

## **Response to Comments**

City of Kendrick Wastewater Treatment Plant

NPDES Permit Number: ID0024554

June 27, 2018

On May 16, 2018, the U.S. Environmental Protection Agency Region 10 (EPA) issued a public notice for the proposed reissuance of the City of Kendrick (Kendrick) Wastewater Treatment Plant (WWTP) draft National Pollutant Discharge Elimination System (NPDES) Permit No. ID0024554. The public comment period closed on June 16, 2018.

During the public comment period, the EPA received comments from the following:

- Matthew Nykiel, Idaho Conservation League (ICL)
- Ryan Rehder, Mountain Waterworks on behalf of Kendrick

This document presents the comments received and provides corresponding response to those comments. As a result of comments received, the following revisions were made to the permit:

- The schedule of compliance for Ammonia has been extended from five years to six years.
- Final Ammonia limits have been updated.

### **Comment 1. Design Flow (ICL)**

The EPA calculated permit limits based on improperly setting the Kendrick WWTP's design flow at 0.128 mgd. EPA should correct this and adjust calculations in the Fact Sheet that use design flow according to Kendrick WWTP's true design flow, 0.08 mgd.

Federal regulation defines "design flow" as "the wastewater flow rate the plant was built to handle." On page 8 of the Fact Sheet, EPA states, "The existing permit is based on a facility design flow of 0.08 mgd. The 2009 application again stated that the design flow of the facility is 0.08 mgd." But, instead of using 0.08 mgd, EPA used the "average day maximum month design flow," which the permittee asserts is 0.128 mgd – an increase of 60%. To our knowledge, the Kendrick WWTP has not undergone any modification, retrofit, or upgrade that may have altered or increase the facility's design flow. Indeed, neither the permittee nor EPA cited such facility alteration or provided evidence explaining why an increase in the facility's design flow is justified.

Analyzing the design flow for the City of Harrison WWTP, EPA stated the following:

"The permit application form states the design flow is 0.04 mgd compared to the previous permit application form when the design flow was 0.03 mgd. The EPA and IDEQ have not received engineering reports or information indicating that the design flow in the previous permit application of 0.03 mgd was incorrect. The EPA and IDEQ are also not aware of any engineering changes that would allow for an expanded design capacity.

Therefore, the permit limits are written for an expanded design capacity. Therefore, the permit limits are written for a design flow of 0.03 mgd.”

Given the standard EPA applied to the City of Harrison WWTP, EPA must apply the same standard and set the City of Kendrick WWTP design flow to 0.08 mgd and adjust the effluent limits accordingly.

In the alternative, we request EPA provide the technical documents that identify the Kendrick facility’s design flow and explain the circumstances that authorize increasing the facility’s design flow by 60%, even though the facility has not been replaced or undergone a major modification.

**Response 1.**

The commenter is correct in noting that the facility has not undergone any upgrades that would result in an increase in design flow. On page 8 of the Fact Sheet, the EPA explains that 0.08 mgd represents the average day design flow and 0.128 mgd represents the average day maximum month design flow of the facility. The maximum monthly flow is the average flow that the facility can handle during the maximum month. The average day maximum month design flow is a more appropriate flow to use when conducting the reasonable potential analysis and developing water quality-based effluent limits (WQBELS). Using the maximum monthly design flow of 0.128 mgd is more protective than using 0.08 mgd. A larger design flow results in more stringent concentration limits for WQBELS. Although higher design flows can result in higher mass-based limits, the permit retains the existing mass-based limits (based on 0.08 mgd) because of the prohibition on backsliding.

The design flow of a facility is different for different averaging periods. *Facility Plan, City of Kendrick July 2015* lists different design flows for the facility, including the average day maximum month design flow of 0.128 mgd (128,000 gpd), in Table 15 on page 28 (recreated below).

Flow Designation	Influent Flow (gpd)	Per Capita Flow (gpd)
Design Flow	93,000	266
Maximum Month	128,000	366
Maximum Week	163,000	466
Maximum Day	198,000	566
Minimum Month	60,000	171
Minimum Week	47,000	134
Minimum Day	40,000	114

Table 15: Proposed Influent Design Flows for 350 People

No changes to the permit resulted from this comment.

