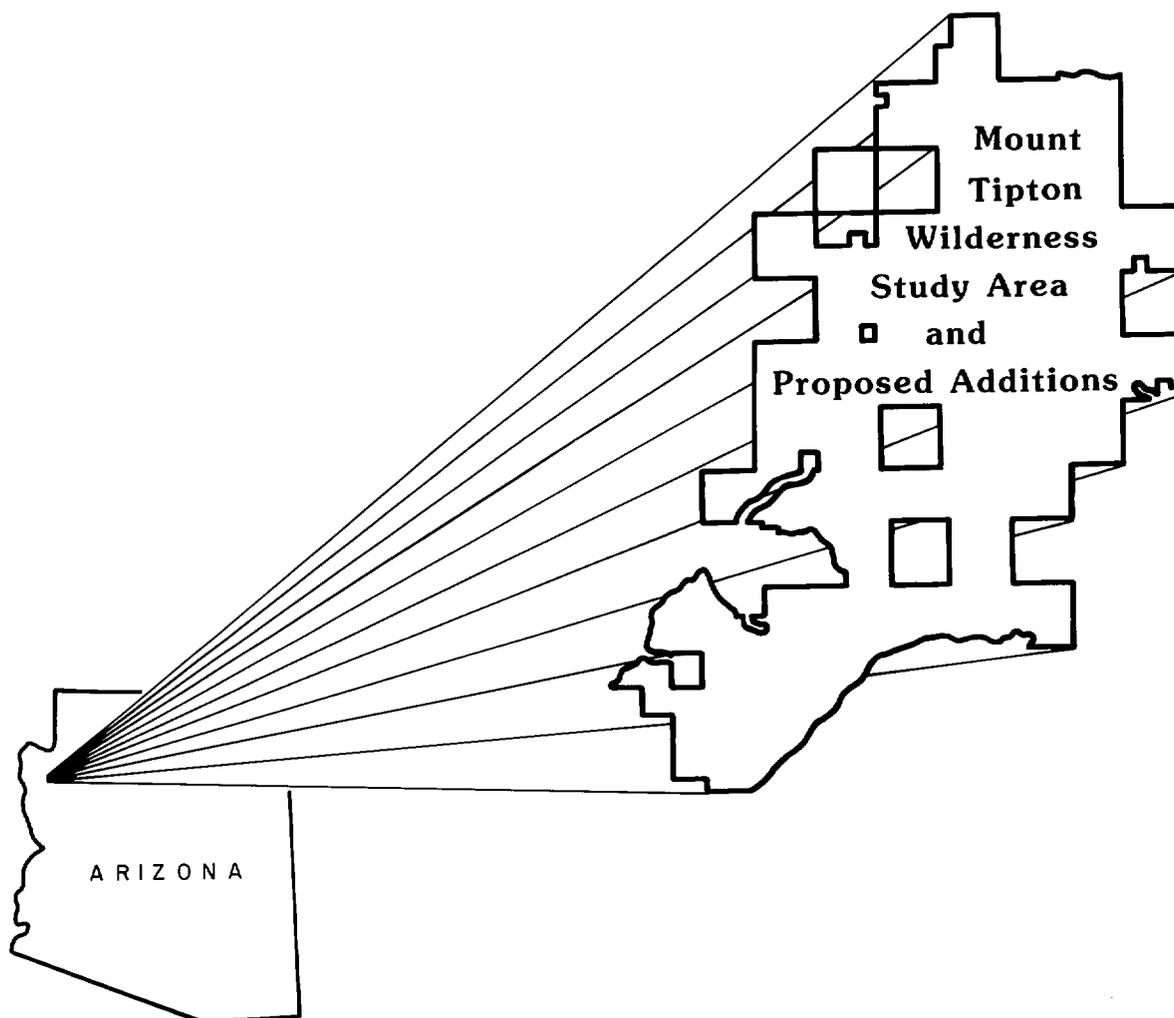


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Mineral Land Assessment
Open File Report/1988

Mineral Investigation of the Mount Tipton Wilderness Study Area (AZ-020-012/042) and Proposed Additions, Mohave County, Arizona



