

MICHIGAN SUGAR COMPANY

Steven Smock
Environmental Manager

US Mail & electronic

October 22, 2013

DEQ-AQD

OCT 24 2013

Ms. Sharon LeBlanc
DNRE-AQD
401 Ketchum St., Suite B
Bay City, MI 48708

Saginaw Bay

Subject: Michigan Sugar Company's Response to the Second Violation Notice
dated October 1, 2013

Dear Ms. LeBlanc:

This letter responds to your Second Violation Notice dated October 1, 2013. You state our previous response was deficient in several areas. I will try to respond to that observation.

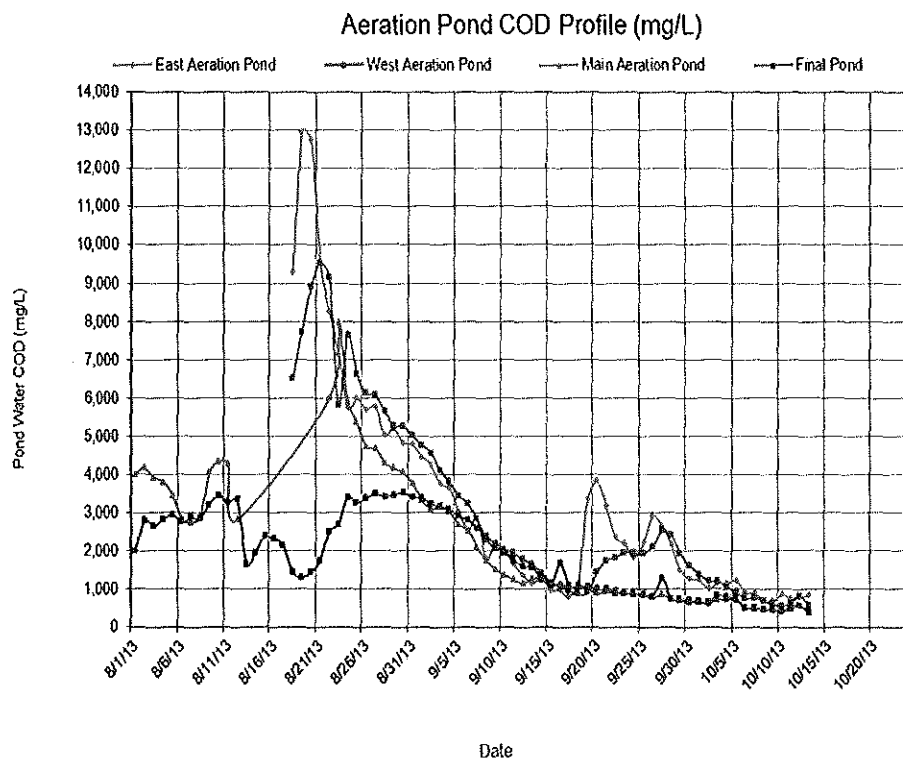
- "the dates the violation occurred;"
 - First, this letter is not acknowledging that a violation has occurred. Therefore, we are responding to the dates the alleged violation occurred
 - It is the company's understanding that the DEQ's policy is
 - first a complaint must be made by an affected neighbor;
 - which is then investigated and confirmed by a qualified agency person.
 - You have notified the company of many complaints during the past summer, but not all of the emails were made on the day of each complaint making any confirmation of all of them impossible.
 - If you are seeking the dates on which pond dredging occurred, we can supply that information.
 - The odors from the aeration ponds as they are cleaned have been historically stronger than the settling pond solids removal.
 - The cleaning of the aeration ponds occurred between July 24, 2013 and August 16, 2013.



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- Solids removal from the flume settling ponds occurred before and after the aeration pond cleaning starting June 14, 2013 and finishing August 22, 2013.
- If you are seeking the dates on which complaints were received, that information is in your files.
- It is our understanding that a large number of complaints occurred after the cleaning was completed. As we discussed during our September 5, 2013 meeting. Our analysis of the pond contents (COD concentration) was that the concentration was dropping starting before the meeting. It continued to drop as can be seen from the chart below. The increase which occurred in late September was the result of the campaign start and how that impact passed through the various ponds. This is very typical of biological systems responding to a change. The COD concentration is to a degree proportional to the amount of material present capable of producing odor.



- If you are seeking an acknowledgement that the company has determined a Rule 901 violation has occurred on a particular date, no such determination has been made as no one on staff has attempted to follow the DEQ process for odor inspections/determinations

- “an explanation of the specific causes of the violation;”
 - The alleged violations this summer have been related to the cleaning of the settling ponds
 - The behavior of the settling ponds to cleaning efforts vary dramatically from year to year, and the explanation for this is elusive
 - During the summer of 2011 odors from the mud were difficult to detect even on-site,
 - the following the summer the odors were quite strong
 - during the summer of 2013 the odor level was between the two, but closer to 2012.
 - We have no idea why these differences occurred. There were no known differences in operation.
 - The reason an explanation cannot be given for the cause of the odors is the variability of biological activity within the ponds.
 - The biological activity is a result of the various bio-degradable material contained in each pond.
 - Sugar is present in all waters of the factory.
 - In addition, the water in the flume system (settling ponds) can contain vegetable matter (solids) from sugar beets.
 - The amount of vegetable matter from the sugar beets is dependent on a number of factors, including the growing conditions, harvest conditions, storage conditions, etc.
 - In years past various weeds would also be present, but that has been greatly reduced by modern practices made possible by the Round-up Ready® Beets.
 - The dirt washed from the beets can contain some amount of organic matter. Typically, dirt will contain between 1 and 10% organic matter. The amount of dirt washed off is dependent on several factors.
 - Weather conditions during harvest. Higher soil moistures will increase soil adhering to the sugar beets.
 - Weather during storage along with the uptime of the dry screener. The dry screener is a device that removes a significant portion (~66%) of dirt without water prior to the sugar beets being placed into the flume.
 - In recent years a new harvest technology is being used that reduces the amount of dirt on the sugar beets before they leave the fields.

