Skyline Trailer Court and RV Park
Public Water System

PWSID # MT0002515

SOURCE WATER DELINEATION AND ASSESSMENT REPORT

Date of Report: 9/25/03

PWS Contact:
Jim Womack
Owner

3525 U.S. Highway 91 North
Dillon, MT 59725

Phone: (406) 683-46

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INTRODUCTION

Carolyn DeMartino, a Water Quality Specialist with the Montana Department of Environmental Quality (DEQ), and Aubrey Smartt, a DEQ Intern, completed the Skyline Trailer Court and RV Park (PWSID# 02515) Source Water Delineation and Assessment Report (SWDAR). Jim Womack, at (406) 683-4692 is the owner for the Skyline Trailer Court and RV Park Public Water System (PWS).

Purpose

This Source Water Delineation and Assessment Report is intended to meet the technical requirements for the completion of the delineation and assessment for the Skyline Trailer Court and RV Park 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 protect public drinking water supplies from contamination. A major component of the Montana Source Water Protection Program is "delineation and assessment". Delineation is a process of mapping source water protection areas, which contribute water used for drinking. Assessment involves identifying locations or regions in source water protection areas where contaminants may be generated, stored, or transported, and then determining the relative potential for contamination of drinking water by these sources. The primary purpose of this source water delineation and assessment report is to provide information that helps the Skyline Trailer Court and RV Park complete a source water protection plan to protect its drinking water source.

Limitations

This report was prepared to identify potential contaminant sources that may impact the Skyline Trailer Court and RV Park public water supply, and is based on published information and information obtained from local residents familiar with the community. The terms "drinking water supply" or "drinking water source" refer specifically to the source of the Skyline Trailer Court and RV Park public water supply and not any other public or private water supply. Also, not every potential or existing source of groundwater or surface water contamination in the Skyline Trailer Court and RV Park area have been identified. Only potential sources of contamination in areas that contribute water to its drinking water source are considered.

The term "contaminant" is used in this report to refer to constituents that have maximum concentration levels (MCLs) specified under the national primary drinking water standards, and to certain constituents that do not have MCLs but are considered to be significant health threats

CHAPTER 1
BACKGROUND

The Community

The Skyline Trailer Court and RV Park is located about 2 ½ miles north of the City of Dillon on U.S. Highway 91 North. Dillon is located in Beaverhead County in southwestern Montana (Figure 1). According to the Census Bureau the population of Beaverhead County in 1999 was 8,790 with Dillon's population at 4,342. Approximately 50 year round residents as well as 50 summer and 5 winter transient residents live in the Skyline Trailer Court and RV Park. The Dillon area economy is based primarily upon agriculture and tourism. Barretts Minerals Inc., a talc processing facility, and Western Montana College of the University of Montana also contribute to the Dillon economy. Other area businesses include gas stations, automotive dealerships and repair shops, a petroleum bulk plant, the Montana Department of Transportation Maintenance Shop, dry cleaners, restaurants, and motels. Major water users in the community include the college, hospital, and four additional schools. Major waste generators include the college and the hospital.

Major transportation routes in the Skyline Trailer Court and RV Park area are Interstate 15, and Montana Highways 41 and 91. The Union Pacific Railroad provides railway transportation to the Dillon area

Skyline Trailer Court and RV Park is served by a large capacity on-site septic system that consists of one tank and two drain fields. The drain field used is alternated every six months (Engle, 2000).

There are other PWSs in the Skyline vicinity (Figure 2). Although these systems will not be discussed in this report they have been listed in Table 1 for informational purposes.

Table 1. Skyline Trailer Court and RV Park Area Public Water Supplies

Public Water Supply Name	PWSID#	Class
Hildreth Subdivision #2	02468	Community
Hildreth Subdivision #3	03968	Community
Keller Subdivision #2	02485	Community
City of Dillon	00201	Community
Shady Nook Trailer Court	02484	Community
Western Mobile Village	02171	Community
Ned Eva Bowling Center	02532	Transient
Town Pump #0360	03318	Transient

Climate

The climate in the vicinity of the Skyline Trailer Court and RV Park is typical of higher-elevation intermountain basins of the Northern Rocky Mountains east of the Continental Divide. Based on Western Regional Climatic Center data for the period of record, annual precipitation averages 13.39 inches. Monthly average precipitation ranges from 0.48 inches in February to 2.35 inches in May. Summer

thunderstorms and winter snows provide a majority of the precipitation in the area. The annual mean snowfall in the Dillon area is 42.6 inches. Periodic drought cycles (as defined by moving annual precipitation averages less than 10 inches) occur in the region at approximately 4 to 5 year intervals. A summary of the available climatic data for the Dillon area is presented on Table 2 below.

Table 2. Climatic Summary
Dillon WMCE, Montana (242409)
Period of Record Monthly Climate Summary
Period of Record: 1/15/1895 to 12/31/2001

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	34.4	39.4	46.0	56.3	65.7	74.2	83.1	81.4	71.7	61.3	45.6	36.3	57.9
Average Min. Temperature (F)	12.3	16.0	21.5	29.3	36.6	42.9	47.5	45.1	37.7	30.8	21.6	14.5	29.7
Average Total Precipitation (in.)	0.57	0.48	0.87	1.35	2.35	2.24	1.28	1.14	1.19	0.80	0.60	0.52	13.39
Average Total Snow Fall (in.)	6.8	6.1	8.0	6.0	1.6	0.2	0.0	0.0	0.7	2.0	5.2	6.0	42.6
Average Snow Depth (in.)	2	1	1	0	0	0	0	0	0	0	0	1	0

Percent of possible observations for period of record.
Max. Temp.: 96% Min. Temp.: 96.2% Precipitation: 96.2% Snowfall: 79.2% Snow Depth: 41.8%
Source: Western Regional Climate Center, wrcc@dri.edu

Geographic Setting

Skyline Trailer Court and RV Park is located in the central Beaverhead River Valley of southwestern Montana, just west of the Beaverhead River in Section 1, Township 7 South, and Range 8 West (Figure 2). The Beaverhead River originates at the confluence of the Red Rock River and Horse Prairie Creek, located approximately 23 miles southwest of Dillon. The City of Dillon, including the Skyline area, is located in a northeast trending intermontane basin. This area is bounded by the Tobacco Root Mountains on the northeast, Ruby Range on the east, Burns and Gallagher Mountains on the south, Pioneer Mountains on the west, and the McCartney Mountain on the northwest (Kendy and Tresch, 1996). The elevation of the Dillon area is approximately 5,000 feet above mean sea level.

The area north of Dillon, where the Skyline Trailer Court and RV Park is located, exhibits high groundwater levels. West Side irrigation canal and Guidici Ditch are also located in the Skyline vicinity. Guidici Ditch and the West Side canal are located east and west of the trailer court respectively (Figure 1).

Geology

This section provides an overview of the geology in the vicinity of the Skyline Trailer Court and RV Park. The geology of the area can be used to determine the locations, boundaries, and hydraulic properties of local aquifers. An understanding of hydrogeologic conditions also provides an explanation for the sensitivity of local aquifers to potential contamination sources.

The following is primarily drawn from Kendy and Tresch (1996) and Uthman and Beck (1998). The Skyline Trailer Court and RV Park is located in central Beaverhead Valley of the Upper Beaverhead Basin. A zone of complex normal and right-lateral strike-slip faults bound it on the east and normal faults bound it on the west. The valley was formed by down dropping along basin-marginal, north to northeast-striking faults (Kendy and Tresch, 1996).

There are three principal aquifers in the Upper Beaverhead Basin. They include the bedrock aquifer, the lower Tertiary aquifer, and the Quaternary /upper Tertiary valley-fill aquifer (Uthman and Beck, 1998). The Quaternary /upper Tertiary aquifer is named this way because the units behave similarly as water-bearing material although they are different ages and they appear to grade into each other. Skyline Trailer Court and RV Park obtains its water from a well completed in upper Tertiary sediments that are overlain by Quaternary alluvium (Figure 3). The alluvial deposits consist mainly of silt, sand, and gravel, and in the area north of Dillon there is also a significant amount of clay. The Tertiary sediments underlying the alluvium consist mainly of tuffaceous sandstone, siltstone, and mudstone with some lacustrine limestone, marl, tuff, shale, and conglomerate (Kendy and Tresch, 1996).

The Quaternary/upper Tertiary aquifer is the most productive and utilized aquifer in the Upper Beaverhead Basin in terms of groundwater yield to area wells. While the aquifer is several hundred feet thick in portions of the basin, it thins to about 25 feet near Dillon. The Lower Tertiary Aquifer provides lower yields to area wells due to the presence of fine sediments. The bedrock aquifer provides only small yields to individual area wells.

The Public Water Supply

The Skyline Trailer Court and RV Park PWS 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 Skyline PWS services 50+ residents via 59 active service connections.

The most recent sanitary survey indicates that the Skyline Trailer Court and RV Park obtains its water through an 8-inch steel well drilled in 1972 to a depth of 68 feet. At the time of drilling it had a yield of 25 gallons per minute. The well is located in a wellhouse on the west side of the trailer court. From the well, water moves through 3 captive air tanks that are located in the wellhouse. These tanks provide some storage of water and pressure in the system before the pump is put to use. These tanks allow about 75 gallons of water usage before the pump comes on to provide more water to the system. A copy of the well log is located in Appendix A.

There are two distribution lines that leave the wellhouse. One line provides water to the 22 mobile homes on the north side of the facility and the other line provides water the 36 RV spaces, a laundry room, and a restroom/shower building. A copy of the site plan is located in Appendix B.

Water Quality

Public water systems must conduct routine monitoring for contaminants in accordance with Federal Safe Drinking Water Act requirements. Parameters such as 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 must be sampled in community PWSs and non-community, non-transient PWSs in accordance with schedules specified in the Administrative Rules of Montana. All contaminant concentrations detected in required samples must comply with numeric maximum contaminant levels (MCLs) specified in the Federal Safe Drinking Water Act.

Skyline Trailer Court and RV Park Water Quality

The Skyline Trailer Court and RV Park's water quality is routinely monitored for compliance with drinking water standards. Bacteriological monitoring is conducted monthly. Compliance with other drinking water standards is based on additional sampling on a variety of schedules. Within the past five years there have been no coliform bacteria detections in Skyline Trailer Court and RV Park's PWS. Nitrate plus nitrite as nitrogen ranging from 1.74 milligrams per liter (mg/L) to 2.1 mg/L has been detected in Skyline's water within the past five years but remains well below the maximum contaminant level of 10 mg/L (DEQ SDWIS database).