**Comment 2. Critical Low Flow (ICL)**

EPA’s calculation of the critical low flow in the Potlatch River is artificially high because EPA based its determination on flow data from a stream gauge at least 10 miles downstream from Kendrick WWTP’s outfall point, which includes the flow of at least two downstream drainages.

At page 12 of the Fact Sheet, EPA states that USGS 13341570 was utilized to determine river conditions within the Potlatch River at Kendrick WWTP outfall location. However, this gauge station is well downstream from where the Kendrick facility discharges. In fact, both the Middle Potlatch Creek and Lower Potlatch Creek enter the Potlatch River downstream of the Kendrick outfall location but before the USGS gauge station.

During the spring months the Middle Potlatch Creek can reach flows of 190 cfs. So, without acknowledging that the addition of flows from Middle and Lower Potlatch Creeks, EPA skewed the critical low flows calculated in the Fact Sheet, especially the Seasonal Flows for November 1 – May 31.

Accordingly, EPA should revise the critical low flow for Kendrick WWTP's draft permit to account for the discrepancy between the flows at the outfall locations and the flows at the USGS gauge station. The effluent limits based on critical low flow must also be revised accordingly.

In addition, we request EPA include a monthly surface water flow monitoring permit requirement to more accurately determine receiving water flow conditions at the permittee's outfall location. The Draft Permit currently only requires quarterly flow samples. However, if the permittee wishes to request a mixing zone based on flow conditions at its outfall location, the permittee must be able to show the receiving water's dilution capacity.

## **Response 2.**

The EPA agrees that there are downstream drainages contributing to the flow of the Potlatch River between Kendrick's discharge location and the USGS 13341570 stream gauge. However, the critical low flows used in the analyses are reasonable.

As explained on Page 97 of the *Technical Support Document for Water Quality-based Toxics Control* (TSD) (EPA 1991), the steady state modeling techniques used in the reasonable potential analysis and effluent limit calculations for the permit are inherently conservative, since they apply a combination of worst-case assumptions which each have a low probability of occurrence and therefore an even lower probability of occurring simultaneously. Thus, the EPA believes the small amount of error in the critical low flow estimates is acceptable and the effluent limits are protective.

Regarding the request to include monthly surface water flow monitoring, the EPA does not believe this is necessary. The USGS 13341570 stream gauge has daily data for flow, and as mentioned above, this data is adequate for developing permit conditions.

In responding to this comment, the EPA also reviewed other assumptions used in the reasonable potential analysis and water quality based effluent limit calculations. Upon review of those assumptions, the EPA updated the background ammonia concentration used in the calculations. In developing the draft permit, the EPA used the maximum recorded ammonia concentration. In the final permit, the EPA relied on the 90<sup>th</sup> percentile (220 ug/L). The 90<sup>th</sup> percentile is a more appropriate value given the conservative assumption inherent to the calculations and is consistent with Region 10's permitting practices.

The changes are summarized in the table below.

	Draft Permit		Final Permit	
	Jun-Oct	Nov-May	Jun-Oct	Nov-May
<b>Average Monthly Limit</b>	150 µg/L	12,120 µg/L	230 µg/L	13,270 µg/L
	0.16 lbs/d	12.9 lbs/d	0.25 lbs/d	14.17 lbs/d
<b>Maximum Daily Limit</b>	380 µg/L	24,330 µg/L	610 µg/L	26,640 µg/L
	0.42 lbs/d	25.9 lbs/d	0.65 lbs/d	28.44 lbs/d

The permittee must meet these effluent limits by the end of the compliance schedule set forth in the permit.

Changes to the permit are summarized in the table above and in Appendix A.

**Comment 3.** Floodplain Discharge – Critical Low Flow and Mixing Zone (ICL)

EPA and DEQ did not account for the fact that the Kendrick WWTP discharges onto a flood plain 900 feet from the Potlatch River, and there are several aspects of the Draft Permit and 401 Certification that must be amended in light of this fact.

