

SOURCE WATER ASSESSMENT SUMMARY BROCHURE

CITY OF GRANTS PASS PWS # 4100342

WHAT IS A SOURCE WATER ASSESSMENT?

The Source Water Assessment was recently completed by the 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 Grants Pass' 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 City of Grants Pass' 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 GRANTS PASS' DRINKING WATER PROTECTION AREA?

The drinking water for Grants Pass is supplied by an intake on the Rogue River. This public water system serves approximately 24,000 citizens. The intake is located in the Rogue River/Savage Creek/Evans Creek Watershed in the Middle Rogue Subbasin of the Southern Oregon Coastal Basin. The drinking water intake for the City of Rogue River, City of Gold Hill, Medford Water Commission, Country View Mobile Home Estates, and Ashland Water Department public water systems are also located on the Rogue River or its tributaries upstream of the Grants Pass intake. The boundaries of the Grants Pass portion of the Drinking Water Protection Area (between the Grants Pass and Rogue River intakes) and a schematic of the portions of the protection area upstream of the City of Rogue River intake are

illustrated re illustrated on the figure attached to this summary.

The geographic area providing water to Grants Pass' intake (Grants Pass' portion of the drinking water protection area) extends upstream approximately 311 miles (total of 2,803 stream miles including the area upstream of the City of Rogue River intake) and encompasses a total area of 267 square miles (total of 2,454 square miles including the area upstream of the City of Rogue River intake). The protection area within an 8-hour travel time from the intake extends approximately 16 miles upstream of the Grants Pass intake. It is recommended that the water systems and community consider increased protection within an 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.

The Rogue River intake is located at an approximate elevation of 925 feet and the upper edge of the watershed is located at an elevation of approximately 5,103 feet at Cedar Springs Mountain.

WHAT ARE THE POTENTIAL SOURCES OF CONTAMINATION TO GRANTS PASS' 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 residential and commercial land uses. Due to the large size of the protection area and the DEQ's limited resources, the inventory for Grants Pass was limited to areas closest to the intake and also within sensitive areas along the Rogue River.

The potential contaminant sources identified in the Grants Pass portion of the protection area include non-irrigated crops, irrigated crops, grazing animals, two timber mills, two cement companies, metal fabrication, salvage yards, transportation maintenance facilities, boat repair shops, gas stations, automobile/truck repair, shopping centers, furniture manufacturers,

industrial sites fleet terminals, electronic manufacturing, industrial parks, a water treatment plant, upstream wastewater treatment plant, high density housing, rural homesteads, sewer lines, parks, schools, four transportation corridors and substations. 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. 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 43 potential contaminant sources were identified in Grants Pass' portion of the drinking water protection area. Of these, 27 are located in the sensitive areas and 26 are high- to moderate-risk sources within "sensitive areas". An additional 284 potential sources were identified upstream of the intake. The sensitive areas within the Grants Pass 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 our community that are most vulnerable to potential impacts and can be used by the Grants Pass community to develop a voluntary Drinking Water Protection Plan.

NEED MORE INFORMATION?

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

Contact the City of Grants Pass staff if you would like additional information on these Source Water Assessment results.

Drinking Water Protection In Oregon

Information and Resources



◆ Agency Programs

Oregon Department of Human Service's Drinking Water Website

<http://www.ohd.hr.state.or.us/dwp/welcome.htm>

Includes a directory of all public water systems in Oregon, drinking water standards, fact sheets on contaminants, Annual Compliance Reports for water systems, information on the Safe Drinking Water Revolving Loan Fund, Consumer Confidence Reports, and more.

Oregon Department of Environmental Quality's Drinking Water Protection Website

<http://deq.state.or.us/wq/dwp/dwphome.htm>

Includes an introduction to drinking water protection in Oregon, information on the Source Water Assessments required by the Safe Drinking Water Act, technical assistance resources for protection, example Source Water Assessment Reports, example Drinking Water Protection Plans, and *links to many other useful sites*.

U.S. Environmental Protection Agency Websites

EPA's Office of Ground Water and Drinking Water <http://www.epa.gov/ogwdw/>

EPA's Drinking Water Information site <http://www.epa.gov/safewater/dwinfo>

Safe Drinking Water Hotline 1-800-426-4791

Oregon Plan for Salmon and Watersheds

Information and Education Tools Available: <http://www.oregon-plan.org>

In an effort to initiate a campaign to raise awareness and the understanding of the ecological, social and economic challenges facing Oregon, the Oregon Plan for Salmon and Watersheds Outreach Team has created a toll free telephone line and mailing service.

Oregon Watershed Information Line: 1-888-854-8377

Information is available in 21 separate user packets. The packets provide help for the individual boater, business owner, educator, farmer, forest landowner, gardener, home builder/developer, rancher, recreationalist, small acreage landowner, wish to volunteer, looking for incentive programs, or are interested in other issues such as the Willamette Restoration Initiative or local Watershed Councils.

Water Resources Department

The map and list of all watermasters (by county) for the state of Oregon:

<http://www.wrd.state.or.us/staff/watermasters.html>

◆ Water Quality Standards

Federal/State Safe Drinking Water Act Standards

A reference list of all drinking water standards is available through DHS's website or on EPA's Office of Water website at:

<http://www.epa.gov/safewater/standards.html>

Federal Clean Water Act Standards

A reference of water quality standards for Oregon waters is available on DEQ's website at:

<http://www.deq.state.or.us/wq/standards/wqstdhome.htm>

This website will enable any user to obtain information on the water quality standards in Oregon that are in effect under the Clean Water Act. The site includes a full text of Oregon Administrative Rules Section 340, Division 41. Designated uses are also a component of water quality standards. The designated use information is available at this site as well.

◆ Water Quality Monitoring Data and Information

Oregon's Year 2000 Water Quality Status Assessment Report

(Section 305(b) Report) is an excellent source of information on Oregon's water quality improvement efforts. The report is issued every two years, and covers water quality trends, overviews of all Oregon programs, assessment procedures and data collection procedures. It is available for viewing on the DEQ water quality web site, listed under "Information by Subject Area."

<http://deq.state.or.us/wq/>

DEQ's Database of Water Quality Data

Records of Oregon's existing water quality monitoring data can be accessed through the LASAR website at:

<http://deq.state.or.us/wq/lasar/LasarHome.htm>

On this page you will find four options for finding and retrieving water quality data.

1. Selecting monitoring stations from an interactive Geographic Information Systems (GIS) map
2. Locating monitoring stations by entering search criteria like station location description, station type or latitude and longitude - once you enter your search criteria and click enter you will get a summary page of all the monitoring stations that meet your search criteria. From there you choose the monitoring station of interest and you will get a list of water quality data available for that station and you can choose which data to retrieve.
3. Locating monitoring stations by basin, sub-basin and watershed - this page lists in summary form the basins, sub-basins and watersheds in Oregon along with the number of monitoring stations in each sub-basin and watershed. You select the sub-basin or watershed of interest and you will get a list of all the monitoring stations in that sub-basin or watershed. From there you select a station and retrieve the water quality data of interest to you.
4. Selecting parameters for data retrieval - this option gives you a summary of all parameters that have data in LASAR and the number of data points. You select the parameter of interest and you will get a listing of all the monitoring stations that have data for that parameter. From there you can select from 1 to 10 stations (or all stations) to retrieve the water quality data for the parameter you selected. *Please note that these queries can take a while to run where there are lots of data points.*

◆ Additional Resources for Drinking Water Protection

Source Protection: A National Guidance Manual for Surface Water Supplies

This manual includes descriptions of new SDWA programs, source protection case studies from across the country, information on pollutants and their sources, funding and implementation assistance information, and a chapter on source protection planning and implementation. The document was published in 2000 by the New England Interstate Water Pollution Control Commission (NEIWPCC). Available on NEIWPCC's website at <http://www.neiwpcc.org/>. Click on "Publications", then click "Technical Guidance" and scroll down to "Source Protection".

EPA's Nonpoint Source Control Technical Assistance

Draft Guidance "CONTROLLING NONPOINT SOURCE POLLUTION FROM FORESTRY"

EPA has developed and is requesting comment on draft technical guidance for managing nonpoint source pollution from forestry. It discusses the broad concepts of assessing and addressing water quality problems on a watershed level, and it presents up-to-date technical information about how to reduce nonpoint source pollution from forestry.

The draft guidance is available on EPA's Nonpoint Source Control website at:

<http://www.epa.gov/owow/nps/forestrygmt/>

Oregon Stream*A*Syst

EM 8761, Stream*A*Syst: A Tool To Help You Examine Stream Conditions

on Your Property, June 2000, 16 pages. See OSU Extension Service Publications web page at:

<http://eesc.orst.edu/agcomwebfile/edmat/EM8761.pdf>

Resources for Educators

"Keeping it Clean: Student Involvement in Drinking Water Protection" 300-page resource document for teachers. Call Sheree Stewart at DEQ 503-229-5413 to obtain a free copy.

See also *DEQ Online's* "Especially for Educators" page at:

<http://www.deq.state.or.us>

Topographic Maps

Geographic Data (topographic maps): <http://www.terraserver.microsoft.com>

<http://www.topozone.com/>

Educational Materials

The Terrene Institute is a nonprofit organization working to provide information and resources on how to conserve resources and protect the environment. The website provides excellent descriptions of water quality issues, as well as good links to other water quality sites.

<http://www.terrene.org/index.htm>

The Center for Watershed Protection works with local governments to provide scientifically based information on tools to protect watersheds.

<http://www.cwp.org>

US Geological Survey Monitoring Data

The following link will also provide available USGS data for Oregon rivers.

<http://water.usgs.gov/or/nwis/nwis>

EPA's Watershed Assessment, Tracking and Environmental Results (WATERS)

This is an information system that enables users to connect and display important water quality information on maps in their geographic context. (Not all states are 100% available.) WATERS is at: <http://www.epa.gov/waters>

WATERS can:

- * display key water quality information about the quality of surface water bodies, the designated use of a waterbody (e.g., drinking water supply, recreation, fish protection) from state water quality standards, and an identification of which waters are identified as being impaired;
- * allow users to quickly identify the status of individual waters of interest within a specified geographic area;
- * allow users to easily generate reports summarizing key information on waters of a state;
- * use EPA's standard mapping application, Enviromapper, to display the information;
- * use the National Hydrography Dataset (NHD) maintained by the U.S. Geological Survey, as the common language to connect the information hydrologically.

EPA's Index of Federal Data Sources

<http://www.epa.gov/safewater/protect/feddata.html>

The list of federal data sources includes a breakout by assessment function and by agency and also provides links to regional contacts.

