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# Sediment Report Introduction

Last Updated Sunday, 08 March 2009

Although the Columbia River Basalt Group hosts the most widespread aquifers underlying the Columbia Basin Groundwater Management Area (GWMA) of central Washington, sediments overlying the basalt in parts of this region do host aquifers containing significant quantities of groundwater. Where these sediment aquifers, referred to herein as suprabasalt sediment aquifers, are present they may be several tens to hundreds of feet thick and serve as the primary water source for many individual family and small system water supply wells. Suprabasalt sediment aquifers also supply water to irrigation wells in some areas. Columbia Basin GWMA location map. Places where suprabasalt sediment aquifers have the potential to yield usable quantities of groundwater, for domestic, municipal, and irrigation use, generally coincide to:

- Larger structural basins such as the Pasco Basin and Quincy Basin, where sediments may be several hundred feet thick, contain significant sequences of sandy and gravelly strata, and be capable of yielding hundreds to more than 1000 gallons per minute (gpm) to wells.

- Sediment filled Channeled Scabland coulees in northern Grant County, much of Adams County, and eastern Franklin County. Sediments in these coulees, deposited by very high energy Pleistocene Cataclysmic Flood waters, typically are extremely coarse and porous and may be able, at least locally if groundwater is being recharged, to produce hundreds to several thousand gpm.

- Areas near the mouths of scabland coulees in southern Franklin County and western and north-central Grant County where irrigation is present. In these areas Pleistocene Cataclysmic Flood deposits are widespread and generally consist of thick, high porosity sand and gravel. Where this occurs it is not uncommon to see high yield (1000+ gpm) wells which have experienced little, or no, long term water level decline. Where present, suprabasalt sediment aquifers usually are shallower than those found in the more extensive Columbia River basalt, making suprabasalt aquifers a desirable production target because of generally lower drilling and well construction costs. However, because this aquifer system is shallow it is more susceptible to potential contamination than deeper, commonly confined, basalt aquifers. Because the suprabasalt sediment aquifer system can produce significant quantities of groundwater at many locations, and at the same time be more vulnerable to contamination, a better understanding of the physical controls on suprabasalt sediment aquifer conditions is desirable for supporting future water resource planning and management activities. This report provides the basic geologic framework upon which a better understanding of suprabasalt sediment aquifer physical conditions can be built. The basic goal of this report is to compile a series of maps, and corresponding digital files, that illustrate the subsurface distribution of the primary suprabasalt sediment lithostratigraphic units within the Adams County, Grant County, and Franklin County portion of the Columbia Basin GWMA. These maps can provide the basis for constructing subsurface three-dimensional interpretations of physical variation within the suprabasalt aquifer system, including boundaries, heterogeneity, and vertical and lateral continuity. Data used to map subsurface suprabasalt sediment unit distribution was generated predominantly from previously compiled surface mapping, outcrop measured sections and descriptions, water well logs and other geologic well logs, and selected hydrogeologic reports. The work described in this report was done by Kennedy/Jenks Consultants and Franklin Conservation District (FCD). The Kennedy/Jenks Consultants project team was lead by Dr. Kevin Lindsey, LHG, as the lead scientist, and included Mr. Jon Travis, Ms. Renee Hadley, Ms. Victoria Johnson, LG, and Mr. Terry Tolan, LHG. Mr. Tolan provided technical and peer review. The FCD project team was lead by Mr. Mark Nielson, district manager, and included Ms. Susan Loper who was the geographic information system (GIS) lead for the project.