DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

PREPARED IN COOPERATION WITH THE
U. S. ATOMIC ENERGY COMMISSION

TRACE ELEMENTS
MEMORANDUM REPORT 1065

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

Geology mapped 1956

15°

TRUE NORTH
MAGNETIC NORTH

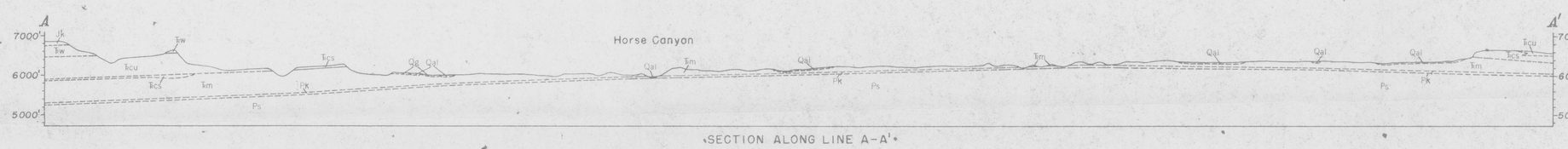
APPROXIMATE MEAN DECLINATION, 1954

SCALE 1:24000

1 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'

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PRELIMINARY GEOLOGIC MAP OF THE CIRCLE CLIFFS 1NW QUADRANGLE, GARFIELD COUNTY, UTAH

BY

LOUIS D. CARSWELL AND EDWARD S. DAVIDSON

EXPLANATION

QUATERNARY

Pleistocene(?) and Recent

Qal

Alluvium

Valley fill and stream deposits, eolian material in part reworked by water.

Ql_1
Ql_2

Landslide deposits

Landslide debris, Ql_1, talus creep and mudflow deposits, generally consists of boulders of Wingate sandstone mixed with claystone from the Chinle formation. Large slump blocks, Ql_2, primarily of Wingate sandstone.

Qf

Alluvial fan deposits

Poorly stratified mixture of unconsolidated boulders and sand; formed mainly on Chinle formation near Wingate cliff.

Qg

Terrace gravel

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

UNCONFORMITY

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. Top of unit not present.

UNCONFORMITY

Rw

Wingate sandstone

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

TRIASSIC

Upper Triassic

Rcu
Rcs

Chinle formation

Chinle formation undifferentiated, Rcu, averages 550 feet thick, includes: light-red and reddish-brown siltstone, claystone, and thin gray limestone beds of Owl Rock member at top; underlain by 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 at base. Shinarump member, Rcs, 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; Shinarump locally is gradational into or intertongues with overlying Monitor Butte member. 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 where petroliferous, averages 500 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 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 45 feet thick; contains bedded chert and abundant specks of green glauconite and collophane.

Ps

Sandstone of Permian age

Upper part consists of fossiliferous white to light-gray, thick to very thick bedded fine-grained dolomitic sandstone and minor white to yellow-white sandy dolomite. This unit is included in the Kaibab limestone in previous reports (Steed, 1954; Gregory and Moore, 1931). The lower part, a light-gray very thickly crossbedded fine- to very fine grained sandstone with large-scale crossbeds, 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).

Contact

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

U 80 D

High-angle fault, showing dip where known

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

Anticline

(Showing crest line and direction of plunge of axis)

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.

Edge of channel of Triassic age

Edge of channel cut in top of Moenkopi formation. Hachures point toward center of channel. Inferred where channel edge has been removed by erosion, or is concealed under narrow bench-like outcrop.

X

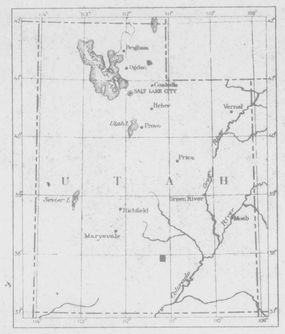
Uranium prospect

Adit, driven to recover uranium ore

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

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