DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

MISCELLANEOUS FIELD STUDIES
MAP MF-1078
AGENCY DRAW NE QUAD., UT.

Base from U.S. Geological Survey, 1966

Geology compiled in 1978

CORRELATION OF MAP UNITS

Qal	Holocene	QUATERNARY
Tub	Eocene	TERTIARY
Tua		
Tgp (—m—)		
Tgd		

CONTACT--Quaternary alluvium (Qal) contacts approximately located by photogrammetry; other contacts located with plane table and alidade or by altimeter. Control point spacing as in Bates Knolls quadrangle (Pipiringos, 1978)

30 — FAULT--Dotted where concealed; dashed where approximately located. Bar and ball on downthrown side; displacement given where known in feet. Arrows indicate direction of movement on cross section

5400 — STRUCTURE CONTOURS--Drawn on top of the Mahogany bed. Dashed where bed is eroded. Contour interval is 100 ft (30 m). Datum is mean sea level

1 — CORE HOLE--Drilled to evaluate oil-shale beds or bituminous sandstone. Bituminous sandstones described by Peterson (1975). Number keyed to table

4 — DRY HOLE--Oil and gas test. Number keyed to table

8 — PRODUCING GAS WELL--Number keyed to table

7 — SHUT-IN GAS WELL--Number keyed to table

DESCRIPTION OF MAP UNITS

Qal — ALLUVIAL DEPOSITS (HOLOCENE)--Unconsolidated silt and sand, consists mainly of slope wash in the highlands south of Chimney Rock and near the southeastern margin of the quadrangle

UINTA FORMATION (EOCENE)

Tub — Unit B--Dominantly yellowish- to grayish-brown fine- to coarse-grained sandstone, tuffaceous, contains minor thin beds of yellowish- to grayish-brown siltstone. Unit B occurs only in the northeastern part of the area. Only the lower 80 ft (24 m) is present

Tua — Unit A--A sequence of alternating Uinta and Green River Formation lithologies. The Uinta lithologies are like those described above. Some of the sandstone beds are conspicuously planar cross-stratified in sets 1-12 ft (30 cm to 3.7 m) thick, the rest is obscurely crossbedded to massive and attain thicknesses as much as 100 ft (30 m). The Green River lithologies consist principally of light greenish-gray barren marlstone and light brownish-gray low-grade oil shale (marlstone whose kerogen content is less than 10 gallons per ton (42 liters per metric ton)) with minor amounts of siltstone, tuff, and white chalky oolitic and ostracodal limestone beds. Sandstone and carbonates are present in about equal amounts in the unit along the northeastern margin of the area, whereas sandstone is dominant wherever this unit is present in the Agency Draw NW quadrangle adjacent to the west. Unit A is about 325 ft (99 m) thick. For more information about this unit see Pipiringos (1978)

GREEN RIVER FORMATION (EOCENE)

Tgp — Parachute Creek Member--Oil shale, barren marlstone, and many tuff beds. The oil shale is dusky brown to pale yellowish and gray brown and generally is laminated to varved. It weathers to lighter shades of the same colors. The Mahogany zone (Mahogany ledge on outcrop) is a sequence containing rich oil shale about 105 ft (32 m) thick whose top is about 540 ft (165 m) below the top of the Parachute Creek Member. The Horse Bench Sandstone Bed as mapped by Cashion (1967, pl. 3) is present in the northeastern corner of the area. It forms an inconspicuous outcrop and is not shown on this map. It is about 10 ft (3 m) thick, and in one place the base was observed 11.5 ft (3.5 m) above a very thin rich oil-shale bed that weathers blue and orange. This same very thin bed is also present in the Bates Knolls quadrangle (Pipiringos, 1978). The base of the Horse Bench is about 174 ft (53 m) below the top of the Parachute Creek Member. Tuff beds one-half inch (13 mm) to as much as 2.1 ft (0.6 m) are common throughout the member but they were not mapped. See Cashion (1967, p. 15-16) and Pipiringos (1978) for stratigraphic and lithologic information about these tuffs

