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:

The Lummi Tribal Sewer District
Kwina Road Membrane Bioreactor (MBR) Wastewater Treatment Plant

Public Comment Start Date: April 20, 2015
Public Comment Expiration Date: June 1, 2015

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The EPA Proposes To Issue This NPDES Permit
The EPA proposes to issue the NPDES Permit for the facility referenced above. The Permit places conditions on the discharge of pollutants from the Lummi Nation Kwina Road MBR wastewater treatment plant (WWTP) to waters of the United States (U.S.). In order to ensure the 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

Clean Water Act Certification
The EPA is requesting that the Lummi Nation Natural Resources Department (Department or LNR) certify the NPDES Permit for this facility, under Section 401 of the Clean Water Act (CWA). Comments regarding the draft CWA certification should be directed to:

Lummi Nation Natural Resources Department
Attn: Manager, Water Resources Division
2665 Kwina Road
Bellingham, WA 98226
jeremyf@lummi-nsn.gov

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

1. 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 Permit, fact sheet, and other information can also be found by visiting the Region 10 NPDES website at http://yosemite.epa.gov/r10/water.nsf/NPDES+Public+Notices/lummi_pn_2015

   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 draft Permit and fact sheet are also available at the Lummi Nation Natural Resources Department (LNR) and can be found by visiting the LNR website at http://lnnr.lummi-nsn.gov/LummiWebsite/Website.php?PageID=82

TABLE OF CONTENTS

List of Tables

List of Figures

Acronyms

1Q10	Lowest 1-day flow in 10 years
7Q10	Lowest 7-day flow in 10 years
AML	Average Monthly Limit
AWL	Average Weekly Limit
BA or BE	Biological Assessment/Evaluation
BO or BiOp	Biological Opinion
BOD_5	Biochemical oxygen demand, five-day
°C	Degrees Celsius
CFR	Code of Federal Regulations
CFS	Cubic Feet per Second
CMOM	Capacity, Management, Operation, and Maintenance
CSO	Combined Sewer Overflow
CV	Coefficient of Variation
CWA	Clean Water Act
DMR	Discharge Monitoring Report
DO	Dissolved Oxygen
EFH	Essential Fish Habitat
EJ	Environmental Justice
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
GPD	Gallons per day
ICIS	Integrated Compliance Information System
I/I	Infiltration and Inflow
LA	Load Allocation
lbs/day	Pounds per day
LIBC	Lummi Indian Business Council
LNR	Lummi Nation Natural Resources Department
LTA	Long Term Average

MBR	Membrane Bioreactor
MGD	Million Gallons Per Day
mg/L	Milligrams per liter
mL	milliliters
ML	Minimum Level
µg/L	Micrograms per liter
MDL	Maximum Daily Limit or Method Detection Limit
MF	Membrane Filtration
N	Nitrogen
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
OWW	Office of Water and Watersheds
O&M	Operations and Maintenance
POTW	Publicly owned treatment works
PPT	Parts Per Thousand
QAP	Quality Assurance Plan
RP	Reasonable Potential
RPA	Reasonable Potential Analysis
RWC	Receiving Water Concentration
SS	Suspended Solids
SSO	Sanitary Sewer Overflow
s.u.	Standard Units
TAS	Treatment as a State (EPA terminology for Indian Tribes authorized to run programs under the Clean Water Act)
TKN	Total Kjeldahl Nitrogen
TMDL	Total Maximum Daily Load
TSD	Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001)
TSS	Total Suspended Solids
UAA	Use Attainability Analysis
USFWS	U.S. Fish and Wildlife Service

UV	Ultraviolet
WDFW	Washington Department of Fish and Wildlife
WLA	Wasteload allocation
WQBEL	Water Quality-based Effluent Limit
WQS	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:

Lummi Tribal Sewer District
Kwina Road MBR Wastewater Treatment Plant
NPDES Permit No. WA0026727

Physical Address:
Kwina Road MBR Wastewater Treatment Plant
4100 Lummi Shore Drive
Bellingham, WA 98226

Mailing Address:
Lummi Tribal Sewer and Water District
2156 Lummi View Drive
Bellingham, WA 98226

Contact:
Charles (Chip) Anderson
Lummi Tribal Sewer and Water District Manager
(360) 758-7167

B. Permit History

An NPDES application for permit issuance was submitted by the Permittee on June 30, 2010. The EPA determined that the application was timely and complete. The EPA contacted the facility in April of 2014, once permit development could begin, and learned that an upgrade to the facility is planned to take place during 2015. EPA therefore requested that the Permittee submit updated NPDES application information regarding the facility upgrade. That information, including a revised process flow diagram, was received by EPA on February 6, 2015.

This NPDES Permit, authorizing discharge to surface waters under the CWA will be the first one for the Kwina Road MBR WWTP. As such, the facility meets the definition at 40 CFR 122.2 of a *new discharger*.

Previously, the facility discharged wastewater effluent to a drainfield. The effluent was injected underground via Class V injection wells registered with the Underground Injection Control (UIC) Program under the Safe Drinking Water Act (SDWA) and authorized by rule for effluent discharge.

II. Facility Information

A. Treatment Plant Description

Service Area
The Lummi Tribal Sewer District operates and manages the Kwina Road MBR WWTP located on the Lummi Indian Reservation near Bellingham, Washington on behalf of the Lummi Indian Business Council (LIBC – the governing body of the Lummi Nation). The collection system has no combined sewers. The facility serves a resident population of approximately 500 people. The facility treats residential wastewater, as well as wastewater from the Lummi Nation Administrative Building, the Northwest Indian College, and the Silver Reef Hotel, Casino & Spa.

Treatment Process
The design flow of the facility is currently 100,000 gallons per day (gpd); with the incorporation of the 3-phased treatment plant upgrade plan, looking out 20 years until 2034. For the next five year Permit cycle, during the Phase I upgrade, the maximum monthly design flow is 107,000 gpd. The treatment process consists of anoxic and pre-aeration basins for de-nitrification, before the influent is pumped through 900 membrane bioreactor cells to further filter and treat the wastewater. An ultraviolet light (UV) system for disinfection of the effluent prior to discharge is expected to be installed and operational no later than June 30, 2015. Details about the wastewater treatment process and a map showing the location of the treatment facility and discharge are included in Appendix A.

The EPA conducted an informational site visit at the facility on May 22, 2014. The site visit encompassed a tour and discussion of the wastewater treatment process, facility operations and maintenance practices, and a tour of the wetland and Smuggler's Slough until the discharge point into Lummi Bay on the west side of the Lummi peninsula portion of the Reservation. Discussion of necessary changes to the facility to come into compliance with the CWA and the Lummi Tribal Water Quality Standards (WQS) also occurred at that time. Pictures and notes from the site visit are also included here in Appendix A.

Outfall Description

The Lummi Sewer District is planning to install a new underground 8" diameter PVC outfall pipe for the Kwina Road WWTP. Once the outfall pipe is installed, the Lummi Kwina Road WWTP will discharge directly to Wetland No. 2011-08 as identified in the Lummi Nation Wetland Management Program across the Lummi Shore Road from the facility. The EPA notes that the January 2015 Endangered Species Act (ESA) Biological Assessment (BA) of this project, completed by consultants for the Lummi Tribal Sewer District, identified this receiving wetland as "Wetland X", but that document and this Permit are referring to the same receiving water.

The pipe starts from the non-potable water wet well on the facility property, travels approximately 20 feet north, turns ninety degrees, travels east for approximately 242 feet,

passes under Lummi Shore Road, and terminates 23 feet east of Lummi Shore Road. The slope of the outfall pipe will be approximately 3.5%.

The pipe will outfall onto an energy dissipating rip rap apron. The apron is 3 feet wide at the pipe outlet, 10 feet long, and 8 feet wide at the end. The maximum velocity at the pipe outlet for the design peak hour flow of 0.30 MGD is 4.6 feet per second, d/D = 0.33. The velocity for design peak day flow of 0.21 MGD is 4.2 feet per second. The outfall will be located at latitude 48° 47.448' N and longitude 122° 36.762' W.

Currently, the WWTP effluent is discharged into the soil via the Class V injection well drain field surrounding the WWTP. Due to lower than expected infiltration capacity at the site, the facility currently pumps effluent out of the drain field to prevent surface inundation, and it flows to a ditch along the west side of Lummi Shore Road. The effluent mixes with storm water in the roadside ditch during certain times of the year and crosses under the road through an existing culvert before discharging to Wetland No. 2011-08 (aka Wetland X) on the east side of Lummi Shore Road. The Permittee will cease discharging to the UIC drain field once it begins discharging to Wetland No. 2011-08 under NPDES Permit authorization to discharge.

B. Effluent Characterization

In order to determine the pollutants of concern for further analysis, EPA evaluated the application form, the supplemental effluent discharge data submitted to EPA on April 25, 2014, and the nature of the discharge. The wastewater treatment process for this facility includes both primary and secondary treatment, as well as additional filtration through the membrane filters of the MBR, and the tertiary treatment utilizing UV disinfection. Pollutants typical of a sewage treatment plant would be expected in the discharge. Based on analysis of the facility's monitoring data, and review of the Lummi WQS, the pollutants of concern for monitoring and/or limiting in the Kwina Road MBR WWTP effluent are as follows:

- 5-day biochemical oxygen demand ($BOD_{5)}$
- Total suspended solids (TSS)
- fecal coliform bacteria (for the protection of human health from eating fish and shellfish)
- Enterococci bacteria (for protection of human health from recreational activity)
- pH
- Temperature
- Dissolved Oxygen (DO)
- Ammonia
- Total Kjeldahl Nitrogen (TKN)
- Nitrate-Nitrite
- Phosphorus

The concentrations of pollutants in the discharge were reported in the NPDES application and in the supplemental effluent data, and were used in determining the reasonable potential for several parameters to cause or contribute to a violation of the Lummi Nation water quality standards (WQS) found at 17 LAR 07.010 – 210. See Appendix B for more information on conducting reasonable potential analyses (RPA).