As outlined above, EPA determined critical low flow based on a USGS stream gauge downstream of Kendrick on the Potlatch River, and this dramatically overstates the flow of water where the Kendrick facility actually discharges. Satellite imagery suggests that the Kendrick WWTP often discharges onto the floodplain when there is zero flow. In fact, not one of the available satellite images suggests Kendrick discharges onto the floodplain with flow present.

As such, EPA must assign a critical low flow of 0 cfs for this facility and impose end-of-pipe effluent limits in this NPDES permit. Similarly, neither EPA nor DEQ can authorize a mixing zone for the Kendrick WWTP, and effluent limits must be recalculated without consideration of a mixing zone.

If DEQ insists on authorizing a mixing zone, we request DEQ explain how the permittee’s discharge onto the floodplain complies with the effective Mixing Zone Rules at IDAPA 58.01.02.060.01.e.i.-iv. (2014).

**Response 3.**

In its NPDES permit application, Kendrick indicated that the WWTP discharges to the Potlatch River. The Potlatch River is a water of the US. The EPA acknowledges that the WWTP’s effluent discharges to the Potlatch River via a floodplain, however, this does not warrant imposition of end-of-pipe effluent limits because the EPA develops limits based on water quality standards in the river. Critical low flows in the Potlatch River are above zero, therefore no end-of-pipe limits are warranted. Furthermore, IDEQ authorized mixing zones based upon the quality

of the effluent at the point where the effluent discharges into the Potlatch River, not where the effluent discharges into the floodplain.

No changes to the permit resulted from this comment.

**Comment 4.** Floodplain Discharge – Spalding’s Catchfly (ICL)

EPA and DEQ did not account for the fact that the Kendrick WWTP discharges onto a flood plain 900 feet from the Potlatch River, and there are several aspects of the Draft Permit and 401 Certification that must be amended in light of this fact.

In Appendix H, EPA improperly determined not to address the potential effects Kendrick’s NPDES permit might have on the threatened plant species, the Spalding’s Catchfly. EPA made this determination based on the erroneous assumption that the Spalding’s Catchfly had no exposure pathway for pollutants discharged by the City of Kendrick, forgetting that the Kendrick WWTP discharges onto a floodplain with varying levels of water. As a result, Spalding’s Catchfly may be present and within a pathway of exposure to Kendrick’s wastewater discharge. Therefore, EPA must conduct further ESA analysis and consultation with the U.S. Fish and Wildlife Service.

We request EPA reissue the draft permit and Fact Sheet after conducting and providing an analysis of potential impact to Spalding’s Catchfly. Alternatively, we request EPA explain why such an analysis is not required in this case.

**Response 4.**

Figure 10 of the September 2007 *Recovery Plan for Silene spaldingii* (Spalding’s Catchfly) shows the 18 populations and key conservation areas for the species within the Palouse Grasslands physiographic region. None of these sightings are geographically close to Kendrick’s WWTP outfall. To be conservative, the EPA looked at a 2-mile buffer around each of the 18 populations and key conservation areas and found that these areas were still not close to Kendrick’s outfall. Page 9 of the recovery plan states that “genetic exchange via pollen transfer would typically not occur over a distance greater than 1 mile.” Given this information it is unlikely for a population of Spalding’s Catchfly to reside in the floodplain near Kendrick’s WWTP outfall without being recognized during field surveys.

No changes to the permit resulted from this comment.

**Comment 5.** BOD5, Total Suspended Solids, *E. coli*, Total Residual Chlorine (Kendrick)

The upgraded treatment plant is designed to meet the effluent limitations and no changes are suggested. Monitoring requirements are agreeable.

**Response 5.**

Comment noted.

No changes to the permit resulted from this comment.

**Comment 6.** pH (Kendrick)

The upgraded treatment plant made no modifications that would alter the pH from historic levels. In our opinion two of the data points previously submitted seemed outside regularly encountered values and are not representative of typical values present at treatment plants. Monitoring requirements are agreeable.

