

**Department of Environmental Conservation  
Response to Comments**

**For**

**Kodiak Island Borough Landfill Leachate Treatment Plant**

**APDES Permit No. AK0053481**

**Public Noticed October 29, 2014 – November 28, 2014**

**February 17, 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 Kodiak Island Borough (KIB) owns and operates a municipal landfill located northwest of the city of Kodiak, Alaska. The KIB is expanding the landfill site laterally to the northeast in planning for an additional 40 years of use and growth. The lateral expansion includes installation of a liner in the expanded cells, a leachate collection system, and construction of the leachate treatment facility. The treatment system includes a leachate storage lagoon, an anoxic tank, aeration via a bubble diffuser, another anoxic tank, and then treatment in a membrane bioreactor. Construction of the leachate treatment facility is expected to be completed in 2015. Leachate is liquid (rain or snow melt) that has passed through or emerged from solid waste and contains soluble, suspended, or miscible materials removed from the solid waste.

The landfill will discharge no more than 288,000 gallons per day of treated landfill leachate from active lined and inactive unlined landfill cells, baler squeezings, and baler building washdown into freshwater wetlands. Baler squeezings are liquids squeezed out of solid waste during the baling process. Baler washdown is water produced from washing the baler building and washing the baler. No mixing zone has been requested or authorized so the permittee is required to meet all effluent limits at the end of the pipe. The discharge exits the treatment facility into constructed wetland cells filled with rock. At the end of the constructed wetland cells, the discharge passes over a horizontal weir, then flows to the head of a natural freshwater wetland system.

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

The Department of Environmental Conservation (DEC or Department) proposed to issue an Alaska Pollutant Discharge Elimination System (APDES) wastewater discharge permit to the KIB. 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 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 September 30-October 14, 2014 and notified tribes and other agencies
- posted the public notice on the Department's public notice web page October 29, 2014 - November 28, 2014
- posted a proposed final draft of the permit online for a 5-day applicant review January 16, 2015 - January 26, 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 one interested party on the draft permit and supporting documents. The Department also requested comment from the Departments of Natural Resources, Fish and Game, the National Marine Fisheries Service, the U.S. Fish and Wildlife Service, and the U.S. Environmental Protection Agency.

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 February 17, 2015. The proposed final permit was adopted by the Department on January 16, 2015. There were minor changes to the final permit from the proposed final permit. Minor clarifications and changes are identified in this response to comments and reflected in the Fact Sheet for the permit.

## **2 Comments on Effluent Limits**

### **2.1 Comment Summary**

CH2MHill, the engineer of record for the Kodiak Island Borough (KIB), submitted a comment on January 26, 2015, during the five day applicant review period, requesting a recalculation of the zinc effluent limit. The basis for the recalculation request was one additional receiving water hardness value the KIB had collected from a different area in the receiving water than the original hardness value the KIB provided to the Department. This additional data point was over ten times larger (291 milligrams per liter (mg/L)) than the original value the KIB provided to the Department (21 mg/L) in June of 2013. The KIB stated that the sample that produced the original value of 21 mg/L was taken from an area that the leachate treatment plant would not directly discharge into, and they requested that the Department raise the permit's zinc effluent limit from 32 micrograms per liter ( $\mu\text{g/L}$ ) to 296  $\mu\text{g/L}$ , based on the more recently collected hardness value. The KIB provided a map depicting the project area and approximate locations of where hardness samples were collected.

#### **Response:**

The permit's zinc effluent limit is calculated based on the hardness of the receiving water. A lower hardness value makes the effluent limit more stringent, a higher hardness value makes the effluent limit less stringent. At the April 5, 2013 request of the Department, the KIB provided hardness data for the receiving water (wetlands) on June 24<sup>th</sup>, 2013. The sample returned a result of 21 mg/L total hardness, which was used to calculate a water quality based effluent limit (WQBEL) for zinc (although as the limit was set equal to the water quality standard numeric criteria for zinc, it's not strictly speaking a calculated WQBEL) of 32  $\mu\text{g/L}$ .

The KIB five day applicant review comments and map state that the original hardness result of 21 mg/L was collected upstream of a surface water sampling point denoted as "S-B" and the subsequent hardness value of 291 mg/L was collected at a surface water sampling point denoted

as “S-5.” The Department consulted the KIB Municipal Landfill Monitoring Plan (prepared by CH2MHILL, July 2000, & subsequent modifications), which identifies the location and objective of the different surface water sampling points KIB referred to in their comments. Generally speaking, S-5 is depicted as a monitoring location where treatment provided by the wetlands could be evaluated and compared to influent leachate values, so by definition the hardness of the water in this area could be affected by the decades of discharge of untreated landfill leachate. Documents generally depict location S-B as a background sample location consisting of wetland drainage that originates from the opposite direction of the wetland from the landfill. As such, the Department is retaining the more conservative hardness value of 21 mg/L collected near or upstream of S-B, given that it is more likely to be representative of local wetland water quality unaffected by leachate. If the KIB wishes to collect additional ambient hardness data (for example, on a quarterly basis for a year or more) at either S-B or S-1 during the term of this permit issuance, the Department could use that data to assist in establishing more representative zinc water quality numeric criteria used to calculate a zinc WQBEL in future permit issuances.

