RESPONSE TO COMMENTS

City of Puyallup
Wastewater Treatment Plant
NPDES Permit WA0037168
September 23, 2014

On April 6, 2013, the U.S. Environmental Protection Agency (EPA) issued a public notice for the reissuance of the City of Puyallup Wastewater Treatment Plant (WWTP) National Pollutant Discharge Elimination System (NPDES) Permit No. WA0037168. This Response to Comments provides a summary of significant comments and provides corresponding EPA responses. The comments resulted in the following changes to the permit:

- Acute Whole Effluent Toxicity (WET) testing is eliminated and the trigger for accelerated testing and the Toxicity Reduction Evaluation is changed to a TU_c of 1.9. The WET test species and tests are clarified.

- The reporting date for WET testing is changed "from with the discharge monitoring reports (DMR) for the month following sample collection" to "with the DMRs for the month following the receipt of the results from the laboratory."

- The typographical error referencing Part II.G. in Condition III.I., Public Notification is corrected to reference Part II.F.

- The effluent limitation range for pH is increased from a lower value of 6.4 in the draft permit to a lower value of 6.1 in the final permit. The final pH range is the same as in the previous permit.

- The arsenic Minimum Level (ML) for effluent monitoring in Table 2 of the permit is changed from 10 µg/L to 0.5 µg/L.

- Condition I.B.7. is revised to allow a method that detects and quantifies arsenic.

- Condition I.D.8. is revised to allow a method that detects and quantifies arsenic.

- The frequency of toxic organics sampling required under the pretreatment monitoring requirements, Part II.A.8.i) is clarified and established as once per year.

- Exceptions to pH violations applicable to continuous monitoring are added.

- To allow sufficient time for completion, the submission of the local limits evaluation is delayed to December 31, 2015.

After consultation with the Puyallup Tribe and as required by the final 401 Certification the following conditions are added to the final permit:

1. Quarterly monitoring of endosulfan monitoring is required for five years. This will allow a sufficient number of samples to determine if the discharge has reasonable potential to cause or contribute to a violation of the Puyallup water quality standards for endosulfan.

2. A study is added to the permit to identify the source of lead and zinc in the effluent and identify opportunities for reduction. Lead and zinc effluent limitations are eliminated in the reissued permit based on the Puyallup's authorized mixing zone. Authorization of a mixing zone is contingent on this added study.

   A second condition of the mixing zone authorization is monitoring at the edge of the mixing zones. This condition is added to the permit.

3. A Mercury Minimization Plan and annual status report is added to the Permit.

4. The Tribe is authorizing a mixing zone for lead, zinc and mercury as identified in the table below. With these mixing zones, there is no reasonable potential to violate the water quality standards for these pollutants.

Minimum Mixing Zone for No Reasonable Potential to Violate the Puyallup Water Quality Standards (Percent of Receiving Water Flow)			
	lead	**zinc**	**Mercury**
Acute	End of Pipe	2.1	End of Pipe
Chronic	3.3	4.0	20

Comments were received from the following:

Robert Andreotti, Director of Public Works, City of Puyallup (City)

1. Comment: With the exception of one Total Recoverable Zinc result in November 2006, the violations listed below are in error.

   1. 31 July 2009 – Total Recoverable Mercury. The value reported was above the threshold of the method detection limit, 0.0001 µg/L, but too low as to be quantifiable. Puyallup has never had an effluent mercury result that exceeds limitations.

   2. 30 Jun 2006 – Nitrogen Ammonia, Total –The origin of the values listed are unknown. Puyallup's records indicate that for the month of June 2006 the

monthly ammonia average was 0.49 mg/L and that the daily maximum value was 1.30 mg/L. Both values are well below permit limitations and consistent with typical concentrations.

3. 30 April 2008 – Lead, Total Recoverable – The values reported on Puyallup's DMR for April 2008 list the monthly average value of 0.5 µg/L and a monthly maximum value of 0.5 µg/L. These values are well below the limits of 6.1 µg/L and 10.5 µg/L, respectively.

Response: The EPA agrees the Fact Sheet Table 1 listing of total recoverable mercury and total recoverable lead as violations is an error. The listing of nitrogen ammonia as a violation could not be verified. This comment does not result in any changes to the permit.

2. **Comment (City):** The effluent limits in Table 3 of the Fact Sheet for the draft permit contain the following errors.

   BOD_5, mg/L, lb/day, percent removal – A sampling frequency of 5 episodes per week is listed; whereas, Puyallup's existing permit and draft permit list 3 episodes per week.

   TSS, mg/L, lb/day, percent removal - A sampling frequency of 5 episodes per week is listed; whereas, Puyallup's existing permit and draft permit list 3 episodes per week.

   Fecal Coliform Bacteria, #/100 ml - A sampling frequency of 5 episodes per week is listed; whereas, Puyallup's existing permit and draft permit list 3 episodes per week.

   pH, std. units - The Maximum Daily Limit for Puyallup's existing permit is listed in the Fact Sheet as 6.4 – 9.0 standard units; whereas, the actual existing permit limitation is 6.1 to 9.0.

Response: The EPA agrees with the comment, the Fact Sheet was incorrect and inconsistent with the draft permit**.** The sampling frequency for BOD_5, TSS, and fecal coliform was correct in the draft and final permit and is 3 episodes per week. The percent removal for BOD_5 and TSS is calculated from the average values for the month. The effluent limit for pH in the final permit is revised (see response to Comment # 15).

3. **Comment:** Fact sheet Table 4 - Receiving Water Monitoring Requirements in the Puyallup River does not contain monitoring requirements for mercury; whereas, annual testing is required in the draft permit. Additionally, copper is listed without indicating speciation; whereas, in the draft permit it is listed as dissolved.

Response: The receiving water monitoring requirements in the permit are correct and are required. Annual mercury receiving water monitoring is required and dissolved copper is the species required to be reported.

4. **Comment:** Fact Sheet Section E. Outfall Evaluation states:

> "In early 1998 the City modified the existing diffuser to prevent damage by gravel and rocks. The diffuser ports are now angled downstream with a "Tide Flex" valve connected with a neoprene sleeve and flange. To ensure that the new diffuser is not damaged by sediment deposition, the draft permit requires the City to conduct an annual outfall evaluation."

The draft permit does not contain this requirement.

Response: The fact sheet was inconsistent with the permit. However the permit is the enforceable document, not the fact sheet. In accordance with the permit, the City is not required to conduct an outfall evaluation.

5. **Comment:** The Fact Sheet requires the City to conduct a comprehensive infiltration/inflow study identifying the causes of untreated/primary treated overflows and submit a report within three years that contains deadlines for correcting the problems. However, this requirement is not in the draft permit and Puyallup objects to its inclusion for the reasons below.

    1. The Fact Sheet states that Puyallup is to perform …*evaluation of the sewerage facility and a system-wide inventory/evaluation survey that identifies the causes of the untreated/primary-treated overflows*…. The word 'causes' suggests that Puyallup has had an ongoing problem with untreated/primary-treated overflows. However, with the exception of one equipment failure that resulted in a limited duration overflow in 2013, the Puyallup treatment plant has had no other overflows in the fifteen years since a major upgrade that began in 2008.

    2. The design of the Puyallup's facility does not physically allow for the intentional bypass of primary or partially treated wastewater.

    3. The City completed a comprehensive city-wide infiltration and inflow study in 2012 where 24 individual basins were monitored and the volume of infiltration and inflow was characterized.

    4. Puyallup continues in 2014 to identify and repair major sources of infiltration and inflow with $300,000 allocated in its capital budget to infiltration/inflow reduction and dry-weather smoke-testing pending for later in 2014. An additional $250,000 allocated to system improvements.

