

City of Port Orford

CURRY COUNTY, OREGON

Wastewater Reuse Feasibility Study

October 2025





City of Port Orford

CURRY COUNTY, OREGON

Wastewater Reuse Feasibility Study

October 2025

Prepared by:



Renews: 12/31/2027

Table of Contents

1	INTRODUCTION & BACKGROUND.....	1
1.1	Introduction	1
1.2	Authorization	1
1.3	Background	3
1.4	Project Purpose and Scope	3
1.5	Regulatory Agencies and Framework	3
1.5.1	Oregon Administrative Rules	3
1.5.2	Clean Water Act	14
1.5.3	Safe Drinking Water Act.....	14
1.5.4	Regulatory Agencies.....	14
1.6	Environmental Protection Agency Guidelines	15
1.7	State Regulations	15
1.8	Department of Environmental Quality Policy and Regulatory Authority	16
1.9	OAR Chapter 340, Division 055 – As Adopted	16
1.10	Recycled Water Use Plan	16
2	PLANNING AND STUDY AREAS.....	19
2.1	Study Area.....	19
2.2	Land Use.....	23
3	WASTEWATER SYSTEM	27
3.1	System Efficiency	27
3.2	Wastewater Flows	27
3.3	Existing Wastewater System.....	30
3.3.1	Collection System.....	30
3.3.2	Wastewater Facilities.....	36
3.3.3	Wastewater Discharge Permits	41
4	WASTEWATER REUSE OPPORTUNITIES	42
4.1	Wastewater Reuse Priorities	42
4.2	Recommended Improvements Summary.....	42
4.3	Potential Sites for Water Reuse.....	43

5	ALTERNATIVES.....	47
5.1	Summary of Alternatives	47
5.1.1	Alternative 1: No Action.....	47
5.1.2	Alternative 2: City-Owned Water Recycling Infrastructure.....	47
5.1.3	Alternative 3: In-City Private User-Owned Water Recycling Infrastructure.....	50
5.1.4	Alternative 4: Private Investor-Owned Infrastructure (beyond city limits).....	52
5.2	Summary of Costs	55
5.2.1	Alternative 1: No Action.....	55
5.2.2	Alternative 2: City-Owned Water Recycling Infrastructure.....	55
5.2.3	Alternatives 3 and 4: Privately Owned Water Recycling Infrastructure.....	57
6	Recommendations	58

Table of Tables

Table 1.	Designation of Treatment Levels	4
Table 2.	Recycled Water Beneficial Purposes.....	5
Table 3	Forecasted Population and Volume of Recycled Wastewater Available for Reuse	29
Table 4.	Wastewater Collection System Inventory.....	30
Table 5.	WWTP Component Design Specifications.....	39
Table 6.	Potential Users and Required Classification Level.....	45
Table 7.	DEQ, Oregon Recycled Water Classes Based on Level of Treatment	46
Table 8.	Estimated Costs for Creating a Recycled Water Tie-in at WWTP	55
Table 9.	Estimated Costs for City-Installed Infrastructure.....	56

Table of Figures

Figure 1.	Project Vicinity Map.....	2
Figure 2.	Wastewater Treatment Facilities Location Map.....	20
Figure 3.	Study Area/City Limits.....	21
Figure 4.	USGS Topographic Map	22
Figure 5.	Land Use Planning Map	24
Figure 6.	Collection System Flow Schematic	34
Figure 7.	Collection System Basin Map.....	35
Figure 8.	Wastewater Process Flow Schematic	38

City of Port Orford – Wastewater Reuse Feasibility Study

Applicant: City of Port Orford, Oregon
555 20th St.
Port Orford, OR 97465

Project Manager: John Isadore, Public Works Director
City of Port Orford
555 20th St.
Port Orford, OR 97465
jisadore@portorfordor.gov
541-332-3681

ABBREVIATIONS

AB	aeration basin
AC	asbestos cement
ADF	average dry weather flow
ADWF	average dry weather flow
AN	anoxic cell
BOD	biological oxygen demand
CF	cubic feet
CWA	Clean Water Act
DI	ductile iron
EA	each
EPA	Environmental Protection Agency
F/M	food to micro-organism ratio
gpm	gallons per minute
Hrs	hours
Hwy	highway
in.	inch
LF	linear feet
LS	lump sum
max	maximum
MGD	million gallons per day
min	minimum
MLSS	mixed liquor suspended solids
MLVSS	mixed liquor volatile suspended solids
MMDWF	max month dry weather flow
MSL	mean sea level
NPDES	National Pollutant Discharge Elimination System
OAR	Oregon Administrative Rules
ODEQ	Oregon Department of Environmental Quality
OHA	Oregon Health Authority
ORS	Oregon Revised Statute
OWRD	Oregon Water Resources Department
PDF	peak daily flow
PIF	peak instantaneous flow
PS	Pump Station
PVC	polyvinyl chloride
RAS	return activated sludge
SB	Senate Bill
SCFM	standard cubic feet per minute
SDC	System Development Charge
SDWA	Safe Drinking Water Act
SS	suspended solids
UGB	Urban Growth Boundary

USGS	United States Geological Survey
UV	Ultraviolet
VC	vittrified clay
WAS	waste-activated sludge
WFP	Wastewater Facility Plan
WPCF	water pollution control facilities
WRFS	Water Recycling Feasibility Study
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant

1 INTRODUCTION & BACKGROUND

1.1 Introduction

This Water Recycling Feasibility Study (WRFS) was prepared by Civil West Engineering Services (Civil West) for the City of Port Orford (City) to document its evaluation of water reuse/recycling. The City is a small community off Highway 101 in Curry County, Oregon, approximately fifty-one miles south of Coos Bay, Oregon (Figure 1).

This study evaluated the City's current and anticipated future effluent flows to determine approximately how much of the City's treated wastewater flow could be made available for reuse. This information was then used to identify potential uses and locations of water reuse throughout the community. The study also outlines the regulatory requirements associated with such reuse efforts.

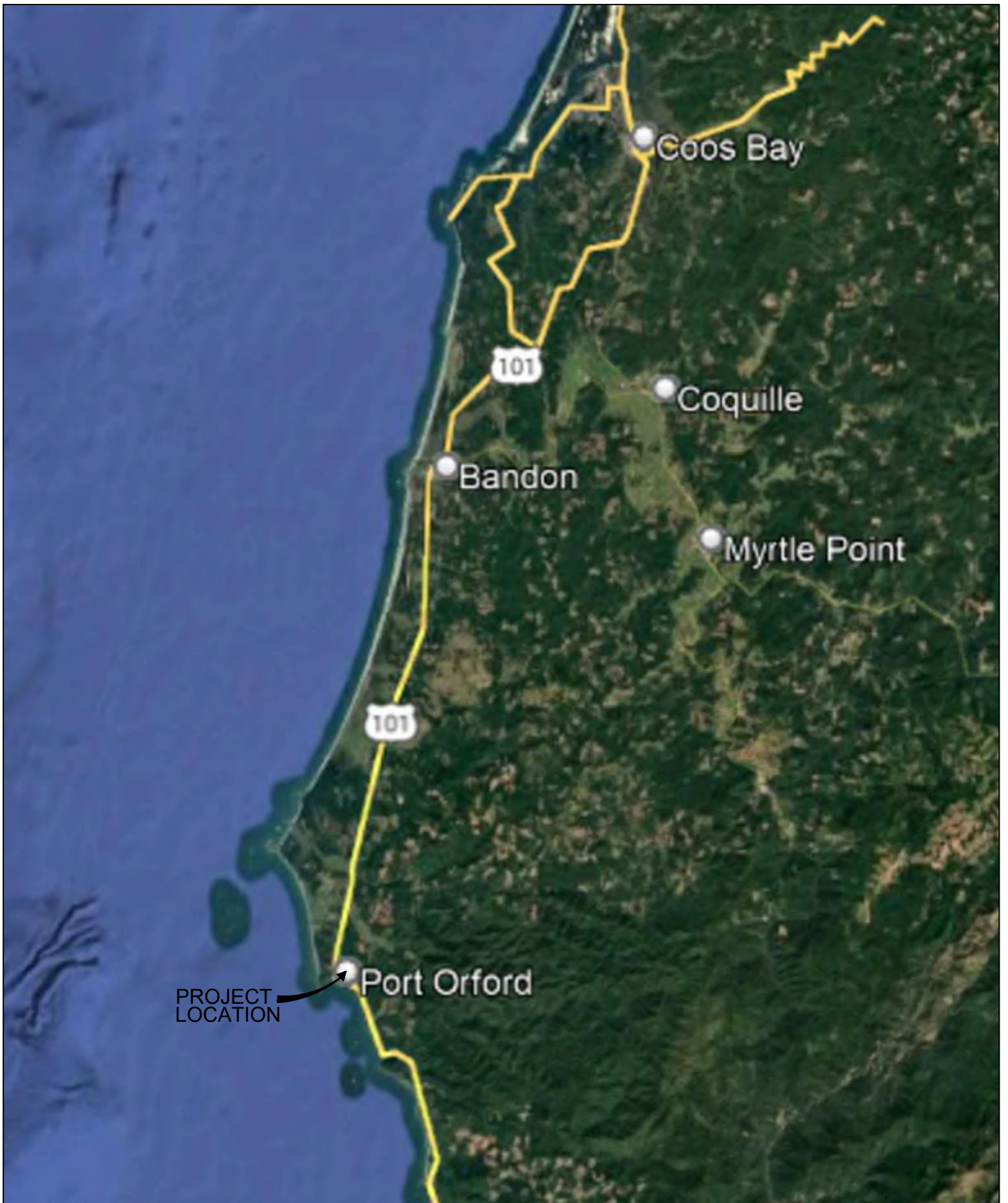
If water reuse, in general, is found to be a feasible and desired option for the City, the information provided in this WRFS will be included in an update to the City's Wastewater Facility Plan (WFP), which will further develop and outline the needed improvements and estimated costs to allow the City to provide access to recycled water. Requirements for specific reuse would be evaluated in more detail once interested businesses/users are identified.

1.2 Authorization

On April 1, 2025, the City authorized Civil West Engineering Services, Inc. to develop a WRFS, which is funded by the State of Oregon Legislature and managed by BizOregon.

This Project was funded in part by the Oregon State Lottery and administered by the Oregon Business Development Department.

The WRFS was developed in coordination with the requirements of the City, the Oregon Water Resources Department, and the Oregon Department of Environmental Quality.



 541.326.4828 WWW.CIVILWEST.COM	Drawn By: TMB Date: 7/16/25		VICINITY MAP	FIGURE
	WATER REUSE FEASIBILITY STUDY		CITY OF PORT ORFORD PORT ORFORD, OREGON	1

1.3 Background

The City is a coastal community located in Curry County on Highway 101 between Bandon and Gold Beach. Port Orford is home to over 1,100 residents and has a total area of 1.61 square miles. Major landmarks in the vicinity include Elk River and Cape Blanco to the north and Humbug Mountain to the south.

One of the most vital features in Port Orford is Highway 101, which traverses the City north to south. Commercial development is generally centralized along Highway 101. Residential development is located on both sides of the highway, extending west to Garrison Lake and the ocean beaches and extending east into the foothills of the Coast Range. The topography of the City ranges from sea level at the beach to an elevation above 225 feet near the top of Coast Guard Hill, where the City's main treated water storage reservoir is located.

1.4 Project Purpose and Scope

The purpose and scope of this WRFS, which is being prepared in conjunction with a WFP Update, is to evaluate existing wastewater flows and identify opportunities for the City to implement improvements to its wastewater facilities to allow the City to capture and recycle treated wastewater.

1.5 Regulatory Agencies and Framework

1.5.1 Oregon Administrative Rules

The Oregon Administrative Rules (OAR) are the official law, binding rules, and regulations for the State of Oregon. A copy of OAR 340-055 is included in Appendix A. Published in the rules are regulations related to public utilities. This report is intended to comply with applicable sections of the OARs, including but not limited to the following:

- OAR 333 Division 61 – Public Water Systems
- OAR 340 Division 40 – Groundwater Quality Protection
- OAR 340 Division 41 – Water Quality Standards
- OAR 340 Division 45 – Regulations Pertaining to NPDES and WPCF Permits

- OAR 340 Division 50 – Land Application of Domestic Wastewater Treatment Facility Biosolids, Biosolids Derived Products, and Domestic Septage
- OAR 340 Division 55 – Recycled Water Use Rules

There are four levels of recycled water classification, which are described in the following subsections. The water reuse treatment categories for impoundments (Class A, Class B, and Class C) are described in Table 1. A summary of the Recycled Water Beneficial Purposes for each of the recycled water classifications is included in Table 2. The reuse statutes from OAR 340-055-0012 are summarized in sections 1.5.1.1 through 1.5.1.4.

Table 1. Designation of Treatment Levels

Class A	Class A recycled water must also be oxidized, filtered and disinfected to achieve a 24-hour mean turbidity of ≤ 2 NTU, a turbidity ≤ 5 NTU for 5% of time during a 24-hour period and a single sample maximum of ≤ 10 NTU; as well as a total coliform concentration of ≤ 2.2 organisms/100 mL (7-day median) and ≤ 23 organisms/100 mL (single sample maximum).
Class B	Class B recycled water must be oxidized and disinfected to achieve a total coliform concentration of ≤ 2.2 organisms/100 mL (7-day median) and ≤ 23 organisms/100 mL (single sample maximum).
Class C	Class C recycled water must be oxidized and disinfected to achieve a total coliform concentration of ≤ 23 organisms/100 mL (7-day median) and ≤ 240 organisms/100 mL (maximum in two consecutive samples).
Class D	Class D recycled water must be oxidized, disinfected, and meet specific criteria for E. coli bacteria of < 126 organisms/100 mL (monthly geometric mean) and < 406 organisms/100 mL (single sample maximum).

Table 2. Recycled Water Beneficial Purposes

Beneficial Purpose	Class A	Class B	Class C	Class D	Nondisinfected
Irrigation					
Fodder, fiber, seed crops not intended for human ingestion, commercial timber	Yes	Yes	Yes	Yes	Yes
Firewood, ornamental nursery stock, Christmas trees	Yes	Yes	Yes	Yes	No
Sod	Yes	Yes	Yes	Yes	No
Pasture for animals	Yes	Yes	Yes	Yes	No
Processed food crops	Yes	Yes	Yes	No	No
Orchards or vineyards if an irrigation method is used to apply recycled water directly to the soil	Yes	Yes	Yes	No	No
Golf courses, cemeteries, highway medians, industrial or business campuses	Yes	Yes	Yes	No	No
Any agricultural or horticultural use	Yes	No	No	No	No
Parks, playgrounds, school yards, residential landscapes, other landscapes accessible to the public	Yes	No	No	No	No
Industrial, Commercial, or Construction					
Industrial cooling	Yes	Yes	Yes	No	No
Rock crushing, aggregate washing, mixing concrete	Yes	Yes	Yes	No	No
Dust control	Yes	Yes	Yes	No	No
Nonstructural fire fighting using aircraft	Yes	Yes	Yes	No	No
Street sweeping or sanitary sewer flushing	Yes	Yes	Yes	No	No
Stand alone fire suppression systems in commercial and residential buildings	Yes	Yes	No	No	No
Non-residential toilet or urinal flushing, floor drain trap priming	Yes	Yes	No	No	No
Commercial car washing	Yes	No	No	No	No
Fountains when the water is not intended for human consumption	Yes	No	No	No	No

Table 2 Recycled Water Beneficial Purposes (continued)

Beneficial Purpose	Class A	Class B	Class C	Class D	Nondisinfected
Impoundments or Artificial Groundwater Recharge					
Water supply for landscape impoundments including, but not limited to, golf course water ponds and non-residential landscape ponds	Yes	Yes	Yes	No	No
Restricted recreational impoundments	Yes	Yes	No	No	No
Nonrestricted recreational impoundments including, but not limited to, recreational lakes, water features accessible to the public, and public fishing ponds	Yes	No	No	No	No
Artificial groundwater recharge	Yes	No	No	No	No

1.5.1.1 Class A Recycled Water

Class A recycled water undergoes the highest level of treatment, including filtration, and must meet strict turbidity and total coliform requirements. Class A recycled water is suitable for all allowable recycled water uses, including irrigating food crops, non-restricted recreational impoundments, and domestic uses like laundry and toilet flushing.

The reuse criteria, as they apply to Class A (OAR 340-055-0012, (7)(a)) quality recycled water and taken directly from Rule 55, are presented below:

(7) The following requirements apply to Class A recycled water.

(a) Beneficial Purposes. Class A recycled water may be used only for the following beneficial purposes and only if the rules of this division are met:

(A) Any beneficial purpose defined in subsection (6)(a) [*nested references to (3, 4, 5, and 6)(a)*] of this rule;

- Irrigation for growing fodder, fiber, seed crops not intended for human ingestion, or commercial timber (3)(a)(A);
- Irrigation of firewood, ornamental nursery stock, Christmas trees, sod, or pasture for animals (4)(a)(B);
- Irrigation of processed food crops (5)(a)(B);
- Irrigation of orchards or vineyards if an irrigation method is used to apply recycled water directly to the soil (5)(a) (C);
- Landscape irrigation of golf courses, cemeteries, highway medians, or industrial or business campuses (5)(a)(D);
- Industrial, commercial, or construction uses limited to: industrial cooling, rock crushing, aggregate washing, mixing concrete, dust control, nonstructural fire fighting using aircraft, street sweeping, or sanitary sewer flushing (5)(a)(E);
- Water supply source for landscape impoundments (5)(a)(F);
- Stand-alone fire suppression systems in commercial and residential buildings, non-residential toilet or urinal flushing, or floor drain trap priming (6)(a)(B);
- Water supply source for restricted recreational impoundments (6)(a)(C).

(3)(a)(B), (4)(a)(C), (5)(a)(G), and (6)(a)(D) Any beneficial purpose authorized in writing by the department pursuant to OAR 340-055-0016(6).

Authorization of other recycled water uses. The department may authorize, through an NPDES or WPCF permit, a use of recycled water for a beneficial purpose not specified in this division. When the department considers the authorization, it may request information and include permit limitations or conditions, or both necessary to assure protection of public health and the

environment. The department will confer with the Oregon Department of Human Services before authorizing other uses of Class C, Class D, or nondisinfected recycled water under this section.

- (B) *Irrigation* for any agricultural or horticultural use;
 - (C) *Landscape* irrigation of parks, playgrounds, school yards, residential landscapes, or other landscapes accessible to the public;
 - (D) Commercial car washing or fountains when the water is not intended for human consumption;
 - (E) Water supply source for nonrestricted recreational impoundments;
 - (F) Artificial groundwater recharge by surface infiltration methods or by subsurface injection in accordance with OAR chapter 340, division 44. Direct injection into an underground source of drinking water is prohibited unless allowed by OAR chapter 340, division 44; and
 - (G) Any beneficial purpose authorized in writing by the department pursuant to OAR 340-055-0016(6).
- (b) **Treatment.** Class A recycled water must be an oxidized, filtered, and disinfected wastewater that meets the numeric criteria in subsection (c) of this section are met.
- (c) **Criteria.** Class A recycled water must not exceed the following criteria:
- (A) Before disinfection, unless otherwise approved in writing by the department, the wastewater must be treated with a filtration process, and the turbidity must not exceed an average of 2 nephelometric turbidity units (NTU) within a 24-hour period, 5 NTU more than five percent of the time within a 24-hour period, and 10 NTU at any time, and
 - (B) After disinfection, Class A recycled water must not exceed a median of 2.2 total coliform organisms per 100 milliliters, based on results of the last seven days that analyses have been completed, and 23 total coliform organisms per 100 milliliters in any single sample.
- (d) **Monitoring.**
- (A) Monitoring for total coliform organisms must occur once per day at a minimum.
 - (B) Monitoring for turbidity must occur on an hourly basis at a minimum.
- (e) **Setback Distances.** Where sprinkler irrigation is used, recycled water must not be sprayed onto an area where food is being prepared or served, or onto a drinking fountain.
- (f) **Access and Exposure.** When using recycled water for an agricultural or horticultural purpose where spray irrigation is used, or for an industrial, commercial, or construction purpose, the public and personnel at the use area must be notified that the water used

is recycled water and is not safe for drinking. The recycled water use plan must specify how notification will be provided.

(g) Site Management. When using recycled water for a landscape impoundment, restricted recreational impoundment, nonrestricted recreational impoundment, or for irrigating a golf course, cemetery, highway median, industrial or business campus, park, playground, school yard, residential landscape, or other landscapes accessible to the public, signs must be posted at the use area or notification must be made to the public at the use area indicating recycled water is used and is not safe for drinking. The recycled water use plan must specify how notification will be provided.

1.5.1.2 Class B Recycled Water

Class B undergoes the second-highest level of treatment and is suitable for irrigation and other agricultural uses, and compatible industrial and cooling processes. It is often used for restricted recreational impoundments.

The reuse criteria, as they apply to Class B (OAR 340-055-0012, (6)(a)) quality recycled water and taken directly from Rule 55, are presented below:

(6) The following requirements apply to Class B recycled water.

(a) Beneficial Purposes. Class B recycled water may be used only for the following beneficial purposes and only if the rules of this division are met:

- (A) Any beneficial purpose defined in subsection (5)(a) of this rule;
- (B) Stand-alone fire suppression systems in commercial and residential buildings, non-residential toilet or urinal flushing, or floor drain trap priming;
- (C) Water supply source for restricted recreational impoundments; and
- (D) Any beneficial purpose authorized in writing by the department pursuant to OAR 340-055-0016 (General Requirements for Permitting the Use of Recycled Water)(6).

(b) Treatment. Class B recycled water must be an oxidized and disinfected wastewater that meets the numeric criteria in subsection (c) of this section.

(c) Criteria. Class B recycled water must not exceed a median of 2.2 total coliform organisms per 100 milliliters, based on results of the last seven days that analyses have been completed, and 23 total coliform organisms per 100 milliliters in any single sample.

- (d) Monitoring. Monitoring for total coliform organisms must occur three times per week at a minimum.
- (e) Setback Distances.
 - (A) Where an irrigation method is used to apply recycled water directly to the soil, there are no setback requirements.
 - (B) Where sprinkler irrigation is used, there must be a minimum of 10 feet from the edge of the site used for irrigation and the site property line.
 - (C) There must be a minimum of 50 feet from the edge of the irrigation site to a water supply source used for human consumption.
 - (D) Where sprinkler irrigation is used, recycled water must not be sprayed within 10 feet of an area where food is being prepared or served, or where a drinking fountain is located.
- (f) Access and Exposure.
 - (A) During irrigation of a golf course, the public must be restricted from direct contact with the recycled water.
 - (B) If aerosols are generated when using recycled water for an industrial, commercial, or construction purpose, the aerosols must not create a public health hazard.
 - (C) When using recycled water for an agricultural or horticultural purpose where sprinkler irrigation is used, or an industrial, commercial, or construction purpose, the public and personnel at the use area must be notified that the water used is recycled water and is not safe for drinking. The recycled water use plan must specify how notification will be provided.
- (g) Site Management.
 - (A) When irrigating for a beneficial purpose defined in subsection (4)(a) of this rule, the site management requirements defined in subsection (4)(g) of this rule must be met.
 - (B) When using recycled water for a landscape impoundment or for irrigating a golf course, cemetery, highway median, or industrial or business campus, signs must be posted at the use area and be visible to the public. The signs must state that recycled water is used and is not safe for drinking.
 - (C) Irrigation of processed food crops is prohibited for three days before harvesting.
 - (D) When irrigating an orchard or vineyard, the edible portion of the crop must not contact the ground, and fruit or nuts may not be harvested off the ground.

