

DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

THIS MAP CONCERNS WORK DONE BY THE U.S.
GEOLOGICAL SURVEY ON BEHALF OF THE DIVISION OF
RAW MATERIALS OF THE U.S. ATOMIC ENERGY COMMISSION

TRACE ELEMENTS
MEMORANDUM REPORT 995



BASE MAP BY TOPOGRAPHIC DIVISION
U.S. GEOLOGICAL SURVEY, 1953

GEOLOGY MAPPED BY E. S. DAVIDSON,
D. A. BREW, AND L. D. CARSWELL, 1954-56

Baker Bench

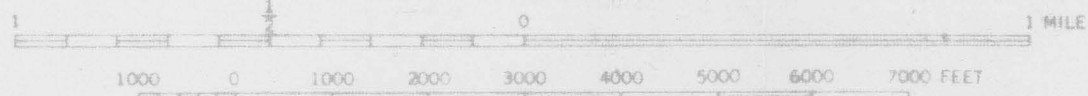
Moody Creek

SECTION ALONG LINE A-A'

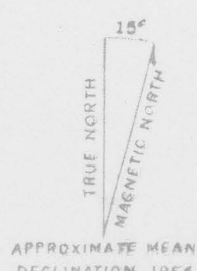
PRELIMINARY GEOLOGIC MAP OF THE CIRCLE CLIFFS 4 NE QUADRANGLE, GARFIELD COUNTY, UTAH

BY
EDWARD S. DAVIDSON, DAVID A. BREW, AND LOUIS D. CARSWELL

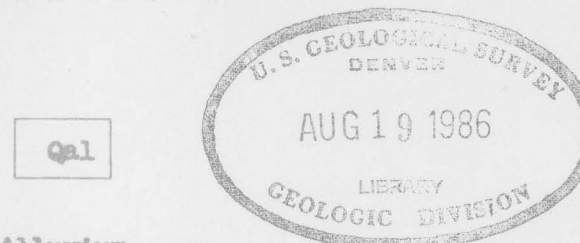
SCALE 1:24,000



CONTOUR INTERVAL 40 FEET



EXPLANATION



Qal

Alluvium

Valley fill and stream deposits; light-red wind-deposited sand and silt, reworked in part by water.

Ql

Landslide deposits

Deposits formed near base of Wingate sandstone; includes mud-flow material from mudstones of the Chinle formation mixed with rock slide material from the Wingate sandstone.

Jn

Navajo sandstone

White to light-yellow fine-grained sandstone with large scale cross-strata (McKee and Weir, 1953); very few local thin light-gray limestone beds.

Jk

Kayenta formation

Red to brown very thick to thin-bedded sandstone and red shale. Local lenses of white sandstone with large scale cross-strata in the upper part.

Unconformity

Wv

Wingate sandstone

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

Rou

Rcs

Chinle formation

Rou, undifferentiated Chinle formation, 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, a cliff-forming unit at the base of the Chinle formation, consisting of very light yellow to light-gray medium- to fine-grained carbonaceous sandstone, locally containing conglomeratic beds and thin-bedded greenish-gray shaly sandstone; locally includes an unconformably underlying distinctive red to mottled red and grayish-white siltstone to sandstone (this unit is included in undifferentiated Chinle where the Shinarump member is absent); locally is gradational or intertongues with overlying rock unit. Copper and uranium minerals are locally concentrated at the base of the Shinarump member, especially where it fills channels cut into the Moenkopi formation.

Unconformity

Em

Moenkopi formation

Upper part composed of laminated red shale and siltstone, lower part composed of thin- to thick-bedded red to tan siltstone and fine-grained sandstone, both of which are light-yellow in areas where prolific. Includes two units at base: (1) Shinarump(?) limestone member, dark-brownish yellow oolitic fossiliferous (gastropods) dolomite containing angular fragments of chert; and (2) a white to light-gray unit which grades from sandy dolomite to fine-grained dolomitic sandstone, contains bedded chert and angular fragments of chert, unconformably underlies the Shinarump(?) member, and unconformably overlies the Kaibab limestone.

Unconformity

Pk

Kaibab limestone

Yellow to white, locally brownish-yellow at top; thick-bedded fossiliferous dolomite; contains abundant bedded chert and abundant specks of green glauconite and colophane. Due to pre-Moenkopi erosion this unit is missing locally in the southern part of its outcrop area.

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 Outlaw formation by Steed (1954) and with the Coconino sandstone by Gregory and Moore (1931).

Contact

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

High-angle fault

(Dashed where approximately located; U, upthrown side; D, downthrown side). Country rock near foot faults is cleached and fractured and is locally slightly radioactive.

Major anticline

(Showing crestline)

Syncline

(Showing trace of axial plane; dashed where approximately located). Amplitude of folds does not exceed 25 feet and width from crest to base of fold is 50 feet or less. These folds have developed instead of faults because of the low metamorphic grade of the rock. Because of their small size, pitch and differential displacement are generally unknown.

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 below 5,400 feet are interpolated from the base of the Wingate sandstone.

Edge of channel of Triassic age

Edge of channel cut in top of Moenkopi formation; as seen on exposed cliff faces. Bechures point toward center of channel.

Uranium prospect

LITERATURE CITED

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

McKee, E. D., and Weir, G. W., 1953, Terminology for stratification and cross-stratification in sedimentary rocks: Geol. Soc. America Bull., v. 64, p. 381-390.

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.