AQUIFER PARAMETER INVESTIGATIONS OF THE WASATCH AND FORT UNION FORMATIONS IN THE POWDER RIVER BASIN, WYOMING, UTILIZING MODFLOWP

by
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A geostatistical model of the Wyodak coal seam of the Tongue River Member of the Paleocene Fort Union Formation and the sand lens aquifer of the Eocene Wasatch Formation was constructed from 1766 driller's logs. The resulting model was then discretized and formatted for use in the finite-difference groundwater flow models Modflow and Modflowp. The conceptual model of the aquifer system and the aquifer parameters of the coal were modified to improve calibration. The vertical hydraulic conductivity of the confining layer separating the Wyodak coal from the Wasatch sand lens was estimated at 4.5E-06 feet/day.

Heterogeneity was introduced into the coal and was found to further improve calibration. The vertical hydraulic conductivity of the confining layer separating the Wyodak coal from the Wasatch sand lens was estimated again, with heterogeneous coal, at 9.0E-06 feet/day.

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