—m— — Mahogany bed--The richest oil-shale bed in the Mahogany ledge is about 5 ft (1.5 m) thick. Its top is about 35 ft (11 m) below the top of the Mahogany ledge. It rests directly on an irregularly bedded lumpy tuff about 0.1 ft (3 cm) thick. The Mahogany bed weathers to a brownish-black ledge, and the overlying rich oil-shale sequence 3-6 ft (0.9-1.8 m) thick makes a dark silvery gray slope. This is in sharp contrast to the overlying barren marlstone and low-grade oil-shale slope which weathers light dusky yellow to grayish orange. This marlstone contains an even-bedded tuff (probably the Mahogany marker bed) about 0.1 ft (3 cm) thick 5 ft (1.5 m) above the base. The basal 5 ft (1.5 m) of this marlstone also contains at least one light-brown chert bed 2-3 cm thick that weathers into light yellowish- to orange-brown plates that litter the top of the ledge generally formed by the Mahogany bed. These lithologic and stratigraphic features are persistent and diagnostic of the Mahogany bed throughout the Agency Draw NE and the Bates Knolls quadrangles. In this area, the top of the Mahogany bed occurs 100-157 ft (30-48 m) above the base of the Parachute Creek Member. Near the south edge of the Agency Draw NE quadrangle, on the west side of Willow Creek in sec. 32, T. 13 S., R. 21 E. and in sec. 5, T. 14 S., R. 21 E. the interval from the base of the Parachute Creek to the top of the Mahogany bed is about 157 ft (48 m). In that part of the quadrangle, a sandstone bed about 79 ft (24 m) thick occurs from about 15 to 94 ft (4.6-28.7 m) below the top of the Mahogany bed. This sandstone is cliff forming and grades northward and northeastward into barren marl that is slope forming. Concurrent with the change from sandstone to marlstone, the interval between the top of the Mahogany bed and the base of the Parachute Creek Member decreases to about 105 ft (32 m) both to the northeast beyond Main Canyon and to the north as seen in drill hole 7. The 79 ft (24 m) thick sandstone bed overlies a marlstone sequence about 14 ft (4.3 m) thick that contains at least one thin rich oil-shale bed. This sequence in turn overlies a sandstone bed that is about 22 ft (6.7 m) thick and is ledge forming. This ledge is in the stratigraphic position of the B groove elsewhere (as in the Piceance Creek Basin) and overlies another marlstone sequence about 27 ft (8.2 m) thick that also contains a thin rich oil-shale bed. This marlstone sequence constitutes the basal part of the Parachute Creek Member as mapped in this study. It rests on a stromatolitic bed at the top of the underlying member (Tgd). The member is about 705 ft (215 m) thick

Tgd — Main body of the Douglas Creek Member--Comprises the following lithologies listed in order of abundance: Sandstone, mudstone, siltstone, stromatolites, and chalky limestone. The sandstone is light yellowish gray to yellowish brown, fine to medium grained, poorly sorted, frequently contains algal fragments and nearly always is oil stained; ledge forming. The mudstone is greenish gray, consists of silt, clay, and floating quartz grains; forms reentrants. The siltstone is yellowish gray, sandy; slope forming. The stromatolites are yellowish gray and ledge forming; some of them are brecciated and oil stained. The top of the member is here considered to be the top of a stromatolitic bed 2 ft (0.6 m) thick that overlies a thick sandstone sequence whose upper few feet generally is oil stained. The top of the member locally forms a prominent ledge that underlies gentle slopes. A maximum of about 690 ft (210 m) of the Douglas Creek is exposed in the southeast corner of the mapped area east of and adjacent to Main Canyon. The exposed sequence includes beds considered by Cashion (1967) to be a part of the alluvial Renegade Tongue of the Wasatch Formation. In the wells drilled by oil companies in various parts of the area, the thickness of the main body of the Douglas Creek is about 1,800 ft (549 m) as shown in the cross section

WASATCH FORMATION (EOCENE AND PALEOCENE)--Total thickness of the Wasatch Formation ranges from about 2,170 ft (661 m) to 3,015 ft (919 m) and averages about 2,500 ft (762 m)

Twu — Upper part--Shown only in cross section. Dominantly red beds of alluvial origin with several tongues of lacustrine rocks in the upper part. Ranges from 750 to 1,300 ft (229-396 m) and averages about 1,060 ft (323 m) thick in the subsurface

Twl — Lower part--Shown only in cross section. The top and bottom of this unit are picked at persistent changes in the configuration of curves in the electric logs of holes drilled in this and adjacent areas. The upper one may mark the boundary between the Eocene and Paleocene parts of the Wasatch. This unit ranges in thickness from about 1,350 to 1,720 ft (411-524 m) and averages about 1,457 ft (444 m)

Kmv — MESAVERDE FORMATION (UPPER CRETACEOUS)--Thickness of entire Mesaverde measured to the top of the Buck Tongue of the Mancos Shale; ranges from about 1,852 to 1,920 ft (565-585 m) and averages about 1,883 ft (574 m). Thickness data from geophysical logs. Only upper part shown in cross section