Based on groundwater monitoring results from the Upper Beaverhead Basin, wells drilled into shallow Tertiary sediments and the Quaternary alluvium of the Beaverhead River floodplain exhibit groundwater that is mainly a sodium bicarbonate type (Uthman and Beck, 1998). Concentrations of many of the parameters were greater in the Quaternary alluvium because the low land floodplain of the Beaverhead River serves as a collection area for mineral concentrations.

Appendix C contains a summary of the water quality for the Skyline Trailer Court and RV Park well compiled from the Montana Bureau of Mines and Geology (MBMG) Ground Water Information Center (GWIC).

CHAPTER 2
DELINEATION

The source water protection area, the land area that contributes water to Skyline Trailer Court and RV Park's PWS well, is identified in this chapter. Management areas identified within the source water protection area include the control zone, inventory region, surface water buffer, and recharge region. The control zone is an area at least 100-foot radius around the well. The management goal of the control zone, also known as the exclusion zone, is to protect against the direct introduction of contaminants into the well or in the immediate area surrounding each well.

The inventory region represents the zone of contribution of the well, which approximates a three-year groundwater time-of-travel. Analytical equations describing ground water flow using estimates of pumping and aquifer characteristics, and simple hydrogeologic mapping are used to calculate groundwater time-of-travel distance. The management goal of the inventory region is to focus on pollution prevention activities at potential contaminant sources where it is likely that contaminated water would flow into the well within a relatively short time-frame.

A surface water buffer zone has been delineated around the Beaverhead River and its major tributaries to account for the interaction of surface water and groundwater. The surface water buffer includes ½-mile buffer around associated surface waters for 10 miles upstream of the groundwater zone of contributions or to watershed limits, whichever distance is shorter. The management goal of the surface water buffer is to protect against the introduction of pathogens and nitrates into the wells through surface water-groundwater interaction.

The recharge region represents the entire portion of the aquifer that contributes water to the Skyline water system. Management in the recharge region should focus on maintaining and improving the quality of groundwater that could reach the well over longer timeframes or with increased water usage.

Hydrogeologic Conditions

Much of the following description of the hydrogeologic setting in this section was obtained primarily from the *Hydrogeology of the Upper Beaverhead Basin near Dillon, Montana* by William Uthman and James Beck. Table 3 contains a summary of geologic and hydrogeologic maps available in the Dillon area.

Table 3. **List of geologic or hydrogeologic maps available for the Dillon area.**

Title or Description	Date	Area Covered	Reference
Dillon West USGS 7.5' Topographic Quadrangle	Photorevised 1979	Dillon Vicinity	USGS 7.5’ Topographic Quadrangle
Dillon East USGS 7.5' Topographic Quadrangle	Photorevised 1979	Dillon Vicinity	USGS 7.5’ Topographic Quadrangle
Geologic Map of Dillon 1°x 2° quadrangle	1993	Dillon, MT and portion of Idaho	Ruppel, E.T. et al. USGS, Map I-1803-H

The Skyline Trailer Court and RV Park is located in the central Beaverhead River Valley of the Upper Beaverhead Basin. The floor of the Beaverhead Basin is composed of 2.5- to 3.8 billion-year-old metamorphic bedrock. The bedrock is overlain by thick sequences of Tertiary-aged sediments that are overlain by upper Tertiary and Quaternary fluvial and glacial sediments. The upper Tertiary sediments are the source of water for the Skyline Trailer Court and RV Park PWS. The Blacktail Range and the northwest trending Blacktail fault form the southern boundary of the basin. Blacktail fault dips steeply to the southwest. The Ruby Range and Ruby fault form the eastern boundary of the basin, and the western boundary of the basin is formed by the Pioneer Mountains.

The three principal aquifers located in the upper Beaverhead basin include the bedrock aquifer, the lower Tertiary aquifer, and the Quaternary/upper Tertiary aquifer. The bedrock aquifer is present within the mountains surrounding the basin and extends beneath the valley fill. Yield to wells from the bedrock aquifer is low, but the total amount of groundwater recharge to the valley-fill sediments is significant. Recharge to the bedrock aquifer is in the form of precipitation falling on exposed outcrops in the mountains. The lower Tertiary aquifer overlies the bedrock aquifer and is buried beneath the younger, coarser sediments. It is comprised of mainly fine-grained sediments and therefore also provides low yield to wells. Recharge to the Lower Tertiary aquifer appears to be from the underlying Madison limestone bedrock. The Quaternary/upper Tertiary aquifer composed of fluvial and glacial sediments ranges in total thickness from tens of feet to hundreds of feet thick. It is the most productive and most utilized aquifer in the Upper Beaverhead Basin, however, this aquifer thins to 25 feet northeastward in the Dillon area. In addition to recharge from the bedrock aquifer, recharge to the Quaternary/upper Tertiary aquifer also includes direct precipitation, irrigation return flow, and losses from area streams.

The Skyline Trailer Court and RV Park PWS well is completed in semi-confined upper Tertiary sediments and Quaternary alluvium. Based on Table 4 below, groundwater supplying the Skyline Trailer Court and RV Park well would have moderate source water sensitivity to potential contaminant sources.

Table 4. Source Water Sensitivity Criteria (DEQ, 1999).

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)

Conceptual Model and Assumptions

The three main aquifers located in the Upper Beaverhead Basin near the Skyline Trailer Court and RV Park from oldest to youngest include the bedrock aquifer, the lower Tertiary aquifer, and the Quaternary/upper Tertiary aquifer. Groundwater located in the Quaternary/upper Tertiary aquifer supplies water to the Skyline Trailer Court and RV Park well. Based on geochemical data, ground water recharge to the Tertiary sediments may come from the underlying Madison Limestone bedrock aquifer. Recharge to the bedrock aquifer is from precipitation falling on exposed outcrops in the mountains surrounding Dillon. In addition to snowmelt runoff, direct precipitation, irrigation return flow, and losses from area streams, recharge from the bedrock aquifer is also a significant source of recharge to the Quaternary alluvial aquifer.

Generally, groundwater in the Dillon area is at its lowest in late April or early May and highest during July and August. Groundwater level rises along the Beaverhead River near Dillon have been measured at less than one-foot to five feet. Because the aquifer thins northeastward groundwater levels are higher in this area.

Well Information

Well information for the Skyline PWS is summarized in Table 5 below.

Table 5. Skyline RV and Trailer Court PWS Source Well Information.

Information	Well #1
PWS Source Code	002
Well Location (T, R, Sec)	T7S, R9W, 01 AA
Latitude/ Longitude	45.2606/ 112.6422
MBMG #	109589
Water Right #	N/A
Date Well was Completed	01/01/72
Total Depth	68'
Perforated Interval	57-67'
Static Water Level	40'
Pumping Water Level	50'
Drawdown	10'
Test Pumping Rate	25 GPM

Delineation Results

Methods and Criteria

DEQ's Source Water Protection Program specifies methods and criteria used to delineate subregions of the source water protection area for Skyline Trailer Court and RV Park's well. A control zone, an inventory region, a surface water buffer, and a recharge region were delineated for the Skyline PWS well.

Time-of-Travel Model Input

Estimates of the time-of-travel (TOT) input parameters for the Skyline well were obtained from the well log, previous reports, and hydrogeology texts. Estimates of these parameters are summarized in Table 6. The selection criteria for the parameters are described in the text following Table 6.

Table 6. Estimates of input parameters used to delineate the source water protection area.

Input Parameter	Range of Values/ Units	Values Used for the Skyline well
PWS Source Code	N/A	WL002
Transmissivity	$1x10^4$ - $1x10^5$ ft^2/day	20,250 ft^2/day
Thickness	10 - 30 Feet	27 Feet
Hydraulic Conductivity	1 - 10^4 ft/day	750 ft/day
Hydraulic Gradient	.004 - .012	0.010
Flow Direction	N-NE	NE
Effective Porosity	10 - 35 %	15 %
Pumping Rate	20 - 25 GPM	25 GPM
1-Year TOT*	1 - 2 Miles	1.5 Miles
3-Year TOT*	1 - 5 Miles	4 Miles

*Time of Travel

PWS Source Code - is the specific identification code for the Skyline Trailer Court and RV Park PWS well. The code is obtained from the DEQ Public Water Supply Section SDWIS database.

Transmissivity (T) - is the rate of groundwater flow through an aquifer cross-section of unit width over the entire saturated thickness of the aquifer under a unit hydraulic conductivity.

Thickness - denotes the aquifer thickness.

Hydraulic Conductivity (K) - is the rate at which a porous material (e.g. sand and gravel) transmits water.

Hydraulic Gradient (i) is the change in water level over distance.

Flow Direction - is the direction that ground water is flowing.

Effective Porosity - as applied to aquifer materials it is the ratio of the volume of water which, after being saturated, the aquifer will yield by gravity to its own volume.

Pumping Rate - is the pumping rate of Skyline Trailer Court and RV Park's well.

Delineation Regions

Based on hydrogeologic mapping, the one-year TOT and three-year TOT distances were modified for Skyline Trailer Court and RV Park's well. A combined three-year TOT and one-year TOT inventory region of approximately 2.5 miles was utilized for the well (Figure 4). The inventory region was modified based on the hydrogeologic boundaries at the contact between the Tertiary sediments and the valley alluvium as well as the Beaverhead River. A surface water buffer was delineated around the Beaverhead River and two of its tributaries (Figure 5). The surface water buffer extends ½ mile downstream of the Skyline wells to 10 miles upgradient of the wells with a ½ mile buffer adjacent to all shorelines. The recharge region for this well was delineated using hydrogeological mapping (Figure 6).

Limiting Factors

This delineation is based on estimated groundwater flow, pumping conditions, and hydrogeological mapping. The total amount of recharge to the system from streams and irrigation canals is unknown and can vary seasonally. To account for some of this variation, the inventory region was modified to extend west to the valley wall, the contact between Tertiary sediments and the Quaternary alluvium.

Time of travel distances, modified using hydrogeological mapping, represent the time required for ground water to travel through a specified aquifer to the public water supply well. These distances do not represent the time required for contaminants to reach a public water supply well. Travel times for the migration of free phase contaminants that are not dissolved in the ground water vary tremendously from ground-water travel times. Free phase contamination migration rates are influenced by the characteristics of the vadose zone, contaminant density, the slope of the water table, the slope of the base of the aquifer, aquifer porosity, lithologic heterogeneities, and the extent and duration of contamination.

