November 4, 2020

Ms. Diane Kavanaugh-Vetort
Michigan Department of Environment, Great Lakes, and Energy
Jackson District Office
Jackson State Office Building
301 Louis Glick Highway
Jackson, Michigan 49201

Subject: **Green for Life Environmental (GFL)[1] - Arbor Hills Landfill, Inc.**
Response to October 14, 2020 Violation Notice (2 of 2)

Dear Ms. Kavanaugh-Vetort:

A violation notice (VN) issued by Department of Environment, Great Lakes and Energy (EGLE) dated October 14, 2020 was received by GFL – Arbor Hills Landfill, Inc. (f/k/a Advanced Disposal Arbor Hills Landfill, Inc.) in Northville, Michigan.

Attached please find a written response to each of the issues listed in the VN. The response includes the date and duration of the issue, the cause, corrective actions taken initially and steps to prevent a reoccurrence.

If you have any questions regarding this submittal, please contact me at (317) 452-3032.

Sincerely,
Green for Life Environmental - Arbor Hills Landfill, Inc.

David Seegert
General Manager

Cc: Ms. Jenine Camilleri, AQD EGLE Enforcement Unit Supervisor

[1] Effective October 30, 2020, the new site owner is GFL Environmental, Inc.

BACKGROUND

Green for Life Environmental Arbor Hills Landfill, Inc. ("Arbor Hills") is an active municipal solid waste landfill operating in Washtenaw County, Michigan. The facility is subject to 40 CFR 60 Subpart WWW (the Landfill NSPS) and 40 CFR 63 Subpart AAAA (the Landfill NESHAP). An active gas collection and control system (GCCS) operates at the facility. Extracted landfill gas (LFG) is either sent to the third party-operated Fortistar Gas to Energy Plant for combustion in 4 gas turbines (3 of which are connected to heat recovery duct burners) or is controlled on-site by combustion in landfill-owned flares. These include two enclosed flares and one utility flare.

Dates of Event/Explanation of Causes/Duration:

DTE forced a complete shutdown of the Fortistar Gas to Energy Plant beginning at approximately 2:00 PM on September 23, 2020. DTE notified Fortistar and allowed the plant to restart at approximately 9:30 PM on September 23, 2020. Full plant operation was restored by approximately 6:00 AM on September 24, 2020. During this period of plant downtime, the landfill's three flares automatically ramped up gas throughput to accommodate the collected landfill gas. Flare operations automatically ramped back down when the plant started operation. The start-up and shutdown of the landfill flares was consistent with control programming in-place for integration with plant operations.

Once the gas plant shut down, the control system functioned correctly and as designed, increasing landfill gas volume to first the open flare and then sequentially initiating operation and directing collected landfill gas to each of the two enclosed flares. After startup, however, each enclosed flare had multiple low temperature alarms ultimately resulting in shutdowns. Enclosed flare 391 (a.k.a McGill Flare, West Flare) shut down 3 times during the period and enclosed flare 392 (a.k.a Zink Flare, East Flare) shut down 4 times. Except for an extended period occurring at approximately 11 PM on September 23rd, lasting approximately 30 minutes for each flare, the shutdowns were less than 15 minutes in duration. These durations are normal for enclosed flare shutdowns and startups.

Arbor Hills conducted a review of the alarm and flare operating data on September 24th which prompted an additional diagnostic review of the flares. The flare inspections were performed on September 25th. The investigation identified an electrical malfunction in the flare control panels. Specifically, blown fuses were found in the louver control circuit that did not allow them to operate properly. A further assessment into the cause of the blown fuses uncovered that a transformer in the control panel associated with the Zink Flare had stopped working causing a circuit overload. This transformer was linked to the McGill flare louver control circuit as well.

The fuses protected the flare panel controls as designed and allowed the flares to continue operation with diminished louver function. However, the resulting louver performance did not

allow the enclosed flares to attain the operating combustion temperature setpoint and led to alarms and the subsequent repeated shutdowns of the enclosed flares. The enclosed flares restarted as programmed to maintain gas collection because there is no way to detect a damaged transformer or blown fuses in the system without physical inspection.

