

INTRODUCTION

During 1978 and 1979 the U.S. Geological Survey and the U.S. Bureau of Mines conducted field investigations to evaluate the mineral resources potential of the Grand Gulch Instant Runoff Area, San Juan County, New Mexico. Included were geologic mapping and reconnaissance (McInt, 1981), geochemical sampling and radiometric surveying, and a search for mineralized areas. The area was judged to have low to moderate potential for oil and gas deposits and low potential for other resources.

The Grand Gulch Instant Study Area includes about 250 sq mi (650 sq km) of canyon and mesa country in southern San Juan County, southeastern Utah (fig. 1). The area is within the Canyonlands section of the Colorado Plateau province (Fenneman, 1931, p. 306-312).

Exploration within the Grand Gulch Instant Study Area has been limited to the search for oil and gas. Sixty-one exploratory wells have been drilled in and near the area. All are now plugged and abandoned. Shows of oil and gas are common in the Rice Formation (Permian and Pennsylvanian) and Meramec Formation (Pennsylvanian) and were also noted in strata of Mississippian and Devonian age.

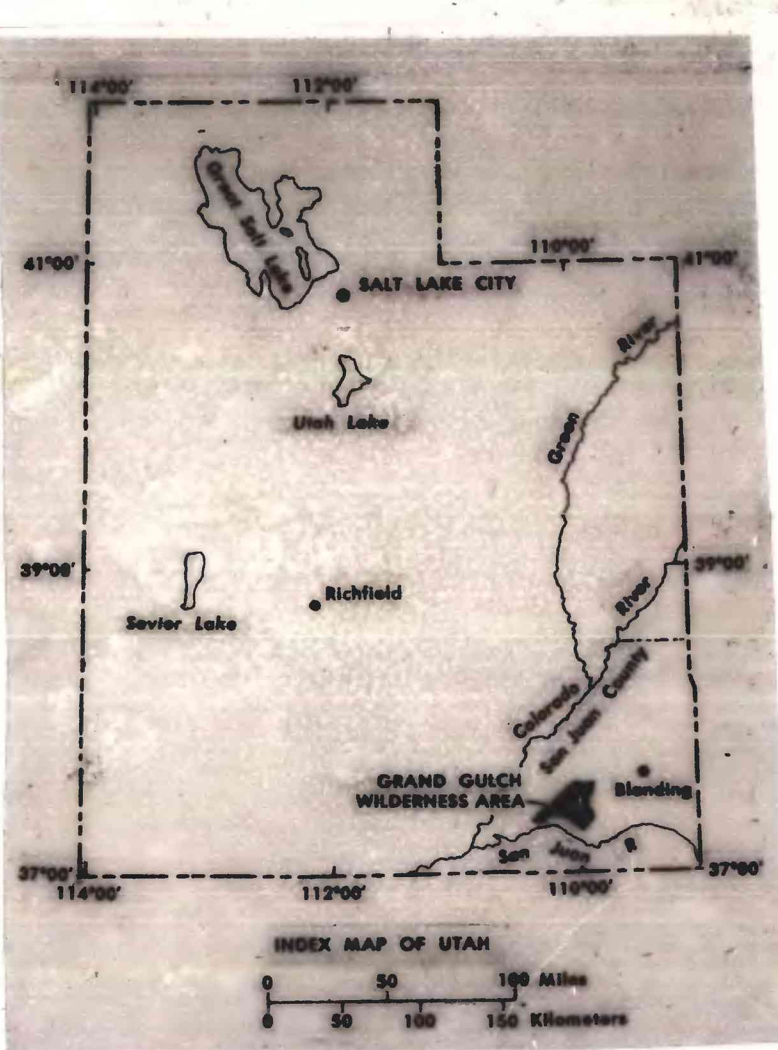
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Roche of Pennesylvania and Permian age, totaling about 2,000 ft (600 m) thick, and this deposits of Jurassic age crop out in the Grand Canyon National Study Area. Most of the area is underlain by the Cedar Neane Sandstone and the Glen Rose Limestone. The Glen Rose Limestone is a fossiliferous limestone in the southern part of the area. Younger rocks crop out at the northern and western edges. Quaternary deposits, chiefly sand and gravel, are present and will be discussed but are somewhat patchy (Matz, 1951).

