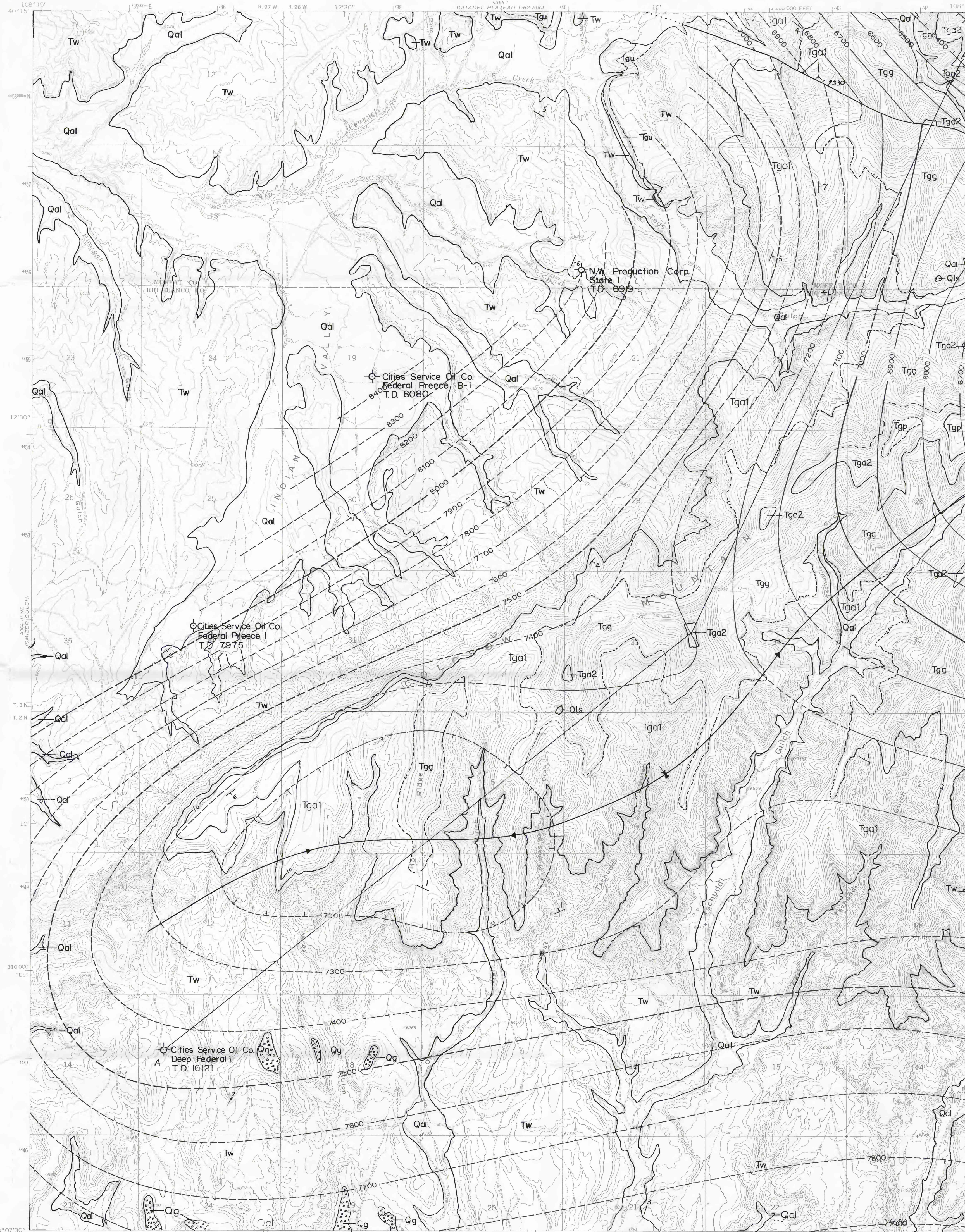
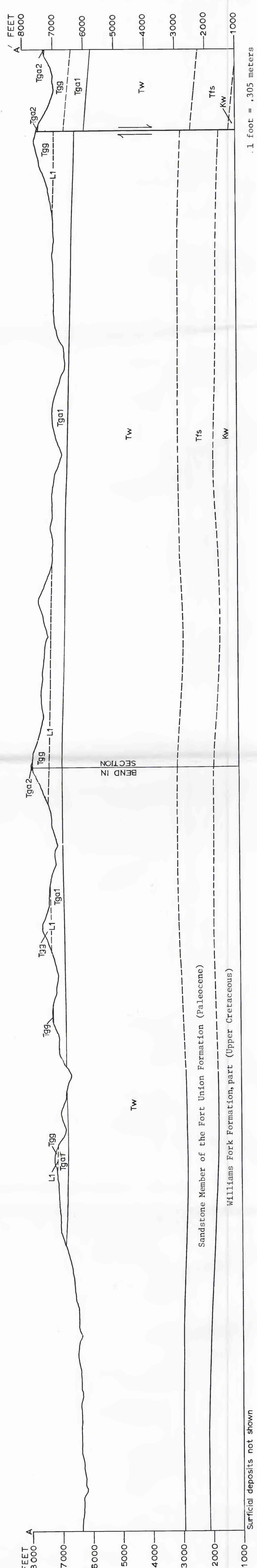


DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY



Base from U.S. Geological Survey, 1966

Geology mapped in 1975

PRELIMINARY GEOLOGIC MAP OF THE INDIAN VALLEY QUADRANGLE, RIO BLANCO AND MOFFAT COUNTIES, COLORADO

By
G. N. Pipiringos and Gene C. Rosenlund
1977

MISCELLANEOUS FIELD STUDIES
MAP MF-836
INDIAN VALLEY QUAD., COLO.

CORRELATION OF MAP AND CROSS SECTION UNITS

Qls	Qal	} Holocene	} QUATERNARY
Qg			
UNCONFORMITY			
Tgp		} Eocene	} TERTIARY
Tga2			
Tgg			
L1			
Tga1			
Tgu	Tw	} Paleocene	} CRETACEOUS
Tfs			
Kw			

DESCRIPTION OF MAP UNITS

- Qls LANDSLIDE DEPOSITS (HOLOCENE)—Slump blocks developed in the Garden Gulch Member of the Green River Formation
- Qal ALLUVIAL DEPOSITS (HOLOCENE)—Mostly silt and sand as much as 60 feet (18 m) thick along Deep Channel Creek
- Qg TERRACE DEPOSITS (PLEISTOCENE)—Limestone and sandstone pebble and cobble gravel, locally derived; silty and sandy. As much as 15 feet (5 m) thick in southwest part of quadrangle
- Tgp Parachute Creek Member—Light-gray platy barren marlstone. Present only near center of east border of quadrangle. About 180 feet (55 m) thick. Top is eroded
- Tgg Garden Gulch Member—Grayish-green and medium-gray shale with thin dolomite beds and dolomite concretions, and thin light-gray fine-grained sandstone beds that increase in number and thickness northward. Thickness of member ranges from 500 feet (152 m) in the southern part of the quadrangle to 900 feet (274 m) in the northern part. Base of the member, for convenience, is placed at top of persistent L1 limestone bed
- Anvil Points Member—Anvil Points units are westward thinning sequences made up dominantly of sandstone and lesser amounts of finer grained clastics. The units are dominantly fluvialite in the east and grade westward into units entirely lacustrine
- Unit 2—Light-gray to white fine- to medium-grained calcareous sandstone, medium- to thick-bedded, forms ledges and cliffs. Thickness of unit is 160-360 feet (49-110 m); thickens northward. It equals the middle part of the Anvil Points as mapped in the White Rock quadrangle to the east (Pipiringos and Rosenlund, 1976, map unit Tga2)
- L1 L1 bed—Light pinkish-gray ostracodal and oolitic limestone as much as 3 feet (1 m) thick. Weathers locally to subrounded discoidal cobbles. L1 bed is persistent in the quadrangle and adjacent areas to the east, southeast, and south. In the quadrangle, the L1 bed is inconspicuous and commonly forms a smooth grassy slope. In the SW 1/4 sec. 35, and in the NW 1/4 sec. 23, T. 3 N., R. 96 W., the shale directly above the L1 bed contains gray desiccated dolomite concretions identical to those at the base of the Garden Gulch Member in the White River City quadrangle to the south (see description of key bed c, Pipiringos and Johnson, 1976)
- Unit 1—Mostly papery fissile to platy gray shale in the upper part; mostly yellowish-gray and light-gray fine- to medium-grained sandstone in the lower part. This unit is a transitional zone from fluvialite sandstone beds of the Wasatch Formation to lacustrine shale of the Garden Gulch Member of the Green River Formation. The unit is about 350 feet (107 m) thick in sec. 6, T. 2 N., R. 96 W. It thickens eastward to about 650 feet (198 m) near the eastern part of the quadrangle. This unit is equivalent to the lower part of the Anvil Points Member of the Green River in the Buckskin Point quadrangle to the southeast (see description of map unit Tga1, Pipiringos and Johnson, 1975). The contact of the Anvil Points Member with the underlying Wasatch Formation is gradational, intertonguing, and generally concealed. Consequently in this quadrangle, the contact was arbitrarily placed at the top of a 4-foot (1-m) carbonaceous shale bed that makes a conspicuous dark-brown recess in the cliffs south of Colorow Mountain, and 50-80 feet (15-24 m) above a 30-foot (9-m) thick brown carbonaceous shale sequence on the north side of Colorow Mountain
- Ostracodal limestone—Mapped only at the west end of Colorow Mountain. A persistent light-gray limestone made up entirely of ostracod casts cemented by very fine grained limestone. Where mapped, the resistant ostracodal limestone is about 10 feet thick (3 m), weathers to thick plates, and forms the upper part of a prominent cliff above a 20-foot (6-m) thick sandstone. Forms a conspicuous stripped surface 160-180 feet (49-55 m) below the L1 bed. The ostracodal limestone has approximately the same stratigraphic position and is lithologically identical to the lower ostracodal limestone in the Buckskin Point and White River City quadrangles (see Pipiringos and Johnson, 1975; 1976, map unit 1o)
- Unnamed member—Primarily a gray-brown silty clay shale and thin beds of ostracodal limestone. Crops out only in secs. 8, 9, and 16, T. 3 N., R. 96 W., on northeast side of Teds Gulch. About 150 feet (46 m) thick and 500-650 feet (152-198 m) below the top of the Wasatch. Probably of lacustrine origin and possibly a tongue of the Green River Formation. May be partly equivalent to lacustrine beds locally mapped within the Wasatch in the Smizer Gulch quadrangle to the west (see Hail, 1973, map unit Tw1)

