WYOMING WATER ASSESSMENT AND PROTECTION PROGRAM (SWAP)

SOURCE WATER ASSESSMENT PROGRAM EXECUTIVE SUMMARY

Source Water Assessment Prepared For:
Bighorn NF Tyrrell Work Center

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June 30, 2004

CRYSTAL - SourceWaterAssessmentSUMMARY.rpt

SOURCE WATER ASSESSMENT SUMMARY
FOR Bighorn NF Tyrrell Work Center

PWS Source Water Assessment Summary

The Bighorn National Forest Tyrrell Work Center maintains a transient non-community groundwater system that supplies water to a population of 30. Source water for this facility is obtained from one well that is completed in glacial deposits.

The Bighorn National Forest Tyrrell Work Center scores medium for land use susceptibility because the land surrounding the well is forest.

Delineation Methods

Because the Tyrrell Work Center is classified as a transient non-community groundwater system and obtains water from a porous media 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.

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 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 Work Center obtains its source water from one well that is completed in glacial deposits to a depth 240 feet. Recharge to these deposits occurs through the direct infiltration of precipitation. Groundwater reaches the well 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 820 feet radially from the wellheads, while Zone 3 extends approximately 1,295 feet.

Integrity Summary

The Bighorn National Forest Tyrrell Work Center uses one well to supply the system. The well, Tyrrell Ranger Station, was constructed after 1993, when stringent construction standards were required by the State of Wyoming. However, records show that the well was properly sealed to protect against surface infiltration of potential contaminants and flooding around the wellhead. As shown on the Integrity Summary Table, the well received a low score of 1, which is a direct reflection of the well completion date.

Water Source Sensitivity Summary

The Bighorn National Forest Tyrrell Work Center uses one well to supply its water. The well draws water from confined glacial material. As shown on the Source Sensitivity Summary Table, the well received a sensitivity score of 6.

This well received a sensitivity score of 6 for two reasons. First, the confined aquifer is less vulnerable to contamination. The second reason is that laboratory analysis of water samples from the Work Center within the last five years detected a few contaminants that are listed on EPA's primary and secondary drinking water standards. These include 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. The Bighorn National Forest Tyrrell Work Center scores medium for land use susceptibility because the land surrounding the well is forest. 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 Bighorn NF Tyrrell Work Center

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