# Source Water Assessment Report

## Salem Public Works, Oregon

PWS #4100731

May 12, 2003

**Prepared for**
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**City of Salem**

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# Executive Summary

The drinking water for the City of Salem is supplied by an intake on the North Santiam River. Salem Public Works is the City-operated public water system that serves the drinking water supply. This public water system serves approximately 170,000 citizens. The intake is located on Geren Island near the City of Stayton, about 17 miles east of Salem in the Little North Santiam River/Middle North Santiam River/Lower North Santiam River Watershed in the North Santiam Sub-Basin of the Willamette Basin. In addition, Salem Public Works uses groundwater well(s) for drinking water supply, but these wells have been used on an infrequent basis in past years. Salem Public Works also operates an aquifer storage and recovery (ASR) system that is included in their wellhead protection program. This Source Water Assessment addresses only the surface water component of Salem Public Works' drinking water supply. The groundwater supply (and ASR wells) will be addressed in separate reports. The drinking water intakes for the Lyons Mehama Water District, Mill City Water Department, Detroit Water System, and City of Gates public water systems are also located on the North Santiam River upstream of the Salem Public Works intake. This source water assessment addresses the geographic area providing water to Salem Public Works' intake (Salem Public Works' portion of the drinking water protection area) between Salem Public Works' intake and the upstream intake for Lyons Mehama Water District. Information on Salem Public Works' protection area upstream of the Lyons Mehama Water District intake (and the other upstream intakes) are presented in the Source Water Assessment for those public water systems and are summarized in this report. In addition, there are two drinking water intakes on the North Santiam River downstream of Salem Public Works' intake including the intake for the City of Stayton Water Supply and the City of Jefferson. Activities and impacts in the Salem Public Works drinking water protection area have the potential to also impact downstream users.

The geographic area providing water to Salem Public Works' intake (Salem Public Works' portion of the drinking water protection area) extends upstream approximately 12 miles in an east direction and encompasses a total area of less than 30 square miles. Included in this area are a number of tributaries to the main stem, including Stout Creek, Trask Creek, and Alder Creek. Because the drinking water protection area for Salem Public Works' is relatively small (less than the 100 square mile minimum threshold designated by DEQ), the 8-hour travel time from the intake was not determined. Typically. it is recommended that the water systems and community consider increased protection within the 8-hour travel time from the intake since eight hours should provide adequate response time to protect the integrity of the public water system intake should a spill or release occur at any crossing or discharge point to the stream. In this case, the entire protection area should be considered within the 8-hour travel time. The North Santiam intake is located at an approximate elevation of 491 feet (middle intake surrounding the ground floor) and the upper edge of the watershed is located at an elevation of approximately 3,400 feet.

An inventory of potential contamination sources for the North Santiam River was performed within Salem Public Works' drinking water protection area. The primary intent of this inventory was to identify and locate significant potential sources of contaminants of concern. The inventory was conducted by reviewing applicable state and federal regulatory databases and land use maps, interviewing persons knowledgeable of the area, and conducting a windshield survey by driving through the drinking water protection area to field locate and verify as many of the potential contaminant source activities as possible. The primary contaminants of concern for surface water intakes are sediments/turbidity, microbiological, and nutrients. It is important to remember that the sites and areas identified are only potential sources of contamination to the drinking water. Water quality impacts are not likely to occur when contaminants are used and

managed properly and land use activities occur in such a way as to minimize erosion and contaminant releases.

The delineated drinking water protection area is primarily dominated by forest and agricultural land uses. The "inventory" of potential sources of contamination was conducted by using the standard procedures and list developed by the statewide advisory committee and is consistent with what has been used throughout the state for the assessments. In this assessment process, a total of 48 potential contamination sources (at 37 separate locations) were identified within Salem Public Works' portion of the drinking water protection area. All of the potential contaminant sources identified are located in the sensitive areas. The potential contaminant sources identified in the watershed include transportation corridors, individual septic systems, grazing animals, managed forested clear cuts, above ground and underground storage tanks with various stored materials, wood processing and milling plants, junk yards, and various auto and mechanical shops. The potential contaminant sources within the drinking water protection area all pose a relatively higher to moderate risk to the drinking water supply with the exception of two, which present a lower risk. This provides a quick look at the existing potential sources of contamination that could, if improperly managed or released, impact the water quality in the watershed.

The susceptibility analysis combines the results of the locations of the potential contaminant sources with the locations of the sensitive areas. Overlaying the locations of the moderate- to high-risk sources within the sensitive areas provides an indication of the areas that are highly susceptible to contamination. In the Salem Public Works portion of the watershed, the results of the susceptibility "analysis" include the distribution of 46 identified high- to moderate-risk sources within the areas of highly permeable soils, high erosional soils, high runoff potential soils, and within the 1000' setback from the streams. The susceptibility analysis provides the community and the public water system with information on where the greatest risk occurs and where to focus resources for protection of this valuable drinking water resource.

# Introduction

In 1996, Congress amended the Safe Drinking Water Act, implemented some new requirements, and provided resources for state agencies to assist communities in protecting the sources of their public water supplies. The US Environmental Protection Agency (EPA) developed guidelines for implementing the new requirements to conduct "source water assessments" (EPA, 1997). In Oregon, the Oregon Department of Human Services (DHS) and the Department of Environmental Quality (DEQ) are conducting the source water assessments. An assessment such as this one will be done for every public water system in Oregon regulated by the Safe Drinking Water Act. DEQ and DHS will each have specific tasks in accomplishing the assessments for a total of 2656 public water systems in Oregon. Of those 2,656 public water systems, about 90% are groundwater systems drawing water from wells or springs, and 10% are surface water systems with intakes on streams, rivers, or lakes/reservoirs.

The assessments in Oregon include delineating the source area supplying the public water system, identifying areas "sensitive" to contamination, and conducting an inventory of potential contamination sources in the area. Using the results of the inventory and sensitive areas, the susceptibility of the public water system is determined. DHS generally provides the delineation for all groundwater systems and the identification of the sensitive areas within their source area. DEQ generally delineates and identifies the sensitive areas within the watersheds for the surface water systems. DEQ conducts all inventories of the potential contaminant sources inside the drinking water protection areas and this is then used to estimate the public water system's susceptibility to contamination. In this case, the City of Salem (Salem Public Works) coordinated with DEQ to conduct the source water assessment for their source intake in such a way as to be consistent with DEQ's methodology.

Sources of information reviewed during this assessment included U.S. Geological Survey (U.S.G.S.) documents/websites, DEQ reports, EPA/DEQ databases, and other readily accessible reports. The reference list provides a few of the sources of information used in the report. Time constraints do not allow research into all existing technical resources available for each system. As the assessment is performed, assistance from municipal water staff, state/federal land management officials, and community members increases the public water systems' abilities to characterize local hydrogeologic/hydrologic conditions, site-specific information, and ultimately increase the quality of the assessment.

Many watersheds in Oregon provide water used for public or "domestic" drinking water supplies, irrigation, industry, hydro power, fish hatcheries, and of course, natural in-stream fish rearing. Watersheds vary considerably in terms of overall health and susceptibility to contamination. Most surface water sources for drinking water are filtered and undergo treatment (disinfection) prior to delivery to the consumer. The ability to adequately (and cost-effectively) treat drinking water from a surface water source is directly related to the quality of the water at the intake. Surface water intakes for public water supplies are generally very susceptible to increases in coarse sediments. Treatment facilities for public water supplies are very susceptible to increases in fine sediments, nutrients and other organic and inorganic contaminants (treatment facilities are also negatively impacted by changes in temperature).

Changes in surface water quality parameters can be caused by a variety of factors in any watershed. Detailed consideration of all the variables was beyond the scope of this assessment. The procedures for conducting these assessments were developed by a statewide advisory committee (Source Water Assessment Plan [SWA], 1999). The value of preparing detailed

procedures is in the ability to be consistent from one system to the next. There are also severe constraints for the amount of time allowed to complete each public water system assessment. It is the intent of this assessment to provide as much information about the watershed as resources allow and to be consistent with the State's SWA Program.

Using the results of this assessment, the public water system and the local community can then move forward with voluntarily developing and implementing a *drinking water protection plan*. The requirements for water quality monitoring of public water systems in Oregon provide some degree of assurance of safe drinking water; however, all systems are vulnerable to potential contamination. One of the best ways to ensure safe drinking water and minimize future treatment costs is to develop a local plan designed to protect against potential contamination. Not only will this measure add a margin of safety, it will raise awareness in the local community of the risks of drinking water contamination, and provide information to them about how they can help protect the system. It is Salem Public Works' intent to use the assessment results as a basis for developing a drinking water protection plan.

# Background

Salem Public Works is the City of Salem's department that manages and operates their drinking water supply. In this report, "Salem Public Works" will be used throughout as the public water system that serves the City of Salem. The City of Salem is located in Marion County, Oregon about 50 miles south of Portland, Oregon. The drinking water for Salem Public Works is supplied by an intake on the North Santiam River. This public water system serves approximately 170,000 citizens. The intake is located in the Little North Santiam River/Middle North Santiam River/Lower North Santiam River Watershed in the North Santiam Sub-Basin in the Willamette Basin, Hydrologic Unit Code (HUC) # 17090005. DEQ obtained the coordinates for the intake using a Geographic Positioning System (GPS) in February 1999; these coordinates are available to the public water system operator upon request. In addition, Salem Public Works uses groundwater wells as an additional drinking water supply. This Source Water Assessment addresses only the surface water component of Salem Public Works' drinking water supply. The groundwater supply will be addressed in a separate report.

The study area for evaluating the extent of the Salem Public Works Drinking Water Protection Area (DWPA) includes US Geological Survey topographic maps for Stayton NE, Stayton, Scio, Drake Crossing, Stout Mountain, Jordan, Elk Prairie, Lyons, and Snow Peak quadrangles at the 1:24,000 scale. The surface water intake plots on the U.S. Geological Survey Stayton quadrangle topographic map.

The North Santiam Sub-Basin drains a northeastern section of the Willamette Basin. It is a catchment basin for approximately 771 square miles within Marion and Linn County (USGS). The major tributaries within the subbasin are the North Santiam River, Whitewater Creek, the Breitenbush River, Little North Santiam River, Rock Creek, and the Santiam River. These systems flow in a westerly direction from the west slope of the Cascade Range through the adjacent foothills to the valley floor of the Willamette Valley.

The climate in the North Santiam Sub-Basin area is characterized by moderate annual temperature and precipitation variations. Information on climate in the Stayton-Salem area is based on the National Oceanic and Atmospheric Administration's (NOAA) Mehama and Detroit Dam climate stations located at an elevation of 600 feet and 1,220 feet above mean sea level, respectively (Western Regional Climate Station). The average annual temperature at the Detroit

Dam is 51 degrees for the period of 1954 to 2000. Winters are cool and wet, with temperatures usually staying above freezing. The summers are dry and moderately warm to hot, with temperatures ranging from 70 to 80 degrees. Temperature data is not recorded at the Mehama climate station. Average annual precipitation at Detroit Dam is about 88 inches and at Mehama is 70.5 inches, with 68% of that occurring between November and March. The Detroit Dam climate station gets an average of 17 inches of total snowfall per year and the Mehama climate station gets an average of 30 inches of annual snowfall. Both stations get approximately one-inch of measurable snow accumulation during the winter months of January and February.

# Delineation of the Protection Area

## Methodology

The delineation of the source area or the "drinking water protection area" is a fundamental aspect of the assessment of a public water system. For surface water systems such as the Salem Public Works', the drinking water protection area delineation process begins by identifying the *watershed*. The watershed area is also called the *catchment basin* of a receiving water body. The outer boundary of this watershed is the drainage divide formed by the surrounding ridges and hills. The surface water delineation includes the entire watershed area upstream of the public water system intake structure. This watershed area provides "source" water to the surface water intake. DEQ as part of the Source Water Assessment Program has defined the drinking water protection area for all of the surface water intakes in Oregon.

For surface water systems that encompass an area greater than 100 square miles, DEQ also estimates the area within an 8-hour time of travel from the intake. Typically, the 8-hour time of travel distance is estimated using US Environmental Protection Agency (EPA) Reach File (RF1) streamflow data for specific segments of streams (US EPA, 1998). Alternatively, when streamflow data is not available for the tributaries of interest, DEQ uses an estimate of 16 miles (or a 3 feet per second velocity) upstream of the intake to estimate the 8-hour time-of-travel distance. In the EPA Reach File data for Oregon, only the Columbia, Snake and Willamette rivers have mean flow velocities greater than 3 feet per second. Therefore, the 16 mile time-of-travel distance is a conservative estimate of the 8-hour time-of-travel and is generally longer than most streams will travel within the same period of time.

The drinking water protection area for Salem Public Works' is relatively small, that is less than the 100 square mile minimum and its longest dimension is less than the 16 mile threshold designated by DEQ. The longest dimension of the Salem Public Works protection area is 12 miles and the total area is less than 30 square miles. Therefore, the 8-hour travel time from the intake was not determined. Typically, it is recommended that the water systems and community consider increased protection within the 8-hour travel time from the intake, since eight hours should provide adequate response time to protect the integrity of the public water system intake should a spill or release occur at any crossing or discharge point to the stream. In this case, the entire protection area should be considered within the 8-hour travel time.

A map of the drinking water protection area provides the community with the knowledge of the geographic area providing the water to the intake. Information about the drinking water protection area allows the community to develop management strategies that will have the most impact on protecting the source of the drinking water.

## Results

The City of Salem in conjunction with DEQ has collected and reviewed data for the purpose of delineating the drinking water protection area for Salem Public Works' intake on the North Santiam River. The scope of work for this report included collecting information from the water system operator, researching written reports, and establishing a Geographic Information Systems (GIS) basemap of the delineated watershed. Salem Public Works' drinking water protection area between Salem Public Works' intake and the upstream intake for Lyons Mehama Water District is shown in Figure 1. The delineation for the area upstream of the Lyons Mehama Water District intake is presented in Attachment B. Salem Public Works' portion of the drinking water protection area extends upstream approximately 12 miles in an easterly direction and encompasses a total area of less than 30 square miles. Included in this area are a number of tributaries to the main stem, including Stout Creek, Trask Creek, and Alder Creek.. The Salem Public Works' intake is located at an approximate elevation of 491 feet as the North Santiam River flows into the valley floor from the foothills. The upper edge of the watershed is located at an elevation of approximately 3,400 feet; therefore, the elevation change within the protection area from the upper edge of the watershed to the intake is approximately 2,900 feet.

# Identification of Sensitive Areas

## Methodology

After delineating the entire watershed, DEQ identifies the "sensitive areas" within the watershed. The objective in determining the sensitive areas for surface water sources is to produce reliable information to the community and public water system that is useful in developing and prioritizing protection strategies. The list of the sensitive areas to be identified within drinking water watersheds was defined by the DEQ advisory committee as the procedures were developed (SWAP, 1999). The sensitive areas within a drinking water watershed includes both setbacks (land adjacent to stream) and other natural factors that increase the risk of contamination of the surface water. The result is an identification of a subset of the entire watershed. The sensitive areas are those where potential contamination sources or land use activities, if present, have a greater potential to impact the water supply.

In establishing sensitive areas in a watershed, the City of Salem relied on DEQ to define the sensitive area using their methodology. There are several limiting factors to take into account when delineating the sensitive areas. In using a Geographic Information System (GIS) to delineate the sensitive areas within the watershed, DEQ locates existing GIS layers and other natural resource agency data sets. Not all areas of the state have been mapped for the natural resource parameters of interest or at the level of detail ideal for this type of analysis. The availability of data at appropriate scales is also a potential limitation. The sensitive area mapping may be limited simply by the lack of readily available data, and conducting additional research is not possible within the time frame allowed to do this assessment. DEQ staff has sought to obtain the best available information for each water system as the source water assessment was performed.

There are four individual characteristics that determine the sensitivity of areas within the drinking water watersheds in the Source Water Assessment Plan (1999) procedures for Oregon water systems. A brief description of the sensitive area characteristics and the sources of the GIS data are included below.

**Sensitive Area Setbacks**
The first sensitive area is a setback using a consistent 1000' (about 300 meters) distance from the water body. The 1000' sensitive area setbacks are intended to identify those areas where there are higher risks of contamination by spills or other releases, simply due to their proximity to the water body. The sensitive area setbacks are identified as a minimum of 1000' from centerline of the intake stream and all perennial tributaries within the delineated drinking water watershed. The distance of 1000' was based on EPA national guidance for the distance to conduct the potential contamination source inventories adjacent to streams.

**High Soil Erosion Potential**
The soil erosion potential for non-forest service lands is determined by combining the effects of slope and the soil erodibility factor ("K-factor"). Slopes within a watershed are evaluated using the 1:24,000 SSURGO (Soil Survey Geographic Database) data sets from the Natural Resources Conservation Service. The slope for a map unit is a weighted average of the average slope. The soil erodibility factor is also available in the SSURGO database and quantifies the susceptibility of soil particles to detachment and movement by water including the effects of rainfall, runoff, and infiltration. The K-factor used is a weighted average of only the value for the surface layer of the map unit. In the watershed, only soils with "high" erodibility ratings were mapped as sensitive areas. Soils that classify as "high" include soil with slopes greater than 30% and K-factors greater than 0.25. This rating system is based on the Revised Universal Soil Loss Equation from the USDA Agricultural Research Service as defined in the Washington's Standard Methodology for Conducting Watershed Analysis (Washington Forest Practices Board, 1993).

**High Permeability Soils**
Soils identified in the U.S. Geological Survey geologic map of Oregon GIS layer (1:500,000 scale) as Recent Alluvial Deposits (Qal), Dune Sand (Qd) and Landslide and Debris Flow Deposits (Qls) are mapped as sensitive areas due to the high potential for groundwater recharge adjacent to the stream. Alluvial deposits, dune sand and landslide deposits are typically very high permeability soils. These areas may be very vulnerable to rapid infiltration of contaminants to groundwater and subsequent discharge to a stream or lake/reservoir.

**High Runoff Potential**
The potential for high runoff rates for non-forest service lands was evaluated using the 1:24,000 SSURGO (Soil Survey Geographic Database) data sets from the Natural Resources Conservation Service. Class D soils, which are defined as soils with very slow infiltration rates were mapped as sensitive areas within the boundaries of the drinking water protection area. Map units are assigned to hydrologic groups based on their majority component. A Class D soil is typified as clayey, has a high water table, or an impervious layer occurs at a shallow depth. Soils with these characteristics would have the potential for rapid runoff and subsequent transport of sediments and possible contaminants to the surface water body supplying the public water system.

**Additional Sensitive Areas**
There may be other natural and non-natural characteristics within a watershed that can be mapped as sensitive. Modifying the list of sensitive areas in this assessment can be

done by the City of Salem by identifying resources and procedures that are appropriate for the individual system. For example, the City of Salem may choose to add "transient snow zones", high rainfall areas, and landslide/debris-flow hazards to the sensitive areas within their watershed. Due to time constraints, these additional areas were not mapped as part of this source water assessment, but can be added by the local community before developing a protection plan.

Transient snow zones are typically defined as areas above 1500 feet in the Oregon Coast Range, or above 2000 feet in the Cascades. In some watersheds, these areas may be subject to rapid snowmelt or rain-on-snow events which increase the likelihood of transport of sediments to the surface water bodies in the watershed. Areas of high rainfall or irrigation rates may increase the likelihood of transport of sediments and possible contaminants to the surface water body. These areas can be identified using average annual precipitation data from Oregon Climate Service (years 1961 through 1990) and irrigation/water rights data from Oregon Water Resources Department's water rights database. Mapping the high risk landslide and debris-flow areas can also be useful for evaluating sediment risks from natural hazards within a drinking water watershed. The Department of Forestry has recently completed GIS-based landslide and debris flow maps for western Oregon.
(Website address: http://www.odf.state.or.us/gis/debris.html)

The final watershed map for each public water system intake includes a composite of all sensitive areas identified by DEQ within the watershed. This composite or overlay will enable the communities and responsible agencies to focus future protection efforts in these sensitive areas.

## Results

The sensitive areas within the Salem Public Works' portion of the drinking water protection area for surface water sources are shown on Figure 2. Maps of the sensitive areas in the drinking water protection area upstream of the Lyons Mehama Water District intake are provided in Attachment B. These include the setbacks from North Santiam River and all perennial tributaries, a small area of high soil permeability, and a few isolated areas of high soil erosion potential and high runoff potential. Good data coverage was available for the Salem Public Works protection area for each of the sensitive areas.

# Inventory of Potential Contaminant Sources

## Methodology

The primary intent of an inventory is to identify and locate significant potential sources of any of the contaminants of concern within the drinking water protection area. Significant potential sources of contamination can be defined as any facility or activity that stores, uses, or produces the contaminants of concern and has a sufficient likelihood of releasing such contaminants to the environment at levels that could contribute significantly to the concentration of these contaminants in the source waters of the public water supply. An inventory is a very valuable tool for the local community in that it:

- Provides information on the locations of potential contaminant sources,

especially those that present the greatest risks to the water supply,

- Provides an effective means of educating the local public about potential problems,
- Provides valuable awareness to those that own or operate facilities and land use activities in the drinking water protection area, and
- Provides a reliable basis for developing a local protection plan to reduce the risks to the water supply.

Inventories are focused primarily on the potential sources of contaminants regulated under the federal Safe Drinking Water Act. This includes contaminants with a maximum contaminant level (MCL), contaminants regulated under the Surface Water Treatment Rule, and the microorganism Cryptosporidium. The inventory was designed to identify several categories of potential sources of contaminants including micro-organisms (i.e., viruses, Giardia lamblia, Cryptosporidium, and fecal bacteria); inorganic compounds (i.e., nitrates and metals); organic compounds (i.e., solvents, petroleum compounds and pesticides) and turbidity/sediments. Contaminants can reach a water body (groundwater, rivers, lakes, etc.) from activities occurring on the land surface or below it. Contaminant releases to water bodies can also occur on an area-wide basis or from a single point source.

When identifying potential risks to a public water supply, it is necessary to make "worst-case" assumptions. This is important because it is the POTENTIAL risk that we are attempting to determine through this procedure and it is simply not possible within time constraints to conduct individual reviews or inspections at any of the facilities or land uses. The worst-case assumption that is made when considering potential risks to water bodies is that the facility or activity is not employing good management practices or pollution prevention. Under today's regulatory standards and environmental awareness, the majority of the identified activities and land uses employ "best management practices" (BMPs) in handling contaminants or preventing water quality degradation from their operations. It is important to note that while this assessment will list all POTENTIAL risks, many of these do not present actual risks to the water system. Environmental contamination is not likely to occur when contaminants are handled and used properly, or when BMPs are employed. The day-to-day operating practices and environmental (contamination) awareness varies considerably from one facility or land use activity to another. In-depth analysis or research was not completed to assess each specific source's compliance status with local, state and/or federal programs or laws. Further, the inventory process did not include an attempt to identify unique contamination risks at individual sites such as facilities (permitted or not) that do not safely store potentially hazardous materials. After the assessment is completed, the next step is to conduct an "enhanced" inventory that will look at the site-specific practices. The potential sources listed in the assessment that employ BMPs (required through regulations or voluntarily) can be removed from the list during the next step in the process of developing a voluntary drinking water protection plan.

Assumptions are also made about what potential contamination sources are included in the various types of land uses. For example, it is assumed that rural residences associated with farming operations have specific potential contamination sources such as fuel storage, chemical storage and mixing areas, and machinery repair shops. Again, any errors in these assumptions can be easily corrected as the community moves beyond the assessment to develop a protection plan.

Past, current, and possible future potential sources of contaminants were identified through a variety of methods and resources. In completing this inventory, Salem Public Works received a

database report from DEQ, which used readily available information including review of DEQ, EPA, and other agencies' databases of currently listed sites, interviews with the public water system operator, and field observation as discussed below. The process for completing the inventory for Salem Public Works' drinking water protection area included several steps, which are summarized as follows:

1. Collected relevant information as of March 3, 2003 from applicable state and federal regulatory databases including the following lists:
   - DEQ Environmental Cleanup Site Information System (ECSI) which includes the U.S. EPA National Priorities List (NPL) and the U.S. EPA Comprehensive Environmental Response, Compensation and Liability Information System (CERCLA) list;
   - DEQ leaking underground storage tank (LUST) list;
   - DEQ registered underground storage tank (UST) list;
   - DEQ Active Solid Waste Disposal Permits list;
   - DEQ Dry Cleaners list;
   - DEQ Site Information System (SIS) which includes Water Pollution Control Facility (WPCF) and National Pollutant Discharge Elimination System (NPDES) permitted facilities;
   - State Fire Marshall Hazardous Material Handlers (HAZMAT) site list (information on materials in a gas-form was not used since gaseous compounds rarely pose a threat to surface water or groundwater);
   - DEQ Underground Injection Control (UIC) list of facilities with registered underground injection control systems; and
   - DEQ Hazardous Waste Management Information System (HWIMSY) list which includes U.S. EPA Resource Conservation Recovery Act (RCRA) generators or notifiers and U.S. EPA RCRA Treatment, Storage, and Disposal Facility (TSDF) Permits.

   Because of the way various state and federal databases are set up, the specific location of listed sites is not always given or accurate within the database. Salem Public Works verified the presence and approximate location of potential contaminant sources and land uses within the drinking water protection area by consulting with local community members and/or by driving through the area (windshield survey) as discussed below in subsequent inventory steps.

2. Interviewed public water system officials, or someone they designated as knowledgeable of the area to identify potential sources that are not listed elsewhere in databases or on maps and to assist in locating potential sources listed in the state and federal databases.

3. Conducted a windshield survey by driving through the drinking water protection area to field locate and verify as many of the potential contaminant source activities as possible. Looked for potential contaminant sources within four general categories of land use: residential/municipal, commercial/industrial, agricultural/forest, and other land uses (see Table 1).

4. Assigned high-, moderate-, or low-risk ratings to each potential contaminant source based on the Oregon Source Water Assessment Plan (1999). A summary of the types of potential contaminant sources and level of assigned risk is presented in Table 1 (Summary of Potential Contaminant Sources by Land Use). The "comments" section of Table 2 (Inventory Results-List of Potential Contaminant Sources) provides justification for any modifications to the risk rating that may have resulted from field observations that were different from what is

typically expected for the specific facility. Relative risk ratings are considered an effective way for the water supply officials and community to prioritize management efforts for the drinking water protection area. When the local water supply officials and community "team" enhance the inventory for use in developing management options, further analysis may need to be conducted to more closely evaluate the actual level of risk.

5. Produced the final summary of the inventoried sources and the GIS base map, which are presented in this report.

## Results

The inventory results are summarized in Tables 1 through 3 and are shown on Figure 3. Maps and tables developed by DEQ detailing potential sources of contamination in the drinking water protection area upstream of the Lyons Mehama Water District intake are presented in Attachment B of this assessment.

The delineated drinking water protection area for surface water sources is primarily dominated by forest and agricultural land uses. Forty-eight (48) potential contaminant sources (detailed on Figure 3 and Table 2) were identified in Salem Public Works' portion of the watershed. The potential contaminant sources within the drinking water protection area all pose a relatively higher to moderate risk to the drinking water supply with the exception of two, which present a lower risk. The higher to moderate risk sites include: wood processing mills, above ground storage tanks, underground storage tanks, transportation corridors including Highway 22 and railroads, animal grazing areas, and managed forest lands. There were no facilities or sites identified on the regulatory databases that were searched (see Step 1 in the previous section) within Salem's Drinking Water Protection Area.

Some of the sources were identified as "area-type" or "point-type" sources depending on the areal extent of the particular source identified. For example, managed forested clear cuts, large clusters of septic systems, grazing lands, the large wood processing mills, and any sources present throughout the protection area are considered area-type sources. Other isolated sources from shops or small businesses are considered point-type sources. The locations of area-type sources are placed at the most down-gradient point in the protection area where the sources are present. For example, most of the forested lands occur in the eastern half of the protection area, and so the location of the forest-related sources are shown mid-way down the protection area. The locations of several other area-type sources are shown near the outlet of the protection area, because these sources are present throughout the protection area.

The presence of potential contaminant sources within Salem Public Works drinking water protection area provides a quick look at the potential sources of contaminants that could, if improperly managed, impact the water quality in the watershed. Even very small quantities of certain contaminants can significantly impact water bodies. It is important to remember the sites and areas identified in this section are only **potential** sources of contamination to the drinking water.

# Susceptibility Analysis

## Methodology

Susceptibility can be defined as the potential for contamination in the drinking water protection area to reach the intake on the surface water body being used by a public water system for drinking water purposes. Whether or not a particular drinking water source becomes contaminated depends on three major factors: 1) the occurrence of a facility or land use that releases contamination, 2) the location of the release, and 3) the hydrologic and/or soil characteristics in the watershed that allow the transport of the contaminants to the surface water body.

In conducting a susceptibility analysis the first step is identifying that part of the watershed that is most sensitive to contamination. This was accomplished after the delineation phase of this assessment. The second step consists of identifying and locating the potential contaminant sources in the drinking water protection area. Based on the type of facility and the nature of the chemicals they use, these sources represent a lower-, moderate-, or higher-relative risk to the surface water body. This step was accomplished in the inventory phase of the assessment.

The third step in the susceptibility analysis is to overlay the results of the inventory with the map of the sensitive areas. The results of the inventory are analyzed in terms of current, past, and future land uses; their time-of-travel relationship or proximity to the intake site; and their associated risk rating. In general, land uses that are closest to the intake and those with the highest risk rating pose the greatest threat to a drinking water supply. The presence and locations of the potential contamination sources within the sensitive areas will determine where the water system has the highest susceptibility to contamination. The susceptibility analysis cannot predict when or if contamination will actually occur, but it does recognize conditions that are highly favorable for contamination to occur. If a contaminant release to soils or water should occur in a sensitive area, it is very likely that contamination of the surface water body would occur if remedial actions are not undertaken.

When several high or moderate risk sources are located within the sensitive areas, the public water system may also be said to have a high overall susceptibility to contamination. If a public water system's drinking water source is determined to be of high susceptibility, it is recommended that the system identify those condition(s) that lead to the high susceptibility and take steps to protect the resource (e.g., reducing soil erosion, or working directly with facility operators to implement sound management practices, etc.). Water systems with a low susceptibility should consider all identified factors that could lead to higher susceptibility in the future and take action to prepare a strategy to protect the resource in the future.

## Results

The results of the potential contamination source inventory are combined with the locations of the sensitive areas to determine the most susceptible areas within Salem Public Works' portion of the drinking water protection area. The total number of sources within the sensitive areas is summarized as follows:

| | Within Sensitive Areas | Outside of Sensitive areas | Total Within Salem Public Works Drinking Water Protection Area |
|---|---|---|---|
| Total Number of **High and Moderate** Risk Potential Contamination Sources | 46 | 0 | 46 |
| **Higher** Risk Potential Contamination Sources Identified | 12 | 0 | 12 |
| **Moderate** Risk Potential Contamination Sources Identified | 34 | 0 | 34 |
| **Lower** Risk Potential Contamination Sources Identified | 2 | 0 | 2 |
| Total Potential Contamination Sources Identified | 48 | 0 | 48 |

*Note: Each facility or site may include more than one potential source of contamination. In this case, each potential source within the site was counted individually. However, widespread areal sources such as septic systems were considered a single potential contaminant source. Thus, although there are 48 individual potential sources of contamination there are 37 sites listed in Table 2 and shown on Figure 3.*

Overlaying the locations of the moderate- to high-risk sources with the sensitive areas provides an indication of the areas that are highly susceptible to contamination. The susceptibility analysis results are shown on Figure 3 (Source Water Assessment Results). *The moderate- to higher-risk sources are those that fall within the sensitive areas and are considered areas most vulnerable to contamination.* In the Salem Public Works portion of the watershed, it includes the distribution of the 48 identified sources within the areas of highly permeable soils, high erosional soils, high runoff potential soils, and within the 1000' setback from the streams. In general, potential contaminant sources within the sensitive areas in the lower watershed pose greater risk than those in the higher areas of the watershed due to the tendency for contamination released in the sensitve areas in the lower reaches to reach the intake in less time. The susceptibility analysis provides the water system with information on where the greatest risk occurs and where to focus resources for protection.

