

DESCRIPTION OF MAP UNITS

[Note: Descriptions of the surficial deposits of the Housetop Mountain quadrangle are included in a detailed report on the Quaternary geology of the Grand and Battlement Mesas, Colorado, by Yeend (1969).]

- Qal Alluvial and floodplain deposits (Holocene)**—Mud, silt, sand, and gravel of stream-bed, flood-plain, and fan deposits. Clasts are basalt and local sedimentary rocks. Lenses of reddish-brown sandy silt are common.
- Qas Alluvial and eolian sand and silt (Holocene)**—Yellowish-brown silt and sand, reddish-brown silt, generally well sorted, and gray clay. Derived mostly from nearby sedimentary rocks. Locally occupies depressions and young valleys. Mapped only where moderately extensive. Maximum thickness about 40 ft (12 m).
- Qes Earthflow and soil-creep deposits (Holocene)**—Poorly sorted boulder, cobble, and pebble gravel in a matrix of greenish-gray sandy silt. Contains some basalt boulders derived from older colluvium deposits, and angular fragments of sandstone, siltstone, and claystone derived from Uinta, Green River, and Wasatch Formations. Maximum thickness about 100 ft (30 m).
- Grand Mesa Formation (Pleistocene—Probably time of Pineale(?) glaciation)**
- Qga Alluvial-terrace and valley-fill deposits**—Pebble, cobble, and boulder gravel of basalt and variable amounts of sedimentary rocks in a moderately to well sorted sandy matrix. Maximum thickness about 80 ft (24 m).
- Qgp Pediment gravel**—Pebbles, cobbles, and boulders of locally derived angular sandstone, siltstone, claystone, and marlstone, in a matrix of poorly stratified to unstratified light-greenish-gray silty sand. Basalt detritus scarce. Probably includes some colluvial matrix. Commonly mantled with reddish-brown eolian silt. Thickness 5-40 ft (1.5-12 m).
- Qsl Solifluction deposits (Pleistocene)**—Basalt blocks and boulders, and unconsolidated material moved downslope by gravity. Only two small patches are present on east side of Housetop Mountain quadrangle, but deposits are extensive to the east in the Hawkhurst Creek 7 1/2-minute quadrangle.
- Lands End Formation (Pleistocene—Probably time of Bull Lake(?) glaciation)**
- Qla Alluvial-terrace and fan-gravel deposits**—Grayish-brown sandy gravel of basalt and locally derived slabby siltstone, marlstone, and sandstone; moderately to poorly sorted; poorly stratified; rock fragments angular to well rounded. Maximum thickness 50 ft (18 m).
- Qoa Older deposits (Pleistocene—Pre-Bull Lake(?) age)**
- Alluvial-terrace gravel deposits**—Pebble, cobble, and boulder gravel; nearly equal amounts of basalt and sedimentary rock fragments of locally derived sandstone, claystone, and marlstone. Matrix is greenish-gray silty sand. Reddish-brown windblown sand and silt locally mantle terrace surfaces. Ranges in thickness from 10 to 60 ft (3-18 m).
- Qop Pediment gravel deposits**—Subangular to subrounded pebble, cobble, and boulder gravel. Locally derived basalt boulders as much as 8 ft (2.5 m) in diameter are common near the slopes of Battlement Mesa. Siltstone, sandstone, claystone, and marlstone derived from the Wasatch and Green River Formations make up most of the gravel. Surface is generally covered with a thin patchy layer of reddish-brown windblown sand and silt. Maximum thickness about 180 ft (55 m).
- Tu Uinta Formation (Eocene)**—Light-brown and gray very fine to medium-grained sandstone and medium-grained light-gray marlstone and siltstone; contains ostracodes. Top eroded. As thick as 900 ft (274 m) on Battlement Mesa.
- Tgp Green River Formation (Eocene)**
- Parachute Creek Member**—Gray-weathering black, brown and gray marlstone, including oil shale, that locally forms cliffs; contains minor amounts of light-gray siltstone, light-gray and brown fine- to medium-grained sandstone, and numerous very thin persistent analcite and tuff beds. Maximum thickness about 500 ft (152 m).
- Mahogany oil-shale bed**—Outcrop of richest oil-shale bed, 60-120 ft (24-37 m) above base of Parachute Creek Member. Thickness 2-5 ft (0.6-1.5 m).
- Tgg Garden Gulch Member**—Light-gray marlstone, dark-brown to black paper shale some of which is oil shale, light-gray oolitic limestone and sandstone, light-gray algal limestone, and some massive brown fine- to medium-grained sandstone. Thickness 1,000-1,200 ft (305-366 m). Grades eastward into Anvil Points Member by increasing sandstone and siltstone beds in southeastern part of quadrangle.
- Tga Anvil Points Member**—Brown and buff massive fine- to coarse-grained sandstone that forms conspicuous ledges, minor amounts of light-gray siltstone, marlstone, and a few thin thin low-grade oil-shale beds. Thickness 40-340 ft (12-104 m) where overlain by Garden Gulch Member. About 2,180 ft (664 m) thick east of Durant Gulch, southeast facies boundary with Garden Gulch Member.
- Tws Wasatch Formation (Eocene)**
- Shire Member**—Variegated purple, lavender, red, gray, and brown claystone; some locally lenticular fine- to coarse-grained sandstone. In southern part of quadrangle, upper contact rises stratigraphically eastward by intertonguing with overlying Anvil Points Member of Green River Formation. Thickness about 900-1,700 ft (275-520 m). Thickens from west to east. Maximum thickness of exposed beds about 800 ft (245 m). Type locality and reference section of Shire Member are about 1 mi (1.6 km) west of quadrangle in sec. 18, T. 9 S., R. 96 W. (Donnell, 1969, p. 17-18).