Travel times for dissolved contaminant migration also differ from ground-water travel times. Dissolved contaminants are affected by advection, or the component of solute movement attributed to transport by flowing ground water (Freeze and Cherry, 1979). However, the migration of dissolved contaminant plumes is also affected by many additional factors, including the characteristics of the vadose zone, the extent and duration of contamination, contaminant solution density, mechanical dispersion, biological transformation, dilution, molecular diffusion, adsorption, precipitation, oxidation, complexation, volatilization, radioactive decay, lithologic heterogeneities, and water extraction.

Inventory regions delineated using time-of-travel calculations should be used as a planning tool to identify areas within which the potential for contaminants to reach a public water supply source is

highest. Ground-water time-of-travel calculations should not be used to estimate contaminant migration rates.

CHAPTER 3
INVENTORY

An inventory of potential contaminant sources was conducted within the Skyline Trailer Court and RV Park PWS well control zone, inventory region, surface water buffer, and recharge region. Potential sources of all primary drinking water contaminants and Cryptosporidium were identified, however, only significant potential contaminant sources were selected for the detailed inventory. Significant potential contaminants in the Skyline inventory region include nitrate, pathogens, fuels, solvents, agricultural chemicals, and metals.

The potential contaminant source inventory for Skyline focuses on all activities in the control zone, certain sites or land use activities in the inventory region, and general land uses and large facilities in the recharge region. . A listing of potential contaminants in the Skyline area by SIC code is located in Appendix D.

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: A business phone directory was consulted to identify businesses that generate, use, or store chemicals in the inventory region. Equipment manufacturing and/or repair facilities, printing or photographic shops, dry cleaners, farm chemical suppliers, and wholesale fuel suppliers were targeted by Standard Industrial Codes.

Step 5: Major road and rail transportation routes were identified.

Step 6. 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 Zone

The Skyline Trailer Court and RV Park owns the area around Well #1. Land use in the 100-foot control zone consists of residential mobile homes. No significant potential contaminant sources were identified in the control zone.

Inventory Results/Inventory Region

Land cover within the inventory region consists primarily of 46% agricultural land (Figure 7). Of the 46% agricultural land approximately 16% is cultivated cropland (small grains). Other types of land cover in the inventory region and their percentages are also identified on Figure 7. Septic density within the inventory region is 97% low (includes the control zone), 2 % moderate, and 1% high (Figure 8). Significant potential contaminant sources in the inventory region in addition to those already listed in the control zone are listed in Table 7and identified on Figure 8 and Figure 9.

Table 7. Significant potential contaminant sources in the Skyline Trailer Court and RV Park PWS Inventory Region

Potential Source	Map Figure ID No.	Potential Contaminants	Hazard
Large Capacity Septic System	Figure 8	Nitrates and pathogens	Untreated effluent leaching into area groundwater
Other Area Septic Systems	Figure 8	Nitrates and pathogens	Untreated effluent leaching into area groundwater
Interstate 15	Figure 9 #1	VOCs, SOCs, nitrates, pathogens	Spills of hazardous materials leaching into area groundwater
MT Highway 91	Figure 9 #2	VOCs, SOCs, nitrates, pathogens	Spills of hazardous materials leaching into area groundwater
Union Pacific Railroad	Figure 9 #3	VOCs, SOCs, nitrates, pathogens	Spills of hazardous materials leaching into area groundwater
Agricultural Land	Figure 7	SOCs, nitrates, pathogens	Ag chemicals migrating into area groundwater

Large capacity Septic System – Nitrates and pathogens in untreated effluent could leach into area groundwater from septic tanks, associated piping, and the drain fields if malfunctions occur.

Other Area Septic Systems – Nitrates and pathogens from other area septic systems in the inventory region could leach into area groundwater if malfunctions occur.

Montana Highway 91 – The highway is located just east of Skyline. Spills of hazardous materials could cause contaminants to leach into area groundwater serving the PWS well.

Interstate 15 – The interstate is located west of the Skyline Trailer Court and RV Park. Spills of hazardous materials could cause contaminants to migrate into area groundwater.

Union Pacific Railroad – The railroad is located just west of Skyline. Spills of hazardous materials could cause contaminants to migrate into area groundwater.

Cultivated Cropland – Agricultural chemicals used on cultivated cropland could potentially leach into area groundwater.

Inventory Results/Surface Water Buffer

Land cover within the surface water buffer consists primarily of agricultural land at 73% and grassland at 14% (Figure 10). Of the 73% agricultural land approximately 26% is cultivated cropland (25% small grains and 1% row crops). Other types of land cover in the surface water buffer are also identified on Figure 10. Approximately 92% of the surface water buffer has a low septic density but there are also areas of high and moderate density as well as city sewer lines surrounding the well (Figure 11). An active mine, two closed landfills, thirteen underground storage tanks, a wastewater treatment plant, and Interstate 15 appear to be the most significant potential contaminant sources in the surface water buffer. These potential contaminant sources are identified on Figure 12. Guidici Ditch and West Side Canal are also located in the surface water buffer.

Inventory Results/Recharge (Watershed) Region

Land cover within the recharge region consists primarily of grassland at 41% and shrubland at 28% (Figure 13). Other types of land cover in the recharge region and their percentages are also identified on Figure 13. Approximately 99.6% of the recharge region has a low septic density (NRIS SWAP Mapper). Both active and abandoned mines, one closed landfill, one operating landfill, two underground storage tanks (USTs), and Interstate 15 appear to be the most significant potential contaminant sources in the recharge region. These potential contaminant sources are identified on Figure 14.

Inventory Limitations

The potential contaminant inventory was conducted using various databases to acquire readily available information. Information was also obtained where possible, from individuals familiar with the Skyline Trailer Court and RV Park. Consequently, unregulated activities or unreported contaminant releases may have been overlooked. The use of multiple sources of information, however, should ensure that the major threats to the Skyline Trailer Court and RV Park well have been identified.

Inventory Update

To make this SWDAR a useful document in the years to come, the owner, manager, or the certified water system operator(s) for the public water supply for the Skyline Trailer Court and RV Park 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.

CHAPTER 4
SUSCEPTIBILITY ASSESSMENT

Susceptibility is the potential for a public water supply to draw water contaminated by inventoried sources at concentrations that would pose concern. Susceptibility is assessed in order to prioritize potential pollutant sources for management actions by local entities, in this case Skyline Trailer Court and RV Park.

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 threat 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. Alternative management approaches that could be pursued by Skyline Trailer Court and RV Park to reduce susceptibility are recommended.

Susceptibility is determined by considering the hazard rating for each potential contaminant source. Hazard for unconfined wells is based on the criteria identified in Table 8.

Table 8. Determination of Hazard of Potential Contaminant Sources For Unconfined Wells

Potential Contaminant Sources	High Hazard Rating	Moderate Hazard Rating	Low Hazard Rating
Point Sources of All Contaminants	Within 1-year Time of Travel	1 to 3 years Time of Travel	Over 3 years Time of Travel
Septic Systems (density)	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

The existence of barriers that decrease the likelihood that contaminated water will flow to Skyline Trailer Court and RV Park's well also determines susceptibility (Table 9). Barriers to contamination can be anything that decreases the likelihood that contaminants will reach a spring or 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 9. Relative Susceptibility to Specific Contaminant Sources as Determined by Hazard 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

Significant potential contaminant sources in the Skyline Trailer Court and RV Park well inventory region are identified in Table 10 along with their hazard ratings.

Table 10. Significant potential contaminant sources in the Skyline Trailer Court and RV Park PWS Inventory Region

Source	Map Figure ID No.	Potential Contaminants	Hazard	Hazard Rating
Large Capacity Septic System	Figure 8	Nitrates and pathogens	Leaching to area groundwater	High
MT Highway 91	Figure 9 #2	VOCs, SOCs, nitrates, and pathogens	Spills of hazardous materials leaching into area groundwater	High
Union Pacific Railroad	Figure 9 #3	VOCs, SOCs, nitrates, and pathogens	Spills of hazardous materials leaching into area groundwater	High
Interstate 15	Figure 9 #1	VOCs, SOCs, nitrates, and pathogens	Spills of hazardous materials leaching into area groundwater	Moderate
Agricultural Land: Small Grains	Figure 7	SOCs, nitrates, and pathogens	Ag chemicals leaching into area groundwater	Moderate

The susceptibility of the Skyline Trailer Court and RV Park well to each potential contaminant source is assessed separately. The susceptibility ratings for each significant potential contaminant source and each associated contaminant are presented in Table 11. Management recommendations indication how significant potential contaminant sources could be better managed to prevent impacts to the Skyline Trailer Court and RV Park well are also provided in Table 11.

Table 11. Susceptibility Assessment for Significant Potential Contaminant Sources in the Skyline Trailer Court and RV Park PWS Inventory Region

Source	Map Figure ID No.	Contaminant	Hazard	Hazard Rating	Barriers	Susceptibility	Management Recommendations
Large Capacity Sewage Disposal System	Figure 8	Nitrates and pathogens	Leaks in septic tank, collection lines, drain field malfunction, and infiltration of untreated effluent into area groundwater	High	None	Very High	Periodically inspect the system to ensure proper operation and maintenance
Other Area Septic Systems	Figure 8	Nitrates and pathogens	Leaks in septic tanks, collection lines, drain field malfunction, and infiltration of untreated effluent into area groundwater	High	None	Very High	Encourage septic system owners in the vicinity to periodically inspect their septic systems to ensure proper operation and maintenance
MT Highway 91	Figure 9 #2	VOCs, SOCs, nitrates and pathogens	Spills of hazardous materials leaching into area groundwater	High	Local and county emergency spill response	High	Develop emergency response plans
Union Pacific Railroad	Figure 9 #3	VOCs, SOCs, nitrates and pathogens	Spills of hazardous materials leaching into area groundwater	High	Local and county emergency spill response	High	Develop emergency response plans
Agricultural Land 46% land cover	Figure 7	SOCs, nitrates and pathogens	Ag chemicals leaching into area groundwater	Moderate	None	High	Promote the use of Best Management Practices on agricultural land
Interstate 15	Figure 9 #1	VOCs, SOCs, nitrates and pathogens	Spills of hazardous materials leaching into area groundwater	Moderate	Local and county emergency spill response; dilution	Low	Develop emergency response plans

Susceptibility Assessment Results

The susceptibility assessment results for each significant potential contaminant source identified are described below:

Large Capacity Septic System – Hazard is ranked high because the large capacity septic system is located within the Skyline Trailer Court and RV Park inventory region. The overall susceptibility of the well is very high as no barriers to contamination were identified.

