

**SOURCE WATER ASSESSMENT
EXECUTIVE SUMMARY
FOR
Ox Yoke Ranch**

June 30, 2004

PROJECT: 424-001

ASSESSMENT COMPLETED BY: TRIHYDRO CORPORATION

1252 Commerce Drive, Laramie, WY 82070



ENGINEERING SOLUTIONS. ADVANCING BUSINESS.

Home Office | 1252 Commerce Drive | Laramie, WY 82070 | phone 307/745.7474 | fax 307/745.7729 | www.trihydro.com

SOURCE WATER ASSESSMENT SUMMARY FOR Ox Yoke Ranch

PWS Source Water Assessment Summary

The Ox Yoke Ranch is a non-community public water system located in Albany County. The system serves 10 people through 26 service connections. Facilities include well that draws water from the Sherman Granite, one steel 600 gallon water storage tank, and interconnecting transmission lines. Produced water is pumped to two service areas, with pressure tanks charging each distribution system. The lower area has just a single service connection while the upper area has 25 service connections. A 500-gallon underground storage tank serves the upper area. There are no treatment or disinfection procedures in use. The water source scored high with respect to the combined integrity and sensitivity ratings. The ranch scored high with respect to land use susceptibility and low with respect to source susceptibility.

Delineation Methods

This water system is a non-community system that draws water from a fractured igneous formation. Hydrogeologic mapping methods were implemented to estimate the 2-year and 5-year time of travel zones for the groundwater flow system.

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 Ox Yoke Ranch draws water from the Sherman Granite. Recharge to the well originates as infiltrating precipitation and surface water from the surrounding drainage basin, and reaches the well through conduit flow. 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 are delineated by hydrogeologic mapping methods. Zone 2 encompasses the outcrop of the Sherman Granite with the east boundary terminating at Heldrich Creek. Zone 3 includes the surface drainage into the formation, with the boundaries terminating on the east at Heldrich Creek, on the west at Pelton Creek and on the south at the Wyoming-Colorado border.

Integrity Summary

Ox Yoke Ranch uses one well that is approximately 65 feet deep to supply its water. The well was constructed prior to 1983 when less stringent construction standards were required by the state. Records indicate that the well was not properly sealed to protect against surface infiltration of potential contaminants and flooding around the wellhead. Therefore, as shown on the Integrity Summary Table, the well received a score of 9.

Water Source Sensitivity Summary

As shown on the Source Sensitivity Summary Table, the well received a sensitivity score of 10. The well received this score for two reasons. First, the well is completed in an aquifer that is known to be vulnerable to contamination because of the unpredictable flow paths associated with conduit flow. Second, the well received score of 5 for chemical sensitivity due to documented detections in 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, the Ox Yoke Ranch scores high for land use susceptibility because much of the land surrounding the well is forested. Due to the lack of contamination sources being present within the delineated zones, the overall point source contaminant susceptibility rating is low. The well was assigned a medium transportation corridor susceptibility score because a railroad passes through Zone 3. 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 Ox Yoke Ranch
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