Event Status

Both the fuse and the transformer were immediately removed and replaced on September 25, 2020. This returned the enclosed flares to normal operation.

Steps to Prevent Reoccurrence

Blown fuses and transformer damage are mechanical failures that cannot be prevented. However, after the issue was identified, Arbor Hills contracted an electrician to split the electric circuit that connected the louver operation of both enclosed flares. As a result, the louvers on each of the enclosed flares now operate on their own electrical circuit. This modification to the system will minimize the potential for similar future component failures to impact multiple control devices.

Response to the Violation Notice:

For clarity, the Department's comments appear below in italic type along with the responses to the issues in the order that they appeared in the VN.

Item 1: *PTI No. 79-17 Condition III.6, WWW 40 CFR 60.755(e), AAAA 40 CFR 63.1955(a); Comment: Period of start-up, shutdown or malfunction duration exceeded one hour.*

Response:

PTI No. 79-17 Condition III.6 states flares shall be operated at all times when emissions may be vented to them. Each flare did operate during this incident and there was no free venting of landfill gas. Therefore, this condition could not have been violated. In addition, Arbor Hills disagrees that the timeframe allowed by the NSPS for this type of malfunction is only one hour. The malfunction involved an electrical component failure that was not otherwise detectable except by physical inspection. NESHAP 40 CFR 63.6(e)(1)(ii) states that malfunctions must be corrected as soon as practical after their occurrence. The blown fuses and faulty transformer were discovered on September 25th and were repaired the same day shortly thereafter. In addition, the primary concern during SSM events is limiting excess emissions during such incidents. In this case, excess emissions from the control devices did not exceed one hour during this incident as the fail-safe valves closed immediately during each shut down event consistent with their programmed operation.

Please note that the EPA has since eliminated the one-hour SSM provisions for landfills in the new Landfill NSPS regulations (40 CFR 60 Subpart XXX) and the revised Landfill NESHAP regulations (40 CFR 63 Subpart AAAA). In the preamble to proposed September 8, 2006 amendments to the NSPS (F.R. Vol. 71, No. 174, p. 53276), EPA stated the following:

> *The current Landfills NSPS limit the duration of SSM events to 5 days for the landfill gas collection system and 1 hour for treatment or control devices. Since promulgation of the Landfills NSPS, we have become aware that some malfunctions cannot be corrected within these time frames. Therefore, we propose to revise 40 CFR 60.755(e) of subpart WWW to remove the 5 day and 1-hour time limitations. The proposed revisions would clarify that the NSPS General Provisions in 40 CFR 60.11(d) of subpart A continue to apply during malfunctions, and that routine maintenance activities must be completed and malfunctions must be corrected as soon as practicable after their occurrence in order to minimize emissions.*

In fact, the new Landfill NSPS and the revised Landfill NESHAP both have similar language with respect to malfunction duration:

40 CFR 60.765(e): The provisions of this subpart apply at all times, including periods of startup, shutdown or malfunction. During periods of startup, shutdown, and malfunction, you must comply with the work practice specified in §60.763(e) in lieu of the compliance provisions in §60.765.

and

40 CFR 63.1960(e)(2): Once an owner or operator subject to the provisions of this subpart seeks to demonstrate compliance with the operational standard in §63.1958(c)(1), the provisions of this subpart apply at all times, including periods of SSM. During periods of SSM, you must comply with the work practice requirement specified in §63.1958(e) in lieu of the compliance provisions in §63.1960.

The facility quickly identified the cause of the malfunction and immediately initiated repairs to correct the issue. We believe these actions are in accordance with the pending changes in federal regulations which will soon apply to non-XXX landfills such as Arbor Hills.

Item 2: *NESHAP 40 CFR 63.6(e)(1)(i), NSPS General Provisions 40 CFR 60.11(d); Comment: Owner or operator of a municipal solid waste landfill, at all times, including periods of startup, shutdown, and malfunction, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions.*

Response:

Arbor Hills has installed, maintained, and operates the three flares (a.k.a. "air cleaning devices") in accordance with manufacturer's recommendations and good engineering practice. The events were triggered by a failure of electrical components that could not be foreseen nor prevented. The fuses functioned as designed protecting the electrical circuit. The flare system operations were consistent with control programming, the site's SSM plan was followed, and emissions were minimized during this event.

