

EXPLANATION

Quaternary

- Qal** Alluvium
Includes deposits underlying present flood plains and bordering terraces. Fine sand, silt, and clay containing lenses of poorly sorted coarse sand and gravel. Yields small quantities of water to a few stock and domestic wells and moderate quantities to five irrigation wells. Source of water for community of Lance Creek.
- Ta** Arikaree Formation
Light to brownish-gray sandstone, very fine grained to fine-grained, loosely to moderately cemented; contains silty zones, coarse sand lenses, and many concretionary layers and nodules. Coarse conglomerate at base. Yields small quantities of water to a few stock and domestic wells and moderate to large quantities to several irrigation wells. Source of water for communities of Lusk and Maxwell.

Tertiary

- Twr** White River Group
Pinkish-gray siltstone in upper part and variegated gray, red, and green claystones in lower part; locally contains channel deposits of fine to coarse locally cemented sandstone and conglomerate. Yields small quantities of water to many stock and domestic wells.
- Tfu** Fort Union Formation
Light to yellowish-gray fine to medium-grained sandstone interbedded with gray shale containing thin beds of coal. Yields small quantities of water to many stock and domestic wells.

Upper Cretaceous

- Kl** Lance Formation
White to yellowish-gray and brown fine- to medium-grained sandstones interbedded with gray and black claystones containing thin beds of carbonaceous shale and coal. Yields small quantities of water to many stock and domestic wells.
- Kfh** Fox Hills Sandstone
Light-gray, yellow, and brown fine- to medium-grained sandstone containing thin beds of dark sandy shale. Yields small quantities of water to a few stock and domestic wells.
- Kp** Pierre Shale
Dark-gray shale containing lenticular beds of calcareous rock and a few moderately thick sandstone beds. Yields small quantities of water to a few stock and domestic wells where no other source is available.
- Kni** Niobrara Formation
Gray to black shale with some shaly limestone and chert beds. Not an aquifer in Niobrara County.
- Kcl** Carlisle Shale
Dark-gray to black shale containing beds of limestone concretions locally. Not an aquifer in Niobrara County; water reported to be highly mineralized.
- Kg** Greenhorn Formation
Gray shale with some light-gray thin-bedded limestone and layers of limestone concretions. Not an aquifer in Niobrara County.
- Kbm** Belle Fourche and Mowry Shales undifferentiated
Dark-gray to black shale containing thin bentonitic beds. Mowry shale is siliceous and forms distinctive silvery-gray slopes and ridges. Not an aquifer in Niobrara County.
- Knc** Newcastle Sandstone
Light-gray fine- to medium-grained sandstone with dark-gray siltstone and claystone interbedded. Probably would yield water to wells, but generally too deeply buried to be considered an aquifer.
- Ksc** Skull Creek Shale
Black shale containing some ferruginous sandstone and iron concretions. Not an aquifer in Niobrara County.

Lower Cretaceous

- Kik** Inyan Kara Group
Group. (In southwestern part of area.)
Light to yellowish-gray fine- to medium-grained sandstone with interbedded gray to black shaly siltstone and claystone. Yields water locally to a few stock and domestic wells and moderate quantities to wells supplying Lance Creek oil field. Deeply buried throughout most of area.
- Kc** Cloverly Formation
Group. (In southwestern part of area.)
Light to yellowish-gray fine- to medium-grained sandstone with interbedded gray to black shaly siltstone and claystone. Yields water locally to a few stock and domestic wells and moderate quantities to wells supplying Lance Creek oil field. Deeply buried throughout most of area.

Rocks of Pre-Cretaceous age

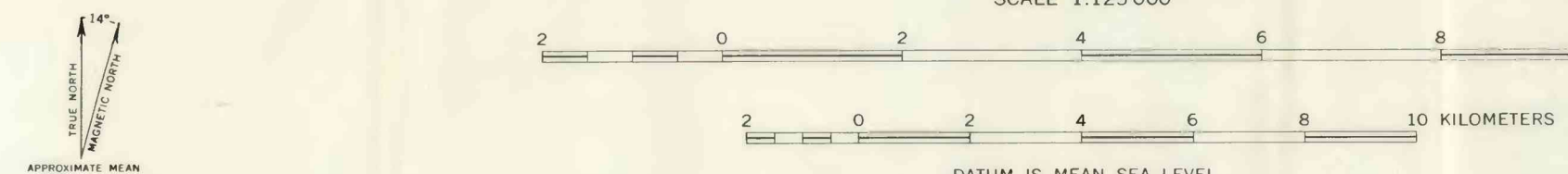
A thick series of predominantly marine sediments comprising sandstones, siltstones, shales, limestones, dolomites, and anhydrites. Ground-water possibilities not known. Generally deeply buried in area.

pk Rocks of Pre-Cretaceous age

Geological Symbols:

- Contact**
Dashed where approximately located
- Contact of surficial deposits**
Dashed where approximately located
- 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**
Dip marks point of observation
1/10, 1/20, 1/40, 1/80, 1/160, 1/320
- Domestic or stock well**
141, depth to water, in feet
170, depth of well, in feet
L, log in table of well logs
Ca, water sample taken for chemical analysis
- Flowing domestic or stock well**
- Industrial or public-supply well**
- Irrigation well**
47, depth to water, in feet
- Well used in drawing water-table contours**
Parentness indicate well is not included in table of well records
A, altitude of water level in well determined from measurement on reliable reported data
47, depth to water, in feet
4787, altitude of water table, in feet above mean sea level
× 4794
- Altitude of water surface in stream**
5000
- Water-table contours**
Dashed where approximately located. Contour interval 50 feet. Datum is a mean sea level.
- Oil-hole**
L, log in table of well logs
- Line of geologic section**
Shown on figure 4

Base map adapted from copyrighted map of Niobrara County published by the Wyoming Highway Department with all rights reserved. Used in this report with permission of the copyrighters.



Geology adapted from Oil and Gas Investigations Map GM-185 (Dobbin, and others, 1957), and from Oil and Gas Investigations Preliminary Maps 92 (Love, and others, 1949), and 102 (Danson and Botinly, 1949). Reconnaissance geologic mapping of the Arikaree Formation by H. A. Whitcomb, 1961. Hydrology by H. A. Whitcomb, from measurements made during the summers of 1958 and 1959.

GEOLOGIC MAP OF NIOBRARA COUNTY, WYOMING, SHOWING LOCATION OF WATER WELLS AND OIL-TEST HOLES, LOCATION OF GEOLOGIC SECTIONS, AND CONFIGURATION OF THE WATER TABLE IN THE ARIKAREE FORMATION