

**SOURCE WATER ASSESSMENT
EXECUTIVE SUMMARY
FOR
WYDOT Star Valley RA**

June 30, 2004

PROJECT: 424-001

ASSESSMENT COMPLETED BY: TRIHYDRO CORPORATION

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SOURCE WATER ASSESSMENT SUMMARY FOR WYDOT Star Valley RA

PWS Source Water Assessment Summary

The Wyoming Department of Transportation Star Valley Rest Area is a non-community, groundwater supply system. The Rest Area facility is provided with source water from two wells. The system serves between 500 people per day in summer to about 10 people per day in winter, through a single service connection. Disinfection is practiced using sodium hypochlorite injected just before the hydro-pneumatic storage tanks. The water sources scored medium with respect to the combined integrity and aquifer sensitivity ratings. The system scored high with respect to land use susceptibility, high for point source susceptibility, and high for transportation susceptibility.

Delineation Methods

This water system is a non-community system that draws water from porous sedimentary units. Calculated fixed radius (CFR) methods were implemented to estimate the 2-year and 5-year time of travel radii for the groundwater flow system. The CFR used well information from the SEO database and system operator comments and aquifer parameters were assumed from similar type deposits.

Calculated fixed radius (CFR) is an appropriate method to use when groundwater flow to the well, spring or tunnel can be characterized as porous. This process was implemented for small communities that derive water from deeper, confined aquifers, or for non-community water systems. A factor of safety (FS) of 1.5 was applied to all systems where portions of the data were suspect. At the ground surface, the radius can be used to delineate an area around the well to be used for wellhead protection. The radius is the distance from the well to a point where groundwater (and contaminant) can reach the well over a specified time period. Input data requirements are limited, consisting of the pumping rate, open (screened) interval of the well, porosity of the aquifer, and the selected time of travel (2 years and 5 years).

Groundwater Sources

The WYDOT Star Valley Rest Area draws water from two wells. Well #1 draws water from sandstone units within the Salt Lake Formation. Recharge to this well occurs in the outcrops of the Salt Lake Formation and generally flows to the well under artesian conditions from east to west. Well #2 draws water from the alluvium along the Salt River, and reaches the well through porous media flow. Groundwater flow within the alluvium is generally from east to west. 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 CFR methods. Well #1 had a Zone 2 calculated radius of 1,297 feet and a Zone 3 calculated radius of 2,050 feet. Well #2 had a Zone 2 calculated radius of 749 feet and a Zone 3 calculated radius of 1,184 feet.

Integrity Summary

The WYDOT Star Valley Rest Area uses two wells to supply water to the facility. Thayne #1 is approximately 200 feet deep and was constructed prior to 1983 when less stringent construction standards were required by the State of Wyoming. Thayne #2 is approximately 50 feet deep and was constructed after 1993 when stringent construction standards became required by the State of Wyoming. Records show that both wells were properly sealed to protect from surface infiltration of potential contaminants, however, neither are protected from flooding. As shown on the Integrity Summary Table, the Thayne #1 received a score of 5 primarily due to the well construction date and Thayne #2 received a score of 3 because of its recent construction.

Water Source Sensitivity Summary

As shown on the Source Sensitivity Summary Table, Thayne #1 received an aquifer sensitivity score of 6 and Thayne #2 received an aquifer sensitivity score of 10. Thayne #1 received a score of 1 for aquifer sensitivity because it draws water from a confined aquifer through porous media flow. Thayne #2 received a score of 5 because it was completed in unconfined terrace deposits. Both wells received a score of 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. In general, the WYDOT Star Valley Rest Area scores high for land use susceptibility because much of the land surrounding the wells is urban land. The overall point source contaminant susceptibility rating is high due to wastewater discharge sites being located within zones 2 and 3. The wells were assigned a high transportation corridor susceptibility score because of nearby state highways. Susceptibility ratings for each type of potential contaminant source are summarized on the attached susceptibility tables.

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 WYDOT Star Valley RA
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
Wastewater Discharge	N/A	2	2

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