

MEMORANDUM
WA State Department of Ecology
Eastern Regional Office

DATE: December 13, 2005

TO: Interested Persons, Spokane Valley Rathdrum Prairie Aquifer Project

FROM: John Covert
Tracy Band
Guy Gregory

SUBJECT: Ecology SVRPA Project Technical Memorandum: Data Report, 2005 “6 minute” Study, Spokane Valley Rathdrum Prairie Aquifer Area

The Spokane Valley-Rathdrum Prairie Aquifer (SVRPA) area is currently being studied by Ecology, the United States Geological Survey (USGS), and the Idaho Dept. of Water Resources. The purpose of that study is to understand the movement and relationship of ground and surface water in the aquifer area, and present that understanding in a numerical model. This understanding is essential in making proper management decisions concerning current and future ground water and surface water appropriations in the SVRP area.

This memorandum documents field data gathered in the surface water and aquifer stations at low flow conditions in the Spokane River. The late summer release of water from the Post Falls Dam may act as a “slug”, potentially useful in more closely quantifying parameters important in construction of that model. Additionally, by synchronizing the data collected, empirical evaluation may lead to significant understanding of the relative timing and response of the aquifer to dam release.

Method

Temperature and water level data were gathered using Levellogger® Model 3001 data loggers in possession of Ecology ERO. Data readings were taken every 0.1 hour, and all data loggers were synchronized to Pacific Daylight Time by setting their clocks with the same computer. The equipment is compensated automatically for temperature and accurate to 1% of the full scale of the equipment. Temperature is accurate to 0.01° C. Data on barometric pressure was gathered at two locations within the SVRPA area. Raw data from the field readings were compensated by these data using Solinst® v. 2.0.3 Leveloader software.

Dataloggers were suspended in wells using the ERO preferred method of 30lb. Test fishing line, at a minimum of 5 feet below the measured water table elevation. Water table elevation at each well was determined by etape at the time of installation and again at the time of collection. Elevation is then calculated in feet above mean sea level (NAVD 88) by using survey values supplied during the SVRPA Fall 04 Synoptic measurement.

Temperature data was gathered in wells on the same schedule. The Levellogger® Model 3001 is factory calibrated.

Temperature and water level data was gathered at selected surface water sites using the same schedule. Dataloggers were suspended in stilling wells at formal gauging stations at Harvard Road (USGS 12419500) and Greene Street (USGS 12422000), or deployed in protective plastic housings at locations near the Post Falls gauge (USGS 12419000), Sullivan Park (near USGS 12420800), and the 7-mile Gun Club (near USGS 12424500). Temperature data from the stilling wells is not considered representative of river conditions.

Locations are summarized on figure 1. An additional well outside the SVRPA area was instrumented to assess “control” conditions at the Chattaroy well.

This memorandum is attached to a Microsoft Excel® workbook entitled sixminute.xls. That workbook contains the water level data gathered by the Technical Unit of the Washington Dept. of Ecology Eastern Regional Office Water Resources Program during the period August 22 through October 20, 2005. Those data were gathered by data loggers, collecting synchronized water levels every 0.1 hour in accordance with the Quality Assurance Project Plan (QAPP) for the project.

Each individual well worksheet, named by the Serial Number and the Local Name of the well, contains information outlined on Table 1. In addition, each well file contains date; time; temperature in degrees C; raw elevation of water above data logger; elevation of water level above data logger corrected for barometric pressure; and calculated water table elevation in feet AMSL, NAVD 88. Most locations have a full suite of data, approximately 14,500 individual determinations (though some stations were not available for the full period so their datasets are truncated). Every effort has been made to ensure these data are complete and accurate with respect to time of collection and elevation.

Surface water stations are denoted in the workbook by having “Spokane R” in the common name, and identified by their USGS number in the Site_ID field.

Acknowledgements

The authors are pleased to acknowledge the assistance of Keith Hein of the USGS/Post Falls office, the Spokane Aquifer Joint Board, including Glenn Terry of Irvin Water District and Steve Skipworth and his staff at Vera Water and Power, The Spokane Rifle Club, Inc., Avista Corporation, Reanette Boese and Rob Lindsay of Spokane County for facilitating access to measurement points and assistance.

We suggest this memorandum be cited as:

Covert, John J., T. L. Band, and G.J. Gregory, 2005: Data Report, 2005 “Six minute” Study, Spokane Valley Rathdrum Prairie Aquifer Area; WA. Dept. of Ecology Memorandum

If you have questions regarding this dataset, please contact Ecology Eastern Regional Office.

