SOURCE WATER ASSESSMENT SUMMARY BROCHURE

OREGON CITY - SOUTH FORK WATER BOARD, PWS #4100591 North Clackamas County Water Commission, PWS #4100580 AND

CLACKAMAS RIVER WATER, PWS #4100187

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 Oregon City - South Fork Water Board (OC-SFWB), North Clackamas County Water Commission (NCCWC), and Clackamas River Water's (CRW) public water system intakes and to inventory the potential contaminant sources that may impact the drinking water supplies.

WHY WAS IT COMPLETED?

The Source Water Assessment was completed to provide information so that the OC-SFWB, NCCWC, and CRW 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 OC-SFWB, NCCWC, AND CRW'S DRINKING WATER PROTECTION AREA?

The drinking water for OC-SFWB, NCCWC, and CRW is supplied by three individual intakes on the Clackamas River. These three public water suppliers teamed with DEQ and DHS to complete this Source Water Assessment for the Clackamas River watershed upstream of the intakes. Combined, the three public water systems serve approximately 90,000 citizens.

In addition to the intakes for OC-SFWB, NCCWC, and CRW, there are intakes for three other water providers in the Clackamas River watershed; a schematic diagram of the Clackamas Sub-basin Drinking Water Protection Areas is attached. This assessment addresses the geographic area providing water to OC-SFWB, NCCWC, and CRW's intakes (SFWB, NCCWC, and CRW's portion of the drinking water protection area) between the OC-SFWB intake and the upstream intake for Estacada. The boundaries of the Drinking Water Protection Area are illustrated on the figure attached to this summary. Information on the protection area upstream of the Estacada intake is summarized in SFWB, NCCWC, and CRW's assessment.

Activities and impacts in the SFWB, NCCWC, and CRW protection area have the potential to also impact the downstream water users (Lake Oswego Municipal Water will be provided a copy of this assessment).

The OC-SFWB, NCCWC, and CRW intakes are located in the Lower Clackamas River Watershed in the Clackamas Sub-Basin of the Willamette Basin. The geographic area providing water to the intakes (the drinking water protection area) extends upstream from the OC-SFWB intake approximately 335 miles (approximately 1,130 miles including area upstream of the Estacada intake) in a southeasterly direction and encompasses a total area of 264 square miles (939 total square miles including the area upstream of the Estacada intake). Included in this area are a number of tributaries to the Clackamas River including Rock, Richardson, Clear, Eagle, Deep, Foster, and Goose Creeks and their tributaries.

The protection area within an 8-hour travel time from the intake extends approximately 14.3 miles upstream of the OC-SFWB 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.

WHAT ARE THE POTENTIAL SOURCES OF CONTAMINATION TO OC-SFWB, NCCWC, AND CRW'S 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 occupied by residential/municipal, agricultural/forest, and commercial/industrial land uses.

◆ Potential contaminant sources identified in the watershed that relate to agricultural/forest management include irrigated and non-irrigated crop areas, managed forest lands, animal grazing areas, boarding stables, confined animal feeding operations, farm machinery repair shops, and chemical mixing/storage/handling areas.

◆ Potential contaminant sources related to commercial and industrial land uses include parking lots/malls, fleet/trucking terminals, gas stations, body/repair shops, chemical processing/storage facilities, food processing facilities, junk/scrap/salvage yards, machine shops, metal plating/finishing/fabrication shops, wood/pulp/paper processing facilities, and other manufacturing land uses.

◆ The potential contaminant sources identified in the watershed that relate to residential/ municipalities include high density housing areas, a landfill, rural homesteads with septic systems, campgrounds, parks, golf courses, waste transfer/recycling stations, utility stations, and wastewater treatment plants.

◆ In addition, several major transportation corridors and bridges, storm water retention basins/outfalls, channel alteration areas, transmission line right-of-ways, and substations were located with the drinking water protection area.

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.

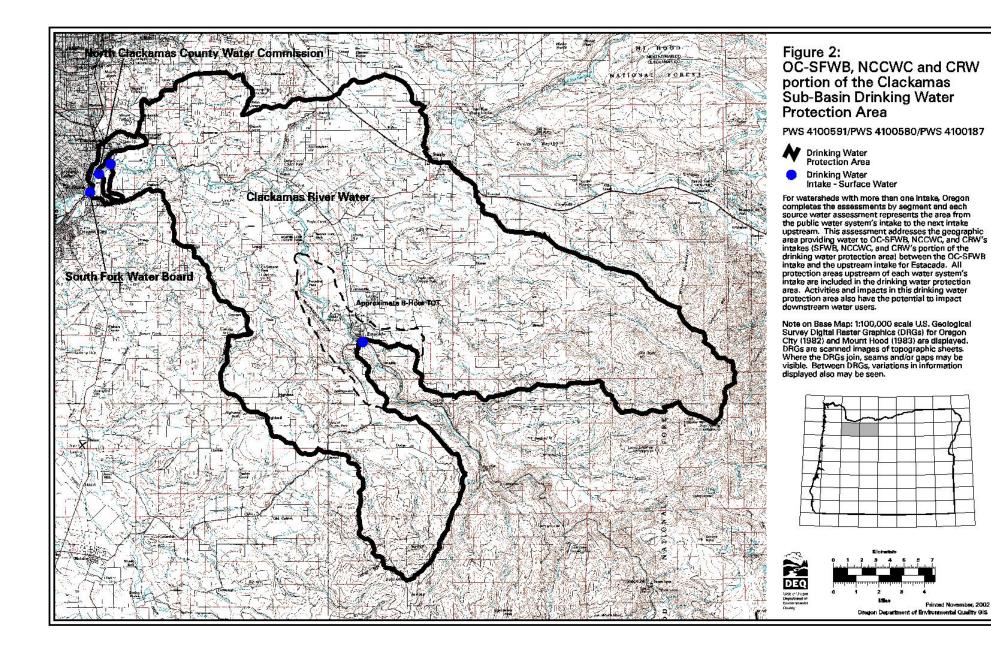
WHAT ARE THE RISKS FOR OUR SYSTEM?

