



State of Oregon
Department of
Environmental
Quality

National Pollutant Discharge Elimination System Permit Fact Sheet City of Sutherlin

Final: Dec. 6, 2024

Permittee	City of Sutherlin Sutherlin STP 126 E Central Ave Sutherlin, OR 97479
Existing Permit Information	File Number: 86662 Permit Number: 101993 EPA Reference Number: OR0020842 Category: Domestic Class: Minor Expiration Date: 06/30/2024
Permittee Contact	Jody Gardner Wastewater Division Supervisor 541-459-5768 126 E Central Ave Sutherlin, OR 97479
Receiving Water Information	Receiving stream name: Calapooya Creek and Fords Creek NHD Reach Code & % along reach: Outfall 001: Calapooya Creek = 17100303000172 - 46% Outfall 002a: Fords Pond = 17100303058695 – 31% Outfall 002b: Fords Creek = 17100303011460 – 85% USGS 12-digit HUC: 171003030106 OWRD Administrative Basin: Umpqua ODEQ LLID & River Mile: Outfall 001: Calapooya Creek = 1234686433656-9.8-D Outfall 002a: Fords Pond = 1233621433935-0.4-D Outfall 002b: Fords Creek = 1232321433933-0.35-D Assessment Unit ID: Calapooya Creek: OR_SR_1710030301_02_106418 Fords Pond and Creek: OR_LK_1710030301_00_100200
Proposed Action	Permit Renewal Application Number: 948184 Date Application Received: 12/06/2023
Permit Writer	Helen Sanders 541-241-0152 Date Prepared: 10/23/2024

NPDES Permit Fact Sheet City of Sutherlin

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NPDES Permit Renewal Fact Sheet

City of Sutherlin

1. Introduction

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:

- For Outfall 002a, a daily maximum mass load limit was added to Schedule A.
- Schedule A, average monthly ammonia concentration limit decrease for Outfall 001.
- Schedule A, Option A excess thermal load limit decrease for Outfall 001 from (November 1 – May 15).
- Nitrate (NO₃) plus Nitrite (NO₂) limits is added to Table A2 for Outfall 002a.
- UV dose and UV transmittance, and UV intensity is added as a continuous monitoring requirement in Schedule B, Table B3 for Outfall 001.
- Alkalinity, dissolved oxygen, Oil and Grease, total dissolved solids, TKN, nitrate plus nitrite, total phosphorus is included in the effluent monitoring requirements in Schedule B, Table B3 for Outfall 001.
- Temperature is included in the effluent monitoring requirements in Schedule B, Table B4 for Outfall 002a.
- Alkalinity, dissolved oxygen, Oil and Grease, total dissolved solids, TKN, nitrate plus nitrite, and total phosphorus is included in the effluent monitoring requirements in Schedule B, Table B4 for Outfall 002a.
- Ambient monitoring requirements is included for Fords Pond in Schedule B, Table B6 for flow, pH, temperature, and alkalinity, monthly.
- A compliance schedule is added to Schedule C to address the new Nitrate (NO₃) plus Nitrite (NO₂) limits for Outfall 002a.
- A leak test for the upper golf course pond is added as a requirement in Schedule D.
- A Water Quality Trading option is added to Schedule D.

2. Facility Description

2.1 Wastewater Facility

The City of Sutherlin operates a municipal wastewater treatment plant at 4306 Stearns Lane Sutherlin, OR 97479. The facility serves a population of about 8,593 people and the average dry weather design flow is 0.88 MGD. The facility discharges directly to two waterways, Outfall 001 to Calapooya Creek and Outfall 002a to Fords Pond. Fords Pond flows into Fords Creek (Outfall 002b), which is an intermittent stream that connects to the Calapooya Creek.

The Sutherlin sewage collection system consists of over 140,000 feet of gravity pipe and five sewage pump stations. In addition, some of the common sewer collection system utilizes septic tank effluent pump systems. Sutherlin originally installed approximately 54,000 feet of the gravity pipe and a sewage treatment plant in the 1950s. The original treatment plant was demolished after a new treatment plant was constructed at the present site in 1977. The current plant was extensively rebuilt in 2021.

The upgraded treatment plant begins with influent screens to remove large debris. From there, a new flow paced influent sampler was placed at the influent screen structure. Then, a grit classifier removes solids further and a flow splitter then discharges to the new continuous feed sequencing batch reactor (SBR) activated sludge treatment plant. The SBR system consists of four 355,000-gallon basins. Following the SBRs, effluent flows into the new ultraviolet disinfection system and out to Outfall 001 in the wet weather period and to the chlorine contact chamber in the dry weather period.

The effluent goes to the chlorine contact chamber for additional disinfection when discharging to Outfall 002a. During the wet weather season (Nov. 1 to May 31), treated effluent is disinfected with ultraviolet light only and discharged to Calapooya Creek. Though, the facility is permitted to discharge from the chlorine contact chamber to Fords Pond (Outfall 002a) year – round, it typically discharges to Fords Pond in the dry weather season (June 1 – Oct 31). Discharge to Fords Creek Outfall 002b in the dry season is not allowed and there is a dam in place to prevent flow into the creek during that period. When stream flow in Calapooya Creek is below 82 CFS in the month of May, effluent flow must be directed to Fords Pond and the dam to Fords Creek must be closed.

During the dry season (Jun 1 to Oct 31), treated effluent is filtered and disinfected with UV light and chlorine to meet Class A recycled water criteria and discharged to Oak Hills Golf Club for recycled water reuse on the golf course. The discharge process to Outfall 002a for recycled water reuse is as follows: Four vertical turbine pumps (two 30-horsepower and two 40-horsepower) convey Class A recycled water through a common pipeline to Fords Pond and to a pond at the Oak Hills Golf Club. The 20-HP pumps convey water to Fords Pond because the Fords Pond outfall is at a much lower elevation than the golf course pond. Immediately prior to discharge to Fords Pond, the recycled water is dechlorinated at the Fords Pond dichlorination building. The 40-HP pumps convey water to the golf course pond, which has low level (pump on), high level (pump off), and overflow alarm float switches. When high level is reached, the 40-HP pump will shut off and an automated valve in the Fords Pond dichlorination building will direct flow to

Fords Pond. One of the two 20-HP pumps will then turn on sending all flows to Fords Pond. The automated valve is controlled by a radio system. The valve alarms to the SCADA system in the event of failure and is programmed to automatically open in the event of recycled water pumps being off.

Per the City of Sutherlin's recycled water use plan, Sutherlin delivers recycled water in the summer to Oak Hills in a pond on the seventh fairway. Oak Hills irrigates recycled water from this pond. Sutherlin's NPDES permit and recycled water use plan allow Sutherlin to distribute recycled water to Oak Hills Golf Club using sound irrigation practices, including prevention of surface runoff and subsurface drainage. According to the recycled water use plan, irrigates 90 acre-feet (20.5 million gallons) on 38.5 acres. The historic water use is about 45 million gallons per year. However, the Oak Hills Golf Club (formerly Sutherlin Knolls) has a water right dated January 18, 1973, for up to 0.48 cubic foot per second and up to 2.5-acre feet per acre irrigated (96.25 acre feet total or 31.4 million gallons).

Screenings and grit are dewatered and disposed of at the Douglas County landfill near Roseburg, Oregon. Hauled waste is not accepted at the facility. Sutherlin's sewage sludge treatment process consists of two aerobic digesters. Sutherlin currently hauls sludge to Heard Farms year-round. Refer to the BMP for biosolids for additional information.

The addition of Outfalls 002a to Fords Pond and 002b to Fords Creek were approved in 2018 and began discharging in September 2021. Fords pond was previously a log pond for a lumber mill. The property was purchased by the city for wastewater discharge in the dry season, wetland habitat, and aesthetic purposes. The addition of Outfall 002a to Fords Pond and upgrades to the treatment facility in the 2019 permit transitioned the NPDES permit designation from a major to a minor domestic treatment facility. The new average dry weather design flow is 0.88 MGD and the new maximum monthly dry weather design flow is 1.8 MGD. The new average wet weather design flow is 2.01 MGD and the maximum monthly wet weather design flow is 2.7 MGD.

The upgrades to the treatment plant (many of which mentioned above) completed in September 2021 are as followed:

- New influent screening installed in existing screening structure. A flow paced influent sampler was placed at the influent screen structure.
- New influent pumping station consisting of five 43-HP clog-free screw centrifugal submersible pumps rated at 2.6 mgd @ 43' TDH each.
- New headworks consisting of a vortex grit concentrator with a capacity of 10.0 mgd and a grit classifier. A flow splitter that controls discharge to each of the SBR treatment basins through 12-inch mag meters.
- New continuous feed sequencing batch reactor (SBR) activated sludge treatment plant. The system consists of four 355,000-gallon basins. The SBR equipment includes three 769 SCFM positive displacement blowers, four mixers, four 2.0-HP waste sludge pumps, and a WAS flow meter.
- Installation of two rotating disc filters, each capable of treating 3.0 mgd.