Other Area Septic Systems – Hazard is ranked high because other areas of moderate septic density are located in the trailer park inventory region. The overall susceptibility of the well is ranked very high, as no barriers to contamination could be identified.

Montana Highway 91 - Hazard is ranked high because Montana Highway 91 is located within the Skyline inventory region. The overall susceptibility of the well is ranked high, as only one barrier to contamination local and county emergency spill response was identified.

Union Pacific Railway - Hazard is ranked high because the railroad is located within the Skyline inventory region. The overall susceptibility of the well is ranked high, as only one barrier to contamination local and county emergency spill response was identified.

Agricultural Land – Hazard is ranked moderate because the amount of agricultural land in the inventory region is between 20 and 50 percent. The susceptibility of the well is ranked high, as no barriers to contamination could be identified.

Interstate 15 – Hazard is ranked moderate because while Interstate 15 is located within the Skyline inventory region; it is not in the immediate vicinity of the well. The overall susceptibility of the well is ranked low as two barriers dilution and local and county emergency spill response were identified.

Management Recommendations

The Skyline Trailer Court and RV Park Source Water Delineation and Assessment Report was prepared to assist the Skyline PWS owner, PWS operator, and customers to protect the well. The report provides information concerning the aquifer that supplies water to the Skyline Trailer Court and RV Park well, identifies the control zone, inventory region, surface water buffer, and recharge region and within each of these protection areas identifies the significant potential contaminants that may impact the PWS well. If the management recommendations included in Table 11 are implemented by the Skyline PWS, they may be considered additional barriers that will reduce the susceptibility of Skyline Trailer Court and RV Park's well to specific potential contaminant sources and their associated contaminants
Management recommendations fall into the following categories:

- Education
- Sewage disposal system maintenance and leak detection
- Advanced Septic System Treatment
- Stormwater management
- Agricultural best management practices
- Emergency Response Plan

- Source Water Protection Plan

Education - Educational workshops provided to the general public by the city, county, or state promote safe handling and proper storage, transport, use, and disposal of hazardous materials. Ongoing training provided to designated emergency personnel such as the Skyline Trailer Court and RV Park PWS operator will promote the efficiency and effectiveness of emergency responses to hazardous material spills that may occur in the vicinity of the well. 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.

Sewage Disposal System Maintenance and Leak Detection – Proper maintenance of the septic system will reduce the susceptibility of Skyline Trailer Court and RV Park's well to contamination from this large capacity sewage disposal system.

Advanced Septic System Treatment – Installation of advanced septic treatment systems such as sand filters can limit contamination from new rural residential development.

Stormwater Management – Stormwater planning should address potential contaminant sources and drainage control. Potential contaminant source control can be accomplished through educational programs focusing on residential and commercial chemical use, disposal, and recycling.

Agricultural and Silvicultural Best Management Practices (BMPs) – Promote the use of BMPs that are related to the application and mixing of fertilizer and pesticides on lands adjacent to the Skyline Trailer Court and RV Park PWS. BMPs utilized to minimize surface runoff and soil erosion on cultivated fields should also be promoted.

Emergency Response Plan – An emergency response plan would be of significant benefit to the Skyline Trailer Court and RV Park owner, operator, and residents. The usefulness and effectiveness of an emergency response plan are maximized if the plan contains a clear listing of duties of each person responsible for the water system, all emergency contacts, emergency numbers, and resources available within the City of Dillon and Beaverhead County to respond to an emergency situation, such as a hazardous material spill, at Skyline Trailer Court and RV Park.

Source Water Protection Plan – The next phase of source water protection for the Skyline Trailer Court and RV Park would be for the owner and the water operator to take the information presented in this source water delineation and assessment report and use it to continue development of a Source Water Protection Plan. The Source Water Protection Plan would clearly identify: 1) strategies to reduce the likelihood of contaminant releases within the inventory region, 2) the procedures to follow (emergency response plan) in the event that the Skyline Trailer Court and RV Park well becomes threatened by regulated contaminants, and 3) identify alternate sources of drinking water.

CHAPTER 5
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.

Use Waivers

A Use Waiver can be allowed if through a vulnerability assessment, it is determined that specific organic chemicals were not used, manufactured, or stored in the area of a water source (or source area). 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. Susceptibility is based on prior analytical or vulnerability assessment results, environmental persistence, and transport of the contaminants, natural protection of the source, wellhead protection program efforts, and the level of susceptibility indicators (such as nitrate and coliform bacteria). 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 1.0 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 1.0 mile as an area of investigation for the use of organic chemicals. Shallow groundwater sources under the direct influence of surface water (GWUDISW) should use the same area of investigation as surface water systems; that is, the watershed area above the source, or a minimum fixed radius of 1.5 miles upgradient of the point of diversion. 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.

Given the wide range of landforms, land uses, and the diversity of groundwater and surface water sources across the state, additional information is often required during the review of a waiver application. Additional information may include will logs, pump test data, or 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 groundwater flow and transport models. DEQ's PWS Section and DEQ's 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 Confined Aquifers

Confined groundwater is isolated from overlying material by relatively impermeable geologic formations. A confined aquifer is subject to pressures higher than atmospheric pressure that would exist at the top of the aquifer if the aquifer were not geologically confined. A well that is drilled through the impervious layer into a confined aquifer will enable the water to rise in the borehole to a level that is proportional to the water pressure (hydrostatic head) that exists at the top of a confined aquifer.

The susceptibility of a confined aquifer relates to the probability of an introduced contaminant to travel from the source of contamination to the aquifer. Susceptibility of an aquifer to contamination will be influenced by the hydrogeologic characteristics of the soil, vadose zone (the unsaturated geologic materials between the ground surface and the aquifer), and confining layers. Important hydrogeologic controls include the thickness of the soil, the depth of the aquifer, the permeability of the soil and vadose zones, the thickness and uniformity of low permeability and confining layers between the surface and the aquifer, and hydrostatic head of the aquifer. These factors will control how readily a contaminant will infiltrate and percolate toward the groundwater.

The Susceptibility waiver has the objective of assessing the potential of contaminants reaching the groundwater used by the PWS. A groundwater source that appears to be confined from surface infiltration in the immediate area of the wellhead may eventually be affected by contaminated groundwater flow from elsewhere in the recharge area. Contaminants could also enter the confined aquifer through improper well construction or abandonment where the well provides a hydraulic connection from the surface to the confined aquifer. The extent of confinement of an aquifer is critical to limiting susceptibility to organic chemical contamination. Regional conditions that define the confinement of a groundwater source must be demonstrated by the PWS in order to be considered for a confined aquifer susceptibility waiver. Confinement of an aquifer can be demonstrated by pump test data (storage coefficient), geologic mapping, and well logs. Site-specific information is required to sufficiently represent the recharge area of the aquifer and the zone of contribution to the PWS well. The following information should be provided:

- Abandoned wells in the region (zone of contribution to the well),
- Other wells in the region (zone of contribution to the well),
- Nitrate/Coliform bacteria analytical history of the PWS well,
- Organic chemical analytical history of the PWS well,

Susceptibility Waiver for Unconfined Aquifers

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

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

The objective of the susceptibility waiver application is to assess the potential of organic chemical migration from the surface to the unconfined aquifer. The general procedures make use of a combination of 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 groundwater source must be defined and plotted. This should describe the groundwater flow directions, gradients, and a 3-year time-of-travel. All surface 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.

Waiver Recommendation

Currently, the Skyline Trailer Court and RV Park PWS has no waivers for Well #1. Skyline Trailer Court and RV Park may be eligible for additional waivers. For waiver consideration, based on monitoring history or a demonstration that certain chemicals were/ are not used in the inventory region, the owner of the Skyline Trailer Court and RV Park will need to send a letter to DEQ requesting waivers. Additional information regarding chemical use on adjacent properties in the inventory region must accompany the waiver request letter.

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GLOSSARY*

Acute Health Effect. A negative health effect in which symptoms develop rapidly.

Alkalinity. The capacity of water to neutralize acids.

Aquifer. A water-bearing layer of rock or sediment that will yield water in usable quantity to a well or spring.

Barrier. A physical feature or management plan that reduces the likelihood of contamination of a water source from a potential contaminant source

Best Management Practices (BMPs). Methods for various activities that have been determined to be the most effective, practical means of preventing or reducing non-point source pollution.

Biennial Reporting System (BRS). An EPA database that contains information on hazardous waste sites. The data can be accessed through the EPA Envirofacts website.

Chronic Health Effect. A negative health effect in which symptoms develop over an extended period of time.

Class V Injection Well. Any pit or conduit into the subsurface for disposal of waste waters. The receiving unit for an injection well typically represents the aquifer, or water-bearing interval.

Coliform Bacteria. A general type of bacteria found in the intestinal tracts of animals and humans, and also in soils, vegetation and water. Their presence in water is used as an indicator of pollution and possible contamination by pathogens.

Community. A town, neighborhood or area where people live and prosper.

Comprehensive Environmental Cleanup and Responsibility Act (CECRA). Passed in 1989 by the Montana State Legislature, CECRA provides the mechanism and responsibility to clean up hazardous waste sites in Montana.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Enacted in 1980. CERCLA provides a Federal "Superfund" to clean up uncontrolled or abandoned hazardous-waste sites as well as accidents, spills, and other emergency releases of pollutants and contaminants into the environment. Through the Act, EPA was given power to seek out those parties responsible for any release and assure their cooperation in the cleanup.

Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS). A database that provides information about specific sites through the EPA Envirofacts website.

Confined Animal Feeding Operation (CAFO). Any agricultural operation that feeds animals within specific areas, not on rangeland. Certain CAFOs require permits for operation.

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 present above a confined aquifer that inhibits the flow of water and maintains the pressure of the ground water in the aquifer. The physical properties of a confining unit may range from a five-foot thick clay layer to shale that is hundreds of feet thick.

Delineation. The process of determining and mapping source water protection areas.

Glacial. Of or relating to the presence and activities of ice or glaciers. Also, pertaining to distinctive features and materials produced by or derived from glaciers.

