State of Oregon
Department of
Environmental
Quality

National Pollutant Discharge Elimination System
Permit Renewal Fact Sheet
City of Amity

Final: March 7, 2025

Permittee	City of Amity Amity STP PO Box 159 Amity, OR 97101
Existing Permit Information	File Number: 2772 Permit Number: 101924 EPA Reference Number: OR0026212 Category: Domestic Class: Minor Expiration Date: June 30, 2015
Permittee Contact	Nathan Frarck City Administrator 503-835-3711 PO Box 159 Amity, OR 97101
Receiving Water Information	Receiving stream/NHD name: Salt Creek NHD Reach Code & % along reach: 17090008000169(93.4%) USGS 12-digit HUC: 170900080504 OWRD Administrative Basin: Willamette ODEQ LLID & River Mile: 1232202451614 - 6.5 Assessment Unit ID: OR_SR_1709000805_02_104050
Proposed Action	Permit Renewal Application Number: 959338 Date Application Received: December 29, 2014
Permit Writer	Phil Sprague 541.686.7998 Date Prepared: December 19, 2024

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1. Introduction

The City of Amity operates its wastewater treatment facility located in Amity, Oregon. Wastewater is treated and discharged to Salt Creek in accordance with National Pollutant Discharge Elimination System (NPDES) Permit number 101924. The facility's permit was last issued on September 2, 2010, and expired on June 30, 2015. The Oregon Department of Environmental Quality (DEQ) received a renewal application 180 days prior to the expiration of the current permit. Since the City of Amity has made a timely application for renewal of the permit and pursuant OAR 340-045-0040 the permit will not expire until final action has been taken on the renewal application to issue or deny the permit.

DEQ received a renewal application on December 19, 2014. A renewal permit is necessary to discharge to state waters pursuant to provisions of Oregon Revised Statutes (ORS) 468.B.050 and the Federal Clean Water Act. DEQ proposes to renew the permit.

As required by Oregon Administrative Rule 340-045-0035, this fact sheet describes the basis and methodology used in developing the permit. The permit is divided into several sections:

Schedule A – Waste discharge limitations
Schedule B – Minimum monitoring and report requirements
Schedule C – Compliance conditions and schedules
Schedule D – Special conditions
Schedule E – Pretreatment conditions
Schedule F – General conditions

A summary of the major changes to the permit are listed below:

- More stringent chlorine limits
- New ammonia limits
- More stringent pH limit
- Increase in effluent monitoring
- New effluent monitoring parameters
- Receiving stream monitoring
- Compliance schedule for chlorine, pH and ammonia limits

2. Facility Description

2.1 Wastewater Facility

The City of Amity wastewater treatment facility is a minor domestic facility first constructed in 1967. The WWTP is a lagoon system with an average dry weather design flow of 0.21 MGD.

Major improvements were made to the system in 1971, 1979 and more recently in 2013. The current treatment works include two lined, aerated primary lagoon cells (cells 1 and 2), one bentonite-lined polishing cell, and chlorination/dechlorination facilities. In 2005 the city upgraded the plant by deepening, lining and aerating cells 1 and 2 and adding a tertiary filter (suspended solids filter), new chlorination/dechlorination equipment, and new influent/effluent composite samplers. The tertiary filter is not in use at this time. An existing pre-aeration tank was not incorporated into the upgrade and was removed. This upgrade was completed under a 1999 Mutual Agreement and Order (MAO) between DEQ and the city.

Wastewater is treated by three lagoon cells, a tertiary filter, and chlorination/dechlorination equipment. From the headworks, water flows to aerated cells 1 and 2, which operate in series. Wastewater then flows from cell 2 to non-aerated cell 3. Cell 3 is utilized for polishing and storage prior to the discharge entering the tertiary filter. After the filter, discharge flows through the chlorine contact chamber and dechlorination facilities, then to the outfall which discharges to river mile 6.5 of Salt Creek. This is the winter in-plant flow and treatment, during the summer (irrigation season), the tertiary filter and dechlorination system are not used, and the chlorinated effluent is irrigated onto 17 acres on the adjacent field.

