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:

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

Public Comment Start Date: July 3, 2014
Public Comment Expiration Date: August 4, 2014

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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 had met with council members of the Quinault Indian Nation (QIN), and with the Vice President of the 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
RWC	Receiving Water Concentration
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:
Queets Village Wastewater Treatment Plant
Riverfront Boulevard
Queets, Washington 98331

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

NPDES Permit Number: WA0023442

Physical Address:
Queets Village Wastewater Treatment Plant
Riverfront Boulevard
Queets, Washington 98331

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

B. Permit History

The most recent NPDES permit for the Queets Village Wastewater Treatment Plant (WWTP) was issued on August 29, 1975, became effective on September 29, 1975, and expired on August 1, 1980. An NPDES application for permit issuance was submitted by the permittee on January 14, 2014. As part of the permit issuance process, EPA conducted a site visit on April 1, 2014.

II. Facility Information

A. Treatment Plant Description

Service Area

The Quinault Indian Nation (QIN) owns and operates the Queets Village Wastewater Treatment Plant (WWTP) located in Queets, Washington. The collection system has no combined sewers. The facility serves a resident population of 235. Currently there are no major industries discharging to the facility, however, a new fish processing plant is being planned which will discharge up to 8,000 gallons per day of fish processing wastewater to this WWTP.

Treatment Process

The design flow of the facility is 0.035 mgd. The treatment process consists of a two-celled lagoon system with UV disinfection. 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 Queets Village WWTP is 0.035 mgd, the facility is considered a minor facility.

Calculations made by the Indian Health Service indicate that the Queets Village WWTP is capable of treating the combined volumes of wastewaters from domestic sources and from the future fish processing plant. Based on these calculations, the necessary detention time required in the lagoons for biological treatment can be met with proper operation and maintenance of the WWTP. Specifically, the Indian Health Service determined that a minimum of 38 days of detention time in the lagoons is required for proper treatment; and, calculations indicate that more than 90 days detention time would be achieved at the design flow of 0.035 mgd. Therefore, the Indian Health Service determined that biological treatment will be effective in the current configuration.

In addition, the Indian Health Service believes that discharge of ammonia in the effluent might not exceed 15 mg/l if the system is operated as designed.

B. Outfall Description

The outfall discharges to an unnamed creek approximately 45 feet from the western corner of the West Cell (see diagram in Appendix A). The unnamed creek flows approximately 1.25 miles to the Queets River. The location coordinates of the outfall is: 47.537, -124.338.

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), E. coli bacteria, pH, ammonia, temperature, and dissolved oxygen (DO).

The Queets Village WWTP is also expected to receive process wastewater from a new fish processing plant. The new fish processing plant is expected to discharge up to 8,000 gallons per day. Because the design flow of the plant is 35,000 gallons per day, the contribution of wastewater from the fish processing plant would be 23% of the WWTP's design capacity. Pertaining to instructions in the NPDES Form 2A Application Overview, the new fish processing plant would be considered a Significant Industrial User (SIU) because the wastewater contribution from the new fish processing plant would exceed 5% of the design capacity of the WWTP. Accordingly, EPA is concerned about pollutants from the new fish processing plant. Since there is no data of effluent quality from the new fish processing plant, and data from other fish processing plants indicate a probability of exceedances of

copper and zinc, EPA is requiring monitoring of these two metals for evaluation in the next permit cycle.

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 in 1980. No new permit application was received until January 17, 2014. The permittee has not been submitting Discharge Monitoring Reports (DMRs).

The EPA conducted an inspection of the facility in 2009 which identified several areas of concern. These areas of concern include locating the outfall, lack of monitoring and submission of DMRs, no Operations and Maintenance Plan, no flow measuring system, and the NPDES Permit was not available on the premises.

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 to an unnamed creek approximately 45 feet from the southern corner of the second lagoon. The unnamed creek drains into the Queets River approximately 1.25 miles from the outfall.

Low Flow Conditions

There is no information concerning the low flow conditions in the receiving water, which is a small unnamed creek. It is believed that this unnamed creek has intermittent flow above the outfall and gains volume during its travel towards the Queets River. Based on aerial photography, this unnamed creek meanders for 1.25 miles before discharging to the Queets River.

The low flow conditions of the Queets River at the USGS Gauge #12040500 near Clearwater, Washington, approximately 4.6 miles upstream from the mouth of the Queets River are described below.

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 Queets 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 1982 to 2012, and analyzed by EPA's DFLOW program.

Table 1: Calculated Low Flow Values

Units	1Q10	7Q10	30B3
USGS data in cfs	322	333	472
In mgd	207.8	214.8	304.5

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.

