Fact Sheet

The U.S. Environmental Protection Agency (EPA)
Proposes to issue a National Pollutant Discharge Elimination System (NPDES) Permit to Discharge Pollutants Pursuant to the Provisions of the Clean Water Act (CWA) to:

Taholah Wastewater Treatment Plant
Quinault Indian Nation
P.O. Box 189
Taholah, Washington 99587

Public Comment Start Date: April 21, 2015
Public Comment Expiration Date: May 21, 2015

Technical Contact: Kai Shum
(206) 553-0060
800-424-4372, ext. 0060 (within Alaska, Idaho, Oregon and Washington)
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The EPA Proposes To Issue NPDES Permit
The EPA proposes to issue the NPDES permit for the facility referenced above. The draft permit places conditions on the discharge of pollutants from the wastewater treatment plant to waters of the United States. In order to ensure protection of water quality and human health, the permit places limits on the types and amounts of pollutants that can be discharged from the facility.

This Fact Sheet includes:
- information on public comment, public hearing, and appeal procedures
- a listing of proposed effluent limitations and other conditions for the facility
- a map and description of the discharge location
- technical material supporting the conditions in the permit

401 Certification
The Quinault Indian Nation (QIN) has not yet taken on Section 401 certification under the CWA. Therefore, EPA is responsible for issuing 401 certification in this case.

Tribal Coordination and Consultation
In the course of issuing this NPDES Permit, EPA coordinated with the Quinault Indian Nation (QIN).

Public Comment
Persons wishing to comment on, or request a Public Hearing for the draft permit for this facility may do so in writing by the expiration date of the Public Comment period. A request for a Public Hearing must state the nature of the issues to be raised as well as the requester's name, address and telephone number. All comments and requests for Public Hearings must be in writing and should be submitted to the EPA as described in the Public Comments Section of the attached Public Notice.

After the Public Notice expires, and all comments have been considered, the EPA's regional Director for the Office of Water and Watersheds will make a final decision regarding permit issuance. If no substantive comments are received, the tentative conditions in the draft permit will become final, and the permit will become effective upon issuance. If substantive comments are received, the EPA will address the comments and issue the permit. The permit will become effective no less than 30 days after the issuance date, unless an appeal is submitted to the Environmental Appeals Board within 30 days pursuant to 40 CFR 124.19.

Documents are Available for Review
The draft NPDES permit and related documents can be reviewed or obtained by visiting or contacting the EPA's Regional Office in Seattle between 8:30 a.m. and 4:00 p.m., Monday through Friday at the address below. The draft permits, fact sheet, and other information can also be found by visiting the Region 10 NPDES website at "http://EPA.gov/r10earth/waterpermits.htm."

United States Environmental Protection Agency
Region 10
1200 Sixth Avenue, OWW-130
Seattle, Washington 98101
(206) 553-0523 or
Toll Free 1-800-424-4372 (within Alaska, Idaho, Oregon and Washington)

The fact sheet and draft permits are also available at:

The Quinault Indian Nation
1214 Aalis Drive
Taholah, Washington 98587
Attention: Dave Hinchen, (360) 276-0074

Acronyms

1Q10	1 day, 10 year low flow
7Q10	7 day, 10 year low flow
30B3	Biologically-based design flow intended to ensure an excursion frequency of less than once every three years, for a 30-day average flow.
30Q10	30 day, 10 year low flow
ACR	Acute-to-Chronic Ratio
AML	Average Monthly Limit
ASR	Alternative State Requirement
AWL	Average Weekly Limit
BA	Biological Assessment
BAT	Best Available Technology economically achievable
BCT	Best Conventional pollutant control Technology
BE	Biological Evaluation
BO or BiOp	Biological Opinion
BOD_5	Biochemical oxygen demand, five-day
BOD_{5u}	Biochemical oxygen demand, ultimate
BMP	Best Management Practices
BPT	Best Practicable
°C	Degrees Celsius
C BOD_5	Carbonaceous Biochemical Oxygen Demand
CFR	Code of Federal Regulations
CFS	Cubic Feet per Second
COD	Chemical Oxygen Demand
CSO	Combined Sewer Overflow
CV	Coefficient of Variation
CWA	Clean Water Act
DMR	Discharge Monitoring Report
DO	Dissolved oxygen
EA	Environmental Assessment
EFH	Essential Fish Habitat

EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FOTW	Federally Owned Treatment Works
FR	Federal Register
gpd	Gallons per day
HUC	Hydrologic Unit Code
IC	Inhibition Concentration
ICIS	Integrated Compliance Information System
I/I	Infiltration and Inflow
LA	Load Allocation
lbs/day	Pounds per day
LTA	Long Term Average
LTCP	Long Term Control Plan
mg/L	Milligrams per liter
ml	Milliliters
ML	Minimum Level
µg/L	Micrograms per liter
mgd	Million gallons per day
MDL	Maximum Daily Limit or Method Detection Limit
MF	Membrane Filtration
MPN	Most Probable Number
N	Nitrogen
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Administration
NOEC	No Observable Effect Concentration
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NSPS	New Source Performance Standards
OWW	Office of Water and Watersheds
O&M	Operations and maintenance
POTW	Publicly owned treatment works

PSES	Pretreatment Standards for Existing Sources
PSNS	Pretreatment Standards for New Sources
QAP	Quality assurance plan
RP	Reasonable Potential
RPM	Reasonable Potential Multiplier
RIB(s)	Rapid Infiltration Basin(s)
SIC	Standard Industrial Classification
SPCC	Spill Prevention and Control and Countermeasure
SS	Suspended Solids
SSO	Sanitary Sewer Overflow
s.u.	Standard Units
TKN	Total Kjeldahl Nitrogen
TMDL	Total Maximum Daily Load
TOC	Total Organic Carbon
TRC	Total Residual Chlorine
TRE	Toxicity Reduction Evaluation
TSD	Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001)
TSS	Total suspended solids
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
UV	Ultraviolet
WET	Whole Effluent Toxicity
WLA	Wasteload allocation
WQBEL	Water quality-based effluent limit
Water Quality Standards	Water Quality Standards
WWTP	Wastewater treatment plant

I. Applicant

A. General Information

This fact sheet provides information on the draft NPDES permit for the following entity:

Physical Address:
Taholah Village Wastewater Treatment Plant
114 Quinault Street
Taholah, Washington 98587

Mailing Address:
Taholah Village Wastewater Treatment Plant
Quinault Indian Nation
P.O. Box 189
Taholah, Washington 99587

NPDES Permit Number: WA0023442

Contact:
Dave Hinchen
Wastewater Treatment Plant Supervisor
(360)276-0074

B. Permit History

The most recent NPDES permit for the Taholah Village Wastewater Treatment Plant (WWTP) was issued on September 27, 2005, became effective on November 1, 2005, and expired on October 31, 2010. A complete NPDES application for permit issuance was submitted by the permittee on December 2, 2014.

II. Facility Information

A. Treatment Plant Description

Service Area

The Quinault Indian Nation (QIN) owns and operates the Taholah Village Wastewater Treatment Plant (WWTP) located in Taholah, Grays Harbor County, Washington. The collection system has no combined sewers. The facility serves a resident population of 1500.

Treatment Process

The WWTP was constructed and operational in 2006 with a design flow of 0.2 mgd. In a 2008 agreement between QIN and the U.S. Indian Health Service (IHS), the treatment system was improved in 2009 to include the addition of a UV disinfection system. At present, the treatment process consists of a four-celled lagoon system with UV disinfection and discharge into groundwater via a four celled Rapid Infiltration Basin (RIB) system. The four-celled lagoon system consists of three aerated cells, and one settling basin. Details about the wastewater treatment process and a map showing the location of the treatment facility and discharge are included in Appendix A. EPA regards facilities that have a design flow of less than 1.0 mgd as minor facilities. Because the design flow of the Taholah Village WWTP is 0.2 mgd, the facility is considered a minor facility.

B. Outfall Description

The discharges from Outfall 001 go into a four celled RIB system that is approximately 505 feet from the banks of the Quinault River. The RIB system is believed to discharge into a likely tidally influenced brackish water table. The wastewater discharged into the RIB system is mixed and diluted into a groundwater plume prior to entering the Quinault River as surface water. The bottom of the RIB system is approximately 7 feet below surface, and the groundwater table is approximately 13 feet below surface. The RIBs are located at the following coordinates: 47º 20’ 34” N, 124º 17’ 00” W. Based on aerial mapping, the groundwater plume from the RIB system would travel at least 505 feet, the closest distance from the RIB system into the Quinault River, and from there, the distance to the mouth of the Quinault River is approximately 1.16 miles.

C. Background Information

Effluent Characterization

In order to determine pollutants of concern for further analysis, EPA evaluated the application form, additional discharge data, and the nature of the discharge. The wastewater treatment process for this facility includes both primary and secondary treatment, as well as UV disinfection. Pollutants typical of a sewage treatment plant include five-day biochemical oxygen demand (BOD_5), total suspended solids (TSS), fecal coliform bacteria, pH, ammonia, temperature, and dissolved oxygen (DO).

The Taholah Village WWTP receives a small volume of process wastewater from a fish processing plant. According to QIN, the fish processing plant sends fish waste offsite, and the only wastewater directed to the WWTP consists of water used for washing equipment, and sanitary waste from the facility.

The concentrations of pollutants in the discharge were reported in the NPDES application and were used in determining reasonable potential for several parameters (see Appendix D).

Compliance History

The facility’s last NPDES Permit expired on October 31, 2010. No new permit application was received until January 17, 2014. A complete NPDES application for permit issuance was submitted by the permittee on December 2, 2014.

The EPA conducted inspections at the facility in 2008, 2009, and 2010. The inspections revealed that there had been various exceedances of permit limits and incorrect reporting by the facility. The EPA made recommendations to QIN for improving compliance with its NPDES Permit.

On January 7, 2015, according to David Hinchen, QIN Wastewater Treatment Plant Supervisor, there has not been any citizen complaints concerning this WWTP.

D. Environmental Justice

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,* directs each federal agency to "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities." EPA is striving to enhance the ability of overburdened communities to participate fully and meaningfully in the permitting process for EPA-issued permits, including NPDES permits. "Overburdened" communities can include minority, low-income, tribal, and indigenous populations or communities that potentially experience disproportionate environmental harms and risks. As part of an agency-wide effort, EPA Region 10 will consider prioritizing enhanced public involvement opportunities for EPA-issued permits that may involve activities with significant public health or environmental impacts on already overburdened communities. For more information, please visit http://www.epa.gov/compliance/ej/plan-ej/.

As part of the permit development process, EPA Region 10 conducted an "EJSCREEN" to determine whether a permit action could affect overburdened communities. EJSCREEN is a nationally consistent geospatial tool that contains demographic and environmental data for the United States at the census block group level. As a pre-decisional tool, EJSCREEN is used to highlight permit candidates for additional review where enhanced outreach may be warranted.

The EPA also encourages permittees to review (and to consider adopting, where appropriate) Promising Practices for Permit Applicants Seeking EPA-Issued Permits: Ways To Engage Neighboring Communities (see https://www.federalregister.gov/articles/2013/05/09/2013-10945/epa-activities-to-promote-environmental-justice-in-the-permit-application-process#h-13). Examples of promising practices include: thinking ahead about community's characteristics and the effects of the permit on the community, engaging the right community leaders, providing progress or status reports, inviting members of the community for tours of the facility, providing informational materials translated into different languages, setting up a hotline for community members to voice concerns or request information, follow up, etc.

EPA's EJSCREEN tool identified the Quinault Indian Nation (QIN) as a potentially overburdened community because the WWTP discharges within the boundaries of the Quinault Indian Reservation. During the screening process, EPA considered specific case-by-case circumstances, and EPA concluded that there is no indication that the issuance of this permit would trigger significant environmental justice concerns. Separate from the environmental justice screening effort, EPA also conducted tribal coordination with QIN.

III. Receiving Water

This facility discharges into groundwater via a RIBs system with expected hydrogeologic connection to the Quinault River. Wastewater discharged into the RIBs are initially diluted within the groundwater body, forming a groundwater plume prior to reaching the Quinault River. Based on aerial mapping, the groundwater plume from the RIBs system would travel at least 505 feet, the closest distance from the RIB system into the Quinault River, and from there, the distance to the mouth of the Quinault River is approximately 1.16 miles.

Low Flow Conditions

There is no information concerning the low flow conditions in the Quinault River perpendicular to the RIBs, accordingly, EPA estimated the low flow conditions based on an existing USGS Gauge that is 13.6 miles upstream.

The low flow conditions of the Quinault River is obtained from the upstream USGS Gauge #12039500, "Quinault River near Quinault Lake". This location is significantly upstream from the RIBs, where the Quinault River is a much smaller waterbody. The Quinault River above the RIBs is a gaining stream, but there is no gauge to measure the river flow rate near the RIBs. Therefore, low flow conditions can only be determined at the river near the Quinault Lake location. As a comparison, EPA expects that low flow are significantly higher on the river near the RIBs. The low flow values on Table 1 were obtained from USGS Gauge #12039500 and were used to determine dilution from the WWTP. In addition, because the WWTP discharges into the RIBs, the wastewater from the RIBs is first diluted in the groundwater plume prior to reaching the river. Accordingly, because of the location the low flow values were obtained and of the initial dilution in the groundwater plume prior to reaching the river, the dilution factors used are conservative.

The low flow conditions of a water body are used to assess the need for and develop water quality based effluent limits (see Appendix B of this fact sheet for additional information on flows). The EPA used ambient flow data collected at the Quinault River and the EPA's DFLOW 3.1b model to calculate the low flow conditions.

The *Technical Support Document for Water Quality-Based Toxics Control* (hereafter referred to as the TSD) (EPA, 1991) and the State of Washington Water Quality Standards (WQS) recommend the flow conditions for use in calculating water quality-based effluent limits (WQBELs) using steady-state modeling. The TSD and the Washington State WQS state that WQBELs intended to protect aquatic life uses should be based on the lowest seven-day average flow rate expected to occur once every ten years (7Q10) for chronic criteria and the lowest one-day average flow rate expected to occur once every ten years (1Q10) for acute criteria. The flow data in Table 1 below is generated from the USGS data from April 1, 2001 to April 1, 2014, and analyzed by EPA's DFLOW program.

Table 1: Calculated Low Flow Values

Units	1Q10	7Q10	30B3
USGS data in cfs	238	291	428
In mgd	153.5	187.7	276.1

A. Receiving Water Quality

The EPA reviews receiving water quality data when assessing the need for and developing water quality based effluent limits. In granting assimilative capacity of the receiving water, the EPA must account for the amount of the pollutant already present in the receiving water. In situations where some of the pollutant is actually present in the upstream waters, an assumption of "zero background" concentration overestimates the available assimilative capacity of the receiving water and could result in limits that are not protective of applicable water quality standards.

The existing permit required the permittee to perform upstream receiving water monitoring on the Quinault River. Table 2 below summarizes the receiving water data reported by the WWTP during the last permit cycle.

Table 2: Receiving Water Quality Data				
Parameter	**Units**	**Percentile**	**Value**	**Source**
Temperature	°C	95th	14.94	Facility
pH	Standard units	5th – 95th	6.54 – 7.47	Facility
Phosphorus	mg/L	maximum	0.4	Facility
Ammonia	mg/L	maximum	0.3	Facility

B. Water Quality Standards

The Quinault Indian Nation does not currently have EPA-approved water quality standards. Until they establish their own regulations for water quality, Washington State's standards will be used as a reference to protect downstream uses in Washington waters.

The State of Washington's Water Quality Standards are composed of use classifications, numeric and/or narrative water quality criteria, and an anti-degradation policy. The use classification system designates the beneficial uses (such as cold water aquatic life communities, contact recreation, etc.) that each water body is expected to achieve. The numeric and/or narrative water quality criteria are the criteria deemed necessary to support the beneficial use classification of each water body. The anti-degradation policy represents a three tiered approach to maintain and protect various levels of water quality and uses.

Section 301(b)(1)(C) of the Clean Water Act (CWA) requires the development of limitations in permits necessary to meet water quality standards. Federal regulations at 40 CFR 122.4(d) require that the conditions in NPDES permits ensure compliance with the water quality standards of all affected States. A State's water quality standards are composed of use classifications, numeric and/or narrative water quality criteria and an anti-degradation policy.

The use classification system designates the beneficial uses that each water body is expected to achieve, such as drinking water supply, contact recreation, and aquatic life. The numeric and narrative water quality criteria are the criteria deemed necessary by the State to support the beneficial use classification of each water body. The anti-degradation policy represents a three-tiered approach to maintain and protect various levels of water quality and uses.

The Quinault River is located within the Washington State Department of Ecology's "Queets/Quinault Water Resources Inventory Area (WRIA) #21". The Quinault River is specifically named on Department of Ecology's use designation for fresh waters found at WAC 173-201A-602, Table 602. These designations are described below.

Designated Beneficial Uses

EPA considered WAC 173-201A-602, Table 602: Use designations for fresh waters by water resource inventory area (WRIA). For "WRIA 21 Queets-Quinault", and the applicable segment is described as, "Quinault River and tributaries from mouth to the confluence with the North Fork Quinault River", the following water quality use designations apply:

Aquatic Life Uses: Core Summer Habitat;
Recreational Uses: Extraordinary Primary Contact
Water Supply Uses: Domestic Water; Industrial Water; Agricultural Water; Stock Water
Misc. Uses: Wildlife Habitat; Harvesting; Commerce/Navigation; Boating; and Aesthetics.

In reference to WAC 173-201A-600(1)(a)(iv), because the groundwater table is believed to be brackish beneath the RIB, and the designation of extraordinary quality marine waters off the Pacific coast, this segment of the Quinault River should also be protected for Core Summer Salmonid Habitat and Extraordinary Primary Contact recreation.

The point of discharge appears to be to an estuary and the receiving water is believed to be brackish from tidal flow carrying salt water up the Quinault River.

WAC 173-201A-260 Natural conditions and other water quality criteria and applications states**:**

"(e) In brackish waters of estuaries, where different criteria for the same use occurs for fresh and marine waters, the decision to use the fresh water or the marine water criteria must be selected and applied on the basis of vertically averaged daily maximum salinity, referred to below as "salinity."

> (i) The fresh water criteria must be applied at any point where ninety-five percent of the salinity values are less than or equal to one part per thousand, except that the fresh water criteria for bacteria applies when the salinity is less than ten parts per thousand; and
> (ii) The marine water criteria must apply at all other locations where the salinity values are greater than one part per thousand, except that the marine criteria for bacteria applies when the salinity is ten parts per thousand or greater."

