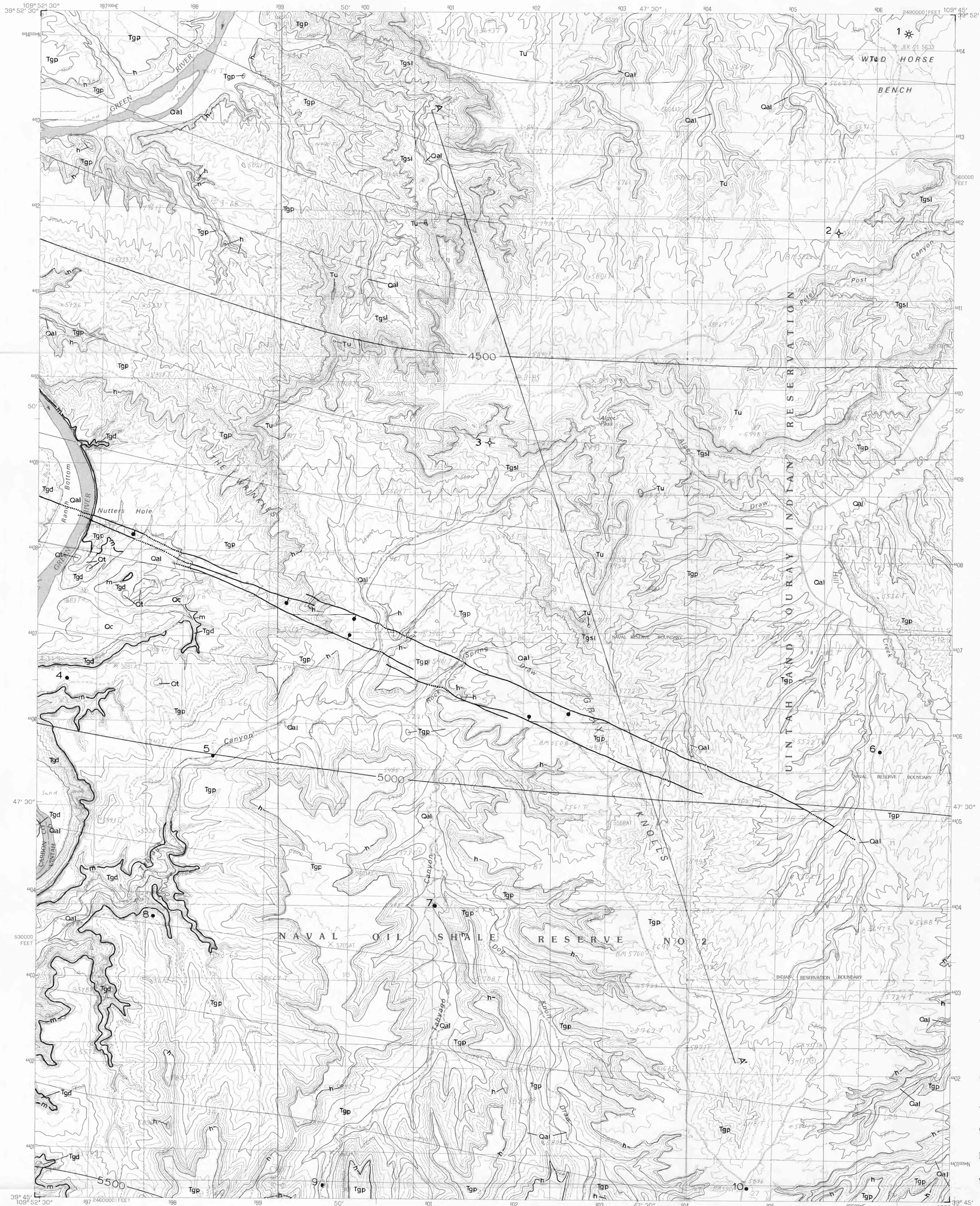
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

MISCELLANEOUS FIELD STUDIES
MAP MF-2250




Base from U.S. Geological Survey, 1985

SCALE 1:24 000

1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 KILOMETER

CONTOUR INTERVAL 40 FEET

UTAH
QUADRANGLE LOCATION

Geology mapped 1978-79

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September 14, 1993

## CORRELATION OF MAP UNITS

| | | | |
|---|---|---|---|
| Qal, Qc, Qt | Holocene, Pleistocene | QUATERNARY | |
| Unconformity | | | |
| Tu, Tgsl, Tgp, h, Tgp, m, Tgd, Tw | Eocene | TERTIARY | |