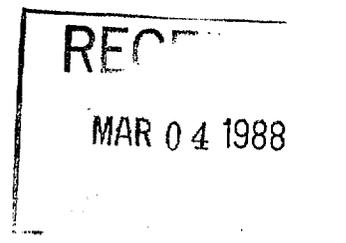
BUREAU OF MINES
UNITED STATES DEPARTMENT OF THE INTERIOR

MINERAL INVESTIGATION OF THE MOUNT TIPTON WILDERNESS STUDY AREA
(AZ-020-012/042) AND PROPOSED ADDITIONS, MOHAVE COUNTY, ARIZONA

by

Carl L. Almquist

MLA 9-88
1988



Intermountain Field Operations Center
Denver, Colorado

UNITED STATES DEPARTMENT OF THE INTERIOR
Donald P. Hodel, Secretary

BUREAU OF MINES
David S. Brown, Acting Director

PREFACE

The Federal Land Policy and Management Act of 1976 (Public Law 94-579) requires the U.S. Geological Survey and the 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 Mount Tipton Wilderness Study Area (AZ-020-012/042) and proposed additions, Mohave County, Arizona.

This open-file report summarizes the results of a Bureau of Mines wilderness study. The report is preliminary and has not been edited or reviewed for conformity with the Bureau of Mines editorial standards. This study was conducted by personnel from the Branch of Mineral Land Assessment (MLA), Intermountain Field Operations Center, Building 20, Denver Federal Center, Denver, CO 80225.

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UNIT OF MEASURE ABBREVIATIONS USED IN THIS REPORT

cps count per second

° degree

ft foot

mi mile

oz ounce

% percent

lb pound

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Carl L. Almquist, Bureau of Mines

SUMMARY

In March 1987, the Bureau of Mines conducted a mineral investigation of 33,950 acres which includes the 33,410 acre Mount Tipton Wilderness Study Area, as requested by the Bureau of Land Management and authorized by the Federal Land Policy and Management Act of 1976 (Public Law 94-579). No leasable, locatable, or salable mineral resources were identified.

Precambrian- and Mesozoic-age granitic rocks predominate throughout the study area and also are present in the adjacent Wallapai mining district where they host mineral deposits containing copper, molybdenum, lead, zinc, silver, and gold. None of these deposits are known to extend into the study area.

Prospecting, locating mining claims, and oil and gas leasing are the only known minerals-related activities that have taken place in the study area. No mines, significant prospects, or mineralized areas were found during the Bureau's investigation. The study area has been rated by the U.S. Geological Survey as having zero potential for oil and gas.

INTRODUCTION

In March 1987, the Bureau of Mines, in a cooperative program with the U.S. Geological Survey (USGS), conducted a mineral investigation of the Mount Tipton Wilderness Study Area (WSA) and proposed additions, Mohave County, Arizona, lands administered by the U.S. Bureau of Land Management (BLM), Phoenix District Office. The 33,950 acre study area referred to in this report includes the 33,410 acre WSA and 510 acres of proposed additions. The

Bureau surveys and studies mines, prospects, and mineralized areas to appraise reserves and identified subeconomic resources. The USGS assesses the potential for undiscovered mineral resources based on regional geological, geochemical, and geophysical surveys. This report presents the results of the Bureau's study. A joint report, to be published by the USGS, will integrate and summarize the results of both studies.

Geographic setting

The study area is in the Cerbat Mountains 20 mi northwest of Kingman, Arizona, south of Pierce Ferry Road between U.S. Highway 93 and Stockton Hill Road. Big Wash Road, which connects with U.S. Highway 93, is contiguous with part of the southern boundary and is the only improved access route; unimproved roads lead to other parts of the study area boundary (fig. 1).

The Cerbat Mountains are a northwest-trending tilted fault block physiographically in the Mohave Section of the Basin and Range. Deeply incised crystalline rocks in this sierra-like range rise sharply from the flanking aggraded desert plains. The range is 6 to 10 mi wide and 30 mi long. Elevations in the study area range from 3,280 ft on the western edge to 7,148 ft on the summit of Mt. Tipton.

Previous studies

Schrader (1909) studied mineral deposits in the Cerbat Mountains and included a geologic description of the study area locality. Herson (1938), Haury (1947), Thomas (1949), and Dings (1950) compiled reports on ore deposits in the region immediately south of the study area. An investigation of the study area for mineral commodities was conducted by the Great Basin GEM Joint Venture (1983) under contract to the BLM.

