

**Department of Environmental Conservation  
Response to Comments**

**For**

**City of Kenai Wastewater Treatment Facility**

**APDES Permit No. AK0021377**

**Public Noticed May 4, 2015 – June 3, 2015**

**June 30, 2015**



**Alaska Department of Environmental Conservation  
Wastewater Discharge Authorization Program  
555 Cordova Street  
Anchorage, AK 99501**

## **1 Introduction**

### **1.1 Summary of Facility / Permit**

The City of Kenai (City or permittee) owns, operates, and maintains the City of Kenai Wastewater Treatment Facility (KWWTF) located in Kenai, Alaska. Wastewater influent entering the KWWTF receives preliminary treatment by pulverizing the solids and is then distributed to four aeration basins through a splitter box. From the aeration basins, the flow enters another splitter box and is distributed to two secondary clarifiers. Effluent from the clarifiers then enters chlorination chambers for disinfection followed by dechlorination before discharging into Cook Inlet. The design flow for KWWTF is 1.3 million gallons per day (mgd) with a resident population served of approximately 3,600 people along with supporting commercial businesses and a summer seasonal population.

### **1.2 Opportunities for Public Participation**

The Alaska Department of Environmental Conservation (DEC or the Department) proposed to issue an Alaska Pollutant Discharge Elimination System (APDES) wastewater discharge permit to the City for the KWWTF. To ensure public, agency, and tribal notification and opportunities for participation, the Department:

- identified the permit on the annual Permit Issuance Plan posted online at: <http://www.dec.state.ak.us/water/wwdp/index.htm>
- notified potentially affected tribes and local government(s) that the Department would be working on this permit via letter, fax and/or email
- posted a preliminary draft of the permit on-line for a 10-day applicant review March 12, 2015 with an extension granted on March 27, 2015, and notified tribes, local government(s), and other agencies
- formally published public notice of the draft permit on May 4, 2015 in the *Peninsula Clarion* newspaper and posted the public notice on the Department's public notice web page
- posted the proposed final permit on-line for a 5-day applicant review on June 16, 2015
- sent email notifications via the APDES Program List Serve when the preliminary draft, draft, and proposed final permits were available for review

The Department received comments from two interested parties on the draft permit and supporting documents. The City submitted comments to DEC via email on May 4, 2015 and a letter was received from the U.S. Environment Protection Agency (EPA) via email on June 3,

2015. The Department also requested comment from the National Marine Fisheries Service and the U.S. Fish and Wildlife Service but no comments were received from these federal Service agencies.

This document summarizes the comments submitted and the justification for any action taken or not taken by DEC in response to the comments.

### **1.3 Final Permit**

The final permit was adopted by the Department on June 30, 2015. There were minor changes from the public noticed permit. Changes are identified in the response to comments and reflected in the final fact sheet for the permit.

## **2 Comments Summary**

Comments were received from both the permittee and EPA in relation to the compliance schedule included in the permit to enable the permittee to meet newly imposed total ammonia water quality-based effluent limits (WQBELs). In accordance with 18 AAC 70.910 and 18 AAC 83.560, when a facility cannot immediately comply with newly applied WQBELs upon the effective date of an APDES permit, the Department may include in the permit a sequence of actions enforceable by the Department, and with completion dates leading to compliance for each requirement. The required milestones and deadlines, which upon completion will lead the permittee to compliance with WQBELs, must be completed “as soon as possible”. The compliance schedule must be consistent with the Clean Water Act and its implementing regulations at 40 CFR 122.47.

### **2.1 Comment Summary from the City of Kenai**

The permittee commented that they have major concerns about the compliance schedule included in the permit. They stated that to undertake a capital project to address ammonia issues would require obtaining outside funding such as a DEC Municipal Matching Grant. The City stated that limiting the time period for obtaining funding to four years and requiring final effluent limits to be achieved by August 1, 2025 was unacceptable. The permittee desires to be allowed to apply for grants every year until funding is received and that there not be a specified date for achieving compliance with the final ammonia limits.

