

Response to Comments on the Draft NPDES Permit for the

City of Wapato

NPDES Permit #WA-005022-9

August 2011

Background

The EPA issued a draft NPDES permit for the City of Wapato for public review and comment on May 18, 2011. The public comment period ended on June 18, 2011. The Agency received comments on the draft permit from the City of Wapato and the Yakama Nation.

Comments from the City of Wapato

Comment 1. Jurisdiction Language – The City states that the Public Notice and the Fact Sheet refers to the Wapato Wastewater Treatment Plant (WWTP) as being located “on the reservation of the Confederated Tribes and Bands of the Yakama Nation.” The City believes this is an error and that the language gives the impression that the WWTP facility is regulated and managed by the Yakama Nation. The City provided the following clarification:

“The City of Wapato is an island of state jurisdiction surrounded by the Yakama Reservation. The City facilities including the sewage treatment plant are all owned, in fee, by the City. None of the facilities sit on tribal land, allotted land, or land held in trust by the United States. Lands upon which City facilities are located are subject to state jurisdiction and not subject to the Yakama Nation laws and regulations. Additionally, the Yakama Nation has no authority in the operation, maintenance, use or enforcement with regards to the facility. The facility should not be listed as being on tribal land or on the Yakama Nation Reservation, or any similar reference, in the permit or permit-related publications.”

Response to Comment 1: The Fact Sheet is final. However, this clarification on jurisdictional boundaries is noted through the Response to Comments document. The EPA acknowledges that the facility is neither owned nor operated by the Yakama Nation. However, it should also be noted that the facility discharges its effluent to tribal waters.

Comment 2. Receiving Water Classification. The City disagrees with the use of the Class III designation for Drainage Way No. 2. The City states that Section 21 of the Yakama Nation Water Quality Standards states “All irrigation waters, such as: canals, laterals, ditches, drains, settling basins, storage ponds or other water used within the irrigation process are classified as Class IV” (paragraphs 21.1.1.1, 21.2.2.4, 21.2.3.37, and 21.2.4.24). Additionally, the City believes that paragraph 20.1.6.2 which states:

“Note that waters discharged from Class IV waters into ground waters or a different class of waters shall be of such quality as to ensure that the receiving water is in compliance with the standards assigned to the receiving water after appropriate mixing in accordance with the stated mixing zone policy.”

applies to the discharge of Drainage Way No. 2 into Wanity Slough. The City believes that there is insufficient information available to conclude the City of Wapato discharge would adversely affect Wanity Slough which is located approximately 2 miles downstream. Therefore, the City believes that the waterbody should be protected for Class IV.

Response to Comment 2. The federal regulation at 122.44(d) requires permits to contain effluent limitations necessary to achieve water quality standards. Water quality standards are comprised of three parts: (1) Designated Uses, (2) Numeric and/or narrative water quality criteria sufficient to support the designated uses, and (3) An Antidegradation policy.

A *designated* use is defined in the federal regulation at 40 CFR 131.3(f) as those uses specified in water quality standards for each water body or segment whether or not they are being attained (see also 12.1.26 in the Yakama water quality standards). The antidegradation policy provides three levels of protection from degradation of existing water quality. For Drainage Way No. 2, the most relevant level of protection is Tier I which requires that *existing* uses and the level of water quality necessary to protect the existing uses be maintained and protected. Existing uses are those uses actually attained in the water body on or after November 28, 1975, whether or not they are included in the water quality standards as designated uses (see 40 CFR 131.3(e) and 12.1.33 in the Yakama water quality standards).

As stated in the Fact Sheet, the Yakama Nation water quality standards generally assigns designated uses for irrigation and drainage areas, such as Drainage Way No. 2, under Class IV waters. However, Section 20.1.5.3 in the Tribe’s water quality standards elaborates that “Wanity Slough, although a natural waterway, is interconnected with the irrigation system, and is populated by salmonids.” Therefore, the designated uses for Wanity Slough are for Class III waters. Since Drainage Way No. 2 is part of an irrigation system feeding Wanity Slough, the Agency believes it is reasonable to assume that salmonids in Wanity Slough have access to, and use, Drainage Way No. 2. Therefore, the Agency believes it is reasonable that Class III designated uses apply in Drainage Way No. 2.