Geographic Information Systems (GIS). A computerized database management and mapping system that allows for analysis and presentation of geographic data.

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

Hazard. A relative measure of the potential of a contaminant from a facility or associated with a land use to reach the water source for a public water supply. The location, quantity and toxicity of significant potential contaminant sources determine hazard.

Hydraulic Conductivity. A constant number or coefficient of proportionality that describes the rate water can move through an aquifer material.

Hydrology. The study of water and how it flows in the ground and on the surface.

Hydrogeology. The study of geologic formations and how they effect ground water flow systems.

Inventory Region. A source water management area for ground water systems that encompasses the area expected to contribute water to a public water supply within a fixed distance or a specified three year ground water travel time.

Lacustrine. Pertaining to, produced by, or formed in a lake or lakes.

Leaking Underground Storage Tank (LUST). A release from a UST and/or associated piping into the subsurface.

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 to establish concentrations of contaminants in drinking water that are protective of human health.

Montana Bureau of Mines and Geology – Ground Water Information Center (MBMG/GWIC). The database of information on all wells drilled in Montana, including stratigraphic data and well construction data, when available.

Montana Pollutant Discharge Elimination System (MPDES). A permitting system that utilizes a database to track entities that discharge wastewater of any type into waters of the State of Montana.

National Pollutant Discharge Elimination System (NPDES). A national permitting system that utilizes a database to track entities that discharge wastewater into waters of the United States.

Nitrate. An important plant nutrient and type of inorganic fertilizer that can be a potential contaminant in water at high concentrations. In water the major sources of nitrates are wastewater treatment effluent, 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. Examples of nonpoint- source pollution include agriculture, forestry, and run-off from city streets. Nonpoint sources of pollution, such as the use of herbicides, can concentrate low levels of these chemicals into surface and/or ground waters at increased levels that may exceed MCLs.

Pathogens. A microorganism typically found in the intestinal tracts of mammals, capable of producing disease.

Permit Compliance System (PCS). An EPA database that provides information on the status of required permits for specific activities for specific facilities. The data can be accessed through the EPA Envirofacts website.

Phase II (and IIb) Rules. EPA updated or created legal limits on 38 contaminants. The rules became effective July 30, 1992 and January 1, 1993. Some of these contaminants are frequently-applied agricultural chemicals such as nitrate and others are industrial solvents.

Phase V Rule. EPA set standards for 23 contaminants in addition to those addressed by the Phase II Rules. The Phase V Rule became effective January 17, 1994. Some of these contaminants include inorganic chemicals such as cyanide and other Phase V contaminants are pesticides that enter water supplies through run-off from fields where farmers have applied them or by leaching through the soil into ground water. Six are probable cancer-causing agents. Others can cause liver and kidney damage, or problems of the nervous system and brain.

Point Source. A stationary location or a fixed facility from which pollutants are discharged. This includes any single identifiable source of pollution, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fracture, container, rolling stock (tanker truck), or vessel or other floating craft, from which pollutants are or may be discharged.

Pollutant. Generally, any substance introduced into the environment that adversely affects the usefulness of a resource (e.g. groundwater used for drinking water).

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

Pumping Water Level. Water level elevation in a well when the pump is operating.

Recharge Region. A source water management region that is generally the entire area that could contribute water to an aquifer used by a public water supply. Includes areas that could contribute water over long time periods or under different water usage patterns.

Resource Conservation and Recovery Act (RCRA). Enacted by Congress in 1976. RCRA's primary goals are to protect human health and the environment from the potential hazards of waste disposal, to conserve energy and natural resources, to reduce the amount of waste generated, and to ensure that wastes are managed in an environmentally sound manner.

Resource Conservation and Recovery Information System (RCRIS). Is a database that provides information about specific sites through the EPA Envirofacts website.

Secondary Maximum Contaminant Levels (SMCL). The maximum concentration of a substance in water that is recommended to be delivered to users of a public water supply based on aesthetic qualities. SMCLs are non-enforceable guidelines for public water supplies, set by EPA under authority of the Safe Drinking Water Act. Compounds with SMCLs may occur naturally in certain areas, limiting the ability of the public water supply to treat for them.

Section Seven Tracking System (SSTS). SSTS is an automated system EPA uses to track pesticide producing establishments and the amount of pesticides they produce.

Source Water. Any surface water, spring, or ground water source that provides water to a public water supply.

Source Water Delineation and Assessment Report (SWDAR). A report for a public water supply that delineates source water protection areas, provides an inventory of potential contaminant sources within the delineated areas, and evaluates the relative susceptibility of the source water to contamination from the potential contaminant sources under “worst-case” conditions.

Source Water Protection Areas. For surface water sources, the land and surface drainage network that contributes water to a stream or reservoir used by a public water supply. For ground water sources, the area within a fixed radius or three-year travel time from a well, and the land area where the aquifer is recharged.

Spill Response Region. A source water management area for surface water systems that encompasses the area expected to contribute water to a public water supply within a fixed distance or a specified four-hour water travel time in a stream or river.

Standard Industrial Classification (SIC) Code. A method of grouping industries with similar products or services and assigning codes to these groups.

Static Water Level (SWL). Water level elevation in a well when the pump is not operating.

Susceptibility (of a PWS). The relative 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. herbicides and 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, nonpoint, and natural sources. The TMDL program was established by section 303(d) of the Clean Water Act to help states implement water quality standards.

Toxicity. The quality or degree of being poisonous or harmful to plants, animals, or humans.

Toxicity Characteristic Leachate Procedure. A test designed to determine whether a waste is hazardous or requires treatment to become less hazardous.

Toxic Release Inventory (TRI). An EPA database that compiles information about permitted industrial releases of chemicals to air and water. Information about specific sites can be obtained through the EPA Envirofacts website.

Transmissivity. A number that describes the ability of an aquifer to transmit water. The transmissivity is determined by multiplying the hydraulic conductivity time the aquifer thickness.

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

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

Underground Storage Tanks (UST). A tank located at least partially underground and designed to hold gasoline or other petroleum products or chemicals, and the associated plumbing system.

Volatile Organic Compounds (VOC). Chemicals such as petroleum hydrocarbons and solvents or other organic chemicals which evaporate readily to the atmosphere.

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.

* With the exception of the definitions for Lacustrine, Phase II and Phase V Rules, and Standard Industrial Classification Code, definitions were adapted from EPA's Term References System (formerly known as Glossary of Selected Terms and Abbreviations) which can be found at:
http://www.epa.gov/trs/index.htm

The definitions of glacial and lacustrine were taken from the Glossary of Geology by Robert L. Bates and Julia A. Jackson.

The definitions for Phase II and Phase V Rules were adapted from:
http://www.epa.gov/OGWDW/source/therule.html#PhaseII
http://www.epa.gov/OGWDW/source/therule.html#PhaseV

The definition for Standard Industrial Classification Code was adapted from:
EPA/Office of Enforcement and Compliance Assurance: Guide to Environmental Issues: Glossary of Terms & Acronyms *Term Detail*)

APPENDICES

APPENDIX A

Well Logs

Ground-water Information Center Site Report
HUNGATE MARION

Location Information

GWIC Id:	109589	Source of Data:	LOG
Location (TRS):	07S 08W 09 BDAA	Latitude (dd):	45.2432
County (MT):	BEAVERHEAD	Longitude (dd):	-112.5914
DNRC Water Right:	Not Reported	Geomethod:	MAP
PWS Id:	2515002	Datum:	1927
Block:	Not Reported	Addition:	Not Reported
Lot:	Not Reported	Type of Site:	WELL
Certificate of Survey:	Not Reported		

Well Construction and Performance Data (measurements are reported below land surface)

Total Depth (ft):	69.00	How Drilled:	CABLE
Static Water Level (ft):	40.00	Driller's Name:	BRIGGS
Pumping Water Level (ft):	50.00	Driller License:	148
Yield (gpm):	25.00	Completion Date:	Mar 09, 1972
Test Type:	BAILER	Special Conditions:	None Reported
Test Duration:		Is Well Flowing?:	
Drill Stem Setting (ft):		Shut-In Pressure:	
Recovery Water Level (ft):		Geology/Aquifer:	120SDMS
Recovery Time (hrs):		Well/Water Use:	DOMESTIC PUBLIC WATER SUPPLY

Hole Diameter Information

From (ft)	To (ft)	Dia (in)
0.0	69.0	8.0

Casing Information

From (ft)	To (ft)	Dia (in)	Description
-2.0	69.0	8.0	28.55LB STEEL

Annular Seal Information

No annular seal records were found.