Figure 2-1: City of Amity Site Map

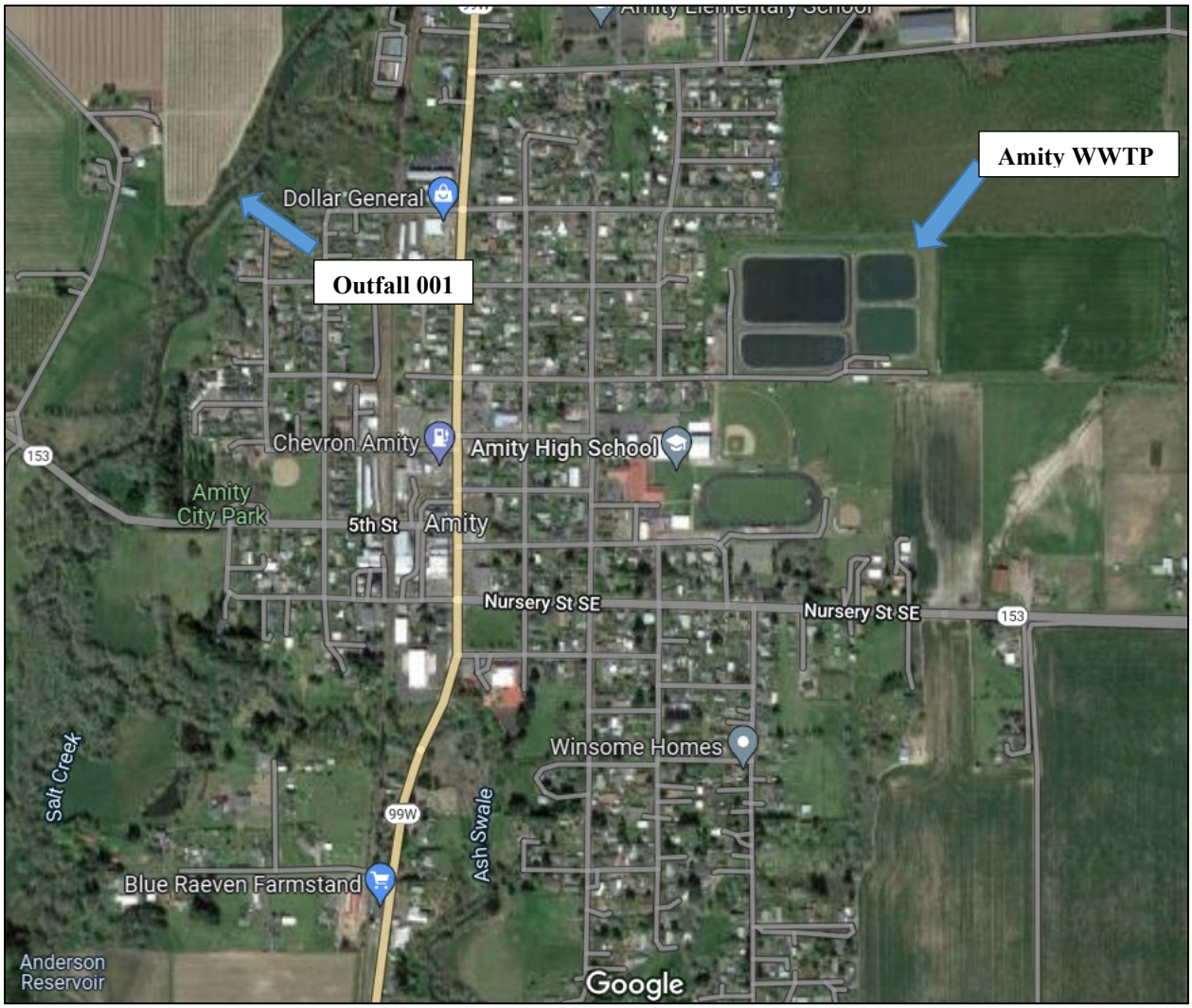

Figure 2-2: WWTP Flow Schematic

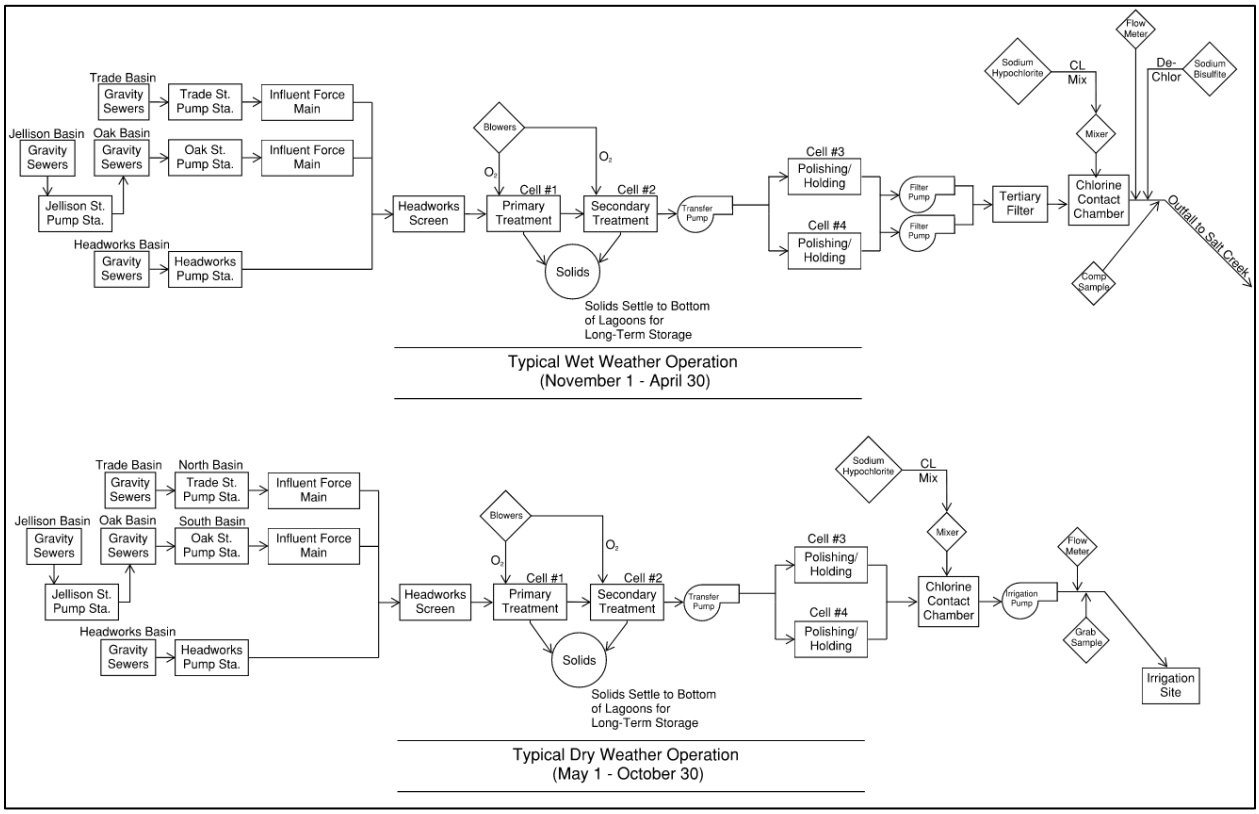

Table 2-1: List of Outfalls

Outfall Number	Type of Waste	Lat/Long	Design Flow[1] (mgd)	Existing Flow[2] (mgd)
001	Treated Domestic Wastewater	45.12, -123.21	0.21	0.39
002	Recycled Water	NA	NA	NA

1. Design Flow = average dry weather design flow
2. Existing Flow = average wet weather design flow (winter discharge only)

2.2 Compliance History

October 23, 2024, the City of Amity was issued a Pre-Enforcement Notice (2023-PEN-8768) for permit limit violations and Schedule B violations. Prior to that the City of Amity was issued a Pre-Enforcement Notice (2018-PEN-3532) for prohibited discharge, permit limit violations, sanitary sewer overflows, failure to monitor, monitoring quality control violations, failure to have an Emergency Response and Public Notification Plan, incomplete report, and failure to timely submit reports.