1.5.1.3 Class C Recycled Water

Class C undergoes the third level of treatment and is suitable for approved industrial, commercial, and agricultural applications.

The reuse criteria, as they apply to Class B (OAR 340-055-0012, (5)(a)) quality recycled water and taken directly from Rule 55, are presented below:

(a) Beneficial Purposes. Class C recycled water may be used only for the following beneficial purposes and only if the rules of this division are met:

- (A) Any beneficial purpose defined in subsection (4)(a) of this rule;
- (B) Irrigation of processed food crops;
- (C) Irrigation of orchards or vineyards if an irrigation method is used to apply recycled water directly to the soil;
- (D) Landscape irrigation of golf courses, cemeteries, highway medians, or industrial or business campuses;
- (E) Industrial, commercial, or construction uses limited to: industrial cooling, rock crushing, aggregate washing, mixing concrete, dust control, nonstructural fire fighting using aircraft, street sweeping, or sanitary sewer flushing;
- (F) Water supply source for landscape impoundments; and
- (G) Any beneficial purpose authorized in writing by the department pursuant to OAR 340-055-0016 (General Requirements for Permitting the Use of Recycled Water)(6).

(b) Treatment. Class C recycled water must be an oxidized and disinfected wastewater that meets the numeric criteria in subsection (c) of this section.

(c) Criteria. Class C recycled water must not exceed a median of 23 total coliform organisms per 100 milliliters, based on results of the last seven days that analyses have been completed, and 240 total coliform organisms per 100 milliliters in any two consecutive samples.

(d) Monitoring. Monitoring for total coliform organisms must occur once per week at a minimum.

(e) Setback Distances.

- (A) Where an irrigation method is used to apply recycled water directly to the soil, there must be a minimum of 10 feet from the edge of the site used for irrigation and the site property line.

(B) Where sprinkler irrigation is used, there must be a minimum of 70 feet from the edge of the site used for irrigation and the site property line.

(C) There must be a minimum of 100 feet from the edge of an irrigation site to a water supply source used for human consumption.

(D) Where sprinkler irrigation is used, recycled water must not be sprayed within 70 feet of an area where food is being prepared or served, or where a drinking fountain is located.

(f) Access and Exposure.

(A) When irrigating for a beneficial purpose defined in subsection (4)(a) of this rule, the access and exposure requirements defined in subsection (4)(f) of this rule must be met.

(B) During irrigation of a golf course, a cemetery, a highway median, or an industrial or business campus, the public must be restricted from direct contact with the recycled water.

(C) If aerosols are generated when using recycled water for an industrial, commercial, or construction purpose, the aerosols must not create a public health hazard.

(D) When using recycled water for an agricultural or horticultural purpose where sprinkler irrigation is used, or an industrial, commercial, or construction purpose, the public and personnel at the use area must be notified that the water used is recycled water and is not safe for drinking. The recycled water use plan must specify how notification will be provided.

(g) Site Management.

(A) When irrigating for a beneficial purpose defined in subsection (4)(a) of this rule, the site management requirements defined in subsection (4)(g) of this rule must be met.

(B) When using recycled water for a landscape impoundment or for irrigating a golf course, cemetery, highway median, or industrial or business campus, signs must be posted at the use area and be visible to the public. The signs must state that recycled water is used and is not safe for drinking.

(C) Irrigation of processed food crops is prohibited for three days before harvesting.

(D) When irrigating an orchard or vineyard, the edible portion of the crop must not contact the ground, and fruit or nuts may not be harvested off the ground.

(E) When using recycled water for a landscape impoundment, aerators or decorative fixtures that may generate aerosols are allowed only if authorized in writing by the department.

1.5.1.4 Class D Recycled Water

Class D undergoes only the most basic level of treatment and is permitted for uses such as irrigation of pasture for animals, sod, and firewood laydown yards.

The reuse criteria, as they apply to Class B (OAR 340-055-0012, (4)(a)) quality recycled water and taken directly from Rule 55, are presented below:

(a) Beneficial Purposes. Class D recycled water may be used only for the following beneficial purposes and only if the rules of this division are met:

- (A) Any beneficial purpose defined in subsection (3)(a) of this rule;
- (B) Irrigation of firewood, ornamental nursery stock, Christmas trees, sod, or pasture for animals; and
- (C) Any beneficial purpose authorized in writing by the department pursuant to OAR 340-055-0016 (General Requirements for Permitting the Use of Recycled Water)(6).

(b) Treatment. Class D recycled water must be an oxidized and disinfected wastewater that meets the numeric criteria in subsection (c) of this section.

(c) Criteria. Class D recycled water must not exceed a 30-day log mean of 126 E. coli organisms per 100 milliliters and 406 E. coli organisms per 100 milliliters in any single sample.

(d) Monitoring. Monitoring for E. coli organisms must occur once per week at a minimum.

(e) Setback Distances.

- (A) Where an irrigation method is used to apply recycled water directly to the soil, there must be a minimum of 10 feet from the edge of the site used for irrigation and the site property line.
- (B) Where sprinkler irrigation is used, there must be a minimum of 100 feet from the edge of the site used for irrigation and the site property line.
- (C) There must be a minimum of 100 feet from the edge of an irrigation site to a water supply source used for human consumption.
- (D) Where sprinkler irrigation is used, recycled water must not be sprayed within 70 feet of an area where food is prepared or served, or where a drinking fountain is located.

(f) Access and Exposure.

- (A) Animals used for production of milk must be restricted from direct contact with the recycled water.

(B) When using recycled water for irrigation of sod, ornamental nursery stock, or Christmas trees, the personnel at the use area must be notified that the water used is recycled water and is not safe for drinking. The recycled water use plan must specify how notification will be provided.

(g) Site Management.

(A) When irrigating, signs must be posted around the perimeter of the irrigation site stating that recycled water is used and is not safe for drinking.

(B) Irrigation of fodder, fiber, seed crops not intended for human ingestion, sod, commercial timber, firewood, ornamental nursery stock, or Christmas trees is prohibited for three days before harvesting.

1.5.2 Clean Water Act

The Clean Water Act (CWA) was enacted in 1948, with a significant update occurring in 1972. The CWA regulates the discharge of pollutants into U.S. waters and regulates quality standards for surface waters. The CWA encompasses pollution control programs and wastewater industry standards. The EPA is the governing agency responsible for enforcement, compliance, and implementation of the CWA. A Memorandum of Agreement exists between the ODEQ and EPA, which establishes ODEQ as the agency to administer the NPDES Program.

1.5.3 Safe Drinking Water Act

The purpose of the Safe Drinking Water Act (SDWA) is to protect the quality of drinking water from all sources in the United States. The EPA is the governing agency responsible for enforcement, compliance, and implementation of the SDWA. In Oregon, the primary agency to administer the SDWA is the Oregon Health Authority (OHA). OHA is responsible for approving the drinking water treatment plan, establishing construction standards and operator certification standards, and enforcing rules to ensure safe drinking water.

1.5.4 Regulatory Agencies

Oregon regulatory agencies, including the ODEQ, OHA, and Oregon Water Resources Department (OWRD), are responsible for the enforcement of state-mandated rules and regulations. These agencies are tasked with the protection of the public and the environment.

The regulatory agencies encourage beneficial reuse of recycled water when conducted in accordance with established policies and procedures. Recycled water use requires the following:

- Discharge Permit – Issued by ODEQ
- Recycled Water Use plan – Submitted by Applicant and Approved by ODEQ
- Registration of Recycled Water Use – Issued by OWRD

1.6 Environmental Protection Agency Guidelines

The Environmental Protection Agency (EPA) has published Guidelines for Water Reuse. This comprehensive online document covers many topics relevant to water reuse, including acceptable types of reuse applications, technical issues in planning water reuse systems, water reuse regulations throughout the country, legal issues, funding water reuse systems, and the importance of public involvement. A copy of this document is available at

<https://www.epa.gov/waterreuse/summary-oregons-water-reuse-guideline-or-regulation-agriculture>.

1.7 State Regulations

According to the EPA's Guidelines for Water Reuse, several states have regulations regarding the reuse of reclaimed water: 28 states have water reuse regulations or guidelines for agriculture. Oregon has formal regulations, recognizes reclaimed water as a resource, and encourages water reuse as a water conservation strategy.

Increased pressure to reduce the discharge of municipally treated wastewater into surface waters or increase treatment levels to near drinking water standards led the Oregon Water Resources Department (OWRD), along with the Oregon Department of Environmental Quality (ODEQ) and municipal effluent dischargers, to initiate Senate Bill (SB) 204. Passed in 1991, SB 204 allows treated municipal effluent to be put to other beneficial uses without the need for a water right.

The end user or any person intending to use treated municipal effluent must register this use with OWRD. The registration supplies OWRD with information concerning the origination of the municipal water, the supplier of the reclaimed water, the end use of the reclaimed water, and what water rights or private property may be impacted by the reuse program. A copy of the Water Resources Department's Registration of Reclaimed Municipal Water Use form and information and instructions for completing the registration are available at <https://www.oregon.gov/owrd/WRDFormsPDF/reclaimform.pdf>.

1.8 Department of Environmental Quality Policy and Regulatory Authority

It is the policy of the Oregon Department of Environmental Quality (ODEQ), as described in the Oregon Revised Statute (ORS) 468B.015, to "conserve the waters of the state" and to encourage the use of recycled water for domestic, agricultural, industrial, recreational, and other beneficial purposes in a manner which protects public health and the environment of the state. Pollution of any of the waters of the state is declared to be contrary to public policy. Therefore, under ORS 468B.020, ODEQ was given the authority to "take such action as necessary for the prevention of new pollution." These are the policies and statutes that led to the initiation of Oregon Administrative Rule (OAR) Chapter 340, Division 055, which stipulate the rules for water reuse.

1.9 OAR Chapter 340, Division 055 – As Adopted

The complete language of OAR Chapter 340, Division 055 is included in Appendix A.

1.10 Recycled Water Use Plan

Section 0025 of OAR 340-055 describes the requirements for a Recycled Water Use Plan, which is necessary for approval to operate a reuse system. Among other things, the Reuse Plan must describe how the wastewater treatment system owner will comply with the requirements of OAR 340-055, and must include, but is not limited to, the following:

- a. A description of the wastewater treatment system, including treatment efficiency capability;
 - A description of the wastewater treatment system, including treatment efficiency capability, is included in Section 3 of this WRFS.
- b. A detailed description of the treatment methods that will be used to achieve a specific class of recycled water and for what beneficial purpose;
 - Depending on the final use, recycled water must be treated to meet the requirements of the applicable use class.
- c. The estimated quantity of recycled water to be provided by the wastewater treatment system owner to the user, and at what frequency and for what beneficial purpose;
 - Section 3.2 describes the volume of wastewater currently being discharged to the City's outfall. This evaluation assumes that a minimum of 30% of the typical current discharge must be maintained to minimize sedimentation buildup in the outfall structure. Therefore, 56-63 gpm/day (80-90K gallons/day) of recycled water is expected to be available for reuse.
 - The 30% is a conservative value since the outfall is older and its condition is unknown. This value could potentially be reduced to allow a larger volume of recycled water available to potential users if further evaluation of outfall conditions is performed.
 - It is important to note that a continuous flow cannot be guaranteed to any potential end user.
- d. A description of contingency procedures that ensure the requirements of this division are met when recycled water is provided for use;
 - Contingency procedures will be developed as part of the WFP Update.
- e. Monitoring and sampling procedures;
 - Monitoring and sampling procedures will be developed as part of the WFP Update.
- f. A maintenance plan that describes how the wastewater treatment system equipment and facility processes will be maintained and serviced;

- A maintenance plan will be developed as part of the WFP Update.
- g. If notification is required by the rules of this division, a description of how the public and personnel at the use area will be notified; and
 - Notification information will be included in the WFP Update.
- h. A description of any measuring and reporting requirements identified by the Oregon Water Resources Department after consultation with that agency.

The City will prepare and submit a Recycled Water Use Plan to ODEQ for the irrigation of the recommended locations identified in this study before implementation. Similar plans will be required for other sites identified for application of recycled water if the City decides to implement water reuse irrigation at additional sites in the future.

2 PLANNING AND STUDY AREAS

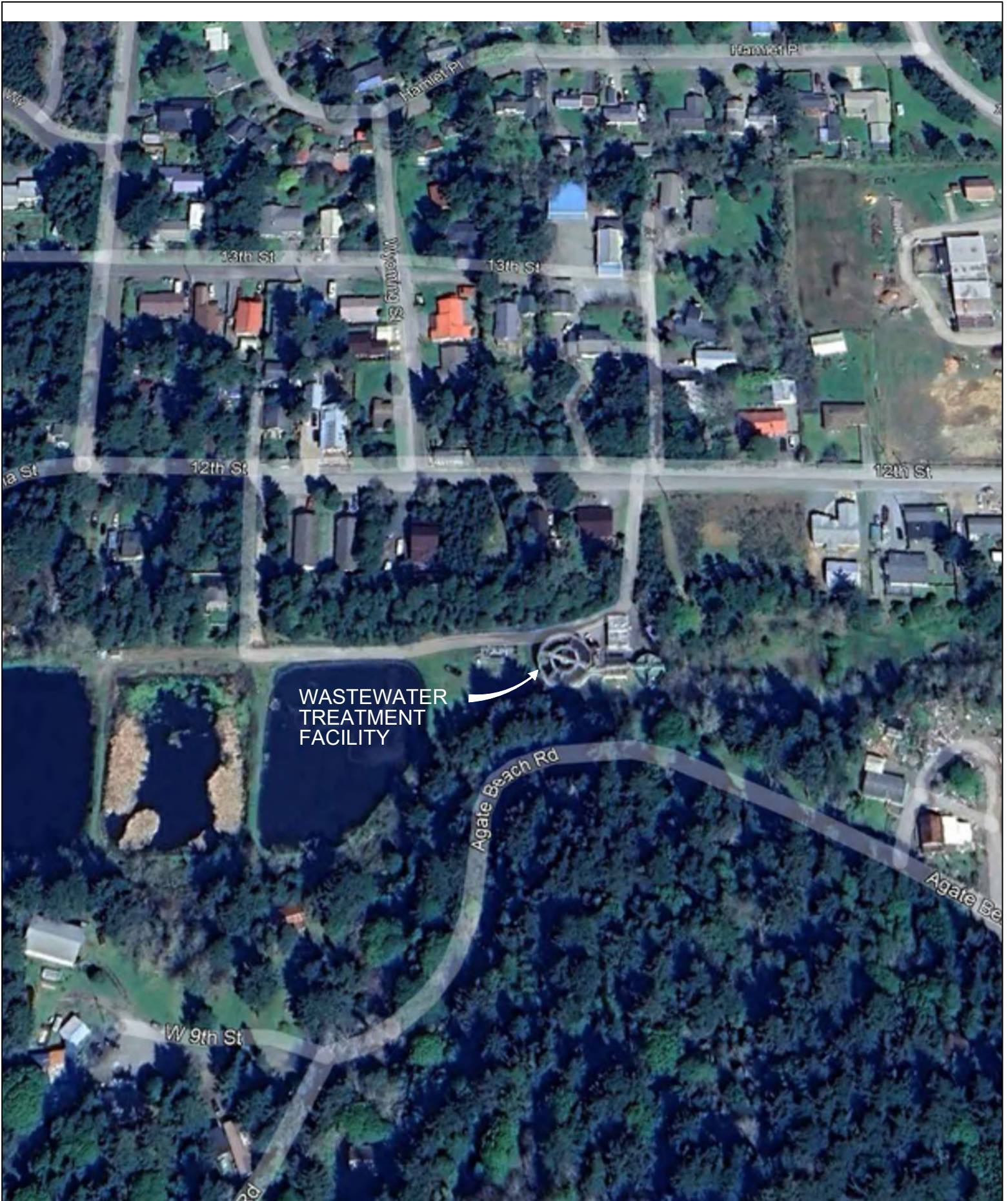
2.1 Study Area

The City of Port Orford collects, provides treatment, and disposes of domestic sewage generated within the city limits by its residential and commercial users. There is no waste from industrial processes being disposed of in the system. Wastewater is treated to comply with state and federal standards and then is discharged to the Pacific Ocean under National Pollution Discharge Elimination Permit No. 101001 (See Appendix B). The original permit for this facility was issued in the 1960s and has been renewed regularly since that time. The current permit's expiration date is November 30, 2026.

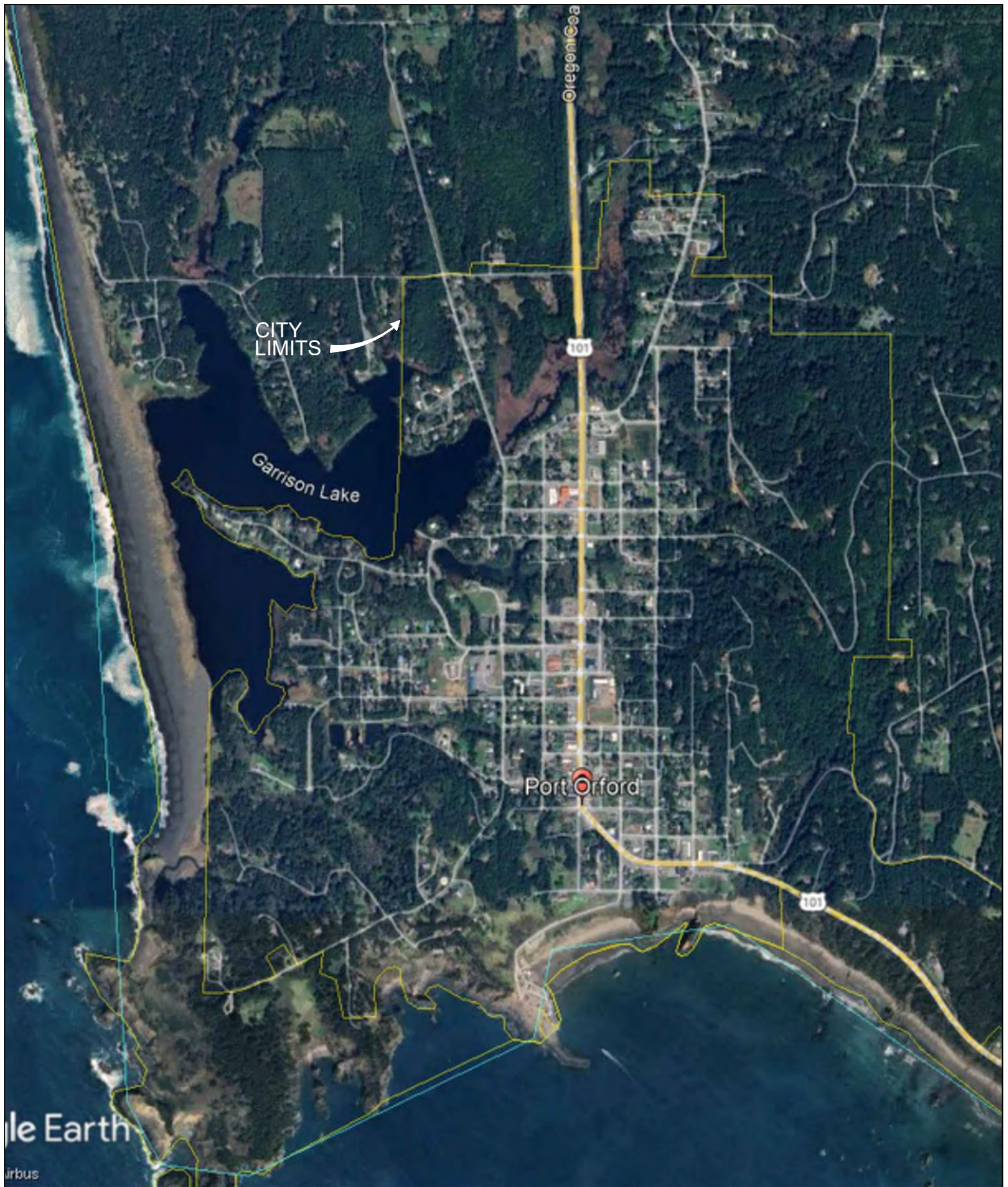
The City operates and maintains a conveyance system consisting of gravity collection pipes, force mains, and pump stations. Two of the pump stations convey influent directly to the Wastewater Treatment Plant (WWTP) (Figure 2). In addition, there are a few remotely located residential lots with on-site septic systems (s) that utilize on-site disposal.

The WWTP is located at 913 West 12th Street. The original WWTP, built in the 60s, provided secondary treatment with an extended aeration packaged treatment plant (donut-style) and a series of three polishing lagoons. The newest portion of the treatment plant was constructed in 2006. Currently, primary treatment consists of grit removal in the headworks, a modified donut consisting of an anoxic basin, an aeration basin (AB), a center clarifier, and an aerobic digestion tank. Effluent disinfection is provided by ultraviolet (UV) light. One of the original lagoons is used as a humus pond (biosolids storage), and two remaining lagoons have been converted to emergency bypass effluent storage.

