



State of Oregon
Department of
Environmental
Quality

National Pollutant Discharge Elimination System Permit Fact Sheet Oregon State University

Final: February 5, 2025

Permittee	Oregon State University OSU John L. Fryer Aquatic Animal Health Lab 34347 NE Electric Road Corvallis, OR 97333 and OSU Fish Performance and Genetics Lab 34349 NE Electric Road Corvallis, OR 97333
Existing Permit Information	File Number: 103919 Permit Number: 102512 EPA Reference Number: OR0032573 Category: Industrial Class: Minor Expiration Date: June 30, 2011
Permittee Contact	Ryan Craig Facility Manager 541-737-0743 34347 NE Electric Road Corvallis, OR 97333
Receiving Water Information	Receiving stream/NHD name: Willamette River NHD Reach Code & % along reach: 17090003000130, 83.23% USGS 12-digit HUC: 170900030608 OWRD Administrative Basin: Willamette ODEQ LLID & River Mile: 1227618456580 - RM 130.3 Assessment Unit ID: OR_SR_1709000306_05_103854
Proposed Action	Permit Renewal Application Number: 967974 Date Application Received: January 3, 2011
Permit Writer	Matthew Schult 971-806-4857 Date Prepared: December 19, 2024

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NPDES Permit Renewal Fact Sheet

Oregon State University

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

The existing permit for the facility was issued on January 10, 2007. It was set to expire on June 30, 2011, and was administratively extended when the permittee submitted their NPDES permit renewal application on January 3, 2011.

The permit shall not be deemed to expire until final action has been taken on the renewal application as per Oregon Administrative Rules (OAR) 340-045-0040. A renewal permit is necessary to discharge to state waters pursuant to provisions of Oregon Revised Statutes (ORS) 468B.050 and the Federal Clean Water Act. The Department proposes to renew the permit. This permit evaluation report describes the basis and methodology used in developing the permit.

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

- OSU's Fish Performance and Genetics Lab has been added as a named facility to this NPDES permit; their discharge shares the discharge to the ponds and Outfall 001 with the Aquatic Animal Health Lab.
- The existing excess thermal load limits and monitoring requirements from the previous permit have been removed and are not part of this proposed permit.
- The existing pH and total residual chlorine limits have been updated to more stringent limits, based on reasonable potential analyses.
- DEQ's Quantitation Limit (QL) for chlorine has been updated since this permit was last renewed. The new QL will apply as the compliance limit when permit limits for chlorine are below the chlorine QL.
- Updated best professional judgment effluent limit guidelines in Schedule A, Section 2 Operating Requirements and Section 3 Chemical Use.
- Added a new requirement to develop a Best Management Practices plan in Schedule D and submit the plan in Schedule B, to meet Operating Requirements in Schedule A.

- Changes to effluent monitoring requirements, reflecting updates to DEQ's monitoring matrix.
- The existing WET testing requirement for bioassays has been removed.

2. Facility Description

2.1 Wastewater Facility

The Aquatic Animal Health Lab (AAHL) is a research facility operated by Oregon State University (OSU) on the Linn County side of the Willamette River near Corvallis, Oregon (Figure 2-1). Formerly known as the OSU Salmon Disease Laboratory, it was originally constructed in 1990, and the first wastewater permit was issued in 1989. The lab is a regional fish disease research facility dedicated to the study of infectious diseases for salmonids and other species of freshwater fish. In addition to wastewater generated by the AAHL facility, wastewater from the adjacent OSU Fish Performance and Genetics Lab (FPGL) joins AAHL's discharge to the settling ponds, these flows are jointly discharged to the Willamette River. Although this arrangement has existed since before the permit was first issued, FPGL was not explicitly named in previous permits. With this permit renewal, FPGL operations will also be covered in this permit. The industrial wastewater is treated and discharged in accordance with National Pollutant Discharge Elimination System (NPDES) permit number 102512.

AAHL is a flow-through facility that consists of fish rearing and holding tanks, a chlorine dosing and contact chamber, a 50 foot by 100-foot chlorine dissipation pond and a 100 foot by 110 foot settling pond (Figure 2-2). Water for the facility is sourced from two 29-foot-deep wells capable of producing up to 600 gallons per minute (gpm) of groundwater at a consistent temperature of 12.8 °C. Water quality analysis indicates that this source water is high quality, supplied to the lab for use in various experiments on aquatic animals. On average the facility utilizes 200 gpm in the summer months and 100 gpm in the winter months. There is an additional option to pump influent water from the Willamette River if needed. All influent waters are sterilized using UV and then de-gassed prior to introduction to the facility.

AAHL maintains a network of approximately 330 indoor tanks (25 to 380 liters in volume) to hold infected fish for research. There are an additional 45 outdoor tanks (the majority are 3 feet in diameter, ranging up to 12 feet in diameter) used to hold non-infected fish. AAHL hosts research focused on fish response to disease. In the past, this has included research and development of drugs for fish disease treatment. Although AAHL has not hosted this type of research since 2016 (approximately), AAHL could potentially host drug development research in the future. This permit includes effluent limit guidelines requiring DEQ approval (Schedule A.3) and notification from the permittee (Schedule B.3) prior to any anticipated investigational new animal drug (INAD) applications or extra-label usage of approved drugs or chemicals. Drugs and chemicals are periodically used to treat fish for other ailments common to fish rearing facilities, on a needs-based basis as opposed to routine applications. Furanase (antifungal) and MS-222 (anesthetic) are prepared in batches separate from the research tank network and are not discharged with the tank waters. Wastewater containing antifungals or anesthetics must be disposed of according to OSU's Environmental Health and Safety program guidelines. AAHL has a 45-gallon tub for the disinfecting agent Virkon (active ingredient is potassium

peroxymonosulphate), used to disinfect equipment. The Virkon tub is refreshed quarterly, expired Virkon is used to wash down the lab floors where it is allowed to dry. Iodine is used to disinfect empty tanks; it is left to dry on the tanks to metabolize before rinsing into the floor channels. Excess iodine solution is left out to metabolize and degrade before pouring into the floor channel drains. Hydrogen peroxide has been used infrequently in the past (in 2012, treatment concentration at 5 ppm) to treat fish for fungal or bacterial infections. Formalin (Parasite-S) is applied periodically to treat fish for external parasites. Application volumes range from 0.5 L to 5 L in a calendar year, applied at concentrations of 83 – 125 ppm. When applied, hydrogen peroxide and formalin are discharged with the effluent stream. It is a permit requirement for AAHL to monitor for formalin any time they apply the chemical to their tanks. Historically, formalin monitoring results have reported non-detects, with levels have been below the detection point.