- Installation of an effluent magnetic flow meter (24-inch diameter) upstream of the new UV disinfection unit.
- A new ultraviolet disinfection system consisting of a fully enclosed stainless-steel unit with noncontact UV lamps in a horizontal configuration two banks of UV lights in one channel.
- The contact and stabilization tanks of one of the existing donut units was repurposed as additional chlorine contact tankage (170,000 gallons) by adding baffles. Treated water then flows to the existing chlorine contact chamber (106,000) for a total baffled tankage of 276,000 gallons allowing for 132 minutes of contact time at 3.0 mgd. The chlorinated recycled water is also be held in a 150,000-gallon recycled water storage tank prior to use.
- Four new vertical turbine irrigation pumps installed in the existing recycled water storage basin.
- Repurposed four of the chambers of the existing donut units to biosolids treatment and storage. The total volume biosolids aerobic digestion and storage is about 581,000 gallons. The system includes fine bubble diffusers, three rotary positive displacement blowers, four biosolids transfer pumps, and 1 rotary lobe biosolids dewatering press feed pump.
- Installation of a biosolids dewatering system consisting of a polymer injection system, a screw press, screw press conveyer, and associated equipment. The dewatering system has a capacity of 55 gpm at 2% solids and produce a cake of 12 to 16 % solids.
- Installation of two new 500 KW diesel generators for backup power with automatic transfer switch.

Figure 2-1: City of Sutherlin Wastewater Treatment Plant Location

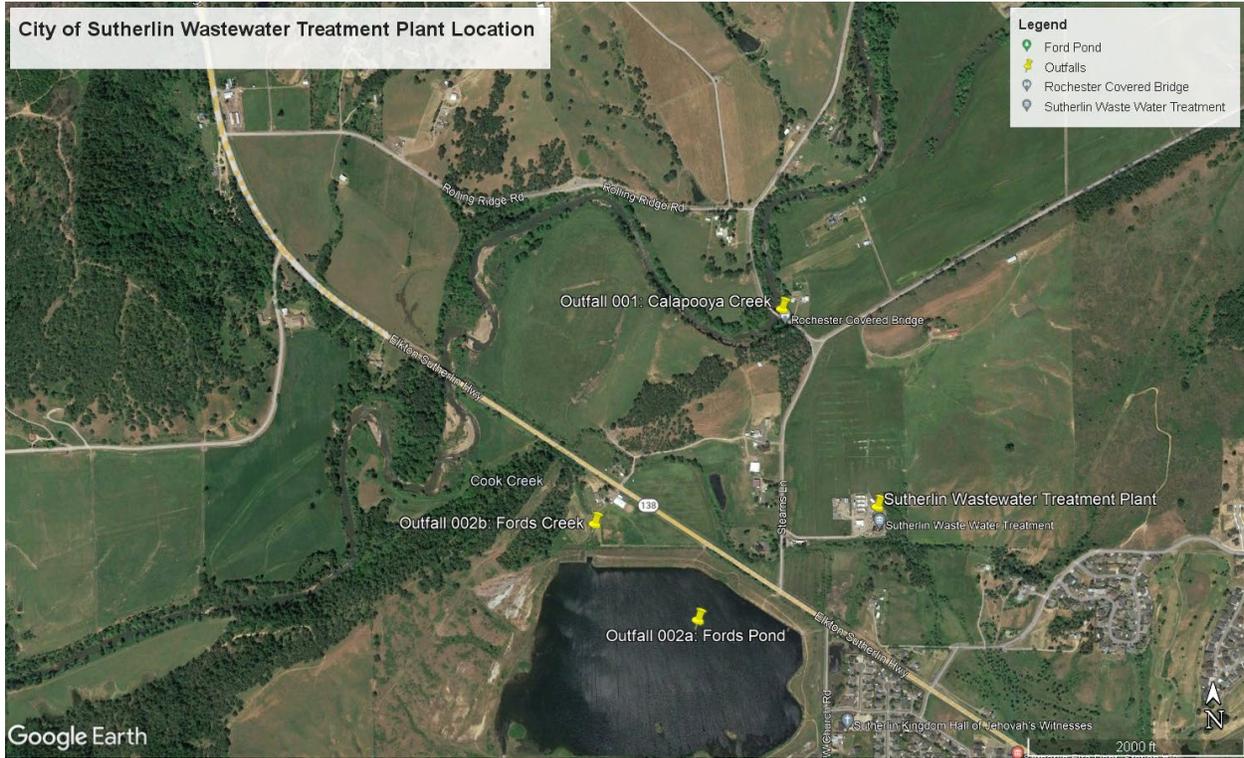


Figure 2-2: Diagram of the Sutherlin Wastewater Treatment Plant

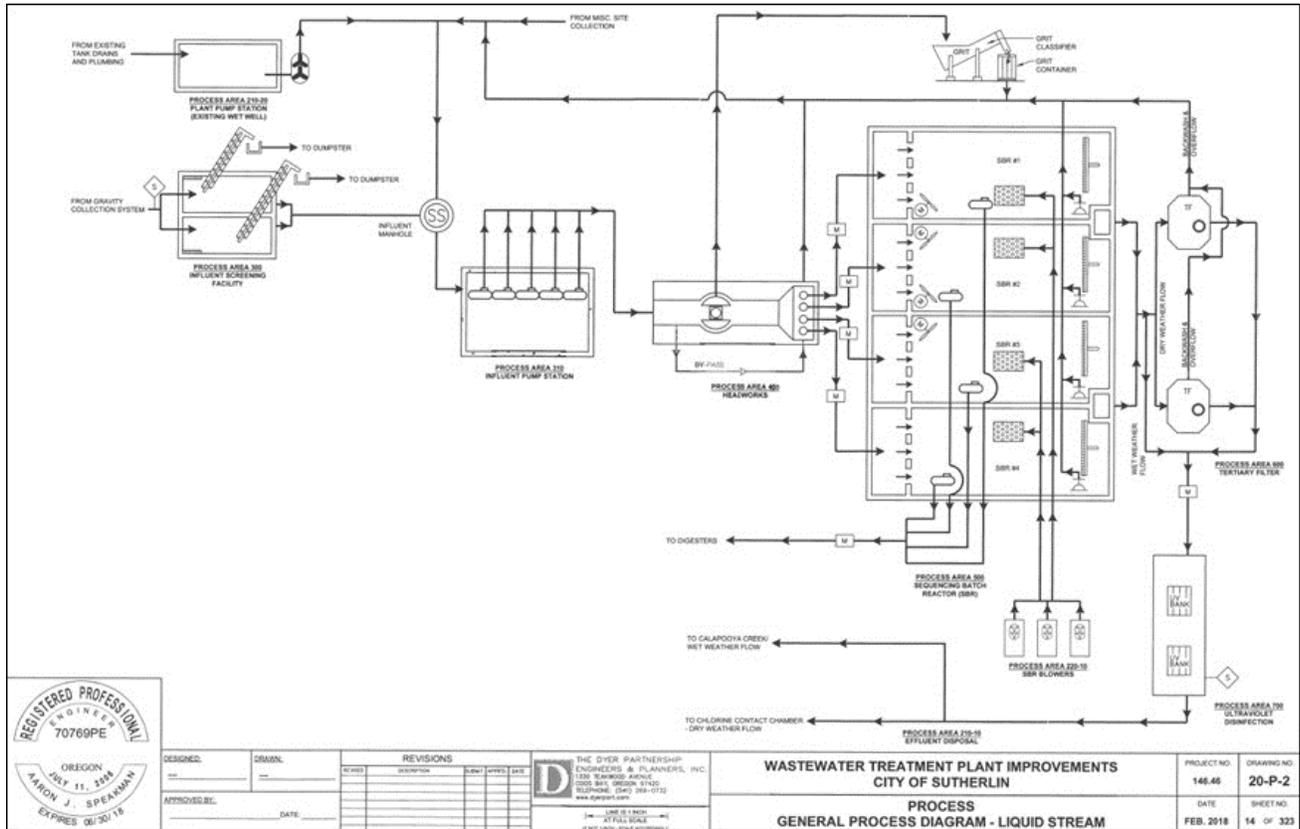


Table 2-1: List of Outfalls

Outfall Number	Type of Waste	Lat/Long	Design Flow ¹ (mgd)	Existing Flow ² (mgd)
001	Treated Wastewater	43.401867, -123.362931	2.01	2.28
002a	Treated Wastewater	43.394285, -123.363566	0.88	0.47
002b	Fords Pond discharge to Fords Creek	43.395933, -123.369461		
003	Recycled Water Reuse			
004	Biosolids			

1. Design Flow = design average dry weather or wet weather flow
 2. Existing Flow = existing average monthly dry or wet weather flow

2.2 Compliance History

In 2005, Sutherlin and DEQ entered into a Mutual Agreement and Order number WQ/M-WR-05-054 because Sutherlin did not have the facilities to irrigate all of the wastewater during the months of May through October. The MAO was amended in 2012 to address ammonia effluent limit violations. The MAO was amended again in 2015 to adjust the project schedule. The final requirement in the Sutherlin MAO is:

“(7) By no later than fifteen (15) months after initiation of operation of the wastewater system upgrades, Permittee must submit a report summarizing the performance testing conducted during the first twelve (12) months of operation and an evaluation of whether the actual performance meets expectations in the DEQ plan approval letter. If performance does not meet the expectation, the report must also include a list of recommended performance improvements.”

The liquids treatment units were completed on February 14, 2020, and the new units began treating sewage on May 6, 2020. Accordingly, this report was due on August 6, 2021. DEQ received the required report on September 9, 2021.