EPA does not currently have salinity data to make a determination if applying marine water criteria would be appropriate. Therefore, EPA is requiring the collection of salinity data during this permit cycle so that a determination can be made for the next permit cycle. For the proposed permit, EPA is applying Washington State Water Quality Standards for freshwater.

If marine water quality standards apply the EPA may apply WAC 173-201A-612, Table 612 — Use designations for marine waters and the applicable segment is described as **"**Coastal waters: Pacific Ocean from Ilwaco to Cape Flattery". The following water quality use designations would apply:

Aquatic Life Uses: Extraordinary, Shellfish harvesting
Recreational Uses: Primary Contact
Misc. Uses: Wildlife Habitat, Harvesting, Commerce/Navigation; Boating; and Aesthetics

WAC 173-201A-610, Use designations — Marine waters, assigns the following aquatic life uses under Extraordinary:

Salmonid and other fish migration, rearing, and spawning; clam, oyster, and mussel rearing and spawning; crustaceans and other shellfish (crabs, shrimp, crayfish, scallops, etc.) rearing and spawning.

Salinity surface water monitoring is added to determine if the receiving water is brackish.

The criteria for the State of Washington Water Quality Standards to protect the beneficial uses for the Quinault River off the reservation, and the State's anti-degradation policy are summarized below.

Antidegradation

The proposed issuance of an NPDES permit triggers the need to ensure that the conditions in the permit ensure that Tier I, II, and III of the State's antidegradation policy are met. An anti-degradation analysis was conducted by EPA (see Appendix D), which concluded that the permit would not result in deterioration of water quality. This is because there is no measurable change caused to the water quality of the Quinault River, and the analysis concluded that a Tier 2 review is not warranted. In addition, there is no loss of beneficial uses in the Quinault River.

C. Water Quality Limited Waters

Any waterbody for which the water quality does not, and/or is not expected to meet, applicable water quality standards is defined as a "water quality limited segment."

Section 303(d) of the CWA requires states to develop a Total Maximum Daily Load (TMDL) management plan for water bodies determined to be water quality limited segments. A TMDL is a detailed analysis of the water body to determine its assimilative capacity. The assimilative capacity is the loading of a pollutant that a water body can assimilate without causing or contributing to a violation of water quality standards. Once the assimilative capacity of the water body has been determined, the TMDL will allocate that capacity among point and non-point pollutant sources, taking into account natural background levels and a margin of safety. Allocations for non-point sources are known as "load allocations" (LAs). The allocations for point sources, known as "waste load allocations" (WLAs), are implemented through effluent limitations in NPDES permits. Effluent limitations for point sources must be consistent with applicable TMDL allocations.

The area where the WWTP discharges is categorized by Ecology at Water Resource Inventory Area 21 (WRIA 21). Ecology on January 12, 2015, stated by email there are no TMDLs completed in this area; accordingly, there are no WLA applicable to this NPDES Permit in WRIA 21. However, Ecology has identified the area where this facility is discharging as having one 303(d) listing for PCB in fish tissue (Ecology listing #52686). Ecology listing #52686 can be found at: http://apps.ecy.wa.gov/wats/ViewListing.aspx?LISTING_ID=52686 ; a screen shot from this Ecology webpage is shown below. On January 15, 2015, EPA approached QIN about possible sources of PCB that may be the cause of this PCB listing. QIN responded that it has no information of local sources of PCB pertaining to Ecology's listing.

On January 15, 2015, in tribal consultation with QIN concerning possible sources of PCBs in fish tissue from Quinault River, Mr. Dave Bingaman, Quinault Nation's Director of Natural Resources. The QIN does not know of any sources of PCBs in the watershed. In addition, the WWTP is not a source of PCBs. Accordingly the EPA is not proposing PCB monitoring at the WWTP.

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Listing ID:	52686	**2012 Category:**	5
Medium:	Tissue	**2008 Category:**	5
Parameter:	PCB	**2004 Category:**	3
CAS:	1336-36-3	**On 1998 303(d) List?:**	N
Waterbody Name:	QUINAULT RIVER	**On 1996 303(d) List?:**	N
Waterbody Type:	Rivers	**County:**	Grays Harbor
Waterbody Class:	RAA	**Township/Range/Section:**	22N-13W-36
Collection Date:	N/A	**Grid Cell:**	None
WRIA:	21 - Queets-Quinault	**Grid Cell Latitude:**	None
PSAA:	None	**Grid Cell Longitude:**	None
WASWIS:	None	**LLID:**	1242991473493
WASWIS Upper Route:	None	**LLID Upper Route:**	1.526
WASWIS Lower Route:	None	**LLID Lower Route:**	0.816

Basis:

Data from 2004 :
User Location ID [QuinaultR-F] - Fillet samples of chinook salmon exceeded the National Toxics Rule criterion for Total PCBs based on the sum of PCB aroclors.

User Location ID [QuinaultR-F] - Fillet samples of chinook salmon did not exceed the National Toxics Rule criterion for Total PCBs based on the sum of PCB congeners.

Remarks:

The water quality assessment category 5 was based on results indicating an exceedance of Total PCBs based on the sum of PCB aroclors in fillet samples of chinook salmon.

EIM:

EIM Study ID:	EIM Location ID:
WSTMP04	QuinaultR-F

IV. Effluent Limitations

A. Basis for Effluent Limitations

In general, the CWA requires that the effluent limits for a particular pollutant be the more stringent of either technology-based limits or water quality-based limits. Technology-based limits are set according to the level of treatment that is achievable using available technology. A water quality-based effluent limit is designed to ensure that the water quality standards applicable to a waterbody are being met and may be more stringent than technology-based effluent limits. The basis for the effluent limits proposed in the draft permit is provided in Appendix B.

B. Proposed Effluent Limitations

The following summarizes the proposed effluent limits that are in the draft permit.

1. The permittee must not discharge floating, suspended, or submerged matter of any kind in concentrations causing nuisance or objectionable conditions or that may impair designated beneficial uses.
2. The pH range shall be between 6.5 to 8.5 standard units.

Numeric Limitations

Table 3 below presents the proposed effluent limits for BOD_5, TSS, and fecal coliform.

Table 3: Proposed Effluent Limits

Parameter	Units	Effluent Limits		
		Average Monthly Limit	Average Weekly Limit	Maximum Daily Limit
Five-Day Biochemical Oxygen Demand (BOD_5)	mg/l	30	45	
	lb/day	50	75	
BOD_5 Removal	percent	85 minimum		
Total Suspended Solids (TSS)	mg/l	30	45	
	lb/day	50	75	
TSS Removal	percent	85 minimum		
Fecal coliform bacteria (geometric mean)	#/100 ml	50[1]		100

1. Fecal coliform organism levels must not exceed a geometric mean value of 50 colonies/100 mL, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 100 colonies/100 ml.

C. Changes in Effluent Limits From the Previous Permit

Table 4. Changes in Permit Effluent Limits

Parameter	Previous Permit	Draft Permit	Reason
Bacteria, colonies/100ml (Geometric Mean)	E.coli bacteria Ave. Monthly Limit, 126	Fecal Coliform bacteria, Ave. Monthly Limit, 50	Compliance with current Washington State Water Quality Standards for Extraordinary Primary Contact Recreation, WAC 173.201A.200 (2), Table 200(2) (b)
	E.coli bacteria Max. Daily Limit, 576	See Footnote 1	
pH, standard units	6.0 to 9.0	6.5 to 8.5	Compliance with current Washington State Water Quality Standards, for pH criteria for Core summer salmonid habitat, WAC173.201A.200(1)(g)

Footnote:

1. Fecal coliform organism levels must not exceed a geometric mean value of 50 colonies/100 ml, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 100 colonies/100 ml.

V. Monitoring Requirements

A. Basis for Effluent and Surface Water Monitoring

Section 308 of the CWA and federal regulation 40 CFR 122.44(i) require monitoring in permits to determine compliance with effluent limitations. Monitoring may also be required to gather effluent and surface water data to determine if additional effluent limitations are required and/or to monitor effluent impacts on receiving water quality.

The permit also requires the permittee to perform effluent monitoring required by the NPDES Form 2A application, so that these data will be available when the permittee applies for a renewal of its NPDES permit.

The permittee is responsible for conducting the monitoring and for reporting results on DMRs or on the application for renewal, as appropriate, to the EPA.

B. Effluent Monitoring

Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance. Permittees have the option of taking more frequent samples than are required under the permit. These samples must be used for averaging if they are conducted using the EPA-approved test methods (generally found in 40 CFR 136) or as specified in the permit.

Table 5, below, presents the proposed effluent monitoring requirements in the draft permit. The sampling location must be after the last treatment unit and prior to discharge to the receiving water. The samples must be representative of the volume and nature of the monitored discharge. If no discharge occurs during the reporting period, "no discharge" shall be reported on the DMR.

Table 5: Effluent Monitoring Requirements

Parameter	Units	Sample Location	Sample Frequency	Sample Type
Flow	Mgd	Effluent	Continuous	recording
Temperature	ºC	Effluent	1/week	grab
BOD_5	mg/L	Influent & Effluent	1/week	24-hour composite
	lb/day	Influent & Effluent	1/week	calculation[1]
	% Removal	--	1/month	calculation[2]
TSS	mg/L	Influent & Effluent	1/week	24-hour composite
	lb/day	Influent & Effluent	1/week	calculation[1]
	% Removal	--	1/month	calculation[2]
pH	standard units	Effluent	5/week	grab
Fecal coliform bacteria	#/100 ml	Effluent	5/month	grab
Total Ammonia as N	mg/L	Effluent	1/quarter	24-hour composite
	lb/day	Effluent		calculation[1]
Copper, Total Recoverable	µg/l	Effluent	1/quarter	grab
Zinc, Total Recoverable	µg/l	Effluent	1/quarter	grab

Table 5: Effluent Monitoring Requirements				
Parameter	**Units**	**Sample Location**	**Sample Frequency**	**Sample Type**
NPDES Application Form 2A (Part B.6) Effluent Testing Data	mg/l	Effluent	3 times[3]	24-hour composite

Notes:
1. Loading is calculated by multiplying the concentration (in mg/l) by the flow (in mgd) on the day sampling occurred and a conversion factor of 8.34.
2. The monthly average percent removal must be calculated from the arithmetic mean of the influent values and the arithmetic mean of the effluent values for that month, i.e.:.
   (average monthly influent – average monthly effluent) ÷ average monthly influent.
   Influent and effluent samples must be taken over approximately the same time period.
3. In accordance with instructions in NPDES Application Form 2A, Part B.6, Part D, and where a minimum of one scan for each test to be conducted during years 2015, 2016, and 2017.

Monitoring Changes from the Previous Permit

Monitoring frequencies for certain parameters have been changed, relative to the previous permit. Table 6, below, summarizes the changes in monitoring.

Table 6: Changes in Monitoring Requirements		
Parameter	**Previous Permit**	**Draft Permit**
Flow	Continuous recording, influent	Continuous recording, effluent
BOD_5 and TSS	1/week, grab sampling	1/week, 24-hour composite
Temperature	5/month, grab	1/week, grab
pH	1/week, grab sampling	5/week, grab
Bacteria	E.coli, 5/month, grab sampling	Fecal coliform, 5/month, grab sampling
Total Ammonia as N	1/month, grab	1/quarter 24-hour composite
Copper, Total Recoverable	None	1/quarter, grab
Zinc, Total Recoverable	None	1/quarter, grab

C. Surface Water Monitoring

Table 7 presents the proposed surface water monitoring requirements for the draft permit. The EPA requires the permittee to conduct surface water monitoring at an upstream station at the Quinault River. Surface water monitoring must be conducted for the duration of the permit. Surface water monitoring results must be submitted with the DMR in the month following the monitoring period.

Table 7: Surface Water Monitoring Requirements				
Parameter	**Units**	**Upstream Sample Locations**	**Sample Frequency**	**Sample Type**
Temperature	ºC	Quinault River	1/quarter	Grab

Table 7: Surface Water Monitoring Requirements				
Parameter	**Units**	**Upstream Sample Locations**	**Sample Frequency**	**Sample Type**
Total Ammonia as N	mg/l		1/quarter	Grab
pH	standard units		1/quarter	Grab
Salinity	Part per Thousand		1/quarter	Grab
Hardness	mg/L		1/quarter	Grab

D. Electronic Submission of Discharge Monitoring Reports

The draft permit includes new provisions to allow the permittee the option to submit DMR data electronically using NetDMR. NetDMR is a national web-based tool that allows DMR data to be submitted electronically via a secure Internet application. NetDMR allows participants to discontinue mailing in paper forms under 40 CFR § 122.41 and § 403.12. The permittee may use NetDMR after requesting and receiving permission from the EPA Region 10.

Under NetDMR, all reports required under the permit are submitted to the EPA as an electronic attachment to the DMR. Once a permittee begins submitting reports using NetDMR, it is no longer required to submit paper copies of DMRs or other reports to the EPA.

The EPA encourages permittees to sign up for NetDMR, and currently conducts free training on the use of NetDMR. Further information about NetDMR, including upcoming trainings and contacts, is provided on the following website: http://www.EPA.gov/netdmr.

VI. Sludge (Biosolids) Requirements

The EPA Region 10 separates wastewater and sludge permitting. The EPA has authority under the CWA to issue separate sludge-only permits for the purposes of regulating biosolids. The EPA may issue a sludge-only permit to each facility at a later date, as appropriate.

Until future issuance of a sludge-only permit, sludge management and disposal activities at each facility continue to be subject to the national sewage sludge standards at 40 CFR Part 503 and any requirements of the State's biosolids program. The Part 503 regulations are self-implementing, which means that facilities must comply with them whether or not a permit has been issued.

VII. Other Permit Conditions

A. Quality Assurance Plan

In order to ensure compliance with the federal regulation at 40 CFR 122.41(e) for proper operation and maintenance, the draft permit requires the permittee to develop procedures to ensure that the monitoring data submitted is accurate and to explain data anomalies if they occur. The permittee is required to develop or update the Quality Assurance Plan within 180 days of the effective date of the final permit. The Quality Assurance Plan must include standard operating procedures the permittee must follow for collecting, handling, storing and shipping samples, laboratory analysis, and data reporting. The plan must be retained on site and be made available to the EPA upon request.

B. Operation and Maintenance Plan

The proposed permit requires the permittee to properly operate and maintain all facilities and systems of treatment and control. Proper operation and maintenance is essential to meeting discharge limits, monitoring requirements, and all other permit requirements at all times. The permittee is required to develop and implement an operation and maintenance plan for their facility within 180 days of the effective date of the final permit. The plan must be retained on site and made available to the EPA upon request.

C. Sanitary Sewer Overflows and Proper Operation and Maintenance of the Collection System

Untreated or partially treated discharges from separate sanitary sewer systems are referred to as sanitary sewer overflows (SSOs). SSOs may present serious risks of human exposure when released to certain areas, such as streets, private property, basements, and receiving waters used for drinking water, fishing and shellfishing, or contact recreation. Untreated sewage contains pathogens and other pollutants, which are toxic. SSOs are not authorized under this permit. Pursuant to the NPDES regulations, discharges from separate sanitary sewer systems authorized by NPDES permits must meet effluent limitations that are based upon secondary treatment. Further, discharges must meet any more stringent effluent limitations that are established to meet the EPA-approved state water quality standards.

The permit contains language to address SSO reporting and public notice and operation and maintenance of the collection system. The permit requires that the permittee identify SSO occurrences and their causes. In addition, the permit establishes reporting, record keeping and third party notification of SSOs. Finally, the permit requires proper operation and maintenance of the collection system. The following specific permit conditions apply:

Immediate Reporting – The permittee is required to notify the EPA of an SSO within 24 hours of the time the permittee becomes aware of the overflow. (See 40 CFR 122.41(l)(6)).

Written Reports – The permittee is required to provide the EPA a written report within five days of the time it became aware of any overflow that is subject to the immediate reporting provision. (See 40 CFR 122.41(l)(6)(i)).

Third Party Notice – The permit requires that the permittee establish a process to notify specified third parties of SSOs that may endanger health due to a likelihood of human exposure; or unanticipated bypass and upset that exceeds any effluent limitation in the permit or that may endanger health due to a likelihood of human exposure. The permittee is required to develop, in consultation with appropriate authorities at the local, county, tribal and/or state level, a plan that describes how, under various overflow (and unanticipated bypass and upset) scenarios, the public, as well as other entities, would be notified of overflows that may endanger health. The plan should identify all overflows that would be reported and to whom, and the specific information that would be reported. The plan should include a description of lines of communication and the identities of responsible officials. (See 40 CFR 122.41(l)(6)).

Record Keeping – The permittee is required to keep records of SSOs. The permittee must retain the reports submitted to the EPA and other appropriate reports that could include work orders associated with investigation of system problems related to a SSO, that describes the steps taken or planned to reduce, eliminate, and prevent reoccurrence of the SSO. (See 40 CFR 122.41(j)).

Proper Operation and Maintenance – The permit requires proper operation and maintenance of the collection system. (See 40 CFR 122.41(d) and (e)). SSOs may be indicative of improper operation and maintenance of the collection system. The permittee may consider the development and implementation of a capacity, management, operation and maintenance (CMOM) program.

The permittee may refer to the Guide for Evaluating Capacity, Management, Operation, and Maintenance (CMOM) Programs at Sanitary Sewer Collection Systems (EPA 305-B-05-002). This guide identifies some of the criteria used by the EPA inspectors to evaluate a collection system's management, operation and maintenance program activities. Owners/operators can review their own systems against the checklist (Chapter 3) to reduce the occurrence of sewer overflows and improve or maintain compliance.

D. Design Criteria

The permit includes design criteria requirements. This provision requires the permittee to compare influent flow and loading to the facility's design flow and loading and prepare a facility plan for maintaining compliance with NPDES permit effluent limits when the annual average flow or loading exceeds 85% of the design criteria values for three consecutive months.