Additionally, the Tribe’s antidegradation policy protects existing uses. The Tribe’s antidegradation policy is consistent with the national antidegradation policy and with the State of Washington’s antidegradation policy. The antidegradation policy states that “Existing uses and the level of water quality necessary to protect existing uses shall be maintained and protected.” ...”. The existing uses of irrigation and drainage areas, such as Drainage Way No. 2, are noted in Section 20.1.6.1 in the Yakama Nation water quality standards and states:

“...Note that since their construction, incidental to their designated uses, these waters have been subject to other beneficial uses and sustained or enhanced other resources, notably, cultural, wildlife... and fisheries...”

Therefore, even if the Class IV designated uses apply, the antidegradation policy requires that existing uses also be protected. As acknowledged by the Tribe in their water quality standards, the existing uses include wildlife, fisheries and cultural uses. Therefore, the EPA believes it is reasonable to protect the drainage way as a Class III water.

It is important to note that the Class III designation of Drainage Way No. 2 only establishes the criteria for bacteria, dissolved oxygen, pH, temperature, turbidity and nutrients. All other criteria contained in the Tribe’s water quality standards apply to *all* tribal waters, regardless of the classification. Therefore, the effluent limits for whole effluent toxicity, metals, ammonia, and total residual chlorine would be the same regardless of whether the waters are Class III or Class IV. These effluent limits are established through Section 13 (*General Provisions Applicable to All Waters*) of the water quality standards. Specifically, subsection 13.3.3.1 states:

“Toxic substances shall not be introduced in waters of the Yakama Nation in amounts, concentrations, or combinations which adversely affect the beneficial uses; cause acute or chronic toxicity to the indigenous aquatic biota; are harmful to human, animal plant or aquatic life...”

and subsection 13.3.3.3 states:

“Levels of toxic substances in all surface waters, including wetlands, shall not exceed the chronic and acute criteria for aquatic life protection as listed in Table 2. Acute criteria shall refer to a one-hour average concentration and chronic criteria to a four-day average concentration...”

Comment 3. Ammonia Discharge Limits. The City is concerned about its ability to meet the ammonia limits and is concerned that they will be in violation of the permit on the day it becomes effective. The City requests a compliance schedule for ammonia or a separate compliance order to allow time to complete the necessary improvements, and that the end of the compliance schedule is extended to December 1, 2015.

Response to Comment 3: The ammonia limit in the proposed permit is the same limit as in the permittee’s current permit (2005 permit). The EPA’s federal regulation at 40 CFR 122.47 (a) states that “The permit may, when appropriate, specify a schedule of compliance...” One of the factors relevant to whether a compliance schedule is “appropriate” in a permit is how much time the discharger has already had to meet the WQBEL under prior permits (see *Compliance Schedules for Water Quality Based Effluent Limitations in NPDES Permits*, James S. Hanlon, May 10, 2007). In this case, the 2005 permit allowed the permittee 4 years and 6 months to come into compliance with the WQBEL. The permittee should have been meeting the ammonia limit

in September 2009. Under these circumstances it is not appropriate to include a compliance schedule in the final permit.

Comment 4. Whole Effluent Toxicity, Zinc and Copper Compliance Schedules. The City provided a schedule of compliance for copper and zinc and requests that the final effluent limits for whole effluent toxicity (WET) be extended to December 1, 2015 to match the compliance schedules for copper and zinc.

Response to Comment 4: The draft permit required compliance with the whole effluent toxicity (WET) limits by December 1, 2014, and required compliance with the copper and zinc effluent limits by December 1, 2015. Since copper and zinc may contribute to WET, the EPA believes it is reasonable to extend the WET compliance schedule to coincide with the compliance schedule for zinc and copper to ensure that copper and zinc are not a source of WET. The final permit has been revised to require WET compliance no later than December 1, 2015. Additionally, the final permit includes the revised compliance schedule provided in the City's comment letter.

