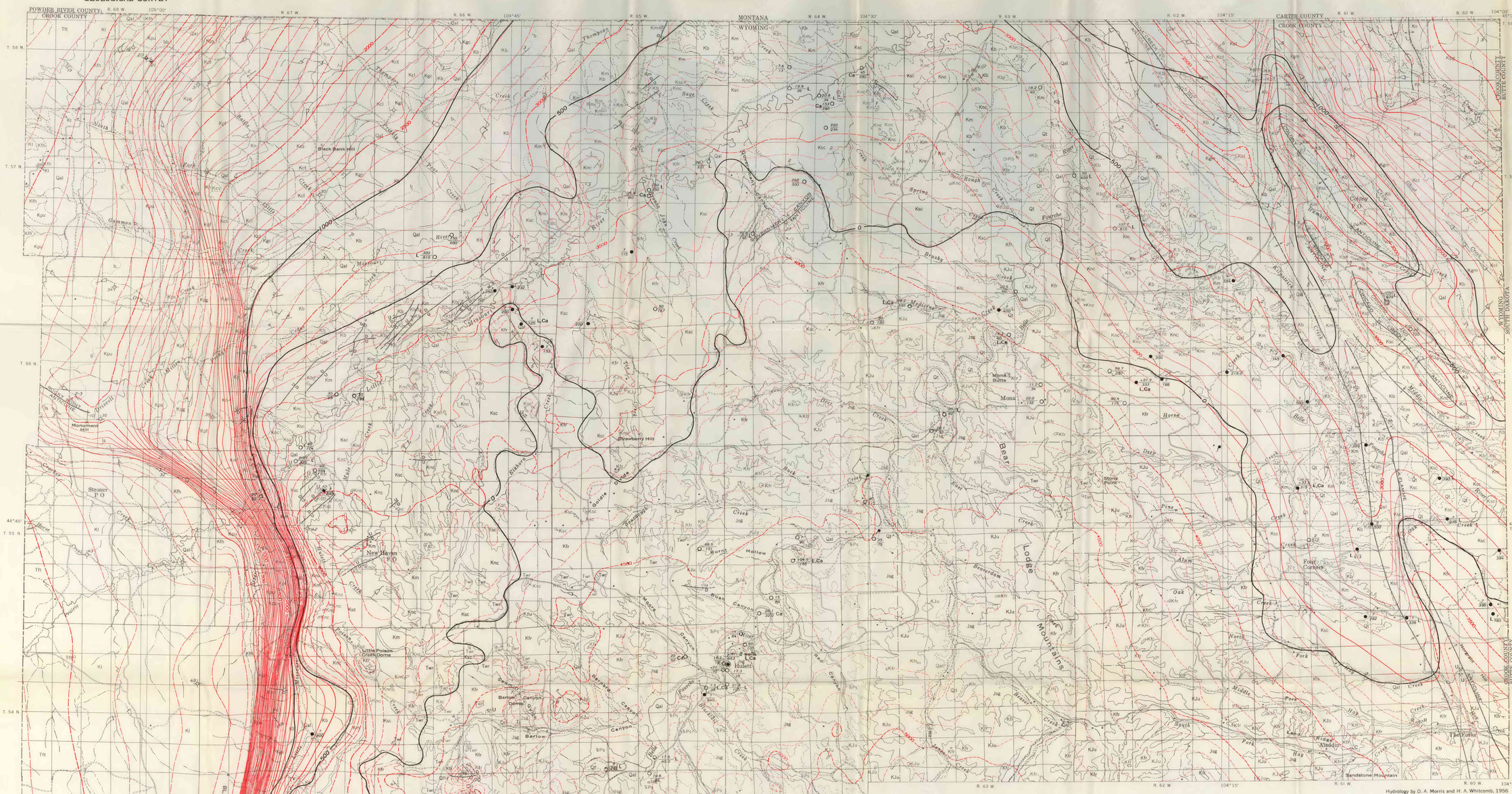
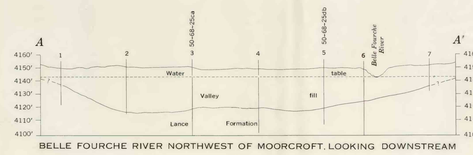
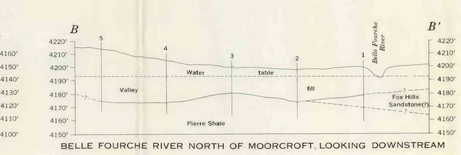
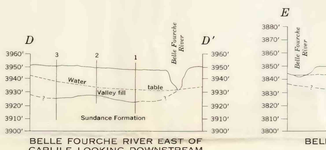




