Revised Fact Sheet

The U.S. Environmental Protection Agency (EPA)

Proposes to Reissue a National Pollutant Discharge Elimination System (NPDES) Permit to Discharge Pollutants Pursuant to the Provisions of the Clean Water Act (CWA) to:

PotlatchDeltic Land and Lumber
St. Maries Complex

And to Require an Individual Permit for Stormwater Discharges from Outfall 001.

Public Comment Start Date: February 16, 2022
Public Comment Expiration Date: March 18, 2022

Technical Contact: Brian Nickel
206-553-6251
800-424-4372, ext. 36251 (within Alaska, Idaho, Oregon and Washington)
Nickel.Brian@epa.gov

EPA Proposes to Reissue NPDES Permit

EPA proposes to reissue the NPDES permit for the facility referenced above. The draft permit places conditions on the discharge of pollutants from the facility 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.

EPA also proposes to cover stormwater from outfalls 001, 002, 003, and 004 at the above-referenced facility under the reissued individual permit, pursuant to 40 CFR 122.28(b)(3)(i).

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
- the basis for requiring an individual permit for stormwater.

As described under "Public Comment," below, EPA is only accepting comments on aspects of the revised draft permit that are different from those in the draft permit that was issued for public comment on July 28, 2021.

401 Water Quality Certification

EPA is requesting that the Coeur d'Alene Tribe certify the discharge from outfall 001 to the St. Joe River under Section 401 of the Clean Water Act. Comments regarding the certification should be directed to:

Attn: Scott Fields
Coeur d'Alene Tribe
Lake Management Department
850 A Street, P.O. Box 408
Plummer, Idaho 83851

Since outfalls 002, 003, and 004 discharge to tribal waters for which the Tribe does not have Treatment as a State (TAS), EPA is the certifying authority for the permit. Comments regarding the intent to certify should be directed to the EPA technical contact listed above.

Public Comment

Pursuant to 40 CFR 124.14(c), EPA is only accepting comments on aspects of the revised draft permit that are different from those in the draft permit that was issued for public comment on July 28, 2021. These are as follows:

- Zinc effluent limits for all four outfalls have been changed.
- A compliance schedule is no longer proposed for water quality-based zinc limits for outfalls 002 and 003.
- All outfalls now have effluent monitoring requirements for chloride and five-day biochemical oxygen demand (BOD_5).
- Weekly monitoring of temperature for outfall 001 is required until December 31, 2022, with continuous monitoring required thereafter.
- The deadline for beginning surface water monitoring for temperature has changed to July 1, 2023.
- The required monitoring frequency for TSS, for outfall 001, has been changed from weekly to monthly.
- The draft permit now includes a compliance schedule for the new water quality-based effluent limits for iron.
- EPA corrected an error in the monitoring frequency for WET for outfall 001; the correct monitoring frequency is once per year.
- The proposed length of the compliance schedule for new water quality-based effluent limits is now 3 years and 3 months instead of 5 years.
- The compliance schedule for new water quality-based effluent limits for TSS and zinc now includes interim effluent limits based on the facility's historic performance.
- The deadline for notifying EPA and the Coeur d'Alene Tribe that a stormwater pollution prevention plan (SWPPP) has been developed and implemented has been changed from 180 days to 30 days.

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 EPA as described in the Public Comments Section of the attached Public Notice.

After the Public Notice expires, and all comments have been considered, EPA's regional Director for the Water Division 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, 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 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:
https://www.epa.gov/npdes-permits/about-region-10s-npdes-permit-program

US EPA Region 10
1200 Sixth Avenue, Suite 155
Mail Code: 19-C04
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:

United States Environmental Protection Agency
Idaho Operations Office
950 W. Bannock St., Suite 900
Boise, Idaho 83702
(208) 378-5746

Coeur d'Alene Tribe
Lake Management Department
410 Anne Antelope Road
Plummer, Idaho 83851
(208) 686-0252

St. Maries Public Library
822 College Avenue
St. Maries, Idaho 83861
(208) 245-3732

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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
AML	Average Monthly Limit
BE	Biological Evaluation
BMP	Best Management Practices
°C	Degrees Celsius
CDT	Coeur d'Alene Tribe
CFR	Code of Federal Regulations
CFS	Cubic Feet per Second
CMC	Criterion Maximum Concentration
COD	Chemical Oxygen Demand
CV	Coefficient of Variation
CWA	Clean Water Act
DMR	Discharge Monitoring Report
DO	Dissolved oxygen
DOC	Dissolved organic carbon
EFH	Essential Fish Habitat
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FR	Federal Register
ICIS	Integrated Compliance Information System
IDEQ	Idaho Department of Environmental Quality
lbs/day	Pounds per day
LTA	Long Term Average
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
N	Nitrogen
NOAA	National Oceanic and Atmospheric Administration
NOEC	No Observable Effect Concentration
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
QAP	Quality assurance plan
RP	Reasonable Potential
RPM	Reasonable Potential Multiplier
RWC	Receiving Water Concentration
SPCC	Spill Prevention and Control and Countermeasure
SS	Suspended Solids
s.u.	Standard Units
TKN	Total Kjeldahl Nitrogen
TOC	Total Organic Carbon
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
WD	Water Division
WET	Whole Effluent Toxicity
WLA	Wasteload allocation
WQBEL	Water quality-based effluent limit
WQS	Water Quality Standards

I. Background Information

A. General Information

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

Table 1. General Facility Information

NPDES Permit #:		ID0000019
Applicant:		PotlatchDeltic Land and Lumber St. Maries Complex
Type of Ownership		Private
Physical Address:		2200 Railroad Avenue St. Maries, ID 83861
Facility Contact:		Jacob Odekirk Environmental Manager
Facility Location:		Latitude: 47.329167 Longitude: -116.591667
Receiving Waters		St. Joe River (outfall 001) Unnamed ditch (outfalls 002, 003, and 004)
Facility Outfalls	001	47.329722, -116.590278
	002	47.3205, -116.5822
	003	47.3207, -116.5851
	004	47.3208, -116.5865

II. Scope of Reopened Public Comment Period

Federal regulations state that comments filed during a reopened comment period shall be limited to the substantial new questions that caused its reopening, and that the public notice under 40 CFR 124.10 shall define the scope of the reopening (40 CFR 124.14). As stated in the public notice, the EPA is only accepting comments on permit conditions that are different from those proposed in the draft permit that was issued for public review and comment on July 28, 2021.

EPA is making significant changes to the draft permit as it was proposed in July 2021. These changes result from comments made during the initial public comment period and additional data on hardness for the unnamed ditch that receives discharges from Outfalls 002, 003, and 004. EPA requests comments on the changed conditions, which are as follows:

- Zinc effluent limits for all four outfalls have been changed.
- A compliance schedule is no longer proposed for water quality-based zinc limits for Outfalls 002 and 003.
- All outfalls now have effluent monitoring requirements for chloride and BOD_5.
- Weekly monitoring of temperature for Outfall 001 is required until December 31, 2022, with continuous monitoring required thereafter.
- The deadline for beginning surface water monitoring for temperature has changed to July 1, 2023.
- The required monitoring frequency for total suspended solids (TSS), for outfall 001, has been changed from weekly to monthly.

- The draft permit now includes a compliance schedule for the new water quality-based effluent limits for iron.
- EPA corrected an error in the monitoring frequency for whole effluent toxicity (WET) for Outfall 001; the correct monitoring frequency is once per year.
- The proposed length of the compliance schedule for new water quality-based effluent limits is now 3 years and 3 months instead of 5 years.
- The compliance schedule for new water quality-based effluent limits for TSS and zinc now includes interim effluent limits based on the facility's historic performance.
- The deadline for notifying EPA and the Coeur d'Alene Tribe that a stormwater pollution prevention plan (SWPPP) has been developed and implemented has been changed from 180 days to 30 days.

A. Permit History

The most recent individual NPDES permit for the PotlatchDeltic St. Maries Complex was issued on October 1, 1996, became effective on October 31, 1996, and expired on October 31, 2001. An NPDES application for permit issuance was submitted by the permittee on May 10, 2001. EPA determined that the application was timely and complete. Therefore, pursuant to 40 CFR 122.6, the permit has been administratively continued and remains fully effective and enforceable.

The existing individual permit covers the discharge of log yard runoff comingled with non-contact cooling water through Outfall 001 to the St. Joe River.

Discharges of stormwater from Outfall 001 are currently covered under EPA's Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (MSGP), under permit number IDR05I310. The MSGP also covers stormwater discharges from three additional stormwater outfalls, which are numbered 002, 003, and 004.

As explained in the July 2021 fact sheet, EPA is proposing to cover all discharges from all four outfalls under a reissued individual permit. On February 17, 2021, EPA sent a letter to PotlatchDeltic stating that EPA had determined that an individual NPDES permit is required for Outfalls 002, 003, and 004 pursuant to 40 CFR 124.52(b). The letter established a deadline of May 13, 2021 for PotlatchDeltic to submit a complete application. On May 14, 2021, EPA received the application for an individual permit for Outfalls 002, 003, and 004, which was postmarked on May 12, 2021. On July 28, 2021, EPA issued a draft permit for public comment. The public comment period was scheduled to close on August 27, 2021 but was extended to October 26, 2021. EPA received comments from PotlatchDeltic Land and Lumber, LLC (PotlatchDeltic).

B. Tribal Consultation

EPA consults on a government-to-government basis with federally recognized tribal governments when EPA actions and decisions may affect tribal interests. Meaningful tribal consultation is an integral component of the federal government's general trust relationship with federally recognized tribes. The federal government recognizes the right of each tribe to self-government, with sovereign powers over their members and their territory. Executive Order 13175 (November 2000) entitled "Consultation and Coordination with Indian Tribal Governments" requires federal agencies to have an accountable process to assure meaningful and timely input by tribal officials in the development of regulatory policies on matters that

have tribal implications and to strengthen the government-to-government relationship with Indian tribes. In May 2011, EPA issued the EPA Policy on Consultation and Coordination with Indian Tribes which established national guidelines and institutional controls for consultation. Consistent with the Executive Order and EPA tribal consultation policies, EPA coordinated with the Coeur d'Alene Tribe (CDT) during development of the draft permit and invited the Tribe to engage in formal tribal consultation.

