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HYDROLOGIC ATLAS OF THE BLACK HILLS, PENNINGTON
COUNTY, SOUTH DAKOTA
HERMOSA NW QUADRANGLE
Aquifer Susceptibility Map

Aquifer Susceptibility:

Different rock types have greatly differing capabilities to hold and transmit fluids.

Aquifers are bodies of rock capable of absorbing water at the surface and allowing it to flow to new areas underground. The area at the surface of the Earth where the rock mass is exposed and takes on the water is called the ***recharge area***. Rock masses lacking the ability to absorb and transport water are called ***aquicludes***.

The varying capabilities to absorb water are referred to as the ***aquifer susceptibility*** of a rock mass. The susceptibility rating is based upon the intrinsic characteristics of the rock, without regard to human influences. See chart at the bottom of map for factors utilized in determining susceptibility rating.

Inyan Kara Group:

The recharge area of the Inyan Kara Group, composed of the Fall River Formation and the underlying Lakota Formation, is present along the western edge of the quadrangle. The combined units form an outcropping pattern one to two miles in width.



Figure 1. Sandstone channel in the Fall River Formation: Located in canyon south of Spring Creek.

The Lakota Formation has a greater percentage of sandstone layers than does the Fall River Formation and, therefore, is interpreted to have greater susceptibility, as shown in yellow (**low-medium susceptibility**) on the map.

The Fall River Formation is composed of discontinuous sandstone layers enclosed within mudstone (Figure 1). Although the sandstone may represent a suitable aquifer, the enclosing mudstone does not. Therefore, the **average value** for the combined rock types would be **low susceptibility** (shown as green or blue colors).