US Geological Survey Streamflow Data

USGS's streamflow data is available at: http://water.usgs.gov/dwc/national_map.html

Wastewater Permit Information

Oregon DEQ's Water Quality Division has a new website called Water Quality Permit Assistance Corner, to assist the public with their questions about wastewater permits. Highlights include:

1. All information that a permit holder might need is centralized.
2. Potential permittees can find out what kind of permit, if any, is needed, get the application forms, find out how much it will cost, and the address of the DEQ office that will process the application.
3. Links to sites of interest, for example ODA site for agricultural management plans and WRD for water rights information.

It is accessible through the DEQ Water Quality Program home page, click on Permits and then click on Water Quality Permit Assistance Corner. The direct website address is:

<http://deq.state.or.us/wq/permitcorner/>



Oregon

Theodore R. Kulongoski, Governor

Department of Environmental Quality

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March 25, 2003

Mary Wytcherley
City of Grants Pass
101 NW A Street
Grants Pass, Oregon 97526

RE: Source Water Assessment Report
City of Grants Pass
PWS # 4100342

Dear Ms. Wytcherley:

Enclosed is the Source Water Assessment Report for City of Grants Pass' drinking water protection area. The assessment was prepared under the requirements and guidance of the Federal Safe Drinking Water Act and the US Environmental Protection Agency, as well as a detailed Source Water Assessment Plan developed by a statewide citizen's advisory committee here in Oregon over the past two years. The Department of Environmental Quality (DEQ) and the Oregon Department of Human Services (DHS) are conducting the assessments for all public water systems in Oregon. The purpose is to provide information so that the public water system staff/operator, consumers, and community citizens can begin developing strategies to protect your source of drinking water.

The drinking water intake for the City of Rogue River, City of Gold Hill, Medford Water Commission, Country View Mobile Home Estates, and Ashland Water Department public water systems are also located on the Rogue River or its tributaries upstream of the Grants Pass intake. This source water assessment addresses the geographic area providing water to Grants Pass' intake (Grants Pass' portion of the drinking water protection area) between Grants Pass' intake and the upstream intake for Rogue River. Information on Grants Pass' protection area upstream of the Rogue River intake (including the areas upstream of the Gold Hill, Medford, Country View, and Ashland intakes) is presented in the Source Water Assessment for those public water systems and is summarized in this report. We encourage you to work with other water providers within the Subbasin as you move forward with developing a protection plan or strategies to protect your drinking water supply.

As you know, the 1996 Amendments to the Safe Drinking Water Act requires *Consumer Confidence Reports* (CCR) by community water systems. CCRs include information about the quality of the drinking water, the source of the drinking water, and a summary of the source water assessment. Public water systems are responsible for notifying their customers of the assessment results. The information from this assessment can be presented by distributing the "Summary Brochure" attached to the report. There is a blank space to insert instructions for how customers can obtain or review a copy of your source water assessment report. Distribution of

City of Grants Pass
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any copies of the report must be done at the local level. At a minimum, we would suggest that a copy be placed at the local library, city hall, and/or public water supply office and your customers can review the report at their convenience. By mid-2003, all results of these assessments will also be made available electronically to the public on DEQ's and DHS's websites.

There are no regulatory requirements for you to develop a protection plan using the assessment results, but we hope your community will take the initiative to do so voluntarily. One of the goals of developing a Drinking Water Protection Plan is to address the facilities and land use activities that pose high or moderate risks for contaminating your public water supply. At a minimum, we recommend that the community seek ways to communicate and extend outreach to these facilities/activities with education and technical assistance to minimize the risk of contamination. As you begin thinking about developing a protection plan, it is also important to remember that not all of the assessment's inventoried activities will need to be addressed in a voluntary protection plan. If you move forward with developing a protection plan, the next step is to enhance the assessment inventory and, at that time, the "potential contaminant sources" which pose little to no threat to your public water supply can be eliminated from your list.

We look forward to working with you to move forward with developing a protection plan and can assist you with limited resources at this time. In addition, we are developing some useful written guidance and materials that will assist your protection efforts and you will receive these when complete.

We have enclosed one copy of the large GIS map of the watershed and the assessment results. A smaller version of this exact map is found in the report. If you have a need for additional copies of the large map, we must charge a small fee for each to cover the costs that were not budgeted by the program. Let me know if you need additional copies.

If you have any questions or need more information, please do not hesitate to call me at 503-229-5664 or Sheree Stewart at 503-229-5413.

Sincerely,



Julie K. Harvey, R.G.
Drinking Water Protection Specialist
Water Quality Division

Enclosures

Source Water Assessment Report

City of Grants Pass, Oregon
PWS #4100342

March 25, 2003

Prepared for
City of Grants Pass

Prepared by



State of Oregon
Department of
Environmental
Quality

Water Quality Division
Drinking Water Protection Program



Drinking Water Program

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Executive Summary

The drinking water for City of Grants Pass is supplied by an intake on the Rogue River. This public water system serves approximately 24,000 citizens. The intake is located in the Rogue River/Savage Creek/Evans Creek Watershed in the Middle Rogue Subbasin of the Southern Oregon Coastal Basin. The drinking water intake for the City of Rogue River, City of Gold Hill, Medford Water Commission, Country View Mobile Home Estates, and Ashland Water Department public water systems are also located on the Rogue River or its tributaries upstream of the Grants Pass intake. This source water assessment addresses the geographic area providing water to Grants Pass' intake (Grants Pass' portion of the drinking water protection area) between Grants Pass' intake and the upstream intake for Rogue River. Information on Grants Pass' protection area upstream of the Rogue River intake (including the areas upstream of the Gold Hill, Medford, Country View, and Ashland intakes) is presented in the Source Water Assessment for those public water systems and is summarized in this report.

The geographic area providing water to Grants Pass' intake (Grants Pass' portion of the drinking water protection area) extends upstream approximately 311 miles (total of 2,803 stream miles including the area upstream of the City of Rogue River intake) and encompasses a total area of 267 square miles (total of 2,454 square miles including the area upstream of the City of Rogue River intake). Included in the Grants Pass portion of the protection area are a number of tributaries to the Rogue River, including Savage and Evan Creeks. The protection area within an 8-hour travel time from the intake extends approximately 16 miles upstream of the Grants Pass intake. It is recommended that the water systems and community consider increased protection within an 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. The Rogue River intake is located at an approximate elevation of 925 feet and the upper edge of the watershed is located at an elevation of approximately 5,103 feet at Cedar Springs Mountain.

An inventory of potential contamination sources was performed within Grants Pass' 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 residential and commercial land uses. Due to the large size of the protection area and the DEQ's limited resources, the inventory for Grants Pass was limited to areas closest to the intake and also within sensitive areas along the Rogue River. The area emphasized during the inventory included a highly industrialized area along Highway 199 just east of the intake and a limited survey along Highway 99. It is recommended that the community enhance the inventory by identifying additional potential contamination sources through further research and local input.

A total of 43 potential contamination sources were identified within the Grants Pass portion of the drinking water protection area. Of those, 23 are located in the sensitive areas. An additional 284 potential sources were identified upstream of the intake.

The potential contaminant sources identified in the Grants Pass portion of the protection area include non-irrigated crops, irrigated crops, grazing animals, two timber mills, two cement companies, metal fabrication, salvage yards, transportation maintenance facilities, boat repair shops, gas stations, automobile/truck repair, shopping centers, furniture manufacturers, fleet terminals, electronic manufacturing, industrial parks, a water treatment plant, upstream wastewater treatment plant, high density housing, rural homesteads, sewer lines, parks, schools, four transportation corridors and substations. 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 non-irrigated crops and rural homesteads which presents a lower risk. In addition, industrial sites along Mill Street in Grants Pass and Louisiana Pacific Timber Company in Rogue River were identified as a potential source of contamination located just outside of the drinking water protection area. This potential source is included in this inventory because it poses a high degree of potential contamination 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 Grants Pass portion of the watershed, the results of the susceptibility "analysis" include the distribution of 26 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 2656 public water systems, about 90% of these 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 will provide the delineation for all groundwater systems and the identification of the sensitive areas within their source area. DEQ will delineate and identify the sensitive areas within the watersheds for the surface water systems. DEQ will conduct 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.

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 good 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 will increase DHS and DEQ's abilities to characterize local hydrogeologic/hydrologic conditions, site-specific information, and ultimately increase the quality of the assessment. Where possible, DEQ staff has consulted local Natural Resource Conservation Service, county planning agencies, irrigation districts, and other natural resource officials.

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, 1999). The value of preparing detailed procedures

is in the ability to be consistent from one system to the next. There are also severe time constraints for the amount of time allowed to complete each public water system assessment. It is our intent to provide as much information about the watershed as our program resources allow.

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 our hope that each community will use the assessment results as a basis for developing a drinking water protection plan.

Background

Grants Pass is located in Josephine County, Oregon and the public water system serves approximately 24,000 citizens. The drinking water for Grants Pass is supplied by an intake on Rogue River. The intake is located in the Rogue River/Savage Creek/Evans Creek Watershed in the Middle Rogue Subbasin in the Southern Oregon Coastal Basin, Hydrologic Unit Code (HUC) # 17100308. 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.

The drinking water intake for the City of Rogue River, City of Gold Hill, Medford Water Commission, Country View Mobile Home Estates, and Ashland Water Department public water system is also located on the Rogue River upstream of the Grants Pass intake. This source water assessment addresses the geographic area providing water to Grants Pass' intake (Grants Pass' portion of the drinking water protection area) between Grants Pass' intake and the upstream intake for Rogue River. Information on Grants Pass' protection area upstream of the Rogue River intake (including the area upstream of the Gold Hill, Medford, Country View, and Ashland intakes) is presented in the Source Water Assessment for those public water systems and is summarized in this report.

The study area for evaluating the extent of the Grants Pass Drinking Water Protection Area (DWPA) includes US Geological Survey topographic maps for the Starvout Creek (1986), Cedar Springs Mountain (1986), Richter Mountain (1989), Cleveland Ridge (1983), Skeleton Mountain (1983), King Mountain (1983), Wimer (1983), McConville Peak (1983), Boswell Mountain (1983), Gold Hill (1983), Rogue River (1983), Grants Pass (1986), Murphy (1986), Applegate (1983), and Sexton Mountain (1986) quadrangles at the 1:24,000 scale and the Grants Pass (1989), Canyonville (1989), Crater Lake (1989) and Medford (1991) at quadrangles at the 1:100,000 scale. The surface water intake plots on the U.S. Geological Survey Grants Pass 1:24,000 and 1:100,000 scale quadrangle topographic maps.

The Middle Rogue Subbasin drains a south-central portion of the Southern Oregon Coastal Basin. It is a catchment basin for approximately 885 square miles of south Jackson and Josephine County (USGS). The Subbasin includes the Rogue River between Grants Pass and

Table Rock as well as major tributaries within the sub-basin including Bear Creek and its tributaries, Sardine Creek, Galls Creek, Foots Creek, Ward Creek, and Evans Creek as well as several smaller tributaries. These systems flow in a northwesterly direction from the west slope of the Cascade Range.