Because the PotlatchDeltic St. Maries Complex is within the boundaries of the Coeur d'Alene Tribal Reservation and Outfall 001 discharges to waters for which the Tribe has treatment as a state (TAS), the CDT is also the certifying authority for discharges from Outfall 001 under Section 401 of the Clean Water Act. Therefore, EPA must engage in tribal consultation with CDT where requested and must seek 401 certification of the permit from CDT.

III. Facility Information

A. Description

A description of the facility is provided in the Fact Sheet for the initial public comment period dated July 28, 2021.

In its comments on the draft permit, PotlatchDeltic listed recent stormwater corrective actions, including:

- Addition of a passive multimedia filter for Outfall 002.
- Upgraded BMPs for Outfall 002, including rock check dams; flow-control structures, including two weirs with sample ports; increased capacity in the settling ponds; and general channel improvements to increase capacity, reduce velocity, and reduce erosion.
- Capital projects to reduce discharges of TSS, chemical oxygen demand (COD), and zinc from basin 001 (which drains to Outfall 001), specifically: Reconfiguration of water flow, stormwater settling ponds, irrigation and discharge pump configurations, irrigation system changes to increase recycling of water, and replacement of stormwater conveyance pipes (i.e., galvanized culverts) with new corrugated high-density polyethylene piping materials.
- For Outfall 003, routing all stormwater into the north side of an existing ditch to best utilize previously installed BMPs along the length of the conveyance ditch and adding a rock check dam to the ditch.
- Additional asphalt paving in the basin draining to Outfall 004.

IV. Receiving Water

A. Water Quality

Water quality for the St. Joe River is summarized in the July 2021 fact sheet.

At the time of the initial public notice, no water quality data were available for the unnamed ditch receiving discharges from Outfalls 002, 003, and 004. However, during the initial

public comment period, PotlatchDeltic collected hardness data for the unnamed ditch, downstream of outfalls 002, 003, and 004. These hardness data are listed in Table 2, below.

Table 2. Hardness Data for Unnamed Ditch

Date	Hardness (mg/L as $CaCO_3$)	Ca:Mg Ratio
8/5/2021	279	2.51
8/19/2021	1090	2.98
8/24/2021	1090	0.808
8/30/2021	1460	1.08
9/1/2021	1250	1.15
9/7/2021	835	1.28
9/8/2021	919	1.52
9/9/2021	1970	1.54
9/14/2021	783	1.72
9/15/2021	773	1.70
9/16/2021	813	1.70

V. Effluent Limitations and Monitoring

Table 3 and Table 4, below, present the proposed effluent limits and monitoring requirements in the revised draft permit. Effluent limits and monitoring requirements that differ from those in the draft permit issued for public comment on July 28, 2021 are in bold type. EPA requests comments on only these revised effluent limits and monitoring requirements.

Table 3: Effluent Limits and Monitoring Requirements: Outfall 001

Effluent Parameters	Units	Effluent Limitations		Monitoring Requirements	
		Monthly Average	Daily Maximum	Frequency	Sample Type
Flow	MGD	Report	Report	Weekly	Recording
Iron (final)	mg/L	7.02	14.1	Monthly	Grab
	lb/day	64.4	129		Calculation[1]
pH	s.u.	6.5 to 8.5 std. units		Weekly	Grab
TSS (final)	mg/L	75	**125**	**Monthly**	Grab
	lb/day	688	**1147**		Calculation[1]
TSS (interim)	**mg/L**	**186**	**280**	**Monthly**	**Grab**
	lb/day	**1706**	**2569**		**Calculation[1]**
Zinc (August - October, final)	µg/L	**53**	**76**	Monthly	Grab
	lb/day	**0.14**	**0.20**		Calculation[1]
Zinc (August - October, interim)	**µg/L**	**178**	**275**	**Monthly**	**Grab**
	lb/day	**0.473**	**0.731**		**Calculation[1]**
Zinc (November - July, final)	µg/L	**146**	**210**	Monthly	Grab
	lb/day	**1.34**	**1.93**		Calculation[1]
Zinc (November - July, interim)	**µg/L**	**178**	**275**	**Monthly**	**Grab**
	lb/day	**1.63**	**2.52**		**Calculation[1]**
2,4,5-Trichlorophenol	µg/L	—	Report	1/year	Grab
2,4,6-Trichlorophenol	µg/L	—	Report	1/year	Grab
2,4-Dichlorophenol	µg/L	—	Report	1/year	Grab
2,4-Dimethylphenol	µg/L	—	Report	1/year	Grab
2,4-Dinitrophenol	µg/L	—	Report	1/year	Grab
2-Chlorophenol	µg/L	—	Report	1/year	Grab
2-Methyl-4,6-Dinitrophenol	µg/L	—	Report	1/year	Grab
3-Methyl-4-Chlorophenol	µg/L	—	Report	1/year	Grab
Aluminum	µg/L	—	Report	2/year[2]	Grab
Ammonia, total as N	mg/L	—	Report	2/year[2]	Grab

Effluent Parameters	Units	Effluent Limitations		Monitoring Requirements	
		Monthly Average	Daily Maximum	Frequency	Sample Type
BOD_5 (June - October)	**mg/L**	**—**	**Report**	**1/month**	**Grab**
Chloride	**mg/L**	**—**	**Report**	**2/year[2]**	**Grab**
COD	mg/L	—	Report	Quarterly[3]	Grab
Dinitrophenols	µg/L	—	Report	1/year	Grab
Hardness	mg/L as CaCO3	—	Report	2/year[2]	Grab
Manganese	µg/L	—	Report	2/year[2]	Grab
Nitrate-Nitrite as N	mg/L	—	Report	2/year[2]	Grab
Nonylphenol	µg/L	—	Report	1/year	Grab
Orthophosphate (as P)	mg/L	—	Report	1/month	Grab
Pentachlorophenol	µg/L	—	Report	1/year	Grab
Phenol	µg/L	—	Report	1/year	Grab
Phosphorus, total as P	mg/L	—	Report	1/month	Grab
Temperature (Until December 31, 2022)	**°C**	—	**Report**	**Weekly**	**Grab**
Temperature (Beginning January 1, 2023)	**°C**	**Report**	**Report**	**Continuous**	**Recording**
Total Kjeldahl Nitrogen	mg/L	—	Report	2/year[2]	Grab
Whole effluent toxicity	TUc	—	Report	**1/year**	Grab

Notes:

1. Loading (in lbs/day) is calculated by multiplying the concentration (in mg/L) by the corresponding flow (in mgd) for the day of sampling and a conversion factor of 8.34. For more information on calculating, averaging, and reporting loads and concentrations see the NPDES Self-Monitoring System User Guide (EPA 833-B-85-100, March 1985).

2. One sample must be taken between January 1st and June 30th and a second sample must be taken between July 1st and December 31st. Results must be reported on the June and December DMRs.

3. Quarters are defined as January 1st – March 31st, April 1st – June 30th, July 1st – September 30th, and October 1st – December 31st. Results must be reported on the March, June, September, and December DMRs.

Table 4: Effluent Limits and Monitoring Requirements: Outfalls 002, 003, and 004

Effluent Parameters	Units	Effluent Limitations	Monitoring Requirements	
			Frequency	Sample Type
Outfall 002				
TSS	mg/L	75 (rolling average limit)	Quarterly[1]	Grab
TSS (interim)	**mg/L**	**114 (rolling average limit)**	**Quarterly[1]**	**Grab**
Zinc (final)	µg/L	**286 (maximum daily limit)**	Quarterly[1]	Grab
Outfall 003				
TSS	mg/L	75 (rolling average limit)	Quarterly[1]	Grab
TSS (interim)	**mg/L**	**264 (rolling average limit)**	**Quarterly[1]**	**Grab**
Zinc (final)	µg/L	**286 (maximum daily limit)**	Quarterly[1]	Grab
Outfall 004				
TSS	mg/L	75 (rolling average limit)	Quarterly[1]	Grab
TSS (interim)	**mg/L**	**1278 (rolling average limit)**	**Quarterly[1]**	**Grab**
Zinc (final)	µg/L	**286 (maximum daily limit)**	Quarterly[1]	Grab
Zinc (interim)	**µg/L**	**545 (maximum daily limit)**	**Quarterly[1]**	**Grab**
Outfalls 002, 003, and 004				
pH	s.u.	6.5 to 8.5 std. units	Quarterly[1]	Grab
2,4,5-Trichlorophenol	µg/L	Report	1/year	Grab
2,4,6-Trichlorophenol	µg/L	Report	1/year	Grab
2,4-Dichlorophenol	µg/L	Report	1/year	Grab

Effluent Parameters	Units	Effluent Limitations	Monitoring Requirements	
			Frequency	Sample Type
2,4-Dimethylphenol	µg/L	Report	1/year	Grab
2,4-Dinitrophenol	µg/L	Report	1/year	Grab
2-Chlorophenol	µg/L	Report	1/year	Grab
2-Methyl-4,6-Dinitrophenol	µg/L	Report	1/year	Grab
3-Methyl-4-Chlorophenol	µg/L	Report	1/year	Grab
Aluminum	µg/L	Report	2/year[2]	Grab
Ammonia, total as N	mg/L	Report	2/year[2]	Grab
BOD_5	**mg/L**	**Report**	**1/year[3]**	**Grab**
Chloride	**mg/L**	**Report**	**2/year[2]**	**Grab**
COD	mg/L	Report	Quarterly[1]	Grab
Dinitrophenols	µg/L	Report	1/year	Grab
Hardness	mg/L as $CaCO_3$	Report	2/year[2]	Grab
Iron	mg/L	Report	2/year[2]	Grab
Manganese	µg/L	Report	2/year[2]	Grab
Nitrate-Nitrite as N	mg/L	Report	2/year[2]	Grab
Nonylphenol	µg/L	Report	1/year	Grab
Orthophosphate (as P)	mg/L	Report	Quarterly[1]	Grab
Pentachlorophenol	µg/L	Report	1/year	Grab
Phenol	µg/L	Report	1/year	Grab
Phosphorus, total as P	mg/L	Report	Quarterly[1]	Grab
Total Kjeldahl Nitrogen	mg/L	Report	2/year[2]	Grab

Notes:

1. Quarters are defined as January 1st – March 31st, April 1st – June 30th, July 1st – September 30th, and October 1st – December 31st. Results must be reported on the March, June, September, and December DMRs.
2. One sample must be taken between January 1st and June 30th and a second sample must be taken between July 1st and December 31st. Results must be reported on the June and December DMRs
3. The yearly BOD_5 sample must be collected between June 1st and October 31st.

