

UNITED STATES DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

Analytical results and sample locality map of  
rock samples from the Park Range Wilderness Study Area,  
Nye County, Nevada

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This report is preliminary and has not been reviewed for  
conformity with U.S. Geological Survey editorial standards  
and stratigraphic nomenclature.

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## 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 part of the Park Range (NV-040-154) Wilderness Study Area, Nye County, Nevada.

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## SUMMARY

In July and August 1985, the U.S. Geological Survey conducted a reconnaissance geologic and geochemical survey of the Park Range Wilderness Study Area (NV-040-154), Nye County, Nevada. At the request of the U.S. Bureau of Land Management, we studied 46,831 acres of the wilderness study area which is located approximately 45 mi south of Eureka, Nevada. Topographic relief ranges from 6,400 ft in the south to 9,058 ft at Park Mountain in the north-central part of the range. Access is provided by jeep road from Nevada Highway 50, north of the study area (fig. 1).

Paleozoic sedimentary rocks and Tertiary volcanic and sedimentary rocks are found in the study area. Geologic mapping, description of the rock units, and mineral resource potential in and adjacent to the wilderness study area are discussed in Dixon and others (1972), Hose (1983), and Brooks and others (1987). Results of a stream-sediment geochemical survey in the study area are discussed in Tucker and others (1984) and the mineral resources and active claims, found primarily in the north part of the wilderness study area, are described in Johnson and Benjamin (1986).

Analyses of unaltered and unmineralized rock samples provide background geochemical data for the individual rock units. On the other hand, analyses of altered or mineralized rocks provide geochemical information about the mineralized zones located primarily in the faulted and silicified Paleozoic and Tertiary rocks found in the north end of the Park Range Wilderness Study Area. Analyses are also provided for similarly faulted and silicified rocks from an unmapped area north of the wilderness study area boundary (fig. 2).

Rock chips were collected from outcrops at the sample locations shown on figure 2 and were analyzed using a semiquantitative, direct-current arc emission spectrographic method (Grimes and Marranzino, 1968). The elements

analyzed and their limits of determination are listed in table 1. Details of all analytical methods used for rock and other sample materials from the wilderness study areas are given in Crock and others (1987).

#### DESCRIPTION OF DATA TABLES

Table 2 lists the analyses for rock samples from the Park Range Wilderness Study Area. The data are arranged so that the USGS-assigned sample numbers correspond to the numbers shown on the site location map (fig. 2). Rows in which the element headings show the letter "s" beside the element symbol are emission spectrographic analyses, all others were analyzed by a hydrochloric acid-hydrogen peroxide method for extractable metals discussed in Crock and others (1987). In columns marked with an asterisk (\*), Au was determined by HBr-Br<sub>2</sub> digestion and Hg was determined by HNO<sub>3</sub>-Na<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub> digestion. A letter "N" in the tables indicates that a given element was looked for but not detected at the lower limit of determination. If an element was observed but was below the lowest reporting value, a "less than" symbol (<) was entered in the tables in front of the lower limit of determination. If an element was observed but was above the highest reporting value, a "greater than" symbol (>) was entered in the table in front of the upper limit of determination. Because of the formatting used in the computer program that produced table 2, some of the elements listed in these tables (Fe, Mg, Ca, Ti, Ag, and Be) carry one or more nonsignificant digits to the right of the significant digits. The analysts did not determine these elements to the accuracy suggested by the extra zeros.

Rock type, alteration, and location for each sample site are given in table 3.