For Salem Public Works, a majority of the higher and moderate risk sources are located at the upstream-most portion of the drinking water protection area. Specifically, several of the potential contaminant sources are located within or around the towns of Lyons and Mehama. However, the transportation corridors including Highway 22 and the railroad parallel the entire length of North Santiam River within the drinking water protection area. In addition, other potential contaminant sources exist in less dense but scattered areas throughout the protection area. These sources include grazing pastures, septic systems, small above ground storage tanks and other stored chemicals associated with farms, and managed forested clear cuts. Because of

the "long and narrow" nature of the protection area, most of it is adjacent to the North Santiam River, and thus most of the protection area is considered "sensitive." The Lyons-Mehama area is especially considered a highly vulnerable area due to the relative concentration of potential contaminant sources and its proximity to the North Santiam River and also to Salem Public Works' intake itself.

When all of the assessments are completed in Oregon, DEQ will provide a second type of susceptibility analysis for the surface water systems. An "inter-system susceptibility" on a statewide basis. DEQ will develop a summary report describing how the Salem Public Works watershed compares with other drinking water watersheds in the state. To normalize the results of the assessments, the total number of potential contamination sources will not be used. The density of the moderate- to higher-risk sources within the drinking water protection area and within the sensitive areas will be calculated. This comparison will be based upon the number and distribution of the potential contamination sources in the watersheds that serve as drinking water resources. The purpose is not to rank individual systems, but to provide general groupings of overall risk relative to other Oregon public water systems. This will enable state agencies to develop priorities for staffing and funding more detailed assessments and protection measures.

# Summary and Recommendations

This assessment provides a basis for focusing limited resources within the community to protect the drinking water source. The delineation provides the community with information regarding the location of the land area that directly supplies the surface water intake, i.e., the drinking water protection area. The sensitive areas are those where potential contamination sources or land use activities, if present, have the greater potential to impact the water supply. When the sensitive area information is combined with the potential contaminant source inventory, the highly vulnerable areas are identified (referred to as a susceptibility analysis). These should become high priority areas to be addressed first with educational information, technical assistance, and focused outreach to landowners to encourage voluntary cooperation in protecting the water quality in this watershed.

This assessment provides a basis for informed decision-making regarding community planning. The delineation, inventory and susceptibility analysis provides the community with a significant amount of information regarding where their drinking water comes from and an identification of some of the potential risks to the quality of that source. For example, knowing the location and status of the source area allows the community's planning authority to potentially make informed decisions regarding proposed land uses that are compatible with both the drinking water resource and the vision of community growth embraced by the community. Educating the community citizens about the susceptibility and risks to their system enables more public involvement in any future decisions about the public water system.

The results of this Source Water Assessment and the recommendations based on the results are summarized below.

♦ Salem Public Works' public water system draws water from North Santiam River Intake. The source of this water is within the North Santiam Sub-Basin of the Willamette Basin. Salem Public Works' drinking water protection area extends approximately 12 miles in an easterly direction and encompasses a total area of less than 30 square miles. Included in this area are a

number of tributaries to the main stem, including Stout Creek, Trask Creek, and Alder Creek. It is recommended the Salem Public Works water system and community consider the entire protection area for increased protection since it is relatively small in area and the higher and moderate risk sources are all within sensitive areas in close proximity to Salem Public Works' intake. Adequate response time is needed to protect the integrity of the public water system intake after a spill or release at any crossing or discharge point to the stream.

♦ This source water assessment addresses the geographic area providing water to Salem Public Works' intake (Salem Public Works' portion of the drinking water protection area) between Salem Public Works' intake and the upstream intake for Lyons Mehama Water District. Information on Salem Public Works' protection area upstream of the Lyons Mehama Water District intake is presented in the Source Water Assessment for that public water system and is summarized in this report. In addition, there are two drinking water intakes on the North Santiam River downstream of Salem Public Works' intake including the intake for the City of Stayton Water Supply and City of Jefferson. Activities and impacts in the Salem Public Works' drinking water protection area have the potential to also impact downstream users.

♦ Within the Salem Public Works' portion of the drinking water protection area for surface water sources, there are large areas identified as sensitive to contamination. In fact, due to the long and narrow nature of the protection area, most of it is adjacent to the North Santiam River, and is considered sensitive. Areas that are adjacent to the streams/river, areas that have high soil erosion potential, high runoff potential, and high permeability should all receive special considerations for protection. These are some of the areas where the risk is greatest for existing **and future** potential sources of contamination impacting the water quality in the watershed. It is recommended that other natural conditions (e.g. high rainfall areas and landslide hazards) be considered and possibly added to the assessment results before proceeding with voluntary development of a drinking water protection plan.

There are also some highly-permeable soils adjacent to the North Santiam River that should be considered higher risk for groundwater contamination. These areas are very sensitive to any spills or release to soils because the contaminants could rapidly infiltrate into groundwater and discharge to the North Santiam River. The community should take steps to evaluate current and future land use in areas of highly permeable soils and work with the County to designate appropriate land uses designations for these areas. The facilities or land uses that have been identified either on or in close proximity to these soils should be informed of the sensitive nature of the area and encouraged to adopt best management practices designed to minimize the risk of a contaminant release.

♦ The susceptibility of the public drinking water system source depends on both the natural conditions in the watershed as well as the land uses and facilities operating in the watershed. The purpose of the susceptibility exercise is to identify those factors that may pose more of a risk than others within the community's drinking water protection area. It provides information with respect to facilities or land uses in the sensitive areas within the drinking water protection area that should be given greater priority in developing protection strategies. A review of the inventory and the sensitive areas indicates that the Salem Public Works public water system has at least 46 high and moderate-risk sources within the sensitive areas in the watershed. Many of these sources are located in the Lyons-Mehama area; however, presence of grazing animals, septic systems and transportation corridors along the entire length of the protection area pose risks to the intake. It is highly recommended that the community "enhance" or refine the

delineation of the sensitive areas and the identification of the potential contamination sources through further research and local input.

♦ Due to the streamlined procedures for conducting the source water assessments, the results could potentially create a misperception that the "human activities" within the watersheds are higher risks than natural conditions or disturbances such as landslides and storm events. For example, it would be erroneous for communities to conclude that their source water was not at risk from natural conditions that produce sediments, such as landslides and forest fires, even if there were no potential contamination sources identified within their watershed. It is recommended that the community take steps to ensure the natural conditions (both those identified in this assessment and any other additional areas identified by the community) within the watershed are considered when developing strategies for protection.

♦ Public water systems may be threatened by contamination already in the surface water. Salem Public Works conducts routine tests for contamination in the raw water prior to treatment as well as surface water monitoring as part of the USGS watershed monitoring program. It is highly recommended that such data be used to determine existing risks in the watershed. Collecting and analyzing this raw water data was not done under this assessment and is beyond the scope of this assessment.

♦ This assessment provides a basis for dealing with future water quality work in the watershed. The delineation, inventory, and susceptibility analysis has been designed to serve as a strong foundation for further in-depth watershed assessments or water quality improvement efforts, such as Oregon's Total Maximum Daily Load (TMDL) plans.

♦ The primary intent of this source water assessment is to provide the background information for the community to use in developing a local Drinking Water Protection Plan. Salem Public Works should assemble a team to assist in the development and implementation of a Drinking Water Protection Plan. Clean safe drinking water is fundamental to the viability of any community. Protecting the drinking water source is a wise investment in the community's future. The next section will discuss this voluntary process.

# Developing a Drinking Water Protection Plan

This Source Water Assessment (SWA) Report for the public water system is a compilation of the results of the delineation of the source area, identification of the sensitive areas, and an inventory of significant risks. The final product, the susceptibility analysis, provides the basis for prioritizing the areas in and around your community that need to be protected. As was discussed in the introduction, it is the City of Salem's (Salem Public Works') intent to use the assessment as a basis for developing a "Drinking Water Protection Plan." At this stage, the development of the Protection Plan is voluntary, but is highly encouraged by the DEQ.

The process for developing a complete Drinking Water Protection Plan can be summarized as follows:

**ASSESSMENT PHASE (Source Water Assessment Report performed by DEQ/DHS or City of Salem)**

1. Delineate the area that serves as the source of the public water supply ("drinking water protection area" for groundwater wells or surface water intakes)
2. Inventory the potential risks or sources of contamination
3. Determine the areas most susceptible to contamination

**PROTECTION PHASE (performed by City of Salem)**

4. Assemble a local Drinking Water Protection Team
5. Enhance the Source Water Assessment
6. Develop a plan to protect the supply (reduce the risks of contamination)
7. Develop a contingency plan to address the potential loss of the system
8. Certify (optional) and implement the Drinking Water Protection Plan

The assessment phase work was funded by the federal Safe Drinking Water Act. The assessment is simply the first three steps of developing a protection plan for your public water supply. Developing a protection plan is voluntary.

Prior to moving into the protection phase, DEQ recommends the inventory presented in this document be reviewed in detail to clarify the presence, location, operational practices, actual risks, etc. of the identified facilities and land use activities. The SWA inventory should be regarded as a preliminary review of potential sources of contamination within the drinking water protection area. Resources within the community should be used to do an "enhanced inventory" to complete this preliminary list of potential sources of contamination.

It is also important to remember that not all of the inventoried activities will need to be addressed if the City of Salem chooses to develop a Drinking Water Protection Plan. When developing a protection plan, sources which pose little to no threat to the City's public water supply can be screened out. For example, if any of the land use activities are conducted in a manner that already significantly reduces the risk of a contamination release, the facility would not need to re-evaluate their practices based on drinking water protection "management". One of the goals of developing a Drinking Water Protection Plan based on the inventory results is to address those land use activities that do pose high or moderate risks to the City's public water supply. The City of Salem could target these facilities with greater levels of education and technical assistance to minimize the risk of contamination.

Limited technical assistance is available through both DEQ and DHS for communities that choose to move beyond the assessments and voluntarily develop a Drinking Water Protection Plan. Using the results of the assessment (and enhanced inventory), the local community can form a "Drinking Water Protection Team" of community members and develop a plan to reduce the risks of contamination from those sources.

Forming a local team to help with the development of a protection plan is very important. Oregon's drinking water protection approach relies upon the concept of "community-based protection", as are many other water quality programs. Community-based protection simply refers to the concept of allowing local control and decision-making to implement the water quality protection effort. Community-based protection is successful only with significant local citizen and stakeholder involvement.

The primary advantage of community-based protection is that it links community needs to environmental needs. Any successful protection program will need to be flexible enough to

allow the community to adopt the "tools" or elements that are most appropriate for them. Allowing this local control in making the changes necessary for improving water quality will accomplish two key elements of restoration and protection. Community-based protection can draw on the knowledge and successful adaptive practices of the local area. Landowners generally know best how to achieve water resource restoration and protection as long as a thorough explanation of the problem is provided, the objectives are defined, and some free technical assistance is provided. Secondly, knowing they have more local control, citizens will also be more likely to participate in the program and more willing to assist with the educational and outreach effort, which will make the plan successful. It is recommended that the protection plan be developed so as to *minimize any burdens on individual property owners, but maximize the equity in responsibility for reducing the risks of future contamination.*

Drinking water protection involves developing protection strategies for groundwater or surface water sources of public water supplies. There are many similarities between this program and other water quality protection programs, and it is essential that water quality efforts are coordinated and linked in each geographic area as much as possible. DEQ is committed to linking the drinking water protection efforts to other habitat and water quality improvement efforts for fish in Oregon, as well as the ongoing work to address Clean Water Act 303(d) water-quality-limited streams. One of the primary means of providing technical assistance is to give the community the information and coordination necessary to create these links. Other agencies will also be involved in providing technical assistance as protection plans are developed. For example, on farmlands, the Oregon Department of Agriculture will provide assistance as provided for under Senate Bill 1010. In developing recommendations for protecting the drinking water source area, the community can maximize the use of existing programs in Oregon that offer free technical assistance. Examples of such programs include:

- pollution prevention technical assistance from the Department of Environmental Quality,
- sanitary survey assistance from the Oregon Department of Human Services,
- household hazardous waste assistance from the Department of Environmental Quality,
- land use planning from the Department of Land Conservation and Development,
- agricultural water quality management plans from the Oregon Department of Agriculture,
- water conservation education from the Water Resources Department, or
- rural water quality outreach from the Oregon State University Extension Service.

Protecting the drinking water supply in the City can also be a very effective way to encourage all citizens to participate in an issue that directly affects everyone in that community. This often leads to more public involvement in other significant local decisions concerning future livability issues (i.e., land use planning). In communities already developing and implementing Drinking Water Protection Plans, the process has served to bring many diverse interests together on a common goal and strengthened the local rural and urban relationships through communication and increased understanding. The City can continue to do a better job in outreach efforts to point out that several sources contribute to the existing water quality problems. The risks and sources of water quality problems are not only from industries, farmers, and managed forests, but every individual living, commuting and working in that area.

It is encouraged that communities interested in developing Drinking Water Protection Plans contact the DEQ or DHS resources listed below:

***For technical assistance with the monitoring and operation of your public water system:***

Oregon Department of Human Services
Main Office - Portland Oregon
800 NE Oregon St., Room 611
PO Box 14450, Portland, OR 97293
(503) 731-4317
Fax (503) 731-4077

or:

Dennis Nelson, Groundwater Coordinator, (541) 726-2587
donelson@oregonvos.net
Oregon Department of Human Services
Springfield Field Office
442 A Street, Springfield, OR 97477
Fax (541) 726-2596

***For technical assistance with developing plans to protect your public water system:***

Department of Environmental Quality
Water Quality Division
811 SW 6th Avenue
Portland, OR 97204-1390
(503) 229-5630  Fax (503) 229-5408
Toll Free 1-800-452-4011

**Surface Water** - Sheree Stewart, (503) 229-5413
stewart.sheree@deq.state.or.us

**Groundwater** - Julie Harvey, (503) 229-5664
harvey.julie@deq.state.or.us

# References*

Natural Resource Conservation Service (NRCS). Soil Survey Geographic Database (SURGGO), National Cartography and Geospatial Center, Fort Worth, Texas. http://www.ftw.nrcs.usda.gov/ssurgo.html

Source Water Assessment Plan: Implementation of the Safe Drinking Water Act 1996 Amendments. Sheree Stewart, Oregon Department of Environmental Quality, and Dennis Nelson, Oregon Department of Human Services, February 1999. http://www.deq.state.or.us/wq/dwp/dwphome.htm

US Environmental Protection Agency, 1997. State Source Water Assessment and Protection Programs Guidance, US EPA Office of Water, EPA816-R-97-009, August 1997. http://www.epa.gov/ogwdw/swp.html

US Geological Survey, Oregon Hydrologic Units. http://oregon.usgs.gov/data_dir/orehuclist.html

Washington Forest Practices Board. 1993. Standard Methodology for Conducting Watershed Analysis, Version 2.0, October 1993

Western Regional Climate Center, Oregon Climate Summaries. http://www.wrcc.dri.edu/summary/climsmor.html

*Please note that there may be other sources of information for the North Santiam River Sub -Basin. Conducting an exhaustive search of all data and technical reports was beyond the scope of this Source Water Assessment Report.

# Figures

Source Water Assessment Report
Salem Public Works
PWS # 4100731

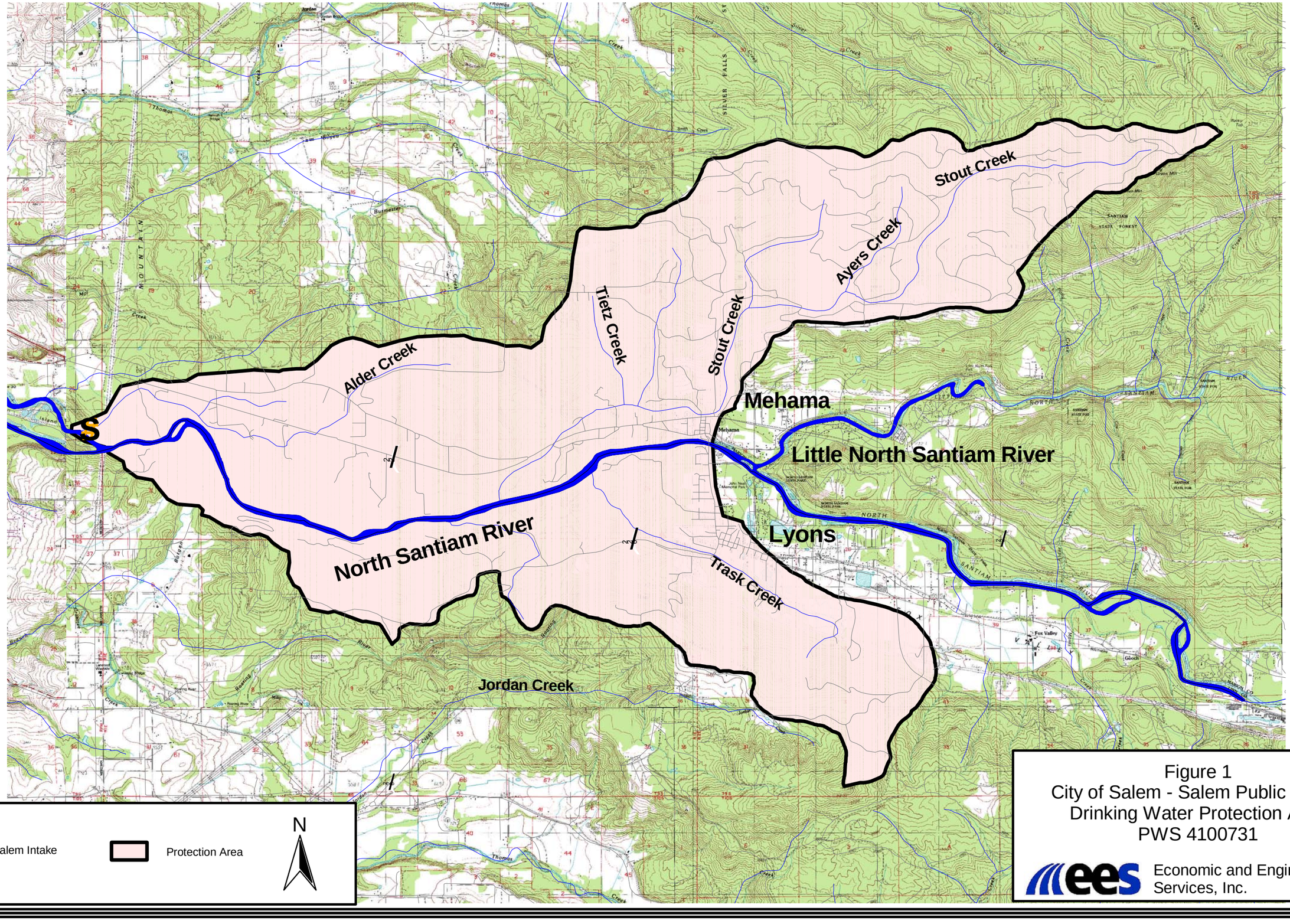
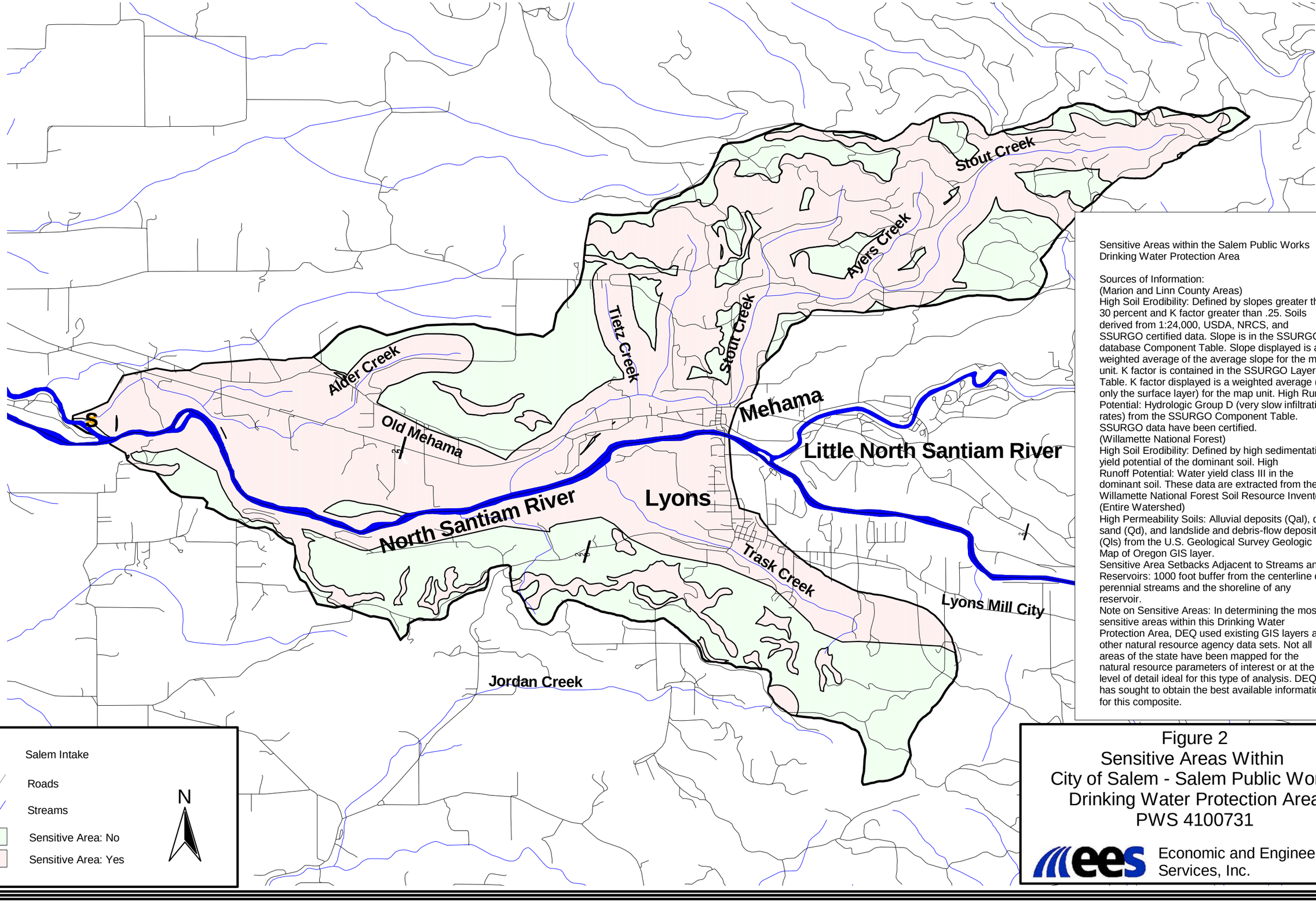



Figure 1
City of Salem - Salem Public Works
Drinking Water Protection Area
PWS 4100731

Economic and Engineering Services, Inc.




Sensitive Areas within the Salem Public Works Drinking Water Protection Area

Sources of Information:
(Marion and Linn County Areas)
High Soil Erodibility: Defined by slopes greater than 30 percent and K factor greater than .25. Soils derived from 1:24,000, USDA, NRCS, and SSURGO certified data. Slope is in the SSURGO database Component Table. Slope displayed is a weighted average of the average slope for the map unit. K factor is contained in the SSURGO Layer Table. K factor displayed is a weighted average (of only the surface layer) for the map unit. High Runoff Potential: Hydrologic Group D (very slow infiltration rates) from the SSURGO Component Table. SSURGO data have been certified.
(Willamette National Forest)
High Soil Erodibility: Defined by high sedimentation yield potential of the dominant soil. High Runoff Potential: Water yield class III in the dominant soil. These data are extracted from the Willamette National Forest Soil Resource Inventory.
(Entire Watershed)
High Permeability Soils: Alluvial deposits (Qal), dune sand (Qd), and landslide and debris-flow deposits (Qls) from the U.S. Geological Survey Geologic Map of Oregon GIS layer.
Sensitive Area Setbacks Adjacent to Streams and Reservoirs: 1000 foot buffer from the centerline of perennial streams and the shoreline of any reservoir.
Note on Sensitive Areas: In determining the most sensitive areas within this Drinking Water Protection Area, DEQ used existing GIS layers and other natural resource agency data sets. Not all areas of the state have been mapped for the natural resource parameters of interest or at the level of detail ideal for this type of analysis. DEQ has sought to obtain the best available information for this composite.

# Figure 2
# Sensitive Areas Within City of Salem - Salem Public Works Drinking Water Protection Area PWS 4100731

Economic and Engineering Services, Inc.

Mehama

Lyons

Lyons Mill City

Sensitivity Low
Sensitivity Medium
Sensitivity High
See Table 2
Salem Intake
Roads
Streams
Sensitive Area: No
Sensitive Area: Yes
N

Note: For sites with multiple contaminant sources, the highest risk rating is shown.

Figure 3
Source Water Assessment Results
Potential Contaminant Sources
Within City of Salem - Salem Public Works
Drinking Water Protection Area
PWS 4100731

Economic and Engineering Services, Inc.

# Tables

Source Water Assessment Report
Salem Public Works
PWS # 4100731
Inventory Results



**Notes for Tables**

- Sites and areas identified in Tables 1 and 2 are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.
- Total number of sources listed in Table 1 in the DWPA may not add up to the total number of potential contaminant sources in Table 2 because more than one type of potential contaminant source may be present at any given facility.
- The data was collected by Sue Gries, DEQ Northwest Region Office, on March 3, 2003 and Ronan Igloria, Economic and Engineering Service, Inc. as a subcontractor to the City of Salem.

**Acronyms**

AST - Aboveground Storage Tank
DC - DEQ's Drycleaner database
DEQ - Oregon Department of Environmental Quality
DWPA - Drinking Water Protection Area
ECSI - DEQ's Environmental Cleanup Site Information database
HWIMSY - DEQ's Hazardous Waste Information Management System database
LUST - DEQ's Leaking Underground Storage Tank database
NPDES - National Pollutant Discharge Elimination System
PCS - Potential Contaminant Source
PWS - Public Water System
SFM - State Fire Marshall's database of hazardous materials
SIS - DEQ's Source Information System database (includes WPCF and NPDES permits)
SWMS - DEQ's Solid Waste Management System database
UST - DEQ's Underground Storage Tank database or Underground Storage Tank
WPCF - Water Pollution Control Facility
WRD -Oregon Water Resources Division database for water rights information system

# Tables

## Source Water Assessment Report
## SALEM PUBLIC WORKS - PWS # 4100731
## Inventory Results

## TABLE 1. SUMMARY OF POTENTIAL CONTAMINANT SOURCES BY LAND USE

**PWS # 4100731 SALEM PUBLIC WORKS**

### Residential/Municipal Land Uses

| Potential Contamination Source | Note | Relative Risk Level | Total in DWPA |
|---|---|---|---|
| Airport - Maintenance/Fueling Area | | Higher | 0 |
| Apartments and Condominiums | | Lower | 0 |
| Campgrounds/RV Parks | (1) | Moderate | 0 |
| Cemeteries - Pre-1945 | | Lower | 0 |
| Drinking Water Treatment Plants | | Moderate | 0 |
| Fire Station | | Lower | 0 |
| Fire Training Facilities | | Moderate | 0 |
| Golf Courses | | Moderate | 0 |
| Housing - High Density (> 1 House/0.5 acres) | | Moderate | 1 |
| Landfill/Dumps | (1) | Higher | 0 |
| Lawn Care - Highly Maintained Areas | | Moderate | 0 |
| Motor Pools | | Moderate | 0 |
| Parks | | Moderate | 0 |
| Railroad Yards/Maintenance/Fueling Areas | | Higher | 0 |
| Schools | | Moderate | 0 |
| Septic Systems - High Density ( > 1 system/acre) | (1) | Moderate | 1 |
| Sewer Lines - Close Proximity to PWS | (1) | Moderate | 0 |
| Utility Stations - Maintenance Transformer Storage | | Higher | 0 |
| Waste Transfer/Recycling Stations | (1) | Moderate | 0 |
| Wastewater Treatment Plants/Collection Stations | (1) | Moderate | 0 |
| Other | | | 0 |

NOTES:
Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.
(1) - Potential source of microbial contamination
(2) - Drip irrigated crops, such as vineyards and some vegetables, are considered lower risk than spray irrigation
(3) - For groundwater public water systems, septic systems located within the 2-year time-of-travel (TOT) are considered moderate risks.

## TABLE 1. SUMMARY OF POTENTIAL CONTAMINANT SOURCES BY LAND USE

**PWS # 4100731 SALEM PUBLIC WORKS**

### Commercial/Industrial Land Uses

| Potential Contamination Source | Note | Relative Risk Level | Total in DWPA |
|---|---|---|---|
| Automobiles - Body Shops | | Moderate | 1 |
| Automobiles - Car Washes | | Moderate | 0 |
| Automobiles - Gas Stations | | Moderate | 0 |
| Automobiles - Repair Shops | | Higher | 1 |
| Boat Services/Repair/Refinishing | | Higher | 0 |
| Cement/Concrete Plants | | Moderate | 0 |
| Chemical/Petroleum Processing/Storage | | Higher | 0 |
| Dry Cleaners | | Moderate | 0 |
| Electrical/Electronic Manufacturing | | Higher | 0 |
| Fleet/Trucking/Bus Terminals | | Moderate | 0 |
| Food Processing | | Moderate | 0 |
| Furniture/Lumber/Parts Stores | | Moderate | 0 |
| Home Manufacturing | | Higher | 0 |
| Junk/Scrap/Salvage Yards | | Higher | 3 |
| Machine Shops | | Higher | 0 |
| Medical/Vet Offices | (1) | Moderate | 0 |
| Metal Plating/Finishing/Fabrication | | Higher | 0 |
| Mines/Gravel Pits | | Higher | 1 |
| Office Buildings/Complexes | | Lower | 0 |
| Parking Lots/Malls (> 50 Spaces) | | Higher | 0 |
| Photo Processing/Printing | | Higher | 0 |
| Plastics/Synthetics Producer | | Higher | 0 |
| Research Laboratories | | Higher | 0 |
| RV/Mini Storage | | Lower | 0 |
| Wood Preserving/Treating | | Higher | 0 |
| Wood/Pulp/Paper Processing and Mills | | Higher | 2 |
| Other: --Fire District Stations | | Moderate | 2 |
| Other: --Auto and equipment parts shop | | Moderate | 2 |

NOTES:
Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.
(1) - Potential source of microbial contamination
(2) - Drip irrigated crops, such as vineyards and some vegetables, are considered lower risk than spray irrigation
(3) - For groundwater public water systems, septic systems located within the 2-year time-of-travel (TOT) are considered moderate risks.

