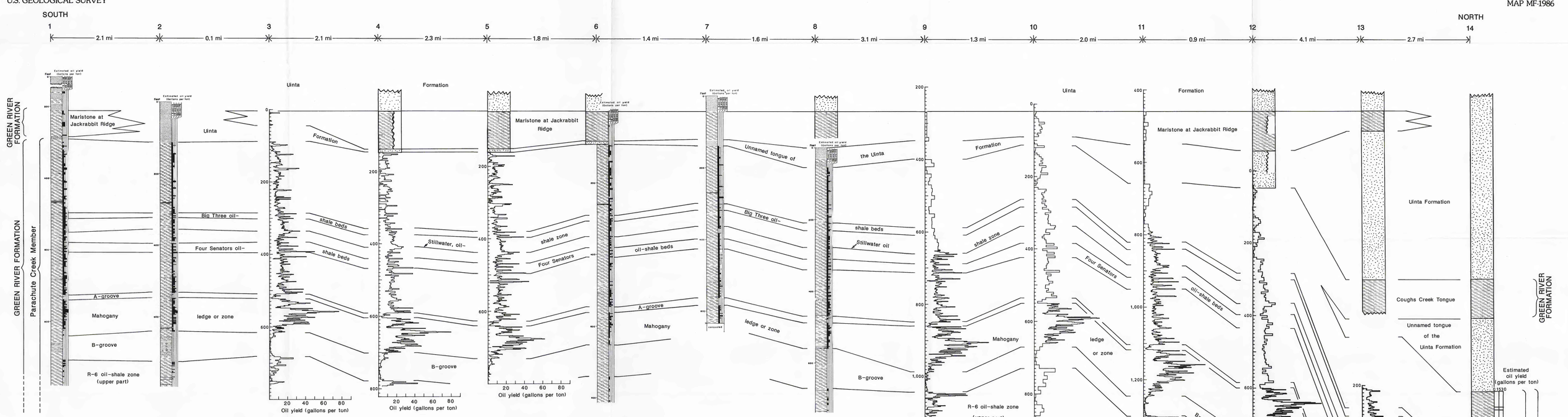
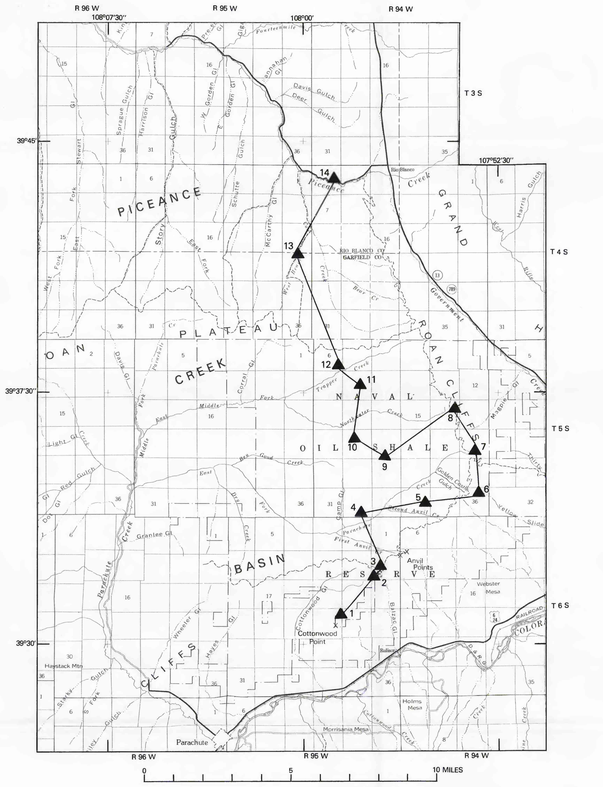
DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