    Response: The fact sheet is inconsistent with the permit. The permit, not the fact sheet is the enforceable document. Since the permit does not contain this requirement, the City is not required to conduct a comprehensive infiltration/inflow study.

6. **Comment:** Puyallup strongly objects to the requirement to sample for arsenic in the Puyallup River. Although the CWA may authorize EPA to require sampling and reports

the basis of the requirement does not seem justified by EPA's or the Department of Ecology's reckoning.

The Department of Ecology study, *Results and Recommendations from Monitoring Arsenic Levels in 303(d) Listed Rivers in Washington (Ecology publication number 02-03-045)* (Ecology Report), states:

> *"There is significant uncertainty regarding the accuracy of the current arsenic criteria for human health. Even EPA is reluctant to impose the criteria (62 FR 42179, August 5, 1997) that they promulgated on Washington State through the National Toxic Rule."*

Low-level sampling and analysis is fraught with opportunities for accidental contamination and erroneous results. Puyallup does not possess the expertise to handle or filter samples for dissolved arsenic. The rigorous sampling, handling, and analytic requirements are detailed in the Ecology report as well as in EPA Method 1669. As stated in the Ecology Report, sampling and analytic costs are high for the different speciations of arsenic. Puyallup does not believe it has the responsibility or capability to re-characterize or augment the arsenic data collected by the Department of Ecology. This is a task best left to the expertise of a regulatory agency such as EPA or the Department of Ecology.

Response: The EPA believes the City has the capability and responsibility to conduct the sampling for total and inorganic arsenic in the Puyallup River.

Federal regulations at 40 CFR122.44 (vii) states

> "When developing water quality-based effluent limits under this paragraph the permitting authority shall ensure that:
>
> (A) The level of water quality to be achieved by limits on point sources established under this paragraph is derived from, and complies with all applicable water quality standards;…"

The Puyallup Water Quality Standards contain both total arsenic criteria for protection of aquatic life and inorganic arsenic criteria for protection of human health. It is the responsibility of the City of Puyallup to provide the monitoring necessary to ensure that its discharges comply with the water quality standards.

On page 3.2 of EPA's Permit Writers Manual,, September 2011, Section 3.2 Major Components [of an NPDES permit], Permit Bullet 3 states:

All NPDES permits consist, at a minimum of…

> "Monitoring and Reporting Requirements: Used to characterize wastestreams and *receiving waters* (emphasis added) …"

The permit includes both inorganic and total recoverable arsenic monitoring for reasonable potential determination of aquatic life and human health arsenic criteria. Monitoring for the Ecology Report conducted in 2002 at the Meridian Street Bridge (Monitoring Station 10A070) upstream of the discharge only included one inorganic

arsenic sample, the speciation of the criteria for protection of human health. One sample is inadequate to determine reasonable potential for violations of the human health standard for arsenic. The ambient water quality data for inorganic arsenic is necessary to assess the reasonable potential for the effluent to exceed the inorganic arsenic criteria. Therefore inorganic receiving water monitoring is retained.

The permit is unchanged.

7. **Comment**: The Ecology Report contains other salient facts that argue against the proposed arsenic sampling:

   …the comparability of the data is confounded by differences in the year and season of collection, sampling procedures, analytical methods, and detection limits.

   Response:

   - To address concerns about variation in arsenic concentration by year, the effluent and receiving water monitoring is required over five years.

   - To address concerns about variation in arsenic concentrations over different seasons, effluent and receiving water monitoring is required to occur during all four seasons.

   - As the City reported on Application Form 2A Part D, Supplemental Application Information, the analytical method for arsenic is 200.8. This method will allow a minimum level (ML) of 0.5 µg/L. Table 2 in the permit is revised to include an ML of 0.5 µg/L for arsenic.

   - The total recoverable, dissolved and inorganic arsenic monitoring is required by the Puyallup Tribe's 401 Certification and must be included in the permit under Clean Water Act Section 401(d).

   Arsenic monitoring is retained in the final permit.

8. **Comment:** The Ecology Report stated arsenic levels in Washington rivers and streams should be attributed to natural sources, unless shown otherwise. The Ecology Report also stated exceedances of the National Toxics Rule arsenic criteria are to be expected in Washington rivers and streams. Additionally, as noted in the Department of Ecology report, background concentrations of arsenic in the Puyallup River already exceed Tribal human health standards by nearly 56 times.

   Response: The permit is consistent with the recommendations in the Ecology Report. The Ecology Report for the Puyallup River shows background concentrations of total recoverable arsenic exceeding the human health criteria. However human health criteria is based on inorganic arsenic The Ecology Report contained only one sample of inorganic arsenic. One sample is inadequate for a reasonable potential determination for arsenic discharges to violate the water quality standards for human health. Adding to the

uncertainty of inorganic arsenic in the receiving water is provided in a conclusion in the Ecology Report on page 14 qualifying its data by the statement: "These dissolved data may underestimate total inorganic arsenic by a substantial amount."

The Ecology Report is inconclusive regarding the source of arsenic in the Puyallup River. If the exceedance is from anthropogenic sources as demonstrated by the monitoring the sampling will aide in an evaluation of the need for listing of arsenic in the vicinity of the discharge.

Further, the Puyallup Tribe is requiring the monitoring of arsenic in the 401 Certification.

The Ecology Report on page 16 states "it is not possible to state with certainty what the natural background is for arsenic in Washington rivers and streams. Additional monitoring will help identify natural background." The permit provides this additional monitoring.

The Ecology Report states "Water quality data considered for future 303(d) arsenic listings should clearly demonstrate that any exceedances of standards are due to anthropogenic sources, and should include some measurement of total inorganic arsenic". The permit provides the monitoring recommended by the Ecology Report. As the fact sheet states the permit requires the City to conduct a limited round of inorganic arsenic monitoring to determine whether or not there should be a follow up study to determine if arsenic in the treatment plant effluent is naturally-occurring arsenic, or if it is of commercial or industrial origin.

The permit is unchanged.

9. **Comment:** Puyallup operates an Industrial Pretreatment Program required, approved, and periodically audited by EPA. All commercial and industrial users complete a comprehensive survey to determine the nature of their business and the character of pollutants discharged. Users either receive discharge permits from the City or Letters of Authorization (LOA) to discharge. Puyallup has an arsenic limitation in its sewer use ordinance that was developed using EPA methodology and approved by EPA. Puyallup has no known commercial or industrial contributors of arsenic. Consequently, arsenic sampling is not justified on the basis of determining if arsenic in the treatment plant effluent is naturally-occurring arsenic, or if it is of commercial or industrial origin.

   While it is reasonable to conclude that potable water likely contributes arsenic to the wastewater effluent it is not contributed at the concentrations given in the Fact Sheet.

   Response: The City's arsenic limitation in its sewer use ordinance and the arsenic in the potable water supply are not adequate to characterize effluent discharges for arsenic. The influent arsenic monitoring and concentrations in the potable water supply may not be representative of arsenic in the effluent. Arsenic in the potable water supply could explain the source of arsenic in the Puyallup WWTP effluent but it is the *effluent* that must be monitored. Monitoring *effluent* discharges is required to characterize the

discharges. The permit requires monitoring of the effluent for inorganic arsenic since the criteria for protection of human health is inorganic arsenic not total arsenic.

The Department of Ecology determined in 2002 that arsenic concentrations in Washington rivers and streams are typically in the range of 0.2 - 1.0 ug/L, whereas concentrations greater than 2 to 5 ug/L may indicate contamination from anthropogenic sources.

Further, the potable water supply from the Green River may vary by season as it does in the Puyallup River causing seasonal variations in arsenic discharged from the WWTP. Seasonal monitoring during the four seasons will characterize any variations that may occur. The seasonal arsenic monitoring remains as a permit condition.