E. Industrial Waste Management Requirements

EPA implements and enforces the National Pretreatment Program regulations of 40 CFR 403, per authority from sections 204(b)(1), 208(b)(2)(C)(iii), 301(b)(1)(A)(ii), 301(b)(2)(A)(ii), 301(h)(5) and 301(i)(2), 304(e) and (g), 307, 308, 309, 402(b), 405, and 501(a) of the Federal Water Pollutant Control Act as amended by the CWA of 1977. Because QIN does not have an approved pretreatment program per 40 CFR 403.10, EPA is the Approval Authority for QIN's POTWs. In addition, because the QIN does not have an approved POTW pretreatment program per 40 CFR 403.8, the EPA is also the Control Authority of industrial users that might introduce pollutants into the Taholah Village Wastewater Treatment Plant.

Per 40 CFR 122.44(j)(1), all POTWs need to identify, in terms of character and volume of pollutants, any significant industrial users (SIUs) discharging into the POTW. This condition is included as Special Condition C.1 of the draft permit with a due date 90 days following the effective date of the POTW permit.

Since the QIN does not have an approved pretreatment program, Special Condition C.2 of the permit reminds the City that it cannot authorize discharges which may violate the national specific prohibitions of the General Pretreatment Program, which are applicable to all industrial users introducing pollutants into a publicly owned treatment works (40 CFR 403.5(b)).

Consequently, Special Condition C.5 requires the Permittee to develop legal authority enforceable in Federal, State or local courts which authorizes or enables the POTW to apply and to enforce the requirement of sections 307 (b) and (c) and 402(b)(8) of the Clean Water Act, as described in 40 CFR 403.8(f)(1). The draft legal authority shall be submitted to EPA for review and comment, and then shall be adopted and enforced by the POTW.

F. Standard Permit Provisions

Sections III, IV and V of the draft permit contain standard regulatory language that must be included in all NPDES permits. The standard regulatory language covers requirements such as monitoring, recording, and reporting requirements, compliance responsibilities, and other general requirements.

VIII. Other Legal Requirements

A. Endangered Species Act

The Endangered Species Act requires federal agencies to consult with National Oceanic and Atmospheric Administration Fisheries (NOAA Fisheries) and the U.S. Fish and Wildlife Service (USFWS) if their actions could beneficially or adversely affect any threatened or endangered species. A review of the threatened and endangered species located in the Quinault Indian Nation finds that there is NO EFFECT caused by the discharge from the Taholah Village Wastewater Treatment Plant (see Appendix E).

B. Essential Fish Habitat

Essential fish habitat (EFH) is the waters and substrate (sediments, etc.) necessary for fish to spawn, breed, feed, or grow to maturity. The Magnuson-Stevens Fishery Conservation and Management Act (January 21, 1999) requires the EPA to consult with NOAA Fisheries when a proposed discharge has the potential to adversely affect EFH (i.e., reduce quality and/or quantity of EFH). A review of the Essential Fish Habitat documents shows that there is no effect to essential fish habitat.

The EFH regulations define an adverse effect as any impact which reduces quality and/or quantity of EFH and may include direct (e.g. contamination or physical disruption), indirect (e.g. loss of prey, reduction in species' fecundity), site specific, or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

For the same reasons as listed for endangered species the EPA has determined that issuance of this permit would have no effect to EFH in the vicinity of the discharge. The EPA has provided NOAA Fisheries with copies of the draft permit and fact sheet during the public notice period. Any comments received from NOAA Fisheries regarding EFH will be considered prior to issuance of this permit.

C. State Certification

The state in which the discharge originates is typically responsible for issuing the certification pursuant to CWA Section 401(a)(1). In the case where the state has no authority to give 401 certification, such as for a discharge located within the boundaries of an Indian Reservation, EPA provides the certification. The point of discharge of the outfall is also located within boundaries of the Quinault Indian Reservation. Indian Tribes may issue 401 certification for discharges within their boundaries if the Tribe has been approved by the EPA pursuant to CWA Section 518(e) and 40 CFR Section 131.8 to administer a water quality standards program. The Quinault Indian Nation has not yet taken on § 401 certification; therefore, EPA is responsible for issuing 401 certification in this case. However, in the course of issuing this NPDES Permit, EPA has coordinated and consulted with the Quinault Indian Nation.

D. Permit Expiration

The permit will expire five years from the effective date.

IX. References

EPA. 1991. *Technical Support Document for Water Quality-based Toxics Control.* US Environmental Protection Agency, Office of Water, EPA/505/2-90-001.

Water Pollution Control Federation. Subcommittee on Chlorination of Wastewater. *Chlorination of Wastewater.* Water Pollution Control Federation. Washington, D.C. 1976.

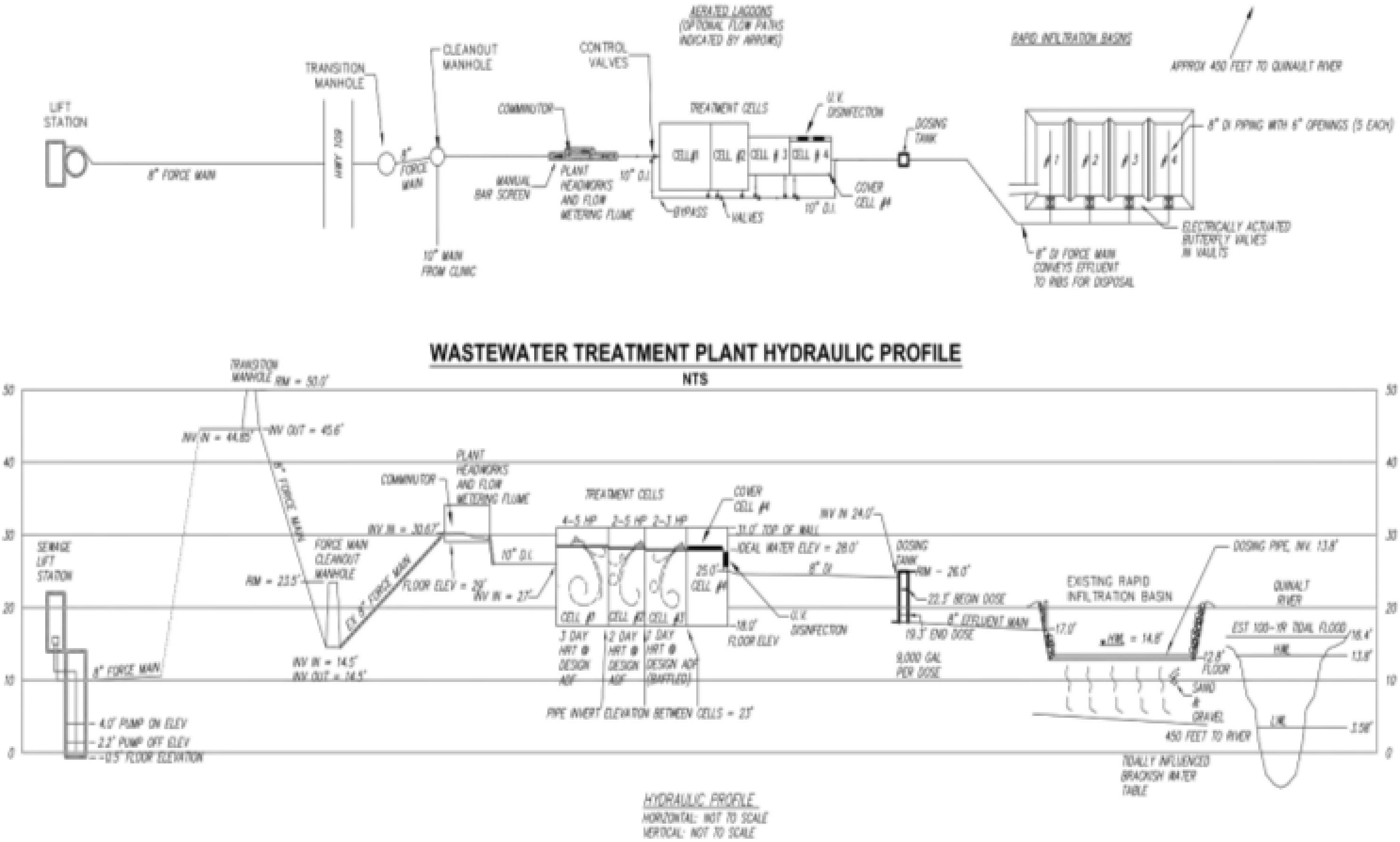
EPA. 2010. *NPDES Permit Writers' Manual.* Environmental Protection Agency, Office of Wastewater Management, EPA-833-K-10-001.

Appendix A: Facility Information

General Information	
NPDES ID Number:	WA0023434
Physical Address:	Taholah Village Wastewater Treatment Plant 114 Quinault Street Taholah, Washington 98587
Mailing Address:	Taholah Village Wastewater Treatment Plant Quinault Indian Nation P.O. Box 189 Taholah, Washington 98587
Facility Background:	Wastewater Treatment Plant for Sanitary Wastes and process waste stream for a fish processing plant.
Facility Information	
Type of Facility:	Small tribally owned and operated wastewater treatment plant.
Treatment Train:	Four celled lagoon system; 4 aerators in the first lagoon, 2 aerators in the second lagoon, 2 aerators in the third lagoon, covered fourth lagoon, UV disinfection, dosing tank, discharge to 4-celled Rapid Infiltration Basins into groundwater.
Flow:	Designed flow rate: 0.2 mgd
Outfall Location:	47º 20’ 34” N, 124º 17’ 00” W.
Receiving Water Information	
Receiving Water:	Discharge into groundwater then into Quinault River due to hydrogeologic connection to the Quinault River.
Watershed as designated by Washington State Dept of Ecology:	Queets/Quinault Water Resources Inventory Area (WRIA) #21, segment: Quinault River and tributaries from mouth to the confluence with the North Fork Quinault River.
Beneficial Uses:	The following water quality use designations apply: Aquatic Life Uses: Core Summer Habitat; Recreational Uses: Extraordinary Primary Contact Water Supply Uses: Domestic Water; Industrial Water; Agricultural Water; Stock Water Misc. Uses: Wildlife Habitat; Commerce/Navigation; Boating; and Aesthetics.
Impairments	None. No applicable TMDL or WLA

Figure A1: Area Map of Taholah Village WWTP

Figure A-2: Schematic of Taholah Village WWTP



Appendix B: Water Quality Criteria Summary

This appendix provides a summary of water quality criteria applicable to the Taholah Village Wastewater Treatment Plant.

Washington State water quality standards include criteria necessary to protect designated beneficial uses. The standards are divided into three sections: General Water Quality Criteria, Surface Water Quality Criteria for Use Classifications, and Site-Specific Surface Water Quality Criteria. The EPA has determined that the criteria listed below are applicable to the Quinault River. This determination was based on (1) the applicable beneficial uses (2) the type of facility, (3) a review of the application materials submitted by the permittee, and (4) the quality of the receiving water. EPA is applying Washington State's Water Quality Standards for freshwater as follows:

Aquatic Life Uses: Core Summer Habitat.
Recreational Uses: Extraordinary Primary Contact
Water Supply Uses: Domestic Water; Industrial Water; Agricultural Water; Stock Water
Misc. Uses: Wildlife Habitat; Harvesting; Commerce/Navigation; Boating; and Aesthetics.

A. General Criteria

General criteria that apply to all aquatic life fresh water uses are described in WAC 173-201A-260 (2)(a) and (b), and are for:
(i) Toxic, radioactive, and deleterious materials; and
(ii) Aesthetic values.

(2) ***Toxics and aesthetics criteria.*** *The following narrative criteria apply to all existing and designated uses for fresh and marine water:*
(a) Toxic, radioactive, or deleterious material concentrations must be below those which have the potential, either singularly or cumulatively, to adversely affect characteristic water uses, cause acute or chronic conditions to the most sensitive biota dependent upon those waters, or adversely affect public health (see WAC 173-201A-240, toxic substances, and 173-201A-250, radioactive substances).
(b) Aesthetic values must not be impaired by the presence of materials or their effects, excluding those of natural origin, which offend the senses of sight, smell, touch, or taste (see WAC 173-201A-230 for guidance on establishing lake nutrient standards to protect aesthetics).

B. Applicable Specific Water Quality Criteria

For the Quinault Indian Nation's Taholah Village WWTP, the discharge characteristics require the following water quality criteria that are necessary for the protection of the beneficial uses of the receiving waters at the Quinault River.

1. WAC 173.201A.200 (2), Table 200(2) (b) bacteria criteria for Extraordinary Primary Contact Recreation use - fecal coliform organism levels must not exceed a geometric mean value of 50 colonies/100mL, with not more than 10 percent of all samples (or any

single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 100 colonies/100mL.

2. WAC 173.201A.200(1)(g), pH criteria for Core summer salmonid habitat - pH shall be within a range of 6.5 to 8.5 with a human-caused variation within the above range of less than 0.2 units

3. WAC 173.201A.200(1)(c), and WAC 173.201A.200(1)(c)(B)(iv), temperature criteria for Core summer salmonid habitat – from June 15 to September 15, the water temperature is measured by the 7-day average of the daily maximum temperature (highest 7-DADMax) of 16º C. When the water body's temperature is warmer than 16ºC (or within 0.3º of 16ºC), and that condition is due to natural conditions, then the human actions considered cumulatively may not cause the 7-DADMax temperature of the receiving water to increase more than 0.3ºC.

4. Water Quality Limited Segment - Any waterbody for which the water quality does not, and/or is not expected to meet, applicable water quality standards is defined as a "water quality limited segment." Except for PCBs in fish tissue, the Quinault River at the vicinity of discharge is not known to be impaired since it is not listed for any parameter on the State of Washington Department of Ecology's Section 303(d) list.

5. WAC 173.201A.240, Table 240(3), Toxics Substances Criteria. For copper and zinc to meet numeric water quality standards described for Freshwater Acute and Chronic criteria.

6. Comparison of Marine Water Quality Standards to Freshwater WQS

   Based on salinity measurements taken during the next permit cycle, if the receiving water is considered to be marine, marine standards at WAC 173.201A.210 would apply. Currently, EPA is applying the Freshwater Standard. Following is a table that compares the applicable Washington State Marine WQS with the Freshwater WQS.

Parameter	Marine Standard	Freshwater Standard
Fecal Coliform bacteria	With Shellfish harvesting: Fecal coliform organism levels must not exceed a geometric mean value of 14 colonies/100 ml, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 43 colonies/100 ml.	Fecal coliform organism levels must not exceed a geometric mean value of 50 colonies/100 ml, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 100 colonies/100 ml.

Temperature	13°C (55.4°F) Highest 1-day maximum	16°C (60.8°F) Highest 7-DADMax
	When the background temperature is warmer than 13°C then the facility may not cause the 7-DAD Max temperature of the receiving water to increase more than 0.3°C (0.54°F).	When the background temperature is warmer than 16°C then the facility may not cause the 7-DADMax temperature of the receiving water to increase more than 0.3°C (0.54°F).
Total Recoverable Copper		Hardness Dependent
Acute (µ/l)	4.8	3.2
Chronic (µ/l)	3.1	2.5
Total Recoverable Zinc		Hardness Dependent
Acute (µ/l)	90	25.5
Chronic (µ/l)	81	23.3
Ammonia		
Acute (µ/l)	233	26
Chronic (µ/l)	230	5.3
pH	7.0-8.5	6.5-8.5

C. Other Concerns

(a) Impacts to Shellfish Harvesting

EPA evaluated an immediate concern from this discharge to shellfish harvesting. EPA has determined that there is no impact to shellfish harvesting based on the following:

According to QIN by email on January 7, 2015, and by letter on January 15, 2015, QIN described that "there is very little if any", shellfish harvesting in the nearest harvesting areas that are over 1-mile from the facility; and, the nearest mussels harvesting area is over 5-miles from the facility. Accordingly, in an email from QIN's Director of Natural Resources on January 15, 2015, Dave Bingaman, concluded that there is no impact to shellfish harvesting from this WWTP. In addition, EPA also consulted with the State of Washington concerning shellfish harvesting in the area. On December 31, 2014, according to the Washington Department of Health, there are no commercial shellfish harvesting in the area; and the nearest commercial shellfish beds are more than 3-miles from the WWTP. Therefore, based on the information from both QIN and the Washington Department of Health, the EPA concludes that there are no impacts to shellfish harvesting from this WWTP.

(b) Impacts to Nearby Groundwater Wells

Because the WWTP discharges to infiltration basins, a potential concern is contamination to nearby groundwater wells. However, according to QIN, there are no potable groundwater wells in the vicinity of the WWTP. Public water is from wells approximately 8 miles away, and there are no privately owned potable groundwater wells in the vicinity, therefore, there is no concern for contamination of potable groundwater wells.

Appendix C: Low Flow Conditions and Dilution

A. Low Flow Conditions

The low flow conditions of a water body are used to determine water quality-based effluent limits. In general, Washington's water quality standards require criteria be evaluated at the following low flow receiving water conditions as defined below:

Acute aquatic life	1Q10 or 1B3
Chronic aquatic life	7Q10 or 4B3
Non-carcinogenic human health criteria	30Q5
Carcinogenic human health criteria	harmonic mean flow
Ammonia	30B3 or 30Q10
1. The 1Q10 represents the lowest one day flow with an average recurrence frequency of once in 10 years. 2. The 1B3 is biologically based and indicates an allowable exceedance of once every 3 years. 3. The 7Q10 represents lowest average 7 consecutive day flow with an average recurrence frequency of once in 10 years. 4. The 4B3 is biologically based and indicates an allowable exceedance for 4 consecutive days once every 3 years. 5. The 30Q5 represents the lowest average 30 consecutive day flow with an average recurrence frequency of once in 5 years. 6. The 30Q10 represents the lowest average 30 consecutive day flow with an average recurrence frequency of once in 10 years. 7. The harmonic mean is a long-term mean flow value calculated by dividing the number of daily flow measurements by the sum of the reciprocals of the flows.	

In this case, the Taholah Village WWTP discharges to the RIBs that are believed to have hydrogeologic connection to the Quinault River. Based on aerial mapping, the RIBs are approximately 505 feet from the Quinault River and the engineering diagrams from IHS states that the RIBs are directly above the water table. According to IHS engineer, Craig Haugland, the RIBs are located approximately 10 feet above the river. Also based on aerial mapping, the distance from the Quinault River perpendicular to the RIBs is approximately 1.16 miles to the mouth of the Quinault River. Accordingly, EPA believes that a hydrogeologic connection exists between the RIBs and the Quinault River.

