(Pahasapa Limestone), Piedmont Quadrangle Development District A.L. Lisenbee, A.D. Davis, and M.H. Price 2011 27'30" 623 R. 5 E. R. 6 E. 624 Aquifer Recharge T. 2 N. 103° 30' ⁶27 25' (PACTOLA DAM) Map base modified from U.S.G.S. 1:24,000-scale Piedmont digital line graph. NORTH REFERENCE SCALE 1:24,000 Geology layer from J.A. Redden, 2006.
Water well data digitized from SD Dept. of Environment
& Natural Resources "Online Oil/Gas/Injection Well Data" database. South Dakota Projection is Universal Transverse Mercator, Zone 13, North American Datum 1983. 1,000 2,000 3,000 4,000 5,000 Digital Cartography: K.M. Grigg and S.L. Saxton, 2011. Department of Geology and Geological Engineering South Dakota School of Mines and Technology 231 MILS 21 MILS TOPOGRAPHIC CONTOUR INTERVAL 20 FEET Quadrangle location (IF SHOWN) UTM GRID AND 1971 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET The preparation of this map was financed by the West Dakota Water Development District in association with the Department of Geology and Geological Engineering South Dakota School of Mines and Technology **EXPLANATION** Definition of Susceptibility Aquifer susceptibility is the inherent ability of a formation to accept Geologic Units - Color indicates degree of susceptibility; see chart to left. and transmit liquids (potentially including contaminants). Contact Floodplain Surficial Deposits Solid where location certain; dashed where Susceptibility Ranges for Hydrogeologic Units Quaternary approximately located. Includes alluvium (Qal) deposits. Increased potential for infiltration of water Fault High Very High Hydrogeologic Units Solid where location certain; dashed where **Other Surficial Deposits** approximately located; queried where uncertain. Quaternary/Tertiary Includes terrace deposits (Qt). Decreased potential for infiltration Madison (Pahasapa Limestone) Recharge Area Bar and ball on downthrown side. Anticline Gravel Deposits over Pahasapa Limestone Unconformity Showing crestline and direction of plunge.

Solid where location certain; dashed where

Showing troughline and direction of plunge. Solid where location certain; dashed where

Black Hills National Forest Boundary

approximately located.

approximately located.

Syncline

Lower

Mississippian

Madison Aquifer (Pahasapa Limestone)
Susceptibility rating ranges between 58 to 65.

Madison Aquifer Present in Subsurface

Madison Aquifer Absent

Alluvium over Pahasapa Limestone

mixture; Joints; 5-7; Minor Karst; 5-8; Breccia; 5-7 and; Minor Faults; 4-6.

The ratings suggested for the parameters are from Aller et al. (1987) and Davis et al., (1994.)

Summary of ratings associated with the Minnelusa aquifer. Number falling within the range area

Susceptibility Ratings Explanation:

The susceptibility range is the sum of ratings for susceptibility parameters of the aquifer. The parameters used for the Minnelusa aquifer are rock type, overlying material, joints, minor karst, breccia and minor faults affecting the hydrogeologic units of the Minnelusa Fm.

The ratings for these parameters are: Rock Type; 5-8 for sandstone; Overlying Material; 5-10 for alluvium and negative 5-10 for gravel, sand and clay

indicates the qualitative rating for aquifer susceptibility (adapted from Hargrave, 2005).

Aquifer Susceptibility of the Madison Aquifer

SOUTH DAKOTA