As the fact sheet stated the ambient and effluent monitoring will aide in determining if the arsenic is naturally occurring or from commercial or industrial origin.

10. Comment: As part of its Pretreatment Program the City has been conducting bi-annual testing and reporting of its influent and effluent for total arsenic concentrations for 10 years resulting in approximately 140 tests of influent and effluent over this time period. Because of the rigorous sampling requirements for low-level analysis, and the time required to specially clean and prepare equipment for 'clean' sampling per EPA Method 1669, Puyallup requests that the proposed quarterly sampling be removed from the draft permit and replaced with adding inorganic arsenic to the list of pollutants to be tested in Part II.A.8., pg. 18 for pretreatment. By doing this six separate samples of both influent and effluent will be taken twice annually for five years on three consecutive weekdays rather than the four annual samples proposed in the draft permit.

Response: See Response to Comment 7 Bullet 2 concerning seasonal sampling. The 140 samples was required by the pretreatment requirements of the permit. That sampling requires one sample between January 1 and June 30 and one sample between July 1 and December 30. This monitoring frequency is not equivalent to quarterly seasonal sampling. Bi-annual sampling does not provide the seasonal sampling frequency required to characterize the discharges for arsenic. Arsenic varies by season as stated in the Ecology Report. "During low flow, mainstem concentrations were 0.76 to 1.0 ug/L. Concentrations were lower during high flow – from 0.21 to 0.52 ug/L"

As the fact sheet states the monitoring of the inorganic, dissolved and total arsenic coinciding with quarterly ambient will help evaluate partitioning.

To the extent that pretreatment effluent monitoring required in Part II.A.8. satisfies the requirement for quarterly arsenic monitoring, these samples may be used to satisfy the requirements of Part II.B. Arsenic Monitoring. See Response to Comment 11.

The permit is unchanged.

11. Comment: The methods used for sampling and analysis are typically dictated by the concentration of the analyte or the required sensitivity of the analytical procedure. In the case of drinking water, the Safe Drinking Water Act (SDWA) allows as much as 10 µg/L

(ppb); whereas, the human health criteria given the consumption of both water and aquatic organisms together is 0.018 µg/L (ppb) – a level 555 times lower than the SDWA.

The Ecology Report stated the NTR [National Toxic Rule] arsenic criteria are at or below the detection limits of routinely available analytical methods

The water quality concentration of 0.018 µg/L (ppb) requires special clean sampling procedures as prescribed by EPA Method 1669 (EPA 1995). Puyallup's water sampling is conducted at a level of care required for a limit of 10 µg/L (ppb) and does not use these techniques. Therefore, analytical 'blips' are probable. Of 27 potable water sampling events conducted 2002 through 2011, only 4 were at the level cited in the Fact Sheet.

Additionally, Puyallup's effluent arsenic data, graphed in the Fact Sheet (pg.16) shows a maximum concentration below 1.4 µg/L (ppb). Based on 69 influent clean sampling episodes conducted since 2003, Puyallup has never reported an influent value exceeding 2.8 µg/L.

Response:. See Response to Comment 6.

The EPA disagrees that sampling and analytical sensitivity must be at the level of the human health standards. The sensitivity must be at a level to detect arsenic concentrations or at the ML.

Effluent Monitoring

For all effluent arsenic monitoring Puyallup must use sufficiently sensitive analytical methods which meet the following:

(i) Use a method that detects and quantifies the level of arsenic, or

(ii) Use a method that can achieve a maximum ML less than or equal to those specified in Table 2 Maximum MLs for Pollutants Not Subject to Effluent Limitations

Table 2 requires an arsenic ML of 10 µg/L for effluent monitoring. The EPA is requiring the most sensitive ML from an EPA approved analytical test method. The most sensitive ML is 0.5 µg/L from the approved analytical methods 200.8, Inductively Coupled Plasma-Mass Spectrometry (ICP-MS) and 200.9, Graphite Furnace Atomic Absorption, for effluent monitoring of total and dissolved arsenic. The ML in Table 2 is changed from 10 µg/L to 0.5 µg/L.

The graph on page 16 of the fact sheet shows a minimum arsenic total recoverable concentration of 0.6 µg/L. The *Comprehensive Non-Conventional Pollutants Effluent Sampling , City of Puyallup WPCP* submitted with the application reported arsenic levels between 0.6 µg/L and 1.3 µg/L, and total recoverable arsenic monitoring by Ecology at the Meridian Street Bridge from 2012 and 2013 ranged from 0.51 µg/L to 1.12 µg/L. Based on these samples a method with a ML of 0.5 µg/L will detect the minimum concentration of total recoverable arsenic.

The levels of inorganic arsenic concentrations, the speciation of the human health criteria, are unknown and must be characterized. The ML remains at 0.036 ug/L.

The requirement to either detect and quantify the concentration or achieve the ML applies to all parameters without effluent limitations. Therefore the following Condition replaces Condition I.B.7. that restricted monitoring to methods that can achieve MLs for parameters without limits.

Final Condition I.B.7.

"For all effluent monitoring, the permittee must use sufficiently sensitive analytical methods which meet the following:

Parameters with an effluent limit. The method must achieve a minimum level (ML) less than the effluent limitation unless otherwise specified in Table 1 Effluent Limitations and Monitoring Requirements.

Parameters that do not have effluent limitations.

(i) The permittee must use a method that detects and quantifies the level of the pollutant, or

(ii) The permittee must use a method that can achieve a maximum ML less than or equal to those specified in Table 2 Maximum MLs for Pollutants Not Subject to Effluent Limitations;

For parameters that do not have an effluent limit, the permittee may request different MLs. The request must be in writing and must be approved by EPA.

See also Part III.D Monitoring Procedures"

Ambient Monitoring

The MDL for ambient total recoverable and dissolved arsenic are 0.5 mg/L. This MDL is above the human health standard. The sensitivity must be at a level to detect arsenic concentrations or at the MDL.

The draft permit required samples that achieve method detection limits (MDL) that are less than or equal to those in Table 3. To further address the comment on detection limits at the human health standard Condition I.D.8. is changed to allow the arsenic sampling method to achieve either detection and quantification or the MDLs.

"With the exception of arsenic samples must achieve method detection limits (MDLs) that are equivalent to or less than those listed in Table 3. The permittee may request different MDLs. The request must be in writing and must be approved by EPA.

For arsenic the permittee must use sufficiently sensitive analytical methods which detects and quantifies the level of arsenic or a method that can achieve a maximum MDL less than or equal to those specified in Table 3."

In various sections of the Ecology Report and the Fact Sheet based on limited data arsenic was reported above the human health standard.

- Total recoverable concentrations range from approximately 0.76 ug/L to over 1.5 ug/L during low flows as shown on pages 16 and 17 of the fact sheet.

- The Ecology Report reported ambient arsenic during high flows in the range of 0.21 ug/L to 0.52 ug/L

- The Ecology Report reported for the Puyallup River a mean total receiving water arsenic level of 0.71 µg/L and a minimum of 0.47 µg/L well above the human health standard (data from August 2001 - August 2006) and for the most part above the 0.5 µg/L ML.

- The Ecology Report reported ambient arsenic during low flows between 0.76 and 1.0 ug/L.

This limited data indicates arsenic in the Puyallup River is above the human health standard. However, this data is limited and insufficient to determine reasonable potential to violate the water quality standards for arsenic.

Except during periods of high flow a method with a ML of 0.5 ug/L is capable of measuring these concentrations.

The inorganic arsenic concentration in the Puyallup River was found to be 0.40 mg/L based on one sample. This concentration is also higher then the human health criteria but with only one sample insufficient to determine a reasonable potential for human health.

