

## **RESPONSE TO COMMENTS**

City of Worley Wastewater Treatment Plant

NPDES Permit No. ID0022713

March 3, 2015

On October 31, 2014, the U. S. Environmental Protection Agency (EPA) issued a public notice for the reissuance of the City of Worley Wastewater Treatment Plant (WWTP) National Pollutant Discharge Elimination System (NPDES) Permit No. ID0022713. This Response to Comments provides a summary of significant comments received during the public comment period and the corresponding EPA responses to the comments. As the result of comments received, the EPA revised the chlorine and ammonia limits to be more stringent. Comments were received from Justin Hayes of the Idaho Conservation League (ICL) and Brenda Morris from the City of Worley (City).

### **1. Phosphorus Comment (ICL)**

In the fact sheet for this draft NPDES permit, the EPA reports that “[t]he Hangman Creek TMDL does not provide WLAs for point sources on the Reservation, but may set an allocation at the border with the Reservation.” We are a little confused by the use of the word “may” here. It is unclear to us if ‘may’ refers to a future possibility of the creation of an allocation. As in, ‘in the future, the TMDL may determine an allocation’. Or, if the EPA is unsure if an allocation exists. As in, ‘the TMDL may call for an allocation at the border, but we are not sure’. Please clarify.

#### **Response**

The statement was intended to be future tense. At this time, a total maximum daily load (TMDL) to address nutrients does not exist for Hangmen Creek. The Washington Department of Ecology (Ecology) plans to develop a TMDL to address nutrients in the Hangman Creek watershed. It is the EPA’s understanding that Ecology and the Coeur d’Alene Tribe will work together to set a target for Rock Creek at the Washington State/Coeur d’Alene Reservation border.<sup>1</sup> This target could then be used to establish an appropriate phosphorus effluent limit for the Facility. Ecology does not have the authority to establish WLAs for facilities on tribal land.

### **2. Phosphorus Comment (ICL)**

There is evidence that Hangman Creek is a contributing source of nutrients and that this is causing water quality impairment downstream. Washington Department of Ecology documents state that: Significant quantity of phosphorus comes from Hangman Creek. For the Spokane River and Lake Spokane TMDL to be successful, phosphorus sources in Hangman Creek Watershed must be controlled. Another Washington Department of Ecology document provides that: “The TMDL allocations are limited to the 446 square miles of watershed within Washington, although some TMDL success depends on upstream controls on the Coeur d’Alene Reservation and in Idaho.” Still another Washington Department of Ecology document appears to demonstrate that significant reductions of phosphorus are required during April and May. This document provides “Requested Scenarios” to address nutrient loading to the Hangman Creek watershed, amongst these is the request that: “Idaho meets proportional phosphorus load at

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<sup>1</sup> Telephone conversation with Elaine Snouwaert, TMDL Lead Hangman Creek Ecology, June 3, 2014.

border.” The draft permit’s allowance of phosphorus discharges without limits during this period seems problematic in light of this identified concern. It is not clear to us how it is that the EPA can ignore Washington’s concerns about nutrient discharges in the greater Hangman Creek watershed, especially since the EPA has been working with the Washington Department of Ecology throughout the development of the Hangman Creek TMDLs. Further, the fact sheet for this draft NPDES contains no information about the current level of phosphorus discharge from the Worley WWTP. It seems inappropriate that EPA can dismiss the need for effluent limits on total phosphorus without at least presenting total phosphorus discharge data from this facility and phosphorus concentration data for the receiving water. If the EPA has determined that phosphorus discharges from the Worley WWTP do not impact downstream waters then this information must be provided to the public. We ask that the EPA provide this information to reviewers and allow for additional public comment informed by this information.

### **Response**

The EPA considered Ecology’s efforts to reduce nutrients and improve the dissolved oxygen problems downstream in Hangman Creek. In developing the draft permit, EPA concluded that there are currently insufficient data to assess reasonable potential and establish limits for phosphorus.