MISCELLANEOUS FIELD STUDIES
MAP MF-1986



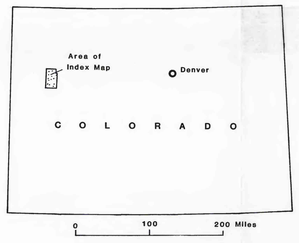




INDEX MAP SHOWING LOCATION OF STRATIGRAPHIC CONTROL POINTS

**EXPLANATION**

- Sandstone
- Marlstone--Includes oil shale
- Sandy marlstone
- Analcitized tuff with irregular, wavy laminae of marlstone
- Thin, sandy-textured key bed--Analcite or altered tuff
- Crinkly bed
- Marlstone bed containing crystal cavities
- Poorly exposed
- Incomplete section

FEET: 0, 50, 100, 200, 300, 400, 500




NOTE

Extensive intertonguing marks the boundary between the Eocene upper part of the Green River Formation and the partly equivalent and partly overlying Eocene Uinta Formation. Widespread marlstone tongues merge with the main body of the Green River Formation resulting in a marked rise southward of the upper contact of the Parachute Creek Member of the Green River Formation. The stratigraphic changes in contact relationships throughout the Piceance Creek basin are described in detail in reports by Johnson (1981) and Trudell and others (1970).

The stratigraphic change in the contact between the Green River and Uinta Formations is much less pronounced in the southeastern part of the Piceance Creek basin than it is elsewhere in the basin. The nature of the upper contact of the Green River Formation in the southeastern Piceance Creek basin is illustrated in this report by a line of sections compiled from published and new information. The sections show the stratigraphic position of several laterally extensive oil-shale zones in the upper part of the Green River Formation, including the Mahogany zone (Mahogany ledge on outcrop), and their relationship to the beds of sandstone and sandy marlstone in the lower part of the Uinta Formation. The line of sections extends about 25 mi from a locality on Piceance Creek, near Rio Blanco, to Cottonwood Point, near Rulison. About 5 mi south of Piceance Creek (between secs. 12 and 13), an unnamed tongue of the Uinta Formation wedges out southward and the overlying Coughs Creek Tongue merges southward with the Parachute Creek Member of the Green River Formation. This results in a stratigraphic rise in the base of the Uinta Formation of about 70 ft. There is no notable change in the position of the contact throughout the remainder of the area.

The marlstone at Jackrabbit Ridge appears as a lentil within the Uinta Formation along the line of section. To the west, however, the underlying unnamed tongue of the Uinta Formation wedges out along Ben Good Creek and near Camp Gulch. In the same area, beds equivalent to the marlstone at Jackrabbit Ridge are part of the Parachute Creek Member of the Green River Formation. In the Anvil Points area, the marlstone at Jackrabbit Ridge is locally very sandy and at section 2 cannot be detected at the outcrop. Core from a nearby drill hole (sec. 3), however, shows marlstone and a thin oil-shale bed containing over 10 gallons of oil per ton in the stratigraphic position of the marlstone at Jackrabbit Ridge.

This report uses 5 surface sections (secs. 1, 2, 6, 7, 8) measured by Duncan and Denson (1949). These measured sections accurately record numerous key marker beds in the upper part of the Green River Formation. Some of these sections have been extended upward slightly or modified to reflect new stratigraphic interpretations.

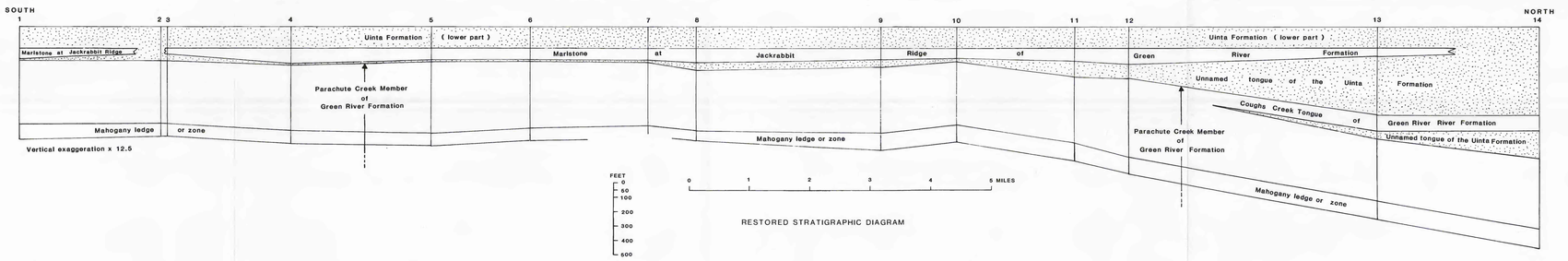
Some graphic columnar sections show estimated oil yield in gallons per ton. The estimation is based solely on an examination of rock samples in the field.