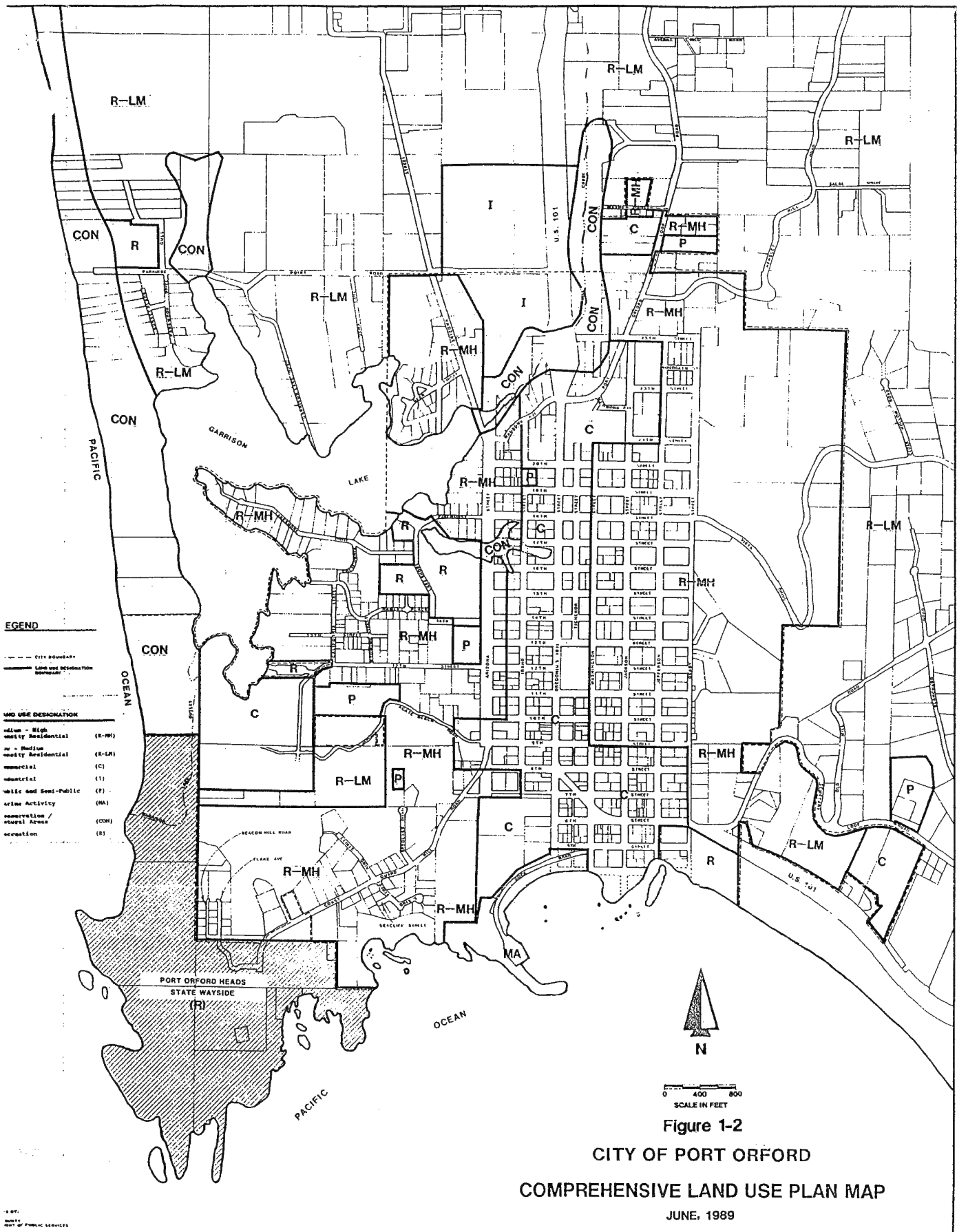
The City limits comprise the study area for this WRFS. The area included within the city limits is 970 acres. The Urban Growth Boundary is approximately 2,300 acres. The city limits boundary is shown in Figure 3. A United States Geological Survey (USGS) Topographic Map is provided in Figure 4.



 Civil West Engineering Services, Inc. North Coast South Coast Willamette Valley Rogue Valley 541.326.4828 WWW.CIVILWEST.COM	Drawn By: TMB Date: 7/16/25	0 1" 	LOCATION MAP	FIGURE
	WATER REUSE FEASIBILITY STUDY	CITY OF PORT ORFORD PORT ORFORD, OREGON		2



 541.326.4828 WWW.CIVILWEST.COM	Drawn By: TMB Date: 7/16/25		CITY LIMITS	FIGURE
	WATER REUSE FEASIBILITY STUDY	CITY OF PORT ORFORD PORT ORFORD, OREGON		3



2.2 Land Use

The City utilizes a variety of zoning districts to guide land use and development, including residential, commercial, industrial, and marine activity zones. The City also has a Comprehensive Plan that provides a vision for the community's development, including zoning policy and addressing Oregon's Statewide Planning Goals. The current land use plan map is included in Figure 5.

There are several land use categories adopted by the City in their Comprehensive Plan Goals and Policies and subsequent amendments. These categories include:

Commercial - Commercial areas within the City are mixed-use zones suitable for a full range of residential, commercial, and light industrial activities that are important to residents and visitors. Properties having commercial zoning designations are centered adjacent to and within the vicinity of U.S. Highway 101. The area in the vicinity of Battle Rock is zoned to encourage tourism by maintaining a small-town ambiance and a pedestrian-friendly environment, while encouraging Port Orford's sense of place.

Residential – Residential zones permit single-family and duplex dwellings, manufactured homes, other residential types, and compatible uses. The City encourages start-up business, diversity, artistry, and craftsmanship by permitting home occupations as outright uses subject to specific provisions to protect residential neighborhoods.

Industrial – Industrial zoning in the City is mixed-use zoning that permits industrial uses, which may be incompatible in residential or commercial zones. Heavy industrial uses are conditional uses, allowing for review and placement of conditions on the specific use. The conditions can help to prevent nuisances, which could result from noise, dust, smoke, odor, fire, explosion hazards, or other.



U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY



PORT ORFORD QUADRANGLE
OREGON - CURRY
7.5-MINUTE TOPO



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84) Projection and
100-meter grid. ELEVATION INDICATOR, CONT. INT.
Data is provided by The National Map (NMA), is the best available at the time of map
generation, and includes data content from supporting themes of Elevation,
Hydrography, Geographic Names, Boundaries, Transportation, Structures, Land Cover,
and Orthorectification. Refer to associated Federal Geographic Data Committee (FGDC)
Metadata for additional source data information.

This map is not a legal document. Boundaries may be generalized for this map scale.
Private lands within government reservations may not be shown. Obtain permission
before entering private lands. Temporal changes may have occurred since these data
were collected and some data may no longer represent actual surface conditions.

Learn About The National Map: <https://nationalmap.gov>



SCALE 1:24 000
1 0.5 0 0.5 1 2
1000 500 0 500 1000
FEET
1 0.5 0 0.5 1 2
1000 500 0 500 1000
METERS

CONTOUR INTERVAL 40 FEET
NORTH AMERICAN DATUM OF 1983
CONTOUR SMOOTHNESS - Medium



QUADRANGLE LOCATION			
City	State	County	Section
Port Orford	OR	Curry	1

ROAD CLASSIFICATION	
Expressway	Local Connector
Secondary Hwy	Local Road
Interstate Route	4000
US Route	State Route
PS Primary Route	PS Passenger Route
PS High Clearance Route	

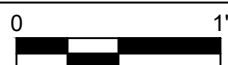
Check with local Forest Service unit
for current travel conditions and restrictions.

PORT ORFORD, OR
2025

ADJOINING QUADRANGLES



Drawn By: TMB
Date: 7/16/25



TOPO MAP

FIGURE

WATER REUSE FEASIBILITY STUDY

CITY OF PORT ORFORD
PORT ORFORD, OREGON

4

Special Protection Zone Classifications –

- **Controlled Development Zone.** The Controlled Development Zone is a special protection zone that recognizes and protects natural resources by controlling and limiting uses. Conservation and low-intensity recreational activities are permitted outright, while some more intense development is allowed subject to a conditional use permit.
- **Marine Activity Zone.** The Marine Activity Zone is a special protection zone that recognizes the value of the Port Orford Port and waterfront area. The Marine Activity Zone, which includes the Port of Port Orford, provides areas for developing the economy of the community. Water-dependent, -related, and oriented uses allowed include industrial, commercial, educational, and tourism-related. The location of the Marine activity zone in the vicinity of the tourist commercial uses near Battle Rock provides for recreational and educational enhancements that benefit from proximity to the ongoing marine activity.
- **Public and Semi-Public Facilities.** The Public Facilities Zone includes some of the sites that are owned by or used for public and semi-public facilities, including but not limited to schools, government offices, utilities, and cemeteries. The purpose is to provide needed facilities and services that serve the public.

Overlay Zone Classifications –

- **The Shoreland Overlay zone** protects ocean shorelands and riparian resources along stream banks. Shoreland and resource policies are identified in the Port Orford Comprehensive Plan Goals and Policies and inventory documents. The shoreland overlay addresses Statewide Planning Goals 6 and 17.

- The Floodplain Overlay is to promote public health, safety, and welfare of the citizens of Port Orford within areas where flood hazards exist by requiring specific standards.
- The Natural Hazards Overlay protects people, lands, and development in areas of geologic hazard by requiring special protections and addresses Statewide Planning Goal 7.

3 WASTEWATER SYSTEM

The following subsections provide a summary of available information for the existing wastewater treatment facility based on the most current NPDES permit requirements and information provided in the 2016 WFP prepared by The Dyer Partnership for the City of Port Orford.

Note that the current system may differ from what is shown below, as changes may have been made to the system since the current WFP was prepared. The WFP is scheduled for update in 2026 and will include applicable changes to the plant and system information provided below.

3.1 System Efficiency

The WWTP and collection systems are old, and numerous recommendations for upgrades and improvements identified in the most recent WFP are still recommended. If not updated, they will continue to degrade, which will continue to reduce system efficiency. Infiltration and inflow (I&I) will increase, requiring more treatment of wastewater by the plant. Continued I&I deficiencies will increase WWTP operational costs due to higher pumping costs and higher blower demands. An update to the WFP is planned, which will include an evaluation of current water and energy system efficiencies and will provide recommendations for system improvements.

3.2 Wastewater Flows

Based on a review of historical wastewater flows, the City has a winter discharge of approximately 80-90 gallons per minute (gpm)/day. To maintain sufficient flows to the ocean outfall, it is estimated that approximately 1-2 ft/second of flow must be maintained to ensure sedimentation does not build up within the outfall piping. This evaluation conservatively assumes 30% of the average flow will be maintained. This value will be reevaluated during any subsequent design effort. Therefore, the treated wastewater available for potential reuse is 56-

63 gpm/day, to be spread among all users. This equates to a volume of 80,000 to 90,000 gallons per day.

Table 3 provides the estimated recycled water available for the next 20 years, based on the projected population growth.

**Table 3 Forecasted Population and Volume of Recycled
Wastewater Available for Reuse**

Year	Population	Min Flow (gallons/day)	Max Flow (gallons/day)
2015	1,127		
2016	1,141		
2017	1,143		
2018	1,149		
2019	1,155		
2020	1,146		
2021	1,148		
2022	1,150		
2023	1,150		
2024	1,167		
2025	1,125	80,673	90,757
2026	1,125	80,706	90,794
2027	1,126	80,739	90,831
2028	1,126	80,772	90,868
2029	1,127	80,805	90,905
2030	1,127	80,838	90,942
2031	1,128	80,871	90,979
2032	1,128	80,904	91,016
2033	1,129	80,937	91,054
2034	1,129	80,970	91,091
2035	1,130	81,003	91,128
2036	1,130	81,036	91,165
2037	1,131	81,069	91,202
2038	1,131	81,102	91,239
2039	1,131	81,135	91,277
2040	1,132	81,168	91,314
2041	1,132	81,201	91,351
2042	1,133	81,234	91,388
2043	1,133	81,267	91,426
2044	1,134	81,300	91,463
2045	1,134	81,334	91,500

Note:

1. Annual population growth between 2015-2025 is 0.0408%. This has been used to forecast the available volume of recycled wastewater.
2. Since the growth rate is expected to be nearly stable, the available volume is not projected to significantly change from the 80,000-90,000 gallons currently available.

3.3 Existing Wastewater System

3.3.1 Collection System

The City's wastewater collection system comprises 58,000 linear feet (LF) of gravity collection pipes, 11,000 LF of pressure sewer mains, 200 manholes, and 10 pump stations. A summary of the existing piping inventory is given in Table 4, and a flow schematic of the existing collection system is shown in Figure 6. A map showing the collection system basins and service is shown in Figure 7, which is described below.

Table 4. Wastewater Collection System Inventory

Pipe Diameter (in.)	Type of Material	Length (LF)	Type
6-inch	PVC ¹	600	Gravity
6-inch	AC ²	540	Gravity
6-inch	VC ³	460	Gravity
8-inch	PVC	8,340	Gravity
8-inch	AC	21,160	Gravity
8-inch	VC	21,720	Gravity
10-inch	VC	4,060	Gravity
	Totals	56,880	
4-inch	AC	2,920	Pressure
4-inch	AC & PVC	1,280	Pressure
4-inch	DI ⁴	2,570	Pressure
6-inch	AC & PVC	700	Pressure
6-inch	AC	2,200	Pressure
8-inch	AC	1,350	Pressure
	Totals	11,020	

1. PVC = Polyvinyl Chloride
2. AC = Asbestos Cement
3. VC = Vitrified Clay
4. DI = Ductile Iron

Basin A

Basin A is the residential basin that includes the northwestern portion of the Port Orford collection system. There are approximately 3,500 LF of 8-inch diameter vitrified clay gravity sewer pipe. Wastewater collected in the sanitary mains flows to Pump Station No. 3 (Arizona Pump Station). This pump station discharges into a manhole in Basin E through a 6-inch diameter force main approximately 700 feet long.

Basin B

The basin in the northeastern portion of Port Orford is primarily residential but does include a few businesses. Collection facilities within Basin B include approximately 1,450 LF of 8-inch diameter asbestos cement gravity sewer main and associated laterals and manholes.

Wastewater flows in this basin are collected at Pump Station No.7, the 25th Street Pump Station. This pump station discharges through a 4-inch diameter force main, approximately 1,300 feet long, into a manhole in Basin E.

Basin C

The collection system in this basin serves the residential neighborhood along the shores of the peninsula projecting westward into Garrison Lake. Wastewater flows by gravity through approximately 1,100 LF of 8-inch diameter vitrified clay sewer main to Pump Station No. 6 (Lakeshore Pump Station) near the westerly limit of Lakeshore Drive. A 4-inch asbestos cement force main, approximately 1,250 feet long, discharges from the pump station into a gravity manhole in Basin D.

Basin D

The gravity sewer system within Basin D is comprised of approximately 1900 LF of 8-inch and 200 LF of 6-inch vitrified clay pipe. Flows from this basin, including the discharge from Basins C, Lakeshore Pump Station, are collected at Pump Station No. 4 (Pinehurst Pump Station). The wastewater is then pumped through approximately 450 LF of 4-inch diameter asbestos cement force main to a discharge manhole in Basin G. Evidence of infiltration into the collection system was observed in the flow mapping conducted in April 2003, and it was noted that at least one manhole requires repairs.

Basin E

The service area within Basin E includes residential and business areas along both sides of U.S. Highway 101 in the north-central portion of Port Orford. The sewer collection system serving the area is comprised of approximately 7,300 LF of 8-inch diameter vitrified clay pipe. In addition to the flows generated in the collection basin, Basin E receives flows from Basins A and B through force mains from pump stations in those basins.

All flows in Basin E are transported to the northerly influent line into Pump Station No. 2 (Idaho Street Pump Station). The Idaho Street Pump Station discharges through a six-inch diameter force main into a common force main, shared with Pump Station No. 1 (Wyoming Street Pump Station), that discharges to the Port Orford Wastewater Treatment Plant.

Basin F

The sanitary sewer collection system that comprises Basin F lies on the western side of U.S. Highway 101 in the central portion of the city. The basin includes both residential and commercial contributors. Wastewater generated in the basin travels by gravity flow to Pump

Station No.1, the Wyoming Street Pump Station. In addition, wastewater flows from Basin I are also collected at the Wyoming Street Pump Station.

This pump station discharges through a shared force main to the wastewater treatment plant. Approximately 250 LF of 10-inch diameter vitrified clay sanitary mains are located in Basin F. An additional 4,750 LF of 8-inch diameter vitrified clay mains complete the collection system piping in this basin.

Basin G

This basin also lies in the central portion of Port Orford on both sides of U.S. Highway 101 south of Basin E. It includes commercial contributors along the highway, the elementary school, adjacent residential contributors on the eastern side of the highway, and residential development along 18th Street toward Pinehurst Street on the western side of the highway. This basin receives the wastewater from Basin C and Basin D through the pressure mains from Pump Station Nos. 6 and No. 4, respectively.

All flow from this basin is collected at Pump Station No. 2, the Idaho Street Pump Station, and pumped through a dedicated force main into a force main shared with Pump Station No. 1 that discharges at the Port Orford WWTP. The collection system within the basin is comprised of approximately 7,150 LF of 8-inch diameter vitrified clay pipe.

Basin H

Basin H encompasses residential development along Flake Street and in limited portions of the Coast Guard Station and Port Orford Heads State Park; Basin H is comprised of approximately 750 LF of 8-inch diameter PVC pipe. Wastewater from this basin flows by gravity to Pump Station No. 5, Flake Street Pump Station, and is pumped from there to a discharge manhole in a gravity main along Coast Guard Hill Road in Basin I.

Basin I

Basin I is the largest collection basin in terms of both area and length of installed sanitary mains. The basin includes most of the southern portions of Port Orford along both sides of Highway 101 and thus incorporates both residential and commercial contributors. It includes almost all of the 10-inch diameter vitrified clay gravity sewer mains within the entire city, approximately 3,800 LF, and approximately 19,200 LF of 8-inch diameter vitrified clay or asbestos cement sewer mains.

Wastewater flows in Basin I, including those discharged into the basin from Pump Station No. 5 (Flake Street) and Pump Station No. 8 (Port Orford Dock), arrive at Pump Station No. 1, the Wyoming Street Pump Station.

Basin J

There is little development in Basin J. At this time, the basin collects wastewater from two commercial contributors and a public restroom facility. All contributors connect to Pump Station No. 8, Port Orford Dock Pump Station, through laterals. There are no sewer mains in the basin. The Port announced plans to develop commercial property, including the installation of a new pump station. This station is privately owned and is maintained by the City under a contract.

Basin K

Pump Station No. 9, the 12th Street Pump Station, serves collectors on Agate Street and King Street. The basin consists of a large residential lot with little anticipated growth.

Figure 6. Collection System Flow Schematic

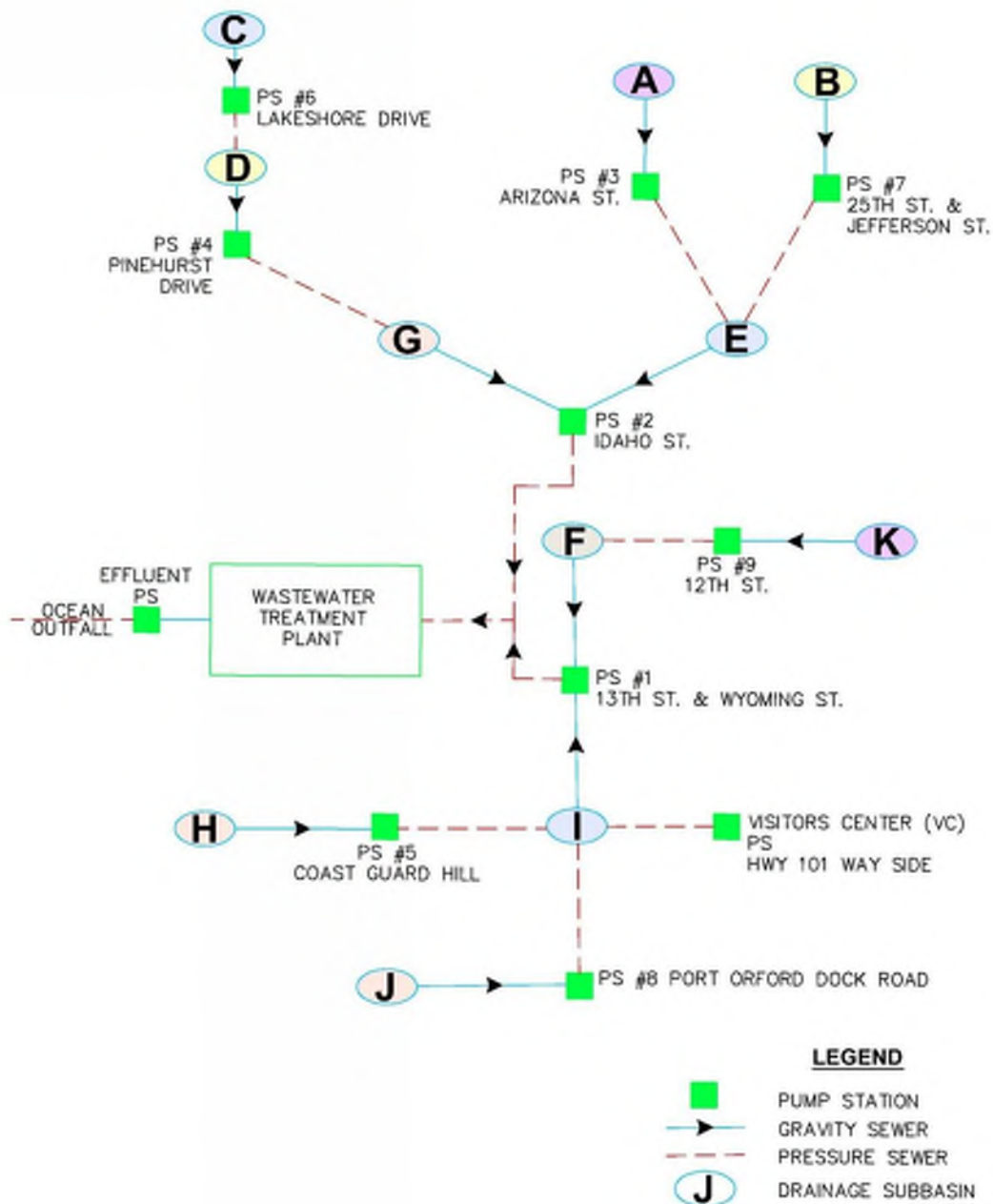
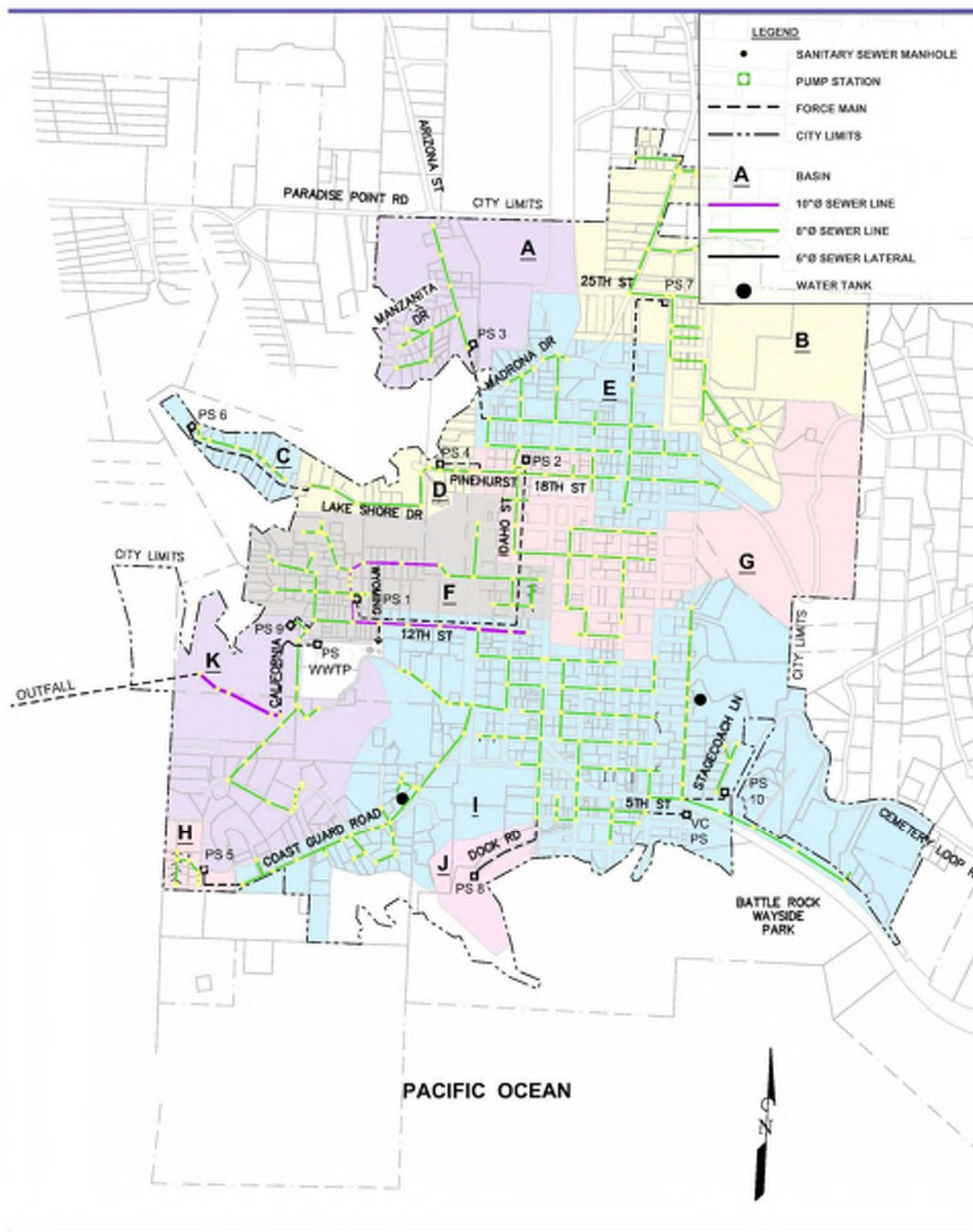


