NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT

Permit Evaluation Review Report

Oregon Department of Environmental Quality
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Public Notice Draft

<table>
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| U.S. Department of Interior Fish & Wildlife Service  
34288 S.E. Rainbow Road  
Estacada, Oregon 97023 | Eagle Creek National Fish Hatchery  
34288 S.E. Rainbow Road  
Estacada, Oregon 97023 |

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<tr>
<th>Sources Covered:</th>
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<tr>
<td>Pass-through and treated discharges from Concentrated Aquatic Animal Production Operation (Fish Hatchery)</td>
<td>Eagle Creek</td>
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<tr>
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<td>Renewal of NPDES Individual Permit</td>
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| WQ-Clackamas County  
File Number: 91035  
EPA Reference No.: OR0000710  
Application received: December 24, 2007  
Application Number: 973473  
Permit Number: 101522 | Larry Telles  
Hatchery Manager  
(503) 630-6270 |

<table>
<thead>
<tr>
<th>Preparer:</th>
<th>Date Prepared:</th>
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</table>
| Tom Rosetta, Water Quality Specialist  
Water Quality Source Control Section  
Northwest Region  
503-229-5053 | |

Preparer’s Signature: [Signature]

Draft August 24, 2009
Proposed Permit

This is a required and scheduled renewal of the NPDES permit. The Department (DEQ) received a renewal application from the Eagle Creek National Fish Hatchery Hatchery on December 24, 2007. A renewal permit is necessary to discharge to state waters pursuant to provisions of Oregon Revised Statute (ORS) 468B.050 and the Federal Clean Water Act. The Department proposes to renew the permit.

This permit is a joint federal and state permit and subject to federal and state regulations. The Clean Water, the Code of Federal Regulations, and numerous guidelines of the Environmental Protection Agency provide the federal permit requirements. The Oregon Revised Statutes, Oregon Administrative Rules, and policies and guidelines of the Department of Environmental Quality provide the state permitting requirements.

The proposed permit is attached. The changes from the previous permit are as follows:

1. New temperature limits are included in the renewal permit that are based on the Total Maximum Daily Load (TMDL) Waste Load Allocations from the September 2006 Willamette Basin TMDL document (http://www.deq.state.or.us/wq/tmdls/willamette.htm).

2. Ammonia and total phosphorus monitoring will be included in the renewal permit. There has been no data collected regarding these parameters for several years, so concentration levels will be ascertained to determine if they pose any concern for water quality.

3. Quarterly iodine and formalin monitoring will be included in the renewal permit. Both of these chemicals are used at the facility.

4. The monitoring frequency for settleable solids is reduced from weekly to monthly monitoring for normal operations and from per event to monthly monitoring for cleaning operations. The monitoring frequency for total suspended solids is reduced from per event to weekly monitoring for normal and cleaning operations.

5. The measured Settleable Solids level of the supply water source may be subtracted from the measured Settleable Solids level in the discharge to determine compliance with Settleable Solids permit limits.

Introduction

The U.S. Department of Interior Fish and Wildlife operates the Eagle Creek National Fish Hatchery east of Estacada, Oregon and located at the end of S.E. Rainbow Road as shown in the figure below. Wastewater is treated and discharged to Eagle Creek at river mile 12.4 in accordance with the individual National Pollutant Discharge Elimination System (NPDES) Permit number 101522.
Permit History

The current individual NPDES permit was assigned on May 4, 2004, and was set to expire on April 30, 2009. It has been administratively extended until the renewal permit is issued. Prior to May 4, 2004, the Eagle Creek National Fish Hatchery was under an NPDES 300-J General Permit. The shift to an Individual NPDES permit was required by the Oregon Administrative Rules (OAR) 340-041-0470 for fish hatcheries in the Clackamas River, McKenzie River, and North Santiam River subbasins in order to preserve or improve the existing high quality water for municipal water supplies, recreation, and preservation of aquatic life in the aforementioned subbasins.

The current individual permit contains increased monitoring requirements for effluent pH, shifting from quarterly monitoring under the 300-J general permit to weekly monitoring, and for effluent temperature, shifting from monthly to daily monitoring for normal operations. Several additional outfalls were also identified in the individual permit, with reporting that includes the overall maximum parameter levels measured. The operation of the facility has remained the same throughout both the general permit and individual permit periods, with no significant changes expected during the next permitting cycle.

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Facility Description

The Eagle Creek National Fish Hatchery facility is located approximately 13 miles east of Estacada and 10 miles northeast of the community of Eagle Creek at 34288 S.E. Rainbow Road. Fish production at the facility includes Coho and Chinook salmon and winter steelhead.

The site consists of an intake structure, a sand settling chamber, an upper inclined screen chamber, three upper banks (ponds) of 12 raceways each, a lower inclined screen, a Hatchery Room gravel filter (two filter beds), 44 Stack Incubators in the Hatchery Room, ten tanks in the Hatchery Room, three lower banks (ponds) of 13 raceways each, an adult holding pond, and a fish ladder. Several additional buildings are located on the site including three Duplexes, three garages, and a storage building (See figures below).

The water intake located approximately 1/10th of a mile upstream of the hatchery just above an existing 18 foot high falls. Coho and Chinook salmon and cutthroat trout spawn below the facility. The hatchery uses all of the stream flow except for some small amount of leakage past the diversion structure at the falls in the summer.
Waste Stream and Discharge

Water is taken in from Eagle Creek through a screened structure that collects debris and sticks that must be manually removed, and gravity feeds water into a 36-inch pipe and then to a sand settling chamber that settles out suspended materials. A drainage valve allows discharge from the settling basin back to Eagle Creek (Outfall 001) during emergency maintenance, but is closed during normal operations of the facility. The sand settling chamber is cleaned between two and eight times per year. A front end loader is used to clean out the sand, leaves and fir needles accumulated in the settling chamber. The material collected is disposed of offsite.

Water flows to one of two screen chambers through 30-inch pipes. The upper screen chamber (see figure above) catches large debris before diversion to the upper raceways. The screened material has been discharged back to Eagle Creek through outfall (002). The hatchery collects fish waste, unused fish food and sediment from the influent water in the bottom of the ponds. When upper raceways are cleaned (up to two times per week) waste water is directed to the upper pump station, and then to the pollution abatement lagoon. The upper and middle banks of the upper raceway may direct water back to Eagle Creek through Outfalls 003 and 004, respectively, during some maintenance activities, only. During normal operations, Outfall 005 discharges waste water to Eagle Creek from the three banks of upper raceways (and sometimes re-used water from the middle and lower raceways) and back-flushed waste water from the lower raceways. Re-used water from the upper raceways is also used in the lower raceways during low flow conditions for Eagle Creek.

The Lower Screen Chamber catches large debris before diversion to the hatchery building and the lower raceways. The screened material has been discharged back to Eagle Creek through outfall (006).

A down-flow gravel filter, divided into two filtration beds, removes suspended solids from the intake water for use in the hatchery room for egg incubation and steelhead fry initial feeding. Excess filter water travels to Outfall 007 which combines with Outfall 006 to form one outfall (labeled 6-7 on the figure above) for discharge to Eagle Creek during normal operations. When the gravel filters are each cleaned (every other week), the valve to Outfall 007 is closed and overflow water is pumped to the lower pump station and then to the pollution abatement lagoon. Process waste water (including formalin treatment waste) from the incubators and tanks is normally routed to the lower pollution abatement pump station and then pumped to the pollution abatement lagoon. Flow from the hatchery room can be diverted to Eagle Creek through Outfall 008 during maintenance work at the pump station.

Waste water from normal operations in the lower raceways is discharged to Eagle Creek through Outfall 012 located at the lower bank of raceways. Outfalls 010 and 011 can discharge from the upper and middle banks of raceways, respectively, but these outfalls are normally closed except during raceway maintenance or special fish rearing activities. When lower raceways are cleaned (up to two times per week) waste water is directed to the lower pump station and then to the pollution abatement lagoon.

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When the adult holding pond is in use from September through June, Outfall 013 at the base of the fish ladder is the primary discharge point for the lower raceways, and during periods of low water availability and when the hatchery is on water re-use.

The pollution abatement lagoon receives water from the upper and lower pump stations, treating wastewater from cleaning operations and chemical treatments, with treatment volumes of from 125,000 to 170,000 gallons of water per day with a minimum residence time of 5.8 days. The pollution abatement pond discharges to Outfall 012. Outfall 014 was used in the past to discharge from the pollution abatement lagoon but is currently blocked from use.

