

**SOURCE WATER ASSESSMENT
EXECUTIVE SUMMARY
FOR
MHVC Visitors Center**

June 30, 2004

PROJECT: 424-001

ASSESSMENT COMPLETED BY: TRIHYDRO CORPORATION

1252 Commerce Drive, Laramie, WY 82070



ENGINEERING SOLUTIONS. ADVANCING BUSINESS.

Home Office | 1252 Commerce Drive | Laramie, WY 82070 | phone 307/745.7474 | fax 307/745.7729 | www.trihydro.com

SOURCE WATER ASSESSMENT SUMMARY FOR MHVC Visitors Center

PWS Source Water Assessment Summary

The Mormon Handcart Visitors Center is a non-community groundwater supply system. Water is provided seasonally to up to 71,000 people per year through 17 service connections. The water source for this system is three wells. Facilities include five steel tanks and the distribution system. Enl. Cellar #1 and Cellar #1 scored high and Handcart Trail #1 scored medium with respect to the combined integrity and aquifer sensitivity ratings. The Mormon Handcart Visitors Center overall scored medium for land use susceptibility and low for point source susceptibility.

Delineation Methods

This water system is a non-community system that draws water from porous alluvium. 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 was calculated using well information in the sanitary survey and SEO database and aquifer parameters used in the calculation were assumed for those of 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 MHVC Visitor's Center receives water from an alluvial aquifer that draws water from the alluvium along the Sweetwater River - Muddy Creek Valley. Recharge to the alluvial aquifer comes from the Sweetwater River and its tributaries and reaches the wells through porous media. Groundwater flow within the alluvium is generally from west to east. 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 for all three wells. Cellar Well #1 had a Zone 2 calculated radius of 476 feet and a Zone 3 calculated radius of 756 feet. ENL Cellar Well #1 had a Zone 2 calculated radius of 793 feet and a Zone 3 calculated radius of 1,254 feet. Handcart Trail #1 had a Zone 2 calculated radius of 614 feet and a Zone 3 calculated radius of 971 feet.

Integrity Summary

The Mormon Handcart Visitors Center uses three wells to supply its water. Cellar Well #1 is approximately 38 feet deep. ENL Cellar Well #1 and Handcart Trail #1 are both approximately 120 feet deep. Cellar Well #1 was constructed prior to 1983 when less stringent construction standards were required by the State of Wyoming, and Enlarged Cellar Well #1 and Handcart Trail #1 were completed after 1993 under more stringent standards. Records show that both Cellar wells may not be properly sealed to protect from surface infiltration of potential contaminants while Handcart Trail #1 was properly sealed. As shown on the Integrity Summary Table, the Enlarged Cellar Well #1, Cellar Well #1, and Handcart Trail #1 received scores of 8, 11, and 5 respectively.

Water Source Sensitivity Summary

As shown on the Source Sensitivity Summary Table, Cellar #1 and the Enlarged Cellar Well received water source sensitivity scores of 8 and Handcart Trail #1 received a sensitivity score of 10. The wells received high scores for aquifer sensitivity because they were completed in an unconfined alluvial aquifer. In addition, the 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. The Mormon Handcart Visitors Center Well Handcart Trail #1 scores high for land use susceptibility because much of the land surrounding the water source is irrigated cropland and thus susceptible to agricultural related contaminants. Cellar Well #1 and ENL Cellar Well #1 both scored medium for land use susceptibility, because even though the land use contaminant ratings were low, the wells intake ratings were high resulting in the overall rating of medium. The overall point source contaminant susceptibility rating is low due to the lack of potential point 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 MHVC Visitors Center
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