The table below presents a summary of the effluent data received from the Kwina Road MBR facility to date.

Table 1. Kwina Road MBR WWTP Effluent Data 2006-2014

Kwina Road MBR WWTP Effluent Data 2006-2014				
Parameter	**Units**	**Percentile**	**Value**	**# of Samples**
Temperature	°C	95th	24.4	90
pH	Standard units	5th – 95th	7.8	90
BOD_5	mg/L	95th	18.0	85
TSS	mg/L	95th	6.30	58
Fecal coliform	Colonies/mL	95th	1,265	50
Total Nitrogen	mg/L	95th	38.15	98
Nitrate-Nitrite	mg/L	95th	8.40	16
Total Kjeldahl Nitrogen (TKN)	mg/L	95th	16.75	18
Ammonia	mg/L	95th	30.37	108
Phosphorus	mg/L	95th	4.97	90

III. Receiving Water Characterization

This facility discharges to Wetland No. 2011-08, due east of the facility location on Lummi Shore Road and just south of Marine Drive, on the Lummi Indian Reservation at 48° 47.448 N latitude and 122° 36.762 W longitude. The wetland drains to Smugglers Slough, which runs through Wetland No. 2011-08 and heads generally north and west in the Nooksack River/Lummi River floodplain across the northern upland area of the Lummi Peninsula of the Lummi Indian Reservation before discharging through a series of culverts into Lummi Bay.

A. Low Flow Conditions

The Technical Support Document for Water Quality-Based Toxics Control (hereafter referred to as the TSD) (EPA, 1991) and the Lummi Nation WQS recommend the flow conditions for use in calculating water quality-based effluent limits (WQBELs) using steady-state modeling. The TSD and the Lummi Nation 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.

Because the Kwina Road MBR WWTP pipes effluent to discharge directly to Wetland No. 2011-08, and not to a flowing body of water, there can be no mixing zone calculated and no

dilution allowance afforded to the discharge. Therefore, all of the effluent limitations included in the Permit are to be met at the end of the pipe at all times.

B. Receiving Water Quality

Select receiving water quality data were available from the Lummi Nation Natural Resources Department (LNR). The table below summarizes the receiving water data used to evaluate the need for and develop water quality based effluent limits. It does not mean that there are limits in the Permit on all of the parameters evaluated. The EPA considered all of the information, and sometimes there's a limit associated with a parameter if it was determined to be necessary to protect water quality at the levels set in regulation by the Lummi WQS

Based on the temperature and pH information provided, the EPA determined the applicable ammonia criteria to compare against the effluent concentrations of ammonia and determine if the facility had the reasonable potential (RP) to exceed the applicable water quality criteria for ammonia. The salinity information helped to determine if the bacteria limits required by the Permit would be set to the freshwater or the saltwater WQS of the Lummi Nation. As the salinity is low, EPA used the freshwater water quality criteria for bacteria in this Permit. Using the freshwater quality criteria is also consistent with the Lummi Nation WQS for this water body.

Table 2. Water Quality Data on Smuggler's Slough at Monitoring Location SW072 (inside Wetland No. 2011-08)

Water Quality Data on Smuggler's Slough at Monitoring Location SW072 (inside Wetland No. 2011-08) from the Lummi Nation Natural Resources Department				
Parameter	**Units**	**Percentile**	**Value**	**# of Samples**
Temperature	°C	95^{th}	22.09	83
pH range	Standard units	5^{th} – 95^{th}	6.13 - 7.37	63
Salinity	Parts per thousand (ppt)	95th	0.16	83
E. coli	Colonies/100 mL	95th	218	85
Enterococci	Colonies/100 mL	95th	370	85
Fecal coliform	Colonies/100 mL	95th	220	86

Table 3. Water Quality Nutrient Data on Smuggler's Slough at Two Separate Monitoring Locations

Water Quality Nutrient Data on Smuggler's Slough at Monitoring Location SW015 (Monitoring off of Lummi Shore Road) from the Lummi Nation Natural Resources Department				
Parameter	**Units**	**Percentile**	**Value**	**# of Samples**
Nitrate	mg/L	95th	0.66	47
Nitrate + Nitrite	mg/L	95th	0.26	6
Nitrite	mg/L	95th	0.21	25
Total Phosphorus (TP)	mg/L	95th	0.80	50

Water Quality Nutrient Data on Smuggler's Slough at Monitoring Location SW002 (Monitoring inside Lummi Bay) from the Lummi Nation Department of Natural Resources				
Parameter	**Units**	**Percentile**	**Value**	**# of Samples**
Nitrate	mg/L	95th	0.73	27
Nitrate + Nitrite	mg/L	95th	1.20	17
Nitrite	mg/L	95th	0.13	9
Total Phosphorus (TP)	mg/L	95th	0.35	41

C. Water Quality Standards

Overview

Section 301(b)(1)(C) of the CWA requires the development of effluent limitations in NPDES Permits that are determined to be necessary in order to meet state or tribal WQS for surface waters. Federal regulations found at 40 CFR 122.4(d) require that the effluent limitations and other conditions included in NPDES Permits ensure compliance with the WQS of the receiving water, and waters downstream of the receiving water. A state or tribe's WQS for surface water are composed of designated use classifications, numeric and/or narrative water quality criteria set at levels to protect those designated uses and an antidegradation policy with implementation procedures, in order to protect the water quality into the future [40 CFR 131.10, 131.11, and 131.12].

The use classification system designates the beneficial uses of each water body over which the state or tribe has jurisdiction. Uses can be designated for drinking water supply, contact recreation, and aquatic life protection, among others. Narrative provisions are developed and numeric water quality criteria are derived by the state or tribe to ensure that the beneficial uses of each water body are attained and maintained. The antidegradation policy represents a three-tiered approach to protecting and maintaining current water quality and uses into the future.

Designated Beneficial Uses

The overall objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. Section 101(a)(2) of the CWA states that water quality should provide for the protection and propagation of fish, shellfish, and wildlife, and

recreation in and on the water, wherever attainable. This provision is sometimes referred to as the "fishable/swimmable" goal of the CWA. Consistent with this goal, states and Indian tribes are required to designate all waters of the U.S. within the state/tribe with fishable/swimmable use designations unless the state/tribe can meet the requirements found at 40 CFR 131.10 to remove the fishable/swimmable uses through a use attainability analysis (UAA).

This facility discharges to Smugglers Slough in the receiving upland wetland area designated as Wetland No. 2011-08 (previously identified as Wetland X). Smugglers Slough, which discharges into Lummi Bay near the northern extent of the Lummi Nation's Seapond Aquaculture Facility that includes one of the tribe's salmon hatcheries and the tribal shellfish hatchery, has been designated in the Tribe's WQS to be a Class AA freshwater [17 LAR 07.160], as the portion of the slough near Wetland No. 2011-08 is located north of Kwina Road. Conversations with the Lummi Nation LNR confirmed that Smugglers Slough is a Class AA freshwater for the purposes of this NPDES Permit.

The designated beneficial uses for Smugglers Slough are stated in the Lummi Nation WQS. The slough must be protected at all times for water supply, stock watering, fish and shellfish, wildlife habitat, recreation, commerce and navigation, and cultural tribal uses. The fish and shellfish use breaks down into further categories [17 LAR 07.030]:

- Salmonid migration, juvenile rearing, spawning, egg incubation, fry emergence, and harvesting
- Other fish migration, juvenile rearing, spawning, egg incubation, fry emergence, and harvesting
- Clam, oyster, and mussel rearing, spawning, and harvesting
- Crustaceans and other shellfish (crabs, shrimp, crayfish, scallops, geoduck, etc.) rearing, spawning, and harvesting

The Class AA freshwater criteria applicable for the protection of Smugglers Slough for all of its designated beneficial uses are discussed below.

Surface Water Quality Criteria
The criteria applicable to Smugglers Slough include:

- The narrative criteria applicable to all surface waters of the Lummi Nation are found at 17 LAR 07.030(e) (Narrative Water Quality Criteria)

- The numeric criteria for toxic substances for the protection of aquatic life and primary contact recreation are found at 17 LAR 07.040 and in Table 4 (Toxic Substance Criteria for Surface Waters of the Lummi Indian Reservation)

- Additional numeric criteria necessary for the protection of aquatic life and recreational/cultural/water supply uses can be found at 17 LAR 07.030 Class AA (General Water Use and Criteria Classes)

For the purposes of determining the reasonable potential of the Kwina Road MBR WWTP to cause or contribute to a violation of the criteria, and therefore require limits on the concentrations of certain pollutants in the effluent discharge, the EPA evaluated the supplemental Kwina Road MBR WWTP effluent water quality data against the following Lummi Nation water quality criteria for Class AA waters:

- Freshwater fecal coliform organism levels shall both not exceed a geometric mean density of 50 colonies/100 milliliters (mL) of water, and not have more than 10 percent of the samples obtained for calculating the geometric mean density exceeding 100 colonies/100 mL.