It should be noted that several of the outfalls designated in the current permit are rarely being used (or not at all), including Outfalls 003, 004, 005, 008, 010, and 011.

**Pollutants Discharged**

The current (and proposed) permit allows the Eagle Creek National Fish Hatchery to discharge treated effluent from hatchery operation during all seasons of the year. The current permit sets limits on the following pollutants for normal and cleaning operations at the hatchery: Total Suspended Solids (TSS); Settleable Solids; Temperature; and pH. The Willamette Basin TMDL, dated September 2006 establishes a temperature waste load allocation (WLA) for the Eagle Creek Fish Hatchery. The Permit Discussion Section contains additional information on these parameters and specifics on monitoring.

Beyond the pollutants of concern addressed in the current permit, the proposed permit requires additional monitoring, including for Ammonia-N and Total Phosphorus. These, as well as approved chemicals used at the hatchery are discussed below.

**Ammonia**

Ammonia is a substance normally found in wastewater. The wastewater treatment processes, particularly aeration and biological treatment, can convert a large portion to nitrate and nitrite but the treated effluent still contains some ammonia. After discharge, the continued process of oxidizing the ammonia removes dissolved oxygen from the ambient water.

Un-ionized ammonia is also a toxic agent and may have to be limited to prevent toxicity. If ammonia is discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard (dissolved oxygen or toxicity), it must be limited by the permit.

The State of Oregon has adopted the EPA 1999 ammonia criteria but the new criteria have not been formally approved by EPA. Until that time, the existing toxicity standards currently contained in OAR Chapter 340, Table 20 from the EPA 1986 Gold Book Criteria shall be used for ammonia toxicity limits that might be necessary in a permit.

Monitoring of ammonia was not included in the current permit, and little data is available from the 2000 to 2004 period. An effluent sample was collected on June 9, 2004 with a DEQ
laboratory analysis result of less than the level of quantification (0.02 mg/L). Monitoring for ammonia in the renewal permit will be discussed later in this evaluation report.

**Phosphorus**

Nutrients, including phosphorus can be discharged from fish hatchery facilities in both the solid and dissolved forms. The dissolved form, however, poses a higher risk of impacting water quality because it is the form that is available to accelerate the growth of plants. Although the insoluble form of phosphorus is generally unavailable, depending on the environmental conditions, some phosphorus may be released slowly from the insoluble form. Monitoring of phosphorus was not included in the current permit, and little data is available from the 2000 to 2004 period. A sample was collected on June 9, 2004 with a DEQ laboratory analysis result 0.02 mg/L. Monitoring for total phosphorus in the renewal permit will be discussed later in this evaluation report.

**Formaldehyde**

Formalin (solution that includes formaldehyde) is a US Food and Drug Administration (USFDA) approved chemical for use in aquaculture. Formalin contains approximately 30 - 50 percent by weight of formaldehyde and 10 - 30 percent by weight of methanol. Formalin is currently being used to treat fungi on eggs in the incubation room, usually between mid-October until the end of January. Residuals are discharged to the pollution abatement lagoon and then to Eagle Creek. From 2006 to 2009 the hatchery used a total of 416 gallons of formalin product, averaging 104 gallons per year. Formalin concentrations in the effluent have not been measured or estimated.

There is not a water quality toxicity standard for Formaldehyde contained in the Department’s rules. Therefore, the EPA documents from the Integrated Risk Information Systems (ORIS) that studied health risks of formaldehyde and the bioassay testing were reviewed with respect to the sampling results collected. In addition, fish are reared in this water, which would have observable negative effects on the fish if there were a toxicity issue.

There is a large amount of literature available regarding acute toxicity of formaldehyde to fish and aquatic invertebrates but a relatively small amount about chronic toxicity. Cytec Industries, Inc, located in Wallingford, Connecticut, was required to develop acute and chronic aquatic life water quality criteria for formaldehyde as part of their NPDES permit. They derived an acute and chronic criterion using a combination of literature values and additional toxicity tests. In accordance with the permit condition, they established the criteria according to EPA’s Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses (Stephan et al., 1985). Based on their analysis, they proposed an acute criterion of 4.58 mg/L and a chronic criterion of 1.61 mg/L for formaldehyde. The State of Connecticut proposes to approve these criteria for use in Cytec’s NPDES permit. To date, this appears to be the most comprehensive review on the toxicity of formaldehyde to aquatic life.

In the absence of technology-based limits or water quality criteria, the State must use its best professional judgment in establishing a permit limit. Based on the study performed by Cytec Industries and discussions with the State of Connecticut, the Department applied the acute and chronic criterion developed by Cytec Industries through the State of Connecticut’s NPDES.
permitting process as guidance values in applying Oregon’s Narrative Toxicity Criteria (340-041-0033(1)) to protect aquatic life:

Chronic criterion for formaldehyde = 1.6 mg/L
Acute criterion for formaldehyde = 4.6 mg/L

Since no formaldehyde effluent concentration data is available from the hatchery, a reasonable potential analysis cannot be conducted at this time to determine whether Eagle Creek Fish Hatchery effluent concentrations of formaldehyde may exceed the guidance values. However, monitoring for formaldehyde will be included in this permit for at least the first year. A sampling and analysis plan is included in Schedule B of the proposed permit.

Argentyne (Iodophore disinfectant)

Iodophore is is a US Food and Drug Administration (USFDA) approved chemical for use in aquaculture. Iodophores carry iodine in a complex that acts as a reservoir for free iodine. Iodine is a naturally occurring constituent, and has been used as an aqueous solution as a bactericide or fungicide since the mid 1800’s. According to Burridge et al (2008), iodine used in aquaculture poses a moderate risk to aquatic organisms, based on its increasing use, laboratory studies, and lack of field studies.

Argentyne is currently being used from October through March at the hatchery to disinfect eggs in the incubation room, and also equipment. Residuals are discharged to the pollution abatement lagoon and then to Eagle Creek. From 2006 to 2009 the hatchery used a total of 40.4 gallons of iodine product, averaging 10.1 gallons per year. Since Iodine concentrations in the effluent have not been measured, monitoring for formaldehyde will be included in this permit for at least the first year. A sampling and analysis plan is included in Schedule B of the proposed permit.

Other chemicals

The permittee’s Pollution Prevention Plan (March 1, 2005) includes an inventory of the following other chemicals used at the facility: Salt (25 pounds annually used for enhancement of sperm activity); Sodium Bicarbonate (55 pounds annually used to neutralize pH in the anesthetic tank); and Anti-foam (6 gallons annually used to reduce foaming in the anesthetic tank). Other chemicals being used in the hatchery include anesthetics, antibiotics, and common sanitizers. Oxytetracycline (Terramycin) at 2.3 to 3.75 grams per 100 pounds of fish per day, a feed additive, Chloramine-T (Halamid) at 6 to 15 mg/L for one hour, a bactericide, in young salmon.

The permittee will be submitting a report each year on the usage of these chemicals at the facility. Department review of these annual reports does not indicate that there are any other pollutants of concern being discharged from the hatchery process.

It is proposed that, unless otherwise approved in writing by the Department before use, the permittee must use chemicals and drugs approved or allowed for hatchery use by the US Food and Drug Administration (USFDA) or US Environmental Protection Agency (USEPA). The permittee shall follow the product labeling instructions and precautions for use and safe disposal of chemical-treated water for environmental protection. The use of the chemical shall not violate any applicable

Draft July 14, 2009
water quality standard. It is also proposed that, the permittee shall maintain a chemical use log at
the facility. The log must document the name of chemical, name of user, date of application, reason
for use, location of use (hatch house or raceway), concentration of active ingredients at the hatchery
outfall, dilution required for disposal (as per label), dilution made before discharge, and disposal
method/location. The log shall be available for review upon request by the Department. The
permittee shall submit a summary of chemical use annually or more often as requested by the
Department. The annual report shall cover the previous calendar year and shall be due by February
15th. The annual summary report shall describe the monthly quantity of each chemical used, date of
use, the reason for application, location of use, and the total annual quantity of each chemical used.

USFDA approved chemicals include: Investigational New Animal Drugs (INADS), Low
Regulatory Priority (LRP) listed drugs, Deferred Regulatory Status (DRS) drugs and veterinary
Extra-Labeled drugs. The permittee shall follow the conditions detailed in a facility’s INAD permit
application, treatment restrictions for LRP and DRS drugs, product label instructions for
environmental protection, and precautions on labels of chemicals that are Extra-labeled by
prescription.