12. **Comment:** The draft permit requires total, dissolved, and inorganic arsenic monitoring quarterly for five years. In their study, the Department of Ecology typically collected samples from the Meridian Street Bridge in Puyallup or by wading into the river or with a sample bottle on the end of a polyethylene pole. Samples were primarily taken in spring and fall not during the wet season. All soils contain arsenic. Puyallup does not believe that an unbiased sample can be collected from the river bank and be guaranteed to be free of contamination from the bank itself. And, the only time the river can be safely waded is in mid-fall.

    Response: The data provided in the Ecology Report for spring is cited as the "high flow' season sampled using polyethylene poles from shore or by wading and was representative of arsenic in the Puyallup River. The City can sample using this method to obtain representative samples.

The permit requires the City to work with the Puyallup Tribe to establish monitoring stations in the Puyallup River. The upstream monitoring station is required to be at a minimum distance of 100 feet from the facility's outfall. Although it would be feasible to use the Meridian Street Bridge as it is more than 100 feet upstream from the facility's outfall the City must work with the Puyallup Tribe to establish the monitoring station. Further, this monitoring is required by the Tribe's 401 Certification and must be included in the permit under Clean Water Act Section 401(d).

13. **Comment:** In conclusion, it is unclear how EPA plans on using any collected data. The requirements have the potential to subject Puyallup to spurious and costly arsenic limitations based on caprice and not based on any realistic expectation that limitations will result in any measurable improvement toward meeting human health criteria.

    Response: As the fact sheet states the permit requires the Permittee to conduct a limited round of inorganic arsenic monitoring to determine whether or not there should be a follow up study to determine if arsenic in the treatment plant effluent is naturally-occurring arsenic, or if it is of commercial or industrial origin.

14. **Comment:** In Fact Sheet Part X. Other Legal Requirements discussing temperature monitoring as a reasonable and prudent measure the fourth paragraph states that continuous monitoring of effluent and river upstream monitoring is required. The draft permit requires both upstream and downstream monitoring.

    Response: The fact sheet contains an error by not including the requirement for downstream monitoring. The fact sheet is not enforceable but is an explanation of the requirements in the permit. Although the fact sheet does not address downstream monitoring the permit does contain the requirement to monitor downstream. Therefore the City is required to conduct downstream monitoring.

15. **Comment:** Appendix C – Basis for Effluent Limitations, Table C-8 Determination of pH Limits erroneously uses the acute dilution factor of 1.9 rather than the chronic dilution factor of 13.6. The point of compliance with pH is the boundary of the chronic dilution zone. The corrected lower pH limit remains unchanged from 6.1 s.u. in the existing permit and is not 6.4 s.u. as indicated in the draft permit.

    Response: The EPA agrees. The Table below shows at a discharge with a pH of 6.1 s.u. the City is within the water quality standard of 6.5. The effluent limitation for pH is changed from 6.4 in the draft permit to a final limit of 6.1. This is the same pH effluent limit in the previous permit.

Based on the procedure in EPA's DESCON program (EPA, 1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington D.C.)

INPUT	
1. Dilution Factor at Mixing Zone Boundary	13.600
2. Ambient/Upstream/Background Conditions	
Temperature (deg C):	15.90
pH:	7.70
Alkalinity (mg CaCO3/L):	20.10
3. Effluent Characteristics	
Temperature (deg C):	23.18
pH:	6.10
Alkalinity (mg CaCO3/L):	110.60
OUTPUT	
1. Ionization Constants	
Upstream/Background pKa:	6.41
Effluent pKa:	6.36
2. Ionization Fractions	
Upstream/Background Ionization Fraction:	0.95
Effluent Ionization Fraction:	0.35
3. Total Inorganic Carbon	
Upstream/Background Total Inorganic Carbon (mg CaCO3/L):	21
Effluent Total Inorganic Carbon (mg CaCO3/L):	312
4. Condtions at Mixing Zone Boundary	
Temperature (deg C):	16.44
Alkalinity (mg CaCO3/L):	26.75
Total Inorganic Carbon (mg CaCO3/L):	42.55
pKa:	6.41
RESULTS	
pH at Mixing Zone Boundary:	**6.64**

16. Comment: The information on changes to the ammonia level is incomplete. Two of the items we checked appeared to be incorrect:

Appendix D states that 50 ammonia data points were used for ammonia calculations. Appendix E contains over 100 dates with ammonia data between August 2003 and December 2011. Which dates were used and what is the basis for their selection?

The coefficient of variation (CV) was calculated based on only 50 ammonia data points. The CV based on the complete set of data is significantly less than the 1.75 value used according to the fact sheet. Puyallup requests that EPA share the spreadsheet files used to make the calculations for ammonia Reasonable Potential and Limits.

Response: Reasonable potential and effluent limitations for ammonia were developed seasonally. As the fact sheet states the data used are DMR results from August 2003 through December 2011, there are 50 data points for this period during the months of November through April. The calculated CV is 1.754. Appendix D Table D-2 shows 50 data points used for ammonia for the periods November through April and 52 data points for the periods May through October. The total is 102 data points.

Seasonal Period from May through October	NH3 mg/L	Seasonal Period from November through April	NH3 mg/L
8/31/2003	3.9		
9/30/2003	2.3		
10/31/2003	2.2		
		11/30/2003	2.6
		12/31/2003	1.1
		1/31/2004	2.7
		2/29/2004	9.3
		3/31/2004	1
		4/30/2004	0.6
5/31/2004	0.7		
6/30/2004	0.4		
7/31/2004	1.3		
8/31/2004	2.5		
9/30/2004	0.8		
10/31/2004	0.4		
		11/30/2004	0.5
		12/31/2004	0.4
		1/31/2005	0.8
		2/28/2005	0.5
		3/31/2005	0.6
		4/30/2005	0.6
5/31/2005	0.4		
6/30/2005	0.7		
7/31/2005	1.6		
8/31/2005	0.5		
9/30/2005	2.1		
10/31/2005	0.5		
		11/30/2005	0.3
		12/31/2005	0.2
		1/31/2006	1.8
		2/28/2006	0.3

		3/31/2006	0.3
		4/30/2006	0.3
5/31/2006	0.5		
6/30/2006	6		
7/31/2006	2		
8/31/2006	0.9		
9/30/2006	2.3		
10/31/2006	0.2		
		11/30/2006	1.2
		12/31/2006	0.8
		1/31/2007	3.9
		2/28/2007	0.3
		3/31/2007	1.1
		4/30/2007	0.9
5/31/2007	0.1		
6/30/2007	0.1		
7/31/2007	1.4		
8/31/2007	1.1		
9/30/2007	0.9		
10/31/2007	1.6		
		11/30/2007	0.2
		12/31/2007	0.6
		1/31/2008	0.2
		2/29/2008	0
		3/31/2008	0.1
		4/30/2008	0.1
5/31/2008	0.1		
6/30/2008	0.2		
7/31/2008	1.5		
8/31/2008	1.3		
9/30/2008	0.8		
10/31/2008	0.2		
		11/30/2008	0.2
		12/31/2008	0.4
		1/31/2009	4.3
		2/28/2009	1.7
		3/31/2009	0.2
		4/30/2009	0.1
5/31/2009	0.1		
6/30/2009	0.1		
7/31/2009	0.3		

8/31/2009	1.8		
9/30/2009	2.9		
10/13/2009	2.9		
10/31/2009	1		
		11/30/2009	0.3
		12/31/2009	0.1
		1/31/2010	0.3
		2/28/2010	0.1
		3/31/2010	0.1
		4/30/2010	0.1
5/31/2010	0.2		
6/30/2010	0.1		
7/31/2010	0.7		
8/31/2010	1.8		
9/30/2010	0.2		
10/31/2010	0.4		
		11/30/2010	0.3
		12/31/2010	0.4
		1/31/2011	0.2
		2/28/2011	0.1
		3/31/2011	0.1
		4/30/2011	0.2
5/31/2011	2.2		
6/30/2011	7.3		
7/31/2011	0.3		
8/31/2011	0.2		
9/30/2011	0.4		
10/31/2011	0.6		
		11/30/2011	0.3
		12/31/2011	0.7
Count	52		50
Mean	1.25		0.87
Standard deviation	1.422163		1.522384
CV	1.137731		1.749867

17. Comment: Ammonia limit calculations should be based on Puyallup River pH and temperature data pairs, not individual pH and temperature values. It is erroneous to assume that the 95th percentile value for pH would occur on the same day as the 95th percentile for temperature. There is now a substantial amount of river pH and temperature

data that can be used for data pair selection so "limited data" is not a valid argument for rejecting this method.