DEQ received the final report on September 9, 2021. Amendment 2 of the MAO states: “Paragraph 18 is replaced with the following: “This MAO will terminate the day after the final task in Paragraph 7 is completed. However, permittee remains liable for stipulated penalties for any violations of the MAO occurring during the period the MAO was in effect and demanded pursuant to Paragraph 15.”

Accordingly, the MAO terminated on September 10, 2021.

On November 12, 2021, DEQ issued a Warning Letter with opportunity to correct (WLOT – 6684) for several permit violations noted in an inspection. Those violations include:

1. Sutherlin violated Schedule A condition b by not managing recycled water in accordance with its DEQ-approved recycled water use plan. Specifically, Sutherlin delivered more water to the Oak Hills Golf Club than allowed by the recycled water use plan and more than Oak Hills Golf Club can reasonably irrigate on 38.5 acres. This contributed to Oak Hills’ unpermitted discharge of recycled water.
2. Sutherlin failed to submit a mercury minimization plan by August 1, 2020, as required by Schedule A.7.
3. Sutherlin does not have a written laboratory quality assurance and quality control program as required by Schedule B condition 1.e.
4. Sutherlin failed to submit timely reports of progress as required by Schedule C.
5. Sutherlin does not have an emergency response and public notification plan as required by Schedule D condition 2 and Schedule F condition B8.
6. Sutherlin failed to submit a significant industrial user survey as required by Schedule D.9.

7. Schedule F condition B1 requires Sutherlin to properly operate and maintain the treatment system. Proper maintenance includes a robust preventative maintenance program. Sutherlin has purchased a computerized maintenance management system but has not yet populated it.

In 2022, Sutherlin and DEQ entered into another Mutual Agreement and Order number WQ/M-WR-2021-180 that included civil penalties because the facility discharged recycled water from a point not authorized by the permit. Oak Hill Golf Club discharged recycled water provided by Sutherlin to Cook Creek. The MAO also includes violations related to improper maintenance and operation and the failure to develop or implement a BMP.

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 city conducted an Industrial User Survey during the last permit cycle and determined that a DEQ-approved industrial pretreatment program is not needed. No categorical industrial users were identified in the IU survey update submitted with the city's permit renewal application. [Include if relevant] The proposed permit requires the permittee to conduct and submit to DEQ an updated Industrial User Survey (Survey) within one year of permit issuance. DEQ will review the Survey results and, if DEQ determines that a pretreatment program is required, the permit may be reopened and modified to require development of a pretreatment program.

2.5 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.

Table 3-1: Existing Effluent Limits for Outfall 001 Calapooya Creek

Parameter	Stream Flow (CFS) ^a	Units	Average Monthly	Average Weekly	Daily Maximum
Effluent Flow (June 1 – Oct. 31)		MGD	No discharge (Daily max limit = 0 MGD)		
Effluent Flow (May 1 to May. 31)	< 82	MGD	No discharge (Daily max limit = 0 MGD)		
BOD ₅ & TSS (May 1 to May 31) ^{b,c}	≥ 82	mg/L	30	45	-
		lb/day	560	840	1100
BOD ₅ & TSS (Nov. 1 to Nov. 30) ^{b,c}	<45	mg/L	30	45	-
		lb/day	440	170	260
	45 – 60	mg/L	30	45	-
		lb/day	440	320	480
	>60 – 96	mg/L	30	45	-
		lb/day	440	440	660
>96	mg/L	30	45	-	
	lb/day	440	660	880	
BOD ₅ & TSS (Dec. 1 to April 30) ^{b,c}	All	mg/L	30	45	-
		lb/day	560	840	1100
		% removal	85	-	-
Chlorine, Total Residual (Nov. 1 to May 31)		mg/L	0.01	-	0.036
Ammonia, Total (Nov. 1 to May 31)		mg/L	14	-	24
pH (Nov. 1 to May 31)		SU	Instantaneous limit between a daily minimum of 6.3 and a daily maximum of 9.0		
<i>E. coli</i> (Nov. 1 to May 31)		#/100 mL	Must not exceed a monthly geometric mean of 126, no single sample may exceed 406		

Parameter	Stream Flow (CFS) ^a	Units	Average Monthly	Average Weekly	Daily Maximum
Excess Thermal Load Limit (ETLL) (May 16 to May 31)		million kcal/day (Mkcal/day)			Option A: ETLL = 20.2 as a 7-day rolling average Option B: $ETLL=(0.1)(Q_e+Q_r)(2.45)$ as a 7-day rolling average, where: Q_e = Daily average effluent flow rate (cfs) Q_r = 25% of receiving stream daily average flow rate (cfs)
Excess Thermal Load Limit (ETLL) (Nov. 1 to May 15)		million kcal/day (Mkcal/day)			Option A: ETLL = 7.3 as a 7-day rolling average Option B: $ETLL=(0.3)(0.25Q_r+Q_e)(2.45)$ as a 7-day rolling average, where: Q_e = Daily average effluent flow rate (cfs) Q_r = 25% of receiving stream daily average flow rate (cfs)
Notes: a. Stream flow in Calapooya Creek. b. Monthly average BOD and TSS limits are not flow based. c. The weekly average BOD and TSS limits are based on the weekly average flow in Calapooya Creek.					

Table 3-2: Existing Effluent Limits for Outfall 002a Fords Pond

Parameter	Units	Average Monthly	Average Weekly	Daily Maximum
BOD ₅	mg/L	10	15	-
	lb/day	73	110	-
	% removal	85	-	-
TSS	mg/L	10	15	-
	lb/day	73	110	-
	% removal	85	-	-
Chlorine, Total Residual	mg/L	0.0053	-	0.019
Ammonia Total Final ^a (November 1 to April 30)	mg/L	2.0	-	3.5

Parameter	Units	Average Monthly	Average Weekly	Daily Maximum
Ammonia Total Interim ^a (November 1 to April 30)	mg/L	5.0	-	5.0
pH Final ^a (November 1 to April 30)	SU	Instantaneous limit between a daily minimum of 6.5 and a daily maximum of 8.5		
pH Interim ^a (November 1 to April 30)	SU	Instantaneous limit between a daily minimum of 6.3 and a daily maximum of 8.5		
<i>E. coli</i> (November 1 to April 30)	#/100 mL	Must not exceed a monthly geometric mean of 126, no single sample may exceed 406		
Note:				
a. These interim limits are effective upon permit issuance. The final limits are effective after completion of the compliance schedule as specified in Schedule C.				

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 (BOD₅), total suspended solids (TSS) and pH (i.e., federal secondary treatment standards). Substitution of 5-day carbonaceous oxygen demand (CBOD₅) for BOD₅ is allowed. The numeric standards for these pollutants are contained in 40 CFR 133.102. In addition, DEQ has developed minimum design criteria for BOD₅ 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 Umpqua basin.

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

Parameter	Federal Secondary Treatment Standards		Umpqua Basin-Specific Design Criteria (OAR 340-041-0326)
	30-Day Average	7-Day Average	Monthly Average
BOD ₅ (mg/L)	30	45	10 mg/L (May 1 – October 31), 30 mg/L (November 1 – April 30)
TSS (mg/L)	30	45	10 mg/L (May 1 – October 31), 30 mg/L (November 1 – April 30)
pH (S.U.)	6.0 – 9.0. (instantaneous)		6.5 – 8.5

Parameter	Federal Secondary Treatment Standards		Umpqua Basin-Specific Design Criteria (OAR 340-041-0326)
	30-Day Average	7-Day Average	Monthly Average
BOD ₅ and TSS % Removal	85%	Not applicable	Not applicable

The limits for BOD₅ 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 BOD₅ and TSS monthly average concentrations of 10 mg/L during the dry weather season and 30 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 3-4: Design Flows and Concentrations Limits

Season	Maximum Monthly Design Flow (mgd)	Monthly TSS Concentration Limit (mg/L)	Monthly BOD ₅ Concentration Limit (mg/L)
Dry Weather	1.8	10	10
Wet Weather	2.7	30	30

001 Wet Weather Mass Load Calculations:

Monthly Average: 2.7 [design flow] mgd x 30 [concentration] mg/L x 8.34 = 675.5 = 675 (rounded to two significant figures)

Weekly Average: 675 lbs/day monthly average x 1.5 = 1012 lbs/day

Daily Maximum: 675 lbs/day monthly average x 2 = 1350 lbs/day

The current permit mass load limits for the design flow of 2.22 MGD for November – May are more stringent than the maximum monthly design flow (2.7) and, will remain in this renewal to meet antidegradation and antibacksliding requirements. The high and low flow periods in OAR 340-041-032(4) are approximate. The flow in Calapooya Creek remains relatively high through the month of May. Accordingly, DEQ has chosen to extend the high flow season through the month of May.

The proposed BOD₅ and TSS limits are listed in the following tables.

Table 3-5: Outfall 001 BOD₅ and TSS Technology Based Effluent Limits

Parameter (See note c.)	Units	Average Monthly	Average Weekly	Daily Maximum
BOD ₅ (November 1 to May 31): (See notes a and b.)	mg/L	30	45	-
	lbs/day	560	840	1100
	% removal	85	-	-
TSS (November 1 to May 31): (See notes a and b.)	mg/L	30	45	-
	lbs/day	560	840	1100
	% removal	85	-	-
Notes:				
a. Refer to Table 3-13 for the WQBEL calculated mass load limits in November.				
b. Limits in May only apply when stream flow is ≥ 82 cfs. No discharge to Outfall 001 in May when stream flow is <82 cfs.				
c. Wet weather discharge may flow to either Outfall 001 or 002a.				