Treatment Plant Capacity

The site produces over of 250,000 pounds per year of Coho and Chinook Salmon, and Steelhead
Trout. Hatchery facilities that produce, hold, or contain 100,000 pounds or more of aquatic animals
are subject to rules published in the August 23, 2004 Federal Register. These guidelines, presented
as a final action, did not establish numeric limits, but rather took a BMP (Best Management
Practices) approach, where facilities implement control measures effectively in order to protect
water quality.

Waste Sediment Management

Water and solids from the sand settling chamber, raceways, ponds and incubation area are routed
via the lower and upper pump stations to the pollution abatement lagoon, where sediments are
settled out, and clarified water in the top strata of the pond is discharged to Eagle Creek. Solids are
periodically removed from the pollution abatement lagoon and sequestered at an offsite location.

Groundwater Quality

It is not anticipated that the treatment process and discharge to surface waters will cause
groundwater impacts. Schedule A, section 6 of the proposed permit prohibits adverse impacts to
groundwater. Groundwater has not been monitored to see if any impact had occurred. There is
no reason to suspect that significant groundwater contamination has occurred.

Stormwater Quality

Stormwater runoff is not addressed in this permit. General NPDES permits for stormwater are not
required for facilities of this type. The facility has adopted a policy of spill prevention and
stormwater protection. Exposure of chemicals and oil residues to stormwater is limited by proper
storage of chemicals, and according to label requirements, proper storage and maintenance of
vehicles on the site, and adherence to proper spill prevention methods.

Draft July 14, 2009
Outfalls

The following outfalls are identified as hatchery discharge points to Eagle Creek with Outfall 013 located at river mile 12.4. See the Waste Stream and Discharge section above for detailed descriptions.

- 001b Sand Settling Chamber Drain
- 002 Upper Raceway inclined screens
- 003 Upper Raceway Upper Bank
- 004 Upper Raceway Middle Bank
- 005 Upper Raceway Lower Bank
- 006 Lower Raceway inclined screens
- 008 Hatchery Room
- 010 Lower Raceway Upper Bank
- 011 Lower Raceway Middle Bank
- 012 Lower Raceway Lower Bank
- 013 Lower Raceway Fish Ladder (River mile 12.4)
- 012 and 014 Abatement Pond

Overflow from Outfall 001a in the Sand Settling Chamber, overflow from the Hatchery Room Gravel Filter Outfall 007, and storm water discharges from Outfall 009 are not considered to be process related discharges and thus are not limited under this Permit. Should operations change, these exemptions will be reevaluated.

Mixing Zone

Federal regulations (40 CFR 131.13) allow for the use of mixing zones, also known as “allocated impact zones”. When using mixing zones, acute toxicity to drifting organisms must be prevented and the integrity of the water body as a whole may not be impaired. Mixing zones allow the initial mixing of waste and receiving water, but are not designed to allow for treatment. EPA does not have specific regulations pertaining to mixing zones. Each state must adopt its own mixing zone regulations that are subject to review and approval by EPA. In States that lack approved mixing zone regulations, ambient water quality standards must be met at the end of the pipe.

Notwithstanding the effluent limitations established by this permit, no wastes shall be discharged and no activities shall be conducted that will violate Water Quality Standards as adopted in OAR 340-41-0205 except in the following defined mixing zones:

No mixing zones are allowed for the Eagle Creek National Fish Hatchery as all stream water is diverted through the hatchery during summer months; and thus, no dilution ratio is allowed.

Receiving Stream Water Quality

Designated Beneficial Uses

Hatchery wastewater is treated and discharged into Eagle Creek at river mile 12.4. Eagle Creek is a tributary of the Clackamas River (which is within the Willamette Basin) entering at river mile 16.7 of the Clackamas River. Designated beneficial uses for streams in the Willamette Basin including Eagle Creek are public and private domestic water supply, industrial water supply, irrigation, livestock watering, fish and aquatic life (including Core Cold-Water Habitat and Salmon and

Draft July 14, 2009
Steelhead Spawning Use), wildlife and hunting, fishing, boating, water contact recreation, aesthetic quality, and hydropower.

**Bacteria Water Quality**

The Clackamas River, from where it empties into the Willamette River and up to river mile 15, and several streams that flow into the Clackamas River were listed for Escherichia coli (E. coli) on the State’s 303(d) list for impaired water bodies. This does not include Eagle Creek. It should also be noted that there is no WLA (Waste Load Allocation) assigned in the Willamette Basin TMDL to hatcheries because, as stated in the TMDL, “While the fish hatcheries may contribute fish waste, this would not contain E. coli bacteria (only from warm blooded animals)”. Therefore, there is no limit or monitoring required in the permit for bacteria.

**Rearing and Migration Period**

According to the Department’s fish use maps (OAR 340-041-0028, Figures 340A and 340B), the Fish Use Designation for Eagle Creek includes ‘Core Cold Water Habitat’ (Figure 340A) and the Salmon and Steelhead Spawning Use Designation is ‘Salmon and Steelhead Spawning Use, September 1 – June 15’ (Figure 340B).

**Temperature Water Quality**

Water quality standards were developed for the Willamette Basin to protect these beneficial uses (OAR 340-041). Water temperature affects the cycles of aquatic species and is a critical factor in maintaining and restoring healthy salmonid populations throughout the state. It is the policy of the Environmental Quality Commission (EQC) to protect aquatic ecosystems from adverse temperature changes caused by anthropogenic activities. The purpose of the temperature criteria listed in OAR 340-041-0028 is to protect designated beneficial uses that are temperature sensitive, including salmonids in waters of the State.

Prior to the Department issuing the TMDL (Total Maximum Daily Load) on September 21, 2006 for the Willamette Basin, the Eagle Creek was listed on the Department’s List of Water Quality Limited Water Bodies, known as the 303(d) List, as water quality limited for temperature (Eagle Creek river mile 0-20). Water bodies are listed for temperature because data shows that they are not meeting water quality standards in place to protect beneficial uses – in this case, salmonids requiring cold water habitat. The federal Clean Water Act (CWA) requires that these listed streams have TMDLs developed to determine appropriate pollutant limits to ensure water quality standards will be met.

The Willamette Basin TMDL for temperature provides pollutant Waste Load Allocations (WLAs) for sources that discharge effluent warmer than ambient temperatures and applicable biologically-based criteria, and must be evaluated for potential to exceedances of numeric criteria. Facilities found to have no reasonable potential to warm the receiving water do not require a wasteload allocation and are allowed to discharge within their current permit.

The Eagle Creek’s effluent temperature impacts were assessed for the discharge period during the full calendar year. The Willamette Basin TMDL determined the following WLAs for the Eagle Creek National Fish Hatchery: Summer 7Q10 WLA of 3.91 Million Kcals/day; and Spawning 7Q10 WLA of 4.40 Million Kcals/day (Table 1). The Summer WLA is designed to protect Core
cold water habitat during low-flow (7Q10) summer conditions. The spawning WLA applies with respect to low flow conditions from September 1 through June 15, superseding the Core cold water habitat protection level during this (winter) period. Because there is no mixing zone dilution for this hatchery, the TMDL is simplified to a 0.2°C increase above the applicable criteria during critical periods. The section of this report, "Proposed Permit Limits" discusses how the WLAs will be incorporated into the permit.

Table 1. Temperature Waste Load Allocations (WLAs) for the Clackamas River Hatchery at river mile 22.6.

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<th>WLA Mil Kcals/day</th>
<th>Allowable Effluent Temperature (°C)</th>
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<td>16.0° 7day aver. Maximum, Cold water protection, summer</td>
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<tr>
<td>Salmon and Steehead Spawning</td>
<td>13.0° 7day aver. Maximum, Cold water protection, spawning</td>
<td>(4)(a) (11)(b)</td>
<td>Spawning use dates — September 1 through June 15</td>
<td>4.40</td>
<td>13.2</td>
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**Thermal Plume**

In review of the Discharge Monitoring Reports (DMRs) for the facility, the facility's temperature influence on Eagle Creek has been relatively small. All DMR effluent temperature measurements reviewed since 2006 resulted in no measurable increase above the influent (Eagle Creek) temperature, with one exception: In March the hatchery increased Eagle Creek’s temperature from 8.3 °C to 8.9 °C (still well below the numeric criterion of 13°C). During three months of 2006, water temperature decreased by 0.1 °C in passing through the hatchery between the intake and discharge back into Eagle Creek.