Item 3: *R336.1910 (Rule 910); Comment: Flares failed to function as backup control devices as designed.*

Response: Arbor Hills has installed, maintained, and operates the three flares (a.k.a. "air cleaning devices") in accordance with manufacturer's recommendations and good engineering practice. The events were triggered by a failure of electrical components that could neither be foreseen nor prevented. The fuses functioned as designed protecting the electrical circuit. Further, the flares did function as backup control devices as designed. The flares started and ramped up landfill gas throughput in relation to the combustion capacity drop-off associated with the forced power plant outage.

Additional VN statements:

VN - The flares failed to operate as designed resulting in a period when the overall flaring capacity was much less than the normal gas flow generated by the landfill. Thus, less overall LFG was collected and combusted during this period.

The blowers and flares operated as designed during this period given the impacts associated with the failed mechanical system components. The startup and shut down of each enclosed flare due to not reaching operating temperatures as a result of inoperable louvers caused by a blown fuse and transformer were consistent with system control programming. The landfill blowers are programmed to ramp down vacuum applied to the wellfield when control devices are not available for the proper combustion of collected landfill gas. While overall collected gas flows were less during this period, had the system not operated as designed and programmed, unpermitted un-combusted emissions from the control devices would have occurred or the blowers would have been damaged from trying to push collected gas through a closed valve. Neither of these would be preferred alternatives to system operations as currently designed and programmed.

VN - The AQD is requiring that ADS review their existing Start up, Shutdown, Malfunction Abatement Plan (SSM) in accordance with 40 CFR 63.1960, for required revision and update as necessary based on this event. The AQD is requiring that ADS written response (below) include revising the SSM to include a monthly systems operation audit/check of all 3 flares, their control

systems, and associated blowers and ductwork. All equipment should be operated simultaneously at full load once a month to make sure everything is working properly when and if the transition to a full operational mode occurs in the future. This is meant to prevent reoccurrence of what occurred during previous events.

Arbor Hills has reviewed the SSM plan to assess whether a revision or update is necessary based on this event. The incident was the direct result of a mechanical equipment failure (i.e. blown fuse and transformer). SSM plans do not predict or identify when mechanical failures will occur. The steps taken in this incident were performed in accordance with the sites existing SSM plan and resulted in a timely diagnosis and repair. Therefore, no revisions to the SSM plan are deemed necessary since SSM plans are required to establish operational procedures during startup, shutdown and malfunction events, and do not cover routine maintenance procedures.

However, given the infrequent nature that the flares typically operate given they are back-up devices for use in managing excess landfill gas not combusted in the gas plant, the site will implement the testing of operation of each flare individually once each calendar month if that flare has not already operated during that calendar month. Testing the flares individually will minimize disruptions to plant operations. This testing would be done during the last week of each calendar month and would provide site with a reasonable degree of certainty that the flare(s) would be able to operate if needed. Each of the landfill blowers will also be tested during this time to confirm their ability to operate if that specific blower has not operated at some point previously in the month. This testing program will minimize the potential for issues to develop unnoticed during long time periods that control equipment is in standby mode. Arbor Hills has incorporated the monthly testing described above into the facility's Malfunction Abatement Plan (MAP). A copy of the updated MAP is provided as Attachment 1. The facility believes that its MAP plan, which was developed pursuant to Permit Condition III.8 of EU5000CFMFLARE and R 336.1911 (Rule 911), is the more appropriate mechanism to set up a routine readiness testing program.

Attachment 1

Arbor Hills Landfill Updated Malfunction Abatement Plan

ADVANCED DISPSOAL – ARBOR HILLS LANDFILL
MALFUNCTION ABATEMENT PLAN FOR FACILITY FLARES

Permit Condition III.8 of EU5000CFMFLARE requires a Malfunction Abatement Plan (MAP) for the landfill gas flares at the facility. The underlying applicable requirement in State Rule 911 that specifies minimum requirements for a MAP. The following paragraphs document Arbor Hills' MAP for the 2 enclosed flares and 1 utility flare in accordance with the provisions of Rule 911.