2.3 Stormwater

Stormwater is not addressed in this permit. General NPDES permits for stormwater are not required for facilities with a design flow of less than 1 MGD.

2.4 Industrial Pretreatment

The permittee does not have a DEQ-approved industrial pretreatment program. Based on current information, no industrial pretreatment program is needed. Schedule D of the proposed permit requires the permittee to perform an industrial user survey.

2.5 Wastewater Classification

OAR 340-049 requires all permitted municipal wastewater collection and treatment facilities receive a classification based on the size and complexity of the systems. DEQ evaluated the classifications for the treatment and collection system, which are publicly available at: https://www.deq.state.or.us/wq/opcert/Docs/OpcertReport.pdf.

3. Schedule A: Effluent Limit Development

Effluent limits serve as the primary mechanism in NPDES permits for controlling discharges of pollutants to receiving waters. Effluent limitations can be based on either the technology available to control the pollutants or limits that are protecting the water quality standards for the receiving water. DEQ refers to these two types of permit limits as technology-based effluent limitations (TBELs) and water quality-based effluent limits (WQBELs) respectively. When a TBEL is not restrictive enough to protect the receiving stream, DEQ must include a WQBEL in the permit.

3.1 Existing Effluent Limits

The tables below show the limits contained in the existing permit.

Waste Discharge Limitations not to be exceeded after permit issuance (see Note 1).

a. Treated Effluent Outfall 001

(1) May 1 - October 31: No discharge to waters of the State

(2) November 1 - April 30:

Parameter	Average Effluent Concentrations		Monthly* Average lb/day	Weekly* Average lb/day	Daily* Maximum lbs
	Monthly	Weekly			
BOD_5	30 mg/L	45 mg/L	39	58	78
TSS	50 mg/L	70 mg/L	64	96	130

*Mass load limits based upon the average dry weather design flow of 0.154 MGD.

(3)

Other parameters (year-round)	Limitations
E. coli Bacteria	Shall not exceed 126 organisms per 100 mL monthly geometric mean. No single sample shall exceed 406 organisms per 100 mL. (**see Note 2**).
pH	Shall be within the range of 6.4 - 9.0
BOD_5 and TSS Removal Efficiency	Shall not be less than 85% monthly average for BOD_5 and 65% monthly for TSS.
Total Chlorine Residual	Shall not exceed daily maximum concentration of 0.50 mg/l and a monthly average of 0.19 mg/l.

(4) No wastes may be discharged, or activities conducted that cause or contribute to a violation of water quality standards in OAR 340-041 applicable to the Willamette basin except as provided for in OAR 340-045-0080 and the following regulatory mixing zone:

> The allowable mixing zone is that portion of Salt Creek contained within a band extending out 20 feet from the east bank of the creek and extending from a point 10 feet upstream of the outfall to a point 100 feet downstream from the outfall. The Zone of Immediate Dilution (ZID) shall be defined as that portion of the allowable mixing zone that is within 10 feet of the point of discharge.

b. Recycled Wastewater Outfall 002

(1) No discharge to state waters is permitted. All recycled water shall be distributed on land, for dissipation by evapotranspiration and controlled seepage by following sound irrigation practices so as to prevent:

a. Prolonged ponding of treated recycled water on the ground surface;

b. Surface runoff or subsurface drainage through drainage tile;

c. The creation of odors, fly and mosquito breeding or other nuisance conditions;

d. The overloading of land with nutrients, organics, or other pollutant parameters; and,

e. Impairment of existing or potential beneficial uses of groundwater.

(2) Prior to land application of the recycled water, it shall receive at least Class C treatment as defined in OAR 340-055 to:

Reduce Total Coliform to 240 organisms per 100 mL in two consecutive samples, and a seven-day median of 23 organisms per 100 mL.

(3) Irrigation shall conform to the Recycled Water Use Plan approved by the DEQ.

c. Septage shall not be accepted at this facility for treatment or processing without written approval from the Department.

d. No activities shall be conducted that could cause an adverse impact on existing or potential beneficial uses of groundwater. All wastewater and process related residuals shall be managed and disposed in a manner that will prevent a violation of the Groundwater Quality Protection Rules (OAR 340-040).

NOTES:

1. At the point of discharge, Salt Creek is water quality limited for fecal coliform (fall, winter and spring) and manganese year-round. Upon EPA approval of a TMDL addressing any of these pollutants, this permit may be reopened to include any Waste Load Allocation (WLA), best management practice or any other condition required by the TMDL.

2. If a single sample exceeds 406 organisms per 100 mL, then five consecutive re-samples may be taken at four-hour intervals beginning within 28 hours after the original sample was taken. If the log mean of the five re-samples is less than or equal to 126 organisms per 100 mL, a violation shall not be triggered.

3.2 Technology-Based Effluent Limit Development

40 CFR 122.44(a)(1) requires publicly owned treatment works (POTW) to meet technology-based effluent limits, for five-day biochemical oxygen demand (BOD_5), total suspended solids (TSS) and pH (i.e., federal secondary treatment standards). Substitution of 5-day carbonaceous oxygen demand ($CBOD_5$) for BOD_5 is allowed. The numeric standards for these pollutants are contained in 40 CFR 133.102. In addition, DEQ has developed minimum design criteria for BOD_5 and TSS that apply to specific watershed basins in Oregon. These are listed in the basin-specific criteria sections under OAR 340-041-0101 to 0350. During the summer low flow months as defined by OAR, these design criteria are more stringent than the federal secondary treatment standards. The basin-specific criteria are not effluent limits but are implemented as design criteria for new or expanded wastewater treatment plants. The table below shows a comparison of the federal secondary treatment standards and the basin-specific design criteria for the Willamette basin.

