

# WYOMING WATER ASSESSMENT AND PROTECTION PROGRAM (SWAP)



## SOURCE WATER ASSESSMENT PROGRAM EXECUTIVE SUMMARY

Source Water Assessment Prepared For:  
McKinnon School

Assessment Completed By:  
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## **SOURCE WATER ASSESSMENT SUMMARY FOR McKinnon School**

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

The McKinnon School water system is classified as a non-transient non-community groundwater supply. The facility serves the unincorporated area of McKinnon including the school, church, and seven residential sites. McKinnon is located at the southern Wyoming border along Wyoming Highway 530 about 60 miles south of Green River. Source water for this facility is obtained from an improved spring that emerges from the Bridger Formation. The spring is located on State property about a mile from the school. Water is collected in a spring box and flows by gravity through a three inch diameter PVC transmission line to storage and distribution. Supply water is stored in a 3,000 gallon below ground concrete tank. There is no treatment or disinfection practiced at this facility.

In general, the McKinnon School scores low for land use susceptibility. The overall land use susceptibility and point source contaminant susceptibility rating is low due to the lack of contamination sources being present within the delineated zones.

### **Delineation Methods**

The McKinnon School is a non-transient non-community water system that obtains its water supply from a spring. Hydrogeologic mapping techniques were consequently used to identify the source water area.

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 McKinnon School spring is located on a hillside south of the community. Recharge for the spring originates as infiltrating precipitation on Bridger Formation outcrops to the south and flows north to the spring through porous flow conditions. Additional information on this spring is included on the enclosed Spring Information Sheet.

As shown on the attached source water area map, contaminant inventory zones for the School's spring were developed to encompass those areas most likely to contribute water to the spring. Zone 2 lies between drainage divides upgradient of the spring to the south and terminates at the

Stateline in accordance with the SWAP guidance document. Zone 3 includes a small area north of the spring. This area was included to account for the hydrologic role of the Interstate Canal on the local groundwater system.

### **Integrity Summary**

The McKinnon School's spring #1 was improved prior to 1983, when more stringent construction standards were not required by the State of Wyoming. However, records indicated that the spring was properly enclosed to protect against the surface infiltration of potential contaminants. As shown on the Integrity Summary Table, the spring received an integrity score of 8. This score is primarily due to the fact that the spring was improved before 1983, has a long conveyance to the water system, is not inspected regularly and that the area around the intake is unprotected.

### **Water Source Sensitivity Summary**

The McKinnon School obtains its source water from an improved spring that emerges from the Bridger Formation. As shown on the Source Sensitivity Summary Table, the McKinnon School intake received a sensitivity score of 10.

The intake received the maximum sensitivity score for two reasons. The first reason is because it obtains water from a spring. The second reason is that laboratory analysis of water samples from the system within the last five years detected several contaminants that are listed on EPA's primary and secondary drinking water standards. These included nitrate, fluoride, sodium, sulfate and total coliform bacteria. Despite detection, these contaminants were generally 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 McKinnon School scores low for land use susceptibility. The overall land use susceptibility and point source contaminant susceptibility rating is low due to the lack of contamination sources being present within the delineated 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 McKinnon School**

**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