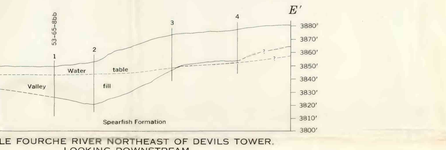
BELLE FOURCHE RIVER NORTHWEST OF MOORCROFT, LOOKING DOWNSTREAM



BELLE FOURCHE RIVER NORTH OF MOORCROFT, LOOKING DOWNSTREAM



BELLE FOURCHE RIVER EAST OF CARLILE, LOOKING DOWNSTREAM

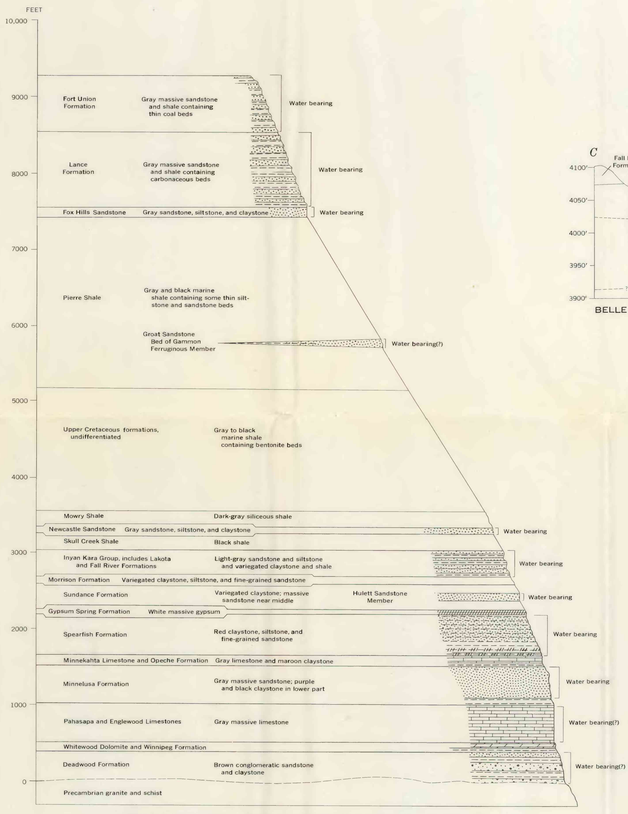


BELLE FOURCHE RIVER NORTHEAST OF DEVILS TOWER, LOOKING DOWNSTREAM

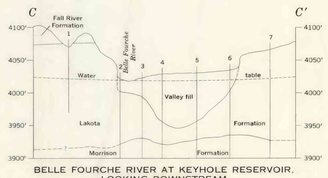
SCALE 1:6000

500 0 500 1000 FEET

VERTICAL EXAGGERATION X 10



GENERALIZED SECTION SHOWING ROCKS OF CROOK COUNTY, WYOMING

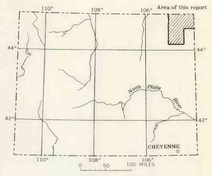


BELLE FOURCHE RIVER AT KEYHOLE RESERVOIR, LOOKING DOWNSTREAM

SCALE 1:3000

200 0 200 FEET

VERTICAL EXAGGERATION X 2½



INDEX MAP OF WYOMING

EXPLANATION

SEDIMENTARY ROCKS

QUATERNARY

Pleistocene and Recent

Qal — **Alluvial deposits**
Include deposits underlying present flood plains and bordering terraces. Consist of unconsolidated deposits of silt and fine sand containing lenses of coarser sand and gravel of variable thickness and extent. Thickness 0 to 70+ ft. Yield small quantities of water to stock and domestic wells and moderate quantities to one irrigation well