The climate in the Middle Rogue Subbasin is characterized by moderate annual temperature and precipitation variations. Information on climate in the Rogue River area is based on the National Oceanic and Atmospheric Administration's (NOAA) Grants Pass climate station located at an elevation of 920 feet above mean sea level (Western Regional Climate Station). The average annual temperature is 54.5 degrees Fahrenheit for the period of 1928 to 2001. Winters are cool and wet, with temperatures usually staying above freezing. The summers are dry and moderately warm to hot, with high temperatures ranging from 80 to 90 degrees. Average annual precipitation is about 31 inches, with 75% of that occurring between November and March. The Grants Pass climate station gets an average of 4-inches of total snowfall per year but has no measurable snow accumulation.

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 Grants Pass', 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.

For surface water systems that encompass an area greater than 100 square miles, such as Grants Pass', 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). However, streamflow data is not available in this dataset for the Rogue River or its tributaries. Therefore, 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 the 8-hour time-of-travel and is generally much more than most streams will travel in an 8-hour period.

A map of the drinking water protection area provides the community with the knowledge of the geographic area providing the water to the intake. The 8-hour time of travel area is provided as a planning tool for the community since eight hours should provide adequate response time 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 area within an 8-hour time of travel from the intake is the area where contamination poses the greatest threat to the drinking water supply. However, potential risks to the water supply can exist throughout the watershed. This is the area where contamination poses the greatest threat to the drinking water supply. 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

DEQ has collected and reviewed data for the purpose of delineating the drinking water protection area for Grants Pass' intake on Rogue River. The scope of work for this report included collecting information from the water system operator, researching written reports, estimating the 8-hour time of travel distance from the intake, and establishing a Geographic Information Systems (GIS) basemap of the delineated watershed. *Grants Pass' drinking water protection area between Grants Pass' intake and the upstream intake for Rogue River is shown in Figure 1.* The delineation for the area upstream of the Rogue River intake (including the areas upstream of the Gold Hill, Medford, Country View, and Ashland intakes) is presented in Appendix B. The Grants Pass portion of the drinking water protection area extends upstream approximately 311 miles in an easterly direction and encompasses a total area of 267 square miles. Included in the Grants Pass portion of the protection area are a number of tributaries to the main stem, including Savage and Evan Creeks. A summary of the cumulative river miles and watershed areas for the Subbasin are as follows:

Summary of Stream Miles for Middle and Upper Rogue Subbasin Public Water Systems

PWS Number	PWS Name	Intake	Segment Area ¹ (stream miles)	Cumulative Stream Miles ² (miles)
4100808	Country View Mobile Home Estates	Rogue River	1,270	1,270
4100513	Medford Water Commission	Rogue River	508	1,778
4100047	Ashland Water Department	Bear Creek	43	43
4100333	City of Gold Hill	Rogue River	552	2,373
4100712	City of Rogue River	Rogue River	119	2,492
4100342	City of Grants Pass	Rogue River	311	2,803

Summary of Watershed Areas for Middle and Upper Rogue Subbasin Public Water Systems

PWS Number	PWS Name	Intake	Segment Area ¹ (square miles)	Cumulative Watershed Area ² (square miles)
4100808	Country View Mobile Home Estates	Rogue River	1,146	1,146
4100513	Medford Water Commission	Rogue River	470	1,616
4100047	Ashland Water Department	Bear Creek	20	20
4100333	City of Gold Hill	Rogue River	444	2,080
4100712	City of Rogue River	Rogue River	107	2,187
4100342	City of Grants Pass	Rogue River	267	2,454

Notes:

PWS – Public Water System

1. Stream miles or watershed area (drinking water protection area) between the PWS's intake and the next upstream intake.
2. Stream miles or watershed area (drinking water protection area) between the PWS's intake and the top of the watershed. Includes "segment areas" for upstream intakes.

Based on the EPA Reach File data, the mean velocity for the segment of the Rogue River where Grants Pass' intake is located is less than 3 feet/second, which is used to estimate 16 miles traveled in an 8-hour period. The Grants Pass' intake is located at an approximate elevation of

925 feet. The upper edge of the watershed is located at an elevation of approximately 5,103 feet at Cedar Springs Mountain; therefore, the elevation change from the upper edge of the watershed to the intake is approximately 4,180 feet.

Identification of Sensitive Areas

Methodology

After delineating the entire watershed, DEQ identified 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, there are several limiting factors to take into account. 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 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 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 characteristics within a watershed that can be mapped as sensitive. Modifying the list of sensitive areas in this assessment can be done by the public water system or the community by identifying resources and procedures that are appropriate for the individual system. For example, the local community 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 will not be mapped by DEQ 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 Grants Pass' portion of the drinking water protection area are shown on Figure 2. Maps of the sensitive areas in the drinking water protection area upstream of the Rogue River, Gold Hill, Medford, Country View, and Ashland intakes are provided in Attachment B. The sensitive areas in the Grants Pass portion of the protection area include the setbacks from Rogue River and all perennial tributaries, large areas with high soil erosion potential, areas with high soil permeability along the Rogue River and its tributaries, and a few isolated areas of high runoff potential. Good data coverage was available for the Rogue River watershed 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 our 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, DEQ 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 Grants Pass' drinking water protection area included several steps, which are summarized as follows:

1. Collected relevant information as of February 2002 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. DEQ 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 as possible of the potential contaminant source activities. We 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 final summary of the inventoried sources and the GIS base map, which are presented in this report.

Results

The results of the inventory were analyzed in terms of current, past, and future land uses; their proximity to the intake; and their associated potential risk. In general, land uses that are closest to the intake and those with the highest risk rating pose the greatest threat to your drinking water supply. The inventory results are summarized in Tables 1 through 3 and are shown on Figure 3.

Due to the large size of the protection area and the DEQ's limited resources, the inventory for Grants Pass was limited to areas closest to the intake and also within sensitive areas along the Rogue River. The area emphasized during the inventory included a highly industrialized area along Highway 199 just east of the intake and a limited survey along Highway 99. It is highly recommended that the community enhance the inventory by identifying additional potential contamination sources through further research and local input.

The delineated drinking water protection area is primarily dominated by residential and commercial land uses. A total of 43 potential contaminant sources (detailed on Figure 3 and Table 2) were identified in the Grants Pass portion of the protection area. An additional 284 potential sources were identified upstream of the Rogue River intake. A summary of potential sources of contamination in the drinking water protection area upstream of the Gold Hill intake is also presented in Table 1. Further detail on potential sources of contamination identified upstream of the Gold Hill intake is available upon request.

The potential contaminant sources identified in the Grants Pass portion of the protection area include the following:

Forest Management/ Recreation. City and County Parks

Agricultural Management. Irrigated crops, non-irrigated crops, and grazing animals.

Commercial/Industrial. Gary Peterson Paving, Oregon Swiss Precision, Pacific Marine Inc., River Wild Aluminum Boats, M Street Industrial Park, US Forest Industries, Four Ply Inc., Fred Meyer, WalMart, Arco, Rogue Valley Sash and Door, Caveman Salvage, ODOT Maintenance facility, Scnitzer Steel, ESAM, Spaulding & Son, Clearwater Co-op, Laidlaw Bus Barn, Laidlaw Transit, and ECS Composites. Copeland Paving, Timber Products, and Louisiana Pacific were located outside DWPA.

Residential/Municipal. Grants Pass Water Treatment Plant, sewer lines, high density housing, rural homesteads, Rogue River Wastewater Treatment Plant, substations, Riverside School, Foothill dump, and the City of Rogue River.

Miscellaneous. Interstate 5, Highway 199, Highway 99, Central Oregon Pacific Railroad, Savage Creek Dam, and transmission lines.

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 non-irrigated crops, and rural homesteads which presents a lower risk. In addition, industrial sites along Mill Street in Grants Pass and Louisiana Pacific Timber Company in Rogue River were identified as a potential source of contamination located just outside of the drinking water protection area. This potential source is included in this inventory because it poses a high degree of potential contamination risk.

This inventory of potential contaminant sources within the City of Grants Pass drinking water protection area provides a quick look at the potential sources 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 Grants Pass' portion of the drinking water watershed. The total number of sources within the sensitive areas is summarized as follows:

	Within Sensitive Areas	Outside of Sensitive areas	Total Within Drinking Water Protection Area
Total Number of High and Moderate Risk Potential Contamination Sources	26	16	42
Higher Risk Potential Contamination Sources Identified	16	9	25
Moderate Risk Potential Contamination Sources Identified	10	7	17
Lower Risk Potential Contamination Sources Identified	1	0	1
Total Potential Contamination Sources Identified	27	16	43

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). *Where the moderate- to higher-risk sources fall within the sensitive areas are those areas most vulnerable to contamination.* In the Grants Pass portion of the watershed, it includes the distribution of the 27 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. The susceptibility analysis provides the water system with information on where the greatest risk occurs and where to focus resources for protection.

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 Grants Pass 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 your 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.

- ◆ City of Grants Pass' public water system draws water from Rogue River. The source of this water is within the Middle Rogue Subbasin of the Southern Oregon Coastal Basin.
- ◆ The drinking water intake for the City of Rogue River, City of Gold Hill, Medford Water Commission, Country View Mobile Home Estates, and Ashland Water Department public water system is also located on the Rogue River upstream of the Grants Pass intake. This source water assessment addresses the geographic area providing water to Grants Pass' intake (Grants Pass' portion of the drinking water protection area) between Grants Pass' intake and the upstream intake for Rogue River. Information on Grants Pass' protection area upstream of the Rogue River intake (including the area upstream of the Gold Hill, Medford, Country View, and Ashland intakes) is presented in the Source Water Assessment for those public water systems and is summarized in this report. We encourage you to work with other water providers within the Subbasin as you move forward with developing a protection plan or strategies.
- ◆ Grants Pass' drinking water protection area extends approximately 311 miles (total of 2,803 stream miles including the area upstream of the City of Rogue River intake) and encompasses a total area of 267 square miles (total of 2,454 square miles including the area upstream of the City of Rogue River intake). It is recommended the Grants Pass water system and community consider increased protection within an 8-hour travel time from the intake (extending approximately 16 miles upstream of the Grants Pass intake) since eight hours should provide adequate response time to protect the integrity of the public water system intake after a spill or release at any crossing or discharge point to the stream.