Outfall 002a Dry Weather Mass Load Calculations:

Monthly Average: $1.8 \text{ [design flow] mgd} \times 10 \text{ [concentration] mg/L} \times 8.34 = 150 \text{ lbs/day}$

Weekly Average: $150 \text{ lbs/day monthly average} \times 1.5 = 225 \text{ lbs/day}$

Daily Maximum: $150 \text{ lbs/day monthly average} \times 2 = 300 \text{ lbs/day}$

The current average monthly and average weekly permit mass load limits for the average dry weather design flow of 0.88 MGD for June - October are more stringent than the maximum monthly dry weather design flow (1.8) and, will remain in this renewal to meet antidegradation and antibacksliding requirements. A new daily maximum mass load limit for both BOD and TSS will be included in the proposed permit. The daily maximum mass load limit was omitted by error in the previous permit and, for the proposed permit, will be based off the 0.88 MGD day weather design flow.

Table 3-6: Outfall 002a Dry Weather BOD₅ and TSS Technology Based Effluent Limits

Parameter	Units	Average Monthly	Average Weekly	Daily Maximum
BOD ₅ (Outfall 002a: June 1 – October 31)	mg/L	10	15	-
	lbs/day	73	110	150
	% removal	85	-	-
TSS (Outfall 002a: June 1 – October 31)	mg/L	10	15	-
	lbs/day	73	110	150
	% removal	85	-	-

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 Calapooya Creek. These uses are listed in OAR-340-041-0326 for Umpqua Basin. Sutherlin wastewater treatment plant discharges seasonally into Calapooya Creek at river mile 9.8. Calapooya Creek is a tributary of the Umpqua River in the Umpqua Basin and enters the Umpqua at approximately river mile 103.

- 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
- Hydropower

3.3.2 303(d) Listed Parameters and Total Maximum Daily Loads

The following tables lists the parameters that are on the 2022 303(d) list (Category 5) within the discharge’s stream reach. The table also lists any parameters with a TMDL wasteload allocation assigned to the facility (Category 4).

Table 3-7: 303(d) and TMDL Parameters for Outfall 001

Water Quality Limited Parameters (Category 5)	
AU ID:	OR_SR_1710030301_02_106418
AU Name:	Calapooya Creek
AU Status:	Impaired
Year Listed	2002
Year Last Assessed	2022
303d Parameters (Category 5)	Flow Modification, Habitat Modification, E. coli, Dissolved Oxygen year-round, Temperature year round, Iron (total)-Aquatic Life Toxics
TMDL Parameters (Category 4)	
Temperature, pH, Dissolved Oxygen, E. coli	

3.3.3 TMDL Wasteload Allocations

DEQ issued a TMDL for the Umpqua Basin in 2006. The TMDL parameters that apply to Sutherlin STP are temperature, *E. coli*, pH, and dissolved oxygen.

The Umpqua Basin temperature TMDL addresses the non-spawning period (May 16 through October 14) and has assigned a temperature wasteload allocation to the facility as discussed in Section 3.3.8, below.

The facility is not discharging to Calapooya Creek between June and October. As such, the Sutherlin STP is meeting *E. coli* the requirements in the TMDL which prohibits discharge to the creek in the summer recreational period.

The TMDL for pH is for the summer period, of which the facility is not discharging to Calapooya Creek. Thus, Sutherlin STP is meeting the pH requirements in the TMDL. A wasteload allocation to address the fall-winter-spring dissolved oxygen limitation was not completed at the time of the dissolved oxygen TMDL issuance. Instead, a wasteload allocation for inorganic and total phosphorus was created in the TMDL from June 1 – October 31. This WLA does not apply for Sutherlin STP since the facility does not discharge to Calapooya Creek during those months.

Fords Pond where Outfall 002a discharges to was constructed in 2019 from a previous logging pond. As a relatively new enclosed waterbody with no TMDL or 303(d) listing associated with it, Table 3-8 depicts the TMDL parameters for the watershed in general, not specifically for Fords Pond.

Table 3-8: Applicable WLAs

Parameter	WLA	Time Period
Temperature	See Section 3.3.8, below	May 15 – October 15
<i>E. coli</i>	Log mean of 126. Not to exceed 406	June – October

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.

Table 3-9: Domestic Toxic Pollutants of Concern

Flow Rate	Pollutants
≥ 0.1 mgd	Total Residual Chlorine
≥ 0.1 mgd and < 1.0 mgd	Total Residual Chlorine, Total Ammonia Nitrogen
≥ 1.0 mgd	Total Residual Chlorine, Total Ammonia Nitrogen, Metals, Volatile Organic Compounds, Acid Extractable Compounds, Base Neutral Compounds

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

Table 3-10: Pollutants of Concern

Pollutant	How was pollutant identified?
pH	Effluent Monitoring
Temperature	Effluent Monitoring
<i>E. coli</i>	Effluent Monitoring
Total Residual Chlorine	Effluent Monitoring
Total Ammonia Nitrogen	Effluent Monitoring
Nitrate plus Nitrite	Effluent Monitoring
Bis (2-ethylhexyl)phthalate	Effluent Monitoring

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 regulatory mixing zone from the existing permit is specific to Outfall 001 and is described as:

The allowable mixing zone is that portion of Calapooya Creek contained within a band extending out no more than ½ the stream width and extending from a point ten (10) feet upstream of the outfall to a point thirty (30) feet downstream from the outfall. The Zone of Immediate Dilution (ZID) is that portion of the allowable mixing zone that is within three (3) feet of the point of discharge.

The proposed permit contains an updated regulatory mixing zone description for Outfall 001 which is described as follows. The description was updated to remove the allowable width, as the dilution factor at the edge of the RMZ and ZID is determined at the downstream boundary, rather than a width.

The allowable Regulatory Mixing Zone (RMZ) for Outfall 001 is that portion of Calapooya Creek that extends 10 feet upstream from the outfall end of pipe and 30 feet downstream out the outfall end of pipe. The Zone of Initial Dilution (ZID) is that portion of the Regulatory Mixing Zone extending 3 feet from the outfall end of pipe.

There is no allowable Regulatory Mixing Zone (RMZ) or Zone of Initial Dilution (ZID) for any discharge to Fords Pond (Outfall 002a) or Fords Creek (Outfall 002b).

The dilution factors at the edge of the Regulatory Mixing Zone and Zone of Initial Dilution are shown in Table 3-12. These dilutions are based on a 2008 mixing zone study and a 2019 mixing zone memo by DEQ. The mixing zone memo documenting this review and analysis is in a December 21, 2023, Mixing Zone Memo which is part of the administrative record. For this memo, updated ambient and effluent flows and temperatures were used to model the effluent plume.

The Sutherlin WWTP outfall is a single 27-inch diameter metal pipe mounted on a concrete block in the stream bed with no diffuser. The discharge point is located approximately 15 feet from the left bank (looking downstream) of the river. At the 7Q10 low flow, the pipe is perched above the water's surface. The outfall end of pipe is located at 43.401867, -123.362931. Additional engineering drawings, photos of the outfall, and other information is available in the Mixing Zone Memo.

Table 3-11: Mixing Zone Dilutions

Dilution Summary – Nov 1 to Apr 30 (Wet Weather)						
Water Quality Standard	Stream Flow (cfs)		Effluent Flow (mgd)		Dilution Factor	Location
	Statistic	Flow	Statistic	Flow		
Aquatic Life, Acute	1Q10	13 cfs	<input type="checkbox"/> ADWDF x PF <input checked="" type="checkbox"/> Max Daily Avg <input type="checkbox"/> Other	2.246 MGD	1.9	ZID (3 ft)
Aquatic Life, Chronic	7Q10	19 cfs	<input type="checkbox"/> ADWDF <input type="checkbox"/> Max Monthly Avg <input type="checkbox"/> Other	1.024 MGD	4.9	RMZ (30 ft)
Human Health, Non-Carcinogen	30Q5	87 cfs	<input type="checkbox"/> ADWDF <input checked="" type="checkbox"/> Max Monthly Avg <input type="checkbox"/> Other	1.024 MGD	8.3	RMZ (30 ft)
<i>ADWDF = Average dry weather design flow</i> <i>PF = Peaking factor (1.5)</i>						

Dilution Summary – May 1 to May 31 (Discharge allowed when ambient > 82 cfs)						
Water Quality Standard	Stream Flow		Effluent Flow		Dilution Factor	Location
	Statistic	Flow	Statistic	Flow		
Aquatic Life, Acute	Flow based limit	82 cfs	<input checked="" type="checkbox"/> ADWDF x PF <input type="checkbox"/> Max Daily Avg <input type="checkbox"/> Other	0.88 MGD	2.4	ZID (3 ft)
Aquatic Life, Chronic	Flow based limit	82 cfs	<input checked="" type="checkbox"/> ADWDF <input type="checkbox"/> Max Monthly Avg <input type="checkbox"/> Other	0.88 MGD	9.0	RMZ (30 ft)
<i>ADWDF = Average dry weather design flow</i> <i>PF = Peaking factor (1.5)</i>						
Comments: Facility is only permitted to discharge in May when the ambient flow is greater than 82 cfs, so dilution calculated using ADWDF and 82 cfs ambient flow.						

