

# WYOMING WATER ASSESSMENT AND PROTECTION PROGRAM (SWAP)



## SOURCE WATER ASSESSMENT PROGRAM EXECUTIVE SUMMARY

Source Water Assessment Prepared For:  
WYDOT Meriden RA

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 WYDOT Meriden RA**

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

The Wyoming Department of Transportation (WYDOT) Meriden Rest Area facility is transient non-community system that is located about 43 miles northeast of Cheyenne on U.S. Highway 85. It provides water for up to 400 travelers per day through five service connections. Source water for the facility is obtained from a well completed in the White River Formation. The water is piped about 1,400 feet to the Rest Area building where a series of five hydropneumatic tanks pressurize the service lines to restroom facilities, the custodian's residence, and outside hydrants. Disinfection is accomplished using hypochlorination equipment.

The WYDOT Meriden Rest Area scores low for land use susceptibility. The Meriden Rest Area should be aware of a state highway that lies inside the delineation zone.

### **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 was calculated using well information in the sanitary survey and aquifer parameters used in the calculation were similar to those reported by the Water Resources Research Institute study of groundwater in the Denver-Julesburg Basin.

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 area (screened interval) of the well, porosity of the aquifer, and the selected time of travel (2 years and 5 years).

### **Groundwater Sources**

The WYDOT Meriden Rest Area draws water from one well that is approximately 161 feet deep and draws water from sedimentary units within the White River Formation (Brule Member). Recharge to this well occurs in the outcrops of the White River Formation and generally flows to the well through porous flow from west to east. Additional information on this well is included on the attached Well Information Sheet.

As shown on the enclosed source water area maps, the contaminant inventory zones for this well are centered around the wellhead. Zone 2 extends approximately 316 feet radially from the wellhead, while Zone 3 extends approximately 500 feet.

## **Integrity Summary**

The WYDOT Meriden Rest Area facility is transient non-community system. Source water for the facility is obtained from a well completed in the White River Formation. The well, Meriden #3, was constructed between 1983 and 1993, when more stringent construction standards were required by the State of Wyoming. Records indicate the well was properly sealed to protect against surface infiltration of potential contaminants but was missing an annular seal around the casing. As shown on the Integrity Summary Table, the well received a score of 3 which reflects the well completion date and missing annular seal.

## **Water Source Sensitivity Summary**

The WYDOT Meriden Rest Area facility obtains source water for the facility from a well completed in the White River Formation. As shown on the Source Sensitivity Summary Table, the well received a sensitivity score of 10.

The well received a maximum score for two reasons. First, the well is completed in an unconfined aquifer that is porous and known to be vulnerable to contamination. Second, the well scored the highest score of 5 for chemical sensitivity due to documented detections in groundwater. These include nitrate and coliform. Despite detection, 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. The WYDOT Meriden Rest Area scores low for land use susceptibility. The well was assigned a high susceptibility for the transportation corridor contaminants because a state highway runs through all three zones. 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 WYDOT Meriden RA  
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