

**SOURCE WATER ASSESSMENT  
EXECUTIVE SUMMARY  
FOR  
Buffalo Bill SP North Fork**

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**June 30, 2004**

**PROJECT: 424-001**

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**ASSESSMENT COMPLETED BY: TRIHYDRO CORPORATION**

1252 Commerce Drive, Laramie, WY 82070

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**Home Office** | 1252 Commerce Drive | Laramie, WY 82070 | phone 307/745.7474 | fax 307/745.7729 | [www.trihydro.com](http://www.trihydro.com)

## **SOURCE WATER ASSESSMENT SUMMARY FOR Buffalo Bill SP North Fork**

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

Buffalo Bill State Park North Fork is a transient non-community groundwater system. The system serves approximately 50 people through 11 service connections. Facilities include one well, and the distribution system. The water source scored medium with respect to the combined integrity and sensitivity ratings. North Fork scored high with respect to land use susceptibility and point source susceptibility.

### **Delineation Methods**

This water system is a transient, 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 used in the model were assumed for those of similar type deposits.

The calculated fixed radius (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. 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 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 (2 years and 5 years).

### **Groundwater Sources**

Buffalo Bill State Park North Fork draws water from the alluvium along the North Fork Shoshone River valley. Recharge to the alluvial aquifer comes from the North Fork Shoshone River, and reaches the well through porous media flow. Groundwater flow within the alluvium is generally 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 delineation map, contaminant inventory zones 2 and 3 were delineated using CFR methods. Zone 2 has a calculated radius of 367 feet. Zone 3 has a calculated radius of 580 feet.

## **Integrity Summary**

Buffalo Bill State Park North Fork uses one well that is approximately 89 feet deep, to supply water. The well was constructed between 1983 and 1993 when moderately stringent construction standards were required by the State of Wyoming. Records show 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, North Fork Campground #1 received a score of 3 due primarily to the well completion date.

## **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 draws water through porous media flow from an unconfined alluvial aquifer known to be vulnerable to contamination. Second, 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, Buffalo Bill State Park North Fork scores high for land use susceptibility because much of the land surrounding the water source is irrigated cropland. The presence of an underground tank within Zone 2 resulted in a high point source contaminant susceptibility for North Fork Campground #1. 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 Buffalo Bill SP North Fork  
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	1

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