



CORRELATION OF MAP UNITS					TERTIARY
Qal	Qs	Qm	Qass	Qes	
Qgt	Qgay	Qgao	Qgp		QUATERNARY
Qay	Qc				
Qam					
Tu					
Tgp					TERTIARY
Tga					
Tws					

DESCRIPTION OF MAP UNITS

[Note: Descriptions of the surficial deposits of the Collbran 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)--Well-sorted boulders, cobbles, and pebbles in a well-sorted matrix of pinkish-gray to grayish-brown fine sand. Clasts are basalt and lesser amounts of local sedimentary rocks. Lenses of reddish-brown sandy silt are common.
- Qs** SLUMP, EARTHFLOW, AND LANDSLIDE DEPOSITS (HOLOCENE)--Small slumps, developed mostly in Tertiary claystone beds, evolve downslope into hummocky earthflows having flow ridges, developed in unconsolidated weathered clay. Fresh landslide scars common. Vegetation commonly uprooted and tilted. Most deposits presently active.
- Qm** MUDFLOW DEPOSITS (HOLOCENE)--Angular to subangular boulders, cobbles, and pebbles in a matrix of reddish-brown silty clay and yellowish-green, brown, and grayish-brown sandy silt; poorly sorted. Contains scattered clay nodules. Clasts derived from basalt, sandstone, marlstone, siltstone, and claystone. Mudflow on Big Creek developed on till of Grand Mesa Formation (unit Qgt), filling old Big Creek outwash channel. Debris may have come from 5 mi (8 km) or more up valley near retreating front of Grand Mesa glacier (Yeend, 1969).
- Qass** ALLUVIAL AND EOLIAN SAND AND SILT (HOLOCENE)--Yellowish-brown silt and sand, reddish-brown silt, and gray clay, generally well sorted. Composed mostly of quartz derived from nearby sedimentary rocks. Locally occupies depressions and young valleys. Mapped only where moderately extensive.
- 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 till, landslide, and colluvium deposits, and angular fragments of sandstone, siltstone, and claystone derived from Wasatch and Green River Formations. Surfaces of deposits are irregular, crudely terraced, and have lobes, swales, and undrained depressions containing local pond deposits. Maximum thickness about 30 ft (9 m).
- Qgt** GRAND MESA FORMATION (PLEISTOCENE--Pinedale(?) glaciation) Till--Abundant angular to subangular pebbles, cobbles, and boulders in a matrix of grayish-brown sand, silt, and clay. Pebbles, cobbles, and boulders are 90 percent or more basalt. A few basalt boulders and cobbles are striated, but many are soiled and faceted. Large basalt fragments within till show little weathering. Smooth till plains common. Maximum thickness about 150 ft (46 m).
- Qgay** Alluvial terrace gravel--Outwash and alluvial fan deposits consisting of pebbles, cobbles, and boulder gravel of mostly basalt and variable amounts of sedimentary rocks in a sandy matrix; subrounded to well rounded, local imbricate structure.
- Qgao** Younger alluvial terrace gravels--Upper surface about 40 ft (12 m) above Plateau Creek near Plateau City.
- Qgp** Older alluvial terrace gravels--Intertongues with till (unit Qgt) in till plains on Kansas Mesa. Upper surface about 80-150 ft (24-45 m) above Plateau Creek near Collbran and Plateau City.
- Qc** Pediment gravel, undifferentiated--Pebbles, cobbles, and boulders of locally derived angular sandstone, siltstone, claystone, and marlstone in matrix of poorly stratified to unstratified light-greenish-gray silty sand. Basalt detritus scarce. Probably includes some colluvial material. Commonly mantled by reddish-brown eolian silt. About 5-40 ft (1.5-12 m) thick.
- Qay** DEPOSITS OF PRE-BULL LAKE(?) GLACIATIONS (PLEISTOCENE) Colluvium--Angular to subangular, poorly sorted boulders, cobbles, and pebbles in a matrix of greenish-gray sandy silt. May include some till. Basalt boulders as much as 5 ft (1.5 m) in maximum dimension; sandstone, marlstone, and claystone slabs as much as 1 ft (0.3 m) in length are common. Irregular topography.
- Qam** Alluvial terrace and fan gravel--A mixture of nearly equal amounts of rounded basalt boulders and slabs of locally derived sandstone, claystone, and marlstone in a matrix of light-greenish-gray silty sand. Reddish-brown windblown sand and silt mantle terrace surfaces.
- Tu** Younger alluvial terrace and fan gravel--Maximum thickness about 50 ft (15 m).
- Tgp** Middle alluvial terrace and fan gravel--Maximum thickness about 60 ft (18 m).
- Tga** UINIA FORMATION (EOCENE)--Light-brown and gray sandstone and gray marlstone and siltstone; contains pelecypods, gastropods, and ostracodes. Only isolated patches of lower part are exposed in Collbran quadrangle. Maximum thickness of exposed rocks about 500 ft (175 m).