Ecology is still investigating nutrient reduction requirements for the tributaries in the Hangman Creek watershed. As summarized in the Fact Sheet, Ecology established load allocations for phosphorus at the mouth of Hangman Creek in *The Spokane River and Lake Spokane Dissolved Oxygen TMDL* (Ecology, February 2010) (*Spokane River TMDL*) but it did not allocate loading to sources within the Hangman Creek watershed. Early development of a nutrient TMDL for Hangman Creek focused on meeting the phosphorus load allocation established at the mouth of Hangman Creek. However, further analysis indicated that some tributaries in the Hangman Watershed are phosphorus limited and some are nitrogen limited. At this time, it is not certain which nutrient pollutant is of more concern for Rock Creek (nitrogen or phosphorus), which is a tributary within the Hangman Creek watershed.<sup>2</sup>

The EPA supports the efforts of Ecology to understand the nutrient reduction needs in the Hangman Creek watershed and to develop a TMDL. EPA included nitrogen and phosphorus monitoring of the effluent and ambient water to understand the facility’s load to Rock Creek. Similarly, monitoring only is required in the Ecology-issued small municipal wastewater treatment plant permits in the Hangman Creek watershed. Ecology has not established nutrient limits for the small municipal wastewater treatment plant permits in the Hangman Creek watershed. Instead, similar to this permit, Ecology is requiring those facilities to monitor nutrients as it develops the TMDL for dissolved oxygen and establishes WLAs for nutrients.<sup>3</sup>

EPA recognizes that future nutrient limits may be required for the Worley WWTP. However, at this time there are insufficient data to establish reasonable potential and develop permit limits for nutrients.

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<sup>2</sup> <http://www.ecy.wa.gov/programs/wq/tmdl/HangmanCr/>. (Last Modified March 2014)

<sup>3</sup> Rockford STP (WA0044831) Fact Sheet, October 30, 2013.

### 3. Mixing Zone Comment (ICL)

It is our understanding that the EPA has determined the NPDES permit for the Worley WWTP will be based on the Coeur d'Alene Tribe's Water Quality Standards. The receiving water is within the boundary of the Coeur d'Alene Tribe's Reservations. Pursuant to this, we believe that the EPA lacks the authority to incorporate a mixing zone into the Worley NPDES permit without the participation of the Tribe and in light of the omissions and deficiencies discussed below.

The relevant water quality standards contain the following provisions with regards to mixing zones:

(a) The Department may allow a designated portion of a receiving water to serve as a zone of dilution for wastewaters and receiving waters to mix thoroughly and this zone will be defined as a mixing zone.

Subject to this, it is our understanding that the EPA may not utilize a mixing zone that has not been authorized by the Tribe. Only the Tribe has the authority to 'allow a designated portion of a receiving water to serve as a zone of dilution for wastewaters.'

Further,

(b) The allowable size, shape, and location of a mixing zone shall be established in certifications under Section 401 of the CWA, or orders, as appropriate. In determining the location, surface area, and volume of a mixing zone, the Department or EPA may use appropriate mixing zone guidelines (such as EPA /505/2-90-001) to assess the biological, physical, and chemical character of receiving waters, and effluent, and the most appropriate placement of the outfall, to protect instream water quality, public health, and other designated uses.

Subject to this, it is our understanding that the EPA may not utilize a mixing zone without the specific 401 cert from the Tribe and/or other State agencies.

It is our understanding that the Tribe (nor the State of Idaho or the State of Washington) will be issuing a 401 certification for this NPDES permit. Absent the approval of the Water Quality Standards for the approved surface waters of the Coeur D'Alene Tribe, appropriate 401 certificate(s), the EPA is not authorized to include a mixing zone in the Worley NPDES permit.

Notwithstanding EPA's apparent lack of authority to allow for the violation of Tribal WQs in the receiving waters, the EPA appears to have not provided the supporting information that the Tribe explicitly calls for in its water quality standards. These standards provide:

(f) No mixing zone shall be granted unless the supporting information clearly indicates the mixing zone would not have a reasonable potential to cause a loss of or impair recovery of aquatic life, wildlife, or sensitive or important habitat; create a barrier to migration of species; or substantially interfere with the existing or designated uses of the water body as a whole; result in damage to the ecosystem; or adversely affect threatened and endangered species or public health as determined by the Department.