**Response 6.**

Comment noted.

No changes to the permit resulted from this comment.

**Comment 7.** Total Ammonia (June 1- October 31) (Kendrick)

The upgraded treatment plant is not capable of achieving these levels and future improvements would be necessary. Monitoring requirements are agreeable. We are currently negotiating a Facility Plan Amendment to address the ammonia issue and anticipate the revised Facility Plan will be ready within the one-year time frame. At this time, we anticipate needing additional funding for the Final Design of the selected alternative and request the time line for compliance be extended from two years to three years. Subsequently, the remaining time frames for Award Bid for Construction, Construction Complete and Meet Effluent Limitation for Ammonia would also need to be extended by one year such that meeting the effluent limitation would occur six years from the effective date of the Permit.

**Response 7.**

The EPA agrees with the commenter that the facility is not currently able to comply with these Ammonia limits and that the facility planning process, including procuring funding, can take some time. 40 CFR 122.47(3)(ii) states that if the time necessary for completion of any interim requirement is more than 1 year and is not readily divisible into stages for completion, the permit shall specify interim dates for the submission of reports of progress toward completion of the interim requirements and indicate a projected completion date. To that end, Kendrick is required to provide the EPA with a written update on the progress for procuring funding for the Final Design two years after the effective date of the permit and will be required to select the Final Design three years after the effective date of the permit. Interim dates for Award Bid for Construction, Construction Complete and Meet Effluent Limitation for Ammonia will each be extended one year so that Meet Effluent Limitation for Ammonia will occur six years from the effective date of the permit.

IDEQ has authorized this 6-year compliance schedule in the Final 401 Water Quality Certification.

The following is a summary of the changes to the permit as a result of this comment.

Draft Permit Compliance Schedule for Ammonia		Final Permit Compliance Schedule for Ammonia	
Due By*	Task Activity	Due By*	Task Activity
8/31/2019	Facility Plan	8/31/2019	Facility Plan
8/31/2020	Final Design	8/31/2020	Progress Report on Final Design
8/31/2021	Award Bid for Construction	8/31/2021	Final Design
8/31/2022	Construction Complete	8/31/2022	Award Bid for Construction
9/1/2023	Meet Effluent Limitation for Ammonia	8/31/2023	Construction Complete
--	--	9/1/2024	Meet Effluent Limitation for Ammonia

\*Given a permit effective date of September 1, 2018.

**Comment 8.** Total Ammonia (November 1 – May 31) (Kendrick)

The upgraded treatment plant will be capable of meeting these limits during certain operational conditions but will need to rely on new unit operations, that will be identified in the Facility Plan Amendment, to achieve full compliance.

**Response 8.**

The EPA agrees that the existing system may not comply with the permit limit and will require modifications. To accommodate the challenges of upgrading the system, the draft included a 5-year (extended to 6-year, see Response 7.) compliance schedule with interim limits. The permittee must comply with the Final Ammonia effluent limits no later than 6 years after the permit effective date. In its Final 401 Water Quality Certification IDEQ authorizes a 6-year compliance schedule for final Ammonia effluent limits. Furthermore, IDEQ also authorizes interim limits for Ammonia.

No changes to the permit resulted from this comment.