Table 3-1: Comparison of TBELs for Federal Secondary Treatment Standards and Oregon Basin-Specific Design Criteria

Parameter	Federal Secondary Treatment Standards		Willamette Basin-Specific Design Criteria (OAR 340-041-0345)
	30-Day Average	7-Day Average	Monthly Average
BOD_5 (mg/L)	30	45	May 1 to October 31: 10 mg/L; November 1 to April 30: a minimum of secondary treatment or equivalent control.
TSS (mg/L)	30	45	
pH (S.U.)	6.0 – 9.0. (instantaneous)		Not applicable
BOD_5 and TSS % Removal	85%	Not applicable	Not applicable

Equivalent to Secondary Treatment Standards
40 CFR 133.105 allows less stringent effluent limits for POTWs using waste stabilization ponds or trickling filters as their method of treatment. These facilities are required to achieve a monthly average BOD and TSS concentrations of 45 mg/L, a weekly average limit of 65 mg/L and a removal efficiency of 65%.

DEQ determined there have not been significant changes to the facility since the last treatment equivalent to secondary treatment evaluation and no additional evaluation is needed at this time.

Adjustments to Equivalent to Secondary Standards: Waste Stabilization Ponds
Special considerations for TSS limits from waste stabilization ponds are described in 40 CFR 133.103(c). These allow less stringent TSS limits for waste stabilization ponds. In the early 1980s, DEQ determined that waste stabilization ponds west of the Cascade Mountains are capable of achieving a monthly average concentration of 50 mg/L and east of the Cascade Mountains a monthly average of 85 mg/L. EPA published these approved alternate TSS requirements in 49 Federal Register (FR) 37005, September 20, 1984. DEQ is applying the monthly average TSS limit of 50 mg/L and the weekly limit of 70 mg/L.

Mass Based Limits
The limits for BOD_5 and TSS shown in the table above are concentration-based limits. Mass-based limits are required in addition to the concentration-based limits per OAR 340-041-0061(9). For any new facility or any facility that has expanded its dry weather treatment capacity after June 30, 1992, OAR 340-041-0061(9)(b) requires that the mass load limits be calculated based on the proposed treatment facility capabilities and the highest and best practicable treatment to minimize the discharge of pollutants. The permittee's facility has been engineered to achieve a BOD_5 monthly average concentration of 30 mg/L and TSS monthly average concentrations of 50 mg/L during the wet weather season. DEQ uses the maximum monthly design flow to calculate the mass load limits as shown below for the dry and wet weather seasons.

Monthly Avg Mass Load = Design Flow* x Monthly Concentration Limit x Unit Conversion factor

Weekly Average Mass Load = 1.5 x Monthly Average Mass Load Limit

Daily Maximum Mass Load = 2 x Monthly Average Mass Load Limit

* Design flow is the design maximum monthly dry weather flow (DMMDWF) or design maximum monthly wet weather flow (DMMWWF)

The following table lists the effluent flows and concentration limits used for the calculations.

Table 3-2: Design Flows and Concentrations Limits

Season	Max Monthly Design Flow (mgd)	Monthly TSS Concentration Limit (mg/L)	Monthly BOD_5 Concentration Limit (mg/L)
Dry Weather	0.21	NA	NA
Wet Weather	0.154	50	30
Design flow comments: Dry weather based on average dry weather design flow and wet weather based on facility's pre-upgrade average dry weather flow. Amity may request using post-upgrade design flows in future limits calculations. This would require an antibacksliding and anti-degradation analysis be conducted to evaluate whether the use of increased design flows is allowed under OAR 340-041-0004(3)(d).			

Mass Load Calculations:

BOD:

Monthly Average: 0.154 mgd x 30 mg/L x 8.34 = 38.53 lbs/day (39 rounded to two significant figures)

Weekly Average: 1.5 x 39 lbs/day monthly average = 58 lbs/day

Daily Maximum: 2 x 39 lbs/day monthly average = 78 lbs/day

TSS:

Monthly Average: 0.154 mgd x 50 mg/L x 8.34 = 64.218 lbs/day (64 rounded to two significant figures)

Weekly Average: 1.5 x 64 lbs/day monthly average = 96 lbs/day

Daily Maximum: 2 x 64 lbs/day monthly average = 130 lbs/day (Two significant figures)

The proposed BOD_5 and TSS limits are listed in the following table.

Table 3-3: Technology Based Effluent Limits

Parameter	Units	Average Monthly	Average Weekly	Daily Maximum
BOD_5 (November 1 – April 1)	mg/L	30	45	NA
	lbs/day	39	58	78
	% removal	85	NA	NA
TSS (November 1 – April 1)	mg/L	50	70	NA
	lbs/day	64	96	130
	% removal	65	NA	NA

3.3 Water Quality-Based Effluent Limit Development

40 CFR 122.44(d) requires that permits include limitations more stringent than technology-based requirements where necessary to meet water quality standards. Water quality-based effluent limits may be in the form of a wasteload allocation required as part of a Total Maximum Daily Load (TMDL). They may also be required if a site-specific analysis indicates the discharge has the reasonable potential to cause or contribute to an exceedance of a water quality criterion. DEQ establishes effluent limits for pollutants that have a reasonable potential to exceed a criterion. The analyses are discussed below.

3.3.1 Designated Beneficial Uses

NPDES permits issued by DEQ must protect the following designated beneficial uses of the Salt Creek. These uses are listed in OAR-340-041-0430 for the Willamette Basin.

- Public and private domestic water supply
- Industrial water supply
- Irrigation and livestock watering
- Fish and aquatic life (including salmonid rearing, migration and spawning)
- Wildlife and hunting
- Fishing
- Boating
- Water contact recreation
- Aesthetic quality
- Hydro power

3.3.2 303d Listed Parameters and Total Maximum Daily Loads

The following table lists the parameters that are on the 2022 303(d) list (Category 5) within the discharge's stream reach. If a parameter is listed under Category 5, the data in the assessment unit (or nearby assessment unit) indicates a designated use is not supported or a water quality standard is not attained and a TMDL is needed. The table also lists any parameters with an approved TMDL for the discharge's stream reach (Category 4A). If a parameter is listed under Category 4A, TMDLs that will result in attainment of water quality standards and beneficial use support have been approved by EPA.