3.3.6 BOD₅ and TSS

As mentioned above in Table 3-7, Calapooya Creek is water quality limited for dissolved oxygen during the spawning period (Oct 15 – May 15). During 1998, DEQ evaluated the discharge’s impact to Calapooya Creek using the water quality simulation program MULTISTP. The modeling predicts water quality impacts during low periods in May and November if Sutherlin were to discharge at the maximum permitted levels. To protect water quality, DEQ will continue to place restrictions on discharges during the months of May and November. During May, discharge is allowed only when the stream flow in Calapooya Creek exceeds 82 cfs. During November, the limits are stream flow based as follows:

Table 3-12: Outfall 001 BOD₅ and TSS WQBELs

Parameter	Stream Flow (CFS) ^a	Units	Average Monthly (See note b.)	Average Weekly (See note c.)	Daily Maximum
BOD ₅ & TSS (November 1 to November 30)	<45	mg/L	30	45	-
		lb/day	440	170	260
	45 – 60	mg/L	30	45	-
		lb/day	440	320	480
	>60 – 96	mg/L	30	45	-
		lb/day	440	440	660
	>96	mg/L	30	45	-
		lb/day	440	660	880

Notes:

- Stream flow in Calapooya Creek.
- Monthly average BOD and TSS limits are TBELs and not flow based.
- The weekly and daily average BOD and TSS mass load limits are WQBELs and based on the weekly average flow in Calapooya Creek.

3.3.7 pH

The pH criterion for this basin is 6.5 – 8.5 per OAR 340-041-0326. The previous permit pH limits for Outfall 001 were 6.3 to 9.0. DEQ determined there is no reasonable potential for the discharge to exceed the pH criterion at the edge of the mixing zone based on the current limits. The proposed limit for Outfall 001 is a lower limit of 6.3, which is a WQBEL and an upper limit of 9.0 which is a TBEL. Based on DMRs from 2019-2023, the permittee should be able to meet these limits. Table 3-13 provides a summary of the data used for the analysis.

For Outfall 002a, the final previous permit pH limits were 6.5 to 8.5. There is no mixing zone for Outfall 002a because it discharges to Fords Pond, which is an enclosed waterbody in the dry season when the facility is discharging to Outfall 002a. Therefore, no RPA is necessary and DEQ is proposing to maintain the end-of-pipe pH limits of 6.5 to 8.5, which are both WQBELs.

Table 3-13: Outfall 001 pH Reasonable Potential Analysis

INPUT	Lower pH Criteria	Upper pH Criteria
1. DILUTION AT MZ BOUNDARY (7Q10)	4.9	4.9
2. UPSTREAM CHARACTERISTICS		
a. Temperature (deg C):	17.2	6.0
b. pH:	7.4	8.1
c. Alkalinity (mg CaCO ₃ /L):	29.0	29.0
3. EFFLUENT CHARACTERISTICS		
a. Temperature (deg C):	17.6	11.3
b. pH (S.U.) – Enter existing lower and upper limit	6.3	9.0
c. Alkalinity (mg CaCO ₃ /L):	134.6	134.6
4. APPLICABLE PH CRITERIA		
pH at Mixing Zone Boundary:	6.5	8.3
Is there Reasonable Potential?	No	No
Proposed Effluent Limits	6.3	9.0
Effluent data source: ICIS summary statistic data 2019-2023.		
Ambient data source: AWQM Ambient Data 2019 – 2023 stations 10996-ORDEQ and 12796-ORDEQ.		

3.3.8 Temperature

3.3.8.1 Outfall 001 (Calapooya Creek) 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 3-14: Calapooya Creek Temperature Criteria Information

Applicable Temperature Criterion	Rearing/Migration 18°C (OAR 340-041-0028(4)(c))
Applicable dates: May 15 – October 15	
Salmon/Steelhead Spawning 13 °C? OAR 340-041-0028(4)(a)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Applicable dates: October 15 – May 15	
WQ-limited?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
TMDL wasteload allocation assigned?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Applicable dates: May 16 – May 31	
TMDL based on natural conditions criterion?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Cold water summer protection criterion applies?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Cold water spawning protection applies?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Comments: Temperature criteria for Calapooya Creek.	

As mentioned in Section 3.3.3, the Umpqua Basin temperature TMDL addresses the period when the rearing and migration fish use applies (May 15 through October 15). Since the facility is only allowed to discharge to Calapooya Creek from November 1 through May 31, the TMDL only applies to this facility from May 16 through May 31. The temperature wasteload allocation in the TMDL is based on the following equation:

$$WLA = (HUA)(Q_e + Q_r)(C_f)$$

Where: WLA = heat load allocation, based on a 7-day rolling average (Mkcal/day)

HUA = human use allowance = 0.1 °C

Q_e = effluent flow rate in cfs based on a 7-day rolling average

Q_r = stream flow (cfs)

C_f = conversion factor = 2.45 million kcal/s/°C·ft³·day

DEQ expresses thermal waste load allocations in permits as “excess thermal loads”. These ETLs are expressed as a formula used to calculate the allowed heat load based on variables that fluctuate, such as streamflow. DEQ designates this limit as “Option B” in the permit. The excess thermal load discharged by the facility is calculated by:

$$ETL = (Q_e)(T_e - T_r)C_f$$

Where: ETL = Excess Thermal Load

Q_e = Effluent Flow (cfs)

T_e = Effluent temperature (°C)

T_r = Temperature criteria (°C) = 18 °C

C_f = conversion factor = 2.45 million kcal/s/°C·ft³·day

DEQ also allows the permittee to determine compliance with a simplified critical case scenario limit, which is necessary for May 16 to May 31 when the facility is discharging to Calapooya Creek. DEQ designates this limit as “Option A”. Option A is calculated using a stream flow of 82 cfs because the permit prohibits Sutherlin from discharging when stream flows are less than 82 cfs in May. The weekly dry weather design flow can be estimated by multiplying the average dry weather design flow by 1.5. DEQ is using the dry weather design flow of the new plant (0.88 mgd). Accordingly, the estimated weekly dry weather design flow is $0.88 \text{ mgd} \times 1.547 \times 1.5 = 2.04 \text{ cfs}$.

The Option A ETL limit is:

“Option A” ETL Limit = $(HUA)(Q_e + Q_R)(C_f) = 0.1 \times (2.04 + 82) \times 2.45 = 21 \text{ M kcal/day}$ (rounded to two significant figures)

The current permit’s limit for this period is based on the same equation and input values, but due to errors (rounding and transcription), is 20.2 million kcals/day. The proposed permit will include the 21 million kcals/day value. Based on the DMR data from 2021 through 2023, the maximum ETL discharged between May 16 and May 31 was 10.0 million Kcals/day. Based on this information, Sutherlin is expected to be able to meet this limit with the existing facilities.

DEQ conducted a temperature reasonable potential analysis for the spawning season (Oct 15 – May 15) since the stretch of the Calapooya Creek that Outfall 001 discharges to is designated as having salmonid and steelhead spawning as a beneficial use under OAR 340-041-0320, Figure 320B. The applicable temperature criterion is 13 °C. Calapooya Creek is listed as water quality limited on the 2022 303d list. The most recent Umpqua Basin TMDL from 2006 does not have a WLA for Sutherlin STP in the spawning season. However, the data DEQ does have indicates that Calapooya Creek temperatures are higher than 13 °C at times. Per DEQ’s Temperature Standard Implementation IMD, the human use allowance applies if temperature data show that the ambient temperature upstream of the source exceeds the numeric criteria. Accordingly, the following analysis follows DEQ’s guidance for a stream that does not meet the temperature criterion.

OAR 340-041-0028(12)(b)(A) states:

“Prior to the completion of a temperature TMDL or other cumulative effects analysis, no single NPDES source that discharges into a temperature water quality limited water may cause the temperature of the water body to increase more than 0.3 degrees Celsius above the applicable criteria after mixing with either twenty five percent of the stream flow or the temperature mixing zone, whichever is more restrictive”.

Appendix A contains a spreadsheet that includes a reasonable potential analysis based on meeting 13 °C at the edge of the mixing zone and after mixing with 25 percent of the stream flow. This analysis is during critical case low flows (November). The effluent temperature value used in this analysis is 19.8 °C. This value was taken from the facility’s DMRs for the period from November 2021 to 2023 and represents the maximum 7-day average of the daily maximums for the spawning season. The analysis indicates that the discharge increases the temperature at the edge of the existing regulatory mixing zone and after mixing with 25 percent of the stream flow by 1.4 °C and 3.4 °C, respectively. As such, DEQ calculated an excess

thermal limit for the spawning season (Nov. 1 – May 15) because there is a reasonable potential for the discharge to exceed the human use allowance. The static limit for this period was calculated as 6.9 million kcals/day. This value is more stringent than the current permit’s limit of 7.3 million kcals/day and will be included the proposed permit and is shown as “Option A” in the permit. The “Option B” limit for this period is flow based using the following equation:

$$ETLL = (HUA)(0.25*Q_r + Q_e)(C_f)$$

Where: ETLL = Excess Thermal Load Limit, based on a 7-day rolling average (Mkcal/day)

HUA = human use allowance = 0.3 °C

Q_e = effluent flow rate in cfs based on a 7-day rolling average

Q_r = stream flow (cfs)

C_f = conversion factor = 2.45 million kcal.s/°C.ft³.day

Final effluent limits for Outfall 001 are listed in the following table.