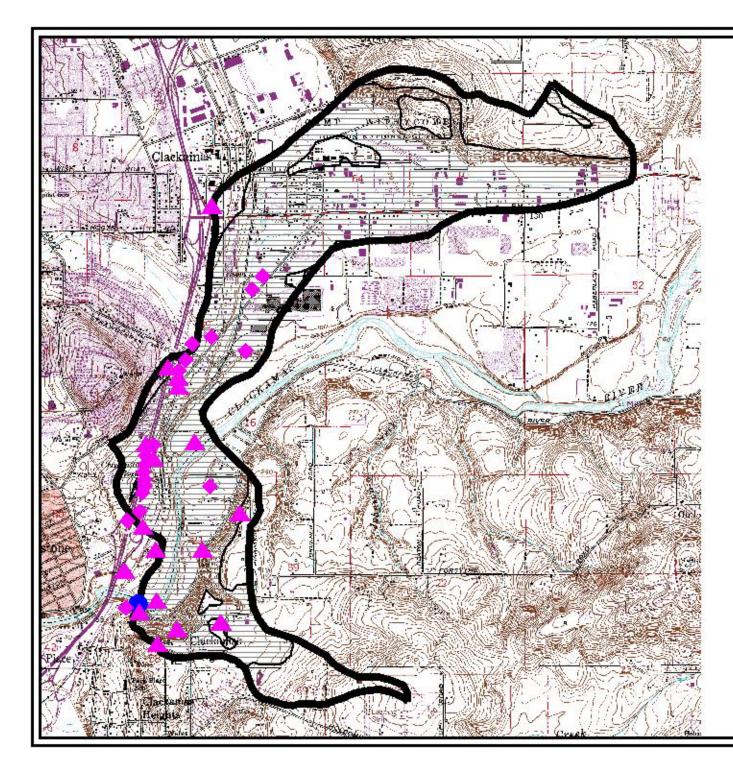
A total of 1,127 potential contaminant sources were identified in OC-SFWB, NCCWC, and CRW's drinking water protection area. An additional 51 potential sources of contamination were identified upstream of the Estacada intake. Of the sources identified in the OC-SFWB, NCCWC, and CRW's portion of the protection area, 533 are located in the sensitive areas and 445 are high- to moderate-risk sources within "sensitive areas". There are an additional 199 sites where the location and sensitivity was not identified during the inventory. The sensitive areas within the OC-SFWB, NCCWC, and CRW drinking water protection area include areas with high soil permeability, high soil erosion potential, high runoff potential and areas within 1000 feet 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 OC-SFWB, NCCWC, and CRW community to develop a voluntary Drinking Water Protection Plan or incorporate drinking water protection strategies into your existing watershed work.

NEED MORE INFORMATION?

OC-SFWB, NCCWC, and CRW's Source Water Assessment Report provides additional details on the methodology and results of this assessment. The full report is available for review at:

Contact your public water system staff if you would like additional information on OC-SFWB, NCCWC, and CRW's Source Water Assessment results.





Source Water **Assessment Results**

South Fork Water Board's Drinking Water Protection Area with Sensitive Areas and Potential **Contamination Sources**

PWS 4100591



Drinking Water Intake - Surface Water Sensitive Areas

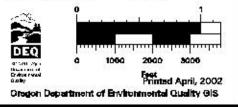
Area Feature (see Note 2)

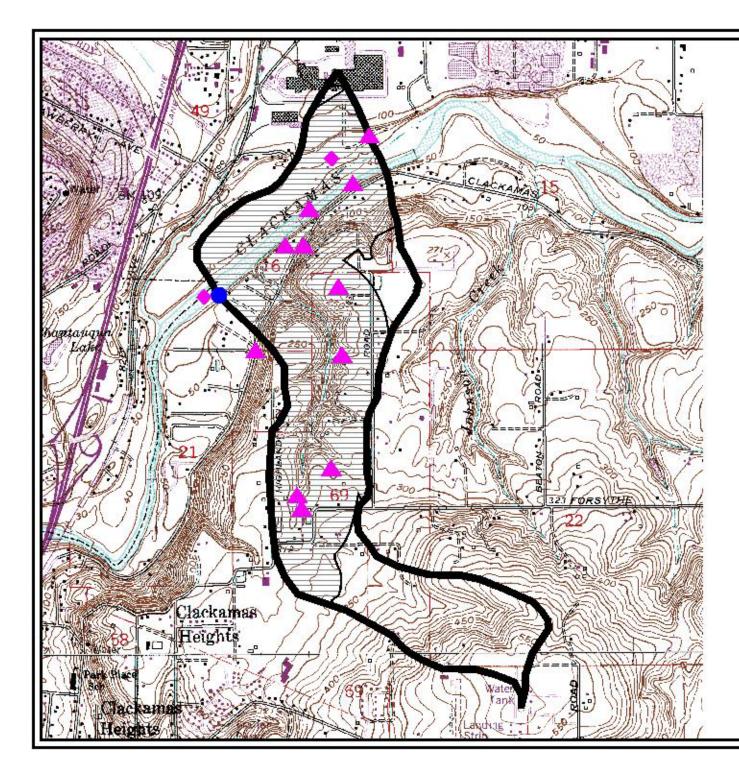
Point Feature (see Note 2)

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 property.