#### **Response:**

DEC appreciates the City’s concern in the timing outlined in the compliance schedule for obtaining funding and coming into compliance with the final ammonia WQBELs; however, the Department considers the time periods allowed in the schedule to be sufficient and necessary to bring KWWTF into compliance with Alaska Water Quality Standards (WQS).

The Department is aware that the City has requested funding from DEC through the Municipal Matching Grants Program for the last three years to address, in part, the issue of increasing

ammonia levels. In all three years the KWWTF application has not been include in the State's list of proposed projects to receive funding. The projects selected to receive funding from the State is based on a point system with the higher scored projects receiving a portion of that year's available grant money. Over the course of the last several years, the money available for distribution through State grants has been significantly reduced and the City may need to find other funding sources (e.g., the State's loan program). The City's inability to obtain funding through a singular source (i.e., grants) is not a viable excuse for missing compliance schedule deadlines nor coming into compliance with the final ammonia WQBEL.

Both State and federal regulations require that a compliance schedule must include an enforceable sequence of interim requirements such as action, operation, or milestone events leading to compliance. An open-ended schedule is unacceptable. The City is being given an opportunity through the compliance schedule to determine the cause of the high ammonia concentration in the effluent, determine a feasible solution, and come into compliance with the ammonia WQBEL over an adequate period of time. While the compliance schedule is in effect, interim ammonia WQBELs based on current facility performance will be imposed. If these interim ammonia limits are met during the term of the compliance schedule, the facility will not be in violation of their permit. No changes were made to the permit documents based on this comment.

## 2.2 Comments Summary from EPA

Permit Section 1.3 and Fact Sheet Section 8.4 (previously 8.3), Compliance Schedule: EPA commented that the inclusion in the permit of a 10-year compliance schedule seems unreasonably long for the permittee to come into compliance with ammonia limits, especially given the limits themselves, the mixing zone, and the proximity of the outfall to a major recreational area. EPA notes that allowing the final compliance date to be dependent on the funding date results in a compliance schedule that may be longer than needed. EPA commented that Section 1.3.3.3 of the permit did not require the permittee to apply for funding at the first opportunity following issuance of the permit and that language in Section 1.3.3.5 concerning the required compliance date could be in conflict and the compliance date should be specific. EPA noted that DEC should consider the principles outlined in EPA's memo, *Compliance Schedules for Water Quality-Based Effluent Limitations in NPDES Permits* when assessing whether a compliance schedule for achieving a WQBEL is consistent with the Clean Water Act and that the record should clearly articulate the need for and justify the time allotted for compliance.

### Response:

In determining the dates for meeting interim milestones and the date for meeting compliance with final ammonia WQBELs, DEC reviewed State regulations at 18 AAC 70.910 and 18 AAC 83.560; federal regulations at 40 CFR 122.47; and EPA's memo, *Compliance Schedules for Water Quality-Based Effluent Limitations in NPDES Permits* (memo), to insure that the compliance schedule is consistent with the regulations and the Clean Water Act.

The memo states that to conclude that the compliance schedule requires compliance with WQBEL “as soon as possible”, the permitting authority should consider the steps needed to modify or install treatment facility, operations, or other measures and the time those steps would take. At this time, it is unknown whether major modifications to the facility or minor operation procedures are needed to bring effluent ammonia concentrations into compliance; therefore, the compliance schedule is designed to address the unknown solution.

There will most likely be a cost, and potentially a significant cost, associated with any solution and the City will need to find outside funding to finance the project. As an example of possible funding timelines, when applying for funding from the State’s Municipal Matching Grants program, applications are submitted in June and July of one year for receipt of funding a year to a year and a half later. The compliance schedule is designed to allow the time needed to obtain funding. Once funding is obtained the permittee must submit a proposed construction schedule that will be reviewed and approved by DEC. DEC review and approval at this stage will ensure that compliance with the final ammonia WQBELs is achieved as soon as possible.