Qtl — **Talus and landslide deposits**
Broken rock consisting of shale, sandstone, and phonolite porphyry fragments. Not a source of ground water in area

Qt — **Older terrace deposits**
Silt, sand, and gravel. Not a source of ground water in area

TERTIARY

Oligocene

Twr — **White River Formation**
Light-gray medium- to coarse-grained sandstone at base overlain by light-brownish-gray claystone and siltstone. Thickness 0 to 150 ft. Not a source of ground water in area

Paleocene

Tft — **Fort Union Formation, Tullock Member**
Light- to yellowish-gray fine- to medium-grained massive sandstone interbedded with gray shale containing thin coal beds. Thickness 500 to 1000 ft. Yields small quantities of water to stock and domestic wells in southeastern part of area

CRETACEOUS

Upper Cretaceous

Kl — **Lance Formation**
Yellowish-gray fine- to medium-grained thin-bedded to massive and crossbedded sandstone interbedded with gray shale containing a few thin beds of carbonaceous shale. Thickness 500 to 1000 ft. Yields small quantities of water to stock and domestic wells in western part of area

Kfh — **Fox Hills Sandstone**
Predominantly gray to light-brown fine- to medium-grained thin-bedded to massive sandstone containing beds of brown shale and siltstone. Thickness 150 to 300 ft. Yields small quantities of water to stock and domestic wells in western part of area

Kpu, Kps, Kpf, Kpg — **Pierre Shale**
Kpu, upper part of Pierre Shale
Kps, Milne Ranch Shale Member
Kpf, Gammon Ferruginous Member
Kpg, Groat Sandstone Bed of Gammon Ferruginous Member
Gray and black shale with some thin siltstone and silty sandstone. Thickness 2000+ ft. Groat Sandstone Bed of Gammon Ferruginous Member of Pierre Shale is light to yellowish-gray very fine grained to fine-grained and silty thin-bedded sandstone with interbedded shale and gray siltstone and claystone. Thickness 0 to 125 ft. Sandstones may yield small quantities of water to wells

Kn — **Niobrara Formation**
Interbedded light-yellow calcareous shale and gray chalk marl; contains numerous thin beds of bentonite. Thickness 150 to 225 ft. Ground-water possibilities not known but believed to be poor

Kc, Kcs, Kct, Kcl — **Carlile Shale**
Kc, Carlile Shale, undifferentiated
Kcs, Sage Breaks Member
Kct, Turner Sandy Member
Kcl, lower unnamed member
Dark-gray shale, locally silty and sandy; locally contains beds of limestone concretions. Thickness 500 to 700 ft. Ground-water possibilities not known

Kgm, Kgc — **Greenhorn Formation**
Kgm, chalk marl facies
Kgc, concretionary facies
Gray limy shale and marl with some light-gray thin-bedded limestone and limestone concretions. Thickness 70 to 370 ft. Ground-water possibilities not known but believed to be poor

Kb — **Belle Fourche Shale**
Dark-gray to black shale; contains purplish-red iron concretions, beds of yellowish-gray limestone concretions, and bentonite. Thickness 450 to 850 ft. Ground-water possibilities not known but believed to be poor

Km — **Mowry Shale**
Dark-gray siliceous shale; contains many thin bentonite beds. Thickness 180 to 230 ft. Ground-water possibilities not known but believed to be poor

Knc — **Newcastle Sandstone**
Light-gray fine- to medium-grained, in places conglomeratic, thin-bedded to massive sandstone with interbedded dark-gray shale, claystone, and siltstone. Thickness 0 to 60 ft. Ground-water possibilities little known. Generally deeply buried except near outcrop area

Ksc — **Skull Creek Shale**
Black shale; iron concretions common at some horizons. Thickness 200 to 250 ft. Ground-water possibilities not known but believed to be poor

Lower Cretaceous

Kfr — **Fall River Formation**
Light- to yellowish-brown fine- to medium-grained hard thin-bedded to massive and crossbedded sandstone with interbedded gray to black shale and siltstone. Thickness 95 to 150 ft. Yields small to moderate quantities of water to stock and domestic wells; wells flow in some areas