The Department’s water quality standards include temperature thermal plume limitations in OAR 340-041-0053(d). This section of the rules contains criteria to prevent potential adverse impacts that may result from thermal plumes. The temperature thermal plume limitations that the Department has adopted are similar to the recommendations in the April 2003 EPA Region X Temperature guidance. The criteria as they apply to The Eagle Creek Hatchery are discussed below:

OAR 340-041-0053(d)(A): Impairment of an active salmonid spawning area where spawning redds are located or likely to be located.

Impairment of an active salmonid spawning area where spawning redds are located or likely to be located is prevented or minimized by limiting potential fish exposure to temperatures of 13 °C or less for salmon and steelhead, and 9 °C for bull trout. This requirement is not applicable for bull trout because bull trout are not a designated beneficial use of the Clackamas River. Eagle Creek, Draft July 14, 2009
upstream and downstream of the hatchery location does not meet this requirement for most of September and much of June, and the contribution from the hatchery operation that relies on Eagle Creek water is minimal, as described above.

OAR 340-041-0053(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.

This requirement is met because the maximum discharge temperature measured (2004 -2009) from the hatchery is 22.2 °C.

OAR 340-041-0053(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 waterbody.

Thermal shock is prevented because the maximum discharge temperature measured (2004 -2009) from the hatchery is 22.2 °C.

OAR 340-041-0053(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 waterbody.

Migration blockage is prevented or minimized by limiting potential fish exposure to temperatures of 21°C or more to less than 25 percent of the cross section of the water body. On one occasion since 2004, Eagle Creek water temperature (same as hatchery intake water temperature) and hatchery effluent water temperature exceeded 21 °C. On the same day in July of 2006, both had a temperature of 22.2 °C. Otherwise the requirement has been met.

Compliance History

The Eagle Creek Fish Hatchery was last inspected on June 9, 2009 and was found to be operating in compliance with current permit conditions.

The water quality monitoring reports for this facility were reviewed for the period since the current permit was issued, including any actions taken relating to effluent violations. The permit compliance conditions were reviewed and all inspection reports for the same period were reviewed. Since the current permit was issued on May 4, 2004, the hatchery has received two notices of non-compliance (NON). The June 10, 2004 NON letter regarded a Total suspended Solids (TSS) permit limit exceedance. The February 24, 2005 NON letter regarded a TSS exceedance, a required, but not submitted, chemical use report, and a required, but not submitted, Pollution Prevention Plan. The problem leading to the TSS exceedance was evaluated and addressed adequately by the permittee, with no additional TSS exceedances occurring. Chemical use report submittal timeliness is still not adequate and requires increased attention by the hatchery. The Pollution Prevention Plan was submitted on March 1, 2005. In 2008 and early 2009, the hatchery had several Class III (minor) exceedances of their permit pH limit.
PERMIT DISCUSSION

Proposed Permit Limitations

The proposed permit limits and conditions are described below. Please refer to the proposed permit and the discussion above when reviewing this section.

The proposed permit limits remain the same as the previously issued NPDES permit with the exception of temperature which is subject to the TMDL Waste Load Allocations (WLAs). Regarding chemical use, if any contaminants are found to be at levels of concern then the Department will reopen this permit and establish contaminant limits and/or monitoring requirements.

Two categories of effluent limitations exist for NPDES permits: 1) Technology based effluent limits, and 2) Water quality based effluent limits. Technology based effluent limits have been established by EPA rules. Technology based effluent limits were established to require a minimum level of treatment for industrial or municipal sources using available technology. Water quality based effluent limits are designed to be protective of the beneficial uses of the receiving water and are independent of the available treatment technology.

In addition, when performing a permit renewal, there are existing permit limits (discussed above). These may be technology-based limits, water quality-based limits, or limits based on best professional judgment. When renewing a permit, the most stringent of technology-based, water quality-based, and existing effluent limits must be applied.

Technology-Based Effluent Solids Limits

The effluent limits for solids were based on a 1974 EPA draft study that proposed national effluent guidelines for fish hatcheries. These guidelines were never formally adopted by EPA and in subsequent August 23, 2004 guidelines, the final action did not establish numeric limits for total suspended solids, but rather took a BMP (Best Management Practices) approach. The 1974 draft proposed solids effluent limits were incorporated in the 1990 NPDES General Permit 300-J for fish hatcheries. However, rather than having a discharge loading limit based upon the biomass (per 100 kg of fish) at the facility, concentration limits were chosen because they are easier to understand and to enforce. The total suspended solids (TSS) concentration limits were set at 5 mg/L monthly average and 10 mg/L daily maximum during normal operations with a limit of 15 mg/L during cleaning operations. The settleable solids limit was set at 0.1 mL/L for normal operations and 0.2 mL/L for cleaning operations. These are the permit effluent limits under which the facility is currently permitted (NPDES General Permit 300-J) and are retained in the proposed permit.

The proposed numeric limitations for solids are determined to be protective of water quality and comply with the narrative criteria in OAR 340-41-0442(2)(j), "the formation of appreciable bottom or sludge deposits or the formation of any organic or inorganic deposits deleterious to fish or other aquatic life or injurious to public health, recreation, or industry shall not be allowed. The Department is proposing to continue to allow the permittee the option to subtract the TSS concentration of the supply water source from the TSS concentration in the discharge to determine compliance with TSS permit limits, and is proposing a similar method for measuring TSS concentration of the supply water source from the TSS concentration in the discharge to determine compliance with TSS permit limits, and is proposing a similar method for measuring TSS concentration of the supply water source from the TSS concentration in the discharge to determine compliance with TSS permit limits, and is proposing a similar method for measuring TSS concentration of the supply water source from the TSS concentration in the discharge to determine compliance with TSS permit limits, and is proposing a similar method for measuring
Settleable solids. During precipitation or snowmelt runoff events elevated solids concentration of
the supply water do enter the hatchery facility. The supply water following a storm event can be
severely impacted by upstream occurrences and activities such as landslides, roadway erosion,
forest harvest, streambed sediment resuspension, and construction. The Department approves
use of credit for TSS and settleable solids in intake water.

Water Quality-Based Effluent Limits

Pollutant parameters should be limited if there is a reasonable potential for the discharge to cause
or contribute to an excursion above any state water quality criteria or standard.

The Department is required to determine whether the discharge has the reasonable potential to
cause or contribute to an exceedance of a water quality criterion. EPA has developed a method
to make this determination for toxic pollutants called a reasonable potential analysis (RPA). An
RPA relies on statistical probability to determine the likelihood that a discharge will violate an
instream criterion based on the effluent data, its variability, available dilution, and the receiving
water background concentration. The Department has developed RPA spreadsheets that employ
EPA’s methodology.

pH

The Willamette Basin Water Quality Standard for pH is found in OAR 340-041-0345(1)(a). The
allowed range is 6.5 to 8.5 pH units. These limits are based on Federal wastewater treatment
guidelines for sewage treatment facilities, and are applied to the majority of NPDES permittees in
the state. The Eagle Creek Fish Hatchery effluent pH permit limits (also 6.5 to 8.5 pH units) have
had minor exceedances in 2008 and 2009 according to Discharge Monitoring Reports (DMRs). The
proposed permit will have the same pH Limits, also 6.5 to 8.5 pH units, and monitoring
frequency will not be reduced from the currently-required weekly measurements. Since the intake
water may be coming in with low pH, the option to monitor intake pH is included in the proposed
permit.

Temperature

As discussed above, this facility received an excess thermal Waste Load Allocation (WLA) in the
Willamette Total Maximum Daily Load (TMDL), which are based upon the following thermal
increase(s) above the applicable criteria: 3.91 Mil Kcals/day above 16°C from June 16 through
August 31, and 4.4 Mil Kcals/day above 13°C from September 1 through June 15. For the
purposes of determining compliance, the WLA is expressed in terms of a change in the seven day
average of daily maximum temperatures or Δ T (delta T).

The previous permit effluent limit for this facility was 25°C at which the facility has been
meeting throughout its permitting history under the General 300-J permit and the current
individual permit. The new limits are expected to be more stringent and will require increased
monitoring as well. Eagle Creek water temperature above the hatchery already ranges to well
above the 16°C and 13°C criteria during times when these criteria apply, and Eagle Creek
supplies all of the water for the hatchery which is then discharged back to Eagle Creek.
Therefore, DEQ is proposing to require that the excess thermal load be calculated based on an
increase above the influent supply thermal load when it is higher than the applicable criteria. This
Draft July 14, 2009
would determine the thermal load increase of the hatchery itself, rather than the combined excess thermal load of Eagle Creek and the Hatchery. As simplified from the Willamette Basin TMDL (2006), the maximum daily effluent temperature increase would be 0.2°C.