- Tgs** GREEN RIVER FORMATION (EOCENE) Parachute Creek Member--Gray-weathering, black, brown, and gray oil shale that locally forms cliffs; contains minor amounts of gray siltstone. Maximum thickness about 620 ft (189 m).
- Tga** Mahogany bed--Richest oil-shale bed in Mahogany ledge, in USGS corehole C-184, yields as much as 54 gallons of oil per ton (225 liters per metric ton). Located about 80 ft (24 m) above base of Parachute Creek Member. Thickness 2-5 ft (0.6-1.5 m).
- Tgs** Anvil Points Member--Fine- to coarse-grained, gray and brown sandstone containing minor amounts of gray siltstone, marlstone, and oolitic, ostracodal, and algal limestone and a few tan low-grade oil-shale beds. About 700-800 ft (210-240 m) thick.
- Tws** WASATCH FORMATION (EOCENE AND PALEOCENE) Shire Member (Eocene and Paleocene?)--Variegated (purple, lavender, gray, and brown) claystone; minor beds of fine- to medium-grained sandstone. Lowermost beds may be Paleocene in age. May be as much as 2,000 ft thick in eastern part of quadrangle (Johnson and others, 1979).

- CONTACT--Approximately located where obscured by soil cover or vegetation.
- 2 GAS WELL--Number keyed to table 1.
- DRY HOLE--Oil and gas test. Number keyed to table 1.
- OIL-SHALE COREHOLE--Number keyed to table 1.
- STRUCTURE CONTOUR--Drawn on top of Rollins Sandstone Member of Mesaverde Formation. Contour interval 100 ft (30.5 m). Modified from regional structure map of Rollins Sandstone Member by Johnson (1983).
- CROSS SECTION LINE

- REFERENCES CITED
- Johnson, R. C., 1983, Structure contour map of the top of the Rollins Sandstone Member of the Mesaverde Formation and Trout Creek Sandstone Member of the Illes Formation, Piceance Creek basin, Colorado: U.S. Geological Survey Miscellaneous Field Studies Map MF-1667, scale 1:253,440.
- Johnson, R. C., Gram, W. P., and Dessenberger, N. C., 1979, Cross section A-A' of upper Cretaceous and lower Tertiary rocks, southern Piceance Creek basin, Colorado: U.S. Geological Survey Miscellaneous Field Studies Map MF-1130-A, 2 sheets.
- Yeend, W. E., 1969, Quaternary geology of the Grand and Battlement Mesas area, Colorado: U.S. Geological Survey Professional Paper 617, 50 p.

Table 1.--Drillhole data, Collbran quadrangle, Colorado

[All drillholes are oil and gas wells except for C-184, which is an oil-shale corehole]

Drillhole number (on map)	Section	Company and name	Total depth	
			Feet	Meters
T. 9 S., R. 94 W.				
1	29	Fred W. Pool, Clyde #1-----	5,280	1,609
2	33	Western Frontier Drilling Co., Hawkins #1-----	6,050	1,844
T. 9 S., R. 95 W.				
3	33	Chandler and Assoc., Stites #15-33---	5,100	1,554
4	36	Carter-Carter, #1 Plateau Creek Ranch	5,730	1,747
T. 10 S., R. 95 W.				
5	3	Adolph Coors, Co., Acco-Long #1-3----	5,120	1,561
6	3	McCulloch Oil Co., Webb #1-----	5,190	1,582
7	4	Chandler and Assoc., Webb #1-4-----	5,120	1,561
8	12	Pan American Petroleum, #1 Walck-----	5,950	1,814
9	15	Teton Energy, Kathryn Young #1-15-----	9,410	2,868
10	15	Teton Energy, Carpenter #1-15-----	5,450	1,661
11	36	Exxon Co., Old Man Mountain #2-----	6,106	1,861
T. 11 S., R. 94 W.				
C-184	5	USGS, Collbran Road #1A-----	30	9

