



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

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May 2, 2017

Mr. Adam Konopasek
Sr. Area Environmental Manager
Tyson Foods, Inc.
800 Stevens Port Drive, DD709
Dakota Dunes, SD 57049

RE: Tyson Fresh Meats – State Waste Discharge Permit No. ST0005335
Engineering Report Update dated August 2015

Dear Mr. Konopasek:

Tyson Fresh Meats (Tyson) submitted an Engineering Design Report dated August 2015 to the Department of Ecology (Ecology).

I have completed Ecology's review of the Engineering Report Update. The document was reviewed against requirements set forth in WAC 173-240, WAC 173-200 and guidelines in the *Criteria for Sewer Works Design*. Several comments must be addressed prior to approval of the final report by Ecology.

1. Page 3, Treatment and Storage: This section states a maximum daily flow of 2.0 MGD based on the lagoon capacity of 240 MG and 120 days of storage. However, during those 120 days of storage there is also precipitation and evaporation. The *Criteria for Sewer Works* section G3-3.5.2 (A) describes the process for lagoon sizing. Ecology requires a month by month water balance that includes the precipitation and evaporation. The maximum flow could then be stated after reviewing the precipitation impacts.
2. Page 5, Design Flows for Ponds 1-4:
 - a. This section is titled design flows but is discussing design loadings instead of flows. The section suggests a BOD loading but does not have a flow associated with the loading. The Treatment and Storage section in the report states a maximum daily flow of 2.0 MGD which will have an associated load. Is the associated load from the 2.0 MGD more or less than the suggested load? What flow is associated with the suggested BOD load?
 - b. Land treatment is the final stage in the system. The BOD loading on the land treatment site will be limited by the design hydraulic load. The design should look at what is the maximum BOD load that can be discharged to the land treatment site. That will be the effluent BOD. So will the lagoons be able to meet the effluent BOD with the suggested influent BOD load and the suggested influent flow?
3. Page 5, Design Flow for all the Brine Ponds: The *Criteria for Sewer Works* section G3-3.5.2 (A) describes the process for lagoon sizing. Ecology requires a month by month water balance that includes the precipitation and evaporation. The design needs to comply with Ecology's guidelines.



4. Page 6, Solids Handling:
 - a. This section states that the solids are removed as needed. A depth of solids limits the storage capacity of the lagoon which decreases the retention time. A depth should be stated and added to the O&M manual.
 - b. Define the "end of the useful life" for the brine ponds. Preferably the definition should include measurable values that can be added to the O&M manual. Describe how a pond is decommissioned.

5. Page 6, Process Water Quantity: this section states that the differences between the facility discharge and irrigated volume are due to evaporation and flow meter variance. The difference could also be due to a leak. A spreadsheet must be submitted showing the flows and the evaporation on a month by month basis. The documentation on the flow meters should give an acceptable difference and that should be stated on the spreadsheet. If the spreadsheet difference exceeds the acceptable difference then there could be a leak in one of the liners.

6. Page 30, Conclusions and Recommendations: The test results for the downgradient groundwater monitoring wells for all three land treatment sites are exceeding background levels. This violates WAC 173-200.
 - a. East Parcel: The bullet at the top of page 30 states an increasing trend for nitrate and TDS in the monitoring well for the East Parcel. This means the operation of the land treatment system is affecting the groundwater.
 - b. West Parcel: The second bullet states there is a decreasing trend for nitrate and chloride and sodium. However, the test results are above the background level. This violates WAC 173-200 and the violation is not mentioned.
 - c. North Parcel: The charts in the report show an upward trend for nitrate, sodium, chloride and TDS in the downgradient well (NP3). However, the test results are above the background level. This violates WAC 173-200 and the violation is not mentioned.

7. Page 38, Design Limiting Parameter: EPA defines the limiting design parameter as the parameter, which establishes the loadings for a particular system. This Engineering Update report states nitrogen as the limiting design factor but I believe TDS should be the limiting factor.
 - Table 9 in the 2015 Irrigation and Crop Management Plan (ICMP) states the net load applied to the land treatment site, the crop uptake and the remaining balance for nitrogen and fixed dissolved solids (FDS). The remaining balance for the FDS is high compared to the nitrogen.
 - The 2015 ICMP soil charts show test results for TKN, nitrate and ESP. The charts indicate that the parameters in the soil can vary but are not showing a problem.
 - The groundwater test results in this engineering report shows TDS and nitrates are above background levels in some of the downgradient wells, which indicates a problem with over application and supports TDS as the limiting design parameter.
Please state why nitrogen should be the limiting design parameter instead of TDS.

8. Page 41, summary of Specific Items and Design Criteria:
 - a. The facility asked if they can start applying water to the West Parcel (Fields 9 and 10). I reviewed the groundwater charts included in the report. The test results for the downgradient well (MW4) shows some parameters exceed the background water quality which violates WAC 173-200. Therefore, wastewater cannot be applied to the West Parcel until all of the test results for the groundwater are below the background levels.

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- b.
- c. Ecology noticed that the groundwater test results for monitoring well NP3 have been exceeding background water quality in the last few years. This could be attributed to the close proximity to the west parcel. The other down gradient well (NP5) test results are not exceeding the back ground water quality.

The engineering report discussed other options. One of the options was reuse. The cost of a large reuse facility is expensive. However, other facilities are looking at some new small treatment options that might work for Tyson Foods. I would like to have a conference call to discuss what some other facilities are doing.

Please send Ecology a response to these comments at your convenience. If you have any questions regarding the comments provided, please contact me at (509) 329-3458.

Sincerely,



Megan M. Rounds, P.E.
Facility Engineer
Water Quality Program

MMR:jab

cc: Steve Venner, P.E., CES
Sean Thompson, Ph.D., Ecology
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