A. Basis for Effluent Limits

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.

B. Pollutants of Concern

In general, pollutants of concern are discussed in the July 2021 fact sheet.

According to the March 2017 inspection report, magnesium chloride is used for dust suppression at the facility. The observed calcium-to-magnesium ratios in the unnamed ditch receiving discharges from Outfalls 002, 003, and 004 (Table 2) are low relative to the ratios observed in the St. Joe River at Red Ives Ranger Station (USGS station #12413875[1]), which

[1] https://nwis.waterdata.usgs.gov/id/nwis/inventory/?site_no=12413875&agency_cd=USGS

is the only station in the St. Joe River where paired calcium and magnesium data are available. Calcium-to-magnesium ratios at Red Ives Ranger Station range from 4.39 to 4.75. Therefore, chloride is an additional pollutant of concern.

C. Technology-Based Effluent Limits

Technology-based effluent limits for this facility are discussed in the July 2021 fact sheet.

D. Water Quality-Based Effluent Limits

Except for zinc limits and the maximum daily limit for TSS at Outfall 001, the water quality-based effluent limits are unchanged from those in the July 28, 2021 draft permit. The bases for those limits are explained in the July 2021 fact sheet. As previously stated, EPA is not accepting comments on the limits that have not changed between the July 2021 draft permit and this revised draft permit. The proposed revisions to water quality-based effluent limits are explained below.

Mixing Zones

In some cases, a dilution allowance or mixing zone is permitted. A mixing zone is a limited area or volume of water where initial dilution of a discharge takes place and within which certain water quality criteria may be exceeded (USEPA, 2014). While the criteria may be exceeded within the mixing zone, the use and size of the mixing zone must be limited such that the waterbody as a whole will not be impaired, all designated uses are maintained and acutely toxic conditions are prevented.

Per Section 12(1)(c) of the CDT water quality standards (WQS), mixing zones are established in CWA Section 401 certifications.[2] Reasonable potential and effluent limit calculations for Outfall 001 are based on the mixing zones listed in Table 5.

For Outfall 001, the acute mixing zones are sized based on the criteria in Section 4.3.3 of the TSD, as evaluated using the Cormix model (version 12.0 GTD). These criteria are:

- The acute water quality criterion or criterion maximum concentration (CMC) should be met within 10 percent of the distance from the edge of the outfall structure to the edge of the regulatory mixing zone in any spatial direction.
- The CMC should be met within a distance of 50 times the discharge length scale (which is the square root of the cross-sectional area of any discharge outlet) in any spatial direction.
- The CMC should be met within a distance of five times the local water depth in any horizontal direction from any discharge outlet.

[2] A general description of the Coeur d'Alene Tribe's water quality standards can be found in the July 2021 fact sheet at Pages 15-16. The standards can also be found on EPA's website, here: https://www.epa.gov/wqs-tech/water-quality-standards-regulations-coeur-dalene-tribe-indians

As explained in the July 2021 Fact Sheet, mixing zones are not authorized for Outfalls 002, 003, and 004. If the CDT revises the allowable mixing zone in its final certification of this permit, the reasonable potential analysis and water quality-based effluent limit calculations will be revised accordingly.

The proposed acute mixing zones in the revised draft permit differ from those in the draft permit issued for public comment on July 28, 2021. PotlatchDeltic stated in its comments that the mixing zone analysis for Outfall 001 compounded multiple conservative assumptions, such that the conditions that were modeled are unlikely to coincide with a discharge from Outfall 001. To address this concern, the seasons were changed. The seasons used in the analysis for the mixing zone proposed in the July 2021 fact sheet and draft permit were based on the Tribe's water quality criterion for temperature (section 19(4)(iii) of the water quality standards), which applies from June 1 - September 30. This resulted in low ambient velocities potentially occuring in both seasons, when in fact ambient velocities less than 0.1 ft/s have only been observed at USGS Station #12415135 during August, September, and October.[3] The rest of the year has ambient velocities greater than 0.1 ft/s, which generally allow for better mixing. Thus, the seasons for the mixing zone analysis were changed to reflect seasons when relatively low or high ambient velocity is observed.

The data source for ambient temperatures used for model inputs was changed from USGS NWIS station #12415075 (St. Joe River at St. Maries, ID) to station numbers 12415135 (St. Joe River at Ramsdell near St. Maries, ID) and 12415140, which have more recent data. Effluent temperatures used for mixing zone modeling for toxic pollutants were changed from the maximum daily effluent temperatures observed during each season to the maximum monthly average effluent temperatures observed during each season. The maximum monthly average temperature is more representative of typical effluent temperatures, and, in turn, densities, thus addressing PotlatchDeltic's concern about overly conservative assumptions. The density of the effluent relative to the density of the ambient water is an important factor in an effluent's mixing properties. These changes resulted in larger acute dilution factors than were used to calculate limits in the draft permit issued for public comment on July 28, 2021. The revised mixing zones are shown in bold type in Table 5. EPA requests comments on the revised acute mixing zones for Outfall 001.

Table 5. Mixing zones for outfall 001

Criteria Type	Season	Critical Low Flow (cfs)	Mixing Zone (% of Critical Low Flow)	Dilution Factor
Acute Aquatic Life (1Q10)	**August - October**	125	**1.13%**	**3.85**
	November - July		**13.6%**	**11.0**
Chronic Aquatic Life (except ammonia) (7Q10)	Year-round	258	25%	38.9
Chronic Aquatic Life (ammonia) (30B3)	Year-round	408	25%	60.9
Human Health Noncarcinogen (30Q5)	Year-round	363	25%	54.3

[3] https://waterdata.usgs.gov/id/nwis/measurements?site_no=12415135&agency_cd=USGS&format=html_table_expanded

Criteria Type	Season	Critical Low Flow (cfs)	Mixing Zone (% of Critical Low Flow)	Dilution Factor
Human Health Carcinogen	Year-round	1076	25%	159.1

The change in the acute mixing zones affected the reasonable potential calculation and proposed water quality based effluent limits for zinc which are summarized below. The calculations are provided in Appendix C.

TSS

As discussed under "Monitoring Changes from the July 2021 Draft Permit," below, EPA proposes to change the required monitoring frequency for TSS from weekly to monthly. As explained on Page 106 of the *Technical Support Document for Water Quality-based Toxics Control* (TSD) (USEPA, 1991), the monitoring frequency is a factor in the ratio between the average monthly limit and the maximum daily limit. Thus, the change to the monitoring frequency resulted in a change to final water quality-based maximum daily limit for TSS, for Outfall 001. The recalculation of the maximum daily limit is shown in Table 6.

Table 6: TSS Maximum Daily Limit for Outfall 001

Multiplier to Calculate Maximum Daily Limit from Average Monthly Limit

Number of Samples per Month Set (n)			1
Coefficient of Variation (CV) = Std. Dev./Mean			0.862
σ = std deviation	$\sigma^2=\ln(CV^2+1)$		0.745
Average Monthly Limit (AML),	$\exp(z\sigma_n-0.5z\sigma_n^2)$; where % probability basis =	95%	2.58
Maximum Daily Limit (MDL),	$\exp(z\sigma-0.5z\sigma^2)$; where % probability basis=	99%	4.29
Ratio MDL/AML			**1.66**

Reference: TSD Page 106

Calculation:	AML	x	Multiplier=	MDL
MDL = AML x Multiplier	75	x	1.66	= 125

Zinc

Effluent limits for zinc for Outfall 001 were re-calculated based on the revised mixing zones in Table 5.

When EPA issued a draft permit for this facility, EPA did not have hardness data for the receiving water for Outfalls 002, 003, or 004. Thus, for Outfalls 002, 003, and 004, EPA used the year-round 5th percentile hardness measured in the St. Joe River at USGS stations 12415135 and 12415140, which is 12.6 mg/L as CaCO3. The resulting water quality criteria for zinc were an acute criterion of 20.3 µg/L and a chronic criterion of 20.4 µg/L.

During the public comment period, PotlatchDeltic collected hardness data for the unnamed ditch receiving discharges from Outfalls 002, 003, and 004. These data are listed in Table 2. EPA has used the minimum observed hardness value (279 mg/L as $CaCO_3$) to calculate the zinc criteria for the unnamed ditch, instead of the 5th percentile hardness (526 mg/L as $CaCO_3$).

It is appropriate to use a more conservative hardness value due to the small sample size (n = 11) collected over a period of only 42 days and low calcium-to-magnesium ratios relative to the St. Joe River. Calcium has a greater mitigating effect on zinc toxicity than magnesium, thus, at a given hardness, the toxicity of zinc will be greater with a lower calcium-to-magnesium ratio. At a hardness of 279 mg/L as $CaCO_3$, the zinc criteria are an acute criterion of 280 µg/L and a chronic criterion of 282 µg/L.

Even though the zinc criteria for the unnamed ditch are higher due to the relatively hard water in the ditch, discharges from Outfalls 002, 003, and 004 nonetheless have reasonable potential to cause or contribute to excursions above water quality standards for zinc, and water quality-based effluent limits are proposed for zinc. The water quality-based effluent limits for zinc in the revised draft permit are less stringent than those in the July 2021 draft permit because of the relatively hard water in the unnamed ditch. EPA requests comments on the revised water quality-based effluent limits for zinc for Outfalls 002, 003, and 004.

