

**DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection**

N268848007

FACILITY: Advanced Disposal Services Arbor Hills Landfill Inc	SRN / ID: N2688
LOCATION: 10690 W. SIX MILE RD, NORTHVILLE	DISTRICT: Jackson
CITY: NORTHVILLE	COUNTY: WASHTENAW
CONTACT: Anthony Testa , Site Manager	ACTIVITY DATE: 01/29/2019
STAFF: Mike Kovalchick	COMPLIANCE STATUS: Non Compliance
SUBJECT: Comprehensive inspection of the landfill conducted on January 18, January 23 and January 29, 2019.	
RESOLVED COMPLAINTS:	

Major / ROP Source. Full Compliance Evaluation (FCE) and Partial Compliance Inspection (PCE) [Full Inspection of the landfill portion of the Advanced Disposal Services Arbor Hills Landfill Stationary Source.]

Facility Contacts

Bob Walls (BW), General Manager-Advanced Disposal Services, 248-349-7230 (Note: He retired shortly after when the inspection was conducted. New General Manager is Mark Johnson.)

**Anthony Testa (AT), Environmental Manager-Advanced Disposal Services, 248-412-0702
anthony.testa@advanceddisposal.com**

Company Compliance Hotline: (248) 305-8432

Company website: <https://www.advanceddisposal.com/mi/northville/arbor-hills-landfill>

See also related websites:

<http://www.arborhills.info/>

www.michigan.gov/deqarborhills

<https://theconservancyinitiative.org/>

Purpose

On January 18, January 23 and January 29, 2019, I conducted unannounced compliance inspection of Advanced Disposal Services (ADS) Arbor Hills landfill located in Northville, Michigan (Washtenaw County) at 10690 6 Mile Road. Stephanie Weems (SW), Jackson District EQA, also joined me for the inspection on January 18. The purpose of these inspections was to determine the facility's compliance status with applicable federal and state air pollution regulations, particularly Michigan Act 451, Part 55, Air Pollution Control Act and administrative rules, conditions of the ADS's Renewable Operating Permit (ROP) number MI-ROP-N2688-2011a and Permit to Install (PTI) permits 19-17B, 79-17.

Facility Location/Brief Description

-ADS: Advanced Disposal Services, Arbor Hills Landfill (formerly Veolia-Arbor Hills Landfill) is a large, 337-acre municipal, Type II solid waste landfill located in northeast Washtenaw County at 10833 Five Mile Road (Northville, Michigan 48168 mailing address) in Salem Township. The eastern edge of the landfill lies along Napier Road, which is the boundary between Washtenaw County to the west, and Wayne County to the east. The northern edge is along 6 Mile Road, Chubb road runs along the west side, and 5 Mile along the South. The new office building is in the SE section of the property accessed from Napier Road. There are multiple densely populated subdivisions within 2 miles of the facility as well as an elementary school within a half of a mile. There are also single-family homes to the north of the facility and to the northwest in Salem.

Arbor Hills East is the closed 129-acre portion of this landfill which began operation in 1970 closed around 1986. Shortly thereafter, the Arbor Hills West 208-acre portion of the landfill was opened. Landfill gas produced from both portions of the landfill is actively collected, treated, and processed in the adjacent landfill gas-to-energy turbine plant owned and operated by Arbor Hills Energy LLC (AHE) or

alternatively in one open flare (5000 scfm), two (2) enclosed flares (7200 scfm combined), and one temporary open flare (3000 scfm) owned by ADS. (This flare has now been permanently disabled.) ADS owns the closed Arbor Hills East, as well as the landfill gas being produced in that portion of the landfill, along with the landfill gas being produced by Arbor Hills West (all previously owned by BFI until 2/2/2017). ADS owns the operating portion of the landfill, Arbor Hills West, and is the solid waste disposal operating license holder.

-Compost Facility: The Advanced Disposal Arbor Hills Compost Facility was opened in 1995 and is located in the northeastern corner of Salem Township at 10690 W. Six Mile Road, Salem/Northville just across the road (Six Mile) from the landfill. The facility is bordered by 7 Mile Road (north), Napier Road (east), 6 Mile Road (south), and Chubb Road (west). It comprises 38 acres with the active composting pad area covering 20 acres. The closest home is located 1500 feet north of the facility. The closest home to the east is located 2000 feet away. Closest homes to the southeast are 3300 feet away. Closest homes to the West are located 2600 feet away. The closest school is the Ridge Wood Elementary School located at 49775 Six Mile Road, Northville at 1.11 miles away.

Link to an overview report on Compost Facility: <https://theconservancyinitiative.org/wp-content/uploads/2018/07/20180514-site-assess-report.pdf>

-AHE: Please refer to MACES compliance inspection report dated 1/8/2019 for complete description of the AHE facility.

Regulatory Applicability

The stationary source is in Washtenaw County, which is currently designated by the U.S. Environmental Protection Agency (USEPA) as attainment/unclassified for all criteria pollutants except ozone. Washtenaw County is currently considered non-attainment for ozone.

The stationary source has emission units that were subject to R 336.1220 for Major Offset Sources. Now Part 19 Rules (i.e. Rule 1902) NSR for Major Sources Impacting Non-Attainment Areas applies. Modifications to emission units that increase VOC and/or NOx emissions above their significance levels would trigger these requirements.

Several emission units at the stationary source were subject to review under the Prevention of Significant Deterioration regulations of 40 CFR, Part 52.21 because at the time of New Source Review permitting the potential to emit of carbon monoxide was greater than 250 tons per years. Modifications to emission units that increase criteria pollutants above significance levels would trigger PSD requirements.

The stationary source is subject to 40 CFR Part 70 because the potential to emit of carbon monoxide and nitrogen oxides exceed 100 tons per year.

The stationary source is considered a major source of Hazardous Air Pollutants (HAP) emissions because the potential to emit of a single HAP, hydrogen chloride, is greater than 10 tons per year.

(Note: PTE for HAPs for the facility is based on the 3 flares as follows:

Potential Combined HAPs: 2,600 scfm = 2.83 tpy, 4,600 scfm = 5.0 tpy, 5,000 scfm = 5.44 tpy

Potential Single HAP (HCl): 2,600 scfm = 2.67 tpy, 4,600 scfm = 4.73 tpy, 5,000 scfm = 5.14 tpy

Total for Combined HAPS = 13.27 tpy. Total for a Single HAP = 12.54 tpy)

The landfill design capacity was modified after May 31, 1991, and has a design capacity over 2.5 million Mgs, the facility is subject to 40 CFR 60, Subpart WWW - Standards of Performance for Municipal Solid Waste Landfills and 40 CFR 63, Subpart AAAA - National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills; the facility is not currently subject to 40 CFR 60, Subpart XXX since it has not received a modification in design capacity after July 17, 2014. Since the non-methane organic compounds (NMOC) emissions were estimated to be greater than 50 Mgs per year, the facility was required to install a landfill gas (LFG) collection system and control system, pursuant to Subpart WWW.

The new NSPS 40 CFR Part 60, Subpart XXX - Standards of Performance for Municipal Solid Waste

Landfills That Commenced Construction, Reconstruction, or Modification After July 17, 2014 will apply to all landfills that are modified, new, or reconstructed after July 17, 2014. For landfills not subject to the NSPS Subpart XXX, there is a proposed Emission Guideline (EG) NSPS Subpart Cf that applies to landfills accepting waste between November 8, 1987 and constructed, modified or new before July 17, 2015. This regulation will replace NSPS Subpart WWW. Once the NSPS Subpart Cf EG has been incorporated into an approved State Implementation Plan, ADS compliance with the guideline will be required. Currently the NSPS Subpart WWW is still enforceable.

(Note: On October 30, 2018, EPA issued a proposal to extend state implementation plan submission deadlines for the 2016 MSW Emission Guidelines. The new timing requirements would extend state plan submission deadlines to August 29, 2019. EPA would review submitted state plans for completeness within 6 months from submission and review for approval within 12 months of the completeness review.)

40 CFR Part 60, Subpart Cf - Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills. (Note: This WILL apply to EULANDFILL-S2, EUACTIVECOLL-S2, FGENCLOSEDFLARES-S2, EU5000CFMFLARE.)

Federal New Source Performance Standards for Municipal Solid Waste Landfills, 40 CFR Part 60 (NSPS Subpart WWW) (Note: This applies to EULANDFILL-S2, EUACTIVECOLL-S2, FGENCLOSEDFLARES-S2, EU5000CFMFLARE, EUOPENFLARE_TEMP.)

National Emission Standards for Hazardous Air Pollutants for Municipal Solid Waste Landfills, 40 CFR Part 63 (MACT AAAA) (Note: This applies to EULANDFILL-S2, EUACTIVECOLL-S2)

National Emission Standards for Hazardous Air Pollutants for Asbestos, 40 CFR Part 61, Subparts A & M (Note: This applies to EUASBESTOS-WEST-S1 and EUASBESTOS-EAST-S2.)

The stationary source is not subject to the federal Compliance Assurance Monitoring (CAM) rule under Title 40 of the Code of Federal Regulations, Part 64, because the emission limitation(s) or standard(s) for municipal solid waste landfills are covered by 40 CFR Part 60 Subpart WWW and 40 CFR Part 63 Subpart AAAA. Therefore, ADS is exempt from CAM requirements.

Leachate storage tanks are NOT subject to 40 CFR Part 60 Subpart Kb (Standards of Performance for Volatile Organic Liquid Storage Vessels [including Petroleum Liquid Storage Vessels] as leachate has a maximum true vapor pressure of less than 3.5 kilopascals (kPa). Subpart Kb (§60.110b(b)) states that "the subpart does not apply to storage vessels with a capacity greater than or equal to 151 m3 storing a liquid with a maximum true vapor pressure less than 3.5 kPa." Therefore, Subpart Kb is not applicable.

ADS and AHE constitute one Major Stationary Source under Part 70 Title V program. The Stationary Source operates under ROP MI-ROP-N2688-2011a, issued on January 24, 2011 with an ownership revision taking place on March 28, 2018. (Note: The renewal of this ROP is currently underway. ADS submitted a renewal application in 2015.)

The ROP is structured into three (3) separate sections: Section 1 is for emission units owned and operated by ADS; Section 2 was modified in 2018 to indicate ADS now has ownership (previously BFI); and Section 3 is for emission units owned/operated by AHE.

The landfill currently operates under Part 115, Solid Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended MCL 324.11501 et seq. (NREPA). The former and current solid waste construction permits have authorized the expansion and construction of the waste disposal cells at the north end of the landfill. The Waste Management and Radiological Protection Division (WMRPD) issued a certification of the Cell 4E (former Cell 6) in August 2018. Operating License 9531 was issued on September 26, 2018, and expires on September 26, 2023, authorizing the Company to accept waste in Cells 1, 2, 3, 4A, 4B, 4C, 4D, and 5. On September 27, 2018 a construction certification was issued authoring the acceptance of waste in Cell 4E. The facility is scheduled to continue to receive waste till 2028. The landfill currently has 40.9 million megagrams of waste with a design capacity of 53.5 million megagrams. At the end of 2018, it was estimated that 47,850,683 tons of waste were in place. Total waste accepted in 2018 was 2,021,958 tons. Of that total, 919,422 tons was considered municipal solid waste.

The following emission units are considered exempt from PTI permitting:

Exempt	Description of	Rule 201
Emission Unit ID	Exempt Emission Unit	Exemption
EU1-001	321,000-gallon leachate storage tank.	R336.1282(2)(aa)
EU1-002	10,000 gallon off road diesel fuel storage tank.	R336.1282(2)(d)
EU1-003	500-gallon gasoline storage tank.	R336.1282(2)(d)
EU1-004	1,000-gallon on road diesel fuel storage tank.	R336.1282(2)(d)
EU1-005	550,000-gallon leachate storage tank.	R336.1282(2)(aa)
EU2-001	Two 50,000-gallon leachate storage tanks.	R336.1282(2)(aa)
EU2-002	Propane storage tank.	R336.1284(2)(b)

Note that commercial composting process or process equipment is exempt from PTI requirements per Rule 285 (2) (bb). This applies to the Composting Facility.

Note also that landfills and associated flares and leachate collection and handling equipment are exempt from PTI requirements per Rule 285 (2) (aa) unless it can't meet the requirements of Rule 278. Construction or modification of a PSD/NSR for Non-Attainment source nullifies permit exemption rules.

Recent PTI Developments

-PTI 79-17: Application received on May 12, 2017. PTI issued on 4/13/18. Includes requirements for EU5000CFMFLARE, EUENCLOSEDFLARE1-S2, EUENCLOSEDFLARE2-S2, EUACTIVECOLL-S2, EUOPENFLARE_TEMP. Its main purpose is for the installation and operation of an open utility flare. (EU5000CFMFLARE). (This was not a PSD permit.) The public comments response notes stated the following: "The peak amount of landfill gas projected to be generated in 2029 is 10,090 standard cubic feet per minute (scfm). The gas-to-energy facility has a capacity of 11,220 scfm and the three flares will have a total capacity of 11,900 scfm. (or 12,200 scfm in Permit evaluation document.) The permit outlined the use of a PSD "Hybrid Applicability Analysis" to show the project will not be a significant increase in emissions.