Figure 7. Collection System Basin Map



3.3.2 Wastewater Facilities

The City's conventional Wastewater Treatment Plant (WWTP) and collection system was originally constructed in 1960 and was designed to treat a peak day average flow of 0.35 million gallons per day (MGD). Influent is received from two separate inputs: the Wyoming Street Pump Station (PS No. 1) and the Idaho Street Pump Station (PS No. 2). The following is a summary of the plant's history:

- 1967 - Treatment plant is operational. This plant consisted of a package treatment plant manufactured by Smith & Loveless, followed by a chlorine contact chamber and three lagoons. The plant utilized a contact stabilization process. The facilities included a control building with a lab, chlorinator, and miscellaneous equipment. Treated wastewater flowed through a series of lagoons and was then discharged to Garrison Lake.
- 1994 – Wastewater system improvements include additional collection lines, two new pump stations and pressure mains, a new treatment system providing treatment, and a drain field effluent disposal system located between the fore dune, Garrison Lake, and the Pacific Ocean.
- 1997/1998 – heavy storms swept the effluent drain field out to sea.
- 2005 – Improvements consisted of an effluent disposal system, effluent pumps, a pressure pipeline, a gravity pipeline, and an ocean outfall equipped with an effluent diffuser. The effluent pump lifts effluent flows to a gravity system that flows from an elevation of 40 feet above mean sea level (MSL) to the outfall diffuser located at approximately -40 feet MSL. Approximately 1,900 feet of the total 4,407 LF of the outfall were constructed beyond the MSL shoreline. Major WWTP upgrades consisted of replacing the chlorine disinfection system with a UV disinfection system and the installation of a diesel backup power generator.
- 2005 – Phase 2 upgrades increased treatment capacity, improved system redundancy, and started the plant operating with an activated sludge treatment process. Raw sewage is pumped to the headworks for grit removal and then is

conveyed to an activated sludge treatment process. An activated sludge process may be described as a biological reactor. Raw sewage (food source) is combined with the Return Activated Sludge (RAS) (contains living organisms) at the head of AB1, where the liquid stream is then referred to as mixed liquor. The reactor basin train for the mixed liquor stream consists of AB1, an Anoxic Cell (AN), and AB2. High degrees of mixing and adequate dissolved oxygen are maintained in the ABs to ensure a high degree of treatment in a relatively short period of time. Mixed liquor is settled in the secondary clarifiers, where the clear and stable effluent is gravity-fed to the disinfection system and then settled. Waste Activated Sludge (WAS) and RAS are removed by pumping and processed in the sludge stream. RAS is pumped to AB1. WAS is aerobically digested and then pumped to a humus pond for long-term storage.

Figure 8 is a one-line process flow schematic with the heavy line showing the wastewater flows as they pass through the plant in normal flow conditions. A summary of the WWTP component design specifications is included in Table 5.

Figure 8. Wastewater Process Flow Schematic

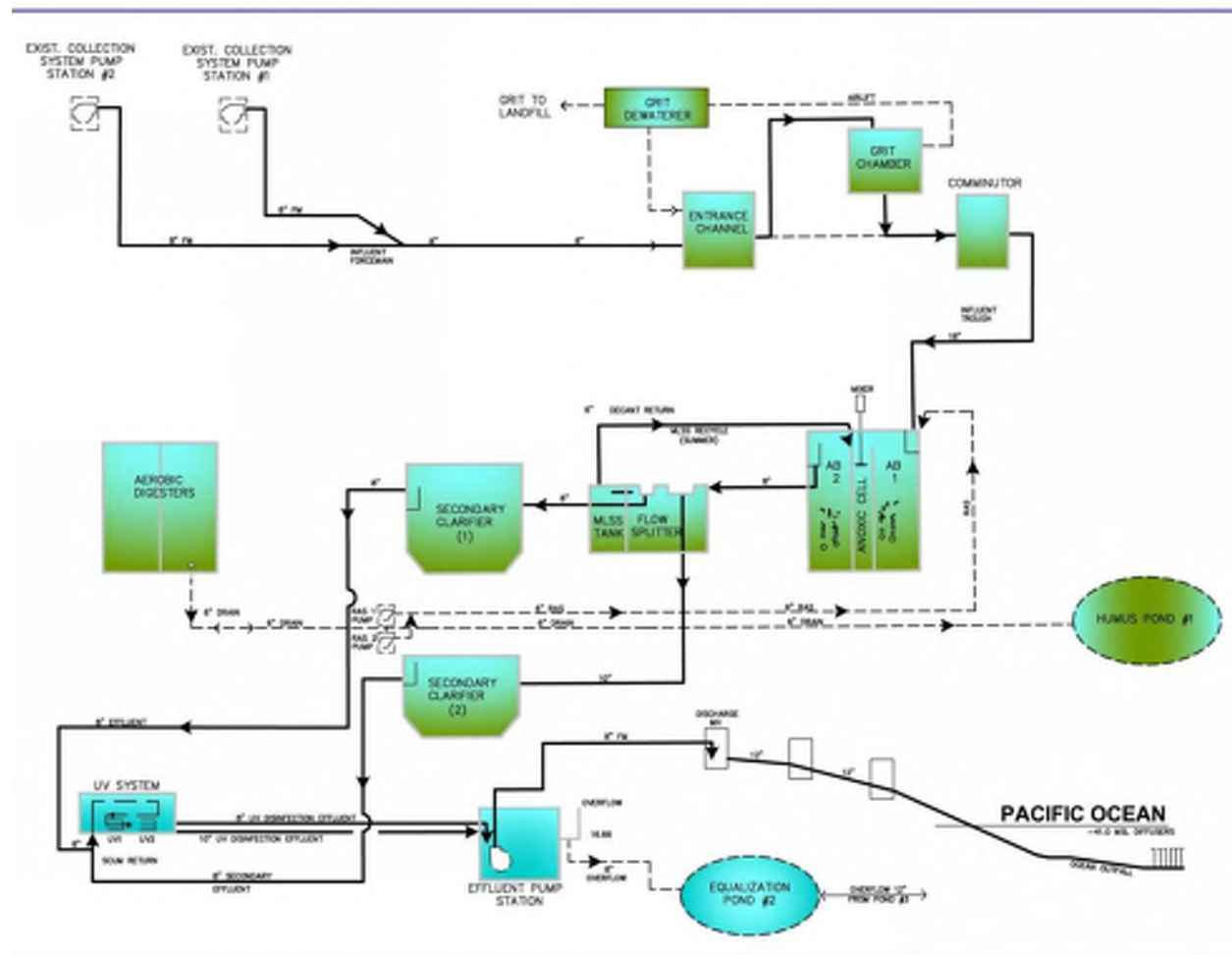


Table 5. WWTP Component Design Specifications

Item	Design
Original Design Conditions	
Population	2,069
Plant Flow	
Average Dry Weather Flow (ADWF)	132,000 gpd
Max Month Dry Weather Flow (MMDWF)	179,000 gpd
Max Month Wet Weather Flow (MMWWF)	301,000 gpd
Peak Daily Flow, (PDF)	692,000 gpd
Peak Instantaneous Flow (PIF)	1,000,000 gpd
Plant Load	
BOD ₅ Average	325 ppd
BOD ₅ Maximum Daily	716 ppd
SS Average Daily	716 ppd
SS Average Daily	608 ppd
Headworks	
Influent Flow Meter	
Type:	Electromagnetic
Size	8-inch
Capacity	4,800 gpd
Course Bar Screen, Hand Raked	
Number	1
Spacing Between Bars	0.75 inches
Capacity	2.5 MGD
Grit Removal	
Type:	Vortex Chamber
Number of Basins	1
Capacity	1.0 MGD
Flow Chamber Diameter	6.0 feet
Grit Hopper Diameter	3.25 feet
Grit Pumps	
Type:	Air Lift
Diameter	4-inch
Air Requirements	50 scfm
Flow Rate	100 gpm
Grit Washer	
Type:	Screw Classifier
Number	1

Table 5. WWTP Component Design Specifications

Item	Design
Screw Diameter	9
Capacity	1,100 lbs per hour
Comminutor	
Number	1
Capacity	1.0 MGD
Bypass Bar Screen	
Number	1
Spacing Between Bars	1 inch
Capacity	3.3 MGD
Secondary Treatment	
Aeration Basin No. 1	
Depth	16.83 feet
Volume	8,800 CF
Aeration Basin No. 2	
Depth	16.83 feet
Volume	5,330 CF
Anoxic/Aerobic Cell No. 3	
Depth	16.83 feet
Volume	2,200 CF
Anoxic HRT at ADF	
HRT at ADF	22.2 hrs
HRT at MMDWF	16.4 hrs
HRT at MMWWF	9.7 hrs
HRT at PDF	4.2 hrs
Max Solids Loading, lbs vs/ D-100 CF (2031)	28.5
Diffuser Type:	Fine Bubble Flexible Membrane
Secondary Process Performance	
Operation Modes: Denitrifying Selector Cell, Extended Air, Conventional Plug Feed, Complete	
Mix or Contact Stabilization	
Average Dry Weather Flow (ADF)	
MLSS in Aeration Basin	2,500-3,500 mg/L
RAS SS	8,000 mg/L
F/M	0.16-0.11 lb BOD ₅ /lb MLVSS/Day
Sludge Retention Time	20-30 Days
Max Month Wet Weather Flow (MMWWF)	

Table 5. WWTP Component Design Specifications

Item	Design
MLSS in Aeration Basin	1,800-2,500 mg/L
RAS SS	7,000 mg/L
F/M	0.22-0.16 lb BOD ₅ /lb MLVSS/Day
Sludge Retention Time	10-15 Days
Blowers, Aeration, and Digestion	
Variable Speed Blowers	
Number on Line	2
Horsepower	25
Air Required for Aeration	
Average	120 scfm
Maximum	254 scfm
MLSS Recycle Pump	
Chambered Air Lift Pump	
Minimum	20 gpm
Maximum	400 gpm

Note that the current WWTP was designed to serve a population of 2,069. This population projection is not anticipated to be realized in the foreseeable future.

3.3.3 Wastewater Discharge Permits

The City's current NPDES permit (Permit No. 101001) was issued on December 6, 2021, and expires on November 30, 2026. The permit allows direct discharge of treated WWTP effluent from outfall 001 into the Pacific Ocean, and from potential outfall 002 for use as irrigation. A copy of the current NPDES permit is included in Appendix B.

4 WASTEWATER REUSE OPPORTUNITIES

4.1 Wastewater Reuse Priorities

The following priorities were developed for use in evaluating the potential reuse opportunities described in this section:

Priority 1: Recycled water is required to maintain the functionality of the existing outfall structure (e.g., minimize sediment buildup).

Priority 2: Recycled water would be used to support onsite operations at the wastewater treatment plant, which would minimize the current use of more valuable potable water. The plant was designed for this purpose; however, repairs to the electrical system will be required by the City to restore access to recycled wastewater.

Priority 3: Recycled water would be used on City-owned properties or future city properties, as needed to minimize the need for potable water usage (e.g., irrigation, non-structural firefighting).

Priority 4: Recycled water would be made available to existing businesses and properties located within the City Limits of Port Orford (e.g., laundry facilities, car washes, boat washes).

Priority 5: Recycled water would be made available to neighboring businesses and properties outside of the city limits as water becomes available.

4.2 Recommended Improvements Summary

The improvements that would be required for a potential user to make use of the City's recycled wastewater include:

- installation of a pipeline and valves from the WWTP (post-treatment, pre-outfall) that would provide a tie-in location for potential users,

- monitoring/measurement equipment to ensure adequate flow is maintained to the outfall, and installation of flowmeters to ensure each user only receives their pre-agreed portion of the available recycled water.
- installation of pipelines from the WWTP to the individual businesses that choose to use recycled wastewater (payment of installation costs is dependent upon the alternative selected),
- roadway/utility corridor repairs,
- valves, ancillary equipment, and water meters at each user location,
- and potentially an upgraded treatment system to meet water reuse requirements that will need to be determined through a forthcoming WTP assessment.

4.3 Potential Sites for Water Reuse

There are several potential user types located within Port Orford who might someday be interested in using recycled wastewater. Each of these potential user types would require a significant investment in infrastructure improvements to make use of recycled wastewater.

The primary user types would include parks, schools, golf courses, green spaces at municipal facilities, and emergency use of recycled water for non-structural firefighting. Additional uses for future businesses might include boat wash facilities, car washes, or laundry facilities.

It is important to note that the City's current NPDES permit does not align exactly with the treatment requirements for recycled treatment classifications. For instance, for Class A recycled water, there is a turbidity requirement of ≤ 2 NTU and a coliform level of 2.2 organisms/100 mL. Lower turbidity levels are required for Class A recycled water to ensure that disinfection is effective down to the lowest bacteria requirements. Chlorine and ultraviolet (UV) treatment methods are more effective when the turbidity of treated wastewater is lower. The treated wastewater is clearer and has fewer solids, so chlorine isn't used up by solids, and UV can penetrate better through the wastewater.

The City's NPDES permit does not have turbidity limits for its ocean discharge; it does have total suspended solids limits, but these do not always correspond to turbidity values. As a result, additional testing would be needed to ensure the City's wastewater treatment system could meet the Class A turbidity requirements (or lower classifications, depending upon the final baseline classification selected).

Table 6 provides a list of the most likely potential recycled water uses applicable to the City and the treatment classifications for each use type. Table 7 provides information from DEQ regarding the level of treatment and treatment standards for each recycled water classification. Note: Higher levels of classification can be used for lower classification reuse purposes (e.g., Class A recycled water can be used for Class B, C, and D purposes); however, lower level classifications may not be used for higher level purposes.

Table 6. Potential Users and Required Classification Level

Most Likely Potential Recycled Water User for Port Orford	Lowest Classification Level Allowed
Golf course green spaces, WTP, and WWTP green spaces	Class D
Ponds or impoundments (e.g., parks or golf courses)	Class C
Parks, playgrounds, school yards, residential or public landscapes	Class A
Dust control	Class C
Nonstructural firefighting	Class C
Street sweeping	Class C
Nonresidential toilet/urinal flushing	Class B
On-site WWTP Operations Use	Note: This usage is not specifically addressed in Table 2; however, it is assumed that this water would be collected and treated to meet current NPDES permit requirements.
Car/Boat Wash Facilities	Class A
Laundry Facilities	Class A
Golf Course(s)	Class C

Table 7. DEQ, Oregon Recycled Water Classes Based on Level of Treatment

Recycled water Classes identified in rule, based upon level of treatment.

	Class A	Class B	Class C	Class D	Nondisinfected
Oxidized	X	X	X	X	X
Disinfected	X	X	X	X	
Filtered	X				
Turbidity (NTU)					
24-hr mean	2				
5% of time during a 24-hr period	5				
Maximum at any time	10				
Monitoring Frequency	hourly				
Total coliform (organisms/100 mL)					
7-day median	2.2	2.2	23		
Maximum in any sample	23	23			
Maximum in 2-consecutive			240		
Monitoring Frequency	daily	3/wk	1/wk		
E. coli					
30-day log mean				126	
Maximum in any sample				406	
Monitoring Frequency				1/wk	
Beneficial Purposes	More				Less
Conditions on use	Less Restrictive				More Restrictive

5 ALTERNATIVES

There are several alternatives identified below that consider potential implementation approaches for the use of recycled wastewater. As the City is in the feasibility stage of determining if recycling wastewater is a plausible option, there has been no expressed interest from businesses within the City to use recycled water. There has been interest from one business located outside the city that would like to explore the option of having the City provide its recycled wastewater for use at a planned golf course.

Alternatives 2 and 3 are aimed at any new user within the City limits who theoretically could use recycled wastewater, with the differences related to who would install and ultimately own the system. Alternative 4 is a single-user scenario related specifically to a private investor located beyond the city limits.

5.1 Summary of Alternatives

5.1.1 Alternative 1: No Action

Any feasibility analysis includes the option of No Action. This is entirely feasible as it represents the current conditions within the City. The benefits of Alternative 1 are that it incurs zero costs. The drawback of this alternative is that a potential resource is not available for reuse.

5.1.2 Alternative 2: City-Owned Water Recycling Infrastructure

Infrastructure such as piping and valves from the WWTP to the potential user would be installed, owned, and maintained by the City. Payment for use of recycled water services would include both a System Development Charge (SDC) to cover the initial installation, as well as a monthly rate to cover the costs of recycled water received and additional accounting, auditing, and compliance monitoring/testing required to meet treatment levels.

An SDC is a one-time fee assessed to new development to help pay for the infrastructure required to serve it. In this case, water recycling capital improvements and additional city services necessary to make recycled wastewater available. These fees are designed to recover

the costs of existing and future capital improvements, such as those to the WWTP, that are needed to accommodate implementation and future growth.

Municipal wastewater recycling services would be managed much as the current water and sewer services are managed, with the exception that the individual users would be voluntary.

Documents and services anticipated in addition to the construction costs for this alternative would include, at a minimum, the following tasks:

- 1) Public meetings (city personnel time, engineering time) (\$1K)
- 2) Obtain letters of interest from potential end-user(s) detailing their intent to utilize a city-owned water recycling system. It is recommended that such an agreement be identified before implementing follow-on tasks. If no interest is identified, the following tasks will not be implemented.
- 3) Prepare water use agreement(s) between the City and end-user(s) (\$10K). This would likely be prepared in parallel with the SDC Methodology. The SDC Methodology document is expected to identify city-owned capital improvements and additional services, such as accounting, auditing, and compliance monitoring/testing, which will be required to provide recycled water. The costs for providing these services will be shared with each user based on parameters to be defined in the SDC methodology. The shared costs for these services will depend on the recycled wastewater alternative selected (see Section 5.1).
- 4) Prepare an SDC Methodology (\$40K). This would likely be prepared in parallel with contract documents.
- 5) Update to the WFP to identify necessary improvements (\$135K). It is anticipated that key updates will be needed at the WWTP to reliably provide recycled water. Costs for such improvements are unknown at the feasibility stage.
- 6) Preparation of funding applications to cover the planning/design/installation costs of common plant improvements and transmission system (\$10K)
- 7) Once contracts are in place and the SDC methodology has been adopted:

- a) Prepare engineering design of common plant improvements (\$9.4K – see Table 8 for details).
 - b) Engineering to prepare subcontract documents for common plant improvements (\$5.8K)
 - c) Prepare engineering designs for the individual transmission system between end user(s) and WWTP. It is possible that this could be performed in conjunction with item 4a, depending on the number of potential end users (see Table 9).
 - d) Engineering to prepare subcontract documents for individual transmission systems to end user(s). It is possible that this could be performed in conjunction with item 4b, depending on the number of potential end users (see Table 9).
- 8) Agency review and approval of design for common plant improvements (\$2K)
- 9) Construction of common plant improvements (see Table 8)
- 10) Construction and engineering costs associated with the installation of a recycled water collection and transmission system (see Table 9). This would likely be done in phases, depending on the number of end-users identified.
- 11) Additional accounting and auditing by city personnel (assumes 3-5 hours per quarter)
- 12) Additional water quality testing (e.g., turbidity) to meet Level A, B, or C recycled water standards. The City may be able to perform turbidity testing in-house; however, depending on the treatment level required for the adopted base treatment level, laboratory testing may be required (\$5K).

The benefits of this alternative are that, like with water and sewer services, the City would maintain recycled water infrastructure and would be in control of timing and nature of repairs, and would control flows to maintain the current outfall. Depending on the costs to implement, in the long term, this alternative could provide a revenue stream from an otherwise unused resource.

The drawbacks to Alternative 2 are that the revenue could be unreliable if a potential user changed their mind in the future and elected not to use the service after the infrastructure was

developed. Other drawbacks include variability in timing and location of construction activities as users elect to use recycled wastewater, variability in available volume as users start and stop their usage, future availability of recycled water to new users, lower flow when the obligated flow is not available, and lack of demand during the rainy season when the user does not need additional water.

Alternative 2 is considered technically feasible, but realistically, the costs to install piping to all entities that might want to utilize recycled water would be much higher than the anticipated monthly revenue generated from recycled water fees and reasonable SDCs.

Under this scenario, the treatment level would depend on the use type, as the potential for mixed users does exist. Since it is not possible to have multiple levels of treatment from a single system, the most restrictive classification would need to be met. A more robust cost-benefit analysis is recommended if there were a specific user in town who wanted to use water under this alternative.

5.1.3 Alternative 3: In-City Private User-Owned Water Recycling Infrastructure

Alternative 3 is similar to Alternative 2, with the exception that instead of paying a system development charge for the bulk of the transmission system. Although the end-user under this scenario would be responsible for construction and maintenance costs to provide service from the WWTP to their facilities, there are common capital improvements required at the WWTP to provide tie-in and potentially additional treatment needs that would be common to all alternatives. These common costs and recommended appropriate SDC fees would be identified through the SDC Methodology study. This information could inform the city in negotiations with a potential user, with final SDC fees to be codified in a water use agreement.