Response: When selecting a reasonable worst-case value for temperature and pH, the EPA and states use the percentile value derived from a cumulative frequency distribution analysis of a complete data set of pH data and a complete set of temperature. This provides more conservative protection for water quality and is more practical than attempting to pair pH and temperature.

The Technical Support Document for Toxics Control (EPA, 1996) recognizes the use of paired data when extensive data are available. The City is asking for a change from the steady state modeling using worse case conditions for pH and temperature with "single, constant inputs for effluent flow, effluent concentration, background receiving water concentration (RWC)[i.e. ammonia], receiving water flow, and meteorological conditions (e.g., temperature)" (Section 4.5.1 Wasteload Allocation Methods, page 78). The alternative, dynamic modeling, includes more than simply finding pairs. It requires more data "using estimates of effluent variability and the variability of receiving water assimilation factors to develop effluent requirements in terms of concentration and variability. The outputs from dynamic models can be used to base permit limits on probability estimates of receiving water concentrations rather than worst-case conditions." "In general, dynamic models account for the daily variations of [i.e. temperature and pH] and relationships between flow, effluent, and environmental conditions and therefore directly determine the actual probability that a water quality standards exceedance will occur." "Dynamic modeling determines an LTA that will be adequately protective of the WLA, which relies on actual flow data thereby reducing the need to rely on worst case critical flow condition assumptions."

For example the continuous simulation models have the advantage compared to steady-state formulation of "cross-correlation and interaction of time-varying pH, flow temperature, pollutant discharges, and other parameters are incorporated." However they require significantly more data for input information for the application of the time-series model.

The TSD lists the Lognormal Probabilistic Dilution Model, Monte Carlo Simulation Model and continuous simulation models. The EPA will consider such models submitted by the City when data to support them are available.

The permit is unchanged.

18. **Comment:** The ammonia value listed in Appendix E for ammonia on June 20, 2006, is 5.0 mg/L; however, the actual recorded value was 1.27 mg/L.

Response: The EPA cannot verify the comment. Changing the June 20, 2006 ammonia concentration from 5.0 mg/L to 1.27 mg/L does not change the determination of reasonable potential for ammonia for the seasonal period from November through April. With the substitution of 1.27 mg/L for 5.0 mg/L the City still has a reasonable potential to

violate the water quality standards from November through April. The permit is unchanged.

19. **Comment:** The data used to calculate Reasonable Potential for copper needs to be clarified. The Reasonable Potential Calculations and Limits calculations contained in Table D-2 of the Fact Sheet indicate that 60 samples were used in the calculation. The tables in Appendix E, pages 82 – 89 of the Fact Sheet, list 160 effluent values for copper from August 2003 through March 2013. Values listed between 8/31/03 and 3/31/08 are seemingly listed twice and there is no value listed for 12/31/09 but there are two values listed for 1/31/10.

    Discounting duplicate entries, there are 116 available data points available on Fact Sheet pages 82 – 89. It is not clear which 60 samples were selected or the reason for their selection.

    Because the Coefficient of Variation (CV) and the Reasonable Potential Multiplier (RPM) are determined from the selected data set, it is important that Puyallup both understand and have the opportunity to examine this data used for these calculations prior to adoption of the copper limitation.

    Because of the selection of data points, differences in calculated values, and the methods used are not clear, Puyallup requests that EPA share the spreadsheet files used to make the calculations for copper Reasonable Potential and Limits.

    Response: The EPA agrees. There are duplicates in the tables for copper on pages 82 through 89 in Appendix E. Based on the DMRs there are 116 data points between 8/31/03 and 3/31/08 to calculate the reasonable potential for copper as listed below.

7.2	ug/L	08/31/2003
11.	ug/L	09/30/2003
10.6	ug/L	10/31/2003
9.8	ug/L	11/30/2003
10.5	ug/L	12/31/2003
12.	ug/L	01/31/2004
9.7	ug/L	02/29/2004
8.1	ug/L	03/31/2004
10.7	ug/L	04/30/2004
10.8	ug/L	05/31/2004
13.4	ug/L	06/30/2004
6.1	ug/L	07/31/2004

11.8	ug/L	08/31/2004
.	ug/L	09/30/2004
12.2	ug/L	10/31/2004
14.9	ug/L	11/30/2004
13.4	ug/L	12/31/2004
13.8	ug/L	01/31/2005
12.3	ug/L	02/28/2005
15.1	ug/L	03/31/2005
12.	ug/L	04/30/2005
9.6	ug/L	05/31/2005
12.5	ug/L	06/30/2005
22.3	ug/L	07/31/2005
16.3	ug/L	08/31/2005
17.4	ug/L	09/30/2005
18.5	ug/L	10/31/2005
.	ug/L	11/30/2005
15.6	ug/L	12/31/2005
10.1	ug/L	01/31/2006
13.1	ug/L	02/28/2006
13.2	ug/L	03/31/2006
14.2	ug/L	04/30/2006
16.4	ug/L	05/31/2006
18.4	ug/L	06/30/2006
20.9	ug/L	07/31/2006
14.6	ug/L	08/31/2006
13.8	ug/L	09/30/2006
14.9	ug/L	10/31/2006
17.9	ug/L	11/30/2006
12.4	ug/L	12/31/2006
9.	ug/L	01/31/2007
15.5	ug/L	02/28/2007
11.7	ug/L	03/31/2007
12.7	ug/L	04/30/2007
4.5	ug/L	05/31/2007
3.7	ug/L	06/30/2007

3.	ug/L	07/31/2007
3.1	ug/L	08/31/2007
5.5	ug/L	09/30/2007
6.5	ug/L	10/31/2007
4.2	ug/L	11/30/2007
6.	ug/L	12/31/2007
3.9	ug/L	01/31/2008
4.3	ug/L	02/29/2008
5.2	ug/L	03/31/2008
2.8	ug/L	04/30/2008
2.6	ug/L	05/31/2008
2.9	ug/L	06/30/2008
3.4	ug/L	07/31/2008
2.8	ug/L	08/31/2008
2.9	ug/L	09/30/2008
2.8	ug/L	10/31/2008
4.1	ug/L	11/30/2008
4.2	ug/L	12/31/2008
4.3	ug/L	01/31/2009
3.2	ug/L	02/28/2009
2.8	ug/L	03/31/2009
3.7	ug/L	04/30/2009
4.4	ug/L	05/31/2009
3.9	ug/L	06/30/2009
2.6	ug/L	07/31/2009
3.8	ug/L	08/31/2009
4.2	ug/L	09/30/2009
7.7	ug/L	10/31/2009
3.4	ug/L	11/30/2009
5.	ug/L	12/31/2009
7.7	ug/L	01/31/2010
5.	ug/L	02/28/2010
4.9	ug/L	03/31/2010
7.5	ug/L	04/30/2010
4.4	ug/L	05/31/2010

