

WYOMING WATER ASSESSMENT AND PROTECTION PROGRAM (SWAP)



SOURCE WATER ASSESSMENT PROGRAM EXECUTIVE SUMMARY

Source Water Assessment Prepared For:
Bighorn NF Shell Falls Int St

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SOURCE WATER ASSESSMENT SUMMARY FOR Bighorn NF Shell Falls Int St

PWS Source Water Assessment Summary

The Big Horn National Forest Shell Falls Interpretive Site is classified as a transient non-community groundwater supply. The facility supplies water to a population of 1,500 people annually. Source water for this facility is obtained from a spring that emerges from landslide deposits in the Big Horn Mountains.

In general, the interpretative site water source rated high for land use. The high rating occurred because the land surrounding the water source is forested. There are no point source or transportation corridor contaminant sources within the source water area of this spring.

Delineation Methods

This water system is a transient non-community system that draws water from a spring. Hydrogeologic mapping techniques were consequently used to identify the source water area.

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 Shell Falls Interpretation Site draws water from one spring. The spring is sourced from landslide deposits that overlie the Bighorn Dolomite. Recharge to the spring originates as infiltrating precipitation and surface water from the immediate drainage basin. Additional information on this spring is included on the attached Spring 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 includes the landslide deposits within the drainage. Zone 3 includes the immediate unnamed drainage upgradient of the spring and terminates on the east and west at hydrologic divides.

Integrity Summary

Shell Falls Spring was improved prior to 1983, when more stringent construction standards were not required by the State of Wyoming. Records indicate that access to the spring is restricted but the spring has not been properly enclosed to protect against the surface infiltration of potential contaminants. As shown on the Integrity Summary Table, the spring received an integrity score of 8. This score was primarily due to the fact that the spring improvements were completed before 1983, that the intake has not been screened, and that the intake is not regularly inspected.

Water Source Sensitivity Summary

As shown on the Source Sensitivity Summary Table, the spring received a sensitivity score of 10.

This spring received the maximum sensitivity score for two reasons. The first reason is because springs are closely connected to surface waters which are known to be vulnerable to various types of contamination. The second reason is that laboratory analysis of water samples from the site within the last five years detected contaminants that are listed on EPA's primary and secondary drinking water standards. These included nitrate and total coliform. Despite detection, these contaminants were detected at concentrations below the EPA's maximum contaminant levels.

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 interpretative site scores high for land use susceptibility because the land surrounding the water source is forested. There are no point source or transportation corridor contaminant sources in any of the zones contributing to this spring. 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 Bighorn NF Shell Falls Int St
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