Outfalls 002, 003, and 004 discharge only stormwater and are therefore not continuous, thus, zinc effluent limits for these outfalls are expressed exclusively as maximum daily limits and are based on the acute water quality criterion for zinc. See 40 CFR 122.45(e).

E. Stormwater Pollution Prevention Plan (SWPPP) Deadline

The July 2021 draft permit allowed 180 days for the permittee to notify EPA and the Coeur d'Alene Tribe that it had developed and implemented a SWPPP. The MSGP requires that applicants develop or update their SWPPP prior to submitting their notice of intent (NOI) for coverage under the MSGP. Since PotlatchDeltic had coverage under the 2015 MSGP the company should already have developed and implemented a SWPPP. The draft permit does not significantly change the SWPPP conditions. Therefore, EPA reconsidered the 180-day deadline in the July 2021 draft permit and has shortened the deadline to 30 days after the effective date of the final permit.

F. Antibacksliding

Section 402(o) of the Clean Water Act and 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. For explanation of the antibacksliding exceptions refer to Chapter 7 of the Permit Writers Manual, *Final Effluent Limitations and Anti-backsliding* (USEPA, 2010).

All effluent limits in the draft permit are at least as stringent as those in the 1996 individual permit and the MSGP.

VI. 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 permittee is responsible for conducting the monitoring and for reporting results on DMRs or on the application for renewal, as appropriate, to 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 EPA-approved test methods (generally found in 40 CFR Part 136) or as specified in the permit.

Monitoring Changes from the July 2021 Draft Permit

EPA requests comments on the revised monitoring requirements described below.

BOD_5

The Coeur d'Alene Tribe has observed low dissolved oxygen concentrations in the St. Joe River downstream from the facility, at a monitoring station just upstream of USGS monitoring station number 12415140. Dissolved oxygen concentrations below the Tribe's water quality standard of 8 mg/L have been observed from June - September at lower depths, when stratification occurs.

The draft permit proposes effluent monitoring for BOD_5 from June - October, to characterize BOD_5 discharges from the facility. These data will be used to determine if water quality-based effluent limits for BOD_5 are needed when the permit is reissued. The draft permit proposes to require monthly monitoring from June - October for outfall 001 and one sample per year taken between June and October for outfalls 002, 003, and 004.

Chloride

Magnesium chloride is used for dust suppression at the facility. EPA has published recommended CWA section 304(a) water quality criteria for chloride. The revised draft permit proposes effluent monitoring for chloride at all outfalls to determine if discharges of chloride could cause or contribute to excursions above the Tribe's narrative water quality criterion for toxic substances.

Temperature at Outfall 001 and in the St. Joe River

In its comments on the July 2021 draft permit, PotlatchDeltic requested that EPA allow a grace period for the purchase and installation of continuous temperature monitoring equipment due to supply chain disruptions. The comments did not request a specific amount of time. EPA requested clarification of this comment from PotlatchDeltic. PotlatchDeltic then stated that it was requesting deferral of continuous monitoring requirements for temperature until 2023. Given the supply chain disruptions as set forth by the company EPA is proposing to change the continuous temperature monitoring requirements to 2023.

TSS at Outfall 001

In its comments on the July 2021 draft permit, PotlatchDeltic requested that EPA change the monitoring frequency for TSS at outfall 001 from weekly to monthly, which is generally the most frequent monitoring required for parameters that require laboratory analysis. EPA proposes to change the required monitoring frequency for TSS at outfall 001 to monthly.

Whole Effluent Toxicity at Outfall 001

Table 1 of the July 2021 draft permit listed a required monitoring frequency for whole effluent toxicity (WET) of twice per year. This conflicted with the discussion on Page 36 of the July 2021 fact sheet as well as the WET testing requirements in Part I.D of the July 2021 draft permit, which stated that the required testing frequency for WET was once per year.

The intended required monitoring frequency for WET was once per year. This is now stated in Table 1 of the revised draft permit.

VII. Other Permit Conditions

A. Compliance Schedules

Compliance schedules are authorized by federal NPDES regulations at 40 CFR 122.47 and the CDT WQS at Section 15. Compliance schedules allow a discharger to phase in, over time, compliance with water quality-based effluent limitations when limitations are in the permit for the first time.

In the July 2021 fact sheet, EPA found that a compliance schedule was appropriate for the new water quality-based effluent limits for TSS and zinc for all outfalls. Because the revised zinc limits for Outfalls 002, 003, and 004 are less stringent than those proposed in the July 2021 draft permit, the permittee can now comply with the zinc limits for Outfalls 002 and 003 immediately upon the effective date of the final permit. The permittee cannot immediately comply with the zinc limits for Outfall 004. Thus, in the revised draft permit, no compliance schedule is proposed for the water quality-based zinc limits for outfalls 002 and 003; however there remains a compliance schedule for Outfall 004.

In its comments on the July 2021 draft permit, PotlatchDeltic requested that a compliance schedule be established for iron for Outfall 001 as well as zinc and TSS. PotlatchDeltic stated that they collected an iron sample near Outfall 001 and the iron concentration was 16.2 mg/L, which would have violated the proposed effluent limits for Outfall 001. EPA agrees that available data indicates that the permittee cannot immediately comply with the water quality-based effluent limits for iron at Outfall 001. Thus, the revised draft permit includes a compliance schedule for the water quality-based effluent limits for iron.

The compliance schedule authorizing provision in the Coeur d'Alene Tribe's water quality standards states that, "for the period of time during which compliance with water quality criteria is deferred, interim limitations and/or other conditions may be formally established, based on the best professional judgment of the permitting agency and the Department." The revised draft permit includes interim effluent limits based on the facility's historic performance, which apply during the term of the compliance schedule. See Table 12, Table 13, Table 14, and Table 15 for the calculations of the performance-based effluent limits for TSS. The performance-based interim maximum daily limit for zinc for Outfall 004 is the 95^{th} percentile zinc concentration observed at Outfall 004. Statistical outliers were excluded from the effluent data when calculating performance-based effluent limits. EPA could not calculate interim effluent limits for iron at Outfall 001 because there is only one result for iron available at Outfall 001. EPA requests comments on the interim effluent limits.

EPA has shortened the term of the compliance schedule from 5 years to 3 years and 3 months. This period of time is based on the "Additional Implementation Measures" (AIM) provisions in Section 5.2 of the 2021 MSGP. Assuming compliance with MSGP benchmarks was uncertain until 1 year of data had been collected following implementation of escalating implementation measures, it would take 3 years of continued benchmark exceedances to reach AIM level 3, which includes structural and treatment controls. The 2021 MSGP then allows up to 90 days to install AIM level 3 controls (see the 2021 MSGP at Section 5.2.5.2).

A 3-year and 3-month compliance schedule is therefore consistent with the 2021 MSGP. EPA requests comments on the revised length of the compliance schedule.

B. Environmental Justice

As part of the permit development process, EPA Region 10 conducted a screening analysis to determine whether this permit action could affect overburdened communities. "Overburdened" communities can include minority, low-income, tribal, and indigenous populations or communities that potentially experience disproportionate environmental harms and risks. 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 facility is located within or near a Census block group that is potentially overburdened because of cumulative direct discharge pollution. In order to ensure that individuals near the facility are able to participate meaningfully in the permit process, EPA is making a copy of the draft permit and fact sheet available at the St. Maries public library.

Regardless of whether a facility is located near a potentially overburdened community, 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/d/2013-10945). 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.

For more information, please visit https://www.epa.gov/environmentaljustice and Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*.

C. 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 USFWS if their actions could beneficially or adversely affect any threatened or endangered species. The USFWS Information for Planning and Consultation (IPaC) system (https://ecos.fws.gov/ipac/location/index) identified the presence of the "Threatened" Bull Trout (Salvelinus confluentus) and critical habitat for the Bull Trout in the receiving water (Critical Habitat Unit #29).

The NOAA Fisheries Protected Resource App (https://www.webapps.nwfsc.noaa.gov/portal/apps/webappviewer/index.html?id=7514c715b8594944a6e468dd25aaacc9) did not reveal the presence of ESA-listed salmon or steelhead in the action area, or the presence of critical habitat for salmon or steelhead. According to the app, no other NOAA ESA-listed species occur in the action area.

EPA prepared a biological evaluation (BE) which assesses the impact of the permitted discharges upon bull trout. The BE concluded that the discharges are not likely to adversely affect bull trout. On September 27, 2021, EPA received concurrence from the U.S. Fish and Wildlife Service that the discharges are not likely to adversely affect bull trout.

50 CFR 402.16 lists the circumstances under which reinitiation of consultation is required, which are:

1. If the amount or extent of taking specified in the incidental take statement is exceeded;
2. If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered;
3. If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion or written concurrence; or
4. If a new species is listed or critical habitat designated that may be affected by the identified action.

None of the proposed revisions require reinitiation of consultation. Although the proposed zinc limits in the revised draft permit are less stringent than those proposed in the July 2021 draft permit, the zinc limits for Outfall 001 nonetheless use a mixing zone that is consistent with recommendations in Section 4.3.3 of the TSD for prevention of lethality to passing organisms, and chronic mixing zones are unchanged from the July 2021 draft permit. The zinc limits for Outfalls 002, 003, and 004 apply water quality criteria at the end-of-pipe, with the only difference being use of new information about the hardness of the water in the ditch that receives those discharges.

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 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 action area in NOAA's Essential Fish Habitat Mapper (https://www.fisheries.noaa.gov/resource/map/essential-fish-habitat-mapper) showed no EFH in the action area.

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. Because there is no EFH in the action area, EPA has determined that reissuance of the NPDES permit will not adversely affect EFH.

C. State Certification

Section 401 of the CWA requires EPA to seek State certification before issuing a final permit. As a result of the certification, the State may require more stringent permit conditions or additional monitoring requirements to ensure that the permit complies with water quality standards, or treatment standards established pursuant to any State law or regulation.

