(200)
TEI
no. 1061

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IN BACK OF BOUND VOLUME

DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

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GEOLOGICAL SURVEY, ON BEHALF OF THE DIVISION OF
RAW MATERIALS OF THE U.S. ATOMIC ENERGY COMMISSION

TRACE ELEMENTS
MEMORANDUM REPORT 1061

Base map by Topographic Division
U.S. Geological Survey, 1953

Geology mapped 1956

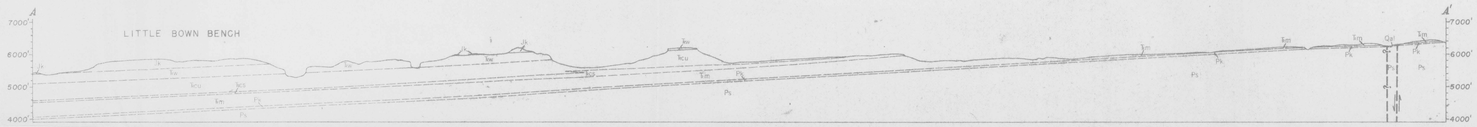
TRUE NORTH
MAGNETIC NORTH
15½°
APPROXIMATE MEAN DECLINATION, 1954

SCALE 1:24000

1 ½ 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

CONTOUR INTERVAL 40 FEET
DATUM IS MEAN SEA LEVEL



SECTION ALONG LINE A-A'

EXPLANATION

QUATERNARY

Recent

Qal

Alluvium

Valley fill and stream deposits.

Ql

Landslide deposits

Landslide debris, talus creep and mudflow deposits, generally consists of boulders of Wingate sandstone mixed with claystone from the Chinle formation.

Pleistocene(?)

Qg

Terrace gravel

Alluvial gravel and conglomerate composed predominantly of subangular to rounded fragments of sedimentary rocks of Permian and Triassic age.

JURASSIC(?)

Glen Canyon group

Jk

Kayenta formation

Red to brown very thick to thin-bedded sandstone and red siltstone; local thin beds of dark-gray limestone, over 400 feet exposed. Approximately 100 feet of buff to white sandstone interbedded with red and gray planar-bedded sandstone and siltstone is included in the Kayenta in the western part of the quadrangle. The buff to white sandstone may be tongues of Navajo sandstone.

UNCONFORMITY

TRIASSIC

ℝw

Wingate sandstone

Light-brown fine-grained sandstone; weathers reddish brown; locally contains thin beds of gray sandy dolomite, averages 300 feet thick.

Upper Triassic

ℝcu
ℝcs

Chinle formation

ℝcu, undifferentiated Chinle formation averages 500 feet thick; includes light-red and reddish-brown siltstone, claystone, and thin gray limestone beds of Owl Rock member; variegated maroon, gray, and reddish-orange bentonitic siltstone and sandstone of Petrified Forest member; greenish-gray bentonitic siltstone and fine-grained micaceous sandstone lenses of Monitor Butte member. ℝcs, Shinarump member, very light yellow to light-gray medium- to fine-grained carbonaceous sandstone, 0 to 200 feet thick, locally containing conglomeratic beds and thin-bedded greenish-gray shaly sandstone; unconformably overlies a red to mottled red and grayish-white siltstone and sandstone unit which is included in the Shinarump where both are present and in the undifferentiated Chinle where the Shinarump is absent; locally is gradational into or intertongues with overlying rock unit. The Shinarump member is an important host rock for uranium deposits.

UNCONFORMITY

Lower and Middle(?) Triassic

ℝm

Moenkopi formation

Upper part laminated red shale and siltstone, lower part thin- to thick-bedded red to tan siltstone and fine-grained sandstone, both of which are light yellow in petroliferous areas; averages 425 feet thick. Includes two units at base: 1) Sinbad(?) limestone member, yellowish-orange oolitic fossiliferous (gastropods) dolomite containing angular fragments of chert, 0 to 80 feet thick; and 2) a white to light-gray unit which grades from sandy dolomite to fine-grained dolomitic sandstone 0 to 15 feet thick, contains bedded chert and locally angular fragments of chert, overlain by the Sinbad(?) member, and unconformably overlies the Kaibab limestone.

UNCONFORMITY

PERMIAN

Pk

Kaibab limestone

Pale-yellow to white, locally brownish-yellow at top; thick-bedded fossiliferous dolomite, averages 40 feet thick; contains abundant bedded chert and abundant specks of green glauconite and collophane.

Ps

Sandstone

White to light-gray, thick- to very thick bedded fine-grained fossiliferous dolomitic sandstone and white to yellow-white sandy dolomite; base of unit not exposed. This unit is included in the Kaibab limestone in previous reports (Steed, 1954; Gregory and Moore, 1931). An underlying unit, not exposed in this quadrangle, has been correlated with the White Rim member of the Cutler formation by Steed (1954) and with the Coconino sandstone by Gregory and Moore (1931). The upper unit averages about 60 feet thick. The lower unit is over 1,500 feet thick.

Contact

(Dashed where approximately located; short dashes where inferred, indefinite, or gradational; dotted where concealed)

U D 80

Fault, showing dip

(Dashed where approximately located; dotted where concealed; U, upthrown side; D, downthrown side)

U D

High-angle fault

(Dashed where approximately located; dotted where concealed; U, upthrown side; D, downthrown side)

? ? ? ?

Probable high-angle fault

6000

Structure contours

Drawn on the base of Kaibab limestone; dashed where approximately located, short dashes indicate projection above surface. Contour interval 200 feet. Datum is mean sea level. Contours are projected from base of the Wingate sandstone in the western part of the quadrangle. Stratigraphic interval between the base of the Kaibab and the base of the Wingate increases from about 1,050 feet in the southeast to about 1,200 feet in the northwest part of the quadrangle.

Edge of channel of Triassic age

Edge of channel cut in top of Moenkopi formation. Hachures point toward center of channel.

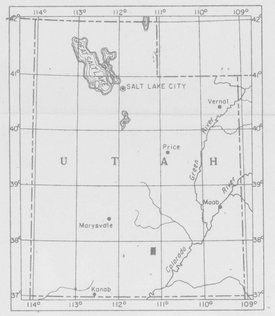
X

Uranium prospect

Literature cited

Gregory, H. E., and Moore, R. C., 1931, The Kaiparowits region, a geographic and geologic reconnaissance of parts of Utah and Arizona: U. S. Geol. Survey Prof. Paper 164, p. 41-45.

Steed, R. H., 1954, Geology of Circle Cliffs anticline, in Geology of portions of the High Plateaus and adjacent Canyon Lands, central and south-central Utah: Intermountain Assoc. Petroleum Geologists 5th Ann. Field Conf., p. 99-102.



INDEX MAP OF UTAH SHOWING AREA OF THIS REPORT

PRELIMINARY GEOLOGIC MAP OF THE CIRCLE CLIFFS I SW QUADRANGLE, GARFIELD COUNTY, UTAH

BY

LOUIS D. CARSWELL, EDWARD S. DAVIDSON, AND GLEN A. MILLER