REFERENCES

Duncan, D.C., and Denson, N.M., 1949, Geology of Naval Oil Shale Reserves 1 and 3, Garfield County, Colorado: U.S. Geological Survey Oil and Gas Investigations Preliminary Map 94, scale 1:31,680.
Johnson, R.C., 1981, Stratigraphic evidence for a deep Eocene Lake Uinta, Piceance Creek basin, Colorado: Geology, v. 9, no. 2, p. 55-62.
Trudell, L.G., Beard, T.N., and Smith, J.W., 1970, Green River Formation lithology and oil shale correlations in the Piceance Creek basin, Colorado: U.S. Bureau of Mines Report of Investigations 7357, 14 p.

LOCATION AND DESCRIPTION OF STRATIGRAPHIC CONTROL POINTS

1. Surface section (Duncan and Denson, 1949) measured at Cottonwood Point in NE¼ sec. 22 and NW¼ sec. 23, T. 6 S., R. 95 W.
2. Surface section (Duncan and Denson, 1949) measured near Anvil Points in NE¼ SW¼ sec. 12, T. 6 S., R. 95 W.
3. U.S. Bureau of Mines, Naval Reserve No. 1, Corehole A, drilled in SW¼ sec. 12, T. 6 S., R. 95 W.
4. TRW 34X-32, No. 24 oil shale evaluation test hole drilled in SE¼ sec. 32, T. 5 S., R. 94 W. and surface section measured nearby.
5. U.S. Bureau of Mines, Naval Reserve No. 1, Corehole 25 drilled in NE¼ sec. 34, T. 5 S., R. 94 W. and surface section measured nearby.
6. Surface section measured near head of Golden Castle Gulch in SW¼ SE¼ sec. 25 and NW¼ NE¼ sec. 36, T. 5 S., R. 94 W. Most of section is from Duncan and Denson (1949) with minor additions at top by author.
7. Surface section (Duncan and Denson, 1949) measured near Murphy's Trail (present-day JQS Trail) in NE¼ SW¼ sec. 24, T. 5 S., R. 94 W.
8. Surface section measured at head of Northwater Creek in NE¼ sec. 14, T. 5 S., R. 94 W. Most of section is from Duncan and Denson (1949) with minor additions at top by author.
9. U.S. Bureau of Mines, Naval Reserve No. 1, Corehole 22 drilled in SW¼ sec. 21, T. 5 S., R. 94 W.
10. U.S. Bureau of Mines, Naval Reserve No. 1, Corehole I drilled in NW¼ sec. 20, T. 5 S., R. 94 W.
11. U.S. Bureau of Mines, Naval Reserve No. 1, Corehole 17 drilled in NE¼ sec. 8, T. 5 S., R. 94 W.
12. U.S. Bureau of Mines, Naval Reserve No. 1, Corehole F drilled in SE¼ sec. 6, T. 5 S., R. 94 W. and surface section measured nearby.
13. Union Oil Company Corehole Louise drilled in NE¼ sec. 24, T. 4 S., R. 95 W. and surface section measured nearby.
14. U.S. Geological Survey Corehole 78-1 drilled in SE¼ sec. 6, T. 4 S., R. 94 W. and surface section measured along Piceance Creek.




RESTORED STRATIGRAPHIC DIAGRAM

# CHART SHOWING CORRELATION OF SELECTED PARTS OF THE EOCENE UINTA AND GREEN RIVER FORMATIONS, SOUTHEASTERN PICEANCE CREEK BASIN, COLORADO

By
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1987

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