-PTI 19-17: Application received on February 3, 2017. PTI issued on February 13, 2017. Voided on February 20, 2018. 3,000 scfm (7023 acfm) temporary flare EUOPENFLARE_TEMP. Normally, about 700 to 1500 scfm landfill gas goes to the flare while about 6000 scfm goes to AHE. The PTI contained a condition that terminated the permit by January 31, 2018. The permit contained a 35.4 tpy SO2 limit based on maximum sulfur content of 440 ppm and fuel restriction of 950 million cubic feet of landfill gas. It also contained an 89 tpy limit on CO. (PSD restricts increase to less than 40 tpy SO2 increase and 100 tpy CO.) (Note: A 1,350 scfm open flare was installed on the South end of the landfill by BFI in 2016 using the permit exemption contained in Rule 285(2)(aa). Rule 278 considerations precluded applicability of this exemption for this permit. The 1,350 scfm flare was removed when the temporary flare was installed.)

-PTI 17-17A: Application received on December 21, 2017. PTI issued on January 31, 2018. Voided on December 26, 2018. (Fuel restriction of 860 million cubic feet based on a sulfur content of 500 ppm. 89 TPY CO, 35.4 SO2.)

-PTI 19-17B: Issued on December 26, 2018. Provides for an extension to use EUOPENFLARE_TEMP till January 31, 2019. Permit evaluation document reads as follows:

"The temporary flare was only expected to be in operation for one year until the 5,000 scfm permanent flare was installed and operated. Due to unforeseen circumstances on both the MDEQ and Advanced, the permanent flare has not been installed yet. Therefore, the temporary flare is still needed. The permit was set to expire on December 31, 2018. The permit has been extended to January 31, 2019. If the permanent flare is not operational by this time, a new PTI application must be submitted with a PSD applicability analysis which includes the temporary flare. Since the temporary flare has been in use for over 2 years at the time of permit expiration, it is no longer considered temporary and must be included in the PSD analysis." Permit has language that it expires on January 31, 2019 or 60 days from initiation of operation of the permanent flare. (The permanent flare began operation on November 17, 2018.)

Note: PSD PTI application Draft # 53-18 submitted by AHE is currently under New Source Review. It includes requirements for EUTURBINE1 through 4-S3, FGNOX-S3 and FGTURBINES-S3. This application was submitted to address S02 emission exceedances. FGNOX-S3 is a flexible group emission unit that appears in both Section 2 and Section 3 of the ROP so revisions of FGNOX-S3 will affect ADS's portion of the ROP. (Update: This permit application was denied on March 28, 2019 for lack of information. A new permit application

is expected in March.)

Active Consent Orders/Escalated Enforcement

As a result of gradually increasing landfill gas generation rates, increases in sulfur content in the gas and current limitations in the gas collection and control system (GCCS), Administrative Order EPA-5-17-113(a)-MI-04 was issued on May 4, 2017. See Attachment (1). Generally requires compliance with the landfill NSPS, landfill NESHAP and ROP.

Active 2002 Order with WMRPD regarding subsurface gas migration.

AQD & WMRPD Enforcement referral package submitted to Lansing DEQ Enforcement Units on January 2019 mostly to address odor violations. See Attachment (2).

Recent Violation Notices (VNs)

Date	Description
2/02/16	Waste Management and Radiological Protection Division (WMRPD) issued VN citing Part 115 for odors.
3/15/16	WMRPD issued VN citing Part 115 Rule 433(1) for odors.
11/8/16	WMRPD issued VN for odors.
12/14/16	WMRPD and AQD issued VN for odors.
2/6/18	WMRPD and AQD issued VN for odors
8/31/18	WMRPD and AQD issued VN for odors
10/12/18	AQD issues 2 nd VN since response to previous VN unacceptable.
1/2/19	AQD issues Letter of Concern for Odors. (See Attachment (18). Attachment (19) is the ADS's response which was received on January 16, 2019.)
1/14/19	AQD issues VN for numerous wells exceeding NSPS Subpart WWW operating parameters. (See Attachment (23).
1/17/19	WMRPD and AQD issued VN for odors.
1/24/19	WMRPD and AQD issue Enforcement Notice for commencement of an enforcement action against ADS related to but not exclusively including odors violations.
1/24/19	WMRPD issued VN for excessive leachate levels in the primary collection system, not following operational procedures and best management practices for the handling of contaminated soils and for underground methane migration occurring at the facility boundary. (See Attachment (22)).
2/7/19	AQD issues VN for failing to have enough back-up flaring capacity in the event of a turbine plant failure. (See Attachment (24). This VN is one of two VN's associated with this inspection report. A third VN is associated with this inspection report but for AHE.
3/1/19	Initial Enforcement meeting between MDEQ and ADS.
3/14/19	AQD issues VN to ADS for multiple issues discovered during comprehensive inspection.
3/14/19	AQD issues VN to AHE for violations relating to being the contracted operator of the GCCS.

Fugitive Dust Control Plan

ADS was notified on June 03, 2016 that due to recent observations of excessive dust coming from the haul roads, a fugitive plan would be required. On August 11, 2016, a fugitive dust plan was submitted to the AQD.

Observations of continued haul road dust, excessive track out of material on to Napier/Six-Mile Road and the use of a dry-sweeper truck that was creating a road hazard on Napier road due to very low visibility prompted a December 7, 2018 letter from the AQD requesting ADS modify their existing fugitive dust control plan with improvements to address this issue. ADS requested an extension till February 7, 2019 to allow for more time to evaluate their options.

On February 4, 2019, ADS submitted a revised Fugitive Dust Plan. See Attachment (3). Includes adding rumble strips at the entrance of the facility to help knock off excess material on truck tires and the purchase of a new type of sweeper truck to keep surrounding public roads free from dust and debris. They will still be using older dry sweeper truck during wet conditions since some of the larger dirt deposits can be removed by the new truck.

Fugitive dust wasn't further evaluated for this report due to the Winter season when dust is normally at a minimum. See attached photos.

MAERS Reporting 2017

ADS reported the following facility-wide total emissions for 2017: 170 tons CO, 122 tons NOx, 191 tons PM10, 104 tons SO2, 60 tons NMOC, and 2.2 tons VOC. (Note: By volume, landfill gas is approximately 50

percent methane, 50 percent carbon dioxide, and less than 1 percent of many different NMOC. Nonmethane organic compounds include VOC, HAP, and odorous compounds. Therefore, by collecting and controlling landfill gas, HAP emitted by landfills are collected and controlled. To reduce the burden and complexity of measuring and monitoring the various HAPs, NMOC is considered a surrogate for determining the applicability of collection and control of HAP emissions. Nonmethane organic compounds are an appropriate surrogate for HAPs because all HAPs are contained in the NMOC portion of landfill gas. However, NMOC emissions are not used to determine Major source thresholds under 40 CFR Part 70.) Landfill emission factors can be found here: <https://www3.epa.gov/ttnchie1/ap42/ch02/final/c02s04.pdf>

Greenhouse Gas Emission Reporting

ADS is required to report Greenhouse Gas emissions per 40 CFR Part 98.

Subpart HH – Municipal Solid Waste Landfills. <https://www.law.cornell.edu/cfr/text/40/part-98/subpart-HH> 2017 Emission Information can be found here: <https://www.epa.gov/ghgreporting>

In 2017, ADS reported 188,764 metric tons of CO2e (carbon dioxide equivalent) emissions.

Local EPA Air Monitoring Report 2016 as Reviewed by DEQ Toxicologist:

See Attachment (27).

Odor Complaints Table

The following table shows the number of odor complaints that have been received by the AQD each month since 2016 in the vicinity of the landfill and from the nearby compost operation.

	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Totals
2016	38	91	48	23	22	46	17	42	18	75	61	41	522
2017	2	22	2	2	7	40	38	17	35	51	21	43	280
2018	38	89	21	114	319	122	85	133	95	186	513	221	1936
Totals	78	202	71	139	348	208	140	192	148	312	595	305	2738

Note: 277 complaints were received in January 2019 and 113 received in February as of the 24th.

Recent Construction, Malfunctions and Other Significant Events Table

Date	Construction, Malfunction & Significant Events Description
2/2017	ADS acquired a gas collection and control system (GCCS) from Republic Services. They start to upgrade the GCCS with the installation of more than 40 new and replacement gas collection wells, installation of a new, larger main pipe around the perimeter of the landfill to collect and carry gas to the onsite gas-to-energy plant and the installation of temporary coverings on the north and west sides of the landfill to prevent the escape of gas.
12/3/17	ADS completed installation of 10-acre temporary cap on West slope.
12/15/17	ADS completed installation of 20-acre South slope final cover.
3/2018	ADS completed installation of a 24" header pipe (large perimeter pipe) around most of the landfill.
3/19/18 to 3/24/18	Outage for a total of 128:34:00 hours: DTE forced outage AHE plant.
4/15/18 to 4/15/18	Outage for a total of 8:49:00 hours: AHE Plant Tone Tripped by DTE.
4/26/18 to 5/12/18	Completed construction of 13 new gas wells (WW-146B, WW-176, WW-177, WW-208, WW-209, WW-273A, WW-274A, WW-429, WW-503, WW-504, WW-505, WW-507, WW-508) and 16 replacement gas wells (WW-16R5, ww-158R3, WW-168R2, WW-170R3, WW-173R6, WW-195R4, WW-216R3, WW-223R4, WW-236R4, WW-251R2, WW-272R2, WW-285R, WW-286R, WW-31 OR, WW-320R, WW-321R) and associated lateral piping to improve gas collection in these areas
4/27/18	Completed installation of the 42-inch diameter steel casing beneath the railroad

	tracks and installation of the new 36-inch diameter HDPE header pipe from the south of railroad gas plant facility to the north landfill side to reduce vacuum loss and improve available header vacuum to the wellfield.
5/25/18	Completed installation of caisson foundation for new 5,000 candlestick flare.
6/7/18	Outage for a total of 10:59:00 hours: AHE Plant brought offline to support DTE outage.
6/7/18	Completed connection of 24-inch diameter perimeter header to 36inch diameter header pipe crossing to the gas plant facility to reduce vacuum loss and improve available header vacuum to the wellfield.
6/18/18	ADS completed 20-acre South slope final vegetative cover.
6/19/18	Outage for a total of 5:28:00 hours: AHE Plant tripped offline due to landfill tie-in piping installation.
7/2018	ADS completed installation of new 5000 scfm backup flare within the flare compound near the gas-to-energy plant.
7/13/18	Installed western sump CS-IB at crossing to improve condensate removal within the gas system piping.
7/25/18	Installed 36-inch diameter header from CS-IB to eastern header access riser and transition to future sump CS-IA. Pumps set in CS-IB. These improvements reduce vacuum loss and improve available header vacuum to the wellfield and improve condensate removal within the gas system piping.
7/26/18	Set new 5,000 candlestick flare.
7/31/18	Outage for a total of 15:22:00 hours: ADS Pipeline Tie-in.
8/18	Completed installation of the following new wells: (WW-146B, WW-176, WW-177, WW-208, WW-209, WW-273A, WW-274A, WW-429, WW-503, WW-504, WW-505, WW-507, WW-508) to improve gas collection in these areas
8/3/18	ADS completed connection of the 36" pipe (previously placed underneath the railroad track) into the gas-to-energy plant, which completed the connection of the new, upgraded perimeter piping. Began directing gas from new, upgraded header network into gas-to-energy plant. This dramatically increases landfill gas flow to the AHE plant and reduces required vacuum applied at AHE on the wellfield due to removal of pressure bottleneck under railroad tracks.
8/9/18	Outage for a total of 5:40:00 hours: Wellfield construction forced shutdown.
8/13/18	Outage for a total of 4:02:00 hours: Wellfield construction forced shutdown.
8/16/18	Completed abandonment of by-passed header infrastructure on the north side of the blower facility. Included the removal of the by-passed valves, sumps, knock-out pot, and all associated above and underground piping. This was all removed to make room for future gas header piping supplying the blowers and flares.
9/18	Construction work to reconfigure the piping attached to the blowers (vacuum source which pulls landfill gas in) for the 3 flares.
9/1/18	Revised header piping to the flares (including the 5,000 candlestick) completed.
10/22/18	Began removal of interior blower building infrastructure.
11/2/18	Removal of existing blowers and piping for flares completed.
11/14/18	Control room for the 3 flares begins operation.
11/15/18	Outage for a total of 3:32:00 hours: Flare yard construction forced shutdown.
11/16/18	Installation of new blowers, controls, and piping completed. Troubleshooting of new blowers and remaining header infrastructure at CS-IA ongoing.
11/17/18	New 5000 SCFM flare begins operation. However, an over-amping problems develops with the new blowers which prevents full operation of the 3 flares. Some reduced capacity operations are still possible estimated at an estimated 3000 scfm. Problem remains unresolved as of 1/31/2019.
11/18/18 to 11/21/18	AHE plant operating at reduced capacity due to construction.