Research at FPGL is focused primarily on fish growth and metabolism. Fish disease and pathogen testing are not part of their operations and there is no chlorine disinfection nor monitoring conducting on their wastewater. The FPGL facility has a similar distribution of indoor and outdoor research tanks, ranging in size from 3-foot diameter (90 gallons) to 10-foot diameter (2,000 gallons) tanks, as well as incubation trays for fish egg incubations. Their influent water is supplied by a separate set of well pumps with a typical flow rate of 400 gpm (0.58 MGD). Regarding drug and chemical applications, FPGL utilizes the same treatments as AAHL for fish on a needs-based approach, as is common for fish-rearing facilities. Unlike AAHL however, FPGL does not have the infrastructure available to divert treated tank waters out of their waste stream, all waters are discharged directly to the settling ponds. FPGL discharges approximately 450 gpm (0.65 MGD) of water from their fish holding facilities directly into the chlorine dissipation pond (Pond 1). A new requirement for this permit renewal will be for both facilities to maintain a drug and chemical applications log, for best management practices.

Prior to discharge, wastewater from the indoor tanks at AAHL is treated with sodium hypochlorite (chlorine) to prevent the release of any pathogenic organisms associated with laboratory disease research to the Willamette River. AAHL also discharges untreated wastewater from the outdoor stock tanks. The stock tanks do not hold fish exposed to pathogens. Water from FPGL's tanks joins the discharge after the chlorine contact basin and is not disinfected. AAHL is a flow-through facility, influent water makes a single pass through the research tanks and then drains to a common floor channel. This channel leads to a chlorine contact basin; a serpentine trough designed to provide a three-hour contact time for disinfection. There is no dechlorination system in place, chlorine dissipates through residence time in the contact basin and a series of two retention ponds. In their 2011 permit renewal application, the facility reported they switched from gaseous chlorine to liquid chlorine treatment for safety concerns. A hydraulic pump is manually adjusted to maintain a chlorine residual of about 1 mg/L at the end of the contact basin. A chlorine sensor at the tail end of the basin monitors chlorine levels to determine treatment effectiveness. The sensor is connected to an alarm system to notify if chlorine levels are outside of specification. The chlorine contact basin is vacuumed out to control solids deposition every ten to fourteen days, this is pumped directly to Pond 1. Discharge flows are gravity-dependent, disinfected water flows from the contact basin to a surface impoundment (Dissipation Pond 1), for chlorine dissipation. Dissipation Pond 1 connects to a subsequent settling pond (Settling Pond 2) for solids settling. From this pond, the water discharges to Outfall 001, situated in a protected

backwater of the Willamette River at river mile 130.3. Discharge rates to Outfall 001 from the combined facility discharges are maintained around a consistent 0.54 MGD, based on their flow-through operations and the gravity flow from the two ponds. The residence time in the ponds allows the residual chlorine to attenuate naturally via reactions with sunlight, algae and other organics. Estimated residence times are five hours for Pond 1, followed by thirteen hours for Pond 2. No residuals are generated at the facility from the wastewater treatment system. Levels of solids in the wastewater that flows through the two ponds are very low. Small amounts of organic material (e.g., leaves and debris) collect on the pond bottom, but the ponds have never required dredging. The settling ponds are located adjacent to OSU's Trysting Tree golf course fairways; past observations have noted pond maintenance performed by golf course operations, mainly vegetation removal. It is a permit condition in Schedule D that the permittee is required to notify DEQ and request approval if the settling ponds require dredging at any time. The monitoring and compliance point is a concrete flume that directs discharge from Pond 2 to Outfall 001. The flume has a weir and staff gauge to measure effluent flow. AAHL also installed an Onset HOBO logger here for continuous temperature monitoring, data is downloaded monthly. AAHL performs all sample collection, analysis and reporting for this permit.



Figure 2-1: Aerial view of OSU facilities on the Willamette River, east of Corvallis.

