U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

MINERAL RESOURCES OF THE QUEER MOUNTAIN WILDERNESS STUDY AREA, ESMERALDA COUNTY, NEVADA

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STUDIES RELATED TO WILDERNESS

Bureau of Land Management Wilderness Study Area

The Federal Land Policy and Management Act (Public Law 94-579, October 21, 1976) requires the U.S. Geological Survey and U.S. Bureau of Mines to conduct mineral surveys on certain areas to determine the mineral values, if any, that may be present. 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 Queer Mountain (NV-060-354) Wilderness Study Area, Esmeralda County, Nevada.

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Abstract

At the request of the U.S. Bureau of Land Management, the 42,650-acre Queer Mountain Wilderness Study Area (NV-060-354) was evaluated for identified mineral resources (known) and mineral resource potential (undiscovered). In this report, the area studied is referred to as the "wilderness study area" or simply "the study area." Library research was conducted in 1990 to assess the mineral resources and resource potential of the area; no field work was conducted.

No mines, prospects, or mineral resources have been identified within the study area. The study area contains zones that have moderate mineral resource potential for gold and silver and low mineral resource potential for silver, molybdenum, copper, and lead.

Character and Setting

The Queer Mountain Wilderness Study Area (fig. 1) covers approximately 42,650 acres in Nevada along the California boarder. The study area is located 12 mi west of Scotty's Junction, Nev. and 40 mi south of Goldfield, Nev. Dirt roads off Nevada State highway 72 a few miles southeast of the study area provide access. Paleozoic shale and limestone, Mesozoic granitic rocks, and Tertiary tuff (see appendixes for geologic time chart) underlie the study area. The terrain is rugged with elevations ranging from about 4,200 ft in the east to 6,600 ft in central part.

INTRODUCTION

This mineral survey was requested by the U.S. Bureau of Land Management and is the result of a cooperative effort by the U.S. Geological Survey and the U.S. Bureau of Mines. An introduction to the wilderness review process, mineral survey methods, and agency responsibilities was provided by Beikman and others (1983). The U.S. Bureau of Mines evaluates identified resources at individual mines and known mineralized areas by collecting data on current and past mining activities and through field examination of mines, prospects, claims, and mineralized areas. Identified resources are classified according to a system that is a modification of that described by McKelvey (1972) and U.S. Bureau of Mines and U.S. Geological Survey (1980). U.S. Geological Survey studies are designed to provide a scientific basis for assessing the potential for undiscovered mineral resources by determining geologic units and structures, possible environments of mineral deposition, presence of geochemical and geophysical anomalies, and applicable ore-deposit models. Goudarzi (1984) discussed mineral assessment methodology and terminology as they apply to these surveys. See appendixes for the definition of levels of mineral resource potential and certainty of assessment and for the resource/reserve classification.

Sources of Data

Wrucke and others (1984, 1985) presented reports on the mineral resources of the nearby Little Sand Springs Wilderness Study Area and Miller (1983) summarized the known deposits of that area. Leszcykowski (1990a, b) presented a preliminary appraisals of the known deposits within the Grapevine Mountain and Queer Mountain Wilderness Study Areas. An early treatment on the mining districts and mineral resources of Nevada was compiled by Lincoln (1923). Albers and Stewart (1972) presented the geology and mineral deposits of Esmeralda County.