11/18/18	North Temp flare was turned on.
12/08/18	AHE plant operating at reduced capacity during the morning due to site construction.
1/7/19 to 1/9/19	Outage for a total of 42.32 hours. Construction caused condensate build up in pipe/knockout tank filled and prevented flare yard flares from operating and AHE plant at reduced capacity. The flares were operational by 3:30 PM on 1/9/19.
1/29/19	North Temporary Flare permanently disabled.
3/5/19	Plant down for 2 hours for installation of 18-inch valve assembly in jumper line above east header access riser. Also, to install 18-inch valve on east port of KOP.
3/11/19	Anticipated shutdown of one turbine.
3/25/19	Anticipated shutdown of plant for 4 hours to complete final connections to 36-inch header and 18-inch AHE header.
4/1/19	On or about April 1, there is an anticipated shutdown of one turbine.
4/30/19	In late April, it is anticipated there will be an AHE plant wide shut down.

Facility Background

The ADS Landfill is a Type II Sanitary Landfill, which currently accepts municipal solid waste (MSW), construction and demolition waste, yard waste, inert waste, sludge, wastewater biosolids, friable asbestos, non-friable asbestos, industrial waste, foundry sand and ash. The landfill currently accepts waste loads from 6 AM to 5 PM, Monday through Friday and 7 AM to 12 PM on Saturday.

The solid waste is transported to the facility to an area (cell) where it is deposited on the working surface. Solid waste arrives in a variety of vehicles that potentially generate fugitive dust emissions. The deposited waste is covered with soil or other approved alternate daily cover materials at the end of each day. When a cell reaches its design capacity, a liner is installed, covering the waste.

MSW initially undergoes aerobic microbial activity, which produces predominately nitrogen gas and carbon dioxide. As oxygen levels decline, gas composition changes to a mixture of methane and carbon dioxide. Landfill gas (LFG) typically contains a small percentage of non-methane organic compounds (NMOC). The NMOC fraction consists of HAPs, greenhouse gases, and VOCs. NMOC is the primary regulated air pollutant associated with landfill gas generation, which was promulgated as a regulated air pollutant under NSPS Subpart WWW. NMOC is considered a surrogate for HAPS under MACT AAAA.

ADS also operates the associated GCCS as required under state and federal air pollution and solid waste regulations to collect and control gas generated by the solid waste in the landfill. The existing GCCS consists of over 400 extraction points, including vertical wells and horizontal collectors that are located within the waste mass. These extraction points convey the collected landfill gas through a series of lateral and header pipes to an adjacent landfill gas-to-energy facility for electricity production. This electricity production facility is owned and operated by a separate company, AHE. It serves as the primary control device for the collected landfill gas. ADS owns/operates backup control equipment including one permitted open flare (5000 scfm) that became operational on November 17, 2018, two permitted enclosed flares with a combined capacity of 7,200 scfm and a permitted 3000 scfm temporary open flare. (Temporary flare permanently ceased operation on 1/29/2019.) They are used primarily when the gas-to-energy facility is off-line or operating at reduced capacity.

ADS is required to operate the landfill, including all operations, to collect and control emissions generated by its operations. Emissions resulting from facility operations are and have been causing frequent noxious odors that impact the surround community in violation of the Part 55, Act 451, Rule 901(b) criteria and the Solid Waste Management, Part 115, Rule 433(1) (c). Overall, landfill generated odors must be controlled, reduced and/or eliminated to the extent possible. To date, most of the focus on the numerous inspections conducted at the facility since 2016 has been related to odor issues.

EPA have determined that ADS has completed the consent order required improvements to the GCCS and the majority of LFG is being collected and controlled. This has been demonstrated by a significant increase in

system vacuum and flow to the AHE plant over the past year and especially since August 3rd, 2018 when ADS began directing gas from the new upgraded header network into the plant.

ADS still needs to identify source(s) of continuing odor, monitor them at the facility and treat them near the source, such as the landfill's working face, fugitive LFG and compost.

Known odor sources from the landfill include: incoming garbage trucks, from litter or liquids that may fall from the trucks, while the trucks wait in queue to dump, and during the unloading process at the tipping face area. Odors may also be generated from the fresh garbage on the working face before it is covered. Garbage odors can be carried into adjacent neighborhoods by winds, carried by LFG, which passes through the fresh garbage that has been disposed/placed upon the working face during operational hours. Also, the garbage odors carried by LFG can pass through the daily cover after the landfill is closed for the day. The adjacent compost operation on the north side of the landfill is resulting in noxious odors that migrate offsite. And finally, the handling of leachate and LFG condensate generated from the landfill is also a known source of odors that remains problematic.

Most of the odors observed by AQD staff coming from the landfill are fugitive and transient in nature. (Odors dilute in response to local winds and vary with atmospheric conditions, such as wind speed and stability). This makes it difficult to intercept odors and verify odor complaints.

Odor complaints have been persistent since early 2016. The odors are attributed to the excessive landfill gas generation and excessive accumulation of MSW onsite. Odors have also been attributed to specific industrial type waste receipts such as contaminated soils and sewage sludge. In addition, the facility's compost operations have also been a regular source of offsite odor.

To address the odor complaints, formal regular odor surveys were initially implemented by BFI around the landfill perimeter (upwind, downwind) and in the nearby residential areas through a BFI hired consultant, Barr Engineering. While MDEQ was responding to complaints and conducting odor evaluations in the surrounding areas, AQD understood that both ADS and BFI employees were also responding to complaints to verify offsite odors daily.

AQD has determined that the proximity and location of residential areas, downwind of prevailing wind direction are the primary factors resulting in nuisance odor conditions. Also, the local topography with homes at a lower elevation than the landfill can result in temperature inversions that exacerbate the odor problems when winds are favorable.

AQD received formal odor technical assistance from the local Wayne County government in 2016. Wayne County Department of Public Services, Land Resource Management Division (LRMD) regulates solid waste facilities through its Solid Waste Ordinance. Although the landfill is located outside of its jurisdictional boundary, LRMD worked with MDEQ to provide additional service to Wayne County residents. The residents in this case are primarily located in Wayne County and therefore the County received numerous and regular complaints. LRMD provided technical support to MDEQ in its efforts to achieve compliance at AHLF. LRMD conducted weekly odor surveys along a pre-determined route in order to document nuisance conditions that may exist and to provide AQD with additional data in its work at the facility. LRMD offsite observations identified primarily low level LFG odors, some low level garbage odors, and a few compost odors.

RK & Associates (RKA): AQD recommended the companies obtain a true 3rd party odor expert consultant, paid for by the companies and with oversight from AQD. In 2017, the Company obtained the services of RKA an established consultant out of the Chicago area well known to AQD having conducted state-wide odor training of our staff regularly in recent years. AQD had direct contact with RKA and reviewed and commented on the Odor Control Plan and scope of work. RKA uses a "Scentometer" (scent meter) device staff are trained on, to evaluate odor. RKA then developed an expanded odor survey map and a source perimeter and community route system to conduct odor surveys twice per day every day except holidays. A weekly record keeping log was developed to record upwind and downwind readings at the designated locations. The points and times have changed during the past two years based on complaints.

In evaluating the results of RKA surveys over time it is important to note the limitations. The twice daily odor surveys collect data regardless of the weather conditions. Data is collected even when wind directions are away from the residential areas (i.e. they are upwind of the AHLF). Also, data is collected at predetermined locations (points). If odors are detected between points this data is not captured. Finally, surveys are time limited to conducting observations of all points once within the designated approximately 2-hour time block, once in AM and once in PM. Due to the transient nature of odors from landfills the short observation time makes it more

likely the odors could be missed.

During the period of 2008 to 2015, AQD received 13 odor complaints for this facility. It appears the odor problem worsened significantly during construction of the Cell 4 area in 2015/2016 with 622 complaints received in 2016 alone. Cell 4 is the northern most section of the landfill property along 6 Mile Road and is the farthest away from the vacuum collection and control equipment at the southern end of the property. This is also the area closest to the residential areas to the north and east. AQD inspectors, in response to odor complaints, have verified numerous times very strong gas, garbage, and compost odor that were traced back to the landfill.

Independently, AQD inspectors have verified that the gas odor intensity and frequency has lessened while garbage and compost odors have continued to be frequent. This coincides with the 2016 initial increase in the number of odor complaints from residents in the area due to the GCCS noncompliance issues and a subsequent decrease in 2017 when continued significant GCCS construction and improvement was ongoing. Complaints again increased in 2018 while active waste filling has increased in the northern most Cells that continue to be constructed.

Air Quality Rule 901 states: "Notwithstanding the provisions of any other department rule, a person shall not cause or permit the emission of an air contaminant or water vapor in quantities that cause, alone or in reaction with other air contaminants, either of the following:

- (a) Injurious effects to human health or safety, animal life, plant life of significant economic value, or property.
- (b) Unreasonable interference with the comfortable enjoyment of life and property."

AQD staff have documented that the odors from the landfill have caused unreasonable interference with the comfortable enjoyment of life and property for the nearby residents.

The AQD and WMRPD have requested several times since early 2017 that ADS provide additional information and action items regarding their waste and compost operations. This included specific upgrades and improvements that they could implement to reduce and eliminate odors. AQD and WMRPD requested ADS to provide information regarding the assessment of active waste receipts for possible preventative measures taken to reduce and eliminate odors.

ADS has been making various attempts at mitigating odors. One method involved installing a piping system along Napier Road just east of the landfill and compost facility. It is an odor neutralizing system. It is manufactured by GOC Technologies. The system utilizes a reservoir containing QuickAir V on a trailer-mounted generator to create counter-odor vapor. The generator forces the QuickAir V material through a filtration system that is circulated through a piping system elevated at key areas of the landfill where odor control is desired. More information is available at <http://www.goctech.com/wp-content/uploads/2017/02/QAV-TechReport16-10.pdf>.

Arrival & Facility Contacts.

January 18, 2019:

Moderate leachate odors were observed upon our arrival and parking at the facility, at approximately 9:40 am. Prior to our arrival, we noted moderate compost odors near the intersection of Napier and 6-Mile road under a light NW wind. We proceeded to the facility office to request access for an inspection, provided our identification and meet with BW and AT. I informed them of our intent to conduct a facility inspection and to review the various records as necessary.

January 23, 2019:

Light winds out of the SE. Moderate trash odors on Six-Mile accompanied by moderate masking agent smell. Light gas odors near the North temp flare which was not operating.

I pulled into the access road of the compost facility to observe water levels in the retention pond. It was a little difficult to tell in all the fog and steam in the area, but it appeared that the retention pond was within its banks and was not impacting the rows of compost as it had done recently resulting in odors. There might also have been a small berm in place between the compost rows and the pond but couldn't tell due to the visibility.

I arrived at the office at approximately 10:00 AM and again met with BW and AT.

January 29, 2019:

Gusty winds out of the SW. Moderate trash odors on Six-Mile. I arrived at the office at approximately 10:00 AM and met with BW and AT.

Pre-Inspection Meetings

January 18 Meeting:

We mostly discussed the flare system.

I gave AT a list of records that I wanted copies of. (Note: All the requested documents were not received till March 1, 2019 which delayed completion of this report.)

January 23 Meeting:

It was first noted that the Candle stick 5000 scfm flare was operating and consuming about 1600 scfm of landfill gas. Per ADS, one of the main compressors that is used to power a turbine at Fortistar was being serviced.

Nothing new on the status of the blower situation. AT indicated that assuming there was a total shutdown of the energy plant (and temp flare off), due to the current reduced blower capacity, the system can control no more than 3000 of the 10000 scfm currently being collected from the landfill

AT walked me through the entire leachate collection system, the condensate system from the wells and AHE and the storm water system. Attached photo show his sketch of the system on a chalk board as he explained it to me.

The various tanks all appear to be controlled by carbon. At present, when they smell odors, they know that the carbon should be replaced. (Note: Should consider making sure that taking care of the carbon shows up in a preventative maintenance plan?)

They indicated to me that my previous information request for documents would be submitted to me in batches. They will likely request an extension to get all the information that I requested that was due on January 28th. They did provide with a large blue print of the well collection system as requested. They won't be providing with a new design plan as it isn't ready yet. Few other items, they will indicate that we already have the latest version of it or exactly when they submitted us a copy previously.

We discussed the temporary flare again. I clarified that barring some last-minute permit action, I would cite ADS if they continue to operate the flare beyond the end of the month. I also stated that due to some confusion on the 60-day requirement in the PTI, I wasn't planning on enforcing that language. I stated that I would like to receive photographic evidence that flare is disconnected at the end of the month and a tentative schedule for having the flare skid removed off site. Due to road conditions at the flare, it is unlikely they will be able to physically remove the flare for some time. They will likely have electrician pull the plug on it as the easiest way to disable it until they get a chance to move it offsite.

The McGill flare (West Flare that is larger than Zink flare.) is the one that will be refurbished later this year. (Later correspondence suggests they will refurbish both flares.) There is a long list of things that they plan on doing with it. AT noted that due to the design/enclosed nature of the flares, it doesn't lend itself to being able to tune them down. He didn't sound like he was completely sure, but he seemed to indicate that there needs to be enough gas to allow them to be fully on or not at all.

A repairman was arriving later that day to work on a couple of the candlestick flare's thermocouples. I noted that 2 of the temperature readings for that flare on the control system seemed quite low.