There is no receiving water quality data in the unnamed creek which the WWTP discharges. However, receiving water quality data can be obtained for the Queets River which the unnamed creek discharges. Water quality data in the Queets River was available from USGS Gauge #12040500, located near Clearwater, Washington, from November 15, 1977 to July 20, 1993. Table 2 summarizes the receiving water data.

Table 2: Receiving Water Quality Data

Parameter	Units	Percentile	Value	Source
Temperature	°C	95th	16.5	USGS
pH	Standard units	5th – 95th	6.90 – 7.68	USGS
Hardness	mg/L	5th – 95th	17.16 – 32.50	USGS
Ammonia	mg/L	maximum	0.12	USGS
Dissolved Oxygen	mg/L	minimum	8.2	USGS

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 application of Washington State's Water Quality Standards is particularly appropriate because the boundary of the reservation is approximately 2 miles downstream of the outfall.

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.

The State of Washington does not apply Washington Water Quality Standards (as stated in WAC 173-201A-600(2)) to segments of water that are on Indian reservations. However due to the fact that QIN does not have EPA-approved water quality standards, and EPA's need to protect downstream uses, the Washington State Water Quality Standards are used as a reference to protect this tributary and the Queets River.

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.

This tributary of the Queets River is located within the Washington State Department of Ecology's "Queets/Quinault Water Resources Inventory Area (WRIA) #21". The Queets 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, "Queets River and tributaries from mouth to Tshletshy Creek", 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 Queets River is a tributary to extraordinary quality marine waters off the Pacific coast, this segment of the Queets River should also be protected for Core Summer Salmonid Habitat and Extraordinary Primary Contact recreation.

However, the point of discharge appears to be to an estuary and the receiving water may be brackish from tidal flow carrying salt water up the Queets River and the unnamed creek.

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."

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 Queets 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 Queets River, and the analysis concluded that a Tier 2 review is not warranted. In addition, there is no loss of beneficial uses in the unnamed creek into which the facility discharges.

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). After checking with Ecology by email on April 8, 2014, there are no TMDLs or WLA applicable to this NPDES Permit in WRIA 21.

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	8.76	13.14	
BOD_5 Removal	percent	85 minimum		
Total Suspended Solids (TSS)	mg/L	30	45	
	lb/day	8.76	13.14	
TSS Removal	percent	85 minimum		
Fecal coliform bacteria[1] (geometric mean)	#/100 ml	50		100

C. Changes in Effluent Limits From the Previous Permit

Table 4 illustrates the changes in effluent limits from the existing permit. Table 4. Changes in Permit Effluent Limits

Parameter	Previous Permit	Draft Permit	Reason
BOD and TSS loading limits	Ave. Monthly Limit, 3.8 lbs/day	Ave. Monthly Limit, 8.76 lbs/day	Design flow changed from 0.015 mgd to 0.035 mgd.
	Ave. Weekly Limit, 5.6 lbs/day	Ave Monthly Limit, 13.14 lbs/day	
Fecal coliform bacteria	Ave. Monthly Limit, 200 colonies/100 ml	Ave. Monthly Limit, 50 colonies/100ml (geometric mean)	Compliance with current Washington State Water Quality Standards for Extraordinary Primary Contact Recreation
	Ave. Weekly Limit, 400 colonies/100 ml	Maximum Daily Limit, 100 colonies/100 ml (geometric mean)	
Effluent flow limit in mgd	0.015	none	See below
Note: A Flow Limit in the previous flow limit is removed in the draft permit. The previous flow limit was 0.015 mgd (Average Monthly Limit) was based on the previous design flow. A flow limit is unnecessary in the draft permit since: 1) the draft permit includes limits to meet secondary treatment and water quality standards; and 2) the permit includes mass-based limits to insure there is no dilution of the effluent.			

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	Continuous	recording
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	mg/l	Effluent	1/quarter	grab
Zinc, Total Recoverable	mg/l	Effluent	1/quarter	grab

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.

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	1/month, estimation	Continuous recording
Temperature	None	Continuous recording
BOD_5 and TSS	1/month, grab sampling	1/week, 24-hour composite sampling
pH	1/week, grab sampling	5/week, grab sampling
Fecal coliform bacteria	1/month, grab sampling	5/month, grab sampling
Total Ammonia as N	None	1/quarter, 24-hour composite
Total Residual Chlorine	1/day, grab sampling	None
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 both the Queets River and upstream at the unnamed creek. 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	Both Queets River and unnamed creek	1/quarter	Grab
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
Flow (Stream)	cfs	Unnamed Creek Only	1/quarter	Estimation

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.