For the purposes of this permit, EPA is making conservative estimates of dilution factors based on known data. Actual low flow conditions in the vicinity of the WWTP along the Quinault River are unknown because there are no measuring gauges nearby. However, there is a USGS gauge approximately 13.6 miles upstream on the Quinault River near Lake Quinault. Because there is significant stream gain along 13.6 miles upstream to the vicinity of the WWTP, EPA believes that the low flow information, and dilution factors are particularly conservative, especially when the effluent discharged is initially diluted by groundwater prior to reaching surface water.

The low flow and dilution information in this Appendix are only for antidegradation analysis.

For reference, EPA determined critical low flows upstream of the discharge from USGS Gauge # 12040500.

The estimated low flows for the station are presented in Table C-1.

Table C1: Critical Flows at Quinault River near Lake Quinault, Washington			
Units	**1Q10**	**7Q10**	**30B3**
USGS data in cfs	**238**	**291**	**428**
In mgd	**153.5**	**187.7**	**276.1**

B. Mixing Zones and Dilution

In some cases a dilution allowance or mixing zone is permitted. A mixing zone is an area where an effluent discharge undergoes initial dilution and is extended to cover the secondary mixing in the ambient water body. A mixing zone is an allocated impact zone where the water quality standards may be exceeded as long as acutely toxic conditions are prevented. The federal regulations at 40 CFR 131.13 states that "States may, at their discretion, include in their State standards, policies generally affecting their application and implementation, such as mixing zones, low flows and variances."

The Washington Water Quality Standards at WAC 173-201A-400 provides a mixing zone policy for point source discharges. The policy allows Ecology to authorize a mixing zone for a point source discharge if circumstances meet regulations in the Washington Water Quality Standards for granting a mixing zone. Pertaining to WAC 173-201A-400(7)(a), the following code states:

(7) The maximum size of a mixing zone shall comply with the following:
(a) In rivers and streams, mixing zones, singularly or in combination with other mixing zones, shall comply with the most restrictive combination of the following (this size limitation may be applied to estuaries having flow characteristics that resemble rivers):
(i) Not extend in a downstream direction for a distance from the discharge port(s) greater than three hundred feet plus the depth of water over the discharge port(s), or extend upstream for a distance of over one hundred feet;
(ii) Not utilize greater than twenty-five percent of the flow; and
(iii) Not occupy greater than twenty-five percent of the width of the water body.

The following formula is used to calculate a dilution factor based on an allowed mixing zone.

$$D = \frac{Q_e + Q_u \times \%MZ}{Q_e}$$

Where:

D	=	Dilution Factor
Q_e	=	Effluent flow rate (set equal to the design flow of the WWTP)
Q_u	=	Receiving water low flow rate upstream of the discharge (1Q10, 7Q10, 30B3, etc)
%MZ	=	Percent Mixing Zone

The EPA calculated dilution factors for year-round critical low flow conditions. All dilution factors are calculated with the effluent flow rate set equal to the design flow of 0.2 mgd. The dilution factors are listed in Table C-2.

Table C-2: Dilution Factors in the Quinault River		
Flows	Dilution Factors	Allowable percent of river flow
1Q10 – Acute	20.2	2.5%
7Q10 – Chronic	236.1	25%
Note: Dilution factors for both toxics and for total ammonia per Washington WQS.		

Compliance with water quality standards is required in the Quinault River. The flow in the Quinault River at the discharge is greater than the upstream flows used to determine the dilution factors shown in Table C-2. In addition, the WWTP discharges into groundwater, which forms a plume that is diluted with groundwater prior to seepage into the Quinault River. These two factors result in a conservative estimate of the dilution factors shown in Table C-2.

All of the effluent limitations in the proposed permit are end-of-pipe limits, and are not derived from a mixing zone. Depending on the salinity of the Quinault River at the vicinity of the WWTP, the receiving water may be considered marine waters or freshwater in the next permit cycle.

Appendix D: Basis for Effluent Limits

The following discussion explains the derivation of technology and water quality based effluent limits proposed in the draft permit. Part A discusses technology-based effluent limits, Part B discusses water quality-based effluent limits in general, Part C discusses anti-backsliding provisions, Part D discusses the effluent limits imposed due to the State's anti-degradation policy, and Part E presents a summary of the facility specific limits.

A. Technology-Based Effluent Limits

Federal Secondary Treatment Effluent Limits

The CWA requires POTWs to meet performance-based requirements based on available wastewater treatment technology. Section 301 of the CWA established a required performance level, referred to as "secondary treatment," which all POTWs were required to meet by July 1, 1977. The EPA has developed and promulgated "secondary treatment" effluent limitations, which are found in 40 CFR 133.102. These technology-based effluent limits apply to all municipal wastewater treatment plants and identify the minimum level of effluent quality attainable by application of secondary treatment in terms of BOD_5, TSS, and pH. The federally promulgated secondary treatment effluent limits are listed in Table D-1.

Table D-1: Secondary Treatment Effluent Limits (40 CFR 133.102)

Parameter	30-day average	7-day average
BOD_5	30 mg/L	45 mg/L
TSS	30 mg/L	45 mg/L
Removal for BOD_5 and TSS (concentration)	85% (minimum)	---
pH	within the limits of 6.0 - 9.0 s.u.	

Mass-Based Limits

The federal regulation at 40 CFR 122.45(f) requires that effluent limits be expressed in terms of mass, if possible. The regulation at 40 CFR 122.45(b) requires that effluent limitations for POTWs be calculated based on the design flow of the facility. The mass based limits are expressed in pounds per day and are calculated as follows:

Mass based limit (lb/day) = concentration limit (mg/L) × design flow (mgd) × 8.34[1]

Since the design flow for this facility is 0.2 mgd, the technology based mass limits for BOD_5 and TSS are calculated as follows:

Average Monthly Limit = 30 mg/L × 0.2 mgd × 8.34 = 50 lbs/day

Average Weekly Limit = 45 mg/L × 0.2 mgd × 8.34 = 75 lbs/day

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[1] 8.34 is a conversion factor with units (lb ×L)/(mg × gallon×10^6)

B. Water Quality-based Effluent Limits

Statutory and Regulatory Basis

Section 301(b)(1)(C) of the CWA requires the development of limitations in permits necessary to meet water quality standards. Discharges to State or Tribal waters must also comply with limitations imposed by the State or Tribe as part of its certification of NPDES permits under section 401 of the CWA. Federal regulations at 40 CFR 122.4(d) prohibit the issuance of an NPDES permit that does not ensure compliance with the water quality standards of all affected States.

The NPDES regulation (40 CFR 122.44(d)(1)) implementing Section 301(b)(1)(C) of the CWA requires that permits include limits for all pollutants or parameters which are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State or Tribal water quality standard, including narrative criteria for water quality, and that the level of water quality to be achieved by limits on point sources is derived from and complies with all applicable water quality standards.

The regulations require the permitting authority to make this evaluation using procedures which account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant in the effluent, species sensitivity (for toxicity), and where appropriate, dilution in the receiving water. The limits must be stringent enough to ensure that water quality standards are met, and must be consistent with any available wasteload allocation.

Reasonable Potential Analysis

Reasonable Potential Analysis is used to evaluate if the effluent can cause, or contribute to an excursion above any State/Tribal water quality criterion. The EPA projects the receiving water concentration (downstream of where the effluent enters the receiving water) for each pollutant of concern. The EPA uses the concentration of the pollutant in the effluent and receiving water and, if appropriate, the dilution available from the receiving water, to project the receiving water concentration. If the projected concentration of the pollutant in the receiving water exceeds the numeric criterion for that specific pollutant, then the discharge has the reasonable potential to cause or contribute to an excursion above the applicable water quality standard, and a water quality-based effluent limit is required.

Sometimes it may be appropriate to allow a small area of the receiving water to provide dilution of the effluent. These areas are called mixing zones. Mixing zone allowances will increase the mass loadings of the pollutant to the water body and will decrease treatment requirements. Mixing zones can be used only when there is adequate receiving water flow volume and the concentration of the pollutant in the receiving water is less than the criterion necessary to protect the designated uses of the water body. Mixing zones must be authorized by the State.

Reasonable Potential Analysis for Ammonia

For this permit, Total Ammonia would be the only parameter necessary for conducting a reasonable potential analysis. Details of the reasonable potential analysis are shown in Appendix E. The analysis showed no reasonable potential to violate Washington’s WQS.

Calculation of Ammonia Criteria

Based on Washington's Water Quality Standards for Surface Waters, Chapter 173-201A WAC, amended May 9, 2011, ammonia criteria is calculated as follows:

Acute Criteria:

Shall not exceed the numerical value in total ammonia nitrogen (mg N/L) given by:

$$\textit{For salmonids present:}\ \frac{0.275}{1+10^{7.204-pH}}+\frac{39.0}{1+10^{pH-7.204}}$$

Chronic Criteria:

Unionized ammonia concentration for waters where salmonid habitat is an existing or designated use:

$$0.80 \div (FT)(FPH)(RATIO)$$

where:

$$\mathrm{RATIO} = 13.5;\ 7.7 \le \mathrm{pH} \le 9$$

$$\mathrm{RATIO} = \left(20.25 \times 10^{(7.7-\mathrm{pH})}\right) \div \left(1 + 10^{(7.4-\mathrm{pH})}\right); 6.5 \le \mathrm{pH} \le 7.7$$

$$\mathrm{FT} = 1.4; 15 \le \mathrm{T} \le 30$$

$$\mathrm{FT} = 10^{[0.03(20-\mathrm{T})]};\ 0 \le \mathrm{T} \le 15$$

$$\mathrm{FPH} = 1; 8 \le \mathrm{pH} \le 9$$

$$\mathrm{FPH} = \left(1 + 10^{(7.4-\mathrm{pH})}\right) \div 1.25; 6.5 \le \mathrm{pH} \le 8.0$$

Using Ecology's spreadsheet, the ammonia criteria is as follows, with the following printout from the spreadsheet which calculated the acute and chronic criteria:

Acute Criteria = 32.101 mg/l

Chronic Criteria = 2.106 mg/l

EPA used these calculated ammonia acute and chronic criteria to determine if there is reasonable potential to exceed Washington WQS, as shown in Appendix E.

Freshwater Un-ionized Ammonia Criteria Calculation

Based on Chapter 173-201A WAC, amended November 20, 2006

		mixed @ Acute Boundary	mixed @ Chronic Boundary	mixed @ Whole River
INPUT				
1. Receiving Water Temperature (deg C):	14.94	#DIV/0!	#DIV/0!	#DIV/0!
2. Receiving Water pH:	6.54	#DIV/0!	#DIV/0!	#DIV/0!
3. Is salmonid habitat an existing or designated use?	Yes	Yes	Yes	Yes
4. Are non-salmonid early life stages present or absent?	Present	Present	Present	Present
OUTPUT				
Using mixed temp and pH at mixing zone boundaries?	no			
Ratio	35.503	#DIV/0!	#DIV/0!	#DIV/0!
FT	1.418	#DIV/0!	#DIV/0!	#DIV/0!
FPH	6.595	#DIV/0!	#DIV/0!	#DIV/0!
pKa	9.566	#DIV/0!	#DIV/0!	#DIV/0!
Unionized Fraction	0.001	#DIV/0!	#DIV/0!	#DIV/0!
Unionized ammonia NH3 criteria (mg/L as NH_3)				
Acute:	0.037	#DIV/0!	#DIV/0!	#DIV/0!
Chronic:	0.002	#DIV/0!	#DIV/0!	#DIV/0!
RESULTS				
Total ammonia nitrogen criteria (mg/L as N):				
Acute:	32.101	#DIV/0!		#DIV/0!
Chronic:	2.106		#DIV/0!	#DIV/0!

Data source:

Facility Specific Water Quality Based Effluent Limits

(a) Toxic Substances

This application will not be screened against the toxic substances found in the National Toxics Rule since the Taholah Village WWTP will not be required to submit Expanded Effluent Testing Data or Toxicity Testing Data as the treatment plant design flow is less than 1.0 MGD.

(b) Metals

The Taholah Village WWTP accepts an unknown quantity of wastewater from a fish processing plant. Since fish processing plants have been known to discharge copper and zinc from processing equipment, EPA is requiring the monitoring of copper and zinc in the wastewater. The monitoring results will be used to determine whether effluent limits for copper and zinc are necessary for the next permit.

(c) Fecal Coliform Bacteria

The water quality standard apply pertaining to Fecal coliform bacteria is for the beneficial uses of Extraordinary Primary Contact Recreation.

WAC 173.201A.200(2), Table 200(2)(b), the bacteria criteria for Extraordinary Primary Contact Recreation use states that fecal coliform organism levels must not exceed a geometric mean value of 50 colonies/100mL, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 100 colonies/100mL.

Accordingly, EPA is proposing the 50 colonies/100 ml as the Average Monthly Limit; and, 100 colonies/ 100 ml as the Maximum Daily Limit since the permittee is only required to collect 5 samples per month (i.e., less than ten samples trigger as indicated by Washington WQS).

(d) Total Residual Chlorine (TRC)

The Taholah Village WWTP does not use chlorine for disinfection; therefore, no effluent limits are required for TRC.

(e) pH

Minimum and maximum pH values have been included in the draft permit in the range of 6.5 and 8.5 standard units. These effluent limits are consistent with Washington's Water Quality Standards for Core Summer Salmonid Habitat. The pH range in the draft permit is a change from the previous permit which was from 6.0 to 9.0 standard units.

(f) Dissolved Oxygen

BOD discharged into the groundwater from the Taholah Village Wastewater Treatment Plant is not expected to have an appreciable effect on the dissolved oxygen concentration in the Quinault River. For dissolved oxygen, the point of compliance for determining if a measurable change would occur is at the point of maximum oxygen depletion (caused by an increase in BOD and nutrients) which often occurs many miles down gradient. The discharge is close to the mouth of the Quinault River which drains into coastal waters of the Pacific Ocean. If the point of maximum oxygen depletion occurs miles down gradient, the dilution factor will be far greater than the chronic dilution factor in the river of 236.1. The proposed effluent limitation for BOD are not only required Federal Secondary Treatment Standards, but would also control the discharge of oxygen demanding constituents into the Quinault River. Therefore no dissolved oxygen effluent limits are proposed.

(g) Ammonia

As discussed above, a reasonable potential analysis was conducted which showed that there is no reasonable potential to exceed Washington WQS for ammonia. Accordingly, EPA is not proposing effluent limits for total ammonia. EPA is requiring monitoring of total ammonia in the effluent, and in the surface water upstream at Quinault River. EPA will use the monitoring results to conduct a reasonable potential analysis for ammonia in the next permit cycle and determine if effluent limits for ammonia are warranted.

(h) Temperature

The applicable temperature standards are the aquatic life temperature criteria found in WAC 173.201A.200(1)(c): water temperature is measured by the 7-day average of the daily maximum temperatures (7-DADMax). Table 200 (1)(c) lists the temperature criteria for each of the aquatic life use categories.

For Core Summer Salmonid Habitat (June 15 to September 15): 16ºC;

Where, "7-DADMax" or "7-day average of the daily maximum temperatures" is the arithmetic average of seven consecutive measures of daily maximum temperatures. The 7-DADMax for any individual day is calculated by averaging that day's daily maximum temperature with the daily maximum temperatures of the three days prior and the three days after that date.

And, WAC 173.201A.200(1)(c.)(i) states: When a water body's temperature is warmer than the criteria in Table 200(1)(c) (or within 0.3°C (0.54°F) of the criteria) and that condition is due to natural conditions, then human actions considered cumulatively may not cause the 7-DADMax temperature of that water body to increase more than 0.3°C (0.54°F).

Based on DMR data from January 2010 to October 2014, the 95th percentile of effluent temperature is 22ºC. However, subsurface conditions indicate that it is impossible for excessive temperature in the effluent to violate Washington's temperature criteria in the river for Salmonid Spawning, Rearing and Migration, or for Core Summer Salmonid Habitat. In this case, it is unlikely for Washington's temperature criteria to be violated because the discharge into the Quinault River from the facility is initially cooled by the ground, and by surrounding groundwater. The discharge into the infiltration basins is initially in contact with the cooler soil at depth, then mixed and diluted with existing groundwater, which both are cooler media. Because the groundwater table is at least 13 feet below surface (IHS, January 21, 2015 email), a near constant year round groundwater temperature can be assumed. According to USDA's Washington Soil Atlas for Moclips Series soil, the average annual soil temperature is approximately 48ºF (9ºC) (see page 55, Washington Soil Atlas: http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs144p2_034094.pdf. Also, according to IHS's January 21, 2015 email, the temperature of groundwater in the vicinity is approximately 10.5ºC. Accordingly, EPA estimates the groundwater temperature beneath the RIBs to be in the range of 9ºC to 10.5ºC. Furthermore, according to IHS, the groundwater does not surface prior to the river, therefore, the temperature of the effluent is expected to cool to ground conditions until the groundwater plume reaches the river.

According to USGS, "*Velocities of ground-water flow generally are low and are orders of magnitude less than velocities of streamflow*" (USGS Circular 1186, Sustainability of Ground Water Resources, 1999, http://pubs.usgs.gov/circ/circ1186/html/gen_facts.html).
Also according to USGS, the estimated rate of groundwater flow through the sand and gravel is 0.8 to 2.3 feet per day (page 9, "Sewage Plume in Sand and Gravel Aquifer, Cape Cod, Massachusetts", USGS Water Supply Paper 2218: http://pubs.usgs.gov/wsp/wsp2218/pdf/wsp_2218b.pdf). Therefore depending on site specific aquifer characteristics, it is expected that the groundwater plume would take in the order of weeks to travel 505 feet from the RIBs to the river. These circumstances support the conclusion that the effluent discharged into the RIBs would have sufficient time to be cooled to ambient subsurface temperature of approximately 9ºC to 10.5ºC, and there would not have reasonable potential to violate applicable Washington WQS of 16ºC.

Accordingly, EPA did not propose an effluent limit for temperature.

C. Anti-backsliding Provisions

The proposed permit is a permit issuance of an existing source, anti-backsliding requirements do not apply. The following paragraphs explains how this proposed permit issuance would also meet anti-backsliding provisions even if the proposed action is for permit reissuance.

Section 402(o) of the Clean Water Act and federal regulations at 40 CFR §122.44 (l) generally prohibit the renewal, reissuance or modification of an existing NPDES permit that contains effluent limits, permit conditions or standards that are less stringent than those established in the previous permit (i.e., anti-backsliding) but provides limited exceptions. Section 402(o)(1) of the CWA states that a permit may not be reissued with less-stringent limits established based on Sections 301(b)(1)(C), 303(d) or 303(e) (i.e. water quality-based limits or limits established in accordance with State treatment standards) except in compliance with Section 303(d)(4). Section 402(o)(1) also prohibits backsliding on technology-based effluent limits established using best professional judgment (i.e. based on Section 402(a)(1)(B)), but in this case, the effluent limits being revised are water quality-based effluent limits (WQBELs).