- ◆ Within the Grants Pass portion of the drinking water protection area, there are large areas identified as sensitive to contamination. 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 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 Rogue River and its tributaries 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 Rogue River. The community should take steps to evaluate current and future land use in areas of highly permeable soils. 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 Grants Pass public water system has at least 26 high and moderate-risk sources within the sensitive areas in the watershed. 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, 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. Many public water systems conduct routine tests for contamination in the raw water prior to treatment. It is highly recommended that such data be used to determine existing risks in the watershed. Collecting and analyzing this raw water data by DEQ or DHS has not been done 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. The Grants Pass and/or the public water system 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 and relatively inexpensive 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 your 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 we discussed in the introduction, our hope is that the community will use the assessment as a basis for developing a "Drinking Water Protection Plan".

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

ASSESSMENT PHASE (Source Water Assessment Report performed by DEQ and DHS)

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 community)

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

As you know, 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 you choose to develop a Drinking Water Protection Plan. When developing a

protection plan, sources which pose little to no threat to your 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 your public water supply. The community should 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. We recommend 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 your 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, your 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 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 a community can also be a very effective way to encourage all citizens to participate in an issue which 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. We must continue to do a better job in our outreach efforts to point out that we are all part of 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.

We encourage communities interested in developing Drinking Water Protection Plans to 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 Environmental Protection Agency, 1998. US EPA Reach File (RF1) for the Conterminous United States in BASINS. Published 08/01/1998, Washington, DC.
- 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 Rogue River and the Middle and Upper Rogue Subbasin. 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 City of Grants Pass PWS # 4100342

Figure 1. City of Grants Pass' Drinking Water Protection Area

Figure 2. Sensitive Areas within City of Grants Pass' Drinking Water Protection Area

**Figure 3. Source Water Assessment Results
City of Grants Pass' Drinking Water Protection Area with
Sensitive Areas and Potential Contamination Sources**

Tables

Source Water Assessment Report City of Grants Pass PWS # 4100342 Inventory Results

Table 1. Summary of Potential Contaminant Sources by Land Use

Table 2. Inventory Results – List of Potential Contaminant Sources

Table 3. Results of Regulatory Database Search

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 Rachel Burr, DEQ's Western Region Office, on February 11, 2002.

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 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 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

TABLE 1. SUMMARY OF POTENTIAL CONTAMINANT SOURCES BY LAND USE

PWS # 4100342 City of Grants Pass

Residential/Municipal Land Uses

Potential Contamination Source	Note	Relative Risk Level	Total in Lower DWPA ⁽³⁾	Total in Full DWPA ⁽⁴⁾
Airport - Maintenance/Fueling Area		Moderate	0	3
Apartments and Condominiums		Lower	0	0
Campgrounds/RV Parks	(1)	Moderate	0	1
Cemeteries - Pre-1945		Lower	0	0
Drinking Water Treatment Plants		Moderate	1	5
Fire Station		Lower	0	7
Fire Training Facilities		Moderate	0	0
Golf Courses		Moderate	0	3
Housing - High Density (> 1 House/0.5 acres)		Moderate	2	10
Landfill/Dumps	(1)	Higher	0	1
Lawn Care - Highly Maintained Areas		Moderate	0	8
Motor Pools		Moderate	0	0
Parks		Moderate	1	9
Railroad Yards/Maintenance/Fueling Areas		Higher	0	1
Schools		Moderate	1	2
Septic Systems - High Density (> 1 system/acre)	(1)	Moderate	0	1
Sewer Lines - Close Proximity to PWS	(1)	Moderate	1	3
Utility Stations - Maintenance Transformer Storage		Higher	1	5
Waste Transfer/Recycling Stations	(1)	Higher	0	2
Wastewater Treatment Plants/Collection Stations	(1)	Higher	1	5
Other			0	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) - "Lower DWPA" summarizes the total number of potential contaminant sources (PCSs) identified in the geographic area providing water to the City of Grants Pass' intake between the City of Grants Pass' intake and the upstream intake for City of Rogue River.

(4) - "Full DWPA" summarizes all PCSs identified in the geographic area providing water to the City of Grants Pass' intake (including the PCSs identified in areas upstream of the City of Rogue River, City of Gold Hill, Medford Water Commission, Country View Mobile Home Estates, and Ashland Water Department intakes).

TABLE 1. SUMMARY OF POTENTIAL CONTAMINANT SOURCES BY LAND USE

PWS # 4100342 City of Grants Pass

Commercial/Industrial Land Uses

Potential Contamination Source	Note	Relative Risk Level	Total in Lower DWPA ⁽³⁾	Total in Full DWPA ⁽⁴⁾
Automobiles - Body Shops		Moderate	0	1
Automobiles - Car Washes		Moderate	0	2
Automobiles - Gas Stations		Moderate	1	11
Automobiles - Repair Shops		Moderate	1	11
Boat Services/Repair/Refinishing		Higher	2	4
Cement/Concrete Plants		Moderate	2	4
Chemical/Petroleum Processing/Storage		Higher	0	9
Dry Cleaners		Moderate	0	0
Electrical/Electronic Manufacturing		Higher	1	1
Fleet/Trucking/Bus Terminals		Moderate	2	6
Food Processing		Moderate	0	4
Furniture/Lumber/Parts Stores		Moderate	1	8
Home Manufacturing		Higher	0	0
Junk/Scrap/Salvage Yards		Higher	4	12
Machine Shops		Higher	0	0
Medical/Vet Offices	(1)	Lower	0	7
Metal Plating/Finishing/Fabrication		Higher	1	9
Mines/Gravel Pits		Higher	0	10
Office Buildings/Complexes		Lower	0	1
Parking Lots/Malls (> 50 Spaces)		Higher	2	5
Photo Processing/Printing		Higher	0	3
Plastics/Synthetics Producer		Higher	1	1
Research Laboratories		Higher	0	0
RV/Mini Storage		Lower	0	8
Wood Preserving/Treating		Higher	0	4
Wood/Pulp/Paper Processing and Mills		Higher	4	21
Other			1	23

NOTES:

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(2) - Drip irrigated crops, such as vineyards and some vegetables, are considered lower risk than spray irrigation

(3) - "Lower DWPA" summarizes the total number of potential contaminant sources (PCSs) identified in the geographic area providing water to the City of Grants Pass' intake between the City of Grants Pass' intake and the upstream intake for City of Rogue River.

(4) - "Full DWPA" summarizes all PCSs identified in the geographic area providing water to the City of Grants Pass' intake (including the PCSs identified in areas upstream of the City of Rogue River, City of Gold Hill, Medford Water Commission, Country View Mobile Home Estates, and Ashland Water Department intakes).

TABLE 1. SUMMARY OF POTENTIAL CONTAMINANT SOURCES BY LAND USE

PWS # 4100342 City of Grants Pass

Agricultural/Forest Land Uses

Potential Contamination Source	Note	Relative Risk Level	Total in Lower DWPA ⁽³⁾	Total in Full DWPA ⁽⁴⁾
Auction Lots	(1)	Higher	0	0
Boarding Stables	(1)	Higher	0	2
Confined Animal Feeding Operations (CAFOs)	(1)	Higher	0	1
Crops - Irrigated (inc. orchards, vineyards, nurseries,	(2)	Higher	1	6
Crops - Nonirrigated (inc. Christmas trees, grains, grass seed,		Lower	1	5
Farm Machinery Repair		Moderate	0	0
Grazing Animals (> 5 large animals or equivalent/acre)	(1)	Higher	1	13
Lagoons/Liquid Wastes	(1)	Higher	0	3
Land Application Sites	(1)	Higher	0	0
Managed Forest Land - Broadcast Fertilized Areas		Lower	0	0
Managed Forest Land - Clearcut Harvest (< 35 yrs.)		Higher	0	2
Managed Forest Land - Partial Harvest (< 10 yrs.)		Higher	0	0
Managed Forest Land - Road Density (> 2 mi./sq. mi.)		Moderate	0	1
Pesticide/Fertilizer/Petroleum Storage, Handling, Mixing, &		Higher	0	0
Recent Burn Areas (< 10 yrs.)		Higher	0	0
Managed Forest Lands - Status Unknown		Higher	0	0
Other			0	9

NOTES:

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(1) - Potential source of microbial contamination

(2) - Drip irrigated crops, such as vineyards and some vegetables, are considered lower risk than spray irrigation

(3) - "Lower DWPA" summarizes the total number of potential contaminant sources (PCSs) identified in the geographic area providing water to the City of Grants Pass' intake between the City of Grants Pass' intake and the upstream intake for City of Rogue River.

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TABLE 1. SUMMARY OF POTENTIAL CONTAMINANT SOURCES BY LAND USE

PWS # 4100342 City of Grants Pass

Miscellaneous Land Uses

Potential Contamination Source	Note	Relative Risk Level	Total in Lower DWPA ⁽³⁾	Total in Full DWPA ⁽⁴⁾
Above Ground Storage Tanks - Excluding Water		Moderate	5	20
Channel Alterations - Heavy		Higher	0	0
Combined Sewer Outfalls	(1)	Lower	0	0
Stormwater Outfalls	(1)	Higher	0	1
Composting Facilities	(1)	Higher	0	0
Historic Gas Stations		Higher	0	0
Historic Waste Dumps/Landfills	(1)	Higher	1	1
Homesteads - Rural - Machine Shops/Equipment Maintenance		Higher	0	6
Homesteads - Rural - Septic Systems (< 1/acre)	(1)	Lower	1	4
Injection/Dry Wells, Sumps - Class V UICs	(1)	Higher	0	0
Kennels (> 20 Pens)	(1)	Moderate	0	0
Military Installations		Higher	0	0
Random Dump Sites		Higher	0	1
River Recreation - Heavy Use (inc. campgrounds)	(1)	Moderate	1	7
Sludge Disposal Areas	(1)	Higher	0	0
Stormwater Retention Basins	(1)	Higher	0	2
Transmission Lines - Right-of-Ways		Higher	1	4
Transportation - Freeways/State Highways/Other Heavy Use		Higher	3	13
Transportation - Railroads		Higher	1	4
Transportation - Right-Of-Ways - Herbicide Use Areas		Higher	0	0
Transportation - River Traffic - Heavy		Higher	0	0
Transportation - Stream Crossing - Perennial		Higher	0	26
UST - Confirmed Leaking Tanks - DEQ List		Moderate	0	1
UST - Decommissioned/Inactive		Lower	0	6
UST - Nonregulated Tanks (< 1,100 gals or Large Heating Oil		Higher	0	0
UST - Not Upgraded and/or Registered Tanks		Moderate	0	0
UST - Upgraded/Registered - Active		Lower	2	16
UST - Status Unknown		Moderate	2	16
Upstream Reservoirs/Dams		Moderate	0	4
Wells/Abandoned Wells		Moderate	0	0
Large Capacity Septic Systems (serves > 20 people) - Class V	(1)	Moderate	1	6
Construction/Demolition Areas		Higher	0	1
Other			1	24

NOTES:

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(1) - Potential source of microbial contamination

(2) - Drip irrigated crops, such as vineyards and some vegetables, are considered lower risk than spray irrigation

(3) - "Lower DWPA" summarizes the total number of potential contaminant sources (PCSs) identified in the geographic area providing water to the City of Grants Pass' intake between the City of Grants Pass' intake and the upstream intake for City of Rogue River.