The draft permit allows the permittee the option to report using NetDMR, or to report by submitting paper DMRs. 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. Under NetDMR, all reports required under the permit are submitted to 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 EPA.

The EPA 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. The permittee may use NetDMR after requesting and receiving permission from EPA Region 10.

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. 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 Queets 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 D.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 D.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 D.6 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 Queets 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.

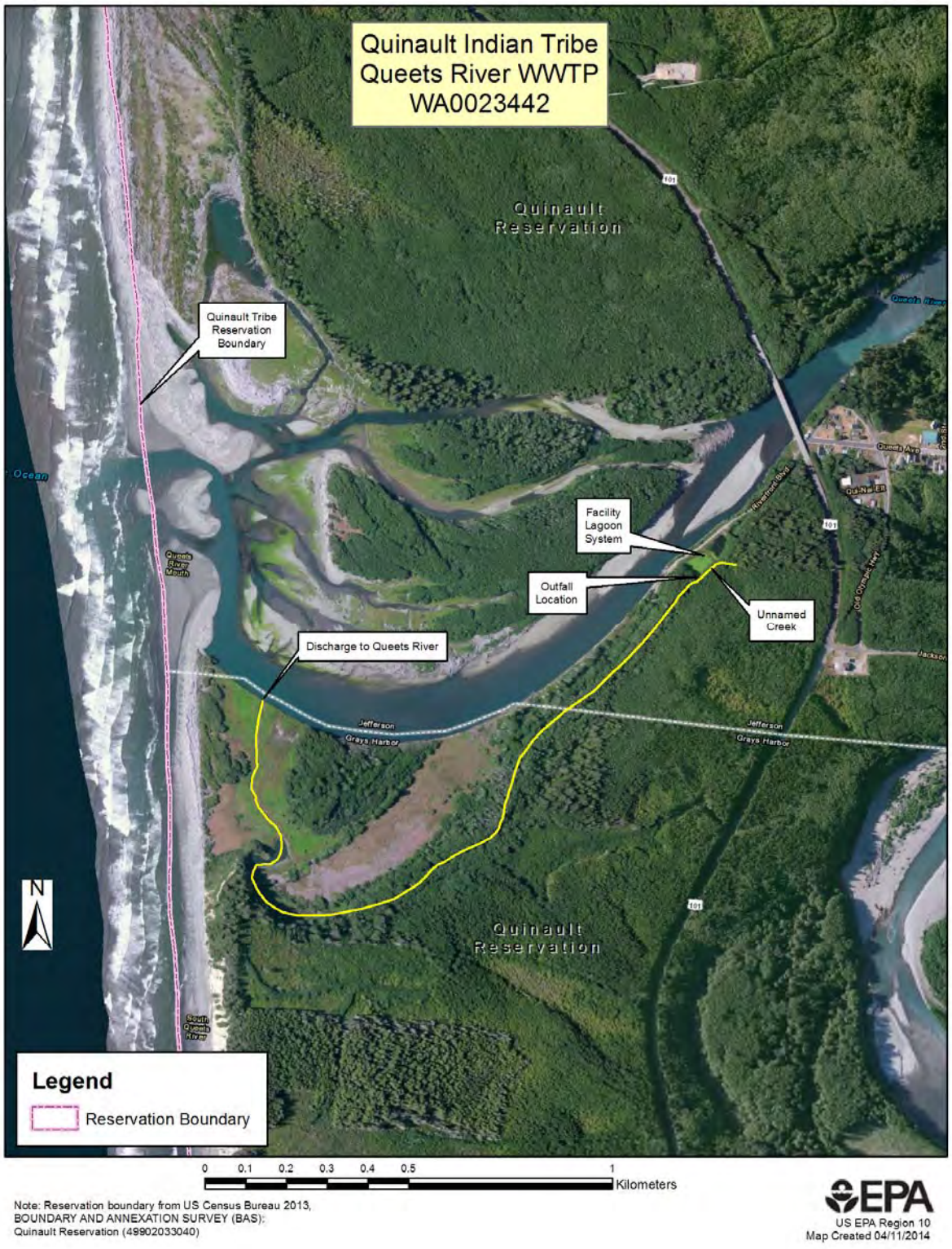
Water Pollution Control Federation. Subcommittee on Chlorination of Wastewater. *Chlorination of Wastewater.* Water Pollution Control Federation. Washington, D.C. 1976.