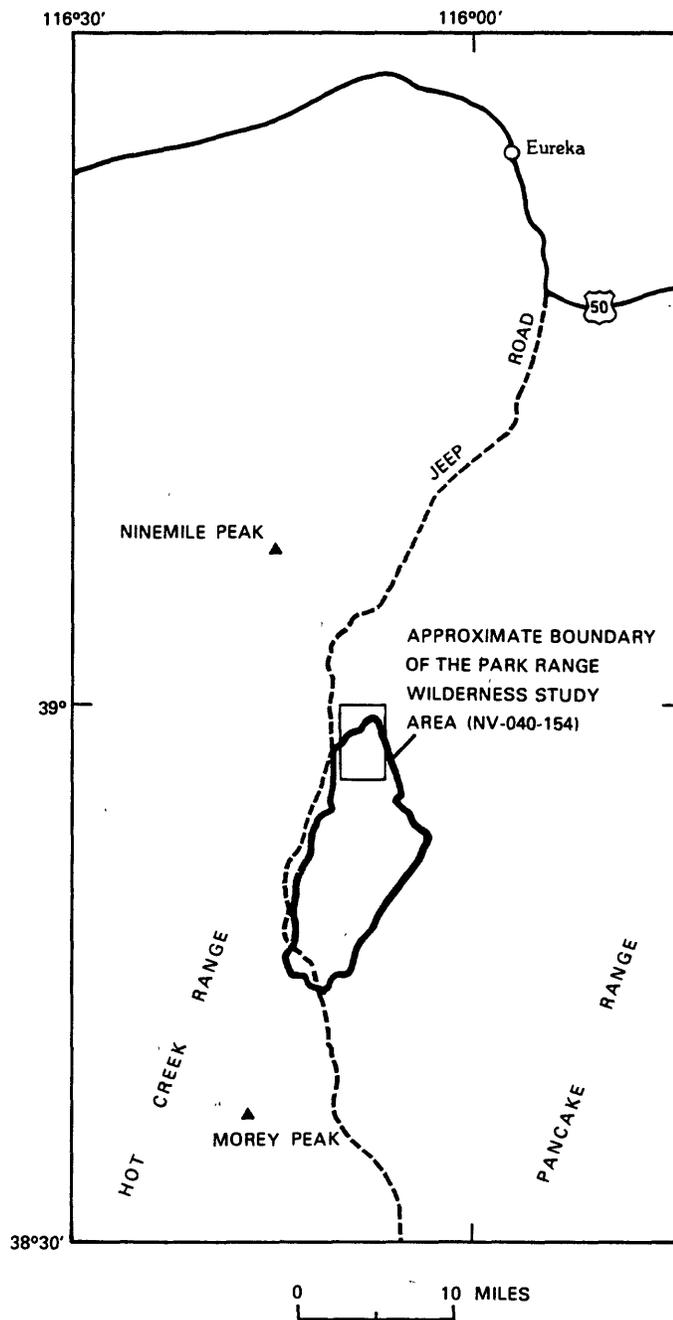


Figure 1.--Index map showing location of Park Range Wilderness Study Area, central Nevada; box shows outline of figure 2.