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W: Gregory/Spokane Aquifer Six Minute 12-13-2005.doc

Table 1: Data Presented in Six Minute Well Worksheets

Serial number-	The serial number of the data logger deployed at that location for the project duration
SITE_ID	USGS Well number, if available
TRS	USGS Local number
Project ID	Six Minute Study
Location	Local informal name
ddlat (NAD83)	NAD 83 decimal latitude
ddlong (NAD 83)	NAD 83 decimal longitude
well measurement date	Date of etape measurement
well measurement time	Time of etape measurement
LSD Elevation (NAVD 88)	Land surface elevation
Elev Accuracy	Reported accuracy of the elevation
Elev Method	Method of determining land surface elevation
MP Height	Measurement point height above land surface
depth to water (from MP)	Measured depth to water
water table elevation (from MP)	Calculated elevation of water table relative to MP
Measured water table elevation (from LSD)	Calculated water table elevation relative to land surface
LEVEL	
Offset	Datalogger calibration
Range	Datalogger sensitivity
Altitude	Initial altitude settings for datalogger
TEMPERATURE	
Offset	Datalogger offset from freezing
Range	Datalogger sensitivity

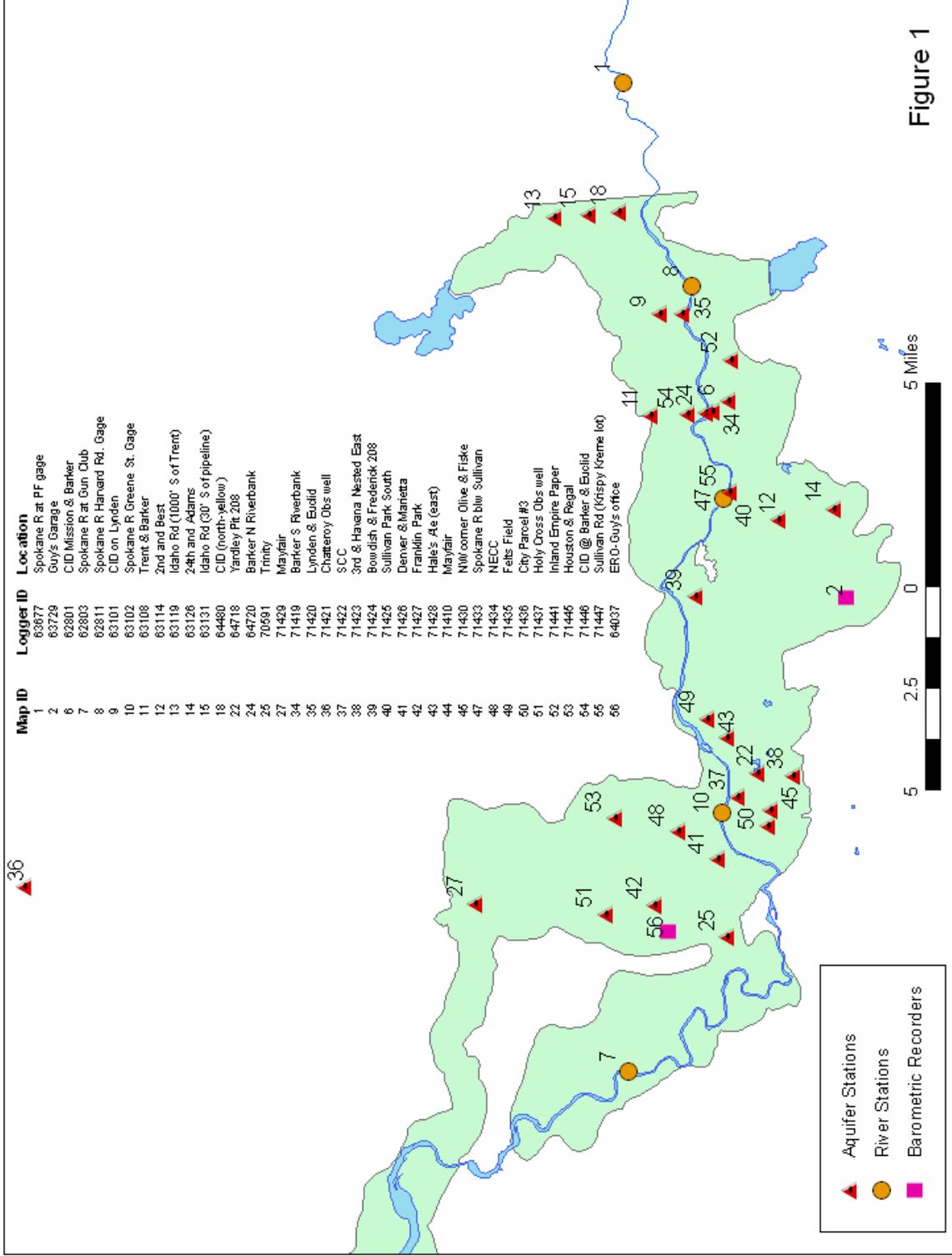


Figure 1