

**SOURCE WATER ASSESSMENT  
EXECUTIVE SUMMARY  
FOR  
Sand Creek Trading Post**

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**June 30, 2004**

**PROJECT: 424-001**

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**ASSESSMENT COMPLETED BY: TRIHYDRO CORPORATION**

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## **SOURCE WATER ASSESSMENT SUMMARY FOR Sand Creek Trading Post**

### **PWS Source Water Assessment Summary**

The Sand Creek Trading Post is a non-community groundwater system located in Crook County. The system serves 30 people through two service connections year-round. The system is supplied by one well that draws water through alluvium. The water is pumped into the basement of the building and pressurized through a bladder tank for distribution into the system. The water source scored high with respect to the combined integrity and aquifer sensitivity ratings. The trading post scored high with respect to land use susceptibility and low for point source susceptibility. The system also received a medium score for transportation corridor susceptibility.

### **Delineation Methods**

This water system is a non-community system that draws water from a porous sedimentary formation. Calculated fixed radius (CFR) methods were implemented to estimate the 2-year and 5-year time of travel radii for the groundwater flow system. The CFR used well information from the sanitary survey and aquifer parameters were assumed from similar type deposits.

Calculated fixed radius (CFR) is an appropriate method to use when groundwater flow to the well, spring or tunnel can be characterized as porous. This process was implemented for small communities that derive water from deeper, confined aquifers, or for non-community water systems. A factor of safety (FS) of 1.5 was applied to all systems where portions of the data were suspect. At the ground surface, the radius can be used to delineate an area around the well to be used for wellhead protection. The radius is the distance from the well to a point where groundwater (and contaminant) can reach the well over a specified time period. Input data requirements are limited, consisting of the pumping rate, open (screened interval) of the well, porosity of the aquifer, and the selected time of travel (2 years and 5 years).

### **Groundwater Sources**

The Sand Creek Trading Post draws water from the alluvium along Redwater Creek. Recharge to the alluvial aquifer comes from Redwater Creek, and reaches the well through porous media flow. Groundwater flow within the alluvium is generally from south to north. 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 using CFR methods. Zone 2 has a calculated radius of 284 feet. Zone 3 has a calculated radius of 449 feet.

## **Integrity Summary**

The Sand Creek Trading Post supplies water from one shallow well that is approximately 39 feet deep. As shown on the Integrity Summary Table, the well received an integrity score of 10. The well received the score due to being constructed before 1983, when less stringent construction standards were required by the State of Wyoming. Also, the well has no surface seal.

## **Water Source Sensitivity Summary**

As shown on the Source Sensitivity Summary Table, the well received a sensitivity score of 10. The well received the score for two reasons. First, the well is relatively shallow and draws water through porous media flow from an unconfined alluvial aquifer that is known to be vulnerable to contamination. The second reason is that there are 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, the Sand Creek Trading Post scores high for land use susceptibility because much of the land surrounding the water sources is irrigated cropland and used for various other purposes. The overall point source contaminant susceptibility rating is low due to the lack of contamination sources being present within the delineated zones. The well received a medium score with respect to transportation contaminant susceptibility because I-90 is in the proximity of the wellhead. 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](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 Sand Creek Trading Post  
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