- Freshwater enterococci densities shall both not exceed a geometric mean density of 33 colonies/100 mL and not exceed a single sample maximum allowable density of 61 colonies/100 mL.

- Freshwater dissolved oxygen – the seven-day mean minimum DO shall not be less than 11.0 mg/L.

- Temperature in freshwater shall not exceed a 7 day average daily maximum (DADM) temperature of 16°C due to human or human related activities.

- pH shall be within the range of 6.5 – 8.5 standard units (s.u.) in freshwater.

- All surface waters of the Lummi Indian Reservation shall be free from substances attributable to point source discharges, nonpoint sources, vessels, or in-stream activities in accordance with:

    - No visible oils, scum, foam, grease, and/or other floating materials and suspended substances of a persistent nature resulting from anthropogenic causes.

    - No nutrients in concentrations producing objectionable algal densities or nuisance aquatic vegetation, or resulting in acute toxicity to any aquatic biota or wildlife, or otherwise causing nuisance conditions.

Antidegradation

As mentioned above, the antidegradation policy of a state's WQS represents a three-tiered approach to protecting and maintaining current water quality and uses into the future. Tier I of antidegradation protection applies to all water bodies under the CWA and ensures that existing in-stream water uses and the water quality necessary to protect those uses will be maintained and protected. Tier II protection applies to any water bodies considered to be high quality waters (where the water quality exceeds levels necessary to support propagation of fish, shellfish, wildlife, and recreation in and on the water) and provides that water quality will be maintained and protected unless allowing for lower water quality is deemed by the tribe as necessary to accommodate important economic or social development in the area. In allowing any lowering of water quality, the tribe must ensure adequate water quality to fully

protect existing uses, as well as designated uses. Tier III protection applies to water bodies that have been designated by the tribe as outstanding national resource waters and provides that water quality is to be maintained and protected.

The Lummi Nation LNR has completed an antidegradation review which is included in the Tribe's draft CWA 401 water quality certification for this Permit. See Appendix C for more information about the 401 certification. Comments on the 401 certification, including the antidegradation review, can be submitted to the Lummi Nation LNR as stated above on page 1 of this Fact Sheet (see Clean Water Act Certification).

D. Water Quality Limited Waters

Section 303(d) of the CWA requires states or tribes 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.

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 Lummi Nation LNR continually develops a water quality assessment report, similar to a state's CWA Integrated Report, including the required CWA 303(d) list of impaired water resources. The latest Lummi Nation Water Quality Assessment Report can be found online at http://lnnr.lummi-nsn.gov/LummiWebsite/userfiles/5_WaterQualityAssessmentReport_2011.pdf

The 2011 Water Quality Assessment Report highlighted that the surface waters of the Reservation, particularly in the Lummi Bay Watershed, were impaired for bacteria (high fecal coliform and enterococci), temperature, and DO. Surface waters of the watershed did not meet the Tribal WQS for those parameters.

The 2011 Lummi Nation Water Quality Assessment Report mentioned the TMDL for the lower Nooksack River for fecal coliform. The Washington State Department of Ecology published the TMDL for the Lower Nooksack River Basin in January of 2000.
http://www.epa.gov/owow/tmdl/examples/pathogens/wa_nooksack.pdf
Efforts to meet the wasteload allocations (WLAs) included in the bacteria TMDL for the Lower Nooksack River will help with improvements to tribal water quality in the Lummi and Bellingham Bay watersheds as well.

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 effluent limits (TBELs) or water quality-based effluent limits (WQBELs). TBELs are set according to the level of wastewater treatment that is achievable using available technology. A WQBEL is designed to ensure that the WQS applicable to a waterbody are being met. It may be a more stringent limit than the corresponding TBEL for the same pollutant. The bases for all the effluent limits proposed in the draft Permit are provided in Table 7, below.

B. Reasonable Potential Analysis on the Pollutants of Concern Potentially Requiring a WQBEL

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 (RP) to cause, or contribute to an excursion above the Lummi Tribal water quality criterion for any particular pollutant of concern, 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 (RWC). If the projected concentration of the pollutant in the receiving water exceeds the numeric criterion for that specific pollutant, then the discharge has the RP to cause or contribute to an excursion above the applicable WQS, and a WQBEL is required.

A reasonable potential analysis (RPA) was performed for ammonia as N. As with any natural water body the pH and temperature of the water will vary over time. Therefore, to protect water quality criteria it is important to develop the criteria based on pH and temperature values that will be protective of aquatic life at all times. The EPA used the 95th percentile of the pH and temperature data on Smuggler's Slough, at the point closest to where the discharge meets Wetland No. 2011-08, provided by the Lummi Nation LNR, in calculating the applicable ammonia criteria for the slough. The 95th percentile pH and temperature values used in the calculations below were 7.37 s.u. and 22.09°C, respectively.

Table 4. Calculation of the Applicable Ammonia Criteria from Which to Derive Effluent Limitations on Ammonia

Total ammonia nitrogen criteria (mg N/L):

Annual Basis

Based on 17 LAR 07.040 Table 4. Footnotes ll and mm

INPUT	
1. Receiving Water Temperature (deg C):	22.09
2. Receiving Water pH:	7.37
3. Are salmonid fish present?	Yes
4. Are fish early life stages present or absent?	Present
OUTPUT	
Total ammonia nitrogen criteria (mg N/L):	
Acute Criterion (CMC)	**15.98**
Chronic Criterion (CCC)	**2.97**

Acute Criteria Equation: Salmonids Present

$$CMC = \frac{0.275}{1+10^{7.204-pH}} + \frac{39.0}{1+10^{pH-7.204}}$$

Acute Criteria Equation: Salmonids Absent

$$CMC = \frac{0.411}{1+10^{7.204-pH}} + \frac{58.4}{1+10^{pH-7.204}}$$

Chronic Criteria: Early Life Stages Present

$$CCC = \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}}\right) \bullet MIN(2.85, 1.45 \cdot 10^{0.028(25-T)})$$

Chronic Criteria: Early Life Stages Absent

$$CCC = \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}}\right) \bullet 1.45 \cdot 10^{0.028(25-T)})$$

Note: No seasonal variation was assumed for pH, therefore, there is no seasonal variation in the acute criterion (which is a function of pH only).

Conversations with the Lummi LNR indicated that currently the wetlands are heavily managed and engineered, and that there are no salmonids documented in the vicinity of the outfall (or in Wetland No. 2011-08) at this time [Jeremy Freimund, Lummi LNR, personal conversation, May 2014]. However, because salmon habitat restoration projects are on-going in Smuggler's Slough and the vicinity and it is the more protective/conservative equation, which would inform the Kwina Road MBR WWTP upgrade, the EPA calculated the criteria using the specific acute criteria equation for when salmonids are present as specified in the Lummi Nation WQS. EPA also calculated the chronic ammonia criterion assuming fish early life stages are present, in order to be as conservative as possible in the absence of other information [17 LAR 07.040 Table 4. Footnotes ll and mm]. The corresponding criteria that were used in determining the RP of the effluent to impact Smuggler's Slough (and therefore, Wetland No. 2011-08) were calculated to be 15.98 mg/L for protection of aquatic life from acute impacts, and 2.97 mg/L for protection of aquatic life from chronic impacts.

After calculating the applicable criteria, the EPA ran the RPA calculations shown below; determining that the Kwina Road MBR WWTP does, in fact, have the RP to exceed the water quality criteria for ammonia applicable to the receiving water. Therefore, there must be an ammonia effluent limitation included in the Permit.

Table 5. Reasonable Potential Analysis on Ammonia

RPA and WQBEL Calculations

Facility Name	Kwina Road MBR Facility - Lummi Nation
Design Flow (MGD)	0.11
Waterbody Type	Freshwater

Dilution Factors

		Annual
Aquatic Life - Acute Criteria - Criterion Max. Concentration (CMC)	**1Q10**	**1.0**
Aquatic Life - Chronic Criteria - Criterion Continuous Concentration (CCC)	**7Q10 or 4B3**	**1.0**
Ammonia	**30B3/30Q10** (seasonal)	**1.0**
Human Health - Non-Carcinogen	**30Q5**	**1.0**
Human Health - carcinogen	**Harmonic Mean Flow**	**1.0**

Receiving Water Data

Notes:
5th % at critical flows

			Annual
Hardness, as mg/L $CaCO_3$	*** Enter Hardness on WQ Criteria tab ***		
Temperature, °C	**Temperature, °C**	95th percentile	22.09
pH, S.U.	**pH, S.U.**	95th percentile	7.37

Pollutants of Concern			**AMMONIA,** default: cold water, fish early life stages present
Effluent Data	**Number of Samples in Data Set (n)**		108
	Coefficient of Variation (CV) = Std. Dev./Mean (default CV = 0.6)		1.07
	Effluent Concentration, µg/L (Max. or 95th Percentile) - (C_e)		35,000
	Calculated 50th % Effluent Conc. (when n>10), Human Health Only		
Dilution Factors	Aquatic Life - Acute	1Q10	1.000
	Aquatic Life - Chronic	7Q10 or 4B3	-
	Ammonia	30B3 or 30Q10	1.000
	Human Health - Non-Carcinogen	30Q5	-
	Human Health - carcinogen	Harmonic Mean	-
Receiving Water Data	**90th Percentile Conc., µg/L - (C_u)**		
	Geometric Mean, µg/L, Human Health Criteria Only		
Applicable Water Quality Criteria	Aquatic Life Criteria, µg/L	Acute	15,981
	Aquatic Life Criteria, µg/L	Chronic	2,971
	Human Health Water and Organism, µg/L		--
	Human Health, Organism Only, µg/L		--
	Metals Criteria Translator, decimal (or default use	Acute	--
	Conversion Factor)	Chronic	--
	Carcinogen (Y/N), Human Health Criteria Only		--

