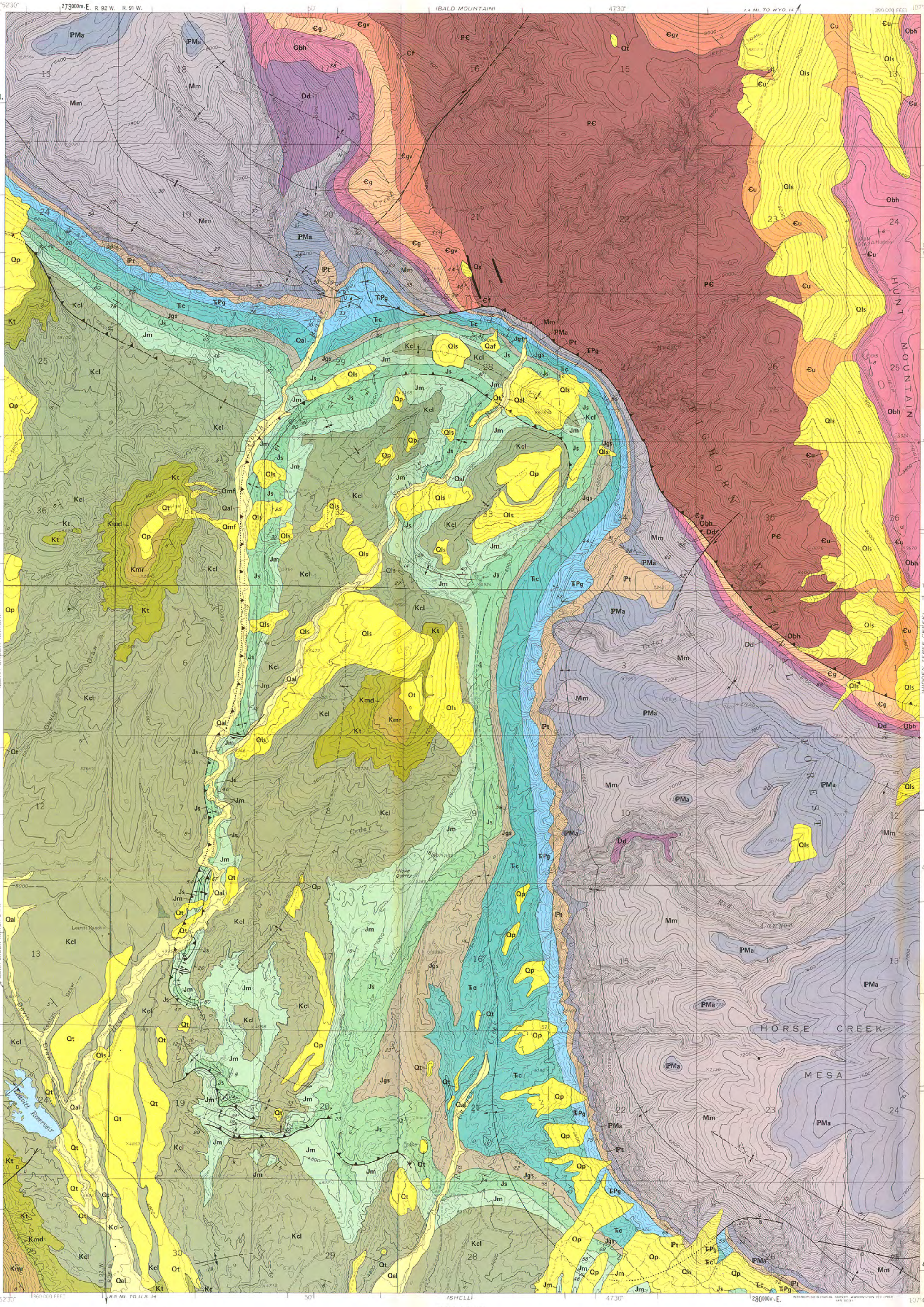
THE GEOLOGICAL SURVEY OF WYOMING
Gary B. Glass, State Geologist

Map Series 29
Leavitt Reservoir Quadrangle
Big Horn County, Wyoming



Topographic base by U.S. Geological Survey, 1960.
Cartography by Phyllis A. Ranz

SCALE 1:24 000
1 MILE
7000 FEET
1 KILOMETER
CONTOUR INTERVAL 40 FEET
DATUM IS MEAN SEA LEVEL

TRUE NORTH
MAGNETIC NORTH
16°
APPROXIMATE MEAN DECLINATION, 1960

WYOMING
QUADRANGLE LOCATION

ROAD CLASSIFICATION
Light-duty ..... Unimproved dirt

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GEOLOGIC MAP OF THE LEAVITT RESERVOIR QUADRANGLE, WYOMING

by
Karen Noggle-Perrin

1989

EXPLANATION

CENOZOIC — Quaternary

Qal — Alluvium
Unconsolidated deposits along stream valleys at or near present stream levels.

Qt — Terrace deposits[1]
Unconsolidated to semiconsolidated deposits of alluvium representing former levels of stream valleys.

Qp — Pediment surface[1]
Gently sloping erosional surface developed on bedrock.

Qaf — Alluvial fan
Unconsolidated fan-shaped deposits of alluvium.

Qls — Landslide material[2]
Blocks of bedrock and loose slope debris.

Qmf — Mudflow deposit
Landform resulting from mass movement of predominantly fine-grained earth material.

Qs — Slump
Landslide resulting from shearing and rotation of a generally cohesive mass of rock and earth along a curved slip surface.

