Water Service Inc

PWSID MT0000347

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Revised:

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Executive Summary
July 14, 2005

Introduction and Background

Water Service Inc. serves the community of Trout Creek which is located near the Clark Fork River and about 20 miles north of Thompson Falls (Figure 1 and Figure 3A, Figure 3B, Figure 3C). The U.S. Census Bureau estimates the 2000 population of Sanders County at 10,227 people and the county's population has increased about 17% since 1990. About 365 residents and other water users are served by Water Service Inc. through about 96 active service connections.

This public water supply is served by ground water from a well that was drilled initially in 1942 and was re-worked and drill deeper in 1949. The well is now about 291 feet deep and is interpreted as being completed in sand and gravel associate with fluvial-glacial deposits that are present in the valley. The aquifer is considered to be semi-confined to locally confined with a moderate sensitivity to potential contaminant sources located at or near the land surface.

Within the past five years, Water Service Inc. has three positive total coliform detection with some of the follow-up samples also testing positive. There have been no positive total coliform detections since July of 2005. No maximum contaminant level (MCL) exceedances were noted for any other constituents monitored over the past five years and this includes nitrate. The highest nitrate value recorded for water from the well is 0.37 milligrams per liter (mg/l), and the lowest nitrate value for all of the wells was less than 0.30 mg/l. The average nitrate level for the past five years was 0.35, which is significantly below the MCL of 10 mg/l.

Delineation of Source Water Protection Areas

The purpose of delineation is to map the source of drinking water for the public water supply and to define areas within which to prioritize source water protection efforts. Four source water protection areas are defined for Water Service Inc. well (Figure 3A, Figure 3B, Figure 3C Figure 4, Figure 6, Figure 7, through 8). They are 1) a 100-foot radius control zone around the well, 2) an inventory region that is divided into a 1-year Time-Of-Travel (TOT) region and a 3-year TOT region, 3) a recharge region corresponding to the watershed that surrounds the public water supply, and 4) a surface water buffer region extending ½ mile down-stream from the wells and 10 miles upstream. The TOT inventory region is modified based on hydrogeologic mapping to delineate its lateral boundaries. The goal of management in the control zone is to avoid introducing contaminants directly into the water supply's wells. The inventory and surface water buffer regions should be managed to prevent contaminants from reaching the well before natural processes reduce their concentrations. The goal of management in the recharge region is to maintain and improve water quality over long periods of time or increased usage.

Source water for this public water supply comes principally from older fluvial-glacial deposits present within the Clark Fork River Valley. The aquifer is interpreted to be generally semi-confined with some areas being locally confined. In general, recharge is considered to come from a combination of precipitation, snowmelt runoff, irrigation return flows, and leakage from streams and irrigation canals. Some volume of recharge may also come from the older Precambrian bedrock. Ground water flow direction is interpreted to be primarily from upland areas toward the river (Figure 3A, Figure 3B, Figure 3C).

For this site ground water is interpreted to flow generally from the south-southeast toward the north-northwest (Figure 3A). Near the river the ground water flows generally parallel to the river.

Inventory of Potential Contaminant Sources

The inventory of potential contaminant sources is used to assess the susceptibility of the public water supply to contamination and to identify priorities for source water protection planning. The inventory focuses on facilities that generate, use, store, transport, or dispose of potential contaminants and on land types where potential contaminants are present. Some potential contaminant sources are considered significant based upon 1) the volume of potential releases, 2) the volume of hazardous materials typically handled, 3) the potential of the released materials to impact nearby surface water or ground water, and 4) the proximity of the potential contaminant sources to the source of water used by the public water supply. Maps showing the inventory results are shown in Figure 3A, Figure 3B, Figure 3C, Figure 4, Figure 6, Figure 7, through 8 located in the back of this report.

Susceptibility is the potential for a public water supply to draw in water contaminated by inventoried sources. Susceptibility is determined by considering the hazard rating for each potential contaminant source and the existence of natural or man-made barriers that decrease the likelihood that contaminated water will flow to the public water supply wells (Tables 6 and 7). For wells tapping a semi-confined aquifer hazard is based primarily on proximity of potential contaminant sources to the well (Table 6). Table 8 lists all of the potential contaminant sources identified in this inventory and includes the hazard and final susceptibility ratings assigned to each potential contaminant source.

Potential contaminant sources that could pose a threat to this public water supply include: the Northern Pacific Railroad, Highway 200, septic systems and drainfields on developed lots in the vicinity of the well, local access roads, and possibly Class V injection wells which are floor drains or “French drains” (Table 8).

The hazard associated with the Northern Pacific Railroad and Highway 200 comes from potential accidents that could result in spills and releases that would infiltrate into the aquifer. Both of these are considered to represent high hazards and with multiple barriers recognized the susceptibility is set at moderate to low. Septic systems on developed lots are also assigned a moderate susceptibility rating.

All other potential contaminant sources identified are assigned a low to very low susceptibility rating. Figure 3A, Figure 3B, Figure 3C, Figure 4, Figure 6, Figure 7, and through 8 show the locations of potential contaminant sources in relation to the public water supply well. All potential contaminant sources may not have been identified in this inventory. In some instances, inadequate location information in the available databases can result in some potential contaminant sources not being included in the inventory. Review of the inventory and this report by the local public water supply operator and the community can help address limitations of the inventory process.

Management Recommendations

It should be noted that even small releases of some chemicals in close proximity to a well could have significant negative impact on water quality. Steps can be taken to reduce the likelihood of releases to the source water for the public water supply or in the vicinity of the sources. Some of these steps are listed in Table 8 and under the Management Recommendations section on page 18.

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INTRODUCTION

This Delineation and Assessment Report was prepared by Laura Rennick, an intern with the Source Water Protection Program (SWPP) at the Montana Department of Environmental Quality (DEQ) and Jim Stimson, Hydrogeologist with the SWPP reviewed and edited the report. Water Service Inc Public Water Supply (PWS) is located in Sanders County, Montana, about 3 ½ mile south of Thompson Falls on Highway 200 (Figure 1). The DEQ PWS identification number, operator name, and operator phone number for the Water Service Inc PWS appear on the title page of this report.

Purpose

This report is intended to meet the technical requirements for the completion of the source water delineation and assessment report for the Water Service Inc 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). The Montana Source Water Protection Program is intended to be a practical and cost-effective approach to the protection of public drinking water supplies from contamination. The primary purpose of this source water delineation and assessment report is to provide information to assist the Water Service Inc PWS operator in the identification of potential contaminant sources near its well and to encourage the development of a source water protection plan to help protect the drinking water for the long term.

Delineation and assessment constitute major components of the Montana Source Water Protection Program. Delineation entails mapping the boundaries of source water protection areas, which encompass ground water and/or surface waters contributing to public water supply. Assessment involves identifying locations and land parcels within source water protection areas where contaminants may be generated, stored, transported, or disposed, and determining the relative susceptibility of drinking water to contamination from these sources.

Limitations

This report was prepared to assess threats to the Water Service Inc PWS and is based on published data including the most recent sanitary survey, which was completed on September 17, 2003, by Michael Kropp, of the Montana Department of Environmental Quality in Kalispell, and information obtained from local residents familiar with the community. The terms “drinking water supply” and “drinking water source” refer specifically to the sources of Water Service Inc PWS, and not any other public or private water supply. Also, not all of the potential or existing sources of ground water or surface-water contamination in the area of Water Service Inc are identified. Only potential sources of contamination in areas that contribute water to the identified drinking water sources are considered.

The term “contaminant” is used in this report to refer to constituents for which maximum concentration levels (MCLs) have been specified under the national primary drinking water standards, and to certain carcinogenic or toxic constituents that do not have MCLs but are considered to be significant health threats.

CHAPTER 1 - BACKGROUND

The Community

Water Service Inc serves the community of Trout Creek and is located about 20 mile north of Thompson Falls on Highway 200, on the south bank of the Clark Fork River and the Noxon Reservoir (Figure 1, Figure 3A, Figure 3B, and Figure 3C). According to the most recent sanitary survey, Trout Creek has a resident population of about 235, a non-transient population of 30, and a transient population of approximately 100 people (See Sanitary Survey – Appendix C). Sanders County has a population of about 10,227 and the county's population has increased about 17% since 1990. This public water supply classified as community systems that serve 25 or more year round residences. Table 1 indicates that Water Service Inc. is the only public water supply near Trout Creek.

Within the area of Trout Creek, residents obtain their drinking water from the community public water supply. It is assumed that the community uses on-site septic systems for waste disposal while some areas near Thompson Falls are connected to the municipal sewer services.

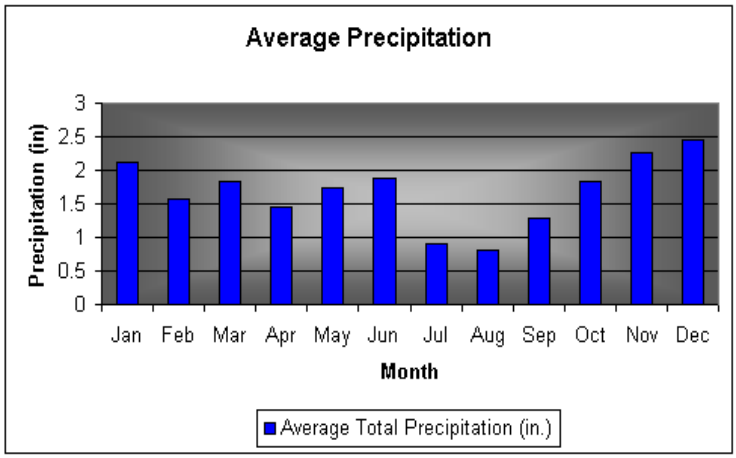
Table 1. Public Water Supplies in the area.

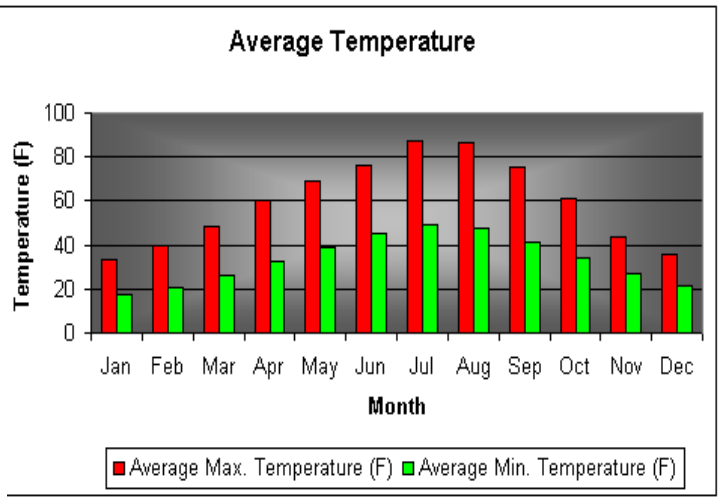
PWSID	Primary Name	Class	Source Name	Source Type	Resident Population	Non-Resident Population
MT0000347	Water Service Inc	Community	Well #1	Groundwater	60	0
MT0000347	Water Service Inc	Community	Well #2	Groundwater	60	0

Climate

The average daily high and low temperatures at Thompson Falls are 85.7 °F and 47.6°F in August and 33.4°F and 17.8°F in January (Figure 2). Precipitation averaging 20.19 inches annually is heaviest in November and December. Average annual snowfall is 39.4 inches with the largest average accumulation coming in January (Western Regional Climate Center).

Figure 2. Average Temperatures and Precipitation





Geographic Setting

Trout Creek is located on the Clark Fork River about 20 miles northwest of Thompson Falls and 100 miles northwest of Missoula. Trout Creek and its public water supply are located on the south bank of the Noxon Reservoir (Figure 1 and Figure 3A, Figure 3B, Figure 3C). This location is about 2,362 feet above sea level and is within the Lower Clark Fork Watershed (HUC # 1701021310). The Clark Fork River Valley is approximately 3 miles wide in this area.

Geology

The valley near Trout Creek is partially filled by the Noxon Reservoir which is fed by the Clark Fork River. The valley is flanked by the Cabinet Mountains to the north and the Coeur d'Alene Mountains to the south. Very old (Precambrian age) bedrock is exposed in both mountain ranges and this bedrock is also present beneath the reservoir and valley-fill sedimentary deposits. The bedrock is encountered in wells between 230 and 400 feet below the land surface in the valley. The Precambrian bedrock consists of primarily of quartzite, argillite, and some limestone (Kendy and Tresch, 1996). These rocks are not highly deformed but they are extensively faulted (Figure 4).

The Clark Fork River Valley near Trout Creek is a relatively large bedrock trough that is filled with unconsolidated sediments. The sediments are referred to on the geologic map for the area as glacial, fluvial-glacial, and flood deposits. This reflects that the sediments have been deposited through the action of moving water and glacial ice. The sedimentary deposits range in thickness from 0 at the valley margins to well over 400 feet toward the more central portions of the valley. The valley-fill sediments consist of clay, silt, coarse sand, gravel and boulders. Based on driller's logs it is apparent that there are distinct layers of sand and gravel in some areas that readily transmit water and can be used to supply ground water to wells. In other places, the valley-fill deposits are a complex interbedded mixture of all of the previously mentioned sediment types and water production is relatively low.

The Occurrence of Ground Water:
Ground water occurs within the older bedrock and the younger unconsolidated valley-fill sediments. The layering within the valley fill deposits is complex and difficult to interpret based on driller's logs from wells in the area. Nevertheless, it's apparent that there are distinct layers of sand and gravel that function as aquifers at various depths within the valley-fill sedimentary deposits. It is interesting to note that there are very few shallow wells (10 to 50 feet deep) in the vicinity of Trout Creek. The majority of the wells in the area are between 100 and 200 feet deep (See the Histogram in Figure 5) and they are completed in sand and gravel deposits. Some wells penetrate saturated gravel deposits between 390 and 400 feet below the land surface. Bedrock is encountered at depths ranging from 230 to over 400 feet below the land surface depending on the location of the well.