The area is on the west flank of the Monument Valley, an elongate dome that extends from near Payson, AZ, to near the junction of the Colorado River and the Mexican border. The area is underlain by the Glen Rose Limestone, a gently wave-tipping horizon. Because persistent beds are lacking in the Cedar Neane Sandstone north of the Glen Rose Limestone, there is no evidence of a major fault. The area is underlain by several mild folds. The Glen Rose Limestone is a fossiliferous limestone and fossils are present. The only faults within the study area are normal faults on the Glen Rose Limestone. The faults are normal and are about 100 ft (30 m) long and only a few feet but locally are as much as 100 ft (30 m).

REFERENCES CITED

1
Cronman, N. M., 1931, Physiography of the western United States: New York, McGraw-Hill, 334 p.
2
Hir, G. W., 1981, Geologic map of the Grand Gulch Instant Study Area, San Juan County, Utah: U.S. Geological Survey Miscellaneous Field Studies Map, scale 1:62,500.



Specimen	Formation	Number	Thickness Feet	Notes	Description
Quaternary			0-50	0-15	Alluvium; with thin silt and sand; conglomerates.
	Unconformity				
	Organ Rock Tongue	1500	450		Reddish-brown, thick-bedded siltstone, interlayered with thin-bedded, gray and green sandstone.
Formation	Ordovician Formation	Order Mass Sandstone Number.	700-850	210-240	Thick stratified beds of gray to reddish-orange, very fine to medium-grained, crossbedded sandstone; interlayered with almost discontinuous beds of reddish-brown siltstone.
	Halpato Tongue	400	120		Reddish-brown, very thin bedded siltstone; irregularly interbedded with very fine grained sandstone.
	Nice Formation	370	115		Light- to medium-gray, thin to thick beds of fossiliferous, sandy siltstone; similar to thick interbeds of very light gray and reddish-brown, very fine to fine-grained calcareous sandstone; and interbeds of reddish-brown siltstone.
Pennsylvanian	Herskov Formation	3500	1000		Gray, fossiliferous, cherty, very fine to fine-grained, thick-bedded sandstone; above this interbeds of gray, greenish-gray, and purple shales and siltstone. Beds not exposed; total thickness of Herskov about 1,000 ft (50 m) (Dr Sullivan, 1965, p. 21).

<i>A</i>								
Element (lower limit of detection) Anomaly minimum								Remarks
Sample No.	Mn (.05) L.O.S	Cr (10) 100	Cu (5) 100	La (20) 100	Sr (.5) 500	V (100) 100		
Stream sediments								
113	---	200	---	---	---	---	---	Canyon SE. of Collins Spring
117	---	150	---	---	---	---	---	Grand Gulch, E. of Collins Spring
120	---	---	---	---	---	---	---	Canyon SE. of Collins Spring
121	---	300	---	---	---	Do.	---	Do.
122	---	100	---	---	---	Do.	---	Do.
Fanned concentrates of stream sediments								
---	L.O.S	---	150	---	---	---	---	Unmapped canyon, 2.5 of Wd S. of Collins Spring
156	---	---	---	100	---	---	---	Grand Gulch, E. of Collins Spring
157	1.0	300	---	---	---	150	---	Do. Do. of Collins Spring
158	1.0	---	---	---	---	100	---	Do. Do.
159	---	100	---	---	---	150	---	Canyon SE. of Collins Spring
160	.28	100	---	---	---	---	---	Do.
Rocks								
---	---	---	---	50	---	---	---	Northeast creek problem - limestone, Malagaita Tongue, Canyon Pa.
133	---	---	---	---	---	---	---	Malagaita Tongue, Canyon Pa.
777	---	---	---	---	---	---	---	Malagaita Tongue, Canyon Pa.
782	---	---	---	---	1,000	---	---	Malagaita Tongue, Canyon Pa.
783	---	---	---	---	---	500	200	Malagaita Tongue, Canyon Pa.