It is worth noting that were the Department to recalculate the WQBEL for zinc as the KIB has requested, it would then have to compare that recalculated WQBEL to the technology based effluent limit (TBEL) for zinc found in the Landfills Point Source Category Effluent Limit Guideline promulgated by the Environmental Protection Agency, as explained in the fact sheet in Appendix B, Basis for Effluent Limitations. The most stringent limit would be chosen as the final limit in the permit. The TBEL requires a maximum daily limit of .2 mg/L and an average monthly limit of .11 mg/L. The WQBEL the KIB proposes of .3 mg/L could not be implemented in the permit as the more stringent TBEL would be selected as the final effluent limit. No changes to the permit or fact sheet were made as a result of this comment.

## 2.2 Comment Summary

EPA commented during the public comment period that the Department’s identification of pollutants of concern was incomplete. Specifically, EPA stated that since the KIB landfill leachate treatment facility (facility) will use chlorine to clean the membranes of the MBR on a weekly basis, that total residual chlorine (TRC) is a pollutant of concern. EPA commented that the Department should perform a reasonable potential analysis (RPA) and establish effluent limits to ensure the water quality standards (WQS) for chlorine are met. EPA suggested that as an alternative to establishing an effluent limit for TRC, the Department could explain why TRC is not a pollutant of concern and require monitoring for TRC during discharge of chlorinated water used to treat the membranes on a weekly basis to reflect the weekly use of chlorine.

### **Response:**

The Department has established quarterly monitoring of the facility’s effluent for TRC. The facility has not yet been placed in operation, therefore there is no data available to characterize TRC concentrations in the effluent. As explained in section 3.4 (Effluent Monitoring) of the Fact Sheet, TRC will be monitored because 12% sodium hypochlorite will be used to clean the membranes on a weekly basis. Quarterly monitoring over the five-year permit term will produce

a dataset of twenty TRC samples to perform a reasonable potential analysis during the next permit reissuance. Collecting data on a quarterly basis will also allow DEC to assess variability of TRC in the effluent. Without actual TRC data to analyze, a meaningful statistical evaluation on the performance of the facility is not possible. Accordingly, the Department has determined that setting a TRC limit at this time is premature. This is consistent with the APDES Permits Reasonable Potential Analysis and Effluent Limits Development Guide, which states on page 17, *“Note the permit writer, using best professional judgment, may determine that insufficient representative monitoring data exists to complete the RPA and then must either require that the data be collected during the ensuing permit cycle, or alternatively, require that the data be completed outside of the permit.”*

### 2.3 Comment Summary

EPA commented during the public comment period that the Fact Sheet indicated water quality-based effluent limits (WQBELs) were calculated for zinc and ammonia to compare to the technology based effluent limits (TBELs). EPA stated that the Fact Sheet did not contain calculations to substantiate the WQBELs for either zinc or ammonia.

#### Response:

As the facility is not yet fully constructed or operational, there currently is no effluent data available for zinc and ammonia for the Department to use to calculate WQBELs based on actual facility performance. Accordingly, the Department calculated the water quality criteria (WQC) for zinc and ammonia for comparison to the TBELs for zinc and ammonia. In the case of zinc, the WQC for zinc was lower than the TBEL for zinc, so the Department selected the more stringent WQC as the WQBEL during this permit term. In the case of ammonia, the WQC is less stringent than the TBEL for ammonia, so the Department selected the more stringent TBEL. Data collected during this permit term will be used for future reasonable potential calculations. Page 25 of the Fact Sheet, referenced in EPA’s comment, has been updated to reflect the nature of the zinc limit, to clarify it is not a calculated WQBEL.

## 3 Comments on Permit Conditions

### 3.1 Comment Summary

During the five day applicant review, the KIB requested that DEC amend language in permit condition 1.2.2 to read “Specifically, effluent samples will be collected inside the treatment plant from a sample port located downstream of the membrane tanks in the discharge pipe before it leaves the building.”

#### Response:

The language used in permit condition 1.2.2 is standard permit language and represents commonly understood terminology. No changes to the permit or fact sheet were made as a result of this comment. The KIB is free to include the language they suggested in their Quality

Assurance Project Plan (QAPP), a permit-required document that houses procedures meant to ensure that monitoring data submitted are accurate and to explain data anomalies if they occur. More information about QAPPs can be found in section 7.1 of the permit fact sheet.

### **3.2 Comment Summary**

The KIB, outside of the 10 day applicant review or 30 day public comment period, contacted the Department on two different occasions to inquire about how permit effluent limits would be enforced during the start up or commissioning period of the leachate treatment facility. The KIB was concerned about being able to meet their permit limits during the startup period of the facility's treatment technology and wanted to know of any regulatory mechanism that addressed permit compliance and the commissioning period for new plants. On January 14, the Department informed the KIB of a provision in 40 CFR 122.29(d)(4) that specifically addresses the situation the KIB inquired about. During the five day applicant review period, the KIB requested that the Department reference 40 CFR 122.29(d)(4) in section 1.2 of the Standard Conditions in Appendix A of the permit.

#### **Response**

As stated in the fact sheet in section 7.3, Standard Conditions, Appendix A of the permit contains standard regulatory language that must be included in all APDES permits. These requirements are based on the regulations and cannot be challenged (or edited) in the context of an individual APDES permit action. The Department added a permit condition, 1.2.4, to memorialize the startup/commissioning period requirements for new sources and new dischargers complying with new source performance standards.

## **4 Comments on Fact Sheet**

### **4.1 Comment Summary**

During the five day applicant review period, the KIB requested that footnote "e" Table 1 of the fact sheet be edited to match verbatim footnote "e" in Table 2 of the permit.

#### **Response:**

An explanation of monitoring requirements, and how some are a subset of others and therefore need not be duplicated, is located in section 3.4 of the fact sheet. The Department edited footnote e in Table 1 of the fact sheet to match footnote e in Table 2 of the permit.