

WYOMING WATER ASSESSMENT AND PROTECTION PROGRAM (SWAP)



SOURCE WATER ASSESSMENT PROGRAM EXECUTIVE SUMMARY

Source Water Assessment Prepared For:
Dubois

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SOURCE WATER ASSESSMENT SUMMARY FOR Dubois

PWS Source Water Assessment Summary

The Town of Dubois Water facility is a community system located about 78 miles northwest of Riverton on U.S. Highway 26. The system provides water to a year-round population of 1,067 people through 450 service connections. Because of its location on a major travel route to Grand Teton and Yellowstone National Parks, the summer population exceeds this number on a daily basis. Source water for the facility is obtained from four alluvial aquifer wells. While Well #8 pumps directly to storage, the other three wells pump to the distribution grid then to storage tank that floats on the system. Two storage tanks that can hold 400,000 and 250,000 gallons, respectively, complete the facility.

In general, the Town's water wells received high susceptibility ratings for land use, point source, and transportation corridor contaminants. Scores for land use susceptibility were rated high because much of the land surrounding the water sources is urban, irrigated cropland, or forest. The presence of underground storage tanks, storage tanks, solid/hazardous waste sites, and oil and gas wells within Zones 2 and 3 resulted in a high point source contaminant susceptibility. Because a state highway runs through all three zones, the wells were assigned a high susceptibility for the transportation corridor contaminants.

Delineation Methods

The Town of Dubois maintains a community water system that obtains its water supply from highly permeable alluvial deposits. Lidstone reviewed the existing source water delineation that was completed by Rinehart and Edgar in 1999. Because it was generally completed in accordance with SWAP guidelines, Zone 2 from that report was directly incorporated into this assessment. Zone 3 was delineated using hydrogeologic mapping techniques in accordance with Rinehart and Edgar's conclusions regarding watershed vulnerability.

Hydrogeologic mapping techniques were used to modify maps from the previous delineation. This method uses 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 to amend Zone 3 beyond the valleys that Rinehart and Edgar illustrated in their report.

Groundwater Sources

Dubois four wells obtain groundwater for the Town from very permeable alluvial and terrace deposits that are associated with Horse Creek and the Wind River. These wells are completed to depths ranging from 55 to 84 feet. The alluvial aquifer consists of sufficiently saturated portions of unconsolidated sand and gravel deposits that are highly permeable in this area. Recharge to this aquifer occurs through the direct infiltration of precipitation and through stream losses along the river channels and irrigation ditches. Groundwater generally flows southeastwardly and reaches the wells through porous media flow. Additional information on Dubois four wells is contained on the attached Well Information Sheets.

As shown on the attached source water area delineation maps, contaminant inventory zones for Dubois' wells were developed to encompass those areas most likely to contribute water to the alluvial aquifer. Rinehart and Edgar delineated Zone 2 using vulnerability mapping techniques to include areas immediately adjacent to and upgradient from each of the Town's wells. Zone 3 extends beyond Zone 2 to the watershed boundaries upstream from each of the four wells.

Integrity Summary

The Town of Dubois obtains its source water from four wells. Dubois #6-#8 were constructed prior to 1983, when less stringent construction standards were required by the State of Wyoming, but Dubois #10 was constructed after 1993 when stringent standards were required. While records indicated that all four wells were properly sealed to protect against surface infiltration of potential contaminants, only Dubois #8 and #10 are protected from flooding. As shown on the Integrity Summary Table, Dubois #8 received an integrity score of 3, Dubois #10 received a score of 2, and Dubois #6 and #7 each received a score of 4. Dubois #6 and #7 received slightly higher scores because they are not protected from flooding. Although completed after 1993, Dubois #10 received a score of 2 because it is reportedly unprotected.

Water Source Sensitivity Summary

Dubois obtains its source water from four shallow alluvial wells that are completed to depths of less than 85 feet. As shown on the Source Sensitivity Summary Table, each well received a sensitivity score of 10.

These wells received the maximum sensitivity score for two reasons. First, the alluvial aquifer is known to be vulnerable to contamination and in hydrologic communication with the Wind River. The second reason is that laboratory analysis of water samples from the Town within the last five years detected several contaminants that are listed on EPA's primary and secondary drinking water standards. These included nitrate, sulfate, arsenic, and 1,1,1-Trichloroethane among others. 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. In general, the Town of Dubois scores high for land use susceptibility because much of the land surrounding the water sources is urban, irrigated cropland, or forest. The presence of underground storage tanks, storage tanks, solid hazardous waste sites, and oil and gas wells within Zones 2 and 3 resulted in a high point source contaminant susceptibility for Zone 2 and a medium rating for Zone 3. Because many of these point sources in Zone 3 are located miles from the wells, the overall vulnerability of the wells to these contaminants may be lower than indicated by the ratings. Because a state highway runs through all three zones, the wells were assigned a high susceptibility for the transportation corridor contaminants in Zones 1 and 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 Dubois
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
Wastewater Discharge	N/A	12	16
Underground Tank	N/A	64	196
Underground Injection	N/A	12	N/A
Storage Tank	N/A	12	N/A
Sol/Haz Waste Site	N/A	4	12
Oil & Gas Well	N/A	24	N/A

- * Illustrates the number of PSOCs in a particular rating class for all water sources
- * N/A - Not Applicable