WYOMING WATER ASSESSMENT AND PROTECTION PROGRAM (SWAP)

SOURCE WATER ASSESSMENT PROGRAM EXECUTIVE SUMMARY

Source Water Assessment Prepared For:
WYDOT Diversion Dam RA

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SOURCE WATER ASSESSMENT SUMMARY
FOR WYDOT Diversion Dam RA

PWS Source Water Assessment Summary

The Wyoming Department of Transportation (WYDOT) Diversion Dam Rest Area water system is a non-community, ground-water supply that is located about 38 miles east of Dubois on U.S. Highways 26/287. The water system provides water for a caretaker's residence and a tourist population that averages 150 people per day through three service connections year round. Source water for this facility is obtained from a well that is completed in the Wind River Formation. Water is pumped as needed to distribution. This water is used both for potable water consumption at the Rest Area / Residence and for lawn watering. Disinfection is practiced at this facility.

The WYDOT Diversion Dam Rest Area scores medium for land use susceptibility in Zone 1 because much of the land surrounding the water sources is forest. For Zones 2 and 3 were assigned low rating for land use contaminants despite the fact that much of the land is classified as irrigated cropland. WYDOT should also be aware that a state highway crosses through the source water area of the well.

Delineation Methods

Because the WYDOT rest area is classified as a transient non-community groundwater system and obtains water from a porous sandstone 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 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 (FS) 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).

Groundwater Sources

The rest area obtains groundwater for its supply from one well that is completed to a depth of 178 feet. This well obtains water from saturated sandstone beds of the Wind River Formation. Recharge to the Wind River Formation occurs through the direct infiltration of precipitation on outcrops. Groundwater flows through these sandstone beds to the well under confined artesian conditions through porous media. Additional information on this well is available on the enclosed 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 1,930 feet radially from the wellheads, while Zone 3 extends approximately 3,050 feet.

Integrity Summary

The Wyoming Highway Department's (WYDOT) Diversion Dam Rest Area Water System is a non-community, groundwater supply. The Bull Lake Cr. #1 well was constructed between 1983 and 1993, when more stringent construction standards were required by the State of Wyoming. Records show that the well was properly sealed to protect against surface infiltration of potential contaminants. As shown on the Integrity Summary Table, Bull Lake Cr. #1 received a score of 3 reflecting the well completion date and wellhead accessibility.

Water Source Sensitivity Summary

The WYDOT Diversion Dam Rest Area Water System is a non-community, ground-water supply obtains its source water for this facility from a well that is completed in the Wind River Formation which is a confined aquifer. As shown on the Source Sensitivity Summary Table, the wells received a sensitivity score of 1. The well had a low score of 1 for aquifer sensitivity because they draw water from a confined aquifer through porous media flow.

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 WYDOT Diversion Dam Rest Area scores medium for land use susceptibility in Zone 1 because much of the land surrounding the water sources is forest. Zones 2 and 3 received a low rating despite the fact the much of the surrounding area is classified as irrigated cropland. Because a state highway crosses through Zones 2 and 3, the well was assigned a medium susceptibility rating for Zone 2 and a low susceptibility for Zone 3 for transportation corridor contaminants. Susceptibility ratings for each type of potential contaminant source are summarized on the attached susceptibility tables.

POINT SUSCEPTIBILITY SUMMARY TABLE
FOR WYDOT Diversion Dam RA

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