2.7	ug/L	06/30/2010
3.1	ug/L	07/31/2010
3.8	ug/L	08/31/2010
4.2	ug/L	09/30/2010
5.2	ug/L	10/31/2010
6.4	ug/L	11/30/2010
4.9	ug/L	12/31/2010
4.9	ug/L	01/31/2011
4.4	ug/L	02/28/2011
4.8	ug/L	03/31/2011
8.1	ug/L	04/30/2011
6.4	ug/L	05/31/2011
6.3	ug/L	06/30/2011
4.	ug/L	07/31/2011
4.	ug/L	08/31/2011
3.5	ug/L	09/30/2011
6.7	ug/L	10/31/2011
6.1	ug/L	11/30/2011
5.4	ug/L	12/31/2011
5.9	ug/L	01/31/2012
6.1	ug/L	02/29/2012
5.9	ug/L	03/31/2012
4.8	ug/L	04/30/2012
5.	ug/L	05/31/2012
3.4	ug/L	06/30/2012
5.9	ug/L	07/31/2012
5.2	ug/L	08/31/2012
5.2	ug/L	09/30/2012
4.8	ug/L	10/31/2012
4.3	ug/L	11/30/2012
5.6	ug/L	12/31/2012
6.	ug/L	01/31/2013
5.9	ug/L	02/28/2013
6.9	ug/L	03/31/2013

116.	Count
4.829	Standard Deviation
7.751	Average
0.623	CV
22.3	max

Using the 116 data points and using the same spreadsheet and the same equations provided in the Technical Support Document the results lead to the same conclusion as is in the fact sheet i.e. a reasonable potential to exceed water quality standards was found for copper. Using the same procedure as in the fact sheet the resulting limits for copper were compared to effluent limits in the previous permit, with the more stringent limits being selected for the new permit.

The copper CV and RPM are now determined from the same data set from 8/31/03 and 3/31/08 as provided by the City in their DMRs and stated in the comment. The procedures, methods and data set are clear and agree with the City's proposed data set.

Water Body Type	Freshwater

Dilution Factors:	Acute	Chronic
Aquatic Life	1.9	13.6
Human Health Carcinogenic		13.6
Human Health Non-Carcinogenic		13.6

Unionized NH3
Nov-April May-Oct Total As

Pollutant, CAS No. & NPDES Application Ref. No.			AMMONIA, Criteria as Total NH3	AMMONIA, Criteria as Total NH4	ARSENIC (dissolved) 7440382 2M	ARSENIC (inorganic)	CADMIUM - 7440439 4M Hardness dependent	CHROMIUM(TRI) -16065831 5M Hardness dependent	COPPER - 744058 6M Hardness dependent	ENDOSULFAN a 959988 11P, b 3213659 12P
Effluent Data	# of Samples (n)		50	52	26	26	26	23	116	
	Coeff of Variation (Cv)		1.75	1.14	0.23	0.23	0.47	0.67	0.623	0.5
	Effluent Concentration, ug/L (Max. or 99th Percentile)		68	66	1.38		0.18	2.7	22.3	0.05
	Calculated 50th percentile Effluent Conc. (when n>10)					1.1				
Receiving Water Data	90th Percentile Conc., ug/L		0.4	0.4	1.03		0.02	0.26	0.94	
	Geo Mean, ug/L					0				
Water Quality Criteria	Aquatic Life Criteria, ug/L	Acute	85	140	360	-	1.3266	878.21	6.974	0.2
		Chronic	19	31	190	-	0.3355	67.591	3.1707	0.05
	WQ Criteria for Protection of Human Health, ug/L		-	-	-	0.018	-	-	-	0.9
	Metal Criteria Translator, decimal	Acute	-	-	1	-	0.865	-	0.862	
		Chronic	-	-	1	-	0.865	-	0.862	
	Carcinogen?		N	N	Y	Y	N	N	N	N

Aquatic Life Reasonable Potential

s		1.184	0.913	0.227		0.447	0.609	0.573	0.55
Pn		0.912	0.915	0.838		0.838	0.819	0.961	0.46
Multiplier		3.16	2.38	1.36		1.82	2.37	1.38	3.8
Max concentration (ug/L) at edge of…	Acute	114	83	1.473		0.159	3.489	14.409	0.10
	Chronic	16	12	1.092		0.039	0.711	2.822	0.01
Reasonable Potential? Limit Required?		**YES**	**NO**	**NO**		**NO**	**NO**	**YES**	**NO**

Aquatic Life Limit Calculation

# of Compliance Samples Expected per month		4						1
LTA Coeff. Var. (CV), decimal		1.75						0.623
Permit Limit Coeff. Var. (CV), decimal		1.75						0.623
Waste Load Allocations, ug/L	Acute	161.14						12.405
	Chronic	253.36						31.277
Long Term Averages, ug/L	Acute	20.682						3.8575
	Chronic	**128.8**						16.141
Limiting LTA, ug/L		20.682						3.8575
Metal Translator or 1?		1.00						0.86
Average Monthly Limit (AML), ug/L		**53.8**						**9.7**
Maximum Daily Limit (MDL), ug/L		**161.1**						**14.4**

	Calculated Copper limits Using 116 data points	Copper Limits from Previous Permit	Limit for New Permit
Average Monthly Limit (AML)	9.7 ug/L	8.5 ug/L	8.5 ug/L
Maximum Daily Limit	14.4 ug/L	13.7 ug/L	13.7 ug/L

Section 402(o) of the Clean Water Act and federal regulations at 40 CFR §122.44 (l) generally prohibit the renewal, reissuance or modification of an existing NPDES permit that contains effluent limits, permit conditions or standards that are less stringent than those established in the previous permit (i.e., anti-backsliding) but provides limited exceptions. Section 402(o)(1) of the CWA states that a permit may not be reissued with less-stringent limits established based on Sections 301(b)(1)(C), 303(d) or 303(e) (i.e. water quality-based limits or limits established in accordance with State treatment standards).

The more stringent copper limits are the limits in the previous permit which the Tribe has certified are protective and are therefore retained.

The permit is unchanged.

20. Comment: Additionally, we contend that the copper and other metals limitations included in the existing permit are premised on erroneous data taken prior to 2002 not using 'clean sampling methods'.

In June 2003, the City concluded a 12 month trace metals study using clean sampling methods (Wastewater Treatment Facility Trace Metals Study, February 2004, Gray & Osborne No. 02443). This study was presented to EPA and the Puyallup Tribe. Based on 21 sampling episodes it was found that there was no reasonable potential to exceed lead, mercury, and zinc water quality standards. EPA has drawn the same conclusion in the draft permit.

More importantly, the coefficient of variation (CV) for copper dropped to 0.29 and the limits were recalculated by Puyallup using EPA's permit level calculation methods. Using the new CV value, Puyallup believes its limits should have been established at 11.2 µg/L for the monthly average rather than the existing 8.5 µg/L. The values indicated on page 50 of the Fact Sheet indicate an AML of 10.1 µg/L and a MDL of 14.4 µg/L, despite the draft permit limits remaining unchanged from the existing limits.

Following the study, in May 2004 letters were sent to EPA, the Puyallup Tribe, and the Department of Ecology asking that limits for lead, mercury, and zinc be removed from Puyallup's permit and that the copper limitation be revised.

When the City failed to receive a response, a letter was sent to Michael Lidgard, NPDES Permit Unit Manager, on January 25, 2005, requesting that Puyallup's permit be reopened and revised. The request met the requirements of 40 CFR 124.5 as it was in

writing and contained facts and reasons supporting the request. There was no response to this request, as well.

Response: The EPA reevaluated the data as described in response to Comment No. 20 above. Based on that evaluation, EPA is retaining the existing limits because of prohibitions on backsliding. See Response to Comment 19.