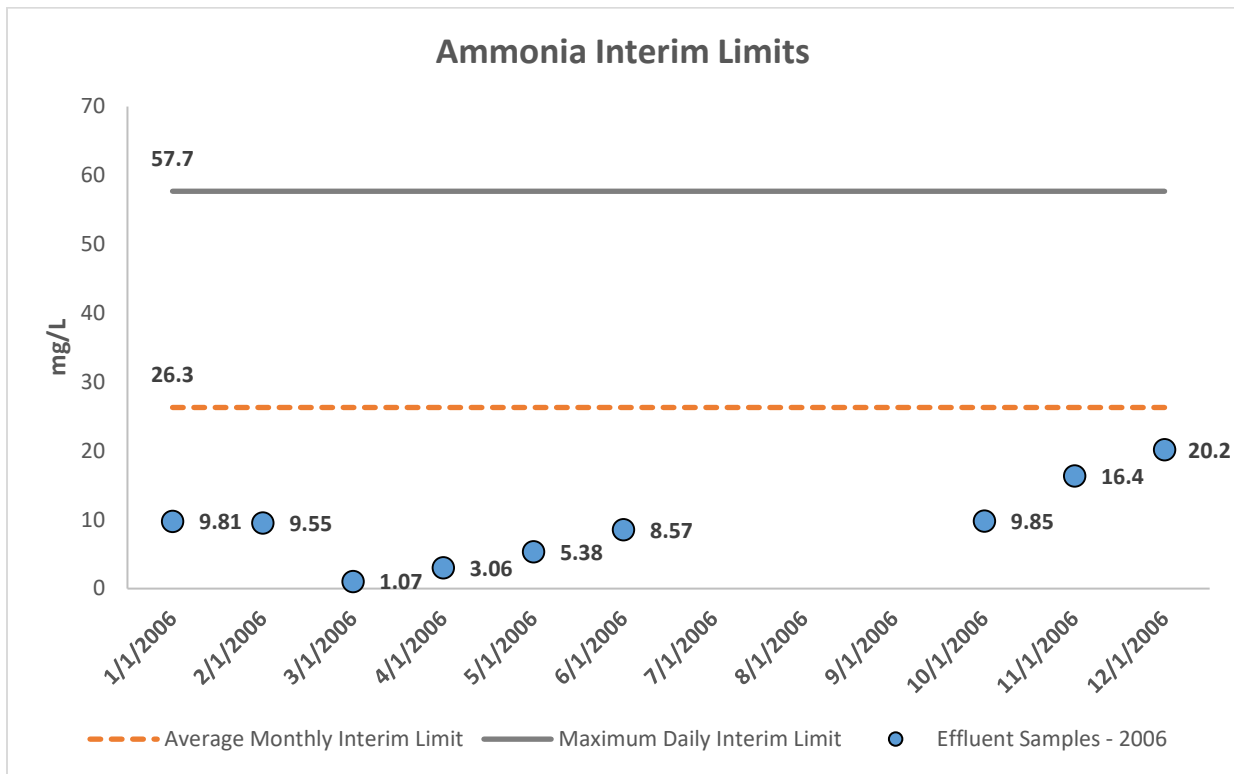
**Comment 9.** Ammonia (As N – Interim) (Kendrick)

The upgraded treatment plant may at times meet the listed limitations. However, the treatment plant was not specifically designed to reduce ammonia effluent concentrations. We have limited operational strategies to meet the proposed limits should weather patterns be unfavorable for an

extended period of time. We would request that the interim limits be removed from the permit but are agreeable to continue monitoring and collecting effluent ammonia data.

**Response 9.**

As part of its current permit, Kendrick was required to monitor effluent Ammonia concentrations during 2006. Kendrick reported nine values within the range of 1.07 – 20.2 mg/L. As stated in Appendix E of the Fact Sheet, EPA used these measured concentrations to develop performance based effluent limits consistent with EPA’s *Technical Support Document for Water Quality-based Toxics Control*. Performance based calculations assume pollutant discharges are lognormally distributed to determine monthly average and daily maximum permit limits. The interim limits included in the permit will ensure that the facility is making the necessary changes to improve treatment operations and move towards compliance with the final effluent limits as soon as possible. As can be seen below, this methodology accounts for variability in effluent discharge and both the maximum daily limit and average monthly limit are greater than any observed values at the wastewater treatment plant. The EPA will not remove interim Ammonia limits from the permit.



No changes to the permit resulted from this comment.



