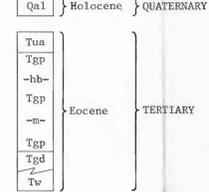


DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY



CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

Qal ALLUVIUM (HOLOCENE)--Unconsolidated silt, sand, and gravel.

UNITA FORMATION (EOCENE)

Tua Unit A--Light-brown to yellow-brown very fine to fine-grained sandstone of variable resistance; some gray to yellow-gray siltstone, and gray marlstone. The unit weathers to brown or yellow-brown cliffs and ledges and gray slopes. The contact with the Green River Formation is conformable although commonly grossly undulatory. The undulatory nature of the contact is due to foundering of the basal sand into the underlying fine-grained sediments. Approximately 120 feet (36.6 m) of Unit A is exposed in the Cooper Canyon quadrangle.

GREEN RIVER FORMATION (EOCENE)

Parachute Creek Member--Light-gray to light yellow-brown weathering marlstone; gray to blue-gray and dark-brown weathering oil shale; some oil shale forms resistant ledges; yellow-brown weathering, slope-forming siltstone; numerous thin beds of yellow-brown weathering tuffs; most strata are thin bedded to laminar. The Mahogany zone (Mahogany ledge on outcrop), a sequence of rich oil shale about 75 feet (22.9 m) thick, occurs approximately 490 feet (149.4 m) below the top of the unit. The upper portion of the member includes all strata formerly assigned to the Duvick Creek Member (Cashion and Donnell, 1974). Thickness of member approximately 630 feet (192 m).

Yellow-brown weathering tuffaceous unit--Interbedded marlstone and thin tuffaceous beds; much marlstone contains various amounts of carbonate which has replaced saline minerals. Unit is as much as 50 feet (15.2 m) thick and its top is approximately 300 feet (91.4 m) above the Mahogany bed. The unit appears to be stratigraphically equivalent to the Horse Bench Sandstone Bed as mapped by Cashion (1967, p. 17, pl. 1), and the "h" sequence of Cashion (1974).

Mahogany oil-shale bed--The richest unit in the Mahogany zone located about 26 feet (7.9 m) below the top of the Mahogany zone; approximately 10 feet (3 m) thick. Commonly forms a prominent ledge.

Tgd Douglas Creek Member--Gray and brown fine-grained sandstone and siltstone; some green mudstone; yellow-brown and gray algal and oolitic limestone; sandstone and limestone are commonly bituminous; a few thin beds of oil shale. Approximately 1,170 feet (356.6 m) thick in this quadrangle.

Tw WASATCH FORMATION (EOCENE)--Shown on cross section only--Dashed contact indicates intertonguing with Green River Formation. Variegated gray and red claystone and marlstone, and gray sandstone and siltstone (Cashion, 1967, p. 5-6).

CONTACT--Quaternary alluvium (Qal) contacts approximately located.

-6000- STRUCTURE CONTOURS--Drawn on top of the Mahogany oil-shale bed. Dashed where bed is eroded. Contour interval is 100 feet (30.5 m). Datum is mean sea level.

3 CORE HOLE--Drilled to evaluate oil-shale beds or bituminous sandstone. Bituminous sandstones described by Peterson (1975). Number keyed to list of core holes and exploratory wells.

4 DRY HOLE--Oil and gas test. Number keyed to list of core holes and exploratory wells.

6 PRODUCING GAS WELL--Number keyed to list of core holes and exploratory wells.

ECONOMIC GEOLOGY

Natural gas, bituminous sandstone and limestone, and oil shale occur in the Cooper Canyon quadrangle; at the time of mapping only natural gas was being produced. The gas was being produced from well number 6 in the Wasatch Formation. The bituminous sandstones and limestones have been examined by the Utah Geological and Mineralogical Survey, in cooperation with the U.S. Bureau of Mines (Peterson, 1975), but there has been no development of these resources. The oil shale interval with the greatest economic potential is the Mahogany zone, which is in the Parachute Creek Member of the Green River Formation. Within this zone there are two sequences of potential interest as found in well number 3. One sequence is 10.8 feet (3.3 m) thick and yields 25.3 gallons per ton (105.6 l/tonne); the second sequence is 39.8 feet (12.1 m) thick and yields 27.5 gallons per ton (114.7 l/tonne). The mappers found no evidence of potentially economic quantities of other minerals.

