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HYDROLOGIC ATLAS OF THE BLACK HILLS, PENNINGTON  
COUNTY, SOUTH DAKOTA

HERMOSA NW QUADRANGLE

**Structure Contour Map**

***Structure Contour Map:***

A map showing by means of lines of equal elevation (contours) the shape of the surface of a selected rock layer (contact) beneath the Earth's surface.

***Inyan Kara Group: (See map)***

Surface exposures of the Inyan Kara aquifer (combined Lakota Formation and Fall River Formation) extend north-south along the western part the Hermosa Quadrangle. Across the quadrangle to the east, north-trending structure contour lines reveal that the upper contact of the unit extends from the surface, at elevations of approximately 3,400 to 3,700 feet above sea level on the west to 1,800 feet at the eastern margin, a horizontal distance of about five miles. The average dip (tilt) of the layers across this distance is three to four degrees per mile.

This regional dip is interpreted by folds (anticlines and synclines recognized by the sharp curves in the contour lines as shown on the map) in which the common limb dips to the southwest. A series of four gently southeast-plunging folds (recognized in the curves of the contour lines) cross the quadrangle. Just west of Black Gap, the north-trending axes of an anticline and syncline parallel U.S. Highway 79.