UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

SEP 2 9 2016

REPLY TO THE ATTENTION OF:

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Christina Pearse-Bossick, Environmental Manager
BFI Waste Systems of North America LLC
5011 S Lilley Road
Canton, Michigan 48188

Re: Finding of Violation
Arbor Hills Landfill
Northville, Michigan

Dear Ms. Pearse-Bossick:

The U.S. Environmental Protection Agency is issuing the enclosed Finding of Violation (FOV) to BFI Waste Systems of North America, LLC (BFI or you) under Section 113(a) of the Clean Air Act, 42 U.S.C. § 7413(a). We find that you are violating the Clean Air Act and its implementing regulations at your Northville, Michigan facility.

Section 113 of the Clean Air Act gives us several enforcement options. These options include issuing an administrative compliance order, issuing an administrative penalty order and bringing a judicial civil or criminal action.

We are offering you an opportunity to confer with us about the violations alleged in the FOV. The conference will give you an opportunity to present information on the specific findings of violation, any efforts you have taken to comply and the steps you will take to prevent future violations. In addition, in order to make the conference more productive, we encourage you to submit to us information responsive to the FOV prior to the conference date.

Please plan for your facility's technical and management personnel to attend the conference to discuss compliance measures and commitments. You may have an attorney represent you at this conference.

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The EPA contacts in this matter are Sara Loiacono and Kenneth Ruffatto. You may call her/him at (312) 353-9199 and (312) 886-7886, respectively, to request a conference. You should make the request within 10 calendar days following receipt of this letter. We should hold any conference within 30 calendar days following receipt of this letter.

Sincerely,

Edward Nam
Acting Director
Air and Radiation Division

cc: Diane Kavanaugh Vetort, MDEQ, Senior Environmental Quality Analyst
Alexander Whitlow, MDEQ, Environmental Engineer, E.I.T.
Scott Miller, MDEQ, Jackson District Supervisor

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5

IN THE MATTER OF:	)	
	)	
Arbor Hills Landfill	)	**FINDING OF VIOLATION**
Northville, Michigan	)	
	)	**EPA-5-16-MI-09**
Proceedings Pursuant to	)	
the Clean Air Act,	)	
42 U.S.C. §§ 7401 et seq.	)	
	)	

FINDING OF VIOLATION

The U.S. Environmental Protection Agency finds that BFI Waste Systems of North America, LLC (BFI) is violating the Clean Air Act. Specifically, BFI is violating the New Source Performance Standards (NSPS) for Municipal Solid Waste Landfills at 40 C.F.R. Part 60, Subpart WWW; the National Emission Standards for Hazardous Air Pollutants for Municipal Solid Waste Landfills at 40 C.F.R. Part 63, Subpart AAAA; the NESHAP General Provisions at 40 C.F.R. Part 63, Subpart A; and its renewable operating permit (ROP) as follows:

Regulatory Authority

New Source Performance Standards

1. Section 111 of the CAA, 42 U.S.C. § 7411, requires EPA to promulgate performance standards for new stationary sources, including Municipal Solid Waste (MSW) landfills, to achieve the maximum emission reduction possible for each source category.

2. Pursuant to Section 111 of the CAA, 42 U.S.C. § 7411, EPA promulgated the NSPS General Provisions, at 40 C.F.R. Part 60, Subpart A, which contain general provisions that apply to the owner or operator of any stationary source that contains an affected facility, the construction or modification of which is commenced after the date of publication of any NSPS standard applicable to the facility, 40 C.F.R. § 60.1(a).

3. Pursuant to 40 C.F.R. § 60.11(d), the NSPS general provisions require that, at all times, including periods of startup, shutdown, and malfunction, owners and operators shall, 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 practices for minimizing emissions, which is determined by information that may include monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.

4. Pursuant to Section 111 of the CAA, 42 U.S.C. § 7411, on March 12, 1996, EPA promulgated the NSPS for MSW Landfills at 40 C.F.R. Part 60, Subpart WWW. *See* 61 Fed. Reg. 9919.

5. The NSPS requires new MSW landfills with a design capacity over 2.5 million megagrams by mass or 2.5 million cubic meters by volume to calculate the nonmethane organic compound (NMOC) emission rate of the landfill. If the NMOC emission rate is greater than 50 megagrams per year, the landfill is required to install, operate, and monitor a gas collection and control system in accordance with NSPS requirements.

National Emission Standards for Hazardous Air Pollutants

6. Section 112(d) of the CAA, 42 U.S.C. § 7412(d), requires EPA to promulgate emission standards for sources of hazardous air pollutants (HAPs), including MSW landfills, to achieve the maximum emission reduction of HAPs possible for each source category.

