

**SOURCE WATER ASSESSMENT
EXECUTIVE SUMMARY
FOR
Camp Sacajawea**

June 30, 2004

PROJECT: 424-001

ASSESSMENT COMPLETED BY: TRIHYDRO CORPORATION

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SOURCE WATER ASSESSMENT SUMMARY FOR Camp Sacajawea

PWS Source Water Assessment Summary

Camp Sacajawea is a non-community groundwater system located in Natrona County. The system serves 75 people through seven service connections. Facilities include two storage tanks, a treatment house and the interconnecting transmission system. The well supplied water sources scored medium for combined integrity and aquifer sensitivity ratings, with the spring water source scoring high for combined integrity and aquifer sensitivity ratings. The system scored high with respect to land use and high for point source susceptibility.

Delineation Methods

This water system is a non-community system that draws water from a fractured metamorphic 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

Camp Sacajawea draws water from one spring and two wells that draw water from metamorphosed mafic and ultra mafic rocks. Recharge to the aquifer originates as infiltrating precipitation and surface water from the surrounding drainage basin, and reaches the water sources via fractured aquifer flow. Additional information on the water sources is included on the attached Spring and Well Information Sheets. As shown on the enclosed source water area delineation map, contaminant inventory zones 2 and 3 were delineated by hydrogeologic mapping methods. Zone 2 encompasses the immediate surface drainage into the spring and wells. Zone 3 maps the outcrop of the metamorphosed mafic and ultra mafic rocks and includes the surface drainage, to the southeast of the wells, that drains to the formation.

Integrity Summary

Camp Sacajawea uses two wells that are approximately 160 and 62 feet deep and one spring to supply its facilities. Sacajawea #1 and the spring were constructed prior to 1983 when less stringent construction standards were required by the State of Wyoming. Sacajawea #2 was constructed between 1983 and 1993 when more stringent construction standards were required. Records show that the wells were properly sealed at the surface to protect from surface infiltration of potential contaminants. As shown on the Integrity Summary Table, Sacajawea Wells #1 and #2 received scores of 5 and 4 respectively due their well completion dates and the unrestricted access to the wellheads. The Spring scored 12 primarily due to its early construction date, lack of screening, and unrestricted access.

Water Source Sensitivity Summary

As shown on the Source Sensitivity Summary Table, the wells and spring received an aquifer sensitivity score of 10. The wells received the aquifer sensitivity score because they are screened in an aquifer that is known to be vulnerable to contamination and because of the unpredictable flow pathways associated with conduit flow. The spring received its aquifer sensitivity score because springs are more vulnerable to contamination due to unpredictable flow pathways and their proximity to the ground surface. Both sources of groundwater scored 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, Camp Sacajawea scores high for land use susceptibility because much of the land surrounding the water sources is forested. Forested areas were included to evaluate the potential risks of increased runoff and water quality problems following forest fires. The overall point source contaminant susceptibility rating is high due to the an underground injection point being located within 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 Camp Sacajawea
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	1

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