Face Page

The face page provides information about the permittee, description of the wastewater, outfall locations, receiving stream information, permit approval authority, and a description of permitted activities. The facility is allowed to release pass-through and treated fish-rearing waste discharges to Eagle Creek, and offsite discharges of water associated with the release of fish. The outfalls for monitoring remain the same as in the current permit:

- 001b Sand Settling Chamber Drain
- 003 Upper Raceway Upper Bank
- 004 Upper Raceway Middle Bank
- 005 Upper Raceway Lower Bank
- 008 Hatchery Room
- 010 Lower Raceway Upper Bank
- 011 Lower Raceway Middle Bank
- 012 Lower Raceway Lower Bank
- 013 Lower Raceway Fish Ladder
- 012 & 014 Abatement Pond

Outfall 013 is located at the end of the fish ladder downstream from the adult fish holding ponds and settling pond discharges and prior to entering Eagle Creek. This is the discharge stream flow just prior to it reentering Eagle Creek. Outfall 013 is located at 45° 19' 49.08'' N latitude, -122° 25' 41.16'' W longitude (R.M. 12.4). It should be noted that several of the designated outfalls are rarely being used (or not at all), including Outfalls 003, 004, 005, 008, 010, and 011.

Schedule A - Waste Discharge Limitations:

Schedule A limitations are for the most part based upon the Department’s General NPDES 300-J Permit for fish hatcheries, except for temperature WLAs which is based upon the Department’s September 2006 Willamette Basin TMDL.

Effluent Outfalls 005, 008, 012, 013, and 014

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Limitation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Normal Operations</td>
</tr>
<tr>
<td></td>
<td>Monthly Average</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS)^1</td>
<td>5 mg/L</td>
</tr>
<tr>
<td>Settleable Solids^2</td>
<td>0.1 mL/L</td>
</tr>
<tr>
<td>pH</td>
<td>Within the range 6.5 - 8.5 SU</td>
</tr>
</tbody>
</table>

Draft July 14, 2009
Effluent Outfalls 001b, 003, 004, 010, and 011

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Limitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Suspended Solids (TSS)</td>
<td>15 mg/L</td>
</tr>
<tr>
<td>Settleable Solids</td>
<td>0.2 mL/L</td>
</tr>
<tr>
<td>pH</td>
<td>Within the range 6.5 – 8.5 SU</td>
</tr>
</tbody>
</table>

Effluent Outfalls 001b, 003, 004, 005, 008, 010, 011, 012, 013, and 014

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Limitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excess Thermal Load (June 16 – August 31)</td>
<td>3.91 x 10^6 Kcal/day (7-day moving average of daily maximum excess thermal load)</td>
</tr>
<tr>
<td>Excess Thermal Load (September 1 – June 15)</td>
<td>4.40 x 10^6 Kcal/day (7-day moving average of daily maximum excess thermal load)</td>
</tr>
</tbody>
</table>

The proposed permit allows no mixing zone (and therefore no dilution), the same as the current permit:

No mixing zones are allowed for this site as all stream water is diverted through the hatchery during summer months.

The following notes will be included in the permit. The note regarding TSS is unchanged from the previous permit.

1. The TSS concentration of the supply water source may be subtracted from the TSS concentration in the discharge to determine compliance with TSS permit limits.
2. The measured Settleable Solids level of the supply water source may be subtracted from the measured Settleable Solids level in the discharge to determine compliance with Settleable Solids permit limits.

Additional Schedule A conditions:

Chemical use:

- The proposed permit allows only chemicals approved for hatchery use by the US Food and Drug Administration (USFDA) or the US Environmental Protection Agency (USEPA). USFDA approved chemicals include: Investigational New Animal Drugs (INADs), Low Regulatory Priority (LRP) listed drugs, Deferred Regulatory Status (DRS) drugs and veterinary Extra-Labeled drugs. The permittee shall follow the conditions detailed in a facility’s INAD permit application, treatment restrictions for LRP and DRS drugs, product label instructions for environmental protection, and precautions on labels of chemicals that
are Extra-labeled by prescription. The current USFDA LRP drugs are: acetic acid, calcium chloride, calcium oxide, carbon dioxide gas, Fuller's Earth, Garlic (whole form), hydrogen peroxide, ice, magnesium sulfate, onion (whole form), papain, potassium chloride, povidone iodine, sodium bicarbonate, sodium chloride, sodium sulfite, urea and tannic acid. The DRS chemicals are potassium permanganate and copper sulfate. All chemical usage must be in conformance with product label requirements or approved INAD protocols. The disposal of all spent chemical dip treatment solutions shall be documented according to the procedure described in the Pollution Prevention Plan.

- The chemicals must be applied in conformance with USFDA or USEPA requirements for product dilution and other environmental precautions.
- The emergency use of non-approved chemicals/drugs is only allowed when the following are met:
  - The drug or disease control chemical used and/or method of its application could not have reasonably been anticipated;
  - Written facsimile notification is provided to the Department 24 hours prior to administering the drug or disease control chemical and approval is received from the Department; and
  - Adequate precautions and procedures are followed and documented to ensure that the quality of the Clackamas River is not impaired.
- All chemical residuals must be at, or treated to be at, concentrations that would not create acute toxicity within the mixing zone or chronic toxicity outside the mixing zone.

Non-Routine Discharges:

- Sand, silt, mud, solids, filter backwash, debris (including materials trapped on the inclined screens), or other pollutants deposited or removed in the aquatic animal production process shall be disposed of in a manner so as to prevent such materials from entering waters of the state.
- Overflow from Outfall 001a in the Sand Settling Chamber, overflow from the Hatchery Room Gravel Filter Outfall 007, and storm water discharges from Outfall 009 are not considered to be process related discharges and thus are not limited under this Permit. Should operations change, these exemptions will have to be reevaluated. No additional discharges are allowed.

Off site discharge:

Offsite discharge of water associated with the release of fish into waters of the state is permitted. The solids generated during transport of the fish are minimal and thus are anticipated to have minimal impact to the stream where fish will be released.

Schedule B - Minimum Monitoring and Reporting Requirements

Schedule B describes the minimum monitoring and reporting necessary to demonstrate compliance with the conditions of this permit. The authority to require periodic reporting by permittees is included in ORS 468.065(5). Self-monitoring requirements are the primary means of ensuring that permit limitations are being met. However, other parameters need to be
monitored to collect information when insufficient information exists to establish a limit, but where there is a potential for a water quality concern.

The proposed monitoring frequency of all the parameters with Schedule A limits will remain the same as in the current permit, with two exceptions. The monitoring of total suspended solids (TSS) under the proposed permit is reduced from weekly/per event to weekly monitoring for both normal and cleaning operations, and monitoring of settleable solids (SS) is reduced from weekly/per event to monthly monitoring for both normal and cleaning operations. Monitoring frequency is reduced based on the permittee’s request because the concentrations detected were either non-detect for the permit cycle or were very low and within limits and do not warrant more frequent sampling.

Since no total phosphorus or ammonia data has been collected for several years, quarterly monitoring of total phosphorus and ammonia will be added to the permit for at least one year and until it is determined that concentration levels of concern are not being discharged.

Since both formaldehyde and Argentyne (iodine) are chemicals of concern for the hatchery, monitoring is proposed during their heaviest use periods. The Department will consider reducing or eliminating monitoring of each of these parameters when concentrations are below levels of concern evaluated at the point of discharge.

**Influent Supply Water**

The location for temperature, suspended sediment, settleable solids, and pH measurements must be at the hatchery Eagle Creek inlet structure. Flow may be measured in the 36-inch pipe prior to entering the sand settling chamber.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Minimum Frequency</th>
<th>Type of Sample (Units)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Suspended Solids (TSS)</td>
<td>Optional</td>
<td>Composite (mg/L)</td>
</tr>
<tr>
<td>Settlesable Solids</td>
<td>Optional</td>
<td>Composite (mL/L)</td>
</tr>
<tr>
<td>Temperature (daily maximum)</td>
<td>Daily</td>
<td>Measurement (°C)</td>
</tr>
<tr>
<td>pH</td>
<td>Optional</td>
<td>Measurement (SU)</td>
</tr>
<tr>
<td>Flow (Daily Average)</td>
<td>Optional</td>
<td>Measurement (cfs)</td>
</tr>
</tbody>
</table>

Effluent discharge sampling shall be conducted and compliance shall be determined at the discharge point, and when discharging, and before the effluent discharge enters the natural Eagle Creek stream bed.