## TABLE 1. SUMMARY OF POTENTIAL CONTAMINANT SOURCES BY LAND USE

**PWS # 4100731 SALEM PUBLIC WORKS**

### Agricultural/Forest Land Uses

| Potential Contamination Source | Note | Relative Risk Level | Total in DWPA |
|---|---|---|---|
| Auction Lots | (1) | Higher | 0 |
| Boarding Stables | (1) | Moderate | 0 |
| Confined Animal Feeding Operations (CAFOs) | (1) | Higher | 0 |
| Crops - Irrigated (inc. orchards, vineyards, nurseries, | (2) | Moderate | 0 |
| Crops - Nonirrigated (inc. Christmas trees, grains, grass seed, | | Lower | 1 |
| Farm Machinery Repair | | Higher | 0 |
| Grazing Animals (> 5 large animals or equivalent/acre) | (1) | Higher | 1 |
| Lagoons/Liquid Wastes | (1) | Higher | 0 |
| Land Application Sites | (1) | Moderate | 0 |
| Managed Forest Land - Broadcast Fertilized Areas | | Moderate | 1 |
| Managed Forest Land - Clearcut Harvest (< 35 yrs.) | | Higher | 1 |
| Managed Forest Land - Partial Harvest (< 10 yrs.) | | Moderate | 0 |
| Managed Forest Land - Road Density ( > 2 mi./sq. mi.) | | Higher | 1 |
| Pesticide/Fertilizer/Petroleum Storage, Handling, Mixing, & | | Higher | 0 |
| Recent Burn Areas (< 10 yrs.) | | Lower | 0 |
| Managed Forest Lands - Status Unknown | | Moderate | 0 |
| Other: --Poultry Farm | | Moderate | 0 |
| Other: --Slide Area | | Moderate | 0 |

NOTES:
Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.
(1) - Potential source of microbial contamination
(2) - Drip irrigated crops, such as vineyards and some vegetables, are considered lower risk than spray irrigation
(3) - For groundwater public water systems, septic systems located within the 2-year time-of-travel (TOT) are considered moderate risks.

## TABLE 1. SUMMARY OF POTENTIAL CONTAMINANT SOURCES BY LAND USE

**PWS # 4100731 SALEM PUBLIC WORKS**

### Miscellaneous Land Uses

| Potential Contamination Source | Note | Relative Risk Level | Total in DWPA |
|---|---|---|---|
| Above Ground Storage Tanks - Excluding Water | | Moderate | 10 |
| Channel Alterations - Heavy | | Lower | 0 |
| Combined Sewer Outfalls | (1) | Lower | 0 |
| Stormwater Outfalls | (1) | Lower | 0 |
| Composting Facilities | (1) | Moderate | 0 |
| Historic Gas Stations | | Higher | 0 |
| Historic Waste Dumps/Landfills | (1) | Higher | 0 |
| Homesteads - Rural - Machine Shops/Equipment Maintenance | | Higher | 0 |
| Homesteads - Rural - Septic Systems (< 1/acre) | (1)(3) | Lower | 1 |
| Injection/Dry Wells, Sumps - Class V UICs | (1) | Moderate | 1 |
| Kennels (> 20 Pens) | (1) | Lower | 0 |
| Military Installations | | Higher | 0 |
| Random Dump Sites | | Moderate | 0 |
| River Recreation - Heavy Use (inc. campgrounds) | (1) | Lower | 0 |
| Sludge Disposal Areas | (1) | Moderate | 0 |
| Stormwater Retention Basins | (1) | Moderate | 0 |
| Transmission Lines - Right-of-Ways | | Higher | 1 |
| Transportation - Freeways/State Highways/Other Heavy Use | | Higher | 2 |
| Transportation - Railroads | | Higher | 1 |
| Transportation - Right-Of-Ways - Herbicide Use Areas | | Moderate | 0 |
| Transportation - River Traffic - Heavy | | Lower | 0 |
| Transportation - Stream Crossing - Perennial | | Higher | 1 |
| UST - Confirmed Leaking Tanks - DEQ List | | Higher | 1 |
| UST - Decommissioned/Inactive | | Lower | 0 |
| UST - Nonregulated Tanks (< 1,100 gals or Large Heating Oil | | Moderate | 0 |
| UST - Not Upgraded and/or Registered Tanks | | Higher | 0 |
| UST - Upgraded/Registered - Active | | Lower | 0 |
| UST - Status Unknown | | Moderate | 6 |
| Upstream Reservoirs/Dams | | Lower | 0 |
| Wells/Abandoned Wells | | Moderate | 1 |
| Large Capacity Septic Systems (serves > 20 people) - Class V | (1) | Moderate | 1 |
| Construction/Demolition Areas | | Moderate | 0 |
| Other: -DEQ Cleanup Program Site | | Higher | 2 |
| Other: -Lead acid batteries storage | | Higher | 1 |

NOTES:
Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.
(1) - Potential source of microbial contamination
(2) - Drip irrigated crops, such as vineyards and some vegetables, are considered lower risk than spray irrigation
(3) - For groundwater public water systems, septic systems located within the 2-year time-of-travel (TOT) are considered moderate risks.

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100731 SALEM PUBLIC WORKS**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Transportation - Freeways/State Highways/Other Heavy Use Roads | State Highway 22 | Throughout DWPA | Lyons | Field-Observation | Within sensitive area. | Higher | Vehicle use increases the risk for leaks or spills of fuel & other haz. materials. Road building, maintenance & use can increase erosion/slope failure causing turbidity. Over-application or improper handling of pesticides/fertilizers may impact water. | |
| 2 | Housing-High Density (> 1 House/0.5 acres) | High Density Housing | Within Lyons city limits | Lyons | Field-Observation | Within sensitive area. | Moderate | Improper use, storage, and disposal of household chemicals may impact the drinking water supply. Stormwater run-off or infiltration may carry contaminants to drinking water supply. | Lyons and Mehama have areas of high density housing. |
| | Septic Systems-High Density (>1 system/acre) | | | | | | Moderate | If not properly sited, designed, installed, and maintained, septic systems can impact drinking water. Cumulative effects of multiple systems in an area may impact drinking water supply. | Lyons and Mehama have areas of high density housing. |
| 3 | Transportation - Railroads | Railroad | Throughout DWPA | Lyons | Field-Observation | Within sensitive area. | Higher | Rail transport elevates the risk for leaks/spills of fuel & other haz. materials. Installation/maintenance of tracks may increase erosion & slope failure causing turbidity. Over-application/improper handling of pesticides may impact the water supply. | |
| 4 | Transportation - Freeways/State Highways/Other Heavy Use Roads | State Highway 226 | Southwest corner of DWPA | Lyons | Field-Observation | Within sensitive area. | Moderate | Vehicle use increases the risk for leaks or spills of fuel & other haz. materials. Road building, maintenance & use can increase erosion/slope failure causing turbidity. Over-application or improper handling of pesticides/fertilizers may impact water. | Risk reduced to Moderate because only a small portion of highway 226 is within DWPA. |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).



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## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100731 SALEM PUBLIC WORKS**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 5 | Grazing Animals (> 5 large animals or equivalent/acre) | Grazing Animals | Throughout DWPA | Lyons | Field-Observation | Within sensitive area. | Higher | Improper storage and management of animal wastes may impact drinking water supply. Concentrated livestock may contribute to erosion and sedimentation of surface water bodies. | |
| 6 | Crops - Nonirrigated (inc. Christmas trees, grains, grass seed, pasture) | Non-irrigated crops | Throughout DWPA | Lyons | Field-Observation | Within sensitive area. | Lower | Over-application or improper handling of pesticides/fertilizers may impact drinking water. Some agricultural practices may result in excess sediments discharging to surface waters, but non-irrigated crops are generally considered to be a low risk. | |
| 7 | Transmission Lines - Right-of-Ways | Transmission Lines | Throughout DWPA | Lyons | Field-Observation | Within sensitive area. | Higher | Construction and corridor maintenance may contribute to increased erosion and turbidity in drinking water supply. Over-application or improper handling of pesticides or fertilizers may impact drinking water supply. | |
| 8 | Homesteads - Rural Septic Systems (< 1/acre) | Rural Homesteads on septic | Throughout DWPA | Lyons | Field-Observation | Within sensitive area. | Lower | If not properly sited, designed, installed, and maintained, septic systems can impact drinking water. Use of drain cleaners and dumping household hazardous wastes can result in groundwater contamination. | Most homes are found along Hwy 22. |
| | Wells/Abandoned Wells | | | | | | Moderate | Improperly installed or maintained wells and abandoned wells may provide a direct conduit for contamination to groundwater | Most homes are found along Hwy 22. |
| 9 | Managed Forest Land - Clearcut Harvest (< 35 yrs.) | Clear Cuts | Throughout DWPA | Mehama | Field-Observation | Within sensitive area. | Higher | Cutting and yarding of trees may contribute to increased erosion, resulting in turbidity and chemical changes in drinking water supply.<br><br>Over-application or improper handling of pesticides or fertilizers may impact drinking water source. | Forestland owned by State and private landowners may use broadcast fertilization. Verify during development of drinking water protection Plan by City of Salem |
| | Managed Forest Land - Broadcast Fertilized Areas | | | | | | Moderate | Over-application or improper handling of pesticides or fertilizers may impact the drinking water source. | Forestland owned by State and private landowners may use broadcast fertilization. Verify during development of drinking water protection plan by City of Salem. |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100731 SALEM PUBLIC WORKS**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 10 | Managed Forest Land - Road Density ( > 2 mi./sq. mi.) | Road Density | Throughout DWPA | Mehama | Field-Observation | Within sensitive area. | Higher | Road building, maintenance, and usage may contribute to erosion and slope failure causing turbidity in drinking water supply. Vehicle usage increases the risks of leaks or spills of petroleum products and other hazardous materials. | Most of the forest land is located in the northern portion of the protection area. |
| 11 | Transportation - Stream Crossing - Perennial | Stream Crossings | Throughout DWPA | Lyons | Field-Observation | Within sensitive area. | Higher | Road building, maintenance & use may increase erosion & slope failure causing turbidity. Vehicle use increases the risk of leaks or spills of fuel & other chemicals. Over-application/improper handling of pesticides in right-of-way may also impact water. | |
| 12 | Other- DEQ Cleanup Program Site | Valley Oil Spill | Mile Post 20.5 on Hwy 22 | Lyons | Database (2) | Within Sensitive area | Higher | Water percolating through spill area may transport contaminants to groundwater or surface water supply. | |
| 13 | Drywell/sump Class V UIC | U.S. Postal Service | SW Corner of Ironwood St. and 5th St. | Lyons | Database (2) Field-Observation | Within Sensitive area | Moderate | If not properly sited, designed, installed, and maintained, drywell/sump can impact drinking water. | |
| 14 | Above ground Storage Tanks – Excluding water | G & M Logging | 40947 N. McCully Mountain Rd. | Lyons | Database (2) Field - Observation | Within Sensitive area | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | |
| 15 | Lead-Acid Batteries | Verizon Wireless | 40593 N. McCully Mountain Rd. | Lyons | Database (2) | Within Sensitive area | Moderate | Spills, leaks, or improper handling of batteries may impact the drinking water supply. | |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).



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## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100731 SALEM PUBLIC WORKS**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 16 | Above Ground Storage Tanks - Excluding Water | Thomas Creek Lumber supply. | 103 21st St. | Lyons | Database (2) Field Observation | Within Sensitive area. | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water | |
| | Wood/Pulp/Paper Processing and Mills | | | | | | Higher | Spills, leaks, or improper handling of wood preservatives and other chemicals during transportation, use, storage and disposal may impact the drinking water supply. | Large pieces of scrap metal are also present at the site. |
| | Junk/Scrap/SalvageYards | | | | | | Moderate | Spills, leaks, or improper handling of automotive automotive chemicals, batteries, and other waste materials materials may impact the drinking water supply. | |
| 17 | UST - Status Unknown | Freres Lumber Co. Plant 1 & 2 | Off of 14th St. | Lyons | Database (2) Field-Observation | Within Sensitive area. | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | |
| | Large Capacity Septic Systems (serves > 20 people) - Class V UICs | | | | | | Moderate | If not properly sited, designed, installed, and maintained, septic systems can impact drinking water. | |
| | Above Ground Storage Tanks - Excluding Water | | | | | | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | |
| | Junk/Scrap/SalvageYards | | | | | | Moderate | Spills, leaks, or improper handling of automotive automotive chemicals, batteries, and other waste materials materials may impact the drinking water supply. | |
| | Wood/Pulp/Paper Processing and Mills | | | | | | Higher | Spills, leaks, or improper handling of wood preservatives and other chemicals during transportation, use, storage and disposal may impact the drinking water supply. | |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100731 SALEM PUBLIC WORKS**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 18 | Other – Fire Station | Lyons Fire District | South side of Lyons-Mill City Dr. and 12th St. | Lyons | Database (2) Field Observation | Within Sensitive area. | Moderate | Spills or improper handling of stored materials may impact the drinking water supply. | |
| 19 | UST – Status Unknown | Lyons Union Station/ Jim Steele Automotive | NW corner of 10th St. and Main | Lyons | Database (2) Field Observation | Within Sensitive area. | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | Station is closed; structures still in place. |
| 20 | Above ground Storage tanks – Excluding water | Lyons Exxon | SW corner of 6th St. and Main | Lyons | Database (2) Field Observation | Within Sensitive area. | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | Business is no longer called Lyons Exxon; currently a towing Business. |
| 21 | Other - DEQ Program Cleanup Site | Timberview Phase 2 | Corner of 6th and 7th St. | Lyons | Database (2) | Within Sensitive area. | High | The impacts of this potential contaminant source will be addressed during the enhanced inventory as needed during development of the drinking water protection plan by City of Salem. | |
| 22 | UST – Confirmed Leaking tank – DEQ | Linn Co. Lyons Shop | Neal Park Rd. | Lyons | Database (2) | Within Sensitive area. | Moderate | Water percolating through the spill area may transport contaminants to groundwater or surface water supply. | Location of UST not field verified |
| 23 | Above ground Storage tanks – Status unknown | Namitz Trucking | 1059 5th St. | Lyons | Database (2) Field Observation | Within Sensitive area. | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | |
| 24 | UST – Status Unknown | Mari-Linn School | 741 5th St. off of Dogwood St. | Lyons | Database (2) Field Observation | Within Sensitive area. | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | Location of UST not field verified. |
| 25 | UST – Status Unknown | Hardwood Components | 20573 Hwy. 22 | Lyons | Database (2) | Within Sensitive area. | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | Location of UST not field verified. |
| 26 | UST - Status Unknown | North Santiam School District | 22057 Emma St. | Lyons | Database (2) | Within Sensitive area. | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | Location of UST not field verified. |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).



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## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100731 SALEM PUBLIC WORKS**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 27 | Above ground Storage tank - Excluding water | Santiam Emergency Equipment | 22568 SE Wagner Ln. | Lyons | Database (2) | Within Sensitive area. | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | Location of AST not field verified. |
| 28 | Above ground Storage tank - Excluding water | Freres Lumber | 45098 Hwy 226 | Lyons | Database (2) | Within Sensitive area. | Moderate materials | Spills, leaks, or improper handling of stored material may impact the drinking water supply. | Location of AST not field verified. |
| 29 | Auto - Body Shop | CAR Auto Body Repair | SE corner of Grove St. and Ferry Rd. | Mehama | Field Observation | Within Sensitive area. | Moderate | Improper management of vehicle paints, thinners, and primer products may impact the drinking water supply. | |
| 30 | Misc.- Fire Station | Mehama Stayton Fire District | 21475 Ferry Rd. | Mehama | Field Observation | Within Sensitive area. | Moderate | Spills or improper handling of stored materials may impact the drinking water supply. | |
| 31 | Auto – Repair Shop | Santiam Auto Repair | SW corner of Grove St. and Blair St. | Mehama | Field Observation | Within Sensitive area. | Moderate | Spills, leaks, or improper handling of fuels, grease, solvents, and other materials from vehicle service, fueling, and parking areas may impact the drinking water supply. | |
| 32 | Above ground - Storage tank Excluding water | Unknown Service Station | near 21362 Fernridge Rd near Tietz Creek | Mehama | Field Observation | Within Sensitive area. | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | UST likely on site as well based on presence of fuel pump; unknown if still operational. |
| 33 | UST - Status Unknown | Old gas pump - unknown | near 21821 Fernridge Rd | Mehama | Field Observation | Within Sensitive area. | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | UST likely on site based presence of fuel; unknown if still operational. |
| 34 | Misc. Auto shop | Mehama NAPA Auto Parts Store | Near MP 22 Hwy 22 South of highway | Mehama | Field Observation | Within Sensitive area. | Moderate | Improper handling of fuels, grease, solvents, and other materials from vehicle service, and parking areas may impact the drinking water supply. | |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100731 SALEM PUBLIC WORKS**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 35 | Above ground - Storage tank Excluding water | Unknown business large open lot | Near MP 22 Hwy 22 North of highway | Mehama | Field Observation | Within Sensitive area. | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | |
| | Junk/Scrap/SalvageYards | | | | | | Moderate | Spills, leaks, or improper handling of automotive automotive chemicals, batteries, and other waste materials materials may impact the drinking water supply. | |
| 36 | Misc. Auto shop | Branch Equipment Company | SW Corner of Hwy 22 and Grove St. | Mehama | Field Observation | Within Sensitive area. | Moderate | Improper handling of fuels, grease, solvents, and other materials from vehicle service, and parking areas may impact the drinking water supply. | |
| 37 | Above ground - Storage tank Excluding water | Unknown Borrow Pit | Near 18534 Old Mehama Rd | Mehama | Field Observation | Within Sensitive area. | Moderate | Spills, leaks, or improper handling of stored material may impact the drinking water supply. | |
| | Mines/Gravel Pits | | | | | | Higher | Spills, leaks, or improper handling of chemicals and wastes generated in gravel operations or from heavy equipment may impact the drinking water supply. | |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).



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## TABLE 3. RESULTS OF REGULATORY DATABASE SEARCH

**PWS# 4100731 SALEM PUBLIC WORKS**

| Reference No. (1) | Name | Database Listings |
|---|---|---|
| 12 | Valley Oil Spill | ECSI - site with a confirmed release. |
| 13 | U.S. Postal Service | UIC – Active storm water drainage |
| 14 | G & M Logging | SFM – Antifreeze stored in a steel drum<br>SFM - Gasoline stored in Aboveground Tank<br>SFM - Diesel Fuel stored in Aboveground Tank |
| 15 | Verizon Wireless | SFM – Lead acid batteries (wet) stored |
| 16 | Thomas Creek Lumber | SFM – Antifreeze stored in a steel drum<br>SFM – Diesel stored in Aboveground storage tank<br>SFM – Gear Lubricant stored in steel drum<br>SFM – Motor oil stored in steel drum<br>SFM – Multi-purpose STF stored in Steel drum<br>SFM – Special bar and chain oil stored in steel drum<br>SFM – Hydraulic oil stored in tank inside building |
| 17 | Freres Lumber Co. Plant 1 and 2 | SFM – Aqua care G-151 stored in totebin<br>SFM – Cp Oil 22 stored in tank inside building<br>SFM – Ink Red Dic – 231 stored in non-metallic drum<br>SFM – Hydraulic fluid stored in tank inside building<br>SFM – Motor oil stored in tank inside building<br>SFM – Bar and chain oil stored in tank inside building |
| 18 | Lyons Fire District | SIS list with a WPCF - OS permit for stormwater |
| 19 | Lyons Union Station/ Jim Steele Automotive | UST list with a status of 3 UST(s) upgraded and 0 not upgraded to DEQ 1998 technical standards.<br>SFM – gasoline stored in an aboveground tank |
| 20 | Lyons Exxon | LUST – Clean up started 12/11/98; status unknown<br>UST list-PWS needs to verify tank permit status |

Notes: (1) See Table 2 and Figure. (2) For State Fire Marshals (SFM) list, information on materials in a gaseous-form is not presented since gaseous compounds rarely pose a threat to groundwater or surface water.

## TABLE 3. RESULTS OF REGULATORY DATABASE SEARCH

**PWS# 4100731 SALEM PUBLIC WORKS**

| Reference No. (1) | Name | Database Listings |
|---|---|---|
| 21 | Timberview Phase 2 | SIS – Status unknown |
| 22 | Linn Co. Lyons Shop | UST list-PWS needs to verify tank permit status |
| 23 | Namitz Trucking | SFM – Oil stored in steel drum |
| 24 | Mari-Linn School | UST list-PWS needs to verify tank permit status |
| 25 | Hardwood Components | SFM – Diesel fuel stored in aboveground tank<br>SFM – Hydraulic oil stored in steel drum<br>SFM – Motor oil stored in steel drum<br>SFM – Waste oil stored in steeld rum<br>UST list-PWS needs to verify tank permit status. |
| 26 | North Santiam School Districts | SFM – Diesel fuel stored in underground tank |
| 27 | Santiam Emergency Equipment | SFM – Hydraulic fluid stored in aboveground tank |

Notes: (1) See Table 2 and Figure. (2) For State Fire Marshals (SFM) list, information on materials in a gaseous-form is not presented since gaseous compounds rarely pose a threat to groundwater or surface water.

# Attachment A

Source Water Assessment Report
Salem Public Works
PWS # 4100731

**Attachment A. Source Water Assessment Summary Brochure**

# SOURCE WATER ASSESSMENT SUMMARY BROCHURE

## CITY OF SALEM PUBLIC WORKS
## PWS # 4100731

### WHAT IS A SOURCE WATER ASSESSMENT?

The Source Water Assessment was recently completed by the City of Salem with direct assistance from the Oregon Department of Environmental Quality (DEQ) and the Oregon Department of Human Services (DHS) to identify the surface areas (and/or subsurface areas) that supply water to City of Salem Public Works' public water system intake and to inventory the potential contaminant sources that may impact the water supply.

### WHY WAS IT COMPLETED?

The Source Water Assessment was completed to provide information so that Salem Public Works' public water system staff/operator, consumers, and community citizens can begin developing strategies to protect the source of their drinking water, and to minimize future public expenditures for drinking water treatment. The assessment was prepared under the requirements and guidelines of the Federal Safe Drinking Water Act (SDWA).

### WHAT AREAS ARE INCLUDED IN SALEM PUBLIC WORKS DRINKING WATER PROTECTION AREA?

The drinking water for Salem Public Works is supplied by an intake on the North Santiam River. This public water system serves approximately 170,000 citizens. The intake is located in the Little North Santiam/Middle North Santiam/Lower North Santiam River Watershed in the North Santiam Sub-Basin of the Willamette River Basin. The geographic area providing water to the City of Salem Public Works' intake (the drinking water protection area) extends upstream approximately 12 miles in a easterly direction and encompasses a total area of approximately 30 square miles. The boundaries of the Drinking Water Protection Area are illustrated on the figure attached to this summary.

### WHAT ARE THE POTENTIAL SOURCES OF CONTAMINATION TO SALEM PUBLIC WORKS' PUBLIC DRINKING WATER SUPPLY?

The primary intent of this inventory was to identify and locate significant potential sources of contaminants of concern. The delineated drinking water protection area is primarily dominated by farm and agricultural use. The potential contaminant sources identified in the watershed include: transportation corridors, grazing animals, wood processing and milling plants, junk yards, above ground and underground storage tanks, and various auto and mechanical shops. This provides a quick look at the existing potential sources of contamination that could, if improperly managed or released, impact the water quality in the watershed.

### WHAT ARE THE RISKS FOR OUR SYSTEM?

A total of 48 potential contaminant sources (at 37 separate locations) were identified in Salem Public Works' drinking water protection area. All of these are located in the sensitive areas and 46 are high- to moderate-risk sources within "sensitive areas". The sensitive areas within the Salem Public Works drinking water protection area include areas with high soil permeability, high soil erosion potential, high runoff potential and areas within 1000' from the river/streams. The sensitive areas are those where the potential contamination sources, if present, have a greater potential to impact the water supply. The information in this assessment provides a basis for prioritizing areas in and around the community that are most vulnerable to potential impacts and can be used by the City of Salem Public Works community to develop a voluntary Drinking Water Protection Plan.

### NEED MORE INFORMATION?

Salem Public Works' Source Water Assessment Report provides additional details on the methodology and results of this assessment. The full report is available for review at:

http://www.cityofsalem.net/~swater/

Contact City of Salem (Salem Public Works) if you would like additional information on Salem Public Works' Source Water Assessment results.

# Attachment B

Source Water Assessment Report
Salem Public Works
PWS # 4100731

## Attachment B.
## Schematic of North Santiam River Sub-Basin Drinking Water Protection Areas and Summary of Source Water Assessment Results for Upstream Intake(s)

Figure – North Santiam River Sub-Basin Drinking Water Protection Areas (includes all water providers in the North Santiam River Watershed)

## Lyons Mehama (PWS #4100493)

## Mill City (PWS #4100520)

## City of Gates (PWS #4100317)

## Detroit Water System (PWS #4100257)

# Summary of Source Water Assessment Results for Upstream Intakes

## Lyons Mehama Water District (PWS #4100493)

Executive Summary

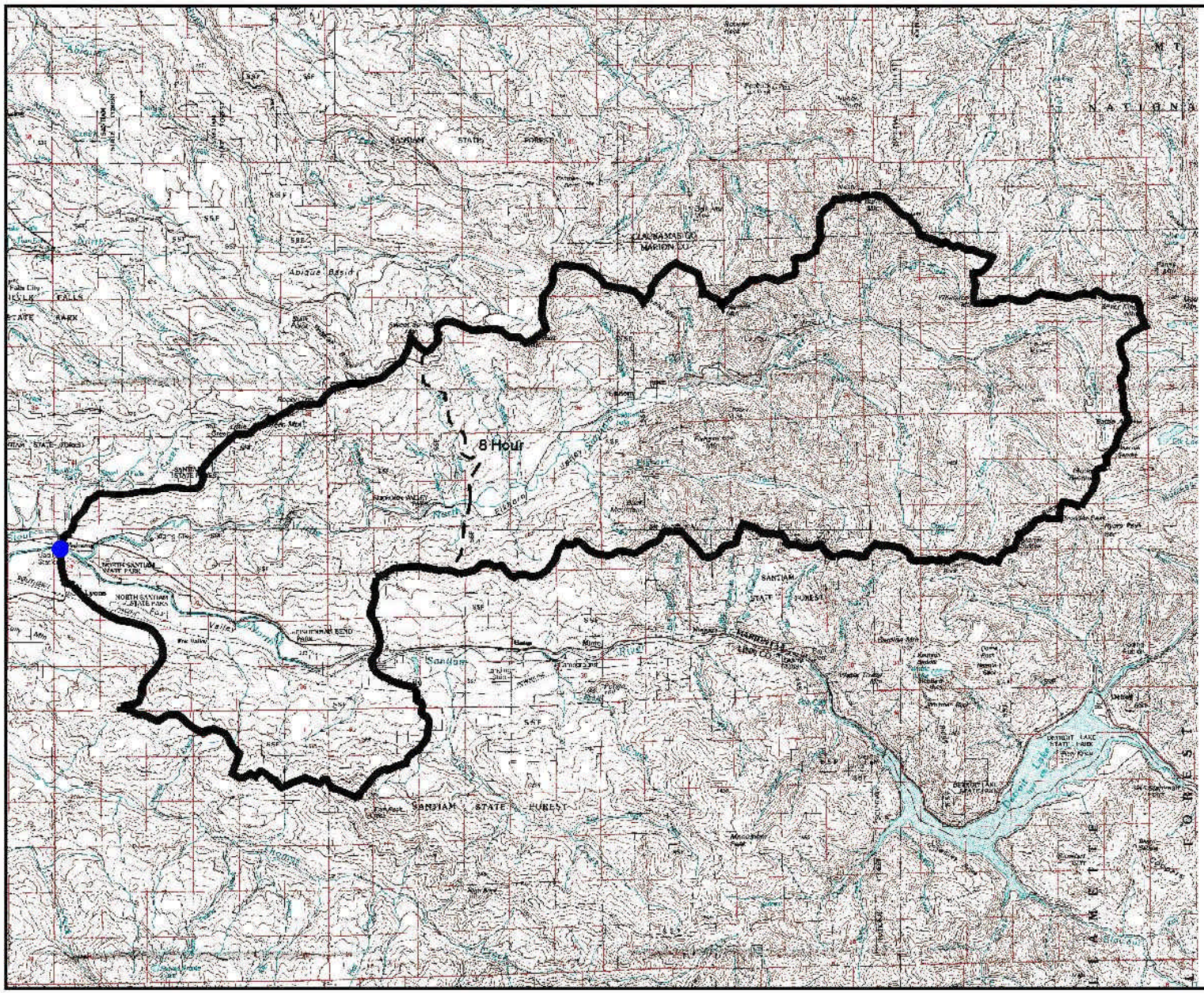
## Figures



## Tables

# Figures

Source Water Assessment Report
Lyons Mehama Water District
PWS # 4100493




# Figure 1:
# Lyons Mehama Water District's Drinking Water Protection Area

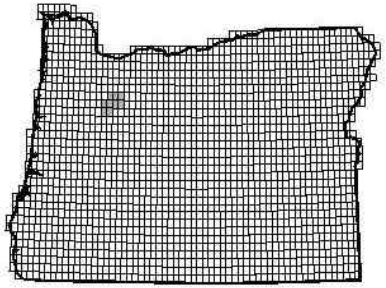
PWS 4100493

Drinking Water Intake - Surface Water

Drinking Water Protection Area

For watersheds with more than one intake, Oregon completes the assessments by segment and each source water assessment represents the area from the public water system's intake to the next intake upstream. All protection areas for intakes upstream of the water system's intake are included in Lyons Mehama Water District's drinking water protection area. Activities and impacts in Lyons Mehama Water District's drinking water protection area also have the potential to impact downstream water users. See Attachment B for a schematic of upstream and downstream water providers in the North Santiam Sub-Basin.

Note on Base Map: 1:24,000 scale U.S. Geological Survey Digital Raster Graphics (DRGs) for Battle Ax (1985), Snow Peak (1985), Lyons (1985), Mill City South (1985), Elkhorn (1985), Rooster Rock (1985), Gawley Creek (1986), Mill City North (1985), and Bagby Hot Springs (1985) are displayed. DRGs are scanned images of topographic sheets. Where the DRGs join, seams and/or gaps may be visible. Between DRGs, variations in information displayed also may be seen.



Kilometers 0 1 2 3 4 5 6

Miles 0 1 2 3

DEQ State of Oregon Department of Environmental Quality

Printed December, 2001

Oregon Department of Environmental Quality GIS

# Figure 2:
# Sensitive Areas within the Lyons Mehama Water District's Drinking Water Protection Area

## PWS 4100493

Drinking Water Intake - Surface Water

Drinking Water Protection Area

Sources of Information:

(Marion and Linn County Areas)

High Soil Erodibility: Defined by slopes greater than 30 percent and K factor greater than .25. Soils derived from 1:24,000, USDA, NRCS, SSURGO certified data. Slope is in the SSURGO database Component Table. Slope displayed is a weighted average of the average slope for the map unit. K factor is contained in the SSURGO Layer Table. K factor displayed is a weighted average(of only the surface layer) for the map unit. High Runoff Potential: Hydrologic Group D (very slow infiltration rates) from the SSURGO Component Table. SSURGO data have been certified.

(Willamette National Forest)

High Soil Erodibility: Defined by high sedimentation yield potential of the dominant soil. High Runoff Potential: Water yield class III in the dominant soil. These data are extracted from the Willamette National Forest Soil Resource Inventory.

(Entire Watershed)

High Permeability Soils: Alluvial deposits (Qal), dune sand (Qd), and landslide and debris-flow deposits (Qls) from the U.S. Geological Survey Geologic Map of Oregon GIS layer.