It is also apparent from the driller's logs that there are significant layers made up of silt and clay. A good number of wells in the area report an increase in clay content between 230 and 240 feet below the land surface. Other driller's logs indicate that there are layers on the order of 200 feet thick that are dominated by silt and clay-size sediments. These layers of silt and clay are interpreted to have low permeability and to act as confining layers for the deeper sand and gravel deposits. However, it is important to note that the majority of the wells in the area are sealed only to 15 or 20 feet and have an open-hole construction. The type of well construction has the potential of collecting water across almost the entire length of the bore hole. In addition, wells of this construction can provide a conduit for water in shallow aquifers to move into the deeper sand and gravel deposits. In some places this type of construction increases the

possibility that the ground water can be negatively impacted by contaminant sources at or near the land surface.

For this report, the aquifer serving the Water Service Inc. well is considered to be semi-confined to confined and to have a sensitivity to potential sources of contamination of moderate in accordance with the Montana Source Water Protection Program (Table 2).

The Public Water Supply

The Water Service Inc. pubic water supply is classified as a community system under the Federal Safe Drinking Water Act, because the system serves at least 25 year-round residents through at least 15 service connections. The PWS services about 365 residents and other water users through about 96 active service connections.

Table 2

Source Water Sensitivity
High Source Water Sensitivity
Surface water and GWUDISW
Unconsolidated Alluvium (unconfined)
Fluvial-Glacial Gravel
Terrace and Pediment Gravel
Shallow Fractured or Carbonate Bedrock
Moderate Source Water Sensitivity
Semi-consolidated Valley Fill sediments
Unconsolidated Alluvium (semi-confined)
Low Source Water Sensitivity
Consolidated Sandstone Bedrock
Deep Fractured or Carbonate Bedrock
Semi-consolidated Valley Fill Sediments (confined)

It appears that the well used by Water Service Inc. was originally drilled by the Northern Pacific Railroad in 1942 to a depth of 210 feet. In 1949, the well became part of the public water supply and appears to have been re-developed and extended to a depth of 291 feet. In its current construction the well yields 90 gallons per minute (See Appendix A). The most recent sanitary survey indicates that ground water from the active well is pumped to a 70,000 gallon storage tank. The well is cased with either 6 or 10-inch steel to the bottom of the bore-hole. The static water level is 10 feet below the land surface, while the pumping water level is reported as 50 feet. The well's seal extends to 15 feet below land surface and the seal consists of clay.

At present there is no information available on the public water supply's distribution system but the previous sanitary survey stated that the system is working to accurately map distribution lines.

Public water systems must conduct routine monitoring for contaminants in accordance with Federal Safe Drinking Water Act requirements. A community public water supply, like Water Service Inc, must sample in accordance with schedules specified in the Administrative Rules of Montana (ARM). Monitoring includes coliform bacteria, lead, copper, nitrate, nitrite, volatile organic chemicals (including hydrocarbons and chlorinated solvents), inorganic chemicals (including metals), synthetic organic chemicals (including pesticides), and radiological contaminants. Transient, non-community PWSs are required to conduct routine monitoring only for pathogens (including coliform bacteria), nitrate, and nitrite. All contaminant concentrations detected in required samples must comply with numeric maximum contaminant levels (MCLs) specified in the Federal Safe Drinking Water Act.

Water Service Inc PWS Water Quality

Within the past five years, Water Service Inc has three positive total coliform detection with some of the follow-up samples also testing positive. There have been no positive total coliform detections since July of 2005. No maximum contaminant level (MCL) exceedances were noted for any other constituents monitored over the past five years, this includes nitrate. The highest nitrate value recorded for water from the well is 0.37 milligrams per liter (mg/l), and the lowest nitrate value for all of the wells was less than 0.30 mg/l. The average nitrate level for the past five years was 0.35, which is significantly below the MCL of 10 mg/l.

CHAPTER 2 - DELINEATION

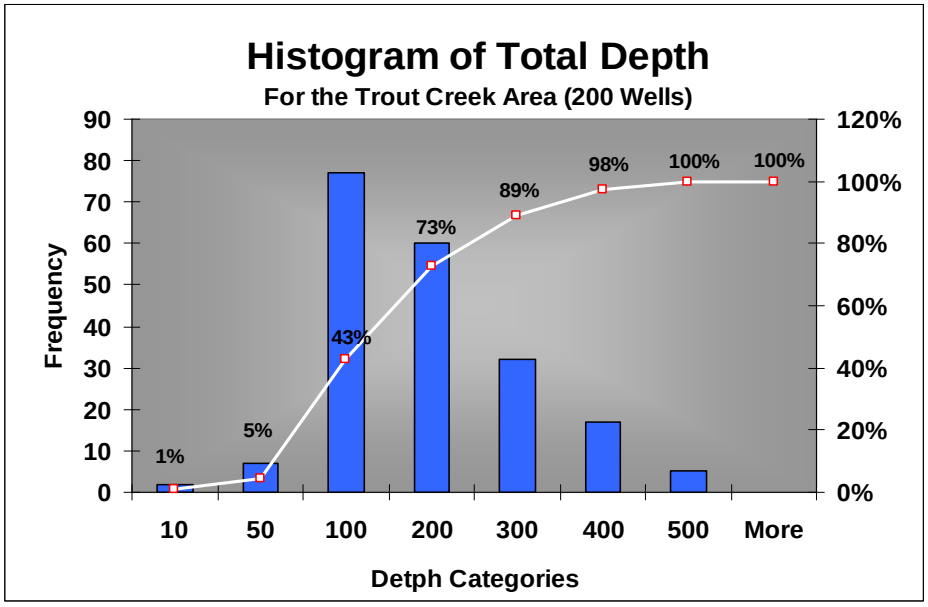
The source water protection areas for the Water Service Inc. public water system are delineated in this chapter. The purpose of delineation is to map the source of drinking water for the public water supply and to define areas within which to prioritize source water protection efforts. Normally for a public water supply using ground water there are three source water protection regions delineated for each well. They include: 1) a 100-foot control zone, 2) a 3-year Time-Of-Travel (TOT) inventory region, or an inventory region based on hydrogeologic mapping, and 3) a recharge region corresponding to the watershed that surrounds the public water supply. For ground water sources that are located close to streams, a surface water buffer region is also routinely delineated.

The goal of management in the control zone is to avoid introducing contaminants directly into the water supply's wells or the immediate surrounding areas. The inventory and surface water buffer regions should be managed to prevent contaminants from reaching the well before natural processes reduce their concentrations. The goal of management in the recharge region is to maintain and improve water quality over long periods of time or increased usage.

General Hydrogeologic Setting

Ground water within the Clark Fork River Valley can be found in the older Precambrian bedrock and at various depths within the valley-fill sedimentary deposits associated with the present day river alluvium and older fluvialglacial deposits. For the most part, the alluvial aquifer within the Clark Fork River Valley is unconfined and has a high sensitivity to potential contaminant sources while the deeper aquifer within the fluvialglacial deposits appear to be semi-confined or at least locally confined in some areas and is considered in this report to have a moderate sensitivity to potential contaminant sources (Table 2).

Figure 5: Histogram of wells in the same watershed



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Well information for 200 wells within 7 miles of Trout Creek was retrieved on June 7, 2006 from the Ground Water Information Center (GWIC) at the Montana Bureau of Mines and Geology (MBMG). Figure 5 shows a frequency distribution of total depth of these wells. Figure 5 indicates that the majority of wells are moderately deep. In many areas in Montana there are larger numbers of wells between 10 and 100 feet deep. However, in the vicinity of Trout Creek there are only a small number of wells that are less than 100 feet deep and about 60 percent of the wells are between 100

and 200 feet deep. This reflects that tendency for deeper gravel deposits in the area to be productive and reliable sources of ground water. Information for both of the Water Services Inc. wells is summarized in Table 3.

Conceptual Model and Assumptions

Source water for the Water Service Inc public water supply comes from a gravel bed that is about 272 feet below the land surface that is overlain by a relatively thick sequence of sand and clay (Appendix A). This aquifer is interpreted to be semi-confined generally and locally confined around the well site. In general, recharge is considered to come from a combination of precipitation, snowmelt runoff, irrigation return flows, and leakage from streams, rivers, and irrigation canals. Some volume of recharge may originate from the older bedrock beneath and adjacent to the valley-fill sediment deposits. Ground water flow direction is interpreted to be primarily from upland areas toward the river for both shallow alluvial and bedrock aquifers (Figure 3A, Figure 3B, and Figure 3C). Close to the Clark Fork River, the ground water flow direction is interpreted to be approximately parallel to the river. Based on these interpretations, the general ground-water flow is from east-southeast to the west-northwest.

Summary of Well Information

Table 3. Information from drillers log for the Water Service Inc wells.

Well Name: **MBMG #** **DNRC WR#**	**Well #1** **133031** **W005821-00**
Location	24N 31W 17 DDDC
Date Completed	4/26/1942
Depth (ft bgs*)	291
Screened Interval (ft**)	NA – Open Hole
SWL Depth (ft bgs*)	10.00
PWL Depth (ft bgs*)	50.00
Drawdown (ft**)	40.00
Test Pumping Rate (gpm***)	90.00
Specific Capacity (gpm/ft****)	2.25

*ft bgs = feet below ground surface, **ft = feet, ***gpm = gallons per minute, ****gpm/ft = gallons per minute per foot of drawdown.

Delineation Results

Control Zones - 100-foot radius control zones are delineated each well; all sources of potential contaminants should be excluded in this region. All potential contaminant sources are identified within the control zone.

Inventory Region - The inventory region is delineated using both ground-water time-of-travel (TOT) estimates and hydrogeologic mapping. The region includes estimates for a 1-year and a 3-year TOT distances. The 1-year TOT distance extends 2.0 miles up gradient or upstream, while the 3-year TOT

extends 5.9 miles up-gradient from the well. The outer boundary of the inventory region is truncated at the contact between the older bedrock and valley-fill deposits. Both inventory regions extend slightly down gradient or downstream from the wells. This indicated that neither well will draw significant volumes of water from the down gradient direction. Information used to support the TOT calculations is summarized in Table 4. Some of the limitations associated with the TOT estimates are discussed below.

Surface Water Buffer – This region extends one half mile from each bank of the Clark Fork River (Figure 3B, and 7). The region also extends one half mile below the wells. The surface water buffer region extends ten miles upstream from the wells. All potential contaminant sources are identified within the surface water buffer region.

Recharge Region – The watershed encompassing part of the Clark Fork River valley is delineated as the recharge region. Potential sources of nitrate and pathogens are inventoried within this region. The inventory generally includes landuse and larger facilities that could potentially impact water quality.

Limiting Factors

Estimates of the aquifer properties are not available in the Trout Creek area. Results from aquifer tests in the Thompson Falls area suggest that wells completed within the valley-fill can produce large volumes of water with very little drawdown. However, most of the wells in the Trout Creek area do not appear to be as productive as those tested in the Thompson Falls area. For that reason, a lower hydraulic conductivity value was used to estimate the TOT inventory region (Thompson Falls SWDAR by Jeffrey Herrick). If aquifer test data become available for the Trout Creek area, the TOT estimate in this report can be updated and modified. In the absence of site-specific aquifer test data to base aquifer property estimates on, the values shown in Table 4 are used in conjunction with hydrogeologic mapping. The conceptual model presented in this report is a simplification of the real ground-water flow system near Trout Creek but it is considered to be sufficiently accurate to assess the susceptibility of the public water supply to potential sources of contamination in the area.

Table 4. Information Used To Support Time-Of-Travel Calculations.

Input Parameter	**Values Used**
PWS Source Code	-
Transmissivity	27,000 feet²/day
Thickness	19 feet
Hydraulic Conductivity	1,421 feet/day
Hydraulic Gradient	0.006
Flow Direction	SE to NW
Effective Porosity	30 %
Pumping Rate	18,297 ft^3/day (136,875 gpd = 150 gpd/person x 365 persons x 2.5 irrigation factor)
1-Year TOT	2.0 miles
3-Year TOT	5.9 miles
Stagnation Point	-18.0 feet

CHAPTER 3 - INVENTORY

An inventory of potential sources of contamination was conducted to assess the susceptibility of the Water Service Inc. public water supply to contamination, and to identify priorities for source water protection planning. Inventories were conducted within the control zone, and the inventory, surface water buffer, and recharge regions. The inventory focuses on facilities that generate, use, store, transport, or dispose of potential contaminants, and on land types on which potential contaminants are generated, used, stored, transported, or disposed. Additionally, the inventory identifies potential sources of all primary drinking water contaminants and Cryptosporidium. Only significant potential contaminant sources were selected for detailed inventory.

Inventory Method

Available databases were initially searched to identify businesses and land uses that are potential sources of regulated contaminants in the inventory region. The following steps were followed:

Step 1: Land cover is identified from the National Land Cover Dataset compiled by the U.S. Geological Survey and U.S. Environmental Protection Agency (U.S.G.S., 2000). Land cover types in this dataset were mapped from satellite imagery at 30-meter resolution using a variety of supporting information.

Step 2: EPA's Envirofacts System was queried to identify EPA regulated facilities. This system accesses the following databases: Resource Conservation and Recovery Information System (RCRIS), Biennial Reporting System (BRS), Toxic Release Inventory (TRI), Permit Compliance System (PCS), and Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS). The available reports were browsed for facility information including the Handler/Facility Classification to be used in assessing whether a facility is a significant potential contaminant source.

Step 3: DEQ databases were queried to identify Underground Storage Tanks (UST), hazardous waste contaminated sites, landfills, and abandoned mines.

Step 4: Major road and rail transportation routes were identified.

