FREMONT
REGIONAL DIGESTER

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September 6, 2019

Ms. Jenine Camilleri
Enforcement Unit Supervisor
Department of Environmental Quality, AQD
PO Box 30260
Lansing, MI 48909-7760

Re: PTI No. 378-08 Violation Notice Response

Dear Ms. Camilleri,

The following letter has been drafted in response to the violation notice dated 8/21 for violation of Rule 901(b) Nuisance Odors.

The violation states that odors were observed on 8/9, 8/15 and 8/20. On 8/15 the odor observed by Kaitlyn DeVries was identified as coming from air bladder inflation, it was communicated to Leon Scott, the facility manager during a walkthrough at the time of the odor identification, facility staff was directed to add some deodorizer to the blower fan to eliminate the odor, this was completed immediately after identification with Kaitlyn DeVries. We cannot provide a comment on the odors observed on 8/9 or 8/20 as there was no contact or communication with plant staff to observe and identify the odor.

It should be noted that the facility was in the process of repairing a biofilter, which has a mechanical failure overnight on 8/5, the system was restored to proper operation on 8/23. This failure was communicated to EGLE on 8/6 the same day that it was identified by facility staff. We have provided a timeline of events and a summary of the corrective actions taken to restore the operations of the biofilter below.

Facility staff conducts routine odor surveys on and off site that allows for promptly detection of potential for odor. Identified odors are recorded if they are determined to be from the digester facility, a neighboring industrial facility, campfires, local farming or other sources.

Biofilter Description:

The facility is equipped with a biofilter system the contains two separate cells that normally operate in parallel to treat odors. Airflow, temperature, and humidity are all controlled externally by electrical sensors and a main HVAC programmer. The biofilter consists of a concrete structure approximately 40 ft x 40 ft x 25 ft divided into two 20 ft x 40 ft cells each with two internal decks that support layers of woodchip media. A sprinkler system moistens the media and maintains humidity. Air passes through a heat exchanger prior to being routed into the bottom of the biofilter, it is then drawn through the multiple layers of treatment media to biologically remove odor from the air before it is routed through a single exhaust fan for each cell

located on the roof of the structure.

Summary of Events and Corrective Actions:

There was a mechanical failure that occurred in the overnight hours of 8/5. Odor was identified by our staff the morning of 8/6. A problem was immediately identified with an HVAC Controller in the Biofilter Control Panel. The facility notified Kaitlyn DeVries that we were experiencing problems with the biofilter on 8/6. Todd Blake, the City Manager for the Town of Freemont was also notified. Facility staff manually adjusted equipment to reduce the potential to emit odors and an HVAC contractor, Andy Egan was contacted and scheduled to be on site the following morning 8/7.

On 8/7 some electrical components were identified to have failed by the HVAC contractor; new parts were placed on order and a tentative schedule to replace the following week. In the interim facility staff were able to use parts from the two cells to get the controls of one cell functional. The non-functioning cell was subsequently isolated so that all air only flowed into the functioning north half of the biofilter. A replacement part that was subsequently received was determined to be incorrect and the correct part was re-ordered to restore full operation to the isolated cell. Initially, as all airflow was now being treated in one filter, odors were observed by facility personal at the biofilter fan outlet. This was caused by the increased loading into the one filter, which requires time for biology to adapt. Facility staff continually monitored the output of the north biofilter for odor throughout the duration of the repair, additional adjustments were made from between 13% and 33% of the exhaust fan speed either up or down until an acceptable balance was achieved between venting the unloading bay and the odor that may be exhausted to minimize the amount of air required for treatment. On 8/7-8/9 facility staff procured components and installed a system to provide a continuous mist of Nil-Odor into the biofilter exhaust fan air stream to reduce remaining odor as the biological system rebounded. This is a product that we began use earlier this year with good success during semi-truck loading.

A biofilter engineer consultant was contacted on 8-7 to discuss the biological response due to the changing mechanical issues. There was suggestion that sulfur reducing bacteria would aid in reduction of any H2S that is not being broken down and accelerate the process. A biological laboratory was contacted on 8-7 to confirm strategy and procure product. Sulfur reducing bacteria were ordered on 8-8 and dosed into media per their recommended rate upon delivery. On 8/13 10-gallons of Microbe-Lift was applied to both cells of the North biofilter through the media moistening sprinklers. It was also suggested by the consultant to increase water sprinkler onto media to accelerate the biological process, which was also implemented. On 8/13 the sprinklers were adjusted to stay on 20% longer than they were compared with the current regular operation setpoint.