We discussed the TS-01 seep area and the continued problems with odors from that. (See attached photo from previous inspection.) It is probably there because it used to be the exit point of a horizontal well into the side of the hill. (The odorous contaminated groundwater is being handled as leachate, but it really isn't from the bottom of one of the waste cells.) As mentioned in a letter to us, this area is currently under an engineering study and a fix implemented by the end of April weather permitting. Certainly, everything will need to be enclosed. Looks like they are continuing to pump out the little pond that has formed periodically. Below this area, the "frac" tanks are still there pretreating waste with hydrogen peroxide before it is sent on to one of 2 25,000 gallon tanks or the 330,000 back-up tank that they have which they pump out and haul off site. (Hydrogen peroxide neutralizes the

sulfides in the leachate.) The back-up tank surplus storage when tanker trucks aren't available to haul the leachate away such as on a weekend. He cited the reason for pretreatment is too prevent odors during the loading process to the tank truck. (Perhaps the tanks are controlled with carbon but the air vent from the tanker truck is not?)

They did provide me with a new blue print size map of the landfill gas collection system.

January 29, 2019 Meeting:

We discussed the newly issued Enforcement Notice that ADS just received from the DEQ and its implications for ADS.

We discussed some leachate wells labeled L-1 to L30+ that run along the East side of the landfill. He didn't know much about them except that they were part of the old closed landfill and probably not well maintained. They are not being including in the NSPS report despite the landfill gas collection map depicting them as being connected to the well field vacuum pipe system.

Discussed the very poor 4th quarter landfill surface scan report that was dramatically worse than previous quarters with hits as high 20,000 ppm, with visual gas bubbling, dead vegetation etc. AT thinks it is mostly due to a change in who Fortistar had conduct the survey. I noted that 2 of the hits were not resolved in the required time and it sounds like some drilling will be taking place to correct. I indicated that I want see landfill scans to be done monthly and require that the technician plots the path he walks using a GPS tracker to improve the accuracy on just what part of the landfill is actually walked. I also want a much better detailed explanation on exactly how they remediate the 500 ppm hits. I was concerned that if they are simply adjusting the vacuum in one area, it is as the expense of another area so that surface leaks are simply moving around without the underlying problems being addressed.

Discussed the findings in the recent Waste VN; especially the very high-water levels in Cell 4. AT explained that they do feel the measurements taken in the riser pipe coming out of bottom of the liner are accurate. However, he notes that is the lowest part of the liner where the rise is located so there isn't anything like the 27 feet of water all the way across the cell. He indicated that they are down to about 15 feet now with the continued pumping. He said all this water was a result of heavy rain and something about a tie-in flap to the cell 4 liner system that seems to direct water into it. He doesn't believe any of the wells in that area are impacted.

Discussed the flares again. I confirmed that the flares do not have any electrical generator back-up so any loss in power at the control building or blower building will disable the flares. They have 3 small portable generators at the main shop building at the compost facility but there are not large enough to use for the flares.

AT mentioned that he has numbers now that indicate that the collection system is now at 90% collection efficiency instead of the commonly assumed 75% number. I told him I had doubts about this especially in light of the latest quarterly report. I mentioned that landfill gas capture rate already exceeded values in the design report. He doesn't think that is true saying that the values in the design are "normalized" for methane versus the number I was using which is the amount of gas being processed at the energy plant.

Onsite Inspection

Below is an evaluation of the compliance requirements for each regulated emission unit evaluated as observed/investigated during and after the onsite inspection.

EUASBESTOS-WEST-S1, EUASBESTOS-EAST-S2: NON-COMPLIANT

EUASBESTOS-WEST-S1 refers to the open 208-acre portion of the landfill that may contain asbestos.
EUASBESTOS-EAST-S2 refers to the closed 129-acre portion of the landfill that may contain asbestos.

EUASBESTOS-EAST-S2 was not evaluated since this area is closed.

From ADS's GCCS design report:

"No segregated, i.e. mono-fill, areas containing asbestos or non-degradable materials are known to exist at the site, therefore no areas of the landfill have been excluded form the coverage of the landfill gas collection and control system".

An AQD asbestos inspection was last conducted on 02/21/2018. See Attachment (4) which is copy of the inspection report.

Key aspects of the report include the following:

- 1) Friable asbestos is required to be segregated and handled according to the provisions indicated in 40 CFR, Part 61, Subpart M (61.154).
- 2) Non-friable asbestos depending on the nature of the material can be disposed of with the general refuse.
- 3) Friable asbestos disposal locations need to be mapped
- 4) Asbestos danger sign is required.
- 5) Water is sprayed on asbestos if they notice breach in packaging.
- 6) Asbestos is received approximately 2 times a month and covered with dirt.

The active asbestos disposal area was visited during this inspection. See attached photos. There was a sign pointing to the asbestos disposal area but no warning sign or fencing. BW indicated that the asbestos is covered up every evening. Any dust is watered as necessary. The GPS coordinates for each disposal pit is regarding. Asbestos is being disposed of approximately every other day.

ADS provided the following description of their asbestos handling:

"The acceptance of friable asbestos is discussed in Section 6.2 of the facility's Operation Plan dated 2009. To summarize, customers with asbestos waste must go through the waste approval program and provide the necessary documentation from NESHAP. The friable asbestos must arrive at the landfill scale house in either a wetted condition and sealed in 6 mil thick (minimum) bags or sealed in other tight containers containing warning labels. From the scale house the delivery driver is directed to the designated dedicated disposal area. This disposal area is generally located in an area away from the general active area of the landfill, to maintain isolation from the active work area.

On a weekly basis Advanced Disposal excavates one or more pits in the existing refuse for the disposal of the incoming asbestos waste. Pits are generally 40 to 50-foot squares and are excavated to depth of approximately 20 to 25 ft. The asbestos material is carefully unloaded in to the pit and then cover material is placed over the material immediately, before the end of each day. The pit is utilized until it is approximately 2-3 feet below surface grade and then additional cover is placed to match the surrounding grade. The location of daily asbestos disposal is recorded and kept on file in the landfill offices.

The number of asbestos deliveries per month varies due to several factors such as the economy and the weather. The total number of deliveries, as well as a yearly average, for the years 2017 and 2018 is provided in Table 1 below. The total cubic yardage of asbestos waste accepted at Arbor Hills for 2017 and 2018 is also shown on Table 1. Cubic yardage was estimated by multiplying the actual (delivered) tonnage by an industry factor of 0.80 cy/ton.

Because each disposal pit is active for several days to weeks, the location of asbestos pits were mapped by month on the attached figures. These figures cover the months of July 2018 through December 2018. These figures show the locations of gas collection and control system (GCCS) components which may be affected by the asbestos disposal areas. In general, it is assumed that the entire landfill is potentially asbestos-impacted. Historically, asbestos locations were not mapped with specific locations but were incorporated into the main waste stream. As disposal practices have evolved and improved, the records have been improved to include horizontal and vertical location of asbestos-containing waste materials. When GCCS expansion projects are undertaken, the drilling contractor(s) are provided with notification of asbestos hazards and waste handling practices are adapted to minimize the risk of asbestos contact. Based on the attached mapped asbestos locations it appears there has been minimal risk of impact from the in place asbestos to existing GCCS infrastructure.

Access to the landfill is controlled at the scale house at the main entrance. Members of the general public are not admitted to the landfill but are directed to a separate citizen drop off area. The asbestos disposal pits are located away from the general fill area so only those specific truck drivers and limited site personnel are present during unloading. Asbestos deliveries are usually prescheduled and require a 24-hour notice to the facility. Four "Asbestos Hazard" warning signs will be placed along the specific haul route to the pit area and near the active pit for each week."

-Emission Limits N/A

-Process/Operational Restrictions

Generally, requires either no visible emissions at the disposal site or that the site be covered with 6 inches of soil at the end of the operating day. Subpart M of the NESHAP, 61.150 (standard for waste disposal...). (c) Mark vehicles used to transport asbestos-containing waste material during the loading and unloading of waste so that the signs are visible. The markings must conform to the requirements of 61.149 (d) (1)(i),(ii), and (iii).

ADS has stated that, "Four "Asbestos Hazard" warning signs will be placed along the specific haul route to the pit area and near the active pit for each week."

However, no asbestos warnings signs were visible at the landfill during the 2 days the asbestos area was inspected with newly disposed of asbestos noted. (Note: There was one directional sign for Asbestos disposal area.) It is unknown if the asbestos vehicles have the proper signage.

Since ADS purportedly covers up asbestos each day and the current location is hard to access, it appears general signage isn't otherwise required.

This issue will be raised as an area of concern with ADS. Also, additional records will be requested to determine if ADS is actually covering up the asbestos waste each evening by checking to see the days that asbestos was actually received/disposed of during the month of January versus observations of the uncovered waste during the January 2019 inspections.

-Design/Equipment Parameters

Allows Company to exclude collection wells from asbestos disposal area. ADS does not claim this exemption so they are compliant with this requirement.

-Testing/Sampling N/A-Monitoring/Recordkeeping

Requires ADS maintain waste shipment records. (Not evaluated.)

Requires records of the location, depth and area, and quantity in cubic yards of asbestos-containing waste material within the disposal site on a map. Attachment (5) are maps delineating the location of the asbestos at the landfill.

The permittee shall maintain, until closure, records of the location, depth and area, and quantity in cubic meters (cubic yards) of asbestos-containing waste material within the disposal site on a map or diagram of the disposal area storage. It only goes back to July 2018. This is non-compliant.

-Reporting

Requires Semi-Annual deviation reporting.

Requires ADS notify AQD at least 45 days prior to excavating or otherwise disturbing any asbestos-containing waste material that has been deposited at a waste disposal site.

ADS hasn't provided any notifications to the AQD about excavating or otherwise disturbing any asbestos containing waste. Since much of the asbestos disposal areas at the landfill have not been mapped, an annual notification of expected excavations activities for the upcoming year would suffice. This is non-compliant.

FGAHCOLDCLEANERS-S1, FGAHRULE290-S1:

Noted one cold cleaner at main building at the Compost facility. The lid was closed and didn't appear to be used much. There are considered compliant with FGAHCOLDCLEANERS-S1.

ADS provided the following information on FGAHRULE290-S1:

"Rule 290 exempts an emission unit with limited emissions from having to apply for a Permit to Install. The following emission units are exempt per demonstration requirements of R336.1278a:

Originally, the facility installed 11 Passive vents under the Rule 290 exemption in May 2009. As the facility began

to construct Cell 4, only one passive vent remained. Emission calculations for 2017 and 2018 are as follows:

VOC emissions are calculated based on site specific NMOC concentration of 403 ppm, an estimated flow rate of 90 cfm, and 8,760 operating hours per year. This results in an emission rate of:

NMOC lb/mo equation: $[(90 \text{ scfm}) \times (60 \text{ min/hr}) \times (8,760) \times (403 \text{ ppm} \times 1E-06) \times (86.18)] / [(0.7302 \times 519)] = 4,335.1 \text{ lbs/yr}$

$(4,335.1 \text{ lb/yr}) \times (1 \text{ yr}/12 \text{ months}) = 362.92 \text{ lbs/month.}$

Rule 290 allows up to 1000 pounds of VOC emissions per month so the calculations show compliance with this part. Rule 290 generally requires quantification of cancer-causing compounds. The exact constituents of NMOC are unknown (or otherwise not provided in their demonstration) so compliance with Rule 290 is undetermined.

However, since the landfill must comply with NSPS WWW, passive vent emissions must be controlled. This should be included under EULANDFILL-S2.

From ROP:

1. The permittee shall route all the collected landfill gas to at least one of the following:
 - a. A flare designed in accordance with §60.18 except as noted in 40 CFR 60.754(e). **(40 CFR 60.752(b)(2)(iii)(A), 40 CFR 63.1955(a)(1))**

A control system designed and operated to reduce NMOC by 98 weight-percent, or, when an enclosed combustion device is used for control, to either reduce NMOC by 98 weight percent or reduce the outlet NMOC concentration to less than 20 parts per million by volume, dry basis as hexane at 3 percent oxygen. The reduction efficiency or parts per million by volume shall be established by an initial performance test to be completed no later than 180 days after the initial startup of the approved control system using the test methods specified in § 60.754(d). **(40 CFR 60.752(b)(2)(iii)(B), 40 CFR 63.1955(a)(1))**

To a treatment system that processes the collected gas for subsequent sale or use. The treatment system shall be designed so that all emissions from any atmospheric vent(s) shall be subject to 40 CFR 60.752(b)(2)(iii)(A) and (B). **(40 CFR 60.752(b)(2)(iii)(C), 40 CFR 63.1955(a)(1))**

This applies to both active and passive systems. The passive vent is non-compliant.