Table 3-15: Outfall 001 Temperature Criterion Effluent Limits

Effluent limit needed? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
TMDL WLA Limit: 21 Million Kcals/day or flow-based equation (see above)
Applicable time period: May 16 - May 31 <input type="checkbox"/> NA
Temperature Criterion Limit: 6.9 Million Kcals/day or flow-based equation (see above)
Applicable time period: November 1 – May 15 <input type="checkbox"/> NA
Comments:

Based on the DMR data from November 2021 through 2023, the discharge from Outfall 001 would have exceeded the Option A ETL limit on 11 days. The discharge would not have exceeded the Option B ETL limits and is expected to remain in compliance.

3.3.8.2 Outfall 001 (Calapooya Creek) 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 from Outfall 001 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 13°C or more for salmon and steelhead, and 9°C or more for bull trout.

Sutherlin STP: During the last permit renewal, DEQ confirmed with Oregon Department of Fish and Wildlife that, while active spawning has been identified in Calapooya Creek downstream of the discharge, no active spawning has been identified in the immediate vicinity of the outfall (within the mixing zone, which extends 30-feet downstream of the outfall). As discussed above, the excess thermal load limit included in the permit for the spawning season ensures that discharge will comply with the spawning standard at the mixing zone boundary and downstream. Therefore, impairment of an active salmonid spawning area where spawning redds are located or likely to be located due to this discharge is prevented or minimized.

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

Sutherlin STP: The daily maximum-recorded temperature of the discharge to Calapooya Creek for the November 2021 to 2023 period was 19.8 °C, well below the 32 °C criterion. Therefore, the discharge does not have the potential to cause acute impairment or instantaneous lethality due to the thermal plume.

- 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 25 °C or more to less than 5% of the cross-section of 100% of the 7Q10 flow of the water body.

Sutherlin STP: As mentioned above, the daily maximum-recorded temperature of the discharge from Outfall 001 for the November 2021 to 2023 period was 19.8 °C, well below the 25 °C criterion. As such, the effluent discharge does not have the potential to result in thermal shock potential within Calapooya Creek.

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

Sutherlin STP: As mentioned previously, the daily maximum-recorded temperature of the discharge from Outfall 001 for the November 2021 to 2023 period was 19.8 °C, slightly below the 21 °C criterion. As such, the effluent discharge does not have the potential to result in migration blockage within Calapooya Creek.

Effluent limits needed to comply with the thermal plume requirements are shown in the following table.

Table 3-16: Outfall 001 Thermal Plume Effluent Limit

Effluent limit needed? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Calculated limit: N/A
Applicable timeframe: N/A
Comments: The limit for the spawning season presented in the table above ensures compliance.

3.3.8.3 Outfall 002a (Fords Pond) 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 3-17: Fords Pond Temperature Criteria Information

Applicable Temperature Criterion	Natural Lakes*; OAR 340-041-0028(6)
Applicable dates: Year-Round	
Salmon/Steelhead Spawning 13 °C? OAR 340-041-0028(4)(a)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Applicable dates: N/A	
WQ-limited?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
TMDL wasteload allocation assigned?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Applicable dates: N/A	
TMDL based on natural conditions criterion?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Cold water summer protection criterion applies?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Cold water spawning protection applies?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Comments: As discussed below, Fords Pond is an artificial lake, but the natural lake criterion is being applied.	

For Outfall 002a to Fords Pond, DEQ has determined that the temperature standard for natural lakes applies to Fords Pond, which is no more than 0.3 °C increase above the natural condition. (DEQ does not have standards specific to manmade ponds or lakes.) Salmonids are not a listed beneficial use for the pond.

The following mass balance equation is used to determine the temperature increase caused by the discharge:

$$\Delta T = (V_e / (V_e + V_r)) (T_e - T_c)$$

Where,

ΔT = temperature increase

V_e = Volume of effluent = 0.88 million gallons per day

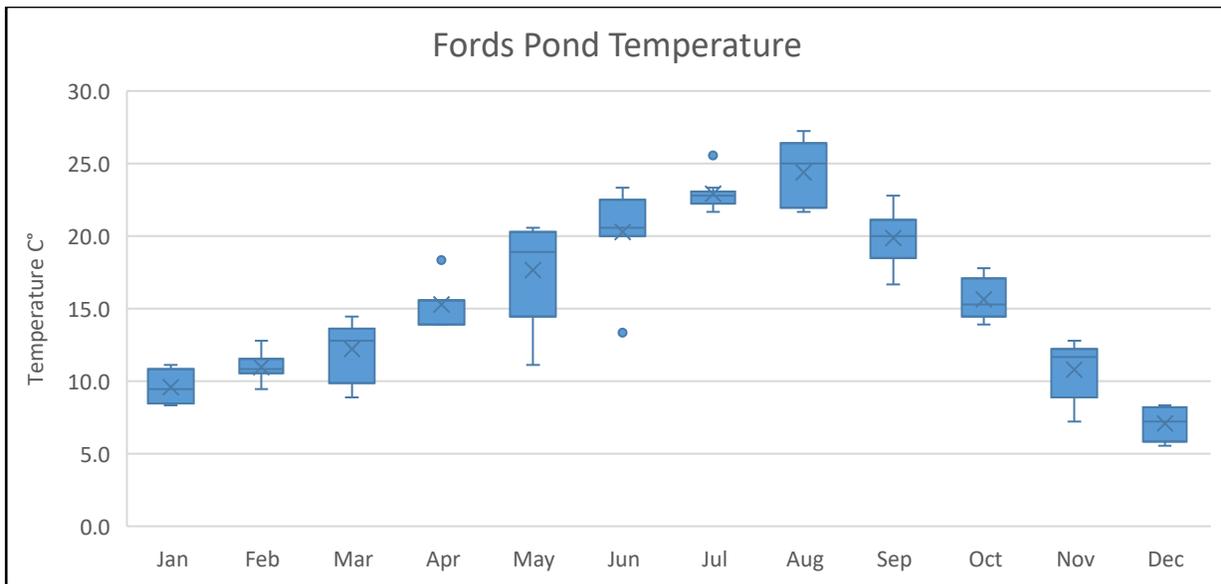
V_r = Volume of receiving water (Fords Pond) = 559 million gallons (upper 2 feet)

T_e = Effluent Temperature

T_c = Temperature criterion = natural condition temperature

The following chart shows the 2017 - 2018 temperatures of Ford Pond prior to effluent discharge into the pond.

Figure 3-1: Fords Pond Temperature 2017 – 2018



The following table contains the results of those calculations based on effluent temperatures for that same timeframe. Based on these conservative estimates, the discharge will not increase the temperature more than 0.3 °C. There is no effluent limit for Outfall 002a at this time.

Table 3-18: Temperature Impact to Fords Pond

Month	Max Effluent Temp	Average Pond Temp	Temperature change (°C)
January	14.1	9.6	0.007
February	14.6	11.0	0.006
March	15	12.2	0.004
April	16.7	15.3	0.002
May	18.6	17.7	0.001
June	22.6	20.3	0.004

Month	Max Effluent Temp	Average Pond Temp	Temperature change (°C)
July	23.1	22.9	0.000
August	23.6	24.4	-0.001
September	23.3	19.9	0.005
October	21.4	15.6	0.009
November	19.4	10.8	0.014
December	16.1	7.1	0.014

Table 3-19: Outfall 002a Temperature Criterion Effluent Limits

Effluent limit needed? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
TMDL WLA Limit: None
Applicable time period: Dates <input checked="" type="checkbox"/> NA
Temperature Criterion Limit: N/A
Applicable time period: Dates <input checked="" type="checkbox"/> NA
Comments:

3.3.8.4 Outfall 002a (Ford's Pond) Thermal Plume OAR 340-041-0053(2)(d)

As noted above, the fish beneficial use associated with Fords Pond is warm water species, with no salmonids present. Oregon's thermal plume limitation provisions (OAR 340-041-0053(2)(d)) only apply if salmonids are present in the outfall's mixing zone. No salmonids are present, so the provisions do not apply and not associated limits are included in the proposed permit.

Effluent limits needed to comply with the thermal plume requirements are shown in the following table.

Table 3-20: Outfall 002a Thermal Plume Effluent Limit

Effluent limit needed? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Calculated limit None:
Applicable timeframe: N/A
Comments:

3.3.8.5 Outfall 002a (Fords Pond) Temperature Monitoring

Ambient monitoring requirements of temperature in Fords Pond on the opposite end of the pond from the outfall (Outfall 002a) has been added to the permit to evaluate whether the effluent into Fords Pond has no more than a 0.3°C increase above the natural condition limit. The upcoming permit cycle will require an RPA for Outfall 002a.

3.3.9 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 3-21: Proposed *E. coli* Limits

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

3.3.10 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.

3.3.10.1 *Total Residual Chlorine*

The existing permit contains chlorine limits of 0.010 mg/L average monthly limit and 0.036 mg/L maximum daily limit for Outfall 001, and 0.0053 mg/L average monthly limit and 0.019 mg/L maximum daily limit for Outfall 002a. The chlorine limits were evaluated to ensure they were still protective of water quality criteria. For both the Outfall 001 and 002a analysis, the current limits remain protective of water quality criteria and so the existing limits are being retained.

3.3.10.2 *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 criterion is more stringent at a higher pH and also at a higher temperature. The following table provides a summary of the data used for the ammonia analysis and the results of the analysis.

