

# WYOMING WATER ASSESSMENT AND PROTECTION PROGRAM (SWAP)



## SOURCE WATER ASSESSMENT PROGRAM EXECUTIVE SUMMARY

Source Water Assessment Prepared For:  
Hyattville Water Company

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## **SOURCE WATER ASSESSMENT SUMMARY FOR Hyattville Water Company**

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

The Hyattville Water District is classified a community system and is located about 20 miles east of Manderson on Wyoming Highway 31. The system provides water to about 73 residents on a year round basis through 53 service connections. Source water for the facility is obtained from a flowing artesian well completed in the Madison Formation. Artesian pressure at the wellhead is sufficient to pressurize the distribution system without pumping. A 25,000 gallon storage tank completes the facility. No disinfection procedures are in use at the present time.

In general, the Town of Hyattville scores high for land use susceptibility because much of the land within the source water area is forested. The overall point source contaminant susceptibility rating is medium due to an underground injection point present within the delineated zones.

### **Delineation Methods**

The Hyattville Water District maintains a community water system that obtains its water supply from fractured limestone bedrock. Hydrogeologic mapping techniques were consequently used to identify the source water area for the well.

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**

Hyattville's well is completed in the Madison Limestone to a depth of 2,895 feet. Sufficiently saturated portions of the Madison Limestone and Bighorn Dolomite in this area form one of the most prolific aquifers in Wyoming, the Madison Aquifer. Where permeable fractures and caverns have been encountered in wells drilled into these formations, flowing artesian well yields have approached 14,000 gpm. Recharge for the aquifer originates as infiltrating precipitation on Madison Limestone and Bighorn Dolomite outcrops to the east and flows westward to the wells under artesian conditions through fracture and conduit flow. Additional information on this well is included on the enclosed Well Information Sheet.

As shown on the attached source water area map, contaminant inventory zones for Hyattville's well were developed to encompass those areas that contribute water to the Madison Limestone

and Bighorn Dolomite. Between groundwater divides in the Madison Aquifer that were inferred from a University of Wyoming Master's thesis, Zone 2 includes outcrops of the Madison Limestone and Bighorn Dolomite that are exposed in the Bighorn Mountains to the east of the wells. Upstream from Zone 2, Zone 3 includes drainages that deliver water to the Madison and Bighorn outcrops.

### **Integrity Summary**

The Town of Hyattville uses one Madison Aquifer well to supply water to its system. The well, Hyattville #1, was constructed before 1983, when more stringent construction standards were not required by the State of Wyoming. Records indicate that the well was properly sealed to protect against surface infiltration of potential contaminants and flooding around the wellhead. As shown on the Integrity Summary Table, the well received a low score of 3, which is a direct reflection of the well completion date.

### **Water Source Sensitivity Summary**

Hyattville obtains its source water from a flowing artesian Madison Aquifer well. As shown on the Source Sensitivity Summary Table, the well received a sensitivity score of 10.

This well received the maximum sensitivity score for two reasons. The first reason is that groundwater is obtained from the Madison Limestone which generally allows water to flow to wells at variable rates through interconnected fractures or caverns. The second reason is that laboratory analysis of water samples from the town within the last five years detected a few contaminants that are listed on EPA's primary and secondary drinking water standards. 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 Town of Hyattville scores high for land use susceptibility because much of the land within the source water area in the Bighorn Mountains to the east is forested. The overall point source contaminant susceptibility rating is medium due to an underground injection point present 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](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 Hyattville Water Company  
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	1	N/A

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