

Mosier Ground-Water Project Update

Mosier Watershed Council Meeting, June 2, 2005

Well logging

Goals: 1) Collect information on geology and water-bearing properties of aquifers, 2) measure leakage through boreholes of comingling wells.

Progress: Collected geophysical logs on 3 wells (Frost, Kinsey, Woods & Sandoz) March 21-25. Logs included: temperature, gamma, fluid resistivity, rock resistivity, diameter, video, and flow meter. Well logs have been brought into database for analysis (see attached example).

Early observations:

- Water levels have declined 70-110 ft; rate is 4 ft/yr since 1977 in ALL 3 WELLS.
- Water levels have fallen below top of Priest Rapids (TPR)—no possibility of upward flow into overlying Pomona (TP) in these wells.
- Some cascading water from overlying aquifers and possibly some downward flow in borehole.
- Under pumping conditions, the majority of the water appears to come from the “interflow zone” between basalt flows; little water comes from the fractured interiors of flows.
- These three wells are representative of upper part of valley. Need to find wells to log in lower valley where water-levels in TPR are still above contact with TP.

Plans: Complete analysis of logs. Select 3-4 additional wells in lower valley to be logged this fall. Possibly log old and new City wells.

Stream Flow Monitoring

Goals: (1) Monitor flow at Mosier Creek gaging station to evaluate how flows have changed since 1963-81 period when gage was last in operation. (2) Measure flows at other sites on Mosier Creek to determine where ground-water enters or surface-water leaves the creek. Evaluate seasonal and long-term changes since 1962 and 1986 when last measurements were made.

Progress: Made final site selections and began bi-monthly measurements at 10 locations in April. Installed temperature monitors at 8 sites. Installation of gaging station was delayed due to a misunderstanding with property owner which has been resolved; gaging station will be installed next week.

Plans: Install gaging station (June 8-10). Make second round of bi-monthly measurements (June 15-19).

Ground-Water Level Monitoring

Goal: Monitor water levels in wells to evaluate changes over times scales ranging from hours to decades. These measurements will help understand the effects of climate, development and other factors on the ground-water resource.

Progress: Field-located and measured 17 wells in April. These are wells that were measured by Ken Lite for OWRD study in 1984-87. Wells were added to, or updated in the database. Three wells have been selected for monitoring with continuous recorders.

Plans: Make second round of bi-monthly measurements and install 2-3 continuous recorders (June 17-19). Add 5-10 additional wells to bi-monthly network. Find 2-3 additional wells for continuous recorders and install.

GIS and Well Data

Goal: Compile and evaluate existing well and other geographic data to support the study.

Progress: the three wells that were geophysically logged and all of the wells in the bi-monthly network have been added to the database.

Plans: Add new wells as they are added to the bi-monthly network.

Miscellaneous

- Wasco SWCD has budgeted up to \$80,000 per year for the study. USGS matching funds will bring the total project budget to \$160,000 per year in fiscal years 2006-2008. With this funding schedule, the study would be completed in March 2009 for a total cost of \$618,000 (local match, \$309,000).
- A project web page has been created (attached). The page provides information on the background, objectives, approach, and products of the study. We will soon add links to data that is being collected. Eventually, reports and presentations will be available.