R911(2)(a)

Arbor Hills identifies the following Supervisory personnel for the responsibilities of overseeing inspection, maintenance, and repairs of the flare.

David Seegert – General Manager
Anthony Testa – Site Landfill Engineer
Steve Schroeck – Landfill Supervisor

The attached MAP identifies the equipment covered by this MAP along with the inspection and service frequency and replacement parts maintained in inventory. Inspection records are maintained electronically and saved. In addition, hardcopy records are maintained in a log book stored on-site.

R911(2)(b)

The attached MAP identifies operating variable to be monitored to detect equipment malfunction along with the normal operating range of these operating variables and the method of inspection.

R911(2)(c)

Arbor Hills' flares operate as back-up control devices in the event of an extended malfunction to the plant. Flare capacity is currently sufficient to extract landfill gas and maintain compliance.

Flare Operating Parameters

Equipment	Operating Parameter	Range
Blower	Motor Amperage Draw	45A-132A and 85A-161A
Blower	Bearing Temperature	Per manufacture's specification
Blower	Vibration	0 IPS - 0.20 IPS
Flare	Condensate KOP Differential Pressure	0-10 inches
Flare	Condensate KOP Liquid Level	Visible on sight glass
Flare	Flame Arrestor's Differential Pressure	
Flare	Autodialer	Power on/enabled
Flare	Visual Check of Flare Stack and Burner	No visible emissions
Flare	Combustion Temp °F, enclosed flares)*	1,396 °F Zink, 1,520 °F McGill
Flare	Gas Flow Rate (cfm at 50% CH_4)*	(4,600) McGill, (3,400) Zink, (5,000) utility
Flare	Inlet Vacuum	80 inches
Flare	Inlet Temperature	(40 – 90 F)

*From stack testing conducted December 19, 2019

Spare Parts Maintained in Inventory

Thermocouple (main and pilot), spark plug igniter, UV detector, flow meter, panel indicator bulbs, grease, bearing oil, bearing and seal kits, mesh filter for KOPs, flare damper motor

MALFUNCTION ABATEMENT PLAN

Equipment Inspected/Serviced	Equipment	Weekly	Monthly	3 months	6 months	Yearly
Test Blower Operation (last week of the month) if blower not previously operated that month			X			
Check and Record Motor Amperage Draw	Blowers	X				
Landfill Gas Blower Lubrication	Blowers			X		
Check Blower Bearing Temperatures	Blowers			X		
Lubricate Blower Motor Bearings	Blowers				X	
Test all Blower Shutdowns	Blowers				X	
Check Condition of Motor Isolation Pads	Blowers				X	
Check Blower Motor Alignment	Blowers					X
Record Line Current and Voltage on Blower Motors	Blowers					X
Perform Vibration Analysis	Blowers					X
Test Enclosed Flare Operation (last week of the month) if flare not previously operated that month			X			
Check Condensate KOP Differential Pressure	Flare	X				
Check Condensate KOP Liquid Level	Flare	X				
Check Flame Arrestor's Differential Pressure	Flare	X				
Check Propane Supply Tank Pressure	Flare	X				
Check Autodialer	Flare	X				
Check Combustion Temperature	Flare	X				
Check Gas Flow Rate	Flare	X				
Check Inlet Vacuum	Flare	X				
Check Inlet Temperature	Flare	X				
Complete Inspection Checklist	Flare	X				
Download Data	Flare	X				
Visual Check of Flare Stack and Burner	Flare					
Check Pipe Supports	Flare			X		
Check Flare Flame Detection Equipment	Flare			X		
Check/Clean Flame Arrestor	Flare			X		
Inspect/Clean Flame Scanner View and Vent Port	Flare				X	

Equipment Inspected/Serviced	Equipment	Weekly	Monthly	3 months	6 months	Yearly
Inspect/Clean Flare Ignitor	Flare					X
Verify Operation of Flare Pilot	Flare					X
Calibrate Flow Meter	Flare					X