Aquatic Life Reasonable Potential Analysis

σ	$\sigma^2=\ln(CV^2+1)$		0.874
P_n	$=(1-\text{confidence level})^{1/n}$ where confidence level =	**99%**	0.958
Multiplier (TSD p. 57)	$=\exp(2.326\sigma-0.5\sigma^2)/\exp[\text{invnorm}(P_N)\sigma-0.5\sigma^2]$, prob. =	**99%**	1.7
Statistically projected critical discharge concentration (C_d)			58885.46
Predicted max. conc.(ug/L) at Edge-of-Mixing Zone		Acute	58885.46
(note: for metals, concentration as dissolved using conversion factor as translator)		Chronic	58885.46
Reasonable Potential to exceed Aquatic Life Criteria			**YES**

Table 6. Effluent Limit Calculations for Ammonia

Aquatic Life Effluent Limit Calculations

Number of Compliance Samples Expected per month (n)			4
n used to calculate AML (if chronic is limiting then use min=4 or for ammonia min=30)			30
LTA Coeff. Var. (CV), decimal (Use CV of data set or default = 0.6)			1.070
Permit Limit Coeff. Var. (CV), decimal (Use CV from data set or default = 0.6)			1.070
Acute WLA, ug/L	$C_d = (\text{Acute Criteria} \times MZ_a) - C_u \times (MZ_a - 1)$	Acute	15,981.4
Chronic WLA, ug/L	$C_d = (\text{Chronic Criteria} \times MZ_c) - C_u \times (MZ_c - 1)$	Chronic	2,970.5
Long Term Ave (LTA), ug/L	$WLAc \times \exp(0.5\sigma^2 - 2.326\sigma)$	Acute	3,068.2
(99^{th} % occurrence prob.)	$WLAa \times \exp(0.5\sigma^2 - 2.326\sigma)$; ammonia n=30	Chronic	1,929.6
Limiting LTA, ug/L	used as basis for limits calculation		1,929.6
Applicable Metals Criteria Translator (metals limits as total recoverable)			--
Average Monthly Limit (AML), ug/L , where % occurrence prob =		**95%**	**2,604**
Maximum Daily Limit (MDL), ug/L , where % occurrence prob =		**99%**	**10,054**
Average Monthly Limit (AML), mg/L			**2.6**
Maximum Daily Limit (MDL), mg/L			**10.1**
Average Monthly Limit (AML), lb/day			**2.3**
Maximum Daily Limit (MDL), lb/day			**9.0**

In addition to these calculations, it is important to note that in April of 2013, the EPA introduced new nationally recommended equations for calculating ammonia criteria based on snails as the most sensitive species in surface waters. The nationally recommended method must be adopted by the Lummi Nation and submitted to EPA for approval as part of a triennial review, before the revised ammonia criteria would be used to develop limits in an Permit. The EPA anticipates that the new ammonia criteria based on snails will likely be used in a future NPDES Permit for the Kwina Road WWTP.

C. Proposed Effluent Limitations

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

Narrative Limitations to Implement the Lummi Nation Narrative Criteria Applicable to Class AA Freshwater- Wetland No. 2011-08 (and Smuggler's Slough by extension)

- The Permittee must not discharge visible oils, scum, foam, grease, and other floating materials and suspended substances of a persistent nature resulting from anthropogenic causes.

- The Permittee must not discharge nutrients in concentrations producing objectionable algal densities or nuisance aquatic vegetation, or resulting in acute toxicity to any aquatic biota or wildlife, or otherwise causing nuisance conditions.

Numeric Limitations Applicable to Class AA Freshwater – Wetland No. 2011-08 (and Smuggler's Slough by extension)

The table below presents the proposed effluent limits for the Kwina Road MBR WWTP.

Table 7. Proposed Effluent Limitations for the Kwina Road MBR WWTP

Proposed Effluent Limitations for the Kwina Road MBR WWTP					
Parameter	**Units**	**Effluent Limits**			
		Average Monthly Limit	**Average Weekly Limit**	**Maximum Daily Limit**	**Basis for Limits**
Five-Day Biochemical Oxygen Demand (BOD_5)	mg/L	30	45		NPDES Secondary Treatment Regulations (40 CFR 133.102) & Loading Calculation
	lbs/day	26	40		
BOD_5 Removal	percent	85 minimum			NPDES Secondary Treatment Regulations & Calculation
Total Suspended Solids (TSS)	mg/L	30	45		NPDES Secondary Treatment Regulations & Loading Calculation
	lbs/day	26	40		
TSS Removal	percent	85 minimum			NPDES Secondary Treatment Regulations & Calculation
Fecal Coliform	colonies/100 ml	50[1] (geometric mean)			Lummi Nation WQS
Enterococci	colonies/100 ml	33 (geometric mean)		61 (single sample maximum)	Lummi Nation WQS
Total Ammonia (as N)	mg/L	2.6		10.1	WQBEL Calculations
	lbs/day	2.3		9.0	Loading Calculations
pH	s.u.	Not less than 6.5 or more than 8.5 at all times			Lummi Nation WQS

The Kwina Road MBR WWTP has been in, and will continue, the process of upgrading the treatment facility under a phased approach. Phase I of the facility upgrade is planned to be completed by the summer of 2015.

D. Mixing Zones and Dilution

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. A mixing zone is 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 WQS may be

[1] And, in addition, no more than 10 percent of the samples obtained for calculating the geometric mean density shall exceed 100 colonies/100 ml.

exceeded as long as acutely toxic conditions are prevented (EPA, 1994). The federal regulations at 40 CFR 131.13 states that "States may, at their discretion, include in their standards, policies generally affecting their application and implementation, such as mixing zones, low flows and variances." This applies also to Indian tribes authorized by the EPA with "treatment in a manner similar to that of a state", or TAS, for CWA programs such as the promulgation of WQS. 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 LNR Director in the Lummi Nation WQS regulations. The Mixing Zone provisions of the Lummi Nation WQS can be found at 17 LAR 07.090. In this case, however, as stated earlier, the facility is not afforded a mixing zone because discharge of the Kwina Road WWTP effluent to Wetland No. 2011-08, a non-flowing water body, does not allow for any dilution or mixing zone allowance.

V. Monitoring Requirements

A. Basis for 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 Parts A12 and B6, so that these data will be available to use to perform the RPA when the Permittee applies for a renewal of its NPDES Permit.

The Permittee is responsible for conducting the monitoring and for reporting results on monthly discharge monitoring reports (DMRs) or on the application for renewal, as appropriate, to the EPA.

B. Effluent Monitoring Requirements

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. The table 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 Wetland No. 2011-08. 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 8. Effluent Monitoring Requirements for the Kwina Road MBR WWTP

Effluent Monitoring Requirements for the Kwina Road MBR WWTP				
Parameter	**Units**	**Sample Location**	**Sample Frequency**	**Sample Type**
Flow	mgd	Effluent	Continuous	Recording
Temperature	°C	Effluent	Continuous	Recording
BOD_5	mg/L	Influent & Effluent	2/month	24-hour composite
	lbs/day			calculation[1]
	% Removal			calculation[2]
TSS	mg/L	Influent & Effluent	2/month	24-hour composite
	lbs/day			calculation[1]
	% Removal			calculation[2]
pH	standard units	Effluent	2/week	grab
Fecal Coliform	#/100 ml	Effluent	1/week	grab
Enterococci	#/100 ml	Effluent	1/week	grab
Dissolved Oxygen (DO)	mg/L	Effluent	1/month	grab
Total Nitrate/Nitrite as N	mg/L	Effluent	1/quarter	24-hour composite
Total Kjeldahl Nitrogen (TKN)	mg/L	Effluent	1/quarter	24-hr composite
Total Ammonia as N	mg/L	Effluent	1/week	24-hour composite
	lbs/day			calculation[1]
Total Phosphorus	mg/L	Effluent	1/quarter	24-hour composite
	lbs/day			calculation[1]
Total Dissolved Solids (TDS)	mg/L	Effluent	1/year	24-hour composite

Notes:
1. Loading is calculated by multiplying the concentration (in mg/L) by the flow (in mgd or million gallons per day) 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.

C. Surface Water Monitoring

In general, surface water monitoring may be required in NPDES Permits for the pollutants of concern in order to assess the assimilative capacity of the receiving water and/or the impact

that the pollutant present in the WWTP effluent is having on the receiving water. In addition, surface water monitoring may be required for pollutants for which the water quality criteria are dependent and to collect data for TMDL development if the facility discharges to an impaired water body. In this case, since the facility is discharging to a wetland and not a flowing receiving water; and since the hydrology of the wetland changes over the seasons and daily during changes in tidal fluctuations; the effluent is expected to disperse and infiltrate underground before it reaches surface water (i.e., the outfall is to an upland area adjacent to the wetland); and because there is routine effluent monitoring required of the facility, there are no surface water monitoring requirements included in this Permit.

D. Electronic Submission of Monthly Effluent Discharge Monitoring Reports (DMRs)

During the period between the effective date of the Permit and six months from the effective date, the Permittee either must submit monitoring data and other reports in paper form, or must report electronically using NetDMR, a national web-based tool that allows Permittees to electronically submit DMRs and other required reports via a secure internet connection, and discontinue mailing in paper forms under 40 CFR 122.41 and 403.12.

