Technical Advisory Committee
Spokane Valley Rathdrum Prairie Aquifer Study
Meeting Notes

Meeting held October 5, 2004
Washington Dept. of Ecology
Eastern Regional Office
N. 4601 Monroe
Spokane, WA
9:30 AM

Update

Using a draft map of the surficial geology, Sue Kahle updated the group on work to date. Sue indicated some 270 wells had been measured during the 9/04 synoptic, a seepage run on the river had been conducted, and the aquifer wide GPS survey of measured points was underway.

Mark Savoca described federal funding efforts, including 0.5 million in the interior budget and 1.5 million in the Housing and Urban Development budget had passed out of subcommittee. The states indicated that currently funding appeared in budget proposals for each state at some level; all acknowledged some uncertainty in ultimate available funds.

Meeting

Discussion generally followed handouts provided by USGS and Dr. Ralston. This discussion is somewhat disjointed but ultimately focused in the afternoon on data needs for FY05 in respect to the thrust of that workplan. The major topic: hydrogeologic framework of the area. What elements (boundaries, surficial mapping, recharge/discharge, and hydraulic properties) are important to define closely? What elements are not so important? Ultimately, this gets to the function of the model, Mike Barber noting that the model should address what kinds of uncertainties must we reduce, others noting model scale is relevant to the discussion, etc.

After much give and take, Dr. Ralston summarized that there are 3 elements to a transient numerical model: Gradient, transmissivity, and recharge/discharge relationships. Recharge is very difficult to know, but discharge can be measured with reasonable accuracy; gradient is well understood; and transmissivity will vary as a function of hydraulic conductivity over several orders of magnitude. This final element suggests significant expenditure into determining aquifer thickness is not necessarily relevant to the production of a functional model. Regardless, understanding the gradient well, and narrowing discharge estimates constrains transmissivity values thus increasing the ability of a model to be predictive.

Others noted that while flux across "weirs" or choke points in the model and estimation of total volume of the model are not in and of themselves important to model construction, increased understanding of those factors is assumed by the public, and some uncertainty on aquifer shape and geology does in fact exist and must be addressed to increase the precision and accuracy of the resulting model.

Consensus began to build around a "response function approach" focusing more on hydraulic than geologic properties, probably leading to definitions of geologic parameters on a more scale-dependent fashion than envisioned in the current draft of the FY05 workplan. The ultimate goal is characterizing the nature of relationships between the river, the lakes, and the aquifer as constrained by aquifer properties and boundary conditions.

Focused on tasks directed at specific terms:

Term: "K-term" or understanding variation in hydraulic properties:

Task 1: Map of location of existing aquifer tests and results
Includes: evaluation of data quality
Unrealized opportunities, or where is all the stuff in place but no test has been done? Example: wellhead protection wells near muni-supply wells in Spokane Valley
Task 2: Surface water/Groundwater/K
"Response function approach"-research toward implement FY05
Task 3 Qualitative Aquifer Properties
Well yield
Sieve analysis
Geophysics

Term-Discharge

Task 1: Water Use Study WA/ID -Time and Location specific
Task 2: Quantification of discharge between Spokane Gauge and Long Lake
Task 3: Sediment texture along river

Term: Boundary Conditions

Task 1: "Downstream geology"-Little Spokane/Nine Mile/Trinity Trough vicinity
Task 2: "Upstream geology and hydrology"- Pend Oreille area
Task 3: "Liberty Lake promontory" evaluation
Task 4: Bucket Shape: Lithologic and Hydraulic boundaries

Term: Recharge

Task 1: Pend Oreille/Cd'A/Spokane Arm Contribution
Task 2: Peripheral Basins

Task 3: Specific Yield-Hydrograph analysis
Task 4: Precipitation/weather data density/reliability
Task 5: Infiltration: Location, magnitude, and timing.
Task 6: Riverbed (and presumably lakebed) sediments characterization.
Task 7: Using watershed modeling to help determine the spatial distribution of aquifer recharge. Data needs: precipitation records, stream hydrographs, soil and land use coverages, and basin topology (elevation, slope, aspect).

The meeting adjourned at 3:30 PM.