7. The HAPs emitted by MSW landfills include, but are not limited to, vinyl chloride, ethyl benzene, toluene, and benzene. Each of the HAPs emitted from MSW landfills can cause adverse health effects.

8. Pursuant to Section 112(d) of the CAA, 42 U.S.C. § 7412(d), EPA promulgated the National Emission Standards for Hazardous Air Pollutants (NESHAP) General Provisions, at 40 C.F.R. Part 63, Subpart A, which contain general provisions that apply as specified in the relevant NESHAP, 40 C.F.R. § 63.1(a)(4)(i).

9. Pursuant to Section 112(d) of the CAA, 42 U.S.C. § 7412(d), on January 16, 2003, EPA promulgated the NESHAP for MSW landfills at 40 C.F.R. Part 63, Subpart AAAA. *See* 68 Fed. Reg. 2227.

10. The NESHAP General Provisions that apply to Subpart AAAA are specified in 40 C.F.R. Part 63, Subpart AAAA, Table 1, and include the operation and maintenance requirements in 40 C.F.R. § 63.6(e).

11. Pursuant to 40 C.F.R. § 63.6(e), the NESHAP general provisions require that, at all times, including periods of startup, shutdown, and malfunction, owners and operators shall, 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 practices for minimizing emissions, which is determined by information that may include monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.

12. The NESHAP for MSW Landfills requires new MSW landfills to continue to comply with NSPS requirements, 40 C.F.R. Part 60, Subpart WWW, promulgated or approved under Section 111 of the CAA, 42 U.S.C. § 7411, and imposes additional requirements. 40 C.F.R. § 63.1955.

Michigan's Renewable Operating Permit (ROP) Requirements

13. Title V of the CAA, 42 U.S.C. §§ 7661-7661f, establishes an operating permit program for sources of air pollution. Section 502(d) of the CAA, 42 U.S.C. § 7661a(d), provides that each state must submit to EPA an operating permit program meeting the requirements of Title V.

14. In accordance with Section 502(b) of the CAA, 42 U.S.C. § 7661a(b), EPA promulgated regulations implementing Title V of the CAA. *See* 57 Fed. Reg. 32295 (July 21, 1992). Those regulations are codified at 40 C.F.R. Part 70.

15. Section 502(a) of the CAA, 42 U.S.C. § 7661a(a), and 40 C.F.R. § 70.7(b) provided that after the effective date of any permit program approved or promulgated under Title V of the CAA, no source subject to Title V may operate except in compliance with a Title V operating permit.

16. EPA gave interim approval of the Michigan Title V permit program on January 10, 1997. *See* 62 Fed. Reg. 1387 (effective on February 10, 1997). EPA granted source category interim approval of Michigan's Title V program on June 18, 1997. *See* 62 Fed. Reg. 34010 (effective on July 19, 1997). EPA fully approved the Michigan Title V program on December 4, 2001. *See* Fed. Reg. 62949 (effective on November 30, 2001).

17. The Michigan regulations governing the Title V permit program, also known as the "Renewable Operating Permit Program," are codified at R 336.1210 – R 336.1219.

18. The Michigan Department of Environmental Quality (MDEQ) issued a Renewable Operating permit (MI-ROP-N2688-2011) to Veolia-Arbor Hills Landfill, now Advanced Disposal-Arbor Hills Landfill, on January 24, 2011 (the ROP).

19. The ROP requires BFI to comply with the NSPS requirements for MSW landfills at 40 C.F.R. Part 60, Subpart WWW, and the NESHAP requirements for MSW landfills at 40 C.F.R. Part 63, Subpart AAAA.

Findings and Violations

20. BFI owns and operates the gas collection and control system (GCCS) at the Arbor Hills Landfill (Arbor Hills, or the Landfill) located at 10690 West Six Mile Road, Northville, Michigan.

21. Advanced Disposal Services (Advanced Disposal) owns and operates the Landfill. BFI retained ownership of the GCCS in a Purchase Agreement dated March 8, 2008.

22. The Landfill consists of an active landfill (Arbor Hills West) and a closed landfill (Arbor Hills East).

23. The Landfill began receiving waste in 1970 and is projected to continue accepting waste until 2028.

24. In February 2004, BFI submitted to MDEQ a GCCS design plan, which was certified by a professional engineer as meeting the requirements of 40 C.F.R. Part 60, Subpart WWW. Revisions to the plan were made in July 2006 and April 2016.

25. According to its 2006 GCCS design plan, the Landfill had a design capacity of approximately 46.7 million megagrams, which was revised in 2016 to 53.5 million megagrams. The Landfill currently has approximately 40.8 million megagrams of waste in place.

