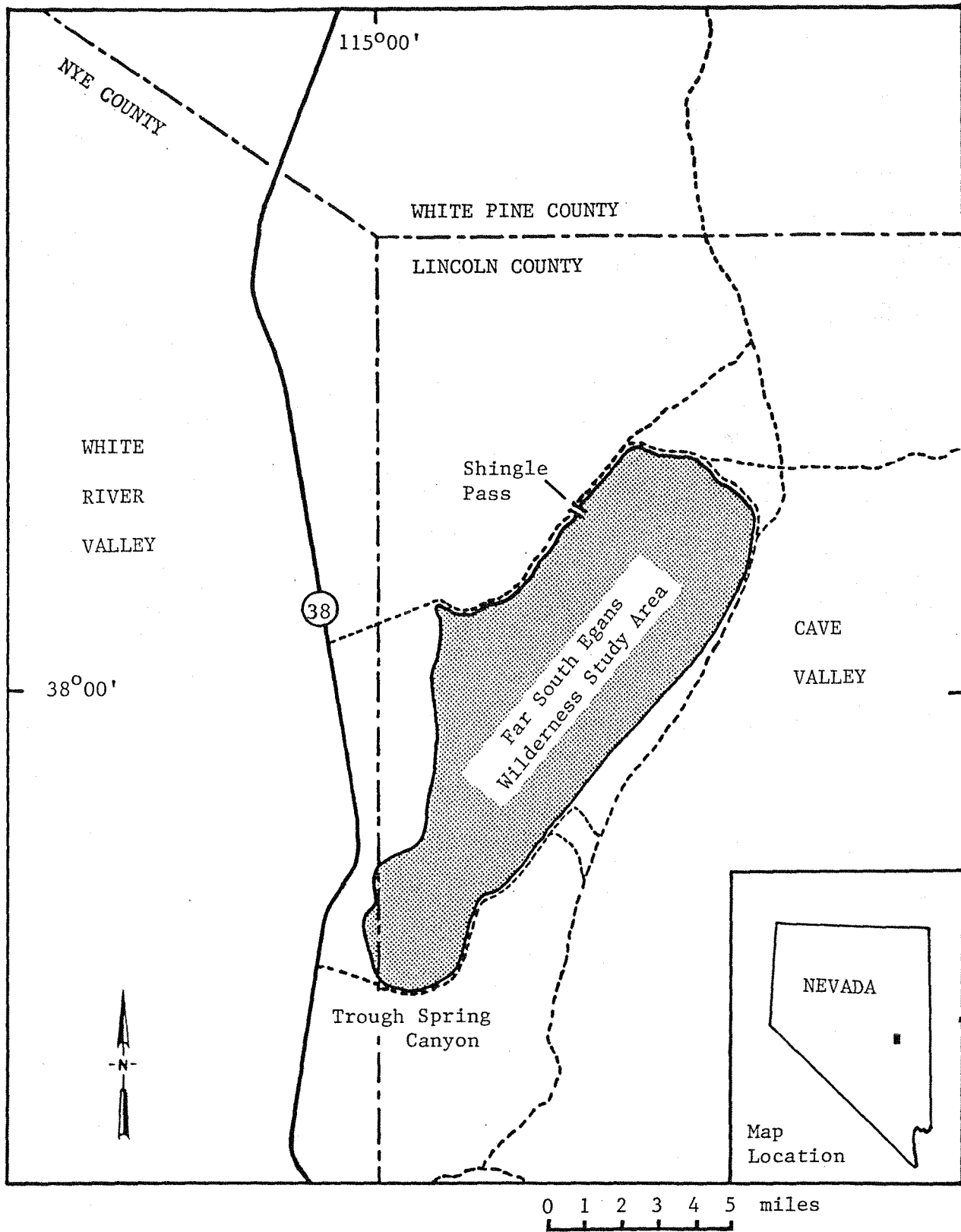


Figure 1.--Index map of the Far South Egans Wilderness Study Area, Lincoln and Nye Counties, Nevada.