Completion Information

From (ft)	To (ft)	Dia (in)	Description
57.0	67.0	8.0	1/4X6X6IN PERFS

Lithology Information

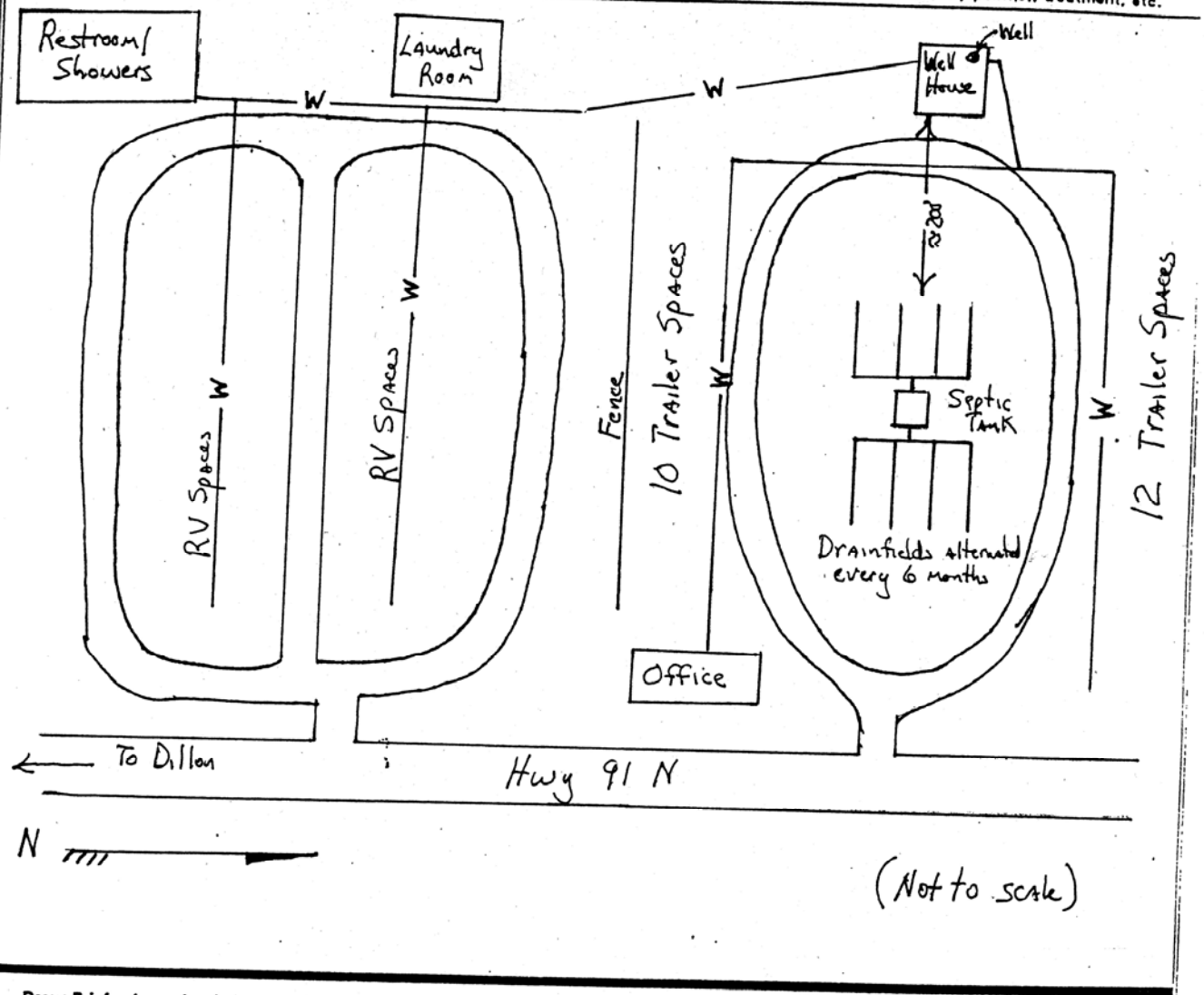
From (ft)	To (ft)	Description
0.0	2.0	TOPSOIL
2.0	16.0	CLAY AND ROCK
16.0	28.0	BROWN CLAY
28.0	30.0	GRAVEL FIRST WATER
30.0	55.0	GRAVEL AND CLAY
55.0	67.0	GRAVEL WATER
67.0	69.0	CLAY

Site Notes
TRACT BASED ON LAT/LONG FROM DEQ

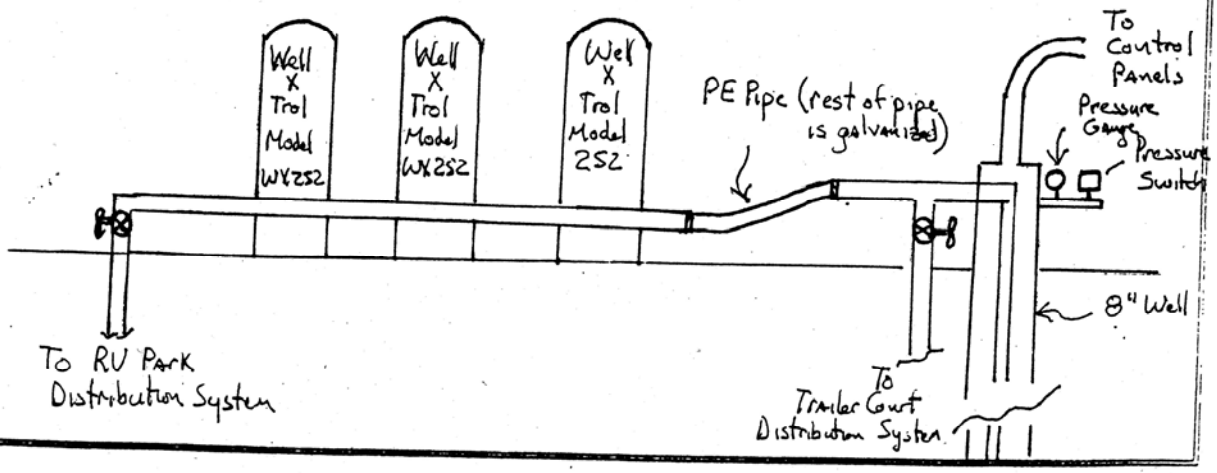
APPENDIX B
Site Map

SANITARY SURVEY FORM - DIAGRAMS Skyline T.C. + R.V. Page 6 of 6

Draw brief site plan showing location of well(s), springs(s), water storage, distribution system, pumphouse(s), entry point(s), treatment, etc.



Draw Brief schematic of placement of filters and disinfection equipment in relation to the source, entry point and distribution system below



APPENDIX C
Water Quality Data

Chemical	2001	2000	1999	1998
Trichloroethane	----*	----*	12/31/1999 **0 mg/L**	12/14/1998 **0 mg/L**
Antimony	----*	----*	12/31/1999 **0 mg/L**	----*
Arsenic	----*	----*	12/31/1999 **0.008 mg/L**	----*
Barium	----*	----*	12/31/1999 **0.022 mg/L**	----*
Beryllium	----*	----*	12/31/1999 **0 mg/L**	----*
Cadmium	----*	----*	12/31/1999 **0 mg/L**	----*
Chromium	----*	----*	12/31/1999 **0 mg/L**	----*
Dinoseb	----*	----*	----*	12/14/1998 **0 mg/L**
Fluoride	----*	----*	12/31/1999 **0.5 mg/L**	----*
Mercury	----*	----*	12/31/1999 **0 mg/L**	----*
Nickel	----*	----*	12/31/1999 **0 mg/L**	----*
Nitrate + Nitrite	11/02/2001 **2.1 mg/L**	----*	12/31/1999 **1.74 mg/L**	----*
Oxamyl	----*	----*	----*	12/14/1998 **0 mg/L**
Selenium	----*	----*	12/31/1999 **0 mg/L**	----*
Simazine	----*	----*	----*	12/14/1998 **0 mg/L**
Thallium	----*	----*	12/31/1999 **0 mg/L**	----*

* No samples were taken.

APPENDIX D
Listing of Potential Contaminant Sources by SIC Code

NAME	ADDRESS	CITY	ZIP	PHONE	SIC1	SIC2	SIC3	SIC4	LATITUDE	LONGITUDE
Bannack State Park	4200 Bannack Rd	Dillon	59725-9702	406-834-3413	799951				45.166860	-113.00652
Barrett Memorial Hospital	1260 S Atlantic St	Dillon	59725-3597	406-683-3000	806202				45.207240	-112.64316
Beaverhead Country Club	1200 Mt Highway 41	Dillon	59725-8569	406-683-9933	799201	839998			45.163500	-112.68084
Beaverhead County High School	104 N Pacific St	Dillon	59725-2699	406-683-2361	821103				45.216840	-112.63368
Beaverhead County School Supt	2 S Pacific St	Dillon	59725-4000	406-683-5632	821103				45.216060	-112.63446
Bloody Dick Outfitters	4275 Bloody Dick Rd	Dillon	59725-9799	406-681-3163	799934				45.263340	-112.83180
Bob's Fishing Supplies	690 N Montana St	Dillon	59725-3347	406-683-5565	799928	799934	594131		45.222300	-112.63176
Diamond Hitch Outfitters	3405 Ten Mile Rd	Dillon	59725-9756	406-683-5494	799968	799934	799928	799992	45.263340	-112.83180
Dillon Middle School	14 Cottom Dr	Dillon	59725-3219	406-683-2368	821103				45.213840	-112.62540
Dillon Special Resources	329 N Pacific St	Dillon	59725-2931	406-683-5773	821107				45.218580	-112.63164
Five Rivers Lodge	13100 Mt Highway 41	Dillon	59725-8559	406-683-5000	799928				45.163500	-112.68084
Frontier Anglers	680 N Montana St	Dillon	59725-3347	406-683-5276	799928	799934	594131		45.222300	-112.63176
Grant School District 7	11700 Mt Highway 324	Dillon	59725-9627	406-681-3143	821103				45.263340	-112.83180
Mary Innes Elementary School	225 E Reeder St	Dillon	59725-2784	406-683-4311	821103				45.214500	-112.63758
Montana High Country Tours	1036 E Reeder St	Dillon	59725-3142	406-683-4920	799934				45.209940	-112.63002
Parkview School	32 Cottom Dr	Dillon	59725-3219	406-683-2373	821103				45.213900	-112.62540
Prairie Home Inspection	1325 Bachelor Mountain Rd	Dillon	59725-9701	406-681-3193	653122	873419			45.263340	-112.83180
Red Rock Golf Courses & Rv Pk	Ih 15 Redrock Exit 37	Dillon	59725	406-276-3555	799201	703302			45.216960	-112.62156
Watershed Flyfishing Adventure	610 N Montana St	Dillon	59725-3353	406-683-6660	594131	799934	799928		45.222120	-112.63200
Aldon Enterprises Inc	618 S Idaho St	Dillon	59725-2573	406-683-6240	653116	738913			45.212940	-112.64130
Appraisal Services	310 E Sebree St	Dillon	59725-2733	406-683-6113	738913	653116			45.214620	-112.63596
Dillon Ranch Supply Co	920 N Montana St	Dillon	59725-8417	406-683-5881	371598	769203			45.222900	-112.63098
General Welding & Repair	1200 North Ln	Dillon	59725-8421	406-683-4248	769203				45.248100	-112.62936
Harrison Z1 Fabrication	2550 Hwy 91 North	Dillon	59725	406-683-6259	769203				45.216960	-112.62156
Independent Welding & Store	11820 Mt Highway 324	Dillon	59725-9707	406-681-3141	769203	541103			45.263340	-112.83180
Jeff Welborn Auction Co	1125 Lovers Leap Rd	Dillon	59725-8410	406-683-6467	738901				45.228120	-112.65066
Knox Appraisal Svc	305 S Arizona St	Dillon	59725-3001	406-683-2536	653116	738913			45.211740	-112.63332
Mc Isaac Appraisal	610 N Montana St	Dillon	59725-3353	406-683-4013	653116	738913			45.222120	-112.63200
Sacajawea Motel	775 N Montana St	Dillon	59725-3357	406-683-2381	701101	738977			45.222540	-112.63152
Sportswear & Design	8 S Idaho St	Dillon	59725-2577	406-683-2889	738942				45.217080	-112.63638
Water Enhancement & Treatment	17 E Reeder St	Dillon	59725-2547	406-683-9866	738984	762928			45.215640	-112.63944