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:	WA0023442
Physical Address:	Queets Village Wastewater Treatment Plant Riverfront Boulevard Queets, Washington 98331
Mailing Address:	Queets Village Wastewater Treatment Plant Quinault Indian Nation P.O. Box 189 Taholah, Washington 99587
Facility Background:	Wastewater Treatment Plant for Sanitary Wastes and future process waste stream for a fish processing plant.
Facility Information	
Type of Facility:	Small tribally owned and operated wastewater treatment plant.
Treatment Train:	Two cell lagoon system; 2 aerators in the first lagoon, and UV disinfection prior to discharge.
Flow:	Designed flow rate: 0.035 mgd
Outfall Location:	47.537, -124.338
Receiving Water Information	
Receiving Water:	Small unnamed creek with intermittent upstream flow. Unnamed creek flows for 1.25 miles to the Queets River.
Watershed as designated by Washington State Dept of Ecology:	Queets/Quinault Water Resources Inventory Area (WRIA) #21, segment: Queets River and tributaries from mouth to Tshletshy Creek.
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 Queets Village WWTP



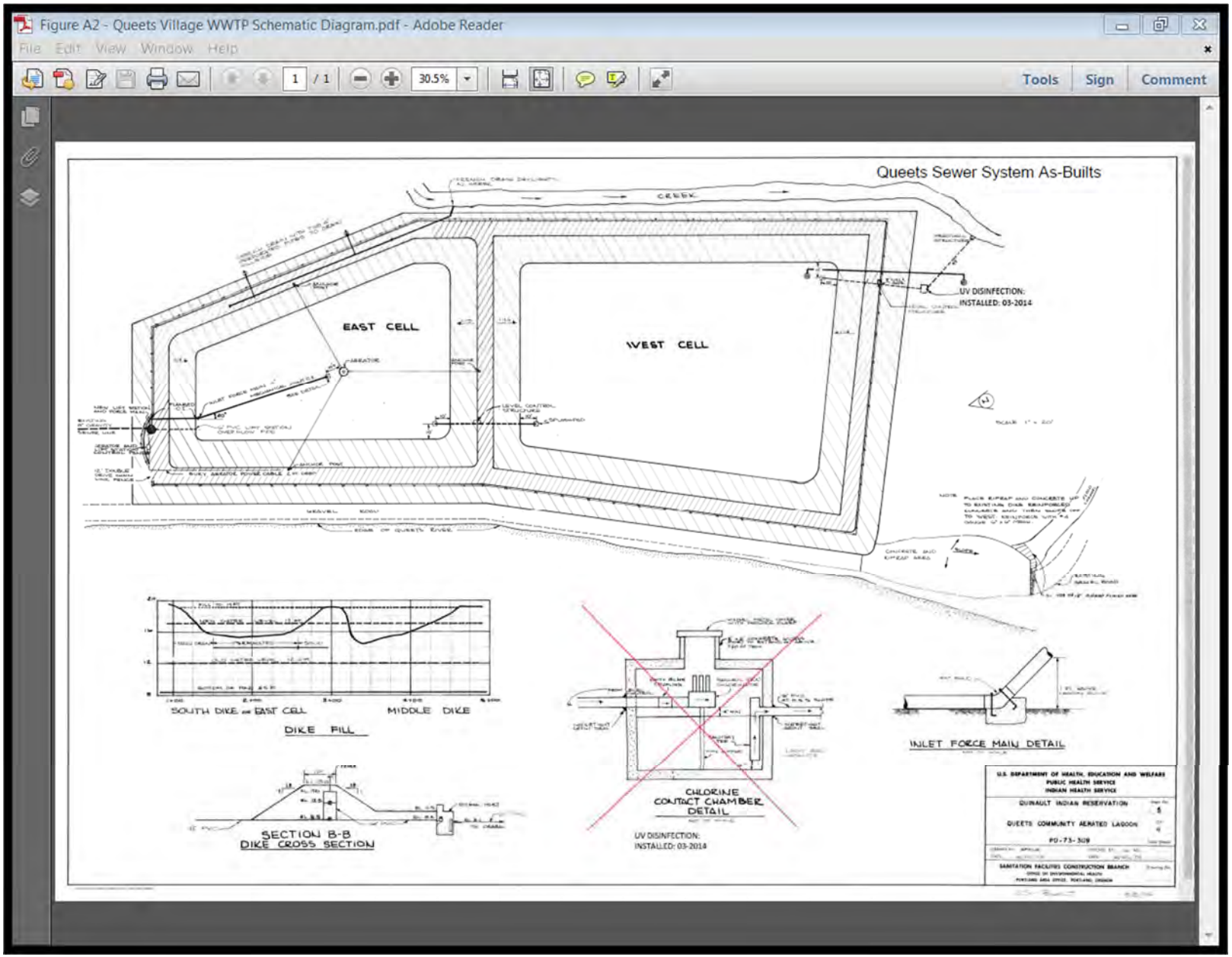


Figure A2 - Queets Village WWTP Schematic Diagram.pdf - Adobe Reader
File Edit View Window Help
Tools Sign Comment
Queets Sewer System As-Builts
EAST CELL
WEST CELL
UV DISINFECTION:
INSTALLED: 03-2014
SOUTH DIKE at EAST CELL
MIDDLE DIKE
DIKE FILL
SECTION B-B
DIKE CROSS SECTION
CHLORINE
CONTACT CHAMBER
DETAIL
UV DISINFECTION:
INSTALLED: 03-2014
INLET FORCE MAIN DETAIL
QUINAULT INDIAN RESERVATION
QUEETS COMMUNITY AERATED LAGOON

Appendix B: Water Quality Criteria Summary

This appendix provides a summary of water quality criteria applicable to the Queets 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 unnamed creek and the Queets 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.

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 Queets 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 both the unnamed creek and the Queets 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." The unnamed creek or the Queets River at the vicinity of discharge are 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. 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 Based on the existing USGS data (Gauge number, 12040500) at the 5th percentile hardness of 17 mg/l $CaCO_3$.
Acute (µ/l)	4.8	3.2
Chronic (µ/l)	3.1	2.5
Total Recoverable Zinc		Hardness Dependent Based on the existing USGS data (Gauge number, 12040500) at the 5th percentile hardness of 17 mg/l $CaCO_3$.
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

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 Queets Village WWTP discharges to the unnamed creek located approximately 45 feet from the West Cell lagoon. This unnamed creek is believed to be flowing intermittently upstream from the point of discharge, and based on aerial photography the unnamed creek appears to be increasing in flow for 1.25 miles before discharging to the Queets River. Low flow conditions in the unnamed creek prior to discharge at the Queets River are also unknown. Access is difficult along the unnamed creek beyond the outfall because of obstructions of the rain-forest, and without a roadway or a trail. Due to the lack of effluent data from the facility, there are monitoring requirements in the draft permit to generate data for evaluation of reasonable potential and if necessary effluent limitations in the next permit cycle. However, no effluent limitations are based on dilution in the Queets River. 