As with Alternative 2, there would need to be legal agreements in place before implementation. Documents and services anticipated in addition to the user-borne construction costs for this alternative would include, at a minimum, the following tasks:

- 1) Public meetings (city personnel time, engineering time) (\$1K)
- 2) Obtain letters of interest from potential end-user(s) detailing their intent to utilize a city-provided recycled wastewater. It is recommended that such an agreement be identified before implementing follow-on tasks. If no interest is identified, the following tasks will not be implemented.
- 3) Prepare water use agreement(s) between the City and end-user(s) (\$10K). This would likely be prepared in parallel with the System Development Charge Methodology.
- 4) Prepare a System Development Charge Methodology (\$40K) for common improvements. This would likely be prepared in parallel with contract documents.
- 5) Update to the WFP to identify necessary improvements (\$135K). It is anticipated that key updates will be needed at the WWTP to reliably provide recycled water. Costs for such improvements are unknown at the feasibility stage.
- 6) Preparation of funding applications to cover the planning/design/installation costs of common plant improvements (\$10K)
- 7) Once contracts are in place and the SDC methodology has been adopted:
 - a) Prepare engineering design of common plant improvements (\$9.4K – see Table 8 for details).
 - b) Engineering to prepare subcontract documents for common plant improvements (\$5.8K)
- 8) Additional accounting and auditing by city personnel (assumes 3-5 hours per quarter)
- 9) Additional water quality testing (e.g., turbidity) to meet Level A, B, or C recycled water standards. The City may be able to perform turbidity testing in-house; however, depending on the treatment level required for the adopted base treatment level, laboratory testing may be required (\$5K).

The private user would be responsible for the required permitting, contracting with a vendor for installation, and maintenance of the utility. Infrastructure such as piping and valves from the WWTP to the potential user would be installed, owned, and maintained by the user. However, permit compliance monitoring would be performed by the City, and such costs would be

incorporated into a system development charge, which would be required for the common improvements at the WWTP. The private user would bear all other construction/installation costs. Payment for such services would include a smaller system development fee as well as a monthly rate to cover the costs of water received. This would operate as a private utility, solely managed by the end user.

The benefits of this are that, other than providing the connection and a minimum flow along with monitoring to ensure compliance with the discharge permit, the City would have no responsibilities for the installation, transmission, or maintenance of the recycled wastewater. As with Alternative 2, it would also provide a revenue stream from an otherwise unused resource.

The drawbacks to Alternative 3 would be potential chaos from pipe installation projects within the City that are not planned, scheduled and controlled by the City; competing claims to a limited volume of recycled water, variability in future availability of recycled water to new private users, lower flow times when the obligated flow is not available, lack of demand during the rainy season when higher flows would be available but are not needed by the user.

Alternative 3 is considered feasible, but only if a private in-city user or property owner is willing to cover the costs and maintenance of the necessary infrastructure improvements.

Under this scenario, the treatment level would depend on the use type, as the potential for mixed users does exist. Since it is not possible to have multiple levels of treatment from a single system, the most restrictive classification is assumed.

5.1.4 Alternative 4: Private Investor-Owned Infrastructure (beyond city limits)

Alternative 4 is similar to Alternative 3, with the exception that instead of various potential users, a single user located outside the city limits would obtain the entire volume of available recycled wastewater (less any volume required to maintain the existing outfall). As with Alternative 3, the end-user under this scenario would be responsible for construction and

maintenance costs to provide service from the WWTP to their facilities and would also be responsible for sharing in the common capital improvement costs required at the WWTP to provide tie-in and potentially additional treatment needs that would be common to all alternatives. These common costs would be covered under an SDC.

As with Alternatives 2 and 3, there would need to be legal agreements in place before implementation. Documents and services anticipated in addition to the user-borne construction costs for this alternative are the same as those identified for Alternative 3 and would include, at a minimum, the following tasks:

- 1) Public meetings (city personnel time, engineering time) (\$1K)
- 2) Obtain letters of interest from potential end-user(s) detailing their intent to utilize a city-provided recycled wastewater. It is recommended that such an agreement be identified before implementing follow-on tasks. If no interest is identified, the following tasks will not be implemented.
- 3) Prepare water use agreement(s) between the City and end-user(s) (\$10K). This would likely be prepared in parallel with the System Development Charge Methodology.
- 4) Prepare a System Development Charge Methodology (\$40K) for common plant improvements. This would likely be prepared in parallel with contract documents.
- 5) Update to the WFP to identify necessary improvements (\$135K). It is anticipated that key updates will be needed at the WWTP to reliably provide recycled water. Costs for such improvements are unknown at the feasibility stage.
- 6) Preparation of funding applications to cover the planning/design/installation costs of common plant improvements (\$10K)
- 7) Once contracts are in place and the SDC methodology has been adopted:
 - a) Prepare engineering design of common plant improvements (\$9.4K – see Table 8 for details).
 - b) Engineering to prepare subcontract documents for common plant improvements (\$5.8K)

- 8) Additional accounting and auditing by city personnel (assumes 3-5 hours per quarter)
- 9) Additional water quality testing (e.g., turbidity) to meet Level A, B, or C recycled water standards. The City may be able to perform turbidity testing in-house; however, depending on the treatment level required for the adopted base treatment level, laboratory testing may be required (\$5K).

The private investor would be responsible for obtaining the required permits, contracting with a vendor for the installation and maintenance of the utility. Infrastructure such as piping and valves from the WWTP to the city limits would be installed, owned, and maintained by the user. The transmission system and appurtenances beyond the city limits would be the sole responsibility of the end user(s).

A system development charge would be required for the common improvements at the WWTP; however, the user would bear all other installation costs. Payment for such services would include a system development fee as well as a monthly rate to cover the costs of recycled water received. This would be managed as a private utility, solely managed by the end user.

Under this alternative, other than providing the connection, a minimum flow, and compliance testing/monitoring, the City would have no responsibilities for the installation, transmission, or maintenance of the recycled wastewater beyond initial consultation regarding boring for installation of lines and regular monitoring to ensure the conditions of the NPDES discharge permit are being met.

The benefits of this alternative are that if the private investor agrees to collect the entire volume of water (minus the 30 percent needed to maintain outfall 001) regardless of the time of year, outfall 002 could be considered a secondary outfall for the city. If ever there is a future problem with the current outfall 001, having a secondary outfall could save the city the cost of replacement, which would be considerable. As with other alternatives, it could also provide a revenue stream from an otherwise unused resource.

If outfall 002 is to be used for irrigation, but the entire volume of water cannot be collected regardless of the time of year, this alternative would not be a secondary outfall but could still provide a revenue stream if an appropriate fee schedule could be developed.

Alternative 4 is considered feasible, but only if the private user/investor is willing to cover the full costs of installation and maintenance of the necessary infrastructure improvements. This would include costs for the city to develop an appropriate fee and system development cost structure to adequately cover a share of WWTP upgrades and ongoing WWTP maintenance, as well as for City staff to monitor discharge volumes and to ensure that adequate reserve discharge is available to maintain the existing outfall. Additional legal costs may be needed to cover the development of agreements needed for implementation.

Under this scenario, the necessary treatment level would likely be to meet Class C requirements. Although the green space at the golf course would accept Class D treatment, if ponds or impoundments are planned, typical of most golf courses, treatment to Class C would be required. As mentioned above, turbidity testing is needed to ensure that the City's treated effluent can meet treatment class requirements.

5.2 Summary of Costs

5.2.1 Alternative 1: No Action

There are no additional costs associated with Alternative 1.

5.2.2 Alternative 2: City-Owned Water Recycling Infrastructure

There would be common costs with any end-user scenario associated with creating a tie-in location at the WWTP (Table 8). This would include installation of the waterline from the plant to the tie-in location and installation of valves, tees, and other appurtenances, along with the additional planning and development costs identified in Section 5.1.2.. These costs will be refined during the design process when the exact tie-in location is determined.

Table 8. Estimated Costs for Creating a Recycled Water Tie-in at WWTP

Item Description	Unit	Quantity	Unit Price	Extended Price
Mobilization, Bonding, and Insurance	LS	1	\$5,350.00	\$5,350.00
Construction Facilities & Temporary Controls	LS	1	\$3,745.00	\$3,745.00
Demolition and Site Preparation	LS	1	\$20,000.00	\$20,000.00
6" PVC Waterline from Plant to Tie-In Location	LF	50	\$120.00	\$6,000.00
6" Gate Valve	EA	2	\$4,000.00	\$8,000.00
6" Tee	EA	1	\$1,500.00	\$1,500.00
6" 45° Elbow	EA	2	\$1,600.00	\$3,200.00
6" 90° Elbow	EA	2	\$1,600.00	\$3,200.00
6" Blind Flange	EA	2	\$550.00	\$1,100.00
Blow Off Valve	EA	1	\$5,100.00	\$5,100.00
Air Release Valve	EA	1	\$5,400.00	\$5,400.00
Sub Total				\$62,595.00
Engineering (15%)				\$9,389.25
Total				\$71,984.25

Costs associated with the City installing, maintaining, and operating a recycled water collection system will vary depending on the location of the business(es) that elected to participate in the use of recycled wastewater. Table 9 represents likely materials and equipment required for any pipeline transmission system. It was built on a unit pipe length of 1,000 LF. Greater pipe length will require additional tees, elbows, and other incidentals, along with potential horizontal drilling required beneath multiple intersections.

Costs for this type of installation would be borne by the City and incorporated into System Development Charges and recycled water usage fees. Costs are shown for comparison purposes only, as they would vary considerably depending upon location and infrastructure between the potential user and the WWTP.

For an in-city user located near the southern end of Highway 101 (2,000 LF), installation costs would be approximately \$410K. For a user located near the northern end of Highway 101 within the city limits (5,000 LF) cost for installation would be approximately \$895K.

Table 9. Estimated Costs for City-Installed Infrastructure

Item Description	Unit	Quantity	Unit Price	Extended Price
------------------	------	----------	------------	----------------

Mobilization, Bonding, and Insurance	LS	1	\$18,488.00	\$18,488.00
Construction Facilities & Temporary Controls	LS	1	\$12,941.60	\$12,941.60
Demolition and Site Preparation	LS	1	\$20,000.00	\$20,000.00
6" PVC Waterline w/CL B Backfill (WWTP to Idaho to Arizona to City Limits)	LF	1,000	\$120.00	\$120,000.00
6" Horizontal Directional Drilling of HDPE of Fusible C900 Water Distribution Piping (under intersections)	LF	30	\$226.00	\$6,780.00
6" Gate Valve	EA	2	\$4,000.00	\$8,000.00
6" Tee	EA	1	\$1,500.00	\$1,500.00
6" 45° Elbow	EA	7	\$1,600.00	\$11,200.00
6" 90° Elbow	EA	2	\$1,600.00	\$3,200.00
8" x 6" Reducer	EA	1	\$2,600.00	\$2,600.00
6" Blind Flange	EA	2	\$550.00	\$1,100.00
Blow Off Valve	EA	1	\$5,100.00	\$5,100.00
Air Release Valve	EA	1	\$5,400.00	\$5,400.00
Sub Total				\$216,309.60
Engineering (15%)				\$32,446.44
Total				\$248,756.04

Note: Estimate is based on most current pricing information available at the time of this report (2025). If used in the future, pricing should be updated.

5.2.3 Alternatives 3 and 4: Privately Owned Water Recycling Infrastructure

Alternatives 3 and 4 both represent user scenarios where entities other than the City would be responsible for design, construction, and maintenance of wastewater recycling infrastructure. It is anticipated that the materials identified in Table 9 would be similar, but those cost estimates would be prepared by the prospective end user at the time of project development and are not included in this WRFS. Those costs identified in Table 8 would be shared with each prospective end user in the form of System Development Charges and water usage fees, along with the additional planning and development costs identified in Sections 5.1.3 and 5.1.4, for the identified alternatives.

6 Recommendations

Any one of the alternatives described above could be considered technically feasible if the recycled water resource were deemed valuable enough to an end user. However, Alternative 2 is not recommended due to the construction costs that will likely far outweigh potential revenue benefits.

Alternatives 3 and 4 are both technically feasible and could be cost-effective if the City proceeds to identify appropriate System Development Charges to cover the costs for implementing the required improvements at the WWTP to provide a connection tie-in and for the required City compliance monitoring, auditing, and additional accounting required.

It is recommended that any service agreements or contracts with private investors/property owners make it clear that the City cannot and should not make any guarantee on the amount of water that would be made available.



APPENDIX A: OAR 340-055

Department of Environmental Quality

Chapter 340

Division 55 RECYCLED WATER USE

340-055-0005

Purpose

These rules (OAR 340-055-0005 to 340-055-0030) prescribe requirements for the use of recycled water for beneficial purposes. The purpose of this division is to protect the environment and public health in the State of Oregon.

Statutory/Other Authority: ORS 468.020, 468.705 & 468.710

Statutes/Other Implemented: ORS 468B.015 & 468B.020

History:

DEQ 6-2008, f. & cert. ef. 5-5-08

DEQ 32-1990, f. & cert. ef. 8-15-90

340-055-0007

Policy

It is the policy of the Environmental Quality Commission to encourage the use of recycled water for domestic, agricultural, industrial, recreational, and other beneficial purposes in a manner which protects public health and the environment of the state. The use of recycled water for beneficial purposes will improve water quality by reducing discharge of treated effluent to surface waters, reduce the demand on drinking water sources for uses not requiring potable water, and may conserve stream flows by reducing withdrawal for out-of-stream use.

Statutory/Other Authority: ORS 468.020, 468.705 & 468.710

Statutes/Other Implemented: ORS 468B.015

History:

DEQ 6-2008, f. & cert. ef. 5-5-08

DEQ 32-1990, f. & cert. ef. 8-15-90

340-055-0010

Definitions

The following definitions apply to this division of rules:

(1) "Artificial Groundwater Recharge" means the intentional addition of water diverted from another source to a groundwater reservoir.

(2) "Beneficial Purpose" means a purpose where recycled water is utilized for a resource value, such as nutrient content or moisture, to increase productivity or to conserve other sources of water.

- (3) "Department" means the Oregon Department of Environmental Quality.
- (4) "Disinfected Wastewater" means wastewater that has been treated by a chemical, physical or biological process and meets the criteria if applicable to its classification for use as recycled water.
- (5) "Filtered Wastewater" means an oxidized wastewater that meets the criteria defined in OAR 340-055-0012(7)(c).
- (6) "Human Consumption" means water used for drinking, personal or oral hygiene, bathing, showering, cooking, or dishwashing.
- (7) "Landscape Impoundment" means a body of water used for aesthetic purposes or other function that does not include public contact through activities such as boating, fishing, or body-contact recreation. Landscape impoundments include, but are not limited to, golf course water ponds or non-residential landscape ponds.
- (8) "Nonrestricted Recreational Impoundment" means a constructed body of water for which there are no limitations on body-contact water recreation activities. Nonrestricted recreational impoundments include, but are not limited to, recreational lakes, water features accessible to the public, and public fishing ponds.
- (9) "NPDES Permit" means a National Pollutant Discharge Elimination System permit as defined in OAR chapter 340, division 45.
- (10) "Oxidized Wastewater" means a treated wastewater in which the organic matter is stabilized and nonputrescible, and which contains dissolved oxygen.
- (11) "Person" means the United States and agencies thereof, any state, any individual, public or private corporation, political subdivision, governmental agency, municipality, copartnership, association, firm, trust estate, or any other legal entity.
- (12) "Processed Food Crops" means those crops that undergo thermoprocessing sufficient to kill spores of *Clostridium botulinum*.
- (13) "Recycled Water" means treated effluent from a wastewater treatment system which as a result of treatment is suitable for a direct beneficial purpose. Recycled water includes reclaimed water as defined in ORS 537.131.
- (14) "Restricted Recreational Impoundment" means a constructed body of water that is limited to fishing, boating, and other non-body contact water recreation activities.
- (15) "Sprinkler Irrigation" means the act of applying water by means of perforated pipes or nozzles operated under pressure so as to form a spray pattern.
- (16) "Wastewater" or "Sewage" means the water-carried human or animal waste from residences, buildings, industrial establishments or other places, together with such groundwater infiltration and surface water as may be present. The admixture with sewage of wastes or industrial wastes shall also be considered "wastewater" within the meaning of this division.
- (17) "Wastewater Treatment System" or "Sewage Treatment System" means an approved facility or equipment used to alter the quality of wastewater by physical, chemical or biological means or a

combination thereof that reduces the tendency of the wastewater to degrade water quality or other environmental conditions.

(18) "Waters of the State" means lakes, bays, ponds, impounding reservoirs, springs, wells, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Pacific Ocean within the territorial limits of the State of Oregon, and all other bodies of surface or underground waters, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters which do not combine or effect a junction with natural surface or underground waters) that are located wholly or partially within or bordering the state or within its jurisdiction.

(19) "WPCF Permit" means a Water Pollution Control Facilities permit as defined in OAR chapter 340, division 45.

(20) "Wetlands" means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Statutory/Other Authority: ORS 468.020, 468.705 & 468.710

Statutes/Other Implemented: ORS 468B.005, 468B.030 & 468B.050

History:

DEQ 6-2008, f. & cert. ef. 5-5-08

DEQ 32-1990, f. & cert. ef. 8-15-90

340-055-0012

Recycled Water Quality Standards and Requirements

(1) Any person having control over the treatment or distribution or both of recycled water may distribute recycled water only for the beneficial purposes described in this rule, and must take all reasonable steps to ensure that the recycled water is used only in accordance with the standards and requirements of the rules of this division.

(2) Any person who uses recycled water may use recycled water only for the beneficial purposes described in this rule, and must comply with the standards and requirements of this rule and the rules of this division.

(3) The following requirements apply to nondisinfected recycled water.

(a) Beneficial Purposes. Nondisinfected recycled water may be used only for the following beneficial purposes and only if the rules of this division are met:

(A) Irrigation for growing fodder, fiber, seed crops not intended for human ingestion, or commercial timber; and

(B) Any beneficial purpose authorized in writing by the department pursuant to OAR 340-055-0016(6).

(b) Treatment. Nondisinfected recycled water must be an oxidized wastewater.

(c) Criteria. There are no disinfection criteria for nondisinfected recycled water.

(d) Monitoring. Monitoring must be in accordance with the wastewater treatment system owner's NPDES or WPCF permit.

(e) Setback Distances. There must be a minimum of 150 feet from the edge of the irrigation site to a water supply source used for human consumption. Other site specific setback distances for irrigation necessary to protect public health and the environment must be established in the recycled water use plan and must be met when irrigating.

(f) Access and Exposure. Public access to the irrigation site must be prevented.

(g) Site Management.

(A) Irrigation with recycled water is prohibited for 30 days before harvesting.

(B) Sprinkler irrigation is prohibited unless authorized in advance and in writing by the department based on demonstration that public health and the environment will be adequately protected from aerosols.

(4) The following requirements apply to Class D recycled water.

(a) Beneficial Purposes. Class D recycled water may be used only for the following beneficial purposes and only if the rules of this division are met:

(A) Any beneficial purpose defined in subsection (3)(a) of this rule;

(B) Irrigation of firewood, ornamental nursery stock, Christmas trees, sod, or pasture for animals; and

(C) Any beneficial purpose authorized in writing by the department pursuant to OAR 340-055-0016(6).

(b) Treatment. Class D recycled water must be an oxidized and disinfected wastewater that meets the numeric criteria in subsection (c) of this section.

(c) Criteria. Class D recycled water must not exceed a 30-day log mean of 126 E. coli organisms per 100 milliliters and 406 E. coli organisms per 100 milliliters in any single sample.

(d) Monitoring. Monitoring for E. coli organisms must occur once per week at a minimum.

(e) Setback Distances.

(A) Where an irrigation method is used to apply recycled water directly to the soil, there must be a minimum of 10 feet from the edge of the site used for irrigation and the site property line.

(B) Where sprinkler irrigation is used, there must be a minimum of 100 feet from the edge of the site used for irrigation and the site property line.

(C) There must be a minimum of 100 feet from the edge of an irrigation site to a water supply source used for human consumption.

(D) Where sprinkler irrigation is used, recycled water must not be sprayed within 70 feet of an area where food is prepared or served, or where a drinking fountain is located.

(f) Access and Exposure.

(A) Animals used for production of milk must be restricted from direct contact with the recycled water.

(B) When using recycled water for irrigation of sod, ornamental nursery stock, or Christmas trees, the personnel at the use area must be notified that the water used is recycled water and is not safe for drinking. The recycled water use plan must specify how notification will be provided.

(g) Site Management.

(A) When irrigating, signs must be posted around the perimeter of the irrigation site stating recycled water is used and is not safe for drinking.

(B) Irrigation of fodder, fiber, seed crops not intended for human ingestion, sod, commercial timber, firewood, ornamental nursery stock, or Christmas trees is prohibited for three days before harvesting.

(5) The following requirements apply to Class C recycled water.

(a) Beneficial Purposes. Class C recycled water may be used only for the following beneficial purposes and only if the rules of this division are met:

(A) Any beneficial purpose defined in subsection (4)(a) of this rule;

(B) Irrigation of processed food crops;

(C) Irrigation of orchards or vineyards if an irrigation method is used to apply recycled water directly to the soil;

(D) Landscape irrigation of golf courses, cemeteries, highway medians, or industrial or business campuses;

(E) Industrial, commercial, or construction uses limited to: industrial cooling, rock crushing, aggregate washing, mixing concrete, dust control, nonstructural fire fighting using aircraft, street sweeping, or sanitary sewer flushing;

(F) Water supply source for landscape impoundments; and

(G) Any beneficial purpose authorized in writing by the department pursuant to OAR 340-055-0016(6).

(b) Treatment. Class C recycled water must be an oxidized and disinfected wastewater that meets the numeric criteria in subsection (c) of this section.

(c) Criteria. Class C recycled water must not exceed a median of 23 total coliform organisms per 100 milliliters, based on results of the last seven days that analyses have been completed, and 240 total coliform organisms per 100 milliliters in any two consecutive samples.

(d) Monitoring. Monitoring for total coliform organisms must occur once per week at a minimum.

(e) Setback Distances.

(A) Where an irrigation method is used to apply recycled water directly to the soil, there must be a minimum of 10 feet from the edge of the site used for irrigation and the site property line.

(B) Where sprinkler irrigation is used, there must be a minimum of 70 feet from the edge of the site used for irrigation and the site property line.

(C) There must be a minimum of 100 feet from the edge of an irrigation site to a water supply source used for human consumption.

(D) Where sprinkler irrigation is used, recycled water must not be sprayed within 70 feet of an area where food is being prepared or served, or where a drinking fountain is located.

(f) Access and Exposure.

(A) When irrigating for a beneficial purpose defined in subsection (4)(a) of this rule, the access and exposure requirements defined in subsection (4)(f) of this rule must be met.

(B) During irrigation of a golf course, a cemetery, a highway median, or an industrial or business campus, the public must be restricted from direct contact with the recycled water.

(C) If aerosols are generated when using recycled water for an industrial, commercial, or construction purpose, the aerosols must not create a public health hazard.

(D) When using recycled water for an agricultural or horticultural purpose where sprinkler irrigation is used, or an industrial, commercial, or construction purpose, the public and personnel at the use area must be notified that the water used is recycled water and is not safe for drinking. The recycled water use plan must specify how notification will be provided.

(g) Site Management.

(A) When irrigating for a beneficial purpose defined in subsection (4)(a) of this rule, the site management requirements defined in subsection (4)(g) of this rule must be met.

