Department of Environmental Conservation
Response to Comments

For

Spring Creek Correctional Center
Wastewater Treatment Facility

APDES Permit No. AK0053724

Public Noticed June 24, 2016 – July 25, 2016

PROPOSED FINAL, 2016

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 Seward (City or permittee) owns, operates, and maintains the Spring Creek Correctional Center Wastewater Treatment Facility (Spring Creek WWTF) located in Seward, Alaska. The design flow for Spring Creek WWTF is 0.195 million gallons per day (mgd) and the treatment works primarily serves inmates and staff at the Spring Creek Correction Facility, but also treats domestic wastewater from the Seward Marine Industrial Center (SMIC) and a seafood processing plant. Industrial wastewater is not discharged to the Spring Creek WWTF. The wastewater receives preliminary treatment consisting of a bar screen and comminutors. Secondary treatment is provided by an aerated lagoon system. A single lagoon is separated into five cells by baffle curtains with aeration provided by blowers. Following treatment, the effluent is piped offshore and is discharged into Resurrection Bay.

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 Spring Creek WWTF. 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 December 4, 2015, and notified tribes, local government(s), and other agencies
- posted the draft of the permit on-line for a 30-day public comment period on June 24, 2016 on the Department's public notice web page
- posted the proposed final permit on-line for a 5-day applicant review on August 11, 2016
- 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 via email on July 22, 2016 from the City on the draft permit and supporting documents. The Department also requested comment from the National Marine Fisheries Service, the U.S. Fish and Wildlife Service, and the Environmental Protection Agency (EPA), but no comments were received from these federal agencies on the draft permit.

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 Proposed Final, 2016. There was only one minor change to the Fact Sheet from the public noticed version. Changes are identified in the response to comments and reflected in the final fact sheet for the permit.

2 Dilution Factor and Mixing Zone Comments Summary

Two of the City's comments refer to the dilution factor used to derive water quality-based effluent limits for fecal coliform bacteria and the size of the proposed mixing zone.

The City commented that although the mixing zone dilution factor was increased due to the extension of the outfall, they had offered numerous options for a substantial increase beyond the dilution factor used by DEC and requested that the dilution factor be increased further. Additionally, the applicant stated that the CORMIX modeling was based on the lagoon's original design capacity of 0.195 million gallons per day (mgd) without consideration for 28 years of operation. The City believes the lagoon's capacity should be based on organic loading, which would enable an increase in dilution using the CORMIX model. The City states that typical flow from the lagoon seldom exceeds 60,000 gallons per day (gpd).

The City also commented that while a mixing zone size of a 100 meter radius circle has largely worked for them, the original size determination was based on an arbitrary selection by EPA for lagoons in Alaska perhaps decades ago. The City stated that they had submitted other options that they believed were protective of the receiving water and yet improved their ability to meet permit conditions.

Response:

The Department acknowledges and evaluated the numerous options submitted by the City for increasing the available dilution in the mixing zone. The multiple options were generated as part of the City's process for designing the reconfiguration of the outfall, prior to construction, and were not based on as-built conditions. In determining whether to authorize a mixing zone, the Department must consider the actual characteristics of the receiving water, the effluent, and the final configuration of the outfall including any diffuser fitted on the terminus of the outfall line.

Water quality criteria for pollutants must be met at the boundary of the authorized mixing zone during worst-case conditions. The discharge design flow is considered the worst-case effluent flow conditions and is used to calculate the available effluent dilution as required by Alaska Administrative Code (AAC) 18 AAC 83.520(a) and Code of Federal Regulations (CFR) 40 CFR §122.45(b)(1). In the application for reissuance, signed December 31, 2014, the design flow rate is stated as being 0.195 mgd. This flow rate will continue to be used in calculating

available dilution in the mixing zone, flow rate limits, and BOD_5, CBOD, and TSS loading limits.

Permit conditions have been developed to protect the receiving water based on regulations found in water quality standards, 18 AAC 70, as amended through June 26, 2003. An authorized mixing zone must be as small as practicable, as required in 18 AAC 70.245(a)(2). The City submitted options for different sized mixing zones, however, there is no justification or basis for the increased size given actual effluent quality, receiving water characteristics, and the configuration of the outfall. The mixing zone size will remain defined as the area within a circle of 100 meters radius.

Of the 16 submitted options, the Department selected the one that most closely applied to final characteristics and conditions of the facility and discharge. The Department duplicated the City's model and then made revisions to reflect actual conditions as close as possible within the confines of the CORMIX program. The subsequent DEC determined dilution factor is based on the final outfall configuration, as submitted by the City to the Department, and the following inputs: an effluent flow rate equal to the design capacity of 0.195 mgd, a mid-range receiving water velocity of 0.5 knots, a mixing zone size of a 100 meters radius circle, and changes in the receiving water bottom density due to the increased depth of the outfall.

The Department acknowledges the City's comments and has determined that the mixing zone size and dilution factor proposed to be authorized for fecal coliform bacteria is appropriate considering all available and relevant information.

3 Dissolved Oxygen Comment Summary

The City requested that a mixing zone be authorized for dissolved oxygen to cover those times, particularly in the summer, when effluent dissolved oxygen could drop below a minimum of 6.0 mg/L. The City suggested that the dissolved oxygen maximum limit of 17 mg/L be removed, based upon the statement that water at atmospheric pressure cannot be saturated to this level by aeration.