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. Elia maria las





Source Water Assessment Results

North Clackamas County Water Commission's Drinking Water Protection Area with Sensitive Areas and Potential Contamination Sources PWS 4100580



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

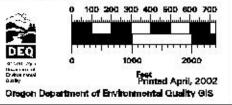
Area Feature (see Note 2)

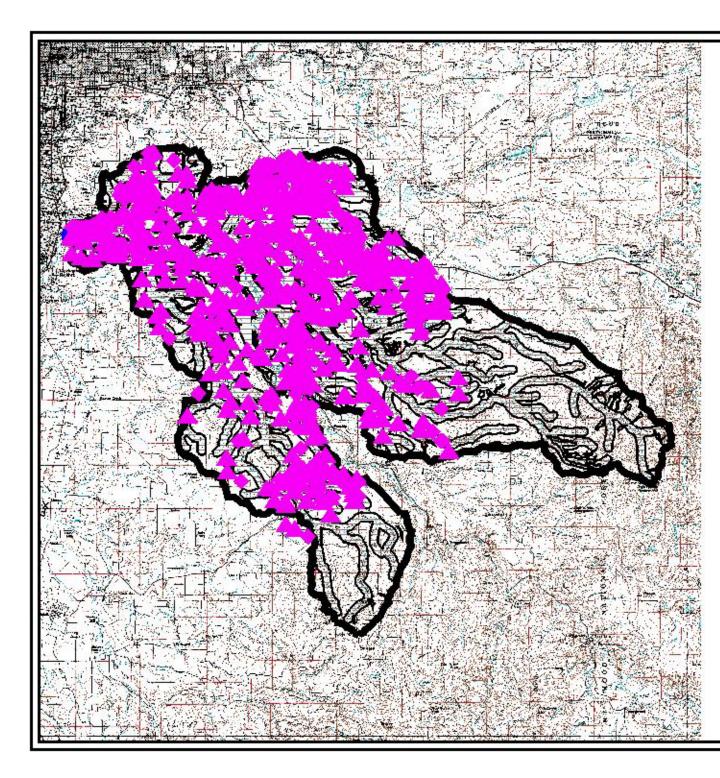
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Source Water Assessment Results

Clackamas River Water's Drinking Water Protection Area with Sensitive Areas and Potential Contamination Sources

PWS 4100187



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

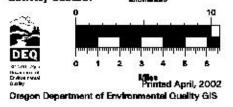
Area Feature (see Note 2)

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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	4	4
Apartments and Condominiums		Lower	6	7
Campgrounds/RV Parks	(1)	Moderate	5	18
Cemeteries - Pre-1945		Lower	7	7
Drinking Water Treatment Plants		Moderate	5	7
Fire Station		Lower	8	8
Fire Training Facilities		Moderate	1	1
Golf Courses		Moderate	6	6
Housing - High Density (> 1 House/0.5 acres)		Moderate	55	59
Landfill/Dumps	(1)	Higher	1	1
Lawn Care - Highly Maintained Areas		Moderate	33	33
Motor Pools		Moderate	1	2
Parks		Moderate	17	18
Railroad Yards/Maintenance/Fueling Areas		Higher	7	7
Schools		Moderate	14	15
Septic Systems - High Density (> 1 system/acre)	(1)	Moderate	13	13
Sewer Lines - Close Proximity to PWS	(1)	Moderate	1	2
Utility Stations - Maintenance Transformer Storage		Higher	17	19
Waste Transfer/Recycling Stations	(1)	Higher	6	6
Wastewater Treatment Plants/Collection Stations	(1)	Higher	4	8
Other: Land Disturbance - Recent Logging		Moderate	1	1
Other: Water or Wastewater Pump Station		Moderate	1	1
Other: Future Residential Land Use		Moderate	0	1

NOTES:

Sites and areas identified in this Table are only potential sources of contamination to the drinking water.

Environmental contamination is not likely to occur when contaminants are used and managed properly.

(1) - Potential source of microbial contamination

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

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Commercial/Industrial Land Uses

		Relative	Total in Lower	Total in Full
Potential Contamination Source	Note	Risk Level	DWPA ⁽³⁾	DWPA ⁽⁴⁾
Automobiles - Body Shops		Moderate	15	15
Automobiles - Car Washes		Moderate	1	1
Automobiles - Gas Stations		Moderate	17	17
Automobiles - Repair Shops		Moderate	46	46
Boat Services/Repair/Refinishing		Higher	4	4
Cement/Concrete Plants		Moderate	8	8
Chemical/Petroleum Processing/Storage		Higher	28	28
Dry Cleaners		Moderate	1	1
Electrical/Electronic Manufacturing		Higher	0	0
Fleet/Trucking/Bus Terminals		Moderate	53	54
Food Processing		Moderate	16	16
Furniture/Lumber/Parts Stores		Moderate	14	15
Home Manufacturing		Higher	3	3
Junk/Scrap/Salvage Yards		Higher	50	53
Machine Shops		Higher	42	44
Medical/Vet Offices	(1)	Lower	8	8
Metal Plating/Finishing/Fabrication		Higher	29	29
Mines/Gravel Pits		Higher	10	10
Office Buildings/Complexes		Lower	26	27
Parking Lots/Malls (> 50 Spaces)		Higher	97	97
Photo Processing/Printing		Higher	11	11
Plastics/Synthetics Producer		Higher	4	4
Research Laboratories		Higher	0	0
RV/Mini Storage		Lower	5	5
Wood Preserving/Treating		Higher	2	2
Wood/Pulp/Paper Processing and Mills		Higher	10	10
Other:		Moderate	1	2
Other: Beverage Services		Lower	1	1
Other: Cabinet Makers		Moderate	1	1
Other: Cabinet Manufacturing		Moderate	3	3
Other: Cast Molding		Higher	1	1
Other: Ceramics Manufacturing		Higher	1	1
Other: Commercial & Industrial Coatings		Moderate	1	1
Other: Commercial Industrial Coatings		Moderate	2	2
Other: Concrete Cutting		Moderate	1	1
Other: Construction Company		Moderate	12	12
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Commercial/Industrial Land Uses (cont.)