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, located pm the Queets River near Clearwater, Washington.

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

Table C-1: Critical Flows at Queets River near Clearwater, Washington

Flows	cfs	mgd
1Q10	322	207.74
7Q10	333	214.84

Table C-1: Critical Flows at Queets River near Clearwater, Washington		
Flows	**cfs**	**mgd**
30B3	472	304.52
30Q5	448	289.03
Harmonic Mean	1,750	1,129.03

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 0.035 mgd. The dilution factors are listed in Table C-2.

Table C-2: Dilution Factors in the Queets River

Flows	
1Q10	1,484.86
7Q10	1535.57
30B3	2,176.14
30Q5	2,065.50
Harmonic Mean	8,065.50

Compliance with water quality standards is required in the unnamed creek. The flow in the creek is a small fraction of the Queets River flow and is suspected to be intermittent. These two factors will result in little if any available mixing zone in the unnamed creek. All the effluent limitations in the proposed permit are not derived from a mixing zone. Depending on the salinity of the creek, the creek may be considered marine waters or freshwater in the next permit cycle. Because of a lower dilution factor in the unnamed creek than in the Queets River, there is much greater likelihood for a reasonable potential to exceed water quality standards in the creek than in the river, which would necessitate an ammonia effluent limitation during the next permit cycle. Accordingly, even if there is reasonable potential in the Queets River, the ammonia effluent limitations for discharges to the creek will probably also be more stringent then for discharges to the Queets River because there is more available dilution in the Queets River. Therefore, continued discharge into the unnamed creek may result in higher costs for treatment than a direct discharge to the Queets River. For this reason the facility should evaluate the feasibility of rerouting the discharge from the small unnamed creek to a direct discharge to the Queets River. This will provide the dilution factors in Table C-2 and may reduce treatment costs and reduce impacts to the unnamed creek.

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 0.035 mgd, the technology based mass limits for BOD_5 and TSS are calculated as follows:

Average Monthly Limit = 30 mg/L × 0.035 mgd × 8.34 = 8.76 lbs/day

Average Weekly Limit = 45 mg/L × 0.035 mgd × 8.34 = 13.16 lbs/day

[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

When evaluating the effluent to determine if the pollutant parameters in the effluent 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/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.

