WYOMING WATER ASSESSMENT AND PROTECTION PROGRAM (SWAP)

SOURCE WATER ASSESSMENT PROGRAM EXECUTIVE SUMMARY

Source Water Assessment Prepared For:
Winchester Hills Utility Co

Assessment Completed By:
Lidstone and Associates, Inc.
Engineering, Geology & Water Resource Consultants
4025 Automation Way, Building E
Fort Collins, CO 80525

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SOURCE WATER ASSESSMENT SUMMARY
FOR Winchester Hills Utility Co

PWS Source Water Assessment Summary

The Winchester Hills water facility is a community system that is located about five miles south of Cheyenne on U.S. Highway 85. The system provides water to about 600 residents through 200 service connections on a year round basis. Source water is obtained from three wells that are completed in the White River Formation. Water is piped from each well to the pumphouse/ reatment plant where chlorine is injected for disinfection purposes. Treated water is stored in a 560,000-gallon tank and pumped to the distribution system on demand.

In general, The Winchester Hills water facility scores high for land use susceptibility because most of the land surrounding the wells is urban. However, the Winchester #2 well scored a medium on the land use susceptibility.

Delineation Methods

The Winchester Hills Utility Company maintains a community water system that obtains its source water from a porous sandstone formation. WhAEM methods were used to delineate the two and five year source water areas based on information obtained from the sanitary survey, the Wyoming SEO, and the City of Cheyenne's Wellhead Protection Plan document.

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

The facility obtains groundwater for its community supply from three wells that are completed to depths ranging from 485 to 860 feet. These wells obtain water from saturated sandstone beds of the White River Formation. Recharge to the White River Formation occurs through the direct infiltration of precipitation on outcrops. Groundwater flows through these sandstone beds to the wells under confined artesian conditions through porous media. Additional information on each of these wells is available on the enclosed Well Information Sheets.

As shown on the attached source water area map, contaminant inventory zones for the wells encompass areas immediately adjacent to the wells. Zones 2 and 3 also extend upgradient to the west. Individual differences in the shape and size of the source water areas are due to differences in well pumping rates, aquifer transmissivities, and groundwater flow directions.

Integrity Summary

The Winchester Hills water facility uses three wells to supply water to the community system. Two wells, Winchester # 1 and Rosenblum # 2, were constructed prior to 1983, when less stringent construction standards were required. Winchester # 2 was constructed after 1993 when stringent construction standards were required by the State of Wyoming. As shown on the Integrity Summary Table, the wells Winchester # 1 and Rosenblum # 2 received a low score of 3, which is a direct reflection of the well completion date. The Winchester # 2 received a score of 2 due to the later completion date and wellhead accessibility.

Water Source Sensitivity Summary

The Winchester Hills water facility obtains its source water from three wells that are completed in the White River Formation which is a confined aquifer. As shown on the Source Sensitivity Summary Table, the wells received a sensitivity score of 6. The wells had a low score of 1 for aquifer sensitivity because they draw water from a confined aquifer through porous media flow. The wells had the highest score of 5 for chemical sensitivity due to documented chemical detections in the groundwater. Some of the chemical detections included nitrate, sodium, sulfate and coliforms among others. 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 Winchester Hills water facility scores high for land use susceptibility because most of the land surrounding the wells is urban. However, the Winchester #2 well received a medium rating for land use susceptibility. 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 Winchester Hills Utility Co

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