Sensitive Area Setbacks Adjacent to Streams and Reservoirs: 1000 foot buffer from the centerline of perennial streams and the shoreline of any reservoir.

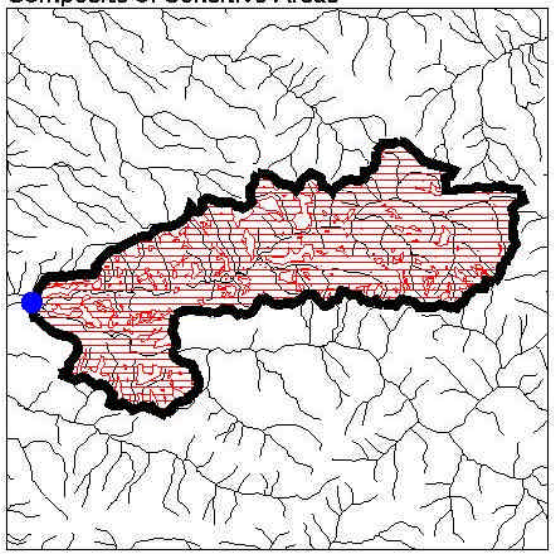
Note on Sensitive Areas: In determining the most sensitive areas within this Drinking Water Protection Area, DEQ used existing GIS layers and other natural resource agency data sets. Not all areas of the state have been mapped for the natural resource parameters of interest or at the level of detail ideal for this type of analysis. DEQ has sought to obtain the best available information for this composite.

Printed December, 2001
Oregon Department of Environmental Quality GIS

Kilometers
0 10

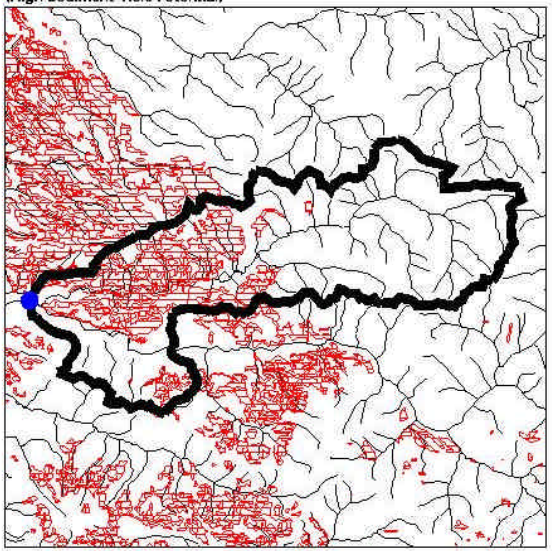
0 10
Miles

## Composite of Sensitive Areas

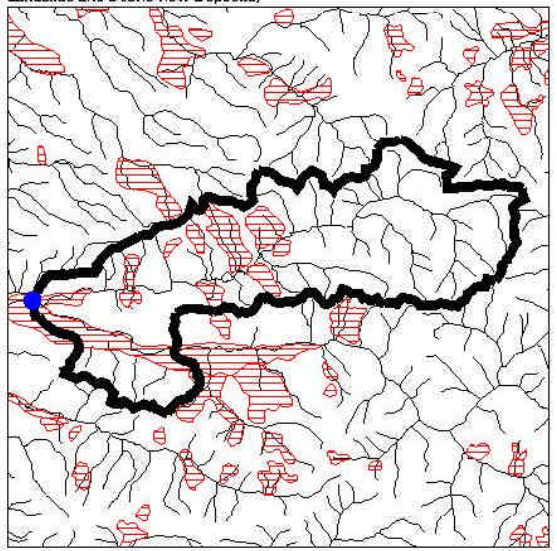


## Sensitive Areas in Watershed

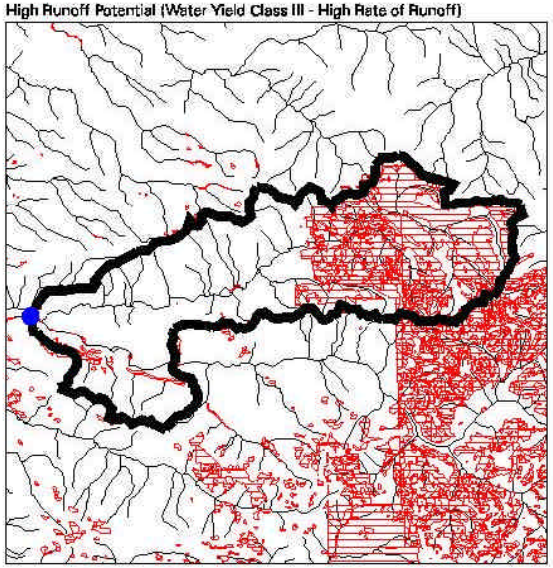
High Soil Erosion Potential
(High Sediment Yield Potential)



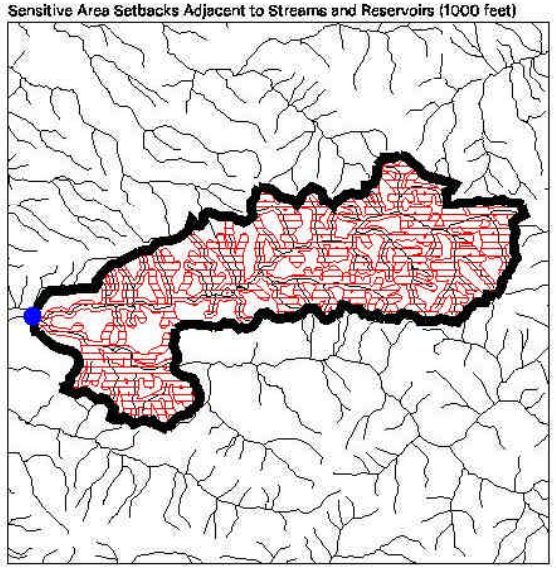
High Permeability Soils (Alluvial Deposits, Dune Sand, Landslide and Debris-flow Deposits)

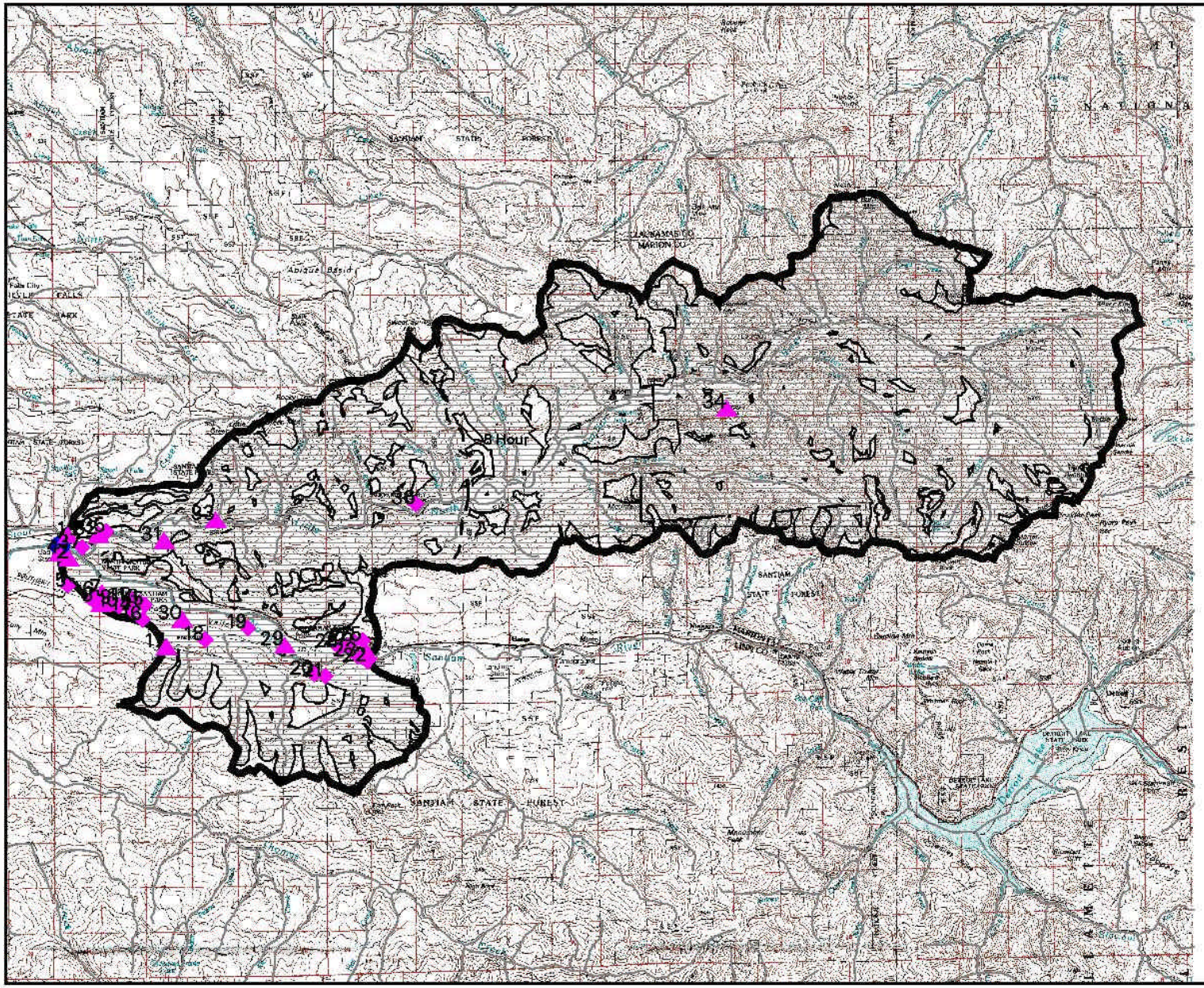


High Runoff Potential (Water Yield Class III - High Rate of Runoff)



Sensitive Area Setbacks Adjacent to Streams and Reservoirs (1000 feet)






# Figure 3: Source Water Assessment Results

## Lyons Mehama Water District's Drinking Water Protection Area with Sensitive Areas and Potential Contamination Sources

PWS 4100493

- Drinking Water Intake - Surface Water
- Drinking Water Protection Area
- Sensitive Areas
- Area Feature (see Note 2)
- Point Feature (see Note 2)

**Notes on Potential Contaminant Sources**

**Note 1:** Sites and areas noted in this Figure are potential sources of contamination to the drinking water identified by Oregon drinking water protection staff. Environmental contamination is not likely to occur when contaminants are handled and used properly or when best management practices are employed.

**Note 2:** Feature identification numbers correspond to the potential contaminant source numbers in Table 2. The area features represent the approximate area where the land use or activity occurs and is marked at the point closest to the intake. The point features represent the approximate point where the land use or activity occurs.

For watersheds with more than one intake, Oregon completes the assessments by segment and each source water assessment represents the area from the public water system's intake to the next intake upstream. All protection areas for intakes upstream of the water system's intake are included in Lyons Mehama Water District's drinking water protection area. Activities and impacts in Lyons Mehama Water District's drinking water protection area also have the potential to impact downstream water users. See Attachment B for a schematic of upstream and downstream water providers in the North Santiam Sub-Basin.

DEQ

Kilometers 0 1 2 3 4 5

Miles 0 1 2 3

Printed December, 2001

Oregon Department of Environmental Quality GIS

# Tables

## Source Water Assessment Report
## LYONS MEHAMA WATER DISTRICT - PWS # 4100493
## Inventory Results



**Notes for Tables:**

Sites and areas identified in these Tables are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

Total number of sources listed in Table 1 in the DWPA may not add up to the total number of potential contaminants sources in Table 2 because more than one type of potential contaminant source may be present at any given facility.

Data collected by Rachel Burr Oregon DEQ on 9/4/2001.

**Acronyms:**

AST - Aboveground Storage Tank
DC - DEQ's Dry Cleaner database
DEQ - Oregon Department of Environmental Quality
DWPA - Drinking Water Protection Area
ECSI - DEQ's Environmental Cleanup Site Information database
HWIMSY - DEQ's Hazardous Waste Information Management System database
LUST - DEQ's Leaking Underground Storage Tank database
NPDES - National Pollution Discharge Elimination System
PCS - Potential Contaminant Source
PWS - Public Water System
SFM - State Fire Marshall's database of hazardous materials
SIS - DEQ's Source Information System database (includes WPCF & NPDES permits)
SWMS - DEQ's Solid Waste Management System database

# Tables

## Source Water Assessment Report
## LYONS MEHAMA WATER DISTRICT - PWS # 4100493
## Inventory Results

**Table 1. Summary of Potential Contaminant Sources by Land**

**Table 2. Inventory Results - List of Potential Contaminant**

**Table 3. Results of Regulatory Database Search**

UST - DEQ's Underground Storage Tank database or Underground Storage Tank
WPCF - Water Pollution Control Facility
WRD - Oregon Water Resources Division database for water rights information

## TABLE 1. SUMMARY OF POTENTIAL CONTAMINANT SOURCES BY LAND USE

**PWS # 4100493 LYONS MEHAMA WATER DISTRICT**

### Residential/Municipal Land Uses

| Potential Contamination Source | Note | Relative Risk Level | Total in DWPA |
|---|---|---|---|
| Airport - Maintenance/Fueling Area | | Higher | 0 |
| Apartments and Condominiums | | Lower | 0 |
| Campgrounds/RV Parks | (1) | Moderate | 1 |
| Cemeteries - Pre-1945 | | Lower | 1 |
| Drinking Water Treatment Plants | | Moderate | 0 |
| Fire Station | | Lower | 0 |
| Fire Training Facilities | | Moderate | 0 |
| Golf Courses | | Moderate | 1 |
| Housing - High Density (> 1 House/0.5 acres) | | Moderate | 1 |
| Landfill/Dumps | (1) | Higher | 2 |
| Lawn Care - Highly Maintained Areas | | Moderate | 0 |
| Motor Pools | | Moderate | 0 |
| Parks | | Moderate | 1 |
| Railroad Yards/Maintenance/Fueling Areas | | Higher | 0 |
| Schools | | Moderate | 1 |
| Septic Systems - High Density ( > 1 system/acre) | (1) | Moderate | 1 |
| Sewer Lines - Close Proximity to PWS | (1) | Moderate | 1 |
| Utility Stations - Maintenance Transformer Storage | | Higher | 0 |
| Waste Transfer/Recycling Stations | (1) | Moderate | 0 |
| Wastewater Treatment Plants/Collection Stations | (1) | Moderate | 0 |
| Other | | | 0 |

NOTES:
Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.
(1) - Potential source of microbial contamination
(2) - Drip irrigated crops, such as vineyards and some vegetables, are considered lower risk than spray irrigation
(3) - For groundwater public water systems, septic systems located within the 2-year time-of-travel (TOT) are considered moderate risks.

## TABLE 1. SUMMARY OF POTENTIAL CONTAMINANT SOURCES BY LAND USE

**PWS # 4100493 LYONS MEHAMA WATER DISTRICT**

### Commercial/Industrial Land Uses

| Potential Contamination Source | Note | Relative Risk Level | Total in DWPA |
|---|---|---|---|
| Automobiles - Body Shops | | Moderate | 1 |
| Automobiles - Car Washes | | Moderate | 0 |
| Automobiles - Gas Stations | | Moderate | 3 |
| Automobiles - Repair Shops | | Higher | 0 |
| Boat Services/Repair/Refinishing | | Higher | 0 |
| Cement/Concrete Plants | | Moderate | 0 |
| Chemical/Petroleum Processing/Storage | | Higher | 0 |
| Dry Cleaners | | Moderate | 1 |
| Electrical/Electronic Manufacturing | | Higher | 0 |
| Fleet/Trucking/Bus Terminals | | Moderate | 3 |
| Food Processing | | Moderate | 0 |
| Furniture/Lumber/Parts Stores | | Moderate | 0 |
| Home Manufacturing | | Higher | 0 |
| Junk/Scrap/Salvage Yards | | Higher | 1 |
| Machine Shops | | Higher | 0 |
| Medical/Vet Offices | (1) | Moderate | 0 |
| Metal Plating/Finishing/Fabrication | | Higher | 0 |
| Mines/Gravel Pits | | Higher | 2 |
| Office Buildings/Complexes | | Lower | 0 |
| Parking Lots/Malls (> 50 Spaces) | | Higher | 0 |
| Photo Processing/Printing | | Higher | 0 |
| Plastics/Synthetics Producer | | Higher | 0 |
| Research Laboratories | | Higher | 0 |
| RV/Mini Storage | | Lower | 1 |
| Wood Preserving/Treating | | Higher | 0 |
| Wood/Pulp/Paper Processing and Mills | | Higher | 5 |
| Other: --Landscape Material Production | | Moderate | 1 |
| Other: --Warehouse | | Moderate | 1 |

NOTES:
Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.
(1) - Potential source of microbial contamination
(2) - Drip irrigated crops, such as vineyards and some vegetables, are considered lower risk than spray irrigation
(3) - For groundwater public water systems, septic systems located within the 2-year time-of-travel (TOT) are considered moderate risks.

## TABLE 1. SUMMARY OF POTENTIAL CONTAMINANT SOURCES BY LAND USE

**PWS # 4100493 LYONS MEHAMA WATER DISTRICT**

### Agricultural/Forest Land Uses

| Potential Contamination Source | Note | Relative Risk Level | Total in DWPA |
|---|---|---|---|
| Auction Lots | (1) | Higher | 0 |
| Boarding Stables | (1) | Moderate | 0 |
| Confined Animal Feeding Operations (CAFOs) | (1) | Higher | 0 |
| Crops - Irrigated (inc. orchards, vineyards, nurseries, | (2) | Moderate | 0 |
| Crops - Nonirrigated (inc. Christmas trees, grains, grass seed, | | Lower | 1 |
| Farm Machinery Repair | | Higher | 0 |
| Grazing Animals (> 5 large animals or equivalent/acre) | (1) | Higher | 1 |
| Lagoons/Liquid Wastes | (1) | Higher | 0 |
| Land Application Sites | (1) | Moderate | 0 |
| Managed Forest Land - Broadcast Fertilized Areas | | Moderate | 1 |
| Managed Forest Land - Clearcut Harvest (< 35 yrs.) | | Higher | 1 |
| Managed Forest Land - Partial Harvest (< 10 yrs.) | | Moderate | 0 |
| Managed Forest Land - Road Density ( > 2 mi./sq. mi.) | | Higher | 1 |
| Pesticide/Fertilizer/Petroleum Storage, Handling, Mixing, & | | Higher | 0 |
| Recent Burn Areas (< 10 yrs.) | | Lower | 0 |
| Managed Forest Lands - Status Unknown | | Moderate | 0 |
| Other: --Poultry Farm | | Moderate | 1 |
| Other: --Slide Area | | Moderate | 1 |

NOTES:
Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.
(1) - Potential source of microbial contamination
(2) - Drip irrigated crops, such as vineyards and some vegetables, are considered lower risk than spray irrigation
(3) - For groundwater public water systems, septic systems located within the 2-year time-of-travel (TOT) are considered moderate risks.

## TABLE 1. SUMMARY OF POTENTIAL CONTAMINANT SOURCES BY LAND USE

**PWS # 4100493 LYONS MEHAMA WATER DISTRICT**

### Miscellaneous Land Uses

| Potential Contamination Source | Note | Relative Risk Level | Total in DWPA |
|---|---|---|---|
| Above Ground Storage Tanks - Excluding Water | | Moderate | 9 |
| Channel Alterations - Heavy | | Lower | 0 |
| Combined Sewer Outfalls | (1) | Lower | 0 |
| Stormwater Outfalls | (1) | Lower | 0 |
| Composting Facilities | (1) | Moderate | 0 |
| Historic Gas Stations | | Higher | 0 |
| Historic Waste Dumps/Landfills | (1) | Higher | 0 |
| Homesteads - Rural - Machine Shops/Equipment Maintenance | | Higher | 0 |
| Homesteads - Rural - Septic Systems (< 1/acre) | (1)(3) | Lower | 1 |
| Injection/Dry Wells, Sumps - Class V UICs | (1) | Moderate | 1 |
| Kennels (> 20 Pens) | (1) | Lower | 0 |
| Military Installations | | Higher | 0 |
| Random Dump Sites | | Moderate | 0 |
| River Recreation - Heavy Use (inc. campgrounds) | (1) | Lower | 0 |
| Sludge Disposal Areas | (1) | Moderate | 0 |
| Stormwater Retention Basins | (1) | Moderate | 0 |
| Transmission Lines - Right-of-Ways | | Higher | 1 |
| Transportation - Freeways/State Highways/Other Heavy Use | | Higher | 2 |
| Transportation - Railroads | | Higher | 1 |
| Transportation - Right-Of-Ways - Herbicide Use Areas | | Moderate | 0 |
| Transportation - River Traffic - Heavy | | Lower | 0 |
| Transportation - Stream Crossing - Perennial | | Higher | 1 |
| UST - Confirmed Leaking Tanks - DEQ List | | Higher | 0 |
| UST - Decommissioned/Inactive | | Lower | 0 |
| UST - Nonregulated Tanks (< 1,100 gals or Large Heating Oil | | Moderate | 1 |
| UST - Not Upgraded and/or Registered Tanks | | Higher | 0 |
| UST - Upgraded/Registered - Active | | Lower | 1 |
| UST - Status Unknown | | Moderate | 8 |
| Upstream Reservoirs/Dams | | Lower | 0 |
| Wells/Abandoned Wells | | Moderate | 1 |
| Large Capacity Septic Systems (serves > 20 people) - Class V | (1) | Moderate | 2 |
| Construction/Demolition Areas | | Moderate | 0 |
| Other: -DEQ Cleanup Program Site | | Higher | 2 |
| Other: -DEQ Cleanup Program Site | | Moderate | 1 |

NOTES:
Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.
(1) - Potential source of microbial contamination
(2) - Drip irrigated crops, such as vineyards and some vegetables, are considered lower risk than spray irrigation
(3) - For groundwater public water systems, septic systems located within the 2-year time-of-travel (TOT) are considered moderate risks.

## TABLE 1. SUMMARY OF POTENTIAL CONTAMINANT SOURCES BY LAND USE

**PWS # 4100493 LYONS MEHAMA WATER DISTRICT**

| | | |
|---|---|---|
| Other: --DEQ Cleanup Program Site | Higher | 1 |
| Other: -Maintenance Facility | Moderate | 1 |

NOTES:
Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.
(1) - Potential source of microbial contamination
(2) - Drip irrigated crops, such as vineyards and some vegetables, are considered lower risk than spray irrigation
(3) - For groundwater public water systems, septic systems located within the 2-year time-of-travel (TOT) are considered moderate risks.

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100493 LYONS MEHAMA WATER DISTRICT**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Transportation - Freeways/State Highways/Other Heavy Use Roads | State Highway 22 | Throughout DWPA | Lyons | Field-Observation | Within sensitive area. | Higher | Vehicle use increases the risk for leaks or spills of fuel & other haz. materials. Road building, maintenance & use can increase erosion/slope failure causing turbidity. Over-application or improper handling of pesticides/fertilizers may impact water. | |
| 2 | Housing - High Density (> 1 House/0.5 acres) | | High Density Housing | Within Lyons city limits | Field-Observation | Lyons sensitive area. | Moderate | Improper use, storage, and disposal of household chemicals may impact the drinking water supply. Stormwater run-off or infiltration may carry contaminants to drinking water supply. | Within Mill City also has areas of high density housing. |
| | Septic Systems - High Density ( > 1 system/acre) | | | | | | Moderate | If not properly sited, designed, installed, and maintained, septic systems can impact drinking water. Cumulative effects of multiple systems in an area may impact drinking water supply. | Within Mill City also has areas of high density housing. |
| 3 | Transportation - Railroads | Railroad | Throughout DWPA | Lyons | Field-Observation | Within sensitive area. | Higher | Rail transport elevates the risk for leaks/spills of fuel & other haz. materials. Installation/maintenance of tracks may increase erosion & slope failure causing turbidity. Over-application/improper handling of pesticides may impact the water supply. | |
| 4 | Transportation - Freeways/State Highways/Other Heavy Use Roads | State Highway 226 | Southwest corner of DWPA | Lyons | Field-Observation | Within sensitive area. | Moderate | Vehicle use increases the risk for leaks or spills of fuel & other haz. materials. Road building, maintenance & use can increase erosion/slope failure causing turbidity. Over-application or improper handling of pesticides/fertilizers may impact water. | Risk reduced to Moderate because only a small portion of highway 226 is within DWPA. |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100493 LYONS MEHAMA WATER DISTRICT**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 5 | UST - Status Unknown | Freres Lumber Co. Plant 1 & 2 | Off of 14th St. | Lyons | Database (2) Field-Observation Interview | Just outside DWPA | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | Majority of the plant is just outside DWPA. Verify if any part of the mill is in sensitive areas. Potential risk should be verified during enhanced inventory. |
| | Large Capacity Septic Systems (serves > 20 people) - Class V UICs | | | | | | Moderate | If not properly sited, designed, installed, and maintained, septic systems can impact drinking water. | Majority of the plant is just outside DWPA. Verify if any part of the mill is in sensitive areas. Potential risk should be verified during enhanced inventory. |
| | Above Ground Storage Tanks - Excluding Water | | | | | | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | Majority of the plant is just outside DWPA. Verify if any part of the mill is in sensitive areas. Potential risk should be verified during enhanced inventory. |
| | Wood/Pulp/Paper Processing and Mills | | | | | | Higher | Spills, leaks, or improper handling of wood preservatives and other chemicals during transportation, use, storage and disposal may impact the drinking water supply. | Majority of the plant is just outside DWPA. Verify if any part of the mill is in sensitive areas. Potential risk should be verified during enhanced inventory. |
| 6 | Grazing Animals (> 5 large animals or equivalent/acre) | Grazing Animals | Throughout DWPA | Lyons | Field-Observation | Within sensitive area. | Higher | Improper storage and management of animal wastes may impact drinking water supply. Concentrated livestock may contribute to erosion and sedimentation of surface water bodies. | |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