Comment 5. Zinc and Copper Limits. The City stated that the zinc and copper limits are very stringent and substantially below the maximum contaminant levels (MCLs) established in the State of Washington and by the U.S. EPA. The drinking water MCL for copper, a primary contaminant, is 1.3 mg/L, and the MCL for zinc, a secondary contaminant is 5 mg/L. The City states they could discharge drinking water that meets MCLs for copper and zinc to the Drainage Way that would violate the discharge limits in their draft permit. The City recommends that the effluent limits be established at maximum contaminant levels (MCLs).

Response to Comment 5: Section 303 of the Clean Water Act (CWA) requires states and tribes to adopt criteria necessary to protect the uses of a water body (e.g., human health and aquatic life). The copper and zinc effluent limits in the permit are based on the criteria necessary to protect aquatic life from acute and chronic toxic effects due to elevated concentrations of copper and zinc in the waterbody. The aquatic life criteria adopted by the Tribe are the same criteria established by the Agency (see Section 304(a) of the CWA) and the State of Washington for the protection of aquatic life.

The primary drinking water standards, such as the MCL for copper, are a requirement of the Safe Drinking Water Act and are designed to protect public health by limiting the levels of contaminants in drinking water. Secondary drinking water standards, such as those for zinc, are non-enforceable guidelines regulating contaminants that may cause cosmetic or aesthetic effects. Drinking water standards are not developed to protect aquatic life. Aquatic life is much more sensitive to zinc and copper concentrations compared to humans, so the limits needed to protect them are more stringent than that required by primary or secondary drinking water standards.

Finally, the federal regulations at 40 CFR 122.44(d) require a permit writer to include effluent limits necessary to achieve water quality standards. Section 13 of the Tribal water quality standards establishes the water quality criteria necessary to protect aquatic life from adverse

effects of copper and zinc. Therefore, these criteria were used to establish the copper and zinc effluent limits in the permit.

Comment 6. Sampling and Testing Requirements. The City states that the sampling and testing requirements in the proposed NPDES permit are significantly more than their current permit and will require more staffing and costs to their limited budget. The City provided the following specific comments:

- Cascade Analytical Lab has suggested testing cadmium and mercury on a weekly or monthly basis using reporting levels of 0.3 µg/L, and monitoring on a quarterly basis using reporting levels of 0.02 µg/L for cadmium and 0.5 ng/L for mercury.
- pH and Temperature – Daily monitoring for pH and temperature is difficult because the plant is not staffed by lab personnel on weekends. As a result staff costs will increase. Sampling 5 days per week as required by the current permit should be adequate.
- *E. coli* bacteria – The plant has consistently and reliably met the fecal coliform limits in the current permit. Currently, monitoring is required once per week. Additionally, with the lab space and staff the City now has, it is not possible to perform five bacteria tests per week as required in the draft permit. The time needed to sterilize and cool the equipment and incubate samples exceeds the ability of the facility. Given the past performance of the facility, the City requests the final permit include once per week *E. coli* monitoring.
- Metals testing for copper, zinc, and cadmium seems excessive. The City believes one test per month is sufficient. This would match sampling requirements for mercury.

Response to Comment 6: The following responds to each of the issues discussed by the City:

- **Cadmium and Mercury reporting levels** - The most sensitive aquatic life criterion for cadmium is 0.4 µg/L. In order to determine if the effluent is causing or contributing to an excursion of water quality criterion (see 40 CFR 122.44(d)), the effluent data collected must be below the criterion. In the case of cadmium, it appears that Cascade Analytic Lab can achieve a reporting level of 0.3 µg/L. Since this reporting level is below the criterion, it is an acceptable level. The final permit has been revised to reflect this level.

