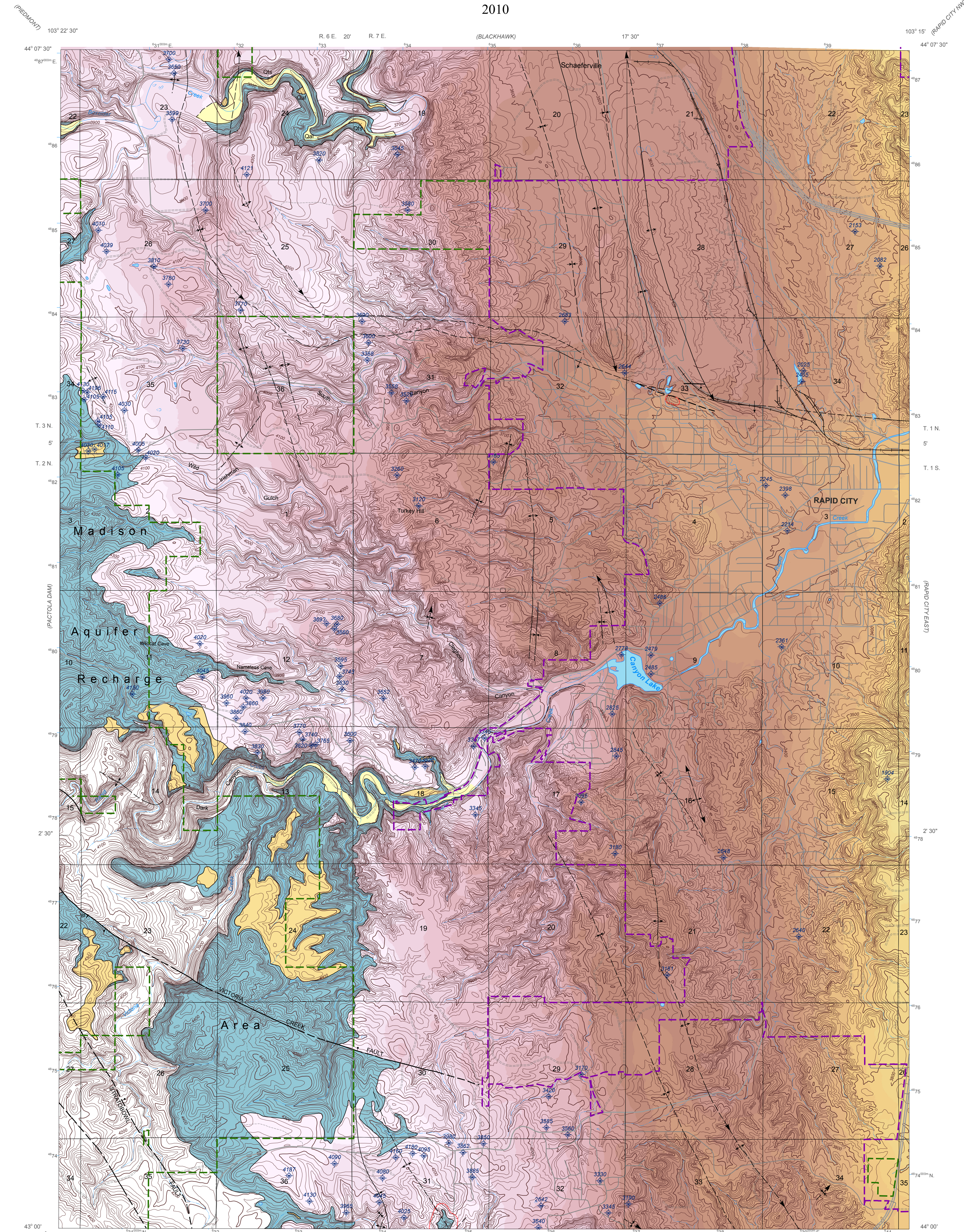


# Depth to Top of Madison Formation, Rapid City West Quadrangle

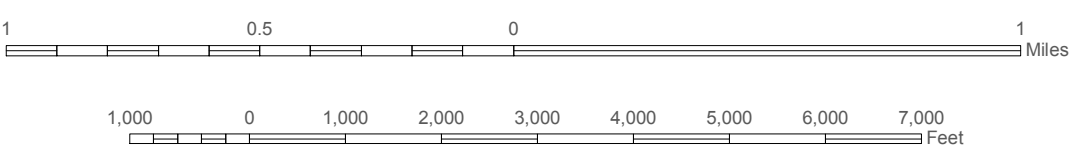
By  
A.L. Lisenbee and S. Miller  
2010



Map base modified from U.S.G.S. 1:24,000-scale Rapid City West digital line graph. Water well data digitized from Water well data collected and digitized from SD Dept. of Environment & Natural Resources "Online Oil/Gas/Injection Well Data" database. Geology layer from J.L. Lester and P.H. Rahn, 2001; S.L. Miller, 2005. Projection is Universal Transverse Mercator, Zone 13, North American Datum 1983.

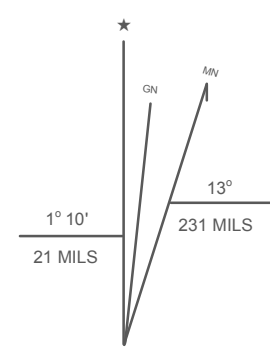
Digital Cartography: D.J. Brewer, 2011.  
Department of Geology and Geological Engineering  
South Dakota School of Mines and Technology

REFERENCE SCALE 1:24,000



TOPOGRAPHIC CONTOUR INTERVAL 20 FEET

NORTH



South Dakota

Quadrangle location



The preparation of this map was funded by the West Dakota Water Development District in association with the Department of Geology and Geological Engineering South Dakota School of Mines and Technology

## Depth to Pahasapa Formation In Feet below Land Surface

0 - 100	601 - 700	1,201 - 1,300
101 - 200	701 - 800	
201 - 300	801 - 900	
301 - 400	901 - 1,000	
401 - 500	1,001 - 1,100	
501 - 600	1,101 - 1,200	

Depths are approximate; actual depths could vary by 100 feet or more.

## EXPLANATION

- Wells penetrating Madison aquifer  
Number indicates elevation of top of Pahasapa Fm. in feet