(4) - "Full DWPA" summarizes all PCSs identified in the geographic area providing water to the City of Grants Pass' intake (including the PCSs identified in areas upstream of the City of Rogue River, City of Gold Hill, Medford Water Commission, Country View Mobile Home Estates, and Ashland Water Department intakes).

TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT SOURCES

PWS#	4100342	GRANTS PASS, 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	Grants Pass Water Treatment Plant	Next to intake	Grants Pass	Database (2) Field-Observation	Within sensitive area.	Moderate	Treatment chemicals and equipment maintenance materials may impact groundwater or surface water source.	
2	River Recreation - Heavy Use (inc. campgrounds)	Parks	Next to intake. Along Rogue River	Grants Pass	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 several parks that can be found along the Rogue River.
	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 several parks that can be found along the Rogue River.
3	Transportation - Freeways/State Highways/Other Heavy Use Roads	Grants Pass Parkway	Runs east of intake	Grants Pass	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	Utility Stations - Maintenance Transformer Storage	Substation	Opposite side of intake	Grants Pass	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.	Another substation found off Agness Ave.
5	Housing - High Density (> 1 House/0.5 acres)	High Density Housing	Throughout DWPA	Grants Pass	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.	

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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 SOURCES

PWS#	4100342	GRANTS PASS, 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
6	Sewer Lines - Close Proximity to PWS	Sewerlines	East half of DWPA	Grants Pass	Field-Observation	Within sensitive area.	Higher	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.	A major pipeline that goes under the Rogue River approx 1/4 upstream from intake is a high risk for contamination if pipe breaks or is damaged. The pipe apparently has broken in the past. Risk should be verified. Risk elevated to Higher because a sewage transport pipeline is located in close proximity to intake.
7	Transportation - Railroads	Railroad	East of intake	Grants Pass	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	Cement/Concrete Plants	Copeland Paving	Mill Street	Grants Pass	Database (2) Field-Observation	Just outside DWPA	Moderate	Spills, leaks, or improper handling of chemicals and high turbidity wastewaters during transportation, use, storage and disposal may impact the drinking water supply.	Potential risk should be verified during enhanced inventory. Site is located beyond DWPA but it may impact the DWPA. There are several companies which are located off Mill Street that may be considered potential contaminant sources, yet are outside of the DWPA.
9	Wood/Pulp/Paper Processing and Mills	Timber Products Company	Off Mill Street	Grants Pass	Database (2) Field-Observation	Just outside DWPA	Higher	Spills, leaks, or improper handling of wood preservatives and other chemicals during transportation, use, storage and disposal may impact the drinking water supply.	May also be called Tim-Ply Company. Site is located beyond DWPA but it may impact the DWPA.

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TABLE 2. INVENTORY RESULTS - LIST OF POTENTIAL CONTAMINANT SOURCES

PWS#	4100342	GRANTS PASS, 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	Cement/Concrete Plants	Gary Peterson Excavating	910 SE M Street	Grants Pass	Database (2) Field-Observation	Within sensitive area.	Moderate	Spills, leaks, or improper handling of chemicals and high turbidity wastewaters during transportation, use, storage and disposal may impact the drinking water supply.												
11	Metal Plating/Finishing/Fabrication	Oregon Swiss Precision	1080 SE M Street	Grants Pass	Database (2) Field-Observation	Within sensitive area.	Higher	Spills, leaks, or improper handling of solvents, metals, and other chemicals during transportation, use, storage and disposal may impact the drinking water supply.	Swissmetric Inc. also located within DWPA off Parkdale Ave. Unsure if this company has similar operations.											
12	Junk/Scrap/Salvage Yards	Auto Wrecker	Off "M" Street	Grants Pass	Field-Observation	Outside sensitive areas.	Higher	Spills, leaks, or improper handling of automotive chemicals, batteries, and other waste materials during storage and disposal may impact the drinking water supply.												
13	Boat Services/Repair/Refinishing	Pacific Marine Inc.	Off "M" Street	Grants Pass	Field-Observation	Outside sensitive areas.	Higher	Spills, leaks, or improper handling of fuels, seepage, maintenance chemicals, sandblasting wastes, paints, and other materials during transportation, use, storage and disposal may impact the drinking water supply.												
14	Boat Services/Repair/Refinishing	River Wild Aluminum Boats	Off "M" Street	Grants Pass	Field-Observation	Outside sensitive areas.	Higher	Spills, leaks, or improper handling of fuels, seepage, maintenance chemicals, sandblasting wastes, paints, and other materials during transportation, use, storage and disposal may impact the drinking water supply.												
15	Other -Industrial Complex	"M" Street Industrial Park	Off "M" Street	Grants Pass	Field-Observation	Outside sensitive areas.	Moderate	Spills, leaks, or improper handling of chemicals and other materials during transportation, use, storage, and disposal may impact the drinking water supply.	Furniture Crafters included in park. Mostly light industrial											

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 SOURCES

PWS#	4100342	GRANTS PASS, 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	Automobiles - Gas Stations	ARCO	NE Terry Ln	Grants Pass	Database (2) Field-Observation	Outside sensitive areas.	Moderate	Spills, leaks, or improper handling of fuels and other materials during transportation, transfer, and storage may impact the drinking water supply.	There are several gas stations, fueling areas within DWPA.									
	UST - Upgraded/Registered - Active						Lower	Spills or improper handling during tank filling or product distribution may impact the drinking water supply.	There are several gas stations, fueling areas within DWPA.									
21	Furniture/Lumber/Parts Stores	Rogue Valley Sash and Door	123 NE Beacon	Grants Pass	Database (2) Field-Observation	Outside sensitive areas.	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.										
	Above Ground Storage Tanks - Excluding Water						Moderate	Spills, leaks, or improper handling of stored materials may impact the drinking water supply.										
22	Junk/Scrap/Salvage Yards	Cavaman Salvage Yard	Off Agness Ave	Grants Pass	Field-Observation	Outside sensitive areas.	Higher	Spills, leaks, or improper handling of automotive chemicals, batteries, and other waste materials during storage and disposal may impact the drinking water supply.										
23	Other - Highway Division- Grant Pass	ODOT Highway Division	Off Agness Ave	Grants Pass	Database (2) Field-Observation	Outside sensitive areas.	Moderate	Spills, leaks, or improper handling of chemicals and other materials during transportation, use, storage, and disposal may impact the drinking water supply.										
24	Junk/Scrap/Salvage Yards	Schnitzer Steel	Off Agness Ave	Grants Pass	Database (2) Field-Observation	Outside sensitive areas.	Higher	Spills, leaks, or improper handling of automotive chemicals, batteries, and other waste materials during 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 SOURCES

PWS# 4100342 GRANTS PASS, 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	Electrical/Electronic Manufacturing	ESAM	2100 NE Spaulding Ave	Grants Pass	Database (2) Field-Observation	Outside sensitive areas.	Moderate	Spills, leaks, or improper handling of chemicals and other materials during transportation, use, storage, and disposal may impact the drinking water supply.	Electrical Supply Assembly.
26	Wood/Pulp/Paper Processing and Mills	Spaulding & Son	Spaulding Ave/NE "N" Street	Grants Pass	Database (2) Field-Observation Interview	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.	Contact indicated that the majority of mill site is currently not in use. Part of site may be developed into a Light Industrial complex, future development is desired by city.
	UST - Status Unknown						Moderate	Spills, leaks, or improper handling of stored materials may impact the drinking water supply.	Contact indicated that the majority of mill site is currently not in use. Part of site may be developed into a Light Industrial complex, future development is desired by city.
27	Historic Waste Dumps/Landfills	Foothill Dump	Along Foothill Blvd	Grants Pass	Database (2)	Within sensitive area.	Higher	Water percolating through old landfills or dump sites may transport contaminants to groundwater or surface water supply.	PCS location based on regulatory database search - needs verification. Uncertain of exact location. Listed in ECSI database
28	Junk/Scrap/Salvage Yards	Cleanwater Co-op	1130 Gladfola Dr	Grants Pass	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.

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 SOURCES

PWS#	4100342	GRANTS PASS, 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	Fleet/Trucking/Bus Terminals	Laidlaw Bus Barn	Gladbia Ave	Grants Pass	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.					
	Above Ground Storage Tanks - Excluding Water						Moderate	Spills, leaks, or improper handling of stored materials may impact the drinking water supply.					
30	Schools	Riverside School	Harvey Drive	Grants Pass	Database (2) Field-Observation	Within sensitive area.	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.					
31	Transportation - Freeways/State Highways/Other Heavy Use Roads	Highway 99	Runs east/west along Rogue	Grants Pass	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.					
32	Other -PCS along Hwy 99 East	Hwy 99 Industrial Companies	Along Highway 99	Grants Pass	Field-Observation	Within sensitive area.	Higher	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. There are numerous companies located off of Hwy 99 that can be considered potential contaminant sources.				
33	Homesteads - Rural - Septic Systems (< 1/acre)	Rural Homesteads	Throughout DWPA	Grants Pass	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.	Septic systems of homes located on banks of Rogue River may be of concern.				