Step 5. All significant potential contaminant sources were identified in the inventory region and land uses and facilities that generate, store, transport, or dispose large quantities of hazardous materials were identified within the recharge region.

Potential contaminant sources are designated as significant if they fall into one of the following categories:

1) Large quantity hazardous waste generators
2) Landfills
3) Hazardous waste contaminated sites
4) Underground storage tanks
5) Major roads or rail transportation routes
6) Cultivated cropland
7) Animal feeding operations
8) Wastewater lagoons or spray irrigation
9) Septic systems
10) Sewered residential areas
11) Storm sewer outflows
12) Floor drains, sumps, or dry wells
13) Abandoned or active mines

Inventory Results/Control Zones

The control zone includes the railroad right-of-way, portions of developed lots that are just east of the well location, and access and service roads. Areas west of the well site appear to be undeveloped. The developed lots to the east may include portions of the septic drainfields and service lines for homes (Figure 3A, and Figure 3B). Potential contaminants present in the control zone include yard and lawn chemicals, and small volumes of fuel related to lawn care equipment. None of these sources is considered large enough to pose a serious threat to the public water supply's well. Septic systems on the developed lots are considered to be significant potential contaminant sources. Potential contaminants also include any hazardous material transported by the railroad which appears to be on the order of 80 feet from the well. Trains can pose a serious threat due to the fact that they carry relatively large volumes of hazardous materials.

Inventory Results/Inventory Region

State Highway 200 runs the length of inventory region to the east of the well (Figure 3A). The hazard associated with highways comes from accidents that can result in spills and releases of hazardous materials. With the location of the highway to the east-southeast of the well, potential spills and releases would occur generally up gradient from the public water supply well. This means that ground water beneath the highway is moving generally toward the well and could transport contaminants to the well site. The same is true for the railroad and for the reasons stated above, both the highway and railroad are considered to be significant potential sources of contamination.

There are no underground storage tanks located in the inventory region for Water Service Inc. Several tanks are located northwest of the well site and down-gradient from the well. This means that ground water beneath the tank sites is moving away from the well and not toward it (Figure 3A). As a consequence, these tank sites do not pose a threat to the public water supply well.

Within the inventory region most of the land is low septic density, except for a small portion of moderate septic density located east of the well site. Septic density represents the extent of septic systems in an area (Figure 3A). The area of land that has moderate septic density is located up gradient to the well. That means that the ground water in this area is flowing towards from the wells. It is worth noting that much of the land east-southeast of the well and within the inventory region has been subdivided but not all of the lots have been developed. As development takes place the number of

septic systems and drainfields will increase and the septic density in this area will very likely increase from moderate to high.

As mentioned previously, several local access roads are located fairly close to the well. These roads do not carry heavy traffic volume and they are not major truck routes. They roads are not considered to pose a threat to the source water. However, it is still advisable for emergency response personnel to be informed of the location of the public water supply wells to help them respond appropriately should an accident involving hazardous material occur near the wells. It is also advisable to not use pesticides or herbicides in the vicinity of the well. Often times these synthetic organic compounds (SOCs) are used in weed control efforts along roads and the railroad.

Agricultural land use accounts for about 1% of the land area within the 3-year time of travel inventory region. Irrigated agricultural land can be considered be a significant potential contaminant source. Over application of fertilizers and/or pesticides can result in those ag-chemicals infiltrating into ground water and running off in to surface water bodies that may have hydraulic connection with aquifers that supply water. Forest land and grassland make up the other land cover types in the inventory region. Grassland and forest are not considered to be a potential contaminant source (Table 7).

Other potential contaminant sources in the Water Service Inc area possibly include Class V injection wells (floor drains, French drains, etc). These are drains that are open to the shallow aquifer system and that are not connected to a septic system or sewer service. Class V wells were common in the past in a variety of private and commercial shops. The threat from Class V injection wells cannot be determined because an accurate inventory of these wells has not been completed for Montana. A local inventory of Class V injection wells is the best way to assess the threat they may pose to the source water.

From the above list of potential contaminant sources, some are considered significant based upon the following factors: the volume of potential releases, the volume of hazardous materials typically handled, the potential of the released materials to impact nearby surface water or groundwater, and the proximity of the sources to the PWS well and infiltration lines. Significant potential contaminant sources from the above section are summarized for each source of water in Table 5 below.

Table 5. Significant Potential Contaminant Sources in the Inventory Region

Source	Contaminant	Hazard
Northern Pacific Railroad	Variety of hazardous materials including VOCs and SOCs, others?	Spills and releases related to accidents
State Highway 200	Variety of hazardous materials including VOCs and SOCs, others?	Spills and releases related to accidents
Moderate Septic Density Area	Pathogens and nitrate, household hazardous waste	Infiltration into shallow ground water
Local Access Roads	Variety of hazardous materials including VOCs and SOCs, others?	Spills and releases related to accidents

Source	Contaminant	Hazard
Class V Injection Wells (existence and locations are not known) where storm and/or wastewater is concentrated and recharges groundwater.	VOCs, SOCs, petroleum hydrocarbons, metals, pathogens, nitrate	Leaks, spills, improper handling and disposal/discharge of chemicals used by various businesses and are released to systems that allow infiltration of contaminants to the subsurface or to the storm water system

Inventory Results/Surface Water Buffer

Potential sources of pathogens and nitrate are inventoried within the surface water buffer region. The railroad represents the most significant potential contaminant source within this region due to the fact that trains can transport relatively large volumes of hazardous material including fertilizers and other chemicals. Highway 200 and other local roads are close to the river at multiple locations within the surface water buffer region. Septic systems near the river are also considered to be potential sources of pathogens and nitrate however, septic density along the river and within the surface water buffer region is low and dilution would be a major factor reducing the hazard associate with potential contaminant sources near the river.

Inventory Results/Recharge Region

Land cover in the recharge or watershed region is mostly forest, with some grassland, and shrubland. There are also some small urban areas and some agricultural land use around Trout Creek (Figure 8). Forest and grasslands are not considered potential contaminant sources. Agricultural land is considered a potential contaminant sources due to the use of fertilizers, pesticides and herbicides. However, the percent of agricultural land in the area is small and is not considered to pose a threat to the source water.

Inventory Update

To make this SWDAR a useful document in the years to come, the owners, manager, or the certified water system operator(s) for the public water supply should update the inventory for their records every year. Changes in land uses or potential contaminant sources should be noted and additions made as needed. The complete inventory should be submitted to DEQ at least every 5 years to ensure that this report/plan stays current in the public record.

Inventory Limitations

The potential sources of contaminants described above are identified from readily available information. Consequently, unregulated activities or unreported contaminant releases may have been overlooked. The use of multiple information sources, however, should help to ensure that the major threats to the source water have been identified.

CHAPTER 4 - SUSCEPTIBILITY ASSESSMENT

Susceptibility is the potential for a public water supply to draw in water contaminated by inventoried sources. Susceptibility is assessed in order to help prioritize management actions for each potential contaminant source.

The goal of source water management is to protect the source water by 1) controlling activities in the control zone, 2) managing significant potential contaminant sources in the inventory region, and 3) ensuring that land use activities in the recharge region pose minimal threats to the source water. Management priorities in the inventory region are determined by ranking the significant potential contaminant sources identified in the previous chapter according to susceptibility. The PWS operators, town, and county officials could pursue alternative management approaches to help reduce susceptibility that are listed in Table 8 and discussed briefly in Chapter 5.

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 PWS wells (Tables 7 and 8). For point sources, hazard is rated by the proximity of a potential contaminant source to the wells.

When time-of-travel calculations are performed, high hazard is assigned to point sources within the 1-year time-of-travel distance to a well. A moderate hazard rating is assigned to point sources located between the 1-year time-of-travel distance and the 3-year time-of-travel distance to a well. A low hazard rating is assigned to point sources located farther than the 3-year time-of-travel distance. Hazard ratings for nonpoint sources are assigned based on the following criteria in Table 6.

Table 6. Hazard of potential contaminant sources for the public water system wells.

Potential Contaminant Source	**High Hazard**	**Moderate Hazard**	**Low Hazard**
Point Sources	Within 1 year TOT	Between 1 to 3 years TOT	Over 3 years TOT
Septic Systems	More than 300 per sq. mi.	50 – 300 per sq. mi.	Less than 50 per sq. mi.
Municipal Sanitary Sewer (percent land use)	More than 50 percent of region	20 to 50 percent of region	Less than 20 percent of region
Cropped Agricultural Land (percent land use)	More than 50 percent of region	20 to 50 percent of region	Less than 20 percent of region

Barriers to contamination can be anything that decreases the likelihood that contaminants will reach a well. Barriers can be engineered structures, management actions, or natural conditions. Examples of engineered barriers are spill catchment structures for industrial facilities and leak detection for underground storage tanks. Emergency planning and best management practices are considered management barriers. Thick clay-rich soils, a deep water table or a thick saturated zone above the well intake can be natural barriers. Table 7 shows how barriers are used to adjust the final susceptibility ratings.

Table 7. Susceptibility of Source Water based on Hazard rating and the presence of Barriers

	High Hazard Rating	Moderate Hazard Rating	Low Hazard Rating
No Barriers	Very High Susceptibility	High Susceptibility	Moderate Susceptibility
One Barrier	High Susceptibility	Moderate Susceptibility	Low Susceptibility
Multiple Barriers	Moderate Susceptibility	Low Susceptibility	Very Low Susceptibility

Susceptibility ratings are presented individually for each significant potential contaminant source and each associated contaminant on the following page (Table 8).

Table 8. Susceptibility Assessment Significant Potential Contaminant Sources in the Inventory Region - Water Service Inc Public Water Supply.

Inventory Region							
Source	**ID Number on Maps**	**Contaminant**	**Hazard**	**Hazard Rating**	**Barriers**	**Susceptibility**	**Management Recommendations**
Northern Pacific Railroad	Not Numbered on the map	Variety of hazardous materials including VOCs and SOCs, others?	Spills and releases related to accidents	**High**	-Well Depth -Semi-confined aquifer -Emergency response -Cross Gradient Location for some segments	**Moderate**	- Maintain preparedness of local emergency personnel through active training, storm water diversion and other measures
Areas of Moderate Septic Density	Not Numbered	Pathogens and nitrate,	Infiltration into shallow ground water	**Moderate**	-Well Depth -Semi-confined aquifer -Cross Gradient Location for some lots	**Moderate to Low**	Support efforts to provide educational workshops to the general public by the city, county, or state promote safe handling and proper storage, transport, use, and disposal of hazardous materials. Scheduled days for the collection of hazardous wastes from the public.
State Highway 200	Not Numbered on the map	Variety of hazardous materials including VOCs and SOCs, others?	Spills and releases related to accidents	**High**	-Well Depth -Semi-confined aquifer -Low traffic volume -Emergency response -Cross Gradient Location	**Moderate to Low**	- Maintain preparedness of local emergency personnel through active training, storm water diversion and other measures
Local Access Roads	Not Numbered	Variety of hazardous materials including VOCs and SOCs, others?	Spills and releases related to accidents	**Low**	-Well Depth -Semi-confined aquifer -Low traffic volume -Emergency Response	**Low**	- Maintain preparedness of local emergency personnel through active training, storm water diversion and other measures
Class V Injection Wells (existence and locations are not known) where storm and/or wastewater is concentrated and recharges groundwater.	Not Numbered	VOCs, SOCs, petroleum hydrocarbons, metals, pathogens, nitrate	Leaks, spills, improper handling and disposal/discharge of chemicals used by various businesses and are released to systems that allow infiltration of contaminants to the subsurface or to the storm water system	**Unknown**	*Unknown*	**Unknown**	Inventory; Provide educational information, materials and resources to business owners and the public on proper waste disposal and recycling

Management Recommendations

It should be noted that even small releases of some chemicals in close proximity to a well, spring, infiltration gallery, or surface water intake can have significant negative impact on water quality, and is therefore a significant threat to a public water supply. Steps can be taken to reduce the likelihood of releases to the source water for the PWS or in the vicinity of the water sources (wells, springs, etc.). Some of these steps (considered management recommendations) are listed below. Some management recommendations are also included in the susceptibility table (Table 8). If these, and other, management actions are implemented; they may be considered additional barriers that will reduce the susceptibility of the public water supply wells to specific sources of contamination.

Specific management recommendations for the Water Service Inc Public Water Supply:

Given the close proximity of the railroad and highway to the public water supply well it is important for Water Service Inc. to working with county and regional emergency response personnel to make sure they are aware of the public water supply's location to help shorten response time and help reduce the hazard posed by the railroad.

Much of the land in the vicinity of Trout Creek and the area surrounding the well is subdivided and will eventually be developed into home sites with on-site septic systems with drainfields. As growth and development occur, it will become increasingly important to have septic systems within the inventory region operating properly to prevent negative impacts on water quality. Management options to address this issue can include encouraging proper construction and installation, encouraging or requiring advanced septic system design within the 1-year TOT portion of the inventory region, and encouraging regular maintenance and service of all septic systems.

It is also advisable to have a backup well added to this public water supply both to address the increasing water demand as growth takes place and to provide water in the event that the existing well has to be taken out of service for some period of time. The most recent sanitary survey also makes this recommendation.

Other general management recommendations fall into the following categories:

- Septic system maintenance and leak detection
- Community sewer development and extension
- Education
- Emergency Response Planning

Septic System Maintenance and leak detection – Early warning of leaks and scheduled replacement of aging septic lines may reduce the susceptibility of the Water Service Inc. public water supply to contamination from septic wastes.

Sewer Extension – Installation of advanced septic treatment systems such as sand filters can limit contamination from new rural residential development, however, establishing a community sewer system and extending the service into areas within the inventory region would help to reduce contamination from existing unsewered developments.