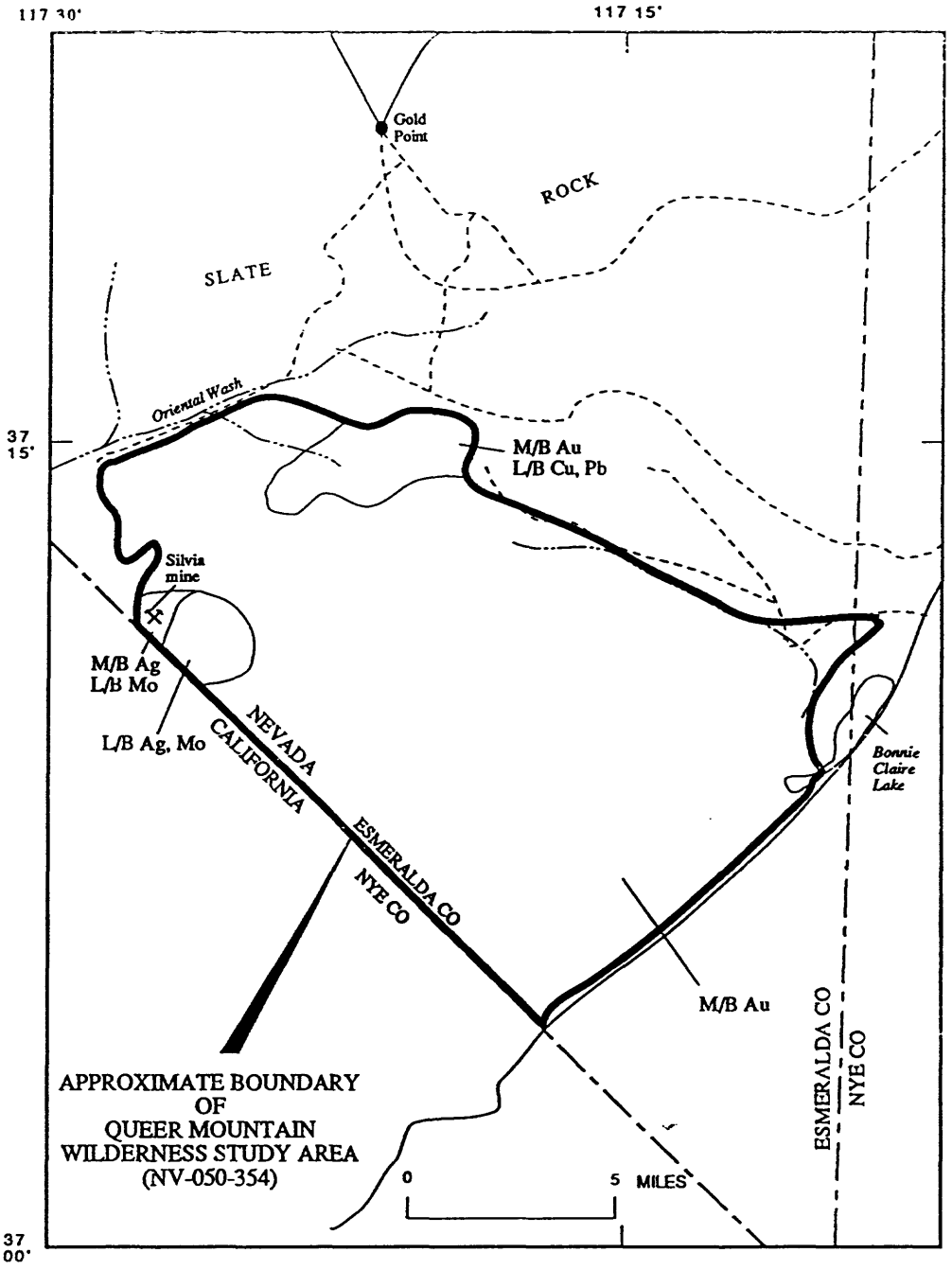

Figure 1.--Map showing location and mineral resource potential of the Queer Mountain Wilderness Study Area, Esmeralda County, Nevada.

EXPLANATION FOR FIGURE 1

L Area having low mineral resource potential
M Area having moderate mineral resource potential

Level of certainty of assessment
B Data suggest level of potential

Commodities

Ag Silver
Au Gold
Cu Copper
Mo Molybdenum
Pb Lead

A preliminary resource study of the Grapevine Canyon area was done by Albers and Stewart (1983). Weimer-McMillion and others (1983) presented a bibliography of mineral information on Nevada and Wong (1983) presented a map of resource areas. Mineral resource data for this report are available through the Mineral Resource Data System (MRDS) summarized by Sherlock and Tingley (1985).

Recommendations

Geochemical sampling in the northern part of the area is needed to evaluate the potential for quartz vein gold deposits. Geophysical studies are necessary to determine the thickness of the tuff in the central and southern parts of the area, and to determine the feasibility of exploring for hidden deposits below the tuff. Reconnaissance field work is recommended to evaluate possible metallic and non-metallic occurrences in the study area to ensure that no mineralized sites were overlooked in the pre-field study. The Wilderness Study Area should be studied as part of a comprehensive mineral survey by the U.S. Bureau of Mines and the U.S. Geological Survey.

APPRAISAL OF IDENTIFIED RESOURCES

By Andrew M. Leszcykowski

U.S. Bureau of Mines

Mines and Prospects

There is no record of mineral production from the Queer Mountain study area. No mines past or present are known to exist in the study area. According to current (April 1990) U.S. Bureau of Land Management location records there are no active mining claims inside the boundaries of the study area. Wrucke and others (1984) indicate there was production (amount unknown) from the Sylvia Mine, about 1 mi north of the northwestern corner of the Queer Mountain Wilderness Study Area. Available literature, U.S. Geological Survey topographic maps, and U.S. Bureau of Mines Mineral Industry Location System files do not show mining activity within the study area.