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Other:Paving CompanyModerate11Other:Restaurant & Tavern - parking lot packed gravelHigher11Other:Retail Feed & Pet SupplyLower11Other:Rural MarketModerate11Other:Secondary Wood Products IndustryModerate11Other:Shooting RangeModerate11Other:Shooping Cart RepairModerate11Other:Street Sweeping & StrippingModerate11Other:TanneriesHigher11Other:Unknown Operations - Industrial/Agricultural Processing -Moderate11Other:Unmanaged FieldsLower11Other:Wedding Site with Septic System and Parking LotsModerate11Other:Wholesaler of Exotic Bird SuppliesModerate11	•		Moderate	1	1
Other:Restaurant & Tavern - parking lot packed gravelHigher11Other:Retail Feed & Pet SupplyLower11Other:Rural MarketModerate11Other:Secondary Wood Products IndustryModerate11Other:Shooting RangeModerate22Other:Shopping Cart RepairModerate11Other:Street Sweeping & StrippingModerate11Other:TanneriesHigher11Other:Unknown Operations - Industrial/Agricultural Processing -Moderate11Other:Unmanaged FieldsLower11Other:Wedding Site with Septic System and Parking LotsModerate11Other:Wholesaler of Exotic Bird SuppliesModerate11			Moderate	1	1
Other:Retail Feed & Pet SupplyLower11Other:Rural MarketModerate11Other:Secondary Wood Products IndustryModerate11Other:Shooting RangeModerate22Other:Shopping Cart RepairModerate11Other:Street Sweeping & StrippingModerate11Other:TanneriesHigher11Other:Unknown Operations - Industrial/Agricultural Processing -Moderate11Other:Unmanaged FieldsLower11Other:Wedding Site with Septic System and Parking LotsModerate11Other:Wholesaler of Exotic Bird SuppliesModerate11			Higher	1	1
Other:Secondary Wood Products IndustryModerate11Other:Shooting RangeModerate22Other:Shopping Cart RepairModerate11Other:Street Sweeping & StrippingModerate11Other:TanneriesHigher11Other:Unknown Operations - Industrial/Agricultural Processing -Moderate11Other:Unmanaged FieldsLower11Other:Wedding Site with Septic System and Parking LotsModerate11Other:Wholesaler of Exotic Bird SuppliesModerate11			-	1	1
Other:Shooting RangeModerate22Other:Shopping Cart RepairModerate11Other:Street Sweeping & StrippingModerate11Other:TanneriesHigher11Other:Unknown Operations - Industrial/Agricultural Processing -Moderate11Other:Unmanaged FieldsLower11Other:Wedding Site with Septic System and Parking LotsModerate11Other:Wholesaler of Exotic Bird SuppliesModerate11	Other: Rural Market		Moderate	1	1
Other:Shopping Cart RepairModerate11Other:Street Sweeping & StrippingModerate11Other:TanneriesHigher11Other:Unknown Operations - Industrial/Agricultural Processing -Moderate11Other:Unmanaged FieldsLower11Other:Wedding Site with Septic System and Parking LotsModerate11Other:Wholesaler of Exotic Bird SuppliesModerate11	Other: Secondary Wood Products Industry		Moderate	1	1
Other:Street Sweeping & StrippingModerate11Other:TanneriesHigher11Other:Unknown Operations - Industrial/Agricultural Processing -Moderate11Other:Unmanaged FieldsLower11Other:Wedding Site with Septic System and Parking LotsModerate11Other:Wholesaler of Exotic Bird SuppliesModerate11	Other: Shooting Range		Moderate	2	2
Other:TanneriesHigher11Other:Unknown Operations - Industrial/Agricultural Processing -Moderate11Other:Unmanaged FieldsLower11Other:Wedding Site with Septic System and Parking LotsModerate11Other:Wholesaler of Exotic Bird SuppliesModerate11	Other: Shopping Cart Repair		Moderate	1	1
Other:Unknown Operations - Industrial/Agricultural Processing - LowerModerate11Other:Unmanaged FieldsLower11Other:Wedding Site with Septic System and Parking LotsModerate11Other:Wholesaler of Exotic Bird SuppliesModerate11	Other: Street Sweeping & Stripping		Moderate	1	1
Other:Unmanaged FieldsLower11Other:Wedding Site with Septic System and Parking LotsModerate11Other:Wholesaler of Exotic Bird SuppliesModerate11	Other: Tanneries		Higher	1	1
Other:Wedding Site with Septic System and Parking LotsModerate11Other:Wholesaler of Exotic Bird SuppliesModerate11	Other: Unknown Operations - Industrial/Agricultural Process	ing -	Moderate	1	1
Other: Wholesaler of Exotic Bird Supplies Moderate 1 1	Other: Unmanaged Fields		Lower	1	1
	Other: Wedding Site with Septic System and Parking Lots		Moderate	1	1
Other: Fish Research Moderate 1 1	Other: Wholesaler of Exotic Bird Supplies		Moderate	1	1
	Other: Fish Research		Moderate	1	1
Other: Unknown Business Type Moderate 1 1			Moderate	1	1
Other: Warehouse Lower 1 1	Other: Warehouse		Lower	1	1

NOTES:

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PWS # 4100591 – OREGON CITY SOUTH FORK WATER BOARD PWS #4100580 – NORTH CLACKAMAS COUNTY WATER COMMISSION, and PWS # 4100187 - CLACKAMAS RIVER WATER - CLACKAMAS

Agricultural/Forest Land Uses

Potential Contamination Source	Note	Relative Risk Level	Total in Lower DWPA ⁽³⁾	Total in Full DWPA ⁽⁴⁾
Auction Lots			0	0
	(1)	Higher	-	-
Boarding Stables	(1)	Higher	36 12	36 12
Confined Animal Feeding Operations (CAFOs)	(1)	Higher	173	12
Crops - Irrigated (inc. orchards, vineyards, nurseries, Crops - Nonirrigated (inc. Christmas trees, grains, grass seed	(2)	Higher Lower	200	200
	,	Moderate	200	200 33
Farm Machinery Repair Grazing Animals (> 5 large animals or equivalent/acre)	(4)		133	33 134
Lagoons/Liquid Wastes	(1)	Higher	3	134 3
Land Application Sites	(1)	Higher Higher	3 4	3 4
	(1)	Lower	4	4
Managed Forest Land - Broadcast Fertilized Areas			32	0 37
Managed Forest Land - Clearcut Harvest (< 35 yrs.)		Higher	32 7	8
Managed Forest Land - Partial Harvest (< 10 yrs.) Managed Forest Land - Road Density (> 2 mi./sq. mi.)		Higher Moderate	0	8 0
Pesticide/Fertilizer/Petroleum Storage, Handling, Mixing, &			22	0 24
• • •		Higher Higher	1	24 1
Recent Burn Areas (< 10 yrs.) Managed Forest Lands - Status Unknown		Higher	1	1
Other:		Moderate	1	1
Other:		Lower	0	1
		Moderate	1	1
Other: - Unknown Agriculture Operation Other: Abandoned Stock Nursey		Moderate	1	1
Other: Crops - Nonirrigated - Abandoned Christmas Trees		Lower	3	3
Other: Deciduous Woodland		Lower	1	1
Other: Feed Store		Lower	1	1
Other: Fish Hatchery		Higher	2	2
Other: Fish Hatchery		Moderate	1	1
Other: Former Christmas Tree Farm		Lower	1	1
Other: Land Clearing - No Erosion Control		Higher	1	1
Other: Managed Forest Lands 35+ yrs		Lower	1	1
Other: Meat / Game Processing Facility		Higher	1	1
Other: Old Farm Worker Housing		Moderate	1	1
Other: Pond		Moderate	1	1
Other: Poultry Slaughter House		Higher	2	2
Other: Poultry Slaughter House/Food Processing Facility		Higher	2	2 1
Other. Foundy Slaughter House/Food Flocessing Facility		righer	I	I

