

WYOMING WATER ASSESSMENT AND PROTECTION PROGRAM (SWAP)



SOURCE WATER ASSESSMENT PROGRAM EXECUTIVE SUMMARY

Source Water Assessment Prepared For:
Juniper Park Water Assn

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SOURCE WATER ASSESSMENT SUMMARY FOR Juniper Park Water Assn

PWS Source Water Assessment Summary

The Juniper Park Subdivision water system is classified as a community groundwater supply, and is located southwest of Lander off Sinks Canyon Road. The water facility provides untreated groundwater to a rural resident population of 36 through 15 service connections year round. Source water for this subdivision is obtained from a flowing artesian well that is completed in the Tensleep Sandstone. Water from the well flows directly to distribution and three pressure reducing valves are used to reduce the 160-pound wellhead pressure to maintain distribution system pressure. No water treatment or disinfection is provided.

This source water assessment generally revealed that the well is susceptible to land use and point source contaminants. The subdivision received high susceptibility ratings for land use because much of the source water area is forested. The well was also assigned a medium susceptibility rating for point source contaminants due to the presence of two underground injection points. The overall susceptibility rating for transportation corridor contaminants is low. The following report details the source water area delineation and susceptibility analysis for the subdivision.

Delineation Methods

The subdivision maintains a community water system that obtains its water supply from porous and/or fractured bedrock. Hydrogeologic mapping techniques were consequently used to identify source water areas for the wells.

Hydrogeologic mapping techniques use 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 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, only one contaminant inventory zone was identified beyond Zone 1 due to the inherent difficulty in attempting to assign a particular time of travel to a given area. Because of this issue, aquifer vulnerability mapping techniques were also used as part of the hydrogeologic mapping effort to identify and delineate vulnerable areas. These areas (faults, fractures, exposed bedrock, etc.) are anticipated to be more susceptible to the rapid infiltration of contaminants released at the ground surface.

Groundwater Sources

The Juniper Park Water Association obtains its source water from a flowing artesian well that is completed in the Tensleep Sandstone to a depth of 1,560 feet on the northeastern homoclinal flank of the Wind River Mountains. Recharge for the well originates as infiltrating precipitation and stream losses on Tensleep Sandstone outcrops to the southwest. The aquifer may also be recharged through hydraulic communication with the underlying Madison Limestone and Bighorn Dolomite. Groundwater flows to the well under artesian conditions through fracture and/or porous media flow. Additional information on this well is included on the enclosed Well

Information Sheet.

As shown on the attached source water area map, contaminant inventory zones for this well were developed to encompass those areas most likely to contribute water to the Tensleep Formation. Zone 2 includes outcrops of the Tensleep, Madison, and Bighorn Formations between groundwater divides that lie along the north and middle forks of the Popo Agie River. Zone 3 encompasses the drainage areas to the northwest of the well site that divert surface water and precipitation runoff across outcrops of these three formations to the northeast.

Integrity Summary

The Juniper Park Subdivision water system is classified as a community groundwater supply. The well was constructed after 1993 when 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 and flooding around the wellhead. As shown on the Integrity Summary Table, the Hallett # 4 well received a score of 1 due to the well completion date.

Water Source Sensitivity Summary

The Juniper Park Subdivision water system obtains source water for this subdivision from a flowing artesian well that is completed in the Tensleep Sandstone. As shown on the Source Sensitivity Summary Table, the well a received sensitivity score of 10.

The well received the maximum sensitivity score for two reasons. First, the well is completed in a fractured aquifer known to be vulnerable to contamination. The second reason is that laboratory analysis of water samples within the last five years detected several contaminants that are listed on EPA's primary and secondary drinking water standards. These included nitrate, sulfate, gross beta, and gross alpha. 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, Juniper Park received high susceptibility for land use much of the land in the recharge area of the Tensleep Aquifer in the Wind River Mountains is forested. The overall vulnerability of this well to this land type may be lower than it appears due to the depth of this well and the confined condition of the Tensleep Aquifer in this area. The well was also assigned a medium susceptibility rating for point source contaminants due to the presence of two underground injection points in Zone 3. The overall susceptibility rating for transportation corridor contaminants is low due to the lack of contamination sources within the source water area. 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 Juniper Park Water Assn
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
Underground Injection	N/A	2	N/A

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