Total Ammonia would be the only parameter of concern had there been sufficient data available to perform a reasonable potential analysis. For the draft permit, no reasonable potential analysis was completed because there is no data to complete a reasonable potential analysis for ammonia. Specifically because no ammonia data is available for either the effluent or in the receiving water (unnamed creek). Because a reasonable potential analysis for ammonia could not be conducted, there are no Water Quality Based Effluent Limits for ammonia in the draft permit.

Accordingly, EPA is requiring the permittee to perform ammonia monitoring in the effluent, in the unnamed creek, and in the Queets River so that a reasonable potential analysis can be completed in the next permit cycle.

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 Queets Village WWTP will not be required to submit Expanded Effluent Testing Data or Toxicity Testing Data because of a treatment plant design flow less than 1.0 MGD.

(b) Fecal Coliform Bacteria

The Water quality standard apply pertaining to Fecal coliform bacteria: 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.

(c) Total Residual Chlorine (TRC)

The Queets Village WWTP no longer uses chlorine for disinfection; therefore, no effluent limits are required for TRC.

(d) 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. This pH range in the draft permit is unchanged from the previous permit.

(e) Dissolved Oxygen

BOD discharges into the unnamed creek from the Queets Village Wastewater Treatment Plant are not expected to have an appreciable effect on the dissolved oxygen concentration in the Queets 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 Queets 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 1535. 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 Queets River. Therefore no dissolved oxygen effluent limits are proposed.

(f) Ammonia

As discussed above, there is no ammonia data to conduct reasonable potential analysis. EPA is requiring monitoring of Total Ammonia in the effluent, in the surface water upstream of the

unnamed creek, and in the Queets 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.

(g) 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) state: 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).

There is insufficient data to determine if excessive temperature in the effluent would violate Washington's temperature criteria for Salmonid Spawning, Rearing and Migration, or for Core Summer Salmonid Habitat. There are 15 data points for effluent temperature available, and the highest value observed was 11.7ºC. The data currently available was not collected in a manner consistent with Washington State requirements which requires data to be comparable to the highest value of 7-day average of the daily maximum temperatures (highest 7-DADMax) and the use of continuous temperature monitoring. However, the highest observed value of 11.7ºC, is less than the Core Summer Salmonid Habitat temperature criteria of 16ºC (highest 7-DADMax), and 11.7ºC effluent temperature is less than the Salmonid Spawning, Rearing and Migration temperature criteria of 17.5ºC (highest 7-DADMax). Even though this comparison is not a conclusive reasonable potential analysis for violations of the State temperature standards, this data does not indicate immediate urgency.

Accordingly, EPA did not propose an effluent limit for temperature, but required monitoring of temperature in the effluent continuously, and, temperature monitoring in surface water at both the unnamed creek and in the Queets River.

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).

An anti-backsliding analysis was done for the Queets Village WWTP. Because the last permit which was issued in 1975 had expired in 1980; 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.

Due to upgrades made at the Queets Village WWTP in 2014, the design flow of the facility had increased from 0.015 MGD in the previous permit to 0.035 MGD. Due to the increase in design flow, the loading limits for BOD and TSS have also increased proportionately even though the concentration limits had remained the same.

In conclusion, the proposed action is a permit issuance, anti-backsliding requirements do not apply. However, even if the proposed action had been a permit reissuance, the increased loading will qualify as an exception in Section 122.44(l)(i)(A)(i). Section 122.44(l)(i)(A)(i) allows for an exception when the increase loading is caused by a material and substantial alteration or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation. Therefore, even if the proposed permit was considered a permit reissuance, rather than a permit issuance, this exception would be made to 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 pollutions.
    - 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.
    - 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 unnamed creek. EPA considered effects in both the unnamed creek and also the Queets River because the unnamed creek drains into the Queets River.

For the anti-degradation analysis on the unnamed creek, due to a lack of data at the unnamed creek, EPA is unable to determine if the ambient water quality in the unnamed creek is either higher or lower than the designated classification criteria described in Washington Water Quality Standards at Chapter 173-201A WAC; therefore, the 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 Queets 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 also conducted the antidegradation analysis on the Queets River because the unnamed creek leads to the Queets River.
- 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 Queets River (USGS Gauge number, 12040500, located upstream near Clearwater, Washington) is 333cfs or 215 mgd, which calculates to a chronic dilution factor of 1,536 based on a 25% mixing zone and the WWTP's design flow of 0.035 mgd. This chronic dilution factor is conservative because the gauge being located approximately 4.6 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 mouth of the unnamed creek. Therefore, had there been flow data closer, the chronic dilution factor would be greater than 1,536.

Based on a review of the water quality data for the Queets River, the receiving water qualifies for both Tier I and Tier II protection (explained in more detail below).