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 SOURCES

PWS# 4100342 GRANTS PASS, 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
34	UST - Status Unknown Upstream Reservoirs/Dams	Grants Pass Irrigation District	200 Fruitdale Drive	Grants Pass	Database (2) Field-Observation	Within sensitive area.	Moderate	Spills, leaks, or improper handling of stored materials may impact the drinking water supply. 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.	Savage Rapid Dam located on Rogue River. Savage Rapid Dam located on Rogue River.
35	Large Capacity Septic Systems (serves > 20 people) - Class V UICs Plastics/Synthetics Producer	ECS Composites	3560 Rogue River Highway	Grants Pass	Database (2) Field-Observation Interview	Within sensitive area.	Moderate	If not properly sited, designed, installed, and maintained, septic systems can impact drinking water. Spills, leaks, or improper handling of solvents and resins during transportation, use, storage and disposal may impact the drinking water supply.	Manufactures fiberglass foam. Manufactures fiberglass foam.
36	Transportation - Freeways/State Highways/Other Heavy Use Roads	Interstate 5	East of intake	Grants Pass	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.	
37	Transmission Lines - Right-of-Ways	Transmission Lines	East of intake	Grants Pass	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 SOURCES

PWS#	4100342	GRANTS PASS, 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
38	Crops - Nonirrigated (inc. Christmas trees, grains, grass seed, pasture)	Grazing Animals	Upper River Road	Grants Pass	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.	Potential risk should be verified during enhanced inventory. Valley of Rogue Dairy identified from freeway. Uncertain if this is a CAFO operation, and exact location is also questionable. There are likely other areas within DWPA with grazing animals.
	Grazing Animals (> 5 large animals or equivalent/acre)						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.	Potential risk should be verified during enhanced inventory. Valley of Rogue Dairy identified from freeway. Uncertain if this is a CAFO operation, and exact location is also questionable. There are likely other areas within DWPA with grazing animals.
39	Crops - Irrigated (inc. orchards, vineyards, nurseries, greenhouses)	Irrigated Crops	Upper River Road	Grants Pass	Field-Observation	Within sensitive area.	Higher	Over-application or improper handling of pesticides/fertilizers may impact drinking water. Excessive irrigation may transport contaminants or sediments to groundwater/surface water through runoff. Drip-irrigated crops are considered to be a low risk.	Potential risk should be verified during enhanced inventory. Uncertain if any irrigated crops are located within DWPA. Upper River Road appears to have a fair amount of agriculture associated with it, verify presence of irrigated crops.
40	Wastewater Treatment Plants/Collection Stations	City of Rogue River Wastewater Plant	East of intake	Rogue River	Database (2) Field-Observation	Within sensitive area.	Higher	Improper management of wastewater, treatment chemicals, or equipment maintenance materials 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 SOURCES

PWS#	4100342	GRANTS PASS, 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
41	Other - City of Rogue River	City of Rogue River	East of intake	Rogue River	Field-Observation	Within sensitive area.	Moderate	The impacts of this potential contaminant source will be addressed during the enhanced inventory.	Potential risk should be verified during enhanced inventory. The City of Rogue River has a number of gas stations, repair shops, etc. that fall within Grants Pass DWPA.
	Housing - High Density (> 1 House/0.5 acres)						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.	Potential risk should be verified during enhanced inventory. The City of Rogue River has a number of gas stations, repair shops, etc. that fall within Grants Pass DWPA.
42	Fleet/Trucking/Bus Terminals	Laidlaw Transit Inc.	Evans Creek	Rogue River	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.	Bus facility is located right next to Rogue River High School.

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 SOURCES

PWS#	4100342	GRANTS PASS, 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
43	Above Ground Storage Tanks - Excluding Water	Louisiana Pacific	Just outside DWPA	Rogue River	Database (2) Field-Observation	Within sensitive area.	Moderate	Spills, leaks, or improper handling of stored materials may impact the drinking water supply.	Large mill site located within City of Rogue River. Site is in close proximity to the Rogue River. Risk reduced to Moderate because located outside DWPA. Site is located beyond DWPA but it may impact the DWPA.
	Wood/Pulp/Paper Processing and Mills						Moderate	Spills, leaks, or improper handling of wood preservatives and other chemicals during transportation, use, storage and disposal may impact the drinking water supply.	Large mill site located within City of Rogue River. Site is in close proximity to the Rogue River. Risk reduced to Moderate because located outside DWPA. Site is located beyond DWPA but it may impact the 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 3. RESULTS OF REGULATORY DATABASE SEARCH

PWS# 4100342 GRANTS PASS, CITY OF

Reference No. (1)	Name	Database Listings (2)
1	Grants Pass Water Treatment Plant	<p>SFM - Hydrated Lime stored in Silo</p> <p>SFM - Lt Sanitizer stored in Tank Inside Building</p> <p>SFM - Magnafloc 990n Flocculant stored in Bag</p> <p>SFM - Motor Oil stored in Steel Drum</p> <p>SFM - Oil stored in Steel Drum</p> <p>SFM - Potassium Permanganate stored in Steel Drum</p> <p>SIS list with a GEN02 NPDES permit for filter backwash.</p> <p>SFM - Aluminum Sulfate Solution stored in Tank Inside Building</p>
8	Copeland Paving	<p>SFM - Chevron Delo 400 Motor Oil stored in Cylinder</p> <p>SWMS list-PWS needs to verify permit status.</p> <p>SIS list with a GEN12A NPDES for stormwater from sand, gravel and non-metallic quarrying and mining.</p> <p>SFM - Used Oil stored in Aboveground Tank</p> <p>SFM - Tractor Hyd Oil stored in Tank Inside Building</p> <p>SFM - Hydraulic Oil Aw 46 stored in Tank Inside Building</p> <p>SFM - Diesel Fuel stored in Aboveground Tank</p> <p>SFM - Chevron Delo 100 40w stored in Tank Inside Building</p> <p>HWIMSY list as a conditionally exempt generator.</p> <p>SFM - Gasoline stored in Underground Tank</p>
9	Timber Products Company	<p>SFM - Hydraulic Oil stored in Aboveground Tank</p> <p>SFM - Urea Resin stored in Aboveground Tank</p> <p>SIS list with a GEN05 NPDES permit for boiler blowdown.</p> <p>SFM - Phenolic Resin stored in Tank Inside Building</p>

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# 4100342 GRANTS PASS, CITY OF

Reference No. (1)	Name	Database Listings (2)
9	Timber Products Company	<p>SFM - Motor Oil stored in Steel Drum</p> <p>SFM - Diesel Fuel stored in Aboveground Tank</p> <p>SFM - Caustic Soda stored in Tank Inside Building</p> <p>LUST list with unknown status</p> <p>ECSI site with no further state action required.</p> <p>SIS list with a GEN12Z NPDES for stormwater from industrial activities.</p> <p>SFM - Gasoline stored in Aboveground Tank</p>
10	Gary Peterson Excavating	<p>SFM - Diesel stored in Aboveground Tank</p> <p>SFM - Gasoline stored in Aboveground Tank</p>
11	Oregon Swiss Precision	<p>SFM - Petroleum Naphtha stored in Steel Drum</p> <p>HWIMSY list as a conditionally exempt generator.</p>
16	US Forest Industries	<p>SFM - Overlay Panel Oil stored in Totebin</p> <p>SFM - Nylon String stored in Box</p> <p>SFM - Mg Sb Spec-d stored in Steel Drum</p> <p>SFM - Mb 330 Glue stored in Bag</p> <p>SFM - Lr Ram Cr stored in Box</p> <p>SFM - Overlay Paper 323 & 303 stored in Other</p> <p>SFM - Hot Melt Adhesive stored in Totebin</p> <p>SFM - Waste Oil stored in Aboveground Tank</p> <p>SFM - Glue Mixed stored in Aboveground Tank</p> <p>SFM - Hydraulic Oil stored in Aboveground Tank</p> <p>SFM - Putty D-70k Knife Grade stored in Plastic Or Non-metallic Drum</p>

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# 4100342 GRANTS PASS, CITY OF

Reference No. (1)	Name	Database Listings (2)
16	US Forest Industries	<p>SFM - Resin Phenol Formaldehyde stored in Aboveground Tank</p> <p>SFM - Shasta Kast 60 Er stored in Bag</p> <p>SFM - Waste Antifreeze stored in Plastic Or Non-metallic Drum</p> <p>SFM - Water Base Blade Lubricant stored in Plastic Or Non-metallic Drum</p> <p>SFM - Water Base Paint stored in Totebin</p> <p>SFM - Wescolite stored in Bag</p> <p>SFM - Wheat Flour-nfp stored in Bag</p> <p>SIS list with a GEN12Z NPDES for stormwater from industrial activities.</p> <p>SFM - Gear Oil stored in Steel Drum</p> <p>SFM - Gc Formula 1158 stored in Plastic Or Non-metallic Drum</p> <p>SFM - Soda Ash stored in Bag</p> <p>SFM - Alum Liquid stored in Totebin</p> <p>SFM - Gc Formula 42nf stored in Plastic Or Non-metallic Drum</p> <p>SFM - Gc Formula A stored in Plastic Or Non-metallic Drum</p> <p>ECSI site with no further state action required.</p> <p>HWIMSY list as a conditionally exempt generator.</p> <p>SFM - 76 Guardol Qlt 30 stored in Steel Drum</p> <p>SFM - Agrashell-glu-fill stored in Bag</p> <p>SFM - Automatic Transmission Fluid stored in Steel Drum</p> <p>SFM - Bh-38 Solvent stored in Totebin</p> <p>SFM - Caustic Soda Solution stored in Tank Inside Building</p>

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# 4100342 GRANTS PASS, CITY OF

Reference No. (1)	Name	Database Listings (2)
16	US Forest Industries	SFM - Cb 70d Brick Refractory stored in Other SFM - Gc Formula 153 stored in Plastic Or Non-metallic Drum SFM - Gc Formula 7622 stored in Steel Drum SFM - Acetone stored in Steel Drum SFM - Gc Formula 7276 stored in Steel Drum SFM - Charger Releasant stored in Steel Drum SFM - Gasoline stored in Aboveground Tank SFM - Contig Site-overlay Paper 323 & 303 stored in Other SFM - Epoxy Resin And Hardner stored in Steel Drum SFM - Diesel Fuel stored in Aboveground Tank SFM - Dehybor Anhydrous Borax stored in Bag SFM - Frosto stored in Steel Drum
17	Four Ply Inc.	SFM - Medium Density Overlay stored in Bag SFM - Mid Defoam 1179 stored in Steel Drum SFM - Oil stored in Steel Drum SFM - Putty stored in Steel Drum SFM - Resin Emulsion stored in Bag SFM - Resin Phenol Formaldehyde stored in Aboveground Tank SFM - Transmission Fluid stored in Steel Drum SFM - Stannous Chloride Powder stored in Fiber Drum SFM - Waterbase Wood Celo-set stored in Totebin HWIMSY list as a conditionally exempt generator. SFM - Lubricants stored in Plastic Bottles Or Jugs SFM - Silicone Fluid stored in Can

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# 4100342 GRANTS PASS, CITY OF

Reference No. (1)	Name	Database Listings (2)
17	Four Ply Inc.	<p>SFM - Lube Oil stored in Steel Drum</p> <p>SFM - Lacquer Spray stored in Can</p> <p>SFM - Ink stored in Can</p> <p>SFM - Hydraulic Fluid stored in Steel Drum</p> <p>SFM - Grease stored in Plastic Or Non-metallic Drum</p> <p>SFM - Glue stored in Bag</p> <p>SFM - Gear Lubricant stored in Steel Drum</p> <p>SFM - Formula A stored in Steel Drum</p> <p>SFM - Formula 42-nf stored in Steel Drum</p> <p>SFM - Diesel Fuel stored in Aboveground Tank</p> <p>SFM - Caustic Soda Solution stored in Aboveground Tank</p> <p>UST list-PWS needs to verify tank permit status</p> <p>SFM - Concrete Form Oil stored in Aboveground Tank</p> <p>SFM - Wheat Flour-nfp stored in Bag</p>
18	Fred Meyers	<p>HWIMSY list as a conditionally exempt generator.</p> <p>SFM - Diesel Fuel stored in Underground Tank</p> <p>UST list with a status of 4 UST(s) upgraded and 0 not upgraded to DEQ 1998 technical standards.</p>
19	WalMart	<p>HWIMSY list as a conditionally exempt generator.</p> <p>SFM - stored in</p> <p>SIS list with a GEN12C NPDES permit for stormwater from construction that disturbs more 5 or more acres.</p>
20	ARCO	<p>HWIMSY list as a small quantity generator of dangerous/hazardous waste.</p>