Since Outfall 001 discharges to Coeur d'Alene tribal waters and the Tribe has been approved for TAS from EPA for purposes of the Clean Water Act, the Coeur d'Alene Tribe is the certifying authority for the discharge from Outfall 001.

Since Outfalls 002, 003, and 004 discharge to tribal waters for which the Coeur d'Alene Tribe has not been approved for TAS for purposes of the Clean Water Act, EPA is the certifying authority for Outfalls 002, 003, and 004. EPA is taking comment on the intent to certify this permit for Outfalls 002, 003, and 004.

EPA had preliminary discussions with the Coeur d'Alene Tribe regarding the 401 certification during development of the draft permit. EPA requested a final 401 certification on July 26, 2021. The Tribe has requested an extension of the deadline for certification. EPA has extended the deadline for certification until March 31, 2022.

D. Antidegradation

EPA conducted a preliminary antidegradation analysis for the draft permit to characterize the potential impact of the point source discharge into Reservation TAS waters in consideration of the Tribe's Antidegradation Policy. The Tribe may reference EPA's preliminary analysis in their final Antidegradation Review to be provided with the final CWA Section 401 certification of the permit. See Appendix D to the July 2021 fact sheet.

E. Permit Expiration

The permit will expire five years from the effective date.

F. References

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Appendix A. Facility Information

Figure 1: Site Map

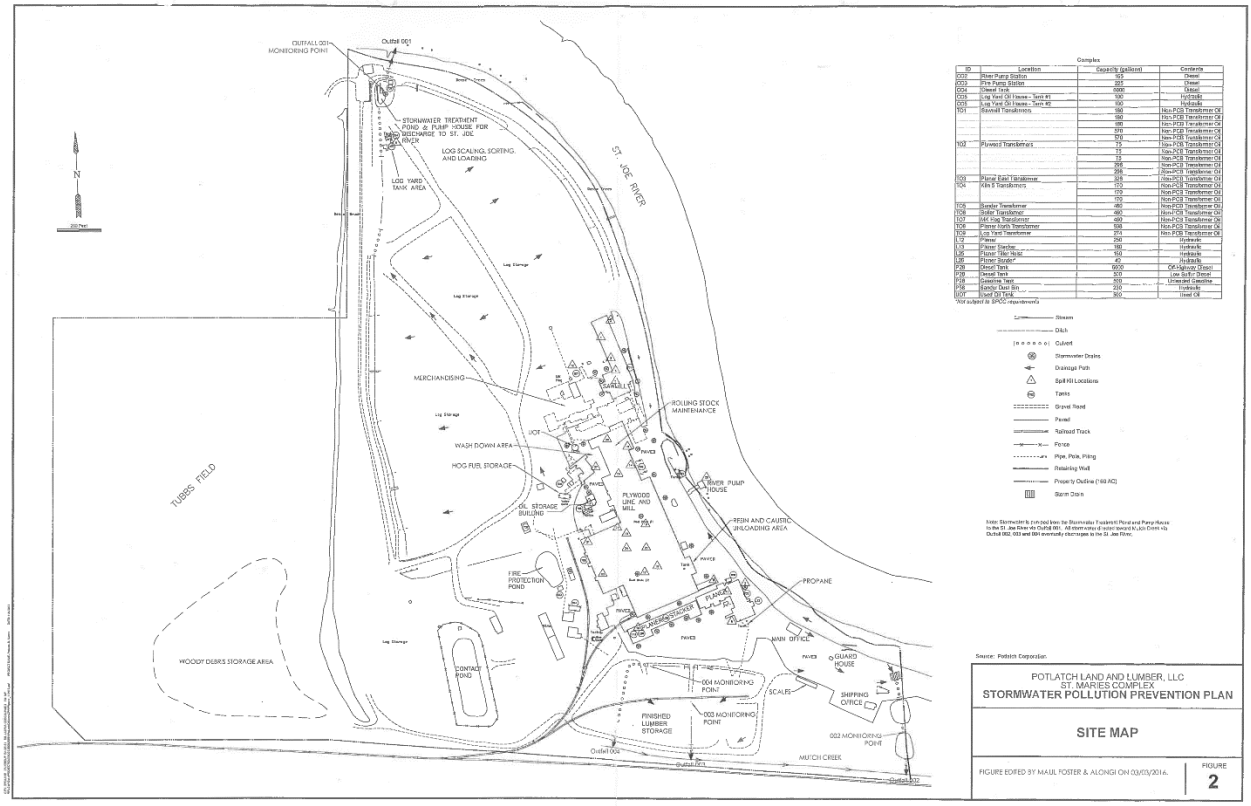

Figure 2: Discharge from Outfall 001 to St. Joe River (June 7, 2021)

Appendix B. Reasonable Potential and Water Quality-Based Effluent Limit Formulae

A. Reasonable Potential Analysis

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

Mass Balance

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

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

where,

C_d	=	Receiving water concentration downstream of the effluent discharge (that is, the concentration at the edge of the mixing zone)
C_e	=	Maximum projected effluent concentration
C_u	=	Measured receiving water upstream concentration
Q_d	=	Receiving water flow rate downstream of the effluent discharge = Qe+Qu
Q_e	=	Effluent flow rate (set equal to the maximum effluent flow rate reported on DMRs)
Q_u	=	Receiving water low flow rate upstream of the discharge (1Q10, 7Q10 or 30B3)

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

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

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

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

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

Where:

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

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

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

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

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

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

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

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

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

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

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

Maximum Projected Effluent Concentration

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

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

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

where,

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

and

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

Where,

σ^2 = $\ln(CV^2 + 1)$

Z_{99} = 2.326 (z-score for the 99th percentile)

Z_{Pn} = z-score for the Pn percentile (inverse of the normal cumulative distribution function at a given percentile)

CV = coefficient of variation (standard deviation ÷ mean)

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

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

where MRC = Maximum Reported Concentration

Maximum Projected Effluent Concentration at the Edge of the Mixing Zone

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

Reasonable Potential

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

B. WQBEL Calculations

Calculate the Wasteload Allocations (WLAs)

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

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

Idaho's water quality criteria for some metals are expressed as the dissolved fraction, but the Federal regulation at 40 CFR 122.45(c) requires that effluent limits be expressed as total recoverable metal. Therefore, EPA must calculate a wasteload allocation in total recoverable metal that will be protective of the dissolved criterion. This is accomplished by dividing the WLA expressed as dissolved by the criteria translator, as shown in equation 12. The criteria translator (CT) is equal to the conversion factor, because site-specific translators are not available for this discharge.

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

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

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

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

where,

σ^2 = $\ln(CV^2+1)$

Z_{99} = 2.326 (z-score for the 99th percentile probability basis)

CV = coefficient of variation (standard deviation ÷ mean)

σ_4^2 = $\ln(CV^2/4+1)$

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

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

where,

σ_{30}^2 = $\ln(CV^2/30+1)$

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

Derive the maximum daily and average monthly effluent limits

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

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

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

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

σ_n^2 = $\ln(CV^2/n+1$

z_a = 1.645 (z-score for the 95th percentile probability basis)

z_m = 2.326 (z-score for the 99th percentile probability basis)

n = number of sampling events required per month. With the exception of ammonia, if the AML is based on the LTA_c, i.e., $LTA_{minimum} = LTA_c$), the value of ''n'' should is set at a minimum of 4. For ammonia, In the case of ammonia, if the AML is based on the LTA_c, i.e., $LTA_{minimum} = LTA_c$), the value of ''n'' should is set at a minimum of 30.

C. Critical Low Flow Conditions

The low flow conditions of a water body are used to determine water quality-based effluent limits. The Coeur d'Alene Tribe's water quality standards require criteria be evaluated at the following low flow receiving water conditions (See the Coeur d'Alene WQS at Section 12(2)) as defined below:

Acute aquatic life	1Q10
Chronic aquatic life	7Q10
Non-carcinogenic human health criteria	30Q5
Carcinogenic human health criteria	harmonic mean flow
Ammonia	30B3

1. The 1Q10 represents the lowest one-day flow with an average recurrence frequency of once in 10 years.
2. The 7Q10 represents lowest average 7 consecutive day flow with an average recurrence frequency of once in 10 years.
3. The 30Q5 represents the lowest average 30 consecutive day flow with an average recurrence frequency of once in 5 years.
4. The 30Q10 represents the lowest average 30 consecutive day flow with an average recurrence frequency of once in 10 years.
5. 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.
6. The 30B3 is biologically based and indicates an allowable exceedance for 30 consecutive days once every 3 years.

Appendix C. Reasonable Potential and Water Quality-Based Effluent Limit Calculations

Table 7: Reasonable Potential and Effluent Limit Calculations for Outfall 001 (August - October)

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

Facility Name	Potlatch Deltic St. Maries 001 Summer
Facility Flow (mgd)	0.32
Facility Flow (cfs)	0.49

Critical River Flows (CFS)	(IDAPA 58.01.02 03. b)	Annual Crit. Flows	Annual Crit. Flows	Annual Crit. Flows	Annual Crit. Flows	Annual Crit. Flows	Annual Crit. Flows	Annual Crit. Flows
Aquatic Life - Acute Criteria - Criterion Max. Concentration (CMC)	**1Q10**	125	125	125	125	125	125	125
Aquatic Life - Chronic Criteria - Criterion Continuous Concentration (CCC)	**7Q10 or 4B3**	258	258	258	258	258	258	258
Ammonia	**30B3 or 30Q10/30Q5** (seasonal)	408	408	408	408	408	408	408
Human Health - Non-Carcinogen	**30Q5**	363	363	363	363	363	363	363
Human Health - carcinogen	**Harmonic Mean Flow**	1076	1,076	1,076	1,076	1,076	1,076	1,076

DF at defined percent of river flow allow	1.13%	**3.85**	
DF at defined percent of river flow allow	7.25%	**38.9**	

Receiving Water Data		Notes:	Annual Crit. Flows
Hardness, as mg/L $CaCO_3$	= 100 mg/L	5th % at critical flows	
Temperature, °C	Temperature, °C	95th percentile	22.78
pH, S.U.	pH, S.U.	95th percentile	7.5