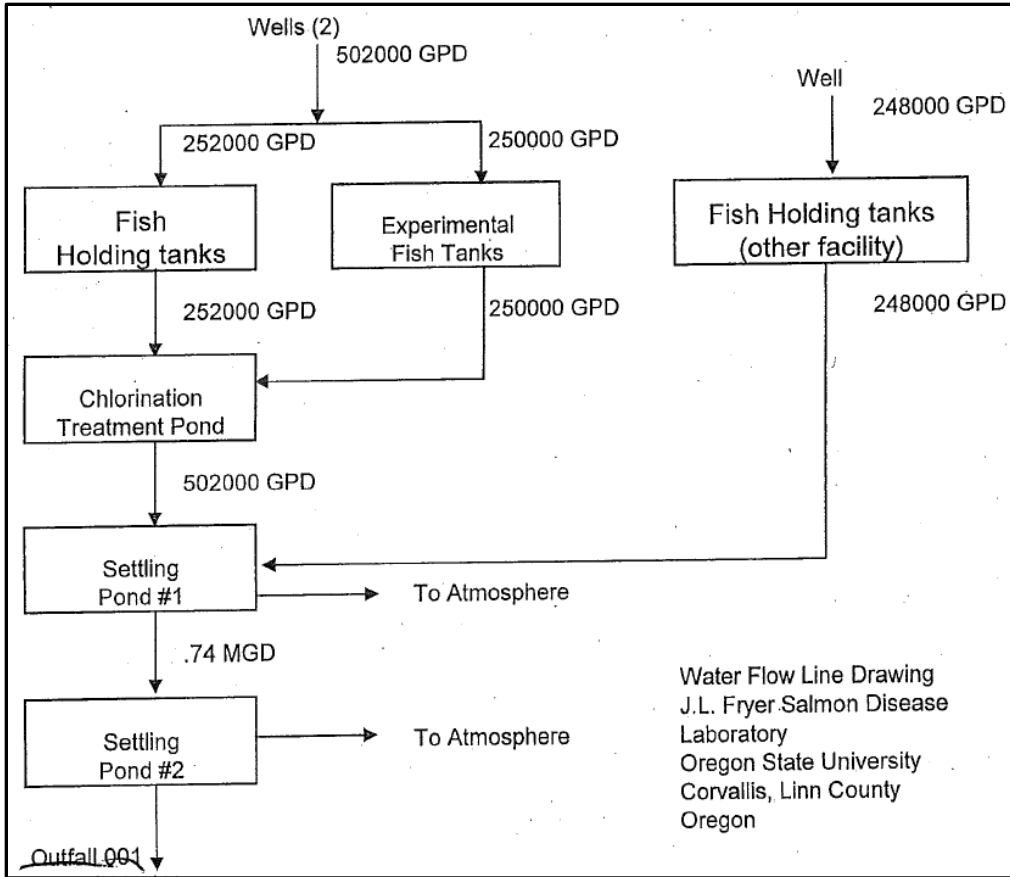


Figure 2-2: Line diagram of Aquatic Animal Health Lab facility

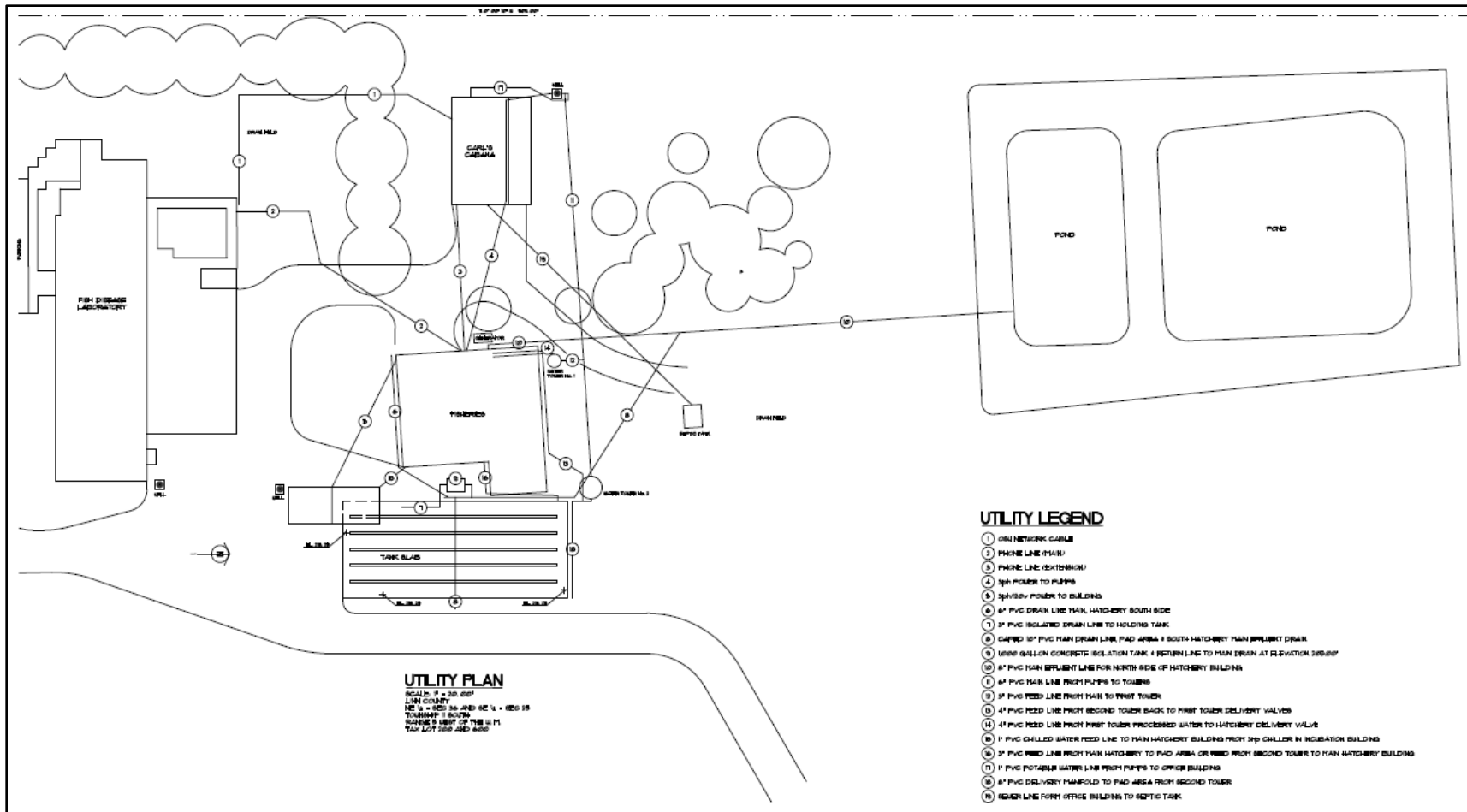


Figure 2-3: Line diagram for Fish Performance and Genetics Lab facility (AAHL at left edge)

Table 2-1: List of Outfalls

Outfall Number	Type of Waste	Lat/Long	Design Flow ¹ (mgd)	Existing Flow ² (mgd)
001	Treated discharge from fish holding facilities	44.57755, -123.24139	0.563	0.583
1. Design Flow = design average dry weather flow 2. Existing Flow = existing average monthly dry weather flow				

2.2 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 that do not have a pretreatment program. In addition, although AAHL is an industrial discharger, the facility Standard Industrial Classification (SIC) codes do not fall under the scope of 1200-Z permits for industrial dischargers.

2.3 Wastewater Classification

The permittee is classified as an industrial facility. AAHL and FPGL do not treat their own domestic wastewater and are not included in the municipal wastewater classification system.

2.4 Industrial Rating

DEQ uses EPA’s non-municipal rating system to classify a permittee as a major or a minor facility. EPA developed a rating worksheet that considers factors such as type of facility, relative flow rate, potential to impact human health and other water quality factors. DEQ completed the rating worksheet and determined the permittee is a minor facility. The rating sheet is part of the administrative record.

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 table below shows the limits contained in the existing permit.

Table 3-1: Existing Effluent Limits for Outfall 001 (from Settling Pond)

Parameter	Limitations
Total Flow	1.2 MGD
TSS	5.0 mg/L
Floating Solids	Non-visible.
Settleable Solids	0.1 mL/L
Total Residual Chlorine	Shall not exceed 0.04 mg/L daily maximum and 0.01 mg/L monthly average (See note 1).
pH	Year Around: Shall be within the range of 6.2 to 9.0 SU
Excess Thermal Load (May 16 through October 14)	Shall not exceed a rolling 7-day average of 1.71 million Kcals/day.
Excess Thermal Load (April 1 through May 15 and October 15 through October 31)	Shall not exceed a rolling 7-day average of 3.44 million Kcals/day.
Note:	
1. When the total residual chlorine limitation is lower than 0.10 mg/L, the Department will use 0.10 mg/L as the compliance evaluation concentration (i.e., daily maximum concentrations below 0.10 mg/L will be considered in compliance with the limitations).	

The 2007 NPDES permit Schedule A also contained language describing AAHL’s mixing zone and restrictions regarding chemical usage and groundwater considerations.