Section 303(d)(4) of the CWA states that, for water bodies where the water quality meets or exceeds the level necessary to support the water body's designated uses, WQBELs may be revised as long as the revision is consistent with the State's antidegradation policy. Additionally, Section 402(o)(2) contains exceptions to the general prohibition on backsliding in 402(o)(1). According to the EPA NPDES Permit Writers' Manual (EPA-833-K-10-001) the 402(o)(2) exceptions are applicable to WQBELs (except for 402(o)(2)(B)(ii) and 402(o)(2)(D)) and are independent of the requirements of 303(d)(4). Therefore, WQBELs may be relaxed as long as either the 402(o)(2) exceptions or the requirements of 303(d)(4) are satisfied.

Even if the requirements of Sections 303(d)(4) or 402(o)(2) are satisfied, Section 402(o)(3) prohibits backsliding which would result in violations of water quality standards or effluent limit guidelines.

The proposed permit would not result in violations of the water quality standards or effluent guidelines, therefore, the proposed permit complies with Section 402(o)(3). In addition, the proposed permit is more stringent than the previous permit.

An anti-backsliding analysis was done for the Taholah Village WWTP. Because the last permit which was issued in 2005 had expired in 2010; and the permit was not administratively extended, EPA regards the proposed action as a permit issuance rather than a permit reissuance. Also, because the WWTP had previously been permitted, pursuant to Section 122.29(a)(3), the WWTP is an existing source rather than a new source or a new discharger. Accordingly, anti-backsliding requirements do not apply.

All effluent limitations are exactly the same as the draft permit except for bacteria and pH. In the case of bacteria, EPA changed the limit parameter from E.coli to Fecal Coliform to comply with Washington State Water Quality Standards. This change of bacteria standard does not trigger antibacksliding. For pH, the proposed permit is more stringent than the previous permit; the change is effluent limits for pH meets Washington State Water Quality Standards.

In conclusion, the proposed action is a permit issuance, anti-backsliding requirements do not apply. Therefore, even if the proposed permit was considered a permit reissuance, rather than a permit issuance, this proposed permit would comply with anti-backsliding requirements.

D. Antidegradation

The EPA is required under Section 301(b)(1)(C) of the Clean Water Act (CWA) and implementing regulations (40 CFR 122.4(d) and 122.44(d)) to establish conditions in NPDES permits that ensure protection of the downstream State water quality standards, including antidegradation requirements. EPA has prepared an antidegradation analysis consistent with Ecology's antidegradation implementation procedures. EPA referred to Washington's antidegradation policy (WAC 173-201A-300) and Ecology's 2011 Supplemental Guidance on Implementing Tier II Antidegradation (http://www.ecy.wa.gov/biblio/1110073.html)

The purpose of Washington's Antidegradation Policy is to:

- Restore and maintain the highest possible quality of the surface waters of Washington.
- Describe situations under which water quality may be lowered from its current condition.
- Apply to human activities that are likely to have an impact on the water quality of surface water.
- Ensure that all human activities likely to contribute to a lowering of water quality, at a minimum, apply all known, available, and reasonable methods of prevention, control, and treatment (AKART).
- Apply three tiers of protection (described below) for surface waters of the state.
    - Tier I ensures existing and designated uses are maintained and protected and applies to all waters and all sources of pollution.

- o Tier II ensures that waters of a higher quality than the criteria assigned are not degraded unless such lowering of water quality is necessary and in the overriding public interest. Tier II applies only to a specific list of polluting activities.
- o Tier III prevents the degradation of waters formally listed as "outstanding resource waters," and applies to all sources of pollution.

The receiving water from the outfall is the Quinault River and the anti-degradation analysis was completed for this receiving water body. Accordingly, EPA will use the designated classification criteria for this water body in the proposed permit. The discharges authorized by this proposed permit should not cause a loss of beneficial uses.

For the purpose of the anti-degradation analysis in the Quinault River, EPA made the following assumptions:

- The facility is considered a new facility because the last permit has expired, and cannot be administratively extended;
- EPA conducted the antidegradation analysis on the Quinault River because it is the receiving waterbody from the groundwater plume.
- Average temperature data, and low flows based on the chronic criteria are used to simulate conservatively representative conditions for anti-degradation analysis.

The 7Q10 low flow in the Quinault River (USGS Gauge number, 12039500, located upstream near Lake Quinault, Washington) is 187.7 mgd, which calculates to a chronic dilution factor of 236 based on a 25% mixing zone and the WWTP's design flow of 0.2 mgd. Accordingly, the 1Q10 low flow is used to calculate the acute dilution factor of 20.2, based on a 2.5% mixing zone. Both the chronic and acute dilution factors are conservative because the gauge being located approximately 13.6 miles upstream, and the river flow where the discharge occurs is likely to be significantly higher due to additional contributions from tributaries between the USGS Gauge and the vicinity of the WWTP. Therefore, had there been another gauge closer, the chronic and acute dilution factors would be greater than 236 and 20.2, respectively.
Based on a review of the water quality data for the Quinault River, the receiving water qualifies for both Tier I and Tier II protection (explained in more detail below).

Tier I Protection
According to Washington's antidegradation policy, a facility must first meet Tier I requirements. Existing and designated uses must be maintained and protected. No degradation may be allowed that would interfere with, or become injurious to, existing or designated uses, except as provided for in Chapter 173-201A WAC. The Quinault River at the point of discharge has the following designated beneficial uses:

Aquatic Life Uses: Core Summer Habitat;
Recreational Uses: Extraordinary Primary Contact
Water Supply Uses: Domestic Water; Industrial Water; Agricultural Water; Stock Water
Misc. Uses: Wildlife Habitat; Harvesting; Commerce/Navigation; Boating; and Aesthetics.

The effluent limits in the draft permit ensure compliance with applicable numeric and narrative water quality criteria. The numeric and narrative water quality criteria are set at levels that ensure protection of the designated uses. As there is no information indicating the presence of existing beneficial uses other than those that are designated, the draft permit ensures a level of water quality necessary to protect the designated uses and, in compliance with WAC 173-201A-310 and 40 CFR 131.12(a)(1), also ensures that the level of water quality necessary to protect existing uses is maintained and protected.

If EPA receives information during the public comment period demonstrating that there are existing uses for which the Quinault River is not designated, EPA will consider this information before issuing a final permit and will establish additional or more stringent permit conditions if necessary to ensure protection of existing uses.

Tier II Protection

A facility must prepare a Tier II analysis when the facility is planning a new or expanded action that has the potential to cause measurable degradation to existing water quality at the edge of a chronic mixing zone. A Tier II analysis consists of an evaluation of whether or not the proposed degradation of water quality that would be associated with a new or expanded action would be both necessary and in the overriding public interest. A Tier II analysis focuses on evaluating feasible alternatives that would eliminate or significantly reduce the level of degradation. The analysis also includes a review of the benefits and costs associated with the lowering of water quality. New discharges and facility expansions are prohibited from lowering water quality without providing overriding public benefits.

The effluent from the Taholah Village WWTP is considered a new discharge to the Quinault River and therefore is considered a new or expanded source of pollution. Accordingly, EPA evaluated whether a Tier II analysis would be necessary. If a discharge has the potential to cause measurable change degradation to existing water quality at the edge of the chronic mixing zone, the facility would then need to conduct a full Tier II analysis.

Ecology water quality standards define a measurable change to include:

(a) Temperature increase of 0.3°C or greater;
(b) Dissolved oxygen decrease of 0.2 mg/L or greater;
(c) Bacteria level increase of 2 cfu/100 mL or greater;
(d) pH change of 0.1 units or greater;
(e) Turbidity increase of 0.5 NTU or greater; or
(f) Any detectable increase in the concentration of a toxic or radioactive substance.

To determine what is measurable, EPA evaluated the expected change for each parameter at the edge of the chronic mixing zone, using a chronic dilution factor of 236. EPA determined that a Tier II analysis is **not** required because this facility will not cause measurable change to existing water quality at the edge of the chronic mixing zone. An explanation of EPA's Tier II eligibility analysis is below.

(a) Temperature

According to monitoring data submitted from the facility, the 95^{th} percentile of surface water temperature in the Quinault River is 14.94 °C. However, based on USDA and U.S. Indian

Health Service, the average soil/groundwater temperature in the area is approximately 9°C to 10.5°C. Due to ground thermal conduction effects, and dilution with groundwater, EPA assumes that the groundwater plume discharging into the Quinault River is also averaging at 9°C to 10.5ºC. Given the high dilution factor (236) in the river, and dilution with groundwater, the temperature of the receiving water is expected to be unchanged by the discharge into the Rapid Infiltration Basins from the facility. Thus, the discharge will not cause or contribute to a temperature increase of 0.3°C or greater and this parameter does not trigger the Tier II antidegradation analysis.

(b) Dissolved oxygen (DO)

Based on 55 data points (January 2010 to September 2014) that were provided to EPA, the Taholah Village WWTP produced an average BOD_5 (Monthly Average) of 26.73 mg/l. The facility is a minor discharger, with a design flow of 0.2 mgd. Its effluent is within permitted limits, and there is initial dilution with groundwater prior to discharge into the river which has a high dilution factor, and a lengthy residence time in the ground prior to discharge. Accordingly, the facility's discharge does not have the potential to cause a measurable depression of dissolved oxygen (0.2 mg/L or greater) at the edge of the chronic mixing area and this parameter does not trigger Tier II antidegradation analysis.

For dissolved oxygen, the point of compliance for determining if a measurable change would occur is at the point of maximum oxygen depletion (caused by an increase in BOD_5 and nutrients)- this often occurs many miles down gradient. The discharge is close to the mouth of the Quinault River which drains into coastal waters of the Pacific Ocean. If the point of maximum oxygen depletion occurs miles down gradient, the dilution factor will be far greater than the chronic dilution factor in the river of 236. Therefore, the facility's discharge will not cause any measurable change of dissolved oxygen in the near or far field and therefore this parameter does not trigger the Tier II antidegradation analysis.

(c) Bacteria

Given the receiving water's high dilution factor (236), initial groundwater dilution, a lengthy residence time in the ground of several weeks, and the fact that this facility treats wastewater with UV disinfection, the facility's discharge is not expected to have potential to cause a bacteria level increase of 2 cfu/100 mL or greater. Therefore, the discharge will not cause measurable change to existing water quality at the edge of the chronic mixing zone and therefore this parameter does not trigger the Tier II antidegradation analysis.

(d) pH

From December 2009 to September 2014, a total of 114 effluent pH samples were collected at the Taholah Village WWTP. The effluent data ranged from 6.02 – 7.32 standard units, with an average value of 6.70 standard units. This data shows that the facility is operating within former permitted pH limits of 6.0 to 9.0 standard units. Because the facility discharges to rapid infiltration basins where the effluent is diluted with existing groundwater and influenced by local soil pH, and temperature, EPA concludes that the facility's discharge would not cause a measurable pH change in the Quinault River. Since the proposed discharge will not cause a pH change of 0.1 units or greater, this parameter does not trigger Tier II antidegradation analysis.

(e) Turbidity

The trigger for a Tier II review is when the discharge would cause a 0.5 NTU increase in turbidity over background levels at the edge of the mixing zone. EPA determined the turbidity of the discharge for this case that would not cause a 0.5 NTU increase over background levels. Assuming background turbidity is zero (C_u) and using Equation 6 in Appendix E,

$$C_d = \frac{C_e - C_u}{D} + C_u \qquad \text{Equation 6}$$

Solving for C_e:

$$C_e = C_d \times D$$

$$C_e = 0.5 \times 236 = 118 \text{ NTU}$$

In this case, there is indirect discharge to the Quinault River from ground seepage. The initial discharge from the RIBs into the groundwater causes the effect of natural sand filtration which reduces turbidity of the effluent prior to discharge into the river. In addition, the effluent is initially diluted by groundwater prior to entering the Quinault River with a high dilution factor of 236. Due to hydrogeology of the groundwater plume, the seepage discharge into the river is expected to be diffused and over a large surface area. Therefore, the EPA estimates that the effluent at the point of discharge into the Quinault River is less than an increase of 118 NTU, and therefore this parameter does not trigger the Tier II antidegradation analysis.

(f) Toxic or radioactive substances

Ecology provides guidance for estimating whether a new discharge would have the potential to cause a measurable degradation of water quality due to toxic substances. The first step is to estimate the concentrations of toxic pollutants at the edge of a chronic mixing zone. This procedure is based on the premise that the quantification level associated with the analytical method yielding the lowest detection level represents measurable degradation under Tier II for toxics. If the estimated effluent concentration is below the method with the lowest detection level, then no Tier II analysis is required. In the case of this permit, ammonia is the only toxic substance of concern.

The analytical method yielding the lowest detection limit that is approved for use in surface water analysis by the EPA is Method 350.1, "Determination of Ammonia Nitrogen by Semi-automated Colorimetry." The applicable range is 0.01-2.0 mg/L NH3 as N. There is abundant dilution due to site conditions: chronic ammonia dilution factor in the river is very large (236) even when not accounting for initial groundwater dilution beneath the RIBs. The large dilution available when compared with the low 95^{th} percentile concentration of ammonia in the effluent during the last permit cycle of 2.1 mg/l, suggests that the effluent would not be expected to have sufficiently high ammonia levels that would trigger an ammonia concentration change of greater than 0.01 mg/l in the river. In accordance with Ecology's guidance, the maximum reported effluent concentration was divided by the dilution factor (the WWTP's chronic ammonia dilution factor is 236.1) must be less than 0.01 to be considered unmeasurable. In this case, when 2.1 mg/l (95th percentile effluent concentration) is divided by the chronic dilution factor of 236.1, the result yields 0.0089 mg/l.

Because the resulting value is less than the method detection limit that would have been provided by the most sensitive analytical method, this facility has no potential to cause a measurable degradation of water quality due to toxic substances. Because there is no measurable change in ammonia, this parameter does not trigger a Tier II antidegradation analysis.

E. Facility Specific Limits

Table D-2 summarizes the numeric effluent limits that are in the proposed permit. The final limits are the more stringent of technology treatment requirements, water quality based limits or limits retained as the result of anti-backsliding analysis or to meet the State's anti-degradation policy.

Table D-2: Proposed Effluent Limits

Parameter	Units	Effluent Limits			Basis for Effluent Limits
		Average Monthly Limit	Average Weekly Limit	Maximum Daily Limit	
Five-Day Biochemical Oxygen Demand (BOD_5)	mg/L	30	45		Federal Secondary Treatment Standards
	lb/day	50	75.06		
BOD_5 Removal	percent	85 minimum			
Total Suspended Solids (TSS)	mg/L	30	45		Federal Secondary Treatment Standards
	lb/day	50	75.06		
TSS Removal	percent	85 minimum			
Fecal coliform bacteria	Colonies per #/100 ml	50[1] (geometric mean)		100	Washington State Water Quality Standards
pH	s.u.	6.5 to 8.5			Washington State WQS

Footnote:
1. Fecal coliform organism levels must not exceed a geometric mean value of 50 colonies/100 mL, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 100 colonies/100 ml.

Appendix E: Reasonable Potential and Water Quality-Based Effluent Limit Calculations

Part A of this appendix explains the process the EPA used to determine if the discharge authorized in the draft permit has the reasonable potential to cause or contribute to a violation of Idaho's federally approved water quality standards. Part B demonstrates how the water quality-based effluent limits (WQBELs) in the draft permit were calculated.

A. Reasonable Potential Analysis

The EPA uses the process described in the *Technical Support Document for Water Quality-based Toxics Control* (EPA, 1991) to determine reasonable potential. To determine if there is reasonable potential for the discharge to cause or contribute to an exceedance of water quality criteria for a given pollutant, the EPA compares the maximum projected receiving water concentration to the water quality criteria for that pollutant. If the projected receiving water concentration exceeds the criteria, there is reasonable potential, and a water quality-based effluent limit must be included in the permit. This following section discusses how the maximum projected receiving water concentration is determined.

Mass Balance

For discharges to flowing water bodies, the maximum projected receiving water concentration is determined using the following mass balance equation:

$$C_d Q_d = C_e Q_e + C_u Q_u \qquad \text{Equation 1}$$

where,

C_d = Receiving water concentration downstream of the effluent discharge (that is, the concentration at the edge of the mixing zone)
C_e = Maximum projected effluent concentration
C_u = 95th percentile measured receiving water upstream concentration
Q_d = Receiving water flow rate downstream of the effluent discharge = Q_e+Q_u
Q_e = Effluent flow rate (set equal to the design flow of the WWTP)
Q_u = Receiving water low flow rate upstream of the discharge (1Q10, 7Q10 or 30B3)

When the mass balance equation is solved for C_d, it becomes:

$$C_d = \frac{C_e \times Q_e + C_u \times Q_u}{Q_e + Q_u} \qquad \text{Equation 2}$$

The above form of the equation is based on the assumption that the discharge is rapidly and completely mixed with 100% of the receiving stream.

If the mixing zone is based on less than complete mixing with the receiving water, the equation becomes:

$$C_d = \frac{C_e \times Q_e + C_u \times (Q_u \times \%MZ)}{Q_e + (Q_u \times \%MZ)} \qquad \text{Equation 3}$$

Where:

% MZ = the percentage of the receiving water flow available for mixing.

If a mixing zone is not allowed, dilution is not considered when projecting the receiving water concentration and,

$$C_d = C_e \qquad \text{Equation 4}$$

A dilution factor (D) can be introduced to describe the allowable mixing. Where the dilution factor is expressed as:

$$D = \frac{Q_e + Q_u \times \%MZ}{Q_e} \qquad \text{Equation 5}$$

After the dilution factor simplification, the mass balance equation becomes:

$$C_d = \frac{C_e - C_u}{D} + C_u \qquad \text{Equation 6}$$

If the criterion is expressed as dissolved metal, the effluent concentrations are measured in total recoverable metal and must be converted to dissolved metal as follows:

$$C_d = \frac{CF \times C_e - C_u}{D} + C_u \qquad \text{Equation 7}$$

Where C_e is expressed as total recoverable metal, C_u and C_d are expressed as dissolved metal, and CF is a conversion factor used to convert between dissolved and total recoverable metal.