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# 4100342 GRANTS PASS, CITY OF

Reference No. (1)	Name	Database Listings (2)
20	ARCO	UST list with a status of 4 UST(s) upgraded and 0 not upgraded to DEQ 1998 technical standards.
21	Rogue Valley Sash and Door	<p>SFM - Motor Oil stored in Steel Drum</p> <p>SIS list with a GEN12Z NPDES for stormwater from industrial activities.</p> <p>SFM - Product 2744 stored in Plastic Or Non-metallic Drum</p> <p>SFM - National Casein-adhesive stored in Totebin</p> <p>SFM - Lacquer Thinner stored in Steel Drum</p> <p>SFM - Gear Oil stored in Steel Drum</p> <p>SFM - Diesel Fuel stored in Aboveground Tank</p> <p>LUST list with unknown status</p> <p>SFM - National Casein-hardener-catalyst stored in Plastic Or Non-metallic Drum</p>
23	ODOT Highway Division	<p>SFM - Waste Oil stored in Tank Inside Building</p> <p>SFM - Oust stored in Plastic Bottles Or Jugs</p> <p>SFM - Rodeo stored in Plastic Bottles Or Jugs</p> <p>SFM - Roundup Pro stored in Plastic Bottles Or Jugs</p> <p>SFM - Thermal-chem Weargard 1 stored in Plastic Bottles Or Jugs</p> <p>SFM - Thermal-chem Weargard 2 stored in Plastic Bottles Or Jugs</p> <p>SFM - Traffic Paint stored in Carboy</p> <p>SFM - Waste Antifreeze stored in Steel Drum</p> <p>SFM - Cma-25 Liquid Deicer stored in Aboveground Tank</p> <p>SIS list with a GEN15A NPDES permit for r petroleum hydrocarbon cleanups.</p> <p>SFM - Motor Oil stored in Steel Drum</p>

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# 4100342 GRANTS PASS, CITY OF		
Reference No. (1)	Name	Database Listings (2)
23	ODOT Highway Division	<p>SFM - Traffic Paint Thinner stored in Steel Drum</p> <p>SFM - Barvel stored in Plastic Bottles Or Jugs</p> <p>HWIMSY list as a conditionally exempt generator.</p> <p>LUST cleanup initiated on 2/11/1993. PWS should verify cleanup progress.</p> <p>SFM - Direx 4l stored in Plastic Bottles Or Jugs</p> <p>SFM - Antifreeze stored in Steel Drum</p> <p>SFM - Loop Sealant stored in Box</p> <p>SFM - Concrete Quick Set stored in Bag</p> <p>SFM - Flares stored in Box</p> <p>SFM - Garlon 3a stored in Plastic Bottles Or Jugs</p> <p>SFM - Herbimax stored in Plastic Bottles Or Jugs</p> <p>SFM - Highway Safety Spheres With Adherence stored in Bag</p>
24	Schnitzer Steel	<p>HWIMSY list as a conditionally exempt generator.</p> <p>SIS list with a GEN12Z NPDES for stormwater from industrial activities.</p>
25	ESAM	<p>HWIMSY list as a conditionally exempt generator.</p>
26	Spaulding & Son	<p>SFM - Gasoline stored in Underground Tank</p> <p>UST list-PWS needs to verify tank permit status</p> <p>SIS list with a GEN12Z NPDES for stormwater from industrial activities.</p> <p>LUST list with unknown status</p> <p>HWIMSY list as a conditionally exempt generator.</p> <p>ECSI site with a confirmed release.</p> <p>SFM - Diesel #2 stored in Aboveground Tank</p>

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# 4100342 GRANTS PASS, CITY OF

Reference No. (1)	Name	Database Listings (2)
27	Foothill Dump	ECSI site with a confirmed release.
28	Clearwater Co-op	SWMS list-PWS needs to verify permit status.
29	Laidlaw Bus Barn	UST list with a status of 1 UST(s) upgraded and 0 not upgraded to DEQ 1998 technical standards.
30	Riverside School	LUST list with unknown status
34	Grants Pass Irrigation District	ECSI site with no further state action required. UST list-PWS needs to verify tank permit status LUST list with unknown status SFM - Copper Sulfate stored in Other
35	ECS Composites	SFM - Polyurethane Resin stored in Can UIC list with 1 Active UIC's Classified as Septic Systems (drainfield Disposal Method) SFM - Whisper Spray Lsp712255 Adhesive stored in Can SFM - Styrene Monomer stored in Steel Drum SFM - Steelmix stored in Cylinder SFM - Resin 37-127 stored in Steel Drum SFM - Qza Peroxide Catalyst stored in Plastic Or Non-metallic Drum SFM - Polyester Resin stored in Steel Drum SFM - Lacquer Thinner stored in Steel Drum SFM - Chem-o-lene Gas stored in Cylinder SFM - Adhesive Cat Epotuf 37-614 stored in Steel Drum SFM - Adhesive Cat Epotuf 37-606 stored in Steel Drum SFM - Acetone 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.

TABLE 3. RESULTS OF REGULATORY DATABASE SEARCH

PWS# 4100342 GRANTS PASS, CITY OF

Reference No. (1)	Name	Database Listings (2)
35	ECS Composites	<p>HWIMSY list as a conditionally exempt generator.</p> <p>UST list-PWS needs to verify tank permit status</p> <p>SFM - Polyurethane Hardener stored in Can</p>
40	City of Rogue River Wastewater Plant	SIS list with a individual NPDES permit.
42	Laidlaw Transit Inc.	<p>HWIMSY list as a conditionally exempt generator.</p> <p>SIS list with a GEN12Z NPDES for stormwater from industrial activities.</p>
43	Louisiana Pacific	<p>SFM - Nalco 8735 Ph Stabilizer stored in Tank Inside Building</p> <p>SFM - Unax Aw46 stored in Aboveground Tank</p> <p>SFM - Transport Plus 7200 stored in Tank Inside Building</p> <p>SFM - Transmission Oil stored in Steel Drum</p> <p>SFM - Diesel #2 stored in Aboveground Tank</p> <p>SFM - Thermo Corr stored in Plastic Or Non-metallic Drum</p> <p>SIS list with a GEN04 NPDES permit for log ponds.</p> <p>SFM - Refractories stored in Bag</p> <p>SFM - Power Plus stored in Plastic Or Non-metallic Drum</p> <p>SFM - Pitch Solve stored in Plastic Or Non-metallic Drum</p> <p>SFM - Unoba Ep #2 stored in Steel Drum</p> <p>SFM - Nalco 52211 stored in Tank Inside Building</p> <p>SFM - Nalco 1720 Oxygen Scavenger stored in Tank Inside Building</p> <p>SFM - Motor Oil stored in Aboveground Tank</p> <p>SFM - Leslie Salt Crystals stored in Bag</p> <p>SFM - Hydraulic Tractor Fluid stored in Steel Drum</p>

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# 4100342 GRANTS PASS, CITY OF

Reference No. (1)	Name	Database Listings (2)
43	Louisiana Pacific	SFM - Gasoline stored in Aboveground Tank SFM - Chain Lube 2 stored in Aboveground Tank SFM - Brake Fluid stored in Can SFM - Automatic Transmission Fluid stored in Aboveground Tank SFM - Antifreeze stored in Steel Drum SIS list with a GEN12Z NPDES for stormwater from industrial activities. SFM - Gear Lube 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
City of Grants Pass
PWS # 4100342

Attachment A. Source Water Assessment Summary Brochure

SOURCE WATER ASSESSMENT SUMMARY BROCHURE

CITY OF GRANTS PASS PWS # 4100342

WHAT IS A SOURCE WATER ASSESSMENT?

The Source Water Assessment was recently completed by the 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 Grants Pass' 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 City of Grants Pass' 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 GRANTS PASS' DRINKING WATER PROTECTION AREA?

The drinking water for Grants Pass is supplied by an intake on the Rogue River. This public water system serves approximately 24,000 citizens. The intake is located in the Rogue River/Savage Creek/Evans Creek Watershed in the Middle Rogue Subbasin of the Southern Oregon Coastal Basin. The drinking water intake for the City of Rogue River, City of Gold Hill, Medford Water Commission, Country View Mobile Home Estates, and Ashland Water Department public water systems are also located on the Rogue River or its tributaries upstream of the Grants Pass intake. The boundaries of the Grants Pass portion of the Drinking Water Protection Area (between the Grants Pass and Rogue River intakes) and a schematic of the portions of the protection area upstream of the City of Rogue River intake are

illustrated re illustrated on the figure attached to this summary.

The geographic area providing water to Grants Pass' intake (Grants Pass' portion of the drinking water protection area) extends upstream approximately 311 miles (total of 2,803 stream miles including the area upstream of the City of Rogue River intake) and encompasses a total area of 267 square miles (total of 2,454 square miles including the area upstream of the City of Rogue River intake). The protection area within an 8-hour travel time from the intake extends approximately 16 miles upstream of the Grants Pass intake. It is recommended that the water systems and community consider increased protection within an 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.

The Rogue River intake is located at an approximate elevation of 925 feet and the upper edge of the watershed is located at an elevation of approximately 5,103 feet at Cedar Springs Mountain.

WHAT ARE THE POTENTIAL SOURCES OF CONTAMINATION TO GRANTS PASS' 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 residential and commercial land uses. Due to the large size of the protection area and the DEQ's limited resources, the inventory for Grants Pass was limited to areas closest to the intake and also within sensitive areas along the Rogue River.

The potential contaminant sources identified in the Grants Pass portion of the protection area include non-irrigated crops, irrigated crops, grazing animals, two timber mills, two cement companies, metal fabrication, salvage yards, transportation maintenance facilities, boat repair shops, gas stations, automobile/truck repair, shopping centers, furniture manufacturers,

industrial sites fleet terminals, electronic manufacturing, industrial parks, a water treatment plant, upstream wastewater treatment plant, high density housing, rural homesteads, sewer lines, parks, schools, four transportation corridors and substations. 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. 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 43 potential contaminant sources were identified in Grants Pass' portion of the drinking water protection area. Of these, 27 are located in the sensitive areas and 26 are high- to moderate-risk sources within "sensitive areas". An additional 284 potential sources were identified upstream of the intake. The sensitive areas within the Grants Pass 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 our community that are most vulnerable to potential impacts and can be used by the Grants Pass community to develop a voluntary Drinking Water Protection Plan.

