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Frenchtown Pond State Park
Source Water Delineation and Assessment Report

Public Water Supply: **Frenchtown Pond State Park (PWSID #MT0042415)**
Report Date: **April 17, 2001**
Contact Person: **Doug Frazer**
Fish, Wildlife and Parks
3201 Spurgin Road
Missoula, MT 59801
(406) 542-5500

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). Jim Stimson, Hydrogeologist with the Montana Department of Environmental Quality (DEQ), prepared the final report with assistance from intern Briana Roach. Information on land use and potential contaminant sources comes from a variety of sources including a preliminary land cover data layer produced by the United States Geological Survey (USGS), DEQ Public Water Supply files (including sanitary surveys), and other public sources of information. A web-based GIS application was also used to query and generate maps to support writing 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.mt.gov/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 assess threats to the Frenchtown Pond State Park water supply using information obtained from Fish, Wildlife and Parks (FWP) personnel managing the site, the most recent sanitary survey, which was completed in June 2000 by the Missoula City-County Health Department (available from DEQ upon request), and from published reports. 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 or regions 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

Frenchtown Pond State Park is located one mile west of the Frenchtown exit on Interstate 90 (Figure 1) and consists of a recreation area with picnic and shower facilities. The FWP Department operates this site. The Park is served by a well (PWS Source ID 002) located northwest of the restrooms.

DEQ public water supply records indicate the water system serves 25 to 100 non-residents per day through one active service connection. Because the water supply does not regularly serve the same 25 persons for at least six months a year, it is classified as a transient, non-community public water supply. During the Park's months of operation, water demand is approximately 250 to 1,000 gallons per day assuming 10 gallons per day per visitor (EPA, 1991). Sewage for the facility is collected in a large capacity septic system located east of the well. An additional septic system serves the dump station at the Park and is located further east.

According to the well log for the public water supply well (attached), water for the facility is drawn from a 186½ foot deep well drilled in March 1973. The well is constructed of 6-inch diameter well casing that is perforated between the depths of 178½ and 183 feet below land surface. A 2½ foot cement plug is located in the bottom of the well. The well has a static water level of 10 feet and a pumping water level of 11 feet. Well yield is 50 gallons per minute (gpm). The well is completed in unconsolidated alluvium. Based on lithologic logs from the public water supply well and four nearby wells, the aquifer appears to be unconfined.

Water is drawn from the well by a submersible pump and is then delivered to a captive air pressure tank located inside the restroom building. No treatment is applied to the system. The sanitary survey indicates that at the time of the inspection, there was no back-flow prevention for the faucet used by the caretaker for watering and cleaning. Based on information available in the DEQ PWS files, it is not clear whether or not this problem has yet been remedied.

FWP is required to monitor for nitrate and coliform bacteria at Frenchtown Pond State Park. Levels of both contaminants detected in the public water supply well have been below the maximum allowable concentrations throughout the past five years. However, the sanitary survey does note that about half of the residential wells in the vicinity of the public water supply have coliform contamination periodically. Nitrate and microbiological monitoring results are kept on file at DEQ.

Delineation

Three source water protection zones are delineated for the Park. They include a 100-foot radius control zone, a one-mile radius inventory region and a surface water buffer zone (Figure 1B). The control zone is the most critical area from which direct introduction of contaminants into the well or immediate area can occur. The inventory region encompasses the area from which water or contaminants can flow into the Frenchtown Pond well over a period of months to years. The surface water buffer zone is delineated because the Park's well is completed in an unconfined alluvial aquifer that is likely in hydraulic connection with the Frenchtown District Irrigation Ditch which is located upgradient of the well. Frenchtown Pond and several other ponds (gravel pits) are located within a mile of the well and likely provide recharge to the aquifer. If potential contaminant sources exist upstream from the public water supply well, dissolved contaminants , nitrate for example, and pathogens, like viruses and cryptosporidium, could enter the ditch and be transported into the aquifer. The

contaminated ground water could then be drawn into the Frenchtown Pond well. The surface water buffer zone is used to identify potential contaminant sources upstream from the well and extends 10 miles upstream and one half mile from each edge of the ditch (Montana DEQ, 2000, Table 1).

Inventory

The Montana Source Water Protection Program (Montana DEQ, 1999) requires that land uses and all potential sources of nitrate and microbial pathogens within the control zone, inventory region and surface water buffer zone be identified.

Analysis of the area surrounding the Frenchtown Pond well reveals that the buffered inventory region consists primarily of grassland, shrub land, and agricultural land (Figure 1C). Grassland and shrub areas account for approximately 46% of the region and are not considered to create significant contamination potential. However, about 43% of the region is comprised of agricultural land. This type of land use is considered a significant potential contaminant source due to the likelihood that agri-chemicals are used on the land. These substances include fertilizers that can be sources of nitrate. The on-site large capacity septic system that serves the Park and the septic system for the dump station are also both considered significant potential sources of contamination. A residential area south of the Park is unsewered, and the septic systems that serve these homes are considered create significant contamination potential as well.

Susceptibility Assessment

Susceptibility to potential contaminant sources is assessed both for the aquifer and the public water supply well. According to the Montana Source Water Protection Program criteria, an aquifer consisting of unconsolidated alluvium that is unconfined is rated as highly sensitive to potential sources of contamination (Montana DEQ, 2000, Table 2).

The presence of agricultural land within the inventory region and surface water buffer zone represents a moderate level hazard for this water supply. The Park's large capacity septic system represents a high level hazard, and the residential septic systems south of the Park are a moderate hazard (Montana DEQ, 2000, Table 6). With no natural or engineered barriers identified, the overall susceptibility of Frenchtown Pond State Park is high for nitrate and very high for pathogens.

References:

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

Montana DEQ, 2000. Montana Source Water Protection Program, Template for Non-Community Transient Public Water Supplies.

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

U.S. Geological Survey, 2000. National Landcover Dataset, Montana. 30-meter electronic digital landcover dataset interpreted from satellite imagery.