Education **-** Educational workshops provided to the general public by the county or state promote safe handling and proper storage, transport, use, and disposal of hazardous materials. Ongoing training provided to designated emergency personnel will promote the efficiency and effectiveness of emergency responses to hazardous material spills. Likewise, educational workshops provided to rural homeowners will promote the proper maintenance and replacement of residential septic systems. The EPA and the State of Montana can provide educational materials on these topics.

Emergency Response Plan – Several counties have compiled Emergency Response Plans that were then adopted by the local communities. The usefulness and effectiveness of a response plan are maximized if it contains a clear listing of all emergency contacts, emergency numbers, and resources available within the county to respond to an emergency situation, such as a hazardous material spill. Emergency plans are not difficult to develop or distribute, but have a significant benefit to the citizens and municipalities within the county.

CHAPTER 5 - MONITORING WAIVERS

Waiver Recommendation

It does not appear that Water Services Inc. has been granted any water quality monitoring waivers based on the information available for this report. Based on the susceptibility assessment of the source water, the Source Water Protection Program does not recommend waivers at this time. This is due in part to the fact that future growth in the Trout Creek area will take place within the inventory region delineated in this report. From a source water protection standpoint, water quality monitoring will act as a first defense to detect problems with water quality in the area should they arise.

However, to be sure that eligibility for all available waivers is considered, the public water supply operators are encouraged to carefully review the following section on Monitoring Waiver Requirements below. If after reviewing this section it is determined that an additional waivers are feasible, the PWS should submit a letter with the proper documentation to DEQ requesting monitoring waivers. Table 9 in the Susceptibility Chapter can be used as a guide to request monitoring waivers.

Monitoring Waiver Requirements

The 1986 Amendments to the Safe Drinking Water Act require that community and non-community PWSs sample drinking water sources for the presence of volatile organic chemicals (VOCs) and synthetic organic chemicals (SOCs). The US EPA has authorized states to issue monitoring waivers for the organic chemicals to systems that have completed an approved waiver application and review process. All PWSs in the State of Montana are eligible for consideration of monitoring waivers for several organic chemicals. The chemicals diquat, endothall, glyphosate, dioxins, ethylene dibromide (EDB), dibromochloropropane (DBCP), and polychlorinated biphenyls are excluded from monitoring requirements by statewide waivers.

To be sure that eligibility for all available waivers is considered, the PWS Operators are encouraged to carefully review the following section on Monitoring Waiver Requirements. The PWS should demonstrate sufficient barriers such that the susceptibility would not change over the term of a compliance cycle, even with continued development in the area. The PWS must be in compliance with monitoring requirements to be considered. Written waiver requests must be sent to DEQ at the address below:

Greg Butts

Montana DEQ, PWS Section

109 Cooperative Way

Suite 105

Kalispell, MT 59901

Upon receipt of a waiver request, DEQ will review the system's compliance history, historical monitoring results and source water setting. If waivers are considered appropriate, DEQ will provide the operator with application forms, guidance and technical assistance. If requested by DEQ, the PWS may also need to provide additional information regarding chemical use in the area within the Inventory Region. A site visit may be required to further investigate VOC and SOC use within the inventory region.

Monitoring Waiver Requirements

Use Waivers

A Use Waiver may be granted if it is determined that target organic chemicals were/are not used, manufactured, or stored in the area of a water source. If certain organic chemicals have been used, or if the use is unknown, the system would be determined to be vulnerable to organic chemical contamination and ineligible for a Use Waiver for those particular contaminants.

Susceptibility Waivers

If a Use Waiver is not granted, a system may still be eligible for a Susceptibility Waiver, if through a vulnerability assessment it is demonstrated that the water source would not be susceptible to contamination. The purpose of the vulnerability assessment procedures outlined in this section is to determine which of the organic chemical contaminants are in the area of investigation. The vulnerability assessment of a surface water source must consider the watershed area above the source, or a minimum fixed radius of 1.5 miles upgradient of the surface water intake. PWSs developed in unconfined aquifers should use a minimum fixed radius of one mile as an area of investigation for the use of organic chemicals. Vulnerability assessment of spring water sources should use a minimum fixed radius of one mile as an area of investigation for the use of organic chemicals. Surface water and shallow ground-water sources under the direct influence of surface water (GWUDISW) should assess the watershed area above the source, or a minimum fixed radius of one and one-half miles upgradient.

Given the wide range of landforms, land uses, and the diversity of ground water and surface water sources across the state, additional information is often required during the review of a waiver application. Additional information may include well logs, pump test data, water quality monitoring data from surrounding public water systems, delineation of zones of influence and contribution to a well; time-of-travel or attenuation studies; vulnerability mapping; and the use of computerized ground-water flow and transport models. DEQ's PWS Section and Source Water Protection Program will conduct review of an organic chemical monitoring waiver application. Other state agencies may be asked for assistance.

Susceptibility Waiver for Unconfined Aquifers

Unconfined aquifers are the most common source of usable ground water. Unconfined aquifers are not contained within impervious geologic strata. As a result, the upper ground-water surface, or water table, in an unconfined aquifer is not under the pressure that produces hydrostatic head common to confined aquifers.

Unconfined aquifers are usually locally recharged from surface water or precipitation. In general, ground-water flow gradients in unconfined aquifers reflect surface topography, and the residence time of water in the aquifer is generally shorter than for water in confined aquifers. Similar water chemistry often exists between unconfined ground water and area surface water, and physical parameters and dissolved constituents can be an indicator of the hydraulic connection between ground water and surface water. Consequently, unconfined aquifers can be susceptible to contamination by organic chemicals migrating from the ground surface to ground water.

Properly assessing a susceptibility waiver application for an unconfined source aquifer requires: site-specific information pertaining to the location and construction of the source development, monitoring history of the source, geologic characteristics of the unsaturated soil and vadose zones, and chemical characteristics of the organic chemicals pertaining to their mobility and persistence in the environment. The zone of contribution of the unconfined ground-water source must be defined and plotted. This should describe the ground-water flow directions, gradients, and a 3-year time-of-travel. All surface water bodies

within 1,000 feet of the PWS well(s) must be plotted. Analytical monitoring history of the PWS well and those nearby should be provided as well.

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GLOSSARY*

Acute Health Effect. An adverse health effect in which symptoms develop rapidly.

Alkalinity. The capacity of water to neutralize acids.

Best Management Practices (BMPs). Methods that have been determined to be the most effective, practical means of preventing or reducing pollution from nonpoint sources.

Coliform Bacteria. Bacteria found in the intestinal tracts of animals. Their presence in water is an indicator of pollution and possible contamination by pathogens.

Confined Aquifer. A fully saturated aquifer overlain by a confining unit such as a clay layer. The static water level in a well in a confined aquifer is at an elevation that is equal to or higher than the base of the overlying confining unit.

Confining Unit. A geologic formation that inhibits the flow of water.

Delineation. A process of mapping source water management areas.

Effective Porosity. The percent of soil, sediment, or rock through which fluids, such as air or water, can pass. Effective porosity is always less than total porosity because fluids can not pass through all openings.

Hardness. Characteristic of water caused by presence of various salts. Hard water may interfere with some industrial processes and prevent soap from lathering.

Hazard. A measure of the potential of a contaminant leaked from a facility to reach a public water supply source. Proximity or density of significant potential contaminant sources determines hazard.

Hydraulic Conductivity. A coefficient of proportionality describing the rate at which water can move through an aquifer.

Inventory Region. A source water management area that encompasses an area expected to contribute water to a public water supply well within a fixed distance or a specified groundwater time-of-travel distance.

Maximum Contaminant Level (MCL). Maximum concentration of a substance in water that is permitted to be delivered to the users of a public water supply. Set by EPA under authority of the Safe Drinking Water Act.

Nitrate. An important plant nutrient and type of inorganic fertilizer. In water the major sources of nitrates are septic tanks, feed lots and fertilizers.

Nonpoint-Source Pollution. Pollution sources that are diffuse and do not have a single point of origin or are not introduced into a receiving stream from a specific outlet.

Pathogens. A bacterial organism or virus typically found in the intestinal tracts of mammals, capable of producing disease.

Point-Source. A stationary location or fixed facility from which pollutants are discharged.

Porosity. The percent of soil, sediment, or rock filled by air, water, or other fluid.

Public Water Supply (PWS). A system that provides piped water for human consumption to at least 15 service connections or regularly serves 25 individuals.

SIC Code. The U.S. Standard Industrial Classification (SIC) Codes classify categories of businesses. SIC Codes cover the entire range of business categories that exist within the economy.

Source Water Protection Area. For surface water sources, the land and surface drainage network that contributes water to a stream or reservoir used by a public water supply.

Susceptibility (of a PWS). The potential for a PWS to draw water contaminated at concentrations that would pose concern. Susceptibility is evaluated at the point immediately preceding treatment or, if no treatment is provided, at the entry point to the distribution system.

Synthetic Organic Compounds (SOC). Man made organic chemical compounds (e.g. pesticides).

Total Dissolved Solids (TDS). The dissolved solids collected after a sample of a known volume of water is passed through a very fine mesh filter.

Total Maximum Daily Load (TMDL). The total pollutant load to a surface water body from point, non-point, and natural sources. The TMDL program was established by section 303(d) of the Clean Water Act to help states implement water quality standards.

Turbidity. The cloudy appearance of water caused by the presence of suspended matter.

Transmissivity. The ability of an aquifer to transmit water.

Unconfined Aquifer. An aquifer containing water that is not under pressure. The water table is the top surface of an unconfined aquifer.

Volatile Organic Compounds (VOC). Any organic compound which evaporates readily to the atmosphere (e.g. fuels and solvents).

Recharge Region / Watershed. The land area that drains into a stream; the watershed for a major river may encompass a number of smaller watersheds that ultimately combine at a common delivery point.

* Definitions taken from EPA’s Glossary of Selected Terms and Abbreviations and other sources.

FIGURES

APPENDICES

APPENDIX A – Well Logs for Water Service Inc

Montana Bureau of Mines and Geology
Ground-Water Information Center Site Report
WATER SERVICE INC - WELL 1

Plot this site on a topographic map

Location Information

GWIC Id:	76402	Source of Data:	LOG
Location (TRS):	21N 29W 23 ABDD	Latitude (dd):	47.5680
County (MT):	SANDERS	Longitude (dd):	-115.2733
DNRC Water Right:	C075431-00	Geomethod:	MAP
PWS Id:	03556002	Datum:	NAD27
Block:		Altitude (feet):	
Lot:		Certificate of Survey:	
Addition:		Type of Site:	WELL

Well Construction and Performance Data

Total Depth (ft):	291.00	How Drilled:	FORWARD ROTARY
Static Water Level (ft):	10.00	Driller's Name:	KANE
Pumping Water Level (ft):	50.00	Driller License:	023
Yield (gpm):	90.00	Completion Date (m/d/y):	10/13/1983
Test Type:	AIR	Special Conditions:	
Test Duration:	1.00	Is Well Flowing?:	
Drill Stem Setting (ft):		Shut-In Pressure:	
Recovery Water Level (ft):		Geology/Aquifer:	Not Reported
Recovery Time (hrs):		Well/Water Use:	PUBLIC WATER SUPPLY
Well Notes:			

Hole Diameter Information

From	To	Diameter
0.0	291.0	6.0

Casing Information[1]

From	To	Dia	Wall Thickness	Pressure Rating	Joint	Type
-1.0	291.0	6.0				17 LB STEEL

Annular Seal Information

From	To	Description
0.0	15.0	CLAY SURFACE SEAL

Completion Information[1]

From	To	Dia	# of Openings	Size of Openings	Description
291.0	291.0	6.0			OPEN BOTTOM

Lithology Information

From	To	Description
0.0	11.0	BOULDERS AND SAND
11.0	272.0	CLAY AND SAND
272.0	291.0	GRAVEL AND WATER

[1] - All diameters reported are **inside** diameter of the casing.

Montana Bureau of Mines and Geology
Ground-Water Information Center Site Report
WATER SERVICE INC - WELL 2

Plot this site on a topographic map

Location Information

GWIC Id:	76404	Source of Data:	LOG
Location (TRS):	21N 29W 23 AACC	Latitude (dd):	47.5682
County (MT):	SANDERS	Longitude (dd):	-115.2721
DNRC Water Right:	C075431-00	Geomethod:	MAP
PWS Id:	03556003	Datum:	NAD27
Block:		Altitude (feet):	
Lot:		Certificate of Survey:	
Addition:		Type of Site:	WELL

Well Construction and Performance Data

Total Depth (ft):	316.00	How Drilled:	FORWARD ROTARY
Static Water Level (ft):	17.00	Driller's Name:	KANE
Pumping Water Level (ft):	20.00	Driller License:	023
Yield (gpm):	58.00	Completion Date (m/d/y):	7/24/1985
Test Type:	AIR	Special Conditions:	
Test Duration:	1.00	Is Well Flowing?:	
Drill Stem Setting (ft):		Shut-In Pressure:	
Recovery Water Level (ft):		Geology/Aquifer:	Not Reported
Recovery Time (hrs):		Well/Water Use:	PUBLIC WATER SUPPLY
Well Notes:			

Hole Diameter Information

From	To	Diameter
0.0	316.0	6.0

Casing Information[1]

From	To	Dia	Wall Thickness	Pressure Rating	Joint	Type
-1.0	316.0	6.0				19 LB STEEL

Annular Seal Information

From	To	Description
0.0	15.0	CEMENT

Completion Information[1]

From	To	Dia	# of Openings	Size of Openings	Description
316.0	316.0	6.0			OPEN BOTTOM

Lithology Information

From	To	Description
0.0	6.0	CLAY
6.0	17.0	GRAVEL AND SAND
17.0	310.0	CLAY SAND AND SEEPAGE
310.0	316.0	GRAVEL AND WATER

[1] - All diameters reported are **inside** diameter of the casing.