**Effluent Outfalls 005\(^a\), 008\(^b\), 012, 013, and 014**

<table>
<thead>
<tr>
<th>Item or Parameter</th>
<th>Minimum Frequency</th>
<th>Type of Sample (Units)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORMAL OPERATIONS *</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Settlesable Solids (SS)</td>
<td>Monthly</td>
<td>Composite (mL/L)</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS)</td>
<td>Weekly</td>
<td>Composite (mg/L)</td>
</tr>
<tr>
<td>pH</td>
<td>Weekly</td>
<td>Measurement (SU)</td>
</tr>
</tbody>
</table>

Draft July 14, 2009

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\(^a\) Please refer to the document for detailed information on these parameters.
### Effluent Outfalls 001, 003, 004, 005, 008, 010, 011, 012, 013, and 014

<table>
<thead>
<tr>
<th>Item or Parameter</th>
<th>NORMAL and CLEANING OPERATIONS</th>
<th>Minimum Frequency Type of Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iodine^6</td>
<td>Quarterly (during use periods)</td>
<td>Measurement (mg/L)</td>
</tr>
<tr>
<td>Formaldehyde^7</td>
<td>Quarterly (during use periods)</td>
<td>Measurement (mg/L)</td>
</tr>
</tbody>
</table>

1. Grab sample effluent and influent temperature measurements shall be conducted at approximately the same time and shall be taken between the times of 5:00 pm and 7:00 pm. Continuous temperature monitoring may be conducted by the hatchery, if requested in writing, with the Department's approval.

2. The daily maximum excess thermal load may be calculated using the daily maximum temperature and the total discharge flow for the day. The 7-day average of daily maximum thermal load is a moving average of the daily maximum thermal loads. Excess thermal loads must be calculated using the formula. If the calculation results in a thermal load value less than zero, the results must be recorded as zero. Individual values of zero must be used in calculating the average values.

\[
ETL = \Delta T \times Q \times 2.447 \text{ (million kcals/day °C)}
\]

Where:

\[
\Delta T = T_{\text{max}} - T_{\text{in}}
\]

\[
Q = \text{Total Discharge Flow (cfs)}
\]

\[
T_{\text{max}} = \text{Daily Maximum Temperature (°C)}
\]

\[
T_{\text{in}} = \text{Influent Temperature (°C)}
\]

\[
ETL = \text{Excess Thermal Load (million kcals/day)}
\]

**CLEANING OPERATIONS**

<table>
<thead>
<tr>
<th>Item or Parameter</th>
<th>Frequency Type of Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Settiable Solids (SS)</td>
<td>Monthly Composite (mL/L)</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS)</td>
<td>Weekly/per event Composite (mg/L)</td>
</tr>
<tr>
<td>pH</td>
<td>Weekly/per event Measurement (SU)</td>
</tr>
</tbody>
</table>

**Effluent Outfalls 001, 003, 004, 005, 008, 010, 011, 012, 013, and 014**

<table>
<thead>
<tr>
<th>Item or Parameter</th>
<th>Frequency Type of Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature (daily maximum)^1</td>
<td>Daily Measurement (°C)</td>
</tr>
<tr>
<td>Temperature (7-day average of daily maximums)^2</td>
<td>Daily Calculate (°C)</td>
</tr>
<tr>
<td>Excess Thermal Load (Daily Maximum)^2</td>
<td>Daily Calculate (million kcals/day)</td>
</tr>
<tr>
<td>Excess Thermal Load (7-day Average of Daily Maximums)^2</td>
<td>Daily Calculate (million kcals/day)</td>
</tr>
<tr>
<td>Temperature Increase (Daily Maximum)^4</td>
<td>Daily Calculate (°C)</td>
</tr>
<tr>
<td>Flow (Daily Average)^3</td>
<td>Daily Measurement (cfs)</td>
</tr>
<tr>
<td>Ammonia-N^5</td>
<td>Quarterly Measurement (mg/L)</td>
</tr>
<tr>
<td>Total Phosphorus^5</td>
<td>Quarterly Measurement (mg/L)</td>
</tr>
</tbody>
</table>

### Effluent Outfall 012 and 014

**NORMAL and CLEANING OPERATIONS**

**CLEANING OPERATIONS**
ETL = Excess thermal load \((10^6 \text{ Kcal/day})\)
\[
\Delta T = 7\text{-day average of daily maximum effluent temperature (°C)} \text{ minus criterion (16°C from June 16 through August 31, and 13°C from September 1 through June 15)}
\]
Q = Discharge flow (cfs)
\[
2.447 \text{ (million kcals/day °C)} = \text{ conversion from Kcals/Kg water/ second to mil Kcals/day}
\]

³ Total effluent flow to be used in the ETL calculation above may be measured in the intake pipe, or estimated as the sum of the flows measured or estimated from the identified outfalls.

⁴ The limits may be simplified to a Daily Maximum Temperature increase of no greater than 0.2 °C. The Daily Maximum Temperature Increase may be calculated by subtracting the Eagle Creek supply water (influent) daily maximum temperature from the identified outfall(s) daily maximum temperature. This method may be used instead of the ETL method described above (²), and if this method is used, outfall flow measurements would be optional.

⁵ Upon request from the permittee, and with approval from the Department, monitoring may be discontinued after the first four quarters of monitoring, or after a single quarter with weekly monitoring.

⁶ Sampling must take place within the first hour after the initial discharge of effluent expected to contain iodine. Upon request from the permittee, and with approval from the Department, monitoring may be discontinued after the first four quarters of monitoring, or after a single quarter with weekly monitoring.

⁷ Sampling must take place within the first hour after the initial discharge of effluent expected to contain formaldehyde. Monitoring may be reduced or eliminated after four quarters of monitoring, or during a single quarter with weekly monitoring, if formalin effluent concentration levels show no reasonable potential to exceed the guidance values (acute: 4.6 mg/L; and chronic: 1.6 mg/L), with approval from the Department.

⁸ After the first year of discharge monitoring of these outfalls under this permit, a waiver from monitoring may be requested by the permittee. The DEQ Permit Writer will analyze the monitoring data and determine whether or not to release the site from monitoring these outfalls.

Additional Notes:

* NORMAL OPERATION SAMPLING (excluding Temperature and pH). During normal operations, a minimum of 4 grab samples shall be collected and equally spaced over discharge hours and composited for analysis.

** CLEANING OPERATION SAMPLING (excluding Temperature and pH). If raceway flows are continuously discharging through a settling pond or are diverted through a settling pond Draft July 14, 2009
during cleaning, a representative composite sample shall be taken during cleaning operations. The composite sample shall consist of at least 4 grab samples collected during the cleaning cycle.

**Reporting highest values and averages:** From the Normal Operations TSS data collected for the month, the Daily Maximum TSS level should be selected from Outfalls 005, 008, 012, 013, and 014. If more than one of these outfalls had a Normal Operation Discharge for any day, the Daily Maximum for that day is the largest concentration from those discharging outfalls. For any Daily Maximum TSS sample data that exceeded the Normal Operations Limit of 10 mg/L the inlet TSS for that day may be subtracted. The adjusted TSS may not be less than zero. After subtraction, if the result is not the maximum for the month, select the next highest and repeat the process until a value different from zero is derived. This is the Daily Maximum Normal Operations TSS for the Month and this value should be placed upon the DMR form for the Daily Maximum Normal Operation TSS.

Monthly Average Normal Operations TSS is calculated by first adjusting any TSS concentration for Normal Operations from Outfalls 005, 008, 012, 013, and 014 by subtracting the inlet TSS for that day from any TSS which exceeds the 10 mg/L limit. If the result of the subtraction is zero then use zero as the adjusted value. After the adjustments, add all of the Normal Operations TSS values and divide by the total number of values. This is the Monthly Average TSS for Normal Operations.

For the Monthly Average Normal Operations SS from Outfalls 005, 008, 012, 013, and 014, add all the SS values from Normal Operations and divide by the total number of values. For data values recorded as < 0.1 ml/L, use a value of 0.05 ml/L. If the resultant average is less than 0.1 ml/L, then record on the DMR the Normal Operations Monthly Average SS as < 0.1 ml/L.

Cleaning Operations TSS and SS concentrations for the DMR are taken from the Cleaning Operations concentration values from Outfalls 001b, 003, 004, 005, 008, 010, 011, 012, 013, and 014 are calculated similarly with the exception that the limits change.

For the month, the maximum discharge temperature from Outfalls 001b, 003, 004, 005, 008, 010, 011, 013, and 014 should be reviewed. The highest discharge temperature should be selected and enter on the DMR along with the maximum inlet temperature for the same day that the maximum discharge temperature occurred.