3.2 Technology-Based Effluent Limit Development

EPA is required to develop technology-based effluent limits for categories of industrial facilities. These limits are called effluent limitation guidelines (ELGs). EPA established these based on available treatment technologies for facilities within an industrial category or subcategory. ELGs are applied in NPDES permits as TBELs. If there are no applicable ELGs developed by EPA, best professional judgment technology based effluent limits (BPJ TBELs) may be applied (40 CFR § 125.3(c)(2)). As described in Section 2.1, AAHL is classified as a Concentrated Aquatic Animal Production (CAAP) facility, which is addressed in EPA’s ELGs listed under 40 CFR § 451. Under the General Applicability section at 40 CFR § 451.10, this rule applies to permitted facilities that produce at least 100,000 pounds of aquatic animals annually in a flow-through or recirculating system. AAHL is a flow-through facility with an estimated production capacity of less than 1,000 pounds annually. Therefore, conditions under 40 CFR § 451 do not directly apply to this facility.

As stated above, if there are no applicable ELGs, BPJ TBELs may be applied. It is appropriate to apply BPJ TBELs when ELGs are available for the industry category but are not applicable to the NPDES permit applicant. When considering the application of best practicable control technology currently available (BPT; see 40 CFR § 451.3 and 451.11) as BPJ TBELs in this proposed permit, DEQ must consider the following factors:

- 1) The age of equipment and facilities involved,
- 2) The process(es) employed,
- 3) The engineering aspects of the application of various types of control techniques,
- 4) Process changes,
- 5) Non-water quality environmental impact including energy requirements,
- 6) The total cost of application of technology in relation to the effluent reduction benefits to be achieved from such application.

DEQ considered the factors in the following ways:

- 1) The facility was built in 1990, and no major updates or additions have been made to the facility. DEQ determined BPT is appropriate for a facility of this age.
- 2) AAHL and FPGL are flow-through facilities that consist of fish rearing and holding tanks, a chlorine dosing and contact chamber, a 50-foot by 100-foot chlorine dissipation pond and a 100-foot by 110-foot settling pond. DEQ determined the processes used at these facilities are similar enough to other concentrated aquatic animal production facilities in Oregon that application of the ELGs is appropriate.
- 3) The ELGs for the concentrated aquatic animal production point source category are narrative in nature and primarily involve reporting requirements and the use of Best Management Practices plans (BMPs). The ELGs do not prescribe different control techniques for complying with the rule. DEQ determined that implementing the BMPs would have no impact on the applicability of the ELGs to the facility.
- 4) There was only one process change noted in the application by the facility. In 2011 AAHL switched from gaseous chlorine to liquid chlorine treatment for safety concerns. DEQ determined no physical process changes would be needed for AAHL to comply with the ELGs.
- 5) No physical changes to the facilities are needed to comply with the ELGs. DEQ determined complying with the ELGs would not have an impact on the non-water quality environmental impacts of the facilities.
- 6) The ELGs for the concentrated aquatic animal production point source category are narrative in nature and primarily involve reporting requirements and the use of Best Management Plans. DEQ determined no physical changes to the facilities would be needed to comply with the ELGs and the cost for additional reporting and the development and implementation of BMPs would be *de minimis*.

Using knowledge of the facility and best professional judgment, DEQ has determined the following ELGs will be applied as TBELs to the Aquatic Animal Health Lab and will also apply to the Fish Performance and Genetics Lab for this permit:

Schedule A:

A.2 Operating Requirements

(40 CFR § 451.11)

- a. ***Solids control.*** The permittee must:
 - i. Employ efficient feed management and feeding strategies that limit feed input to the minimum amount reasonably necessary to achieve production goals and sustain targeted rates of aquatic animal growth in order to minimize potential discharges of uneaten feed and waste products to waters of the U.S.
 - ii. In order to minimize the discharge of accumulated solids from settling ponds and basins and production systems, identify and implement procedures for routine cleaning of rearing units and offline settling basins, and procedures to minimize any discharge of accumulated solids during the inventorying, grading and harvesting of aquatic animals in the production system.
 - iii. Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in such a manner as to prevent any pollutant from such materials from entering public waters, causing nuisance conditions, or creating a public health hazard.
- b. ***Materials storage.*** The permittee must:
 - i. Ensure proper storage of drugs, pesticides, and feed in a manner designed to prevent spills that may result in the discharge of drugs, pesticides or feed to waters of the U.S.
 - ii. Implement procedures for properly containing, cleaning, and disposing of any spilled material.
- c. ***Structural maintenance.*** The permittee must:
 - i. Inspect the production system and the wastewater treatment system on a routine basis in order to identify and promptly repair any damage.
 - ii. Conduct regular maintenance of the production system and the wastewater treatment system in order to ensure that they are properly functioning.
- d. ***Recordkeeping.*** The permittee must:
 - i. In order to calculate representative feed conversion ratios, maintain records documenting the feed amounts and estimates of the numbers of aquatic animals.
 - ii. Keep records documenting the frequency of cleaning, inspections, maintenance and repairs.

- e. **Training.** The permittee must:
 - i. In order to ensure the proper clean-up and disposal of spilled material adequately train all relevant facility personnel in spill prevention and how to respond in the event of a spill.
 - ii. Train staff on the proper operation and cleaning of production and wastewater treatment systems including training in feeding procedures and proper use of equipment.

A.3 Chemical Use

- a. Chemical residuals generated from the treatment of fish disease or parasites are permitted provided that the chemicals are applied in accordance with EPA, FDA or other labeling requirements.
- b. Unless DEQ approves in writing before use, the permittee must use chemicals approved or allowed for hatchery use by the US Food and Drug Administration (USFDA) or the US Environmental Protection Agency (USEPA). USFDA-approved chemicals include the following:
 - i. Investigational New Animal Drugs (INADs), Low Regulatory Priority (LRP) listed drugs,
 - ii. Deferred Regulatory Status (DRS) drugs, and
 - iii. Veterinary Extra-labelled drugs.
- c. The permittee must follow the conditions detailed in a facility's INAD application, treatment restrictions for LRP and DRS drugs, product label instructions for environmental protection, and precautions on labels of chemicals that are Extra-labelled by prescription. INADs must be labelled correctly, used in accordance with established protocols, and must not violate the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA).
- d. The permittee must report all chemicals on the chemical use log retained onsite and made available to DEQ or EPA staff upon request. The permittee must document the disposal of all spent chemical disinfection treatment solutions according to the procedure described in the permittee's Best Management Practices Plan (See Schedule D, Condition 1).