26. At all times relevant to this FOV, the Landfill had uncontrolled NMOC emissions equal to or greater than 50 megagrams per year, as calculated using the procedures specified at 40 C.F.R. § 60.754.

27. BFI installed and operates a GCCS to capture and destroy landfill gas (LFG) generated by the Landfill. The GCCS consists of over 300 active gas wells routed to a landfill gas-to-energy (LFGTE) facility owned by Arbor Hills Energy LLC (Arbor Hills Energy), and backup flares owned by BFI.

28. On February 16-17, 2016 and May 3-5, 2016, EPA conducted inspections of the Landfill.

29. On June 1, 2016 EPA issued an information request to BFI under Section 114(a) of the CAA, 42 U.S.C. § 7414.

30. On June 21, 2016 and July 8, 2016, BFI submitted information to EPA in response to the June 1, 2016 Section 114(a) Information Request.

Failure to Install a Proper Active Collection System

31. Pursuant to 40 C.F.R. § 60.752(b)(2), owners and operators of landfills with design capacities greater than 2.5 million megagrams and uncontrolled NMOC emissions greater than 50 megagrams per year were and are required to install and operate a GCCS meeting certain design and performance standards to capture and destroy LFG.

32. Pursuant to 40 C.F.R. § 60.752(b)(2), the GCCS shall either conform to the standards for active collection systems in 40 C.F.R. § 60.759 or include a demonstration of the sufficiency of an alternative.

33. Pursuant to 40 C.F.R. § 60.759(b)(1), landfill gas extraction components shall be constructed of proper materials of suitable dimension to handle settlement forces, planned overburden, and traffic loads.

34. Pursuant to 40 C.F.R. § 60.759(b)(2), vertical wells shall address the occurrence of water within the landfill and be designed to prevent gas into the air.

35. Information submitted to EPA by BFI in response to its Section 114(a) Information Request indicates that approximately 80 gas wells at the Landfill were re-drilled or replaced since 2012 due to obstruction caused by waste settlement, overburden, or traffic. Over 50% of these re-drills/replacements due to compromised wells were conducted from 2015 to present.

36. Information submitted to EPA by BFI in response to its Section 114(a) Information Request indicates that well re-drills due to compromised wells constituted over half of the annual well constructions at the Landfill each year from 2012-2015. See Table 1, below.

Table 1: Percentage of Annual Well Constructions due to Compromised Wells

Year	Percentage of Annual Well Construction
2016	34%
2015	75%
2014	73%
2013	53%
2012	60%

37. Information submitted to EPA by BFI in response to a Section 114(a) Information Request indicates that, in 2016, more than 70 gas wells at the Landfill had liquid levels in excess of 50% of the perforated portion of the well. Excess liquid in wells reduces the LFG extraction efficiency of the GCCS.

38. By failing to install an active collection system that could withstand overburden, address water in the Landfill, and prevent gas into the air, BFI violated and continues to violate the requirements at 40 C.F.R. § 60.759(b)(1)-(2), 40 C.F.R. § 63.1955, and its ROP.

Failure to Minimize Off-Site Gas Migration

39. Pursuant to 40 C.F.R. § 60.752(b)(2), owners and operators of landfills are required to design and install an active gas collection system that conforms to the standards in 40 C.F.R. § 60.759 or demonstrate sufficiency of an alternative.

40. Pursuant to 40 C.F.R. § 60.752(b)(2)(ii)(A)(4), an active collection system must be "designed to minimize off-site migration of subsurface gas."

41. Pursuant to 40 C.F.R. § 60.759(a)(2), an active gas collection system must address and minimize landfill gas migration off-site and extend as necessary to comply with emission and migration standards.

42. Information submitted to EPA by BFI in response to its Section 114(a) Information Request and monthly reports generated by Arbor Hills Energy indicate that methane concentrations exceeding 5% by volume have been detected in subsurface gas probes located at the perimeter of the Landfill on multiple occasions from 2011 to present, as

summarized in Table 2, below.

Table 2: Percent of Monitoring Events Finding Measurable Methane Levels by Probe

Gas Probe No.	14	15R	16
2012	27%	58%	62%
2013	58%	35%	65%
2014	57%	11%	79%
2015	58%	29%	77%
2016	62%	0%	N/A

43. During EPA's inspection of the Landfill on February 16 and 17, 2016, ambient air monitoring equipment outside the boundary of the Landfill detected 81.9 parts per billion (ppb) of hydrogen sulfide and 100.9 parts per million (ppm) of methane on Napier Road east of the Landfill.