EULANDFIL-S2: Non-Compliant

The emission unit represents the general Municipal Solid Waste (MSW) Landfill in which the collected landfill gas is sent primarily to a treatment system. Note that during our inspection, intense H2S odors were noticed on the haul road half way up the hill on the NW side on the landfill over a localized area. (Cell 2 area.) The source of the intense odors wasn't immediately identified. At the top of the hill, moderate foul odors were noted over a large area probably coming from unidentified contaminated soil. Only low intensity trash

Went up top on January 29. It was too windy and cold to walk around. Bill/Anthony showed me the contaminated pile of dirt they have, a much smaller pile of clean dirt next to it, and the asbestos area again. The only trucks that are going up there at the present time are to deposit the contaminated soil or clean dirt then pick it back up again to deposit as cover at the active face on the North side. Bill noted that if the dirt is really smelly, they don't bring it to the top, they go directly to the active face and bury it. The asbestos disposal area is at the very top. Large pile of asbestos bags was present waiting to be pushed into a new pit. Bill noted that they don't expect to use the top for disposal for waste anytime soon as it all is currently going into North active face. He thought perhaps as soon as March they start bringing waste up top again. See photo of very large area on top that has no interim cover. (Note: The trash trucks go up the main haul road to a cross over point over the main hill but they then circle all the way back down to the active face so they come in from the West to drop their load.)

The active face was very busy and quite odorous. See attached photo. The wells in the area were of the caisson type and well-marked but to be operational. They are new but already extent to a depth of 30 feet with all the new trash going in.

-Emission Limits

Requires surface of landfill not to exceed 500 ppm of methane concentration. Checked quarterly per NSPS. Attachment (6) are the quarterly reports for 2018 showing results of quarterly methane monitoring survey.

-First Quarter Report 2018 review. Only 5 hits above 500 ppm methane with all resolved within 30 days. Surface path taken appears to be only an approximation. Landfill must comply with methane operational surface standard 60.753(d) which reads in part, " To determine if this level is exceeded, the owner or operator shall conduct surface testing around the perimeter of the collection area and along a pattern that traverses the landfill at 30 meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover. The report gives no evidence that these areas were investigated. Surface integrity surveys conducted around the same shows a number of areas that should have been investigated.

-Second Quarter Report 2018 review. Only 2 hits above 500 with all resolved within 30 days. Same problems noted as in first quarter.

-Third Quarter Report 2018 review. 8 hits above 500 with all resolved within 30 days. They "performed well vacuum adjustment and cover maintenance activities" after the initial round of readings. Same problems as first quarter.

-Forth Quarter Report 2018 review. 23 hits above 500 with all resolved within 30 days except L17 and L23. They "performed well vacuum adjustment and cover maintenance activities" after the initial round of readings.

As a result of L17 and L23 failing to clear, the landfill needs to install a new well within 120 calendar days of the initial exceedance or submit an alternative timeline to remedy the exceedance in accordance with 60.755(c)(4) (v). Initial exceedance was around December 5, 2018. New wells need to be installed by April 5, 2019.

Facility performs quarterly surface monitoring of the landfill to determine if methane concentrations exceed 500 ppm over background levels. The following quarterly monitoring results were reported in 2018.

Quarter	# of Readings	10-day	2 nd 10-day	1-month	Notes
1	5	5	5	0	
2	2	2	2	0	
3	8	0		0	
4	23	14	2	2	2 failed to clear, new wells recommended

Note that the 4th quarter monitoring report was problematic showing more hits than the rest of the quarters combined including methane readings as high as 2% concentration with visible bubbling from the ground, odors and damaged vegetation. It is unknown why the 4th quarter was much worse than previous quarters other than suspected poor quality of the surface scans being conducted.

-Process/Operational Restrictions

Requires compliance with Table 1 to Subpart AAAA of Part 63 - Applicability of NESHAP General Provisions to Subpart AAAA. Key provisions: Operation and maintenance requirements, startup, shutdown and malfunction plan provisions per 63.6(e). Per 63.10(d)(5)- "If actions taken during a startup, shutdown and malfunction plan are consistent with the procedures in the startup, shutdown and malfunction plan, this information shall be included in a semi-annual startup, shutdown and malfunction plan report. Any time an action taken during a startup, shutdown and malfunction plan is not consistent with the startup, shutdown and malfunction plan, the source shall report actions taken within 2 working days after commencing such actions, followed by a letter 7 days after the event"

-Design/Equipment Parameters

Requires ADS to install a collection and control system that captures landfill gas generated by landfill. Attachment (7) is the main portion of the latest design plan for the collection system that was last revised on April 2016. The plan is out of date due to extensive changes that have occurred since that time with many additional wells and changes to piping etc.

Requires landfill gas sent to flare and/or treatment system.

Treatment system must control all emissions from atmospheric vent(s). Note: AHE sent VN in January 2019 due to uncontrolled vents from the landfill gas treatment system. AHE is the owner/operator of this treatment system.

-Testing/Sampling

Outlines procedures to follow to conduct quarterly landfill surface methane scans.

Requires the following records:

- 1) Route traversed including any areas not monitored
- 2) Locations and concentrations of any reading above 500 ppm methane.
- 3) Meteorological conditions on the day of the testing including wind speed, wind direction, temperature, and cloud cover.

Appears to comply with these requirements.

-Monitoring/Recordkeeping

Requires the following records:

- 1) Monthly inspection results to monitor cover integrity and conduct/record repairs if necessary. See Attachment (8).
- 2) Current amount of solid waste in place and year by year acceptance rates. (Confirmed.)
- 3) Calculate/record NMOC emission rate. See Attachment (9).

Cover integrity discussion. Monthly integrity checks records were provided for 2018. However, requested records of any repairs done were not provided despite numerous issues noted each month. This is **non-compliant**. Note that at one point, a total of 4 leachate seeps were noted as active.

EPA noted the following in Sept 29, 2016 NOV to ADS.

"29. Pursuant to 40 C.F.R. § 60.755(c)(5), the owner and operator of a landfill shall implement a cover integrity program and implement cover repairs as necessary on a monthly basis.

30. Cover integrity is necessary to minimize surface emissions of landfill gas (LFG) and to ensure efficient extraction of gas through a landfill's GCCS.

31. During EPA's on-site inspections at the Landfill on February 16, 2016 and May 4-6, 2016, EPA identified multiple areas of eroded landfill cover and areas with leachate outbreaks.

32. Information submitted to EPA by Arbor Hills Energy in response to a Section II4(a) Information Request indicates that monthly cover integrity inspections at the Landfill have routinely shown deficiencies in cover, including multiple recurring deficiencies.

33. Table I, below, shows the percentage of cover integrity inspections at the Landfill from January 2012 to May 2016 that noted various cover deficiencies.

34. By failing to maintain proper cover integrity at the Landfill to ensure GCCS efficiency, Advanced Disposal violated and continues to violate the requirements at 40 C.F.R. § 60.755(c)(5), 40 C.F.R. § 63.1955, and its ROP."

If ADS adds liquids other than leachate into the waste mass, they must comply with the bioreactor requirements of 40 CFR 63.1947, 1955(c) and 1980(c) through (f), or keep record of calculations showing that the moisture wt% expected in the waste to which liquid is added is less than 40%. For purposes of the NESHAP, sludges are considered liquids. (See sewage sludge discussion section . This is an area of concern.)

-Reporting

Requires Semi-Annual of monitoring/deviations. Also requires Semi-Annual SSM report.

-Other Requirements

Requirements generally duplicative of what is outlined under EUACTIVECOLL-S2 so not covered here.

EUACTIVECOLL-S2: Non-Compliant

This emission unit represents the active landfill gas collection system at the landfill that uses gas mover equipment to draw landfill gas from the wells and moves the gas to the control equipment. (Note: As of March 30, 2018, there was 373 active NSPS collection devices. These devices include vertical wells, caisson wells, horizontal trenches and some leachate system components that are connected to vacuum for odor control. It does not include passive vents, flare sample points, condensate sump monitoring points, perimeter out of waste wells, and gas migration probes. 137 of the 373 have methane values greater than 55%)

-Process/Operational Restrictions (Key Requirements)

Requires that if collection or control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within 1 hour. (This generally means blowers to flares turned off if flares not working.)

Generally, requires each well to be operated under negative pressure, less than 55 degrees C, and less than 5% oxygen.

-Design/Equipment Parameters (Key Requirements)

Outlines requirements for the collection system.

Requires the collection system be designed to minimize off-site migration of subsurface gas. Refer to Waste report which outlines active landfill migration. See Attachment (10). This was also previously cited by EPA. 4th Quarter surface scan results show surface methane being detected along the Eastern perimeter fencing as well.

Requires that all collected gases are vented to a control system. (Note: One passive vent is not being controlled.)

-Monitoring/Recordkeeping (Key Requirements)

Requires monthly gauge pressure measurements in the gas collection header. If positive, generally requires 5 calendar days to initiate corrective action.

Requires monthly temperature/oxygen monitoring to determine if excess air infiltration and generally requires 5 calendar days to initiate corrective action.

Requires up to date map of all existing and planned collector points in system. (This was provided by Company.)

Requires records of all collection and control system exceedances of the operational standards and their locations. (Confirmed)

Requires records for provisions taken for the control of off-site migration.

-Reporting

Requires Semi-Annual reports for gas collection system exceedances and Semi-Annual SSM report.

-Other Requirements (Key Requirements)

Requires written SSM Plan. See Attachment (11) for copy of latest SSM plan. (Appears adequate.)

-Other Review Under this Emission Unit

4th Quarter 2018 Gas Collection NSPS Well Exceedances, Damaged Wells, or Water-Logged Wells Review:

4th Quarter 2018 Gas Collection NSPS Well Exceedances Report (See Attachment (25)-NSPS Well review notes.)

Well ID	From	To	Parameter	Notes
AHEW0044*	6/12/2018	End of Quarter	Excess O2	Well valve barely open. ADS says problem due to inoperable dewatering pump. Remedy okay but ACT denied.
AHEW00AA*	6/25/2018	End of Quarter	Excess O2	Well sounding only 11 feet. Remote well head. Well valve barely open. Installed under over-liner at

				Arbor Hills East. ADS submitted request on January 25, 2019 to decommission well.
AHEW032R	11/2/2018	End of Quarter	Excess O2	Surging in header. 36 feet well sounding with 18.9 feet of leachate. Remedy okay but ACT denied.
AHEW046R*	6/12/2018	End of Quarter	Excess O2	Well valve barely open, well sounding 43 feet with 28.7 feet of leachate. ADS says problem due to inoperable dewatering pump. Remedy okay but ACT denied.
AHEW0ABR*	6/25/2018	End of Quarter	Excess O2	Well sounding only 12 feet. Remote well. Installed under over-liner at Arbor Hills East. ADS submitted request on January 25, 2019 to decommission well.
AHEW78BR	10/3/2018	End of Quarter	Excess O2	Remedy okay but ACT denied.
AHEWRW05	9/14/2018	End of Quarter	Excess O2	Surging in header. Well valve barely open.
AHW0264R*	4/4/2017	End of Quarter	Excess O2	Surging in header. Well sounding only 6.5 feet. ADS says they now have fixed problem by replacing dewatering pump.
AHW259R2	10/26/2018	End of Quarter	Excess Temp	Well valve 100% open. Well sounding 45 feet.
AHWW0176	10/10/2018	End of Quarter	Excess O2	Well sounding 145 feet with 82 feet of leachate. Remedy okay but ACT denied.
AHWTR024	10/4/2018	End of Quarter	Excess O2	
AHWW0262* & ***	9/17/2018	End of Quarter	Excess O2	Well sounding 31 feet with 15.6 feet of leachate. Needs dewatering pump. Remedy okay but ACT denied.
AHWW0290*	1/11/2018	End of Quarter	Excess** Temp	Well sounding 150 feet with 34.2 feet of leachate. ADS to make waiver request.
AHWW0297	10/09/2018	End of Quarter	Excess** Temp	Well sounding 115 feet with 39.6 feet of leachate.
AHWW0299*	5/14/2018	End of Quarter	Excess** Temp	Well valve 100% open. Well sounding 92 feet with 9.8 feet of leachate. ADS to make waiver request.
AHWW0301*	5/14/2018	End of Quarter	Excess** Temp	ADS to make waiver request.
AHWW0302*	5/31/2018	End of Quarter	Excess** Temp	Well sounding 90.1 feet with 15 feet of leachate. ADS to make waiver request.
AHWW0305	10/10/2018	End of Quarter	Excess O2	Well sounding only 12 feet-pinchd.
AHWW0308	11/12/2018	End of Quarter	Excess O2	Well valve barely open. Well sounding only 5 feet-pinchd. Remedy okay but ACT denied.
AHWW0311	10/09/2018	End of Quarter	Excess** Temp	Well sounding 120 feet with 28.5 feet of leachate.
AHWW0312*	6/21/2018	End of Quarter	Excess** Temp	Well sounding 126 feet with 41 feet of leachate. ADS to make waiver request.
AHWW0315	11/06/2018	End of Quarter	Excess O2 & Temp**	Well sounding 150 feet with 96.4 feet of leachate. ACT for Temp approved but O2 unresolved.
AHWW0323*	4/10/2018	12/17/2018	Positive Pressure	Installed replacement lateral pipe to fix problem.
AHWW0329*	8/6/2018	11/7/2018	Excess O2	Retuned well to fix problem.
AHWW0423*	9/5/2018	End of Quarter	Excess O2, positive pressure	Well sounding 66 feet with 6 feet of leachate. Replaced lateral. ADS plans to pull then reinstall dewatering pump by end of February.
AHWW0425	8/16/2018	End of Quarter	Excess O2	Surging in header. Well sounding 27 feet with 10 feet of leachate. Remedy okay but ACT denied.
AHWW0500*	7/23/2018	End of Quarter	Excess O2	Well sounding only 11.5 feet with 2.5 feet of leachate. ADS says need to install force main to location and install dewatering pump to be completed by end of March.
AHWW0501***	11/13/2018	End of Quarter	Excess O2	Surging in header. Well sounding 23 feet with 18.5 feet of leachate.
AHWW0507*	9/11/2018	End of Quarter	Excess O2	ADS says need to install force main to location and install dewatering pump to be completed by end of March.
AHWW257R	9/25/2018	End of Quarter	Excess O2	Surging in header. Well sounding 55.9 feet with 27.7 feet of leachate.
AHWW258R*	Previous Quarter	End of Quarter	Excess O2 & Temp**	Well sounding 150 feet with 71 feet of leachate. Applying for exemption for Temp.
AHWW285R*	5/31/2018	End of Quarter	Excess** Temp	Well sounding 86 feet with 13 feet of leachate. Applying for exemption for Temp.
AHWW286R*	5/31/2018	End of Quarter	Excess** Temp	Well valve 100% open. Well sounding 150 feet with 85.4 of leachate. Applying for exemption for Temp.
AHWWHW11*	1/15/2018	End of Quarter.	Excess O2.	Horizontal well. Camera confirmed excess liquids. Surging conditions. Can't install dewatering pump since horizontal and there are other competing wells nearby, so ADS made request to decommission well which was approved.