Schedule B:

B.3 Additional Reporting Requirements

(40 CFR § 451.3)

- a. Except as noted below, a permittee subject to this part must notify the permitting authority of the use of any investigational new animal drug (INAD) or any extra-label drug use where such a use may lead to a discharge of the drug to waters of the U.S. Reporting is not required for an INAD or extra-label drug use that has been previously approved by FDA for a different species or disease if the INAD or extra-label use is at or below the approved dosage and involves similar conditions of use.

- i. The permittee must provide a written report to the permitting authority of an INAD's impending use within 7 days of agreeing or signing up to participate in an INAD study. The written report must identify the INAD to be used, method of use, the dosage, and the disease or condition the INAD is intended to treat.
 - ii. For INADs and extra-label drug uses, the permittee must provide a written report to the permitting authority within 30 days after initiating use of that drug. The written report must identify the drug used and include: the reason for treatment, date(s) and time(s) of the addition (including duration), method of application; and the amount added.
- b. Failure in, or damage to, the structure of an aquatic animal containment system resulting in an unanticipated material discharge of pollutants to waters of the U.S. In accordance with the following procedures, any permittee subject to this part must notify the permitting authority when there is a reportable failure.
 - i. The permittee must provide an oral report within 24 hours of discovery of any reportable failure or damage that results in a material discharge of pollutants, describing the cause of the failure or damage in the containment system and identifying materials that have been released to the environment as a result of this failure.
 - ii. The permittee must provide a written report within 7 days of discovery of the failure or damage documenting the cause, the estimated time elapsed until the failure or damage was repaired, an estimate of the material released as a result of the failure or damage, and steps being taken to prevent a recurrence.
- c. In the event a spill of drugs, pesticides or feed occurs that results in a discharge to waters of the U.S., the permittee must provide an oral report of the spill to the permitting authority within 24 hours of its occurrence and a written report within 7 days. The report shall include the identity and quantity of the material spilled.

Schedule D:

D.1 Best management practices (BMP) plan.

(40 CFR § 451.3)

The permittee subject to this part must:

- a. Develop and maintain a plan on site describing how the permittee will achieve the requirements of Schedule A.2, A.3, and the following:
 - i. The permittee must collect process wastewaters containing hatchery approved treatment chemicals, such as anesthetic (i.e., MS-222), that are not to be discharged to waters of the state. These wastewaters must be disposed of according to hazardous waste disposal practices required by the Oregon State University's Environmental Health and Safety department.

- ii. The permittee must maintain a log of chemical applications at the facility, made available to DEQ by request. The permittee must document the disposal of all spent chemical disinfection solutions.
 - iii. The chlorine dissipation and solids settling ponds must not be drained or dredged without prior written approval from DEQ.
 - iv. Management practices for the settling ponds and surrounding grounds must be coordinated with the adjacent OSU Trysting Tree Golf Course to prevent the introduction of chemicals (e.g., fertilizers, pesticides or herbicides) into the research facility treatment ponds.
- b. Make the plan available to the permitting authority upon request.
 - c. The permittee subject to this part must certify in writing to the permitting authority that a BMP plan has been developed within three months of permit issuance.

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

The permittee discharges to the Willamette River at River Mile (RM) 130.3. NPDES permits issued by DEQ must protect the following designated beneficial uses of the mainstem Willamette River. These uses are listed in OAR-340-041-0340 (Table 340A) 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

3.3.2 303(d) 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.

Table 3-2: Category 5 and Category 4A Parameters

Water Quality Limited Parameters (Category 5)	
AU ID:	OR_SR_1709000306_05_103854
AU Name:	Willamette River
AU Status:	Impaired
Year Listed	1998
Year Last Assessed	2022
Category 5 Parameters	Dissolved oxygen (spawn); Biocriteria (narrative); Temperature (spawn, year-round); Iron (total); Chlordane; Aquatic Weeds
Category 4A Parameters	
Dioxin (2,3,7,8-TCDD); Methylmercury; Temperature	

For temperature and mercury, DEQ has developed TMDLs in the Willamette River basin to address these impairments. These TMDLs were approved by the EPA in September 2006. Discussion of water temperature in the Willamette River is presented in section 3.3.7, and mercury in section 3.3.9.6. There is a Columbia River basin TMDL for dioxin (2,3,7,8-TCDD); however, as a minor industrial facility in animal production AAHL is not expected to contribute to dioxin impairment in the basin. Category 5 impairments include dissolved oxygen, biocriteria, temperature, total iron, chlordane, aquatic weeds. The mainstem Willamette River is water quality limited for dissolved oxygen during the spawning season (October 15 through May 15) from river mile 149 through river mile 50. No TMDL has been written to address the Willamette River dissolved oxygen listing and therefore no WLA for oxygen demanding pollutants have been assessed for AAHL. The aquatic weeds parameter is used to implement the statewide narrative criterion that prohibits deleterious or injurious effects on aquatic and human beneficial uses from biological growths (OAR 340-041-0007(9)). The growth of aquatic weeds or algae does not identify whether a pollutant or which pollutant is causing the impairment, nor does it identify which pollutant should be addressed by point source controls. Until there is specific evidence that a pollutant produced by the facility is causing the impairment it is assumed that the limits contained within the NPDES permit are protective of the narrative criterion.¹

AAHL and FPGL are classified as Concentrated Aquatic Animal Production Facilities and are not reasonably expected to be a significant contributor to impairment from Category 4A (dioxin nor methylmercury) nor Category 5 (chlordane nor aquatic weeds) parameters.

¹ *Oregon Integrated Report: Frequently Asked Questions*. Water Quality Assessment, Oregon DEQ. Sept. 1, 2022.

3.3.3 TMDL Wasteload Allocations

DEQ issued a temperature TMDL for the mainstem Willamette River in 2006. The wasteload allocation (WLA) in the Willamette TMDL that is applicable to AAHL is addressed in the “bubble allocations” portion of the TMDL. Discussion of this can be found in section 3.3.7 below. In 2019 the Environmental Protection Agency (EPA) issued a revised Willamette Basin mercury TMDL for DEQ to implement. This is discussed in section 3.3.9.6.

Table 3-3: Applicable WLAs

Parameter	WLA	Time Period
NA	NA	NA
Comment: AAHL is included in a collection of eighteen “small point sources” that discharge to the Willamette River between river miles 108-186. No individual WLA is allocated to AAHL.		

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.

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

Table 3-4: Pollutants of Concern

Pollutant	How was pollutant identified?
pH	Effluent Monitoring
Temperature	Effluent Monitoring
Total Residual Chlorine	Effluent Monitoring
Total Ammonia Nitrogen	Application Requirement
Formaldehyde	Application Requirement

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 described as:

The allowable mixing zone is that portion of the Willamette River beginning ten feet upstream and fifty 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 five feet of the point of discharge.

