

**SOURCE WATER ASSESSMENT
EXECUTIVE SUMMARY
FOR
Bighorn NF Burgess Ranger Station**

June 30, 2004

PROJECT: 424-001

ASSESSMENT COMPLETED BY: TRIHYDRO CORPORATION

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SOURCE WATER ASSESSMENT SUMMARY FOR Bighorn NF Burgess Ranger Station

PWS Source Water Assessment Summary

The Burgess Ranger Station is a non-community groundwater system located in Sheridan County. The system serves 20 people through 15 service connections. Facilities include one well, two storage tanks and the distribution system. The water source scored low with respect to integrity and high with respect to source sensitivity. The Ranger Station scored high for land use susceptibility and low for point source contaminant susceptibility.

Delineation Methods

This water system is a non-community system that draws water from a fractured igneous formation. 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 Bighorn National Forest Burgess Ranger Station draws water from one well that is approximately 98 feet deep. The well draws water from Plutonic Rock. Recharge for the well originates as infiltrating precipitation and surface water from the immediate surface water drainage, reaching the well through conduit flow. Additional information on this well is included on the attached Source Water Information Sheet. As shown on the enclosed source water area delineation map, contaminant inventory zones 2 and 3 are combined and delineated using hydrogeologic mapping methods. Zone 2 boundaries follow a surface water divide to the west, an unnamed fault to the north, and to the east and south an elevation approximately equal to well depth.

Integrity Summary

Bighorn National Forest Burgess Ranger Station uses one well to supply it water. The well was constructed after 1993 when more stringent construction standards were required by the State of Wyoming. Records indicate that the well was properly sealed to protect from surface infiltration of potential contaminants and flooding around the wellhead. Therefore, as shown on the Integrity Summary Table; Burgess Ranger Station Well #1 received a low score of 1.

Water Source Sensitivity Summary

The Bighorn National Forest Burgess Ranger Station draws water from one well that draws water from fractured Plutonic Rocks. As shown on the Source Sensitivity Summary Table, the well received a sensitivity score of 10. The well received a high score for two reasons. First, the well is completed in an aquifer that is known to be vulnerable to contamination because of the high velocities associated with conduit flow. Second, the well scored the highest score of 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 Bighorn National Forest Burgess Ranger Station scores high for land use susceptibility because much of the land surrounding the water sources is forested. 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.

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 Bighorn NF Burgess Ranger Station
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