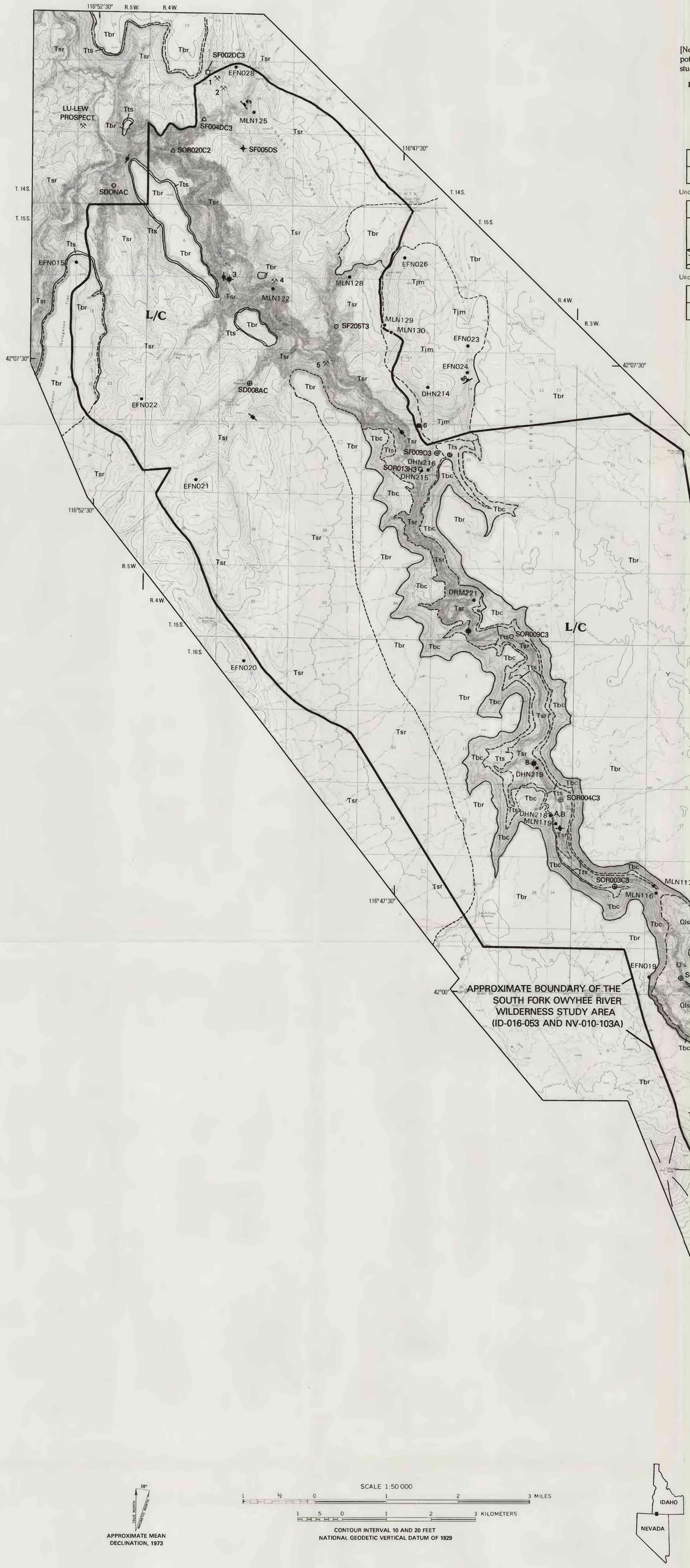
DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

BULLETIN 1719-F
PLATE 1



EXPLANATION OF MINERAL RESOURCE POTENTIAL

[No geologic terrane having high or moderate resource potential for any commodity was identified by this study]

L/C **Geologic terrane having low potential for all mineral and energy resources with certainty level C**—Applies to entire study area

CORRELATION MAP UNITS

Qal, Qls		QUATERNARY
Unconformity		
Tbr, Tbc, Tts, Tbc	Late Miocene	Miocene — TERTIARY
Unconformity		
Tjm, Tsr	Middle Miocene	

DESCRIPTION OF MAP UNITS

[Phenocryst percentage given is modal percentage of total rock. Phenocryst minerals listed are normalized to percentage of total phenocrysts; Ma, mega-annum, that is, million years ago; mm, millimeters]

Qal **Alluvium (Quaternary)**—Fluvial sediments (dominantly sand to clay size) associated with South Fork Owyhee River. Deposits extend continuously throughout canyon bottom, but are indicated on map only where channel is sufficiently wide to show unit at scale of map. Thickness 0 to about 30 ft

Qls **Landslide deposits (Quaternary)**—Angular boulders of basalt, basaltic talus, and colluvium. Deposits are characterized by hummocky topography. Thickness 0 to about 160 ft

Basalt of Devil's Corral (Miocene)—Erupted 10–6 Ma (Hart and others, 1984). Previously mapped as Banbury Basalt by Ekren and others (1984), Hope and Coats (1976), and Coats (1971). Divided into rim and canyon basalts

Tbr **Rim basalt**—Fresh gray-black, holocrystalline, subophitic olivine basalt flows. Three or more thin flows form distinctive cliffs at edge of upper plateau (elevation about 5,200 ft). Columnar jointing common, vertical gas-escape tubes present locally. Individual flows distinguishable in many places—separated by frothy flow tops and platy weathering bases—but difficult to trace laterally. May be overlain by as much as 18 ft of Quaternary alluvium, colluvium, and (or) loess on surface of upper plateau. Thickness 0–65 ft