MESOZOIC — Cretaceous, Jurassic, Triassic

Kmr — Mowry Shale
Upper part is light gray to brown siliceous shale with bentonitic layers and abundant fish-scale fossils. Pressure compaction features (cone-in-cone structures) are common within the basal part of this formation. Lower part is gray to black nonresistant shale with bentonitic layers. Thickness 585 feet. (The lower part was mapped as Shell Creek Shale by the author, but is included here with the Mowry Shale to reflect the most recent accepted nomenclature.)

Kmd — Muddy Sandstone Member of Thermopolis Shale
White to gray, bentonitic, lithic wacke interbedded with thin shale layers. Thickness 33 feet.

Kt — Thermopolis Shale
Dark gray to black nonresistant shale with bentonitic layers. Concretionary spherulites occur in a matrix of grayish black shale in the basal portion of this formation. Thickness 180 feet.

Kcl — Cloverly Formation
Upper 120 feet is Sykes Mountain Member, which is rusty brown siltstone and sandstone interbedded with some dark gray shale layers. Iron-rich concretions are common near the base. Lower part is interbedded buff to white channel sandstones; massive, variegated red and gray mudstones; and white devitrified tuffs. Thickness 447 feet.

Jm — Morrison Formation
Upper part is a sequence of variegated red and light gray, bentonitic mudstones. Lower part is interbedded sandstone, rust-colored silty mudstone, and basal black nonglauconitic shale. Thickness 200 feet.

Js — Sundance Formation
Upper part is interbedded glauconitic litharenite and coquina overlying fossiliferous shale. Lower part is greenish gray glauconitic shale with medial oomicrite and upper calcarenite. Basal contact with the Gypsum Spring Formation is determined by the first occurrence of glauconitic shale. Thickness 394 feet.

Jgs — Gypsum Spring Formation
Interbedded red siltstone, algal biolithite, gypsum, and carbonate. In this area the basal red siltstone lies disconformably on the Alcova Limestone Member of the Chugwater Formation. Thickness 177 feet.

ŦRc — Chugwater Formation
Red calcareous siltstone and mudstone with some layers of gypsum and red sandstone. This sequence is capped by a laterally continuous bed, the Alcova Limestone Member. Basal sequence consists of approximately 40 feet of greenish gray, gypsiferous, silty shale. Thickness 530 feet.

Permian/Triassic

ŦRPg — Goose Egg Formation
Upper part is interbedded gypsiferous carbonate and red siltstone. Lower part is red siltstone and shale. Thickness 145 feet.

PALEOZOIC

Pennsylvanian

IPt — Tensleep Sandstone
Massive, crossbedded quartz arenite underlain by an interbedded sequence of sandstone, dolomite, and shale. The basal contact with the Amsden Formation is gradational. Thickness 70 feet.

Pennsylvanian/Mississippian

IPMa — Amsden Formation
Red siltstone and gray shale with a medial carbonate and a basal red sandstone. The basal red sandstone commonly fills solution-collapse features on the paleokarst surface of the underlying Madison Limestone. Thickness 220 feet.

Mississippian

Mm — Madison Limestone
Light gray to white massive carbonate with upper *Condonophycus austini* layer. This biolithite (stromatolite) layer is approximately 2 feet thick and occurs about 10 feet below the contact with the overlying Amsden Formation. Thickness 630 feet.

Devonian

Dd — Darby Formation
Interbedded greenish gray silty shale, gray dolomite, and buff limestone. This unit typically forms a covered interval and is prone to mass movement. Thickness 190 feet.

Ordovician

Obh — Bighorn Dolomite
Light gray to white, well-indurated dolomite. Thickness 300 feet.

Cambrian

Ꞓg — Gallatin Limestone
Greenish gray intraclastic limestone with interbedded glauconitic shale. In this area, the unit tends to form covered slopes that are prone to mass movement. Thickness 500 feet.

Ꞓgv — Gros Ventre Formation
Greenish gray glauconitic shale with interbedded intraclastic limestone. Abundant burrows and trilobite fossils. In this area, the unit tends to form covered slopes that are prone to mass movement. Thickness 500 feet.

Ꞓf — Flathead Sandstone
Light reddish brown, arkosic sandstone conglomerate at base, interbedded with shale near the contact with the overlying Gros Ventre Formation. Thickness varies locally from 10 to 200 feet.

Ꞓu — Cambrian undifferentiated

PRECAMBRIAN

Diabase dikes
Mafic dikes composed of diabase or porphyritic diabase.

PꞒ — Crystalline rocks
Middle Archean quartzofeldspathic gneiss and granite with associated pegmatitic zones, mafic dikes, and cataclastic zones.

Map symbols

Formation contact
Dashed where approximately located.

Fault
Dashed where approximately located, dotted where concealed; arrows denote tear-fault component; U denotes upthrown side, D denotes downthrown side.

Thrust fault
Dotted where concealed, dashed where approximately located.

Anticline / Syncline / Monocline — **Folds** – trace of axial surface, end arrow in direction of plunge. Dotted where concealed, dashed where approximately located. Small arrow on more steeply inclined limb of monocline.

Strike and dip of beds
Right-hand symbol indicates overturned beds.

[1] Qt and Qp mapping incorporates information from Shaser, J.L., 1978, Anomalous carbonate and granitic erratics along the west flank of the Bighorn Mountains, Wyoming: M.S. thesis, Iowa State University, Ames, 135 p.

[2] In the northeastern part of the quadrangle, Qls mapping is by James C. Case, Geological Survey of Wyoming.