

**SOURCE WATER ASSESSMENT
EXECUTIVE SUMMARY
FOR
Buffalo Valley Water District**

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 Buffalo Valley Water District

PWS Source Water Assessment Summary

The Buffalo Valley Water District water facility is a community groundwater system in northern Teton County. The system serves approximately 50 people per day through 21 service connections on a year round basis. Facilities include one storage tank and the distribution system. The system scored medium for combined integrity and aquifer sensitivity. The district scored high with respect to land use susceptibility and low for point source susceptibility. The sources also received a low score of transportation corridor susceptibility.

Delineation Methods

This water system is a community system that draws water from fractured rock formations. Hydrogeologic mapping methods were implemented to estimate the 2-year and 5-year time of travel zones for the groundwater flow system.

Hydrogeologic mapping techniques use surface observations in combination with subsurface geologic and hydrogeologic data to identify aquifer boundaries and areas that contribute water to the aquifer. These techniques were used when a PWS's source was derived from a spring, fractured bedrock, or from a limestone or dolomite aquifer. Conduit flow aquifers have extremely variable flow patterns and rates, making the calculation of time of travel difficult. In some instances, only one contaminant inventory zone was identified beyond Zone 1 due to the inherent difficulty in attempting to assign a particular time of travel to a given area. Because of this issue, aquifer vulnerability mapping techniques were also used as part of the hydrogeologic mapping effort to identify and delineate vulnerable areas. These areas (faults, fractures, exposed bedrock, etc.) are anticipated to be more susceptible to the rapid infiltration of contaminants released at the ground surface.

Groundwater Sources

The Buffalo Valley Water District draws water from an unnamed sandstone formation and the Bacon Ridge Sandstone. Recharge to the wells occurs as infiltrating precipitation and surface water from the surrounding drainage basin. Groundwater flow is generally from northeast to southwest through conduit flow. 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 hydrogeologic mapping methods. Zone 2 encompasses the immediate surface water drainage basin into the wells. Zone 3 encompasses the glacial deposits, Haraball sandstone, and Bacon Ridge Sandstone, terminating the Haraball on the surface water divide on the north near Lava Creek, the east was terminated at a surface water divide.

Integrity Summary

The Buffalo Valley Water District uses two wells that are approximately 93 and 155 feet deep to supply water. The Enl. Buffalo Valley #2 well was constructed between 1983 and 1993 when moderately strict construction standards were required by the State of Wyoming. The Buffalo Valley #3 well was constructed after 1993 under more stringent requirements. Records show that the wells were properly sealed to protect against surface infiltration of potential contaminants and flooding around the wellhead. Both wells, however, lack protection of the vicinity immediately around the wellhead from contaminant sources. Therefore, as shown on the Integrity Summary Table, Enl. Buffalo Valley #2 well received a score of 3 and Buffalo Valley #3 well received a score of 2.

Water Source Sensitivity Summary

The Buffalo Valley Water District uses two wells that draw water from an unnamed sandstone formation and the Bacon Ridge Sandstone formation which is a fractured aquifer. As shown on the Source Sensitivity Summary Table, the wells received a sensitivity score of 10. The wells received a high score for two reasons. First, the wells are completed in an aquifer that is known to be vulnerable to contamination because of the high velocities associated with conduit flow. Second, the wells scored 5 for chemical sensitivity due to documented detections in groundwater.

Water System Susceptibility Rating

Susceptibility is defined as the potential for a public water supply to draw water contaminated at concentrations that would pose a threat or concern to human health. In general, the Buffalo Valley Water District scores high for land use susceptibility because much of the land surrounding the water sources is forested and used for various purposes. Forested areas were included to evaluate the potential risks of increased runoff and water quality problems following forest fires. The overall point source contaminant susceptibility rating is low due to the lack of contamination sources being present within the delineated zones. The wells were assigned a low susceptibility for Zone 3 state highway types of transportation corridor contaminants. 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 Buffalo Valley Water District
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