## DESCRIPTION OF MAP UNITS

Qal **Alluvial deposits (Holocene)**--Unconsolidated clay, silt, and sand, with some gravel size material, in channel, flood-plain, fan, and slope-wash deposits

Qc **Colluvial deposits (Holocene and Pleistocene)**--Unconsolidated silt- to boulder-size talus and slope-wash deposits

Qt **Terrace deposits (Pleistocene)**--Unconsolidated layers of pebbles and cobbles of quartzite on planar eroded surfaces. Represent earlier stages of erosion and deposition by the Green River

Tu **Uinta Formation (Eocene)**--Yellowish- to grayish-brown siltstone and mudstone and a few maroon mudstones. Some sandstone units are crossbedded. Only lowermost 250 feet is exposed in quadrangle

**Green River Formation (Eocene)**

Tgsl **Sandstone and limestone facies**--Sandstone, siltstone, and marlstone (dolomitic limestone) interbedded. Sandstones are yellowish brown to grayish orange, very fine to coarse grained, and even bedded to crossbedded. Most coarse-grained, cross-stratified beds are in upper part of unit. Siltstones are yellowish brown and mostly even bedded. Marlstones or limestones, are gray, silty, dolomitic, and contain insignificant amounts of kerogen. Total thickness is approximately 300 feet. Unit has banded appearance due to alternately occurring brown and gray beds, and is more representative of the Green River Formation than the Uinta Formation. Unit is equivalent to the sandstone and limestone facies exposed in the eastern part of the Price 30' x 60' quadrangle (Weiss and others, 1990) and equivalent, in part, to Uinta B of Osborn (1929); to Green River Formation-Uinta Formation transition zone of Cashion (1967); and to unit A of the Uinta Formation of Pipiringos (1979)

Tgp **Parachute Creek Member**--Gray and yellow-brown marlstone; dark-gray and brown oil shale and numerous thin yellow-orange and gray tuff beds; and some yellow-brown siltstone beds. Upper part is composed principally of marlstone and siltstone. Marlstones form slopes and siltstones form minor ledges. The Mahogany ledge (Mahogany zone in subsurface), richest oil-shale sequence in the Green River Formation, occurs at or near base of the Parachute Creek Member in the Nutters Hole quadrangle. Boundary between the Parachute Creek (Tgp) and Douglas Creek (Tgd) Members rises stratigraphically southwestward in quadrangle. In southwestern part of quadrangle boundary is at base of the Mahogany zone and in the northeastern part of quadrangle boundary is approximately 50 feet below base of the Mahogany zone. For mapping purposes boundary is placed at base of the Mahogany oil-shale bed. Total thickness of member is approximately 1,000 feet. The potential shale-oil yield of the Mahogany zone decreases southwestward across quadrangle and thickness of that part of the zone yielding 25 gallons of oil/ton ranges from approximately 45 feet to approximately 20 feet

—h— **Base of Horse Bench Sandstone Bed**--Yellow-brown, very fine grained sandstone and siltstone, ripple laminated in part. Forms prominent bench approximately 450 feet above the Mahogany oil-shale bed in southern part of quadrangle and approximately 490 feet above the Mahogany oil-shale bed in northern part of quadrangle

—m— **Top of the Mahogany oil-shale bed**--Richest oil-shale bed in the Mahogany zone. Forms dark-gray to black laminated ledge. Unit is approximately 5 feet thick and occurs about 40 feet below top of the Mahogany zone

Tgd **Douglas Creek Member**--Sandstone, siltstone, mudstone, stromatolitic limestone and grain-supported limestone. Sandstones are yellow brown and gray, and ledge forming. Greenish-gray, commonly silty mudstones form reentrants and slopes. Yellow-brown and yellow-gray limestones form ledges. Total thickness is approximately 2,200 feet. Only upper part is exposed in quadrangle

Tw **Wasatch Formation (Eocene)**--Shown in cross section only. Irregularly bedded brown and gray sandstone and siltstone and red, maroon, and gray shales. Intertongues with the Douglas Creek Member of the Green River Formation