The most sensitive human health criterion for mercury is 0.0054 µg/L. Cascade Analytic Lab can achieve a reporting level of 0.3 µg/L which is significantly higher than the criterion. The reporting level would not provide the information needed to determine if the effluent is causing or contributing to an exceedance of the water quality criterion, therefore it is not acceptable. The final permit retains the reporting level of 0.5 ng/L

- **pH** – The EPA has reviewed the effluent monitoring results for the past five years for pH and found that the facility has only had one exceedance of the pH limit. Given that the

compliance has been very consistent, the Agency agrees that monitoring five times per week would be sufficient to accurately characterize the effluent. The final permit has been revised to require monitoring five times per week.

- **Temperature** – The water quality criterion for temperature is expressed as a seven-day average of the daily maximum temperature. In order to determine if the effluent is causing or contributing to an excursion of the water quality criterion, data must be collected such that the seven-day average of the daily maximum temperatures can be calculated. This requires daily temperature samples. There are numerous, inexpensive products on the market which allow continuous sampling of temperature. The facility can record daily temperatures using one of these devices if they choose to. The final permit has been revised to allow either grab samples or continuous monitoring.
- ***E. coli* bacteria** – The EPA has reviewed the effluent monitoring results for bacteria over the past five years and found that there have only been three excursions of the limits. Generally, the bacteria results are significantly below the effluent limit. Therefore, the final permit has been revised to require five samples per month. Additionally, the water quality standard states that “*E. coli* bacteria levels shall not exceed a geometric mean of 100 colonies per 100 milliliters with not more than 10 percent of all samples (or no single sample if less than 10 samples points exist) greater than 200 colonies per 100 milliliters.” The final permit contains a maximum daily limit of 200 colonies per 100 milliliters since only 5 samples will be collected during a month.
- **Copper, Zinc, and Cadmium** - The draft permit required weekly monitoring for copper, zinc, and cadmium. The final permit requires weekly testing for copper and zinc because the data are necessary to show that the facility is achieving the effluent limits for these parameters. The EPA has reconsidered the amount of monitoring data necessary to determine if the cadmium concentration in the effluent limit is causing or contributing to an exceedance of the water quality criterion. The final permit requires monthly monitoring for cadmium. This data should provide adequate data for the EPA to make an assessment of the effluent.

Comment 7. The receiving water, on page 1 of the permit, should be revised to read “Drainage Way No. 2.”

Response to Comment 7: The Yakama Nation also submitted a comment concerning the name of the receiving water, and stated that “Drainage Way No. 2” should be referred to as “WIP Drain 2” in accordance to 1978 maps. To accommodate both comments the final permit refers to the receiving water as WIP Drain 2 (aka Drainage Way No. 2).

Comment 8. The City notes that the sampling frequency for dissolved oxygen, total recoverable zinc, and total recoverable mercury in Table 1 of the NPDES permit is not consistent with the frequencies on Table 2 of the NPDES permit or in Table 6 of the Fact Sheet. The City notes that the sampling frequency for dissolved oxygen should be changed from 5/week to 1/week. For total recoverable zinc, the sampling frequency should be changed from 1/quarter to 1/week. For total recoverable mercury, the sampling frequency should be changed from 1/quarter to 1st year: 1/month and after the 1st year: 1/quarter.

Response to Comment 8: Table 1 of the NPDES permit had incorrect monitoring frequencies. Table 2 of the NPDES permit and Table 6 of the Fact Sheet have the correct monitoring frequencies. The final permit has combined Tables 1 and 2 into one table. The EPA notes the mistakes. The sampling frequencies in Table 1 are as follows: dissolved oxygen: 1/week, total recoverable zinc: 1/week, total recoverable mercury: 1st year, 1/month and after the 1st year, 1/quarter.

Comment 9: The City requests that only one surface monitoring station location instead of two is needed to provide sufficient surface water quality monitoring.

Response to Comment 9: The EPA agrees that only one surface monitoring station location is needed. This surface monitoring station should be determined with the approval of the Yakama Nation. The EPA has revised the final permit to require only one surface monitoring station.

Comment 10: The City states that Page 16, section E.5 should be deleted, because surface water monitoring is not required for cadmium, copper, zinc and mercury.

Response to Comment 10: The EPA has deleted this sentence.