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Agricultural/Forest Land Uses (cont.)

Potential Contamination Source	Note	Relative Risk Level	Total in Lower DWPA ⁽³⁾	Total in Full DWPA ⁽⁴⁾
Other: Steep Slopes		Higher	1	1
Other: Stream		Higher	6	6
Other: Stream		Lower	3	3
Other: Stream		Moderate	7	7
Other: Transitional Timber Lands		Lower	6	6
Other: Unknown agricultural operation		Moderate	1	1
Other: Unmanaged Christmas trees		Lower	1	1
Other: Unmanaged Deciduous Forest Land		Lower	1	1
Other: Unmanaged Deciduous Forest Lands		Lower	7	7
Other: Unmanaged Deciduous Forest Lands & Stream		Lower	1	1
Other: Unmanaged Forest		Lower	1	1
Other: Unmanaged Forest Lands		Lower	9	9
Other: Wetland Area		Moderate	1	1
Other: Wetlands		Lower	6	6

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Miscellaneous Land Uses

Miscellaneous Lana 0365				
Potential Contamination Source	Note	Relative Risk Level	Total in Lower DWPA ⁽³⁾	Total in Full DWPA ⁽⁴⁾
Above Ground Storage Tanks - Excluding Water	11010	Moderate	10	13
Channel Alterations - Heavy	Higher	7	7	
Combined Sewer Outfalls	(1)	Lower	0	0
Stormwater Outfalls	(1)	Higher	3	3
Composting Facilities	(1)	Higher	2	2
Historic Gas Stations	(1)	Higher	3	3
Historic Waste Dumps/Landfills	(1)	Higher	0	0
Homesteads - Rural - Machine Shops/Equipment Maintenar		Higher	31	31
Homesteads - Rural - Septic Systems (< 1/acre)		Lower	181	181
Injection/Dry Wells, Sumps - Class V UICs	(1)(3)	Higher	0	0
Kennels (> 20 Pens)	(1)	Moderate	7	7
	(1)	Higher	1	1
Military Installations Random Dump Sites		Higher	20	20
	(4)	Moderate	20 10	20 17
River Recreation - Heavy Use (inc. campgrounds)	(1)		5	5
Sludge Disposal Areas Stormwater Retention Basins	(1)	Higher	5 16	5 16
	(1)	Higher		
Transmission Lines - Right-of-Ways		Higher	21	24
Transportation - Freeways/State Highways/Other Heavy Use	9	Higher	28	29
Transportation - Railroads		Higher	7	7
Transportation - Right-Of-Ways - Herbicide Use Areas		Higher	1	1
Transportation - River Traffic - Heavy		Higher	5	5
Transportation - Stream Crossing - Perennial		Higher	61	62
UST - Confirmed Leaking Tanks - DEQ List		Moderate	2	2
UST - Decommissioned/Inactive		Lower	2	2
UST - Nonregulated Tanks (< 1,100 gals or Large Heating C	Dil	Higher	0	0
UST - Not Upgraded and/or Registered Tanks		Moderate	1	1
UST - Upgraded/Registered - Active		Lower	1	1
UST - Status Unknown		Moderate	12	12
Upstream Reservoirs/Dams		Moderate	8	10
Wells/Abandoned Wells		Moderate	3	3
Large Capacity Septic Systems (serves > 20 people) - Class \	′(1)	Moderate	27	27
Construction/Demolition Areas		Higher	1	1
Other:		Higher	0	1
Other: 5 gallon storage containers on-site, contents unknow	'n.	Moderate	1	1
Other: Culvert without Fish Barrier		Moderate	1	1

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Miscellaneous Land Uses (cont.)

Potential Contamination Source	Note	Relative Risk Level	Total in Lower DWPA ⁽³⁾	Total in Full DWPA ⁽⁴⁾
Other: Land Use Unknown		Moderate	1	1
Other: Pipeline Easement		Moderate	1	1
Other: Pond		Higher	2	2
Other: Pond		Lower	23	23
Other: Pond		Moderate	9	9
Other: Pond - Instream		Moderate	1	1
Other: Cell Phone Tower		Lower	1	1
Other: Culvert Storage		Lower	1	1
Other: Heliport serving Mt. Hood NF Sites		Moderate	0	1
Other: Power Boat/watercraft fueling area over water		Higher	0	1

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(3) - "Lower DWPA" summarizes the total number of potential contaminant sources (PCSs) identified in the geographic area providing water to OC-SFWB, NCCWC, and CRW's intakes between the OC-SFWB intake and the upstream intake for Estacada. (4) - "Full DWPA" summarizes all PCSs identified in the geographic area providing water to OC-SFWB, NCCWC, and CRW's intakes (including the PCSs identified in areas upstream of the Estacada intake and USFS Timberlake JCC's intakes).