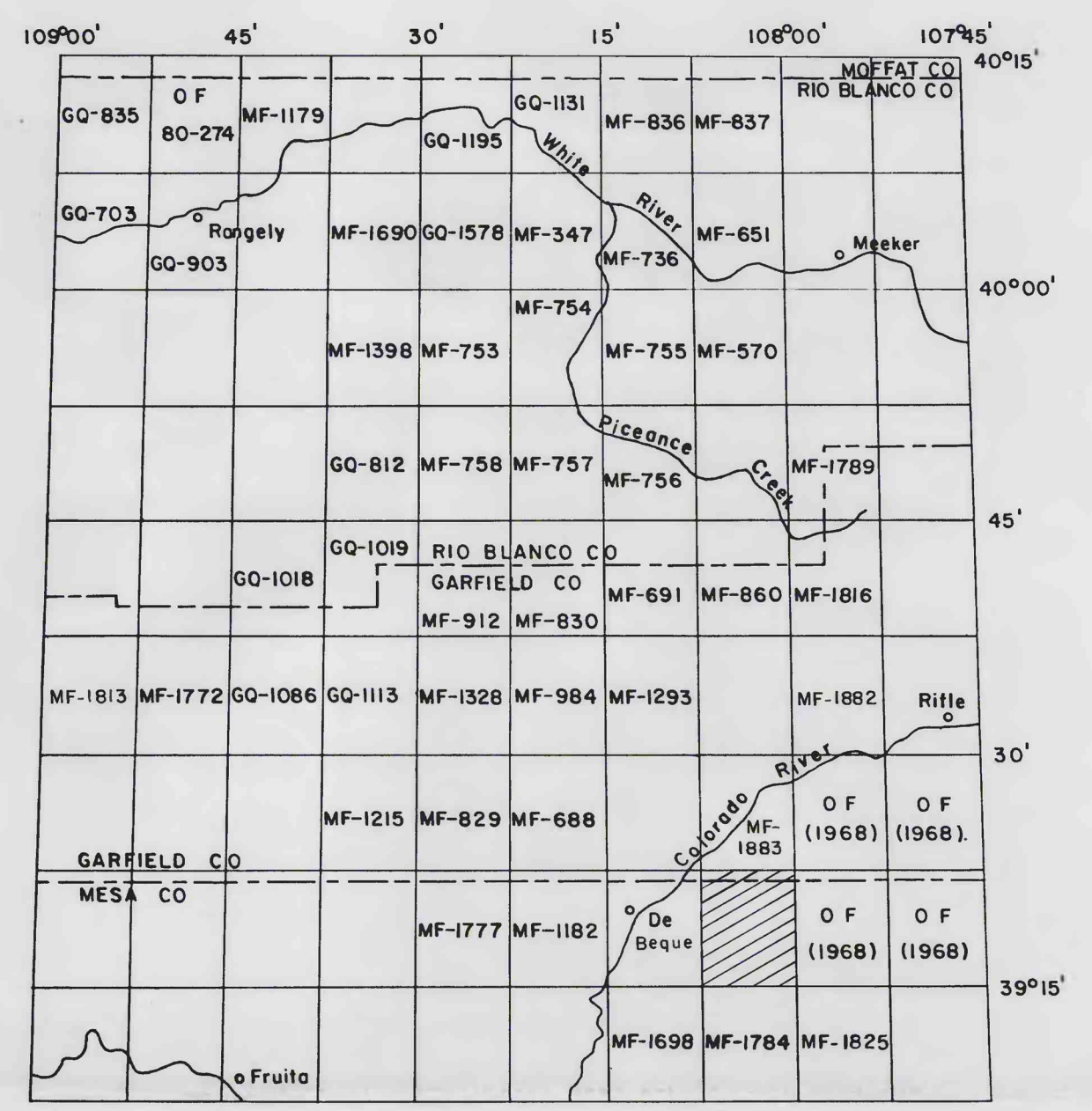
- Contact—Approximately located where obscured by soil cover or vegetation
- ☀ Gas well—Number keyed to table 1
- ⊙ Dry hole—Oil and gas test. Number keyed to table 1
- Drilling well—Number keyed to table 1
- 6700— Structure contour—Drawn on top of Wasatch Formation. Contour interval 100 ft (30.5 m)
- ~ Facies boundary—Arbitrarily placed between the laterally gradational Garden Gulch and Anvil Points Members