When using NetDMR all reports required under the Permit are submitted to EPA as an electronic attachment. Once a Permittee begins submitting reports using NetDMR, it is no longer required to submit paper copies of DMRs or other reports to EPA and the Lummi Nation Natural Resources Department.

After the first six months of the effective date of the Permit, the Permittee must submit monitoring data and other reports electronically using NetDMR. The specific requirements regarding the submittal of data and reports in paper form and the use of NetDMR are included in the draft Permit Part III.B.

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 Lummi Nation's biosolids program. The federal Part 503 regulations are self-implementing, which means that facilities must comply with them whether or not a Permit has been issued. An EPA inspection of the facility would include an assessment of compliance with the Part 503 regulations.

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 Kwina Road MBR WWTP is required to update any existing Quality Assurance Plan (QAP) within 180 days of the effective date of the final Permit. The QAP must include of standard operating procedures the Permittee must follow for collecting, handling, storing and shipping samples, laboratory analysis, and data reporting. The QAP must be submitted to EPA for review and retained on site so that it is available to the EPA and the Lummi Nation Natural Resources Department upon request.

B. Operation and Maintenance Plan

The Permit requires the Kwina Road MBR WWTP 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 submitted to EPA for review and retained on site so that it is available to the EPA and the Lummi Nation Natural Resources Department 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, fish and shellfish habitat, 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 EPA-approved WQS.

This Permit contains language to address SSO reporting and public notice and operation and maintenance of the collection system. It requires that the Permittee identify SSO occurrences and their causes. In addition, the Permit establishes reporting, record keeping and third party notification of SSOs and requires the development of an Emergency Response and Public Notification Plan. Finally, this Permit also requires proper O&M of the collection system. The following specific Permit conditions apply:

Proper Operation and Maintenance – This Permit requires proper operation and maintenance of the collection system [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 EPA inspectors to evaluate sewer collection system management, operation and maintenance program activities. Owners/operators can review their own systems against the checklist (found in Chapter 3 of the Guide) to reduce the occurrence of sewer overflows and improve or maintain compliance.

Immediate (24-hour) 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 [40 CFR 122.41(l)(6)].

Third Party Notice – This 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 [40 CFR 122.41(l)(6)].

Written Reports – The Permittee is required to provide the EPA with a written report within 5 days of the time it became aware of any overflow that is subject to the immediate reporting provision [40 CFR 122.41(l)(6)(i)].

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 which could include work orders associated with investigation of system problems related to a SSO, and which describe the steps; either taken or planned; to reduce, eliminate, and prevent reoccurrence of the SSO [40 CFR 122.41(j)].

Development of an Emergency Response and Public Notification Plan – Under this Permit and pursuant to the regulations cited above, the Lummi Tribal Sewer District must develop and implement an Emergency Response and Public Notification Plan that identifies measures to protect the public from overflows and unanticipated bypasses or upsets that exceed any effluent limitation in the Permit.

The Permittee must submit written notice to the EPA and the LNR that the plan has been developed and implemented within 180 days of the effective date of this Permit. The Plan must be retained on site at the facility and provided to EPA and/or the Lummi LNR upon request. Any existing Emergency Response and Public Notification Plan may be modified for compliance with this section of the Permit.

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

Discharges from both industrial and commercial sources can cause problems at POTWs and can have detrimental effects on the water quality of the receiving waterbody. The undesirable effects of those discharges can be prevented by using treatment techniques or management practices to reduce or eliminate the discharge of the contaminants. The act of treating wastewater before discharge to a POTW is commonly referred to as pretreatment. The National Pretreatment Program, published in 40 CFR Part 403, provides the regulatory basis to require nondomestic dischargers to comply with pretreatment standards to ensure that the goals of the CWA are attained.

The EPA implements and enforces the National Pretreatment Program regulations of 40 CFR 403, per authority from sections 204(b)(1)(C), 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 the Lummi Kwina Road MBR WWTP 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 Kwina Road MBR WWTP.

The national specific prohibitions of the General Pretreatment Program are applicable to all nondomestic sources introducing pollutants into a POTW [40 CFR 403.5(b)]. These sources of indirect discharges are more commonly referred to as Industrial Users (IUs).

All IUs, regardless of whether they are subject to any other national, state, or local pretreatment requirements, are subject to the general and specific prohibitions identified in 40 CFR 403.5(a) and (b), respectively. General prohibitions forbid the introduction of any pollutant(s) to a POTW that cause pass through or interference. Pass through and interference are terms with very specific meaning in the regulations. Pass through is defined as *the following: a discharge that exits the POTW into waters of the United States in quantities or concentrations that, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES Permit*.

Interference is defined as: *a discharge that, alone or in conjunction with a discharge or discharges from other sources, both (1) inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use, or disposal and (2) therefore is a cause of a violation of any requirement of the POTW's NPDES Permit*. Specific prohibitions in 40 CFR 403.5(b) forbid the following eight categories of pollutant discharges:

- Discharges containing pollutants that create a fire or explosion hazard in the POTW, including wastestreams with a closed-cup flashpoint of less than 140 °F (60 °C) using the test methods specified in 40 CFR 261.21

- Discharges containing pollutants causing corrosive structural damage to the POTW, but in no case discharges with a pH lower than 5.0, unless the POTW is specifically designed to accommodate such discharges

- Discharges containing pollutants in amounts causing obstruction to the flow in the POTW resulting in interference

- Discharges of any pollutants released at a flow rate or concentration that will cause interference with the POTW

- Discharges of heat in amounts that will inhibit biological activity in the POTW resulting in interference, but in no case heat in such quantities that the temperature at the POTW treatment plant exceeds 104 °F (40 °C) unless the Approval Authority, at the POTW's request, approves alternative temperature limits

- Discharges of petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through

- Discharges that result in the presence of toxic gases, vapors, or fumes within the POTW in a quantity that could cause acute worker health and safety problems
- Discharges of trucked or hauled pollutants, except at discharge points designated by the POTW.

Special Condition II.E.2 of the Permit reminds the Lummi Sewer District that it cannot authorize discharges which may violate the national specific prohibitions of the General Pretreatment Program.

Because an IU can be as simple as an automated, coin-operated car wash or as complex as an automobile manufacturing plant or a synthetic organic chemical producer, the EPA developed four criteria that define a significant IU (SIU). Many of the General Pretreatment Regulations apply to SIUs as opposed to IUs. Where a smaller IU has the potential to adversely affect the POTW, the POTW would be expected to designate the facility as an SIU.

An SIU is defined in 40 CFR 403.3(v) as any of the following:

- An IU subject to federal categorical pretreatment standards
- An IU that discharges an average of 25,000 gpd or more of process wastewater to the POTW
- An IU that contributes a process wastestream making up 5 percent or more of the average dry-weather hydraulic or organic capacity of the POTW treatment plant
- An IU designated by the POTW as such because of its reasonable potential to adversely affect the POTW's operation or violate any pretreatment standard or requirement.

To enable the Permittee to determine which industries have the potential to impact the POTW and to establish local limits if necessary to protect both the treatment plant and receiving water body, the EPA is requiring the Permittee to develop a master list of industrial users and obtain information specific to each industry's wastewater discharge characteristics. (See Special Condition II.E.3 in the Permit.) This process is commonly referred to as an IU Survey. Procedures for designing, implementing, and documenting an IU survey may be found *Chapter 2, Industrial Waste Survey* in the following document: *Guidance Manual for POTW Pretreatment Program Development*, EPA October, 1983. The list must be submitted to the EPA within 180 days of the effective date of the Permit.

Although, not a Permit requirement, the Permittee may wish to consider developing the legal authority enforceable in Federal, tribal, 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). Where the POTW is a municipality, legal authority is typically through a sewer use ordinance. The EPA has a Model Pretreatment Ordinance for use by municipalities operating POTWs that are required to develop pretreatment programs to regulate industrial discharges to their systems (EPA, 2007). The model ordinance should also be useful for communities with POTWs that are not required to implement a pretreatment program in drafting local ordinances to control nondomestic dischargers within their jurisdictions. Per 40 CFR 122.44(j)(1) of the NPDES regulations and 40 CFR Part 403.8(f)(2) of the general pretreatment regulations, all POTWs need to identify and locate all possible industrial users subject to the pretreatment program, i.e. SIUs, and to identify the volume and character of pollutants discharged by these users.

The Permittee has already identified that the Lummi Nation Administrative Building, the Northwest Indian College, and the Silver Reef Hotel, Casino & Spa are IUs discharging wastewater to the Lummi Kwina Road MBR WWTP.

F. 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." The EPA strives 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, the 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, the EPA Region 10 conducted a screening analysis to determine whether this Permit action could affect overburdened communities. The EPA used a nationally consistent geospatial tool that contains demographic and environmental data for the United States at the Census block group level. This tool is used to identify Permits for which enhanced outreach may be warranted.

The EJ Screen score for the facility was 91st percentile, because the entire Lummi Indian Reservation scores at the 91st percentile, as the highest of the 12 primary National EJ Indices. The Kwina Road MBR WWTP is located within or near a Census block group that is potentially overburdened because of direct discharges to water, particulate matter (PM) 2.5 levels in air and other air quality indicators, and presence of Superfund sites. EPA discussed this with the Lummi Tribal Sewer District and with the Lummi LNR, and it was determined that these two tribal agencies would be able ensure additional public notice regarding the availability of the draft Permit and Fact Sheet for review and comment. At this time, the EPA is not conducting any additional outreach regarding this Permit.