Tbc **Canyon basalt**—Many thin flows (each less than 30 ft thick) of slightly weathered to unweathered, gray-black, holocrystalline, subophitic olivine basalt exposed below rim basalt. Local paleosols, highly vesicular flow tops, platy flow bottoms, and truncation of gas-escape tubes define individual flow contacts, and flows pinch out laterally. Columnar joints extend across flow contacts in places, marking multiple-flow cooling units. These basalts generally overlie, but locally interfinger with, tuffaceous sediments (Tts) derived from underlying rhyolitic units. Canyon basalt commonly covered by basalt-derived talus and colluvium as much as 65 ft thick, but is well exposed in vertical cliffs where canyon narrows. Some flows locally form inner canyon plateau at elevation of about 4,900 ft, but cannot be correlated with any certainty throughout map area. Thickness 0 to about 700 ft

Tts **Tuffaceous sedimentary rocks (Miocene)**—White to gray, friable, rhyolitic, lithic crystal-vitric tuffaceous sandstones and lacustrine tuffaceous material. Patchy white exposures of sediments contrast with black basaltic talus and colluvium that cover it in South Fork Owyhee River canyon. Upper contact with overlying basalts is baked and oxidized red. Thickness 0–200 ft

Tuff of Juniper Mountain (Miocene)—Rocks from Juniper Mountain volcanic center of Ekren and others (1984). Age is 13.8 Ma (Ekren and others, 1984)

Tjm **Lower lobes**—Weathered red, flow-banded, densely welded, rhyolitic, crystal-vitric tuff. Zones of vitrophyre, silicified tuff breccia, and lithophysal pumice are present at one locality (interpreted as a break between cooling units). Phenocrysts make up 30 percent of the rock. Mineralogy is characterized by abundant large (greater than 3 mm in diameter), embayed phenocrysts of quartz (30–60 percent) and potassium feldspar (30–65 percent), and sparse plagioclase (less than 10 percent). Thickness 0–250 ft

Tsr **Swisher Mountain Tuff (Miocene)**—Flow-banded, densely welded, rhyolitic, crystal-vitric tuff. Gray to red on fresh surfaces; weathers brown-red. Local outcrops of vitrophyre not continuous enough to define cooling unit breaks within map area. A possible vent region is just south of Bull Camp in inner canyon. There, vertically flow-foliated, frothy-gray glass grades laterally in two directions to steeply dipping vitrophyre and then to convolute, flow-banded rhyolitic welded tuff. Phenocrysts (20 percent of rock) are dominantly large (greater than 3 mm in diameter), embayed grains of plagioclase (45 percent) and potassium feldspar (35 percent), and sparse quartz (less than 5 percent). Thickness 0 to about 750 ft

Contact—Long-dashed where approximately located, short-dashed where concealed

Strike and dip of flow foliation

80 **Inclined**

Vertical

Strike and dip of joint

70 **Inclined**

Vertical

Basaltic shield volcano

Geochemical sample site—Showing sample number referred to in text

EFN021 **Sample in which no anomalous concentrations were determined**

SF005D5 **Stream-sediment sample containing anomalous concentrations of tin**

SOR009C3 **Nonmagnetic heavy-mineral concentrate containing anomalous concentrations of tin**

SOR001C3 **Nonmagnetic heavy-mineral concentrate containing anomalous concentrations of barium**

OH002 **Nonmagnetic heavy-mineral concentrate containing anomalous concentrations of lead**

SF002DC3 **Nonmagnetic heavy-mineral concentrate containing anomalous concentrations of copper**

SOR020C2 **Nonmagnetic and intermediately magnetic heavy-mineral concentrate containing anomalous concentrations of molybdenum**

Placer sample locality—Showing sample number

12 **Gold detected**

6 **No gold dectected**

5 **Prospect**

LEVEL OF RESOURCE POTENTIAL ↑	A	B	C	D
UNKNOWN POTENTIAL	U/A	H/B HIGH POTENTIAL	H/C HIGH POTENTIAL	H/D HIGH POTENTIAL
		M/B MODERATE POTENTIAL	M/C MODERATE POTENTIAL	M/D MODERATE POTENTIAL
		L/B LOW POTENTIAL	L/C LOW POTENTIAL	L/D LOW POTENTIAL
				N/D NO POTENTIAL

LEVEL OF CERTAINTY →

LEVELS OF RESOURCE POTENTIAL

- **H** High mineral resource potential
- **M** Moderate mineral resource potential
- **L** Low mineral resource potential
- **U** Unknown mineral resource potential
- **N** No known mineral resource potential

LEVELS OF CERTAINTY

- **A** Available data not adequate
- **B** Data indicate geologic environment and suggest level of resource potential
- **C** Data indicate geologic environment, give good indication of level of resource potential, but do not establish activity of resource-forming processes
- **D** Data clearly define geologic environment and level of resource potential and indicate activity of resource-forming processes in all or part of the area

Diagram showing relationships between levels of mineral resource potential and levels of certainty. Shading shows levels that apply to this study area

Geology mapped by E. E. Foord, M. L. Luessen, and D. S. Hovorka June–July, 1985. Base from U.S. Geological Survey, 1:24,000: Bull Camp Butte, Coyote Hole, Grassy Ridge, Rubber Hill, Spring Creek Basin, Star Valley, Star Valley Ridge East, and Twelve Mile Flat, 1973; Twelve Mile Flat SE, 1974; State Line Camp, 1977

APPROXIMATE MEAN DECLINATION, 1973

SCALE 1:50 000

1 ½ 0 1 2 3 MILES

1 5 0 1 2 3 KILOMETERS

CONTOUR INTERVAL 10 AND 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

MINERAL RESOURCE POTENTIAL AND GEOLOGIC MAP OF THE OWYHEE CANYON AND SOUTH FORK OWYHEE RIVER WILDERNESS STUDY AREAS, ELKO COUNTY, NEVADA, AND OWYHEE COUNTY, IDAHO