

Northern Lancaster Water Budget Study Project

Phase 2

Data Collection and Field Assessment

What is a water budget study? The purpose of a water budget study is to determine if an area's water supplies are adequate to meet current and projected water demands. A water budget study is essentially like assessing a financial account, where you determine how much water is being deposited in an area, how much is being withdrawn, and how much is available for future use. Water budgeting allows for planning and management of water resources in a sustainable manner.

Why is it important to conduct a water budget study in Northern Lancaster County? According to the U.S. Census Bureau, Lancaster County's population grew by 11.3 percent between 1990 and 2000. In that same period, several communities in northern Lancaster County grew even faster, including East Cocalico Township (27.5%), Denver Borough (16.5%), Ephrata Township (12.8%), Warwick Township (33.2%) and West Cocalico Township (26.2%).

The demand for water in northern Lancaster County has been increasing in direct response to the population growth – and that growth is expected to continue. It is critical that water resource managers and planners and residents in northern Lancaster County know how much water is available and what limits there may be to meet future demands.

What is the Northern Lancaster County water budget study? The water budget study began in October 2002 and is expected to conclude on June 30, 2005. It is a partnership effort of the Susquehanna River Basin Commission (SRBC), Lancaster County Conservation District, Pa. Department of Environmental Protection, five watershed groups, municipalities, local residents and Millersville University. For this study, SRBC is developing a model water budget analysis that will identify the extent of available water resources and areas where the demand for water may exceed available supplies. In addition, a series of management recommendations will be developed.

The study area covers six watersheds in northern Lancaster County: Cocalico Creek, Indian Run, Middle Creek, Hammer Creek, Lititz Run and Chiques Creek. The following municipalities are located entirely or in portions of the six watersheds: Akron Boro, Clay Twp, Denver Boro, East Cocalico Twp, Elizabeth Twp, Ephrata Boro, Ephrata Twp, Lititz Boro, Manheim Boro, Penn Twp, Rapho Twp, Warwick Twp, and West Cocalico Twp.

There are five key phases to the water budget project: (1) Public Outreach and Advisory Group, (2) Data Collection and Field Assessment, (3) Water Budget and Water Use Analysis, (4) Management Recommendations, and (5) Workshop. SRBC's project Information Sheet dated March 2003 includes information on all phases. **This handout addresses questions regarding the groundwater level measurement component of Phase 2, which will be conducted from March through October 2004.**

PHASE 2 ACTIVITIES – DATA COLLECTION AND FIELD ASSESSMENT

During Phase 2, the water budget study partners will establish the database of groundwater levels in the study area and create maps. To create the database on groundwater levels, they will compile and use existing data and collect new data – through field surveys – for areas where there currently are insufficient data to complete the water budget study.

Susquehanna River Basin Commission

1721 North Front Street • Harrisburg, PA, 17102 • (717) 238-0423 • www.srbc.net

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PHASE 2 ACTIVITIES (cont.)

Who will collect the groundwater level data and when? For those areas where existing groundwater level data is insufficient, staff from SRBC will lead survey teams – usually two-person teams – to collect new data on wells. SRBC and the conservation district will partner with private landowners to collect the data from select private wells. Securing the cooperation and permission to access private property from local landowners and communities is essential to the success of the water budget project.

The survey teams will collect groundwater level measurements twice in 2004, once in the spring and once in the fall, when water levels are generally at their highest and lowest. The spring-time measurement will take place between mid-May through early June, and the fall measurement will occur around late August through early September.

How will landowners be selected for groundwater level measurements? Participation in this water budget study is voluntary. Landowners who choose not to participate will not lose any services or benefits as a result of their decision. Landowners who do volunteer to participate in this multi-phase water budget study will be helping residents and water management officials to better understand the region's water resources needs and demands, thereby ensuring that more educated and sound decisions are made within the northern Lancaster County area by communities and by individual landowners.

How are groundwater levels measured and what type of information is recorded? Once permission to access private property is obtained from a participating landowner, the trained survey teams will conduct a groundwater level measurement. The process for checking groundwater levels is fairly simple, with a clean weighted-measuring tape being the tool of choice. Similar to checking the oil level in a vehicle, the survey teams will: (1) remove the well cap, (2) lower a clean tape measure into the well to determine the depth from the surface of the ground to the top of the water (by thoroughly cleaning the measuring tape, the survey team avoids the possibility of contaminating wells), and (3) replace the well cap when the measurement is recorded.

The types of information collected and recorded include location of the well (through latitude and longitude), water level measurement and well characteristics, such as the total depth of the well and whether the well has casing or not. The landowner will be given a copy of all recorded information.

How will the well information be used during Phase 3 of the study? In keeping with the analogy that a water budget is like assessing a financial account, information on groundwater levels is like having the “balance sheet” for an account. The water level measurements serve as the basis for evaluating the balance in the groundwater account near the measured well. The data will be used to construct a groundwater contour map. The map serves as an indicator of the balance in the regional groundwater account. A comparison of the spring and early fall maps will be used to evaluate changes in the amount of water stored in groundwater aquifers at the end of a specific water year. This information will be compared to streamflow and precipitation records from previous years to help predict future groundwater conditions resulting from changes in precipitation, recharge and utilization.

Will information on individual wells and participating landowners be distributed? The groundwater level contour map will be public information, but specific information regarding participating landowners' names and addresses will not be made public. This information will be kept confidential.

How can I obtain more information on this water budget study? More detailed information on this project is available on SRBC's web site at <http://www.srbc.net/waterbudgetstudy.htm>, including the project scope of work, timelines and updates on recent activities.

Persons who wish to have their names added to the project mailing or e-mail lists for future announcements and project updates, contact Patricia Adams at (717) 238-0423, extension 302, or e-mail at padams@srbc.net. For specific questions about the water budget project, contact Bob Edwards, Project Manager at redwards@srbc.net or call (717) 238-0425, extension 213.