Language has been added to Section 1.3.3.3 of the permit and Section 8.4 of the fact sheet to require the permittee to apply for funding at the first opportunity following the effective date of the permit. Language in permit Section 1.3.3.6 (previously 1.3.3.5) has been modified to specify a single compliance date.

### **3 Comment Summary**

Permit Section 1.6 and Fact Sheet Section 5.0, Mixing Zone: EPA commented on the authorized mixing zone for ammonia, copper, zinc, and whole effluent toxicity (WET). EPA noted that authorizing a mixing zone when the outfall is exposed during low tides is inappropriate because no dilution is available. EPA said the fact sheet should justify how the beneficial uses are protected and suggests DEC consider the need for moving the discharge location to address the problem or eliminate the mixing zone.

#### **Response:**

The end of the outfall pipe is exposed for a couple of hours during the 12 hour tidal cycle on those occasions when lower minus tides occur. These lower minus tides, less than -2.0 feet, represent about 14% of all the low tides within a year. During the time the end of the pipe is exposed, the treated effluent runs down the beach toward the receiving water. Once the treated effluent enters the receiving water dilution is available. The dilution factors used in any applicable calculations were derived for both the chronic and acute mixing zones based on half of what was determined, by mixing zone modeling, for a full circle.

WQS for toxic and other deleterious substances for marine water uses of aquaculture, seafood processing, growth and propagation of fish, shellfish, other aquatic life and wildlife, and harvesting for consumption of raw mollusks of other raw aquatic life in 18 AAC 70.020(b)(23),

must be based on aquatic life criteria for marine water found in the *Alaska Water Quality Criteria Manual For Toxic And Other Deleterious Organic And Inorganic Substances*. This document contains numeric criteria for the pollutants ammonia, copper, and zinc, which are being authorized a mixing zone. The most stringent criteria for these pollutants, chronic criteria for all three pollutants, were the basis for reasonable potential analysis and calculating WQBELs. WET criteria, found in 18 AAC 70.030, are also based on chronic toxicity to aquatic organisms. Chronic criteria are based on the average concentration of chemical pollutants during a four-day period. Because the time the pipe is exposed is not continuous and because the dilution factor is based on the reduced available dilution during the low tides once the discharge enters the receiving water, DEC has determined that the beneficial uses will be protected as they have been under previous permits.

Language has been added to the fact sheet, Section 5.3 to further explain the basis of the dilution factor.

#### **4 Comment Summary**

Permit Section 1.2 and Fact Sheet Appendix B, Page 26, Fecal Coliform Bacteria, Permit: EPA commented that the applicable water quality criterion for fecal coliform bacteria is that the fecal coliform bacteria median most probable number (MPN) may not exceed 14 FC/100 mL, and not more than 10% of the samples may exceed a fecal coliform bacteria median MPN of 43 FC/100 mL. Footnotes f and g of Table 2 in the permit and Table 4 of the fact sheet do not agree with this requirement and instead say that all fecal coliform bacteria average results must be reported as the geometric mean. EPA stated that the differences between median MPN and geometric mean should be explained and how the compliance with the water quality criterion will be determined.

##### **Response:**

DEC acknowledges EPA's comment on the implementation of fecal coliform bacteria water quality criteria in APDES permits. Alaska water quality criteria for fecal coliform bacteria are currently under review with attention placed on the criteria for marine waters designated for use as harvesting for consumption of raw mollusks or other raw aquatic life. The National Shellfish Sanitation Program's standards for marine waters states that the fecal coliform median or geometric mean shall not exceed 14 per 100 mL. In the interim of DEC's programmatic investigation into developing consistency in bacteria criteria, fecal coliform bacteria averages will continue to be reported as a geometric mean. The geometric mean will be more conservative than the median when addressing high outliers that often occur in the analysis of bacteria and therefore ensure higher protection of the receiving water. Average fecal coliform bacteria data submitted by the permittee during past permit cycles has been as a geometric mean so continuing the requirement will maintain consistence in data for comparison purposes.