Table 3-4: 303d and TMDL Parameters

Water Quality Limited Parameters (Category 5)	
AU ID:	OR_SR_1709000805_02_104050
AU Name:	Salt Creek
AU Status:	Impaired
Year Listed	1998
Year Last Assessed	2018
303d Parameters (Category 5)	Chlorophyll-a, Dissolved Oxygen- year round, Dissolved Oxygen- spawn, Phosphorous, Temperature- year round
TMDL Parameters (Category 4)	
Phosphorus- Aquatic Life Toxics	

3.3.3 TMDL Wasteload Allocations

DEQ issued a TMDL for the Yamhill River in 1992 for phosphorus loading in the summertime. City of Amity only discharges during the wet season and the facility were not included in the TMDL.

3.3.4 Pollutants of Concern

To ensure that a permit is protecting water quality, DEQ must identify pollutants of concern. These are pollutants that are expected to be present in the effluent at concentrations that could adversely impact water quality. DEQ uses the following information to identify pollutants of concern:

- Effluent monitoring data.
- Knowledge about the permittee's processes.
- Knowledge about the receiving stream water quality.
- Pollutants identified by applicable federal effluent limitation guidelines.

Based on EPA's NPDES permit application requirements, toxic pollutants of concern for domestic facilities are listed in the following table.

Table 3-5: Domestic Toxic Pollutants of Concern

Flow Rate	Pollutants
> 0.1 mgd and < 1.0 mgd	Total Residual Chlorine, Total Ammonia Nitrogen

DEQ identified the following pollutants of concern for this facility listed in the following table.

Table 3-6: Pollutants of Concern

Pollutant	How was pollutant identified?
pH	Effluent Monitoring
Temperature	Effluent Monitoring
E. coli	Effluent Monitoring
Total Residual Chlorine	Effluent Monitoring
Total Ammonia Nitrogen	Application Requirement
Dissolved Oxygen	Water Quality Impairment
Chlorophyll-a	Water Quality Impairment

The sections below discuss the analyses that were conducted for the pollutants of concern to determine if water quality based effluent limits are needed to meet water quality standards.

3.3.5 Regulatory Mixing Zone

The proposed permit contains a mixing zone as allowed per OAR 340-041-0053. The proposed mixing zone remains unchanged from the existing permit and is described as follows:

> *That portion of Salt Creek contained within a band extending out 20 feet from the east bank of the creek and extending from a point 10 feet upstream of the outfall to a point 100 feet downstream from the outfall. The Zone of Immediate Dilution (ZID) shall be defined as that portion of the allowable mixing zone that is within 10 feet of the point of discharge.*

The dilutions at the edge of the zone of initial dilution and mixing zone are shown in the table below. These dilutions are based on a 2022 mixing zone analysis conducted by DEQ. The results of the analysis are contained in a September 2022 internal memo that can be made available upon request.

Dilution Summary - Wet Weather						
Water Quality Standard	Stream Flow (cfs)		Effluent Flow (mgd)		Dilution	Location
	Statistic	Flow	Statistic	Flow		
Aquatic Life, Acute	1Q10	8.9	☐ ADWDF x PF ☒ Max Daily Avg ☐ Other	0.71	1.7	ZID
Aquatic Life, Chronic	7Q10	11	☐ ADWDF ☒ Max Monthly Avg ☐ Other	0.39	2.1	MZ
Human Health, Non-Carcinogen	30Q5	17	☐ ADWDF ☒ Max Monthly Avg ☐ Other	0.39	2.2	MZ
Human Health, Carcinogen	Harmonic Mean	NA	☐ Annual Avg Design ☐ Annual Avg ☐ Other	NA	NA	MZ

3.3.6 pH

The pH criterion for this basin is 6.5 – 8.5 per OAR 340-041-0345. DEQ conducted an analysis using the existing pH limits and determined there is reasonable potential for the discharge to exceed the lower pH criterion at the edge of the mixing zone. The lower limit of 6.5 is a WQBEL and the upper limit of 9.0 is a TBEL. A review of DMR data showed that the permittee is unable to meet the new limits upon permit issuance. A compliance schedule with required milestones to achieve the new pH limits is included in Schedule C of the proposed permit. The existing limits are being retained as an interim limit until the final limits are effective. The following provides a summary of the data used for the analysis.

Table 3-7: pH Reasonable Potential Analysis

INPUT	Lower pH Criteria	Upper pH Criteria
1. Dilution at mixing zone boundary	2.1	2.1
2. Upstream characteristics		
a. Temperature (deg C)	22.5	6.7
b. pH	7.3	7.7
c. Alkalinity (mg CaCO3/L)	21.2	21.2
3. Effluent characteristics		
a. Temperature (° C)	16.3	12.0
b. pH (S.U.)	6.4	9.0
c. Alkalinity (mg CaCO3/L)	134.6	134.6
4. Applicable pH criteria	6.5	8.5
pH at mixing zone boundary	**6.4**	**8.4**
Is there reasonable potential?	**Yes**	**No**
Proposed effluent limits	**6.5**	**9.0**
Effluent data source: Alkalinity defaults used. Temperature data from excel DMRs 2019-2024.		
Ambient data source: AWQMS 2013-2022. Station 10948-ORDEQ.		

3.3.7 Temperature

3.3.7.1 Temperature Criteria OAR 340-041-0028

The following table summarizes the temperature criteria that apply at the discharge location along with whether the receiving stream is water quality-limited for temperature and whether a TMDL wasteload allocation has been assigned. Using this information, DEQ performed several analyses to determine if effluent limits were needed to comply with the temperature criteria.