REFERENCES

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

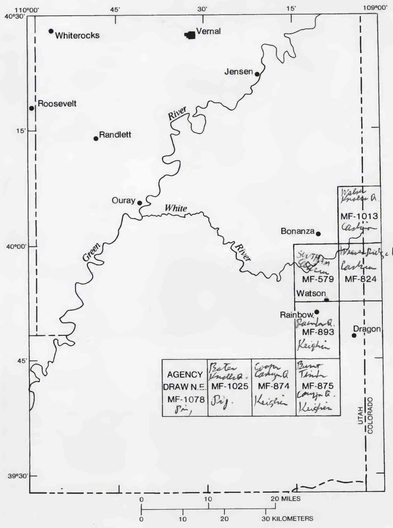
Peterson, P. R., 1975, Lithologic logs and correlation of coreholes, P. R. Spring and Hill Creek oil-impregnated sandstone deposits, Uintah County, Utah: Utah Geological and Mineral Survey Report of Investigations 100, 30 p.

Pipiringos, G. N., 1978, Preliminary geologic map of the Bates Knolls quadrangle, Uintah County, Utah: U.S. Geological Survey Miscellaneous Field Studies Map MF-1025.

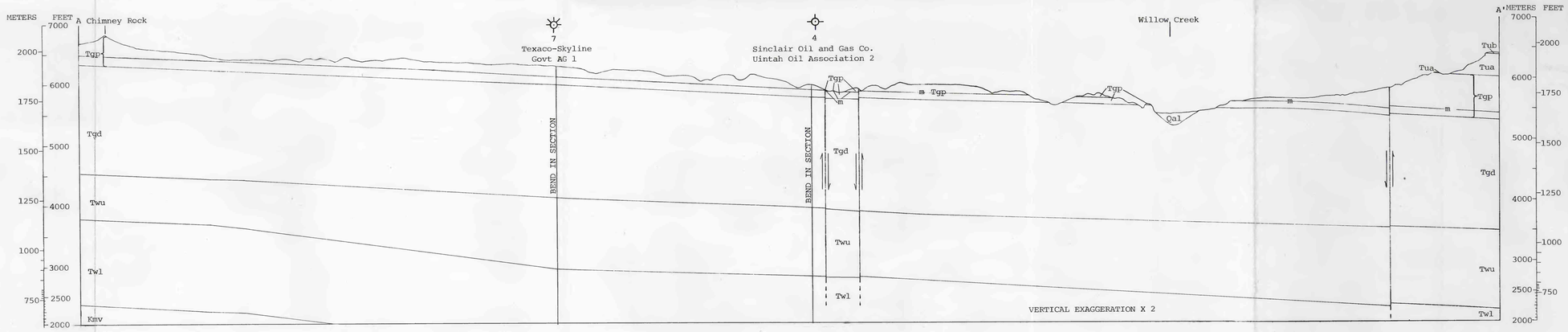
LIST OF DRILL HOLES IN THE AGENCY DRAW NE QUADRANGLE, UTAH

Map	Operator	Hole name and number	Total depth Feet	Meters
1	Geokinitics, Inc.[1]	Agency core hole No.	157+	48+
2	Geokinitics, Inc.	Agency Draw No. 8	91	28
3	Sinclair Oil and Gas Co.[2]	Uintah Oil Association No. 1	7,433	2,266
4	Sinclair Oil and Gas Co.	Uintah Oil Association No. 2	3,949	1,204
5	Geokinetics, Inc.	Agency Draw No. 6	220	67
6	Geokinetics, Inc.	Agency Draw No. 7	170	52
7	Texaco, Inc.-Skyline Oil Company	Government Ag No. 1	12,261	3,737
8	Texaco, Inc.-Skyline Oil Company[2]	Government AF No. 1	10,605	3,232
9	Continental Oil Co.[2]	Bull Canyon No. 1	4,215	1,285
10	Geokinetics, Inc.	Agency Draw No. 5	110	34

[1]Information concerning this hole not verified.
[2]Stratigraphic information from those wells projected into cross section along structure contours.



Index map showing recently publish U.S. Geological maps in the Uinta Basin, Utah



PRELIMINARY GEOLOGIC MAP OF THE AGENCY DRAW NE QUADRANGLE, UINTAH COUNTY, UTAH

By

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1979

INTERIOR—GEOLOGICAL SURVEY, RESTON, VIRGINIA—1979

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