**Contact**--Boundaries of units of Qal, Qc, and Qt are approximately located

**Fault**--Dotted where concealed. Bar and ball on downthrown side

—5000— **Structure Contours**--Drawn on top of Mahogany oil-shale bed. Contour interval is 100 feet. Datum is National Geodetic Vertical Datum of 1929

• **Core hole**--Drilled to evaluate oil-shale beds. Map numbers keyed to list of drill holes. U.S. Geological Survey core holes described in Cashion (1959)

✧ **Dry hole**--Map numbers keyed to list of drill holes

✲ **Gas well**--Map number keyed to list of drill holes

List of drill holes in the Nutters Hole quadrangle, Utah
[Leaders (--) indicate no oil-shale data]

| Map no. | Operator | Hole name and no. | USGS data-bank file no.[1] | Surface elevation (feet) | Total depth (feet) |
|---|---|---|---|---|---|
| 1 | Cotton Petroleum Corp. | Kings Canyon 1-11 | -- | 5,606 | 8,300 |
| 2 | Shamrock Oil & Gas | Hill Creek 1 | -- | 5,795 | 5,487 |
| 3 | Shamrock Oil & Gas | Alger Pass 1 | -- | 5,669 | 8,645 |
| 4 | U.S. Geological Survey | Core hole 13 | U-13 | 5,041 | 154.4 |
| 5 | U.S. Geological Survey | Core hole 4 | U-4 | 5,106 | 130.8 |
| 6 | Western Oil Shale Corp. | Core hole 1-2 | U-93 | 5,420 | 635.5 |
| 7 | U.S. Geological Survey | Core hole 6 | U-6 | 5,367 | 266.6 |
| 8 | U.S. Geological Survey | Core hole 14 | U-14 | 5,298 | 174.4 |
| 9 | U.S. Geological Survey | Core hole 5 | U-5 | 5,556 | 150.1 |
| 10 | U.S. Geological Survey | Core hole 9 | U-9 | 5,887 | 546.1 |

[1]Fischer assay shale-oil yield data

## REFERENCES


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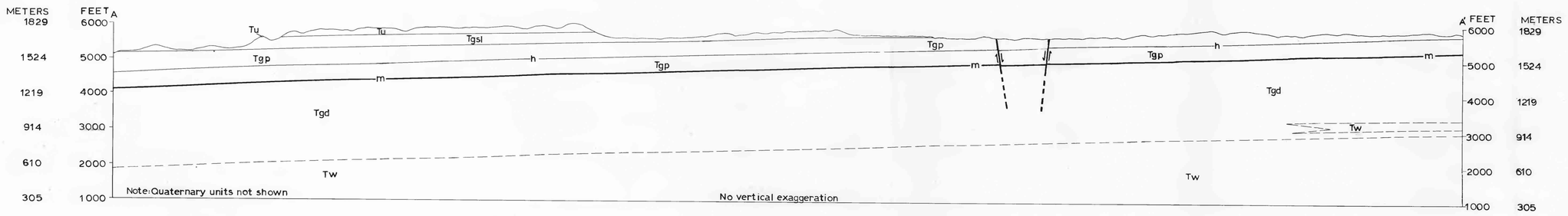
Osborn, H.F., 1929, The titanotheres of ancient Wyoming, Dakota, and Nebraska, Volume 1: U.S. Geological Survey Monograph 55, 701 p.

Pipiringos, G.N., 1979, Preliminary geologic map of the Agency Draw NE quadrangle, Uintah County, Utah: U.S. Geological Survey Miscellaneous Field Studies Map MF-1078, scale 1:24,000.

Weiss, M.P., Witkind, I.J., and Cashion, W.B., 1990, Geologic map of the Price 30' x 60' quadrangle, Carbon, Duchesne, Uintah, Utah, and Wasatch Counties, Utah: U.S. Geological Survey Miscellaneous Investigations Map I-1981, scale 1:100,000.


## METRIC CONVERSION TABLE

| | | |
|---|---|---|
| 1 foot | = | 0.3048 meter |
| 1 mile | = | 1.609 kilometers |
| 1 gallon/ton | = | 4.172 liters/metric ton |
| 1 short ton | = | 0.9072 metric ton |




# GEOLOGIC MAP OF THE NUTTERS HOLE QUADRANGLE, UINTAH AND CARBON COUNTIES, UTAH

By
W.B. Cashion
1994




INTERIOR—GEOLOGICAL SURVEY, RESTON, VIRGINIA—1994

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