WYOMING WATER ASSESSMENT AND PROTECTION PROGRAM (SWAP)

SOURCE WATER ASSESSMENT PROGRAM EXECUTIVE SUMMARY

Source Water Assessment Prepared For:
Boysen SP Lower Wind River Campground

Assessment Completed By:
Lidstone and Associates, Inc.
Engineering, Geology & Water Resource Consultants
4025 Automation Way, Building E
Fort Collins, CO 80525

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CRYSTAL - SourceWaterAssessmentSUMMARY.rpt

SOURCE WATER ASSESSMENT SUMMARY
FOR Boysen SP Lower Wind River Campground

PWS Source Water Assessment Summary

The Lower Wind River Campground water system is classified as a transient non-community groundwater supply. The facility is located on the east side of Boysen Reservoir approximately 15 miles north of the Town of Shoshoni along U.S. Highway 20. This facility provides only drinking water to eleven water hydrants that are available throughout the picnic and camping area. Source water for this facility is obtained from the alluvial aquifer along the Wind River.

The Lower Wind River Campground scores high for land use susceptibility because the land surrounding the water source is forested. The Campground should also be aware that a state highway crosses through Zones 2 and 3.

Delineation Methods

Because the Boysen State Park Lower Wind River Campground is classified as a transient non-community groundwater system and obtains water from a porous sand and gravel aquifer, Lidstone delineated the source water area for this system using calculated fixed radius (CFR) methods. This method was used to estimate the two and five year time of travel radii for the groundwater system based on data obtained from the Wyoming SEO, the PWS sanitary survey, and the SWAP guidance document.

The CFR method is appropriately used when groundwater flow to the well 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. The CFR calculation, $r = [(Qt)/(\pi nH)]1/2$ (FS), requires discharge (Q) during a period of time (t), aquifer porosity (n), and length of the well's open interval (H), to determine the radius (r) of a cylinder containing the volume of water discharged from the well during a chosen time period. A factor of safety 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 from which groundwater (and contaminants) can reach the well over a specified time period. Input data requirements are limited, consisting of the pumping rate, open area (screened interval) of the well, porosity of the aquifer, and the selected time of travel (two years and five years).

Groundwater Sources

The Campground obtains its source water from one well that is completed in an alluvial aquifer to a depth of 100 feet. Recharge to the alluvial aquifer occurs through the direct infiltration of precipitation and from the Wind River. Groundwater reaches the wells through porous media flow. Additional information on this well is included on the attached Well Information Sheet.

As shown on the enclosed source water area map, the contaminant inventory zones for this well are centered around the wellhead. Zone 2 extends approximately 458 feet radially from the wellhead, while Zone 3 extends about 724.

Integrity Summary

The Lower Wind River Campground uses one well for the system. The well, Lower Wind River Well #1, was constructed before 1983, when more stringent construction standards were not required by the State of Wyoming. Records show that the wellhead is accessible and not protected from flooding. As shown on the Integrity Summary Table, the well received a score of 5, which is a direct reflection of the well completion date, lack of flood protection, and wellhead accessibility.

Water Source Sensitivity Summary

The Campground uses one shallow alluvial well to obtain its source water. As shown on the Source Sensitivity Summary Table, the well received a sensitivity score of 10.

This well received the maximum sensitivity score for two reasons. First, the alluvial aquifer is known to be vulnerable to contamination. The second reason is that laboratory analysis of water samples from the campground within the last five years detected a contaminant that is listed on EPA's primary and secondary drinking water standards, nitrate. Despite detection, this contaminant was 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. The Lower Wind River Campground scores high for land use susceptibility because the land surrounding the water source is forested. Because a state highway crosses through Zones 2 and 3, the well was assigned a high transportation corridor contaminant rating for Zone 2. 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 Boysen SP Lower Wind River Campground

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