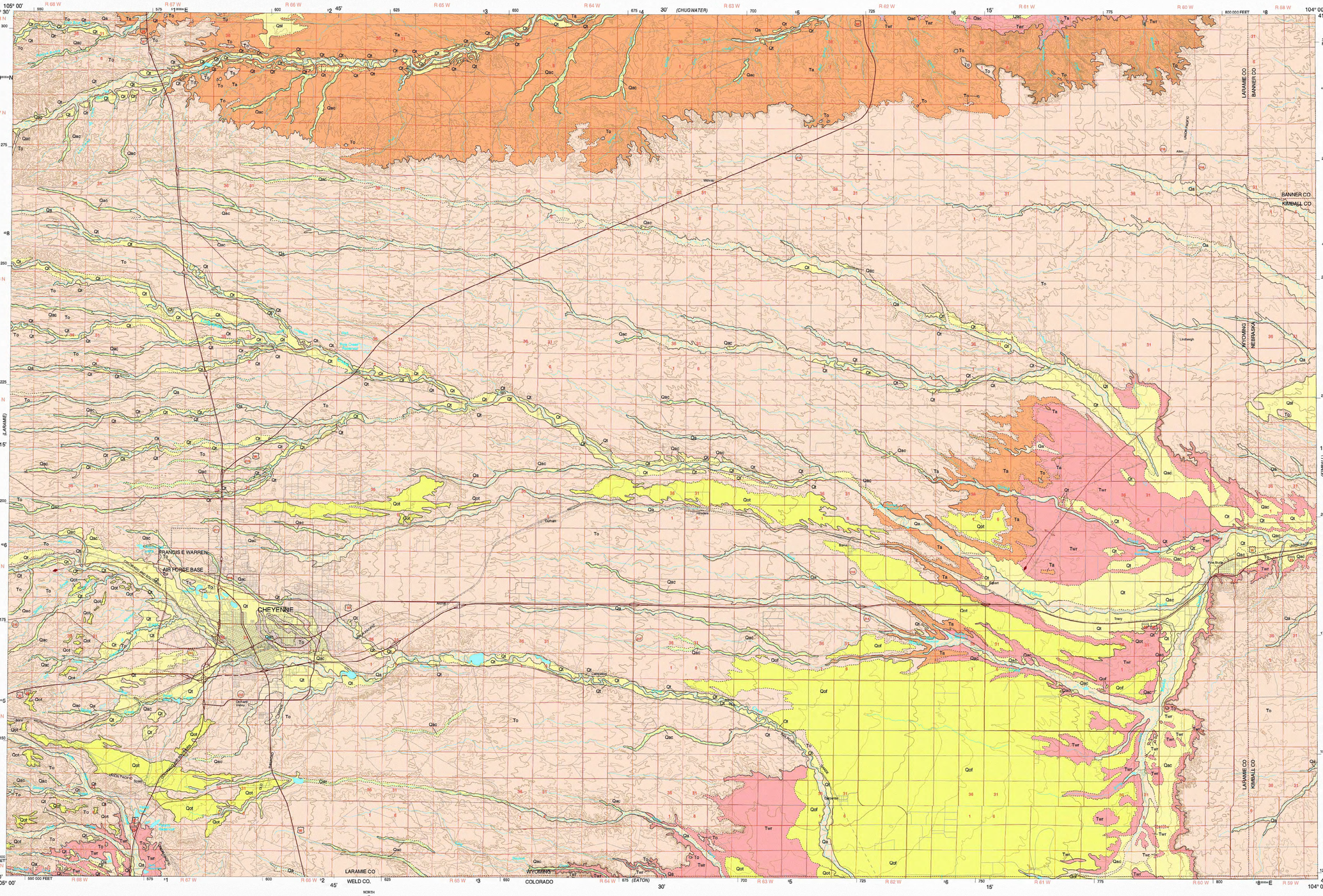

Blue 10,000-meter ticks: Universal Transverse Mercator, zone 13
25,000-foot grid ticks: Wyoming Coordinate System of 1927, East zone

Digital public land survey, hydrography and transportation by U.S. Geological Survey, 1995

Digital hypsography by Wyoming State Geological Survey, 1998

NORTH
MN
GN
0°30'
8 MILS
15°
831 MILS
UTM GRID
DECLINATION AT CENTER OF MAP
DIAGRAM IS APPROXIMATE

Contour Interval = 10 meters
SCALE 1:100,000
KILOMETERS
MILES
FEET

WYOMING
QUADRANGLE LOCATION

Digital map based upon Ver Ploeg, A. J., 1995, Geologic map of the Cheyenne 30' by 60' quadrangle, southeastern Wyoming, western Nebraska, and northern Colorado: Wyoming State Geological Survey Map Series 46, scale 1:100,000 (color).

Produced with QuadView by Geoware.

This report is preliminary and has not been reviewed for conformity with the Wyoming State Geological Survey's editorial standards.