(g) No Mixing zone shall be granted unless the supporting information clearly indicates that it would not cause lethality to organisms passing through the mixing zone.

The EPA's fact sheet does not provide any 'supporting information' describing existing water quality in the receiving water, the impact of the mixing zone on existing and other beneficial uses, etc. Lacking this information, the EPA's inclusion of a mixing zone in this NPDES seems premature and not consistent with the Tribe's WQSs. Additionally, the receiving water is not eligible to host a mixing zone because of the fact that the creek's flow is intermittent. See below:

(h) Mixing zones will not be granted for discharges to outstanding resource waters, wetlands, or ephemeral or intermittent streams.

The use of a mixing zone is also inappropriate because the facility has not "fully applied" "all reasonable current technology for wastewater treatment, pollution control, and waste reduction" prior to the utilization of a mixing zone — per below:

(k) Mixing zones shall not be used for, or considered as, a substitute for waste treatment. The applicant shall show, to the satisfaction of the Department, that all reasonable current technology for wastewater treatment, pollution control, and waste reduction have been fully applied before a mixing zone is granted.

In the case of the Worley WWTP, the failure to address the 'significant inflow and infiltration problem' (noted in the EPA fact sheet) prior to utilization of a mixing zone eliminates access to consideration of a mixing zone. Related to this, the facilities discharge at a level that exceeds the design flow of the facility needs to also be corrected. Further, and notwithstanding the infiltration matter noted above, the Worley WWTP has not employed 'all reasonable current technology for wastewater treatment.' The Worley WWTP is a fairly rudimentary treatment system and there are numerous technological improvements that could be employed at the facility. Pursuant to the Tribal WQS, these options must be exhausted before it would be appropriate to consider a mixing zone.

## **Response**

As noted in the Fact Sheet, the Coeur d'Alene Tribe has Treatment as a State (TAS) for a portion of the Coeur d'Alene Reservation and implements the water quality standards (WQS) program on those portions of the Reservation. Although the facility is located within the exterior boundaries of the Coeur d'Alene Reservation, the receiving water to which the facility discharges, is located on the portion of the Reservation for which the Tribe does not have TAS. However, EPA did consider the Coeur d'Alene Tribal WQS when developing the draft permit conditions.

The draft permit included a mixing zone for chlorine and ammonia. The EPA acknowledges the range of concerns raised by ICL in granting a mixing zone to the facility for chlorine and ammonia. In particular, EPA recognizes that North Fork Rock Creek is dry during a portion of the year, and the Coeur d'Alene Tribal WQS specifically state that mixing zones will not be granted for discharges to intermittent streams. Therefore, EPA revised the chlorine and

ammonia limits to require the facility to meet the water quality criteria at the end of the pipe, i.e. no mixing zone is allowed for the discharge to meet the chlorine and ammonia water quality criteria.

The revised limits are provided below:

Parameters	Effluent Limits	Draft Permit	Final Permit
Total Residual Chlorine	Average Monthly Limits	0.019 mg/L (0.0090 lbs/day)	0.011 mg/L (0.0050 lbs/day)
	Maximum Daily Limits	0.038 mg/L (0.018 lbs/day)	0.013 mg/L (0.0060 lbs/day)
Ammonia	Average Monthly Limits	12.8 mg/L (6.1 lbs/day)	4.1 mg/L (1.9 lbs/day)
	Maximum Daily Limits	33.5 mg/L (15.9 lbs/day)	10.6 mg/L (5.1 lbs/day)
The limits for chlorine are not quantifiable using EPA-approved analytical methods. The minimum level (ML) for chlorine is 50 µg/L for this parameter. The EPA will use 50 µg/L as the compliance evaluation level for this parameter. The permittee will be compliance with the total residual chlorine limitations if the average monthly and maximum daily concentration limits are less than 50 µg/L and the average monthly and maximum daily mass discharge limits are less than 0.024 lbs/day.			