Comment 11. The City provided the following editorial comments on the Fact Sheet, which include the following:

Comment 11a. Page 17, Section V.D should be revised to read “There should be one downstream monitoring station located where the effluent and receiving water are fully mixed.”

Response to Comment 11a. The Fact Sheet is final. However, EPA has considered the City’s comment that one downstream monitoring station is sufficient to characterize downstream water quality. Therefore, the NPDES permit will require one downstream monitoring station. This response to comments notes that there should be one downstream monitoring station in the Fact Sheet.

Comment 11b. Page D-13, Table D-3: The average monthly limit for chlorine during the irrigation season should be revised to read “7.5 ug/l” and the maximum daily limit during the non-irrigation season should be revised to read “19 ug/l” to match the limits calculated in Appendix E.

Response to Comment 11b. The Fact Sheet had incorrect numbers for the average monthly limit and the maximum daily limit in Table D-3 for chlorine during the irrigation and non-irrigation seasons. The correct numbers are on pages E-22 to E-23 of the Fact Sheet. The correct chlorine effluent limits are as follows:

Table D-3. Chlorine		
	Irrigation Season	Non-Irrigation Season
Average Monthly Limit	7.5 µg/L	7.5 µg/L
Maximum Daily Limit	19 µg/L	19 µg/L

Comment 11c. Page E-2: The values in the exponent in the first half of the $CMC_{irrigation}$ equation should be “7.204 – 7.7.” The values in the exponent in the first half of the $CCC_{irrigation}$ equation should be “7.688 – 7.7.” The City notes that though the exponents were incorrectly written in the equation “7.7 – 8.15”, the calculations used the correct exponents, “7.204-7.7”.

Response to 11c. While responding to the comment, the EPA found two additional editorial mistakes in its Fact Sheet for ammonia for the non-irrigation season. Neither of the mistakes affects the CMC or CCC ammonia calculations for the non-irrigation season or the final NPDES effluent limits for ammonia.

First, the equations on Page E-2 are written incorrectly. The exponents should be as noted in the City’s comments. Second, the CMC and CCC equations are for the non-irrigation period, not the irrigation period. For the non-irrigation period, the 95th percentile of pH was 7.7, and the 95th percentile for temperature is 18°C. The equations on Page E-2 should be as follows:

$$CMC_{non-irrigation} = 0.275/(1+10^{7.204-7.7})+39.0/(1+10^{7.7-7.204}) = 9.5 \text{ mg/L}$$

$$CCC_{non-irrigation} = [0.0577/(1+10^{7.688-7.7})+2.487/(1+10^{7.7-7.688})] \times \text{Min}(2.85, 1.45 \times 10^{0.028 \times (25-18)}) = 2.8 \text{ mg/L}$$

The EPA also found two errors in the calculations for the CMC and CCC for ammonia during the irrigation season on page E-1. Neither of the mistakes affects the final NPDES effluent limits for ammonia. The Fact Sheet erroneously states that the 95th percentile of pH was 8.15, and the 95th percentile of temperature was 22°C. The correct 95th percentile of pH is 8.04 as noted on page 9 of the Fact Sheet. This changes the $CMC_{irrigation}$ slightly from 5.0 mg/L to 5.2 mg/L. The correct equations are as follows:

$$CMC_{irrigation} = 0.275/(1+10^{7.204-8.04})+39.0/(1+10^{8.04-7.204}) = 5.2 \text{ mg/L}$$

$$CCC_{non-irrigation} = [0.0577/(1+10^{7.688-8.04})+2.487/(1+10^{8.04-7.688})] \times \text{Min}(2.85, 1.45 \times 10^{0.028 \times (25-22)}) = 1.4 \text{ mg/L}$$

This changes the LTA_a during the irrigation season from 1.9 mg/L to 2.0 mg/L NH_3 . On Page E-9 for the Table entitled “Ammonia NPDES Calculations”, the calculated MDL changes from 5.0

mg/L to 5.2 mg/L, and the calculated AML changes from 3.1 mg/L to 3.3 mg/L for the irrigation season.