Pollutants of Concern			AMMONIA, default: cold water, fish early life stages	ALUMINUM, total recoverable	Barium	IRON	MANGANESE	ZINC - SEE Toxic BiOp	Boron
Effluent Data	**Number of Samples in Data Set (n)**		6	1	1	1	1	13	1
	Coefficient of Variation (CV) = Std. Dev./Mean (default CV = 0.6)		0.6	0.6	0.6	0.6	0.6	0.577	0.6
	Effluent Concentration, µg/L (Max. or 95th Percentile) - (C_e)		1,200	570	88	6660	1820	172	40
	Calculated 50th % Effluent Conc. (when n>10), Human Health Only							65	
Receiving Water Data	**90th Percentile Conc., µg/L - (C_u)**		20	60		800	28.04	3.82	
	Geometric Mean, µg/L, Human Health Criteria Only					285	13.4	1.9	
Applicable Water Quality Criteria	Aquatic Life Criteria, µg/L	Acute	13,283	434.	#N/A	--	--	22.15	
	Aquatic Life Criteria, µg/L	Chronic	2,562	216.	#N/A	1,000.	--	22.33	750.
	Human Health Water and Organism, µg/L		--	--	#N/A	300.	50.	870.	
	Human Health, Organism Only, µg/L		--	--	1,000.	--	--	1,500.	
	Metals Criteria Translator, decimal (or default use Conversion Factor)	Acute		--	--	--	--	.978	1.
		Chronic		--		--	--	.986	1.
	Carcinogen (Y/N), Human Health Criteria Only		--	N	--	N	N	N	--
Percent River Flow Default Value = **25%**	**Aquatic Life - Acute**	**1Q10**	1.13%	1.13%	1.13%	1.13%	1.13%	1.13%	1.13%
	Aquatic Life - Chronic	7Q10 or 4B3		7.25%	7.25%	7.25%	7.25%	7.25%	7.25%
		30B3 or 30Q10/30Q5		7.25%	7.25%	7.25%	7.25%	7.25%	7.25%
	Human Health - Non-Carcinogen	Harmonic Mean	7.25%	7.25%	7.25%	7.25%	7.25%	7.25%	7.25%
	Human Health - Carcinogen	Harmonic Mean		7.25%	7.25%	7.25%	7.25%	7.25%	7.25%
Calculated Dilution Factors (DF) (or enter Modeled DFs)	Aquatic Life - Acute	1Q10	3.85	3.85	3.85	3.85	3.85	3.85	3.85
	Aquatic Life - Chronic	7Q10 or 4B3		38.9	38.9	38.9	38.9	38.9	38.9
	Aquatic Life - Chronic Ammonia	30B3 or 30Q10/30Q5	60.9	60.9	60.9	60.9	60.9	60.9	60.9
	Human Health - Non-Carcinogen	Harmonic Mean		54.3	54.3	54.3	54.3	54.3	54.3
	Human Health - Carcinogen	Harmonic Mean		159.1	159.1	159.1	159.1	159.1	159.1

Aquatic Life Reasonable Potential Analysis

σ	$\sigma^2=\ln(CV^2+1)$		0.555	0.555	0.555	0.555	0.555	0.536	0.555
P_n	=(1-confidence level)$^{1/n}$, where confidence level =	99%	0.464	0.010	0.010	0.010	0.010	0.702	0.010
Multiplier (TSD p. 57)	$=\exp(z\sigma-0.5\sigma^2)/\exp[\text{normsinv}(P_n)\sigma-0.5\sigma^2]$, where	99%	3.8	13.2	13.2	13.2	13.2	2.6	13.2
Statistically projected critical discharge concentration (C_e)			4582	7522.22	1161.33	87891.22	24018.32	450.51	527.88
Predicted max. conc.(ug/L) at Edge-of-Mixing Zone		Acute	1205	1998	--	23421	6259	117.3	137.1
(note: for metals, concentration as dissolved using conversion factor as translator)		Chronic	95	252	--	3039	645	15.1	13.6
Reasonable Potential to exceed Aquatic Life Criteria			**NO**	**YES**	**--**	**YES**	**NA**	**YES**	**NO**

Aquatic Life Effluent Limit Calculations

Number of Compliance Samples Expected per month (n)									
n used to calculate AML (if chronic is limiting then use min=4 or for ammonia min=30)			--	1	--	4	--	1	--
LTA Coeff. Var. (CV), decimal	(Use CV of data set or default = 0.6)		--	0.600	0.600	0.600	--	0.577	--
Permit Limit Coeff. Var. (CV), decimal	(Use CV from data set or default = 0.6)		--	0.600	0.600	0.600	--	0.577	--
Acute WLA, ug/L	C_d = (Acute Criteria x MZ_a) - C_u x (MZ_a-1)	Acute	--	1,500	--		--	74.4	--
Chronic WLA, ug/L	C_d = (Chronic Criteria x MZ_c) - C_u x (MZ_c-1)	Chronic	--	6,128	--	8,580.0	--	723.9	--
Long Term Ave (LTA), ug/L	WLAa x $\exp(0.5\sigma^2-z\sigma)$, Acute	99%	--	481.5	--	--	--	24.7	--
(99th % occurrence prob.)	WLAc x $\exp(0.5\sigma^2-z\sigma)$; ammonia n=30, Chronic	99%	--	3,232.0	--	4,524.9	--	390.4	--
Limiting LTA, ug/L	used as basis for limits calculation		--	481.5	--	4,524.9	--	24.7	--
Applicable Metals Criteria Translator (metals limits as total recoverable)				--	--	--	--	0.98	--
Average Monthly Limit (AML), ug/L , where % occurrence prob =		95%	**--**	**1028**	**--**	**7024**	**--**	**53**	**--**
Maximum Daily Limit (MDL), ug/L , where % occurrence prob =		99%	**--**	**1500**	**--**	**14095**	**--**	**76**	**--**
Average Monthly Limit (AML), mg/L			**--**	**1.028**	**--**	**7.02**	**--**	**0.053**	**--**
Maximum Daily Limit (MDL), mg/L			**--**	**1.500**	**--**	**14.1**	**--**	**0.076**	**--**
Average Monthly Limit (AML), lb/day			**--**	**2.73**	**--**	**18.7**	**--**	**0.14**	**--**
Maximum Daily Limit (MDL), lb/day			**--**	**3.99**	**--**	**38**	**--**	**0.20**	**--**

Human Health Reasonable Potential Analysis

σ	$\sigma^2=\ln(CV^2+1)$		0.555	0.555	0.555	0.555	0.536	0.555
P_n	=(1-confidence level)$^{1/n}$ where confidence level =	95%	0.050	0.050	0.050	0.050	0.794	0.050
Multiplier	$=\exp(2.326\sigma-0.5\sigma^2)/\exp[\text{invnorm}(P_N)\sigma-0.5\sigma^2]$, prob. =	50%	2.490	2.490	2.490	2.490	0.644	2.490
Dilution Factor (for Human Health Criteria)			54.3	159.1	54.3	54.3	54.3	159.1
Max Conc. at edge of Chronic Zone, ug/L (C_d)			26.121	1.377	584.963	96.559	3.062	0.626
Reasonable Potential to exceed HH Water & Organism			**NO**	**#N/A**	**YES**	**YES**	**NO**	**NO**
Reasonable Potential to exceed HH Organism Only			**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Table 8: Reasonable Potential and Effluent Limit Calculations for Outfall 001 (November - June)

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

Facility Name	Potlatch Deltic St. Maries 001 Summer
Facility Flow (mgd)	1.10
Facility Flow (cfs)	1.70

Critical River Flows (CFS)		(IDAPA 58.01.02 03. b)	Annual Crit. Flows	Annual Crit. Flows	Annual Crit. Flows	Annual Crit. Flows	Annual Crit. Flows	Annual Crit. Flows	Annual Crit. Flows
Aquatic Life - Acute Criteria - Criterion Max. Concentration (CMC)	**1Q10**		125	125	125	125	125	125	125
Aquatic Life - Chronic Criteria - Criterion Continuous Concentration (CCC)	**7Q10 or 4B3**		258	258	258	258	258	258	258
Ammonia	**30B3 or 30Q10/30Q5** (seasonal)		408	408	408	408	408	408	408
Human Health - Non-Carcinogen	**30Q5**		363	363	363	363	363	363	363
Human Health - carcinogen	**Harmonic Mean Flow**		1076	1,076	1,076	1,076	1,076	1,076	1,076

DF at defined percent of river flow allow	13.6%	**11.0**
DF at defined percent of river flow allow	25%	**38.9**

Receiving Water Data		Notes:	Annual Crit. Flows
Hardness, as mg/L $CaCO_3$	= 100 mg/L	5th % at critical flows	
Temperature, °C	Temperature, °C	95th percentile	22.78
pH, S.U.	pH, S.U.	95th percentile	7.5