The above equations for C_d are the forms of the mass balance equation which were used to determine reasonable potential and calculate wasteload allocations.

Maximum Projected Effluent Concentration

When determining the projected receiving water concentration downstream of the effluent discharge, the EPA's Technical Support Document for Water Quality-based Toxics Controls (TSD, 1991) recommends using the maximum projected effluent concentration (Ce) in the mass balance calculation (see equation 3, page C-5). To determine the maximum projected effluent concentration (Ce) the EPA has developed a statistical approach to better characterize the effects of effluent variability. The approach combines knowledge of effluent variability as estimated by a coefficient of variation (CV) with the uncertainty due to a limited number of data to project an estimated maximum concentration for the effluent. Once the CV for each pollutant parameter has been calculated, the reasonable potential multiplier (RPM) used to derive the maximum projected effluent concentration (Ce) can be calculated using the following equations:

First, the percentile represented by the highest reported concentration is calculated.

$p_n = (1 - \text{confidence level})^{1/n}$ Equation 8

where,

p_n = the percentile represented by the highest reported concentration
n = the number of samples
confidence level = 99% = 0.99

and

$$RPM = \frac{C_{99}}{C_{P_n}} = \frac{e^{Z_{99} \times \sigma - 0.5 \times \sigma^2}}{e^{Z_{P_n} \times \sigma - 0.5 \times \sigma^2}}$$ Equation 9

Where,

σ^2 = $\ln(CV^2 + 1)$
Z_{99} = 2.326 (z-score for the 99th percentile)
Z_{Pn} = z-score for the P_n percentile (inverse of the normal cumulative distribution function at a given percentile)
CV = coefficient of variation (standard deviation ÷ mean)

The maximum projected effluent concentration is determined by simply multiplying the maximum reported effluent concentration by the RPM:

$C_e = (RPM)(MRC)$ Equation 10

where MRC = Maximum Reported Concentration

Maximum Projected Effluent Concentration at the Edge of the Mixing Zone

Once the maximum projected effluent concentration is calculated, the maximum projected effluent concentration at the edge of the acute and chronic mixing zones is calculated using the mass balance equations presented previously.

Reasonable Potential

The discharge has reasonable potential to cause or contribute to an exceedance of water quality criteria if the maximum projected concentration of the pollutant at the edge of the mixing zone exceeds the most stringent criterion for that pollutant.

B. WQBEL Calculations

Calculate the Wasteload Allocations (WLAs)

Wasteload allocations (WLAs) are calculated using the same mass balance equations used to calculate the concentration of the pollutant at the edge of the mixing zone in the reasonable potential analysis (Equations 3 and 6). To calculate the wasteload allocations, C_d is set equal to the acute or chronic criterion and the equation is solved for C_e. The calculated C_e is the acute or chronic WLA. Equation 11 is rearranged to solve for the WLA, becoming:

$$C_e = WLA = D \times (C_d - C_u) + C_u \qquad \text{Equation 11}$$

Washington's water quality criteria for some metals are expressed as the dissolved fraction, but the Federal regulation at 40 CFR 122.45(c) requires that effluent limits be expressed as total recoverable metal. Therefore, the EPA must calculate a wasteload allocation in total recoverable metal that will be protective of the dissolved criterion. This is accomplished by dividing the WLA expressed as dissolved by the criteria translator, as shown in Equation 7. As discussed in Appendix B, the criteria translator (CT) is equal to the conversion factor, because site-specific translators are not available for this discharge.

$$C_e = WLA = \frac{D \times (C_d - C_u) + C_u}{CT} \qquad \text{Equation 12}$$

The next step is to compute the "long term average" concentrations which will be protective of the WLAs. This is done using the following equations from the EPA's *Technical Support Document for Water Quality-based Toxics Control* (TSD):

$$LTA_a = WLA_a \times e^{(0.5\sigma^2 - z\,\sigma)} \qquad \text{Equation 13}$$

$$LTA_c = WLA_c \times e^{(0.5\sigma_4^2 - z\sigma_4)} \qquad \text{Equation 14}$$

where,

σ^2 = $\ln(CV^2 + 1)$
Z_{99} = 2.326 (z-score for the 99th percentile probability basis)
CV = coefficient of variation (standard deviation ÷ mean)
σ_4^2 = $\ln(CV^2/4 + 1)$

For silver, because the chronic criterion is based on a 30-day averaging period, the Chronic Long Term Average (LTAc) is calculated as follows:

$$LTA_c = WLA_c \times e^{(0.5\sigma_{30}^2 - z\sigma_{30})} \qquad \text{Equation 15}$$

where,

σ_{30}^2 = $\ln(CV^2/30 + 1)$

The LTAs are compared and the more stringent is used to develop the daily maximum and monthly average permit limits as shown below.

Derive the maximum daily and average monthly effluent limits

Using the TSD equations, the MDL and AML effluent limits are calculated as follows:

$$\mathrm{MDL} = \mathrm{LTA} \times e^{(z_m \sigma - 0.5\sigma^2)} \qquad \text{Equation 16}$$

$$\mathrm{AML} = \mathrm{LTA} \times e^{(z_a \sigma_n - 0.5\sigma_n^2)} \qquad \text{Equation 17}$$

where σ, and σ^2 are defined as they are for the LTA equations above, and,

σ_n^2 = $\ln(CV^2/n + 1)$
z_a = 1.645 (z-score for the 95th percentile probability basis)
z_m = 2.326 (z-score for the 99th percentile probability basis)
n = number of sampling events required per month. With the exception of ammonia, if the AML is based on the LTA_c, i.e., $LTA_{minimum} = LTA_c$), the value of ''n'' should is set at a minimum of 4. For ammonia, In the case of ammonia, if the AML is based on the LTA_c, i.e., $LTA_{minimum} = LTA_c$), the value of ''n'' should is set at a minimum of 30.

For this permit, ammonia is the only parameter of concern applicable for a reasonable potential analysis. Using a spreadsheet EPA determined that based on site specific effluent and receiving water data, that there is no reasonable potential to exceed Washington's WQS for ammonia. Below is a copy from the spreadsheet:

Reasonable Potential Analysis (RPA) and Water Quality Effluent Limit (WQBEL) Calculations

Facility Name	Taholah Village WWTP		
Design Flow (MGD)	0.20		
			Annual Crit. Flows
Dilution Factors			
Aquatic Life - Acute Criteria - Criterion Max. Concentration (CMC)		**1Q10**	**20.2**
Aquatic Life - Chronic Criteria - Criterion Continuous Concentration (CCC)		**7Q10 or 4B3**	**236.1**
Ammonia		**7Q10 or 4B4**	**236.1**
Human Health - Non-Carcinogen		**30Q5**	**1.0**
Human Health - carcinogen		**Harmonic Mean Flow**	**1.0**

Receiving Water Data		Notes:	**Annual Crit. Flows**
Hardness, as mg/L $CaCO_3$	*** Enter Hardness on WQ Criteria tab ***	5th % at critical flows	
Temperature, °C	Temperature, °C	95th percentile	14.94
pH, S.U.	pH, S.U.	95th percentile	6.54

Pollutants of Concern			AMMONIA, default: cold water, fish early life stages present
Effluent Data	**Number of Samples in Data Set (n)**		146
	Coefficient of Variation (CV) = Std. Dev./Mean (default CV = 0.6)		0.48
	Effluent Concentration, µg/L (Max. or 95th Percentile) - (C_e)		2,100
	Calculated 50th % Effluent Conc. (when n>10), Human Health Only		
Dilution Factors	Aquatic Life - Acute	1Q10	20.231
	Aquatic Life - Chronic	7Q10 or 4B3	-
	Ammonia	7Q10 or 4B4	236.133
	Human Health - Non-Carcinogen	30Q5	-
	Human Health - carcinogen	Harmonic Mean	-
Receiving Water Data	**90th Percentile Conc., µg/L - (C_u)**		230
	Geometric Mean, µg/L, Human Health Criteria Only		
Applicable Water Quality Criteria	Aquatic Life Criteria, µg/L, WA Criteria	Acute	32,101
	Aquatic Life Criteria, µg/L, WA Criteria	Chronic	2,106
	Human Health Water and Organism, µg/L		--
	Human Health, Organism Only, µg/L		--
	Metals Criteria Translator, decimal (or default use Conversion Factor)	Acute	--
		Chronic	--
	Carcinogen (Y/N), Human Health Criteria Only		--

Aquatic Life Reasonable Potential Analysis

σ	$\sigma^2=\ln(CV^2+1)$		0.455
P_n	$=(1\text{-confidence level})^{1/n}$, where confidence level =	**99%**	0.969
Multiplier (TSD p. 57)	$=\exp(z\sigma-0.5\sigma^2)/\exp[\text{normsinv}(P_n)-0.5\sigma^2]$, where	**99%**	1.2
Statistically projected critical discharge concentration (C_e)			2590.23
Predicted max. conc.(ug/L) at Edge-of-Mixing Zone		Acute	346.67
(note: for metals, concentration as dissolved using conversion factor as translator)		Chronic	240.00
Reasonable Potential to exceed Aquatic Life Criteria			**NO**

Accordingly, because there is no reasonable potential to violate water quality standards, EPA is not requiring effluent limits for ammonia. However, EPA is requiring continued ammonia monitoring so that an evaluation can be done if an ammonia limit is necessary for the next permit cycle. Ammonia is a parameter used to evaluate the operation of the treatment system.

Appendix F: Endangered Species Act and Essential Fish Habitat

A. Endangered Species Act

Section 7 of the Endangered Species Act (ESA) requires federal agencies to evaluate potential effects an action may have on listed endangered species. EPA determined that the issuance of the draft permit has no effect on listed endangered species based on the nature of the discharge and the listed species.

EPA used the U.S Fish and Wildlife Service's online database to determine the services' species list for Jefferson and Grays Harbor Counties. The report identified 10 threatened, endangered or candidate species. The breakdown of all the 10 listed species that are either threatened, endangered or candidate species are: 6 bird species; 2 fish species; 1 insect species; and, 1 mammal species. Of these 10 species identified, there is 1 species listed as endangered, and 8 species that are listed as threatened or proposed threatened. The Short-Tailed albatross, which is a bird species is the only species listed as endangered.

EPA has determined that the issuance of the draft permit would have no effect on the endangered Short-Tailed albatross and the other listed bird species because they are terrestrial species and could not be affected by the proposed discharge.

EPA considered the effluent from the Taholah Village WWTP for possible impacts to the two "Threatened" USFWS listed fish species: Bull Trout and the Dolly Varden in both the Quinault River.

EPA concluded that there would be no effect on fish species in the Quinault River because the discharge from the WWTP is extremely small compared with the flow volume of the Quinault River. With a conservative mixing of 25% of the chronic low flow in the river, the dilution factor is 236. Also using a conservative mixing of 2.5% of the acute low flow in the river, the dilution factor is 20.2. Considering that the effluent had already undergone secondary treatment, and ultra-violet disinfection prior to discharge, EPA concludes that the draft permit would have no effect on the USFW listed species.

For reference, the following list was obtained on April 15, 2014, from the U.S. Fish and Wildlife's Information, Planning and Conservation System (IPAC) data base for Jefferson and Grays Harbor Counties in Washington State.

Bird Species:
Marbled Murrelet (*Brachyamphus marmoratus*) – Threatened
Northern Spotted Owl (*Strix occidentalis caurina*) – Threatened
Short-Tailed Albatross (*Phoebastria albatrus*) – Endangered
Streak Horned lark (*Eremophila alpestris strigata)* – Threatened
Western Snowy Plover (Charadrius alexandrinus nivosus) – Threatened
Yellow-Billed Cuckoo (*Coccyzus americanus)* – Proposed Threatened

Fish Species:
Bull Trout (*Salvelinus confluentus*) – Threatened
Dolly Varden *(Salvelinus malma)* – Proposed Similarity of Appearance (Threatened)

Insect Species:
Oregon Silverspot butterfly (*Speyeria zerene hippolyta*) – Threatened

Mammals:
Fisher (*Martes pennanti)* - Candidate

EPA checked with NOAA Fisheries website concerning the Status of ESA Listings and Critical Habitat Designations for West Coast Salmon and Steelhead. The following website does not list the potentially affected area. Therefore this draft permit has no effect on West Coast Salmon and Steelhead.
http://www.westcoast.fisheries.noaa.gov/publications/protected_species/salmon_steelhead/status_of_esa_salmon_listings_and_ch_designations_map.pdf

EPA also checked with NOAA Fisheries website concerning other species that potentially would be affected by the draft permit. The species lists available are: ESA-Listed Marine Mammals; ESA-Listed Other Marine Species; and, ESA-Listed Marine Turtles. Because all these species are marine species, and the draft permit is not in a marine environment, there is no effect on all marine species listed by NOAA.

In conclusion, the proposed draft permit has no effect on all species pursuant to Section 7 of the Endangered Species Act.

The following are descriptions of all the listed species that EPA had considered pursuant to Section 7 of the Endangered Species Act.

Coastal Bull Trout and Dolly Varden Trout

Status

The Dolly Varden trout has similarity of appearance with the Bull Trout. The coastal/Puget Sound (PS) bull trout distinct population segment (DPS) encompasses all Pacific coast drainages within Washington, including Puget Sound and Olympic Peninsula (50 FR Part 17). The Bull Trout ESU has been designated as threatened on June 10, 1998 (63 FR 31693).

Geographic Range and Spatial Distribution

The coastal/Puget Sound bull trout DPS encompasses all the Pacific coast drainages north of the Columbia River in Washington including those flowing into Puget Sound. This population is comprised of 34 populations which are segregated from other subpopulations by the Pacific Ocean and the Cascade Mountains. Within this area, bull trout often occur with Dolly Varden. Because these species are virtually indistinguishable, USFWS currently manages them together as “native char”. The Puget Sound DPS is significant because it is thought to contain the only anadromous forms of bull trout in the coterminous United States (64 FR 58910).

The coastal bull trout subpopulations occur in five river basins: Chehalis River, Grays Harbor, Coastal Plains, Quinault River, Queets River, Hoh River, and Quillayute River. While most of the northwest coast subpopulations occur within Olympic National Park with relatively undisturbed habitats, subpopulations in the southwestern coastal area are in relatively low abundance.

Critical Habitat

Critical habitat was designated for Puget Sound bull trout on September 26, 2005 (70 FR 56213). The critical habitat designation for Puget Sound bull trout includes a total of 388 miles of streams in the Olympic Peninsula and 646 miles of streams in Puget Sound as well as 419 shoreline miles in the Olympic Peninsula marine areas and 566 shoreline miles in the Puget Sound marine areas.

Historical Information

Historical reports for the Puget Sound bull trout population demonstrate that bull trout were once more abundant and widely distributed throughout Puget Sound and the Olympic Peninsula (Suckley and Cooper 1860, Norgore and Anderson 1921, King County Department of Natural Resources 2000). Bull trout are now rarely observed in the Nisqually River and Chehalis River systems, which may have supported spawning populations in the past (USFWS 2002c, 2004). In the Puyallup River system the amphidromous life history forms currently exist in low numbers, as does the migratory form in the South Fork Skokomish River (USFWS 2002c, 2004). In the Elwha River and parts of the Nooksack River, amphidromous bull trout are unable to access historic spawning habitat resulting from manmade barriers (USFWS 2002c, 2004).

Historically, sport fishing regulations were liberal for bull trout. However, recent decline of fish abundance has led to more restrictive regulations (WDFW 2003).

Life History

Small bull trout eat terrestrial and aquatic insects but shift to preying on other fish as they grow larger. Large bull trout are primarily fish predators. Bull trout evolved with whitefish, sculpins and other trout and use all of them as food sources. Adult bull trout are usually small, but can grow to 36 inches in length and up to 32 pounds. Bull trout reach sexual maturity at between four and seven years of age and are known to live as long as 12 years. They spawn in the fall after temperatures drop below 9ºC, in streams with abundant cold, unpolluted water, clean gravel and cobble substrate, and gentle stream slopes. Many spawning areas are associated with cold water springs or areas where stream flow is influenced by groundwater. Bull trout eggs require a long incubation period compared to other salmon and trout, hatching in late winter or early spring. Fry may remain in the stream gravels for up to three weeks before emerging (USFWS 2002a).

Bull trout may be either resident or migratory. Resident fish live their whole life near areas where they were spawned. Migratory fish are usually spawned in small headwater streams, and then migrate to larger streams, rivers, lakes, reservoirs or salt water where they grow to maturity. Smaller resident fish remain near the areas where they were spawned while larger, migratory, fish will move considerable distances to spawn when habitat conditions allow. For instance, bull trout in Montana's Flathead Lake have been known to migrate up to 250 km to spawn (USFWS 2002a).

Habitat and Hydrology

Bull trout are seldom found in waters where temperatures are warmer than 15°C to 18°C. Besides very cold water, bull trout require stable stream channels, clean spawning gravel, complex and diverse cover, and unblocked migration routes (USFWS 2002a).

Hatchery Influence

No information was found on the influence of hatcheries on bull trout.

Population Trends and Risks

The Coastal-Puget Sound bull trout are vulnerable to many of the same threats that have reduced bull trout in the Columbia River and Klamath River Basins including hybridization and competition with non-native brook trout, brown trout and lake trout, degradation of spawning and rearing habitat, and isolation of local populations due to dams and diversions (67 FR 71240). Due to their need for very cold waters and long incubation time, bull trout are more sensitive to increased water temperatures, poor water quality and degraded stream habitat than many other salmonids.

In many areas, continued survival of the species is threatened by a combination of factors rather than one major problem. For example, past and continuing land management activities have degraded stream habitat, especially along larger river systems and streams located in valley bottoms. Degraded conditions have severely reduced or eliminated migratory bull trout as water temperature, stream flow and other water quality parameters fall below the range of conditions which these fish can tolerate. In many watersheds, remaining bull trout are smaller, resident fish isolated in headwater streams. Brook trout, introduced throughout much of the range of bull trout, easily hybridize with them, producing sterile offspring. Brook trout also reproduce earlier and at a higher rate than bull trout so bull trout populations are often supplanted by these non-natives. Dams and other in-stream structures also affect bull trout by blocking migration routes, altering water temperatures and killing fish as they pass through and over dams or are trapped in irrigation and other diversion structures (USFWS 2002a).