(B) When using recycled water for a landscape impoundment or for irrigating a golf course, cemetery, highway median, or industrial or business campus, signs must be posted at the use area and be visible to the public. The signs must state that recycled water is used and is not safe for drinking.

(C) Irrigation of processed food crops is prohibited for three days before harvesting.

(D) When irrigating an orchard or vineyard, the edible portion of the crop must not contact the ground, and fruit or nuts may not be harvested off the ground.

(E) When using recycled water for a landscape impoundment, aerators or decorative fixtures that may generate aerosols are allowed only if authorized in writing by the department.

(6) The following requirements apply to Class B recycled water.

(a) Beneficial Purposes. Class B recycled water may be used only for the following beneficial purposes and only if the rules of this division are met:

(A) Any beneficial purpose defined in subsection (5)(a) of this rule;

(B) Stand-alone fire suppression systems in commercial and residential buildings, non-residential toilet or urinal flushing, or floor drain trap priming;

(C) Water supply source for restricted recreational impoundments; and

(D) Any beneficial purpose authorized in writing by the department pursuant to OAR 340-055-0016(6).

(b) Treatment. Class B recycled water must be an oxidized and disinfected wastewater that meets the numeric criteria in subsection (c) of this section.

(c) Criteria. Class B recycled water must not exceed a median of 2.2 total coliform organisms per 100 milliliters, based on results of the last seven days that analyses have been completed, and 23 total coliform organisms per 100 milliliters in any single sample.

(d) Monitoring. Monitoring for total coliform organisms must occur three times per week at a minimum.

(e) Setback Distances.

(A) Where an irrigation method is used to apply recycled water directly to the soil, there are no setback requirements.

(B) Where sprinkler irrigation is used, there must be a minimum of 10 feet from the edge of the site used for irrigation and the site property line.

(C) There must be a minimum of 50 feet from the edge of the irrigation site to a water supply source used for human consumption.

(D) Where sprinkler irrigation is used, recycled water must not be sprayed within 10 feet of an area where food is being prepared or served, or where a drinking fountain is located.

(f) Access and Exposure.

(A) During irrigation of a golf course, the public must be restricted from direct contact with the recycled water.

(B) If aerosols are generated when using recycled water for an industrial, commercial, or construction purpose, the aerosols must not create a public health hazard.

(C) When using recycled water for an agricultural or horticultural purpose where sprinkler irrigation is used, or an industrial, commercial, or construction purpose, the public and personnel at the use area must be notified that the water used is recycled water and is not safe for drinking. The recycled water use plan must specify how notification will be provided.

(g) Site Management.

(A) When irrigating for a beneficial purpose defined in subsection (4)(a) of this rule, the site management requirements defined in subsection (4)(g) of this rule must be met.

(B) When using recycled water for a landscape impoundment or for irrigating a golf course, cemetery, highway median, or industrial or business campus, signs must be posted at the use area and be visible to the public. The signs must state recycled water is used and is not safe for drinking.

(C) Irrigation of processed food crops is prohibited for three days before harvesting.

(D) When irrigating an orchard or vineyard, the edible portion of the crop must not contact the ground, and fruit or nuts may not be harvested off the ground.

(7) The following requirements apply to Class A recycled water.

(a) Beneficial Purposes. Class A recycled water may be used only for the following beneficial purposes and only if the rules of this division are met:

(A) Any beneficial purpose defined in subsection (6)(a) of this rule;

(B) Irrigation for any agricultural or horticultural use;

(C) Landscape irrigation of parks, playgrounds, school yards, residential landscapes, or other landscapes accessible to the public;

(D) Commercial car washing or fountains when the water is not intended for human consumption;

(E) Water supply source for nonrestricted recreational impoundments;

(F) Artificial groundwater recharge by surface infiltration methods or by subsurface injection in accordance with OAR chapter 340, division 44. Direct injection into an underground source of drinking water is prohibited unless allowed by OAR chapter 340, division 44; and

(G) Any beneficial purpose authorized in writing by the department pursuant to OAR 340-055-0016(6).

(b) Treatment. Class A recycled water must be an oxidized, filtered and disinfected wastewater that meets the numeric criteria in subsection (c) of this section are met.

(c) Criteria. Class A recycled water must not exceed the following criteria:

(A) Before disinfection, unless otherwise approved in writing by the department, the wastewater must be treated with a filtration process, and the turbidity must not exceed an average of 2 nephelometric turbidity units (NTU) within a 24-hour period, 5 NTU more than five percent of the time within a 24-hour period, and 10 NTU at any time, and

(B) After disinfection, Class A recycled water must not exceed a median of 2.2 total coliform organisms per 100 milliliters, based on results of the last seven days that analyses have been completed, and 23 total coliform organisms per 100 milliliters in any single sample.

(d) Monitoring.

(A) Monitoring for total coliform organisms must occur once per day at a minimum.

(B) Monitoring for turbidity must occur on an hourly basis at a minimum.

(e) Setback Distances. Where sprinkler irrigation is used, recycled water must not be sprayed onto an area where food is being prepared or served, or onto a drinking fountain.

(f) Access and Exposure. When using recycled water for an agricultural or horticultural purpose where spray irrigation is used, or an industrial, commercial, or construction purpose, the public and personnel at the use area must be notified that the water used is recycled water and is not safe for drinking. The recycled water use plan must specify how notification will be provided.

(g) Site Management. When using recycled water for a landscape impoundment, restricted recreational impoundment, nonrestricted recreational impoundment, or for irrigating a golf course, cemetery, highway median, industrial or business campus, park, playground, school yard, residential landscape, or other landscapes accessible to the public, signs must be posted at the use area or notification must be made to the public at the use area indicating recycled water is used and is not safe for drinking. The recycled water use plan must specify how notification will be provided.

Statutory/Other Authority: ORS 468.020, 468.705 & 468.710

Statutes/Other Implemented: ORS 468B.030 & 468B.050

History:

Renumbered from 340-055-0015, DEQ 6-2008, f. & cert. ef. 5-5-08

DEQ 32-1990, f. & cert. ef. 8-15-90

340-055-0013

Exempted Use of Recycled Water

Recycled water used by a wastewater treatment system owner for landscape irrigation or for in plant processes at a wastewater treatment system is exempt from the rules of this division if:

- (1) The recycled water is an oxidized and disinfected wastewater;
- (2) The recycled water is used at the wastewater treatment system site where it is generated or at an auxiliary wastewater or sludge treatment facility that is subject to the same NPDES or WPCF permit as the wastewater treatment system. Contiguous property to the parcel of land upon which the treatment system is located is considered the wastewater treatment system site if under the same ownership;
- (3) Spray or drift or both from the use does not occur off the site; and
- (4) Public access to the site is restricted.

Statutory/Other Authority: ORS 468.020, 468.705 & 468.710

Statutes/Other Implemented: ORS 468B.050

History:

DEQ 6-2008, f. & cert. ef. 5-5-08

DEQ 32-1990, f. & cert. ef. 8-15-90

340-055-0016

General Requirements for Permitting the Use of Recycled Water

- (1) NPDES or WPCF permit. A wastewater treatment system owner may not provide any recycled water for use unless authorized by a NPDES or WPCF permit issued by the department pursuant to OAR chapter 340, division 045.
- (2) Recycled water use plan.
 - (a) Except for use of recycled water authorized by a NPDES or WPCF permit, a wastewater treatment system owner may not provide any recycled water for distribution or use or both until a recycled water use plan meeting the requirements of OAR 340-055-0025 has been approved in writing by the department. Upon approval of the plan, the permittee must comply with the conditions of the plan.

(b) Before approving or modifying any plan for the use of Class C, Class D, or nondisinfected recycled water, the department will submit the proposed plan to the Oregon Department of Human Services for comment.

(c) For use of recycled water previously authorized under a NPDES or WPCF permit but without a department approved recycled water use plan, the wastewater treatment system owner must submit a recycled water use plan to the department within one year of the effective date of these rules.

(3) Land application on land zoned exclusive farm use. A recycled water use plan will not be approved for the land application of recycled water on land zoned exclusive farm use until the requirements of ORS 215.213(1)(bb) and 215.283(1)(y) for recycled water are met.

(4) Compliance with this division. When the rules of this division require a limitation or a condition or both that conflicts with a limitation or a condition or both in an existing permit, the existing permit controls until the permit is modified or renewed by the department. When the existing permit is modified or renewed, the permittee will be given a reasonable compliance schedule to achieve new requirements if necessary.

(5) Additional permit limitations and conditions. The department may include additional permit limitations or conditions or both if it determines or has reason to believe additional requirements for the use of recycled water are necessary to protect public health or the environment or both.

(6) Authorization of other recycled water uses. The department may authorize through a NPDES or WPCF permit a use of recycled water for a beneficial purpose not specified in this division. When the department considers the authorization, it may request information and include permit limitations or conditions or both necessary to assure protection of public health and the environment. The department will confer with the Oregon Department of Human Services before authorizing other uses of Class C, Class D, or nondisinfected recycled water under this section.

(7) Setback distances. The department may consider and approve, on a case-by-case basis, a setback distance other than what is required in this division. For a reduced setback distance, it must be demonstrated to the department that public health and the environment will be adequately protected. The recycled water use plan must include any approved alternative setback distance.

(8) Public outreach and sign posting. When the rules of this division require the posting of signs at a use area, the department may, on a case-by-case basis, approve an alternative method for public outreach where it considers the method will assure an equivalent degree of public protection.

Statutory/Other Authority: ORS 468.020, 468.705 & 468.710

Statutes/Other Implemented: ORS 468B.030 & 468B.050

History:

Renumbered from 340-055-0015, DEQ 6-2008, f. & cert. ef. 5-5-08
DEQ 32-1990, f. & cert. ef. 8-15-90

[340-055-0017](#)

Treatment and Use of Recycled Water

(1) Alternative treatment process. The department may approve in writing an alternative wastewater treatment process not specified in the rules of this division if it is demonstrated that the treatment is equivalent to and can achieve the recycled water criteria required for a specific beneficial purpose.

(2) Additional treatment. A person using recycled water from a wastewater treatment system may provide additional treatment for a different class of recycled water that is identified in this division. The

wastewater treatment system owner providing the additional treatment is subject to the rules of this division and must have a NPDES or WPCF permit issued by the department.

(3) Blending recycled water. The department may approve on a case-by-case basis blending recycled water with other water if proposed by a wastewater treatment system owner. Before blending recycled water, the owner must obtain written authorization from the department. In obtaining authorization, the wastewater treatment system owner must submit to the department, at a minimum the following:

- (a) An operations plan,
- (b) A description of any additional treatment process,
- (c) A description of blending volumes, and
- (d) A range of final recycled water quality at the compliance point identified in the NPDES or WPCF permit.

(4) Water right. The rules of this division do not create a water right under ORS chapters 536, 537, 539 or 540. A person must contact the Oregon Water Resources Department to determine water right requirements for the use of recycled water.

(5) Prohibited use for human consumption. The use of recycled water for direct human consumption, regardless of the treatment class, is prohibited unless approved in writing by the Oregon Department of Human Services, and after public hearing, and it is so authorized by the Environmental Quality Commission.

(6) Prohibited use for a public pool. The use of recycled water as a source of supply for a public pool, spa, or bathhouse is prohibited unless authorized in writing by the department and with written approval from the Oregon Department of Human Services. Public pools are subject to the requirements of ORS 448 and the Oregon Department of Human Services administrative rules.

(7) Transporting recycled water. A vehicle used to transport or distribute recycled water must not be used to transport water for human consumption, unless authorized in writing by the department. The vehicle must be clearly identified with the words "nonpotable water" written in letters at least six inches high and displayed on each side and rear of the vehicle unless otherwise authorized by the department.

(8) Impoundments. Constructed landscape, and restricted and nonrestricted recreational impoundments approved for use under the rules of this division are not considered waters of the state for water quality purposes. Impoundments used for wastewater treatment are subject to ORS 215.213 and 215.283.

(9) Wetlands.

(a) The term "waters of the state" as provided in OAR 340-055-0012(18) includes, but is not limited to, the following wetlands and discharge to any of these wetlands requires a NPDES permit issued by the Department pursuant to OAR chapter 340, division 45:

- (A) Enhanced or restored wetlands;
- (B) Existing natural wetlands; and
- (C) Wetlands created as mitigation for loss of wetlands under the Clean Water Act, Section 404.

(b) Wetlands constructed on non-wetland sites and managed for wastewater treatment are exempt from the rules of this division and are not considered waters of the state for water quality purposes.

Statutory/Other Authority: ORS 468.020, 468.705 & 468.710

Statutes/Other Implemented: ORS 468B.030 & 468B.050

History:

Renumbered from 340-055-0015, DEQ 6-2008, f. & cert. ef. 5-5-08
DEQ 32-1990, f. & cert. ef. 8-15-90

340-055-0020

Groundwater Quality Protection

Recycled water will not be authorized for use unless all groundwater quality protection requirements in OAR chapter 340, division 40 are met. The requirements in OAR chapter 340, division 40 are considered to be met if the wastewater treatment system owner demonstrates recycled water will be used or land applied in a manner and at a rate that minimizes the movement of contaminants to groundwater and does not adversely impact groundwater quality. If the use of recycled water occurs within a designated groundwater management area, the department may require additional conditions to be met.

Statutory/Other Authority: ORS 468.020, 468.705 & 468.710

Statutes/Other Implemented: ORS 468B.150 - 468B.190

History:

DEQ 6-2008, f. & cert. ef. 5-5-08
DEQ 32-1990, f. & cert. ef. 8-15-90

340-055-0022

Monitoring and Reporting

(1) The department will include in a NPDES or WPCF permit authorizing the use of recycled water, at a minimum, the monitoring requirements in OAR 340-055-0012.

(2) When chlorine or a chlorine compound is used as a disinfecting agent, the department may specify in the NPDES or WPCF permit a minimum chlorine residual concentration. When other disinfecting agents are used, the department may require additional monitoring requirements to assure adequate disinfection.

(3) The department will include in a NPDES or WPCF permit authorizing the use of recycled water, a requirement that the wastewater treatment system owner submit an annual report to the department describing the effectiveness of the system to comply with the approved recycled water use plan, the rules of this division, and the permit limits and conditions for recycled water.

Statutory/Other Authority: ORS 468.020, 468.705 & 468.710

Statutes/Other Implemented: ORS 468B.030 & 468B.050

History:

Renumbered from 340-055-0015, DEQ 6-2008, f. & cert. ef. 5-5-08
DEQ 32-1990, f. & cert. ef. 8-15-90

340-055-0025

Recycled Water Use Plan

(1) A recycled water use plan must describe how the wastewater treatment system owner will comply with the rules of this division and must include, but is not limited to, the following:

- (a) A description of the wastewater treatment system, including treatment efficiency capability;
 - (b) A detailed description of the treatment methods that will be used to achieve a specific class of recycled water and for what beneficial purpose;
 - (c) The estimated quantity of recycled water to be provided by the wastewater treatment system owner to the user, and at what frequency and for what beneficial purpose;
 - (d) A description of contingency procedures that ensure the requirements of this division are met when recycled water is provided for use;
 - (e) Monitoring and sampling procedures;
 - (f) A maintenance plan that describes how the wastewater treatment system equipment and facility processes will be maintained and serviced;
 - (g) If notification is required by the rules of this division, a description of how the public and personnel at the use area will be notified; and
 - (h) A description of any measuring and reporting requirements identified by the Oregon Water Resources Department after consultation with that agency.
- (2) If Class B, C, or D, or nondisinfected recycled water is to be used for irrigation, a recycled water use plan must also include, but is not limited to, the following:
- (a) A description and identification of the land application site, including the zoned land use of the irrigation site and surrounding area, a site map with setbacks, and distances of nearest developed property from all boundaries of the irrigation site;
 - (b) A description of the irrigation system, including storage, distribution methods, application methods and rates, and shut off procedures;
 - (c) A description of the soils and crops or vegetation grown at the land application site;
 - (d) A description of site management practices including, but not limited to, the timing of application, methods used to mitigate potential aerosol drift, and if required by this division, posting of signs or public outreach; and
 - (e) If public access control or notification is required by this division, descriptions of public access control and how the public and personnel will be notified.
- (3) If Class A recycled water is to be used for the beneficial purpose of artificial groundwater recharge, a recycled water use plan must also include, but is not limited to, the following:
- (a) A groundwater monitoring plan in accordance with OAR 340-040-0030(2);
 - (b) A determination if the recharge will be to a drinking water protection area;
 - (c) A description of the soils and characteristics;

(d) The distance from the recharge area to the nearest point of withdrawal and the retention time in the aquifer until the time of withdrawal; and

(e) Verification from Oregon Water Resources Department that a request for authorization for this use has been initiated.

(4) Conditions contained in a department approved recycled water use plan are NPDES or WPCF permit requirements.

Statutory/Other Authority: ORS 468.020, 468.705 & 468.710

Statutes/Other Implemented: ORS 468B.030 & 468B.050

History:

DEQ 6-2008, f. & cert. ef. 5-5-08

DEQ 32-1990, f. & cert. ef. 8-15-90

340-055-0030

Operational Requirements for the Treatment and Distribution of Recycled Water

(1) Bypassing. The intentional diversion of wastewater from any unit process in the wastewater treatment system for a beneficial purpose is not allowed, unless with the unit process out of service the recycled water meets the criteria of this division for a specific class and beneficial purpose described in the recycled water use plan.

(2) Alarm devices. Alarm devices are required to provide warning of power loss and failure of process equipment essential to the proper operation of the wastewater treatment system and compliance with this division.

(3) Standby power. Unless otherwise approved in writing by the department, a wastewater treatment system providing recycled water for use must have sufficient standby power to fully operate all essential treatment processes. The department may grant an exception to this section only if the wastewater treatment system owner demonstrates that power failure will not result in inadequately treated water being provided for use and will not result in any violation of an NPDES or WPCF permit limit or condition or Oregon Administrative Rule.

(4) Redundancy. A wastewater treatment system that provides recycled water for use must have a sufficient level of redundant treatment facilities and monitoring equipment to prevent inadequately treated recycled water from being used or discharged to public waters.

(5) Distribution system requirements. Unless otherwise approved in writing by the department, all piping, valves, and other portions of the recycled water use system that is outside a building must be constructed and marked in a manner to prevent cross-connection with a potable water system. Unless otherwise approved in writing by the department or as required by the rules of this division, construction and marking must be consistent with sections (2), (3), (4), and (5) of the 1992 "Guidelines for the Distribution of Nonpotable Water" of the California-Nevada Section of the American Water Works Association.

(6) Cross-connection control. Connection between a potable water supply system and a recycled water distribution system is not authorized unless the connection is through an air gap separation approved by the department. A reduced pressure principle backflow prevention device may be used only when approved in writing by the department and the potable water system owner.

[Publications: Publications referenced are available from the agency.]

Statutory/Other Authority: ORS 468.020, 468.705 & 468.710

Statutes/Other Implemented: ORS 468B.030 & 468B.050

History:

DEQ 6-2008, f. & cert. ef. 5-5-08

DEQ 32-1990, f. & cert. ef. 8-15-90



APPENDIX B: NPDES PERMIT



NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM WASTE DISCHARGE PERMIT

Oregon Department of Environmental Quality
Western Region – Salem Office
4026 Fairview Industrial Dr. SE
Salem, OR 97302
Telephone: 503-378-8240

Issued pursuant to ORS 468B.050 and the federal Clean Water Act

ISSUED TO:

City of Port Orford
PO Box 310
Port Orford, OR 97465

SOURCES COVERED BY THIS PERMIT:

Type of Waste	Outfall Number	Outfall Location
Treated Wastewater	001	42.74528/-124.5239
Recycled Water	002	See Schedule D, Condition 3
Reuse		
Biosolids	N/A	Specified in Biosolids Management/Land Application Plan

FACILITY LOCATION:

913 12th Street
Port Orford, OR 97465
County: Curry

EPA Permit Type: Minor

RECEIVING STREAM INFORMATION:

WRD Basin: South Coast
USGS Sub-Basin: Sixes
Receiving Stream name: Pacific Ocean
NHD Reach Code: 17100306000046 (55.88%)
LLID: 1240637462558-285-D

Issued in response to Application No. 950211 received January 14, 2021. This permit is issued based on the land use findings in the permit record.

Ranei Nomura

Digitally signed by Ranei Nomura
Date: 2021.12.06 10:39:44 -08'00'

Ranei Nomura, Water Quality Manager
Western Region

December 6, 2021

Issuance Date

January 1, 2022

Effective Date

PERMITTED ACTIVITIES

Until this permit expires or is modified or revoked, the permittee is authorized to: 1) operate a wastewater collection, treatment, control and disposal system; and 2) discharge treated wastewater to waters of the state only from the authorized discharge point or points in Schedule A in conformance with the requirements, limits, and conditions set forth in this permit.

Unless specifically authorized by this permit, by another NPDES or Water Pollution Control Facility permit, or by Oregon statute or administrative rule, any other direct or indirect discharge of pollutants to waters of the state is prohibited.

TABLE OF CONTENTS

SCHEDULE A: WASTE DISCHARGE LIMITS.....	3
1. Outfall 001 and Outfall 002 – Permit Limits	3
2. Regulatory Mixing Zone	3
3. Biosolids.....	4
4. Chlorine Usage.....	4
SCHEDULE B: MINIMUM MONITORING AND REPORTING REQUIREMENTS.....	5
1. Reporting Requirements.....	5
2. Monitoring and Reporting Protocols.....	6
3. Monitoring and Reporting Requirements.....	7
4. Biosolids Monitoring Requirements	10
SCHEDULE D: SPECIAL CONDITIONS.....	13
1. Inflow and Infiltration	13
2. Emergency Response and Public Notification Plan	13
3. Outfall 002	13
4. Exempt Wastewater Reuse at the Treatment System.....	13
5. Biosolids Management Plan.....	13
6. Wastewater Solids Transfers.....	14
7. Hauled Waste Control Plan.....	15
8. Hauled Waste Annual Report.....	15
9. Lagoon Solids.....	15
10. Operator Certification	15
11. Industrial User Survey.....	16
12. Outfall Inspection.....	17
SCHEDULE F: NPDES GENERAL CONDITIONS.....	19

Note: Schedule C: Compliance Schedule and Schedule E: Pretreatment Activities are not a part of this permit.