Mining History

There are no known mining districts that incorporate the Queer Mountain Wilderness Study Area. The Tokop (Gold Mountain) mining district lies immediately northeast of the study area and has produced approximately 3,300 ounces of gold, 37,300 ounces of silver, 11,700 pounds of copper, and 53,500 pounds of lead.

Identified Mineral Resources

No mineral resources have been identified in the Queer Mountain Wilderness Study Area. The study area has not been subjected to a detailed examination. No field work has been done in the area to verify the presence or absence of mineral resources.

ASSESSMENT OF MINERAL RESOURCE POTENTIAL

By Michael F. Diggles

U.S. Geological Survey

Geology

The northern part of the Queer Mountain area is underlain by Mesozoic granitic rocks and flanking metamorphosed shale and limestone of presumed Proterozoic and Cambrian age. These rocks are overlain by the Tertiary Timber Mountain Tuff which covers most of the central and southern parts of the area. The tuff is about 11.3 million years old and is up to 150 ft thick. it is broken by widely spaced high-angle normal faults and is locally covered by Tertiary or Quaternary basalt flows.

Mineral Resource Potential

Wrucke and others (1984) report that there is an area of moderate potential for silver within the Queer Mountain Wilderness Study Area surrounding the Sylvia mine; that area also has low potential for molybdenum. They also assign low potential for both metals in the nearby area (fig. 1). The northern part of the study area has a moderate potential, certainty B, for gold vein deposits in granitic rocks and in flanking metamorphosed shale and limestone. The same area has a low potential, certainty B, for copper and lead. The central and southern parts of the area is underlain mainly by the Timber Mountain Tuff that is probably too thick to allow for exploration of potential targets in underlying rocks. Bliss (1983) does not show any thermal springs, Morton and others (1977) do not show any young volcanic centers, and Muffler (1979) does not show geothermal resources in or near the area. The study area has aerial gamma-ray spectroscopy values of 2.0 to 2.7 percent potassium, 43.2 to 4.0 parts per million (ppm) equivalent uranium, and 13 to 16 ppm equivalent thorium. There are no anomalies within the boundaries of the study area or in the immediate vicinity (J.S. Duval, written commun., 1990). Garside (1973) does not show any radioactive mineral occurrences in or near the study area. The rocks in the study area are not conducive to the accumulation of hydrocarbons; Sandberg (1982, 1983) does not show petroleum potential in the study area.

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APPENDIXES

DEFINITION OF LEVELS OF MINERAL RESOURCE POTENTIAL AND CERTAINTY OF ASSESSMENT

LEVELS OF RESOURCE POTENTIAL

H **HIGH** mineral resource potential is assigned to areas where geologic, geochemical, and geophysical characteristics indicate a geologic environment favorable for resource occurrence, where interpretations of data indicate a high degree of likelihood for resource accumulation, where data support mineral-deposit models indicating presence of resources, and where evidence indicates that mineral concentration has taken place. Assignment of high resource potential to an area requires some positive knowledge that mineral-forming processes have been active in at least part of the area.

M **MODERATE** mineral resource potential is assigned to areas where geologic, geochemical, and geophysical characteristics indicate a geologic environment favorable for resource occurrence, where interpretations of data indicate reasonable likelihood for resource accumulation, and (or) where an application of mineral-deposit models indicates favorable ground for the specified type(s) of deposits.

L **LOW** mineral resource potential is assigned to areas where geologic, geochemical, and geophysical characteristics define a geologic environment in which the existence of resources is permissive. This broad category embraces areas with dispersed but insignificantly mineralized rock, as well as areas with little or no indication of having been mineralized.

N **NO** mineral resource potential is a category reserved for a specific type of resource in a well-defined area.

U **UNKNOWN** mineral resource potential is assigned to areas where information is inadequate to assign a low, moderate, or high level of resource potential.