Table 3-8: Temperature Criteria Information

Applicable Temperature Criterion	Rearing/Migration 18ºC (OAR 340-041-0028(4)(c)
Applicable dates: Year-round	
Salmon/Steelhead Spawning 13°C? OAR 340-041-0028(4)(a)	☐Yes ☒No
Applicable dates: NA	
WQ-limited?	☒Yes ☐No
TMDL wasteload allocation assigned?	☐Yes ☒No
Applicable dates: NA	
TMDL based on natural conditions criterion?	☐Yes ☐No
Cold water summer protection criterion applies?	☐Yes ☒No
Cold water spawning protection applies?	☐Yes ☒No
Comments:	

DEQ conducted a temperature reasonable potential analysis for the period when the facility discharges during the rearing and migration season (May 16-Oct 14). The applicable temperature criterion is 18ºC. Since a TMDL has not been developed to address the water quality limited listing associated with this criterion, this analysis is based on the portion of Oregon's temperature rule for implementing the criterion prior to the development of a TMDL. The effluent temperature value used in this analysis was 18.4°C. This value was taken from the facility's DMRs for the period from 2019 to 2024 and represents the maximum 7-day average of the daily maximums for the discharge season. The results of this RPA indicate that there is no potential for the facility's discharge to exceed the temperature standard (see Appendix A). Based on this analysis, no temperature limit associated with the applicable temperature criterion is included in the proposed permit.

Final effluent limits are listed in the following table.

Table 3-9: Temperature Criterion Effluent Limits

Effluent limit needed? ☐Yes ☒No
TMDL WLA Limit: NA
Applicable time period: Dates ☒NA
Temperature Criterion Limit: NA
Applicable time period: Dates ☒NA
Comments:

3.3.7.2 Thermal Plume OAR 340-041-0053(2)(d)

In addition to compliance with the temperature criteria, OAR 340-041-0053(2)(d) contains thermal plume limitation provisions designed to prevent or minimize adverse effects to salmonids that may result from thermal plumes. The discharge was evaluated for compliance with these provisions as follows:

- OAR 340-041-0053(2)(d)(A): Impairment of an active salmonid spawning area where spawning redds are located or likely to be located. This adverse effect is prevented or minimized by limiting potential fish exposure to temperatures of 13ºC or more for salmon and steelhead, and 9ºC or more for bull trout.

  The Salt Creek is not listed for spawning, so no spawning criterion applies.

- OAR 340-041-0053(2)(d)(B): Acute impairment or instantaneous lethality is prevented or minimized by limiting potential fish exposure to temperatures of 32ºC or more to less than 2 seconds.

  The permittee's maximum 7-day average of the daily maximum effluent temperature is 18.4°C which is below the criterion, therefore there is no reasonable potential for acute impairment.

- OAR 340-041-0053(2)(d)(C): Thermal shock caused by a sudden increase in water temperature is prevented or minimized by limiting potential fish exposure to temperatures of 25ºC or more to less than 5% of the cross-section of 100% of the 7Q10 flow of the water body.

  The permittee's maximum 7-day average of the daily maximum effluent temperature is 18.4°C which is below the criterion, therefore there is no reasonable potential for thermal shock.

- OAR 340-041-0053(2)(d)(D): Unless ambient temperature is 21ºC or greater, migration blockage is prevented or minimized by limiting potential fish exposure to temperatures of 21ºC or more to less than 25% of the cross-section of 100% of the 7Q10 flow of the water body.

  The permittee's maximum 7-day average of the daily maximum effluent temperature is 18.4°C which is below the criterion, therefore there is no reasonable potential for migration blockage.

Table 3-10: Thermal Plume Effluent Limit

Effluent limit needed? ☐Yes ☒No
Calculated limit: NA
Applicable timeframe: NA
Comments:

3.3.8 Bacteria

OAR 340-041-0009(6)(b) requires discharges of bacteria into freshwaters meet a monthly geometric mean of 126 *E. coli* per 100 mL, with no single sample exceeding 406 *E. coli* per 100 mL. If a single sample exceeds 406 *E. coli* per 100 mL, then the permittee may take five consecutive re-samples. If the geometric mean of the five re-samples is less than or equal to 126, a violation is not triggered. The re-sampling must be taken at four-hour intervals beginning within 28 hours after the original sample was taken. The following table includes the proposed permit limits and apply year-round.

Table 3-11: Proposed *E. coli* Limits

E. coli **(#/100 ml)**	**Geometric Mean**	**Maximum**
Existing Limit	126	406
Proposed Limit	126	406

3.3.9 Toxic Pollutants

DEQ typically performs the reasonable potential analysis for toxics according to EPA guidance provided in the Technical Support Document for Water Quality-Based Toxics Control (TSD) (Office of Water Enforcement and Permits, U.S. EPA, March 1991). The factors incorporated into this analysis include:

1. Effluent concentrations and variability
2. Water quality criteria for aquatic life and human health
3. Receiving water concentrations
4. Receiving water dilution (if applicable)

DEQ performs these analyses using spreadsheets that incorporate EPA's statistical methodology. The following sections describe the analyses for various toxic pollutants below.

3.3.9.1 Total Residual Chlorine

The existing permit contains chlorine limits. DEQ evaluated the existing limits to ensure they remained protective of water quality. The analysis showed that the existing limits could result in a reasonable potential for chlorine to exceed water quality criteria, therefore the new limits are being proposed. Proposed limits are listed in the following table. A review of DMR data showed that the permittee is unable to meet the new limits upon permit issuance. A compliance schedule with required milestones to achieve the new chlorine limits is included in Schedule C of the proposed permit. The existing limits are being retained as an interim limit until the final limits are effective.

Table 3-12: Proposed Chlorine Limits

	Chronic (mg/L)	Acute (mg/L)
Chlorine Criteria	0.011	0.019
	Average Monthly Limit (mg/L)	**Maximum Daily Limit (mg/L)**
Existing Limit	0.19	0.50
Calculated Limit	0.01	0.03
Proposed Limit	**0.01**	**0.03**
Effluent data source: DMRs 2019-2024		
Receiving water data source: Assumed to be zero		

3.3.9.2 Total Ammonia Nitrogen

DEQ's ammonia criteria vary with changes in pH and temperature. DEQ performed a reasonable potential analysis that accounts for changes in the effluent and receiving water pH and temperature to determine the appropriate ammonia criteria. The following table provides a summary of the data used for the ammonia analysis and the results of the analysis. Effluent data from November 2019 to April 2024 DMRs were used in the analysis. Ambient data from downstream of the point of discharge from 2013-2022 was used in the analysis. The permittee doesn't currently have an ammonia limit. Based off the analysis, there is reasonable potential for the permittee's discharge to exceed the ammonia criteria, therefore permit limits will be incorporated into the renewed permit. A review of DMR data showed that the permittee is unable to comply with the limit upon permit issuance. A compliance schedule with required milestones to achieve the new ammonia limits is included in Schedule C of the proposed permit.