Regardless of whether or not a WWTP is located near a potentially overburdened community, the EPA 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#p-104). 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.

G. Standard Permit Provisions

Sections III, IV and V of the 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

In general, any EPA action approving new or revised WQS is considered a federal action that may require consultation with the U.S. Fish and Wildlife Service (USFWS) and/or the National Oceanic and Atmospheric Administration- National Marine Fisheries Service (NOAA-NMFS) under section 7(a)(2) of the ESA, where the action may affect federally-listed endangered or threatened species or the designated critical habitat of such species. Section 7(a)(2) of the ESA requires federal agencies, in consultation with the Services, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of federally listed endangered or threatened species or result in the destruction or adverse modification of designated critical habitat of such species [16 U.S.C. 1536 (a)(2)]. Under relevant ESA implementing regulations, consultation is required for actions that "may affect" listed species or designated critical habitat [50 CFR 402.14]. The effects of the action are defined by regulation to include both the direct and indirect effects on species or critical habitat [50 CFR 402.02]. However, consultation under section 7(a)(2) is not required where the action has no effect on listed species or designated critical habitat.

A review of the threatened and endangered species located in Whatcom County, Washington finds that the federally-listed/proposed species and critical habitats **potentially present in the Action Area of the Kwina Road MBR WWTP include:**

http://ecos.fws.gov/tess_public/reports/species-by-current-range-county?fips=53073

Bull Trout (Threatened)
Dolly Varden (Proposed)
Puget Sound Steelhead (Threatened)
Puget Sound Chinook (Threatened)
Marbled Murrelet (Threatened)
Oregon Spotted Frog (Threatened)
Yellow-Billed Cuckoo (Proposed)
Streak Horned Lark (Threatened)
Grey Wolf (Endangered)
Grizzly Bear (Threatened)
Canada Lynx (Threatened)

The following information comes as excerpts from the Biological Assessment (BA) prepared by Northwest Ecological Services in Bellingham, WA, for the Lummi Tribal Sewer District. The EPA has concurred with the no effect ESA determination included in the Northwest Ecological Services, LLC (NES) *ESA/MSA Evaluation: No Effect Assessment* document for the Kwina Road MBR WWTP facility.

"The project area does not contain any fish-bearing waters. Bull trout, Dolly Varden, steelhead and chinook are not currently documented or presumed to occur within the Zone of

Potential Aquatic Impacts within the project area, including in Wetland X and Smuggler's Slough. The Lummi LNR has sampled the area periodically and data indicates no anadromous fish presence within the slough. Therefore, the EPA has determined that the permitting of the Kwina Road MBR WWTP will have no effect on bull trout, Dolly Varden, Puget Sound steelhead, or Puget Sound Chinook salmon or their critical habitat."

"The presence of marbled murrelets is expected to be mostly during the nesting season between April 1st and September 15th, and is expected to be flights of adults, predominantly at dawn and dusk, outside of the most likely facility upgrade construction hours. The project is not expected to have direct or indirect effects on marbled murrelets. Therefore, the EPA has determined that the permitting of the Kwina Road MBR WWTP will have no effect on marbled murrelets or their critical habitat."

"The nearest critical habitat and current known species presence of the Oregon spotted frog is in the South Fork of the Nooksack River basin, more than 18 miles east of the Action Area. The critical habitat is separated from the Kwina Road MBR WWTP facility by significant barriers, including Interstate 5 (I-5) and urban centers such as the City of Bellingham. EPA has determined that the permitting of the Kwina Road facility will have no effect on the Oregon spotted frog or its critical habitat."

"The yellow-billed cuckoo has been proposed for listing under the ESA. Breeding yellow-billed cuckoos are believed to have been extirpated from Washington State. The Washington Department of Fish and Wildlife (WDFW) last documented a citing in Whatcom County in 1953. There is no evidence of the presence of the yellow-billed cuckoo within the Action Area. If the yellow-billed cuckoo is listed prior to completion of the permitting process and the facility upgrade, then the EPA has determined that the permitting of the Kwina Road facility will have no effect on the yellow-billed cuckoo."

"The streaked horned lark habitat has declined, and it is not known to occur in Whatcom County. They are now known only in six sites in Southwest Washington, outside of the Action Area of this permitting project. Based on this information, the project is not expected to have direct or indirect effects on streaked horned lark. Therefore, the EPA has determined that the permitting of the Kwina Road MBR WWTP will have no effect on streaked horned lark or their critical habitat."

According to the WDFW Gap Analysis Program maps, Canada lynx, gray wolf, and grizzly bear are present from central to eastern Whatcom County in the Mt. Baker/Snoqualmie National Forest and North Cascades National Park (Johnson and Cassidy, 1997), which are outside of the Action Area for the facility upgrade project. Habitat and breeding sites for these species were not identified within the Action Area by Northwest Ecological Services ecologists during site visits in May 2014 or during previous site visits in 2010. In addition, individuals, habitat, and breeding sites are not documented within the Action Area by the WDFW Priority Habitats and Species (PHS) documentation website, accessed December 2014. Therefore, the EPA has determined that the permitting of the Kwina Road MBR

WWTP will have no effect on grizzly bear, gray wolf, and Canada lynx or their critical habitat.

The EPA has provided the USFWS with copies of the draft Permit and Fact Sheet. Any comments received from the USFWS regarding this ESA no effect determination will be considered and addressed prior to issuance of this Permit.

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).

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. The EPA has concurred with the no effect EFH assessment included in the Northwest Ecological Services, LLC (NES) *ESA/MSA Evaluation: No Effect Assessment* document for the Kwina Road MBR WWTP facility.

The EPA has determined that because this facility and the Zone of Potential Aquatic Impacts are located in an inland environment, the permitting of the Kwina Road MBR WWTP will not adversely affect EFH for federally managed groundfish and coastal pelagics. In addition, as stated above, there is no documented anadromous fish presence in the Zone of Potential Aquatic Impacts including Wetland 2011-08 (aka Wetland X) and Smuggler's Slough. Any fish presence in Smuggler's Slough would be an isolated event resulting from brief, temporary inflow through a damaged Kwina Slough levee during a high flood event. In this case, the entire Smuggler's Slough would be flooded, overwhelming the existing surface water and any water quality influences from the Kwina Road MBR WWTP. Furthermore, any project related influences during non-flooding conditions, if measurable, would be limited to possible water quality improvements. Therefore, the EPA has determined that the permitting of the Kwina Road MBR WWTP will not adversely affect EFH for Pacific salmonids.

The EPA has provided NOAA Fisheries with copies of the draft Permit and Fact Sheet. Any comments received from NOAA Fisheries regarding EFH will be considered and addressed prior to0issuance of this Permit.

C. CWA Section 401 Certification

Section 401 of the CWA requires the EPA to seek certification from the Lummi Nation before issuing a final Permit to the WWTP. As a result of the certification, the tribe may

require more stringent Permit conditions or additional monitoring requirements to ensure that the Permit complies with WQS, or treatment standards established pursuant to any tribal law or regulation.

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.* U.S. Environmental Protection Agency, Office of Water, EPA/505/2-90-001.

EPA. 1994. *Water Quality Standards Handbook.* Updated online September 2014. Chapter 5: General Policies. http://water.epa.gov/scitech/swguidance/standards/handbook/index.cfm

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

Johnson, R.E. and K. M Cassidy. 1997. Terrestrial Mammals of Washington State: Location Data and Predicted Distributions. Volume 3 in Washington State Gap Analysis – Final Report. Washington Cooperative Fish and Wildlife Research Unit, University of Washington, Seattle, WA.

Lummi Indian Business Council. 2008. Water Quality Standards for Surface Waters of the Lummi Indian Reservation.

Lummi Sewer and Water District. 2014-2015. *NPDES Application and Supplemental Materials* – Lummi Kwina Road MBR WWTP.

Lummi Department of Natural Resources. 2011. *Lummi Nation Water Quality Assessment Report* at http://lnnr.lummi-nsn.gov/LummiWebsite/userfiles/5_WaterQualityAssessmentReport_2011.pdf
Northwest Ecological Services, LLC. 2015. *Endangered Species Act and Essential Fish Habitat Evaluation No Effect Assessment.*

Washington Department of Fish and Wildlife. 2014. Priority Habitats and Species on the Web at http://wdfw.wa.gov/mapping/phs