**Comment 10.** Temperature (Kendrick)

The upgraded treatment plant is not capable of altering the wastewater temperature in a favorable manor with respect to significantly cooling the receiving stream. Table 2, April 1 – July 15, suggest that under certain low stream flow conditions the City would need to cool the treatment plant effluent by upwards of 10 degrees C. This seems unrealistic and is likely unattainable. We object to the values listed in Table 2 and would like to meet to discuss the values. The alternatives listed in the Schedule of Compliance, Temperature are worthy of examination however, the City is not currently funded at a level that would allow us to make the three-year date for the initial examination of alternatives in conjunction with the ammonia reduction work. We would like to meet to discuss how we can address the temperature issue and its potential impacts to the selection of the ammonia treatment alternatives.

**Response 10.**

IDEQ's Final 2014 §303(b) Integrated Report lists the Potlatch River as impaired for Temperature. The Potlatch River is not meeting its salmonid spawning and cold water aquatic life beneficial uses due to temperature impairment. Kendrick discharges to an impaired waterbody and has received WLAs for temperature in Potlatch River Subbasin TMDLs (2008, 2017, and draft January 2018). The final temperature effluent limits found in the permit are consistent with both the most recent TMDL and with IDEQ's Final 401 Water Quality certification. Pursuant to 40 CFR 122.44(d)(1)(vii)(B), the EPA must include a WQBEL consistent with the assumptions and requirements of the TMDL and/or WLA.

The permit includes a compliance schedule for Temperature so that Kendrick is able to concurrently seek funding and evaluate potential solutions to meet both the Ammonia and Temperature final effluent limitations.

Temperature is an important issue with a critical period occurring April 1 – July 15 in the Potlatch River due to salmonid spawning. The EPA is willing to meet with Kendrick and discuss temperature and its impacts to possible ammonia treatment alternatives. Additionally, the EPA recommends Kendrick seek the assistance and expertise of DEQ to adequately discuss how to best achieve temperature effluent limitations.

No changes to the permit resulted from this comment.

**Comment 11.** Floating, Suspended, of Submerged Matter, Dissolved Oxygen, Total Phosphorus, Nitrate + Nitrite, Flow (Kendrick)

The City is agreeable to the permit limitations and reporting requirements.

**Response 11.**

Comment noted.

No changes to the permit resulted from this comment.

## ***References***

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

<https://www3.epa.gov/npdes/pubs/owm0264.pdf>

Mountain Waterworks. July 2015. *Wastewater Facility Plan, City of Kendrick, Wastewater Utility*. Mountain Waterworks, Inc.

U.S. Fish and Wildlife Service. 2007. Recovery Plan for *Silene spaldingii* (Spalding's Catchfly). U.S. Fish and Wildlife Service, Portland, Oregon. Xiii + 187 pages.

# Appendix A

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

Facility Name	Kendrick, City of
Facility Flow (mgd)	0.128
Facility Flow (cfs)	0.198

**Jun - Oct**      **Nov-May**  
Seasonal      Seasonal

### Critical River Flows

(IDAPA 58.01.02 03. b)

Low Flow      High Flow

Aquatic Life - Acute Criteria - Criterion Max. Concentration (CMC)	<b>1Q10</b>	0.16	12.70
Aquatic Life - Chronic Criteria - Criterion Continuous Concentration (CCC)	<b>7Q10 or 4B3</b>	0.21	14.90
Ammonia	<b>30B3/30Q10 (seasonal)</b>	0.51	29.10
		Seasonal	Seasonal

### Receiving Water Data

Temperature, °C  
pH, S.U.

Notes:  
Temperature, °C      95<sup>th</sup> percentile  
pH, S.U.      95<sup>th</sup> percentile