44. During EPA's inspection of the Landfill on May 3 and 4, 2016, surface emission monitoring conducted outside of the waste footprint of Arbor Hills East along Napier Road showed multiple areas with methane levels in excess of 500 ppm. The highest level detected outside the waste footprint was greater than 10,000 ppm of methane.

45. By failing to address off-site LFG migration and extend the active collection system of the Landfill to comply with gas migration standards, BFI violated and continues to violate the requirements at 40 C.F.R. § 60.759(b)(1), 40 C.F.R. § 63.1955, and its ROP.

Failure to Submit Timely Alternative Compliance Timeline (ACT) Requests

46. Pursuant to 40 C.F.R. § 60.755(a)(3) and (5), a landfill that has a wellhead exceedance of the gauge pressure, temperature, or nitrogen/oxygen concentration standards must achieve compliance within 15 calendar days or expand the gas collection system within 120 days of the first initial measurement of non-compliance.

47. Pursuant to 40 C.F.R. § 60.755(a)(3) and (5), a landfill may submit an alternative compliance timeline (ACT) request to the Administrator for approval, but this request must be submitted as soon as possible (i.e. as soon as it knows that it will not be able to correct the exceedance in 15 days and it is unwarranted to expand the gas collection system).[1]

48. In at least 80 instances from 2012 to the present, BFI submitted untimely ACT requests.

[1] See EPA's Guidance on Alternative Compliance Timeline Requests for Landfill NSPS, ADI Control Number 1400019, dated January 14, 2014.

49. By failing to correct exceedances within 15 calendar days, expand the gas collection system within 120 days, or submit timely ACT requests, BFI has violated the requirements at 40 C.F.R. § 60.755(a)(3) and (5), 40 C.F.R. § 63.1955, and its ROP.

Failure to Perform Timely Performance Tests for Control Devices

50. Testing requirements for the two enclosed flares at the Landfill are provided in Section 2, Condition V of the Landfill's ROP.

51. Pursuant to Condition V, BFI is required to perform testing to ensure compliance with NMOC, NO_x, CO, SO_2, HCl, and VOC standards every 20 calendar quarters.

52. The Landfill's permit (MI-ROP-N2688-2011) became effective on January 24, 2011, making the deadline for testing December 2015.

53. BFI submitted a test protocol for FLARE1 in January 2016 and conducted testing in March 2016. BFI submitted a test protocol for FLARE2 in May 2016 and conducted testing in June 2016.

54. Information submitted to EPA by BFI in response to its Section 114(a) Information Request indicates that, in 2016, BFI operated FLARE1 and FLARE2 as shown in Table 3, below.

Table 3: Gas Flow to Flares and Hours of Operation in 2016

Month	FLARE 1 (East Flare)		FLARE 2 (West Flare)	
	Monthly Gas Flow (cf)	Hours of Operation	Monthly Gas Flow (cf)	Hours of Operation
January 2016	6,047,621	58.3	0	0
February 2016	0	0	0	0
March 2016	3,844,289	36	0	0
April 2016	755,768	9	0	0
May 2016	12,650,066	96	95,674	1.13

55. Both FLARE 1 and FLARE 2 were operated before a performance test was conducted to ensure compliant operation.

56. By failing to perform timely performance tests for the two enclosed flares, BFI violated its ROP.

Failure to Properly Operate Gas Control System

57. Pursuant to 40 C.F.R. § 60.755(e), the provisions of 40 C.F.R. Part 60, Subpart WWW apply at all times, with the exception of a 1-hour period for control device start-up, shutdown, or malfunction. The intent of the 1-hour period is to allow operators time to identify and correct problems with the control device or to route emissions to a back-up

control.

58. Pursuant to 40 C.F.R. § 63.6(e)(1)(i), "the owner or operator must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions."

59. Based on information submitted to EPA by Arbor Hills Energy, the LFGTE plant receives, on average, approximately 7,500 scfm of LFG when all turbines are operating.

60. According to the 2006 GCCS design plan revision for the Landfill, the LFGTE facility has the capacity to combust approximately 9,000 scfm of LFG when all four turbines are operational.

61. According to the 2006 GCCS design plan revision for the Landfill, in the event that the LFGTE facility is off-line or turbines are inoperable, LFG is routed to the backup flares for destruction.

62. As the owner of the flares at the Landfill, BFI is responsible for operating the flares so as to minimize emissions when the turbines operated by Arbor Hills Energy cannot handle the maximum gas flow.

63. Based on information submitted to EPA by Arbor Hills Energy in response to its Section 114(a) Information Request, one or more turbines at the LFGTE facility were not operating a total of 137 calendar days from August 2015 to February 2016.