The proposed permit contains an updated regulatory mixing zone description which is described as follows. The description was updated because a 2009 mixing zone study found that when the discharge enters the Willamette River it moves upstream about 50 feet, due to a back eddy, before then flowing downstream.

The allowable mixing zone is that portion of the Willamette River where the discharge enters a small side inlet and extends fifty feet upstream and fifty feet downstream from where the side channel enters the mainstem Willamette River. The Zone of Immediate Dilution (ZID) is that portion of the allowable mixing zone that is within five feet of the point where the discharge enters the mainstem Willamette River.

The dilution factors at the edge of the Regulatory Mixing Zone and Zone of Initial Dilution are shown in Table 3-5. These dilutions are based on a 2024 mixing zone analysis conducted by DEQ. The mixing zone memo documenting this analysis is in a February 14, 2024, Mixing Zone Memo which is part of the administrative record. DEQ’s mixing zone analysis is based on velocity and depth information measured within the mixing zone and submitted by OSU. This information also included an observation that the discharge enters the river where there is a small back eddy that pushes the effluent plume upstream about fifty feet prior to flowing downstream. DEQ modeled the discharge using CORMIX v 12.0 based on the information provided by OSU. The predicted dilutions are based on worst-case low river flow conditions. Dilution is expected to be higher when river flows are higher.

The location of Outfall 001 in relation to the Willamette River and the mixing zone for AAHL are presented in Figure 3-1 below for clarity.

Table 3-5: Mixing Zone Dilution Summary

Dilution Summary – Year-round						
Water Quality Standard	Stream Flow (cfs)		Effluent Flow (mgd)		Dilution Factor	Location
	Statistic	Flow	Statistic	Flow		
Aquatic Life, Acute	1Q10	3430	<input type="checkbox"/> ADWDF x PF <input checked="" type="checkbox"/> Max Daily Avg <input type="checkbox"/> Other	0.75	1.8	ZID
Aquatic Life, Chronic	7Q10	3524	<input type="checkbox"/> ADWDF <input checked="" type="checkbox"/> Max Monthly Avg <input type="checkbox"/> Other	0.54	3.9	RMZ

Human Health, Non-Carcinogen	30Q5	4070	<input type="checkbox"/> ADWDF <input checked="" type="checkbox"/> Max Monthly Avg <input type="checkbox"/> Other	0.54	3.9	RMZ
Human Health, Carcinogen	Harmonic Mean	7357	<input type="checkbox"/> Annual Avg Design <input checked="" type="checkbox"/> Annual Avg <input type="checkbox"/> Other	0.54	5.4	RMZ
<i>ADWDF = Average dry weather design flow</i> <i>PF = Peaking factor (1.5)</i>						
Comments: Critical stream flows are based on USGS gage #14166000 – Willamette River at Harrisburg.						



Figure 3-1: Outfall 001, mixing zone and outlet to the mainstem Willamette River

3.3.6 pH

The pH criterion for this basin is 6.5 – 8.5 per OAR 340-041-0345. DEQ determined there is reasonable potential for the discharge to exceed the pH criterion at the edge of the mixing zone for Outfall 001 if the current pH limits stay in place. The existing permit limits for pH are 6.2 – 9.0. The permit will propose a new pH limit range of 6.3 – 9.0. The lower limit is a WQBEL as it is more stringent than the federal secondary treatment standard. The upper limit is a TBEL, it is less stringent than the federal secondary treatment standard. The following provides a summary of the data used for the analysis.

Table 3-6: pH Reasonable Potential Analysis

INPUT	Lower pH Criteria	Upper pH Criteria
1. Dilution at mixing zone boundary	3.9	3.9
2. Upstream characteristics		
a. Temperature (°C)	19.3	6.5
b. pH	7.0	7.8
c. Alkalinity (mg CaCO ₃ /L)	22.0	22.0
3. Effluent characteristics		
a. Temperature (°C)	19.0	12.4
b. pH (S.U.)	6.2	9.0
c. Alkalinity (mg CaCO ₃ /L)	109.9	109.9
4. Applicable pH criteria	6.5	8.5
pH at mixing zone boundary	6.4	8.2
Is there reasonable potential?	Yes	No
Proposed effluent limits	6.3	9.0
Effluent data source: ICIS data pull for date range August-2019 to July-2023.		
Ambient data source: AWQMS data pull for DEQ stations 10352, 10355, 29043, 33750, 37095, 37098, 37103 and City of Eugene stations FAMBMWDS, FAMBOB for date range 2014 - 2023.		

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 3-7: Temperature Criteria Information

Applicable Temperature Criterion	Rearing/Migration 18°C (OAR 340-041-0028(4)(c))
Applicable dates: May 16 – October 14	
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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Applicable dates: NA	
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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Comments: The 2006 Willamette TMDL established a wasteload allocation under the TMDL’s “bubble allocations” portion. The TMDL did not designate a specific effluent limit for individual small point sources in the “bubble”.	

DEQ utilizes Fish Use Designation maps and Salmon and Steelhead Spawning Use Designations maps to identify applicable temperature criteria for each river basin. Located at river mile 130.3 in Corvallis, AAHL discharges to a section of the Willamette River designated for salmon and steelhead spawning use during the period October 15 – May 15. This spawning designation is found in the Fish Use Designation map for the Willamette Basin, OAR 340-041, Figure 340B. OAR 340-041-0028(a) assigns a temperature criterion not to exceed 13.0 °C as a 7-day average maximum temperature during this period. For the remainder of the year, OAR 340-041, Figure 340A designates this reach of the mainstem Willamette River for salmon and trout rearing and migration. For rearing and migration, OAR 340-041-0028(4)(c) assigns a criterion of 18.0 °C as a 7-day average maximum temperature.

The Willamette River is listed as water quality impaired for temperature in DEQ’s List of Water Quality Impaired Waters (also called the 303(d) List). The TMDL determined that the temperature standard is not attained from April 1 through October 31 in the Willamette River. For streams with a TMDL that do not meet water quality standards, OAR 340-041-0028(12)(b)(B) states the following:

Following a temperature TMDL or other cumulative effects analysis, waste load and load allocations will restrict all NPDES point sources and nonpoint sources to a cumulative increase of no greater than 0.3 degrees Celsius (0.5 Fahrenheit) above the applicable criteria after complete mixing in the water body, and at the point of maximum impact.

