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Source Water Delineation and Assessment Report

**Public Water Supply: Kickin Horse Saloon
(PWSID #MT0003495)**

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Introduction

This delineation and assessment report is intended to meet the technical requirements of the Montana Source Water Protection Program (DEQ, 1999) and the federal Safe Drinking Water Act (SDWA) Amendments of 1996 (P.L. 104-182). Andrea Mazur, an intern with the Montana Department of Environmental Quality (DEQ) Source Water Protection Program prepared the report, which was reviewed by Eric Sivers, a DEQ hydrogeologist. Information on land use and potential contaminant sources comes from a variety of sources, including the most recent sanitary survey, county records, DEQ Public water supply files (including sanitary surveys), and other public sources of information. A web-based GIS application was used to query available GIS data and generate maps to support this report. This application is called the Source Water Protection Program Query System and is available at the following web address or URL: <http://nris.state.mt.us/wis/swap/swapquery.asp>. The application was developed by the DEQ Source Water Protection Program (SWPP) and provides access to data from the U.S. EPA, DEQ, Montana Bureau of Mines and Geology (MBMG), and other sources.

Purpose

The purpose of this delineation and assessment report is to identify and assess threats to the Kickin Horse Saloon water supply using information obtained from the most recent sanitary survey, which was completed in March of 2004 by Denver Fraser of the Cadmus Group, and from other sources, as described above. Delineation is a process whereby areas that contribute water to aquifers or surface waters used for drinking water, called source water protection areas, are identified on a map. Assessment involves identifying locations in source water protection areas where contaminants may be generated, stored, or transported and then determining the potential for contamination of drinking water by these sources.

Public Water Supply Information

Kickin Horse Saloon (PWS ID# MT0003495) is 40 miles southeast of Libby on US Highway 2 South. The water system serves a bar, short order restaurant, and rental residence. The water system consists of one active well that is distributed to 1 residential service connection and 1 transient service connection.

DEQ public water supply (PWS) records indicate the system serves daily averages of 2 residents year round, 25 transient users in the winter, and 25 transient users

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in the summer. The water system for Kickin Horse Saloon is classified as a transient non-community water supply because it serves 25 or more persons daily but does not regularly serve the same persons for at least six months a year.

According to the sanitary survey for the public water supply well (attached), Well #1 (WL002) was drilled in January of 1994 to a depth of 68 feet below ground surface (bgs). The well yield is 10 gallons per minute (gpm). The static water level is listed as 49 feet bgs and the pumping water level is listed as 58 feet bgs. The well was grouted to 18 feet bgs with cement. The well is completed in unconsolidated sand.

The operator for the PWS is required to monitor for nitrate and coliform bacteria. Bacteriological samples are collected on a quarterly basis and a nitrate sample is collected annually. Total coliform results have been positive once in the past five years (April of 2000). However, resampling did not show the presence of fecal coliform or *E. coli* bacteria. Nitrate levels in the past five years have not been higher than 1.32 mg/L. The EPA MCL for nitrate is 10 mg/L. Although the nitrate levels detected in the water supply do not exceed the MCL, the PWS should continue to review nitrate-monitoring results because nitrate levels above 2 mg/L typically indicate impacts from human activities. Nitrate and microbiological monitoring results are kept on file at DEQ and are attached.

Delineation

Two source water protection areas are delineated for the Kickin Horse Saloon. They include a 100-foot radius control zone and a one-mile radius inventory region. The well supplying water to the Kickin Horse Saloon PWS withdraws water from an unconfined aquifer. The control zone is the most critical area for protecting the water source. The inventory region encompasses the area from which water or contaminants can flow into the Kickin Horse Saloon PWS over a period of months to years. For an unconfined aquifer, the appropriate inventory region size is a one-mile radius circle surrounding the wellhead. Thus the inventory region for this PWS is a one-mile radius circle around the PWS well.

Inventory

The Montana Source Water Protection Program (Montana DEQ, 1999) requires that land uses and all potential sources of nitrate and microbial pathogens be identified within the control zone and inventory region of non-community, transient public water supplies. The area within the inventory region includes: Highway 2, a large capacity septic system, and increased septic density.

It is likely that Kickin Horse Saloon has at least one large capacity septic system servicing the facilities, as connection to community sewer is not possible in this area. A large capacity septic system is defined as one that serves more than 20 people daily. Therefore, any septic system serving a public water supply is considered large capacity.

Large-scale spills along the highway are high consequence, low frequency events. If one were to occur in the vicinity of the well, it could be catastrophic. However, spills

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along the highway probably will not involve chemicals that are regulated contaminants for transient water systems, so they will not be included in the susceptibility assessment of this report.

Susceptibility Assessment

Susceptibility to potential contaminant sources is assessed both for the aquifer and the public water supply well. The significant contaminant sources in the inventory region are the increased septic density surrounding Kickin Horse Saloon and large capacity septic systems. The large capacity septic system poses a threat to the public water supply well, as it could cause contamination of the well with nitrates and pathogens. The Kickin Horse Saloon PWS well appears to have no barriers between the well intake and potential contaminant sources.

It is assumed that there is a large capacity septic system associated with the Kickin Horse Saloon. This septic system and the increased septic density in the inventory region pose a high hazard. With no barriers identified between the potential contaminant sources and the PWS well intake, the well has a very high susceptibility to contamination from these sources.

Table 1. Susceptibility Assessment of Significant Potential Contaminant Sources

Potential Contaminant Source	Potential Contaminants	Hazard	Hazard Rating	Barriers	Susceptibility	Management Recommendation
Large Capacity Septic System	Nitrate, Pathogens	System leaks or failure could result in discharge of untreated effluent	High Hazard	None	Very High Susceptibility	Properly operate and maintain the on-site septic systems and distribution lines. A two to three year septic tank pumping maintenance schedule is recommended. Encourage and support local government efforts to provide educational materials and workshops to the public on proper handling and disposal of industrial and household hazardous wastes and recycling. Discourage disposal of chemicals via drains and toilets. Promote the installation of advanced septic treatment systems.
Increased Septic Density	Nitrate, Pathogens	System leaks or failure could result in discharge of untreated effluent	High Hazard	None	Very High Susceptibility	Encourage and support local government efforts to provide educational materials and workshops to the public on proper handling and disposal of industrial and household hazardous wastes and recycling. Promote the installation of advanced septic treatment systems.

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References:

Montana DEQ, 1999. Montana Source Water Protection Program, Approved by EPA in November 1999.

U.S. EPA, Office of Water, 1991. Manual of Small Public Water Supply Systems, EPA 570/9-91-003, 211 p.

DEQ Permitting and Compliance Division, 2002. Sanitary Survey for the Kickin Horse Saloon PWS – PWSID: #MT0003495

Montana State Library – Natural Resources Information System (NRIS) 2000 map base of the USGS Topographical coverage at 1:24,000 scale in MrSID format

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[Figure 1. Map](#)