Montana Bureau of Mines and Geology [Plot this site on a topographic map]
Ground-Water Information Center Site Report
WATER SERVICE INC - WELL 1 (originally drilled by the NPRR Well)

Location Information

GWIC Id:	133031	Source of Data:	LOG
Location (TRS):	24N 31W 17 DDDC	Latitude (dd):	47.8327
County (MT):	SANDERS	Longitude (dd):	-115.5919
DNRC Water Right:	W005821-00	Geomethod:	MAP
PWS Id:	00347002	Datum:	NAD27
Block:		Altitude (feet):	
Lot:		Certificate of Survey:	
Addition:		Type of Site:	WELL

Well Construction and Performance Data

Total Depth (ft):	210.00	How Drilled:	UNKNOWN
Static Water Level (ft):	40.00	Driller's Name:	DURANT & SON
Pumping Water Level (ft):	143.00	Driller License:	
Yield (gpm):	300.00	Completion Date (m/d/y):	4/26/1942
Test Type:		Special Conditions:	
Test Duration:		Is Well Flowing?:	
Drill Stem Setting (ft):		Shut-In Pressure:	
Recovery Water Level (ft):		Geology/Aquifer:	112ALVM
Recovery Time (hrs):		Well/Water Use:	PUBLIC WATER SUPPLY
Well Notes:	GRAVELED FROM 210 TO 208 FT		

Hole Diameter Information
No Hole Diameter Records currently in GWIC.

Casing Information[1]
No Casing Records currently in GWIC.

Annular Seal Information
No Seal Records currently in GWIC.

Completion Information[1]
No Completion Records currently in GWIC.

Lithology Information

From	To	Description
0.0	5.0	LOOSE GRAVEL AND BOULDERS
5.0	10.0	LOOSE GRAVEL AND LITTLE BROWN CLAY
10.0	15.0	LOOSE GRAVEL AND LITTLE SAND
15.0	20.0	PEA GRAVEL AND SAND
20.0	39.0	BOULDERS AND GRAVEL
39.0	70.0	COARSE GRAVEL
70.0	118.0	FINE PEA GRAVEL
118.0	124.0	FINE PEA GRAVEL AND BOULDRS
124.0	130.0	FINE PEA GRAVEL
130.0	133.0	W L CLARK FORK
133.0	138.0	FINE PEA GRAVEL AND LITTLE SAND
138.0	150.0	PEA GRAVEL AND WHITE SAND
150.0	162.0	COARSE GRAVEL AND LITTLE SAND
162.0	170.0	COARSE GRAVEL AND SAND DRY DRILLING TO 170 DEPTH
170.0	172.0	COARSE GRAVEL AND LITTLE SAND
172.0	183.0	COARSE GRAVEL AND SAND
183.0	185.0	BOULDER
185.0	187.0	BOULDERS AND LITTLE CLAY
187.0	192.0	LARGE GRAVEL AND PEA GRAVEL & LITTLE CLAY IN SEAMS
192.0	202.0	BOULDERS OR ROCK
202.0	206.0	BOULDERS
206.0	210.0	PEA GRAVEL AND YELLOW CLAY

APPENDIX B - DEQ PWS's Database Output

Public Water Supply System

PWSID: MT0003556 **Name:** NORTH SHORE ESTATES HOA

City: THOMPSON FALLS **County:** SANDERS **Tot Pop:** 60

Pri Src: GW **Class:** C **Last Snty Srv Dt:** 09/17/2003 **Activity Status:** A

Type	Conn's	In Srvc Dts	Eff Begin Dt	Avg Daily Cnt	Type
RS	26	1/1-12/31	11/14/1991	60	R

Administrative Contact
WEAVER, TIM
85 NORTHSHORE DR
THOMPSON FALLS, MT 59873
406-827-4996

Financial Contact
NORTH SHORE ESTATES HOA
PO BOX 655
THOMPSON FALLS, MT 59873
406-827-4996

Operator
WEAVER, TIM
85 NORTHSHORE DR
THOMPSON FALLS, MT 59873
406-827-4996

Operator
VEACH, JIMMY LEE
20 NORTH SHORE DRIVE
THOMPSON FALLS, MT 59873

Owner
NORTH SHORE HOMEOWNERS INC
PO BOX 655
THOMPSON FALLS, MT 59873
406-827-4996

Facilities and Entry Points

Status: A 10/05/2000 **Fac ID:** CH001 COMMON HEADER FOR WELLS 1 2 **Src:** GW
Lat/Long Dec: **DMS:**

Smp Pt ID	Status	Description
EP502	A 08/30/1993	EP FOR WELL 1 2 CH

Status: A 02/14/2000 **Fac ID:** DS001 DISTRIBUTION SYSTEM **Src:** GW
Lat/Long Dec: **DMS:**

Smp Pt ID	Status	Description
SP001	A 04/14/2000	SP FOR DS

Status: A 10/05/2000 **Fac ID:** PC001 PRESSURE CONTROL ASSEMBLY **Src:** GW
Lat/Long Dec: **DMS:**

Status: A 02/14/2000 **Fac ID:** WL002 WELL 1 1983 **Src:** GW
Lat/Long Dec: 47.568 **DMS:** .00 .00
115.2733

Status: A 02/14/2000 **Fac ID:** WL003 WELL 2 1985 **Src:** GW
Lat/Long Dec: 47.5682 **DMS:** .00 .00
115.2721

Sample Schedules/Monitoring Requirements

Attention Community and Noncommunity Nontransient systems: the new Disinfection Byproducts Rule has taken effect. Please contact the PWS Section at 444-4400 for additional monitoring requirements.

Fac ID: DS001 **Fac Name:** DISTRIBUTION SYSTEM **Status:** A **Src:** GW

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Montana Department of
ENVIRONMENTAL QUALITY
Data Source: Public Water Supply Section

Public Water Supply System

PWSID: MT0003556 Name: NORTH SHORE ESTATES HOA (continued)

DS001 DISTRIBUTION SYSTEM A GW

Smp Pt ID	Active	Smp Pt Description
SP001	A	SP FOR DS

Group	Name	Schd Beg Date	Seas Coll Per	Requirement
3100	COLIFORM, TOTAL (TCR)	02/01/2004	1/1-12/31	1 RT MN

Fac ID: CH001 **Fac Name:** COMMON HEADER FOR WELLS 1 2 **Status:** A **Src:** GW

Smp Pt ID	Active	Smp Pt Description
EP502	A	EP FOR WELL 1 2 CH

Group	Name	Schd Beg Date	Init MP Beg	Seas Coll Per	Requirement
ARSE	CDS ARSENIC	01/01/1999	01/01/1999	1/1-12/31	1 RT 3Y
COMB	CDS RADIUMS COMBINED	01/01/2004	01/01/2004	1/1-12/31	1 RT QT
GRAL	CDS RAD GROSS ALPHA	01/01/2004	01/01/2004	1/1-12/31	1 RT QT
INO1	CDS P2-5 INORGANICS	01/01/1999	01/01/1999	1/1-12/31	1 RT 3Y
NITR	CDS NITRATE NITRITE	01/01/2000	01/01/2000	1/1-12/31	1 RT YR
SOC1	CDS SOC	01/01/1999	01/01/1999	1/1-12/31	1 RT 3Y
VOC1	CDS VOC	01/01/2002	01/01/2002	1/1-12/31	1 RT 3Y

Fac ID: DS001 **Fac Name:** DISTRIBUTION SYSTEM **Status:** A **Src:** GW

Smp Pt ID	Active	Smp Pt Description
SP001	A	SP FOR DS

Group	Name	Schd Beg Date	Init MP Beg	Seas Coll Per	Requirement
PBCU	CDS LEAD COPPER ONLY	01/01/2005	01/01/2005	6/1-9/30	5 RT 3Y

Bacti Results FROM 01/01/2000 TO 07/15/2005

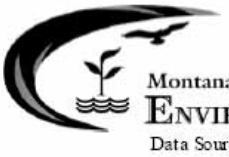
Collection Dt	Lab Number	Type	Orig Lab #	Code		TCR Presence	Fec/EC Result
06/06/2005	50446001	RT		3100	COLIFORM, TOTAL (TCR)	A	-
05/09/2005	50362701	RT		3100	COLIFORM, TOTAL (TCR)	A	-
04/25/2005	50316101	RT		3100	COLIFORM, TOTAL (TCR)	A	-
03/09/2005	50187001	RT		3100	COLIFORM, TOTAL (TCR)	A	-
02/02/2005	50085202	RT		3100	COLIFORM, TOTAL (TCR)	A	-
02/02/2005	852-2	RT		3100	COLIFORM, TOTAL (TCR)	A	-
01/10/2005	50025101	RT		3100	COLIFORM, TOTAL (TCR)	A	-
12/20/2004	41101901	RT		3100	COLIFORM, TOTAL (TCR)	A	-
11/08/2004	40983301	RT		3100	COLIFORM, TOTAL (TCR)	A	-
10/20/2004	40931201	RT		3100	COLIFORM, TOTAL (TCR)	A	-
09/13/2004	40800201	RT		3100	COLIFORM, TOTAL (TCR)	A	-
08/23/2004	40731901	RT		3100	COLIFORM, TOTAL (TCR)	A	-
07/12/2004	40579001	RT		3100	COLIFORM, TOTAL (TCR)	A	-
06/14/2004	40477601	RT		3100	COLIFORM, TOTAL (TCR)	A	-

Montana Department of
ENVIRONMENTAL QUALITY
Data Source: Public Water Supply Section

Public Water Supply System

PWSID: MT0003556 Name: NORTH SHORE ESTATES HOA (continued)

Collection Dt	Lab Number	Type	Orig Lab #	Code		TCR Presence		Fec/EC Result
05/19/2004	40390701	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
04/15/2004	40284101	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
03/15/2004	40188201	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
02/19/2004	40124201	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
01/06/2004	40010801	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
01/06/2004	40010802	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
01/06/2004	40010803	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
01/06/2004	40010804	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
01/06/2004	40010805	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
12/15/2003	31059401	RT		3014	COLIFORM, E. COLI	A		-
12/15/2003	31059401	RT		3100	COLIFORM, TOTAL (TCR)	P	+	
11/17/2003	30976701	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
10/15/2003	8891	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
09/17/2003	7966	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
08/11/2003	6670-1	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
08/11/2003	6670-2	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
08/11/2003	6670-3	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
08/11/2003	6670-4	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
08/11/2003	6670-5	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
07/07/2003	5332	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
07/07/2003	5358-1	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
07/07/2003	5358-2	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
07/07/2003	5358-3	RT		3100	COLIFORM, TOTAL (TCR)	P	+	
07/07/2003	5358-3	RT		3014	COLIFORM, E. COLI	A		-
07/07/2003	5358-4	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
06/09/2003	444-2	RP	4236	3100	COLIFORM, TOTAL (TCR)	A	-	
06/09/2003	4444-1	RP	4236	3100	COLIFORM, TOTAL (TCR)	A	-	
06/09/2003	4444-3	RP	4236	3100	COLIFORM, TOTAL (TCR)	P	+	
06/09/2003	4444-3	RP	4236	3014	COLIFORM, E. COLI	A		-
06/09/2003	4444-4	RP	4236	3100	COLIFORM, TOTAL (TCR)	A	-	
06/03/2003	4236	RT		3100	COLIFORM, TOTAL (TCR)	P	+	
06/03/2003	4236	RT		3014	COLIFORM, E. COLI	A		-
05/19/2003	3788	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
04/16/2003	2785	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
03/17/2003	1910	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
02/10/2003	1020	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
01/21/2003	498	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
12/05/2002	9793	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
11/18/2002	9272	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
10/21/2002	8484	RT		3100	COLIFORM, TOTAL (TCR)	A	-	



Public Water Supply System

PWSID: MT0003556 Name: NORTH SHORE ESTATES HOA (continued)

Collection Dt	Lab Number	Type	Orig Lab #	Code		TCR Presence		Fec/EC Result
09/16/2002	7337	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
08/21/2002	6572	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
07/09/2002	5099	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
06/12/2002	4246	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
05/14/2002	3376	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
04/09/2002	2321	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
03/19/2002	1810	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
03/18/2002	1777	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
02/25/2002	1305	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
01/22/2002	507	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
12/17/2001	10212	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
11/26/2001	9561	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
10/25/2001	8857	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
09/10/2001	7449	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
08/07/2001	6462-1	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
08/07/2001	6462-2	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
08/07/2001	6462-3	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
08/07/2001	6462-4	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
08/07/2001	6462-5	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
07/16/2001	5739-1	RP	5606	3100	COLIFORM, TOTAL (TCR)	A	-	
07/16/2001	5739-2	RP	5606	3100	COLIFORM, TOTAL (TCR)	A	-	
07/16/2001	5739-3	RP	5606	3100	COLIFORM, TOTAL (TCR)	A	-	
07/16/2001	5739-4	RP	5606	3100	COLIFORM, TOTAL (TCR)	A	-	
07/11/2001	5606	RT		3100	COLIFORM, TOTAL (TCR)	P	+	
07/11/2001	5606	RT		3014	COLIFORM, E. COLI	A		-
06/04/2001	4416	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
05/07/2001	3635	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
04/10/2001	3018	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
03/08/2001	2167	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
02/21/2001	1161	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
01/16/2001	364	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
12/18/2000	10048	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
11/15/2000	9238	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
10/16/2000	8505	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
09/28/2000	8025	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
08/30/2000	7132	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
07/20/2000	5886	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
06/14/2000	4594	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
05/22/2000	3760	RT		3100	COLIFORM, TOTAL (TCR)	A	-	
04/24/2000	2953	RT		3100	COLIFORM, TOTAL (TCR)	A	-	

Montana Department of
ENVIRONMENTAL QUALITY
Data Source: Public Water Supply Section

Public Water Supply System

PWSID: MT0003556 Name: NORTH SHORE ESTATES HOA (continued)