The notes in Table 2 of the permit and Table 4 of the fact sheet have not been modified. An explanation, similar to the previous paragraph has been added to the fact sheet, Appendix B, Section B.2.4.7.

## 5 Comment Summary

Permit Section 1.5, WET Testing Requirements: EPA suggested that 100% effluent be included in the WET dilution series.

### Response:

Wet requirements are established in accordance with 18 AAC 70.030, which requires that if a mixing zone is authorized, effluent discharge may not exceed 1.0 chronic toxic units at or beyond the mixing zone boundary, based on the minimum effluent dilution achieved in the mixing zone. The WET dilution series in the KWWTF permit is based on the available dilution in the authorized mixing zone. The authorized mixing zone in the permit provides a dilution factor of 18. This corresponds to an instream waste concentration at the boundary of the authorized mixing zone of 5.6% effluent, and a chronic toxicity trigger of 18 TUc, whereby if toxicity is detected, accelerated testing is required. DEC has decided that adding the 100% effluent in the dilution series is not necessary, but acknowledges that this is a reoccurring comment submitted by EPA that will be explored in a larger APDES programmatic context with an intent of drafting and finalizing guidance on setting WET dilution series in APDES permits.

## 6 Comment Summary

Permit Section 1.0, Table 2, Monitoring Requirement for Temperature: EPA commented that requiring effluent temperature to be monitored monthly is not adequate for characterizing the temperature profile of the effluent or determine compliance with the water quality criterion for temperature. EPA recommended daily (taken at the hottest time of day) or continuous monitoring to provide the data necessary to conduct reasonable potential analysis for temperature.

### Response:

Submitted data on discharge monitoring reports and additional operational data submitted during the permitting process does not indicate that temperature is a pollutant of concern in the effluent. As such, determining compliance with the water quality criteria for temperature is not the primary intent of requiring the monitoring of temperature; determination of the marine ammonia water quality criteria is the primary intent. It would be unfeasible and very challenging to enforce daily sampling of effluent at the hottest time of day and there is no reasoning to require continuous monitoring. However, DEC has increased the effluent temperature monitoring requirement from 1/Month to 1/Week to ensure that there is a robust data set available for the next permit reissuance.

## 7 Comment Summary

Permit Section 1.6, Proper Operation and Maintenance: EPA recommended that the permittee be required to conduct a survey of industrial users discharging to the treatment facility at least once per permit cycle. EPA comments that conducting the survey will provide information to assist the facility in controlling the introduction of pollutants in to the treatment facility and to inform DEC about the need for a pretreatment program.

### **Response:**

An industrial user survey requirement has been added to the permit Section 2.3 and addressed in the fact sheet Section 8.3.

## 8 Comment Summary

Fact Sheet Section 5.1, Water Quality Standards: EPA recommended that the designated and existing uses for Cook Inlet be listed in Section 5.1 of the fact sheet and not just referenced. Additionally, EPA noted that it would be helpful to provide the water quality criteria associated with the uses and applicable to the permitted discharge.

### **Response:**

The designated and existing uses for Cook Inlet have been listed in Section 5.1 of the fact sheet. A list of the associated water quality criteria has not been added as applicable criteria can easily be found on DEC's web site.

## 9 Comment Summary

Fact Sheet Appendices C and D, Reasonable Potential Analysis and Effluent Limit Calculation: EPA commented that it is unclear in Table D-1 of the fact sheet whether the chronic or acute criteria is limiting or whether the most stringent of the criteria was used to develop the effluent limits.

### **Response:**

The heading in Table D-1 of the fact sheet has been revised to clarify that the chronic criteria which is the most stringent criteria was used to calculate WQBELs.