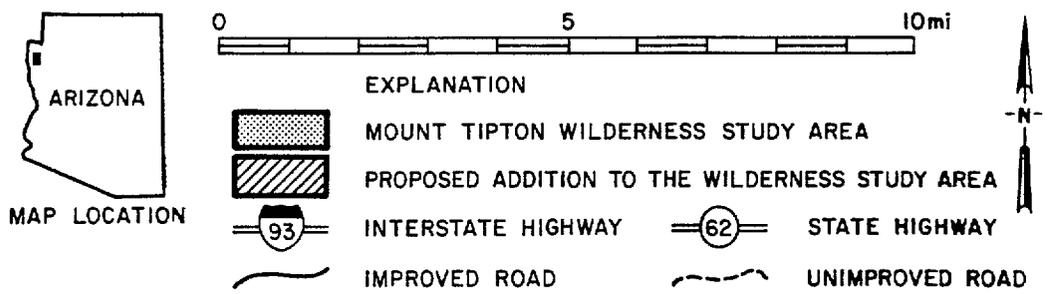
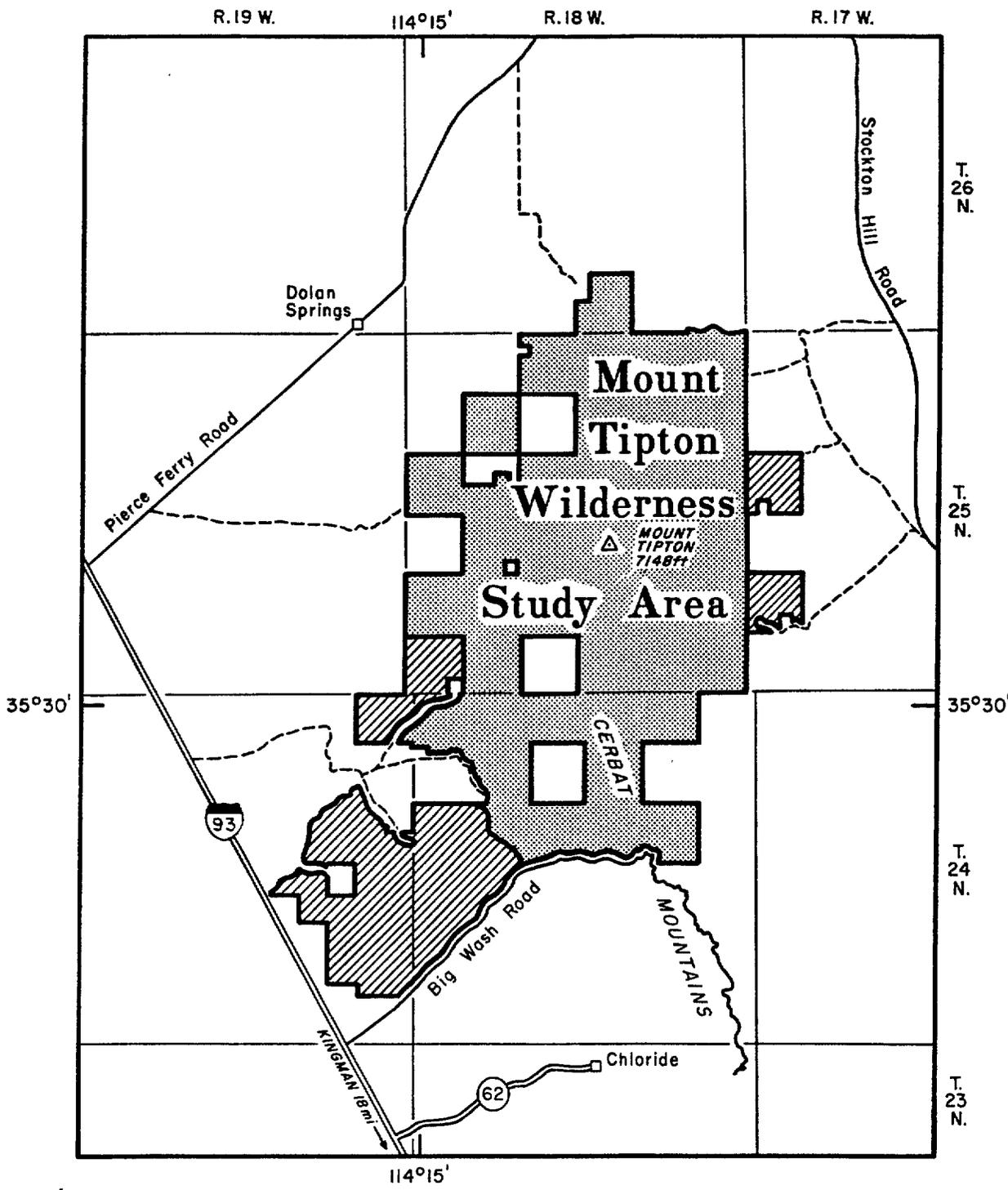


Figure 1.--Index map of the Mount Tipton Wilderness Study Area and proposed additions, Mohave County, Arizona.