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## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100493 LYONS MEHAMA WATER DISTRICT**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 7 | Crops - Nonirrigated (inc. Christmas trees, grains, grass seed, pasture) | Non-irrigated crops | Throughout DWPA | Lyons | Field-Observation | Within sensitive area. | Lower | Over-application or improper handling of pesticides/fertilizers may impact drinking water. Some agricultural practices may result in excess sediments discharging to surface waters, but non-irrigated crops are generally considered to be a low risk. | |
| 8 | Automobiles - Body Shops | North Santiam Auto Fabrication | Lyons-Mill City Dr.- SE of intake. | Lyons | Field-Observation | Within sensitive area. | Moderate | Improper management of vehicle paints, thinners, and primer products may impact the drinking water supply. | |
| 9 | Wood/Pulp/Paper Processing and Mills | Shaniko Forest Products | Lyons-Mill City Dr.- SE of intake | Lyons | Database (2) Field-Observation | Within sensitive area. | Higher | Spills, leaks, or improper handling of wood preservatives and other chemicals during transportation, use, storage and disposal may impact the drinking water supply. | |
| | Above Ground Storage Tanks - Excluding Water | | | | | | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | |
| 10 | Other --Landscape Material Production | Decroative Bark Products Inc. | Lyons-Mill City Dr.- SE of intake | Lyons | Field-Observation | Within sensitive area. | Moderate | Spills, leaks, or improper handling of chemicals and other materials during transportation, use, storage, and disposal may impact the drinking water supply. | Potential risk should be verified during enhanced inventory.<br><br>This company may be associated with Shaniko Forest Products. |
| 11 | RV/Mini Storage | Lyons Mini Storage | Lyons-Mill City Dr.- SE of intake | Lyons | Database (2) Field-Observation | Within sensitive area. | Lower | Spills, leaks, or improper handling of automotive fluids and other materials during transportation, storage and disposal may impact the drinking water supply. | |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100493 LYONS MEHAMA WATER DISTRICT**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 12 | Automobiles - Gas Stations | Chevron Cardlock | Lyons-Mill City Dr.- SE of intake | Lyons | Database (2) Field-Observation | Within sensitive area. | Moderate | Spills, leaks, or improper handling of fuels and other materials during transportation, transfer, and storage may impact the drinking water supply. | Database lists this company as JC Jones Oil. Verify ownership. |
| | Above Ground Storage Tanks - Excluding Water | | | | | | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | Database lists this company as JC Jones Oil. Verify ownership. |
| 13 | Cemeteries - Pre-1945 | Cemetery | Fox Valley intake | Lyons-Mill City Dr.- SE of | Field-Observation | Within Lyons sensitive area. | Lower | Embalming fluids (for example, arsenic) and decomposition by-products may impact drinking water supply. | Age of cemetery unknown. Needs verified. |
| 14 | Other --DEQ Cleanup Program Site | Young and Morgan Landfill | Lyons-Mill City Dr.- SE of intake- 24th Street | Lyons | Database (2) Field-Observation | Within sensitive area. | Higher | The impacts of this potential contaminant source will be addressed during the enhanced inventory. | Also known as Quality Veneer and Lumber. Potential risk should be verified during enhanced inventory. |
| | Landfill/Dumps | | | | | | Higher | Water percolating through the landfill waste material may transport contaminants to groundwater or surface water supply. | Also known as Quality Veneer and Lumber. Potential risk should be verified during enhanced inventory. |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100493 LYONS MEHAMA WATER DISTRICT**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 15 | Other --Warehouse | Nelson Logging | Lyons-Mill City Dr.- SE of intake | Lyons | Database (2) Field-Observation | Within sensitive area. | Moderate | Spills, leaks, or improper handling of chemicals and other materials during transportation, use, storage, and disposal may impact the drinking water supply. | Location of site is just opposite of Trask Road. Unsure if this small warehouse is actually Nelson Logging. Verify<br>Potential risk should be verified during enhanced inventory.<br>Unknown operations - needs verification. |
| | Above Ground Storage Tanks - Excluding Water | | | | | | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | Location of site is just opposite of Trask Road. Unsure if this small warehouse is actually Nelson Logging. Verify<br>Potential risk should be verified during enhanced inventory.<br>Unknown operations - needs verification. |
| | UST - Status Unknown | | | | | | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | Location of site is just opposite of Trask Road. Unsure if this small warehouse is actually Nelson Logging. Verify<br>Potential risk should be verified during enhanced inventory.<br>Unknown operations - needs verification. |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100493 LYONS MEHAMA WATER DISTRICT**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 16 | Above Ground Storage Tanks - Excluding Water | Young & Morgan Truck Co. | Lyons-Mill City Dr.- Trask Road | Lyons | Database (2) Field-Observation | Within sensitive area. | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | |
| | UST - Status Unknown | | | | | | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | |
| | Fleet/Trucking/Bus Terminals | | | | | | Moderate | Spills, leaks, or improper handling of fuels, grease, solvents, and other materials from vehicle service, fueling, and parking areas may impact the drinking water supply. | |
| 17 | Transmission Lines - Right-of-Ways | Transmission Lines | Throughout DWPA | Lyons | Field-Observation | Within sensitive area. | Higher | Construction and corridor maintenance may contribute to increased erosion and turbidity in drinking water supply. Over-application or improper handling of pesticides or fertilizers may impact drinking water supply. | |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100493 LYONS MEHAMA WATER DISTRICT**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 18 | Automobiles - Gas Stations | Freres Lumber Plant #3 | Lyons-Mill City Dr. Cedar Hill Dr. | | Lyons Field-Observation | Database (2) sensitive area. | Within | Moderate Spills, leaks, or improper handling of fuels and other materials during transportation, transfer, and storage may impact the drinking water supply. | Gas pumps look very old and not in use. Very large site that appears to be closed down. Potential risk should be verified during enhanced inventory. |
| | Wood/Pulp/Paper Processing and Mills | | | | | | Higher | Spills, leaks, or improper handling of wood preservatives and other chemicals during transportation, use, storage and disposal may impact the drinking water supply. | Gas pumps look very old and not in use. Very large site that appears to be closed down. Potential risk should be verified during enhanced inventory. |
| | Above Ground Storage Tanks - Excluding Water | | | | | | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | Gas pumps look very old and not in use. Very large site that appears to be closed down. Potential risk should be verified during enhanced inventory. |
| | Other -DEQ Cleanup Program Site | | | | | | Higher | The impacts of this potential contaminant source will be addressed during the enhanced inventory. | Gas pumps look very old and not in use. Very large site that appears to be closed down. Potential risk should be verified during enhanced inventory. |
| | Landfill/Dumps | | | | | | Higher | Water percolating through the landfill waste material may transport contaminants to groundwater or surface water supply. | Gas pumps look very old and not in use. Very large site that appears to be closed down. Potential risk should be verified during enhanced inventory. |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100493 LYONS MEHAMA WATER DISTRICT**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 19 | Mines/Gravel Pits | North Rock Company | Lyons-Mill City Dr. SE of intake. | Lyons | Database (2) Field-Observation | Within sensitive area. | Higher | Spills, leaks, or improper handling of chemicals and wastes generated in mining operations or from heavy equipment may impact the drinking water supply. | |
| 20 | Above Ground Storage Tanks - Excluding Water | Freres Plywood Plant #3 | Lyons-Mill City Dr. SE of intake. | Mill City | Database (2) Field-Observation | Within sensitive area. | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | Planer Mill. |
| | Wood/Pulp/Paper Processing and Mills | | | | | | Higher | Spills, leaks, or improper handling of wood preservatives and other chemicals during transportation, use, storage and disposal may impact the drinking water supply. | Planer Mill. |
| 21 | Fleet/Trucking/Bus Terminals | Frank Lumber Co./Frank Trucking Co. | Lyons-Mill City Dr. SE of intake. | Mill City | Database (2) Field-Observation | Within sensitive area. | Moderate | Spills, leaks, or improper handling of fuels, grease, solvents, and other materials from vehicle service, fueling, and parking areas may impact the drinking water supply. | The trucking co. is associated with the lumber co. I believe they are on the same property. Verify. |
| | Wood/Pulp/Paper Processing and Mills | | | | | | Higher | Spills, leaks, or improper handling of wood preservatives and other chemicals during transportation, use, storage and disposal may impact the drinking water supply. | The trucking co. is associated with the lumber co. I believe they are on the same property. Verify. |
| | Above Ground Storage Tanks - Excluding Water | | | | | | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | The trucking co. is associated with the lumber co. I believe they are on the same property. Verify. |
| | UST - Status Unknown | | | | | | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | The trucking co. is associated with the lumber co. I believe they are on the same property. Verify. |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100493 LYONS MEHAMA WATER DISTRICT**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 22 | Large Capacity Septic Systems (serves > 20 people) - Class V UICs | Santiam Canyon School District | Southeast of intake | Mill City | Database (2) Field-Observation | Within sensitive area. | Moderate | If not properly sited, designed, installed, and maintained, septic systems can impact drinking water. | Complex includes the high school and middle school. |
| | Schools | | | | | | Moderate | Over-application or improper handling of cleaning products, pesticides or fertilizers used on the school grounds may impact drinking water. Vehicle maintenance wastes may contribute contaminants. | Complex includes the high school and middle school. |
| | UST - Nonregulated Tanks (< 1,100 gals or Large Heating Oil Tanks) | | | | | | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | Complex includes the high school and middle school. |
| | Injection/Dry Wells, Sumps - Class V UICs | | | | | | Moderate | Shallow injection wells may transport untreated wastewater (process or storm water) directly into groundwater and impact drinking water. | Complex includes the high school and middle school. |
| 23 | UST - Status Unknown | Foresters Equipment | Southeast of intake | Mill City | Database (2) Field-Observation | Within sensitive area. | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | Unknown operations - needs verification. |
| | Other -DEQ Cleanup Program Site | | | | | | Moderate | The impacts of this potential contaminant source will be addressed during the enhanced inventory. | Unknown operations - needs verification. |
| | Junk/Scrap/Salvage Yards | | | | | | Higher | Spills, leaks, or improper handling of automotive chemicals, batteries, and other waste materials during storage and disposal may impact the drinking water supply. | Unknown operations - needs verification. |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100493 LYONS MEHAMA WATER DISTRICT**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 24 | Sewer Lines - Close Proximity to PWS | Mill City Sewer Lines | Southeast of intake. West of 5th Ave. | Mill City | Field-Observation | Within sensitive area. | Moderate | If not properly designed, installed, and maintained, sewer lines can impact drinking water, especially adjacent to a waterbody or within the 2-year time-of-travel zone for drinking water wells. | |
| 25 | Dry Cleaners | Mill City Wash-n-Dry | Southeast of intake. On Hwy 22 | Mill City | Field-Observation | Within sensitive area. | Moderate | Spills, leaks, or improper handling of dry cleaning solvents and other chemicals during transportation, use, storage and disposal may impact the drinking water supply. | |
| 26 | Automobiles - Gas Stations | Santiam Gas | Southeast of intake. On Hwy 22 | Mill City | Database (2) Field-Observation | Within sensitive area. | Moderate | Spills, leaks, or improper handling of fuels and other materials during transportation, transfer, and storage may impact the drinking water supply. | At one time this was a BP gas station. |
| | UST - Upgraded/Registered - Active | | | | | | Lower | Spills or improper handling during tank filling or product distribution may impact the drinking water supply. | At one time this was a BP gas station. |
| 27 | Fleet/Trucking/Bus Terminals | Fred A. Moore Logging Co | Southeast of intake. On Hwy 22 | Mill City | Database (2) Field-Observation | Within sensitive area. | Moderate | Spills, leaks, or improper handling of fuels, grease, solvents, and other materials from vehicle service, fueling, and parking areas may impact the drinking water supply. | |
| | UST - Status Unknown | | | | | | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | |
| | Above Ground Storage Tanks - Excluding Water | | | | | | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100493 LYONS MEHAMA WATER DISTRICT**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 28 | Other -DEQ Cleanup Program Site | North Santiam Plywood-Vacant Lots | Southeast of intake. Off Hwy 22 | Mill City | Database (2) Field-Observation | Within sensitive area. | Higher | The impacts of this potential contaminant source will be addressed during the enhanced inventory. | According to database N.Santiam Plywood was located at this spot. Address on ground does correspond with database. Needs verified<br><br>PCS location based on regulatory database search - needs verification. |
| 29 | Campgrounds/RV Parks | Fisherman Bend State Park | Southeast of intake. Off of Hwy 22 | Mill City | Database (2) Field-Observation | Within sensitive area. | Moderate | Leaks or spills of automotive fluids or improperly managed septic systems and wastewater disposal may impact drinking water supply. Heavy usage along edge of waterbody may contribute to erosion, causing turbidity. | |
| | Parks | | | | | | Moderate | Over-application or improper handling of pesticides/fertilizers may impact drinking water. Excessive irrigation may cause transport of contaminants through runoff. Heavy use along edge of waterbody may contribute to erosion, causing turbidity. | |
| 30 | Homesteads - Rural - Septic Systems (< 1/acre) | Rural Homesteads on septic | Lyons-Mill City Dr. | Lyons | Field-Observation | Within sensitive area. | Lower | If not properly sited, designed, installed, and maintained, septic systems can impact drinking water. Use of drain cleaners and dumping household hazardous wastes can result in groundwater contamination. | Most homes are found between Lyons and Mill City along Lyons-Mill City Drive. |
| | Wells/Abandoned Wells | | | | | | Moderate | Improperly installed or maintained wells and abandoned wells may provide a direct conduit for contamination to groundwater and drinking water source. | Most homes are found between Lyons and Mill City along Lyons-Mill City Drive. |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100493 LYONS MEHAMA WATER DISTRICT**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 31 | Managed Forest Land - Clearcut Harvest (< 35 yrs.) | Clear Cuts | Throughout DWPA | Mill City | Field-Observation | Within sensitive area. | Higher | Cutting and yarding of trees may contribute to increased erosion, resulting in turbidity and chemical changes in drinking water supply.<br><br>Over-application or improper handling of pesticides or fertilizers may impact drinking water source. | Forestland owned by State and private landowners may use broadcast fertilization. Verify. |
| | Managed Forest Land - Broadcast Fertilized Areas | | | | | | Moderate | Over-application or improper handling of pesticides or fertilizers may impact the drinking water source. | Forestland owned by State and private landowners may use broadcast fertilization. Verify. |
| 32 | Managed Forest Land - Road Density ( > 2 mi./sq. mi.) | Road Density | Throughout DWPA | Lyons | Field-Observation | Within sensitive area. | Higher | Road building, maintenance, and usage may contribute to erosion and slope failure causing turbidity in drinking water supply. Vehicle usage increases the risks of leaks or spills of petroleum products and other hazardous materials. | Large slide area reported by contact 4 miles up Little N.Fork Road. Historic mass movement. |
| | Other --Slide Area | | | | | | Moderate | The impacts of this potential contaminant source will be addressed during the enhanced inventory. | Large slide area reported by contact 4 miles up Little N.Fork Road. Historic mass movement. |
| 33 | Transportation - Stream Crossing - Perennial | Stream Crossings | Throughout DWPA | Lyons | Field-Observation | Within sensitive area. | Higher | Road building, maintenance & use may increase erosion & slope failure causing turbidity. Vehicle use increases the risk of leaks or spills of fuel & other chemicals. Over-application/improper handling of pesticides in right-of-way may also impact water. | |

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(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100493 LYONS MEHAMA WATER DISTRICT**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 34 | Mines/Gravel Pits | Mines | Throughout Little N.Santiam River Drainage | Lyons | Database (2) Interview | Within sensitive area. | Higher | Spills, leaks, or improper handling of chemicals and wastes generated in mining operations or from heavy equipment may impact the drinking water supply. | The Starvation and Amalgamated Mills were both DEQ Cleanup Program sites. DEQ contact indicates both mines are in NFA status. |
| 35 | UST - Status Unknown | OSU Forestry Guard Station | Off N.Fork Road | Lyons | Database (2) Field-Observation | Within sensitive area. | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | Unknown operations - needs verification. |
| | Other -Maintenance Facility | | | | | | Moderate | The impacts of this potential contaminant source will be addressed during the enhanced inventory. | Unknown operations - needs verification. |
| 36 | Golf Courses | Elk Horn Valley Golf Club | 11 miles up N.Fork Road | Lyons | Database (2) | Within sensitive area. | Moderate | Over-application or improper handling of pesticides or fertilizers may impact drinking water. Excessive irrigation may cause transport of contaminants to groundwater or surface water through runoff. | |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100493 LYONS MEHAMA WATER DISTRICT**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 37 | UST - Status Unknown | Wilson Hatchery & Poultry Farm | Off of Jennie Road. East of intake | Lyons | Database (2) Interview | Within sensitive area. | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | Contact indicated this company went out of business.<br>No visual observation of site - site location is based on interview.<br>PCS location based on regulatory database search - needs verification.<br>Potential risk should be verified during enhanced inventory. |
| | Other --Poultry Farm | | | | | | Moderate | The impacts of this potential contaminant source will be addressed during the enhanced inventory. | Contact indicated this company went out of business.<br>No visual observation of site - site location is based on interview.<br>PCS location based on regulatory database search - needs verification.<br>Potential risk should be verified during enhanced inventory. |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

## TABLE 3. RESULTS OF REGULATORY DATABASE SEARCH

**PWS# 4100493 LYONS MEHAMA WATER DISTRICT**

| Reference No. (1) | Name | Database Listings |
|---|---|---|
| 9 | Shaniko Forest | SFM - Catalyst 42-2301 stored in Plastic Bottles Or |
| | | SFM - Catalyst For Duro-lok stored in Plastic Bottles Or Jugs |
| | | SFM - Diesel Fuel stored in Aboveground Tank |
| | | SFM - Hydraulic Oil stored in Aboveground Tank |
| | | ECSI site with a confirmed release. |
| 11 | Lyons Mini Storage | SIS list with a individual WPCF permit for an on-site system. |
| 12 | Chevron Cardlock | SFM - Diesel Fuel Low Sulfur stored in Aboveground |
| | | SFM - Gasoline stored in Aboveground Tank |
| 14 | Young and Morgan Landfill | SWMS list-PWS needs to verify permit status. |
| | | ECSI site with a confirmed release. |
| | | HWIMSY list with unknown generator or transporter |
| | | SIS list with a GEN12Z NPDES for stormwater from industrial activities. |
| 15 | Nelson Logging | UST list-PWS needs to verify tank permit status |
| | | SFM - Gasoline stored in Aboveground Tank |
| | | LUST list with unknown status |
| | | SFM - Diesel Fuel stored in Aboveground Tank |
| 16 | Young & Morgan Truck Co. | LUST cleanup initiated on 11/8/2000. PWS should verify cleanup progress. |
| | | SIS list with a GEN12Z NPDES for stormwater from industrial activities. |
| | | UST list-PWS needs to verify tank permit status |
| 18 | Freres Lumber Plant #3 | SFM - Union 85 - 140 W Oil stored in Tank Inside |

Notes: (1) See Table 2 and Figure. (2) For State Fire Marshals (SFM) list, information on materials in a gaseous-form is not presented since gaseous compounds rarely pose a threat to groundwater or surface water.

## TABLE 3. RESULTS OF REGULATORY DATABASE SEARCH

**PWS# 4100493 LYONS MEHAMA WATER DISTRICT**

| Reference No. (1) | Name | Database Listings |
|---|---|---|
| 18 | Freres Lumber Plant #3 | SWMS list-PWS needs to verify permit status. |
| | | SIS list with a GEN12Z NPDES for stormwater from industrial activities. |
| | | SFM - Waste Oil (motor & Transmission) stored in Aboveground Tank |
| | | SFM - Waste Antifreeze stored in Aboveground Tank |
| | | SFM - Diesel Fuel stored in Aboveground Tank |
| | | SFM - Lube Oil stored in Steel Drum |
| | | SFM - Antifreeze stored in Steel Drum |
| | | ECSI site with a confirmed release. |
| | | SFM - Transmission Oil stored in Tank Inside Building |
| | | SFM - Motor Oil 15w40 stored in Tank Inside Building |
| 19 | North Rock Company | SIS list with a GEN12A NPDES for stormwater from sand, gravel and non-metallic quarrying and mining. |
| 20 | Freres Plywood Plant | SFM - Cleaning Solvent stored in Steel Drum |
| | | SIS list with a GEN12Z NPDES for stormwater from industrial activities. |
| | | SFM - Waste Oil stored in Aboveground Tank |
| | | SFM - Soda Ash stored in Bag |
| | | SFM - Phenolic Resin stored in Aboveground Tank |
| | | SFM - Paint Spray stored in Can |
| | | SFM - Lubricants stored in Steel Drum |
| | | SFM - Hydraulic Oil stored in Aboveground Tank |
| | | SFM - Degreaser stored in Steel Drum |
| | | SFM - Caustic Soda Solution stored in Aboveground |
| | | SFM - Caustic Soda Beads stored in Steel Drum |
| | | SFM - Antifreeze stored in Plastic Bottles Or Jugs |

Notes: (1) See Table 2 and Figure. (2) For State Fire Marshals (SFM) list, information on materials in a gaseous-form is not presented since gaseous compounds rarely pose a threat to groundwater or surface water.

## TABLE 3. RESULTS OF REGULATORY DATABASE SEARCH

**PWS# 4100493 LYONS MEHAMA WATER DISTRICT**

| Reference No. (1) | Name | Database Listings |
|---|---|---|
| 20 | Freres Plywood Plant | SFM - Diesel Fuel stored in Aboveground Tank |
| 21 | Frank Lumber Co./Frank Trucking Co. | SFM - Diesel Fuel #1 stored in Steel Drum |
| | | SFM - Used Antifreeze stored in Steel Drum |
| | | SFM - Auto Ship 9140 stored in Plastic Bottles Or Jugs |
| | | UST list-PWS needs to verify tank permit status |
| | | SIS list with a individual NPDES permit. |
| | | SFM - Used Oil stored in Steel Drum |
| | | SFM - United Am-3 stored in Plastic Bottles Or Jugs |
| | | SFM - Slash Fuel stored in Steel Drum |
| | | SFM - Power Plus Cleaner stored in Plastic Bottles Or |
| | | SFM - Motor Oil stored in Aboveground Tank |
| | | SFM - Hydraulic Oil stored in Steel Drum |
| | | SFM - Gasoline stored in Aboveground Tank |
| | | SFM - Diesel Fuel stored in Aboveground Tank |
| | | SFM - Antifreeze stored in Steel Drum |
| | | SIS list with a GEN12Z NPDES for stormwater from industrial activities. |
| 22 | Santiam Canyon School District | SFM - Diesel Fuel stored in Steel Drum |
| | | SFM - Heating Oil stored in Underground Tank |
| 23 | Foresters Equipment | ECSI site with suspected contamination. |
| | | UST list-PWS needs to verify tank permit status |
| 26 | Santiam Gas | SFM - Motor Oil stored in Plastic Bottles Or Jugs |
| | | SFM - Gasoline stored in Underground Tank |

Notes: (1) See Table 2 and Figure. (2) For State Fire Marshals (SFM) list, information on materials in a gaseous-form is not presented since gaseous compounds rarely pose a threat to groundwater or surface water.

## TABLE 3. RESULTS OF REGULATORY DATABASE SEARCH

**PWS# 4100493 LYONS MEHAMA WATER DISTRICT**

| Reference No. (1) | Name | Database Listings |
|---|---|---|
| 26 | Santiam Gas | UST list with a status of 7 UST(s) upgraded and 0 not upgraded to DEQ 1998 technical standards. |
| | | SFM - Antifreeze stored in Plastic Bottles Or Jugs |
| | | LUST list with unknown status |
| | | SFM - Diesel Fuel stored in Underground Tank |
| 27 | Fred A. Moore Logging Co | ECSI site with suspected contamination. |
| | | SFM - Diesel Fuel stored in Aboveground Tank |
| | | SFM - Gasoline stored in Aboveground Tank |
| | | SFM - Motor Oil stored in Aboveground Tank |
| | | UST list-PWS needs to verify tank permit status |
| 28 | North Santiam Plywood-Vacant Lots | ECSI site with suspected contamination. |
| 29 | Fisherman Bend State Park | SFM - Gasoline stored in Aboveground Tank |
| | | SFM - Sakrete Concrete Mix stored in Bag |
| 34 | Mines | ECSI site with no further state action required. |
| 35 | OSU Forestry Guard Station | LUST cleanup initiated on 3/7/1990. PWS should verify cleanup progress. |
| | | UST list-PWS needs to verify tank permit status |
| 36 | Elk Horn Valley Golf | SFM - Diesel stored in Aboveground Tank |
| | | SFM - Fertilizers-wilco stored in Bag |
| | | SFM - Gasoline stored in Aboveground Tank |
| | | SFM - Scotts 26-3-12 Plus Minors Fertilizer stored in |
| | | SFM - Scotts Fertilizer Plus Fungicide Viii stored in Bag |
| | | SFM - Scott's Greens Fertilizer 22-0-16 stored in Bag |

Notes: (1) See Table 2 and Figure. (2) For State Fire Marshals (SFM) list, information on materials in a gaseous-form is not presented since gaseous compounds rarely pose a threat to groundwater or surface water.

## TABLE 3. RESULTS OF REGULATORY DATABASE SEARCH

**PWS# 4100493 LYONS MEHAMA WATER DISTRICT**

| Reference No. (1) | Name | Database Listings |
|---|---|---|
| 36 | Elk Horn Valley Golf | SFM - Scotts Proturf Fungicide X stored in Bag |
| | | SFM - Scotts Proturf Pythium Control stored in Bag |
| | | SFM - Scotts Systemic Fungicide stored in Bag |
| 37 | Wilson Hatchery & Poultry Farm | UST list-PWS needs to verify tank permit status |
| | | LUST cleanup initiated on 9/22/2000. PWS should verify cleanup progress. |

Notes: (1) See Table 2 and Figure. (2) For State Fire Marshals (SFM) list, information on materials in a gaseous-form is not presented since gaseous compounds rarely pose a threat to groundwater or surface water.

# Summary of Source Water Assessment Results for Upstream Intakes

## Mill City Water Department (PWS #4100520)

Executive Summary

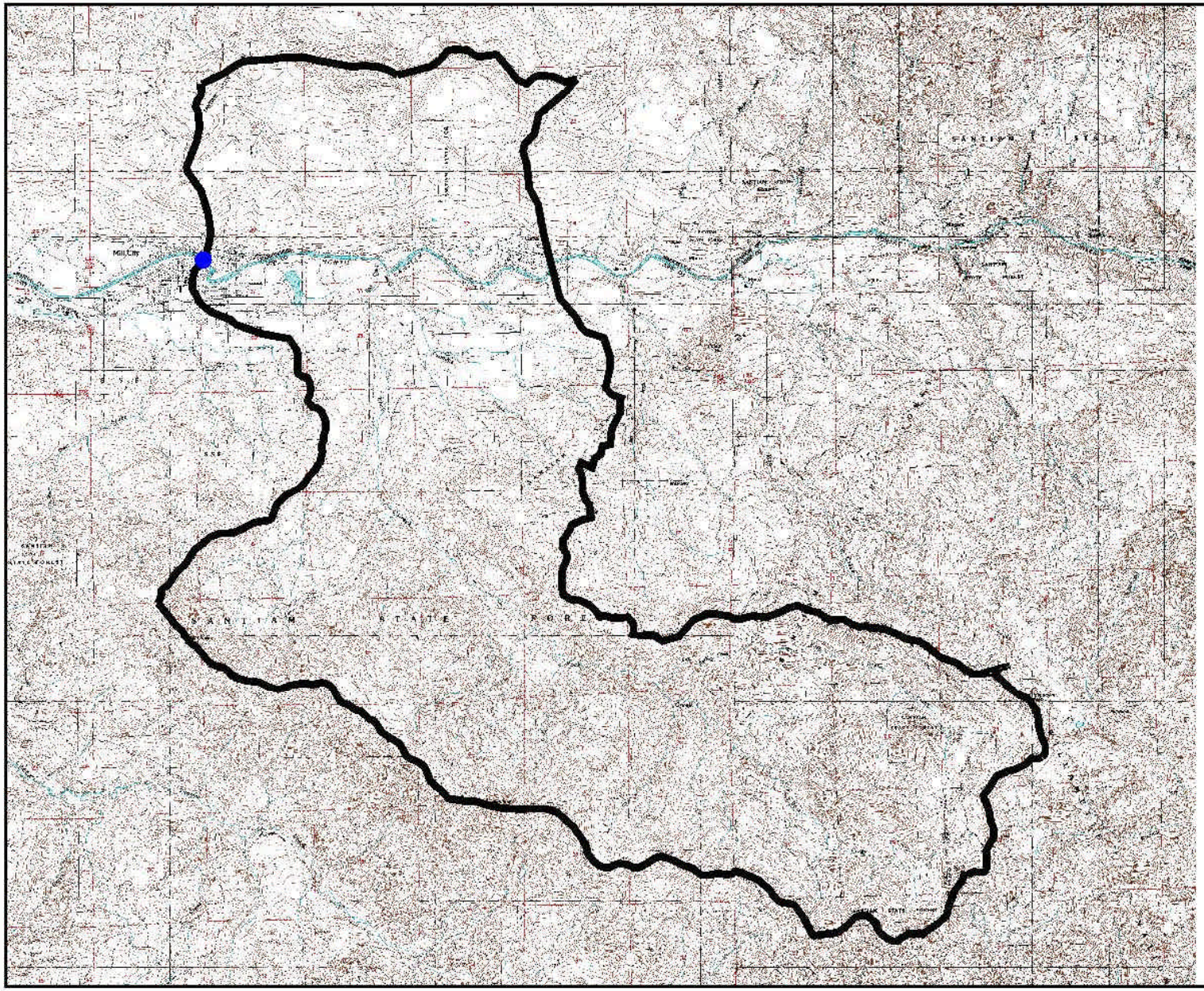
## Figures



## Tables

# Figures

Source Water Assessment Report
Mill City Water Department
PWS # 4100520




# Figure 1:
# Mill City WaterDepartment's Drinking Water Protection Area

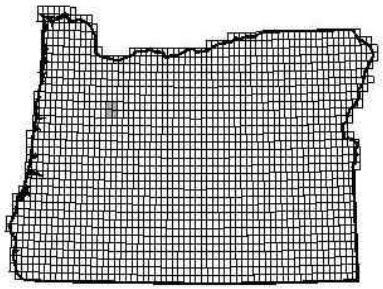
PWS 4100520

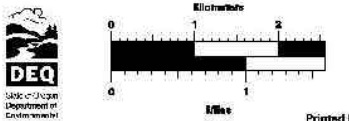
Drinking Water Intake - Surface Water

Drinking Water Protection Area

For watersheds with more than one intake, Oregon completes the assessments by segment and each source water assessment represents the area from the public water system's intake to the next intake upstream. All protection areas for intakes upstream of the water system's intake are included in Mill City Water Department's drinking water protection area. Activities and impacts in Mill City Water Department's drinking water protection area also have the potential to impact downstream water users. See Attachment B for a shematic of upstream and downstream water providers in the North Santiam Sub-Basin.

Note on Base Map: 1:24,000 scale U.S. Geological Survey Digital Raster Graphics (DRGs) for Lawhead Creek (1985), Mill City South (1985), Mill City North (1985), Elkhorn (1985), and are displayed. DRGs are scanned images of topographic sheets. Where the DRGs join, seams and/or gaps may be visible. Between DRGs, variations in information displayed also may be seen.



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# Figure 2:
# Sensitive Areas within the Mill City Water Department's Drinking Water Protection Area

PWS 4100520

Drinking Water Intake - Surface Water

Drinking Water Protection Area

Sources of Information:
(Marion and Linn County Areas)
High Soil Erodibility: Defined by slopes greater than 30 percent and K factor greater than .25. Soils derived from 1:24,000, USDA, NRCS, SSURGO certified data. Slope is in the SSURGO database Component Table. Slope displayed is a weighted average of the average slope for the map unit. K factor is contained in the SSURGO Layer Table. K factor displayed is a weighted average(of only the surface layer) for the map unit. High Runoff Potential: Hydrologic Group D (very slow infiltration rates) from the SSURGO Component Table. SSURGO data have been certified.
(Willamette National Forest)
High Soil Erodibility: Defined by high sedimentation yield potential of the dominant soil. High Runoff Potential: Water yield class III in the dominant soil. These data are extracted from the Willamette National Forest Soil Resource Inventory.
(Entire Watershed)
High Permeability Soils: Alluvial deposits (Qal), dune sand (Qd), and landslide and debris-flow deposits (Qls) from the U.S. Geological Survey Geologic Map of Oregon GIS layer.
Sensitive Area Setbacks Adjacent to Streams and Reservoirs: 1000 foot buffer from the centerline of perennial streams and the shoreline of any reservoir.

Note on Sensitive Areas: In determining the most sensitive areas within this Drinking Water Protection Area, DEQ used existing GIS layers and other natural resource agency data sets. Not all areas of the state have been mapped for the natural resource parameters of interest or at the level of detail ideal for this type of analysis. DEQ has sought to obtain the best available information for this composite.