The Mainstem Willamette Waste Load Allocation (WLA) chapter of the Willamette TMDL contains a subsection, “Bubble Allocations for Small Point Sources”. The intent of this WLA subsection is to address the cumulative effects of small point sources, such as AAHL, to the

Willamette system. Under the TMDL’s “bubble allocation”, no individual effluent limit is required for AAHL (the facility was deemed small enough that its temperature discharge is not required to be regulated at this time). AAHL’s discharge is accounted for in a “bubble” of small point sources that discharge between river miles 108 – 186. Discharges from these sources are accounted for in collective WLAs for rearing and migration (May 16 – October 14) and spawning (October 15 – May 15).

The existing permit was issued concurrent to the 2006 Willamette TMDL issuance. At the time, AAHL was erroneously assigned an effluent excess thermal load limit (ETTL), based on a misinterpretation of the individual WLA rules. The Department has determined that the previous ETLL is not applicable to AAHL. After conducting an antidegradation and anti-backsliding review to ensure compliance with water quality standards, the Department has determined that the previous ETLL will not be included in this proposed permit.

Based on these analyses, no temperature limit associated with the applicable temperature criteria is included in the proposed permit.

Final effluent limits are listed in the following table.

Table 3-8: Temperature Criterion Effluent Limits

Effluent limit needed? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
TMDL WLA Limit: No Limit
Applicable time period: Dates <input checked="" type="checkbox"/> NA
Temperature Criterion Limit: No Limit
Applicable time period: Dates <input checked="" type="checkbox"/> 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 13 °C or more for salmon and steelhead, and 9 °C or more for bull trout.

AAHL discharge: In a January 2024 conversation, the Oregon Department of Fish and Wildlife (ODFW) District Biologist confirmed there are no active salmonid spawning redds in the vicinity of the AAHL effluent discharge. Since there are no active salmonid spawning areas within the mixing zone, the impairment of an active spawning area is prevented or minimized, and this provision does not apply.

- 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.

AAHL discharge: Facility-submitted DMR data show that the maximum daily effluent temperature reported from the period August 2019 to August 2023 was 20.5 °C, effluent temperatures do not exceed 32 °C. Therefore, the facility’s discharge does not have the potential for acute impairment or instantaneous lethality.

- 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.

AAHL discharge: Facility-submitted DMR data show that the maximum daily effluent temperature reported for the period August 2019 to August 2023 was 20.5 °C, effluent temperatures do not exceed 25 °C. Therefore, impairment due to thermal shock caused by the facility’s discharge is prevented or minimized and this provision is met.

- 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.

AAHL discharge: As described in Table 3-7 above, the Willamette River is listed as water quality impaired for temperature on DEQ’s 2022 303(d) list. Maximum ambient temperature for the period October 2013 to June 2023 was 22.6 °C. AAHL effluent temperature maximum was 20.5 °C. As a protective measure, DEQ performed a temperature RPA for migration blockage (See Appendix A: Thermal Plumes RPA) using facility monitoring data. The results showed the discharge does not have the potential to exceed the criterion, and migration blockage caused by the discharge is prevented or minimized.

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

Table 3-9: Thermal Plume Effluent Limit

Effluent limit needed? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Calculated limit: NA
Applicable timeframe: NA

3.3.8 Bacteria

AAHL is an industrial facility that does not treat municipal wastewater. Bacteria limits are not a component of this permit.

Table 3-10: Proposed *E. coli* Limits

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

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. New chlorine limits were calculated based on updated information. The newly calculated Daily Maximum limit is more stringent than the existing limits, so the new limits are being proposed. Proposed limits are listed in the following table.

Table 3-11: 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	0.01	0.04
Calculated Limit	0.01	0.03
Proposed Limit	0.01	0.03
Effluent data source: Existing Maximum Daily Limit		
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 for ammonia because it is a major byproduct of fish cultivation activities. A separate analysis was conducted for the summer and winter seasons to parse out the effect of seasonal Willamette River temperatures. This analysis accounts for changes in the effluent and receiving water pH and temperature to determine the appropriate ammonia criteria. Tables 3-12 and 3-13 below provide a summary of the data used for the ammonia analysis and the results of the analysis.

The existing permit does not contain effluent limits for ammonia, only the requirement to monitor on a quarterly basis. DEQ performed a reasonable potential analysis, relying on ambient water quality data for the Willamette River and effluent monitoring data from facility submitted NetDMR reports. The results showed no reasonable potential for AAHL’s discharge to exceed water quality criteria. No ammonia limits are proposed during this permit renewal.

Table 3-12: Ammonia Analysis Information – Summer

	Acute	Chronic	
		4-day	30-day
Dilution	1.8	3.9	3.9
Ammonia Criteria	1.9	1.5	0.6
Effluent Data Used			
Ammonia (mg/L)	0.0	0.0	
pH (SU)	8.6	8.6	
Temperature (°C)	19.6	19.6	
Alkalinity (mg/L CaCO ₃)	112.0	112.0	
Receiving Stream Data Used			
Ammonia (mg/L)	0.0	0.0	
pH (SU)	7.8	7.8	
Temperature (°C)	20.7	20.7	
Alkalinity (mg/L CaCO ₃)	23.1	23.1	
Ammonia Limit Needed?	No		
Calculated Limits	AML	MDL	
Ammonia (mg/L)	NA	NA	
Effluent data source			
ICIS data pull on 8/31/2023, date range Aug-2019 to July-2023.			
Ambient data source			
AWQMS data pull for DEQ stations 10352, 10355, 29043, 33750, 37095, 37098, 37103 and City of Eugene stations FAMBMWDS, FAMBOB for date range 2014 - 2023.			

Table 3-13: Ammonia Analysis Information – Winter

	Acute	Chronic	
		4-day	30-day
Dilution	1.8	3.9	3.9
Ammonia Criteria	3.7	2.9	1.2
Effluent Data Used			
Ammonia (mg/L)	0.0	0.0	
pH (SU)	8.4	8.4	
Temperature (°C)	16.7	16.7	
Alkalinity (mg/L CaCO ₃)	109.5	109.5	
Receiving Stream Data Used			
Ammonia (mg/L)	0.1	0.1	
pH (SU)	7.7	7.7	
Temperature (°C)	12.4	12.4	
Alkalinity (mg/L CaCO ₃)	22.0	22.0	
Ammonia Limit Needed?	No		
Calculated Limits	AML	MDL	
Ammonia (mg/L)	NA	NA	
Effluent data source			
ICIS data pull on 8/31/2023, date range Aug-2019 to July-2023.			
Ambient data source			
AWQMS data pull for DEQ stations 10352, 10355, 29043, 33750, 37095, 37098, 37103 and City of Eugene stations FAMBMWDS, FAMBOB for date range 2014 - 2023.			