REFERENCES CITED

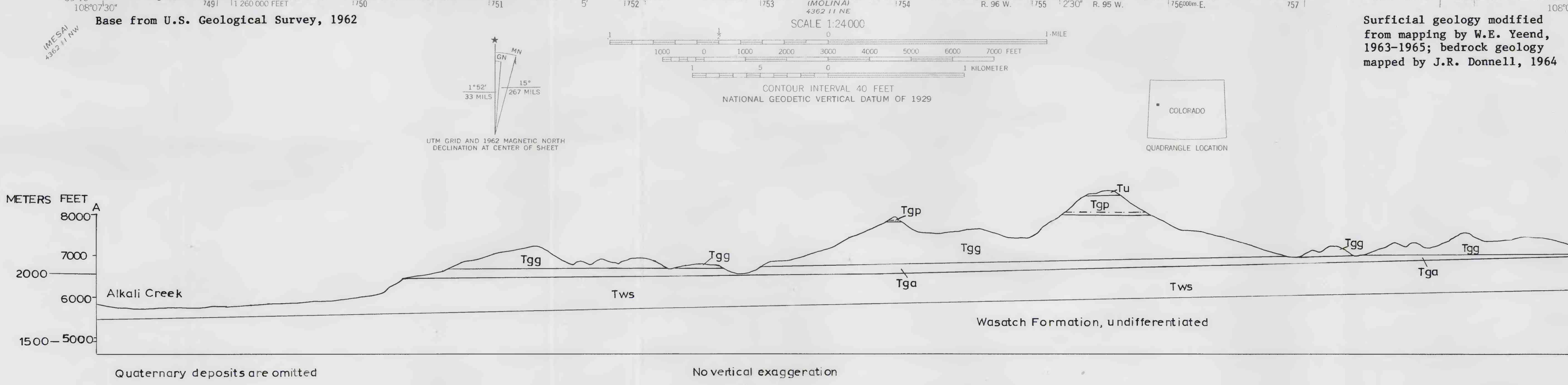
Donnell, J. R., 1969, Paleocene and lower Eocene units in the southern part of the Piceance Creek Basin, Colorado: U.S. Geological Survey Bulletin 1274-H, 18 p.
Yeend, H.E., 1969, Quaternary geology of the Grand and Battlement Mesas area, Colorado: U.S. Geological Survey Professional Paper 617, 50 p.

Table 1.—Drill-hole data for gas wells in the Housetop Mountain quadrangle, Colorado

Drill-hole no. (on map)	Section	Company and Name	Total Depth Feet	Meters
T. 8 S., R. 95 W.				
1	19	Teton Energy Co., Knox 19-1	7,238	2,206
T. 8 S., R. 96 W.				
2	11	Austral Oil Co., Kennon #11-1	3,020	920
3	15	Don M. Rounds, Federal Jolley #1	2,526	770
4	15	Don M. Rounds, Kennon #1	5,500	1,676
T. 9 S., R. 95 W.				
5	20	Roundup Resources Co., #20-14 Shear	5,364	1,635
6	29	Roundup Resources Co., #29-4 Shear		
7	30	Roundup Resources Co., #30-4 Shear	5,325	1,623



INDEX MAP SHOWING LOCATION OF THIS QUADRANGLE (PATTERNED) AND OTHER PUBLISHED U.S. GEOLOGICAL SURVEY 7 1/2-MINUTE GEOLOGIC MAPS IN THE PICEANCE CREEK BASIN AREA, NORTHWESTERN COLORADO. PUBLISHED USGS MAPS INCLUDE GEOLOGIC QUADRANGLE MAPS (Q), MISCELLANEOUS FIELD STUDIES MAPS (MF), AND OPEN-FILE REPORTS (OF).



GEOLOGIC MAP OF THE HOUSETOP MOUNTAIN QUADRANGLE, GARFIELD AND MESA COUNTIES, COLORADO

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