NAME	ADDRESS	CITY	ZIP	PHONE	SIC1	SIC2	SIC3	SIC4	LATITUDE	LONGITUDE
3-D Store	130 S Montana St	Dillon	59725-2436	406-683-4261	594701	566101	399302	599909	45.216840	-112.63836
Abc Rental	840 N Montana St	Dillon	59725-9424	406-683-5034	735910	594701	594716	599940	45.222720	-112.63122
Adventure Cycle & Sled	201 E Helena St	Dillon	59725-2612	406-683-2205	557106	559904	526109	555109	45.217920	-112.63386
Backcountry Angler	426 S Atlantic St	Dillon	59725-2721	406-683-3462	594131				45.212580	-112.63686
Bad Beaver Bikes Skis & Tours	25 E Helena St	Dillon	59725-2646	406-683-9292	594141	472507			45.218820	-112.63542
Big Sky Truck Stop	4055 Rebich Ln	Dillon	59725-9535	406-683-2666	554103				45.136980	-112.73676
Bitterroot Trading Co	408 E Glendale St	Dillon	59725-2850	406-683-9844	599999				45.214680	-112.63410
Blacktail Gallery & Framing	4 N Idaho St 200	Dillon	59725-2508	406-683-5944	599927				45.217260	-112.63614
Blacktail Gunsmithing	4225 Anderson Ln	Dillon	59725-9573	406-683-2153	594129				45.302280	-112.54392
Bob's Fishing Supplies	690 N Montana St	Dillon	59725-3347	406-683-5565	799928	799934	594131		45.222300	-112.63176
Bunkhouse Ballistics Inc	10 Christine Ln	Dillon	59725-9406	406-683-5380	594129				45.259800	-112.60980
Cathy Weber Artmaker	26 N Idaho St	Dillon	59725-2508	406-683-5493	599969				45.217380	-112.63602
Dietrich's College Exxon	636 S Atlantic St	Dillon	59725-2725	406-683-0070	554101	753801	501316		45.211200	-112.63854
Dillon Medical Oxygen Supply	19 E Sebree St	Dillon	59725-2551	406-683-6848	599920	516920	504712	504704	45.216300	-112.63860
Fins & Feathers II	31 N Idaho St	Dillon	59725-2507	406-683-2600	599930				45.217440	-112.63602
Frontier Anglers	680 N Montana St	Dillon	59725-3347	406-683-5276	799928	799934	594131		45.222300	-112.63176
Holt Saddlery	4725 N Highway 91	Dillon	59725	406-683-5018	594120				45.352740	-112.64190
Johnson Saddlery	125 W Bannack St	Dillon	59725-2408	406-683-4452	594120				45.218520	-112.63842
Long Branch Salon	610 N Montana St	Dillon	59725-3353	406-683-5367	723106	599992			45.222120	-112.63200
Mini Inc	410 N Montana St	Dillon	59725-3313	406-683-6168	554101	541103	754205		45.220680	-112.63362
Ned-Eva Lanes	580 N Montana St	Dillon	59725-3315	406-683-5551	594139				45.221760	-112.63236
Ofelia's Creations	2200 Highway 91 N	Dillon	59725	406-683-9666	599988				45.216960	-112.62156
Old West Cinema Gallery & Gift	23 N Idaho St	Dillon	59725-3811	406-683-4600	599969				45.217380	-112.63608
Patagonia Outlet	34 N Idaho St	Dillon	59725-2508	406-683-2580	569913	594113			45.217380	-112.63596
Quality Supply Of Dillon	851 N Montana St	Dillon	59725-9424	406-683-6855	525104	519112	599929	526109	45.222780	-112.63122
Southwest Montana Arts Council		Dillon	59725	406-683-6555	599969				45.216960	-112.62156
Spring Meadow Archery	129 N Montana St	Dillon	59725-3307	406-683-8181	594143				45.218580	-112.63626
Sundown Archery	2895 Mt Highway 91 N	Dillon	59725-9587	406-683-4603	594143				45.283800	-112.64166
Trailwood	400 Gambler Run	Dillon	59725-8310	406-683-2700	599969				45.373140	-112.64196
Veterinary Hospital	935 S Atlantic St	Dillon	59725-3514	406-683-2385	074201	508746	519108	599929	45.209220	-112.64094
Watershed Flyfishing Adventure	610 N Montana St	Dillon	59725-3353	406-683-6660	594131	799934	799928		45.222120	-112.63200
Adventure Cycle & Sled	201 E Helena St	Dillon	59725-2612	406-683-2205	557106	559904	526109	555109	45.217920	-112.63386
Allen Landscape & Nursery	16 Pierce Dr	Dillon	59725	406-683-4243	078204	526108	526136		45.216960	-112.62156
Ameri Gas	590 N Montana St	Dillon	59725-3315	406-683-2931	517208				45.221820	-112.63230

NAME	ADDRESS	CITY	ZIP	PHONE	SIC1	SIC2	SIC3	SIC4	LATITUDE	LONGITUDE
Beaverhead Iga	201 S Idaho St	Dillon	59725-2529	406-683-2357	541105				45.215820	-112.63806
Big Sky Motors Inc	790 N Montana St	Dillon	59725-3357	406-683-2347	551102	753811	754901	753301	45.222600	-112.63140
C & C Farm & Ranch Supply	211 N Montana St	Dillon	59725-3309	406-683-5197	519112	515301	422101		45.219180	-112.63554
Cap Feeds	2875 Anderson Ln	Dillon	59725-9502	406-683-6315	519112				45.305700	-112.58898
Continental Landscape		Dillon	59725	406-683-4999	526136				45.216960	-112.62156
Dillon Fertilizer Co	2100 Mt Highway 91 N	Dillon	59725-8826	406-683-4377	526139	571908			45.254700	-112.64076
Dillon Implement Co Inc	1025 Selway Dr	Dillon	59725-8449	406-683-4281	508304	508310	526109	526132	45.229560	-112.62750
First Thunder Feeds	508 Kentucky Ave	Dillon	59725-2922	406-683-6821	519111				45.218280	-112.63122
Hot Stuff Pizza	700 N Montana St	Dillon	59725-3357	406-683-2308	581222	517208			45.222360	-112.63170
Independent Welding & Store	11820 Mt Highway 324	Dillon	59725-9707	406-681-3141	769203	541103			45.263340	-112.83180
Little Town Pump	101 E Helena St	Dillon	59725-2610	406-683-6703	541103				45.218340	-112.63464
Mini Inc	410 N Montana St	Dillon	59725-3313	406-683-6168	554101	541103	754205		45.220680	-112.63362
Montana Ag Products	533 N Montana St	Dillon	59725-3314	406-683-5062	519112	519109	287301	526139	45.221520	-112.63266
Montana Pride Inc	7525 Mt Highway 91 S	Dillon	59725	406-683-5185	204803	519111			45.263340	-112.83180
Paul's Motor Co	675 N Montana St	Dillon	59725-3346	406-683-2371	551102	551103	753201	753801	45.222300	-112.63182
Quality Supply Of Dillon	851 N Montana St	Dillon	59725-9424	406-683-6855	525104	519112	599929	526109	45.222780	-112.63122
Rocky Mountain Supply	700 N Montana St	Dillon	59725-3357	406-683-2308	517206				45.222360	-112.63170
Roxi's Greenhouse & Nursery	1200 North Ln	Dillon	59725-8421	406-683-4248	526108				45.248100	-112.62936
Safeway	570 N Montana St	Dillon	59725-3315	406-683-5002	541105	591205			45.221700	-112.63242
Sandy's Whistle Stop	536 S Atlantic St	Dillon	59725-2723	406-683-2455	541103	541105			45.211860	-112.63770
Town Pump	633 N Montana St	Dillon	59725-3346	406-683-5097	541103				45.222180	-112.63194
Veterinary Hospital	935 S Atlantic St	Dillon	59725-3514	406-683-2385	074201	508746	519108	599929	45.209220	-112.64094
Western Auto & Truck	545 N Montana St	Dillon	59725-3314	406-683-9302	551103				45.221580	-112.63260
Williams Feed Inc	235 N Idaho St	Dillon	59725-2618	406-683-2353	526139	519112	526129	287301	45.218700	-112.63434
Yards-R-Us	1600 Sullivan Ln	Dillon	59725-9432	406-683-5532	078204	526136			45.258480	-112.60596
Aquatech Inc	1045 Selway Dr	Dillon	59725-8449	406-683-4418	508305				45.229740	-112.62738
Bar Nz Co	2100 Mt Highway 91 N	Dillon	59725-8826	406-683-4377	508310				45.254700	-112.64076
Beaverhead Livestock Auction	7225 Mt Highway 91 S	Dillon	59725-9640	406-683-2002	515402				45.263340	-112.83180
Dillon Implement Co Inc	1025 Selway Dr	Dillon	59725-8449	406-683-4281	508304	508310	526109	526132	45.229560	-112.62750
Dillon Medical Oxygen Supply	19 E Sebree St	Dillon	59725-2551	406-683-6848	599920	516920	504712	504704	45.216300	-112.63860
Holt Repair	2100 Lovers Leap Rd	Dillon	59725-8411	406-683-4551	359903	508305	352310	753801	45.235260	-112.63884
Intermountain Irrigation Svc	350 N Interchange	Dillon	59725	406-683-6571	508305	508444	503902	162201	45.216960	-112.62156
Kon Peters Livestock Brokerage	110 Fern Ln	Dillon	59725-9436	406-683-5315	515401				45.258720	-112.61286
Mc Laren Plumbing	1100 North Ln	Dillon	59725-8420	406-683-4471	171105	171102	508444		45.247680	-112.62942