21. Comment: EPA now promotes methodologies for determining copper limits that it considers improvements over the old EPA hardness-based criteria used to establish Puyallup's copper limitations. Hardness-based criteria is used to establish limitations in both Puyallup's existing permit and its draft permit. The two methods promoted by EPA are the Biotic Ligand Model (BLM) for Copper and Streamlined Water-Effects Ratio Procedure for Discharges of Copper (EPA -822-R-01-005).

Puyallup requests that it be permitted to submit a test plan for use of the Biotic Ligand Model (BLM) and/or Water-Effects Ratio testing for accurate determination of Puyallup's effluent copper limitation.

Response: Federal regulations at 40 CFR122.44 (vii) states:

> "When developing water quality-based effluent limits under this paragraph the permitting authority shall ensure that:
>
> (A) The level of water quality to be achieved by limits on point sources established under this paragraph is derived from, and complies with all applicable water quality standards;…"

Copper water quality standards derived from a BLM or a water effects ratio are not the applicable water quality standards for copper. The applicable water quality standards are the current Puyallup Tribes water quality standards for copper.

Some of the requirements to make BLM and water effects ratio derived copper standards applicable to the water quality-based effluent limits in the Puyallup NPDES permit are:

- Revising the Puyallup water quality standards
- Consultation with the U.S. Fish and Wildlife Service (USFWS) on revising the Puyallup standards
- Consultation with the National Marine Fisheries Service (NMFS) on revising the Puyallup standards
- EPA approval of the revision

The permit is unchanged.

22. Comment: On December 4, 2013, HDR Engineering, Inc. completed a report reviewing different wastewater treatment technologies for their ability to meet discharge limits associated with revised human health water quality criteria (HHWQC). HDR conducted both a literature review of potential technologies and an engineering review of their capabilities to evaluate and screen treatment methods for meeting revised effluent limits for four constituents of concern: arsenic, benzo(a)pyrene (BAP), mercury, and polychlorinated biphenyls (PCBs). Currently, there are no known facilities that treat to the HHWQC and anticipated effluent limits that are under consideration.

Among numerous other findings, HDR concluded that compliance with a HHWQC for arsenic of 0.018 µg/L appears unlikely. Most treatment technology performance information available in the literature is based on drinking water treatment applications targeting a much higher Safe Drinking Water Act (SDWA) maximum contaminant level (MCL) of 10 µg/L.

Response: This comment is outside the scope of the reissued permit since the permit does not require treatment of arsenic, BAP, mercury or PCBs.

23. Comment: The 24 hour notification of violation requirement in Condition I.B.2. needs to be clarified to address circumstances where analytical results are not immediately available. As required in the draft permit, Puyallup may be placed in jeopardy of violating this requirement. For example, metals testing, for which there is a maximum daily limit, is analyzed for Puyallup by a commercial laboratory and the results are not available for two to three weeks after the sample is collected. The results, therefore, are not available within 24 hours of violation. Adding language to the draft permit such as '…or within 24 hours of the analytical results being known….' would correct this problem.

Response: This clarification is already in the permit, violations must be reported when the City becomes aware of the circumstances.

Condition I.B.2. states:

> "The permittee must report within 24 hours any violation of the maximum daily limits for all parameters for which there is a max daily limit in Table 1 above. Violations of all other effluent limits are to be reported at the time that discharge monitoring reports are submitted (See III.B. and III.H.)."

However, Footnote 2 in Table 1 referring to 24 hour notification of a violation states:

> "2. Reporting is required within 24 hours of a maximum daily limit or instantaneous maximum limit violation. See Sections I.B.2. and III.G."

Section III.G. clarifies the 24 hour reporting requirement:

G. "Twenty-four Hour Notice of Noncompliance Reporting

1. The permittee must report the following occurrences of noncompliance by telephone within 24 hours from the time the permittee *becomes aware of the circumstances:* (emphasis added)

   …(d) any violation of a maximum daily discharge limitation for applicable pollutants identified in Part I.B."

The permit is unchanged.

24. Comment: Additionally, because of the challenges associated with the maintenance and calibration of continuous monitoring pH instrumentation in a wastewater flow stream there is the potential for instantaneous pH excursions, considered Daily Minimum or Daily Maximum violations, in the proposed permit. For example, an instantaneous or short duration 0.1 pH excursion above or below the minimum or maximum pH limit would technically be considered a violation and would need to be reported within 24 hours.

We believe it would be prudent and reasonable to place limits on the 24 hour reporting requirement in order to mitigate the potential for nuisance 'emergency' reporting of relatively inconsequential or short-term limit excursions unlikely to have an adverse human health or environmental effect.

Response: Condition I.B.7. requires the use of methods that can achieve a ML less than the effluent limitation. This requires the City to maintain and calibrate the continuous pH instrumentation to monitor and ensure compliance with the pH limits. Condition I.B.2. does not require reporting within 24 hours of pH exceedances, only the toxic pollutants copper and ammonia. This is clarified in the final permit.

Federal regulation at § 401.17 pH Effluent limitations under continuous monitoring. States:

"(a) Where a permittee continuously measures the pH of wastewater pursuant to a requirement or option in a National Pollutant Discharge Elimination System (NPDES) permit issued pursuant to section 402 of the Act, the permittee shall maintain the pH of such wastewater within the range set forth in the applicable effluent limitations guidelines, except excursions from the range are permitted subject to the following limitations:
(1) The total time during which the pH values are outside the required range of pH values shall not exceed 7 hours and 26 minutes in any calendar month; and
(2) No individual excursion from the range of pH values shall exceed 60 minutes."

This exception to excursions are added to the permit.

Further, as part of the reporting the City may provide information related to 40 CFR 133.102(c) that states:

"(c)pH. The effluent values for pH shall be maintained within the limits of 6.0 to 9.0 unless the publicly owned treatment works demonstrates that: (1) Inorganic chemicals are not added to the waste stream as part of the treatment process; and (2) contributions from industrial sources do not cause the pH of the effluent to be less than 6.0 or greater than 9.0."

25. Comment: There appears to be an error in the WET testing requirements. In Condition I.C.4 the acute toxicity trigger is listed as 1 TUa. This should be 1.9 TUa based on the outfall dilution value cited throughout the Fact Sheet. We assume this is an error because there is no discussion or justification provided in the fact sheet. If the 1 TUa toxicity trigger is not an error, no basis has been provided for this change and therefore we request additional time to evaluate the impact of this change.

Also, the draft permit only contains a trigger for accelerated testing for the annual acute test. Under the current permit, accelerated chronic testing is required if the annual acute test exceeds the acute toxicity threshold.

Response: Permittees are typically only required to perform acute or chronic toxicity testing, depending on the dilution available for toxicity. Per EPA guidance at EPA/505/2-90-001 at p. 58., acute toxicity testing is recommended when the dilution of the effluent is greater than 1000:1 at the edge of the mixing zone, and chronic toxicity testing is recommended when the dilution of the effluent falls below 100:1 at the edge of the mixing zone. The percentage effluent at the edge of the mixing zone is also referred to as the receiving water concentration (RWC). The mixing zone authorized by the Washington State Department of Ecology provides for a RWC of 52.6% effluent which is 1.9:1. Therefore the final permit will only require chronic toxicity testing. Acute toxicity testing and the acute toxicity trigger in Condition I.C.4. are deleted from the final permit and all other references to acute toxicity monitoring is removed from the permit. The trigger for accelerated testing in condition I.C.4. is changed to 1.9 TUc.

26. Comment: Chronic Toxicity – Under Puyallup's existing permit, accelerated chronic toxicity testing is required when the no observable effects threshold (NOEC) exceeds 11.5 TUc (chronic toxicity units), which is equivalent to chronic toxicity observed in a test of diluted effluent at a concentration of 8.7% in river water or synthetic river water. This is the concentration at which there can be no effect on the survival, growth, or reproduction of the test organisms.