Method of investigation

The Bureau's investigation included a review of literature, unpublished Bureau and BLM files, mining claims, and land status records; contact with mining claim holders; a field examination of the study area and nearby prospecting activity; and an evaluation of sample analyses. Two Bureau geologists spent three field days in the study area and collected nine chip, grab, and select samples. The samples were analyzed by Chemex Labs Inc., Sparks, Nevada. Copper, lead, zinc, silver, molybdenum, arsenic, and antimony were determined by inductively coupled plasma/atomic emission spectrometry; gold was determined by fire assay and neutron activation analysis. The results of these sample analyses are listed in table 1 of this report.

Geologic setting

Rocks in the study area are an assemblage of Precambrian-age granite and associated pegmatitic masses, gneiss, and schist. A Laramide-age granite porphyry intrusion is in contact with this assemblage in the southeast corner of the study area. Also in the southeast corner, small remnants of Tertiary- and Quaternary-age volcanic rocks cap older crystalline rocks. Detailed structural information is lacking, but in the part of the Cerbat Range within the study area, faults and joints generally strike northwest. (See Hernon, 1938, and Thomas, 1949.)

Precambrian and Laramide crystalline rocks extend south from the study area into the adjacent mineralized belt encompassed by the Wallapai mining district (fig. 2). A porphyry copper and molybdenum deposit, and peripheral fissure vein deposits of lead, zinc, silver, and gold in this district are not known to extend into the study area.