64. Table 4, below, shows the recent downtime of each turbine, based on the days that the turbine had no recorded flow.

Table 4: Recent Days with Turbine Outages

Month	Days of Turbine Downtime (days)			
	GT1	GT2	GT3	GT4
Aug-15	-	-	-	**5**
Sep-15	-	-	-	**5**
Oct-15	-	-	**4**	**20**
Nov-15	**1**	-	**14**	**28**
Dec-15	**19**	**1**	**1**	**25**
Jan-16	**1**	-	**1**	**22**
Feb-16	-	-	-	**26**

65. Based on information submitted to EPA by Arbor Hills Energy in response to a Section 114 Information Request, the flares were operated on only 47 of the 137 days with turbine outages from August 2015 to February 2016, as shown in Table 6, below.

Table 5: Recent Flare Operation during Turbine Outages

Month	Number of Days Operated when Turbine(s) Down	
	Flare 1	Flare 2
Aug-15	0	0
Sep-15	0	0
Oct-15	**3**	0
Nov-15	**19**	0
Dec-15	**22**	0
Jan-16	**2**	**1**
Feb-16	0	0

66. Based on information submitted to EPA by Arbor Hills Energy in response to a Section 114 Information Request, BFI failed to operate the flares during turbine outages on at least 35 additional days from November 2011 to April 2015.

67. By not routing LFG to the backup flares during turbine malfunction events, BFI violated the requirements at 40 C.F.R. § 60.755(e).

68. By not operating the flares during turbine outages, BFI failed to maintain good air pollution control practices to adequately control LFG and minimize fugitive emissions of LFG to the atmosphere, which contributes to air pollution in the area, in violation of the requirements at 40 C.F.R. § 60.11(d) and 40 C.F.R. § 63.6(e)(1).

Failure to Properly Operate Gas Collection System

69. Pursuant to 40 C.F.R. § 60.752(b)(2)(ii)(A)(3), an active gas collection system shall "collect gas at a sufficient extraction rate."

70. As defined at 40 C.F.R. § 60.751, "sufficient extraction rate" means a rate sufficient to maintain a negative pressure at all wellheads in the collection system without causing air infiltration.

71. Based on information submitted to EPA by Arbor Hills Energy in response to a Section 114 Information Request, the average total flow rate of LFG to the LFGTE facility and flares from August 2015 to June 2016 was less than 6,500 scfm, with an average daily flow rate of less than 5,000 scfm on multiple days and a minimum average daily flow rate of less than 2,500 scfm.

72. From August 2015 to June 2016, monthly wellhead monitoring data indicated more than 160 instances of positive pressure at wellheads owned by BFI.

73. During EPA's inspection on May 5, 2016, EPA and BFI representatives observed gas bubbles emanating from rainwater puddles in multiple locations within the waste

footprint of the Landfill, indicative of positive gas pressure within the Landfill and release of LFG into the air in those locations.

74. By failing to collect gas at a sufficient extraction rate, BFI violated and continues to violate the requirements at 40 C.F.R. § 60.752(b)(2)(ii)(A)(3), 40 C.F.R. § 63.1955, and its ROP.

Environmental Impact of Violations

1. Volatile organic compounds contribute to ozone formation which can result in adverse effects to human health and vegetation. Ozone can penetrate into different regions of the respiratory tract and be absorbed through the respiratory system.

2. Hazardous air pollutant emissions can lead to adverse health effects such as cancer, respiratory irritation, and damage to the nervous system.

3. Methane emissions contribute to global climate change and can result in fires or explosions when they accumulate in structures on or off the landfill site.

4. Fugitive emissions of LFG from the Landfill to the local community have resulted in receipt of over 200 odor complaints by MDEQ, Advanced Disposal, and EPA since January 2016.

9/2/16
Date

Edward Nam
Acting Director
Air and Radiation Division

CERTIFICATE OF MAILING

I, Loretta Shaffer, certify that I sent a Finding of Violation, No. EPA-5-16-MI-09, by Certified Mail, Return Receipt Requested, to:

Christina Pearse-Bossick, Environmental Manager
Republic Services
5011 S Lilley Road
Canton, Michigan 48188

I also certify that I sent copies of the Finding of Violation by e-mail to:

Tom Hess
Enforcement Unit Manager
hesst@michigan.gov

and

Scott Miller
Jackson District Supervisor
millers@michigan.gov

On the 30 day of September 2016

Loretta Shaffer
Program Technician
AECAB, PAS

CERTIFIED MAIL RECEIPT NUMBER: 7009 1680 0000 7667 5802