St. Regis Work Center
Source Water Delineation and Assessment Report (SWDAR)

St. Regis Work Center
United States Forest Service
Public Water Supply

State of Montana Public Water Supply ID# MT0062380

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INTRODUCTION

The Safe Drinking Water Act (SDWA) Amendments of 1996 require states to develop and implement Source Water Assessment Programs (SWAP) to analyze existing and potential threats to the quality of the public drinking water supplies throughout the state. The US Environmental Protection Agency (EPA) formally approved the Montana SWAP, prepared and administered by the Montana Department of Environmental Quality (MDEQ), in November 1999. The Montana SWAP was developed from the former Wellhead Protection Program, but includes surface water sources and requires a more rigorous inventory of potential contaminant sources.

SWAP addresses only public water systems (PWS) regulated according to the Federal Safe Drinking Water Act. A public water supply system is defined, according to Federal and Montana regulations, as a system that supplies water for human consumption. A public water supply system has at least 15 service connections or regularly provides water to at least 25 persons daily for a minimum of 60 days in a calendar year. There are three types of public water supply systems:

- Community water systems provide water on a year-round basis, and have a minimum of 15 service connections or regularly serve at least 25 residents. In addition to incorporated towns, community systems may serve smaller areas such as housing subdivisions or trailer courts.
- Non-transient non-community systems do not serve communities, but provide water regularly to a minimum of 25 of the same people for at least 6 months of a year. These systems serve public buildings such as schools and hospitals, where people are employed but do not reside.
- Transient non-community systems do not serve communities, and do not regularly serve a minimum of 25 of the same people for at least 6 months of the year. These systems are usually seasonal, and are located in areas such as Work Centers and parks. *The St. Regis Work Center PWS is a transient non-community system.*

The Montana Source Water Protection Program is intended to be a practical and cost-effective approach to help public drinking water supplies protect their water source from contamination. The United States Forest Service (USFS) works with the Montana DEQ to complete delineation and assessment reports for USFS managed public water supplies in Montana. The Source Water Delineation and Assessment Report (SWDAR) compiles the appropriate data and other technical information about an area to allow the USFS to develop source water protection plans for potable water supplies. 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. Geologic and hydrologic conditions are evaluated in order to delineate source water protection areas. Assessment involves identifying potential contaminant sources in delineated source water protection areas, and evaluating the potential for contamination of drinking water from these sources under "worst-case" conditions such as a flood, fire or human error.

Scope and Purpose

This report presents the source water delineation and assessments for the public water supply for the St. Regis Work Center located northwest of the town of Superior, in Mineral County, Montana. This report is intended to meet the technical requirements for the completion of the delineation and assessment report for this PWS, as required by the Montana Source Water Protection Program (DEQ, 1999) and the federal Safe Drinking Water Act (SDWA) Amendments of 1996 (P.L. 104-182).

Acknowledgements

This report was prepared by Beverly Young, Environmental Engineer, and Brian Story, Environmental Engineering Trainee, with the USFS Region 1 office, as part of a cooperative agreement with the United States Environmental Protection Agency. The Montana Department of Environmental Quality staff provided additional data and review.

Limitations

This report was prepared to assess threats to the St. Regis Work Center public water supply and is based on published information. The terms "drinking water supply" or "drinking water source" refer specifically to sources for regulated public water supplies, and not any other type of water supply. The inventory of potential contaminant sources focuses on the management areas delineated for the public water supply in this report. As a result, other potential sources of contamination to surface and ground water in the area may not be identified.

BACKGROUND AND DELINEATION

The St. Regis Work Center is located within the Lolo National Forest, approximately 15 miles northwest of Superior, Montana. The Work Center is located near Interstate 90 between Missoula, Montana and Coeur d'Alene, Idaho. The St. Regis Work Center is located at approximately 47.31º North latitude and 115.11º West longitude, in Section 24 of Township 18 North, Range 28 West. The Work Center is classified as a transient, non-community public water supply. The location of the well in the Lolo National Forest is shown in Figure 1, with a more detailed location shown in Figure 2. The St. Regis Work Center well provides water for residents and employees at the Work Center. The sanitary survey for the system (Appendix A) indicates an estimated maximum population of 8 residents and 21 nonresidents served daily by the PWS during the summer, and 8 residents served daily during the winter. The Work Center is open all year.

The public water supply uses one well (Source 002), installed to an approximate depth of 156 feet. The well was completed on May 21, 1934. Water enters the well through an open hole at the bottom of the well casing. The well has a MBMG-GWIC Classification number of 132576. Water is pumped from the well into the distribution system with a 4-inch submersible pump. There is no treatment of the water prior to use.

Table 1. Source Well Information Summary.

Well	Well 1
Source ID	002
MBMG-GWIC ID#	132576
DNRC Water Right #	62380
Location	47.3069°N Lat 111.1075°W Long
	T18N, R28W, Section 24 BDCB
Total Depth	156 feet
Completion Date	21 May, 1934
Perforated Interval	--
Static Water Level	--
Pumping Water Level	--
Pump Test Rate	--
Drawdown/Yield	--

Hydrologeologic Assesment

The evaluation of the hydrogeology of the area is based predominantly on standard principles of hydrogeology. A generalized geologic map for the area is depicted in Figure 3. Ground water in the area near the St. Regis Work Center is present in an unconsolidated glacio-fluvial aquifer. Ground water flow is interpreted to generally flow eastward, towards the Clark Fork. Recharge to the St. Regis Work Center well is interpreted to occur from regional infiltration of snowmelt and precipitation and stream loss. Based on the hydrogeologic setting, the St. Regis Work Center water source is an unconfined alluvial aquifer, which is considered to have a high source water sensitivity to contamination according to the Montana SWAP Program (DEQ, 1999).