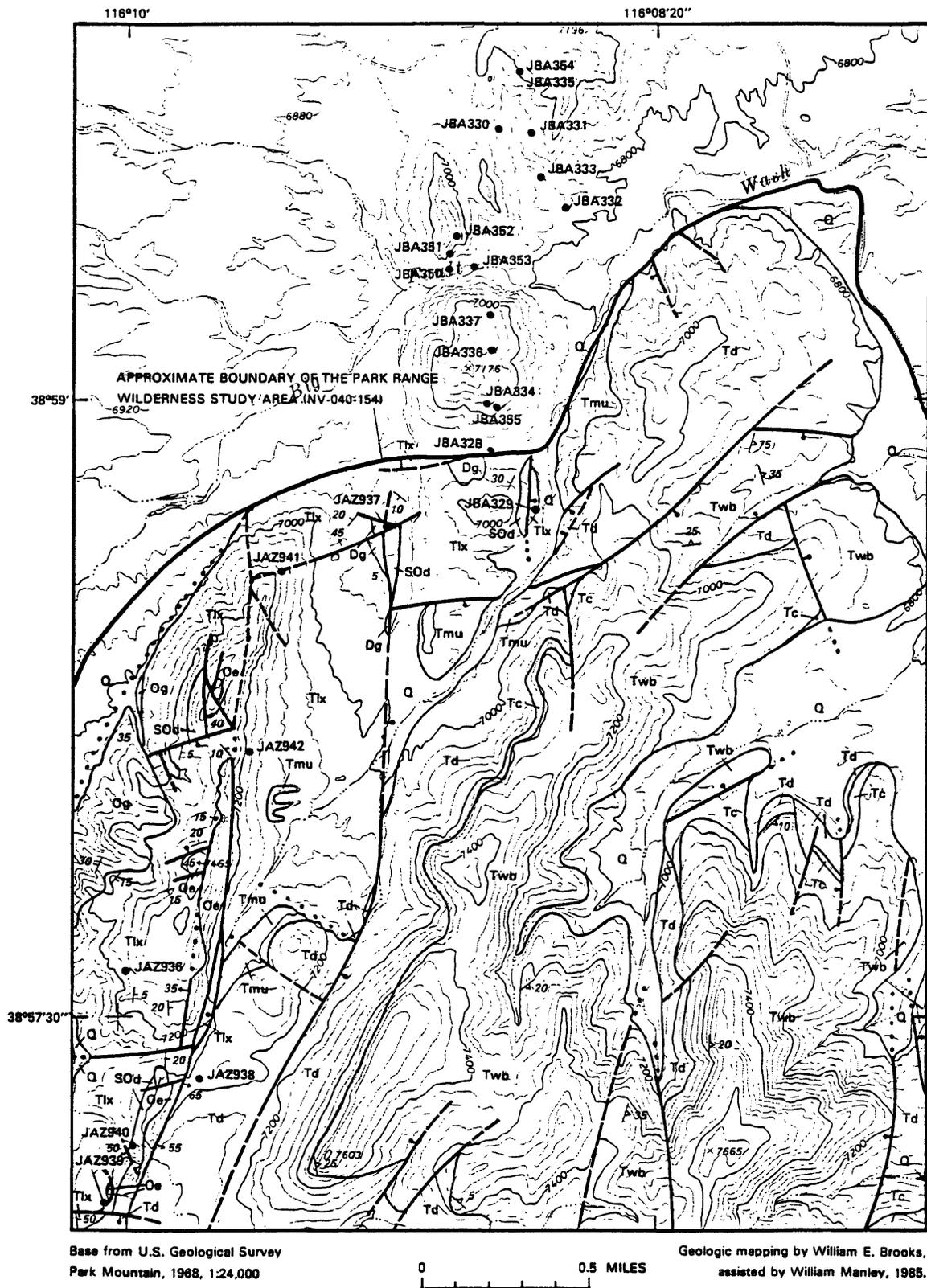


Figure 2.--Geologic map and location of rock samples from the north part of the Park Range Wilderness Study Area and adjacent areas. Explanation on page 4a.

### CORRELATION OF MAP UNITS

Q	}	Holocene	}	QUATERNARY
Twb				
Tc	}	Oligocene	}	TERTIARY
Td				
Tmu				
Tlx				
Dg				
SOd	}	Middle Devonian	}	DEVONIAN SILURIAN
Oe				
Og	}	Middle Ordovician	}	ORDOVICIAN
	}	Lower Ordovician	}	

### LIST OF MAP UNITS

- |     |                               |
|-----|-------------------------------|
| Q   | Alluvium, undivided           |
| Twb | Windous Butte Tuff            |
| Tc  | Tuff of Cottonwood Canyon     |
| Td  | Intermediate lavas, undivided |
| Tmu | Mulligan Canyon Rhyolite      |
| Tlx | Sedimentary rocks, undivided  |
| Dg  | Devils Gate Limestone         |
| SOd | Unnamed Dolomite              |
| Oe  | Eureka Quartzite              |
| Og  | Goodwin Limestone             |
- 
- |                 |   |
|-----------------|---|
| —               | CONTACT—Dashed where approximately located or inferred                                  |
| —●—             | FAULT—Dashed where inferred, dotted where concealed;<br>ball and bar on downthrown side |
| — <sup>25</sup> | Strike and dip of compaction foliation  |
| — <sup>35</sup> | Strike and dip of bedded rocks  |
| ●               | JAZ936 Geochemical sample locality and number   |

Detailed descriptions of map units may be found in  
Dixon and others (1972), Hose (1983), and Brooks and others (1987).