Analysis of Potential Impacts to Bull Trout and Dolly Varden

In consideration of all factors pertaining to the Bull Trout and Dolly Varden trout, and with the discharge from the WWTP, it is predicted that there will be no impact to either species. The discharge does not contribute to the factors responsible for the bull trout's decline as described above. The characteristics of the discharge and permit conditions will not cause any harmful or beneficial effects to the Bull Trout. The trout species are a highly mobile species, discharge is not from a major facility, and the effluent is treated to Federal Secondary Treatment Standards, as well as meeting State Water Quality Standards; therefore, no measurable impacts are predicted. **No effect** is predicted on the Bull Trout or the Dolly Varden trout from the discharge.

Marbled Murrelet

Status

The marbled murrelet was federally listed as threatened under the Endangered Species Act on October 1, 1992 (57 FR 45328).

Geographic Range and Spatial Distribution

The marbled murrelet, a small sea bird that nests in the coastal old-growth forests of the Pacific Northwest, inhabits the Pacific coasts of North America from the Bering Sea to central California. In contrast to other seabirds, murrelets do not form dense colonies and may fly 70km or more inland to nest, generally in older coniferous forests. They are more commonly found inland during the summer breeding season, but make daily trips to the ocean to gather food, primarily fish and invertebrates and have been detected in forests throughout the year. When not nesting, the birds live at sea, spending their days feeding and then moving several kilometers offshore at night (SEI 1999).

Critical Habitat

Critical habitat has been designated for the marbled murrelet throughout the states of Washington, Oregon and California (61 FR 26255).

Life History

The breeding season of the marbled murrelet generally begins in April, with most egg laying occurring in late May and early June. Peak hatching occurs in July after a 27- to 30-day incubation. Chicks remain in the nest and are fed by both parents. By the end of August, chicks have fledged and dispersed from nesting areas (Marks and Bishop 1999). The marbled murrelet differs from other seabirds in that its primary nesting habitat is old-growth coniferous forest within 50 to 75 miles of the coast. The nest typically consists of a depression on a moss-covered branch where a single egg is laid. Marbled murrelets appear to exhibit high fidelity to their nesting areas and have been observed in forest stands for up to 20 years (Marks and Bishop 1999). Marbled murrelets have not been known to nest in other habitats, including alpine forests, bog forests, scrub vegetation, or scree slopes (Marks and Bishop 1999).

Marbled murrelets are presumably a long-lived species but are characterized by low fecundity (one egg per nest) and low nesting and fledging success. Fledging success has been estimated at 45 percent. Nest predation on both eggs and chicks appears to be higher for marbled murrelets than for other alcids and may be cause for concern. Principal predators are birds, primarily corvids (jays, ravens, and crows) (Marks and Bishop 1999).

At sea, foraging marbled murrelets are usually found as widely spaced pairs. During the breeding season, the marbled murrelet will forage in well-defined areas along the coast in relatively shallow marine waters (Carter and Sealy 1990). Murrelets generally forage within 2 km of the shore in shallow waters off the coasts of Washington, Oregon and California (Strachan et al. 1995). Following the breeding season, murrelets appear to disperse and are less concentrated in the immediate nearshore coastal waters (Strachan et al. 1995). Murrelet prey species include small inshore fish such as the sand land, Pacific herring, capelin, and invertebrates including the *Euphausid pacifica* and *Thysanoessa spinifera* (Sanger 1987, Sealy 1975). In some instances, marbled murrelets will aggregate in large groups in areas associated with river plumes and currents, although it is not known if these aggregations have to do with ocean conditions or prey locations (Strong et al. 1995, Ralph et al. 1995). In the southern part of the range, from Washington south, pairs or small flocks of murrelets rarely forage in mixed seabird flocks and will usually forage away from other species (Strachan et al. 1995). In California and Oregon, murrelets have been reported foraging close to pigeon guillemots and common murres but may avoid other large feeding flocks (Strachan et al. 1995).

Population Trends and Risks

The total North American population of marbled murrelets is estimated to be 360,000 individuals. Approximately 85 percent of this population breeds along the coast of Alaska. Estimates for Washington, Oregon, and California vary between 16,500 and 35,000 murrelets (Ralph et al. 1995). In British Columbia, the population was estimated at 45,000 birds in 1990 (Environment Canada 1999). In recent decades, the murrelet population in Alaska and British Columbia has apparently suffered a marked decline, by as much as 50 percent. Between 1973 and 1989, the Prince William Sound, Alaska, murrelet population declined 67 percent. Trends in Washington, Oregon, and California are also down, but the extent of the decrease in unknown. Current data suggest an annual decline of at least 3 to 6 percent throughout the species' range (Ralph et al. 1995).

The most serious limiting factor for marbled murrelets is the loss of habitat through the removal of old-growth forests and fragmentation of forests. Forest fragmentation may be making nests near forest edges vulnerable to predation by other birds such as jays, crows, ravens, and great-horned owls (USFWS 1996). Entanglement in fishing nets is also a limiting factor in coastal areas due to the fact that the areas of salmon fishing and the breeding areas of marbled murrelets overlap. The marbled murrelet is especially vulnerable to oil pollution; in both Alaska and British Columbia, it is considered the seabird most at risk from oil pollution. In 1989, an estimated 8,400 marbled murrelets were killed as a result of the *Exxon Valdez* oil spill (Marks and Bishop 1999). Marbled murrelets forage in nearshore waters where recreational boats are most often found. Disturbance by boats may cause them to abandon the best feeding areas (Environment Canada 1999).

Analysis of Potential Impacts to Marbled Murret

In consideration of all factors pertaining to the Marbled Murret and the discharge from the WWTP, it is predicted that there will be no impact to the Marbled Murret. The discharge does not contribute to the factors responsible for the Marbled Murret's decline as described above. The characteristics of the discharge and permit conditions will not cause any harmful or beneficial effects to the Marbled Murret. The Marbled Murret is a highly mobile terrestrial species, discharge is initially into groundwater, and the effluent is treated to Federal Secondary Treatment Standards, as well as meeting State Water Quality Standards; therefore, no measurable impacts are predicted. **No effect** is predicted on the Marbled Murret from the discharge.

Streak Horned Lark

The streaked horned lark was added to the candidate list in October 2001. On October 3, 2013, the streaked horned lark was listed as a threatened species under the ESA.

Description

The streaked horned lark is endemic to the Pacific Northwest, and is a subspecies of the wide-ranging horned lark. Horned larks are small, ground-dwelling birds, approximately 16−20 centimeters (6−8 inches) in length. The streaked horned lark has a dark brown back, yellowish underparts, a walnut brown nape and yellow eyebrow stripe and throat. This subspecies is conspicuously more yellow beneath and darker on the back than almost all other subspecies of horned lark. The combination of small size, dark brown back, and yellow on the underparts distinguishes this subspecies from all adjacent forms.

Historical Status and Current Trend

Historically, the streaked horned lark's breeding range extended from southern British Columbia, Canada, south through the Puget lowlands and outer coast of Washington, along the lower Columbia River, through the Willamette Valley, the Oregon coast and into the Umpqua and Rogue River Valleys of southwestern Oregon.

The streaked horned lark has been extirpated throughout much of its range, including all of its former range in British Columbia, Canada, the San Juan Islands, the northern Puget lowlands, the Washington coast north of Grays Harbor, the Oregon coast, and the Rogue and Umpqua Valleys in southwestern Oregon.

The current range of the streaked horned lark can be divided in to three regions: (1) the Puget lowlands in Washington, (2) the Washington coast and lower Columbia River islands (including dredge spoil deposition sites near the Columbia River in Portland, Oregon), and (3) the Willamette Valley in Oregon.

An analysis of recent data estimates the current rangewide population of streaked horned larks to be about 1,170–1,610 individuals (Altman 2011). There are about 900–1,300 breeding streaked horned larks in the Willamette Valley (Altman 2011). The largest known populations of streaked horned larks breed in the southern Willamette Valley at the Corvallis Municipal Airport and on the Fish and Wildlife Service's Willamette Valley National Wildlife Refuge Complex.

Habitat

Horned larks are birds of wide open spaces with no trees and few or no shrubs. The streaked horned lark nests on the ground in sparsely vegetated sites dominated by grasses and forbs. Historically this type of habitat was found in prairies in western Oregon and Washington, in dune habitats along the coast of Washington, on the sandy beaches and spits along the Columbia and Willamette Rivers, and in grasslands, estuaries, and sandy beaches in British Columbia. Today the streaked horned lark nests in a broad range of habitats, including native prairies, coastal dunes, fallow and active agricultural fields, wetland mudflats, sparsely-vegetated edges of grass fields, recently planted Christmas tree farms with extensive bare ground, moderately- to heavily-grazed pastures, gravel roads or gravel shoulders of lightly-traveled roads, airports, and dredge deposition sites in the lower Columbia River. Wintering streaked horned larks use habitats that are very similar to breeding habitats.

A key attribute of habitat used by larks is open landscape context. Our data indicate that sites used by larks are generally found in open (i.e., flat, treeless) landscapes of 120 hectares (ha)(300 acres) or more. Some patches with the appropriate characteristics (i.e., bare ground, low stature vegetation) may be smaller in size if the adjacent fields provide the required open landscape context. This situation is common in agricultural habitats and on sites next to water. For example, many of the sites used by larks on the islands in the Columbia River are small, but are adjacent to open water, which provides the landscape context needed. Streaked horned larks are found at many airports within the range of the subspecies; as native prairies and scoured river beaches in the Pacific Northwest have declined, airports, with their large area requirements and treeless settings, have become magnets for streaked horned larks.

Life History

Nesting begins in late March and continues into late August. The nest consists of a shallow depression built in the open or near a grass clump and lined with fine dead grasses. The female commonly lays four greenish or grayish eggs speckled with brown. Incubation is only 11 days and the young are able to fly within 9 to 12 days after hatching.

Food

Larks eat a wide variety of seeds and insects, and appear to select habitats based on the structure of the vegetation rather than the presence of any specific food plants.

Reason for Decline

There are many ongoing threats to the streaked horned lark's habitat throughout its remaining range from conversion to agriculture and industry, loss of natural disturbance processes, such as fire and flooding, followed by encroachment of woody vegetation, invasion of coastal areas by nonnative beachgrasses, and incompatible management practices. The continued loss and degradation of its scarce habitat could push the subspecies closer to rangewide extinction.

Other threats include inbreeding depression, low reproductive success, and declining population size, which have been documented in the Puget lowlands population; without substantial efforts to stem the decline, larks may disappear from the Puget lowlands. Other ongoing threats from aircraft strikes and training activities at airports have been documented, and put lark populations at risk of further population declines throughout the range of the subspecies.

Analysis of Potential Impacts to the Streak Horned Lark

In consideration of all factors pertaining to the Streak Horned Lark and the discharge from the WWTP, it is predicted that there will be no impact to the Streak Horned Lark. The discharge does not contribute to the factors responsible for the Streak Horned Lark's decline as described above. The characteristics of the discharge and permit conditions will not cause any harmful or beneficial effects to the Streak Horned Lark. The Streak Horned Lark is a highly mobile terrestrial species, discharge is from a small "minor" facility, discharge is initially into groundwater, and the effluent is treated to Federal Secondary Treatment Standards, as well as meeting State Water Quality Standards; therefore, no measurable impacts are predicted. **No effect** is predicted on the Streak Horned Lark from the discharge.

Yellow-Billed Cuckoo

The yellow-billed cuckoo in the western United States was accorded candidate status in July 2001. On October 3, 2013, the Western U.S. Distinct Population Segment of the Yellow-billed cuckoo was proposed as a threatened species under the ESA.

Historical Status and Current Trends

Historically, the yellow-billed cuckoo bred throughout much of North America. Available data suggests that within the last 50 years the species' distribution west of the Rocky Mountains has declined substantially. Loss of streamside habitat is regarded as the primary reason for the population decline. The species was probably never common in Oregon. Historical records for the state show that breeding cuckoos were most often sighted in willow bottoms along the Willamette and Columbia Rivers; there are few records of cuckoo sightings in eastern Oregon.

Habitat Associations

Western yellow-billed cuckoos breed in dense willow and cottonwood stands in river floodplains.

Description and Life History

The yellow-billed cuckoo is a medium sized brown bird, about 12 inches long and weighing about two ounces. The bird's most notable physical features are a long boldly patterned black and white tail and an elongated down-curved bill which is yellow on the bottom. Yellow-billed cuckoos are migratory; historically, cuckoos arrived in Oregon in mid-May and flew south to their wintering grounds in September. Although many species of cuckoos are brood parasites (laying their eggs in other birds' nests), the yellow-billed cuckoo usually builds its own nest and raises its own young. The distinct call of the cuckoo has been described as sounding like "cow, cow, cow, cow, cow, cow..." a series of clucks that become slower and run down the scale at the end. The yellow-billed cuckoo is sometimes called the raincrow or stormcrow, because it often calls before a rainstorm.

Food

The bird primarily eats large insects including caterpillars and cicadas and, occasionally, small frogs and lizards. Breeding coincides with the emergence of cicadas and tent caterpillar.

Reasons for Decline

Available data suggests that the yellow-billed cuckoo's range and population numbers have declined substantially across much of the western United States over the last 50 years. In Oregon, cuckoos, although never common, have become even more rare with the loss of floodplain forests along the Willamette and Columbia Rivers. The last confirmed breeding records in Oregon were in the 1940s. Most of the recent records of cuckoos are from eastern Oregon at Malheur National Wildlife Refuge in Harney county, and from Malheur and Deschutes counties.

The greatest threat to the species has been reported to be loss of riparian habitat. It has been estimated that 90 percent of the cuckoo's stream-side habitat has been lost. Habitat loss in the west is attributed to agriculture, dams, and river flow management, overgrazing and competition from exotic plants such as tamarisk.

Conservation Measures

In 1998, FWS received a petition to list the western yellow-billed cuckoo as an endangered species. FWS concluded that the western yellow-billed cuckoo is a DPS of the yellow-billed cuckoo in North America. FWS determined that the western yellow-billed cuckoo DPS was warranted for listing, but was precluded by other higher priority listing actions, and FWS placed the species on the candidate list. FWS stated that they will conduct an annual review of the species' status, and may propose to list the species at a later date. FWS will encourage state and federal agencies as well as other parties to give consideration to the species in environmental planning. Activities which alter or destroy riparian habitat are of particular concern, including unmanaged cattle grazing that contributes to the loss of sub-canopy vegetation and cottonwood regeneration.

Analysis of Potential Impacts to the Yellow-Billed Cuckoo

In consideration of all factors pertaining to the Yellow-Billed Cuckoo and the discharge from the WWTP, it is predicted that there will be no impact to the Yellow-Billed Cuckoo. The discharge does not contribute to the factors responsible for the Yellow-Billed Cuckoo’s decline as described above. The characteristics of the discharge and permit conditions will not cause any harmful or beneficial effects to the Yellow-Billed Cuckoo. The Yellow-Billed Cuckoo is a highly mobile terrestrial species, discharge is from a small “minor” facility, discharge is initially into groundwater, and the effluent is treated to Federal Secondary Treatment Standards, as well as meeting State Water Quality Standards; therefore, no measurable impacts are predicted. **No effect** is predicted on the Yellow-Billed Cuckoo from the discharge.

Northern Spotted Owl

Status

The Northern spotted owl was listed as threatened under the Endangered Species Act on June 26, 1990 (55 FR 26114) and is considered endangered in the state of Washington.

Geographic Range and Spatial Distribution

The northern spotted owl inhabits old-growth forests of the Pacific Coast region from southwestern British Columbia to central California.

Critical Habitat

Critical habitat was designated for the northern spotted owl on January 15, 1992 (57 FR 1796). The critical habitat for the northern spotted owl includes Western Washington, Western Oregon, and Northwestern California to San Francisco Bay.

Life History

The northern spotted owl is a medium-sized, dark brown owl. Spotted owls are primarily nocturnal and normally spend their days perched in a protected roost. Spotted owls prefer old-growth forests for nesting and foraging.

Spotted owls nest in cavities or on platforms in large trees in nests built by other species (Forsman et al. 1984). Northern spotted owls reach sexual maturity at the age of 1 year, but do not usually breed until two to three years of age. Birds are monogamous and bond for life. Courtship begins in February or March with early nesters laying eggs in March and the majority of nesting occurring in April. Most northern spotted owls lay a clutch of one to two eggs. Eggs hatch in late April to early May. Owlets fledge in June and remain with their parents until late summer or early fall. The range for adult owl pairs or individuals can range from 2-24 square miles.

Spotted owls eat a broad range of mammals, birds, amphibians, insects and reptiles with their primary prey being flying squirrels, voles, mice and woodrats (Forsman et al 1984, Thomas et al. 1990, Carey et al. 1992). Predators include great horned owls and northern goshawks.

Population Trends and Risks

A number of recent surveys have revealed that moderately large populations of northern spotted owls still exist (Thomas et al. 1990). Studies of banded birds suggest that adult survival has declined in recent years causing the population size of territorial owls to dwindle at an increased rate (Burnham et al. 1994). Currently it is suspected that there are approximately 30 pairs in British Columbia, 860 pairs in Washington, 2,900 pairs in Oregon and 2,300 pairs in northern California (E.D. Forsman, U.S. Forest Service, Corvallis, Oregon, unpublished data).

The productivity and occurrence of spotted owls can be affected by expanding populations of barred owls from the eastern U.S. Barred owls have invaded forest areas previously occupied by spotted owls and in some cases can displace resident spotted owls. It is also possible that the two species may hybridize.

Analysis of Potential Impacts to Northern Spotted Owls

In consideration of all factors pertaining to the Northern Spotted Owl and the discharge from the WWTP, it is predicted that there will be no impact to the Northern Spotted Owl. The discharge does not contribute to the factors that might be responsible for the Northern Spotted Owl's population size. The characteristics of the discharge and permit conditions will not cause any harmful or beneficial effects to the Northern Spotted Owl. The Northern Spotted Owl is a highly mobile terrestrial species, discharge is not from a major facility, discharge is initially into groundwater, and the effluent is treated to Federal Secondary Treatment Standards, as well as meeting State Water Quality Standards; therefore, no measurable impact is predicted. **No effect** is predicted on the Northern Spotted Owl from the discharge.

Oregon Silverspot Butterfly

Status

Oregon silverspot butterfly was listed as a threatened species with critical habitat in October 1980. The following information was summarized from the revised recovery plan published in 2001.