The existing permit has a maximum daily ammonia limit of 23.5 mg/L and a monthly average limit of 13.5 mg/L for Outfall 001. Winter season analyses using updated receiving stream, effluent, and mixing zone dilutions determined that there was reasonable potential for the chronic aquatic criteria to be exceeded. The newly calculated maximum daily limit of 33.5 mg/L is less stringent than the existing limits, so the existing limit will remain in the new permit to satisfy anti-backsliding and anti-degradation provisions. The new average monthly limit of 11.8 mg/L is more stringent than the existing permit and will be applied to the new permit. Based on the DMR data from November 2021 through 2023, the discharge would not exceed the new limits. As such, it is estimated that the permittee can meet this new limit.

The existing permit has a maximum daily ammonia limit of 3.5 mg/L and a monthly average limit of 2.0 mg/L for Outfall 002a. Since there is no mixing zone for Outfall 002a an end-of-pipe analysis was done using updated effluent data to calculate the criteria and determine RP. The RPA determined that there was reasonable potential for the existing ammonia limits to exceed the aquatic chronic criteria. The newly calculated maximum daily limit of 5.9 mg/L is less stringent than the existing limit, so the existing limit is being retained to satisfy anti-backsliding and anti-degradation provisions. The new average monthly limit of 2.0 mg/L is the same as the existing permit and will be unchanged to the new permit. Based on the DMR data from November 2021 through 2023, the discharge would have exceeded the average monthly limit on only one occasion and the mean of the average monthly DMR data is 0.62 mg/L. As such, it is estimated that the permittee can meet this new limit.

Table 3-22: Ammonia Analysis Information – Outfall 001 Winter

	Acute	Chronic	
		4-day	30-day
Dilution	1.9	4.9	8.3
Ammonia Criteria	19.3	3.7	1.5
Effluent Data Used			
Ammonia (mg/L)	24.0	24.0	
pH (SU)	6.9	6.9	
Temperature (°C)	17.9	17.9	
Alkalinity (mg/L CaCO ₃)	64.0	64.0	
Receiving Stream Data Used			
Ammonia (mg/L)	0.0	0.0	
pH (SU)	9.4	9.4	
Temperature (°C)	16.1	16.1	
Alkalinity (mg/L CaCO ₃)	43.5	43.5	
Ammonia Limit Needed?	Yes		
Calculated Limits	AML	MDL	
Ammonia (mg/L)	11.8	33.5	

Effluent data source
DMR data November 2021-2023. Alkalinity defaults used.
Ambient data source
AWQMS Ambient Data 2021 - 2023 stations 10996-ORDEQ, 11309-ORDEQ, 12796-ORDEQ, 12804-ORDEQ, 33227-ORDEQ, 33549-ORDEQ.

Table 3-23: Ammonia Analysis Information – Outfall 002a Summer

	Acute	Chronic	
		4-day	30-day
Dilution	1	1	1
Ammonia Criteria	12.6	3.8	1.5
Effluent Data Used			
Ammonia (mg/L)	3.5	3.5	
pH (SU)	7.0	7.0	
Temperature (°C)	23.5	23.5	
Alkalinity (mg/L CaCO ₃)	64.0	64.0	
Ammonia Limit Needed?	Yes		
Calculated Limits	AML	MDL	
Ammonia (mg/L)	2.0	5.9	
Effluent data source			
DMR data 2021-2023 for ammonia and pH. DMR data from 2012-2018 for temperature. Alkalinity defaults used.			

3.3.10.3 Priority Pollutant Toxics

DEQ conducted a reasonable potential analysis for the group of toxics listed in the following table. A complete list of the monitored pollutants is located in the reasonable potential spreadsheet located in appendix C.

Table 3-24: Toxic Pollutants Analyzed

Toxic Group
Metals
Base-Neutral Compounds
Effluent data source: Sutherlin STP Effluent Toxic Monitoring Oct. 2021-2023.
Receiving water data source: AWQMS DEQ Monitoring Station 10996-ORDEQ.

Sutherlin STP conducted monitoring for Lead, Silver, Cyanide, Bis(2-ethylhexyl) phthalate, and Nitrate+ Nitrite in accordance with the frequency and methodology specified in its current NPDES permit. These pollutants were analyzed through the toxic RPA using lognormal distribution. The RPA for Outfall 001 showed that there was no reasonable potential for any of the monitored analytes at that outfall. The results for Outfall 002a indicated that there was reasonable potential for the chronic human health criteria to be exceeded for Nitrate+Nitrite. With the lack of a mixing zone in Fords Pond, there was no dilution to be factored into the analysis. For Outfall 002a, the average monthly limit for Nitrate+Nitrite will be 10 mg/L and the maximum daily limit will be 24.5 mg/L. These are new limits. With the highest Nitrate+Nitrite sample from 2021-2023 measuring at 8.1 mg/L, it is estimated that the permittee can meet these limits. However, there is limited data to determine whether the facility can meet this limit upon permit issuance. The proposed permit contains a compliance schedule that allows time for the facility to make facility modifications to meet the new limits.

For Bis(2-ethylhexyl) phthalate effluent data there was one sample with a quantified detection out of 5 samples collected. However, the samples were collected using a non-CFR 136 approved method. Sample contamination for Bis(2-ethylhexyl) phthalate is a known issue, and no equipment blanks were submitted with the data. Due to the inconclusive nature of the data, Bis(2-ethylhexyl) phthalate limits will not be incorporated into this permit over the next permit cycle. However, because DEQ is unable to rule out the potential presence of Bis(2-ethylhexyl) phthalate in the effluent, the human health criteria for Bis(2-ethylhexyl) phthalate are very low, and Outfall 002a has no mixing zone, the proposed permit contains additional effluent monitoring for Outfall 002a in Schedule B for bis(2-ethylhexyl) phthalate and equipment blanks that will be evaluated at the next permit renewal. In addition, a source identification study will be added to the permit in Schedule D to determine potential sources of the pollutant.

3.3.10.4 Copper Biotic Ligand Model

Monthly copper BLM input data was collected by Sutherlin STP staff and analyzed by various labs starting in July 2021 through October 2023. Samples were only collected during the summer when effluent was being directed through Outfall 002a to Ford's Pond resulting in 16 samples. Ford's Pond is effluent dominated and does not contain a mixing zone, and therefore the RPA analysis was done with a dilution of 1 for all scenarios. Temperature data was not collected during the analysis, temperature data collected in 2017 by the permittee was substituted for the purpose of the RPA. No paired data was collected during the winter months when the permittee discharges to Outfall 001. Because no winter effluent copper data was available, an analysis was not completed. Additionally, since the facility is considered a minor discharger, no additional monitoring will be added to the permit.

For the RPAs, the mixed concentration of each input parameter was then entered into the BLM model to calculate the instantaneous water quality criteria (IWQC) for each data set. Each IWQC was compared to the corresponding copper concentration of the effluent. Table 3-23 below shows the sample date, calculated criterion, calculated copper value, and toxic unit (copper concentration divided by the instantaneous criterion). A toxic unit greater than one, indicates there is a potential for the discharge to exceed the criterion. A toxic unit of NA indicates that either the effluent data was below the calculated criteria, the effluent data was non-detect, or the copper data was in the total recoverable instead of dissolved fraction. For Outfall 002a There is

no reasonable potential to exceed the copper criterion because there were no toxic units that exceeded 1.0.

Table 3-25: Outfall 002a CuBLM Results

Date	Effluent Cu ug/L	BLM CMC	Toxic Units	BLM CCC	Toxic Units
		ug/L		ug/L	
7/22/2021	9.00	28.08	NA	17.44	NA
8/24/2021	0.00	29.23	NA	18.16	NA
9/27/2021	10.00	27.27	NA	16.94	NA
10/5/2021	0.00	33.77	NA	20.98	NA
5/26/2022	2.00	7.98	NA	4.95	NA
6/16/2022	2.00	12.91	NA	8.02	NA
7/7/2022	2.00	19.41	NA	12.06	NA
8/4/2022	2.00	13.77	NA	8.55	NA
9/8/2022	9.00	24.28	NA	15.08	NA
10/18/2022	6.00	20.66	NA	12.83	NA
5/4/2023	7.00	11.97	NA	7.43	NA
6/8/2023	2.00	26.97	NA	16.75	NA
7/13/2023	2.00	22.36	NA	13.89	NA
8/10/2023	2.00	31.87	NA	19.79	NA
9/19/2023	2.00	28.81	NA	17.89	NA
10/12/2023	0.00	19.31	NA	12.00	NA

Because this permittee is now reclassified as a minor domestic, copper is no longer considered a pollutant of concern and no monitoring will be required in the next permit term. The results of this RPA support this conclusion.

3.3.10.5 Mercury – Human Health Criterion

Oregon’s human health water quality criterion for mercury is expressed in terms of a fish tissue concentration rather than a water column concentration. Because of this, DEQ’s approach to performing the reasonable potential analysis for mercury is different from that for other parameters. This approach is described in DEQ’s “Implementation of Methylmercury in NPDES Permits” internal management directive.