Tier I Protection

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 Queets 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 Queets 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 Queets Village WWTP is considered a new discharge to the unnamed creek which leads to the Queets 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 1,536. 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 which concluded that a Tier II analysis is not required because the draft permit would not cause measurable change in accordance with Washington State Water Quality Standards.

(a) Temperature

According to monitoring data submitted from the facility, the average effluent temperature is 8.97°C, and the average temperature in the Queets River is 9.74 °C. Given the dilution factor (1,536), the temperature of the receiving water will be unchanged at 9.74 °C. Thus, the discharge will not cause or contribute to a temperature increase of 0.3°C or greater and therefore this parameter does not trigger the Tier II antidegradation analysis.

(b) Dissolved oxygen (DO)

Based on 14 data points (February 2010 to January 2014) that were provided to EPA, the Queets WWTP produced an average BOD_5 of 21.06 mg/l. The facility is a minor discharger, with a design flow of 0.035 mgd. Its effluent is low in BOD_5 and the receiving water has a high dilution factor. Therefore, 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.

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 Queets 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 1535. 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 (1535) and the fact that this facility treats wastewater with UV disinfection, the WWTP is not expected to have potential to cause a bacteria level increase of 2 cfu/100 mL or greater. Therefore, it 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 July 2009 to January 2014, a total of 15 effluent pH samples were collected at the Queets Village WWTP. The effluent data ranged from 6.23 – 7.37 standard units, with an average value of 6.86 standard units. The average temperature of the effluent based on 15 samples is 8.97 C.

EPA ran the pH spreadsheet using both effluent pH values of 6.23 and 7.37 standard units in order to get a reasonable worst-case estimate on whether the wastewater discharge would cause a measurable change in pH (see Table 1 below). The river has an average pH of 7.34, and default values of alkalinity are used based on typical values. If the effluent had caused the pH in the river to drop from 7.34 to 7.24 or to rise from 7.34 to 7.44, the discharge would have triggered Tier II antidegradation analysis. This was not the case; EPA found that the wastewater would not cause measurable change in pH. Since the proposed discharge will not cause a pH change of 0.1 units or greater, this parameter does not trigger the Tier II antidegradation analysis.

<u>Calculation of pH of a mixture in freshwater for Tier II antidegradation analysis</u>.

At the lower and higher range the pH at the edge of the mixing zone is the same as the background pH. when the effluent has a pH of 6.23 s.u., the river's pH changed to 7.33 s.u. This resultant pH value of 7.33 s.u. in the river, is changed by 0.01 s.u. Therefore, the resultant change is within 0.1 s.u. of the river's ambient pH of 7.34 s.u. (Note: due to the lack of actual data, alkalinity is assumed at 50 mg/CaCO3/l (upstream); and 150 mg/CaCO3/l (in the effluent).

INPUT	
1. DILUTION FACTOR AT MIXING ZONE BOUNDARY	1535.000
2. UPSTREAM/BACKGROUND CHARACTERISTICS	
Temperature (deg C):	10.28
pH:	7.34
Alkalinity (mg CaCO3/L):	50.00
3. EFFLUENT CHARACTERISTICS	
Temperature (deg C):	8.97
pH:	6.23
Alkalinity (mg CaCO3/L):	150.00

OUTPUT	
1. IONIZATION CONSTANTS	
Upstream/Background pKa:	6.46
Effluent pKa:	6.47
2. IONIZATION FRACTIONS	
Upstream/Background Ionization Fraction:	0.88
Effluent Ionization Fraction:	0.36
3. TOTAL INORGANIC CARBON	
Upstream/Background Total Inorganic Carbon (mg CaCO3/L):	56.61
Effluent Total Inorganic Carbon (mg CaCO3/L):	412.97
4. CONDITIONS AT MIXING ZONE BOUNDARY	
Temperature (deg C):	10.28
Alkalinity (mg CaCO3/L):	50.07
Total Inorganic Carbon (mg CaCO3/L):	56.84
pKa:	6.46
pH at Mixing Zone Boundary:	7.33

At the upper end of the range, when the effluent has a pH of 7.37 s.u., causing the river's pH to change to 7.34 s.u. This resultant value of 7.34 s.u. in the river, is unchanged from ambient conditions. Therefore, the resultant change is also within 0.1 s.u. of the river's ambient pH of 7.34 s.u.