On 8/9 an update was provided to Kaitlyn DeVries summarizing the repair status and addition of the odor misting system. We additionally directed the HVAC contractor to procure 2x of the necessary parts to have a backup spares on hand in the future. The HVAC contractor was

tentatively scheduled to be on site to complete the repair on 8/13. On 8/14 at 4:00 Todd Blake, the City Manager from Fremont Stopped by the facility and spoke with Leon Scott, the facility manager. He inquired on the biofilter and stated that it was obvious it was repaired as he can detect no odor. On 8/15 Kaitlyn DeVries from EGLE was on site at the facility and did not observe any odor from the biofilter offsite during her visit. At this juncture the facility believed that the biofilter had been repaired, odor had been improving as a result of the corrective measures that had been taken, and this was corroborated with site visits from City and EGLE representatives.

On 8/15, in continued effort to ensure there were no odors being emitted from the depac building, all building openings were inspected. The results of the inspection showed that air was being drawn into the building from the louvered openings when the garage doors of both bays were closed. Facility staff took an additional precautionary measure and closed the louvered openings using the PLC controller. Subsequent inspections found no air passage in or out of the louvered openings.

On 8/16 the required air volume of each component of the odor recovery system were recalculated and adjustments were made to the suction fan speed and the inlet air of the components to ensure no excess amount of vapor would be put through the biofilter media.

On 8/19 during continued evaluation facility staff identified that the minor, localized odor being treated with the Nilodor seemed to have stopped improving and instead was getting worse at the discharge fan. On 8/20 an internal inspection of the biofilters was performed by facility staff. An area of the middle decking was found to be damaged in the south cell. A contractor was scheduled to be on site to evaluate repair of the damaged decking on 8/23. On 8/21 an update was provided to Todd Blake about additional biofilter repair and that a contractor was scheduled to be on site on 8/23. On 8/23 during the inspection with the subcontractor it was identified that there were small gaps in the dividing concrete wall in the top treated area between the two cells which, since the decking was damaged would allow for odor to short circuit the isolated cell into the operational cell and allowing for nuisance odors to escape without passing through the media for odor treatment. The gaps were filled that day, and within 15 minutes of completing this repair, odor from the operating cell disappeared. Operators measure air with both air quality instruments and their nose at the discharge fan of the biofilter. Todd Blake was contacted on 8/23 and notified of the identified issue and the subsequent repair and immediate elimination of odor from the biofilter fan. The damage that had been identified on 8/20 had propagated to include a larger section and additional area of the decking which would require additional repair. On 8/29 a follow-up email was exchanged with Todd Blake and he reported that he had not received any complaints that week. The last complaint communicated from Kaitlyn DeVries was on 8/21. As of today, 9-6 the facility has not received an odor complaint since the morning of 8/24.

As of 8/23 one cell of the biofilter has functioned correctly and treating air gathered from the site for odors correctly. The odor control device was functioning properly and treating the odor, the

nuisance odors that started in the overnight hours of 8/5 had been corrected on the afternoon of 8/23. Since 8/23 we have only received 1 odor complaint to date which was received the morning of 8/24. The last odor complaints forwarded to us from Kaitlyn Devries of EGLE was on 8/21 and the last odor complaint forwarded from Todd Blake from the City of Fremont was on 8/22. The repair is completed, and the biofilter is functioning properly.

On Going Biofilter Service:

Upon identification of the damage in the biofilter cell on Friday 8-23 an engineer was contacted to evaluate the deck and propose a repair. In the afternoon of 8-23 project information such as photos, descriptions, and history of recent work was provided to the engineer. Additional information was sent to the engineer Golder and Associates, which conducted a site visit on Monday 8/26. A second, more specialized structural engineer from Servinski Engineering was contacted to evaluate and provide repair/replacement plans. Additionally, a contractor was contracted to remove the woodchip media from the cell to prevent any additional damage from occurring and allow for the repair to take place. From 8/26-8/28 additional steps and inspections were made to improve the isolation between the cells. On 8/28 a carpenter contractor was onsite to evaluate repair work on the decking. On 8/29,8/30,9/3, and 9/4 a contractor was on site to remove the existing wood chip media. On 9/3, after media was removed, the structural engineer was on site along with the contractor to review repair options/plans. On 9/4 preliminary drawing for review were provided to repair/replace the decking. On 9-5 a review draft of repairs was presented by the engineer. Feedback from the structural engineer found the decking was constructed originally with various wood species and treatments, which is inconsistent with original design plans. He also found that designed wall anchor penetrations were insufficient. Once one or two joist members cracked and failed, forces of overall decking shifted considerably, pulling out wall anchor penetrations and allowing extended failure. We are in the process of procuring materials and subcontractors to complete the maintenance of the south cell. A plan to reinforce the operational side decking is also in progress after the south cell maintenance is complete and proper function is restored allowing for continued service and preventative maintenance to be performed on the south cell.

Please do not hesitate to contact me with any additional questions.

Kind Regards,

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Cc: Kaitlyn DeVries, DEQ
Floriano Ferreria, GC