NAME	ADDRESS	CITY	ZIP	PHONE	SIC1	SIC2	SIC3	SIC4	LATITUDE	LONGITUDE
Sweetwater Garnett	7725 Mt Highway 91 S	Dillon	59725-9641	406-683-5668	149901	508523			45.263340	-112.83180
Veterinary Hospital	935 S Atlantic St	Dillon	59725-3514	406-683-2385	074201	508746	519108	599929	45.209220	-112.64094
West Electric	590 N Montana St	Dillon	59725-3315	406-683-5218	173101	171102	508444		45.221820	-112.63230
Zenchiku Land & Livestock Inc	4600 Carrigan Ln	Dillon	59725-8573	406-683-5474	029101	515403			45.125220	-112.68180
Dietrich's College Exxon	636 S Atlantic St	Dillon	59725-2725	406-683-0070	554101	753801	501316		45.211200	-112.63854
Goins Towing & Used Parts	8025 Mt Highway 91 N	Dillon	59725-8500	406-683-5749	501501	754901			45.457920	-112.67178
A L Gilbert Co	410 N Montana St	Dillon	59725-3313	406-683-6154	422101	515301			45.220680	-112.63362
Beaverhead Repair	2250 Webster Ln	Dillon	59725-9452	406-683-4891	359998	421307			45.254640	-112.61430
Boka Freight Line	7025 Mt Highway 278	Dillon	59725	406-683-5271	421309				45.216960	-112.62156
Briggs Trucking	1150 White Ln	Dillon	59725-8524	406-683-6544	421307				45.202740	-112.64172
C & C Farm & Ranch Supply	211 N Montana St	Dillon	59725-3309	406-683-5197	519112	515301	422101		45.219180	-112.63554
Chuck Lumley Trucking	1625 Webster Ln	Dillon	59725-9433	406-683-5826	421203				45.254820	-112.61748
Cleverley Trucking	1775 Mt Highway 41	Dillon	59725-9532	406-683-5583	421203				45.207300	-112.64130
Klasen Storage	2080 Selway Dr	Dillon	59725-9431	406-683-2063	422503				45.238140	-112.63140
Louis M Hull Trucking	3975 Mt Highway 41	Dillon	59725-8546	406-683-4855	421307				45.163500	-112.68084
Owen Trucking	506 N Washington St	Dillon	59725-2639	406-683-5652	421307				45.220260	-112.63110
Peters & Riley Inc	6 Ramshorn St	Dillon	59725-3410	406-683-4268	421203				45.228360	-112.62798
Sage Creek Storage	23 Taylor Ln	Dillon	59725-7100	406-683-4065	422503				45.216960	-112.62156
Storage Place	750 Thomsen Ave	Dillon	59725-2958	406-683-6510	422503				45.216900	-112.62708
Beaverhead Repair	2250 Webster Ln	Dillon	59725-9452	406-683-4891	359998	421307			45.254640	-112.61430
Holt Repair	2100 Lovers Leap Rd	Dillon	59725-8411	406-683-4551	359903	508305	352310	753801	45.235260	-112.63884
Luzenac America Inc	790 N Montana St	Dillon	59725-3357	406-683-4611	999923	329598			45.222600	-112.63140
A & O Sheet Metal	108 N Montana St	Dillon	59725-3308	406-683-5801	171105	171102	171103	507507	45.218460	-112.63632
Barry Briggs Construction	520 S Idaho St	Dillon	59725-2536	406-683-2771	152103				45.213660	-112.64046
Bls Electric	234 N Idaho St	Dillon	59725-2619	406-683-5244	173101	171102	507507		45.218700	-112.63434
Bud's Plumbing & Heating	17 E Reeder St	Dillon	59725-2547	406-683-6426	171105	171102	507420		45.215640	-112.63944
Coleman Construction Inc	2600 Webster Ln	Dillon	59725-8832	406-683-5149	152103				45.254520	-112.61166
Curt Lemhouse Builder	2770 Highway 91 N	Dillon	59725	406-683-5436	245201	152103			45.216960	-112.62156
Detton Construction	610 N Montana St	Dillon	59725-3353	406-683-2345	179403	161102			45.222120	-112.63200
Devers Excavation & Aquatics	2000 North Ln	Dillon	59725	406-683-3560	179403	162926			45.216960	-112.62156
Devers Mobile Home Repair	1050 Selway Dr	Dillon	59725-8449	406-683-5249	753811	152118	753301	753901	45.229740	-112.62732
Grose Construction	1175 Cosgrove Ln	Dillon	59725-9410	406-683-5840	152103	152112			45.256140	-112.62390
Hooks Construction	100 Redtail Ln	Dillon	59725-9566	406-683-4896	152103				45.207300	-112.64130
Huffaker Construction	4775 Mt Highway 91 N	Dillon	59725-9593	406-683-6354	179403				45.354960	-112.64184

NAME	ADDRESS	CITY	ZIP	PHONE	SIC1	SIC2	SIC3	SIC4	LATITUDE	LONGITUDE
Iverson Construction	260 Fox Ridge Dr	Dillon	59725-6516	406-683-5634	179403	161102			45.211500	-112.49304
Johnson Sheet Metal	1500 Clark Ln	Dillon	59725-9407	406-683-4975	171102	507507			45.252060	-112.62522
Klasen Septic Tank Svc	2080 Selway Dr	Dillon	59725-9431	406-683-2063	171107	735922			45.238140	-112.63140
L S Ready-Mix Concrete Inc	2500 US Highway 91 N	Dillon	59725	406-683-2101	327301	521128	503915	171108	45.216960	-112.62156
Lane Clean	725 N Montana St	Dillon	59725-8814	406-683-6692	721704	152114			45.222420	-112.63164
M & M Construction	215 N Parkview Ct	Dillon	59725-3249	406-683-0010	177105	179405	179504		45.214980	-112.62732
Mc Laren Plumbing	1100 North Ln	Dillon	59725-8420	406-683-4471	171105	171102	508444		45.247680	-112.62942
Pioneer Excavation & Lndscpng	3845 Highway 278	Dillon	59725	406-683-2637	152103	171108	179403		45.216960	-112.62156
Pro Shine Cleaning & Restore	530 S Dakota St	Dillon	59725-2842	406-683-2226	721704	172101	152114	754203	45.211380	-112.63680
R & R Heating & Air Cond	216 S Montana St	Dillon	59725-2438	406-683-4410	171102	525104			45.216240	-112.63902
R E Miller & Sons Contractors	15 Ramshorn St	Dillon	59725-3409	406-683-2175	179403	152103	171108	503211	45.228360	-112.62786
Ranch Construction	17600 Mt Highway 324	Dillon	59725-9657	406-681-3167	152103				45.263340	-112.83180
Roberts Packing Co	2800 Mt Highway 91 S	Dillon	59725-8505	406-683-5542	201104				45.203700	-112.64238
Rowe Excavation	214 N Walnut St	Dillon	59725-2962	406-683-6556	179403	179952			45.215760	-112.62654
Taylor Construction	4425 Mt Highway 91 N	Dillon	59725-9592	406-683-5403	152103				45.341460	-112.64184
Terrill Construction	2 Madison St	Dillon	59725-2337	406-683-5660	152103				45.220020	-112.64580
Torrey Mountain Contractors	307 N Railroad Ave	Dillon	59725-3322	406-683-5641	152103				45.220620	-112.63536
West Electric	590 N Montana St	Dillon	59725-3315	406-683-5218	173101	171102	508444		45.221820	-112.63230

SIC	#	Description
02**	4	Agricultural production- livestock
07**	41	Agricultural services
1521		General contractors - single family houses
1541		Industrial buildings & warehouses
1611		Highway and street contstruction (not elevated)
1711		Plumbing, heating and air conditioning
1794		Excavation work
2011	0	Meat Packing Plants
2015	0	Poultry Slaughtering and Processing
2491	0	Wood Preserving
27**	26	Printing and publishing
3089		Plastics products, NEC
3295	0	Minerals and Earths, Ground or Otherwise Treated
33**	0	Primary metal industries
3599		Industrial and commercial machinery & equipment, NEC
3732	0	Boat Building and Repairing
3861	0	Photographic Film, Paper, Plates and Chemicals
3911	1	Jewelry, Precious Metal
3914	1	Silverware, Plated Ware, and Stainless Steel Ware
4011	3	Railroads, Line-haul Operating
4142		Bus charter service, except local
4212		Local trucking without storage
4213	19	Trucking, Except Local
4214	2	Local Trucking with Storage
4221	0	Farm Product Warehousing and Storage
4225	16	General Warehousing and Storage
4226	0	Special Warehousing and Storage, NEC
4231	0	Terminal and Joint Terminal Maintenance Facilities for Motor Freight Transportation
4581	3	Airports, Flying Fields, and Airport Terminal Services
4789	1	Transportation Services, NEC
49**	3	Electric, gas, and sanitary services
5012		Automobiles and other motor vehicles
5013		Motor vehicle supplies and new parts
5015		Motor vehicle parts, used
5043	0	Photographic Equipment and Supplies
5052	0	Coal and Other Minerals and Ores
5063		Electrical apparatus and equipment, wiring supplies & construction materials
5082		Construction and mining (except petroleum) machinery and equipment
5083		Farm & garden machinery and equipment
5084		Industrial machinery and equipment
5085		Industrial supplies
5087		Service establishment equipment
5093	3	Scrap and Waste Materials
5154	1	Livestock
5169		Chemicals and allied products, NEC
5171	0	Petroleum Bulk Stations and Terminals

SIC	#	Description
5172	6	Petroleum and Petroleum Products Wholesalers, Except Bulk Stations and Terminals
5191	4	Farm Supplies
5198	0	Paint, Varnishes, and Supplies
5261	9	Retail Nurseries, Lawn and Garden Supply Stores
5411		Grocery stores
5511		Motor vehicle dealers (new and used)
5521		Motor vehicle dealers (used only)
5531		Auto and home supply stores
5541	9	Gasoline Service Stations
5551		Boat dealers
5941		Sporting goods and bicylce shops
5983	0	Fuel Oil Dealers
5989	0	Fuel Dealers, NEC
5999		Miscellaneous retail stores, NEC
7216	0	Drycleaning Plants, Except Rug Cleaning
7221	6	Photographic Studios, Portrait
7261	3	Funeral Services and Crematories
7335	3	Commercial Photography
7342	1	Disinfecting and Pest Control Services
7384	4	Photofinishing Laboratories
7389		Business services, NEC
75**	31	General Automotive Repair Shops
7692	5	Welding Repair
7694		Armature rewinding shops
7699	20	Repair Shops and Related Services, NEC
7992	2	Public Golf Courses
7999		Amusement and recreation, NEC
8062	2	General Medical and Surgical Hospitals
8071	3	Medical Laboratories
8072	2	Dental Laboratories
8211		Elementary and secondary schools
8734	2	Testing Laboratories
9111		Executive offices
9224		Fire protection

APPENDIX E

Sanitary Survey