- The factory / company is interested in reducing the amount of the above materials present in the flume water as all of them do have a negative impact on the sugar extraction as their amounts increase.
- The population of the various biological organisms present in the ponds is highly dependent on how much of each material just discussed and other factors such as weather, variations in flow and operation. Odors from the aeration ponds during cleaning are a little easier to explain
 - Only two types of solids will be present in the aeration ponds:
 - inert solids such as scale (CaCO_3) and
 - settled biological solids.
 - The inert solids will cause no odors except through their influence or impact on the biological solids.
 - The inert solids are more likely to settle out in an aeration pond.
 - As they settle they will trap some amount of the biomass on the pond bottom.
 - The aerobic organisms will typically die after being trapped on the bottom.
 - An anaerobic zone can form on the bottom of an aeration pond if the depth of the settled solids is great enough.
 - Sometimes the aromatic gases that are produced in an anaerobic zone are released into the aerobic zone where the aerobic organism typically will oxidize them.
 - Other times the aromatic gases remain trapped in the anaerobic zone and are released when the layer is disturbed. Obviously, the cleaning activities of the past summer released these gases.
- Pond cleaning is necessary on occasion to maintain proper operation of the system. While dates for the cleaning of each pond could be provided (more detail than provided above), this information was not thought to add value to specific causes of odor.
- The only possible explanation for any alleged increase in odor is an increased in uncontrolled anaerobic activity occurred for unknown reasons, as compared to the summer of 2011 in the settling ponds.
- “whether the violation continues to be ongoing;”
 - As previously stated the company is not admitting to any violations. Odors that may or may not rise to the level of being an alleged violation are difficult to predict.

- The cleaning activities of the ponds did cease on August 22, 2013 and pond preparations for the 2013-14 campaign started immediately.
- To achieve control of the flume ponds and the wastewater treatment ponds several actions must be completed first.
 - The cleaned ponds must be filled with water. There was a limit to the amount of water available due to the factory needs and the need to maintain compliance with the NPDES permit.
 - The aeration system must be reassembled in the wastewater aeration ponds and activated.
 - Until that time, complete control of the ponds could not be achieved.
 - This was achieved, as determined by wastewater treatment (WWT) process monitoring, before or during the week of September 30, 2013 depending on the pond.
 - The WWT ponds took a fair amount of time to recover from the impacts caused by the cleaning.
 - Full recovery occurred by late September and no objectionable odors have been detected from them since.
- "a summary of the actions that have been taken and are proposed to be taken to correct the situation that resulted in the violation and.."
 - The company does not admit that there was a violation
 - A summary of normal operations was supplied in a previous letter dated October 24, 2012.
 - During this past summer more than average number of ponds were cleaned.
 - The flume settling ponds must be cleaned adequately every year to remove the collected dirt washed from the sugar beets.
 - The WWTP ponds need to be cleaned and equipment service periodically to ensure long term proper operation.
 - If the cleaning of the flume settling ponds is not performed the sugar process will be adversely affected. The resultant process impact will result in a greater volume and strength of wastewater with a good chance of overloading the WWT system causing even greater odors.
 - One of the achievements during August was the construction of a new aeration pond.
 - Aeration equipment has not been installed in this pond yet.

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- We are still considering the type of aeration equipment to install in the pond.
- It is anticipated that this pond will allow greater flexibility for future cleanings of the other aeration ponds. This includes changing the timing of the cleaning activities to a better (cooler) time of year.
- “the dates by which these actions will take place; and what steps are being taken to prevent a reoccurrence.”
 - All cleaning activities have been completed for this year and the wastewater treatment system is in normal operating mode. This occurred by September 30, 2013.
 - Before any more cleaning is performed on an aeration pond an aeration system will be installed in the new aeration pond and it will be used to aid control of the wastewater bypassing the pond being cleaned.
 - The company will continue the practices which have been proven to reduce odors in the past on the previous schedule.
 - Decanting water from the settling ponds as soon as possible after the end of the slice campaign.
 - Capping the settling ponds with lime as soon as the surface of the settling ponds is in the proper condition.
 - Initiating solids removal as soon as possible each summer.

The company intends to continue the program of process control and wastewater treatment improvements. As has been well publicized the company has made several significant upgrades to the Bay City Factory. All of the changes are improving the reliability and control of the process resulting in less process loss. The lower losses directly lower the amount of wastewater to be treated and lowers the potential for odors from such. Both the process and wastewater improvements should result in a continual decrease of odors from the facility. We will continue to not only utilize generally accepted practices in our pond cleaning, but will be looking for better practices as well.

As always, we wish to continue to cooperate with MDEQ on this and other matters. If you have any questions or require additional information, please contact Arnel Negranza or myself.

Sincerely,



Steven Smock

cc: C. Hare, DEQ
D. Noble
A. Negranza
B. Goodman, Varnum