TABLE 2. POSSIBLE WATER QUALITY IMPACTS FOR POTENTIAL CONTAMINANT SOURCES

	RESIDENT	IAL / MUNICIPAL LAND USES		
DEQ PCS CODE	TYPE OF ACTIVITY	POTENTIAL WATER QUALITY IMPACTS	Risk to GW	Risk to SW
R01	Airport - Maintenance/Fueling Area	Spills, leaks, or improper handling of fuels, de-icers, and other chemicals during transportation, use, storage and disposal may impact the drinking water supply.		М
R02	Apartments and Condominiums	Improper use, storage, and disposal of household and facility maintenance chemicals including cleaners, vehicle maintenance products, pool chemicals, pesticides and fertilizers may impact the drinking water supply. Stormwater run-off or infiltration may carry contaminants to drinking water supply.	L	L
R03	Campgrounds/RV Parks	Leaks or spills of automotive fluids or improperly managed septic systems and wastewater disposal may impact drinking water supply. Heavy usage along edge of waterbody may contribute to erosion, causing turbidity.	L	М
R04	Cemeteries - Pre-1945	Embalming fluids (for example, arsenic) and decomposition by-products may impact drinking water supply.	М	L
R05	Drinking Water Treatment Plants	Treatment chemicals and equipment maintenance materials may impact groundwater or surface water source.	М	М
R06	Fire Station	Spills, leaks, or improper handling of chemicals and other materials during transportation, use, storage and disposal may impact the drinking water supply.	L	L
R07	Fire Training Facilities	Improper use of fuels and other chemicals during fire training may impact the drinking water supply.	М	М
R08	Golf Courses	Over-application or improper handling of pesticides or fertilizers may impact drinking water. Excessive irrigation may cause transport of contaminants to groundwater or surface water through runoff.	М	М
R09	Housing - High Density - > 1 House/0.5 Acres	Improper use, storage, and disposal of household chemicals including Cleaners, vehicle maintenance products, pool chemicals, pesticides and fertilizers may impact the drinking water supply. Stormwater run-off or infiltration may carry contaminants to drinking water supply.	М	М
R10	Landfill/Dumps	Water percolating through the landfill waste material may transport contaminants to groundwater or surface water supply.	Н	Н
R11	Lawn Care - Highly Maintained Areas	Over-application or improper handling of pesicides or fertilizers may impact drinking water. Excessive irrigation may cause transport of contaminants to groundwater or surface water through runoff.	М	М

TABLE 2. POSSIBLE WATER QUALITY IMPACTS FOR POTENTIAL CONTAMINANT SOURCES

DEQ PCS CODE	TYPE OF ACTIVITY	POTENTIAL WATER QUALITY IMPACTS	Risk to GW	Risk to SW
R12	Motor Pools	Spills, leaks, or improper handling of fuels and other chemicals from vehicle service and parking areas may impact the drinking water supply. Stormwater run-off or infliltration may carry contaminants to drinking water.	М	М
R13	Parks	Over-application or improper handling of pesticides or fertilizers may impact drinking water. Excessive irrigation may cause transport of contaminants to groundwater or surface water through runoff. Heavy usage along edge of waterbody may contribute to erosion, causing turbidity.	М	М
R14	Railroad Yards/Maintenance/Fueling Areas	Spills, leaks, or improper handling of fuels and other chemicals during transportation, use, storage and disposal may impact the drinking water supply.	Н	Н
R15	Schools	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.	L	М
R16	Septic Systems - High Density - > 1/Acre	If not properly sited, designed, installed, and maintained, septic systems can impact drinking water. Cumulative effects of multiple systems in an area may impact drinking water supply.	Н	М
R17	Sewer Lines - Close Proximity to PWS	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.	Н	М
R18	Utility Stations - Maintenance Transformer Storage	Spills, leaks, or improper handling of chemicals and other materials including PCBs during transportation, use, storage and disposal may impact the drinking water supply.	Н	Н
R19	Waste Transfer/Recycling Stations	Improper management of water contacting waste material may impact the drinking water supply.	М	Н
R20	Wastewater Treatment Plants/Collection Stations	Improper management of wastewater, treatment chemicals, or equipment maintenance materials may impact drinking water supply.	М	Н
R50	Others (List)	The impacts to this potential contaminant source will be addressed during the enhanced inventory.		

	COMMERC	CIAL / INDUSTRIAL LAND USES		
DEQ PCS CODE	TYPE OF ACTIVITY	POTENTIAL WATER QUALITY IMPACTS	Risk to GW	Risk to SW
C01	Auto - Body Shops	Improper management of vehicle paints, thinners, and primer products may impact the drinking water supply.	Н	М
C02	Auto - Car Washes	Improper management of vehicle wash water may result in soaps, oils, greases, and metals impacting the drinking water supply.	М	М
C03	Auto - Gas Stations	Spills, leaks, or improper handling of fuels and other materials during transportation, transfer, and storage may impact the drinking water supply.	Н	М
C04	Auto - Repair Shops	Spills, leaks, or improper handling of automotive fluids, solvents, and repair materials during transportation, use, storage and disposal may impact the drinking water supply.	Н	М
C05	Boat Services/Repair/Refinishing	Spills, leaks, or improper handling of fuels, septage, maintenance chemicals, sandblasting wastes, paints, and other materials during transportation, use, storage and disposal may impact the drinking water supply.	Н	Н
C06	Cement/Concrete Plants	Spills, leaks, or improper handling of chemicals and high turbidity wastewaters during transportation, use, storage and disposal may impact the drinking water supply.	М	М
C07	Chemical/Petroleum Processing/Storage	Spills, leaks, or improper handling of chemicals and other materials during transportation, use, storage and disposal may impact the drinking water supply.	Н	Н
C08	Dry Cleaners	Spills, leaks, or improper handling of dry cleaning solvents and other chemicals during transportation, use, storage and disposal may impact the drinking water supply.	Н	М
C09	Electrical/Electronic Manufacturing	Spills, leaks, or improper handling of chemicals and other materials during transportation, use, storage, and disposal may impact the drinking water supply.	Н	М
C10	Fleet/Trucking/Bus Terminals	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.	Н	М
C11	Food Processing	Spills, leaks, or improper handling of chemicals and other materials during transportation, use, storage and disposal may impact the drinking water supply.	М	М
C12	Furniture/Lumber/Parts Stores	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.	М	М
C13	Home Manufacturing (modular)	Spills, leaks, or improper handling of chemicals and other materials during transportation, use, storage and disposal may impact the drinking water supply.	Н	Η

