

Ground Water – Columbia River Basalts – Lessons Learned from Yakima Basin 17-year USGS Study

Tom Ring, Hydrogeologist

Yakama Nation Water Resources Pgm. Toppenish WA

509-865-5121 ext 6709

In 1999 the Yakama Nation, Washington State Department of Ecology, and United States Bureau of Reclamation entered into a Memorandum of Agreement related to Groundwater Management in the Yakima River Basin. The MOA was the culmination of six years of litigation over 43 groundwater permits issued by Ecology in 1993. The parties to the MOA agreed to commission USGS to develop a conceptual framework report and appropriate numerical ground water model (including surface water/ground water interactions) to be used as a common technical platform in future ground water management, water allocation and mitigation decisions in the Basin.

A Hydrologic Framework report has been published synthesizing information compiled in earlier reports on (1) mapping of hydrogeologic units, (2) estimating groundwater pumpage, (3) developing estimates of groundwater recharge, (4) assessing groundwater-surface water interchanges, and (5) constructing maps of groundwater levels (<http://wa.water.usgs.gov/projects/yakimagw/>). This hydrogeologic framework has been used to construct a regional-scale numerical model of the groundwater- surface water flow system. Although the model report has not yet been released, USGS has presented preliminary results to basin water and fish managers. These results indicate that pumping from the basalts and overlying sedimentary basin-fill layers account for about 200 cfs reduction in surface water supply in the basin and that response of the surface water system to pumping occurs rapidly.