According to the IMD, “Any facility contributing significant and consistent concentrations of total mercury to the receiving water body is considered to have the reasonable potential to exceed the water quality criterion unless a site-specific survey determines otherwise.” Because the water quality criterion for mercury is a fish tissue-based concentration rather than a water column concentration, permit limits for mercury cannot be expressed in terms of a concentration. Therefore, when mercury is present in treated effluent on a consistent basis, the permit needs to contain mercury monitoring, plus a narrative effluent limit that consists of a Mercury Minimization Plan (MMP). The MMP was issued in 2023, and sampling will commence in 2024 to determine if the facility would be a likely source of mercury.

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). With the exception of the new excess thermal load limit for Outfall 001 from May 16 – May 31, the proposed limits are the same or more stringent than the existing permit so the antibacksliding provision is satisfied.

As mentioned previously in Section 3.3.8.1, the new excess thermal load limit for Outfall 001 from May 16 – May 31 is slightly higher than the existing limit, changing from 20.2 million kcals/day to 21 million kcals/day. This change is to correct an error in the current permit. In accordance with 40 CFR 122.44(l)(2)(i)(B), backsliding is allowed if it is determined that “technical mistakes or mistaken interpretations of law were made in issuing the permit under section 402(a)(1)(b).” DEQ has determined that the inclusion of the previous limit was the result of a technical mistake and therefore meets the antibacksliding exception. In addition, the limits are both based on a TMDL wasteload allocation. Section 303(d)(4)(A) of the Clean Water Act allows relaxation when the receiving water is not in attainment for the limiting or related pollutant, the effluent limit is based on a TMDL wasteload allocation, and it can be shown that relaxation is consistent with antidegradation requirements. As noted above, the receiving water is water quality limited, and the new limit is based on a TMDL WLA. The antidegradation requirements are discussed below.

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 discharge loadings as the existing permit, with the exception of the temperature (excess thermal load) limit for the May 16 – May 31 period as discussed in Section 3.3.8.1, above. This new limit is not considered degradation since it is based on a TMDL wasteload allocation which ensures the temperature increase is an insignificant increase according to the Antidegradation Rule, OAR 340-041-0004(3)(c). Therefore, the new thermal load limit is allowed and is included in the proposed permit.

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 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.

4.2 Biosolids

The permit holder currently produces a Class B biosolids for land application by distribution or sale and anticipates continuing to do so. On January 30, 2017, Sutherlin submitted a revised biosolids management plan. Per OAR 340-050-0015(8), the biosolids management plan is subject to review and comment during the public participation process required by this permit renewal. DEQ reviewed the biosolids management plan and land application plan. These are available for public review and comment along with the permit. Once approved after public comment, conditions in the biosolids management plan and land application plan become permit conditions.

Schedule A of the permit requires the facility to apply biosolids according to their biosolids management plan. In addition, Schedule A requires the following:

- Apply at or below agronomic rates
- The permittee must have written site authorization for each location from DEQ before land applying and abide by the restrictions for each site
- Prior to application, the permittee must ensure that biosolids meet one of the pathogen reduction standards under 40 CFR 503.32
- The permittee must not apply biosolids containing pollutants in excess of the ceiling concentrations for the nine metals shown in Schedule A of the permit.

Sutherlin is currently authorized to land apply biosolids on the following sites:

- Bainbridge Property, 1030 Isadore, Oakland, Oregon
- Reddekopp Property, 252 Isadore, Oakland, Oregon
- Banducci Property, 3830 Stearns Lane, Oakland Oregon

4.3 Recycled Water

The permit holder currently operates a recycled water program to produce a Class A recycled water for irrigation uses and anticipates continuing to do so. A draft recycled water use plan was submitted to DEQ for review in February 2023 and will be available for public comment with the issued permit. Once approved after public comment, conditions in the recycled water use plan become permit conditions.

Recycled water is used for irrigation at Oak Knolls Golf Course. The golf course is surrounded by homes that are closer than 70 feet from the golf course, requiring the more stringent requirements in Class A where there are no distance setbacks. For Class A, recycled water may not be sprayed onto an area where food is being prepared or served, or onto a drinking fountain. Class A recycled water must also be well oxidized, filtered so that the turbidity is less than 2 Nephelometric Turbidity Units, and disinfected so that the total coliform counts are no more than 2.2 organisms per 100 ml on a monthly geometric mean. Total coliform must be monitored once per day. Also, continuous (hourly) turbidity monitoring is required, and no more than 5 percent of the turbidity reading may exceed 5 NTU.

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.

4.4 Chlorine Usage

Schedule A of the permit prohibits the permittee from using chlorine or chlorine compounds for effluent disinfection purposes.

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.

Receiving stream flow monitoring from USGS Gauge 14320700 is required for Calapooya Creek to determine whether stream flow in May is below 82 cfs and effluent needs to be diverted from Outfall 001 to Outfall 002a. This monitoring is also used to determine which BOD₅ and TSS mass load limits should apply in November based on flow range. The overall purpose of these requirements is because spawning gravels are found about 3/4 mile downstream, just upstream of the Highway 138 bridge. This area would support Chinook salmon spawning during the spawning period of October 15 through May 15. Coho salmon smolts (young fish) would migrate downstream though the Rochester Bridge area from March to May when the flows would be greater and return upstream as adults.

Ambient monitoring in Fords Pond is required across the pond from Outfall 002a. This monitoring is required when discharging to Fords Pond. The ambient monitoring is required to determine the RPA for temperature, ammonia, and pH with the next permit renewal.

6. Schedule C: Compliance Schedule

The proposed permit contains a new effluent limit for Nitrate plus Nitrite to Outfall 002a. There is limited data to determine whether the facility can meet this limit upon permit issuance. The proposed permit contains a compliance schedule that allows time for the facility to make facility modifications to meet the new limits. This compliance schedule lays out a series of milestones which, upon completion, will require the permittee to meet the permit's water quality-based effluent limits for Nitrate plus Nitrite (see 40 CFR 122.47 and OAR 340-041-0061(12)).

DEQ has determined that the proposed compliance schedule requires the permittee to meet the final limits as soon as possible. The permittee must provide process and engineering options for achieving the final effluent limitations. The permittee must determine and begin to implement by the date described in Schedule C of the permit a solution for achieving final Nitrate plus Nitrite effluent limit.

7. Schedule D: Special Conditions

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

7.1 Inflow and Infiltration

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

7.2 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.

7.3 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.

7.4 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.

7.5 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.

7.6 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.

7.7 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.

7.8 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.

7.9 Outfall Inspection

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

7.10 Bis(2-ethylhexyl) phthalate Source Identification Study

A condition that requires the permittee to perform a source inspection study for Bis(2-ethylhexyl) phthalate.

7.11 Water Quality Trading Umpqua Basin

A condition that provides the permittee the option to implement a Water Quality Trading Plan in the Umpqua Basin.

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

Enter data into white cells below:		Data Metric/Source
Mixing Zone Dilution =	4.9	Mixing zone memo 2023
7Q10 =	19 cfs	Mixing zone memo 2023
Effluent Flow =	3.02 mgd	DAWWF x 1.5
Applicable Temperature Criterion	13 °C	
Effluent Temperature	19.8 °C	ICIS Data Nov. 2021-2023
Allowable increase =	0.3 °C	
Dilution at 25% Stream Flow = 2		dilution = $(Q_r * 0.25) / Q_e + 1$
ΔT at edge of MZ=	1.4 °C	Reasonable Potential
ΔT at 25% Stream Flow=	3.4 °C	
Thermal Load Limit =	6.9	Million Kcals (7-day Rolling Avg.)

Appendix B: Toxic Monitoring List

Pollutant	CAS
Nitrate (NO ₃) + Nitrite (NO ₂)	
Silver (total and dissolved)	7440224
Cyanide (Free)	57125
Cyanide (Total)	57125
Bis(2-ethylhexyl)phthalate	117817
Hardness (CaCO ₃)	

Appendix C: Outfall 002a Nitrate plus Nitrite RPA

Pollutant Parameter	Identify Pollutants of Concern							In-Stream Conc.		Det. Reasonable Potential		
	Carcinogen Status	# of Sample	Effluent Conc.	CV	Est. Max Eff. Conc.	RP at end of pipe?	Ambient Conc.	Max Conc. @ RMZ	WQ Crit: Water + Organism	WQ Crit: Organism Only	Is there Reasonable Potential to Exceed? (Yes/No)	
	(Yes/No)		(µg/l)	Default=0.6	(µg/l)	(Yes/No)	(µg/l)	(µg/l)	(µg/l)	(µg/l)	Water + Fish	Fish
Table 1 Effluent Parameters for all POTWs w/a Flow > 0.1 MGD												
Nitrates-Nitrite	n	10	5490	0.933068174	12094.14947	Yes	187.790784	12094.1495	10000	na	YES	NO

Pollutant Parameter	RP Status		Carcinogen Status	WQ: Criteria		Ambient Conc.	WLAs		CV	Compliance Monitoring	Effluent Limit	
	WQ Crit: Water + Organism	WQ Crit: Organism Only		WQ Crit: Water + Organism	WQ Crit: Organism Only		WQ Crit: Water + Organism	WQ Crit: Organism Only			Monthly (AML)	Max. Daily (MDL)
	(Yes/No)	(Yes/No)		(µg/l)	(µg/l)		(µg/l)	(µg/l)			(µg/l)	(µg/l)
Table 1 Effluent Parameters for all POTWs w/a Flow > 0.1 MGD												
Nitrates-Nitrite	YES	NO	no	10000	na	187.7907844	10000	--	0.9330682	4	10000	24507.8163