* Already Cited in VN for 3rd Quarter 2018. ** ADS applying for variance for temperature exceedances in top of

landfill area due to special waste generating heat at depth. ***Wells that appear to be located under surface geomembrane liner.

Greg Marrow of WMRPD conducted an extensive investigation water logged gas collection wells.

His initial findings:

-62 gas wells with 50%-75% of perforations blocked by liquid – 21 of these already have pumps, 37 do not, 4 not known.

-46 gas wells with 75%-100% of perforations blocked by liquid – 17 of these already have pumps, 26 do not, 3 not known.

-16 gas wells with over 50% of perforations affected by a pinch or other obstruction (not liquid).

-52 gas wells did not have well logs provided by ADS and could not be fully evaluated.

Following recommend actions that will need to be taken by ADS are as follows:

- Immediate actions to begin dewatering the 26 + 3 gas wells that are over 75% flooded and do not yet contain pumps.
- Immediate evaluation of the 21 gas wells with pumps that are over 75% flooded to determine if pumps are operable and of adequate capacity, to determine if pump discharge lines are clear, and to determine liquid recharge rates. Repair or upgrade pumps as needed or plan re-drills. (ADS needs to explain why liquid levels were so high during gauging – If pumps are operating properly, there should not be that much liquid buildup during a gas well liquid gauging event).
- Subsequently, complete the same evaluations as indicated above for gas wells where the screen was flooded between 50-75% and make recommendations for pump installations/repairs/upgrades and re-drills based on gas flows, gas quality.
- Evaluate 16 wells that appear to be pinched or obstructed to determine their viability, considering gas flow/quality. Plan re-drills as appropriate.
- Provide all remaining gas well logs for DEQ review.

Greg also had suggestions on how the data should be compiled going forward on a monthly or quarterly basis to show compliance.

They include the following:

- NSPS required well head parameters – temperature, oxygen, pressure (wellhead and system)
- Gas quality parameters – Methane, Carbon Dioxide, Balance Gas, and Carbon Monoxide (if required based on HOV for temp)
- Gas flow - from each wellhead
- Gas well liquid levels – most recent measurements for sounded depth, depth to leachate, and depth of leachate
- Gas well as-built data – well type (horizontal, vertical, caisson), bore depth, perforated pipe etc
- Pump information – whether a pump is installed and is functional
- Wellhead valve open – indicate if valve is open 100%

Using the info above, ADS should also calculate/estimate in a table:

- % of well screen available for gas collection (indicate % flooded, pinched, or otherwise obstructed).

- Whether or not a gas well has been raised, by how many feet, and with what type of pipe (perforated or solid).
- % of available vacuum applied.

ADS should also develop criteria for evaluating gas collection infrastructure requiring investigation, service/repair, replacement:

- Minimum available vacuum (e.g. 10-15" W.C.).
- Target range for methane % - minimum and maximum acceptable (e.g. 45%-55%).
- Minimum available well screen – identify flooded, pinched, obstructed wells. The design radius of influence of a well is based in part on the screened well depth.
- Minimum acceptable applied vacuum/flowrate – a gas well can appear to be well tuned (acceptable temp, low O₂, methane in target range), but if flowrate is low due to a low applied vacuum, this well may not be offering much in the way of emissions control. The design radius of influence of a well is based in part on a minimum applied vacuum.

ADS, using the developed criteria and the data collected, should document which wells require follow-up, which may include:

- Camera investigation
- Increase applied vacuum
- Additional cover placement/installation of well skirts
- Vacuum line repair
- Pump/discharge line evaluation
- Pump repair or replacement
- Air/force main/pump installation
- Gas well repair/re-drill
- New gas well installation.

Note: Subsequent to Greg's review, the Company provided Attachment (12). It details the percent of well screen saturated by liquid for each well. It shows that the majority of wells have liquid in them. This is significantly impairing the ability of the wells to collect landfill gas. Non-Compliant.

FGNOX-S3: (Note: This emission unit may be modified by current PSD AHE permit application that is under review by AQD Permits.)

This flexible group applies to the NO_x emission limit associated with the following specific emission units: EUTURBINE1-S3, EUTURBINE2-S3, EUTURBINE3-S3, EUTURBINE4-S3, EUDUCTBURNER1-S3, EUDUCTBURNER2-S3, EUDUCTBURNER3-S3, EUENCLOSEDFIARE1-S2, and EUENCLOSEDFLARE2-S2; and to all other process equipment at the source, including equipment covered by other new source review permits, R336.1201 grand-fathered equipment and R336.1201 exempt equipment. (Note: This flexible group emission unit is shared with emission units from AHE.)

-Emission Limit

NO_x limit of 205 tons per year of which 165.6 tons is for the turbines/duct burners. Stack testing conducted in October 2018 at the AHE facility showed compliance with hourly emission limitations which leads to compliance with calendar year limit.

-Monitoring/Recordkeeping

Requires continuously monitoring and recording the flow rate of the landfill gas burned in enclosed flares. (Confirmed)

Requires monitoring heat content of the landfill gas. (Confirmed)

Requires monthly NOx emission rate calculations. (Confirmed)

FGENCLOSEDFLARES-S2: Non-Compliant (Refer to PTI 79-17 issued on April 13, 2018 instead of ROP.)

An enclosed flare is considered an enclosed combustor which is an enclosed firebox which maintains a relatively constant limited peak temperature generally using a limited supply of combustion air. This flexible emission unit consists of EUENCLOSEDFLARE1-S2 and EUENCLOSEDFLARE2-S2. (EUENCLOSEDFLARE2-S2 is known as the West flare or called the McGill flare. EUENCLOSEDFLARE1-S2 is the East flare also known as the Zink flare.) Flare 1 installed in 1991/modified in 2014 rated at 2600 CFM while Flare 2 installed in 1994/modified in 2014 rated at 4,600 CFM. (Newer emission unit description. Two enclosed flares used to control excess gas not combusted by the landfill gas-to-energy facility.) Per 2016 stack test, actual capacity for Flare 1 is 2445 scfm (not 2600) at a combustion set point of 1640 degrees F. and Flare 2 is 3700 scfm (not 4600) at a combustion setpoint of 1800 degrees F. See attached photos of the flare area and control screens taken from inside a control room directly adjacent to the flares. Both of the flares were not operating although 2 of the 4 blowers were on standby. About a 10" H2O drop in pressure automatically triggers the flare(s) to come on. The 2 enclosed flares have limited ability to tune down to operate at a much lower rate than the design capacity. One of the flares is scheduled to be refurbished later in 2018. Next to the control room was a small portable diesel tank and small portable emergency generator. Apparently, there was an air leak in the air line that provides air to the various valves etc. and they were using this back-up system until they find the leak. The control room housing the new automated control system began operations on November 14, 2018.

The following information comes from a MACES inspection report dated January 8, 2019 that was done at the adjacent AHE facility. During this inspection, ADS's blower building was visited. (Note: 3 of the blowers are rated at 150 hp each and also able to handle 5000 scfm each. There is also one 100 hp blower that can handle 2000 scfm. Together, the blowers can easily create the required 70" H2O vacuum draw on the landfill gas collection system. The Unison control system provides a daily report of the operations.)

"A new knock out tank has been installed on the inlet side of the landfill gas as it enters the blower building. It purportedly was filled with water preventing the flare system from operating. See attached photo. On-going construction was occurring in and around the knock-out tank. Inside the blower building, there was 3 new compressors and another existing compressor. Purportedly, the new compressors were not operational even before the problem with the knockout tank due to an overamping issue whenever attempts are made to start them. One of the new blowers had been sent away for diagnostic testing. These blowers/compressors act as a back-up draw on the landfill gas collection system in the event there is reduced draw from AHE's facility. See attached photo. Since the flares were not operational despite the reduced draw from the AHE's facility, an email request for information was made ADS:

"Bob,

As you know, I am one of the assigned air quality inspectors for the Arbor Hills stationary source. Yesterday, I conducted a compliance inspection of Fortistar. It was brought to my attention that there was an on-going significant issue with condensate in the landfill gas line feeding into the Fortistar plant that forced a reduction in the energy plant production and draw to the well field. It started around midnight early Tuesday morning. Furthermore, it appeared that none of the 4 flares were operational possibly due to the same problem. (It was also noted that the new knockout tank to the blower building was water logged and ongoing issue with new blowers over amping was still unresolved.) Please also note that intense odors were observed along 6-mile road Tuesday morning with a light South wind. Numerous odor complaints were also received from the public as well with some coming from several miles downwind. As a result, please provide the following information/records via email as soon as possible by no later than Monday, January 14, 2019:

A complete description of the incident that occurred on January 8th including when it started and when

(if) it has been resolved. Please include hours each flare operated (if any) and landfill gas usage (if any) for each flare for January 8th. Please also fully describe the ongoing issue with the blowers related to 3 flares adjacent to the Fortistar plant.

In addition, please provide for all of 2018, the daily landfill gas usage for each of the 4 flares. Let me know if you have any questions. Thanks! "

Here is the reply:

"During the morning of Tuesday January 8th ADS was contacted by Fortistar regarding a liquid issue in the wellfield that was affecting the conveyance of landfill gas to the plant. Upon investigating the condition immediately, it was discovered that the contractor installing the permanent sump in the area behind the blower building had hit the forcemain and pinched the pipe. This occurred on Monday January 7th resulting in condensate backing up in the conveyance system of the wellfield. The contractor had not notified ADS or Fortistar that the forcemain had been hit. The forcemain was repaired and back in service by midday Tuesday. Condensate that had backed up within the gas conveyance system during this period was released resulting in increased flow to the sump located at the northwest corner of the landfill gas to energy plant/blower flare compound. While the vast conveyance infrastructure provides significant capacity for liquid without creating more compromised conditions associated with landfill gas flow, the limited infrastructure at the LFGTE plant and blower/flare compound is not sized to manage the amount of liquid that had backed up during this period. This resulted in excess liquid as the liquid drained to the compound. This significant amount of liquid overwhelmed the knockout pot (KOP) for the flares which completely filled and cut off all gas flow resulting in a controlled shut down of the flare. ADS and Fortistar were able to avoid a similar phenomenon at the plant by reducing the vacuum being applied to the wellfield to prevent pulling liquid into the condensate management system upstream of the compressors. The measures taken were successful in avoiding liquid from entering the plant and causing a complete shutdown of the extraction system. The removal of the excess liquid within the system at the sump was completed on Wednesday morning when liquid flow returned to steady state. Once the liquid in the system was removed, Fortistar increased the vacuum to the wellfield and the liquid in the KOP was evacuated into holding containers for disposal and the flare was back to operational status at approximately 3:30 PM on Wednesday January 9, 2019.

The sump that connects to the KOP is currently being replaced, wet conditions and fill soils has delayed completion of this installation. We anticipate that the sump for the KOP will be installed within a month, weather depending. In the interim, ADS has holding tanks and piping installed to drain the KOP in the event the need to remove excess liquid occurs. The excess liquid encountered at the KOP and the sump did not have an effect on the northwest temporary flare which is operational.

On December 17, 2018 ADS sent an email describing the blower related issues. The email stated:

"When we were in the process of commissioning the control system and when we tried to bring the 5,000 SCFM blowers online, the blowers would over-amp. They simply could not run and supply the required flow to the system. On December 6, 2018, the company that constructed the blowers (Lonestar), had a technician come on-site to see if he could diagnose the problem. The Lonestar technician could not determine why the blowers were over-amping and his initial thought was that the motors were under-sized. The Lonestar engineers went back and re-calculated their numbers to see if that truly was the issue and they deemed that the way the blowers were designed should be sufficient for our needs. On December 13, 2018, Lonestar requested that we send back one of the blowers so that can take a closer look at the blower and the motor separately to assure there is not an issue."