Table 3-13: Ammonia Analysis Information - Winter

	Acute	Chronic	
		4-day	30-day
Dilution	1.7	2.1	2.2
Ammonia Criteria	7.2	3.6	1.4
Effluent Data Used			
Ammonia (mg/L)	7.3	7.3	
pH (SU)	7.9	7.9	
Temperature (ºC)	16.2	16.2	
Alkalinity (mg/L CaCO3)	134.6	134.6	
Receiving Stream Data Used			
Ammonia (mg/L)	0.0	0.0	
pH (SU)	7.6	7.6	
Temperature (ºC)	11.8	11.8	
Alkalinity (mg/L CaCO3)	21	21	
Ammonia Limit Needed?	**Yes**		
Calculated Limits	AML	MDL	
Ammonia (mg/L)	4.0	10.1	
Effluent data source			
Excel DMRs Nov 2019-April 2024. Permittee does not discharge during summer-only winter RPA done. Alkalinity defaults used.			
Ambient data source			
AWQMS 2013-2022. Station 10948-ORDEQ.			

3.3.9.3 Mercury – Human Health Criterion

A Willamette Basin Mercury TMDL was established by EPA on December 30, 2019. According to the EPA TMDL and the State of Oregon Water Quality Management Plan, the potential mercury load from minor domestic wastewater treatment plant discharges is a very small. The TMDL states that no additional controls or monitoring will be required for minor domestic treatment plants. No mercury requirements are included in this permit.

3.3.9.4 Dissolved Oxygen

Salt Creek is impaired for dissolved oxygen for the period May 1 through October 31. However, discharge is prohibited during this period. Therefore, the permittee has no reasonable potential to cause or contribute to a violation of dissolved oxygen criteria.

3.3.9.5 Chlorophyll-a

Salt Creek is listed on the 303(d) list for not meeting the narrative chlorophyll-a criterion. The growth of chlorophyll-a does not in itself indicate deleterious or injurious effects on beneficial uses. Nor does it identify whether a pollutant or which pollutant is causing the impairment and should be addressed by point source or other controls through a Total Maximum Daily Load. DEQ does not know what pollutant(s) are causing the chlorophyll-a impairment. DEQ does not expect that the permittee's discharge is contributing to the impairment considering the facility only discharges during the wet weather season.

3.4 Antibacksliding

The proposed permit complies with the antibacksliding provisions of CWA sections 402(o) and 303(d)(4) and 40 CFR 122.44(l). The proposed limits are the same or more stringent than the existing permit so the antibacksliding provision is satisfied.

3.5 Antidegradation

DEQ must ensure the permit complies with Oregon's antidegradation policy found in OAR 340-041-0004. This policy is designed to protect water quality by limiting unnecessary degradation from new or increased sources of pollution.

DEQ has performed an antidegradation review for this discharge. The proposed permit contains the same or more stringent discharge loadings as the existing permit. Permit renewals with the same or more stringent discharge loadings as the previous permit are not considered to lower water quality from the existing condition. DEQ is not aware of any information that existing limits are not protecting the receiving stream's designated beneficial uses. DEQ is also not aware of any existing uses present within the water body that are not currently protected by standards developed to protect the designated uses. Therefore, DEQ has determined that the proposed discharge complies with DEQ's antidegradation policy. DEQ's antidegradation worksheet for this permit renewal is available upon request.

3.6 Whole Effluent Toxicity

DEQ does not require whole effluent toxicity testing (WET) for minor domestic facilities because concentrations of toxics are typically very low and WET testing is not warranted.

3.7 Groundwater

The facility's lagoons do not excessively leak, is not located in a Groundwater Management Area, and is not located within 1,000 feet of an existing public or private drinking water supply well, designated Wellhead Protection Area.

The treatment facility does not have any basins, ponds or lagoons that have the potential to leach into the groundwater. No groundwater monitoring or limits are required.

4. Schedule A: Other Limitations

4.1 Mixing Zone

Schedule A describes the regulatory mixing zone as discussed above in section 3.3.5.

4.2 Biosolids

The permit holder has the capability to develop a new biosolids program to land apply biosolids or produce biosolids for sale and distribution during the term of this permit. The permit holder will develop a comprehensive biosolids management plan and land application plan. DEQ will review the plans and provide an opportunity for public comment on the proposed land application activity. Once approved, conditions in the biosolids management plan and land application plan become permit conditions.

4.3 Recycled Water or Irrigation of Industrial Wastewater

The permit holder currently operates a recycled water program to produce a Class (A, B, C, D, or Non-disinfected) recycled water for (irrigation, industrial, other) uses and anticipates continuing to do so. A recycled water use plan was submitted to DEQ for review and is available for public comment with the permit. Once approved after public comment, conditions in the recycled water use plan become permit conditions.

Schedule A of the permit requires the permittee to apply recycled water according to their recycled water use plan. Schedule A also restricts the application of recycled water to prevent the following:

- Irrigating above agronomic rates,
- Adverse impact to groundwater,
- Offsite surface runoff or subsurface drainage through drainage tile,
- Creation of odors, fly and mosquito breeding, or other nuisance conditions

5. Schedule B: Monitoring and Reporting Requirements

Schedule B of the permit describes the minimum monitoring and reporting necessary to demonstrate compliance with the proposed effluent limits. In addition, monitoring for other parameters is required to better characterize the effluent quality and the receiving stream. This data will be used during the next permit renewal. Detailed monitoring frequency and reporting requirements are in Schedule B of the proposed permit. The required monitoring, reporting and frequency for many of the parameters are based on DEQ's monitoring and reporting matrix guidelines, permit writer judgment, and to ensure the needed data is available for the next permit renewal.