NEED MORE INFORMATION?

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

Contact the City of Grants Pass staff if you would like additional information on these Source Water Assessment results.

**Source Water
Assessment Results
City of Grants Pass'
Drinking Water Protection
Area with Sensitive
Areas and Potential
Contamination Sources**

PWS 4100342

-  Drinking Water Protection Area
-  Drinking Water Intake - Surface Water Sensitive Areas
- 

 Area Feature (see Note 2)

 Point Feature (see Note 2)

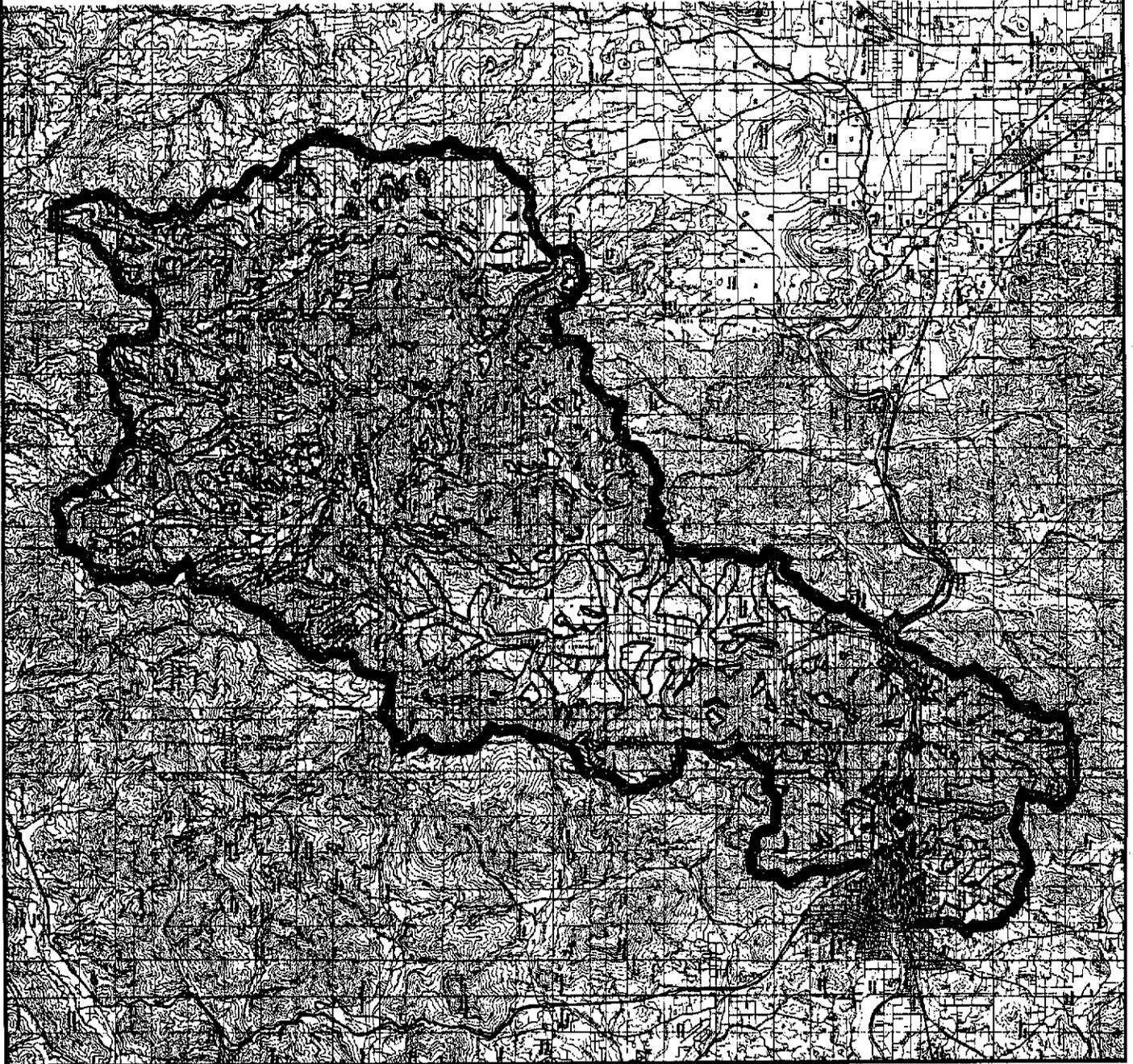
Notes on Potential Contaminant Sources

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 used and managed properly.

Note 2: Feature identification markers correspond to the potential contaminant source numbers in the SWA Report. 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.



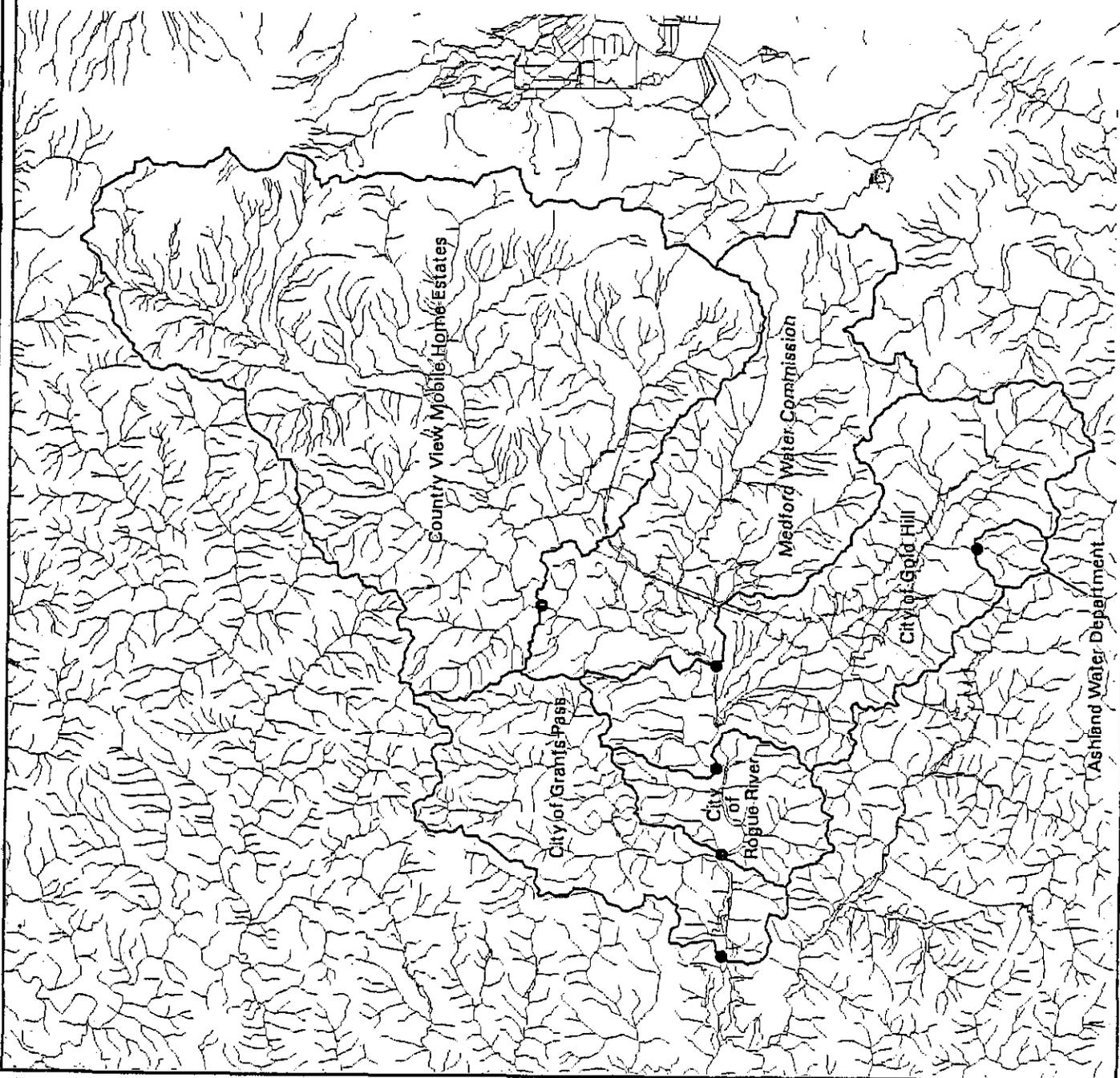
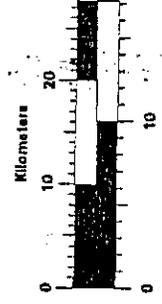
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Middle and Upper Rogue Subbasin's Drinking Water Protection Area

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

Watersheds are delineated intake-to-intake. 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 upstream of the water system's intake are included in the drinking water protection area (DWPA). We encourage water systems located in the same basin to work together during protection planning.



Attachment B

Source Water Assessment Report
City of Grants Pass
PWS # 4100342

Attachment B. Schematic of Middle and Upper Rogue Subbasin Drinking Water Protection Areas and Summary of Source Water Assessment Results for Upstream Intake(s)

Figure – Middle and Upper Rogue Subbasin Drinking Water Protection Areas (includes all water providers in the Middle and Upper Rogue Subbasin)

Figure 1's Drinking Water Protection Area for each Upstream Public Water System

Figure 2's Map of Sensitive Areas within Drinking Water Protection Area for each Upstream Public Water System

Upstream Water Providers:

City of Rogue River (PWS #4100712)

Figure 1. City of Rogue River's Drinking Water Protection Area

Figure 2. Sensitive Areas within City of Rogue River's Drinking Water Protection Area

City of Gold Hill (PWS #4100333)

Figure 1. City of Gold Hill's Drinking Water Protection Area

Figure 2. Sensitive Areas within City of Gold Hill's Drinking Water Protection Area

Medford Water Commission (PWS #4100513)

Figure 1. Medford Water Commission's Drinking Water Protection Area

Figure 2. Sensitive Areas within Medford Water Commission's Drinking Water Protection Area

Country View Mobile Home Estates (PWS #4100808)

Figure 1. Country View Mobile Home Estates' Drinking Water Protection Area

Figure 2. Sensitive Areas within Country View Mobile Home Estates' Drinking Water Protection Area

Ashland Water Department (PWS #4100047)

Figure 1. Ashland Water Department's Drinking Water Protection Area

Figure 2. Sensitive Areas within Ashland Water Department's Drinking Water Protection Area

Attachment B

Middle and Upper Rogue Subbasin's Drinking Water Protection Area

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