Lonestar initiated diagnostic testing on January 7th. As of the date of this response, Lonestar still has not definitively determined the cause of the over-amping and has requesting assistance from the motor vendor for the blowers. They are also evaluating options for reconfiguring the blower assembly to reduce the electric startup requirements causing the over-amping without compromising blower performance. Once their assessment is complete and provided to ADS we will update DEQ on their status. "

The Company provided the following discussion about flaring capacity for 2018:

"Flaring capacity for much of 2018 consisted of 2 – enclosed flares (3,700 cfm and 2,600 cfm) and 1-

temporary candlestick flare (3,000 cfm). The overall capacity of the 3 flares combined was 9,300 scfm. The flares are back-up control devices to the LFGTE plant and accordingly are only operated during periods when the LFGTE plant is unable to combust all the collected LFG. A 5,000 cfm utility flare was added to the site on 11/17/2018. This temporarily increased the sites overall flare capacity to 14,300 cfm, until the 3,000 cfm temporary flare was removed from service in January 2019. Current total flare capacity is 11,300 cfm. Flares were available throughout 2018, except for periods where blowers were inoperable. In November 2018, ADS began updating the blower building to improve the flaring operations and to automate flare start-up and shut-down based on system pressure. There have been several periods of time since the start of the blower system upgrades where the blowers were unavailable or operated at reduced capacity. There are occasions where the gas system could experience a momentary disruption that needs correction, whether it be a vacuum line that got hit by operations or a vacuum loss within the header system, that could reduce the flow to the gas plant or the flares. The system is designed to operate at a constant vacuum set point. The set point is determined based on a review of vacuum distribution throughout the wellfield relative to that needed to be applied to the individual wells for extraction of the landfill gas being generated."

The Company provided the following discussion about upcoming plans for the enclosed flares and discussion about the new blowers that were installed as part of the installation of 5,000 cfm utility flare:

"The existing enclosed flares are fully functional but given their age are scheduled to be re-furbished in the 2nd or 3rd quarter of 2019. Specific refurbishments are still being discussed with the flare vendor. Plans for 2018 construction included installation of the 5,000 cfm utility flare and replacement of the existing blowers with 4 new blowers and associated infrastructure upgrades. One 125 hp blower is rated for 2,200 SCFM and the other three 150 hp blowers are rated for 4,000 SCFM. The blowers are all set up to operate on variable frequency drives. The system is fully automated through a programmable logic controller system designed by Unison Solutions and is monitored through the interface on the control panel. The system can also be remotely monitored. The vacuum set point is currently -70 inH2O. The landfill gas systems at Arbor Hills East and West are integrated and run as a whole. The flare system runs based on the demand of the gas to energy plant and its ability to maintain the vacuum set point on the wellfield. Should the LFGTE plant be unable to maintain the vacuum set point, the landfill blowers and flares will begin operation through the automated PLC control system designed by Unison Solutions. There has never been uncontrolled landfill gas venting through the flares at any time. Fail-safe valves are installed in the system that close in the event of loss of flare temperature."

-Emission Limits

Reduce NMOC by 98%, 0.06 lb/MMBtu NOx (hourly), 0.20 lb/MMBtu CO (hourly). See stack test results under Testing section.

-Process/Operational Restrictions

Requires continuous temperature monitor. (Confirmed)

Requires flare be operated when gas routed to it. (Confirmed)

Requires operation of flare within the parameter ranges established during most recent performance test that indicate proper performance. (Non-Compliant. Company failed to provide data that shows the enclosed flares have been operating within 50 degrees F. of their combustion temperatures as measured during the most recent stack test.)

Requires operation of flame detection system, requires shut-in of all lines feeding flare automatically. Pilot fuel shall only be propane. Company provided the following explanation. *"If temperatures at or below 600 degrees F. are detected by the thermo-couples for a duration of seven minutes, the flare is automatically shut down. A maximum of three restarts are attempted and if temperatures are still below the set operating temperatures, the flare faults and a manual override is required to restart the flare. Fail-safe valve to flares(s) close as part of the shutdown process."*

-Design/Equipment Parameters

Requires landfill gas flow monitoring to flares. (Confirmed)

-Testing

Requires testing every 20 quarters for NMOC, NOx, and CO.

March 23, 2016 Stack Test Zink Enclosed Flare (EUENCLOSEDFLARE1-S2)

Combustion chamber set-point 1640 Deg F.

2160 scfm (flow meter showed 2470 scfm)

	Results	Limit	Unit
S02	5.5	14	lbs/hr
S02	24.0	61.3	TPY
NOx	2.1	20.0	lbs/hr
NOx	9.4	87.6	TPY
CO	0.1	15.6	lbs/hr
CO	0.3	68.3	TPY
HCL	0.2	6.0	lbs/hr
HCL	0.7	26.1	TPY
VOC	0.1	7.1	lbs/hr
VOC	0.6	31.2	TPY
NMOC	1.1	20	lbs/hr

June 8, 2016 Stack Test McGill Enclosed Flare (EUENCLOSEDFLARE2-S2)

Combustion chamber set-point 1800 Deg F.

	Results	Limit	Unit
S02	6.5	14	lbs/hr
S02	28.6	61.3	TPY
NOx	2.6	20.0	lbs/hr
NOx	11.5	87.6	TPY
CO	2.3	15.6	lbs/hr
CO	10.1	68.3	TPY
HCL	0.01	6.0	lbs/hr
HCL	0.03	26.1	TPY
VOC	0.2	7.1	lbs/hr
VOC	0.8	31.2	TPY
NMOC	1.1	20	lbs/hr

-Monitoring/Recordkeeping (Key requirements)

Requires records of periods of operation during which parameter boundaries established during most recent stack test exceeded. Includes 3 hours periods when combustion temperature below 50 degrees of performance test temperature except during SSM events. (Non-compliant. Company failed to provide adequate information to confirm this.)

Requires combustion temperature recorded every 15 minutes and averaged over same period of time as performance test.

Requires percent reduction of NMOC achieved by control device record. (Not checked.)

Record hours of operation on a daily basis. (Confirmed.)

-Reporting

Semi-Annual report of exceedance of applicable parameters that are monitored, description of any by-pass events, periods when control device not operating for more than 1 hour, and SSM report. (Company did report malfunction blowers to the flares.)

-Other Requirements

Written SSM plan. See Attachment (11). This plan appears to be adequate.

EU5000CFMFLARE: Non-Compliant

One 5,000 scfm open utility flare to provide additional back-up landfill gas control capacity and operational flexibility. The flare was operating during the 2nd day of the inspection. It started operation on November 17, 2018 and is located directly adjacent to the 2 enclosed flares within a few feet of the AHE facility. This flare has an extended range capable of operating a smaller heat input rates (the turn down ratio for the utility flare is approximately 4 times greater than the enclosed flares. The greater turn down ratio allows the flare to combust gas under wider range of operating scenarios unattainable by the existing enclosed flares. Refer to discussion on the FGENCLOSEFLARES emission unit. This flare along with the 2 enclosed flares have no emergency electrical back-up in case of power failure. The amount of back-up electricity would need to be considerable in order to power the large blowers and associated motors along with the control room to make the flares operational.

-Emission Limits

0% opacity, 0.068 lb/MMBtu NOx (hourly), 0.31 lb/MMBtu CO (hourly). They have until May 17, 2019 which is 180 days from start-up Nov 17th to conduct required testing. They have already submitted and received approval from TPU for H2S monitoring plan and the test plan. this is the same for the McGill flare, already submitted test plan and now will have to change date due to the continued problem with the flare blowers.

5000 cfm Flare has to test the H2S content in the gas first on a weekly then monthly basis. (Testing to start which they have received full production levels.)

-Process/Operational Restrictions

Requires continuous temperature monitor. (Confirmed)

Requires flare be operated when gas routed to it. (Confirmed)

Requires operation of flare within the parameter ranges established during most recent performance test that indicate proper performance. (Parameters have not been established yet.)

Requires operation of flame detection system, requires shut-in of all lines feeding flare automatically. Pilot fuel shall only be propane. (See discussion in the Enclosed Flare emission unit as it operates in a similar fashion.)

Requires they submit a malfunction abatement/preventative maintenance plan within 60 days after April 13, 2018. See Attachment (13). (Non-compliant. This plan did not include blowers as required spare parts which contributed to the lengthy downtime of the blowers when they failed.)

-Design/Equipment Parameters

Requires nameplate capacity not to exceed 5000 scfm. (Confirmed)

Requires heat sensing device to indicate continuous presence of a flame. (Confirmed)

Requires landfill gas flow monitoring to flares at least every 15 minutes. (Confirmed. It was burning about 1600 scfm of landfill gas during the inspection on January 24.)

-Testing

Requires opacity testing within 60 days of achieving maximum production but no later than 180 days after commencement of initial start-up. (Method 22 for 2 hours.) Need to test by May 17, 2019.

-Monitoring/Recordkeeping (Key requirements)

Requires records indication presence of flare pilot flame, net heating value of gas, actual calculated exit velocity of flare and what the maximum permitted velocity is for the flare. (Will be determined during

stack test.)

Record hours of operation, landfill gas usage on a daily basis. (Confirmed.)

-Reporting

Semi-Annual report of exceedance of applicable parameters that are monitored, description of any by-pass events, periods when control device not operating for more than 1 hour, and SSM report.

FGPROJECT:

Modification to the existing Gas Collection and Control System (GCCS) which includes existing process equipment and control devices along with proposed replacement of a temporary utility flare with a permanent open utility flare. (EUACTIVECOLL-S2, EUENCLOSEDFLARE1-S2, EUENCLOSEDFLARE2-S2, and EU5000CFMFLARE.)

-Emission Limits

289.1 tpy CO, 70.1 tpy NOx, 142.9 tpy SO2. (SO2 based on 408 ppmv sulfur operating at 8760 hours.)

-Material Limits

Limits to 4257 million cubic foot per year of landfill gas burned in the 3 flares. (Burned much less than the limit.)

-Design/Equipment Parameters

Requires monitoring/measuring the amount of landfill gas burned in the 3 flares. (Confirmed.)

-Testing/Sampling

Requires 12 weeks of sulfur content sampling. Then monthly if less than 326 ppmvd. If exceeds 408 ppmvd then daily.

-Monitoring/Recordkeeping

Requires landfill gas usage and hours of operation of each emission unit. (Confirmed.)

Requires 12 monthly 12-month rolling time period CO and NOx emission calculations. See Attachment (14). (Confirmed. Both CO and NOx emissions are average around 1 Ton per month with SO2 less than that.)

Requires record monthly and 12-month rolling SO2 calculated emissions per Appendix 2 method.

Requires record of all sampling data for H2S(sulfur) concentration in the landfill gas. (Confirmed)

Requires record of annual CO calculations for FGPROJECT starting the month in the month regular operations of EU5000 CFMFLARE commences operation. (Confirmed)

-Reporting

CO emission reporting is required if exceedance from pre-construction projection.

EUOPENFLARE TEMP: (Refer to PTI 19-17B.) Flare permanently disabled 1/29/2019. Because of this, compliance wasn't fully evaluated other than a partial reviewed conducted prior to the flare being disabled.

A temporary open flare (an open combustor without enclosure or shroud) used for controlling excess landfill gas which started service on March 8, 2017. This flare was required to be removed from the site by January 31, 2019 or 60 days from the initiation of operation of the permanent flare. (It started operation on November 17, 2018.) The flare was operating when we first drive by the facility with no opacity noted but was turned off by the time the inspection was being conducted. It had been on due to recent outage at AHE related to one of the turbines being down for washing. They continued to operate

the flare longer than normal due to a problem with the knock-out tank that precedes the temp flare. Since the flare had not been used recently, the condensate had become frozen in the tank. The warmth of the flare eventually thawed out the tank so the contents could be manually pumped out into a nearby tote. The knockout tank is equipped with a high-level alarm that automatically turns off the blower if tripped. In this case, there wasn't enough condensate in the tank to trip the alarm, so operation of the blower wasn't affected. AT showed me the port when H2S samples are taken from and where a portable pressure gauge can be inserted. AT outlined that this flare is manually operated. They generally turn it on after receiving a phone call that there is a problem at the AHE facility. If the flare flame goes out because of wind, rain, low gas flow or other reasons, the blower is automatically powered off to prevent any gas flow to the flare. An email is automatically sent to AT whenever the flare goes on, off or some sort alarm is triggered. AT outlined that the flare competes for landfill gas from the AHE plant compressors that provide a strong vacuum on the system along with blowers from the 3 South flares. As a result, the gas flow into the flare is generally well below the capacity of the flare. This flare is able to handle a wide range of operating landfill gas rates from 500 to 3000 scfm. The 150 hp blower can create about a 40" H2O vacuum pressure on the well gas collection system. So attached photo of flare, and skid portion of it including the knockout tank.

-Emission Limit

Zero opacity limit, 35.4 tpy SO₂, 89 tpy CO. SO₂ limit based on 500 ppmv x 8760 hours. CO limit based on emission factor of 0.37 lb MMBtu and the amount of landfill gas flared. See Attachment (15). Shows compliance. 19.3 tpy of SO₂ and 43.1 tpy of CO.