These equations do not change the final ammonia effluent limits, since the ammonia calculations are higher than those in the 2005 permit. Based on the antidegradation Tier 2 analysis, higher permit limits are not allowed. Therefore, the ammonia limits from 2005 still apply. The final ammonia NPDES permit limits are in the Table in Response to 11d.

Comment 11d. Page E-9, Table E-4: The MDL and AML ammonia concentrations for both the irrigation and non-irrigation seasons are transposed. The values for the irrigation season should be: MDL = 2.5 mg/l and AML = 1.2 mg/l. The values for the non-irrigation season should be: MDL = 2.7 mg/l and AML = 1.3 mg/l.

Response to 11d. The fact sheet was incorrect and transposed the irrigation and non-irrigation MDL and AML concentrations in Table E-4. The correct NPDES effluent limits for ammonia are:

Table E-4. Ammonia NPDES Permit Limits		
Ammonia Monthly and Daily Limits	Irrigation Season	Non-Irrigation Season
MDL	2.5 mg/L	2.7 mg/L
AML	1.2 mg/L	1.3 mg/L

Comment 11e. Page E-13, E-18, E-22 last paragraph: The acute LTAs are most stringent for both the irrigation and non-irrigation season. The last sentence in the paragraph should be revised to read: “In this case, the acute LTA is most stringent for both the Irrigation Season and the Non-irrigation Season.”

Response to 11e. The Fact Sheet incorrectly states that the chronic LTA is the most stringent for the non-irrigation season for copper. For both the irrigation and non-irrigation seasons, the acute long-term averages are the most stringent. The acute long-term averages were used to calculate copper MDL and AML permit limits as shown on page E-14.

Comment 11f. Page E-21, Table E-10: This table should be titled “Table E-13. Chlorine Wasteload Allocations.” The heading on the first column is also incorrect. The correct heading is “Chlorine WLAs.” The table numbering from this table onward should also be changed to prevent repeat numbering from tables earlier in Appendix E.

Response to Comment 11f. The Fact Sheet has incorrect headings for Table E-13, and the table numbering from this point onward erroneously repeats. This mistake is noted through the Response to Comments, since the Fact Sheet is final.

Comments from the Yakama Nation

Comment 13. The Yakama Nation appreciates that Yakama Nation water quality standards were strongly considered and used, and that the Yakama Nation will continue to be co-recipients of reports.

Response to Comment 13: The EPA notes the comment.

Comment 14. The Yakama Nation concurs with the proposed compliance schedules for whole effluent toxicity, copper and zinc, and requests that compliance plans submitted by the City of Wapato consider population/service growth and/or surges in influent volume. They also recommend that compliance plans address copper and zinc from residential and commercial plumbing systems.

Response to Comment 14: The EPA will add in language to the compliance schedule to consider population/service growth and/or surges in influent volume. We will also recommend investigating sources of copper and zinc, which may come from residential and commercial plumbing systems.

Comment 15. The Yakama Nation notes that any new construction requires a Wapato Irrigation Project (WIP) permit and provides contact information. It also notes that the City of Wapato should also provide a copy of a permit to discharge effluent into Drain No. 2 issued by WIP in the past, or to apply for one if they do not already have one. They also request that all WIP owned/maintained facilities be noted on any drawings.

Response to Comment 15: The EPA notes the comment.

Comment 16. The comment notes that “Drainage Way No. 2” should be referred to as “WIP Drain 2” in accordance to 1978 maps

Response to Comment 16: See comment number 7.

Comment 17. The comment states that the average flow is 0.47 mgd, but the map indicates 0.524 mgd.

Response to Comment 17: The current average flow in the Fact Sheet is based on the average daily flow rate reported in the City’s NPDES permit application.

Additional Changes to the Final Permit

The EPA has made some additional minor editorial changes to the permit for clarity. For example, Tables 1 and 2 in the draft permit have been combined into one table in the final permit.

References

EPA Memorandum from James Hanlon to Alexis Strauss re: “Compliance Schedules for Water Quality-Based Effluent Limitations in NPDES Permits.” May 10, 2007.