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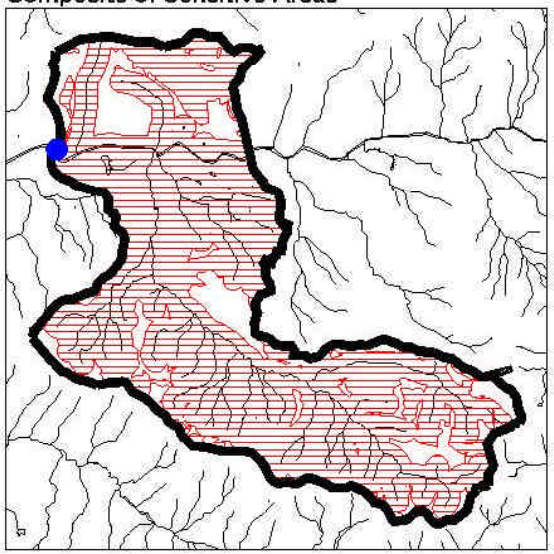
Kilometers
0 1 2 3 4 5

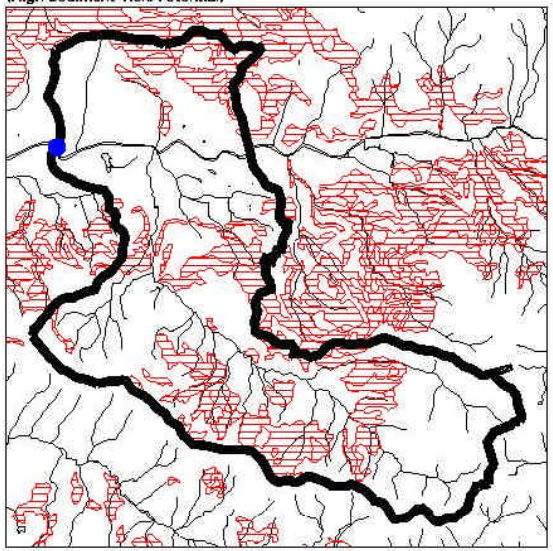
0 1 2 3
Miles

## Composite of Sensitive Areas

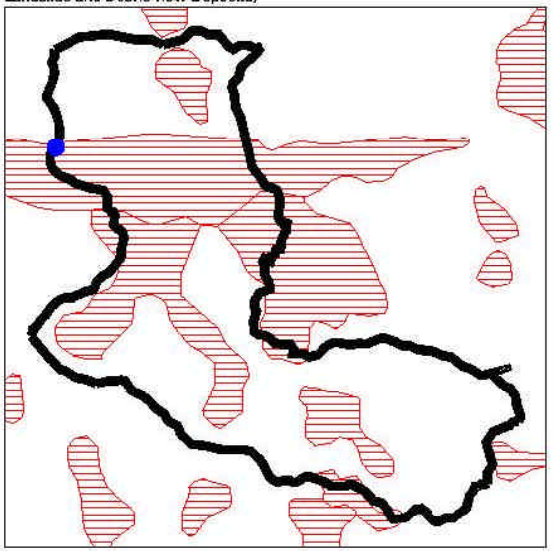


## Sensitive Areas in Watershed

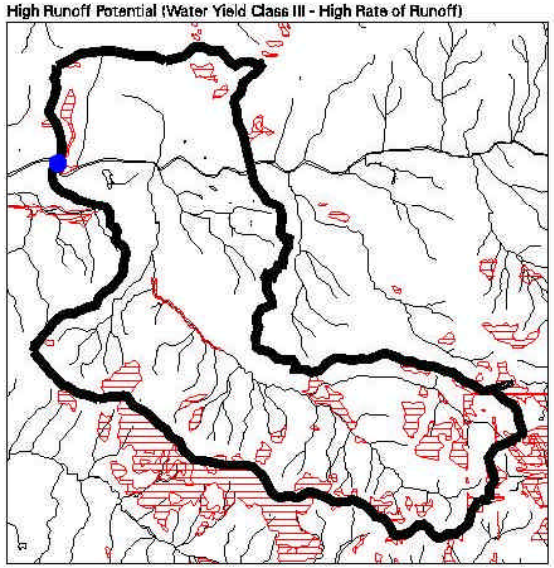
High Soil Erosion Potential
(High Sediment Yield Potential)



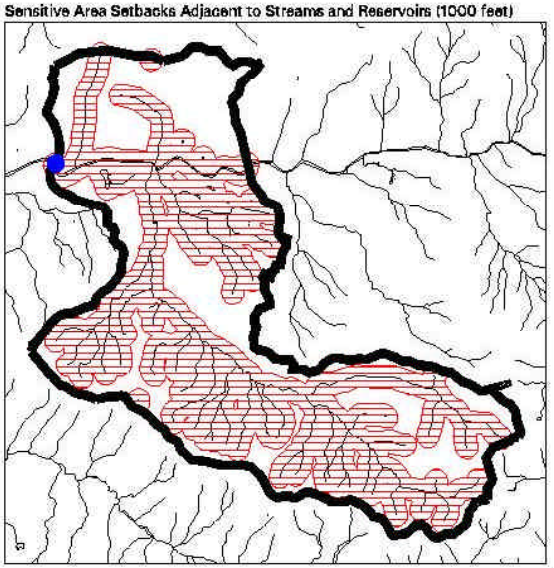
High Permeability Soils (Alluvial Deposits, Dune Sand, Landslide and Debris-flow Deposits)

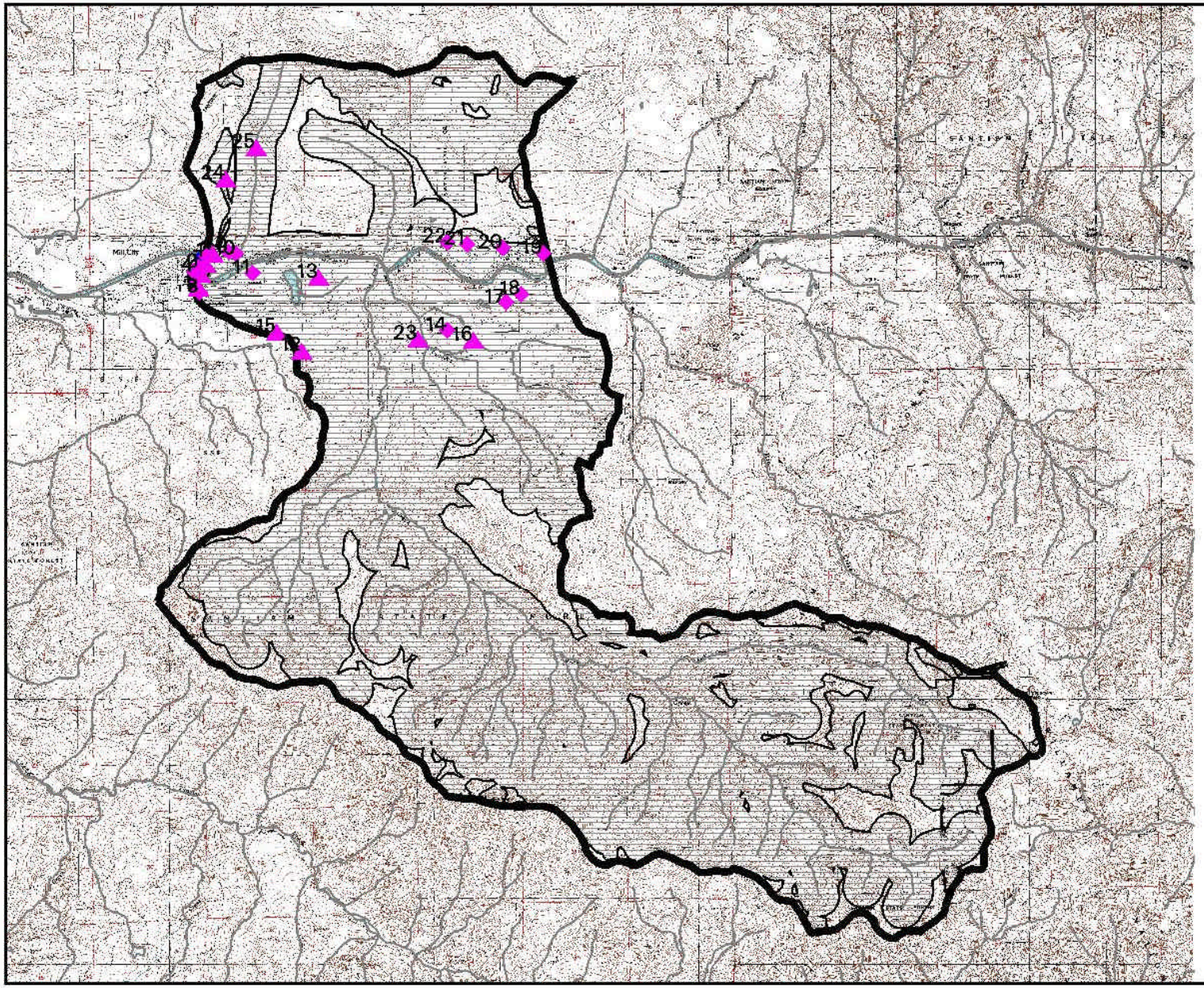


High Runoff Potential (Water Yield Class III - High Rate of Runoff)



Sensitive Area Setbacks Adjacent to Streams and Reservoirs (1000 feet)






# Figure 3: Source Water Assessment Results

## Mill City Water Department's Drinking Water Protection Area with Sensitive Areas and Potential Contamination Sources

PWS 4100520

- Drinking Water Intake - Surface Water
- Drinking Water Protection Area
- Sensitive Areas
- Area Feature (see Note 2)
- Point Feature (see Note 2)

**Notes on Potential Contaminant Sources**

**Note 1:** Sites and areas noted in this Figure are potential sources of contamination to the drinking water identified by Oregon drinking water protection staff. Environmental contamination is not likely to occur when contaminants are handled and used properly or when best management practices are employed.

**Note 2:** Feature identification numbers correspond to the potential contaminant source numbers in Table 2. The area features represent the approximate area where the land use or activity occurs and is marked at the point closest to the intake. The point features represent the approximate point where the land use or activity occurs.

For watersheds with more than one intake, Oregon completes the assessments by segment and each source water assessment represents the area from the public water system's intake to the next intake upstream. All protection areas for intakes upstream of the water system's intake are included in Mill City Water Department's drinking water protection area. Activities and impacts in Mill City Water Department's drinking water protection area also have the potential to impact downstream water users. See Attachment B for a schematic of upstream and downstream water providers in the North Santiam Sub-Basin.

DEQ
State of Oregon Department of Environmental Quality

Kilometers 0 1 2
Miles 0 1

Printed December, 2001
Oregon Department of Environmental Quality GIS

# Tables

## Source Water Assessment Report
## MILL CITY WATER DEPARTMENT - PWS # 4100520
## Inventory Results



**Notes for Tables:**

Sites and areas identified in these Tables are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

Total number of sources listed in Table 1 in the DWPA may not add up to the total number of potential contaminants sources in Table 2 because more than one type of potential contaminant source may be present at any given facility.

Data collected by Rachel Burr Oregon DEQ on 9/4/2001.

**Acronyms:**

AST - Aboveground Storage Tank
DC - DEQ's Dry Cleaner database
DEQ - Oregon Department of Environmental Quality
DWPA - Drinking Water Protection Area
ECSI - DEQ's Environmental Cleanup Site Information database
HWIMSY - DEQ's Hazardous Waste Information Management System database
LUST - DEQ's Leaking Underground Storage Tank database
NPDES - National Pollution Discharge Elimination System
PCS - Potential Contaminant Source
PWS - Public Water System
SFM - State Fire Marshall's database of hazardous materials
SIS - DEQ's Source Information System database (includes WPCF & NPDES permits)
SWMS - DEQ's Solid Waste Management System database

# Tables

## Source Water Assessment Report
## MILL CITY WATER DEPARTMENT - PWS # 4100520
## Inventory Results

**Table 1. Summary of Potential Contaminant Sources by Land**

**Table 2. Inventory Results - List of Potential Contaminant**

**Table 3. Results of Regulatory Database Search**

UST - DEQ's Underground Storage Tank database or Underground Storage Tank
WPCF - Water Pollution Control Facility
WRD - Oregon Water Resources Division database for water rights information

## TABLE 1. SUMMARY OF POTENTIAL CONTAMINANT SOURCES BY LAND USE

**PWS # 4100520 MILL CITY WATER DEPARTMENT**

### Residential/Municipal Land Uses

| Potential Contamination Source | Note | Relative Risk Level | Total in DWPA |
|---|---|---|---|
| Airport - Maintenance/Fueling Area | | Higher | 0 |
| Apartments and Condominiums | | Lower | 0 |
| Campgrounds/RV Parks | (1) | Lower | 0 |
| Cemeteries - Pre-1945 | | Lower | 1 |
| Drinking Water Treatment Plants | | Moderate | 1 |
| Fire Station | | Lower | 1 |
| Fire Training Facilities | | Moderate | 0 |
| Golf Courses | | Moderate | 0 |
| Housing - High Density (> 1 House/0.5 acres) | | Moderate | 1 |
| Landfill/Dumps | (1) | Higher | 0 |
| Lawn Care - Highly Maintained Areas | | Moderate | 0 |
| Motor Pools | | Moderate | 0 |
| Parks | | Moderate | 0 |
| Railroad Yards/Maintenance/Fueling Areas | | Higher | 0 |
| Schools | | Moderate | 1 |
| Septic Systems - High Density ( > 1 system/acre) | (1) | Higher | 0 |
| Sewer Lines - Close Proximity to PWS | (1) | Moderate | 1 |
| Utility Stations - Maintenance Transformer Storage | | Higher | 0 |
| Waste Transfer/Recycling Stations | (1) | Moderate | 0 |
| Wastewater Treatment Plants/Collection Stations | (1) | Higher | 1 |
| Other | | | 0 |

NOTES:
Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.
(1) - Potential source of microbial contamination
(2) - Drip irrigated crops, such as vineyards and some vegetables, are considered lower risk than spray irrigation
(3) - For groundwater public water systems, septic systems located within the 2-year time-of-travel (TOT) are considered moderate risks.

## TABLE 1. SUMMARY OF POTENTIAL CONTAMINANT SOURCES BY LAND USE

**PWS # 4100520 MILL CITY WATER DEPARTMENT**

### Commercial/Industrial Land Uses

| Potential Contamination Source | Note | Relative Risk Level | Total in DWPA |
|---|---|---|---|
| Automobiles - Body Shops | | Higher | 0 |
| Automobiles - Car Washes | | Moderate | 0 |
| Automobiles - Gas Stations | | Moderate | 3 |
| Automobiles - Repair Shops | | Moderate | 2 |
| Boat Services/Repair/Refinishing | | Higher | 0 |
| Cement/Concrete Plants | | Moderate | 0 |
| Chemical/Petroleum Processing/Storage | | Higher | 0 |
| Dry Cleaners | | Higher | 0 |
| Electrical/Electronic Manufacturing | | Higher | 0 |
| Fleet/Trucking/Bus Terminals | | Higher | 0 |
| Food Processing | | Moderate | 0 |
| Furniture/Lumber/Parts Stores | | Moderate | 1 |
| Home Manufacturing | | Higher | 0 |
| Junk/Scrap/Salvage Yards | | Higher | 2 |
| Machine Shops | | Higher | 0 |
| Medical/Vet Offices | (1) | Moderate | 0 |
| Metal Plating/Finishing/Fabrication | | Higher | 0 |
| Mines/Gravel Pits | | Higher | 1 |
| Office Buildings/Complexes | | Lower | 0 |
| Parking Lots/Malls (> 50 Spaces) | | Higher | 0 |
| Photo Processing/Printing | | Higher | 0 |
| Plastics/Synthetics Producer | | Higher | 0 |
| Research Laboratories | | Higher | 0 |
| RV/Mini Storage | | Lower | 0 |
| Wood Preserving/Treating | | Higher | 0 |
| Wood/Pulp/Paper Processing and Mills | | Higher | 0 |
| Other | | | 0 |

NOTES:
Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.
(1) - Potential source of microbial contamination
(2) - Drip irrigated crops, such as vineyards and some vegetables, are considered lower risk than spray irrigation
(3) - For groundwater public water systems, septic systems located within the 2-year time-of-travel (TOT) are considered moderate risks.

## TABLE 1. SUMMARY OF POTENTIAL CONTAMINANT SOURCES BY LAND USE

**PWS # 4100520 MILL CITY WATER DEPARTMENT**

### Agricultural/Forest Land Uses

| Potential Contamination Source | Note | Relative Risk Level | Total in DWPA |
|---|---|---|---|
| Auction Lots | (1) | Higher | 0 |
| Boarding Stables | (1) | Moderate | 0 |
| Confined Animal Feeding Operations (CAFOs) | (1) | Higher | 0 |
| Crops - Irrigated (inc. orchards, vineyards, nurseries, | (2) | Moderate | 0 |
| Crops - Nonirrigated (inc. Christmas trees, grains, grass seed, | | Lower | 1 |
| Farm Machinery Repair | | Higher | 0 |
| Grazing Animals (> 5 large animals or equivalent/acre) | (1) | Higher | 1 |
| Lagoons/Liquid Wastes | (1) | Higher | 0 |
| Land Application Sites | (1) | Moderate | 0 |
| Managed Forest Land - Broadcast Fertilized Areas | | Moderate | 1 |
| Managed Forest Land - Clearcut Harvest (< 35 yrs.) | | Higher | 1 |
| Managed Forest Land - Partial Harvest (< 10 yrs.) | | Moderate | 0 |
| Managed Forest Land - Road Density ( > 2 mi./sq. mi.) | | Higher | 1 |
| Pesticide/Fertilizer/Petroleum Storage, Handling, Mixing, & | | Higher | 0 |
| Recent Burn Areas (< 10 yrs.) | | Lower | 0 |
| Managed Forest Lands - Status Unknown | | Moderate | 0 |
| Other | | | 0 |

NOTES:
Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.
(1) - Potential source of microbial contamination
(2) - Drip irrigated crops, such as vineyards and some vegetables, are considered lower risk than spray irrigation
(3) - For groundwater public water systems, septic systems located within the 2-year time-of-travel (TOT) are considered moderate risks.

## TABLE 1. SUMMARY OF POTENTIAL CONTAMINANT SOURCES BY LAND USE

**PWS # 4100520 MILL CITY WATER DEPARTMENT**

### Miscellaneous Land Uses

| Potential Contamination Source | Note | Relative Risk Level | Total in DWPA |
|---|---|---|---|
| Above Ground Storage Tanks - Excluding Water | | Moderate | 1 |
| Channel Alterations - Heavy | | Lower | 0 |
| Combined Sewer Outfalls | (1) | Lower | 0 |
| Stormwater Outfalls | (1) | Lower | 0 |
| Composting Facilities | (1) | Moderate | 0 |
| Historic Gas Stations | | Higher | 3 |
| Historic Waste Dumps/Landfills | (1) | Higher | 0 |
| Homesteads - Rural - Machine Shops/Equipment Maintenance | | Higher | 0 |
| Homesteads - Rural - Septic Systems (< 1/acre) | (1)(3) | Lower | 1 |
| Injection/Dry Wells, Sumps - Class V UICs | (1) | Higher | 0 |
| Kennels (> 20 Pens) | (1) | Lower | 0 |
| Military Installations | | Higher | 0 |
| Random Dump Sites | | Moderate | 0 |
| River Recreation - Heavy Use (inc. campgrounds) | (1) | Lower | 0 |
| Sludge Disposal Areas | (1) | Moderate | 0 |
| Stormwater Retention Basins | (1) | Moderate | 0 |
| Transmission Lines - Right-of-Ways | | Higher | 1 |
| Transportation - Freeways/State Highways/Other Heavy Use | | Higher | 1 |
| Transportation - Railroads | | Higher | 1 |
| Transportation - Right-Of-Ways - Herbicide Use Areas | | Moderate | 0 |
| Transportation - River Traffic - Heavy | | Lower | 0 |
| Transportation - Stream Crossing - Perennial | | Higher | 1 |
| UST - Confirmed Leaking Tanks - DEQ List | | Higher | 0 |
| UST - Decommissioned/Inactive | | Lower | 0 |
| UST - Nonregulated Tanks (< 1,100 gals or Large Heating Oil | | Higher | 0 |
| UST - Not Upgraded and/or Registered Tanks | | Higher | 0 |
| UST - Upgraded/Registered - Active | | Lower | 2 |
| UST - Status Unknown | | Higher | 0 |
| Upstream Reservoirs/Dams | | Lower | 0 |
| Wells/Abandoned Wells | | Moderate | 1 |
| Large Capacity Septic Systems (serves > 20 people) - Class V | (1) | Moderate | 1 |
| Construction/Demolition Areas | | Moderate | 0 |
| Other: -DEQ Cleanup Program Site | | Higher | 1 |

NOTES:
Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.
(1) - Potential source of microbial contamination
(2) - Drip irrigated crops, such as vineyards and some vegetables, are considered lower risk than spray irrigation
(3) - For groundwater public water systems, septic systems located within the 2-year time-of-travel (TOT) are considered moderate risks.

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100520 MILL CITY WATER DEPARTMENT**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Drinking Water Treatment Plants | Mill City Water Treatment Plant | North of intake | Mill City | Database (2) Field-Observation | Within sensitive area. | Moderate | Treatment chemicals and equipment maintenance materials may impact groundwater or surface water source. | |
| 2 | Transportation - Freeways/State Highways/Other Heavy Use Roads | State Highway 22 | Runs west/east through DWPA | Mill City | Field-Observation | Within sensitive area. | Higher | Vehicle use increases the risk for leaks or spills of fuel & other haz. materials. Road building, maintenance & use can increase erosion/slope failure causing turbidity. Over-application or improper handling of pesticides/fertilizers may impact water. | |
| 3 | Furniture/Lumber/Parts Stores | Hoovers Supply | South of intake. | Mill City | Database (2) Field-Observation | Within sensitive area. | Moderate | Spills, leaks, or improper handling of hazardous chemical products and other materials in inventory during transportation, use, storage and disposal may impact the drinking water supply. | |
| | Junk/Scrap/Salvage Yards | | | | | | Higher | Spills, leaks, or improper handling of automotive chemicals, batteries, and other waste materials during storage and disposal may impact the drinking water supply. | |
| | Other -DEQ Cleanup Program Site | | | | | | Higher | The impacts of this potential contaminant source will be addressed during the enhanced inventory. | |
| 4 | Historic Gas Stations | Historic Gas Station | South of intake. | Mill City | Field-Observation | Within sensitive area. | Higher | Historic spills, leaks, or improper handling of solvents and petroleum products may impact the drinking water supply. Abandoned underground storage tanks may be present. | Across the street from Hoovers Supply. Appears to have been the site of a gas station. No pumps present. Potential risk should be verified during enhanced inventory. |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100520 MILL CITY WATER DEPARTMENT**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 5 | Housing - High Density (> 1 House/0.5 acres) | | High Density Housing | Mill City and Gates | Field-Observation | Within Mill City sensitive area. | Moderate | Improper use, storage, and disposal of household chemicals may impact the drinking water supply. Stormwater run-off or infiltration may carry contaminants to drinking water supply. | |
| 6 | Sewer Lines - Close Proximity to PWS | Sewer Lines | Throughout Mill City | Mill City | Interview | Within sensitive area. | Moderate | If not properly designed, installed, and maintained, sewer lines can impact drinking water, especially adjacent to a waterbody or within the 2-year time-of-travel zone for drinking water wells. | |
| 7 | Transportation - Railroads | Railroad | Runs west/east through DWPA | Mill City | Field-Observation | Within sensitive area. | Higher | Rail transport elevates the risk for leaks/spills of fuel & other haz. materials. Installation/maintenance of tracks may increase erosion & slope failure causing turbidity. Over-application/improper handling of pesticides may impact the water supply. | |
| 8 | Fire Station | Mill City Fire House | South of intake | Mill City | Field-Observation | Within sensitive area. | Lower | Spills, leaks, or improper handling of chemicals and other materials during transportation, use, storage and disposal may impact the drinking water supply. | |
| 9 | Automobiles - Gas Stations | Mill City Texaco | Northeast of intake | Mill City | Database (2) Field-Observation | Within sensitive area. | Moderate | Spills, leaks, or improper handling of fuels and other materials during transportation, transfer, and storage may impact the drinking water supply. | |
| | UST - Upgraded/Registered - Active | | | | | | Lower | Spills or improper handling during tank filling or product distribution may impact the drinking water supply. | |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100520 MILL CITY WATER DEPARTMENT**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 10 | Automobiles - Gas Stations | Mill City Chevron Service | Northeast of intake | Mill City | Database (2) Field-Observation | Within sensitive area. | Moderate | Spills, leaks, or improper handling of fuels and other materials during transportation, transfer, and storage may impact the drinking water supply. | |
| | UST - Upgraded/Registered - Active | | | | | | Lower | Spills or improper handling during tank filling or product distribution may impact the drinking water supply. | |
| 11 | Wastewater Treatment Plants/Collection Stations | Mill City Sewage Treatment Plant | East of intake | Mill City | Database (2) Field-Observation | Within sensitive area. | Higher | Improper management of wastewater, treatment chemicals, or equipment maintenance materials may impact drinking water supply. | |
| 12 | Transmission Lines - Right-of-Ways | Transmission Lines | Throughout DWPA | Mill City | Field-Observation | Within sensitive area. | Higher | Construction and corridor maintenance may contribute to increased erosion and turbidity in drinking water supply. Over-application or improper handling of pesticides or fertilizers may impact drinking water supply. | |
| 13 | Wells/Abandoned Wells | Rural Homestead on septic | Southern portion of DWPA. | Mill City | Field-Observation | Within sensitive area. | Moderate | Improperly installed or maintained wells and abandoned wells may provide a direct conduit for contamination to groundwater and drinking water source. | |
| | Homesteads - Rural - Septic Systems (< 1/acre) | | | | | | Lower | If not properly sited, designed, installed, and maintained, septic systems can impact drinking water. Use of drain cleaners and dumping household hazardous wastes can result in groundwater contamination. | |
| 14 | Cemeteries - Pre-1945 | | Fairview Cemetery | Southeast of intake | Field-Observation | Within Mill City sensitive area. | Lower | Embalming fluids (for example, arsenic) and decomposition by-products may impact drinking water supply. | Unsure of the age of the cemetery. Verify |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100520 MILL CITY WATER DEPARTMENT**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 15 | Crops - Nonirrigated (inc. Christmas trees, grains, grass seed, pasture) | Non-irrigated crops | Southern portion of DWPA | Mill City | Field-Observation | Within sensitive area. | Lower | Over-application or improper handling of pesticides/fertilizers may impact drinking water. Some agricultural practices may result in excess sediments discharging to surface waters, but non-irrigated crops are generally considered to be a low risk. | |
| 16 | Grazing Animals (> 5 large animals or equivalent/acre) | Grazing Animals | Southern portion of DWPA | Mill City | | Within sensitive area. | Higher | Improper storage and management of animal wastes may impact drinking water supply. Concentrated livestock may contribute to erosion and sedimentation of surface water bodies. | |
| 17 | Mines/Gravel Pits | Stayton Rock Products | Southeast of intake | Gates | Field-Observation | Within sensitive area. | Higher | Spills, leaks, or improper handling of chemicals and wastes generated in mining operations or from heavy equipment may impact the drinking water supply. | |
| 18 | Large Capacity Septic Systems (serves > 20 people) - Class V UICs | Gates Elementary School | Southeast of intake | Gates | Database (2) Field-Observation | Within sensitive area. | Moderate | If not properly sited, designed, installed, and maintained, septic systems can impact drinking water. | |
| | Schools | | | | | | Moderate | Over-application or improper handling of cleaning products, pesticides or fertilizers used on the school grounds may impact drinking water. Vehicle maintenance wastes may contribute contaminants. | |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100520 MILL CITY WATER DEPARTMENT**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 19 | Above Ground Storage Tanks - Excluding Water | Keylock Gas Station | East of intake- Hwy 22 | Gates | Field-Observation | Within sensitive area. | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | Appears to be above ground tanks only. |
| | Automobiles - Gas Stations | | | | | | Moderate | Spills, leaks, or improper handling of fuels and other materials during transportation, transfer, and storage may impact the drinking water supply. | Appears to be above ground tanks only. |
| 20 | Junk/Scrap/Salvage Yards | Junk/Scrap/Salvage | East of intake- Off Hwy 22 | Gates | Field-Observation | Within sensitive area. | Higher | Spills, leaks, or improper handling of automotive chemicals, batteries, and other waste materials during storage and disposal may impact the drinking water supply. | Located at a residence. |
| 21 | Historic Gas Stations | Auto Repair Shop | East of intake- Frontier Dr and Hwy22 | Gates | Field-Observation | Within sensitive area. | Higher | Historic spills, leaks, or improper handling of solvents and petroleum products may impact the drinking water supply. Abandoned underground storage tanks may be present. | Potential risk should be verified during enhanced inventory.<br>Very old building that looks abandoned. No pumps observed. Verify |
| | Automobiles - Repair Shops | | | | | | Moderate | Spills, leaks, or improper handling of automotive fluids, solvents, and repair materials during transportation, use, storage and disposal may impact the drinking water supply. | Potential risk should be verified during enhanced inventory.<br>Very old building that looks abandoned. No pumps observed. Verify |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100520 MILL CITY WATER DEPARTMENT**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 22 | Automobiles - Repair Shops | Gates Garage | East of intake- On Hwy 22 | Gates | Field-Observation | Within sensitive area. | Moderate | Spills, leaks, or improper handling of automotive fluids, solvents, and repair materials during transportation, use, storage and disposal may impact the drinking water supply. | Potential risk should be verified during enhanced inventory.<br>Very old building that looks abandoned. No pumps observed. |
| | Historic Gas Stations | | | | | | Higher | Historic spills, leaks, or improper handling of solvents and petroleum products may impact the drinking water supply. Abandoned underground storage tanks may be present. | Potential risk should be verified during enhanced inventory.<br>Very old building that looks abandoned. No pumps observed. |
| 23 | Managed Forest Land - Broadcast Fertilized Areas | Clear Cuts | Throughout DWPA | Mill City | Field-Observation | Within sensitive area. | Moderate | Over-application or improper handling of pesticides or fertilizers may impact the drinking water source. | State forestlands and private landowners may broadcast fertilize their lands. Verify |
| | Managed Forest Land - Clearcut Harvest (< 35 yrs.) | | | | | | Higher | Cutting and yarding of trees may contribute to increased erosion, resulting in turbidity and chemical changes in drinking water supply.<br>Over-application or improper handling of pesticides or fertilizers may impact drinking water source. | State forestlands and private landowners may broadcast fertilize their lands. Verify |
| 24 | Managed Forest Land - Road Density ( > 2 mi./sq. mi.) | Road Density | Throughout DWPA | Mill City | Field-Observation | Within sensitive area. | Higher | Road building, maintenance, and usage may contribute to erosion and slope failure causing turbidity in drinking water supply. Vehicle usage increases the risks of leaks or spills of petroleum products and other hazardous materials. | |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100520 MILL CITY WATER DEPARTMENT**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 25 | Transportation - Stream Crossing - Perennial | Stream Crossings | Throughout DWPA | Mill City | Field-Observation | Within sensitive area. | Higher | Road building, maintenance & use may increase erosion & slope failure causing turbidity. Vehicle use increases the risk of leaks or spills of fuel & other chemicals. Over-application/improper handling of pesticides in right-of-way may also impact water. | |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

## TABLE 3. RESULTS OF REGULATORY DATABASE SEARCH

**PWS# 4100520 MILL CITY WATER DEPARTMENT**

| Reference No. (1) | Name | Database Listings |
|---|---|---|
| 1 | Mill City Water Treatment Plant | SIS list with a GEN02 NPDES permit for filter |
| | | SFM - Calcium Hypochlorite Tablets stored in Plastic Or Non-metallic Drum |
| | | SFM - Aluminum Sulfate stored in Aboveground Tank |
| 3 | Hoovers Supply | ECSI site with suspected contamination. |
| 9 | Mill City Texaco | UST list with a status of 5 UST(s) upgraded and 0 not upgraded to DEQ 1998 technical standards. |
| | | SFM - Motor Oil stored in Plastic Bottles Or Jugs |
| | | SFM - Kerosene stored in Steel Drum |
| | | SFM - Gasoline stored in Underground Tank |
| | | SFM - Diesel Fuel stored in Underground Tank |
| | | LUST list with unknown status |
| 10 | Mill City Chevron | UST list with a status of 4 UST(s) upgraded and 0 not upgraded to DEQ 1998 technical standards. |
| | | SFM - Gasoline stored in Underground Tank |
| 11 | Mill City Sewage Treatment Plant | SIS list with a individual WPCF permit for an on-site system. |
| 18 | Gates Elementary | UST list-PWS needs to verify tank permit status |
| | | SFM - Heating Oil stored in Underground Tank |

Notes: (1) See Table 2 and Figure. (2) For State Fire Marshals (SFM) list, information on materials in a gaseous-form is not presented since gaseous compounds rarely pose a threat to groundwater or surface water.

# Summary of Source Water Assessment Results for Upstream Intakes

## City of Gates (PWS #4100317)

Executive Summary

## Figures



## Tables

# Figures

Source Water Assessment Report
City of Gates
PWS # 4100317

# Tables

## Source Water Assessment Report
## GATES, CITY OF - PWS # 4100317
## Inventory Results



**Notes for Tables:**

Sites and areas identified in these Tables are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

Total number of sources listed in Table 1 in the DWPA may not add up to the total number of potential contaminants sources in Table 2 because more than one type of potential contaminant source may be present at any given facility.

Data collected by Rachel Burr Oregon DEQ on 9/4/2001.

**Acronyms:**

AST - Aboveground Storage Tank
DC - DEQ's Dry Cleaner database
DEQ - Oregon Department of Environmental Quality
DWPA - Drinking Water Protection Area
ECSI - DEQ's Environmental Cleanup Site Information database
HWIMSY - DEQ's Hazardous Waste Information Management System database
LUST - DEQ's Leaking Underground Storage Tank database
NPDES - National Pollution Discharge Elimination System
PCS - Potential Contaminant Source
PWS - Public Water System
SFM - State Fire Marshall's database of hazardous materials
SIS - DEQ's Source Information System database (includes WPCF & NPDES permits)
SWMS - DEQ's Solid Waste Management System database

# Tables

## Source Water Assessment Report
## GATES, CITY OF - PWS # 4100317
## Inventory Results

**Table 1. Summary of Potential Contaminant Sources by Land**

**Table 2. Inventory Results - List of Potential Contaminant**

**Table 3. Results of Regulatory Database Search**

UST - DEQ's Underground Storage Tank database or Underground Storage Tank
WPCF - Water Pollution Control Facility
WRD - Oregon Water Resources Division database for water rights information

## TABLE 1. SUMMARY OF POTENTIAL CONTAMINANT SOURCES BY LAND USE

**PWS # 4100317 GATES, CITY OF**

**Residential/Municipal Land Uses**

| Potential Contamination Source | Note | Relative Risk Level | Total in DWPA |
|---|---|---|---|
| Airport - Maintenance/Fueling Area | | Higher | 0 |
| Apartments and Condominiums | | Lower | 0 |
| Campgrounds/RV Parks | (1) | Moderate | 1 |
| Cemeteries - Pre-1945 | | Moderate | 0 |
| Drinking Water Treatment Plants | | Moderate | 1 |
| Fire Station | | Lower | 0 |
| Fire Training Facilities | | Moderate | 0 |
| Golf Courses | | Moderate | 0 |
| Housing - High Density (> 1 House/0.5 acres) | | Moderate | 1 |
| Landfill/Dumps | (1) | Higher | 1 |
| Lawn Care - Highly Maintained Areas | | Moderate | 0 |
| Motor Pools | | Moderate | 0 |
| Parks | | Moderate | 1 |
| Railroad Yards/Maintenance/Fueling Areas | | Higher | 0 |
| Schools | | Moderate | 1 |
| Septic Systems - High Density ( > 1 system/acre) | (1) | Moderate | 1 |
| Sewer Lines - Close Proximity to PWS | (1) | Higher | 0 |
| Utility Stations - Maintenance Transformer Storage | | Higher | 1 |
| Waste Transfer/Recycling Stations | (1) | Moderate | 0 |
| Wastewater Treatment Plants/Collection Stations | (1) | Moderate | 0 |
| Other: -Fish Hatchery | | Moderate | 1 |
| Other: -Future Land Development | | Moderate | 1 |

NOTES:
Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.
(1) - Potential source of microbial contamination
(2) - Drip irrigated crops, such as vineyards and some vegetables, are considered lower risk than spray irrigation
(3) - For groundwater public water systems, septic systems located within the 2-year time-of-travel (TOT) are considered moderate risks.

