

**SOURCE WATER ASSESSMENT
EXECUTIVE SUMMARY
FOR
Pine Haven**

June 30, 2004

PROJECT: 424-001

ASSESSMENT COMPLETED BY: TRIHYDRO CORPORATION

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SOURCE WATER ASSESSMENT SUMMARY FOR Pine Haven

PWS Source Water Assessment Summary

Pine Haven is a community groundwater system located in Cooke County. The system serves 213 people through 133 service connections. Facilities include one well and the distribution system. The water source scored high with respect to the combined integrity and source sensitivity ratings. Pine Haven scored high for land use susceptibility and low for point source contaminant susceptibility.

Delineation Methods

This water system is a community system that draws water from a porous sedimentary formation. Groundwater modeling methods were implemented to estimate the 2-year and 5-year time of travel capture zones for the groundwater flow system. The model used well information in the SEO database and aquifer parameters were similar to those reported by the Water Resources Research Institute Study of groundwater in the Powder River Basin.

U.S. EPA's Wellhead Analytic Element Model or WhAEM method was used for community water systems that derive their sources from alluvial or shallow bedrock aquifers. The WhAEM model uses well and limited hydrogeologic data to estimate time-of-travel capture zones in relatively simple hydrogeologic settings for either confined or unconfined aquifers. For the source water assessment, the WhAEM model was used to develop two year and five year groundwater capture zones. Due to this methodology, the delineated source water areas may be larger than the true capture zones for each well. However, use of this method typically results in source water protection areas that can be used to more reliably protect the water supply.

Groundwater Sources

Pine Haven draws water from the sandstone units within the Newcastle Formation. Recharge to the well occurs in the outcrops of the Newcastle Formation through porous media flow under artesian conditions generally from southeast to northwest. 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 2 and 3 were delineated using WhAEM methods. Zones 2 and 3 represent 2-year and 5-year groundwater travel times, respectively. The capture zones extend southeast from the wellhead.

Integrity Summary

Pine Haven uses one well that is approximately 717 feet deep to supply its water. The well was constructed prior to 1983 when less stringent construction standards were required by the State of Wyoming. Records indicate that the well may not be properly sealed to protect against surface infiltration of potential contaminants and flooding around the wellhead. Also, records show that the well lacks proper protection in the vicinity immediately around the wellhead from contaminant sources and lacks adequate flood protection. Therefore, as shown on the Integrity Summary Table, the well received a score of 11.

Water Source Sensitivity Summary

As shown on the Source Sensitivity Summary Table, the well received a sensitivity score of 6. The well received a score of 1 for aquifer sensitivity because it draws water from a confined aquifer through porous media flow. The well received a score of 5 for chemical sensitivity due to documented chemical detections in the groundwater.

Water System Susceptibility Rating

Susceptibility is defined as the potential for a public water supply to draw contaminated water at concentrations that would pose a threat or concern to human health. In general, Pine Haven scores high for land use susceptibility because the land surrounding the well is forested. Forested areas were included to evaluate the potential risks of increased runoff and water quality problems following forest fires. Due to the lack of contamination sources being present within the delineated zones, the overall point source contaminant susceptibility rating is low.

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 Pine Haven
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