Two prospect pits on a brecciated jasperoid vein were located along the south side of Trough Spring Canyon, outside the WSA, by Dave Hedlund, of the U.S. Geological Survey. Spectrographic analyses of this material showed no metal values of significance (D. Hedlund, pers. comm., Jan., 1985).

MINERAL COMMODITIES

While no metallic mineral sources were identified in the WSA, possible exploitable mineral commodities are related to specific rock types.

Carbonates

Carbonate strata (dolomite and limestone), compose nearly 90% of the Paleozoic section in the Far South Egans WSA (Hedlund, written commun., 1984). Carbonate rocks have important industrial applications, but they are common materials which are readily available nearer to centers of industry. Limestone (calcium carbonate) is an important source of the raw material for making cement. Dolomite (calcium-magnesium carbonate) is often used as a source of crushed rock, especially for road gravel. Both of these materials are of low unit value, and generally require local markets to be exploited economically. Demand for the carbonate rocks in the Far South Egans WSA is unlikely in the foreseeable future.

Quartzite

The Eureka Quartzite, a prominent cliff forming unit in the southern Egan Range, crops out in a discontinuous band, approximately 10 miles long and 600 ft thick, along the western side of the WSA. The Eureka Quartzite and correlative formations are widespread in the western states, cropping out in hundreds of localities in central Idaho, western Utah, and from eastern Nevada to southeastern California (Ketner, 1982,

p. 237). The Eureka Quartzite is unusually pure wherever it occurs, and it has a high potential value for use in metallurgical processes, glass manufacture, and as a source of silicon (Ketner, 1976). Close access to manufacturing sites or transportation is critical to the development of the quartzite however, because it is of low unit value. The quartzite in the Far South Egans WSA is unlikely to be developed in the foreseeable future because of its remote location.

Sand and gravel

Sand and gravel occur along the flanks of the southern Egan Range, and are used locally for road construction and fill. Most of these unconsolidated materials also occur outside the WSA. Gold is not known to occur in the sedimentary rocks of the South Egan Range, and it is therefore not present in these locally derived gravels.

OIL AND GAS

The Far South Egans WSA is in a region rated as having a medium potential for petroleum because source rocks in the Mississippian Chainman Shale are regarded to be at maturation for oil and gas generation and are in reasonable proximity to the Railroad Valley oil producing area 30 miles to the west (Sandberg, 1983). Poole and Claypool (1984) indicate that the Chainman Shale is a source rock for petroleum, but thermal maturity and traps are required to form exploitable deposits. Favorable geologic conditions may exist in the basins on either side of the WSA. A few small exposures of Chainman Shale crop out inside the WSA near the southeastern border. These beds dip to the southeast. The Chainman Shale may occur at depth along the eastern boundary of the WSA, and in the basin to the east. The Chainman Shale may also occur in the basin west of the Far South Egans WSA.

Much of the WSA is covered by oil and gas leases (fig. 2). Three dry exploration holes have been drilled for oil and gas within four miles east and west of the WSA (land classification - oil-gas map, in Egans/Mount Grafton G-E-M Resources Area (GRA No. NV-14) Technical Report (WSAs NV 040-168, 040-169, and 040-172), prepared by Great Basin GEM Joint Venture, Reno, NV, for the Bureau of Land Management, Building 50, Denver Federal Center, Denver, CO 80225).

CONCLUSIONS

No evidence of near-surface base- or precious-metal occurrences was found in the Far South Egans WSA. Industrial mineral commodities present within the WSA include limestone and dolomite, quartzite, and sand and gravel. All of these materials would need use-specific tests for any industrial applications. All of these commodities are available in abundance nearer to market areas. The industrial mineral commodities present in the WSA are not likely to be developed.

Petroleum related to the Chainman Shale may occur at depth within the WSA along the eastern border, but the basins to the east and west of the WSA are much better target areas for the traps needed to create a reservoir.