Collection Dt	Lab Number	Type	Orig Lab #	Code		TCR Presence	Fec/EC Result
04/24/2000	2953	RT		3100	COLIFORM, TOTAL (TCR)	A	-
03/27/2000	2151	RT		3100	COLIFORM, TOTAL (TCR)	A	-
02/28/2000	1431	RT		3100	COLIFORM, TOTAL (TCR)	A	-
01/19/2000	514	RT		3100	COLIFORM, TOTAL (TCR)	A	-

Chemical Results FROM 01/01/2000 TO 07/15/2005

Fac ID: CH001 **Fac Name:** COMMON HEADER FOR WELLS 1 2 **Avl:** P **Status:** A **Src:** GW
Smp Pt ID: EP502 **Status:** A **Description:**EP FOR WELL 1 2 CH **Src Typ:** RW

Analyte/CAS No		Code	Analyte Name	Type	Collection Dt	Lab	Sample Number	Result
IOC		1038	NITRATE+NITRITE (AS N)	RT	02/02/2005	02	50085201	< MRL .01 MG/L
OC	16655-82-6	2066	3-HYDROXYCARBOFURAN	RT	12/30/2004	24	B05010112-001A	< MRL .5 UG/L
OC	116-06-3	2047	ALDICARB	RT	12/30/2004	24	B05010112-001A	< MRL .5 UG/L
OC	1646-88-4	2044	ALDICARB SULFONE	RT	12/30/2004	24	B05010112-001A	< MRL .5 UG/L
OC	1646-87-3	2043	ALDICARB SULFOXIDE	RT	12/30/2004	24	B05010112-001A	< MRL .5 UG/L
OC	63-25-2	2021	CARBARYL	RT	12/30/2004	24	B05010112-001A	< MRL .5 UG/L
OC	1563-66-2	2046	CARBOFURAN	RT	12/30/2004	24	B05010112-001A	< MRL .5 UG/L
OC	16752-77-5	2022	METHOMYL	RT	12/30/2004	24	B05010112-001A	< MRL .5 UG/L
OC	23135-22-0	2036	OXAMYL (VYDATE)	RT	12/30/2004	24	B05010112-001A	< MRL .5 UG/L
IOC	16984-48-8	1025	FLUORIDE	RT	12/21/2004	02	0411093-01	0.22 MG/L
IOC	14808-79-8	1055	SULFATE	RT	12/21/2004	02	0411093-01	14.1 MG/L
IOC	16887-00-6	1017	CHLORIDE	RT	12/21/2004	02	41109301	< MRL 1 UG/L
IOC	16984-48-8	1025	FLUORIDE	RT	12/21/2004	02	41109301	0.22 MG/L
IOC	14808-79-8	1055	SULFATE	RT	12/21/2004	02	41109301	14.1 MG/L
OC	93-72-1	2110	2,4,5-TP (SILVEX)	RT	12/21/2004	08	B04121516-001A	< MRL .2 UG/L
OC	94-75-7	2105	2,4-D	RT	12/21/2004	08	B04121516-001A	< MRL 1 UG/L
OC	75-99-0	2031	DALAPON	RT	12/21/2004	08	B04121516-001A	< MRL 2.5 UG/L
OC	1918-00-9	2440	DICAMBA	RT	12/21/2004	08	B04121516-001A	< MRL .25 UG/L
OC	88-85-7	2041	DINOSEB	RT	12/21/2004	08	B04121516-001A	< MRL 1 UG/L
OC	87-86-5	2326	PENTACHLOROPHENOL	RT	12/21/2004	08	B04121516-001A	< MRL .04 UG/L
OC	1918-02-1	2040	PICLORAM	RT	12/21/2004	08	B04121516-001A	< MRL .5 UG/L
OC	15972-60-8	2051	ALACHLOR (LASSO)	RT	12/21/2004	08	B04121516-001B	< MRL .1 UG/L
OC	309-00-2	2356	ALDRIN	RT	12/21/2004	08	B04121516-001B	< MRL .1 UG/L
OC	1912-24-9	2050	ATRAZINE	RT	12/21/2004	08	B04121516-001B	< MRL .1 UG/L
OC	50-32-8	2306	BENZO (A) PYRENE	RT	12/21/2004	08	B04121516-001B	< MRL .1 UG/L
OC	58-89-9	2010	BHC-GAMMA (LINDANE)	RT	12/21/2004	08	B04121516-001B	< MRL .1 UG/L
OC	23184-66-9	2076	BUTACHLOR (MACHETE)	RT	12/21/2004	08	B04121516-001B	< MRL .1 UG/L
OC	57-74-9	2959	CHLORDANE	RT	12/21/2004	08	B04121516-001B	< MRL 1 UG/L
OC	103-23-1	2035	DI(2-ETHYLHEXYL) - ADIPATE	RT	12/21/2004	08	B04121516-001B	< MRL .5 UG/L
OC	117-81-7	2039	DI(2-ETHYLHEXYL) - PHTHALATE	RT	12/21/2004	08	B04121516-001B	< MRL 2 UG/L
OC	60-57-1	2070	DIELDRIN	RT	12/21/2004	08	B04121516-001B	< MRL .1 UG/L
OC	72-20-8	2005	ENDRIN	RT	12/21/2004	08	B04121516-001B	< MRL .1 UG/L
OC	76-44-8	2065	HEPTACHLOR	RT	12/21/2004	08	B04121516-001B	< MRL .1 UG/L
OC	1024-57-3	2067	HEPTACHLOR EPOXIDE	RT	12/21/2004	08	B04121516-001B	< MRL .1 UG/L
OC	118-74-1	2274	HEXACHLOROBENZENE	RT	12/21/2004	08	B04121516-001B	< MRL .1 UG/L
OC	77-47-4	2042	HEXACHLOROCYCLOPENTADIENE	RT	12/21/2004	08	B04121516-001B	< MRL .1 UG/L
OC	72-43-5	2015	METHOXYCHLOR	RT	12/21/2004	08	B04121516-001B	< MRL .1 UG/L
OC	51218-45-2	2045	METOLACHLOR	RT	12/21/2004	08	B04121516-001B	< MRL .1 UG/L
OC	21087-64-9	2595	METRIBUZIN (SENCOR)	RT	12/21/2004	08	B04121516-001B	< MRL .1 UG/L
OC	1918-16-7	2077	PROPACHLOR	RT	12/21/2004	08	B04121516-001B	< MRL .1 UG/L
OC	122-34-9	2037	SIMAZINE	RT	12/21/2004	08	B04121516-001B	< MRL .1 UG/L
OC	8001-35-2	2020	TOXAPHENE	RT	12/21/2004	08	B04121516-001B	< MRL 2 UG/L
OC	630-20-6	2986	1,1,1,2-TETRACHLOROETHANE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	71-55-6	2981	1,1,1-TRICHLOROETHANE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	79-34-5	2988	1,1,2,2-TETRACHLOROETHANE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L

Montana Department of
ENVIRONMENTAL QUALITY
Data Source: Public Water Supply Section

Public Water Supply System

PWSID: MT0003556 **Name:** NORTH SHORE ESTATES HOA (continued)

Fac ID: CH001 **Fac Name:** COMMON HEADER FOR WELLS 1 2 **Avl:** P **Status:** A **Src:**
Smp Pt ID: EP502 **Status:** A **Description:** EP FOR WELL 1 2 CH **Src Typ:** RW

Analyte/CAS No		Code	Analyte Name	Type	Collection Dt	Lab	Sample Number	Result
OC	79-00-5	2985	1,1,2-TRICHLOROETHANE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	75-34-3	2978	1,1-DICHLOROETHANE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	75-35-4	2977	1,1-DICHLOROETHYLENE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	563-58-6	2410	1,1-DICHLOROPROPENE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	87-61-6	2420	1,2,3-TRICHLOROBENZENE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	96-18-4	2414	1,2,3-TRICHLOROPROPANE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	120-82-1	2378	1,2,4-TRICHLOROBENZENE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	95-63-6	2418	1,2,4-TRIMETHYLBENZENE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	107-06-2	2980	1,2-DICHLOROETHANE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	78-87-5	2983	1,2-DICHLOROPROPANE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	108-67-8	2424	1,3,5-TRIMETHYLBENZENE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	142-28-9	2412	1,3-DICHLOROPROPANE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	542-75-6	2413	1,3-DICHLOROPROPENE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	594-20-7	2416	2,2-DICHLOROPROPANE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	71-43-2	2990	BENZENE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	108-86-1	2993	BROMOBENZENE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	74-97-5	2430	BROMOCHLOROMETHANE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	75-27-4	2943	BROMODICHLOROMETHANE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	75-25-2	2942	BROMOFORM	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	74-83-9	2214	BROMOMETHANE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	56-23-5	2982	CARBON TETRACHLORIDE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	124-48-1	2944	CHLORODIBROMOMETHANE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	75-00-3	2216	CHLOROETHANE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	67-66-3	2941	CHLOROFORM	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	74-87-3	2210	CHLOROMETHANE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	156-59-2	2380	CIS-1,2-DICHLOROETHYLENE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	74-95-3	2408	DIBROMOMETHANE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	75-71-8	2212	DICHLORODIFLUOROMETHANE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	75-09-2	2964	DICHLOROMETHANE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	100-41-4	2992	ETHYLBENZENE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	87-68-3	2246	HEXACHLOROBUTADIENE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	98-82-8	2994	ISOPROPYLBENZENE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	541-73-1	2967	M-DICHLOROBENZENE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	108-90-7	2989	MONOCHLOROBENZENE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	104-51-8	2422	N-BUTYLBENZENE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	103-65-1	2998	N-PROPYLBENZENE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	91-20-3	2248	NAPHTHALENE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	95-49-8	2965	O-CHLOROTOLUENE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	95-50-1	2968	O-DICHLOROBENZENE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	106-43-4	2966	P-CHLOROTOLUENE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	106-46-7	2969	P-DICHLOROBENZENE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	99-87-6	2030	P-ISOPROPYLTOLUENE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	135-98-8	2428	SEC-BUTYLBENZENE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	100-42-5	2996	STYRENE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	98-06-6	2426	TERT-BUTYLBENZENE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	127-18-4	2987	TETRACHLOROETHYLENE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	108-88-3	2991	TOLUENE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC		2950	TOTAL TRIHALOMETHANES (TTHM)	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	156-60-5	2979	TRANS-1,2-DICHLOROETHYLENE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	79-01-6	2984	TRICHLOROETHYLENE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	75-69-4	2218	TRICHLOROFLUOROMETHANE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	75-01-4	2976	VINYL CHLORIDE	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	95-47-6	2997	XYLENE, ORTHO	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
OC	1330-20-7	2955	XYLENES	RT	12/21/2004	08	B04121516-001C	< MRL .5 UG/L
IOC	7440-36-0	1074	ANTIMONY	RT	12/21/2004	08	B04121516-001D	< MRL .003 MG/L
IOC	7440-38-2	1005	ARSENIC	RT	12/21/2004	08	B04121516-001D	0.014 MG/L

Montana Department of
ENVIRONMENTAL QUALITY
Data Source: Public Water Supply Section

Public Water Supply System

PWSID: MT0003556 **Name:** NORTH SHORE ESTATES HOA (continued)

Fac ID: CH001 **Fac Name:** COMMON HEADER FOR WELLS 1 2 **Avl:** P **Status:** A **Src:**
Smp Pt ID: EP502 **Status:** A **Description:** EP FOR WELL 1 2 CH **Src Typ:** RW