DEQ PCS CODE	TYPE OF ACTIVITY	POTENTIAL WATER QUALITY IMPACTS	Risk to GW	Risk to SW
C14	Junk/Scrap/Salvage Yards	Spills, leaks, or improper handling of automotive chemicals, batteries, and other waste materials during storage and disposal may impact the drinking water supply.	Н	Η
C15	Machine Shops	Spills, leaks, or improper handling of solvents, metals, and other chemicals or materials during transportation, use, storage and disposal may impact the drinking water supply.	Н	Η
C16	Medical/Vet Offices	Spills, leaks, or improper handling of x-ray, biological, chemical, and radioactive wastes and other materials during transportation, use, storage and disposal may impact the drinking water supply.	М	L
C17	Metal Plating/Finishing/Fabrication	Spills, leaks, or improper handling of solvents and other chemicals during transportation, use, storage and disposal may impact the drinking water supply.	Η	Н
C18	Mines/Gravel Pits	Spills, leaks, or improper handling of chemicals and wastes generated in mining operations or from heavy equipment may impact the drinking water supply.	Н	Н
C19	Office Buildings/Complexes	Spills, leaks, or improper handling of chemicals and other materials stored and used in maintenance or from parking areas may impact the drinking water supply.	L	L
C20	Parking Lots/Malls - > 50 Spaces	Spills and leaks of automotive fluids in parking lots may impact the drinking water supply.	Н	Н
C21	Photo Processing/Printing	Spills, leaks, or improper handling of photographic chemicals during transportation, use, storage and disposal may impact the drinking water supply.	Η	Н
C22	Plastic/Synthetics Producer	Spills, leaks, or improper handling of solvents and resins during transportation, use, storage and disposal may impact the drinking water supply.	Н	Н
C23	Research Laboratories	Spills, leaks, or improper handling of laboratory chemicals and wastes during transportation, use, storage and disposal may impact the drinking water supply.	Н	Н
C24	RV/Mini Storage	Spills, leaks, or improper handling of automotive fluids and other materials during transportation, storage and disposal may impact the drinking water supply.	L	L
C25	Wood/Pulp/Paper Processing and Mills	Spills, leaks, or improper handling of chemicals and other materials during transportation, use, storage and disposal may impact the drinking water supply.	Н	Н
C26	Wood Preserving/Treating	Spills, leaks, or improper handling of wood preservatives and other chemicals during transportation, use, storage and disposal may impact the drinking water supply.	Н	Н
C50	Others (List)	Spills, leaks, or improper handling of chemicals and other materials during transportation, use, storage, and disposal may impact the drinking water supply.		

	AGRICUL	FURAL / FOREST LAND USES		
DEQ PCS CODE	TYPE OF ACTIVITY	POTENTIAL WATER QUALITY IMPACTS	Risk to GW	Risk to SW
A01	Auction Lots	Improper storage and management of animal wastes and wastewater in areas of concentrated livestock may impact drinking water.	Н	Н
A02	Boarding Stables	Improper storage and management of animal wastes and wastewater in areas of concentrated livestock may impact drinking water.	М	Н
A03	Confined Animal Feeding Operations (CAFOs)	Improper storage and management of animal wastes and wastewater in areas of concentrated livestock may impact drinking water.	Н	Н
A04	Crops - Irrigated - Berries, Hops, Mint, Orchards, Vineyards/Nurseries, Green Houses, Vegetables, etc.	Over-application or improper handling of pesticides or fertilizers may impact drinking water. Excessive irrigation may cause transport of contaminants or sediments to groundwater/surface water through runoff. NOTE: *Drip- irrigated crops such as vineyards and some vegetables, are considered to be a low risk.	M*	Н
A05	Crops - Nonirrigated - Christmas Trees, Grains, Grass Seeds, Hay, Pasture	Over-application or improper handling of pesticides or 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 to groundwater and surface water.	L	L
A06	Farm Machinery Repair	Spills, leaks, or improper handling of solvents and petroleum products during transportation, use, storage and disposal may impact the drinking water supply.	Н	М
A07	Grazing Animals - > 5 Large Animals or Equivalent/Acre	Improper storage and management of animal wastes may impact drinking water supply. Concentrated livestock may contribute to erosion and sedimentation of surface water bodies.	М	Н
A08	Lagoons/Liquid Wastes	Improper seepage or overflows of liquid wastes may impact the drinking water supply.	Н	Н
A09	Land Application Sites	Improper management of sludge and wastewater may impact drinking water supply.	М	Н
A10	Managed Forest Lands - Broadcast Fertilized Areas	Over-application or improper handling of pesticides or fertilizers may impact the drinking water source.	L	М
A11	Managed Forest Lands - Clearcut Harvested - < 35 yrs	Cutting and yarding of trees may contribute to increased erosion, resulting in turbidity and chemical changes in drinking water supply. Over-application or improper handling of pesticides or fertilizers may impact drinking water source.	М	Н

DEQ PCS CODE	TYPE OF ACTIVITY	POTENTIAL WATER QUALITY IMPACTS	Risk to GW	Risk to SW
A12	Managed Forest Lands - Partial Harvested - <10 yrs	Cutting and yarding of trees may contribute to increased erosion, resulting in turbidity and chemical changes (ex:nitrates) in drinking water supply. Over-application or improper handling of pesticides or fertilizers may impact drinking water source.	М	Н
A13	Managed Forest Lands - Road Density - > 2 mi/sq mi	Road building, maintenance, and usage may contribute to erosion and slope failure causing turbidity in drinking water supply. Vehicle usage increases the risks of leaks or spills of petroleum products and other hazardous materials.	М	Н
A14	Pesticide/Fertilizer/Petroleum Storage, Handling, Mixing, & Cleaning Areas	Leaks, spills and improper handling of pesticides, fertilizers and petroleum products may impact drinking water source.	Н	Н
A15	Recent Burn Areas - < 10 yrs	Vegetation removal by fire may increase surface erosion and sediment delivery rates, resulting in high turbidity in drinking water source.	L	Н
A50	Others (List)	The impacts of this potential contaminant source will be addressed during the enhanced inventory.		

