

WYOMING WATER ASSESSMENT AND PROTECTION PROGRAM (SWAP)



SOURCE WATER ASSESSMENT PROGRAM EXECUTIVE SUMMARY

Source Water Assessment Prepared For:
Medicine Bow NF Lakeview CG

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



June 30, 2004

SOURCE WATER ASSESSMENT SUMMARY FOR Medicine Bow NF Lakeview CG

PWS Source Water Assessment Summary

The Medicine Bow National Forest Lakeview Campground is a transient non-community water system consisting of a single well. Water from the well is pumped to a 1,000 gallon plastic water tank and distributed to six hydrants for use by campers. The tank is housed and situated to allow gravity flow throughout the system. A control panel in the tank house controls the well pump to maintain a constant and suitable level in the tank.

In general, the Lakeview Campground water source rated low for land use in Zones 1 and 2 but rated high in Zone 3. The overall point source contaminant susceptibility rating is low due to the lack of contamination sources being present within the delineated zones.

Delineation Methods

The Medicine Bow National Forest Lake View Campground is a non-community water system that obtains groundwater from fractured bedrock. Lidstone delineated the source water area for this PWS using a combination of CFR and hydrogeologic mapping methods. The CFR method was used to determine Zone 2, while hydrogeologic mapping methods were used to delineate Zone 3.

The CFR is an appropriate method to use when groundwater flow to the well, spring or tunnel 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. 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 where groundwater (and contaminant) 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 (2 years and 5 years).

Hydrogeologic mapping techniques use surface observations in combination with subsurface geologic and hydrogeologic data to identify aquifer boundaries and areas that may contribute water to the aquifer. Mapping 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, the entire aquifer may be delineated as the source water area if groundwater flow divides cannot be identified. Aquifer vulnerability mapping techniques were also used as part of the hydrogeologic mapping effort. Hydrogeologic mapping to identifies vulnerable areas (faults, fractures, exposed bedrock, etc.) where groundwater within the aquifer may be more susceptible to the rapid infiltration of contaminants released at the ground surface.

Groundwater Sources

The Campground is supplied water by a single well. The well is set approximately 946 feet into

granitic bedrock. Recharge reaches the well by fractured flow and originates as precipitation and surface water within the surrounding drainage basin. Additional information on this well is included on the attached Well Information Sheet.

As shown on the enclosed source water area delineation map, contaminant inventory zones for this well were delineated to encompass the drainage areas surrounding Hog Park Reservoir. Zone 2 extends approximately 1,230 feet radially from the well. Zone 3 encompasses the Hog Park Creek drainage as well as the South Fork of the Encampment River drainage to the Wyoming stateline.

Integrity Summary

The Medicine Bow National Forest Lakeview Campground uses one Granitic Aquifer well to supply water to its system. The well, Lake View #1, was constructed between 1983 and 1993, when more stringent construction standards were required by the State of Wyoming. Records also indicate that the well was properly sealed to protect against surface infiltration of potential contaminants but was missing an annular seal. As shown on the Integrity Summary Table, the well received a low score of 4. This score reflects the wells completion date, wellhead accessibility, and missing annular seal.

Water Source Sensitivity Summary

The Lakeview Campground obtains water from the granitic rocks of the 1700Ma age group which is known to have fracture flow characteristics. 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. 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 generally 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, Lakeview Campground scores low for land use susceptibility in Zones 1 and 2 but scores high in Zone 3 because a majority of Zone 3 is within forested land. The overall point source contaminant susceptibility rating is low due to the lack of contamination sources being present within the delineated zones. 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 Medicine Bow NF Lakeview CG
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