REFERENCES

Cashion, W. B., 1967, Geology and fuel resources of the Green River Formation, southeastern Uinta Basin, Utah and Colorado: U.S. Geol. Survey Prof. Paper 548, 48 p.

1974, Geologic map of the Southern Canyon quadrangle, Uintah County, Utah: U.S. Geol. Survey Misc. Field Studies Map MF-579.

Cashion, W. B., and Donnell, J. R., 1974, Revision of nomenclature of the upper part of the Green River Formation, Piceance Creek basin, Colorado and eastern Uinta Basin, Utah: U.S. Geol. Survey Bull. 1394-C, 9 p.

Peterson, P. R., 1975, Lithologic logs and correlation of coreholes, P. R. Spring and Hill Creek oil-impregnated sandstone deposits, Uintah County, Utah: Utah Geol. and Mineralog. Survey Rept. Inv. 100, 30 p.

List of core holes and exploratory wells drilled in the Cooper Canyon Quadrangle, Uintah County, Utah

[Leaders (---) indicate no data. Data supplied for number 1 by Cassandra Sever and John Ward Smith. U.S. Energy Research and Devel. Adm./Laramie Energy Research Center (ERDA/LERC), written commun., November 1976]

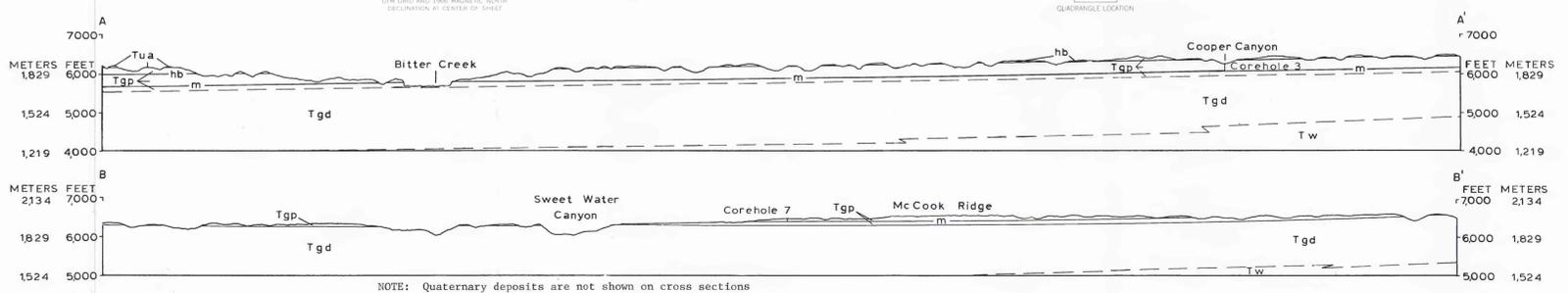
Number	Drilling Company or Agency	Hole name and Number	Total depth feet	meters
1	ERDA/LERC-----	SUB 9	276	84.1
2	Utah Geol. and Mineralog. Survey/U.S. Bur. Mines--	PR-1	326	99.4
3	Brewer and others-----	Corehole 8-1	--	--
4	Woodward & Co.-----	McCook Ridge 1	6,095	1,857.8
5	Skyline Oil Co.-----	Nielson 1	5,852	1,783.7
6	Skyline Oil Co.-----	Sweetwater Creek 5	4,421	1,347.5
7	ERDA/LERC-----	SUB 8	118	36
8	Utah Geol. and Mineralog. Survey/U.S. Bur. Mines--	PR-2	202	61.6

Base from U.S. Geological Survey, 1966

Geology mapped in 1976; assisted by E. F. Czyzewski and J. K. Pitman

PRELIMINARY GEOLOGIC MAP OF THE COOPER CANYON QUADRANGLE, UTAH COUNTY, UTAH

By
C. William Keighin
1977



NOTE: Quaternary deposits are not shown on cross sections