Appendix A: Facility Information

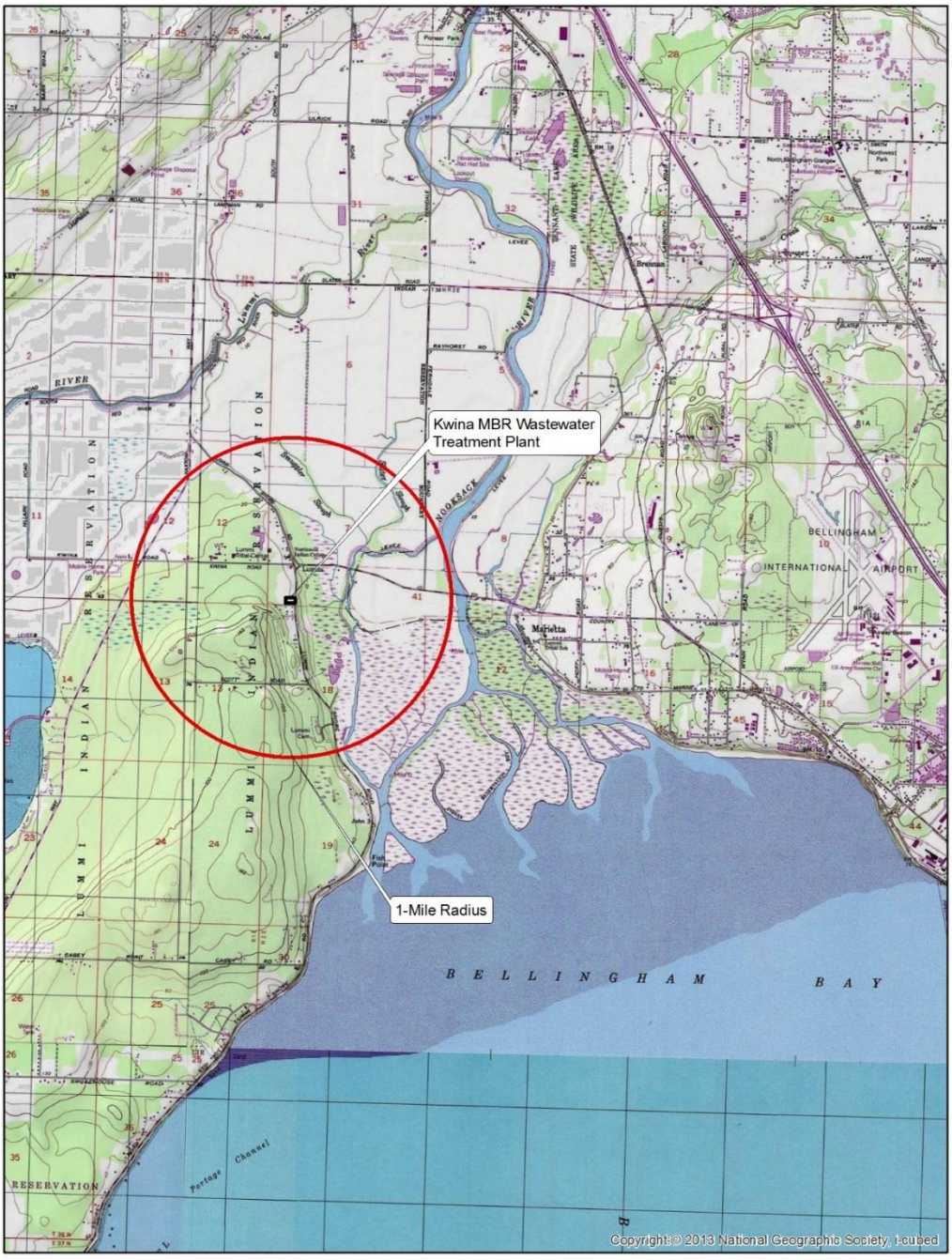


Figure 1. USGS Topographic Map Snapshot – Location of the Lummi Kwina Road WWTP

The above figure is a topographic map of the location of the Lummi Kwina Road MBR WWTP, and it shows the facility as a box on the left side of the map, with a 1-mile radius drawn around the facility. The discharge does not flow south, towards Bellingham Bay, but instead flows north and west through Smuggler's Slough, until it reaches Lummi Bay to the west of the reservation (bay not shown). The figure below is a map of the facility and the receiving wetland, Wetland No. 2011-08, in more detail.

The process flow diagram, also below, shows the design plans for the facility upgrade to take place over the course of 2015. There is a new expanded headworks component and screenings from the headworks will go to a landfill for solid waste disposal. Biosolids at the facility will be collected and hauled off-site for land application. The MBR component will include a new pre-aeration basin while also retaining the existing aeration basin. A new alkalinity addition system will be added to pump sodium bicarbonate by meter, as well as new membrane cleaning stations. From the membranes, the effluent will be pumped through a new UV unit for disinfection prior to discharge to Wetland No. 2011-08.

On May 22, 2014, EPA visited the facility to become familiar with the treatment process and the discharge options for the Kwina Road MBR WWTP. The notes and pictures from the 2014 site visit are also included below.

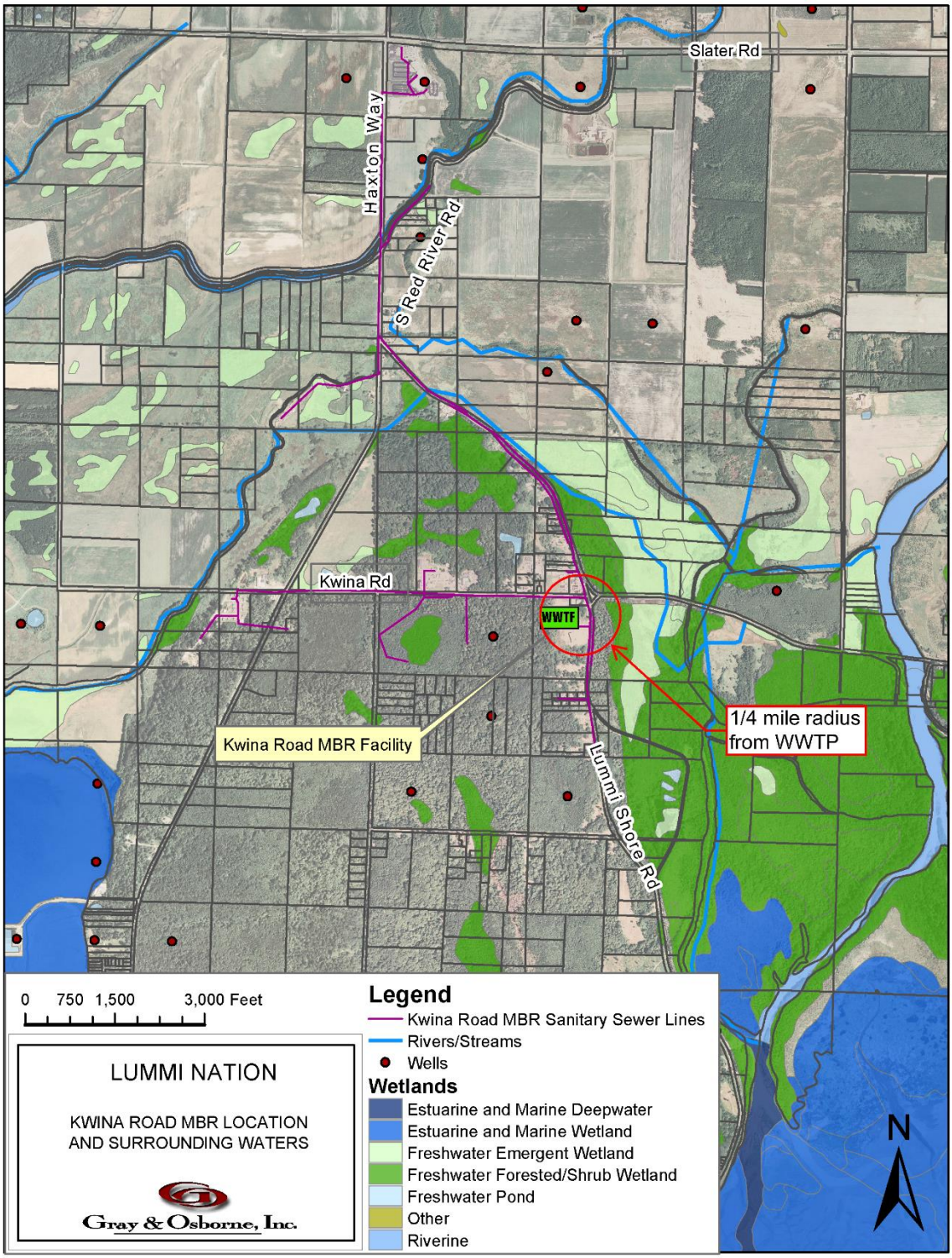
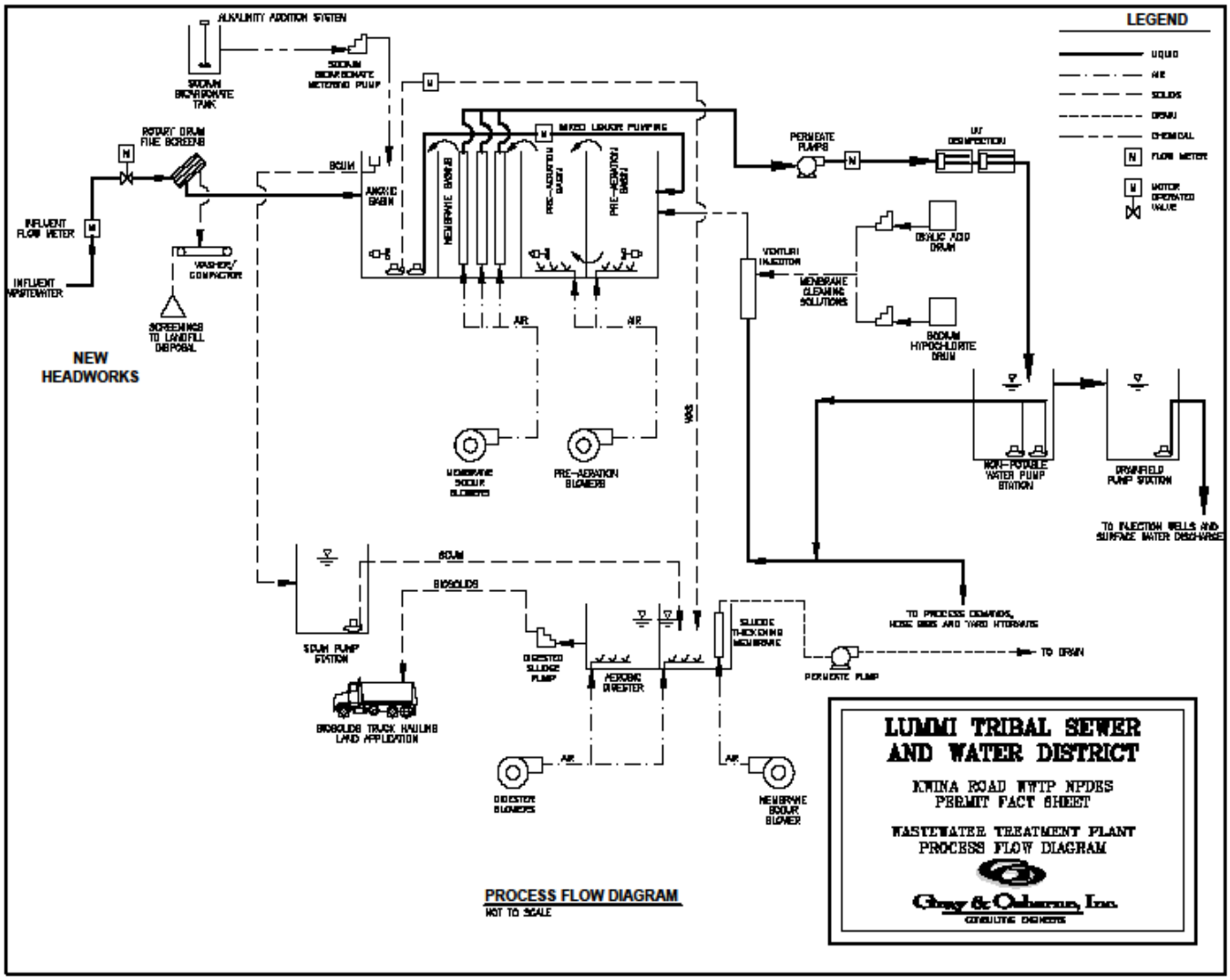


