

WYOMING WATER ASSESSMENT AND PROTECTION PROGRAM (SWAP)



SOURCE WATER ASSESSMENT PROGRAM EXECUTIVE SUMMARY

Source Water Assessment Prepared For:
Brooks Lake Lodge

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SOURCE WATER ASSESSMENT SUMMARY FOR Brooks Lake Lodge

PWS Source Water Assessment Summary

The Brooks Lake Lodge water system is classified as a non-community groundwater supply. The facility is situated within the Shoshone National Forest about 23 miles northwest of Dubois on U.S. Highways 26/287. The Lodge is situated in a valley between the Pinnacle Buttes and the Wind River Mountains. The facility provides water to three year round residents, and during the season, to approximately 46 staff members and guests. Source water for this facility is obtained from Lodge Spring which emerges from the Aycross Formation. Water from the spring is piped down the hillside to a filtration system before entering a 12,000 gallon storage tank. The stored water is pumped to distribution on demand with five-hydropneumatic tanks providing system pressure. No further treatment or disinfection is currently provided.

In general, the Brooks Lake Lodge water source rates high for land use. The high rating occurred because much of the land surrounding the water sources is forest. There are no point or line source susceptibility features in the area.

Delineation Methods

The Brooks Lake Lodge maintains a non-community water system that obtains its water supply from a spring that emerges from fractured bedrock. Hydrogeologic mapping techniques were consequently used to identify the source water area for the spring.

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

Lodge Spring is located upstream from Brooks Lake and just east of Sublette Peak. Recharge for the spring originates as infiltrating precipitation on volcanic rock outcrops to the south and west and flows southeastward to the spring through fracture flow conditions. Additional information on this spring is included on the enclosed Spring Information Sheet.

As shown on the attached source water area map, contaminant inventory zones were developed to encompass those areas most likely to contribute water to the spring. Zone 2 includes areas to the south and west of the spring below Sublette Peak and east of the surface drainage divide.

Zone 3 extends to the west and south of Zone 2.

Integrity Summary

Brooks Lake Lodge obtains its source water from Lodge Spring. The spring was improved between 1983 and 1993, when more stringent construction standards were required by the State of Wyoming. Records indicated that the spring was properly enclosed to protect against the infiltration of potential contaminants, but also indicated that access to the spring was unrestricted and not inspected on a regular basis. As shown on the Integrity Summary Table, the spring received an integrity score of 6. This score is primarily due to the fact that the spring was improved between 1983 and 1993, left unrestricted, and is not inspected regularly.

Water Source Sensitivity Summary

Brooks Lake Lodge uses water from Lodge Spring. As shown on the Source Sensitivity Summary Table, the spring received a sensitivity score of 5. This source received this score because springs are closely connected to surface waters which are known to be vulnerable to various types of contamination.

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, Brooks Lake Lodge scores high for land use susceptibility because much of the land surrounding the water sources is forest. There are no point or line source susceptibility features in the area. Susceptibility ratings for each type of potential contaminant source are summarized on the attached susceptibility tables.

**POINT SUSCEPTIBILITY SUMMARY TABLE
FOR Brooks Lake Lodge
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