Tw WASATCH FORMATION (EOCENE AND PALEOCENE)—All Wasatch exposed in mapped area is of Eocene age and consists of variegated claystone and siltstone with lenses and channels of light-gray medium- to coarse-grained crossbedded sandstone and carbonaceous shale beds in uppermost part. On the north side of Colorow Mountain and north of Teds Gulch, a 30-foot (9-m) thick brown carbonaceous shale sequence occurs stratigraphically 50-80 feet (15-24 m) below unit top. Preliminary palynomorph studies by R. H. Tschudy suggest that the Eocene-Paleocene boundary is at a depth of about 1,660 feet (506 m) in the Cities Service Oil Co. Deep Federal 1 well. Correlation with other wells suggest that the base of the Eocene was penetrated at a depth of 540 feet (165 m) in the Cities Service Oil Co. Federal Preece 1 well; at 925 feet (282 m) in the Cities Service Oil Co. Federal Preece 2 well; and at 2,215 feet (675 m) in the Northwest Production Corp. State 1 well. Surface calculations of the interval between the well tops and the top of the Wasatch indicate that the thickness of the Eocene portion of the Wasatch ranges from about 2,000 feet (610 m) near the Federal Preece 1 well to about 3,400 feet (1,036 m) near the Northwest Production well. The lower part of the Wasatch as shown in the cross section includes the upper member of the Fort Union Formation as mapped in the Smizer Gulch quadrangle to the west (Hail, 1973, map unit Tfu). The total thickness of the Eocene and Paleocene parts of the Wasatch ranges from about 3,590 feet (1,094 m) in well no. 2 to about 4,532 feet (1,381 m) in well no. 4