Pollutants of Concern			AMMONIA, default: cold water, fish early life stages	ALUMINUM, total recoverable	Barium	IRON	MANGANESE	ZINC - SEE Toxic BiOp	Boron
Effluent Data	**Number of Samples in Data Set (n)**		6	1	1	1	1	13	1
	Coefficient of Variation (CV) = Std. Dev./Mean (default CV = 0.6)		0.6	0.6	0.6	0.6	0.6	0.577	0.6
	Effluent Concentration, µg/L (Max. or 95th Percentile) - (C_e)		1,200	570	88	6660	1820	172	40
	Calculated 50th % Effluent Conc. (when n>10), Human Health Only							65	
Receiving Water Data	**90th Percentile Conc., µg/L - (C_u)**		20	60		800	28.04	3.82	
	Geometric Mean, µg/L, Human Health Criteria Only					285	13.4	1.9	
Applicable Water Quality Criteria	Aquatic Life Criteria, µg/L	Acute	13,283	434.	#N/A	--	--	22.15	
	Aquatic Life Criteria, µg/L	Chronic	2,562	216.	#N/A	1,000.	--	22.33	750.
	Human Health Water and Organism, µg/L		--	--	#N/A	300.	50.	870.	
	Human Health, Organism Only, µg/L		--	--	1,000.	--	--	1,500.	
	Metals Criteria Translator, decimal (or default use Conversion Factor)	Acute		--	--	--	--	.978	1
		Chronic		--	--	--	--	.986	1
	Carcinogen (Y/N), Human Health Criteria Only		--	N	--	N	N	N	--
Percent River Flow Default Value = **25%**	**Aquatic Life - Acute**	**1Q10**	14%	14%	14%	14%	14%	14%	14%
	Aquatic Life - Chronic	7Q10 or 4B3		25%	25%	25%	25%	25%	25%
		30B3 or 30Q10/30Q5		25%	25%	25%	25%	25%	25%
	Human Health - Non-Carcinogen	Harmonic Mean	14%	25%	25%	25%	25%	25%	25%
	Human Health - Carcinogen	Harmonic Mean		25%	25%	25%	25%	25%	25%
Calculated Dilution Factors (DF) (or enter Modeled DFs)	Aquatic Life - Acute	1Q10	11.0	11.0	11.0	11.0	11.0	11.0	11.0
	Aquatic Life - Chronic	7Q10 or 4B3		38.9	38.9	38.9	38.9	38.9	38.9
	Aquatic Life - Chronic Ammonia	30B3 or 30Q10/30Q5	33.6	60.9	60.9	60.9	60.9	60.9	60.9
	Human Health - Non-Carcinogen	Harmonic Mean		54.3	54.3	54.3	54.3	54.3	54.3
	Human Health - Carcinogen	Harmonic Mean		159.1	159.1	159.1	159.1	159.1	159.1

Aquatic Life Reasonable Potential Analysis

σ	$\sigma^2=\ln(CV^2+1)$		0.555	0.555	0.555	0.555	0.555	0.536	0.555
P_n	=(1-confidence level)$^{1/n}$, where confidence level =	99%	0.464	0.010	0.010	0.010	0.010	0.702	0.010
Multiplier (TSD p. 57)	=exp(zσ-0.5σ^2)/exp[normsinv(P_n)σ-0.5σ^2], where	99%	3.8	13.2	13.2	13.2	13.2	2.6	13.2
Statistically projected critical discharge concentration (C_d)			4582	7522.22	1161.33	87891.22	24018.32	450.51	527.88
Predicted max. conc.(ug/L) at Edge-of-Mixing Zone		Acute	435	738	--	8717	2209	43.5	48.0
(note: for metals, concentration as dissolved using conversion factor as translator)		Chronic	156	252	--	3039	645	15.1	13.6
Reasonable Potential to exceed Aquatic Life Criteria			**NO**	**YES**	**--**	**YES**	**NA**	**YES**	**NO**

Aquatic Life Effluent Limit Calculations

Number of Compliance Samples Expected per month (n)									
n used to calculate AML (if chronic is limiting then use min=4 or for ammonia min=30)			--	1	--	4	--	1	--
LTA Coeff. Var. (CV), decimal	(Use CV of data set or default = 0.6)		--	0.600	0.600	0.600	--	0.577	--
Permit Limit Coeff. Var. (CV), decimal	(Use CV from data set or default = 0.6)		--	0.600	0.600	0.600	--	0.577	--
Acute WLA, ug/L	C_d = (Acute Criteria x MZ_a) - C_u x (MZ_a-1)	Acute	--	4,174	--		--	205.4	--
Chronic WLA, ug/L	C_d = (Chronic Criteria x MZ_c) - C_u x (MZ_c-1)	Chronic	--	8,129	--	8,580.7	--	724.0	--
Long Term Ave (LTA), ug/L	WLAa x exp(0.5σ^2-zσ), Acute	99%	--	1,339.9	--	--	--	68.2	--
(99th % occurrence prob.)	WLAc x exp(0.5σ^2-zσ); ammonia n=30, Chronic	99%	--	3,232.3	--	4,525.3	--	390.4	--
Limiting LTA, ug/L	used as basis for limits calculation		--	1,339.9	--	4,525.3	--	68.2	--
Applicable Metals Criteria Translator (metals limits as total recoverable)				--	--	--	--	0.98	--
Average Monthly Limit (AML), ug/L , where % occurrence prob =		95%	**--**	**2860**	**--**	**7025**	**--**	**146**	**--**
Maximum Daily Limit (MDL), ug/L , where % occurrence prob =		99%	**--**	**4174**	**--**	**14096**	**--**	**210**	**--**
Average Monthly Limit (AML), mg/L			**--**	**2.860**	**--**	**7.02**	**--**	**0.146**	**--**
Maximum Daily Limit (MDL), mg/L			**--**	**4.174**	**--**	**14.1**	**--**	**0.210**	**--**
Average Monthly Limit (AML), lb/day			**--**	**26.24**	**--**	**64.4**	**--**	**1.34**	**--**
Maximum Daily Limit (MDL), lb/day			**--**	**38.29**	**--**	**129**	**--**	**1.93**	**--**

Human Health Reasonable Potential Analysis

σ	$\sigma^2=\ln(CV^2+1)$			0.555	0.555	0.555	0.555	0.536	0.555
P_n	=(1-confidence level)$^{1/n}$ where confidence level =	95%		0.050	0.050	0.050	0.050	0.794	0.050
Multiplier	=exp(2.326σ-0.5σ^2)/exp[invnorm(P_N)σ-0.5σ^2], prob. =	50%		2.490	2.490	2.490	2.490	0.644	2.490
Dilution Factor (for Human Health Criteria)				54.3	159.1	54.3	54.3	54.3	159.1
Max Conc. at edge of Chronic Zone, ug/L (C_d)				26.119	1.377	584.936	96.551	3.061	0.626
Reasonable Potential to exceed HH Water & Organism				**NO**	**#N/A**	**YES**	**YES**	**NO**	**NO**
Reasonable Potential to exceed HH Organism Only				**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Table 9: Reasonable Potential and Effluent Limit Calculations for Outfall 002

Pollutants of Concern			ZINC - SEE Toxic BiOp
Effluent Data	**Number of Samples in Data Set (n)**		14
	Coefficient of Variation (CV) = Std. Dev./Mean (default CV = 0.6)		1.026861114
	Effluent Concentration, µg/L (Max. or 95th Percentile) - (C_e)		200
	Calculated 50th % Effluent Conc. (when n>10), Human Health Only		46
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	279.52
	Aquatic Life Criteria, µg/L	Chronic	281.808
	Human Health Water and Organism, µg/L		870.
	Human Health, Organism Only, µg/L		1,500.
	Metals Criteria Translator, decimal (or default use Conversion Factor)	Acute	.978
		Chronic	.986
	Carcinogen (Y/N), Human Health Criteria Only		N
Percent River Flow Default Value = **25%**	**Aquatic Life - Acute**	**1Q10**	0%
	Aquatic Life - Chronic	7Q10 or 4B3	0%
		30B3 or 30Q10/30Q5	0%
	Human Health - Non-Carcinogen	Harmonic Mean	0%
	Human Health - Carcinogen	Harmonic Mean	0%
Calculated Dilution Factors (DF) (or enter Modeled DFs)	Aquatic Life - Acute	1Q10	1.0
	Aquatic Life - Chronic	7Q10 or 4B3	1.0
	Aquatic Life - Chronic Ammonia	30B3 or 30Q10/30Q5	1.0
	Human Health - Non-Carcinogen	Harmonic Mean	1.0
	Human Health - Carcinogen	Harmonic Mean	1.0

Aquatic Life Reasonable Potential Analysis

σ	$\sigma^2=\ln(CV^2+1)$		0.849
P_n	$=(1\text{-confidence level})^{1/n}$, where confidence level =	**99%**	0.720
Multiplier (TSD p. 57)	$=\exp(z\sigma-0.5\sigma^2)/\exp[\text{normsinv}(P_n)\sigma-0.5\sigma^2]$, where	**99%**	4.4
Statistically projected critical discharge concentration (C_e)			878.78
Predicted max. conc.(ug/L) at Edge-of-Mixing Zone		Acute	859.44
(note: for metals, concentration as dissolved using conversion factor as translator)		Chronic	866.47
Reasonable Potential to exceed Aquatic Life Criteria			**YES**

Aquatic Life Effluent Limit Calculations

Number of Compliance Samples Expected per month (n)			0
n used to calculate AML (if chronic is limiting then use min=4 or for ammonia min=30)			0
LTA Coeff. Var. (CV), decimal	(Use CV of data set or default = 0.6)		1.027
Permit Limit Coeff. Var. (CV), decimal	(Use CV from data set or default = 0.6)		1.027
Acute WLA, ug/L	C_d = (Acute Criteria x MZ_a) - C_u x (MZ_a-1)	Acute	280
Chronic WLA, ug/L	C_d = (Chronic Criteria x MZ_c) - C_u x (MZ_c-1)	Chronic	282
Long Term Ave (LTA), ug/L	WLAa x $\exp(0.5\sigma^2-z\sigma)$, Acute	**99%**	55.7
(99th % occurrence prob.)	WLAc x $\exp(0.5\sigma^2-z\sigma)$; ammonia n=30, Chronic	**99%**	102.8
Limiting LTA, ug/L	used as basis for limits calculation		55.7
Applicable Metals Criteria Translator (metals limits as total recoverable)			0.98
Average Monthly Limit (AML), ug/L , where % occurrence prob =		**95%**	**--**
Maximum Daily Limit (MDL), ug/L , where % occurrence prob =		**99%**	**286**