Under the draft permit there is both a survival endpoint and sublethal endpoints; however, there are no requirements listed for the chronic endpoints that would trigger accelerated testing. Additionally, the survival endpoint is listed as TUc = 100/NOECm meaning that the threshold is exceeded if there is mortality of test organisms in 100% effluent. The draft also lists 52.6% effluent as being the dilution associated with the chronic toxicity trigger although no subsequent procedure is defined.

Response: The draft permit failed to provide the necessary specificity regarding which chronic tests will be required. EPA will revise the final permit to specify that the chronic

tests will be the fathead minnow larval survival and growth test (test method 1000.0 in EPA-821-R-02—013) and the ceriodaphnia dubia survival and reproduction test (test method 1002.0 in EPA-821-R-02-013). These test methods, and their endpoints, are identical to the test methods in the previous permit.

27. Comment: It is not clear whether any additional chronic tests are required under the draft permit if accelerated testing is triggered based on the annual acute test results. The current permit requires that a toxicity reduction evaluation (TRE) is initiated if an accelerated test exceeds a toxicity threshold, and further accelerated testing can end if a toxicity identification evaluation (TIE) is also initiated. Under the draft permit, initiation of a TRE justifies ending the accelerated testing without the additional requirement of initiating a TIE.

Response: Acute testing is not required in the final permit. The toxicity threshold is chronic toxicity. The final permit states the permittee *may* (emphasis added) initiate a TIE as part of the overall TRE process. The permit also states if a TIE is initiated prior to completion of the accelerated testing, the accelerated testing schedule may be terminated, or used as necessary in performing the TIE.

28. Comment: Lastly, toxicity testing is performed for Puyallup by a laboratory recommended by the Department of Ecology that specializes in this type of testing. Unless the sampling and testing is conducted at the very beginning of a month, the results will not be available for submittal with the following month DMR.

Response: Reporting toxicity tests required Condition I.C.6.a) is changed as follows:

The permittee must submit the results of the toxicity tests with the discharge monitoring reports (DMR) for the month following ~~sample collection~~ **receipt of the results from the lab.**

29. Comment: The draft requires continuous temperature monitoring 100’ upstream of the plant outfall and 302’ downstream, respectively. The center of the outfall diffuser array is located about 70’ from the south river bank. To accurately monitor temperature representative of the downstream edge of the mixing zone will require placement of a downstream monitoring station about 70’ from the south bank. The placement of the upstream station is likely less problematic because it does not need to be centered on the diffuser array as long as it is 100’ upstream and outside of influence of the diffusers.

Because of changes in surface elevation of as much as 20’, significant variations in flow between critical flow and extreme storm events, debris carried during storm events, and shoulder-to-shoulder fishermen during salmon season, we believe it will be difficult to maintain, service, and recover data from the proposed continuous monitoring stations. The most practical time to access these locations for monitoring purposes is in the fall when the river is typically at its lowest.

Puyallup is concerned about the time and complexity of meeting this requirement. In the absence of detailed guidance on how the City is expected to establish these monitoring stations, maintain the recording devices, and collect data from the devices, we recommend a monitoring requirement designed around temperature measurements taken during the critical flow time of the year when the potential for adverse effects are greatest and the ability to access equipment in the river is most practical.

Response: The Puyallup Tribe's temperature standard applies for the full year not just during low flow periods. The receiving water must be characterized for the year. Data loggers have been successful at another location storing a year of temperature data during periods when access for recovery was not possible. During this period maintenance of the thermistors was not required. For example the TidbiT v2 Water Temperature Data Logger - UTBI-001 has a battery life of five years and requires no other service according to Onset Hobo Data Loggers, maintains an accuracy of 0.2 ^{o}C and has a data logger with a capacity 42,900 hours or 4.9 years with the permit required 8,760 data points at one hour recording intervals.

Condition I.D.1. requires the City to work with the Puyallup Tribe to develop a receiving water monitoring plan. This plan must include a continuous temperature monitoring plan for both effluent temperature monitoring and surface water temperature monitoring. The Puyallup Tribe is capable and experienced at providing the necessary guidance on locating temperature monitoring stations. The permit is unchanged.

30. **Comment:** Part II.D.9. seemingly is a redundant requirement because EPA and the Tribe will receive monitoring results throughout the term of the permit per II.D.10. However, the language of II.D.10 states that surface water monitoring results must be reported on the monthly Discharge Monitoring Report (DMR). DMR's do not typically have a format easily accommodating data that is only submitted quarterly or annually. Puyallup recommends that the reporting language in Part I.E.6. of Puyallup's existing permit be retained and replace the language of the draft permit.

    Response: Conditions II.D.9. and II.D.10 are not in the permit. However, Conditions I.D.9. and I.D.10 are in the permit and refer to submission of monitoring results. Condition I.E.6. of the previous permit states:

    "Receiving water monitoring results must be submitted to the EPA and the Puyallup Tribe Environmental Department with the January Discharge Monitoring Report."

    Condition I.D.9 requires submission of the monitoring reports with the monthly DMRs for the EPA to ensure in a timely manner the City is conducting the monitoring without waiting until the end of the year. DMRs are used for submission of quarterly results from other permittees without problems and will be used without problems for the City's reporting.

31. **Comment:** We assume that the required Toxic Organic Sampling under Condition II.A.8.i) will satisfy a portion of the required sampling under Part I.B.9, pg. 8, but would

like clarification. Additionally, Puyallup requests that language be added …once during the cycle of this permit… for clarification of when and how often the Toxic Organics Sampling must be performed during the permit cycle.

Response: The toxic organic sampling requirement in Condition II.A.8.i) of the pretreatment requirements can satisfy a portion of the required sampling required under Part I.B.9, effluent testing required by Part D of NPDES application Form 2A, which states:

"To the extent that effluent monitoring required by other conditions of this permit satisfies this requirement, these samples may be used to satisfy the requirements of this paragraph."

Toxic organic sampling is required once per year for the following reasons:

- To characterize the discharges for toxic organic discharges.
- To determine if a local limit study is needed
- To identify treads in toxic organic discharges and inflow

A toxic organic sampling frequency of once per year is added to the permit.

32. Comment: The language of Condition II.F. Emergency Response and Public Notification Plan is too broad making interpretation difficult and potentially leading to the requirement for public notification for events that have little or no health or environmental effects. While we feel public notification is a reasonable addition to the draft permit, the language needs to be clarified and the notification requirements better defined so that it does not result in unnecessary notifications that serve no greater good.

For example, is the 'Plan' only invoked in the event of an unanticipated bypass or overflow or is it also invoked at any time any effluent limitation in the permit is exceeded as stated in the draft permit? Is the language applicable to instantaneous pH excursions, monthly or weekly violations of BOD_5, TSS, copper or other such results that may have little or no health or environmental effects or in situations where the violation only becomes evident after the event has transpired?

The language of Part II.F. is sensible in the context of a discharge that is immediately dangerous to human health or the environment but it does not make sense in the context of exceeding "any effluent limitation in the permit..." such as BOD5, TSS, copper or other such results that may have little or no health or environmental effects or the violation only becomes evident after the event has transpired?

Response: The plan and public notice is only for "an overflow…that may endanger health and unanticipated bypasses or upsets that exceed any effluent limitation in the permit." Public notification is not required any time any effluent limitation in the permit

is exceeded, only those that exceed an effluent limitation due to an unanticipated bypass or upset or an overflow that may endanger health.

The permit is unchanged.

33. Comment: Condition III.I., Public Notification reference to Part II.G. is erroneous and should reference Part II.F.

Response: The EPA agrees. The reference is changed to Part II.F.