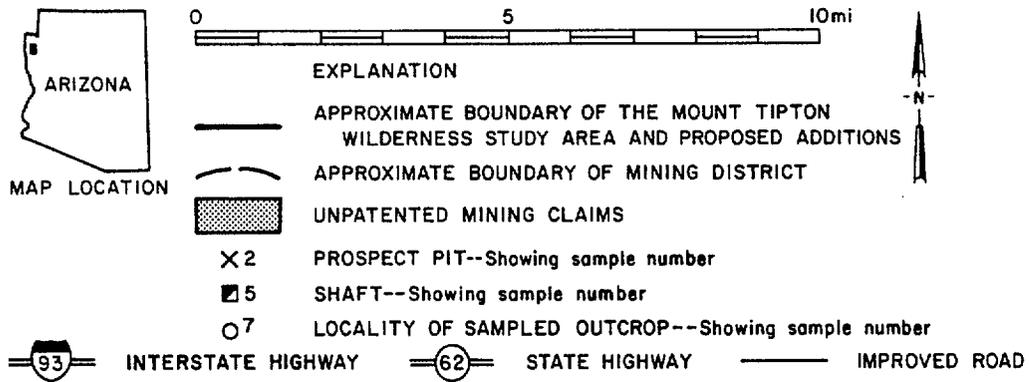
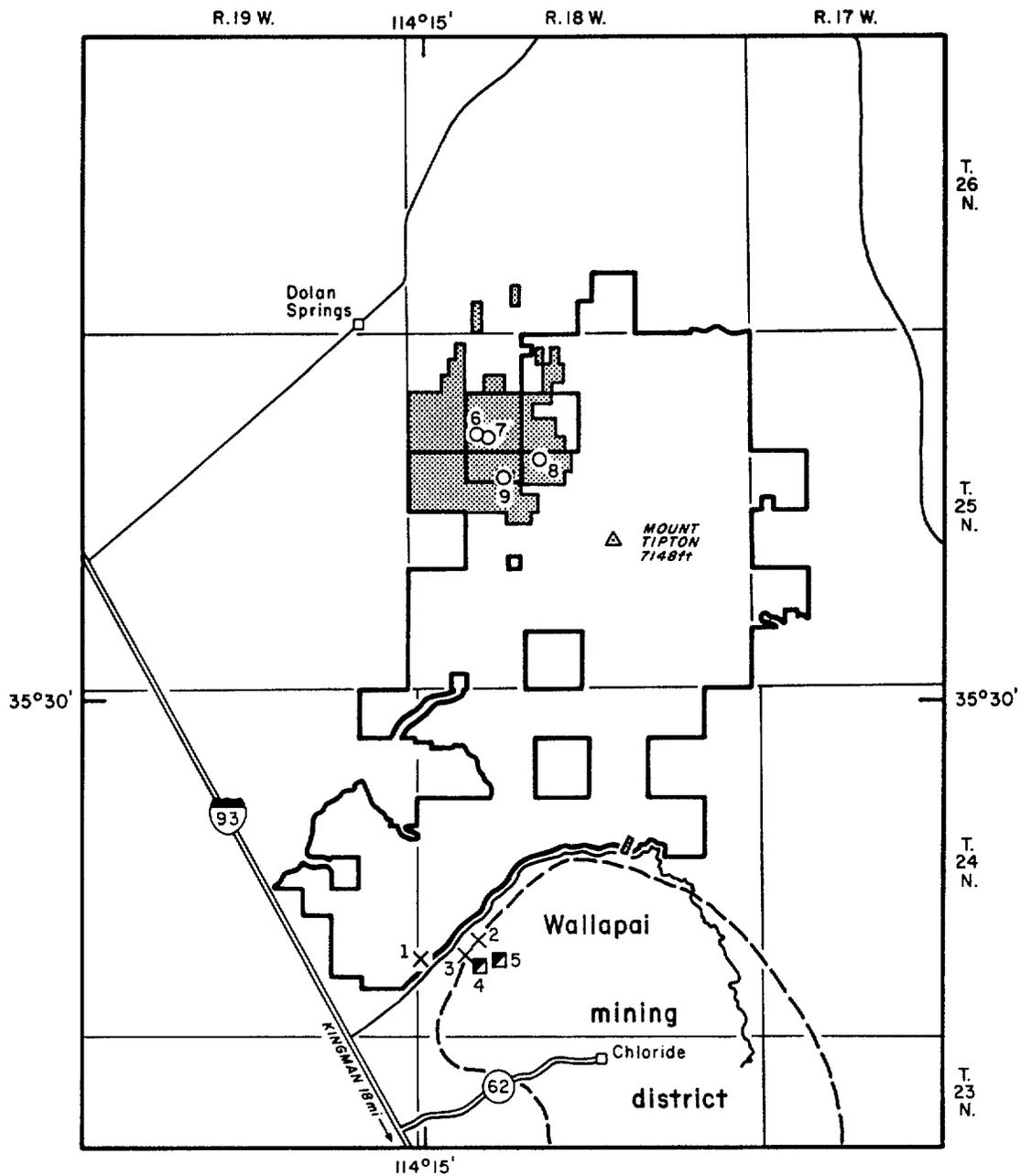


Figure 2.--Sample localities and areas of mining activity in and near the Mount Tipton Wilderness Study Area and proposed additions.