	Low Flow	High Flow
	24.72	15.26
	9.04	8.6

Pollutants of Concern			AMMONIA, default: cold water, fish early life stages	AMMONIA, default: cold water, fish early life stages
Effluent Data	<b>Number of Samples in Data Set (n)</b>		9	9
	<b>Coefficient of Variation (CV) = Std. Dev./Mean (default CV = 0.6)</b>		0.6	0.6
	<b>Effluent Concentration, µg/L (Max. or 95th Percentile) - (C<sub>e</sub>)</b>		20,200	20,200
Receiving Water Data	<b>90<sup>th</sup> Percentile Conc., µg/L - (C<sub>r</sub>)</b>		220	220
Applicable Water Quality Criteria	Aquatic Life Criteria, µg/L	Acute	831.8	1,770.834
	Aquatic Life Criteria, µg/L	Chronic	237.87	876.878
Percent River Flow Default Value = <b>25%</b>	<b>Aquatic Life - Acute</b>	<b>1Q10</b>	25%	25%
	Aquatic Life - Chronic	7Q10 or 4B3	--	--
	Ammonia	30B3 or 30Q10	25%	25%
	Human Health - Non-Carcinogen	30Q5	--	--
Calculated Dilution Factors (DF) (or enter Modeled DFs)	Aquatic Life - Acute	1Q10	1.2	17.0
	Aquatic Life - Chronic	7Q10 or 4B3		
	Ammonia - Chronic	30B3 or 30Q10	1.6	37.7

### Aquatic Life Reasonable Potential Analysis

$\sigma$	$\sigma^2 = \ln(CV^2 + 1)$		0.555	0.555
$P_n$	$= (1 - \text{confidence level})^{1/n}$ , where confidence level = <b>99%</b>		0.599	0.599
Multiplier (TSD p. 57)	$= \exp(z\sigma - 0.5\sigma^2) / \exp[\text{normsinv}(P_n)\sigma - 0.5\sigma^2]$ , where <b>99%</b>		3.2	3.2
Statistically projected critical discharge concentration (C <sub>e</sub> )			63811.20	63811.20
Predicted max. conc.(ug/L) at Edge-of-Mixing Zone (note: for metals, concentration as dissolved using conversion factor as translator)	Acute		53124.32	3953.18
	Chronic		38903.43	1905.01
Reasonable Potential to exceed Aquatic Life Criteria			<b>YES</b>	<b>YES</b>

### Aquatic Life Effluent Limit Calculations

<b>Number of Compliance Samples Expected per month (n)</b>			<b>4</b>	<b>4</b>
n used to calculate AML (if chronic is limiting then use min=4 or for ammonia min=30)			30	4
LTA Coeff. Var. (CV), decimal	(Use CV of data set or default = 0.6)		0.600	0.600
Permit Limit Coeff. Var. (CV), decimal	(Use CV from data set or default = 0.6)		0.600	0.600
Acute WLA, ug/L	$C_d = (\text{Acute Criteria} \times MZ_a) - C_u \times (MZ_a - 1)$	Acute	955.4	26,637.0
Chronic WLA, ug/L	$C_d = (\text{Chronic Criteria} \times MZ_c) - C_u \times (MZ_c - 1)$	Chronic	249.4	25,010.2
Long Term Ave (LTA), ug/L (99 <sup>th</sup> % occurrence prob.)	$WLA_c \times \exp(0.5\sigma^2 - z\sigma)$ , Acute	<b>99%</b>	306.7	8,551.0
	$WLA_a \times \exp(0.5\sigma^2 - z\sigma)$ ; ammonia n=30, Chronic	<b>99%</b>	194.6	19,514.7
Limiting LTA, ug/L used as basis for limits calculation			194.6	8,551.0
Average Monthly Limit (AML), ug/L, where % occurrence prob = <b>95%</b>			<b>231</b>	<b>13,274</b>
Maximum Daily Limit (MDL), ug/L, where % occurrence prob = <b>99%</b>			<b>606</b>	<b>26,637</b>
Average Monthly Limit (AML), mg/L			<b>0.2315</b>	<b>13.274</b>
Maximum Daily Limit (MDL), mg/L			<b>0.6061</b>	<b>26.637</b>
Average Monthly Limit (AML), lb/day			<b>0.2471</b>	<b>14.171</b>
Maximum Daily Limit (MDL), lb/day			<b>0.6471</b>	<b>28.436</b>

### References:

Idaho Water Quality Standards      <http://adminrules.idaho.gov/rules/current/58/0102.pdf>  
Technical Support Document for Water Quality-based Toxics Control, US EPA, March 1991, EPA/505/2-90-001