Review the pHs taken from Outfalls 001b, 003, 004, 005, 008, 010, 011, 013, and 014. Place the lowest pH in the Minimum pH portion of the DMR and place the highest pH recorded for the Maximum pH on the DMR.

For TSS, SS, temperature, and pH, report the *outfall number* for each maximum (and minimum for pH) value for each entry included in the DMR sheet. This information, provided on a separate sheet along with the DMR, will be used to evaluate monitoring frequencies for monitored outfalls.

**Reporting of Non-Detect:** Analytical results below the "minimum quantitative level (MQL)" shall be reported as Non-Detect or Not-Detected "ND" and the MQL listed e.g., ND (MQL in Draft July 14, 2009
mg/L). When calculating Monthly Average and a Non-Detect is derived, use ½ of the detection limit (MDL or MQL) for the ND in the calculations.

Submitting Discharge Monitoring Reports (DMRs): Monitoring data shall be collected and recorded during one month of each calendar quarter, or of the specified calendar quarter. A quarterly monitoring data summary shall be submitted to the Department on approved forms by the 15th of the month following the end of each quarter. For quarterly monitoring, the month anticipated to be of highest production during the calendar quarter shall be used as the month of monitoring.

The permittee shall report all data for which a test was completed. In the event a test fails to meet the associated quality control requirement specified by the test method, the permittee shall report the actual test results and shall provide a notation on the monitoring report indicating that the analysis failed quality control standards. The permittee shall track the occurrence of such events for the previous 24 months and shall take appropriate corrective action to reduce or eliminate the root cause. A record of such occurrences and the corrective action taken shall be available for inspection.

The permittee shall maintain, consistent with General Condition C1, computer-based records of monitoring required by this permit or a compilation of the sample data.

Sampling and Analytical Procedures: Sampling and analytical methods used to meet the monitoring requirements specified in this permit shall conform to the latest revision of Guidelines Establishing Test Procedures for the Analysis of Pollutants contained in 40 CFR 136 or to the latest revision of Standard Methods for the Examination of Water and Wastewater (APHA), whichever is the most recent, unless otherwise specified in this permit or approved in writing by the Department.

Record of Chemicals Used. The proposed permit requires that a log of all of the chemicals (and paints that may be exposed to discharge water) used at the facility be maintained at the facility and can be reviewed upon request of the Department. An annual report for chemical use shall be submitted to the Department on January 15th of each year, which shall include monthly and annual quantities used for each chemical or paint. The records shall include:

- Person(s) responsible for administering the chemicals.
- The trade name of the chemicals used.
- The date of application.
- The reason for chemical usage and method of application.
- Identification of the location (i.e. hatch house, raceway, pond, etc.) where chemicals are used, estimated or measured concentration of active ingredient in the facility effluent at the point of discharge to the receiving waters.
- The quantity, trade name, method of disposal and location of any disposed spent chemical dip solutions.

Production: Along with the chemical use report, provide an annual fish production estimate: pounds per year for the facility.
Re-opener: The proposed permit includes a re-opener clause allowing the Department to reopen and modify the permit to include new limitations and/or conditions if changes occur at the facility, which necessitates a modification.

Schedule C – Compliance Conditions and Schedules

No Schedule C conditions

Schedule D – Special Conditions

1. Sand, silt, mud, solids, filter backwash, debris, or other pollutants deposited and removed from the aquatic animal production facility shall be disposed of in a manner so as to prevent such materials from entering the waters of the state.

2. Fish mortalities (excluding spawned out and surplus fish for nutrient recycling), egg taking, or processing waste shall be disposed of in a manner so as to prevent such materials from entering the waters of the state.

3. An adequate spill contingency plan for the prevention and handling of spills shall be in force at all times.

4. Environmental Supervision and Management: The permittee shall designate an environmental supervisor to coordinate and carry out all necessary functions related to maintenance and operation of waste collection, treatment, and disposal facilities. This person shall be allowed access to all information relevant to the generation of wastes in the various process areas.

5. Pollution Prevention Program: A program of pollution prevention shall be maintained with the purpose to: (1) reduce, recycle and reuse water, stock, and chemicals, (2) substitute less toxic chemicals for more toxic chemicals, (3) eliminate the use of certain chemicals, and (4) use best management practices (BMPs) to improve housekeeping and spill response through better training and better operations and maintenance procedures.

6. Transfer of this Permit:

Transfers by Modification: Except as provided under "Automatic Transfers" below, the permit may be transferred by the permittee to a new owner or operator only if this permit has been modified or revoked and reissued under 40 CFR 122.62(b)(2), or a minor modification made under 40 CFR 122.63(d), to identify the new permittee and incorporate such other requirements as may be necessary under the Clean Water Act.

Automatic Transfers: The permit may be automatically transferred to a new permittee if:

a. The permittee notifies the Department at least 30 days in advance of the proposed transfer date.
b. The notice includes a written agreement between the existing and new permittees containing the following three elements: (1) a specific date for transfer of permit responsibility, (2) coverage, and (3) liability between them.

c. The Department does not notify the existing permittee and the proposed new permittee of its intent to modify or revoke and reissue the permit. A modification under this subparagraph may also be a minor modification under 40 CFR 122.63. If this notice is not received, the transfer is effective on the date specified in the written agreement.

7. Retention of Records: Upon issuance of this permit, records retention shall be a minimum of 5 years.

8. Sanitary Sewage: Sanitary wastes shall be discharged to the on-site septic system and associated drain field.

9. Definitions:

“BOD” means 5-day 20°C. Biochemical Oxygen Demand. BOD₅

“BMP” means Best Management Practices

“Capital Improvements” include but are not limited to the following improvements that require capital expenditures: i) treatment best management practices including but not limited to settling basins, oil/water separation equipment, catch basins, grassy bioswales, and detention/retention basins; ii) manufacturing modifications that incur capital expenditures, including process changes for reduction of pollutants or wastes at the source; iii) concrete pads, dikes and conveyance or pumping systems utilized for collection and transfer of storm water to treatment systems; and iv) roofs and appropriate covers.

“CAAP” Concentrated Aquatic Animal Production.

“Chemical” means any substance that is added to the concentrated aquatic animal production facility to maintain or restore water quality for aquatic animal production and that may be discharged to waters of the United States.

“Cold water aquatic animals” include, but are not limited to, the Salmonidae family of fish; e.g., trout and salmon.

“Concentrated aquatic animal production facility” means a hatchery, fish farm, or other facility which meets the criteria in (a) below, or which the Director designates under paragraph (b) of this section.

(a) It contains, grows, or holds aquatic animals in either of the following categories:
   (i) Cold water fish species or other cold water aquatic animals in ponds, raceways, or other structures which discharge at least 30 days per year but does not include:
      A. Facilities which produce less than 20,000 pounds (9,090 kg) harvest weight of aquatic animals per year;

Draft July 14, 2009
B. Facilities which feed less than 5,000 pounds (2,272 kg) of food during the calendar month of maximum feeding.

(ii) Warm water fish species or other warm water aquatic animals in ponds, raceways, or other structures which discharge at least 30 days per year but does not include:

A. Closed ponds which discharge only during periods of excess runoff; or

B. Facilities which produce less than 100,000 pounds (45,454 kg) harvest weight of aquatic animals per year.

(b) Case-by-case designation of concentrated aquatic animal production facilities. The Director may designate any warm or cold water aquatic animal production facility as a concentrated aquatic animal production facility upon determining that it is a significant contributor of pollution to waters of the United States. In making this designation the Director shall consider the following factors:

(i) The location and quality of the receiving waters of the United States;

(ii) The holding, feeding, and production capacities of the facility;

(iii) The quantity and nature of the pollutants reaching waters of the United States; and

(iv) Other relevant factors.

“Day” means the maximum result determined for the applicable 24-h period.

“DEQ” or “Department” means the Oregon State Department of Environmental Quality.

“Direct”, as used in this permit, means storm water discharging without mixing with any other water or without crossing any adjacent property to the Columbia Slough.

“DO” means dissolved oxygen.

“Drug” means any substance that is added to the concentrated aquatic animal production facility to maintain or restore aquatic animal health or to affect the structure or any function of an aquatic animal, and that may be discharged to waters of the United States. For the purposes of this Part, the term does not include substances injected directly into aquatic animals or used in immersion baths that are not discharged to waters of the United States.

“Excess feed” means feed that is added to a production system and that is not consumed or is not expected to be consumed by the aquatic animals.

“Event” means any overflows, which occur in any one standard 24-hour period starting at midnight.