- Trail  
 Unimproved Road  
 Paved Road  
 Highway  
 Interstate  
 Railroad  
 Lake  
 Springs  
 Intermittent Stream  
 Perennial Stream  
 Karst Features  
 Rapid City Limits  
 Black Hills Nat. Forest Boundary
- Contact  
Solid where location certain; dashed where approximately located.
- Fault  
Solid where location certain; dashed where approximately located. Bar and ball on downthrown side.
- Anticline  
Showing crestline and direction of plunge. Solid where location certain; dashed where approximately located.
- Syncline  
Showing troughline and direction of plunge. Solid where location certain; dashed where approximately located.
- Monocline - Anticlinal bend  
Axis located on steepest part of structure. Solid where location certain; dashed where approximately located.
- Monocline - Synclinal bend  
Axis located on steepest part of structure. Solid where location certain; dashed where approximately located.

## Geologic Units

Quaternary	<b>Floodplain Surficial Deposits</b> Includes alluvium (Qal), alluvial fan deposits (Qaf) and terrace deposits (Qt). Increased potential for full saturation.
Quaternary	<b>Other Surficial Deposits</b> Includes landslide (Ql), gravel deposits (Tg), and terrace deposits (Qto, Qts). Decreased potential for full saturation.
Pennsylvanian	<b>Pahasapa Formation - Recharge Area</b> Beige, white, and gray colored unit dominated carbonates and anhydrite with an upper sandstone unit.
	<b>Pahasapa Formation Absent</b>