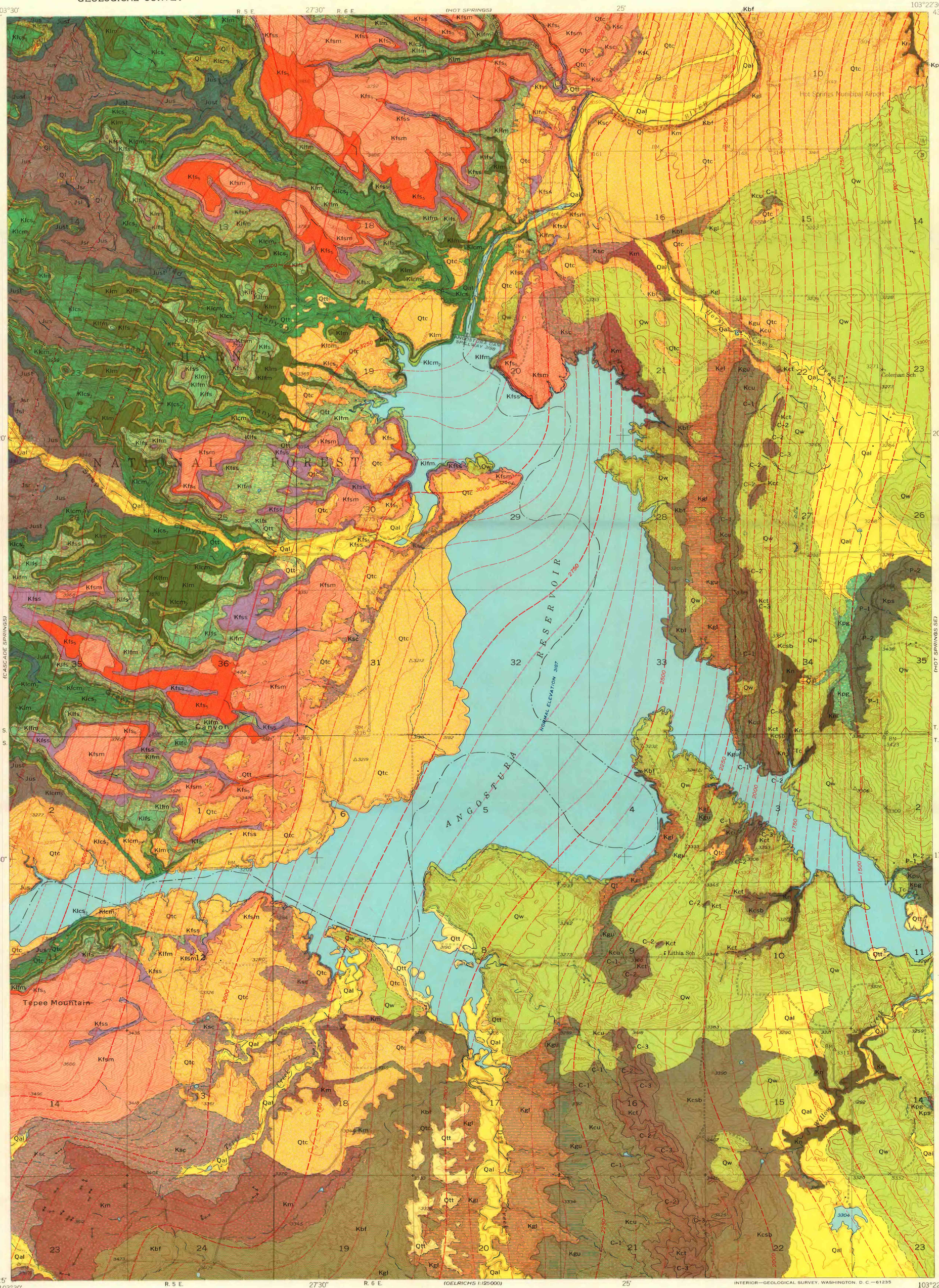
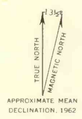


Base map by Topographic Division
U. S. Geological Survey, 1950

Geology by J. J. Connor, assisted
by C. M. Wentworth Jr., 1957

GEOLOGIC MAP OF THE ANGOSTURA RESERVOIR QUADRANGLE FALL RIVER COUNTY, SOUTH DAKOTA



SCALE 1:24 000

1 ½ 0 1 MILE

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

EXPLANATION

QUATERNARY

Qal — Alluvium

Qw — Windblown sand and silt
Commonly occurs as thin loessic mantle, rarely as dunes

Qtc, Qtt — Terrace deposits
Poorly sorted sand and gravel.
Qtc, *deposited by Cheyenne River.*
Qtt, *deposited by tributary drainage*

Ql — Landslide
Chiefly slump

UNCONFORMITY

TERTIARY(?)