#### 4. Discharge Restrictions Comment (ICL)

The draft NPDES permit provides that discharge is only allowed from November 1st through June 30th, provided that the flow of the receiving water provides for a 10:1 dilution ratio. We are concerned that there does not appear to be any means of determining the flow of the receiving water to ensure that there is sufficient dilution. Our concern is based on the fact the EPA fact sheet states: “no data on stream flow were available.” If, indeed, there is no stream flow gage immediately upstream of the discharge point, this is very problematic as there would be no way for the facility operator to know when it was appropriate to discharge. Additionally, there would be no way for the EPA to know when the facility was operating out of compliance with the limits and conditions of the NPDES permit.

#### Response

The permit requires the permittee to establish a monitoring station in North Fork Rock Creek above the influence of the facility’s discharge. The permittee is required to record the flow in the Creek each day of discharge. See Part I.C of the final permit. Therefore, the facility will be able to determine the flow of the receiving water to ensure sufficient dilution.

#### 5. Discharge Restrictions Comment (ICL)

We are not sure how the 10:1 dilution condition interacts with the proposed mixing zone. It appears that the proposed mixing zone would have the water quality implications of allowing a discharge when there was only a 7.5:1 dilution potential — since the mixing zone is authorized at 25% of the flow of the creek. How would such a provision be consistent with the previously determined need to have a 10:1 dilution?

**Response**

As discussed above, the mixing zone for chlorine and ammonia has been removed from the final permit. However the requirement to have 10:1 dilution is retained in the final permit. This means that the facility is only allowed to discharge when the flow in the river is 10 times the effluent flow.

Regarding the interaction of a mixing zone provision and 10:1 dilution condition, this comment is moot because the EPA has removed the allowance for a mixing zone.

**6. Antidegradation Review Comment (ICL)**

The EPA fact sheet does not contain an antidegradation review for the proposed permit. Absent such a review, the permit cannot be lawfully issued.

**Response**

The reissuance of the NPDES permit does not authorize a new or increased discharge of pollutants. Therefore, there will not be a lowering of water quality as a result of the permitted discharge, and the permit is consistent with Tier I and Tier II antidegradation requirements.

**7. More Stringent Chlorine Levels Comment (City of Worley)**

The City expressed concern that the chlorine limits were reduced. The draft permit had limits of 0.019 mg/L (monthly average) and 0.038 mg/L daily maximum compared to 0.5 mg/L (monthly average) and 0.75 mg/L (daily maximum). The City questioned whether the limits had been calculated correctly.

**Response**

The limits in the draft permit were correct and were calculated based on a 25% mixing zone and assuming there is 10:1 (receiving water to effluent) when the facility discharges.

Based on comments received during the comment period, the allowance for a mixing zone for chlorine and ammonia has been removed from the permit. The final permit includes end of pipe limits.

The calculation of those limits is summarized in the attached table.

**8. Reference to Paragraph I.B.10 (City of Worley)**

Note #4 in Table 1 *Proposed Effluent Limits and Monitoring Requirements* refers to paragraph I.B.10 to calculate monthly averages, but there is no paragraph I. B 10.

**Response**

The correct reference is to paragraph I.B.8. The reference has been corrected in the final permit.

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

<b>Facility Name</b>	Worley WWTP
<b>Design Flow (MGD)</b>	0.0571

## Dilution Factors

	(IDAPA 58.01.02 03. b)	Annual Crit. Flows
Aquatic Life - Acute Criteria - Criterion Max. Concentration (CMC)	1Q10	1.0
Aquatic Life - Chronic Criteria - Criterion Continuous Concentration (CCC)	7Q10 or 4B3	1.0
Ammonia	30B3/30Q10 (seasonal)	1.0

## Receiving Water Data

	Notes:	Annual Crit. Flows
Hardness, as mg/L CaCO <sub>3</sub>	*** Enter Hardness on WQ Criteria tab ***	5 <sup>th</sup> % at critical flows
Temperature, °C	Temperature, °C	95 <sup>th</sup> percentile
pH, S.U.	pH, S.U.	95 <sup>th</sup> percentile