KJu — **Lakota and Morrison Formations, undifferentiated**
The Lakota Formation consists of light- to yellowish-gray fine- to coarse-grained, in places conglomeratic, thin-bedded to massive and crossbedded sandstone irregularly interbedded with red, yellow, green, gray, and black claystone. Thickness 45 to 300 ft. Yields small to moderate quantities of water to stock and domestic wells; wells flow in some areas. The Morrison Formation consists of green and red claystone with thin beds of gray limestone and sandstone. Thickness 0 to 150 ft. Yields small quantities of water to stock and domestic wells in northeastern part of area

JURASSIC

Middle and Upper Jurassic

Jsg — **Sundance and Gypsum Spring Formations, undifferentiated**
The top of the Hulett Sandstone Member of the Sundance Formation shown on map by dotted line.
The Sundance Formation consists of a series of soft greenish- to yellowish-gray sandy and silty shale with thin layers of gray and pink sandstone and limestone in upper part and thicker more massive sandstone in lower part. Thickness 300 to 400 ft. The Hulett Sandstone Member is yellowish gray to pink, fine grained, firmly cemented, and thin bedded to massive. Thickness 55 to 90 ft. Sundance Formation yields small quantities of water to a few stock and domestic wells in central part of area. The Gypsum Spring Formation consists of massive white gypsum with interbedded red shale; thin gray cherty limestone beds occur locally in upper part. Thickness 0 to 125 ft. Yields small quantities of highly mineralized water to a few stock wells in central part of area

PERMIAN AND TRIASSIC

TRPs — **Spearfish Formation**
Red sandy shale, siltstone, and sandstone interbedded; beds of massive white gypsum in lower part. Thickness 450 to 525 ft. Yields small quantities of highly mineralized water to a few stock and domestic wells in central part of area

IGNEOUS ROCKS

TERTIARY

Ti — **Phonolite porphyry**
Occurs as intrusive igneous masses forming Devils Tower and Missouri Buttes. Not a source of ground water in area

Intraformational units
Limestone, ls; bentonite, b; limits of bentonitic units in upper part of Pierre Shale, bb

Contact
Dashed where approximately located

Contact of surficial deposits

Fault
Dashed where approximately located. U, upthrown side; D, downthrown side

Anticline, showing trace of axial plane
Dashed where approximately located

Syncline, showing trace of axial plane
Dashed where approximately located

Strike and dip of beds

Approximate dip of beds, strike undetermined

Structure contours
Drawn on top of the Fall River Formation with an interval of 100 ft east of the zero contour line and an interval of 200 ft west of the zero contour line; dashed where approximately located; short dashes indicate projection above surface. Datum is mean sea level

Contour lines showing approximate depth to top of Fall River Formation, in feet below land surface
Contour interval 500 ft

Water wells
L, log in table of well logs of this report; number refers to well listed in table on Oil and Gas Investigations Map OM-191

Stock, domestic, or irrigation well
21.1, depth to water in feet below land surface
179, depth of well in feet
L, log in table of well logs
Ca, water sample taken for chemical analysis

Industrial or public-supply well

Flowing well

Spring

Oil and gas wells
L, log in table of well logs of this report; number refers to well listed in table on Oil and Gas Investigations Map OM-191

Dry hole — **Well being drilled Feb. 15, 1956**

Show of oil — **Well having a record of oil production**

Oil-producing area
Areas around isolated oil wells not shown

MOORCROFT
Name of oil field

Mine or quarry
Coal mine, C; uranium mine, U; gravel pit, R. Bentonite mines not shown

A — A'
Line of section

Base and geology from U.S. Geological Survey Oil and Gas Investigations Map OM-191, by Mapel, W. J., Robinson, C. S., and Theobald, P. K., 1959

GEOLOGIC AND STRUCTURE MAP OF NORTHERN AND WESTERN CROOK COUNTY, WYOMING, SHOWING THE LOCATION OF WELLS, SPRINGS OIL-TEST HOLES, AND SECTIONS OF ALLUVIUM IN THE VALLEY OF THE BELLE FOURCHE RIVER

SCALE 1:96 000

2 1 0 2 4 6 MILES

2 0 2 4 6 KILOMETERS

CROOK COUNTY
WESTON COUNTY
INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1964—W62407