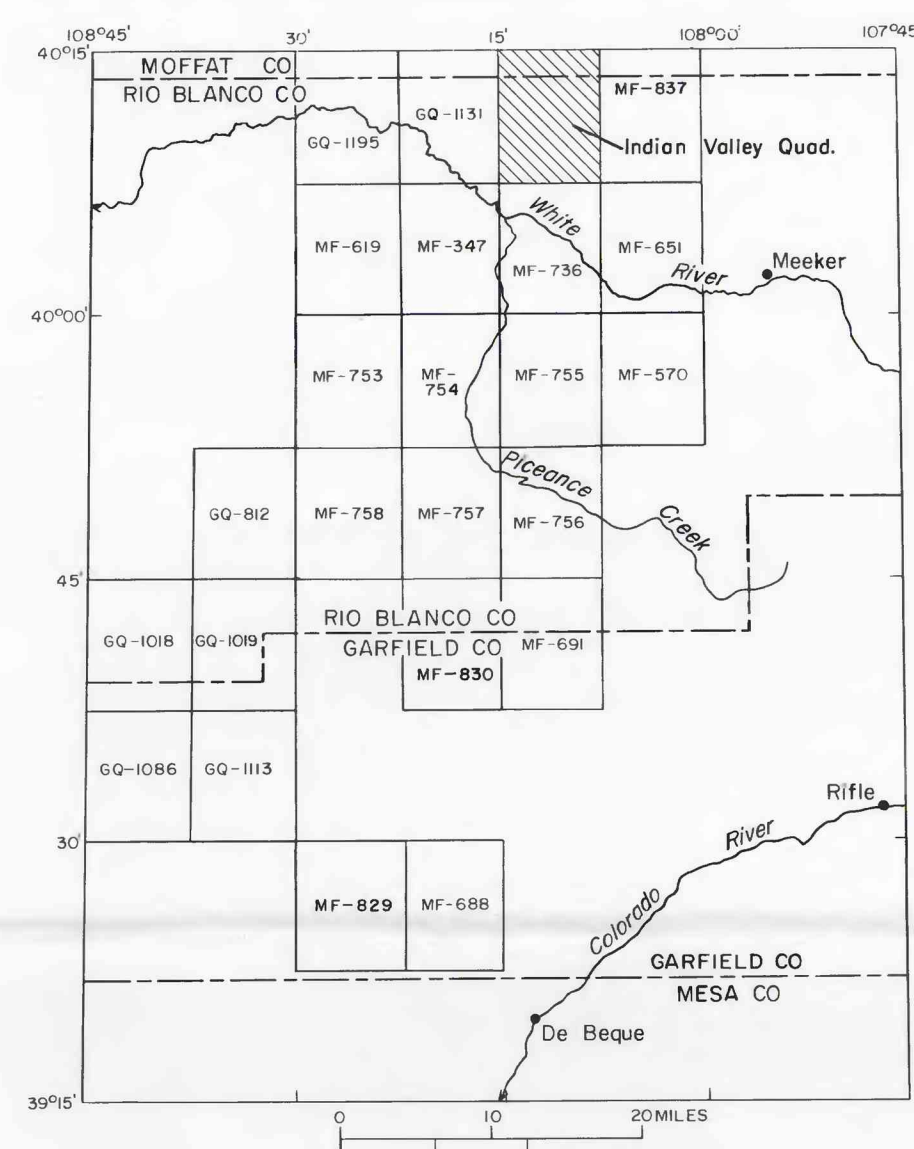
Tfs SANDSTONE MEMBER OF FORT UNION FORMATION (PALEOCENE)—Shown in cross section only

Kw WILLIAMS FORK FORMATION, PART (UPPER CRETACEOUS)—Shown in cross section only

- CONTACT—Dashed where approximately located
- FAULT—Dotted where concealed; bar and ball on downthrown side; displacement where given is in feet
- AXIS OF SYNCLINE—Arrow shows direction of plunge
- STRIKE AND DIP OF BEDDING
- APPARENT DIP—Strike not determinable
- DRY HOLE OR ABANDONED GAS WELL
- SHUT-IN GAS WELL
- STRUCTURE CONTOURS—Drawn on top of L1. Dashed where datum is above land surface. Contour interval 100 feet (30.5 m)
- STRUCTURE CONTOUR SHOWING STRUCTURAL DEPRESSION

REFERENCES

- Hail, W. J., Jr., 1973, Geologic map of the Smizer Gulch quadrangle, Rio Blanco and Moffat Counties, Colorado: U.S. Geol. Survey Geol. Quad. Map GQ-1131 [1974].
- Pipiringos, G. N., and Johnson, R. C., 1975, Preliminary geologic map of the Buckskin Point quadrangle, Rio Blanco County, Colorado: U.S. Geol. Survey Misc. Field Studies Map MF-651.
- 1976, Preliminary geologic map and correlation diagram of the White River City quadrangle, Rio Blanco County, Colorado: U.S. Geol. Survey Misc. Field Studies Map MF-736.
- Pipiringos, G. N., and Rosenlund, G. C., 1976, Preliminary geologic map of the White Rock quadrangle, Rio Blanco and Moffat Counties, Colorado: U.S. Geol. Survey Misc. Field Studies Map MF-837 (in press).



Index of recently published U.S. Geological Survey geologic maps in the Piceance Creek basin area.