“Flow-through system” means a system designed for a continuous water flow to waters of the United States through chambers used to produce aquatic animals. Flow-through systems typically use either raceways or tank systems. Water is supplied to raceways by nearby rivers or springs and are typically long, rectangular chambers at or below grade, constructed of earth, concrete, plastic, or metal. Tank systems are similarly supplied with water and concentrate aquatic animals in circular or rectangular tanks above grade. The term does not include net pens.

Draft July 14, 2009
“Full-flow settling” means the treatment practice in which all of the flow from a flow-through system is treated using solids settling techniques prior to discharge.


“Indirect”, as used in this permit, means storm water discharges other than direct discharges to the Columbia Slough, i.e. through ditches across other than permittees property, through municipal storm sewers, etc.

“Industrial” means having the nature of or characterized by trade, business, production, or manufacture.

“Industrial Waste” means any liquid, gaseous, radioactive, or solid waste substance or a combination thereof resulting from any process of industry, manufacturing, trade, or business, or from the development or recovery of any natural resources.

“Instantaneous” means a grab sample or reading taken instantaneously, but in no case greater than 15 minutes.

Material Handling Activities include the storage, loading and unloading, transportation or conveyance of raw material, intermediate product, finished product, by-product or waste product.

“mg/L” means milligrams per liter.

“Month” means the sum of all daily results determined during a calendar month divided by the number of daily results determined for the same period. If only one result is obtained during the calendar month, the maximum daily effluent limitation applies to that sample.

“Net pen system” means a stationary, suspended or floating system of nets or screens in open marine or estuarine waters of the United States. Net pen systems typically are located along a shore or pier or may be anchored and floating offshore. Net pens and cages rely on tides and currents to provide continual supply of high-quality water to the animals in production.

“Nonpoint Sources” refers to diffuse or unconfined sources of pollution where wastes can either enter into - or be conveyed by the movement of water to - public waters.

“Off-line settling” means the treatment practice in which a small, concentrated portion of the flow is diverted and treated before being discharged; specifically, the portion of flow that is vacuumed or removed from the bottom of a tank or raceway, which contributes high levels of settled solids.

“Point Source” means a discharge from any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, or conduit.
"Pollution" means such contamination or other alteration of the physical, chemical, or biological properties of any waters of the state, including change in temperature, taste, color, turbidity, silt, or odor of the waters, or such radioactive or other substance into any waters of the state which either by itself or in connection with any other substance present, will or can reasonably be expected to create a public nuisance or render such waters harmful, detrimental, or injurious to public health, safety, or welfare, or to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses or to livestock, wildlife, fish or other aquatic life, or the habitat thereof.

"Process wastes" or "process wastewater" means any process generated wastewater and any precipitation (rain or snow) that comes into contact with any manure, litter or bedding, or any other raw material or intermediate or final material or product used in or resulting from the production of animals or poultry or direct products (e.g. milk, eggs).

The term "process generated wastewater" means water directly or indirectly used in an animal operation for any or all of the following: spillage or overflow from animal or poultry watering systems; washing, cleaning or flushing pens, barns, manure pits or other feedlot facilities; direct contact swimming, washing or spray cooling of animals; and dust control.

"Quarter" means the sum of all results determined during a calendar quarter divided by the number of daily results determined for the same period.

"Recirculating system" means a system that filters and reuses water in which the aquatic animals are produced prior to discharge. Recirculating systems typically use tanks, biological or mechanical filtration, and mechanical support equipment to maintain high quality water to produce aquatic animals.

"Significant Materials" includes, but is not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under section 101(14) of CERCLA; any chemical that a facility is required to report pursuant to section 313 of title III of SARA; fertilizers; pesticides; and waste products such as ash, slag, and sludge that have the potential to be released with storm water discharges. More information is available at the EPA site above under 40 CFR 370.

"Total Maximum Daily Load (TMDL)" - The sum of the individual Waste Load Allocations (WLAs) for point sources and Load Allocations (LAs) for nonpoint sources and background. If a receiving water has only one point source discharger, the TMDL is the sum of that point source WLA plus the LAs for any nonpoint sources of pollution and natural background sources, tributaries, or adjacent segments. TMDLs can be expressed in terms of either mass per time, toxicity, or other appropriate measure. If Best Management Practices (BMPs) or other nonpoint source pollution controls make more stringent load allocations practicable, then wasteload allocations can be made less stringent. Thus, the TMDL process provides for nonpoint source control tradeoffs.

Draft July 14, 2009
“Wastes” means sewage, industrial wastes, and all other liquid, gaseous, solid, radioactive, or other substances which will or may cause pollution or tend to cause pollution of any waters of the state.

“Warm water aquatic animals” include, but are not limited to, the Amiuridae, Centrarchidae and Cypinidae families of fish; e.g., respectively, catfish, sunfish and minnows.

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

“Year” means the sum of all results determined during a calendar year divided by the number of daily results determined for the same period.

Schedule F - General Conditions

All NPDES permits issued in the State of Oregon contain certain conditions that remain the same regardless of the type of discharge and the activity causing the discharge. These conditions are called General Conditions. These conditions can be changed or modified only on a statewide basis. The latest edition of the NPDES General Conditions is July 2005 and this edition is included as Schedule F of the draft permit.

Section A contains standard conditions which include compliance with the permit, assessment of penalties, mitigation of noncompliance, permit renewal application, enforcement actions, toxic discharges, property rights and other legal requirements, referenced rules and statutes, and permit fees. Section B contains requirements for operation and maintenance of the pollution control facilities. This section includes conditions for proper operation and maintenance, duty to halt or reduce activity in order to maintain compliance, bypass of treatment facilities, upset conditions, treatment of single operational events, overflows from wastewater conveyance systems, public notification of discharge violation or overflow, and disposal of removed substances. Section C contains requirements for monitoring and reporting. This section includes conditions for representative sampling, flow measurement, monitoring procedures, penalties of tampering, reporting of monitoring results, additional monitoring by the permittee, averaging of measurements, retention of records, contents of records, and inspection and entry. Section D contains reporting requirements and includes conditions for reporting planned changes, anticipated noncompliance, permit transfers, progress on compliance schedules, noncompliance which may endanger public health or the environment, other noncompliance, and requirement to provide information. Section D also contains signatory requirements, the consequences of falsifying reports, and notification of toxic discharge changes. Section E contains the definitions of terms used throughout the permit.

TNR

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ATTACHMENT #1
Individual NPDES Antidegradation Review Sheet
For Proposed Eagle Creek National Fish Hatchery Discharge

1. What is the name of Surface Water that receives the discharge? Clackamas River
   Briefly describe the proposed activity: NPDES Permit Renewal for fish hatchery discharge
   Is this review for a renewal OR new permit application? (circle one) Go to Step 2.

2. Is this surface water an Outstanding Resource Water or upstream from an Outstanding Resource Water?
   No. Go to Step 3.

3. Is this surface water a High Quality Water?
   No. Go to Step 4.

4. Is this surface water a Water Quality Limited Water?
   Yes. The stream is listed on the 303(d) list for temperature in the summer and for E. coli below the point of discharge. Go to Step 14.

14. Will the proposed activity result in a Lowering of Water Quality in the Water Quality Limited Water? [see OAR 340-041-0004(3)-(5) for a description in rule of discharges that do not result in lowering of water quality or do not constitute a new and/or increased discharge or are otherwise exempt from antidegradation review; otherwise see “Is an Activity Likely to Lower Water Quality?” in Antidegradation Policy Implementation Internal Management Directive for NPDES Permits and Section 401 Water Quality Certifications.]
   No. Proceed with Permit Application. Applicant should provide basis for conclusion. Go to Step 21.

   This conclusion is explained and supported by data and evaluations included with the Permit Evaluation Report and attachments accompanying the proposed NPDES Permit Renewal. This is an existing discharge and there is no change in their operation. The discharge must meet the water quality criteria for all parameters at the edge of the mixing zone. There is no request for a mass load increase.

   Temperature waste load allocations resulting from the 2006 Willamette Basin TMDL were incorporated into the permit.

   The other effluent limitations are the same as in the existing permit. Go to Step 21.

21. On the basis of the Antidegradation Review, the following is recommended:

   _X_ Proceed with Application to Interagency Coordination and Public Comment Phase.

   ____ Deny Application; return to applicant and provide public notice.

Action Approved
Section: Northwest Region Water Quality Permitting
Review Prepared By: Tom Rosetta
Phone: (503) 229-5053
Date Prepared: june29, 2009

Draft August 24, 2009