Analyte/CAS No		Code	Analyte Name	Type	Collection Dt	Lab	Sample Number	Result
IOC	7440-39-3	1010	BARIUM	RT	12/21/2004	08	B04121516-001D	0.2 MG/L
IOC	7440-41-7	1075	BERYLLIUM	RT	12/21/2004	08	B04121516-001D	< MRL .001 MG/L
IOC	7440-43-9	1015	CADMIUM	RT	12/21/2004	08	B04121516-001D	< MRL .001 MG/L
IOC	7440-47-3	1020	CHROMIUM	RT	12/21/2004	08	B04121516-001D	< MRL .01 MG/L
IOC	7439-97-6	1035	MERCURY	RT	12/21/2004	08	B04121516-001D	< MRL .0002 MG/L
IOC	7440-02-0	1036	NICKEL	RT	12/21/2004	08	B04121516-001D	< MRL .01 MG/L
IOC	7782-49-2	1045	SELENIUM	RT	12/21/2004	08	B04121516-001D	< MRL .005 MG/L
IOC	7440-28-0	1085	THALLIUM	RT	12/21/2004	08	B04121516-001D	< MRL .001 MG/L
RA		4000	GROSS ALPHA, INCLDNG RA, EXCLDNG RN	RT	09/30/2004	24	B04100663-001A	2.9 PIC/L
RA		4010	RADIUM, COMBINED (226, 228)	RT	09/30/2004	24	B04100663-001A	4.50 PIC/L
RA	13982-63-3	4020	RADIUM-226	RT	09/30/2004	24	B04100663-001A	< MRL .2 PIC/L
RA	15262-20-1	4030	RADIUM-228	RT	09/30/2004	24	B04100663-001A	4.5 PIC/L
RA		4000	GROSS ALPHA, INCLDNG RA, EXCLDNG RN	RT	04/01/2004	08	B04040334-001-R502	3.5 PIC/L
RA		4010	RADIUM, COMBINED (226, 228)	RT	04/01/2004	08	B04040334-001-R502	< MDL 1 PIC/L
RA	13982-63-3	4020	RADIUM-226	RT	04/01/2004	08	B04040334-001-R502	< MDL 1 PIC/L
RA	15262-20-1	4030	RADIUM-228	RT	04/01/2004	08	B04040334-001-R502	< MDL 1 PIC/L
IOC		1038	NITRATE+NITRITE (AS N)	RT	03/29/2004	02	0402317-01-N502	< MDL .05 MG/L
IOC		1038	NITRATE+NITRITE (AS N)	RT	03/29/2004	02	40231701	< MRL .01 MG/L
RA		4000	GROSS ALPHA, INCLDNG RA, EXCLDNG RN	RT	08/20/2003	08	B03081141-001-R502	4.8 PIC/L
RA		4010	RADIUM, COMBINED (226, 228)	RT	08/20/2003	08	B03081141-001-R502	< MDL 1 PIC/L
RA	13982-63-3	4020	RADIUM-226	RT	08/20/2003	08	B03081141-001-R502	< MDL 1 PIC/L
RA	15262-20-1	4030	RADIUM-228	RT	08/20/2003	08	B03081141-001-R502	< MDL 1 PIC/L
IOC		1038	NITRATE+NITRITE (AS N)	RT	02/19/2003	02	0301272-01-N502	< MDL .05 MG/L
IOC	7440-36-0	1074	ANTIMONY	RT	12/13/2001	08	01-61147-1I502	< MRL .003 MG/L
IOC	7440-38-2	1005	ARSENIC	RT	12/13/2001	08	01-61147-1I502	0.014 MG/L
IOC	7440-39-3	1010	BARIUM	RT	12/13/2001	08	01-61147-1I502	0.2 MG/L
IOC	7440-41-7	1075	BERYLLIUM	RT	12/13/2001	08	01-61147-1I502	< MRL .001 MG/L
IOC	7440-43-9	1015	CADMIUM	RT	12/13/2001	08	01-61147-1I502	< MRL .001 MG/L
IOC	7440-47-3	1020	CHROMIUM	RT	12/13/2001	08	01-61147-1I502	< MRL .01 MG/L
IOC	16984-48-8	1025	FLUORIDE	RT	12/13/2001	08	01-61147-1I502	0.2 MG/L
IOC	7439-97-6	1035	MERCURY	RT	12/13/2001	08	01-61147-1I502	< MRL .0002 MG/L
IOC	7440-02-0	1036	NICKEL	RT	12/13/2001	08	01-61147-1I502	< MRL .01 MG/L
IOC	14797-55-8	1040	NITRATE (AS N)	RT	12/13/2001	08	01-61147-1I502	< MRL .04 MG/L
IOC		1038	NITRATE+NITRITE (AS N)	RT	12/13/2001	08	01-61147-1I502	< MRL .04 MG/L
IOC	14797-65-0	1041	NITRITE (AS N)	RT	12/13/2001	08	01-61147-1I502	< MRL .04 MG/L
IOC	7782-49-2	1045	SELENIUM	RT	12/13/2001	08	01-61147-1I502	< MRL .005 MG/L
IOC	14808-79-8	1055	SULFATE	RT	12/13/2001	08	01-61147-1I502	15.0 MG/L
IOC	7440-28-0	1085	THALLIUM	RT	12/13/2001	08	01-61147-1I502	< MRL .001 MG/L
OC	1746-01-6	2063	2,3,7,8 TCDD (DIOXIN)	RT	10/03/2001	08	001-01-58895-S502	< MDL 0 MG/L
OC	93-72-1	2110	2,4,5-TP (SILVEX)	RT	10/03/2001	08	001-01-58895-S502	< MDL .0002 MG/L
OC	94-75-7	2105	2,4-D	RT	10/03/2001	08	001-01-58895-S502	< MDL .0001 MG/L
OC	16655-82-6	2066	3-HYDROXYCARBOFURAN	RT	10/03/2001	08	001-01-58895-S502	< MDL .00002 MG/L
OC	15972-60-8	2051	ALACHLOR (LASSO)	RT	10/03/2001	08	001-01-58895-S502	< MDL .0002 MG/L
OC	116-06-3	2047	ALDICARB	RT	10/03/2001	08	001-01-58895-S502	< MDL .0005 MG/L
OC	1646-88-4	2044	ALDICARB SULFONE	RT	10/03/2001	08	001-01-58895-S502	< MDL .0005 MG/L
OC	1646-87-3	2043	ALDICARB SULFOXIDE	RT	10/03/2001	08	001-01-58895-S502	< MDL .0008 MG/L
OC	309-00-2	2356	ALDRIN	RT	10/03/2001	08	001-01-58895-S502	< MDL .00002 MG/L
OC	1912-24-9	2050	ATRAZINE	RT	10/03/2001	08	001-01-58895-S502	< MDL .0001 MG/L
OC	50-32-8	2306	BENZO (A) PYRENE	RT	10/03/2001	08	001-01-58895-S502	< MDL .0001 MG/L
OC	58-89-9	2010	BHC-GAMMA (LINDANE)	RT	10/03/2001	08	001-01-58895-S502	< MDL .00002 MG/L
OC	23184-66-9	2076	BUTACHLOR (MACHETE)	RT	10/03/2001	08	001-01-58895-S502	< MDL .00002 MG/L
OC	63-25-2	2021	CARBARYL	RT	10/03/2001	08	001-01-58895-S502	< MDL .00002 MG/L
OC	1563-66-2	2046	CARBOFURAN	RT	10/03/2001	08	001-01-58895-S502	< MDL .0009 MG/L
OC	57-74-9	2959	CHLORDANE	RT	10/03/2001	08	001-01-58895-S502	< MDL .0002 MG/L
OC	75-99-0	2031	DALAPON	RT	10/03/2001	08	001-01-58895-S502	< MDL .1 MG/L
OC	103-23-1	2035	DI(2-ETHYLHEXYL) - ADIPATE	RT	10/03/2001	08	001-01-58895-S502	< MDL .0006 MG/L

Montana Department of
ENVIRONMENTAL QUALITY
Data Source: Public Water Supply Section

Public Water Supply System

PWSID: MT0003556 **Name:** NORTH SHORE ESTATES HOA (continued)

Fac ID: CH001 **Fac Name:** COMMON HEADER FOR WELLS 1 2 **Avl:** P **Status:** A **Src:**
Smp Pt ID: EP502 **Status:** A **Description:** EP FOR WELL 1 2 CH **Src Typ:** RW

Analyte/CAS No		Code	Analyte Name	Type	Collection Dt	Lab	Sample Number	Result
OC	117-81-7	2039	DI(2-ETHYLHEXYL) - PHTHALATE	RT	10/03/2001	08	001-01-58895-S502	< MDL .0006 MG/L
OC	96-12-8	2931	DIBROMOCHLOROPROPANE (DBCP)	RT	10/03/2001	08	001-01-58895-S502	< MDL .00002 MG/L
OC	1918-00-9	2440	DICAMBA	RT	10/03/2001	08	001-01-58895-S502	< MDL .1 MG/L
OC	60-57-1	2070	DIELDRIN	RT	10/03/2001	08	001-01-58895-S502	< MDL .1 MG/L
OC	88-85-7	2041	DINOSEB	RT	10/03/2001	08	001-01-58895-S502	< MDL .0002 MG/L
OC	85-00-7	2032	DIQUAT	RT	10/03/2001	08	001-01-58895-S502	< MDL .0004 MG/L
OC	145-73-3	2033	ENDOTHALL	RT	10/03/2001	08	001-01-58895-S502	< MDL .009 MG/L
OC	72-20-8	2005	ENDRIN	RT	10/03/2001	08	001-01-58895-S502	< MDL .00001 MG/L
OC	106-93-4	2946	ETHYLENE DIBROMIDE (EDB)	RT	10/03/2001	08	001-01-58895-S502	< MDL .00001 MG/L
OC	1071-83-6	2034	GLYPHOSATE	RT	10/03/2001	08	001-01-58895-S502	< MDL .006 MG/L
OC	76-44-8	2065	HEPTACHLOR	RT	10/03/2001	08	001-01-58895-S502	< MDL .00004 MG/L
OC	1024-57-3	2067	HEPTACHLOR EPOXIDE	RT	10/03/2001	08	001-01-58895-S502	< MDL .00002 MG/L
OC	118-74-1	2274	HEXACHLOROBENZENE	RT	10/03/2001	08	001-01-58895-S502	< MDL .0001 MG/L
OC	77-47-4	2042	HEXACHLOROCYCLOPENTADIENE	RT	10/03/2001	08	001-01-58895-S502	< MDL .0001 MG/L
OC	16752-77-5	2022	METHOMYL	RT	10/03/2001	08	001-01-58895-S502	< MDL .1 MG/L
OC	72-43-5	2015	METHOXYCHLOR	RT	10/03/2001	08	001-01-58895-S502	< MDL .0001 MG/L
OC	51218-45-2	2045	METOLACHLOR	RT	10/03/2001	08	001-01-58895-S502	< MDL .1 MG/L
OC	21087-64-9	2595	METRIBUZIN (SENCOR)	RT	10/03/2001	08	001-01-58895-S502	< MDL .1 MG/L
OC	23135-22-0	2036	OXAMYL (VYDATE)	RT	10/03/2001	08	001-01-58895-S502	< MDL .002 MG/L
OC	87-86-5	2326	PENTACHLOROPHENOL	RT	10/03/2001	08	001-01-58895-S502	< MDL .00004 MG/L
OC	1918-02-1	2040	PICLORAM	RT	10/03/2001	08	001-01-58895-S502	< MDL .0001 MG/L
OC	1336-36-3	2383	POLYCHLORINATED BIPHENYLS (PCB)	RT	10/03/2001	08	001-01-58895-S502	< MDL .0001 MG/L
OC	1918-16-7	2077	PROPACHLOR	RT	10/03/2001	08	001-01-58895-S502	< MDL .1 MG/L
OC	122-34-9	2037	SIMAZINE	RT	10/03/2001	08	001-01-58895-S502	< MDL .00007 MG/L
OC	8001-35-2	2020	TOXAPHENE	RT	10/03/2001	08	001-01-58895-S502	< MDL .001 MG/L
OC	630-20-6	2986	1,1,1,2-TETRACHLOROETHANE	RT	10/03/2001	08	001-01-58895-V502	< MDL 0 MG/L
OC	71-55-6	2981	1,1,1-TRICHLOROETHANE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	79-34-5	2988	1,1,2,2-TETRACHLOROETHANE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	79-00-5	2985	1,1,2-TRICHLOROETHANE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	75-34-3	2978	1,1-DICHLOROETHANE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	75-35-4	2977	1,1-DICHLOROETHYLENE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	563-58-6	2410	1,1-DICHLOROPROPENE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC		2419	1,2,3 - TRIMETHYLBENZENE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	87-61-6	2420	1,2,3-TRICHLOROBENZENE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	96-18-4	2414	1,2,3-TRICHLOROPROPANE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	120-82-1	2378	1,2,4-TRICHLOROBENZENE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	107-06-2	2980	1,2-DICHLOROETHANE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	78-87-5	2983	1,2-DICHLOROPROPANE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	108-67-8	2424	1,3,5-TRIMETHYLBENZENE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	142-28-9	2412	1,3-DICHLOROPROPANE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	594-20-7	2416	2,2-DICHLOROPROPANE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	71-43-2	2990	BENZENE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	108-86-1	2993	BROMOBENZENE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	75-27-4	2943	BROMODICHLOROMETHANE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	75-25-2	2942	BROMOFORM	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	74-83-9	2214	BROMOMETHANE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	56-23-5	2982	CARBON TETRACHLORIDE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	124-48-1	2944	CHLORODIBROMOMETHANE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	75-00-3	2216	CHLOROETHANE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	67-66-3	2941	CHLOROFORM	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	74-87-3	2210	CHLOROMETHANE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	156-59-2	2380	CIS-1,2-DICHLOROETHYLENE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	10061-02-6	2228	CIS-1,3-DICHLOROPROPENE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	74-95-3	2408	DIBROMOMETHANE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	75-71-8	2212	DICHLORODIFLUOROMETHANE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	75-09-2	2964	DICHLOROMETHANE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L

Montana Department of
ENVIRONMENTAL QUALITY
Data Source: Public Water Supply Section

Public Water Supply System

PWSID: MT0003556 Name: NORTH SHORE ESTATES HOA (continued)

Fac ID: CH001 **Fac Name:** COMMON HEADER FOR WELLS 1 2 **Avl:** P **Status:** A **Src:**
Smp Pt ID: EP502 **Status:** A **Description:**EP FOR WELL 1 2 CH **Src Typ:** RW

Analyte/CAS No		Code	Analyte Name	Type	Collection Dt	Lab	Sample Number	Result
OC	100-41-4	2992	ETHYLBENZENE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	87-68-3	2246	HEXACHLOROBUTADIENE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	98-82-8	2994	ISOPROPYLBENZENE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	541-73-1	2967	M-DICHLOROBENZENE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	108-90-7	2989	MONOCHLOROBENZENE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	104-51-8	2422	N-BUTYLBENZENE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	103-65-1	2998	N-PROPYLBENZENE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	91-20-3	2248	NAPHTHALENE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	95-49-8	2965	O-CHLOROTOLUENE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	95-50-1	2968	O-DICHLOROBENZENE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	106-43-4	2966	P-CHLOROTOLUENE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	106-46-7	2969	P-DICHLOROBENZENE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	99-87-6	2030	P-ISOPROPYLTOLUENE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	100-42-5	2996	STYRENE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	98-06-6	2426	TERT-BUTYLBENZENE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	127-18-4	2987	TETRACHLOROETHYLENE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	108-88-3	2991	TOLUENE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	156-60-5	2979	TRANS-1,2-DICHLOROETHYLENE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	10061-02-6	2224	TRANS-1,3-DICHLOROPROPENE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	79-01-6	2984	TRICHLOROETHYLENE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	75-69-4	2218	TRICHLOROFLUOROMETHANE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	75-01-4	2976	VINYL CHLORIDE	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	108-38-3	2995	XYLENE, META	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	95-47-6	2997	XYLENE, ORTHO	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	106-42-3	2962	XYLENE, PARA	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
OC	1330-20-7	2955	XYLENES	RT	10/03/2001	08	001-01-58895-V502	< MDL .0005 MG/L
IOC		1038	NITRATE+NITRITE (AS N)	RT	12/18/2000	MIG	10056-I502	< MRL .0005 MG/L
IOC		1038	NITRATE+NITRITE (AS N)	RT	06/14/2000	MIG	4615-I502	0.30 MG/L