Response:

The Department acknowledges the City's concern for the possibility of lower dissolved oxygen levels during the summer months. However, a review of reported dissolved oxygen daily minimums from the Spring Creek WWTF from April 1, 2010 through April 30, 2016 demonstrates that only one month out of a total 69 months reported had a dissolved oxygen level below the proposed daily minimum limit of 6.0 mg/L. These particular results demonstrate there is not a need to contemplate a dissolved oxygen mixing zone given the high quality effluent generated and discharged with respect to dissolve oxygen. In addition, sufficient dissolved oxygen levels within a wastewater treatment facility is essential for maintaining favorable

conditions to sustain the life of the living bacteria required for secondary or biological treatment of wastewater.

The Department appreciates the City's comments on the dissolved oxygen maximum limit. In water quality standards, 18 AAC 70, the criteria for dissolved oxygen states that in no case may the dissolved oxygen levels exceed 17 mg/L. DEC suggests that the applicant track when the State does a triennial review of water quality standards and submit their comments at that time. Notification of triennial reviews are public noticed by the Department.

The Department has determined that the dissolved oxygen limits imposed in the permit are appropriate and that there is no justification for authorizing a mixing zone for dissolved oxygen.

4 Total Suspended Solids (TSS) Comment Summary

The City requested that the TSS limits be increased during the summer months when the lagoon is affected by algae.

Response:

The TSS limits imposed in the permit are set according to technology-based effluent limits (TBEL) found in 40 CFR §133.105, adopted by reference at 18 AAC 83.010(e). A TBEL is set according to the level of treatment that is achievable using available technology. Regulations at 40 CFR §133.105, allow for equivalent to secondary standards for TSS for qualifying facilities. One qualification is that the facility's principal treatment process is by either a trickling filter or stabilization pond (lagoon). The Spring Creek WWTF permit contains an equivalent to secondary standard TBEL for TSS year round, which is based on technology associated with the widespread use of lagoons similar to the Spring Creek WWTF.

A review of submitted data from April 1, 2010 through April 30, 2016 reported only one average monthly TSS concentration greater than the proposed 45 mg/L limit. All average weekly TSS concentrations were less than the proposed 65 mg/L limit. These particular results demonstrate there is not a need to contemplate an adjusted TSS limit in the summer months given the quality of effluent generated and discharged with respect to TSS.

The Department has determined that the imposed TSS limits are appropriate and, therefore, no changes to the TSS limits have been made.

5 Enterococci Bacteria Comment Summary

The City commented that the collection of enterococci bacteria data is a substantial expense to the City of Seward and, based upon experience with the Lowell Point facility, largely meaningless. The City requested that the permit be revised to allow the discontinuation of enterococci bacteria analysis and reporting after a year or two.

Response:

The State of Alaska has proposed new regulatory language in water quality standards to adopt enterococci bacteria as the recommended criteria for marine waters to protect primary contact recreation uses. Adoption of the new water quality criteria for coastal recreational waters is a requirement of the Clean Water Act section 303(c) and a requirement in the Beach Environmental Assessment and Coastal Health (BEACH) Act, which EPA has already promulgated for the State of Alaska and other states that did not update their WQS by a legally prescribed deadline. The previously recommended fecal coliform indicator bacteria and associated criteria at 18 AAC 70.020(b)(14)(B)(i) Marine, Water Recreation, contact recreation will be revised from fecal coliform bacteria to enterococci bacteria.

The permit requires monitoring of enterococci bacteria in the effluent to generate a data set that will be used to evaluate the facility's ability to treat bacteria and to determine if the discharge will require new permit requirements for enterococci bacteria in the next reissued permit. Only five samples are required to be taken per year. By requiring sampling throughout the life of the permit a sufficiently robust data set will be generated on which to base decisions. The City can ensure that enterococci bacteria data will be useful by following the requirement in the Permit, Section 1.2.8 which states that a sufficiently sensitive test method must be used that quantifies the pollutant.

Effluent monitoring of enterococci bacteria will remain in the permit at the frequency of once per month for the summer months of May through September for the full permit cycle. The summer months are when primary contact recreation uses are most likely to occur.

The Department has determined that there will be no change in the duration of the sampling frequency of enterococci bacteria.

6 Disinfection Analysis Report Comment Summary

The City requested that the permit requirement to develop a Disinfection Analysis Report be removed. The City stated that the requirement is an unnecessary burden without any support for environmental benefit. Additional comments state that discharging effluent without disinfection provides a greater net benefit to the environment when considering total consumption of power and chemicals and site specifics of the receiving water. Finally, the City said this provision is contrary to previous information, that effluent disinfection did not represent a subtle change in Department policy.

Response:

The Department has not revised policy in regards to disinfection and does not require effluent disinfection unless the technology is demonstrated to be effective, reasonable and technologically and economically feasible consistent with 18 AAC 70.240(a)(3) (2003 version) and 18 AAC 70.015(a)(2)(D).

The requirement to conduct an analysis of the economic and technical feasibility of adding disinfection to the facility's treatment process is to assist the City and Department in evaluating options for compliance with regulatory criteria (see proceeding sentence), as well as performing at a level comparable to similar facilities.

The Department has determined that the requirement to develop a Disinfection Analysis Report to be submitted with the next application for reissuance will remain in the permit.

7 Fact Sheet Correction Comment Summary

The City noted that on page 41 of the fact sheet at C.3, in the third line, ammonia was referred to in error and should have been fecal coliform bacteria.

Response:

The Department concurs and the change has be made. This change does not affect the content of the fact sheet substantively.