Mining activity

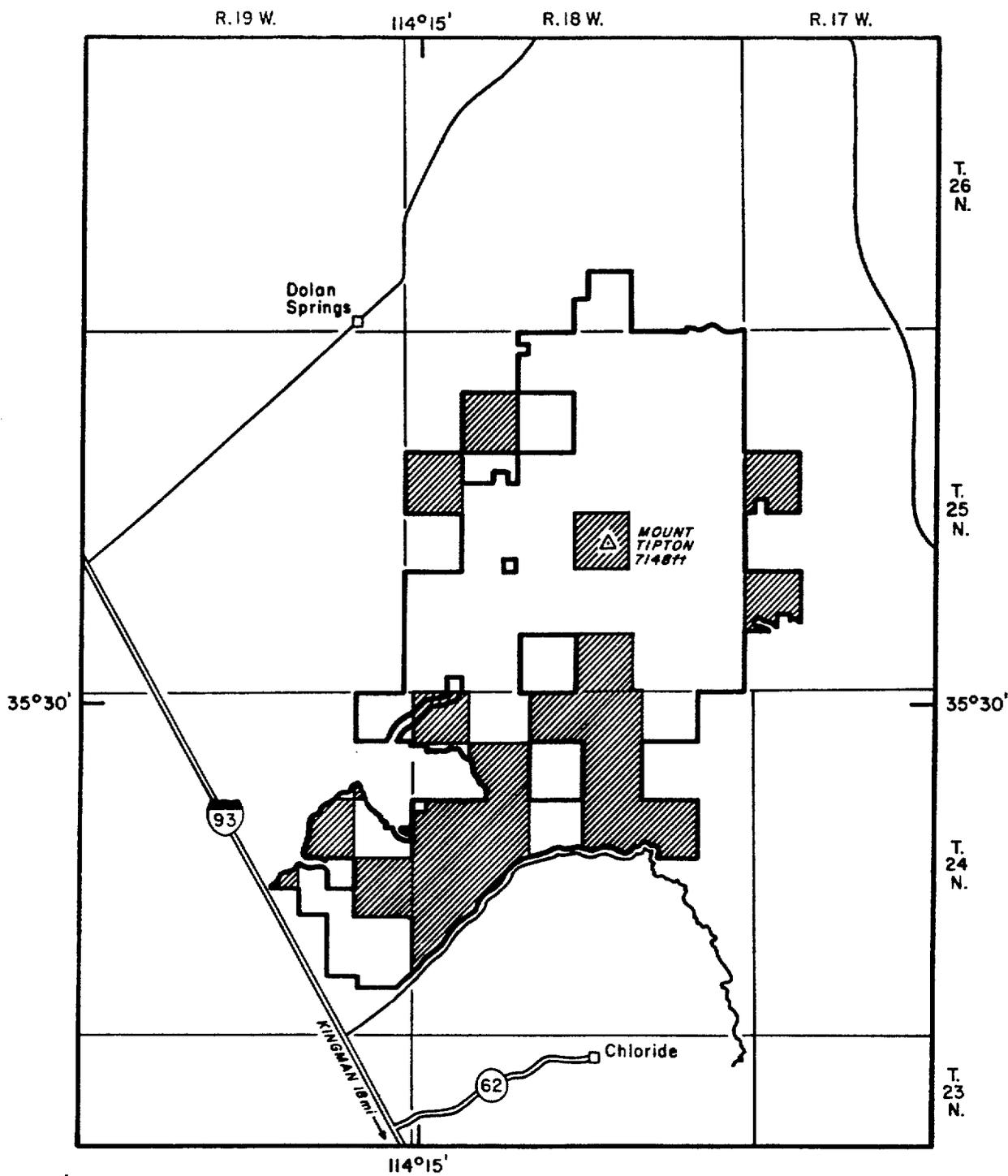
Prospecting, locating mining claims, and oil and gas leasing are the only known minerals-related activities that have taken place in the study area. A block of 112 lode and placer mining claims extends into the northwest corner of the study area and there is one lode mining claim on (location approximate) the southern boundary (fig. 2). Recorded production for the adjacent Wallapai mining district, from 1901 to 1981, is 666.1 million lbs copper, 53.2 million lbs molybdenum, 80.1 million lbs lead, 126.5 million lbs zinc, 11.5 million oz silver, and 0.151 million oz gold (Keith and others, 1983, p. 52-53). Since completion of the Bureau's field investigation, there has been some geochemical prospecting activity near the north end of the study area by individuals apparently searching for evidence of detachment fault-related precious-metal mineralization; results of these efforts are not known (Robert Harrison, BLM Kingman Resource Area mining engineer, oral commun., 1987).

Oil and gas

Ryder (1983, p. C19) rated the study area as having zero potential for the occurrence of petroleum, based on the sole presence of igneous and metamorphic rocks. Lands under lease for oil and gas at the time of the Bureau's investigation (approximately 11,500 acres) are shown in figure 3.

APPRAISAL OF SITES EXAMINED

No mines, prospects, or mineralized areas were found during examination of mining claims in the study area. Four outcrop samples were collected at sites on the block of claims where assays obtained by the claim holders showed significant concentrations of base- and precious-metals were present. The Bureau's samples did not contain significant element concentrations (sample localities 6-9, fig. 2 and table 1). An effort to develop a natural spring as



Oil and gas lease information from the Bureau of Land Management; current as of March 1987

