SOURCE WATER ASSESSMENT
EXECUTIVE SUMMARY
FOR
Cedar Hills Water Assn

June 30, 2004

PROJECT: 424-001

ASSESSMENT COMPLETED BY: TRIHYDRO CORPORATION

1252 Commerce Drive, Laramie, WY 82070

SOURCE WATER ASSESSMENT SUMMARY
FOR Cedar Hills Water Assn

PWS Source Water Assessment Summary

The Cedar Hills Water Association system is a community system with two wells. The system provides water for approximately 258 people through 86 service connections. Facilities include two ground level steel tanks. Water treatment is achieved at the wellhead. The water sources scored medium with respect to the combined integrity and aquifer sensitivity ratings. Cedar Hills Well #1 was the only water source that scored high with respect to land use susceptibility and transportation corridor susceptibility. Both wells scored low with respect to point source susceptibility.

Delineation Methods

This water system is a community system that draws water from a porous sedimentary formation. Groundwater modeling methods were implemented to estimate the 2-year and 5-year time of travel capture zones for the groundwater flow system. The model used well information in the SEO database and aquifer parameters used in the model were similar to those reported by the Water Resources Research Institute Study of groundwater in the Powder River Basin.

U.S. EPA's Wellhead Analytic Element Model or WhAEM method was used for community water systems that derive their sources from alluvial or shallow bedrock aquifers. The WhAEM model uses well and limited hydrogeologic data to estimate time-of-travel capture zones in relatively simple hydrogeologic settings for either confined or unconfined aquifers. For the source water assessment, the WhAEM model was used to develop two year and five year groundwater capture zones. Due to this methodology, the delineated source water areas may be larger than the true capture zones for each well. However, use of this method typically results in source water protection areas that can be used to more reliably protect the water supply.

Groundwater Sources

The Cedar Hills Water Association draws water from the Tongue River and Lebo Members of the Fort Union Formation. Recharge to these wells occurs in the outcrops of the Fort Union Formation through porous media flow. Groundwater flow within the aquifer is under artesian conditions due to the overlying confining layers of the Wasatch Formation and generally from southeast to northwest. Additional information on these wells is included on the attached Well Information Sheet. As shown on the enclosed source water area delineation map, contaminant inventory zones 2 and 3 were delineated using WhAEM methods for both wells. Zones 2 and 3 represent 2-year and 5-year groundwater travel times, respectively. The capture zones extend southeast from the two wellheads.

Integrity Summary

Cedar Hills Water Association uses two groundwater wells. Silver Hills Well #1 is approximately 640 feet deep. Cedar Hills Well #1 is approximately 1,365 feet deep. Both wells were constructed prior to 1983, when less stringent construction standards were required by the State of Wyoming. However, records show that both wells were properly sealed to protect against surface infiltration of potential contaminants and flooding around the wellhead. As shown on the Integrity Summary Table, Silver Hills Well #1 scored a 6 and Cedar Hills Well #1 scored a 5.

Water Source Sensitivity Summary

As shown on the Source Sensitivity Summary Table, the wells received a sensitivity score of 6. The wells had a score of 1 for aquifer sensitivity because they draw water from a confined aquifer through porous media flow. The wells scored 5 for chemical sensitivity due to documented chemical detections in the groundwater.

Water System Susceptibility Rating

Susceptibility is defined as the potential for a public water supply to draw contaminated water at concentrations that would pose a threat or concern to human health. Cedar Hills #1 scored high for land use susceptibility because much of the land surrounding the well is irrigated cropland. Cedar Hills #1 also scored high for transportation corridor susceptibility because a railroad passes through zones 2 and 3. The overall point source contaminant susceptibility rating is low due to the lack of contamination sources being present within the delineated zones.

A review of your PWS's routine water analysis results revealed that one or more chemicals that are considered contaminants in drinking water were detected at some time within the last five years. Chemical detections have a large impact on your PWS's sensitivity score because it may indicate that there is a pathway for contaminants to reach the water supply. However, it is likely that these chemicals are present only in small amounts and are not a danger to your health. Some of these chemicals may also occur naturally in water.

For more information about which chemicals were detected, please contact the PWS for a copy of the most recent Consumer Confidence Report or water analysis results. Chemical detections at levels that are a concern to human health are reported on the EPA's website: <http://www.epa.gov/enviro/html/sdwis/sdwis_query.html>. To see if your PWS has exceeded the federal primary or secondary drinking water standards, just click on the State of Wyoming and then type in the name of your PWS. Consumer Confidence Reports are prepared by the PWS on a yearly basis. The reports should include information about any chemicals found in the water, even those found at very low levels. Please contact Kim Parker at DEQ, 307-777-7781, or WARWS for assistance. You may also contact EPA to find out what contaminants were detected. You may have to fill out a Freedom of Information Act request to obtain the water test results for your PWS. Please call EPA's Safe Drinking Water Hotline at 1-800-426-4791.

POINT SUSCEPTIBILITY SUMMARY TABLE
FOR Cedar Hills Water Assn

Point Source Susceptibility Summary

It may appear from the results of this point source susceptibility summary table that your system has too many PSOCs influencing the final ratings. In some cases, a specific PSOC falls within a specific contaminant inventory zone shared by multiple wells or intakes. When this is the case, that PSOC will be scored for each intake. For example, an underground storage tank may appear within a contaminant inventory zone shared by four different wells. This would cause that single storage tank to be entered into the table four times, or once for each well or intake.

Point Source Type	Low	Medium	High
None Identified	N/A	N/A	N/A

* Illustrates the number of PSOCs in a particular rating class for all water sources
* N/A - Not Applicable