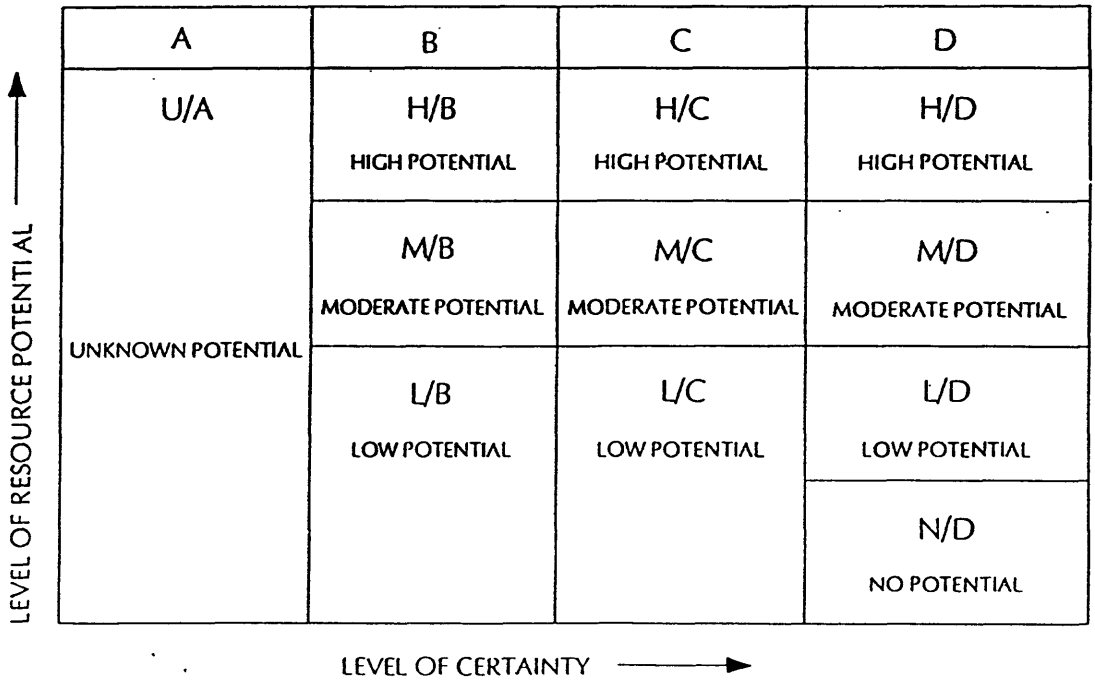
LEVELS OF CERTAINTY

A Available information is not adequate for determination of the level of mineral resource potential.

B Available information only suggests the level of mineral resource potential.

C Available information gives a good indication of the level of mineral resource potential.

D Available information clearly defines the level of mineral resource potential.



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RESOURCE/RESERVE CLASSIFICATION

	IDENTIFIED RESOURCES			UNDISCOVERED RESOURCES	
	Demonstrated		Inferred	Probability Range	
	Measured	Indicated		Hypothetical	Speculative
ECONOMIC	Reserves		Inferred Reserves		
MARGINALLY ECONOMIC	Marginal Reserves		Inferred Marginal Reserves		
SUB-ECONOMIC	Demonstrated Subeconomic Resources		Inferred Subeconomic Resources		

Major elements of mineral resource classification, excluding reserve base and inferred reserve base. Modified from McKelvey, V.E., 1972, Mineral resource estimates and public policy: American Scientist, v. 60, p. 32-40; and U.S. Bureau of Mines and U.S. Geological Survey, 1980, Principles of a resource/reserve classification for minerals: U.S. Geological Survey Circular 831, p. 5.

GEOLOGIC TIME CHART

Terms and boundary ages used by the U.S. Geological Survey in this report

EON	ERA	PERIOD		EPOCH	AGE ESTIMATES OF BOUNDARIES IN MILLION YEARS (Ma)
Phanerozoic	Cenozoic	Quaternary		Holocene	0.010
				Pleistocene	1.7
		Tertiary	Neogene Subperiod	Pliocene	5
				Miocene	24
			Paleogene Subperiod	Oligocene	38
				Eocene	55
				Paleocene	66
	Mesozoic	Cretaceous		Late Early	96 138
		Jurassic		Late Middle Early	205
		Triassic		Late Middle Early	~240
	Paleozoic	Permian		Late Early	290
		Carboniferous Periods	Pennsylvanian	Late Middle Early	~330
			Mississippian	Late Early	360
		Devonian		Late Middle Early	410
		Silurian		Late Middle Early	435
		Ordovician		Late Middle Early	500
		Cambrian		Late Middle Early	[1]~570
Proterozoic	Late Proterozoic				900
	Middle Proterozoic				1600
	Early Proterozoic				2500
Archean	Late Archean				3000
	Middle Archean				3400
	Early Archean				
pre-Archean[2]		(3800?)			4550

[1]Rocks older than 570 Ma also called Precambrian, a time term without specific rank.
[2]Informal time term without specific rank.