Geographical Range and Spatial Distribution

The historical range of this subspecies extends from the Westport, Grays Harbor County, Washington, south to Del Norte County, California. All of these populations were restricted to the immediate coast, centered around salt-spray meadows, or within a few miles of the coastline in similar meadow-type habitat. At the time of listing, the only viable population known was on the Siuslaw National Forest in Tillamook County, Oregon. Additional populations have since been discovered at Cascade Head, Bray Point, and Clatsop Plains in Oregon, on the Long Beach Peninsula in Washington, and in Del Norte County in California.

Critical Habitat

Critical habitat for the Oregon silverspot butterfly was designated in Lane County, Oregon, which is not in the vicinity of the discharge from the WWTP.

Life History

The Oregon silverspot is a medium-sized, orange and brown butterfly with black veins and spots on the dorsal (upper) wing surface, and a yellowish sub-marginal band and bright metallic silver spots on the ventral (under-side) wing surface. This subspecies is distinguished from other subspecies of silverspot butterflies by a somewhat smaller size and darker coloration at the base of the wings. These are morphological adaptions for survival in a persistently windy and foggy environment. The forewing length averages about 27 millimeters (1 inch) for males and 29 millimeters (1.1 inch) for females. Hydaspe fritillary (*Speyeria hydaspe)*, a related species found in adjacent habitats can be distinguished by the cream, rather than silver, colored spots of the ventral wing surface.

The life history of the Oregon silverspot revolves around its obligatory host plant, the early blue violet (*Viola adunca*). Females oviposit up to 200+ eggs singly amongst the salt-spray meadow vegetation near the violet host plant, usually in late August and early September. Sites with good sun exposure are favored. The eggs hatch in approximately 16 days and the newly hatched larvae wander short distances to find a suitable site for diapause (suspended growth for overwintering). The larvae end diapause sometime in early spring and begin to feed on the violet leaves. As the larvae grow, they pass through five molts (shed outer covering) before they enter the intermediate stage between larval and adult forms (pupate). Approximately two or more weeks later, the butterflies emerge from their pupal case (eclose). Adult emergence starts in July and extends into

September. Shortly thereafter, their wings and other body parts harden and they escape the windy, cool meadows for nearby forests or brush lands.

Mating occurs through August and September. Those individuals (male and female) which are most efficient at basking and maintaining proper body temperature will be able to operate longer and deeper in the windy meadow zone, thus improving their opportunities for successful reproduction.

Population Trends and Risks

The Oregon silverspot butterfly occurs in six small pockets of remaining habitat in Del Norte/Lake Earl in California and Clatsop Plains, Mt. Hebo, Cascade Head, Bray Point and Rock Creek-Big Creek in Oregon. A population in Long Beach, Washington has since been extirpated and the population on the Clatsop Plains is extremely low and at risk of extirpation (USFWS 2001). The population at Westport, Grays Harbor County, Washington is known to be extirpated (USFWS 2001).

The major limiting factors affecting this species are related primarily to the limitation of suitable habitat. The highly specialized salt-spray meadow habitat within the geographical range for the Oregon silverspot was never common. This early seral community has always had a patchy distribution, occurring only where fire, salt-laden winds, or other natural or man-related occurrences (e.g., grazing, controlled burning) have maintained an open meadow. Evidence suggests that such habitat was more extensive in the past than it is today. Historical accounts show the butterfly and its habitat as locally common within its range. However, good habitat has steadily been used for residential and business establishments, public parkland development, and parking areas or lawns. Excessive use of the salt-spray meadows by grazing animals or off-road vehicles has directly eliminated habitat. Secondary impacts of people's activities, introduction of exotic plants, and fire suppression with subsequent succession of meadows to brush and stunted woodland have also contributed to a reduction in suitable habitat.

Analysis of Potential Impacts to Oregon Silverspot Butterfly

In consideration of all factors pertaining to the Oregon Silverspot Butterfly and the discharge from the WWTP, it is predicted that there will be no impact to the Oregon Silverspot Butterfly. The discharge does not contribute to the factors responsible for the Oregon Silverspot Butterfly's decline as described above. The characteristics of the discharge and permit conditions will not cause any harmful or beneficial effects to the Oregon Silverspot Butterfly. The Oregon Silverspot Butterfly requires salt-sprayed habitat which is not in the vicinity of the discharge, the discharge is not from a major facility, discharge is initially into groundwater, and the effluent is treated to Federal Secondary Treatment Standards, as well as meeting State Water Quality Standards; therefore no measurable impact is predicted. **No effect** is predicted on the Oregon Silverspot Butterfly from the discharge.

Short-tailed Albatross

Status

The short-tailed albatross (*Phoebastria albatrus*) was first listed on June 2, 1970. The short-tailed albatross was federally listed as endangered under the Endangered Species Act on July 31, 2000 (65 FR 46643) in the entire range. This species is known to occur in Alaska, California, Hawaii, Oregon, Washington, Northern Pacific Ocean, Japan, and Russia.

The short-tailed albatross is a large pelagic bird with long narrow wings adapted for soaring just above the water surface. The bill, which is disproportionately large compared to the bills of other northern hemisphere albatrosses, is pink and hooked with a bluish tip, with external tubular nostrils, and a thin but conspicuous black line extending around the base. Adult short-tailed albatrosses are the only North Pacific albatross with an entirely white back. The white head develops a yellow-gold crown and nape over several years. Fledged juveniles are dark brown-black, but soon develop the pale bills and legs that distinguish them from black-footed and Laysan albatrosses (Tuck 1978, Roberson, 1980).

Geographic Range and Spatial Distribution

The short-tailed albatross once ranged throughout most of the North Pacific Ocean and Bering Sea. Breeding colonies of the short-tailed albatross are currently known on two islands in the western North Pacific and East China Sea. Torishima Island, the main nesting island, is controlled by Japan and is protected as a National Monument. Ownership of the second island, Minami-Kojima, is disputed. This island is claimed by Japan and China (by both the Republic of China located on Taiwan and by the People's Republic of China). Due to an error, the Fish and Wildlife Service mistakenly designated this species as endangered throughout their range except in the U.S. In November, 1998, the Service announced a proposed rule to include the U.S. in the protected range of this species.

Critical Habitat

There is no critical habitat designated for this species.

Life History

These birds mate for life, returning to the same nest sites in the breeding colony for many years. Currently there are only two known breeding colonies: one on Torishima Island in the Izu Shoto Island group about 580 km south of Japan and the other on Minami-kojima Island in the Senkaku Retto, southwestern Ryukyu Islands about 270 km northeast of Taiwan (NatureServe 2003b). Short-tailed albatross nesting occurs on flat or sloped sites, with sparse or full vegetation, on isolated windswept offshore islands. Five months after hatching, chicks leave the nest to wander across the North Pacific. Adults spend their non-breeding seasons at sea as well, feeding on squid, fish, flying fish eggs, shrimp and other crustaceans (ADFG 2003).

Population Trends and Risks

During the late 1800s and early 1900s, feather hunters killed an estimated 5 million short-tailed albatrosses. In the 1930s, volcanic eruptions damaged the nesting habitat on the last nesting island in Japan. However, by this time, protection measures were already in place in Asia and the animals have begun to recover (ADFG 2003).

Only one primary breeding colony exists on Torishima Island in Japan and almost all of the rest on Minami-kojima in the Senkaku Islands. Because of the significance of this breeding colony, the threat of habitat destruction by volcanic eruptions poses the most severe danger to the existence of the species. The population on Torishima Island is now growing at an annual rate of 7.8 percent. In 1987 to 1992, the global population was about 600 birds, with about 125 breeding pairs; by 2001, the population was about 1,500 birds, with about 680 breeding individuals (NatureServe 2003b). Other factors may also hinder the recovery of the short-tailed albatross including damage or injury related to oil contamination, consumption of plastic debris in marine waters, and accidental entanglement in fishing gear, especially baited long line hooks. Natural environmental threats, small population size, and the small number of breeding colonies continue to put the worldwide population of short-tailed albatrosses in danger of extinction. Other threats such as pollution or entanglement with fishing gear do not represent significant threats, but, in combination with a catastrophic event, could threaten the future survival of this species (50FR58692).

Analysis of Potential Impacts to Short-Tailed Albatross

In consideration of all factors pertaining to the Short-Tailed Albatross and the discharge from the WWTP, it is predicted that there will be no impact to the Short-Tailed Albatross. The discharge does not contribute to the factors responsible for the Short-Tailed Albatross decline as described above. The characteristics of the discharge and permit conditions will not cause any harmful or beneficial effects to the Short-Tailed Albatross. The discharge is not from a major facility, discharge is initially into groundwater, and the effluent is treated to Federal Secondary Treatment Standards, as well as meeting State Water Quality Standards; therefore, no measurable impact is predicted. **No effect** is predicted on the Short-Tailed Albatross from the discharge.

Western Snowy Plover

Status

The Western snowy plover (*Charadrius alexandrinus nivosus*) was designated as a threatened species under the Endangered Species Act on March 05, 1993 (58 FR 12864) in the U.S.A. (CA, OR, WA). The western snowy plover is a small shorebird (length 6 inches), pale in color with a thin dark bill, dark or grayish legs, partial breast band and dark ear patch. Females and juveniles may be confused with piping plover but have a much thinner bill and darker legs.

Geographic Range and Spatial Distribution

The Pacific Coast population inhabits beaches, lagoons, and salt-evaporation ponds along the coasts of California, Oregon, and Washington, in the United States, and in Mexico. Their breeding range is between southern Washington and Magdalena Bay, Baja Sur, Mexico. Their winter range is between southern Washington to Nayarit, Mexico, including both coasts of Baja California. Critical habitat for the western snowy plover has been designated along the Pacific Coast of California.

The Pacific Coast populations consist of both migrants and year-round residents. Birds nesting on Oregon coast have wintered in California as far south as Monterey Bay. From central California coast, some birds travel north or south to wintering areas extending from Bandon, Oregon, to Guerrero Negro, Baja Sur, Mexico. Spring migrants arrive in southern Washington in early March. Arrival of most breeders at Monterey Bay, California, extends from early March through late April. Most migrant breeders from Monterey Bay vacate nesting areas from late June to late October. Snowy plovers are gregarious in the winter and will form roosting flocks of up to 300 birds.

Despite this species' breeding tenacity, its numbers are small. Only about 21,000 individuals inhabit the United States; an estimated 4,000 birds on the Pacific Coast in 1986. Along the U.S. Pacific and Gulf coasts, the population is shrinking because of habitat degradation and expanding recreational use of beaches.

Critical Habitat

Critical habitat for the western snowy plover was designated on December 7, 1999 along 180 miles of the coasts of Washington, California and Oregon. This represents approximately 10% of the coastline in these three states. A total of approximately 18,000 acres of nesting habitat were set aside in this designation. In Oregon, critical habitat has been designated in Tillamook, Lane, Douglas, Coos, and Curry counties.

Life History

In western North America, snowy plovers are facultatively polyandrous and polygynous. Females typically desert mates and broods within a few days after hatching. While males rear broods, females obtain new mates and initiate new nests. As a result, females on the Pacific Coast frequently double brood and sometimes triple brood. On the California coast, the breeding season may last up to 16 weeks. The male constructs nest depression by leaning forward on his breast and scratching with his feet while rotating his body axis. Then both male and female line the nest with bits of debris, pebbles, and shell and bone fragments. Both sexes incubate and the usual clutch size is three eggs. The chicks are precocial; young leave the nest 1-3 hours after hatching to independently forage. The average snowy plover life span is 3 years; the oldest recorded individual is 15 years.

The Pacific Coast population nests on barren to sparsely vegetated sand beaches, dry salt flats in lagoons, dredge spoils deposited on beach or dune habitat, levees and flats at salt-evaporation ponds, and river bars. In California, most breeding occurs on dune-backed beaches, barrier beaches, and salt-evaporation ponds; infrequently on bluff-backed beaches. In Baja California barrier beaches, salt flats, and salt-evaporation ponds are primary breeding sites. Winter habitat is primarily coastal: beaches, tidal flats, lagoon margins, and salt-evaporation ponds.

Snowy plovers are primarily visual foragers. They forage on invertebrates in the wet sand and among surf-cast kelp within the intertidal zone, in dry, sandy areas above the high tide, on salt pans, and along the edges of salt marshes, salt ponds, and lagoons.

Population Trends and Risks

The Pacific coast population of the western snowy plover is defined as those individuals that nest beside or near tidal waters, and includes all nesting colonies on the mainland coast, peninsulas, offshore islands, adjacent bays and estuaries from southern Washington to southern Baja California, Mexico. Historic records indicate that western snowy plovers nested at 29 locations on the Oregon coast. Currently, only nine locations in Oregon support nesting western snowy plovers, a 69 percent reduction in active breeding locations.

As early as the 1970's, observers suspected a decline in plover numbers. The primary cause of decline is loss and degradation of habitat. The introduced European beachgrass (*Ammophila arenaria*) contributes to habitat loss by reducing the amount of open, sandy habitat and contributing to steepened beaches and increased habitat for predators. Urban development has reduced the available habitat for western snowy plovers while increasing the intensity of human use, resulting in increased disturbance to nesting plovers.

Currently there are approximately 21,000 Snowy Plovers in the United States, but numbers are declining along the Pacific and Gulf coasts (Lafferty 2000); an estimated 4,000 birds on the Pacific Coast in 1986. Between 1981 and 1991, the bird population experienced at least an 11 percent decline in abundance, and more recently (late 1990s) about 30 percent throughout the region. Prior to 1970, snowy plover bred at 80 locations (53 in California) along the western United States coast (Page and Stenzel 1981); eight sites now support 78 percent of the breeding population in California and breeding has ceased at 52 of the 80 sites along the western coast. Along the U.S. Pacific and Gulf coasts, the population is shrinking because of habitat degradation and expanding recreational use of beaches.

Analysis of Potential Impacts to the Western Snowy Plover

In consideration of all factors pertaining to the Western Snowy Plover and the discharge from the WWTP, it is predicted that there will be no measurable impact to the Western Snowy Plover. The discharge does not contribute to the factors responsible for the Western Snowy Plover's decline as described above. The characteristics of the discharge and permit conditions will not cause any loss or degradation of habitat; there are no measurable impacts to the Western Snowy Plover. The Pacific Coast population inhabits beaches, lagoons, and salt-evaporation ponds along the coast; however, the discharge is not located in any of these places where contact could take place. In addition, the Western Snowy Plover is a highly mobile bird, discharge is not from a major facility, discharge is initially into groundwater, and the effluent is treated to Federal Secondary Treatment Standards, as well as meeting State Water Quality Standards; therefore, no measurable impact is predicted. **No effect** is predicted on the Western Snowy Plover from the discharge.

Analysis and Conclusion

Fish Species

The Bull Trout and the Dolly Varden trout are the only fish species that are listed by the U.S. Fish and Wildlife Service. In addition to the discussion on the Bull Trout and Dolly Varden above, the following factors have been identified as possibly influencing the recovery of the bull trout: the combined effects of habitat degradation, fragmentation and alterations associated with dewatering, required construction and maintenance, mining, grazing: the blockage of migratory corridors by dams or other diversion structures; poor water quality; incidental angler harvest; entrainment into diversion channels; and introduced non-native species. At the vicinity of discharge, the Taholah Village WWTP does not impact the Bull Trout or the Dolly Varden in those negative ways described. The contribution of the effluent in the Quinault River from the treatment plant is exceedingly small where the chronic dilution factor is 236. Most important, discharge is initially into groundwater prior to reaching the Quinault River. The Taholah Village WWTP is predicted to have no measurable impact on the Bull Trout and Dolly Varden trout. Therefore, there is **no effect** to the Bull Trout or Dolly Varden trout from this WWTP.

Terresterial Species

The following bird and invertebrate species described in this paragraph are unlikely to be present in the area of the outfall, and therefore they have no effect from the discharge. The short-tailed albatross, marbled murrelet (*Brachyamphus marmoratus*), northern spotted owl (*Strix occidentalis caurina*), and western snowy plover are bird species that are highly mobile, and either do not reside in the aquatic environment and/or cannot be impacted from the small area of the outfall as compared to its range. The Oregon silverspot butterfly revolves around its obligatory host plant, the early blue violet (*Viola* *adunca*). It is known that females oviposit eggs singly amongst the salt-spray meadow vegetation near the violet host plant. However, the discharge point is not located at any salt-sprayed meadow vegetation. Discharge is initially into groundwater. As discussed above, all the species listed have no measurable impact, therefore, EPA has determined that the NPDES permit will have **no effect** on these listed species.

Other considerations:

Issuance of an NPDES permit for the Quinault Indian Nation's Taholah Village WWTP will not result in loss of habitat and will not result in habitat destruction. In addition, the Washington State Water Quality Standards, and the Federal Secondary Treatment Standards for wastewater treatment plants have been used in permit evaluation, where the more stringent effluent limitations have been applied in the proposed permit. EPA also proposed that the facility conduct upstream monitoring in the Quinault River, in addition to requirements for effluent monitoring. As for fecal coliform bacteria, EPA has proposed significantly more stringent levels from the previous permit.

EPA also considered the size of the facility for evaluation of potential impacts. The existing treatment plant has a design flow rate of 0.2 mgd. For purposes of comparison based on the design flow rate criteria, EPA generally considers wastewater treatment plants having 1.0 mgd or greater to be major facilities. This facility is obviously much smaller than having a designed flow rate of 1.0 mgd, and is not considered a major facility.

As shown above, the evaluation of each listed species has resulted in no measurable impact. In consideration of this conclusion, EPA has tentatively determined that issuance of the NPDES permit is protective and there is **no effect** on listed species in the vicinity of the discharge.

B. Essential Fish Habitat

Essential fish habitat (EFH) includes the waters and substrate (sediments, etc.) necessary for fish to spawn, breed, feed, or grow to maturity. The Magnuson-Stevens Fishery Conservation and Management Act (January 21, 1999) requires EPA to consult with NOAA Fisheries when a proposed discharge has the potential to adversely affect (reduce quality and/or quantity of) EFH. The EFH regulations define an adverse effect as any impact which reduces quality and/or quantity of EFH and may include direct (e.g. contamination or physical disruption), indirect (e.g. loss of prey, reduction in species' fecundity), site specific, or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions. It is predicted that the Taholah Village WWTP would not cause any of the above adverse effects to fish habitat.

As stated for the endangered species the circumstances discussed indicate that there is no measurable impact on essential habitat. Therefore EPA has determined that the issuance of this permit has **no effect** on EFH in the vicinity of discharge.