LIST OF TABLES

Table A1: Permit Limits.....	3
Table A2: Biosolids Limits	4
Table B1: Reporting Requirements and Due Dates	5
Table B2: Influent Monitoring Requirements	7
Table B3: Effluent Monitoring Requirements	8
Table B4: Biosolids Monitoring.....	11
Table B5: Biosolids Minimum Monitoring Frequency	11

SCHEDULE A: WASTE DISCHARGE LIMITS

1. Outfall 001 and Outfall 002 – Permit Limits

During the term of this permit, the permittee must comply with the limits in the following table:

Table A1: Permit Limits

Parameter	Units	Average Monthly	Average Weekly	Daily Maximum
BOD ₅ (May 1 – October 31) (See notes a. and b.)	mg/L	30	45	-
	lb/day	30	45	60
	% removal	85	-	-
TSS (May 1 – October 31) (See notes a. and b.)	mg/L	30	45	-
	lb/day	30	45	60
	% removal	85	-	-
BOD ₅ (November 1 – April 30) (See notes a. and b.)	mg/L	30	45	-
	lb/day	76	140	260
	% removal	85	-	-
TSS (November 1 – April 30) (See notes a. and b.)	mg/L	30	45	-
	lb/day	76	140	260
	% removal	85	-	-
pH (See note a.)	SU	Instantaneous limit between a daily minimum of 6.0 and a daily maximum of 9.0		
Fecal Coliform Bacteria (See note a.)	#/100 mL	Must not exceed a daily maximum of 126		
Enterococcus Bacteria (See note a.)	#/100 mL	Must not exceed a monthly geometric mean of 35, not more than 10% of the samples may exceed 130		
Notes:				
a. The permittee is not permitted to discharge via Outfall 002 until a Recycled Water Use Plan has been developed and approved by DEQ.				
b. Mass load limits (lb/day) do not apply to Outfall 002.				

2. Regulatory Mixing Zone

Pursuant to OAR 340-041-0053, the permittee is granted a regulatory mixing zone as described below:

The regulatory mixing zone is that portion of the Pacific Ocean contained within a one-hundred (100) foot radius of the point of discharge. The Zone of Immediate Dilution (ZID) is that portion of the regulatory mixing zone within ten (10) feet of any individual port.

3. Biosolids

The permittee may land apply biosolids or provide biosolids for sale or distribution, subject to the following conditions:

- a. The permittee must manage biosolids in accordance with its DEQ-approved Biosolids Management Plan and Land Application Plan.
- b. The permittee must apply biosolids at or below the agronomic rates approved by DEQ in order to minimize potential groundwater degradation.
- c. The permittee must obtain written site authorization from DEQ for each land application site prior to land application (see Schedule D) and follow the site-specific management conditions in the DEQ-issued site authorization letter.
- d. Prior to application, the permittee must ensure that biosolids meet one of the pathogen reduction standards under 40 CFR 503.32 and one of the vector attraction reduction standards under 40 CFR 503.33.
- e. The permittee must not apply biosolids containing pollutants in excess of the ceiling concentrations shown in the table below. The permittee may apply biosolids containing pollutants in excess of the pollutant concentrations, but below the ceiling concentrations, however, the total quantity of biosolids applied cannot exceed the cumulative pollutant loading rates in the table below.

Table A2: Biosolids Limits

Pollutant (See note a.)	Ceiling concentrations (mg/kg)	Pollutant concentrations (mg/kg)	Cumulative pollutant loading rates (kg/ha)
Arsenic	75	41	41
Cadmium	85	39	39
Copper	4300	1500	1500
Lead	840	300	300
Mercury	57	17	17
Molybdenum	75	—	—
Nickel	420	420	420
Selenium	100	100	100
Zinc	7500	2800	2800
Note:			
a. Biosolids pollutant limits are described in 40 CFR 503.13, which uses the terms <i>ceiling concentrations</i> , <i>pollutant concentrations</i> , and <i>cumulative pollutant loading rates</i> .			

4. Chlorine Usage

The permittee is prohibited from using chlorine or chlorine compounds for effluent disinfection purposes. Chlorine residual in effluent resulting from chlorine or chlorine-containing chemicals used for maintenance or other purposes is also prohibited.

SCHEDULE B: MINIMUM MONITORING AND REPORTING REQUIREMENTS

1. Reporting Requirements

The permittee must submit to DEQ monitoring results and reports as listed below.

Table B1: Reporting Requirements and Due Dates

Reporting Requirement	Frequency	Due Date (See note a.)	Report Form (See note b.)	Submit To:
Tables B2 and B3. Influent Monitoring and Effluent Monitoring	Monthly	By the 15th of the following month	Specified in Schedule B. Section 2 of this permit	Electronic reporting as directed by DEQ
Inflow and infiltration report (see Schedule D)	Annually	February 15	Electronic copy in a DEQ- approved format	Attached via electronic reporting as directed by DEQ
Biosolids annual report (See Schedule D)	Annually	February 19	Electronic copy in the DEQ- approved form	Attached via electronic reporting as directed by DEQ DEQ Biosolids Program Coordinator
Hauled Waste Control Plan (see Schedule D)	One time	Submit at least two months prior to accepting hauled waste	Electronic copy in a DEQ- approved format	Attached via electronic reporting as directed by DEQ
Hauled Waste Annual Report (see Schedule D)	Annually, once hauled waste is accepted	January 15	Electronic copy in the DEQ- approved format	Attached via electronic reporting as directed by DEQ
Sludge Depth Survey Report (See Schedule D – Lagoon Solids)	One Time	Submit by November 15, 2023	Electronic copy in a DEQ- approved format	Attached via electronic reporting as directed by DEQ
Industrial User Survey (see Schedule D)	One Time	Submit by no later than 24 months after permit effective date	1 electronic copy and 1 hard copy in a DEQ- approved format	• 1 Hard copy to DEQ Pretreatment Coordinator • 1 Electronic copy to Compliance Officer
Outfall Inspection Report (see Schedule D)	Once per permit cycle	Submit by November 15, 2024	Electronic copy in a DEQ- approved format	Attached via electronic reporting as directed by DEQ

Notes:

- For submittals that are provided to DEQ by mail, the postmarked date must not be later than the due date.
- All reporting requirements are to be submitted in a DEQ-approved format, unless otherwise specified in writing.

2. Monitoring and Reporting Protocols

a. Electronic Submissions

The permittee must submit to DEQ the results of monitoring indicated in Schedule B in an electronic format as specified below.

- i. The permittee must submit monitoring results required by this permit via DEQ-approved web-based Discharge Monitoring Report (DMR) forms to DEQ via electronic reporting. Any data used to calculate summary statistics must be submitted as a separate attachment approved by DEQ via electronic reporting.
- ii. The reporting period is the calendar month.
- iii. The permittee must submit monitoring data and other information required by this permit for all compliance points by the 15th day of the month following the reporting period unless specified otherwise in this permit or as specified in writing by DEQ.

b. Test Methods

The permittee must conduct monitoring according to test procedures in 40 CFR part 136 and 40 CFR part 503 for biosolids or other approved procedures as per Schedule F.

c. Quality Assurance and Quality Control

- i. Quality Assurance Plan – The permittee must develop and implement a written Quality Assurance Plan that details the facility sampling procedures, equipment calibration and maintenance, analytical methods, quality control activities and laboratory data handling and reporting. The QA/QC program must conform to the requirements of 40 CFR 136.7.
- ii. If QA/QC requirements are not met for any analysis, the permittee must re-analyze the sample. If the sample cannot be re-analyzed, the permittee must re-sample and analyze at the earliest opportunity. If the permittee is unable to collect a sample that meets QA/QC requirements, then the permittee must include the result in the discharge monitoring report (DMR) along with a notation (data qualifier). In addition, the permittee must explain how the sample does not meet QA/QC requirements. The permittee may not use the result that failed the QA/QC requirements in any calculation required by the permit unless authorized in writing by DEQ.
- iii. Flow measurement, field measurement, and continuous monitoring devices - The permittee must:
 - (A) Establish verification and calibration frequency for each device or instrument in the quality assurance plan that conforms to the frequencies recommended by the manufacturer.
 - (B) Verify at least once per year that flow-monitoring devices are functioning properly according to manufacturer's recommendation. Calibrate as needed according to manufacturer's recommendations.
 - (C) Verify at least weekly that the continuous monitoring instruments are functioning properly according to manufacturer's recommendation unless the permittee demonstrates a longer period is sufficient and such longer period is approved by DEQ in writing.

d. **Reporting Sample Results**

- i. The permittee must report the same number of significant digits as the permit limit for a given parameter.

e. **Calculating and Reporting Mass Loads**

The permittee must calculate mass loads on each day the parameter is monitored using the following equation:

$$\text{Flow (in MGD)} \times \text{Concentration (in mg/L)} \times 8.34 = \text{Pounds per day}$$

- i. Mass load limits all have two significant figures unless otherwise noted.

3. Monitoring and Reporting Requirements

- a. The permittee must monitor influent downstream from the comminutor, prior to entering the treatment unit, and report results in accordance with the table below:

Table B2: Influent Monitoring Requirements

Item or Parameter	Units	Time Period	Minimum Frequency	Sample Type / Required Action (See note a.)	Report Statistic (See note b.)
Flow (50050)	MGD	Year-round	Daily	Metered	Monthly Average Daily Maximum
BOD ₅ (00310)	mg/L	Year-round	1/week	24-hour composite	Monthly Average
TSS (00530)	mg/L	Year-round	1/week	24-hour composite	Monthly Average
pH (00400)	SU	Year-round	3/week	Grab	Monthly Maximum Monthly Minimum

Notes:

- a. In the event of equipment failure or loss, the permittee must notify DEQ and deploy new equipment to minimize interruption of data collection. If new equipment cannot be immediately deployed, the permittee must perform grab measurements.
- b. When submitting DMRs electronically, the permittee must submit all data used to determine summary statistics in a DEQ-approved format as a spreadsheet via electronic reporting unless otherwise directed by DEQ.

- b. The permittee must monitor effluent for Outfall 001 and Outfall 002 downstream of the UV channel and report results in accordance with Table B1 and the table below.

Table B3: Effluent Monitoring Requirements

Item or Parameter	Units	Time Period	Minimum Frequency	Sample Type/ Required Action (See note a.)	Report Statistic (See note b.)
Flow (50050)	MGD	Year-round	Daily	Metered	Monthly Average Daily Maximum
BOD ₅ (00310)	mg/L	Year-round	1/week	24-hour composite	Monthly Average Maximum Weekly Average
BOD ₅ (00310)	lb/day	Year-round	1/week	Calculation	Daily Maximum Monthly Average Maximum Weekly Average
BOD ₅ Percent Removal (See note c.) (81010)	%	Year-round	Monthly	Calculation based on monthly average BOD ₅ concentration values	Monthly Average
TSS (00530)	mg/L	Year-round	1/week	24-hour composite	Monthly Average Maximum Weekly Average
TSS (00530)	lb/day	Year-round	1/week	Calculation	Daily Maximum Monthly Average Maximum Weekly Average
TSS Percent Removal (81011) (See note c.)	%	Year-round	Monthly	Calculation based on monthly average TSS concentration values	Monthly Average
pH (00400)	SU	Year-round	3/week	Grab	Daily Maximum Daily Minimum
Temperature (00010)	°C	Year-round	3/week	Continuous/Grab	Daily Maximum Monthly Average 7-day Rolling Average of Daily Maximum
Fecal Coliform (74055)	#/100 mL	Year-round	2/week	Grab	Daily Maximum
Enterococci (61211)	#/100 mL	Year-round	2/week	Grab	Daily Maximum Monthly Geometric Mean

Item or Parameter	Units	Time Period	Minimum Frequency	Sample Type/ Required Action (See note a.)	Report Statistic (See note b.)
Enterococci - % Samples Exceeding Limit (51937)	%	Year-round	1/month	Calculation	Monthly percent of samples over 130
Total Ammonia (as N) (00610)	mg/L	Year-round	1/month	24-hour composite	Monthly Maximum
Alkalinity as CaCO ₃ (00410)	mg/L	Year-round	Quarterly	Grab	Monthly Maximum
UV intensity	mW/cm ²	Year-round	Daily	Continuous	Maintain records on-site
UV dose	mJ/cm ²	Year-round	Daily	Calculation <i>or</i> from manufacturer's table	Maintain records on-site
UV transmittance	%	Year-round	Daily	Continuous	Maintain records on-site
Salinity (480PS)	psu	Third year of permit cycle [2024]	Quarterly	Grab	Quarterly Maximum
Dissolved Oxygen (00300)	mg/L	Third year of permit cycle [2024]	Quarterly	Grab	Quarterly Minimum
Total Kjeldahl Nitrogen (TKN) (00625)	mg/L	Third year of permit cycle [2024]	Quarterly	Grab	Quarterly Maximum
Nitrate (NO ₃) Plus Nitrite (NO ₂) Nitrogen (00630)	mg/L	Third year of permit cycle [2024]	Quarterly	Grab	Quarterly Maximum
Oil and Grease (00556)	mg/L	Third year of permit cycle [2024]	Quarterly	Grab	Quarterly Maximum
Total Phosphorus (00665)	mg/L	Third year of permit cycle [2024]	Quarterly	Grab	Quarterly Maximum

Item or Parameter	Units	Time Period	Minimum Frequency	Sample Type/ Required Action (See note a.)	Report Statistic (See note b.)
Total Dissolved Solids (70295)	mg/L	Third year of permit cycle [2024]	Quarterly	Grab	Quarterly Maximum
Notes: a. In the event of equipment failure or loss, the permittee must notify DEQ and deploy new equipment to minimize interruption of data collection. If new equipment cannot be immediately deployed, the permittee must perform grab measurements. If the failure or loss is for continuous temperature monitoring equipment, the permittee must perform grab measurements daily between 2 p.m. and 4 p.m. until continuous monitoring equipment is redeployed. b. When submitting DMRs electronically, all data used to determine summary statistics must be submitted in a DEQ-approved format as a spreadsheet via electronic reporting unless otherwise directed by DEQ. c. Percent Removal must be calculated on a monthly basis using the following formula: $\text{Percent Removal} = \frac{[\text{Influent Concentration}] - [\text{Effluent Concentration}]}{[\text{Influent Concentration}]} \times 100$ Where: Influent Concentration = Corresponding monthly average influent concentration based on the analytical results of the reporting period. Effluent Concentration = Corresponding monthly average effluent concentration based on the analytical results of the reporting period.					

4. Biosolids Monitoring Requirements

The permittee must monitor biosolids land applied or produced for sale or distribution as listed below. The samples must be representative of the quality and quantity of biosolids generated and undergo the same treatment process used to prepare the biosolids. Results must be reported as required in the biosolids management plan described in Schedule D.

Table B4: Biosolids Monitoring

Item or Parameter	Minimum Frequency	Sample Type
Nutrient and conventional parameters (% dry weight unless otherwise specified): 1. Total Kjeldahl Nitrogen (TKN) 2. Nitrate-Nitrogen (NO ₃ -N) 3. Total Ammoniacal Nitrogen (NH-N) 4. Total Phosphorus (P) 5. Potassium (K) 6. pH (S.U.) 7. Total Solids 8. Volatile Solids	As described in the DEQ-approved Biosolids Management Plan, but not less than the frequency in Table B5.	As described in the DEQ-approved Biosolids Management Plan
Pollutants: As, Cd, Cu, Hg, Pb, Mo, Ni, Se, Zn, mg/kg dry weight	As described in the DEQ-approved Biosolids Management Plan, but not less than the frequency in Table B5.	As described in the DEQ-approved Biosolids Management Plan
Pathogen reduction	As described in the DEQ-approved Biosolids Management Plan, but not less than the frequency in Table B5.	As described in the DEQ-approved Biosolids Management Plan
Vector attraction reduction	As described in the DEQ-approved Biosolids Management Plan, but not less than the frequency in Table B5.	As described in the DEQ-approved Biosolids Management Plan
Record of biosolids land application: date, quantity, location.	Each event	Record the date, quantity, and location of biosolids land applied on site location map or equivalent electronic system, such as GIS.

Table B5: Biosolids Minimum Monitoring Frequency

Quantity of biosolids land applied or produced for sale or distribution per calendar year		Minimum Sampling Frequency
(dry metric tons)	(dry U.S. tons)	
Less than 290	Less than 320	Once per year
290 to 1,500	320 to 1,653	Once per quarter (4x/year)
1500 to 15,000	1,653 to 16,535	Once per 60 days (6x/year)
15,000 or more	16,535 or more	Once per month (12x/year)

SCHEDULE C: COMPLIANCE SCHEDULE

A compliance schedule is not part of this permit.

SCHEDULE D: SPECIAL CONDITIONS

1. Inflow and Infiltration

The permittee must submit to DEQ an annual inflow and infiltration report on a DEQ-approved form as directed in Table B1. The report must include the following:

- a. An assessment of the facility's I/I issues based on a comparison of summer and winter flows to the plant.
- b. Details of activities performed in the previous year to identify and reduce inflow and infiltration.
- c. Details of activities planned for the following year to identify and reduce inflow and infiltration.
- d. A summary of sanitary sewer overflows that occurred during the previous year. This should include the following: date of the SSO, location, estimated volume, cause, follow-up actions and if performed, the results of receiving stream monitoring.

2. Emergency Response and Public Notification Plan

The permittee must develop an Emergency Response and Public Notification Plan ("plan"), or ensure the facility's existing plan is current and accurate, per Schedule F, Section B, and Condition 8 within 6 months of permit effective date. The permittee must update the plan annually to ensure all information contained in the plan, including telephone and email contact information for applicable public agencies, is current and accurate. An updated copy of the plan must be kept on file at the facility for DEQ review. The latest plan revision date must be listed on the plan cover along with the reviewer's initials or signature.

3. Outfall 002

The permittee may provide treated wastewater to another NPDES or WPCF permittee with a DEQ-approved Recycled Water Reuse Plan. The permittee is not authorized to manage its own recycled water use program until DEQ has modified this permit through the public participation process required by OAR 340-045-0055(2)(b).

4. Exempt Wastewater Reuse at the Treatment System

Recycled water used for landscape irrigation within the property boundary or in-plant processes at the wastewater treatment system is exempt from the requirements of OAR 340-055 if all of the following conditions are met:

- a. The recycled water is an oxidized and disinfected wastewater.
- b. The recycled water is used at the wastewater treatment system site where it is generated or at an auxiliary wastewater or sludge treatment facility that is subject to the same NPDES or WPCF permit as the wastewater treatment system.
- c. Spray and/or drift from the use does not migrate off the site.
- d. Public access to the site is restricted.

5. Biosolids Management Plan

The permittee must maintain a Biosolids Management Plan and Land Application Plan meeting the requirements in OAR 340-050-0031. The permittee must submit any significant modification of these plans to DEQ for review and approval with sufficient time to clear DEQ review and a public notice period prior to implementing any significant changes to the biosolids program. The permittee must keep the plans updated. All plan revisions require written authorization from DEQ and are effective upon

permittee's receipt of DEQ written approval. No significant modifications can be made to a plan for an administratively extended permit (after the permit expiration date). Conditions in the plans are enforceable requirements under this permit.

a. Annual Report

The permittee must submit a Biosolids Annual Report by February 19 each year documenting biosolids management activities of the previous calendar year as described in OAR 340-050-0035(6). The permittee must use the DEQ-approved Biosolids Annual report form. This report must include the monitoring data and analytical laboratory reports for the previous year's monitoring specified under Schedule B.

b. Site Authorization

The permittee must obtain written authorization from DEQ for each land application site prior to its use. Conditions in site authorizations are enforceable requirements under this permit. The permittee is prohibited from land applying biosolids to a DEQ-approved site except in accordance with the site authorization, while this permit is effective and with the written approval of the property owner. DEQ may modify or revoke a site authorization following the procedures for a permit modification described in OAR 340-045-0055.

c. Public Participation

- i. DEQ will provide an opportunity for public review and comment on any significant plan modifications prior to approving or denying. Public review is not required for minor modifications or changes to utilization dates.
- ii. No DEQ-initiated public notice is required for continued use of sites identified in the DEQ-approved biosolids management plan.
- iii. For new sites that fail to meet the site selection criteria in the biosolids management plan or that are deemed by DEQ to be sensitive with respect to residential housing, runoff potential, or threat to groundwater, DEQ will provide an opportunity for public comment as directed by OAR 340-050-0015(10).
- iv. For all other new sites, the permittee must provide for public participation following procedures in its DEQ-approved land application plan.

6. Wastewater Solids Transfers

- a. *Within state.* The permittee may transfer wastewater solids including Class A and Class B biosolids, to another facility permitted to process or dispose of wastewater solids, including but not limited to: another wastewater treatment facility, landfill, or incinerator. The permittee must satisfy the requirements of the receiving facility. The permittee must report the name of the receiving facility and the quantity of material transferred in the wastewater solids annual report identified in Schedule B.
- b. *Out of state.* If wastewater solids, including Class A and Class B biosolids, are transferred out of state for use or disposal, the permittee must obtain written authorization from DEQ, meet Oregon requirements for the use or disposal of wastewater solids, notify in writing the receiving state of the proposed use or disposal of wastewater solids, and satisfy the requirements of the receiving state.

7. Hauled Waste Control Plan

The permittee may accept hauled wastes at discharge points designated by the POTW after receiving written DEQ approval of a Hauled Waste Control Plan. Hauled wastes may include wastewater solids from another wastewater treatment facility, septage, grease trap wastes, portable and chemical toilet wastes, landfill leachate, groundwater remediation wastewaters and commercial/industrial wastewaters. A Hauled Waste Control Plan is not required in the event biological seed must be added to the process at the POTW to facilitate effective wastewater treatment.

8. Hauled Waste Annual Report

If the permittee has a Hauled Waste Control Plan or otherwise accepts hauled waste, the permittee must submit an annual report of hauled waste received by the POTW. This report, if required, must be submitted as described in Table B1. This report must include the date, time, type, and amount received each time the POTW accepts hauled waste. Hauled waste must be described in the permittee's Hauled Waste Control Plan.

9. Lagoon Solids

By the date listed in Table B1, the permittee must submit to DEQ a sludge depth survey report. The report must include a comparison of the design sludge depth to the actual sludge depth. If the actual sludge depth exceeds the design sludge depth, the permittee must submit a plan to reduce or remove the sludge. Prior to the removal of accumulated solids from the lagoon, the permittee must submit to DEQ a biosolids management plan as required in condition 5. The permittee must follow the conditions in the approved plan.

10. Operator Certification

a. Definitions

- i. "Supervise" means to have full and active responsibility for the daily on site technical operation of a wastewater treatment system or wastewater collection system.
- ii. "Supervisor" or "designated operator", means the operator delegated authority by the permittee for establishing and executing the specific practice and procedures for operating the wastewater treatment system or wastewater collection system in accordance with the policies of the owner of the system and any permit requirements.
- iii. "Shift Supervisor" means the operator delegated authority by the permittee for executing the specific practice and procedures for operating the wastewater treatment system or wastewater collection system when the system is operated on more than one daily shift.
- iv. "System" includes both the collection system and the treatment systems.

- b. The permittee must comply with OAR Chapter 340, Division 49, "Regulations Pertaining to Certification of Wastewater System Operator Personnel" and designate a supervisor whose certification corresponds with the classification of the collection and/or treatment system as specified in the DEQ Supervisory Wastewater Operator Status Report. DEQ may revise the permittee's classification in writing at any time to reflect changes in the collection or treatment system. This reclassification is not considered a permit modification and may be made after the permit expiration date provided the permit has been administratively extended by DEQ. If a facility is re-classified, a certified letter will be mailed to the system owner from the DEQ Operator Certification Program. Current system classifications are publicized on the DEQ

Supervisory Wastewater Operator Status Report found on the [DEQ Wastewater Operator Certification Homepage](#).

