

Geological and Hydrogeological References: Palouse Region

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Introduction

Ground water is the sole source of water for the cities of Pullman and Moscow, the University of Idaho and Washington State University, and people and industry in the surrounding rural areas. The Palouse Basin Aquifer Committee is charged with the task of planning to insure a reliable long-term quality water supply for the basin. The Palouse Basin Aquifer Committee is a voluntary, cooperative, multijurisdictional committee comprised of six entities: the two cities, the two universities, and the counties of Whitman and Latah. The Palouse Basin Aquifer Committee’s mission is: *to provide for future beneficial use of the basin ground water without depleting the basin aquifers while protecting the quality of the water.*

Ground water in the Palouse Basin is pumped from aquifers located primarily in basalt. The primary drinking water source is a deeper basalt aquifer referred to as the Grande Ronde while a shallower basalt aquifer, the Wanapum, provides limited water for the cities and universities, but is the primary water supply for rural residents. Since ground water development began in the late 1890’s, ground water pumpage has steadily increased while the basalt aquifers in the Palouse Basin have experienced a drop in water level.

Based on the continually falling ground water level and recent findings that ground water recharge is less than previously thought, it is possible that the entities are pumping more water than is being recharged [replaced] naturally to the deeper aquifer. This possibility has resulted in heightened concern and more urgency to find ways to increase recharge and stop the fall in the water table. Efforts are also underway to counter the increasing ground water pumpage through water conservation, exploration into increased recharge methods, and the use of wastewater effluent to supplant current irrigation and other nonpotable demands for the deep aquifer water.

The questions are complex in that basin recharge and discharge [losses] are not well understood or accurately determined. The extent of the basin is still in question [how big is our bathtub] and the interconnection between the deep aquifer and surface water sources is uncertain. To better understand these concerns, the

Palouse Basin Aquifer Committee is increasing its commitment to key research and monitoring of ground water levels and the impacts of pumping events in various locations in the basin. This will require more financial commitment by the entities. However, this increase in the pace of research and monitoring should facilitate key decision making prior to the occurrence of a critical water supply situation. Specific goals include:

- installation and use of automatic water level recorders that will provide better and more extensive data than ever before,
- careful monitoring of the geology and aquifers during the drilling of the new City of Palouse well,
- cooperative water conservation efforts by the cities and universities,
- refinement of the US Geological Survey computer model, and
- utilization of the tremendous resources of the two universities to undertake research which will help clarify some of the less well understood issues such as the rate and location of recharge to the deep aquifer, the size and capacity of the basin, and the water balance for the basin.

The following bibliography is a compilation of hydrogeological references, geological maps, and geological references specific to the Palouse region of eastern Washington and northern Idaho. The references are affiliated primarily with ground water and no attempt has been made to include surface water hydrology, this year. The following individuals contributed time and effort to this compilation: Dr. John H. Bush Jr., Associate Professor of Geology, University of Idaho; Steve W. Gill, Executive Secretary/Technical Advisor PBAC; Dr. Christian R. Petrich, research scientist Idaho Department of Water Resources, and Jack Pierce, geology graduate student, University of Idaho.

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