## TABLE 1. SUMMARY OF POTENTIAL CONTAMINANT SOURCES BY LAND USE

**PWS # 4100317 GATES, CITY OF**

### Commercial/Industrial Land Uses

| Potential Contamination Source | Note | Relative Risk Level | Total in DWPA |
|---|---|---|---|
| Automobiles - Body Shops | | Higher | 0 |
| Automobiles - Car Washes | | Moderate | 0 |
| Automobiles - Gas Stations | | Moderate | 3 |
| Automobiles - Repair Shops | | Higher | 0 |
| Boat Services/Repair/Refinishing | | Higher | 0 |
| Cement/Concrete Plants | | Moderate | 0 |
| Chemical/Petroleum Processing/Storage | | Higher | 0 |
| Dry Cleaners | | Higher | 0 |
| Electrical/Electronic Manufacturing | | Higher | 0 |
| Fleet/Trucking/Bus Terminals | | Higher | 0 |
| Food Processing | | Moderate | 0 |
| Furniture/Lumber/Parts Stores | | Moderate | 0 |
| Home Manufacturing | | Higher | 0 |
| Junk/Scrap/Salvage Yards | | Higher | 1 |
| Machine Shops | | Higher | 0 |
| Medical/Vet Offices | (1) | Moderate | 0 |
| Metal Plating/Finishing/Fabrication | | Higher | 1 |
| Mines/Gravel Pits | | Higher | 1 |
| Office Buildings/Complexes | | Lower | 1 |
| Parking Lots/Malls (> 50 Spaces) | | Higher | 0 |
| Photo Processing/Printing | | Higher | 0 |
| Plastics/Synthetics Producer | | Higher | 0 |
| Research Laboratories | | Higher | 0 |
| RV/Mini Storage | | Lower | 0 |
| Wood Preserving/Treating | | Higher | 0 |
| Wood/Pulp/Paper Processing and Mills | | Higher | 1 |
| Other: -Fire Warehouse | | Moderate | 1 |
| Other: -Logging equipment/hauling | | Moderate | 1 |
| Other: -Maintenance shop/warehouse | | Moderate | 1 |
| Other: -ODOT Highway Department Facility | | Moderate | 1 |
| Other: --Warehouse | | Moderate | 1 |

NOTES:
Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.
(1) - Potential source of microbial contamination
(2) - Drip irrigated crops, such as vineyards and some vegetables, are considered lower risk than spray irrigation
(3) - For groundwater public water systems, septic systems located within the 2-year time-of-travel (TOT) are considered moderate risks.

## TABLE 1. SUMMARY OF POTENTIAL CONTAMINANT SOURCES BY LAND USE

**PWS # 4100317 GATES, CITY OF**

### Agricultural/Forest Land Uses

| Potential Contamination Source | Note | Relative Risk Level | Total in DWPA |
|---|---|---|---|
| Auction Lots | (1) | Higher | 0 |
| Boarding Stables | (1) | Moderate | 0 |
| Confined Animal Feeding Operations (CAFOs) | (1) | Higher | 0 |
| Crops - Irrigated (inc. orchards, vineyards, nurseries, | (2) | Moderate | 0 |
| Crops - Nonirrigated (inc. Christmas trees, grains, grass seed, | | Lower | 1 |
| Farm Machinery Repair | | Higher | 0 |
| Grazing Animals (> 5 large animals or equivalent/acre) | (1) | Higher | 1 |
| Lagoons/Liquid Wastes | (1) | Higher | 0 |
| Land Application Sites | (1) | Moderate | 0 |
| Managed Forest Land - Broadcast Fertilized Areas | | Lower | 0 |
| Managed Forest Land - Clearcut Harvest (< 35 yrs.) | | Higher | 1 |
| Managed Forest Land - Partial Harvest (< 10 yrs.) | | Moderate | 0 |
| Managed Forest Land - Road Density ( > 2 mi./sq. mi.) | | Higher | 1 |
| Pesticide/Fertilizer/Petroleum Storage, Handling, Mixing, & | | Higher | 0 |
| Recent Burn Areas (< 10 yrs.) | | Lower | 0 |
| Managed Forest Lands - Status Unknown | | Moderate | 0 |
| Other: -Slide Area | | Higher | 1 |

NOTES:
Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.
(1) - Potential source of microbial contamination
(2) - Drip irrigated crops, such as vineyards and some vegetables, are considered lower risk than spray irrigation
(3) - For groundwater public water systems, septic systems located within the 2-year time-of-travel (TOT) are considered moderate risks.

## TABLE 1. SUMMARY OF POTENTIAL CONTAMINANT SOURCES BY LAND USE

**PWS # 4100317 GATES, CITY OF**

### Miscellaneous Land Uses

| Potential Contamination Source | Note | Relative Risk Level | Total in DWPA |
|---|---|---|---|
| Above Ground Storage Tanks - Excluding Water | | Moderate | 5 |
| Channel Alterations - Heavy | | Lower | 0 |
| Combined Sewer Outfalls | (1) | Lower | 0 |
| Stormwater Outfalls | (1) | Lower | 0 |
| Composting Facilities | (1) | Moderate | 0 |
| Historic Gas Stations | | Higher | 0 |
| Historic Waste Dumps/Landfills | (1) | Higher | 0 |
| Homesteads - Rural - Machine Shops/Equipment Maintenance | | Higher | 0 |
| Homesteads - Rural - Septic Systems (< 1/acre) | (1)(3) | Lower | 1 |
| Injection/Dry Wells, Sumps - Class V UICs | (1) | Higher | 0 |
| Kennels (> 20 Pens) | (1) | Lower | 0 |
| Military Installations | | Higher | 0 |
| Random Dump Sites | | Moderate | 0 |
| River Recreation - Heavy Use (inc. campgrounds) | (1) | Moderate | 1 |
| Sludge Disposal Areas | (1) | Moderate | 0 |
| Stormwater Retention Basins | (1) | Moderate | 0 |
| Transmission Lines - Right-of-Ways | | Higher | 1 |
| Transportation - Freeways/State Highways/Other Heavy Use | | Higher | 1 |
| Transportation - Railroads | | Moderate | 0 |
| Transportation - Right-Of-Ways - Herbicide Use Areas | | Moderate | 0 |
| Transportation - River Traffic - Heavy | | Higher | 1 |
| Transportation - Stream Crossing - Perennial | | Higher | 1 |
| UST - Confirmed Leaking Tanks - DEQ List | | Higher | 0 |
| UST - Decommissioned/Inactive | | Lower | 0 |
| UST - Nonregulated Tanks (< 1,100 gals or Large Heating Oil | | Moderate | 1 |
| UST - Not Upgraded and/or Registered Tanks | | Higher | 0 |
| UST - Upgraded/Registered - Active | | Lower | 3 |
| UST - Status Unknown | | Moderate | 3 |
| Upstream Reservoirs/Dams | | Moderate | 1 |
| Wells/Abandoned Wells | | Moderate | 3 |
| Large Capacity Septic Systems (serves > 20 people) - Class V | (1) | Moderate | 3 |
| Construction/Demolition Areas | | Moderate | 0 |
| Other: -DEQ Cleanup Program Site | | Higher | 1 |
| Other: -Marinas' | | Higher | 1 |

NOTES:
Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.
(1) - Potential source of microbial contamination
(2) - Drip irrigated crops, such as vineyards and some vegetables, are considered lower risk than spray irrigation
(3) - For groundwater public water systems, septic systems located within the 2-year time-of-travel (TOT) are considered moderate risks.

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100317 GATES, CITY OF**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Drinking Water Treatment Plants | Gates Water Treatment Plant | Directly North of intake | Gates | Database (2) Field-Observation | Within sensitive area. | Moderate | Treatment chemicals and equipment maintenance materials may impact groundwater or surface water source. | |
| 2 | Housing - High Density (> 1 House/0.5 acres) | | High Density Housing | Throughout Gates and Detroit | Field-Observation | Within Gates sensitive area. | Moderate | Improper use, storage, and disposal of household chemicals may impact the drinking water supply. Stormwater run-off or infiltration may carry contaminants to drinking water supply. | |
| | Septic Systems - High Density ( > 1 system/acre) | | | | | | Moderate | If not properly sited, designed, installed, and maintained, septic systems can impact drinking water. Cumulative effects of multiple systems in an area may impact drinking water supply. | |
| 3 | Transportation - Freeways/State Highways/Other Heavy Use Roads | State Highway 22 | Runs west/east through DWPA | Gates | Field-Observation | Within sensitive area. | Higher | Vehicle use increases the risk for leaks or spills of fuel & other haz. materials. Road building, maintenance & use can increase erosion/slope failure causing turbidity. Over-application or improper handling of pesticides/fertilizers may impact water. | |
| 4 | Transmission Lines - Right-of-Ways | Transmission Lines | Throughout DWPA | Gates | Field-Observation | Within sensitive area. | Higher | Construction and corridor maintenance may contribute to increased erosion and turbidity in drinking water supply. Over-application or improper handling of pesticides or fertilizers may impact drinking water supply. | |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100317 GATES, CITY OF**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 5 | Homesteads - Rural - Septic Systems (< 1/acre) | Rural Homesteads/septic | Throughout DWPA | Gates | Field-Observation | Within sensitive area. | Lower | If not properly sited, designed, installed, and maintained, septic systems can impact drinking water. Use of drain cleaners and dumping household hazardous wastes can result in groundwater contamination. | |
| | Wells/Abandoned Wells | | | | | | Moderate | Improperly installed or maintained wells and abandoned wells may provide a direct conduit for contamination to groundwater and drinking water source. | |
| 6 | Crops - Nonirrigated (inc. Christmas trees, grains, grass seed, pasture) | Non-irrigated crops | Throughout southwest portion of DWPA | Gates | Field-Observation | Within sensitive area. | Lower | Over-application or improper handling of pesticides/fertilizers may impact drinking water. Some agricultural practices may result in excess sediments discharging to surface waters, but non-irrigated crops are generally considered to be a low risk. | |
| 7 | Grazing Animals (> 5 large animals or equivalent/acre) | Grazing Animals | Throughout southwest portion of DWPA | Gates | Field-Observation | Within sensitive area. | Higher | Improper storage and management of animal wastes may impact drinking water supply. Concentrated livestock may contribute to erosion and sedimentation of surface water bodies. | |
| 8 | Managed Forest Land - Clearcut Harvest (< 35 yrs.) | Clear cuts | Throughout DWPA | Gates | Field-Observation | Within sensitive area. | Higher | Cutting and yarding of trees may contribute to increased erosion, resulting in turbidity and chemical changes in drinking water supply. Over-application or improper handling of pesticides or fertilizers may impact drinking water source. | |
| 9 | Managed Forest Land - Road Density ( > 2 mi./sq. mi.) | Road Density | Throughout DWPA | Gates | Field-Observation | Within sensitive area. | Higher | Road building, maintenance, and usage may contribute to erosion and slope failure causing turbidity in drinking water supply. Vehicle usage increases the risks of leaks or spills of petroleum products and other hazardous materials. | |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100317 GATES, CITY OF**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 10 | Transportation - Stream Crossing - Perennial | Stream Crossings | Throughout DWPA | Gates | Field-Observation | Within sensitive area. | Higher | Road building, maintenance & use may increase erosion & slope failure causing turbidity. Vehicle use increases the risk of leaks or spills of fuel & other chemicals. Over-application/improper handling of pesticides in right-of-way may also impact water. | |
| 11 | Other --Warehouse | Warehouse | Across form Green Mt. Road | Gates | Field-Observation | Within sensitive area. | Moderate | Spills, leaks, or improper handling of chemicals and other materials during transportation, use, storage, and disposal may impact the drinking water supply. | Two above ground storage tanks.<br>Unknown operations - needs verification. |
| | Above Ground Storage Tanks - Excluding Water | | | | | | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | Two above ground storage tanks.<br>Unknown operations - needs verification. |
| 12 | Above Ground Storage Tanks - Excluding Water | Little Sweden Service Station | Approx 1 mile west of Big Cliff Dam | Gates | Database (2) Field-Observation | Within sensitive area. | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | |
| | Automobiles - Gas Stations | | | | | | Moderate | Spills, leaks, or improper handling of fuels and other materials during transportation, transfer, and storage may impact the drinking water supply. | |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

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## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100317 GATES, CITY OF**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 13 | Above Ground Storage Tanks - Excluding Water | Big Cliff Dam and Detroit Dam | Hwy 22. East of intake | Detroit | Database (2) Field-Observation | Within sensitive area. | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | Potential risk should be verified during enhanced inventory. Used for flood control and hydro power. |
| | Upstream Reservoirs/Dams | | | | | | Moderate | During major storm events, reservoirs may contribute to prolonged turbidity for downstream intakes for drinking water. Construction, fluctuating water levels, and heavy waterside use can increase erosion and turbidity in reservoir/drinking water source. | Potential risk should be verified during enhanced inventory. Used for flood control and hydro power. |

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(2) See Table 3 for database listings (if necessary).

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100317 GATES, CITY OF**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 14 | River Recreation - Heavy Use (inc. campgrounds) | Detroit Lake State Park | Along Hwy 22. East of intake | Detroit | Database (2) Field-Observation | Within sensitive area. | Moderate | Inadequate disposal of human wastes may contribute bacteria and nutrients to the drinking water supply. Heavy use may contribute to streambank erosion causing turbidity. Fuel spills and emissions may also contribute to contamination. | There are numerous parks east of Gates along Highway 22. Detroit Lake State Park is a heavy recreational use area. |
| | Transportation - River Traffic - Heavy | | | | | | Higher | Heavy river usage may contribute to riverbank erosion and increased turbidity in drinking water supply. Fuel and other chemical leaks, spills and emissions may also contribute to drinking water contamination. | There are numerous parks east of Gates along Highway 22. Detroit Lake State Park is a heavy recreational use area. |
| | Large Capacity Septic Systems (serves > 20 people) - Class V UICs | | | | | | Moderate | If not properly sited, designed, installed, and maintained, septic systems can impact drinking water. | There are numerous parks east of Gates along Highway 22. Detroit Lake State Park is a heavy recreational use area. |
| | Campgrounds/RV Parks | | | | | | Moderate | Leaks or spills of automotive fluids or improperly managed septic systems and wastewater disposal may impact drinking water supply. Heavy usage along edge of waterbody may contribute to erosion, causing turbidity. | There are numerous parks east of Gates along Highway 22. Detroit Lake State Park is a heavy recreational use area. |
| | Parks | | | | | | Moderate | Over-application or improper handling of pesticides/fertilizers may impact drinking water. Excessive irrigation may cause transport of contaminants through runoff. Heavy use along edge of waterbody may contribute to erosion, causing turbidity. | There are numerous parks east of Gates along Highway 22. Detroit Lake State Park is a heavy recreational use area. |
| 15 | Other -Maintenance shop/warehouse | State Parks Maintenance Shop | Just east of Tumble Creek | Detroit | Field-Observation | Within sensitive area. | Moderate | Spills, leaks, or improper handling of chemicals and other materials during transportation, use, storage, and disposal may impact the drinking water supply. | There is fuel storage on site. Unsure if underground or above ground tanks. Needs verified. |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100317 GATES, CITY OF**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 16 | Utility Stations - Maintenance Transformer Storage | Substation | Just east of Tumble Creek. North of Hwy 22 | Detroit | Field-Observation | Within sensitive area. | Higher | Spills, leaks, or improper handling of chemicals and other materials including PCBs during transportation, use, storage and disposal may impact the drinking water supply. | |
| 17 | Wells/Abandoned Wells | USFS Workcenter | Just east of Tumble Creek | Detroit | Field-Observation | Within sensitive area. | Moderate | Improperly installed or maintained wells and abandoned wells may provide a direct conduit for contamination to groundwater and drinking water source. | |
| | Other -Fire Warehouse | | | | | | Moderate | Spills, leaks, or improper handling of chemicals and other materials during transportation, use, storage, and disposal may impact the drinking water supply. | |

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(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100317 GATES, CITY OF**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 18 | Office Buildings/Complexes | Detroit Ranger Station | East of Tumble Creek | Detroit | Database (2) Field-Observation | Within sensitive area. | Lower | Spills, leaks, or improper handling of chemicals and other materials stored and used in maintenance or from parking areas may impact the drinking water supply. | 2 active/upgraded UST. 4 Decommissioned. |
| | UST - Upgraded/Registered - Active | | | | | | Lower | Spills or improper handling during tank filling or product distribution may impact the drinking water supply. | 2 active/upgraded UST. 4 Decommissioned. |
| | Wells/Abandoned Wells | | | | | | Moderate | Improperly installed or maintained wells and abandoned wells may provide a direct conduit for contamination to groundwater and drinking water source. | 2 active/upgraded UST. 4 Decommissioned. |
| | Large Capacity Septic Systems (serves > 20 people) - Class V UICs | | | | | | Moderate | If not properly sited, designed, installed, and maintained, septic systems can impact drinking water. | 2 active/upgraded UST. 4 Decommissioned. |
| | Above Ground Storage Tanks - Excluding Water | | | | | | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | 2 active/upgraded UST. 4 Decommissioned. |
| 19 | Automobiles - Gas Stations | Route 22 Gas-Mini Mart | Jct Hwy 22 and Hwy 46 | Detroit | Database (2) Field-Observation | Within sensitive area. | Moderate | Spills, leaks, or improper handling of fuels and other materials during transportation, transfer, and storage may impact the drinking water supply. | 4 Upgraded UST. |
| | UST - Upgraded/Registered - Active | | | | | | Lower | Spills or improper handling during tank filling or product distribution may impact the drinking water supply. | 4 Upgraded UST. |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100317 GATES, CITY OF**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 20 | UST - Status Unknown | Detroit Lake Marina/Kanes Marina | Jct Hwy 22 and Hwy 46 | Detroit | Database (2) Field-Observation | Within sensitive area. | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | Kanes Marina located off Clester RD. |
| | Other -Marinas' | | | | | | Higher | The impacts of this potential contaminant source will be addressed during the enhanced inventory. | Kanes Marina located off Clester RD. |
| 21 | Other -Future Land Development | Proposed Sewage Treatment Plant | Will be located up French Creek Rd | Detroit | Interview | Within sensitive area. | Moderate | The impacts to this potential contaminant source will be addressed during the enhanced inventory. | Contact from City of Detroit indicated that next year a sewage treatment plant will be built. |
| 22 | UST - Nonregulated Tanks (< 1,100 gals or Large Heating Oil Tanks) | Detroit Elementary/High School | Santiam Ave | Detroit | Database (2) Field-Observation | Within sensitive area. | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | |
| | Large Capacity Septic Systems (serves > 20 people) - Class V UICs | | | | | | Moderate | If not properly sited, designed, installed, and maintained, septic systems can impact drinking water. | |
| | Schools | | | | | | Moderate | Over-application or improper handling of cleaning products, pesticides or fertilizers used on the school grounds may impact drinking water. Vehicle maintenance wastes may contribute contaminants. | |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100317 GATES, CITY OF**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 23 | Automobiles - Gas Stations | Pacific Pride Commercial Refueling | Across from Blowout Rd | Idanha | Database (2) Field-Observation | Within sensitive area. | Moderate | Spills, leaks, or improper handling of fuels and other materials during transportation, transfer, and storage may impact the drinking water supply. | May be also known as Idanha Cardlock. 4 upgraded UST. |
| | UST - Upgraded/Registered - Active | | | | | | Lower | Spills or improper handling during tank filling or product distribution may impact the drinking water supply. | May be also known as Idanha Cardlock. 4 upgraded UST. |
| 24 | Above Ground Storage Tanks - Excluding Water | ODOT Maintenance Station | Just east of Boulder Creek | Idanha | Database (2) Field-Observation | Within sensitive area. | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | Location of other ODOT facility is base on database search. Facility is located at MP 65 and is a gravel storage area.<br>PCS location based on regulatory database search - needs verification. |
| | UST - Status Unknown | | | | | | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | Location of other ODOT facility is base on database search. Facility is located at MP 65 and is a gravel storage area.<br>PCS location based on regulatory database search - needs verification. |
| | Other -ODOT Highway Department Facility | | | | | | Moderate | Spills, leaks, or improper handling of chemicals and other materials during transportation, use, storage, and disposal may impact the drinking water supply. | Location of other ODOT facility is base on database search. Facility is located at MP 65 and is a gravel storage area.<br>PCS location based on regulatory database search - needs verification. |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100317 GATES, CITY OF**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 25 | Other -Slide Area | Historic Mass Movement | Blowout Creek Drainage | Idanha | Database (2) Field-Observation | Within sensitive area. | Higher | The impacts of this potential contaminant source will be addressed during the enhanced inventory. | According to a USFS contact the Blowout Creek Drainage is characterized by fine clay soils that have high erosion potential. |
| 26 | Junk/Scrap/Salvage Yards | Junk/Scrap/ Salvage | Just east of Boulder Creek. Off Hwy22 | Idanha | Database (2) Field-Observation | Within sensitive area. | Higher | Spills, leaks, or improper handling of automotive chemicals, batteries, and other waste materials during storage and disposal may impact the drinking water supply. | Located at a residence.<br>Unknown operations - needs verification. |
| 27 | Metal Plating/Finishing/Fabrication -Small fabrication company | Torman Company | Just east of Boulder Creek | Idanha | Field-Observation | Within sensitive area. | Moderate | Spills, leaks, or improper handling of solvents, metals, and other chemicals during transportation, use, storage and disposal may impact the drinking water supply. | Risk reduced to Moderate because of the small size of company.<br>Unknown operations - needs verification. |
| 28 | Other -Logging equipment/hauling | Harold Hills and Sons Logging | Just east of Boulder Creek | Idanha | Database (2) Field-Observation | Within sensitive area. | Moderate | Spills, leaks, or improper handling of chemicals and other materials during transportation, use, storage, and disposal may impact the drinking water supply. | |
| | UST - Status Unknown | | | | | | Moderate | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. | |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100317 GATES, CITY OF**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 29 | Wood/Pulp/Paper Processing and Mills - Out of business | Historic Mill Sites | Address- 886 and 926 Hwy 22 | | Idanha Field-Observation | Database (2) sensitive area. | Within | Higher Spills, leaks, or improper handling of wood preservatives and other chemicals during transportation, use, storage and disposal may impact the drinking water supply. | Also known as Green Veneer Inc., and Quality Veneer and Lumber, Champion Lumber<br>Potential risk should be verified during enhanced inventory. |
| | Other -DEQ Cleanup Program Site | | | | | | Higher | The impacts of this potential contaminant source will be addressed during the enhanced inventory. | Also known as Green Veneer Inc., and Quality Veneer and Lumber, Champion Lumber<br>Potential risk should be verified during enhanced inventory. |
| | Landfill/Dumps | | | | | | Higher | Water percolating through the landfill waste material may transport contaminants to groundwater or surface water supply. | Also known as Green Veneer Inc., and Quality Veneer and Lumber, Champion Lumber<br>Potential risk should be verified during enhanced inventory. |
| 30 | Mines/Gravel Pits | Rock Quarry | Just east of Forest Service road 2233 | Idanha | Database (2) Field-Observation Interview | Within sensitive area. | Higher | Spills, leaks, or improper handling of chemicals and wastes generated in mining operations or from heavy equipment may impact the drinking water supply. | Private Company owns this quarry. There are several USFS rock quarries (Minto Rock, Whitewater) located in DWPA. |
| 31 | Other -Fish Hatchery | Marion Forks Fish Hatchery | Highway 22. MP 66 | Idanha | Database (2) Interview | Within sensitive area. | Moderate | The impacts to this potential contaminant source will be addressed during the enhanced inventory. | 13 miles south of Idanha. Unsure of exact location on map. |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

## TABLE 3. RESULTS OF REGULATORY DATABASE SEARCH

**PWS# 4100317 GATES, CITY OF**

| Reference No. (1) | Name | Database Listings |
|---|---|---|
| 1 | Gates Water Treatment Plant | SFM - Polymer stored in Steel Drum |
| | | SFM - Soda Ash stored in Fiber Drum |
| | | SFM - Sodium Hypochlorite stored in Plastic Bottles Or Jugs |
| | | SIS list with a GEN02 NPDES permit for filter |
| | | SFM - Alum stored in Bag |
| 12 | Little Sweden Service Station | SFM - Gasoline stored in Aboveground Tank |
| 13 | Big Cliff Dam and Detroit Dam | SFM - Gasoline Unleaded stored in Aboveground Tank |
| | | SFM - Turbine Oil stored in Tank Inside Building |
| | | SFM - Turbine Oil stored in Other |
| | | SFM - Transil Oil stored in Tank Inside Building |
| | | SFM - Thinner stored in Steel Drum |
| | | SFM - Lube Oil stored in Tank Inside Building |
| | | SFM - Lube Oil stored in Cylinder |
| | | SFM - Lead Acid Batteries-wet stored in Plastic Bottles Or Jugs |
| | | SFM - Hydraulic Oil stored in Can |
| | | SFM - Exxsol D 40 Solvent stored in Steel Drum |
| | | SFM - Diesel #2 stored in Tank Inside Building |
| | | HWIMSY list as a conditionally exempt generator. |
| | | SFM - Lead Acid Batteries-wet stored in Other |
| 14 | Detroit Lake State Park | UIC list with 10 Active UIC's Classified as Septic Systems (drainfield Disposal Method) |
| | | UST list-PWS needs to verify tank permit status |

Notes: (1) See Table 2 and Figure. (2) For State Fire Marshals (SFM) list, information on materials in a gaseous-form is not presented since gaseous compounds rarely pose a threat to groundwater or surface water.

## TABLE 3. RESULTS OF REGULATORY DATABASE SEARCH

**PWS# 4100317 GATES, CITY OF**

| Reference No. (1) | Name | Database Listings |
|---|---|---|
| 14 | Detroit Lake State Park | LUST list with unknown status |
| | | UIC list with 4 Abandoned UIC's Classified as Septic Systems (drainfield Disposal Method) |
| | | UIC list with 51 Active UIC's Classified as Other Wells - including greywater |
| 18 | Detroit Ranger Station | SFM - Fertilizer 16-16-16-6 stored in Bag |
| | | SFM - Paint Water Based stored in Can |
| | | SFM - Paint Thinner stored in Can |
| | | SFM - Paint Solvent Based stored in Can |
| | | SFM - Motor Oil stored in Aboveground Tank |
| | | SFM - Moss-kil Granules stored in Bag |
| | | SFM - Hydraulic Fluid stored in Steel Drum |
| | | SFM - Heat Transfer Fluid stored in Tank Inside Building |
| | | SFM - Gasoline Unleaded stored in Underground Tank |
| | | SFM - Fertilizer Weed & Feed stored in Bag |
| | | SFM - Diesel Fuel stored in Underground Tank |
| | | SFM - Bleach stored in Plastic Bottles Or Jugs |
| | | SFM - Antifreeze stored in Steel Drum |
| | | SFM - Aluminum Sulfate stored in Plastic Or Non-metallic Drum |
| | | LUST list with unknown status |
| | | ECSI site with suspected contamination. |
| | | UST list with a status of 2 UST(s) upgraded and 0 not upgraded to DEQ 1998 technical standards. |
| | | SFM - Fire Fighting Foam stored in Plastic Or Non-metallic Drum |
| 19 | Route 22 Gas-Mini Mart | SFM - Diesel stored in Underground Tank |

Notes: (1) See Table 2 and Figure. (2) For State Fire Marshals (SFM) list, information on materials in a gaseous-form is not presented since gaseous compounds rarely pose a threat to groundwater or surface water.

## TABLE 3. RESULTS OF REGULATORY DATABASE SEARCH

**PWS# 4100317 GATES, CITY OF**

| Reference No. (1) | Name | Database Listings |
|---|---|---|
| 19 | Route 22 Gas-Mini Mart | SFM - Gasoline stored in Underground Tank |
| | | SFM - Propane stored in Aboveground Tank |
| | | UST list with a status of 4 UST(s) upgraded and 0 not upgraded to DEQ 1998 technical standards. |
| | | LUST list with unknown status |
| 20 | Detroit Lake Marina/Kanes Marina | SFM - Outboard Motor Oil stored in Can |
| | | UST list-PWS needs to verify tank permit status |
| | | SFM - Gasoline stored in Aboveground Tank |
| | | LUST list with unknown status |
| | | ECSI site with no further state action required. |
| 22 | Detroit Elementary/High School | UIC list with UIC's Classified as |
| | | UIC list with 1 Active UIC's Classified as Septic Systems (drainfield Disposal Method) |
| | | SFM - stored in |
| 23 | Pacific Pride Commercial Refueling | UST list with a status of 4 UST(s) upgraded and 0 not upgraded to DEQ 1998 technical standards. |
| 24 | ODOT Maintenance Station | SFM - Heating Oil stored in Underground Tank |
| | | SFM - Gear Lube stored in Steel Drum |
| | | SFM - Hydraulic Oil stored in Steel Drum |
| | | UST list-PWS needs to verify tank permit status |
| | | SFM - Diesel Fuel stored in Aboveground Tank |
| | | SFM - Antifreeze stored in Plastic Or Non-metallic |
| | | LUST list with unknown status |
| | | HWIMSY list as a conditionally exempt generator. |

Notes: (1) See Table 2 and Figure. (2) For State Fire Marshals (SFM) list, information on materials in a gaseous-form is not presented since gaseous compounds rarely pose a threat to groundwater or surface water.

