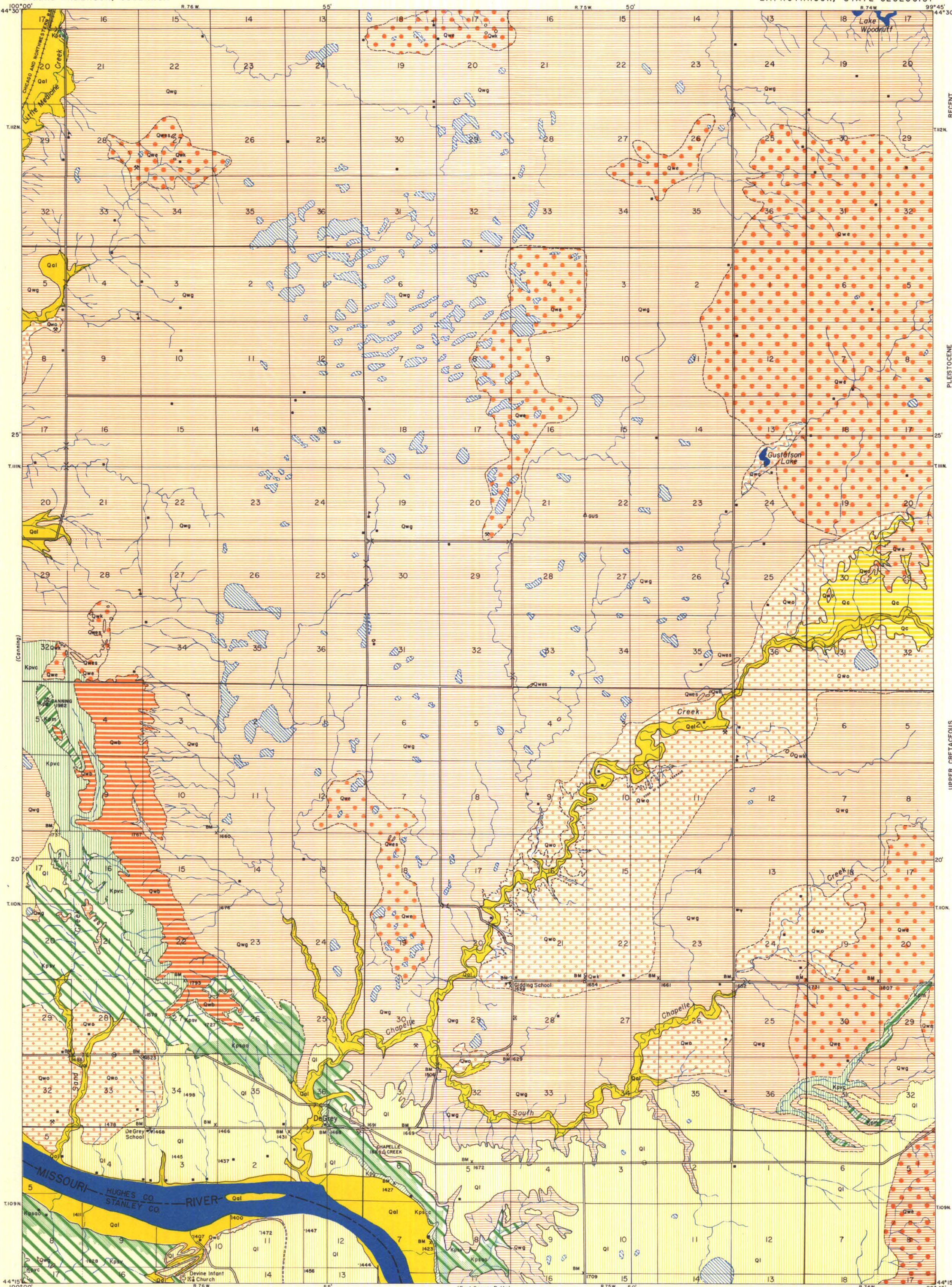


AREAL GEOLOGY OF THE DE GREY QUADRANGLE

STATE OF SOUTH DAKOTA
SIGURD ANDERSON, GOVERNOR

STATE GEOLOGICAL SURVEY
E. P. ROTHROCK, STATE GEOLOGIST



Geology by R.E. Curtis
Assisted by G.R. Waddell
Surveyed in 1950

Based on maps by Corps of Engineers
U.S. Army, and Geodetic data from U.S.
Coast and Geodetic Survey

Scale: 1/62500 4 MILES

- ### EXPLANATION
- SEDIMENTARY ROCKS**
- Qal**
Alluvium
(Flood plain and island deposits of silt, sand, and gravel in present streams.)
 - Qc**
Colluvium
(Slope wash, heterogeneous aggregates of rock debris.)
 - Ql**
Loess
(Wind transported and deposited silt 0-20" thick.)
 - Qwa**
Glacial Outwash
(Glaciofluvial deposits of sand and gravel found in dissected fill terraces in Missouri River and tributaries. Loess covered near Missouri River.)
 - Qwk** **Qwes**
Glacial Kames and Eskers
(Kames: Qwk - Sand and gravel knobs, bee-hive shape. Eskers: Qwes - Narrow ridges of sand and gravel.)
 - Qwb**
Glacial Boulder Bed
(Large boulders and erratics deposited on high Pierre bedrock ridge in former boundary terrace. May be a "terrace" moraine.)
 - Qwm**
End Moraine
(Undifferentiated glacial drift, boulders and boulder clay. Characterized by swell and saddle surface with relief greater than 20 feet. Generally less covered.)
 - Qwg**
Ground Moraine
(Undifferentiated glacial drift, boulders and boulder clay. Characterized by swell and saddle surface with less than 20 feet relief. Underdeveloped drainage. Generally less covered.)
 - Kpe**
Elk Butte Member
(Brownish-gray bentonitic clay 30' thick. Upper part missing.)
 - Kpvc**
Moberge Member
(Blue gray limy fossiliferous bentonitic clay with many concretions, a few bentonites. 50' thick.)
 - Kpvc**
Virgin Creek Member
(Upper: Medium gray bentonitic clay. Middle: Dark gray clay with bentonites, weathers to small silvery gray flakes. Member about 75' thick.)
 - Kpvc**
Sully Member
(Upper: Vandyke facies. Lower: Light gray bentonitic clay with siliceous concretions, weathers to gumbos. 70' thick. Middle: Agency-Osage facies. Lower: Light gray bentonitic clay with abundant Fe-Mn concretions (see zone), many bentonites. 30' thick. Agency: Light gray bentonitic clays and siliceous shales, few concretions and bentonites. 50' thick. Lower: Drow Creek facies. Light gray fossiliferous marl. Weathers buff. Base 3' consists of gray sandy marl. 13' thick.)
 - Kpg**
Gregory Member
(Brown bentonitic clay and marl, brown fossiliferous concretions, few bentonites. About 50' exposed.)
- DRAINAGE**
- Intermittent Streams
 - Intermittent Lakes
- CULTURE**
- Buildings
(House, church and school)
 - Roads and Trails
 - Altitudes
(In feet above sea level)
 - Bench Marks
(Monument marking point of known altitude)
 - Triangulation Stations
(Monument marking point of exact geographic location)
 - Gravel Pits and Quarries