	MISCELLANEOUS LAND USES				
DEQ PCS CODE	TYPE OF ACTIVITY	POTENTIAL WATER QUALITY IMPACTS	Risk to GW	Risk to SW	
M01	Above Ground Storage Tanks	Spills, leaks, or improper handling of stored materials may impact the drinking water supply.	М	М	
M02	Channel Alterations - Heavy	Construction or maintenance of channel may cause erosion, resulting in increase in turbidity of surface water. Improper stream alterations may also contribute to increase in potential for flooding.	L	Н	
M03	Combined Sewer Outfalls	Combined sewer overflows contribute untreated wastewater at the outfall.	L	Н	
M04	Stormwater Outfalls	Stormwater run-off may contain contaminants from residential (homesites and roads), commercial/industrial, and agricultural use areas.	L	Н	
M05	Composting Facilities	Storage and improper handling of organic material, animal waste, and wastewater may impact drinking water.	М	Н	
M06	Historic Gas Stations	Historic spills, leaks, or improper handling of solvents and petroleum products may impact the drinking water supply. Abandoned underground storage tanks may be present.	Н	Н	
M07	Historic Waste Dumps/Landfills	Water percolating through old landfills or dump sites may transport contaminants to groundwater or surface water supply.	Н	Н	
M08	Homesteads - Rural - Machine Shops	Spills, leaks, or improper handling of solvents, fuels, and other materials or chemicals during transportation, use, storage and disposal may impact the drinking water supply.	Н	Н	
M09	Homesteads - Rural - Septic Systems < 1/Acre	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.	L	L	
M10	Injection Wells/Drywells/Sumps - Class V UICs	Shallow injection wells may transport untreated wastewater (process or storm water) directly into groundwater and impact drinking water.	Н	М	
M11	Kennels - > 20 Pens	Improper storage, management, and disposal of animal wastes and wastewater in areas of concentrated animals may impact drinking water.	L	М	
M12	Military Installations	Spills, leaks, or improper handling of chemicals and other materials during transportation, use, storage and disposal may impact the drinking water supply. May also contain ordnance or waste landfills/dump sites, as well as other potential contaminant sources.	Н	Н	
M13	Random Dumpsites	Illegal trash and debris containing chemicals and hazardous materials may cause contamination to groundwater or surface water supply.	М	Н	

DEQ PCS CODE	TYPE OF ACTIVITY	POTENTIAL WATER QUALITY IMPACTS	Risk to GW	Risk to SW
M14	River Recreation - Heavy Use	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 of the drinking water supply.	L	М
M15	Sludge Disposal Areas	Improper management of sludge and wastewater may impact drinking water supply.	М	Н
M16	Stormwater Retention Basins	Stormwater run-off may contain a wide variety of contaminants from residential, commercial/industrial, and agricultural use areas.	М	Н
M17	Transmission Lines - Right-of-Ways	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.	L	Н
M18	Transportation Corridors - Freeways/State Highways	Vehicle usage increases the risks for leaks or spills of fuels and other hazardous materials that may impact drinking water. Road building, maintenance, and usage may contribute to increased erosion and slope failure causing turbidity in drinking water source. Over-application or improper handling of pesticides or fertilizers may impact the drinking water supply.	М	Н
M19	Transportation Corridors - Railroads	Rail transport increases the risks for leaks or spills of fuels and other hazardous materials that may impact drinking water. Installation and maintenance of tracks may contribute to increased erosion and slope failure causing turbidity in drinking water source. Over-application or improper handling of pesticides adjacent to tracks may impact the drinking water supply.	М	Н
M20	Transportation Corridors - Right-of- Ways - Herbicide Use Areas	Over-application or improper handling of pesticides may impact drinking water supply.	М	Н
M21	Transportation Corridors - River Traffic – Heavy	Heavy river usage may contribute to riverbank erosion and increased turbidity in drinking water supply. Fuel and other chemical leaks, spills and emissions may also contribute to drinking water contamination.	L	Н
M22	Transportation Corridors - Stream Crossing – Perennial	Road building, maintenance, and usage may contribute to erosion and slope failure causing turbidity in drinking water source. Vehicle usage increases the risks of leaks or spills of fuels and other chemicals in highly sensitive areas. Over- application or improper handling of pesticides in right-of-way may also impact drinking water source.	L	Н
M23	UST - Confirmed Leaking Tanks - DEQ List	Existing contamination from spills, leaks, or improper handling of stored materials may impact the drinking water supply.	Н	М
M24	UST – Decommissioned	Historic spills or leaks may impact the drinking water supply.	L	L

DEQ PCS CODE	TYPE OF ACTIVITY	POTENTIAL WATER QUALITY IMPACTS	Risk to GW	Risk to SW
M25	UST - Non-Regulated Tanks - < 1,100 gals	Spills, leaks, or improper handling of stored materials may impact the drinking water supply.	Н	М
M26	UST - Not Yet Upgraded or Registered Tanks	Spills, leaks, or improper handling of stored materials may impact the drinking water supply.	Н	М
M27	UST - Upgraded and/or Registered – Active	Spills or improper handling during tank filling or product distribution may impact the drinking water supply.	L	L
M28	UST - Status Unknown	Spills, leaks, or improper handling of stored materials may impact the drinking water supply.	Н	М
M29	Upstream Reservoirs	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.	L	М
M30	Wells/Abandoned Wells	Improperly installed or maintained wells and abandoned wells may provide a direct conduit for contamination to groundwater and drinking water source.	Н	М
M31	Large Capacity Septic Systems -Class V UIC (serves >20)	If not properly sited, designed, installed, and maintained, septic systems can impact drinking water.	Н	М
M50	Others (List)	The impacts of this potential contaminant source will be addressed during the enhanced inventory.		