Violations & Enforcements FROM 01/01/2000 TO 07/15/2005

Viol Date	Comp Beg	Comp End	Fed FY	Viol No	Type	Sev	Cate	Code	Name
12/22/2003	12/01/2003	12/31/2003	2004	2	22		MCL	3100	COLIFORM, TOTAL (TCR)
2004	5209	12/23/2003	SOX		ST COMPLIANCE ACHIEVED				
2004	5206	12/23/2003	SIE		ST PUBLIC NOTIF REQUESTED				
2004	5205	12/23/2003	SIA		ST VIOLATION/REMINDER NOTICE				
2004	5208	12/23/2003	MPH		PHONE CALL TO SYSTEM				
2004	5207	12/23/2003	MHA		HEALTH ADVISORY				
2004	5208	12/23/2003	EF<		FED CFP ISSUED				
06/12/2003	06/01/2003	06/30/2003	2003	2	22		MCL	3100	COLIFORM, TOTAL (TCR)
2003	5203	08/20/2003	SOX		ST COMPLIANCE ACHIEVED				
2003	5202	06/24/2003	SIF		ST PUBLIC NOTIF RECEIVED				
2003	5198	06/13/2003	SIE		ST PUBLIC NOTIF REQUESTED				
2003	5197	06/13/2003	SIA		ST VIOLATION/REMINDER NOTICE				
2003	5200	06/13/2003	MPH		PHONE CALL TO SYSTEM				
2003	5199	06/13/2003	MHA		HEALTH ADVISORY				
2003	5200	06/13/2003	EF<		FED CFP ISSUED				

Montana Department of
ENVIRONMENTAL QUALITY
Data Source: Public Water Supply Section

Public Water Supply System

PWSID: MT0003556 Name: NORTH SHORE ESTATES HOA (continued)

Viol Date	Comp Beg	Comp End	Fed FY	Viol No	Type	Sev	Cate	Code	Name
02/11/2003	01/01/2002	12/31/2002	2003	3	03	MJ	MON	NITR	CDS NITRATE NITRITE
2003	5192	03/17/2003	SOX	ST COMPLIANCE ACHIEVED					
2003	5196	04/18/2003	SIF	ST PUBLIC NOTIF RECEIVED					
2003	5191	02/18/2003	SIE	ST PUBLIC NOTIF REQUESTED					
2003	5190	02/18/2003	SIA	ST VIOLATION/REMINDER NOTICE					
03/01/2001	01/01/1999	12/31/2000	1999	3	51		MON	5000	LEAD & COPPER RULE
2004	5204	11/26/2003	SOX	ST COMPLIANCE ACHIEVED					
1999	5188	03/01/2001	SFJ	ST FORMAL NOV ISSUED					
03/01/2001	07/01/1999	12/31/2000	2000	3	51		MON	5000	LEAD & COPPER RULE
2001	5195	07/01/2001	SOX	ST COMPLIANCE ACHIEVED					
2000	762	03/01/2001	SFJ	ST FORMAL NOV ISSUED					

APPENDIX C – Sanitary Survey

Helena PWS Files
SDWIS
2/19/04
KB

Montana Department of
ENVIRONMENTAL QUALITY

Judy Martz, Governor

109 Cooperative Way • Suite 105 • Kalispell, MT 59901-2389 • (406) 755-8985 • FAX (406) 755-8977

PERMITTING AND COMPLIANCE DIVISION
Community Services Bureau
Public Water Supply Section

October 3, 2003

North Shore Estates HOA
Attn: Tim Weaver
PO Box 655
Thompson Falls, MT 59873

Re: Sanitary survey inspection of North Shore Estates HOA (PWSID MT#0003556).

Dear Tim,

I would like to thank you for assisting me during the sanitary survey inspection of North Shore Estates HOA water system. As a community public water supply system, your facility is required to have a sanitary survey inspection every three years. These regular inspections offer us an opportunity to look for sanitary deficiencies that have the potential to cause contamination in the water system, as well pointing out operation and maintenance problems. During the inspection, I noted a few concerns that were discussed with you. They are listed below.

WELL # 2

- The apron around wellhead #2 has a rather large crack running across it. I recommend performing concrete repair to improve the integrity of the slab.

DISTRIBUTION

- Several leaks were eliminated when 1,500 feet of distribution main was replaced. Unfortunately, much of the original distribution remains unchanged and continues to leak an undetermined amount of water. The need for replacing the remaining sections of the original distribution main is obvious, and Tim said the system plans to make additional line replacement as financing permits.
- Create "as-built" plans on distribution as improvements are made. Valves, line, curb stops, thrust blocks, etc. locations and types should to be shown within this "as-built" distribution map.

MAINTENANCE AND MANAGEMENT

- Tim requested all construction information that the State has on North Shore Estates water system. A request for this information was called into Helena on the systems behalf.

- Wellhead security could be improved. A common method of securing the wellheads while allowing easy access for work to be done is the installation of concrete collars with lockable lids.
- Develop an operation and maintenance program including equipment manuals, pump curves, drawdown, amperage, pressures, maintenance schedules, monitoring schedules, etc.

If you have any questions about this report or public water supply regulations please give me a call at 755-8985.

Sincerely,

Michael Kropp
Water Quality Specialist
Phone 406-755-8985
Fax 406-755-8977

C: Helena PWS files
Kalispell PWS files
Sanders County Sanitarian

SANITARY SURVEY RE-INSPECTION SHORT FORM

DATE OF SURVEY *9/17/2003*	COUNTY *Sanders 089*	SURVEYOR NAME *Michael Kropp, DEQ-Kalispell*
PWSID *MT0003556*	SYSTEM NAME *North Shore Estates HOA*	
(SYSTEM REPRESENTATIVE) *Tim Weaver*	(OTHER REPRESENTATIVE) *NA*	

SYSTEM ADDRESS

Addressee *North Shore Estates HOA* (Primary Address)

Street *PO Box 655*

City *Thompson Falls* State *MT* Zip *59873*

System Phone *(406)827-4996* Fax (____)____

SYSTEM OWNER

Addressee *same as system information* (Owners Address)

Street ____

City ____ State ____ Zip ____

Owner Phone (____)____ Fax (____)____

OPERATOR OF SYSTEM

Name *Tim Weaver*

Certified Operator ☐ No ☒ Yes If, yes

Certification # *5356* Phone *(406) 827-4996*

SYSTEM CLASS

☒ **C** = Community ☐ **NTNC** = Non-Transient Non-Community
☐ **NC** = Transient Non-Community

Total Service Connections: Residential / Non-Transient: *26*
Transient: *NA*

Total Active Connections: Residential / Non-Transient: *26*
Transient: *NA*

Service Connections Metered? ☐ Yes ☒ No % ____ (Metered)

Resident Population — Number of permanent residents utilizing PWS daily — Summer: *60* Winter: *60*

Non-Transient Population — Number of non-transient persons utilizing PWS daily — Summer: ____ Winter: ____

Transient Population — Number of transient persons served by PWS daily — Summer: ____ Winter: ____

WATER SYSTEM FACILITIES SUMMARY (WSF)

WSF ID	Facility Name	Water Type Code	Purchased	Seller PWSID
DS 001	Distribution System			
			☐ Yes ☐ No	
WL002	well # 1	GW	☐ Yes ☒ No	
WL003	well # 2	GW	☐ Yes ☒ No	
CH001	well 1 and 2 common header		☐ Yes ☐ No	
PC001	pressure control assembly		☐ Yes ☐ No	
DS001	distribution		☐ Yes ☐ No	

Description of Water System Facility flow: *Well 1 (WL002) and well 2 (WL003) join in a common header inside the pump house. Distribution (DS001) line pressure is maintained through a pressure control assembly (PC001) located in the pump house.*

Example: Well 1(WL002) is pumped into pumphouse where chlorine is applied (TP001) and from there to the storage tank (ST001). The treated water flows by gravity to the Distribution System (DS001)

WATER TREATMENT FACILITIES

WSF ID Treatment Plant Name Treatment Objective and Code

NO TREATMENTS

Treatment Description / Comments:____

PRESSURE CONTROL ASSEMBLY

CAPTIVE AIR TANK(S)

WSF ID *PC001* Location, Description *pump house*

Is there a pressure relief valve? ☒ Yes ☐ No

Is there an operable pressure gauge? ☒ Yes ☐ No

Does low pressure level provide adequate pressure? ☒ Yes ☐ No

Are there water-logged tanks? ☐ Yes ☒ No

Is the exterior surface of the tanks in good physical condition? ☒ Yes ☐ No

Can tank(s) be by-passed for repair? ☒ Yes ☐ No

Pump run time *2 min 35 sec*

Time of Day *8:30 am* Cut-In *55* psi

Cut-Out *73* psi

Pump Type: *3 hp submersibles*

Comments: *Tanks appear to be in good working condition. Question the set air pressure behind each bladder to operate the system most efficiently. (2 psi lower than cut in pressure, or approx.53 psi)*

PRESSURE TANK(S)

WSF ID ____ Location, Description ____

Is there an operable pressure gauge? ☐ Yes ☐ No

Does low pressure level provide adequate pressure? ☐ Yes ☐ No

Pump recharge rate ____ Cut-In ____ psi

Time of day ____ Cut-Out ____ psi

Is the tank water logged? ☐ Yes ☐ No

Is air charge system adequate? ☐ Yes ☐ No

Is the exterior surface of the pressure tank in good physical condition? ☐ Yes ☐ No

Is there a water level sight glass? ☐ Yes ☐ No

Is there a bottom drain valve? ☐ Yes ☐ No

Is there a pressure relief valve? ☐ Yes ☐ No

Can tank(s) be by-passed for repair? ☐ Yes ☐ No

Pump type: ____

Comments: ____

STORAGE

How much treated storage is provided? _____ gallons

STORAGE FACILITY

WSF ID _____ Location, Description *NO STORAGE*

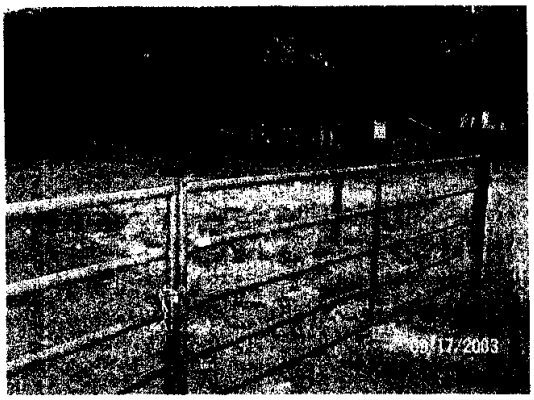
Storage Volume? _____ gallons

Are overflow lines, air vents, drainage lines or clean out pipes turned downward or covered, screened and terminated a minimum of 3 diameters above the ground or storage tank surface?	☐ Yes ☐ No
Is access hatch sealed properly and locked?	☐ Yes ☐ No
Is site adequately protected against vandalism?	☐ Yes ☐ No
Can tank be isolated from system?	☐ Yes ☐ No

What is cleaning frequency for tanks? _____

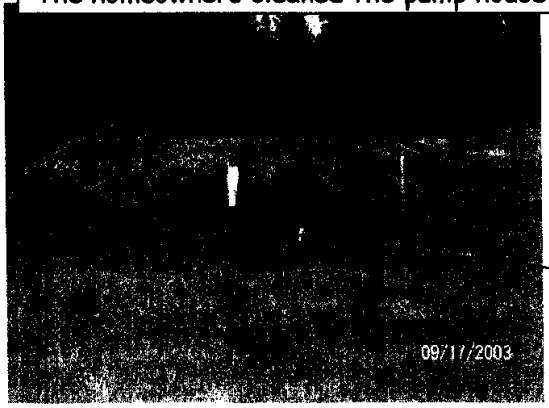
Comments:

North Shore Estates continues to suffer from unapproved construction materials and methods. Thin walled mainline was originally installed and continues to break and separate at the glue joints. Approximately 1,500 feet of distribution main has been replaced since the 2000 sanitary survey. Additional distribution line replacement is planned to improve the original sytem. Unknown number ofleaks still exist in the older distribution lines. The pumps and pressure control assembly is operating more efficiently since the distribution line replacement/repair work was performed. Wellheads are not protected from vandalism. Pump house outlets have been screened. Storage room on pump house has been cleaned out. The submersible pump in well 1 was replaced in 2003. Tim Weaver requested any paper work on system the state may have that pertains to the original construction.



North Shores Estates HOA PWSID#MT0003556 Operator: Tim Weaver
Inspected by Mike Kropp, DEQ, Kalispell 9/17/2003
Left Photo: This locked gate is the only significant protection from trespass in the well area. I suggest installation of concrete collars around each wellhead with lockable lids.
Right Photo: Well #1 (WL002) and well #2 (WL003) are open to trespass. Both wells are located very near the Clark Fork River and North Shores private boat ramp.

The concrete apron around well #2 (WL003) has a rather large crack running across it. Tight bond or a similar concrete product should be used to reseal the crack and improve the aprons integrity.
The homeowners cleaned the pump house since the previous inspection.



About 1,500 feet of distribution main has been replaced since the previous inspection in 2000. Some original construction problems continue with thin walled PVC mainline, glue fittings failure, and the resulting water leaks. The photo to the left shows where a known leak exists that needs to be repaired or replaced.

APPENDIX D - Concurrence Letter & Other Correspondence