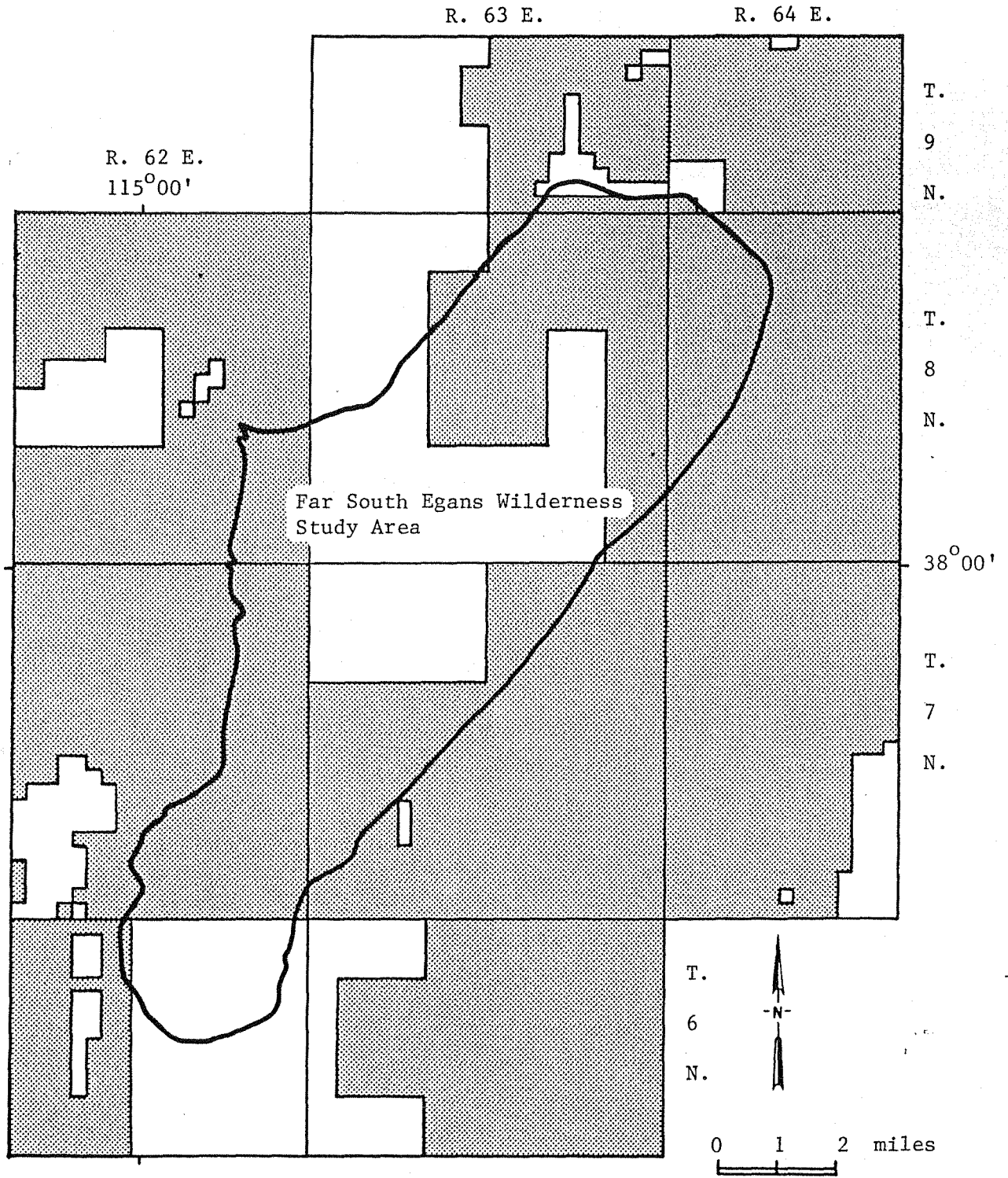


Figure 2.--Map showing Federal oil and gas leases in and near the Far South Egans Wilderness Study Area, Lincoln and Nye Counties, Nevada (shaded areas are leased).

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