Source Water Protection Management Zones

The source water protection areas for the St. Regis Work Center PWS are identified based on the criteria for a transient non-community PWS as defined in the Montana SWAP Program (DEQ, 1999). For the PWS source, two primary management areas are identified within the source water protection area; the control zone and the inventory region. The control zone, also known as the exclusion zone, is an area at least 100-foot radius around the well. For a confined aquifer, the inventory region for the well is delineated as the area within a 1000-foot radius around the well. The inventory region for the well and the surrounding area are depicted in Figure 4.

St. Regis Work Center Sampling Results and Water Quality

Every PWS is required to perform monitoring for contamination to their water supply. The monitoring parameters for transient non-community systems typically include coliforms (as an indicator of pathogenic organisms), and nitrates as an acute health risk. A review of DEQ and USFS databases of monitoring results for the St. Regis Work Center PWS indicates no water quality violations. The detected level of nitrates has been consistently less than the drinking water standard of 10 mg/L.

INVENTORY

An inventory of potential sources of acute health hazards was conducted for the St. Regis Work Center PWS source within the control and inventory regions. The contaminants in this category represent nitrates and pathogens, as required by the Montana Source Water Protection Program (DEQ, 1999). Potential sources include areas with septic systems and agricultural areas where nitrogen fertilizers may be used. These are shown in Figure 4 and Figure 5. While additional sources of contamination may be present, this assessment only focuses on the above listed potential contaminants.

Inventory Results/Control Zone
The control zone, defined as the area within a 100-foot radius of the wellhead, represents the most critical point to protecting the integrity of a wellhead for ground water sources. The Work Center access roads and the office septic tank represent the only potential sources of contamination identified. The control zone around the wellhead is not fenced or otherwise protected from access.

Inventory Results/Inventory Region
The inventory region, defined as the area within 1000 feet of the wellhead, represents the area near the source wells where any contamination spilled onto the ground or subsurface has the potential to migrate directly into the PWS source aquifer. The access roads are present in the inventory region. Septic tanks in the Work Center are another potential contamination source. Additionally, two other wellheads are within the inventory region, and serve as potential conduits to the groundwater (See Figure 6). Finally, agricultural plots for small crops are present within the inventory region, as shown in Figure 5.

Inventory Results/Watershed region
Land use within the watershed region is similar to that in the inventory region. Septic Tanks in the town of St. Regis are a potential contaminant source. (See Figure 6).

SUSCEPTIBILITY ASSESSMENT

Susceptibility is the potential for a public water supply to draw water contaminated by inventoried sources at concentrations that would pose concern. Susceptibility is assessed in order to prioritize potential pollutant sources for management actions by the Lolo National Forest, in this case the St. Regis Work Center PWS.

The goal of Source Water Management is to protect the source water by controlling activities in the control zones and managing significant potential contaminant sources in the Inventory Regions. Management priorities in the Inventory Regions are determined by ranking the significant potential contaminant sources identified in the previous chapter according to susceptibility. Alternative management approaches are recommended.

Susceptibility is determined by considering the hazard rating for each potential contaminant source and the existence of barriers that decrease the likelihood that contaminated water will flow to the St. Regis Work Center PWS source. Hazards are assigned based on the percent of land in the inventory region for non-point sources, and the location for point sources. Susceptibility ratings are presented individually for each potential contaminant source.

After the relative hazard of a potential contaminant source is assigned, the relative susceptibility is determined based on the presence of barriers that may mitigate the potential for a contaminant source to impact a water source. Barriers may represent natural conditions, engineered barriers or management actions. Natural barriers include anything that can be demonstrated as effective in slowing the migration of any chemicals released at the surface. Engineered barriers represent man-made structures to contain chemicals if they are released. Management barriers are plans that prohibit or control potentially polluting activities, but only if there is a plan or approach that has been formally implemented. Two barriers are noted here: a natural barrier for clay rich soils and a management barrier for on site septic tanks, representing proper maintenance of the facilities.

Susceptibility Assessment Results

The results of the susceptibility assessment for the St. Regis Work Center PWS are listed in Table 1. The primary threats identified are the septic tanks for the Work Center itself as well as septic tanks in the area, the Work Center access road, Interstate 90, wells in the area, and agricultural use in the area. The summary information in Table 1 reviews the relative hazard, barriers and susceptibility ranking of each potential source. Management alternatives are recommended that can help reduce the relative susceptibility of each identified potential contaminant source to the PWS sources.

Table 2. Susceptibility assessment of significant potential contaminant sources.

Source	Contaminant	Hazard	Hazard Rating	Barriers	Susceptibility	Management
Control Zone						
Septic Tanks (office)	Nitrates and Pathogens	Infiltration	High	Management, Clay-rich soils	Moderate	Maintain proper operation and maintenance protocols
Work Center Access Road	Various Chemicals	Spills	High	Clay Rich Soils	High	Develop emergency response plan
Inventory Region						
Septic Tanks	Nitrates and Pathogens	Infiltration	Moderate	Management, Clay-rich soils	Low	Maintain proper operation and maintenance protocols
Work Center Access Road	Various Chemicals	Spills	High	Clay Rich Soils	High	Develop emergency response plan
Agriculture	Various Chemicals and Nitrates	Infiltration and Runoff	Low	Clay Rich Soils	Low	Develop emergency response plan

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