3.3.9.3 Formaldehyde

Facility personnel at AAHL and FPGL occasionally use *Parasite-S*, which is a brand name for formalin (a 37% solution of formaldehyde dissolved in water). *Parasite-S* is used to control external parasites on the fish and their eggs. In addition to FDA application requirements, during the development of hatchery NPDES permits, DEQ developed acute and chronic guidance criteria for formaldehyde. DEQ developed these guidance criteria to implement Oregon’s narrative Toxic Substances standard (OAR 340.041-0033(1)). The guidance values are a chronic criterion of 1.6 mg/L and an acute criterion of 4.6 mg/L. Quarterly monitoring for formaldehyde concentrations is required of the permittee during the period of highest formalin use for each quarter it is used. Monitoring results dating back to 2010 show formalin concentrations in the combined facility effluent as non-detect (i.e., at levels below the minimum detection using approved methodology). DEQ performed a reasonable potential analysis using this data and found no reasonable potential for formaldehyde to exceed criteria at the discharge point.

Monitoring will remain in effect for this permit. If the permittee does not use formalin in a quarter, they may report that the chemical was not used, in lieu of collecting a formaldehyde sample.

3.3.9.4 Copper Biotic Ligand Model

DEQ determined that this facility is not a likely source of copper. Therefore, no additional controls or monitoring will be required.

3.3.9.5 Aluminum

DEQ determined that this facility is not a likely source of aluminum. Therefore, no additional controls or monitoring will be required.

3.3.9.6 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 wastewater treatment plant discharges is very small. The TMDL states that no additional controls or monitoring will be required for minor facilities. AAHL is not a wastewater treatment facility. AAHL is a minor industrial facility, the industrial classification that describes AAHL is not considered to be a likely source of mercury. Therefore, no additional controls or monitoring for mercury will be required in this permit.

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). Except for the temperature (excess thermal load) limits, the proposed limits are the same or more stringent than the existing permit so the antibacksliding provision is satisfied.

As noted in section 3.3.7, above, the excess thermal loads in the current permit were included due to an erroneous interpretation of the applicable TMDL and wasteload allocation (WLA). To be consistent with the TMDL these limits have been removed from the proposed permit. Although antibacksliding provisions generally do not allow relaxation of effluent limits in renewal permits, 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 WLA, and it can be shown that relaxation is consistent with antidegradation requirements. As noted above, the receiving water is water quality limited, and removal of the limits is based on a TMDL WLA. The relaxation of the limit is also consistent with antidegradation requirements as detailed below. Therefore, this change complies with the antibacksliding provisions of CWA sections 402(o) and 303(d)(4) and 40 CFR 122.44(l).

The existing permit Schedule A included a condition requiring whole effluent toxicity (WET) testing for the AAHL discharge. As noted in Section 3.6, below, this WET testing requirement will not be continued in the proposed permit. This requirement was removed because other conditions in the proposed permit, along with associated permitting mechanisms, address the original intent of this testing (formaldehyde toxicity) in a more direct manner (see discussion above, 3.3.9.3). This change also maintains consistency with DEQ permitting practices for

permittees in the Concentrated Aquatic Animal Production industry classification. This process is documented in DEQ's Antidegradation and Antibacksliding memo, which is part of the facility permit file for this renewal.

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) limits as discussed in Section 3.3.7, above. Under Oregon's Antidegradation Rule, discharges with insignificant temperature increases are not considered degradation (OAR 340-041-0004(3)(c)). Specifically, the rule states that insignificant temperature increases authorized under OAR 340-041-0028(11) and (12) are not considered a reduction in water quality. The applicable temperature TMDL provided an analysis of the temperature impacts of this discharge and determined that the discharge results in temperature increases at or below those authorized under OAR 340-041-0028(11) and (12). Based on OAR 340-041-0004 and the TMDL, the discharge from the facility does not have the potential to reduce water quality as it pertains to temperature.

All other permitted discharge loadings under the proposed permit are the same or more stringent than those in 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 determined that whole effluent toxicity (WET) testing is not warranted due to the low levels of toxics present in the final effluent. WET testing was previously a requirement in AAHL's 2007 permit. This requirement was removed to maintain consistency with DEQ permitting practices for aquatic animal production facilities, as well as consideration for the relatively low levels of chemicals applied at AAHL and FPGL. The guidance criteria and effluent monitoring for formalin (formaldehyde) discussed in section 3.3.9.3 above will serve to replace WET testing requirements contained in the current permit, which were included to address potential toxicity associated with formalin.

3.7 Groundwater

It is likely that each of the surface impoundments could incur seepage of water into the nearby soils and eventually into the groundwater aquifer. Considering the high quality of the settling pond water and the absence of any toxic pollutants, aside from chlorine, there is very low potential for negative impacts to groundwater. Any residual chlorine that may seep through the pond bottom will likely be reduced by interactions with the organic material in the soil profile. 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.

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 permittee is expected to meet all effluent limits once the permit becomes effective and therefore a compliance schedule is not needed.

7. Schedule D: Special Conditions

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

7.1 Best Management Practices (BMP) plan

This condition outlines the best management practices that must be implemented by the permittee to achieve requirements of Schedules A.2 and A.3.

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.7 in Schedule F.

7.3 Environmental Supervisor

The permit holder is required to have an environmental supervisor. This special condition describes the requirements relating to the role of environmental supervisor.

7.4 Spill/Emergency Response Plan

The permittee must have an up-to-date spill response plan for prevention and handling of spills and unplanned discharges.

7.5 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: Thermal Plumes RPA

OAR 340-041-0053(2)(d)(D): Migration Blockage			
21 deg C at 25% of the stream cross section			
Enter data into white cells below:		Data Metric/Source	
7Q10 =	3980	cfs	Willamette TMDL, App. 4.5 Small Point Source RM 108 Default; AWQMS data insufficient for 7 daM MZ Memo (0.5 cfs) * 1.5 (peaking factor) ICIS Aug 2019 - Aug 2023; Conservative, all-time Daily Max
Ambient Temperature =	21	°C	
Effluent Flow =	0.75	mgd	
Max 7dAM Effluent Temperature =	20.49	°C	
	25% of 7Q10 =	995.0	cfs
	25% dilution =	859	dilution = $(Q_r * 0.25) / Q_e + 1$
Temperature at 25% cross section =		21.0	°C
ΔT at 25% Stream Flow =		0.0	°C
			No Reasonable Potential

Figure A-1: Thermal plumes reasonable potential analysis following OAR 340-041-0053(2)(d)(D) to assess salmonid migration blockage.