## TABLE 3. RESULTS OF REGULATORY DATABASE SEARCH

**PWS# 4100317 GATES, CITY OF**

| Reference No. (1) | Name | Database Listings |
|---|---|---|
| 24 | ODOT Maintenance Station | SFM - Motor Oil stored in Steel Drum |
| | | SFM - Gasoline Unleaded stored in Aboveground Tank |
| 28 | Harold Hills and Sons Logging | SFM - Diesel stored in Tank Wagon |
| | | UST list-PWS needs to verify tank permit status |
| 29 | Historic Mill Sites | SWMS list-PWS needs to verify permit status. |
| | | UST list-PWS needs to verify tank permit status |
| | | HWIMSY list with unknown generator or transporter |
| | | ECSI site with a confirmed release. |
| 30 | Rock Quarry | |
| 31 | Marion Forks Fish Hatchery | SIS list with a individual NPDES permit. |
| | | LUST cleanup initiated on 12/11/1990. PWS should verify cleanup progress. |
| | | SFM - Bleach stored in Plastic Or Non-metallic Drum |
| | | SFM - Diesel Fuel stored in Underground Tank |
| | | SFM - Formaldehyde stored in Plastic Or Non-metallic Drum |
| | | SFM - Gasoline stored in Underground Tank |
| | | SFM - Hydrogen Peroxide stored in Plastic Or Non-metallic Drum |
| | | SFM - Motor Oil stored in Steel Drum |
| | | SFM - Paints - Solvent stored in Can |
| | | SFM - Paints stored in Can |
| | | SFM - Thinner 350b stored in Steel Drum |

Notes: (1) See Table 2 and Figure. (2) For State Fire Marshals (SFM) list, information on materials in a gaseous-form is not presented since gaseous compounds rarely pose a threat to groundwater or surface water.

# Summary of Source Water Assessment Results for Upstream Intakes

## Detroit Water System (PWS #4100257)

Executive Summary

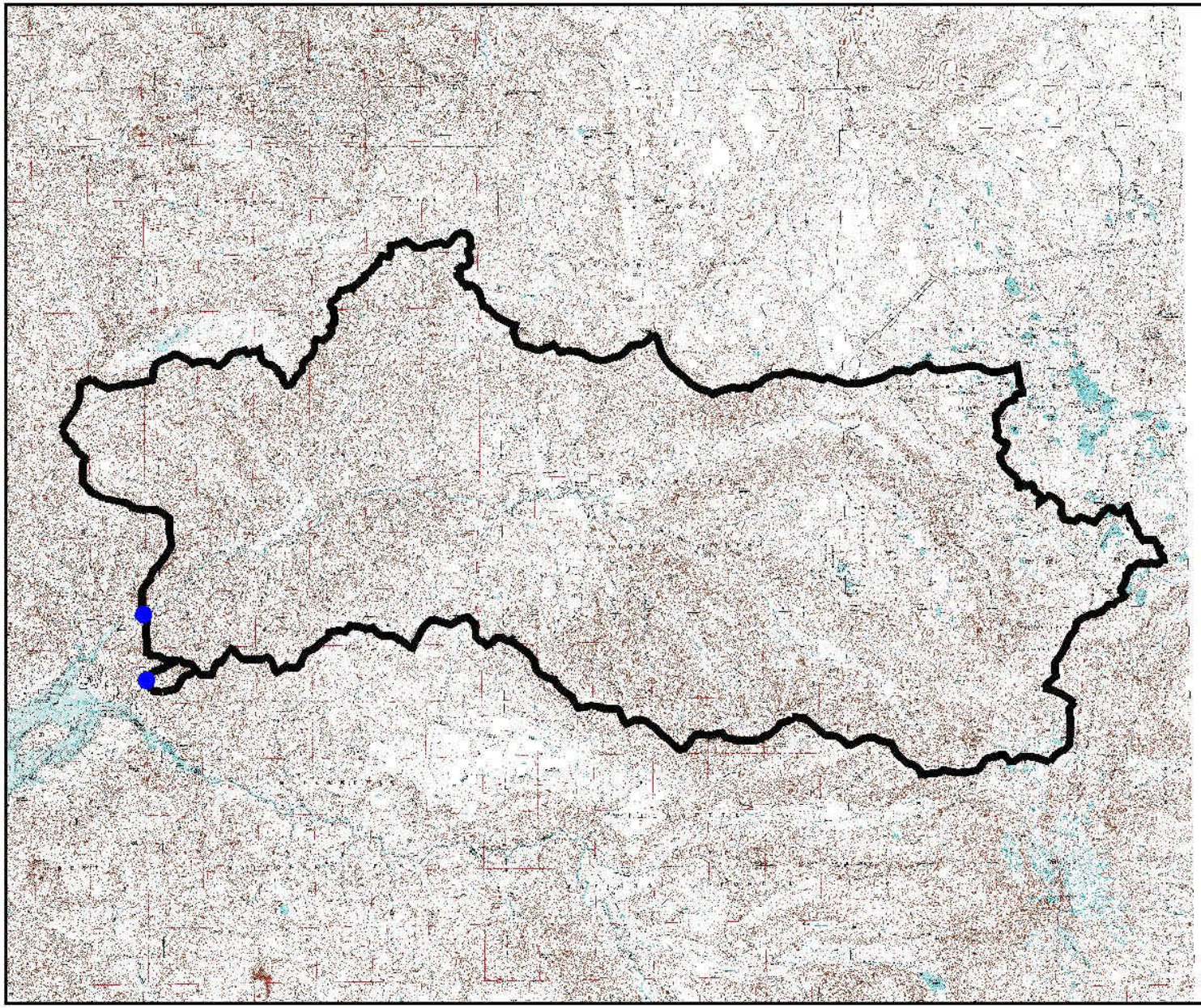
## Figures



## Tables

# Figures

Source Water Assessment Report
Detroit Water System
PWS # 4100257

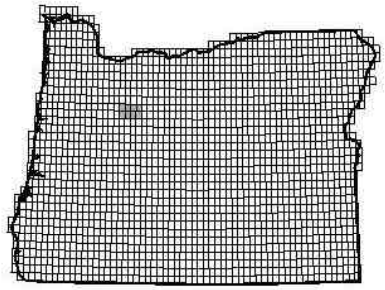


# Figure 1:
# Detroit Water System's Drinking Water Protection Area

PWS 4100257

- Drinking Water Intake - Surface Water
- Drinking Water Protection Area

Note on Base Map: 1:24,000 scale U.S. Geological Survey Digital Raster Graphics (DRGs) for Battle Ax (1985), Mother Lodge Mtn (1985), Breitenbush Hot Springs (1988), Olallie Butte (1988), Mt Bruno (1994), Mt Jefferson (1994), Idanha (1985) and Detroit (1985) are displayed. DRGs are scanned images of topographic sheets. Where the DRGs join, seams and/or gaps may be visible.Between DRGs, variations in information displayed also may be seen.



DEQ

State of Oregon Department of Environmental Quality

Kilometers
0 1 2 3 4 5

Miles
0 1 2 3

Printed November, 2001

Oregon Department of Environmental Quality GIS

# Figure 2:
# Sensitive Areas within Detroit Water System's Drinking Water Protection Area

PWS 4100257

Drinking Water Intake - Surface Water

Drinking Water Protection Area

Sources of Information:
High Soil Erodibility: Defined by high sedimentation yield potential of the dominant soil. High Runoff Potential: Water yield class III in the dominant soil. These data are extracted from the Willamette National Forest Soil Resource Inventory.
High Permeability Soils: Alluvial deposits (Qal), dune sand (Qd), and landslide and debris-flow deposits (Qls) from the U.S. Geological Survey Geologic Map of Oregon GIS layer.
Sensitive Area Setbacks Adjacent to Streams and Reservoirs: 1000 foot buffer from the centerline of perennial streams and the shoreline of any reservoir.

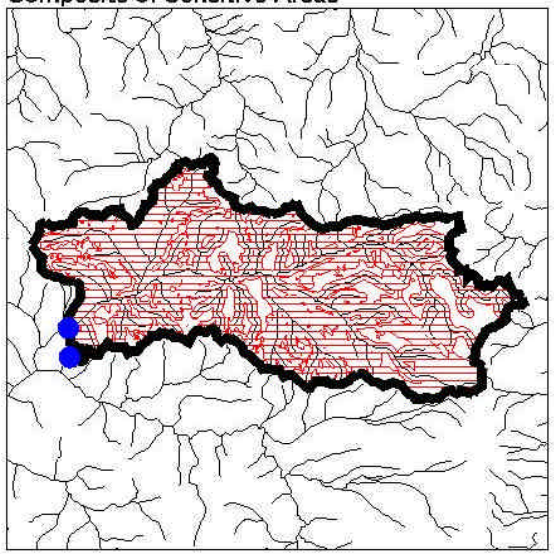
Note on Sensitive Areas: In determining the most sensitive areas within this Drinking Water Protection Area, DEQ used existing GIS layers and other natural resource agency data sets. Not all areas of the state have been mapped for the natural resource parameters of interest or at the level of detail ideal for this type of analysis. DEQ has sought to obtain the best available information for this composite.

Printed November, 2001
Oregon Department of Environmental Quality GIS

Kilometers
0 10

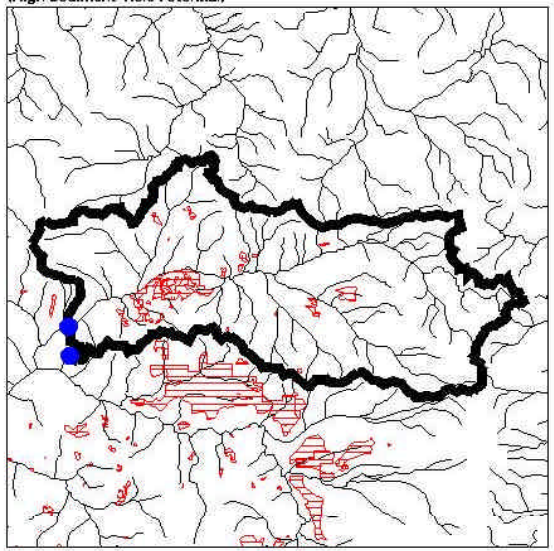
0 1 2 3 4 5 6 7 8
Miles

## Composite of Sensitive Areas

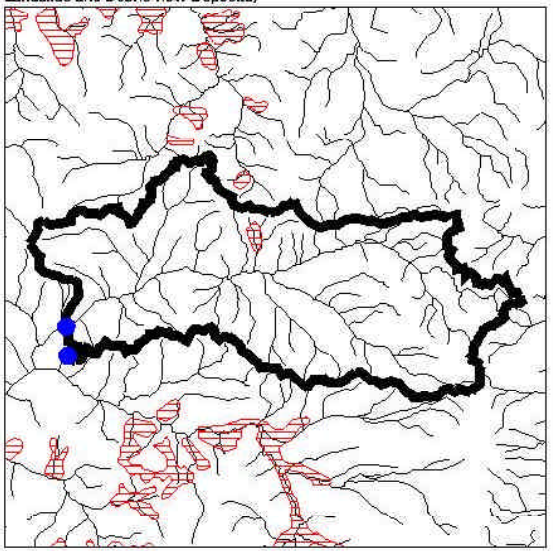


## Sensitive Areas in Watershed

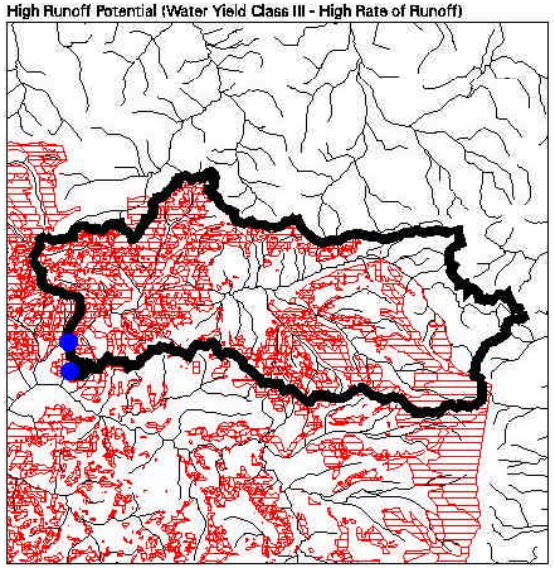
High Soil Erosion Potential
(High Sediment Yield Potential)



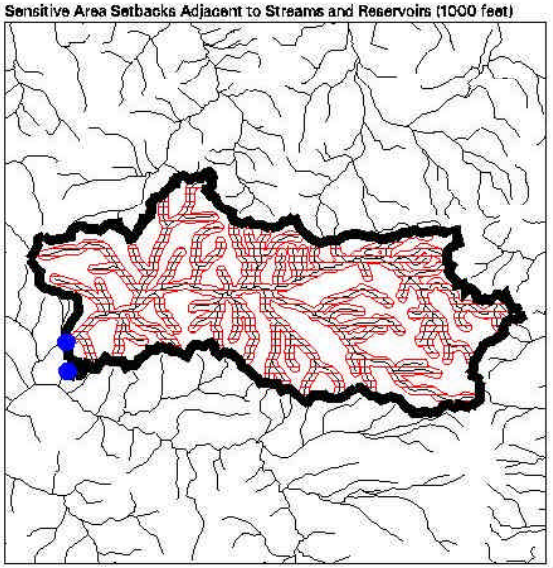
High Permeability Soils (Alluvial Deposits, Dune Sand, Landslide and Debris-flow Deposits)

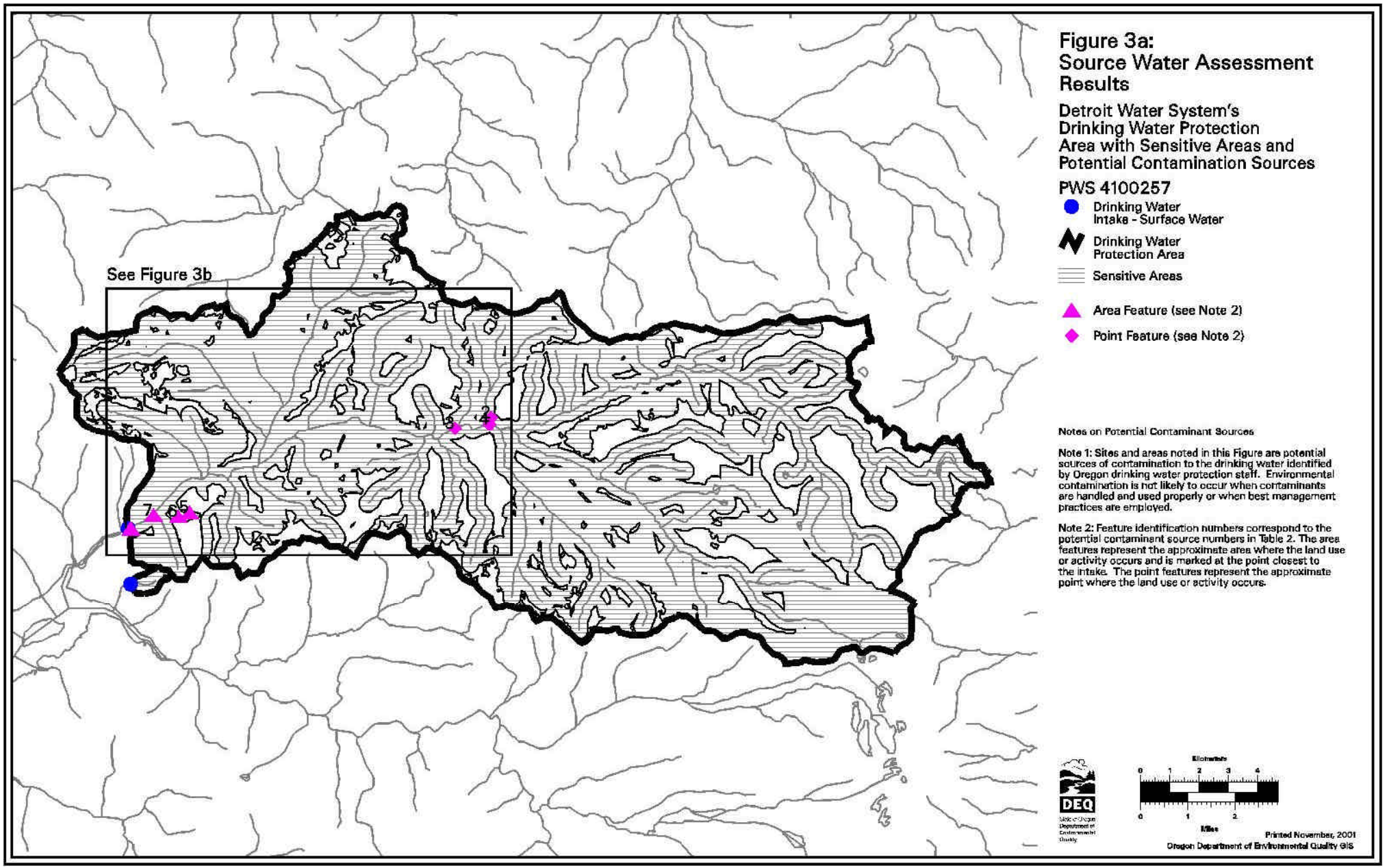


High Runoff Potential (Water Yield Class III - High Rate of Runoff)



Sensitive Area Setbacks Adjacent to Streams and Reservoirs (1000 feet)




See Figure 3b
7
5
4
Figure 3a:
Source Water Assessment Results
Detroit Water System's Drinking Water Protection Area with Sensitive Areas and Potential Contamination Sources
PWS 4100257
Drinking Water Intake - Surface Water
Drinking Water Protection Area
Sensitive Areas
Area Feature (see Note 2)
Point Feature (see Note 2)
Notes on Potential Contaminant Sources
Note 1: Sites and areas noted in this Figure are potential sources of contamination to the drinking water identified by Oregon drinking water protection staff. Environmental contamination is not likely to occur when contaminants are handled and used properly or when best management practices are employed.
Note 2: Feature identification numbers correspond to the potential contaminant source numbers in Table 2. The area features represent the approximate area where the land use or activity occurs and is marked at the point closest to the intake. The point features represent the approximate point where the land use or activity occurs.
DEQ
Kilometers
0 1 2 3 4
0 1 2
Miles
Printed November, 2001
Oregon Department of Environmental Quality GIS

# Tables

## Source Water Assessment Report
## DETROIT WATER SYSTEM - PWS # 4100257
## Inventory Results



**Notes for Tables:**

Sites and areas identified in these Tables are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

Total number of sources listed in Table 1 in the DWPA may not add up to the total number of potential contaminants sources in Table 2 because more than one type of potential contaminant source may be present at any given facility.

Data collected by Rachel Burr Oregon DEQ on 9/4/2001.

**Acronyms:**

AST - Aboveground Storage Tank
DC - DEQ's Dry Cleaner database
DEQ - Oregon Department of Environmental Quality
DWPA - Drinking Water Protection Area
ECSI - DEQ's Environmental Cleanup Site Information database
HWIMSY - DEQ's Hazardous Waste Information Management System database
LUST - DEQ's Leaking Underground Storage Tank database
NPDES - National Pollution Discharge Elimination System
PCS - Potential Contaminant Source
PWS - Public Water System
SFM - State Fire Marshall's database of hazardous materials
SIS - DEQ's Source Information System database (includes WPCF & NPDES permits)
SWMS - DEQ's Solid Waste Management System database

# Tables

## Source Water Assessment Report
## DETROIT WATER SYSTEM - PWS # 4100257
## Inventory Results

**Table 1. Summary of Potential Contaminant Sources by Land**

**Table 2. Inventory Results - List of Potential Contaminant**

**Table 3. Results of Regulatory Database Search**

UST - DEQ's Underground Storage Tank database or Underground Storage Tank
WPCF - Water Pollution Control Facility
WRD - Oregon Water Resources Division database for water rights information

## TABLE 1. SUMMARY OF POTENTIAL CONTAMINANT SOURCES BY LAND USE

**PWS # 4100257 DETROIT WATER SYSTEM**

### Residential/Municipal Land Uses

| Potential Contamination Source | Note | Relative Risk Level | Total in DWPA |
|---|---|---|---|
| Airport - Maintenance/Fueling Area | | Higher | 0 |
| Apartments and Condominiums | | Lower | 0 |
| Campgrounds/RV Parks | (1) | Moderate | 1 |
| Cemeteries - Pre-1945 | | Moderate | 0 |
| Drinking Water Treatment Plants | | Moderate | 0 |
| Fire Station | | Lower | 0 |
| Fire Training Facilities | | Moderate | 0 |
| Golf Courses | | Moderate | 0 |
| Housing - High Density (> 1 House/0.5 acres) | | Moderate | 1 |
| Landfill/Dumps | (1) | Higher | 0 |
| Lawn Care - Highly Maintained Areas | | Moderate | 0 |
| Motor Pools | | Moderate | 0 |
| Parks | | Moderate | 0 |
| Railroad Yards/Maintenance/Fueling Areas | | Higher | 0 |
| Schools | | Lower | 0 |
| Septic Systems - High Density ( > 1 system/acre) | (1) | Higher | 0 |
| Sewer Lines - Close Proximity to PWS | (1) | Higher | 0 |
| Utility Stations - Maintenance Transformer Storage | | Higher | 0 |
| Waste Transfer/Recycling Stations | (1) | Moderate | 0 |
| Wastewater Treatment Plants/Collection Stations | (1) | Moderate | 0 |
| Other | | | 0 |

NOTES:
Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.
(1) - Potential source of microbial contamination
(2) - Drip irrigated crops, such as vineyards and some vegetables, are considered lower risk than spray irrigation
(3) - For groundwater public water systems, septic systems located within the 2-year time-of-travel (TOT) are considered moderate risks.

## TABLE 1. SUMMARY OF POTENTIAL CONTAMINANT SOURCES BY LAND USE

**PWS # 4100257 DETROIT WATER SYSTEM**

### Commercial/Industrial Land Uses

| Potential Contamination Source | Note | Relative Risk Level | Total in DWPA |
|---|---|---|---|
| Automobiles - Body Shops | | Higher | 0 |
| Automobiles - Car Washes | | Moderate | 0 |
| Automobiles - Gas Stations | | Higher | 0 |
| Automobiles - Repair Shops | | Higher | 0 |
| Boat Services/Repair/Refinishing | | Higher | 0 |
| Cement/Concrete Plants | | Moderate | 0 |
| Chemical/Petroleum Processing/Storage | | Higher | 0 |
| Dry Cleaners | | Higher | 0 |
| Electrical/Electronic Manufacturing | | Higher | 0 |
| Fleet/Trucking/Bus Terminals | | Higher | 0 |
| Food Processing | | Moderate | 0 |
| Furniture/Lumber/Parts Stores | | Moderate | 0 |
| Home Manufacturing | | Higher | 0 |
| Junk/Scrap/Salvage Yards | | Higher | 0 |
| Machine Shops | | Higher | 0 |
| Medical/Vet Offices | (1) | Moderate | 0 |
| Metal Plating/Finishing/Fabrication | | Higher | 0 |
| Mines/Gravel Pits | | Higher | 0 |
| Office Buildings/Complexes | | Lower | 0 |
| Parking Lots/Malls (> 50 Spaces) | | Higher | 0 |
| Photo Processing/Printing | | Higher | 0 |
| Plastics/Synthetics Producer | | Higher | 0 |
| Research Laboratories | | Higher | 0 |
| RV/Mini Storage | | Lower | 0 |
| Wood Preserving/Treating | | Higher | 0 |
| Wood/Pulp/Paper Processing and Mills | | Higher | 0 |
| Other | | | 0 |

NOTES:
Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.
(1) - Potential source of microbial contamination
(2) - Drip irrigated crops, such as vineyards and some vegetables, are considered lower risk than spray irrigation
(3) - For groundwater public water systems, septic systems located within the 2-year time-of-travel (TOT) are considered moderate risks.

## TABLE 1. SUMMARY OF POTENTIAL CONTAMINANT SOURCES BY LAND USE

**PWS # 4100257 DETROIT WATER SYSTEM**

### Agricultural/Forest Land Uses

| Potential Contamination Source | Note | Relative Risk Level | Total in DWPA |
|---|---|---|---|
| Auction Lots | (1) | Higher | 0 |
| Boarding Stables | (1) | Moderate | 0 |
| Confined Animal Feeding Operations (CAFOs) | (1) | Higher | 0 |
| Crops - Irrigated (inc. orchards, vineyards, nurseries, | (2) | Moderate | 0 |
| Crops - Nonirrigated (inc. Christmas trees, grains, grass seed, | | Lower | 0 |
| Farm Machinery Repair | | Higher | 0 |
| Grazing Animals (> 5 large animals or equivalent/acre) | (1) | Moderate | 0 |
| Lagoons/Liquid Wastes | (1) | Higher | 0 |
| Land Application Sites | (1) | Moderate | 0 |
| Managed Forest Land - Broadcast Fertilized Areas | | Lower | 0 |
| Managed Forest Land - Clearcut Harvest (< 35 yrs.) | | Higher | 1 |
| Managed Forest Land - Partial Harvest (< 10 yrs.) | | Moderate | 0 |
| Managed Forest Land - Road Density ( > 2 mi./sq. mi.) | | Higher | 1 |
| Pesticide/Fertilizer/Petroleum Storage, Handling, Mixing, & | | Higher | 0 |
| Recent Burn Areas (< 10 yrs.) | | Lower | 0 |
| Managed Forest Lands - Status Unknown | | Moderate | 0 |
| Other | | | 0 |

NOTES:
Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.
(1) - Potential source of microbial contamination
(2) - Drip irrigated crops, such as vineyards and some vegetables, are considered lower risk than spray irrigation
(3) - For groundwater public water systems, septic systems located within the 2-year time-of-travel (TOT) are considered moderate risks.

## TABLE 1. SUMMARY OF POTENTIAL CONTAMINANT SOURCES BY LAND USE

**PWS # 4100257 DETROIT WATER SYSTEM**

### Miscellaneous Land Uses

| Potential Contamination Source | Note | Relative Risk Level | Total in DWPA |
|---|---|---|---|
| Above Ground Storage Tanks - Excluding Water | | Moderate | 1 |
| Channel Alterations - Heavy | | Lower | 0 |
| Combined Sewer Outfalls | (1) | Lower | 0 |
| Stormwater Outfalls | (1) | Lower | 0 |
| Composting Facilities | (1) | Moderate | 0 |
| Historic Gas Stations | | Higher | 0 |
| Historic Waste Dumps/Landfills | (1) | Higher | 0 |
| Homesteads - Rural - Machine Shops/Equipment Maintenance | | Higher | 0 |
| Homesteads - Rural - Septic Systems (< 1/acre) | (1)(3) | Lower | 0 |
| Injection/Dry Wells, Sumps - Class V UICs | (1) | Higher | 0 |
| Kennels (> 20 Pens) | (1) | Lower | 0 |
| Military Installations | | Higher | 0 |
| Random Dump Sites | | Moderate | 0 |
| River Recreation - Heavy Use (inc. campgrounds) | (1) | Moderate | 1 |
| Sludge Disposal Areas | (1) | Moderate | 0 |
| Stormwater Retention Basins | (1) | Moderate | 0 |
| Transmission Lines - Right-of-Ways | | Higher | 1 |
| Transportation - Freeways/State Highways/Other Heavy Use | | Moderate | 0 |
| Transportation - Railroads | | Moderate | 0 |
| Transportation - Right-Of-Ways - Herbicide Use Areas | | Moderate | 0 |
| Transportation - River Traffic - Heavy | | Lower | 0 |
| Transportation - Stream Crossing - Perennial | | Higher | 1 |
| UST - Confirmed Leaking Tanks - DEQ List | | Higher | 0 |
| UST - Decommissioned/Inactive | | Lower | 0 |
| UST - Nonregulated Tanks (< 1,100 gals or Large Heating Oil | | Higher | 0 |
| UST - Not Upgraded and/or Registered Tanks | | Higher | 0 |
| UST - Upgraded/Registered - Active | | Lower | 0 |
| UST - Status Unknown | | Higher | 0 |
| Upstream Reservoirs/Dams | | Lower | 0 |
| Wells/Abandoned Wells | | Moderate | 1 |
| Large Capacity Septic Systems (serves > 20 people) - Class V | (1) | Moderate | 1 |
| Construction/Demolition Areas | | Moderate | 0 |
| Other | | | 0 |

NOTES:
Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.
(1) - Potential source of microbial contamination
(2) - Drip irrigated crops, such as vineyards and some vegetables, are considered lower risk than spray irrigation
(3) - For groundwater public water systems, septic systems located within the 2-year time-of-travel (TOT) are considered moderate risks.

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100257 DETROIT WATER SYSTEM**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Transmission Lines - Right-of-Ways | Transmission Lines | Throughout DWPA | Detroit | Field-Observation | Within sensitive area. | Higher | Construction and corridor maintenance may contribute to increased erosion and turbidity in drinking water supply. Over-application or improper handling of pesticides or fertilizers may impact drinking water supply. | |
| 2 | River Recreation - Heavy Use (inc. campgrounds) | Breitenbush Hot Springs | East of intake | Detroit | Database (2) Field-Observation Interview | Within sensitive area. | Moderate | Inadequate disposal of human wastes may contribute bacteria and nutrients to the drinking water supply. Heavy use may contribute to streambank erosion causing turbidity. Fuel spills and emissions may also contribute to contamination. | |
| 3 | Campgrounds/RV Parks | Breitenbush Campground | East of intake | Detroit | Field-Observation | Within sensitive area. | Moderate | Leaks or spills of automotive fluids or improperly managed septic systems and wastewater disposal may impact drinking water supply.<br><br>Heavy usage along edge of waterbody may contribute to erosion, causing turbidity. | Humbug and Cougar Bend Campgrounds are also located with DWPA. |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100257 DETROIT WATER SYSTEM**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 4 | Housing - High Density (> 1 House/0.5 acres) | Resort/Community | Breitenbush | East of intakes | Detroit Field-Observation Interview | Database (2) sensitive area. | Within | Moderate | Improper use, storage, and disposal of household chemicals may impact the drinking water supply. Stormwater run-off or infiltration may carry contaminants to drinking water supply. |
| | Large Capacity Septic Systems (serves > 20 people) - Class V UICs | | | | | | Moderate | | If not properly sited, designed, installed, and maintained, septic systems can impact drinking water. |
| | Wells/Abandoned Wells | | | | | | Moderate | | Improperly installed or maintained wells and abandoned wells may provide a direct conduit for contamination to groundwater and drinking water source. |
| | Above Ground Storage Tanks - Excluding Water | | | | | | Moderate | | Spills, leaks, or improper handling of stored materials may impact the drinking water supply. |
| 5 | Managed Forest Land - Clearcut Harvest (< 35 yrs.) | Clear Cuts | Throughout DWPA | Detroit | Field-Observation | Within sensitive area. | Higher | | Cutting and yarding of trees may contribute to increased erosion, resulting in turbidity and chemical changes in drinking water supply. Over-application or improper handling of pesticides or fertilizers may impact drinking water source. |
| 6 | Managed Forest Land - Road Density ( > 2 mi./sq. mi.) | Road Density | Throughout DWPA | Detroit | Field-Observation | Within sensitive area. | Higher | | Road building, maintenance, and usage may contribute to erosion and slope failure causing turbidity in drinking water supply. Vehicle usage increases the risks of leaks or spills of petroleum products and other hazardous materials. |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).

## TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT

**PWS# 4100257 DETROIT WATER SYSTEM**

| Reference No. (See Figure) | Potential Contaminant Source Type | Name | Approximate Location | City | Method for Listing | Proximity to Sensitive Areas | Relative Risk Level (1) | Potential Impacts | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 7 | Transportation - Stream Crossing - Perennial | Stream Crossings | Throughout DWPA | Detroit | Field-Observation | Within sensitive area. | Higher | Road building, maintenance & use may increase erosion & slope failure causing turbidity. Vehicle use increases the risk of leaks or spills of fuel & other chemicals. Over-application/improper handling of pesticides in right-of-way may also impact water. | |

Note: Sites and areas identified in this Table are only potential sources of contamination to the drinking water. Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) Where multiple potential contaminant sources exist at a site, the highest level of risk is used.

(2) See Table 3 for database listings (if necessary).