Table 10: Reasonable Potential and Effluent Limit Calculations for Outfall 003

Pollutants of Concern			ZINC - SEE Toxic BiOp
Effluent Data	**Number of Samples in Data Set (n)**		14
	Coefficient of Variation (CV) = Std. Dev./Mean (default CV = 0.6)		0.831109225
	Effluent Concentration, µg/L (Max. or 95th Percentile) - (C_e)		184
	Calculated 50th % Effluent Conc. (when n>10), Human Health Only		58
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	279.52
	Aquatic Life Criteria, µg/L	Chronic	281.808
	Human Health Water and Organism, µg/L		870.
	Human Health, Organism Only, µg/L		1,500.
	Metals Criteria Translator, decimal (or default use Conversion Factor)	Acute	.978
		Chronic	.986
	Carcinogen (Y/N), Human Health Criteria Only		N
Percent River Flow Default Value = **25%**	**Aquatic Life - Acute**	**1Q10**	0%
	Aquatic Life - Chronic	7Q10 or 4B3	0%
		30B3 or 30Q10/30Q5	0%
	Human Health - Non-Carcinogen	Harmonic Mean	0%
	Human Health - Carcinogen	Harmonic Mean	0%
Calculated Dilution Factors (DF) (or enter Modeled DFs)	Aquatic Life - Acute	1Q10	1.0
	Aquatic Life - Chronic	7Q10 or 4B3	1.0
	Aquatic Life - Chronic Ammonia	30B3 or 30Q10/30Q5	1.0
	Human Health - Non-Carcinogen	Harmonic Mean	1.0
	Human Health - Carcinogen	Harmonic Mean	1.0

Aquatic Life Reasonable Potential Analysis

σ	$\sigma^2=\ln(CV^2+1)$		0.725
P_n	$=(1\text{-confidence level})^{1/n}$, where confidence level =	**99%**	0.720
Multiplier (TSD p. 57)	$=\exp(z\sigma-0.5\sigma^2)/\exp[\text{normsinv}(P_n)\sigma-0.5\sigma^2]$, where	**99%**	3.5
Statistically projected critical discharge concentration (C_e)			651.39
Predicted max. conc.(ug/L) at Edge-of-Mixing Zone		Acute	637.06
(note: for metals, concentration as dissolved using conversion factor as translator)		Chronic	642.27
Reasonable Potential to exceed Aquatic Life Criteria			**YES**

Aquatic Life Effluent Limit Calculations

Number of Compliance Samples Expected per month (n)			0
n used to calculate AML (if chronic is limiting then use min=4 or for ammonia min=30)			0
LTA Coeff. Var. (CV), decimal	(Use CV of data set or default = 0.6)		0.831
Permit Limit Coeff. Var. (CV), decimal	(Use CV from data set or default = 0.6)		0.831
Acute WLA, ug/L	C_d = (Acute Criteria x MZ_a) - C_u x (MZ_a-1)	Acute	279.5
Chronic WLA, ug/L	C_d = (Chronic Criteria x MZ_c) - $C_{u\ x}$ (MZ_c-1)	Chronic	281.8
Long Term Ave (LTA), ug/L	WLAa x $\exp(0.5\sigma^2-z\sigma)$, Acute	**99%**	67.3
(99th % occurrence prob.)	WLAc x $\exp(0.5\sigma^2-z\sigma)$; ammonia n=30, Chronic	**99%**	120.6
Limiting LTA, ug/L	used as basis for limits calculation		67.3
Applicable Metals Criteria Translator (metals limits as total recoverable)			0.98
Average Monthly Limit (AML), ug/L , where % occurrence prob =		**95%**	**--**
Maximum Daily Limit (MDL), ug/L , where % occurrence prob =		**99%**	**286**

Table 11: Reasonable Potential and Effluent Limit Calculations for Outfall 004

Pollutants of Concern			ZINC - SEE Toxic BiOp
Effluent Data	**Number of Samples in Data Set (n)**		13
	Coefficient of Variation (CV) = Std. Dev./Mean (default CV = 0.6)		0.901299941
	Effluent Concentration, µg/L (Max. or 95th Percentile) - (C_e)		584
	Calculated 50th % Effluent Conc. (when n>10), Human Health Only		119.5
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	279.52
	Aquatic Life Criteria, µg/L	Chronic	281.808
	Human Health Water and Organism, µg/L		870.
	Human Health, Organism Only, µg/L		1,500.
	Metals Criteria Translator, decimal (or default use Conversion Factor)	Acute	.978
		Chronic	.986
	Carcinogen (Y/N), Human Health Criteria Only		N
Percent River Flow Default Value = **25%**	**Aquatic Life - Acute**	**1Q10**	0%
	Aquatic Life - Chronic	7Q10 or 4B3	0%
		30B3 or 30Q10/30Q5	0%
	Human Health - Non-Carcinogen	Harmonic Mean	0%
	Human Health - Carcinogen	Harmonic Mean	0%
Calculated Dilution Factors (DF) (or enter Modeled DFs)	Aquatic Life - Acute	1Q10	1.0
	Aquatic Life - Chronic	7Q10 or 4B3	1.0
	Aquatic Life - Chronic Ammonia	30B3 or 30Q10/30Q5	1.0
	Human Health - Non-Carcinogen	Harmonic Mean	1.0
	Human Health - Carcinogen	Harmonic Mean	1.0

Aquatic Life Reasonable Potential Analysis

σ	$\sigma^2=\ln(CV^2+1)$		0.771
P_n	$=(1\text{-confidence level})^{1/n}$, where confidence level =	**99%**	0.702
Multiplier (TSD p. 57)	$=\exp(z\sigma-0.5\sigma^2)/\exp[\text{normsinv}(P_n)\sigma-0.5\sigma^2]$, where	**99%**	4.0
Statistically projected critical discharge concentration (C_e)			2334.67
Predicted max. conc.(ug/L) at Edge-of-Mixing Zone		Acute	2283.31
(note: for metals, concentration as dissolved using conversion factor as translator)		Chronic	2301.99
Reasonable Potential to exceed Aquatic Life Criteria			**YES**

Aquatic Life Effluent Limit Calculations

Number of Compliance Samples Expected per month (n)			0
n used to calculate AML (if chronic is limiting then use min=4 or for ammonia min=30)			0
LTA Coeff. Var. (CV), decimal	(Use CV of data set or default = 0.6)		0.901
Permit Limit Coeff. Var. (CV), decimal	(Use CV from data set or default = 0.6)		0.901
Acute WLA, ug/L	C_d = (Acute Criteria x MZ_a) - C_u x (MZ_a-1)	Acute	279.5
Chronic WLA, ug/L	C_d = (Chronic Criteria x MZ_c) - $C_{u\ x}$ (MZ_c-1)	Chronic	281.8
Long Term Ave (LTA), ug/L	WLAa x $\exp(0.5\sigma^2-z\sigma)$, Acute	**99%**	62.6
(99th % occurrence prob.)	WLAc x $\exp(0.5\sigma^2-z\sigma)$; ammonia n=30, Chronic	**99%**	113.7
Limiting LTA, ug/L	used as basis for limits calculation		62.6
Applicable Metals Criteria Translator (metals limits as total recoverable)			0.98
Average Monthly Limit (AML), ug/L , where % occurrence prob =		**95%**	**--**
Maximum Daily Limit (MDL), ug/L , where % occurrence prob =		**99%**	**286**

Table 12: Performance-based Effluent Limits for TSS for Outfall 001

Performance-based Effluent Limits

INPUT			Pollutant (mg/L)	ln(Pollutant conc)
LogNormal Transformed Mean:	4.2311		135	4.905
LogNormal Transformed Variance:	0.3638		49	3.892
Number of Samples per month for compliance monitoring:	1		40	3.689
Autocorrelation factor (n_e) (use 0 if unknown):	0		50	3.912
OUTPUT			99	4.595
E(X) =	82.5202		27	3.296
V(X) =	2988.103		47	3.850
VARn	0.3638		62	4.127
MEANn=	4.2311		58	4.060
VAR(Xn)=	2988.103		215	5.371
Maximum Daily Effluent Limit:	**280**		66	4.190
Average Monthly Effluent Limit:	**186**		172	5.147
185.5550795	172.4417148		53	3.970

Table 13: Performance-based Effluent Limit for TSS for Outfall 002

Performance-based Effluent Limits

INPUT		Pollutant (mg/L)	ln(Pollutant conc)
LogNormal Transformed Mean:	3.5208	88	4.477
LogNormal Transformed Variance:	0.8287	7	1.946
Number of Samples for compliance monitoring:	3	25	3.219
Autocorrelation factor (n_e) (use 0 if unknown):	0	50	3.912
OUTPUT		49	3.892
E(X) =	51.1680	14	2.639
V(X) =	3378.426	30	3.401
VARn	0.3578	106	4.663
MEANn=	3.7562	14	2.639
VAR(Xn)=	1126.142	83	4.419
Average Effluent Limit:	**114**		

Table 14: Performance-based Effluent Limit for TSS for Outfall 003

Performance-based Effluent Limits

INPUT		Pollutant ($m_{g/L}$)	ln(Pollutant conc)
LogNormal Transformed Mean:	4.2938	30	3.401
LogNormal Transformed Variance:	0.8959	216	5.375
Number of Samples for compliance monitoring:	3	110	4.700
Autocorrelation factor (n_e) (use 0 if unknown):	0	159	5.069
OUTPUT		16	2.773
E(X) =	114.6315	106	4.663
V(X) =	19048.502	205	5.323
VARn	0.3942	15	2.708
MEANn=	4.5446	114	4.736
VAR(Xn)=	6349.501	71	4.263
		68	4.220
Average Effluent Limit:	**264**		

Table 15: Performance-based Effluent Limit for TSS for Outfall 004

Performance-based Effluent Limits

INPUT		Pollutant ($m_{g/L}$)	ln(Pollutant conc)
LogNormal Transformed Mean:	5.6614	1280	7.155
LogNormal Transformed Variance:	1.1230	1190	7.082
Number of Samples for compliance monitoring:	3	51	3.932
Autocorrelation factor (n_e) (use 0 if unknown):	0	333	5.808
OUTPUT		245	5.501
E(X) =	504.1740	92	4.522
V(X) =	527212.505	107	4.673
VARn	0.5255	636	6.455
MEANn=	5.9602	200	5.298
VAR(Xn)=	175737.502	302	5.710
		398	5.986
Average Effluent Limit:	**1278**	111	4.710
1277.518899	1193.775385	1580	7.365
		158	5.063