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EXPLANATION

CORRELATION OF MAP UNITS

Qa	Qac	Qsl	Qt	Holocene	QUATERNARY
Qof				Pleistocene	
Qot					
UNCONFORMITY					
To				Miocene	TERTIARY
UNCONFORMITY					
Ta				Oligocene	
UNCONFORMITY					
Twr					

DESCRIPTION OF MAP UNITS

HOLOCENE AND PLEISTOCENE SURFICIAL DEPOSITS

Qa Alluvial deposits - Unconsolidated and poorly consolidated clay, silt, sand, and gravel mainly in floodplains and lowest terraces. Thickness 0 to 85 feet (Lowry and Crist, 1967).

Qac Mixed alluvium and colluvium - Sand, silt, clay, and gravel deposited mainly along intermittent streams; includes slope wash and smaller alluvial fan deposits that coalesce with alluvium. Thickness 0 to approximately 50 feet.

Qsl Windblown sand and loess - Active and stabilized dunes, composed of loess and very fine-grained sand. Two areas are indicated in the map, one north of Pine Bluffs and the other north of Horse Creek in the northwestern part of the map. These features commonly are located downwind from deflation depressions. Numerous small-scale examples of these types of features occur southeast, east, and northeast of Cheyenne and are mapped with the Ogallala Formation. Thickness 0 to 60 feet.

Qt Terrace deposits - Beds of coarse sand and gravel with some boulders and lenses of silt and clay. Includes fragments of weathered granite and other igneous rocks. These terraces occur along present drainages, a few feet to over 100 feet above modern floodplains. Thickness 0 to 65 feet along Horse Creek (Lowry and Crist, 1967).

Qof Older alluvial fan deposits (Pleistocene) - Poorly sorted clay, silt, sand, and gravel; crudely bedded to nonbedded. Located in the southeastern part of the map above present drainages; currently inactive. Thickness 0 to approximately 150 feet (Rapp and others, 1953).

Qot Older terrace deposits (Pleistocene) - Beds of coarse sand and gravel with some boulders and thin lenses of silt and clay. A large portion of the sand and gravel is made up of weathered granite fragments transported from the Laramie Mountains or eroded from the underlying Ogallala and Arikaree Formations. These are upper level terraces which were deposited in channels cut into the Ogallala and Arikaree Formations. May represent segments of a dissected older alluvial fan complex in some areas. Thickness 0 to 150 feet (Rapp and others, 1953).

OGALLALA FORMATION (UPPER AND MIDDLE MIOCENE)

To Tan to brown, unconsolidated to well-cemented sandstone, siltstone, volcanic ash, and conglomerate (gravel- to boulder-sized), interbedded with claystone and thin beds of limestone toward the east. The conglomerate clasts are primarily Precambrian igneous material, with limestone clasts predominating in some conglomerates near the base of the formation. The deposits are mostly coarse grained near the Laramie Mountains and become finer to the east. Thin, tightly carbonate-cemented lenses of gravel, sand, and silt, locally referred to as "mortar beds", occur in the lower part of the formation in the central and eastern portions of the map area. Reddish brown gravels of possible Pliocene age are mapped with the Ogallala Formation in areas north, east, and southeast of Cheyenne (Cooley, 1991). Thickness 0 to 330 feet (Lowry and Crist, 1967).

ARIKAREE FORMATION (LOWER MIOCENE AND UPPER OLIGOCENE)

Ta - Friable, gray, tuffaceous, calcareous, fine-grained, cross-bedded sandstone, interbedded with lenses of siltstone and volcanic ash. Elongate, cylindrical, calcareous concretions, 2 to 3 feet thick and up to 10 feet long, occur locally in the sandstones. These concretions have a predominant northwest-southeast alignment (Rapp and others, 1953). Coarse conglomerate occurs locally near the base of the formation. The Arikaree Formation pinches out toward the south on the map. Thickness 0 to 500 feet (Lowry and Crist, 1967).

WHITE RIVER FORMATION (OLIGOCENE)

Twr - The upper White River Formation is characterized by light pink to buff, massive, argillaceous, calcareous siltstone interbedded with minor sandstone, conglomerate, and volcanic ash beds. This unit commonly weathers into cubic blocks and slabs. The silt is imbedded in a matrix of carbonate flakes, volcanic ash, and montmorillonitic clay. The lower White River Formation consists of interbedded red and green bentonitic claystone, sandstone, siltstone, and conglomerate. This lower unit does not crop out in the map area. In adjacent areas, the White River is subdivided into an upper Brule Formation and a lower Chadron Formation corresponding to the upper and lower White River Formation described above. Thickness 0 to 500 feet (Lowry and Crist, 1967).

contact (dashed where uncertain)

anticline

DIGITAL GEOLOGIC MAP OF CHEYENNE 30' X 60' QUADRANGLE, SOUTHEASTERN WYOMING, WESTERN NEBRASKA, AND NORTHERN COLORADO

Compiled and Mapped by Alan J. Ver Ploeg, 1995

Digital Cartography by Chris A. Jessen and James C. Case, 1998