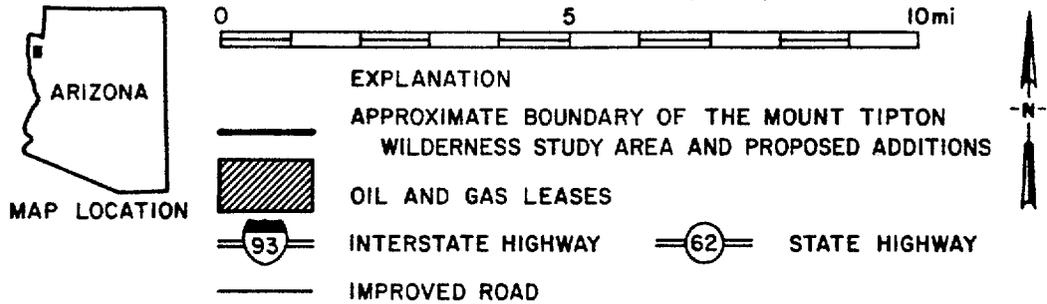


Figure 3.--Lands under lease for oil and gas in the Mount Tipton Wilderness Study Area and proposed additions.

Table 1.--Analytical data for samples collected during the mineral investigation of the Mt. Tipton Wilderness Study Area and proposed additions, Mohave County, Arizona.

[na, not applicable; >, greater than; <, less than; ppb, part per billion; ppm, part per million.]

Sample			Analytical data								Remarks
No.	Type	Length (ft)	Au ppb	Ag	Cu	Pb	Zn	Mo	As	Sb	
			ppm								
1	grab	na	<1	1.5	48	16	7	1	7	8.0	Prospect pit; pegmatitic quartz mass in Precambrian gneiss.
2	chip	5.3	<5	.1	1	5	2	1	6	1.8	Prospect trench; pegmatitic quartz mass in Precambrian gneiss and schist.
3	do.	1.0	9	4.8	100	15	17	1	380	20.0	Prospect pit; 1.0-ft-thick quartz vein striking N. 70° W., dipping 65° NE. in Precambrian schist.
4	grab	na	16	.6	66	6	84	2	510	17.6	Inclined shaft; quartz vein striking N. 10° W., dipping 60° NE. in Precambrian gneiss; limonite.
5	select	na	54	>100.0	9400	670	336	1	1700	>1000	Inclined shaft; quartz vein fragments in sorted pile on dump; chalcopryrite, azurite, malachite, limonite.
6	chip	4.0	4	.1	5	2	6	1	6	.3	Outcrop of Precambrian gneiss.
7	do.	5.5	2	.1	4	1	7	2	4	.2	Do.

Table 1.--Analytical data for samples collected during the mineral investigation of the Mt. Tipton Wilderness Study Area and proposed additions, Mohave County, Arizona--Continued

Sample			Analytical data								Remarks
No.	Type	Length (ft)	Au ppb	Ag	Cu	Pb ppm	Zn	Mo	As	Sb	
7	chip	6.0	12	0.1	4	2	34	1	5	0.2	Outcrop of Precambrian gneiss.
8	do.	1.5	4	.1	4	1	5	4	4	.1	1.5-ft-thick quartz vein in outcrop of Precambrian gneiss.

a water source was the only surface disturbance observed on the block of claims. Scintillometer readings in the claim areas did not exceed the background of 50 cps by more than 75%.

One small prospect pit was found inside the southern boundary of the study area (sample locality 1, fig. 2) on an outcrop of pegmatitic quartz in gneiss. No significant element concentrations were detected in the sample from this site (sample no. 1, table 1).

A prospect trench less than 1/2 mi from the southern boundary of the study area (sample locality 2, fig. 2) is on a pegmatitic quartz mass in gneiss and schist. No significant element concentrations were detected in the sample from this site (sample no. 2, table 1).

At a site about 1/2 mi outside the southern boundary of the study area (sample localities 3-5, fig. 2), quartz veins in iron stained gneiss and schist contain concentrations of copper, lead, zinc, silver, and gold (sample no. 3-5, table 1). At the surface, the veins are poorly exposed, irregular, and about 1 ft thick; none are traceable into the study area. Workings at this site consist of two inclined shafts and several pits.

In 1979, 20 shallow (40 ft deep or less) exploratory holes were drilled along the southern boundary of the study area in an unsuccessful effort to locate uranium concentrations in Precambrian crystalline rocks (Robert A. Lavery, former claim holder, oral commun., 1987). Scintillometer readings did not exceed the background of 50 cps by more than 75%, and no evidence of mineralization was observed where the drilling activity was located.

Industrial mineral commodities in the study area have no apparent superior qualities and represent only a small fraction of abundant supplies available from established sources located elsewhere, which makes them unmarketable.

CONCLUSION

No leasable, locatable, or salable mineral resources were identified in the study area.

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