- c. The permittee must have its system supervised full-time by one or more operators who hold a valid certificate for the type of wastewater treatment or wastewater collection system, and at a grade equal to or greater than the wastewater system's classification.
- d. The permittee's wastewater system may be without the designated supervisor for up to 30 consecutive days if another person supervises the system, who is certified at no more than one grade lower than the classification of the wastewater system. The permittee must delegate authority to this operator to supervise the operation of the system.
- e. If the wastewater system has more than one daily shift, the permittee must have another properly certified operator available to supervise operation of the system. Each shift supervisor must be certified at no more than one grade lower than the system classification.
- f. The permittee is not required to have a supervisor on site at all times; however, the supervisor must be available to the permittee and operator at all times.
- g. The permittee must notify DEQ in writing of the name of the system supervisor by completing and submitting the Supervisory Wastewater System Operator Designation Form. The most recent version of this form may be found on the [DEQ Wastewater Operator Certification homepage](#) *NOTE: This form is different from the Delegated Authority form. The permittee may replace or re-designate the system supervisor with another properly certified operator at any time and must notify DEQ in writing within 30 days of replacement or re-designation of the operator in charge. As of this writing, the notice of replacement or re-designation must be sent to Water Quality Division, Operator Certification Program, 700 NE Multnomah St, Suite 600, Portland, OR 97232-4100. This address may be updated in writing by DEQ during the term of this permit.
- h. When compliance with item (d) of this section is not possible or practicable because the system supervisor is not available or the position is vacated unexpectedly, and another certified operator is not qualified to assume supervisory responsibility, the Director may grant a time extension for compliance with the requirements in response to a written request from the system owner. The Director will not grant an extension longer than 120 days unless the system owner documents the existence of extraordinary circumstances.

11. Industrial User Survey

- a. By the date listed in Table B1, the permittee must conduct an industrial user survey as described in 40CFR 403.8(f)(2)(i-iii) to determine the presence of any industrial users discharging wastewaters subject to pretreatment and submit a report on the findings to DEQ. The purpose of the survey is to identify whether there are any industrial users discharging to the POTW, and ensure regulatory oversight of these discharges to state waters.
- b. Should DEQ determine that a pretreatment program is required, the permit must be reopened and modified in accordance with 40 CFR 403.8(e)(1) to incorporate a compliance schedule for development of a pretreatment program. The compliance schedule must be developed in accordance with the provisions of 40 CFR 403.12(k), and must not exceed twelve (12) months.

12. Outfall Inspection

The permittee must inspect Outfall 001 including the submerged portion of the outfall line and diffuser to document its integrity and to determine whether it is functioning as designed. The inspection must determine whether diffuser ports are intact, clear and fully functional. The inspection must verify the latitude and longitude of the diffuser. The permittee must submit a written report to DEQ regarding the results of the outfall inspection by the date in Table B1. The report must include a description of the outfall as originally constructed, the condition of the current outfall and identify any repairs needed to return the outfall to satisfactory condition.

SCHEDULE E: PRETREATMENT ACTIVITIES

A pretreatment program is not part of this permit.

SCHEDULE F: NPDES GENERAL CONDITIONS

October 1, 2015 Version

SECTION A. STANDARD CONDITIONS

A1. Duty to Comply with Permit

The permittee must comply with all conditions of this permit. Failure to comply with any permit condition is a violation of Oregon Revised Statutes (ORS) 468B.025 and the federal Clean Water Act and is grounds for an enforcement action. Failure to comply is also grounds for DEQ to terminate, modify and reissue, revoke, or deny renewal of a permit.

A2. Penalties for Water Pollution and Permit Condition Violations

The permit is enforceable by DEQ or EPA, and in some circumstances also by third-parties under the citizen suit provisions of 33 USC § 1365. DEQ enforcement is generally based on provisions of state statutes and Environmental Quality Commission (EQC) rules, and EPA enforcement is generally based on provisions of federal statutes and EPA regulations.

ORS 468.140 allows DEQ to impose civil penalties up to \$25,000 per day for violation of a term, condition, or requirement of a permit.

Under ORS 468.943, unlawful water pollution in the second degree, is a Class A misdemeanor and is punishable by a fine of up to \$25,000, imprisonment for not more than one year, or both. Each day on which a violation occurs or continues is a separately punishable offense.

Under ORS 468.946, unlawful water pollution in the first degree is a Class B felony and is punishable by a fine of up to \$250,000, imprisonment for not more than 10 years, or both.

The Clean Water Act provides that any person who violates permit condition, or any requirement imposed in a pretreatment program approved under sections 402(a)(3) or 402(b)(8) of the Act, is subject to a civil penalty not to exceed \$25,000 per day for each violation.

The Clean Water Act provides that any person who negligently violates any condition, or any requirement imposed in a pretreatment program approved under section 402(a)(3) or 402(b)(8) of the Act, is subject to criminal penalties of \$2,500 to \$25,000 per day of violation, or imprisonment of not more than 1 year, or both.

In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than \$50,000 per day of violation, or by imprisonment of not more than 2 years, or both.

Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of \$5,000 to \$50,000 per day of violation, or imprisonment for not more than 3 years, or both.

In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than \$100,000 per day of violation, or imprisonment of not more than 6 years, or both.

Any person who knowingly violates section any permit condition, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than \$250,000 or imprisonment of not more than 15 years, or both.

In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than \$500,000 or by imprisonment of not more than 30 years, or both.

An organization, as defined in section 309(c)(3)(B)(iii) of the CWA, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than \$1,000,000 and can be fined up to \$2,000,000 for second or subsequent convictions.

Any person may be assessed an administrative penalty by the Administrator for violating any permit condition or limitation implementing any of such sections in a permit issued under section 402 of this Act.

Administrative penalties for Class I violations are not to exceed \$10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed \$25,000.

Penalties for Class II violations are not to exceed \$10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed \$125,000.

A3. Duty to Mitigate

The permittee must take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit. In addition, upon request of DEQ, the permittee must correct any adverse impact on the environment or human health resulting from noncompliance with this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

A4. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and have the permit renewed. The application must be submitted at least 180 days before the expiration date of this permit.

DEQ may grant permission to submit an application less than 180 days in advance but no later than the permit expiration date.

A5. Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause including, but not limited to, the following:

- a. Violation of any term, condition, or requirement of this permit, a rule, or a statute.
- b. Obtaining this permit by misrepresentation or failure to disclose fully all material facts.
- c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.
- d. The permittee is identified as a Designated Management Agency or allocated a wasteload under a total maximum daily load (TMDL).
- e. New information or regulations.
- f. Modification of compliance schedules.
- g. Requirements of permit reopener conditions
- h. Correction of technical mistakes made in determining permit conditions.
- i. Determination that the permitted activity endangers human health or the environment.
- j. Other causes as specified in 40 CFR §§ 122.62, 122.64, and 124.5.
- k. For communities with combined sewer overflows (CSOs):

- (1) To comply with any state or federal law regulation for CSOs that is adopted or promulgated subsequent to the effective date of this permit.
- (2) If new information that was not available at the time of permit issuance indicates that CSO controls imposed under this permit have failed to ensure attainment of water quality standards, including protection of designated uses.
- (3) Resulting from implementation of the permittee's long-term control plan and/or permit conditions related to CSOs.

The filing of a request by the permittee for a permit modification, revocation or reissuance, termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

A6. Toxic Pollutants

The permittee must comply with any applicable effluent standards or prohibitions established under Oregon Administrative Rule (OAR) 340-041-0033 and section 307(a) of the federal Clean Water Act for toxic pollutants, and with standards for sewage sludge use or disposal established under section 405(d) of the federal Clean Water Act, within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

A7. Property Rights and Other Legal Requirements

The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege, or authorize any injury to persons or property or invasion of any other private rights, or any infringement of federal, tribal, state, or local laws or regulations.

A8. Permit References

Except for effluent standards or prohibitions established under section 307(a) of the federal Clean Water Act and OAR 340-041-0033 for toxic pollutants, and standards for sewage sludge use or disposal established under section 405(d) of the federal Clean Water Act, all rules and statutes referred to in this permit are those in effect on the date this permit is issued.

A9. Permit Fees

The permittee must pay the fees required by OAR.

SECTION B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

B1. Proper Operation and Maintenance

The permittee must at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems that are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

B2. Need to Halt or Reduce Activity Not a Defense

For industrial or commercial facilities, upon reduction, loss, or failure of the treatment facility, the permittee must, to the extent necessary to maintain compliance with its permit, control production or all discharges or both until the facility is restored or an alternative method of treatment is provided. This requirement applies, for example, when the primary source of power of the treatment facility fails or is reduced or lost. It is not a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

B3. Bypass of Treatment Facilities

a. Definitions

- (1) "Bypass" means intentional diversion of waste streams from any portion of the treatment facility. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, provided the diversion is to allow essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs b and c of this section.
- (2) "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

b. Prohibition of bypass.

- (1) Bypass is prohibited and DEQ may take enforcement action against a permittee for bypass unless:
 - i. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
 - ii. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventative maintenance; and
 - iii. The permittee submitted notices and requests as required under General Condition B3.c.
- (2) DEQ may approve an anticipated bypass, after considering its adverse effects and any alternatives to bypassing, if DEQ determines that it will meet the three conditions listed above in General Condition B3.b.(1).

c. Notice and request for bypass.

- (1) Anticipated bypass. If the permittee knows in advance of the need for a bypass, a written notice must be submitted to DEQ at least ten days before the date of the bypass.
- (2) Unanticipated bypass. The permittee must submit notice of an unanticipated bypass as required in General Condition D5.

B4. Upset

- a. Definition. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operation error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation.
- b. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of General Condition B4.c are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.
- c. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset must demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - (1) An upset occurred and that the permittee can identify the causes(s) of the upset;
 - (2) The permitted facility was at the time being properly operated;
 - (3) The permittee submitted notice of the upset as required in General Condition D5, hereof (24-hour notice); and

(4) The permittee complied with any remedial measures required under General Condition A3 hereof.

- d. Burden of proof. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

B5. Treatment of Single Operational Upset

For purposes of this permit, a single operational upset that leads to simultaneous violations of more than one pollutant parameter will be treated as a single violation. A single operational upset is an exceptional incident that causes simultaneous, unintentional, unknowing (not the result of a knowing act or omission), temporary noncompliance with more than one federal Clean Water Act effluent discharge pollutant parameter. A single operational upset does not include federal Clean Water Act violations involving discharge without a NPDES permit or noncompliance to the extent caused by improperly designed or inadequate treatment facilities. Each day of a single operational upset is a violation.

B6. Overflows from Wastewater Conveyance Systems and Associated Pump Stations

- a. Definition. "Overflow" means any spill, release or diversion of sewage including:
- (1) An overflow that results in a discharge to waters of the United States; and
 - (2) An overflow of wastewater, including a wastewater backup into a building (other than a backup caused solely by a blockage or other malfunction in a privately owned sewer or building lateral), even if that overflow does not reach waters of the United States.
- b. Reporting required. All overflows must be reported orally to DEQ within 24 hours from the time the permittee becomes aware of the overflow. Reporting procedures are described in more detail in General Condition D5.

B7. Public Notification of Effluent Violation or Overflow

If effluent limitations specified in this permit are exceeded or an overflow occurs that threatens public health, the permittee must take such steps as are necessary to alert the public, health agencies and other affected entities (for example, public water systems) about the extent and nature of the discharge in accordance with the notification procedures developed under General Condition B8. Such steps may include, but are not limited to, posting of the river at access points and other places, news releases, and paid announcements on radio and television.

B8. Emergency Response and Public Notification Plan

The permittee must develop and implement an emergency response and public notification plan that identifies measures to protect public health from overflows, bypasses, or upsets that may endanger public health. At a minimum the plan must include mechanisms to:

- a. Ensure that the permittee is aware (to the greatest extent possible) of such events;
- b. Ensure notification of appropriate personnel and ensure that they are immediately dispatched for investigation and response;
- c. Ensure immediate notification to the public, health agencies, and other affected public entities (including public water systems). The overflow response plan must identify the public health and other officials who will receive immediate notification;
- d. Ensure that appropriate personnel are aware of and follow the plan and are appropriately trained;
- e. Provide emergency operations; and
- f. Ensure that DEQ is notified of the public notification steps taken.

B9. Removed Substances

Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters must be disposed of in such a manner as to prevent any pollutant from such materials from entering waters of the state, causing nuisance conditions, or creating a public health hazard.

SECTION C. MONITORING AND RECORDS

C1. Representative Sampling

Sampling and measurements taken as required herein must be representative of the volume and nature of the monitored discharge. All samples must be taken at the monitoring points specified in this permit, and must be taken, unless otherwise specified, before the effluent joins or is diluted by any other waste stream, body of water, or substance. Monitoring points must not be changed without notification to and the approval of DEQ. Samples must be collected in accordance with requirements in 40 CFR part 122.21 and 40 CFR part 403 Appendix E.

C2. Flow Measurements

Appropriate flow measurement devices and methods consistent with accepted scientific practices must be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices must be installed, calibrated and maintained to insure that the accuracy of the measurements is consistent with the accepted capability of that type of device. Devices selected must be capable of measuring flows with a maximum deviation of less than ± 10 percent from true discharge rates throughout the range of expected discharge volumes.

C3. Monitoring Procedures

Monitoring must be conducted according to test procedures approved under 40 CFR part 136 or, in the case of sludge (biosolids) use and disposal, approved under 40 CFR part 503 unless other test procedures have been specified in this permit.

For monitoring of recycled water with no discharge to waters of the state, monitoring must be conducted according to test procedures approved under 40 CFR part 136 or as specified in the most recent edition of Standard Methods for the Examination of Water and Wastewater unless other test procedures have been specified in this permit or approved in writing by DEQ.

C4. Penalties for Tampering

The federal Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit may, upon conviction, be punished by a fine of not more than \$10,000 per violation, imprisonment for not more than two years, or both. If a conviction of a person is for a violation committed after a first conviction of such person, punishment is a fine not more than \$20,000 per day of violation, or by imprisonment of not more than four years, or both.

C5. Reporting of Monitoring Results

Monitoring results must be summarized each month on a discharge monitoring report form approved by DEQ. The reports must be submitted monthly and are to be mailed, delivered or otherwise transmitted by the 15th day of the following month unless specifically approved otherwise in Schedule B of this permit.

C6. Additional Monitoring by the Permittee

If the permittee monitors any pollutant more frequently than required by this permit, using test procedures approved under 40 CFR part 136 or, in the case of sludge (biosolids) use and disposal, approved under 40 CFR part 503, or as specified in this permit, the results of this monitoring must be included in the calculation and reporting of the data submitted in the discharge monitoring report. Such increased frequency must also

be indicated. For a pollutant parameter that may be sampled more than once per day (for example, total residual chlorine), only the average daily value must be recorded unless otherwise specified in this permit.

C7. Averaging of Measurements

Calculations for all limitations that require averaging of measurements must utilize an arithmetic mean, except for bacteria which must be averaged as specified in this permit.

C8. Retention of Records

Records of monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities must be retained for a period of at least 5 years (or longer as required by 40 CFR part 503). Records of all monitoring information including all calibration and maintenance records, all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit and records of all data used to complete the application for this permit must be retained for a period of at least 3 years from the date of the sample, measurement, report, or application. This period may be extended by request of DEQ at any time.

C9. Records Contents

Records of monitoring information must include:

- a. The date, exact place, time, and methods of sampling or measurements;
- b. The individual(s) who performed the sampling or measurements;
- c. The date(s) analyses were performed;
- d. The individual(s) who performed the analyses;
- e. The analytical techniques or methods used; and
- f. The results of such analyses.

C10. Inspection and Entry

The permittee must allow DEQ or EPA upon the presentation of credentials to:

- a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
- d. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by state law, any substances or parameters at any location.

C11. Confidentiality of Information

Any information relating to this permit that is submitted to or obtained by DEQ is available to the public unless classified as confidential by the Director of DEQ under ORS 468.095. The permittee may request that information be classified as confidential if it is a trade secret as defined by that statute. The name and address of the permittee, permit applications, permits, effluent data, and information required by NPDES application forms under 40 CFR § 122.21 are not classified as confidential [40 CFR § 122.7(b)].

SECTION D. REPORTING REQUIREMENTS

D1. Planned Changes

The permittee must comply with OAR 340-052, "Review of Plans and Specifications" and 40 CFR § 122.41(l)(1). Except where exempted under OAR 340-052, no construction, installation, or modification involving disposal systems, treatment works, sewerage systems, or common sewers may be commenced until the plans and specifications are submitted to and approved by DEQ. The permittee must give notice to DEQ as soon as possible of any planned physical alternations or additions to the permitted facility.

D2. Anticipated Noncompliance

The permittee must give advance notice to DEQ of any planned changes in the permitted facility or activity that may result in noncompliance with permit requirements.

D3. Transfers

This permit may be transferred to a new permittee provided the transferee acquires a property interest in the permitted activity and agrees in writing to fully comply with all the terms and conditions of the permit and EQC rules. No permit may be transferred to a third party without prior written approval from DEQ. DEQ may require modification, revocation, and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under 40 CFR § 122.61. The permittee must notify DEQ when a transfer of property interest takes place.

D4. Compliance Schedule

Reports of compliance or noncompliance with, or any progress reports on interim and final requirements contained in any compliance schedule of this permit must be submitted no later than 14 days following each schedule date. Any reports of noncompliance must include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirements.

D5. Twenty-Four Hour Reporting

The permittee must report any noncompliance that may endanger health or the environment. Any information must be provided orally (by telephone) to the DEQ regional office or Oregon Emergency Response System (1-800-452-0311) as specified below within 24 hours from the time the permittee becomes aware of the circumstances.

a. Overflows.

(1) Oral Reporting within 24 hours.

- i. For overflows other than basement backups, the following information must be reported to the Oregon Emergency Response System (OERS) at 1-800-452-0311. For basement backups, this information should be reported directly to the DEQ regional office.

- (a)* The location of the overflow;
- (b)* The receiving water (if there is one);
- (c)* An estimate of the volume of the overflow;
- (d)* A description of the sewer system component from which the release occurred (for example, manhole, constructed overflow pipe, crack in pipe); and
- (e)* The estimated date and time when the overflow began and stopped or will be stopped.

- ii. The following information must be reported to the DEQ regional office within 24 hours, or during normal business hours, whichever is earlier:

- (a)* The OERS incident number (if applicable); and
- (b)* A brief description of the event.

(2) Written reporting postmarked within 5 days.

- i. The following information must be provided in writing to the DEQ regional office within 5 days of the time the permittee becomes aware of the overflow:
 - (a) The OERS incident number (if applicable);
 - (b) The cause or suspected cause of the overflow;
 - (c) Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the overflow and a schedule of major milestones for those steps;
 - (d) Steps taken or planned to mitigate the impact(s) of the overflow and a schedule of major milestones for those steps; and
 - (e) For storm-related overflows, the rainfall intensity (inches/hour) and duration of the storm associated with the overflow.

DEQ may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

b. Other instances of noncompliance

- (1) The following instances of noncompliance must be reported:
 - i. Any unanticipated bypass that exceeds any effluent limitation in this permit;
 - ii. Any upset that exceeds any effluent limitation in this permit;
 - iii. Violation of maximum daily discharge limitation for any of the pollutants listed by DEQ in this permit; and
 - iv. Any noncompliance that may endanger human health or the environment.
- (2) During normal business hours, the DEQ regional office must be called. Outside of normal business hours, DEQ must be contacted at 1-800-452-0311 (Oregon Emergency Response System).
- (3) A written submission must be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission must contain:
 - i. A description of the noncompliance and its cause;
 - ii. The period of noncompliance, including exact dates and times;
 - iii. The estimated time noncompliance is expected to continue if it has not been corrected;
 - iv. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance; and
 - v. Public notification steps taken, pursuant to General Condition B7.
- (4) DEQ may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

D6. Other Noncompliance

The permittee must report all instances of noncompliance not reported under General Condition D4 or D5 at the time monitoring reports are submitted. The reports must contain:

- a. A description of the noncompliance and its cause;
- b. The period of noncompliance, including exact dates and times;
- c. The estimated time noncompliance is expected to continue if it has not been corrected; and
- d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

D7. Duty to Provide Information

The permittee must furnish to DEQ within a reasonable time any information that DEQ may request to determine compliance with the permit or to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit. The permittee must also furnish to DEQ, upon request, copies of records required to be kept by this permit.

Other Information: When the permittee becomes aware that it has failed to submit any relevant facts or has submitted incorrect information in a permit application or any report to DEQ, it must promptly submit such facts or information.

D8. Signatory Requirements

All applications, reports or information submitted to DEQ must be signed and certified in accordance with 40 CFR § 122.22.

D9. Falsification of Information

Under ORS 468.953, any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance, is subject to a Class C felony punishable by a fine not to exceed \$125,000 per violation and up to 5 years in prison per ORS chapter 161. Additionally, according to 40 CFR § 122.41(k)(2), any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit including monitoring reports or reports of compliance or non-compliance will, upon conviction, be punished by a federal civil penalty not to exceed \$10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.

D10. Changes to Indirect Dischargers

The permittee must provide adequate notice to DEQ of the following:

- a. Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to section 301 or 306 of the federal Clean Water Act if it were directly discharging those pollutants and;
- b. Any substantial change in the volume or character of pollutants being introduced into the POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.
- c. For the purposes of this paragraph, adequate notice must include information on (i) the quality and quantity of effluent introduced into the POTW, and (ii) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

SECTION E. DEFINITIONS

E1. *BOD* or *BOD₅* means five-day biochemical oxygen demand.

E2. *CBOD* or *CBOD₅* means five-day carbonaceous biochemical oxygen demand.

E3. *TSS* means total suspended solids.

E4. *Bacteria* means but is not limited to fecal coliform bacteria, total coliform bacteria, *Escherichia coli* (*E. coli*) bacteria, and *Enterococcus* bacteria.

E5. *FC* means fecal coliform bacteria.

E6. *Total residual chlorine* means combined chlorine forms plus free residual chlorine

E7. *Technology based permit effluent limitations* means technology-based treatment requirements as defined in 40 CFR § 125.3, and concentration and mass load effluent limitations that are based on minimum design criteria specified in OAR 340-041.

E8. *mg/l* means milligrams per liter.

- E9. $\mu\text{g/l}$ means microgram per liter.
- E10. kg means kilograms.
- E11. m^3/d means cubic meters per day.
- E12. *MGD* means million gallons per day.
- E13. *Average monthly effluent limitation* as defined at 40 CFR § 122.2 means the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.
- E14. *Average weekly effluent limitation* as defined at 40 CFR § 122.2 means the highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.
- E15. *Daily discharge* as defined at 40 CFR § 122.2 means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the daily discharge must be calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge must be calculated as the average measurement of the pollutant over the day.
- E16. *24-hour composite sample* means a sample formed by collecting and mixing discrete samples taken periodically and based on time or flow.
- E17. *Grab sample* means an individual discrete sample collected over a period of time not to exceed 15 minutes.
- E18. *Quarter* means January through March, April through June, July through September, or October through December.
- E19. *Month* means calendar month.
- E20. *Week* means a calendar week of Sunday through Saturday.
- E21. *POTW* means a publicly-owned treatment works.