Figure 2.--Continued

Table 1.--Limits of determination for the spectrographic analysis of rocks,  
based on 10-mg sample

Element	Lower determination limit	Upper determination limit
Percent		
Iron (Fe)	0.05	20
Magnesium (Mg)	.02	10
Calcium (Ca)	.05	20
Titanium (Ti)	.002	1
Parts per million		
Manganese (Mn)	10	5,000
Silver (Ag)	0.5	5,000
Arsenic (As)	200	10,000
Gold (Au)	10	500
Boron (B)	10	2,000
Barium (Ba)	20	5,000
Beryllium (Be)	1	1,000
Bismuth (Bi)	10	1,000
Cadmium (Cd)	20	500
Cobalt (Co)	5	2,000
Chromium (Cr)	10	5,000
Copper (Cu)	5	20,000
Lanthanum (La)	20	1,000
Molybdenum (Mo)	5	2,000
Niobium (Nb)	20	2,000
Nickel (Ni)	5	5,000
Lead (Pb)	10	20,000
Antimony (Sb)	100	10,000
Scandium (Sc)	5	100
Tin (Sn)	10	1,000
Strontium (Sr)	100	5,000
Vanadium (V)	10	10,000
Tungsten (W)	50	10,000
Yttrium (Y)	10	2,000
Zinc (Zn)	200	10,000
Zirconium (Zr)	10	1,000
Thorium (Th)	100	2,000



Table 3.--Alteration, rock type, and location of rock samples from the north part of the Park Range Wilderness Study Area and adjacent area, Nye County, Nevada

Field No.	Alteration	Rock Type	Latitude	Longitude
JAZ936	-	O	38°57'37"	116°10'02"
JAZ937	H	K	38°58'41"	116°09'13"
JAZ938	H	O	38°57'21"	116°09'47"
JAZ939	H	B	38°57'03"	116°10'03"
JAZ940	H	B	38°57'11"	116°09'59"
JAZ941	H	B	38°58'34"	116°09'31"
JAZ942	H	B	38°58'08"	116°09'37"
JBA328	C	X	38°58'52"	116°08'53"
JBA329	C	X	38°58'43"	116°08'44"
JBA330	C	X	38°59'38"	116°08'53"
JBA331	C	X	38°59'37"	116°08'45"
JBA332	C	S	38°59'27"	116°08'39"
JBA333	C	S	38°58'32"	116°08'44"
JBA334	C	B	38°58'58"	116°08'52"
JBA335	C	X	38°58'57"	116°08'50"
JBA336	C	X	38°59'07"	116°08'53"
JBA337	C	X	38°59'11"	116°08'53"
JBA350	C	X	38°59'18"	116°09'00"
JBA351	C	X	38°59'20"	116°09'00"
JBA352	C	X	38°59'23"	116°08'57"
JBA353	C	X	38°59'34"	116°08'55"
JBA354	C	X	38°59'47"	116°08'47"
JBA355	C	X	38°59'47"	116°08'47"

Alteration

- unaltered  
H iron/manganese  
C siliceous

Rock Type

X chert or jasperoid  
B sedimentary rock  
S felsic igneous rock  
O quartzite  
K limestone or dolomite

Coding is from Sample Submittal Manual, 1981, Instructions for Submitting Geochemical Samples to the Branch of Exploration Research, U.S. Geological Survey, 15 p.

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- Johnson, F. L., and Benjamin, D. A., 1986, Mineral resources of the Park Range Wilderness Study Area, Nye County, Nevada: U.S. Bureau of Mines Open File Report MLA 25-86, 13 p.
- Tucker, R. E., Goodhue, Christopher, and Day, G. W., 1984, Geochemical assessment of mineral resources in the Park Range Survey Area (NV-040-154), in south-central Nevada: U.S. Geological Survey Open-File Report 84-102, 27 p.