Pollutants of Concern		AMMONIA, default: cold water, fish early life stages present	CHLORINE (Total Residual)
Effluent Data	Number of Samples in Data Set (n)	3	13
	Coefficient of Variation (CV) = Std. Dev./Mean (default CV = 0.6)	0.6	0.13
	Effluent Concentration, µg/L (Max. or 95th Percentile) - (C <sub>e</sub> )	6,000	550
	Calculated 50 <sup>th</sup> % Effluent Conc. (when n>10), Human Health Only		
Dilution Factors	Aquatic Life - Acute	1Q10	1.000
	Aquatic Life - Chronic	7Q10 or 4B3	-
	Ammonia	30B3 or 30Q10	1.000
	Human Health - Non-Carcinogen	30Q5	-
	Human Health - carcinogen	Harmonic Mean	-
Receiving Water Data	90 <sup>th</sup> Percentile Conc., µg/L - (C <sub>u</sub> )		
	Geometric Mean, µg/L, Human Health Criteria Only		
Applicable Water Quality Criteria	Aquatic Life Criteria, µg/L	Acute	13,283
	Aquatic Life Criteria, µg/L	Chronic	4,364
	Human Health Water and Organism, µg/L		--
	Human Health, Organism Only, µg/L		--
	Metals Criteria Translator, decimal (or default use Conversion Factor)	Acute	--
	Carcinogen (Y/N), Human Health Criteria Only	Chronic	0.000

## Aquatic Life Reasonable Potential Analysis

$\sigma$	$\sigma^2 = \ln(CV^2 + 1)$	0.555	0.129
$P_n$	$= (1 - \text{confidence level})^{1/n}$ , where confidence level = 99%	0.215	0.702
Multiplier (TSD p. 57)	$= \exp(z\sigma - 0.5\sigma^2) / \exp[\text{normsin}(P_n) - 0.5\sigma^2]$ , where 99%	5.6	1.3
Statistically projected critical discharge concentration (C <sub>e</sub> )		33734.65	694.06
Predicted max. conc.(ug/L) at Edge-of-Mixing Zone (note: for metals, concentration as dissolved using conversion factor as translator)	Acute	33734.65	694.06
	Chronic	33734.65	694.06
Reasonable Potential to exceed Aquatic Life Criteria		YES	YES

## Aquatic Life Effluent Limit Calculations

Number of Compliance Samples Expected per month (n)		30	4
n used to calculate AML (if chronic is limiting then use min=4 or for ammonia min=30)			
LTA Coeff. Var. (CV), decimal (Use CV of data set or default = 0.6)		0.600	0.130
Permit Limit Coeff. Var. (CV), decimal (Use CV from data set or default = 0.6)		0.600	0.130
Acute WLA, ug/L	C <sub>d</sub> = (Acute Criteria x MZ <sub>a</sub> ) - C <sub>u</sub> x (MZ <sub>a</sub> -1)	Acute	13,283.2
Chronic WLA, ug/L	C <sub>d</sub> = (Chronic Criteria x MZ <sub>c</sub> ) - C <sub>u</sub> x (MZ <sub>c</sub> -1)	Chronic	4,364.0
Long Term Ave (LTA), ug/L	WLA <sub>c</sub> x exp(0.5σ <sup>2</sup> -zσ), Acute	99%	4,264.2
(99 <sup>th</sup> % occurrence prob.)	WLA <sub>a</sub> x exp(0.5σ <sup>2</sup> -zσ); ammonia n=30, Chronic	99%	3,405.1
Limiting LTA, ug/L	used as basis for limits calculation		3,405.1
Applicable Metals Criteria Translator (metals limits as total recoverable)		--	--
Average Monthly Limit (AML), ug/L, where % occurrence prob =	95%	4,051	11
Maximum Daily Limit (MDL), ug/L, where % occurrence prob =	99%	10,607	13
Average Monthly Limit (AML), mg/L		4.1	0.011
Maximum Daily Limit (MDL), mg/L		10.6	0.013
Average Monthly Limit (AML), lb/day		1.9	0.0050
Maximum Daily Limit (MDL), lb/day		5.1	0.0060