6. Schedule C: Compliance Schedule

The proposed permit contains new water quality-based effluent limits for pH, chlorine, and ammonia. The facility is unable to meet these limits upon permit issuance. The proposed permit contains a compliance schedule that allows time for the facility to make facility modifications in order to meet the new limits. This compliance schedule lays out a series of milestones which upon completion, will enable the permittee to meet the permit's water quality-based effluent limits (see 40 CFR 122.47 and OAR 340-041-0061(12)).

The wastewater treatment facility does not currently have adequate treatment units in place to meet the new limits, and the permittee will not immediately be able to meet the new limits upon permit issuance. The compliance schedule also allows the permittee to conduct a mixing zone study to assess the feasibility of redesigning outfall 001. The proposed permit requires the permittee to comply with the new chlorine, pH and ammonia limits after the completion of the compliance schedule in Schedule C of the proposed permit.

With City input, DEQ has developed a Schedule C compliance schedule in the proposed permit to meet the final chlorine, pH ammonia limits. The compliance schedule contains interim compliance dates and a final compliance date. The city has a responsibility to meet the compliance dates and must notify DEQ in writing of its compliance or noncompliance with the interim requirements. Given the complexity of the issues for the overall projects and the financial impacts of the project on the city, DEQ considers the proposed schedule to be reasonable, requires the final effluent limits to be met as soon as possible, and is in compliance with 40 CFR 122.47. Per OAR 340-045-055 an interim compliance date can be modified provided the new date is not more than 120 days after the date in the existing permit and does not interfere with the final compliance date requirement.

7. Schedule D: Special Conditions

The proposed permit contains the following special conditions. The conditions include the following:

7.1 Inflow and Infiltration Management

A requirement to submit an updated inflow and infiltration plan in order to reduce groundwater and stormwater from entering the collection system.

7.2 Lagoon Leak Test

A condition that requires the permittee to conduct a lagoon leak test in accordance with DEQ guidance (https://www.oregon.gov/deq/FilterRulemakingDocs/div52-estleak.pdf). If the lagoon is found to be leaking more than ¼ inch per day, then the permittee is required to conduct a preliminary groundwater assessment in accordance with DEQ guidance (https://www.oregon.gov/deq/wq/Documents/wq-GroundwaterAssessmentGuide.pdf).

7.3 Emergency Response and Public Notification Plan

A requirement to develop and submit an emergency and spill response plan or ensure the existing one is current per General Condition B.8 in Schedule F.

7.4 Recycled Water Use Plan

A condition requiring the permit holder to develop and maintain a recycled water use plan that meet the requirements in OAR 340-055-0025. The plan must also include location-specific information describing where and how recycled water is managed to protect public health and the environment.

7.5 Exempt Wastewater Reuse at the Treatment System

A condition that exempts the permit holder from the recycled water requirements in OAR 340-055, when recycled water is used for landscape irrigation at the treatment facility or for in-plant processes, such as in plant maintenance activities.

7.6 Biosolids Management Plan

A requirement to manage all biosolids in accordance with a DEQ-approved biosolids management plan and land application plan. The biosolids management plan and the land application plan must meet the requirements in OAR 340-050-0031 and describe where and how the land application of biosolids is managed to protect public health and the environment.

7.7 Wastewater Solids Transfers

A condition that allows the facility to transfer treated or untreated wastewater solids to other in-state or out-of-state facilities that are permitted to accept the wastewater solids.

7.8 Hauled Waste Control Plan

A condition that allows the acceptance of hauled waste after a hauled waste plan is submitted and approved by DEQ. The hauled waste plan ensures waste is not accepted that could negatively impact the treatment capabilities of the facility.

7.9 Hauled Waste Annual Report

A condition requiring submittal of an annual hauled waste report that summarizes hauled waste accepted at the facility during the previous year.

7.10 Lagoon Solids

A condition requiring the permittee to submit a sludge depth survey report to ensure lagoon solids are maintained within design standards and accumulations do not negatively affect treatment capabilities.

7.11 Operator Certification

The permit holder is required to have a certified operator consistent with the size and type of treatment plant covered by the permit per OAR 340-049-0005. This special condition describes the requirements relating to operator certification.

7.12 Industrial User Survey

This condition requires the permittee to conduct or update an industrial user survey. The purpose of the survey is to identify whether there are any categorical industrial users discharging to the POTW and ensure regulatory oversight of these discharges.

7.13 Outfall Inspection

A condition that requires the permittee to inspect the outfall and submit a report regarding its condition.

8. Schedule F: NPDES General Conditions

Schedule F contains the following general conditions that apply to all NPDES permittees. These conditions are reviewed by EPA on a regular basis.

- Section A. Standard Conditions
- Section B. Operation and Maintenance of Pollution Controls
- Section C. Monitoring and Records
- Section D. Reporting Requirements
- Section E. Definitions

Appendix A: Temperature RPA

Facility Name: City of Amity **Date:** 10/31/2024

Applicable Criterion and **Rearing and migration May 16-Oct 14**

Enter data into white cells below:

			Data Metric/Source
Mixing Zone Dilution =	2.1		MZ Memo 2022
7Q10 =	11	cfs	MZ Memo 2022
Effluent Flow =	0.12	mgd	MZ Memo 2022
Applicable Temperature Criterion	18	°C	
Effluent Temperature	18.4	°C	7dAM DMRS 2019-2024
Allowable increase =	0.3	°C	

Dilution at 25% Stream Flow = **16** dilution = (Qr*0.25)/Qe + 1

ΔT at edge of MZ=	**0.2**	**°C**	**No Reasonable Potential**
ΔT at 25% Stream Flow=	**0.0**	**°C**	

Thermal Load Limit = N/A Million Kcals (7-day Rolling Avg.)

Equation used to calculate ΔT at edge of MZ

$$\Delta T_{mz} = \frac{T_e + (S-1)T_a}{S} - T_a$$

Equation used to calculate thermal load limit

$$TLL = 3.7854 Q_e S \Delta T_{all} C_p \rho$$

Where:

Qe = Effluent Flow in mgd
S = Dilution
ΔT_{all} = Allowable temperature increase at edge of MZ (°C)
Cp = Specific Heat of Water (1 cal/g °C)
ρ = Density of Water (1 g/cm^3)
3785.41 = Flow conversion from mgd to m^3/day