Oligocene(?)

Tc — Chadron(?) formation
Thin, conglomeratic sandstone, only present locally

UNCONFORMITY

CRETACEOUS

Upper Cretaceous

Kps, P-1, P-2, Kpg — Pierre formation
Kps, *Sharon Springs member, black shale with abundant ferruginous and limestone concretions, containing a five-foot thick basal bentonite ("Ardmore"), a distinctive zone of cone-in-cone concretions 80 feet above the base (marker bed* P-2*), and a distinctive zone of septarian concretions 70 feet above the base (marker bed* P-1*).*
Kpg, *Gammon ferruginous member, black shale*

Kn — Niobrara formation
Gray, calcareous shale and chalk, rarely exposed

Kcsb, C-3, Kct, C-2, Kcu, C-1 — Carlile shale
Kcsb, *Sage Breaks member, gray shale containing abundant septarian concretions.*
Kct, *Turner sandy member, carbonaceous shale, sandstone and siltstone, containing a distinctive zone of septarian concretions 100 feet above the base (marker bed* C-3*) and a thin prominent sandstone 60 feet above the base (marker bed* C-2*).*
Kcu, *unnamed shale member, gray shale, calcareous at base, containing a thin, prominent limestone 90 feet above the base (marker bed* C-1*)*

Kgu, Kgl — Greenhorn formation
Kgu, *upper unit, interbedded limestone and shale, forms prominent cuesta.*
Kgl, *lower unit, calcareous gray shale containing thin limestones*

Kbf — Belle Fourche shale
Dark-gray shale containing abundant large ferruginous concretions

Km — Mowry shale
Gray shale, locally contains many sandstone dikes; a thin discontinuous sandstone at base may be equivalent to Newcastle sandstone

Ksc — Skull Creek shale
Dark-gray, clayey shale

Lower Cretaceous

Kfsm, Kfs5, Kfss — Fall River formation
Kfsm, *undivided middle and upper unit, interbedded sandstone and mudstone, commonly weathers red.*
Kfs5, *middle unit, rim-forming sandstones, only present locally.*
Kfss, *lower unit, interbedded sandstone and siltstone, locally carbonaceous*

DISCONFORMITY

Inyan Kara group

Klfm, Klfs, Klm, Klcs2, Klcm2 — Lakota formation
Fuson member:
Klfm, *mudstone unit, variegated claystone, siltstone, rarely exposed.*
Klfs, *sandstone unit, thin ledge-forming sandstone near base, locally absent.*
Minnewaste limestone member:
Klm, *dense, gray ledge-forming limestone, locally absent.*
Chilson member:
Klcs2, *sandstones, white to orange, cliff-forming lenticular sandstone lenses.*
Klcm2, *mudstones, gray-green, slope-forming claystone and siltstone, interbedded with* Klcs2

DISCONFORMITY

JURASSIC

Upper Jurassic

Just, Jus — Unkpapa sandstone
Just, *siltstone unit, white and red, rarely exposed, locally absent.*
Jus, *sandstone unit, white and red, massive, cliff-forming sandstone*

Jsr, Jsl — Sundance formation
Jsr, *Redwater shale member, interbedded glauconitic sandstone and shale.*
Jsl, *Lak member, variegated siltstone and sandstone*

Contact
Dashed where approximately located, short dashed where indefinite or inferred

Fault
U, *upthrown side;* D, *downthrown side*

Sandstone dike

Structure contours
Drawn on the base of the Minnewaste limestone member of the Lakota formation; dashed where approximately located, short dashed where datum surface has been removed by erosion. Contour interval, 50 feet; datum is mean sea level

Diagram showing relation of units in the Lakota formation