INPUT	
1. DILUTION FACTOR AT MIXING ZONE BOUNDARY	1535.000
2. UPSTREAM/BACKGROUND CHARACTERISTICS	
Temperature (deg C):	10.28
pH:	7.34
Alkalinity (mg CaCO3/L):	50.00
3. EFFLUENT CHARACTERISTICS	
Temperature (deg C):	8.97
pH:	7.37
Alkalinity (mg CaCO3/L):	150.00

OUTPUT	
1. IONIZATION CONSTANTS	
Upstream/Background pKa:	6.46
Effluent pKa:	6.47
2. IONIZATION FRACTIONS	
Upstream/Background Ionization Fraction:	0.88
Effluent Ionization Fraction:	0.89
3. TOTAL INORGANIC CARBON	
Upstream/Background Total Inorganic Carbon (mg CaCO3/L):	56.61
Effluent Total Inorganic Carbon (mg CaCO3/L):	169.05
4. CONDITIONS AT MIXING ZONE BOUNDARY	
Temperature (deg C):	10.28
Alkalinity (mg CaCO3/L):	50.07
Total Inorganic Carbon (mg CaCO3/L):	56.69
pKa:	6.46
pH at Mixing Zone Boundary:	7.34

(e) Turbidity

Per Ecology's previous guidance, EPA assumed turbidity to have a linear relationship to dilution. For example, if there was a dilution factor of 100, effluent turbidity would need to exceed 50 NTU to indicate potential to cause a measurable lowering of water quality. In this case, with a high dilution factor of 1535, and the ambient river's average turbidity is 9.06 NTU, the turbidity of the effluent could not be great enough to cause a 0.5 NTU or greater increase. It is impossible to violate this trigger because to cause 0.5 NTU increase from a background of 9.06 NTU, would be a 5.5% increase in total turbidity in the river, from an effluent flow contribution of less than 0.0002% of the 7Q10 low flow. 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. Even though no effluent ammonia data is currently available, the chronic ammonia dilution factor in the river is very large (2,176); therefore 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 2,176) must be less than 0.01 to be considered unmeasurable. Due to the lack of data, the maximum measured effluent concentration from the WWTP is unknown. However, to cause a measurable change, the effluent would need to have an ammonia concentration of at least 21.76 mg/l. The Queets WWTP is unlikely to trigger this threshold (21.76 mg/l) because the Moclips WWTP (also in the Quinault Indian Reservation) with the same design flow discharges less than 3 mg/l (maximum recorded) during the past 5 years.

Because the resulting concentration of ammonia after mixing would be less than the method detection limit (as provided by the most sensitive analytical method), this facility would not have the potential to cause a measurable degradation of water quality due to toxic substances. Because there is no measurable change in ammonia, and 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	8.76	13.14		
BOD_5 Removal	percent	85 minimum			
Total Suspended Solids (TSS)	mg/L	30	45		Federal Secondary Treatment Standards
	lb/day	8.76	13.14		
TSS Removal	percent	85 minimum			
Fecal coliform bacteria	Colonies per #/100 ml	50 (geometric mean)		100	Washington State Water Quality Standards
pH	s.u.	6.5 to 8.5			Washington State WQS

Appendix E: 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 Greys 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 Queets Village WWTP for possible impacts to the two "Threatened" USFWS listed fish species: Bull Trout and the Dolly Varden in both the unnamed creek and the Queets River. For the unnamed creek, which is a low volume flow, and the creek starts a short distance from the outfall, EPA concludes that there are no known ESA species in the unnamed creek. Therefore EPA concludes that there is no effect on ESA species in the unnamed creek.

EPA also concluded that there would be no effect on fish species in the Queets River because the discharge from the WWTP is extremely small compared with the flow volume of the Queets River. With a conservative mixing of 25% of the chronic low flow in the Queets River, the dilution factor is 1,535, and the effluent had already undergone secondary treatment, and ultra-violet disinfection prior to discharge. Therefore, EPA concludes that the draft permit would have no effect on all 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 Greys 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 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 has been designated for Puget Sound bull trout on September 26, 2005 (70 FR 56213). The critical habitat designation for Puget Sound bull trout critical habitat 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 demonstrates 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 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 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, 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 distinct

population segment (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 our 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, 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, 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, OR, 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, therefore resulting in no measurable impact. **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 Minamikojima 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. 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, 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, OR, to Guerrero Negro, Baja Sur, Mexico. Spring migrants arrive in southern Washington in early March. Arrival of most breeders at Monterey Bay, CA, 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, 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 Queets Village WWTP does not impact the Bull Trout or the Dolly Varden in those negative ways described. The contribution of the effluent in the Queets River from the treatment plant is exceedingly small where the chronic dilution factor is 1,535. The Queets 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. 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 Queets 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 unnamed creek and the Queets 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 is a small design flow rate of 0.035 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** to all 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 Queets 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.