Figure 2. Close-Up of the Kwina Road MBR WWTP and Wetland No. 2011-08

Figure 3. Process Flow Diagram of the Planned Kwina Road MBR WWTP Upgrade



Pictures taken at the May 22, 2014 Site Visit to the Facility

Figure 4. Picture Looking East Towards Facility Entryway and Wetland

Figure 5. Picture of the Headworks of the MBR Plant Prior to Upgrade

Figure 6. Picture of the MBR Basins

Figure 7. Picture of Pipe from Anoxic Basin to Pre-Air Basin (components of MBR)

Appendix B: 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 Lummi Nation's anti-degradation policy, and Part E presents 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 the table below.

Table 9. Technology-Based Limits for the Kwina Road MBR WWTP from the NPDES Secondary Treatment Regulations

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 range of 6.0 – 9.0 s.u. at all times	

B. 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:

$$\textit{Mass based limit (lbs/day)} = \textit{concentration limit (mg/L)} \times \textit{design flow (mgd)} \times 8.34^{2}$$

[2] 8.34 is a conversion factor with units (lbs ×L)/(mg × gallon×10^6)

Since the design flow for this facility is a maximum month flow of 0.107 mgd, the technology based mass limits for BOD_5 and TSS are calculated as follows:

Average Monthly Limit = 30 mg/L × 0.107 mgd × 8.34 = 26.7 lbs/day (truncated at 26 in order to be sure to protect water quality)

Average Weekly Limit = 45 mg/L × 0.107 mgd × 8.34 = 40.2 lbs/day (truncated at 40 in order to be sure to protect water quality)

C. 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 WQS. 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 WQS of all affected states and tribes.

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 WQS, 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 WQS.

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 WQS are met, and must be consistent with any available WLA.

Reasonable Potential Analysis

As discussed earlier, the EPA projects the RWC (downstream of where the effluent enters the receiving water) for each pollutant of concern 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 RP to cause, or contribute to an excursion above any state/tribal water quality criterion. 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 RWC. If the projected concentration of the pollutant in the receiving water exceeds the numeric criterion for that specific pollutant, then the discharge has the RP to cause or contribute to an excursion above the applicable WQS, and a WQBEL is required.

Procedure for Deriving Water Quality-based Effluent Limits

The first step in developing a WQBEL is to develop a WLA for the pollutant. A WLA is the concentration or loading of a pollutant that the Permittee may discharge without causing or contributing to an exceedance of WQS in the receiving water. WLAs are determined in one of the following ways:

1. *TMDL-based WLA*
Where the receiving water quality does not meet WQS, the WLA is generally based on a TMDL developed by the State, a tribe with TAS, or EPA. A TMDL is a determination of the amount of a pollutant from point, non-point, and natural background sources that may be discharged to a water body without causing the water body to exceed the criterion for that pollutant. Any loading above this capacity risks violating WQS.

To ensure that these waters will come into compliance with WQS, Section 303(d) of the CWA requires states, tribes with TAS, or the EPA to develop TMDLs for those water bodies that will not meet WQS even after the imposition of TBELs. The first step in establishing a TMDL is to determine the assimilative capacity (the loading of pollutant that a water body can assimilate without exceeding water quality standards). The next step is to divide the assimilative capacity into allocations for non-point sources (LAs), point sources (WLAs), natural background loadings, and a margin of safety to account for any uncertainties. Permit limitations are then developed for point sources that are consistent with the WLA for the point source.

2. *Mixing zone-based WLA*
When a tribe or state authorizes a mixing zone for the discharge, and the receiving water has enough flow to provide dilution of the effluent, the WLA can be calculated by using a simple mass balance equation. The equation takes into account the available dilution provided by the mixing zone, and the background concentrations of the pollutant.

3. *Criterion as the WLA*
In some cases a mixing zone cannot be authorized, either because the receiving water is already at, or exceeds, the criterion, the receiving water flow is too low to provide dilution, or the facility can achieve the effluent limit without a mixing zone. In such cases, the water quality criterion becomes the WLA for the pollutant concentration in the effluent. Establishing the criterion as the WLA ensures that the effluent discharge will not contribute to an exceedance of the criteria. In this Permit, the criterion for ammonia was calculated and then run through a statistical calculation process in order to derive the effluent limitation. See more on limit derivation below.

Once the WLA has been developed, the EPA applies the statistical Permit limit derivation approach described in Chapter 5 of the *Technical Support Document for Water Quality-Based Toxics Control* (EPA/505/2-90-001, March 1991, hereafter referred to as the TSD) to obtain monthly average, and weekly average or daily maximum Permit limits. This approach takes into account effluent variability, sampling frequency, and WQS.

Notes on Enterococci and Fecal Coliform

The goal of a WQBEL is to ensure a low probability that WQS will be exceeded in the receiving water as a result of a discharge, while considering the variability of the pollutant in the effluent. Because a single sample value for enterococci exceeding 61 colonies per 100 mL indicates a likely exceedance of the geometric mean criterion, the EPA has imposed an instantaneous (single grab sample) maximum effluent limit for enterococci of 61 colonies per 100 mL, in addition to a monthly geometric mean limit of 33 colonies per 100 mL, which directly implements the Lummi Nation's water quality criterion for enterococci. This will ensure that the discharge will have a low probability of exceeding the WQS. In addition to the enterococci limit, there is a limit for fecal coliform organisms in the Permit expressed as a geometric mean density not to exceed 50 colonies per 100 mL. The Lummi Nation's standards state that no more than 10 percent of the samples collected for calculating the monthly geometric mean density can exceed 100 colonies per 100 mL. Language in the Permit reflects that water quality criterion as well.

Regulations at 40 CFR 122.45(d)(2) require that effluent limitations for continuous discharges from POTWs be expressed as average monthly limits (AML) and average weekly limits (AWL), unless impracticable. Additionally, the terms "average monthly limit" and "average weekly limit" are defined in 40 CFR 122.2 as being arithmetic (as opposed to geometric) averages. It is impracticable to properly implement a 30-day geometric mean criterion in a Permit using monthly and weekly arithmetic average limits. The geometric mean of a given data set is equal to the arithmetic mean of that data set if and only if all of the values in that data set are equal. Otherwise, the geometric mean is always less than the arithmetic mean. In order to ensure that the effluent limits are "derived from and comply with" the geometric mean water quality criterion, as required by 40 CFR 122.44(d)(1)(vii)(A), it is necessary to express the effluent limits as a monthly geometric mean and an instantaneous maximum limit.

D. Anti-backsliding Provisions

Section 402(o) of the Clean Water Act, and federal regulations, 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 [40 CFR 122.44 (l)].

This is the first NPDES Permit for this facility. There is no need for an anti-backsliding analysis at this time. An anti-backsliding analysis will be performed in the future to compare this Permit to the next one to be developed.

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 Lummi Nation's antidegradation policy are met. An anti-degradation analysis was conducted by the Lummi Nation LNR as part of the Lummi Nation's CWA Section 401 certification (see Appendix C).

E. Facility Specific Limits

The limits applicable to the facility are the more stringent of either the technology treatment requirements, WQBELs, or limits retained as the result of anti-backsliding analysis or to meet the Lummi Nation's anti-degradation policy. For the details on the proposed effluent limitations on the Lummi Kwina Road MBR WWTP, see Table 7, above.

Appendix C: Lummi Nation Water Quality Certification of the Permit Under the Clean Water Act