

# WYOMING WATER ASSESSMENT AND PROTECTION PROGRAM (SWAP)



## SOURCE WATER ASSESSMENT PROGRAM EXECUTIVE SUMMARY

Source Water Assessment Prepared For:  
Mitches Café

Assessment Completed By:  
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## **SOURCE WATER ASSESSMENT SUMMARY FOR Mitchs Café**

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

The Mitch's Café water system is classified as a transient non-community groundwater supply. The facility is composed of a 10-unit Motel and a Cafe. In addition to a traveling population, the system provides water to two residents year round through four service connections. Source water for this facility is obtained primarily from a well completed in the Green River Formation. Due to frequent power outages however, the facility maintains a deep flowing artesian backup well that is completed in the Wasatch Formation. The system has no storage other than the hydropneumatic tanks which provides the distribution system's 40 - 60 psi pressure. There is no treatment or disinfection provided. Check valves are used to prevent backflow of the flowing artesian well into the primary well.

In general, Mitch's Café scores low for land use susceptibility. The overall land use susceptibility rating is low due to the lack of contaminant sources within the delineated zones. The Café should be aware of several potential point sources and a transportation corridor contaminant source that lie within the source water area.

### **Delineation Methods**

Because the Café is classified as a transient non-community groundwater system and obtains water from a porous sandstone aquifer, Lidstone delineated the source water area for this system using calculated fixed radius (CFR) methods. This method was used to estimate the two and five year time of travel radii for the groundwater system based on data obtained from the Wyoming SEO, the PWS sanitary survey, and the SWAP guidance document.

The CFR method is appropriately used when groundwater flow to the well 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. The CFR calculation,  $r = [(Qt)/(\pi nH)]^{1/2}$  (FS), requires discharge (Q) during a period of time (t), aquifer porosity (n), and length of the well's open interval (H), to determine the radius (r) of a cylinder containing the volume of water discharged from the well during a chosen time period. A factor of safety 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 from which groundwater (and contaminants) 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 (two years and five years).

### **Groundwater Sources**

The Mitch's Café water system obtains its source water from two wells that are completed in the Green River and Wasatch Formation to depths of 120 and 1,480 feet, respectively. Recharge to these formations occurs through the direct infiltration of precipitation on outcrops. Groundwater reaches the wells through porous media flow. Additional information on these two wells is

included on the attached Well Information Sheet.

As shown on the enclosed source water area maps, the contaminant inventory zones for these wells are centered around the wellheads. Zone 2s for the wells extend between 1,122 and 1,295 feet radially from the wellheads, while Zone 3s extend from approximately 1,775 to 2,048 feet. Differences in the size of the contaminant inventory zones are primarily due to differences in the pumping rates of individual wells and aquifer permeabilities.

### **Integrity Summary**

Mitch's Cafe water system is classified as a non-community groundwater supply. The system is composed of two wells. The Mitch #1 and Mitch #3 wells were constructed before 1983 when more stringent construction standards were not required by the State of Wyoming. Records show that the well was properly sealed from surface infiltration of potential contaminants and flooding around the wellhead. As shown on the Integrity Summary Table, the Mitch #1 well scored 3, primarily due to the completion date. The Mitch #3 well scored 4, due to the completion data and the possibility of a missing annular seal.

### **Water Source Sensitivity Summary**

Mitch's Cafe water system obtains source water for this facility from a 120-foot deep well. However, do to frequent power outages, reliance on a backup 1,500-foot deep artesian well, with lesser water quality, is necessary. As shown on the Source Sensitivity Summary Table, the intake received a sensitivity score of 8 for the Mitch #3 and 6 for the Mitch #1 well.

The intake received the sensitivity score for two reasons. For Mitch #3, the well is located in an unconfined aquifer which is moderately susceptible to contamination and therefore received a score of 3. For the Mitch #1, the well is located in a confined aquifer that is less susceptible to contamination and received a score of 1. The second reason is that laboratory analysis of water samples within the last five years detected a few contaminants that are listed on EPA's primary and secondary drinking water standards. These included nitrate and nitrite. 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, Mitch's Cafe scores low for land use susceptibility. The overall land use susceptibility rating is low due to the lack of contaminant sources within the delineated zones. The water sources are susceptible to contamination from several point source and transportation corridor contaminant sources. Due to the presence of several underground tanks, the Café received a high score for the point source susceptibility in Zone 2. The Café also received a high score in Zone 2 for the transportation corridor contaminant susceptibility because a state highway crosses through the source water area. 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 Mitchs Café  
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 Tank	N/A	N/A	12

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