-Material Limit

860 million cubic feet/year

-Process/Operational Restrictions

Requires continuous temperature monitor.

Requires flare be operated when gas routed to it.

Requires operation of flare within the parameter ranges established during most recent performance test that indicate proper performance.

Requires operation of flame detection system, requires shut-in of all lines feeding flare automatically. Pilot fuel shall only be propane. (It is equipped with this.)

Requires within 60 days after April 13, 2018, malfunction abatement/preventative maintenance plan.

-Design/Equipment Parameters

Requires nameplate capacity not to exceed 3000 scfm.

Requires measuring of landfill gas flow monitoring to flare. (It appears that they did a flow check each morning it operated then used the number of hours operated during a given day to determine total flow rate on an averaged basis.)

-Testing

Requires opacity testing within 60 days of achieving maximum production but no later than 180 days after commencement of initial start-up. (Method 22 for 2 hours.)

Requires 12 weeks of sulfur content sampling. Then monthly if less than 500 ppmvd. If exceeds 500 ppmvd then weekly. (It appears that ADS followed this requirement.)

-Monitoring/Recordkeeping (Key requirements)

Requires records indication presence of flare pilot flame, net heating value of gas, actual calculated exit velocity of flare and what the maximum permitted velocity is for the flare.

Record hours of operation, landfill gas usage on a daily basis. (ADS complied with this.)

Example results of H2s testing:

Reading Date	H2S ppm
4/5/2017	400
5/2/2017	410
6/6/2017	423
7/6/2017	390
8/9/2017	250
9/6/2017	100
10/5/2017	190
11/6/2017	100
12/7/2017	500
1/5/2018	450
1/11/2018	450
1/17/2018	500
1/26/2018	450
2/2/2018	450
2/09/2018	450
2/16/2018	450
2/23/2018	600
3/2/2018	575
3/9/2018	575
3/16/2018	600
3/23/2018	400
3/30/2018	550
4/06/2018	400
4/13/2018	450
4/20/2018	550
4/27/2018	425
5/4/2018	400
5/11/2018	575
6/5/2018	390

June 6, 2017 Temporary utility flare Test:

Opacity: No visible emissions.

Flare Inlet Gas Net Heating Value: 14.38 MJ/scfm (Limit > 7.45)

Flare Exhaust Gas Exit Velocity: 43.7 feet/second (Limit <60)

Maximum Permitted Velocity: 43.7 (Limit < 75.5)

Hydrogen Sulfide: 280 to 320, Limit 440 ppmv.

Record Monthly CO and SO2 calculated emissions.

-Reporting

Semi-Annual report of exceedance of applicable parameters that are monitored, description of any by-pass events, periods when control device not operating for more than 1 hour, and SSM report.

Sewage Sludge Disposal Discussion:

ADS disposes of sewage sludge and other types of wastewater sludge in the landfill. In some fashion, they mix it first with solid waste, then immediately dispose of it. They mix this high moisture material with drier incoming waste because the sludge is weak and does not consolidate well (However, they don't have a "mixing pit" for this purpose so it is unknown just how effective the mixing is.) There are well known odor concerns with this type of waste. Going beyond just concerns with odors, there are

some applicability concerns with NESHAP AAAA.

In general, there is concern that adding sewage sludge (or any high-water content waste) to Cell 4E could turn this cell into a "bioreactor".

Bioreactor means a MSW landfill or portion of a MSW landfill where any liquid other than leachate (leachate includes landfill gas condensate) is added in a controlled fashion into the waste mass (often in combination with recirculating leachate) to reach a minimum average moisture content of at least 40 percent by weight to accelerate or enhance the anaerobic (without oxygen) biodegradation of the waste. Landfill gas condensate to be a constituent of leachate. Addition of wastewater sludges to the waste mass is considered addition of liquids other than leachate per AAAA guidance.

The bioreactor cell must have a gas collection system associated with it. Currently active Cell 4E does not have a functioning gas collection system yet due to the young age of the waste.

It appears that the 40 percent number applies to the whole cell, not just the limited area that the sludge would be applied. Since the quantities of sludge disposed of at the landfill isn't that large, it is likely that this 40 percent number isn't being exceeded.

There may be applicable recordkeeping requirements even if it isn't being operated as a bioreactor.

"If you add any liquids other than leachate in a controlled fashion to the waste mass and do not comply with the bioreactor requirements in §§ 63.1947, 63.1955(c) and 63.1980(c) through (f) of this subpart, you must keep a record of calculations showing that the percent moisture by weight expected in the waste mass to which liquid is added is less than 40 percent. The calculation must consider the waste mass, moisture content of the incoming waste, mass of water added to the waste including leachate recirculation and other liquids addition and precipitation, and the mass of water removed through leachate or other water losses. Moisture level sampling or mass balances calculations can be used. You must document the calculations and the basis of any assumptions. Keep the record of the calculations until you cease liquids addition."

It appears that sludge isn't considered a liquid per state waste regulations but probably considered a liquid per AAAA guidance.

This topic will be highlighted as an area of concern with ADS.

Leachate Collection System Inspection/Discussion:

See Attachment (16). It shows the leachate design plan for the landfill.

Note: Between October 2017 to September 2018, Arbor Hills West generated 17,271,051 gallons of leachate.

In general, the only AQD concerns revolves around the potential for odors coming from uncontained leachate. This mostly an issue at leachate seeps such as the case of one documented on the southside of the landfill near TS-01. This area was viewed from a distance during the inspection.

Below TS-01, the "frac" tanks were still there during the time of the inspection but appeared to have ceased the pretreating of waste with hydrogen peroxide before it is sent on to one of two 50,000-gallon tanks or the 330,000 back-up tank that they have which they pump out and haul off site. (Hydrogen peroxide neutralizes the sulfides in the leachate.) The back-up tank surplus storage is used when tanker trucks aren't available to haul the leachate away such as on a weekend. He cited the reason for pretreatment is to prevent odors during the loading process to the tank truck. (The tanks are controlled with carbon but the air vent from the tanker truck is not.) Leachate that isn't coming from TS-01 or Arbor Hills East which is contaminated with PCB's goes to a 550,000 gallon storage tank controlled by a carbon filter. Aeration occurs in the tank and then it is disposed off into the sanitary sewer system. Storm water from the facility first goes it a settling pond then drains into the Johnson ditch which is located near the SE side of the landfill.

Compost Facility Inspection/Discussion:

Visited buildings at compost facility. See attached photos. They have three small portable generators there, a cold cleaner (lid closed), a couple portable cutting torches and they had just brought in a 150 hp

blower/motors to work on it. This blower was one of the blowers that got replaced in the blower building by the new blowers. They are going to attempt to fix it then put it back online while they wait on resolution of the new blower problem. After visiting the buildings at the Compost facility, BW pointed at some of the features of the compost facility to me from the truck. He showed me the 10,000-gallon diesel tank, a smaller gasoline tank that they use to fuel vehicles with. He pointed to a large leaf pile and large grind up pile of mostly branches. The leaf pile was very odorous. We discussed briefly the problem with water and windrows. He mentioned that they do have a berm between the storm retention pond and the wind rows. He believes the water that was there previously wasn't from the storm retention pond but simply water from heavy rain that collected which originated along the windrows towards the North.

It appears the principal reason for odors from the compost facility is likely the initial piles of material that is brought into the facility; not the actual windrows themselves. It appears that material that is brought in is at times is already partially composted and undergoing anaerobic degradation. (The city of Detroit sends material to the facility that had been staged at various locations prior to being shipped allowing time for anaerobic processes to commence.) The problem is further compounded by the large size of these piles which sit in one location for quite a while. An obvious solution would be to have ADS no longer accept partially composted waste and to make sure the receiving piles are kept to a minimum in size. This will be noted as an area of concern with the Company.

Odor Discussion:

Odor complaints are continuing to be received as of the date of this report and the previously cited Rule 901 violations remain unresolved. Significant odors were detected at the landfill and Compost facility during the 3 days of inspections. Since this issue is already under an enforcement action, it wasn't the focus of this inspection.

On December 6, 2018, ADS submitted an Odor Control Plan for review by the DEQ. See Attachment (17). Part of the same attachment includes a Compost Site Management Plan.

The DEQ presented their comments on the Odor Control Plan to ADS in March 25, 2019 along with performance measures to meet as part of a proposed enforcement compliance plan.

FINAL COMPLIANCE DETERMINATION:

At the time of inspection, ADS was determined to be in noncompliance as outlined in the following tables:

From the February 7, 2019 VN which has already been sent to the Company:

Process Description	Rule/Permit Condition Violated	Comments
Emission units EULANDFIL-S2, EUACTIVECOLL-S2, FGENCLOSEDFLARES-S2, and EU5000CFMFLARE which comprise the landfill, the landfill gas collection system and the flaring systems.	40 CFR Part 63 – National Emission Standards for Hazardous Air Pollutants for Source Categories 40 CFR 63.6(e)(1)(i), 40 CFR Part 60 – Standards of Performance for New Stationary Sources 40 CFR 60.11(d).	Prompt action by the Company is requested. 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 at all times, including periods of startup, shutdown, and malfunction.

Violations outlined in March 14, 2019 VN:

Process Description	Rule/Permit Condition Violated	Comments
Asbestos Disposal	ROP Emission Unit EUASBESTOS-WEST-S1 S.C. VI. 2.; National Emissions Standards for Hazardous Air Pollutants Subpart M - Asbestos (Asbestos NESHAP) 40 CFR 61.154(f).	Required asbestos disposal location map is incomplete. The map only depicts disposal areas going back to June 2018.
Asbestos Disposal	ROP Emission Unit EUASBESTOS-WEST-S1 S.C. VII.6.; Asbestos NESHAP 40 CFR 61.154(j).	Company not notifying AQD District,45 days prior to excavating in asbestos disposal area.
Asbestos Disposal	ROP Emission Unit EUASBESTOS-WEST-S1 S.C. III.1.; Asbestos NESHAP 40 CFR 61.150, 61.154	No asbestos warning signs were observed during inspection.
Municipal solid waste landfill (MSWL)	ROP Emission Unit EULANDFILL-S2 S.C. IV.2.; Standards of Performance for New Stationary Sources-Subpart WWW- MSWL (WWW) 40 CFR 60.752(b)(2)(iii).	One uncontrolled passive landfill gas vent located on northside of landfill. WWW requires control.
MSWL	ROP Emission Unit EULANDFILL-S2 S.C. V.1.; WWW 40 CFR 60.753(d); NESHAP: MSWL (AAAA) 40 CFR 63.1955(a) (1).	Quarterly landfill surface methane scans are inadequate. See Note 1
MSWL	ROP Emission Unit EULANDFILL-S2 S.C. VI.1.; WWW 40 CFR 60.755(c)(5), AAAA 40 CFR 63.1955(a)(1).	Failed to correct issues identified in landfill cover integrity inspections since same areas show up in subsequent months.
MSWL	NSPS Subpart WWW 40 CFR 60.755(c)(5), NESHAP Subpart AAAA 40 CFR 63.1955(a)(1).	Landfill cover integrity problems. See Note [2].
Gas Collection and Control System (GCCS)	WWW 40 CFR 60.752(b)(2)(i).	The GCCS design plan dated 4/28/2016 is out of date.
GCCS	ROP Emission Unit EUACTIVECOLL-S2 S.C. VI.1. and 3. WWW 40 CFR 60.755(a)(3) and (5).	4 th Quarter 2018 Gas Collection NSPS Well Report shows noncompliance with out of range NSPS well operating parameters. See Note [3].
GCCS	ROP Emission Unit EUACTIVECOLL-S2 S.C. IX.3.; WWW 40 CFR 60.755(a)(3) & (5), AAAA 40 CFR 63.1955.	Failure to submit timely ACT requests for out of range NSPS well operating parameters when well field expansion is not appropriate. Also see Note [3].

GCCS	ROP Emission Unit EUACTIVECOLL-S2 S.C. IV.1.d.; WWW 40 CFR 60.752(b)(2)(ii)(a) (4), AAAA 40 CFR 63.1955(a).	Subsurface methane migration continuing. See Note [4].
GCCS	WWW 40 CFR 60.759; NESHAP 40 CFR 63.6(e)(1)(i).	GCCS wells impaired due to high liquid levels or otherwise compromised. See Note [5].
5000 scfm open utility flare. Began operation 11/2019.	PTI 79-17 Emission Unit EU5000CFMFLARE S.C. III.8.d., 8.e.	Malfunction abatement/ preventative maintenance plan (MAP) inadequate. See Note [6].
5000 scfm open utility flare. Began operation 11/2019.	PTI 79-17 Emission Unit EU5000CFMFLARE S.C. IX.1.; WWW 40 CFR 60.755(e), AAAA 40 CFR 63.1955(a)	WWW compliance requirements not met during control system malfunctions that exceeded the 1-hour permit limit. See Note [7].
Two enclosed flares with a combined capacity of 7200 scfm.	PTI 79-17 Emission Unit FGENCLOSEDFLARES-S2. S.C. VI. 2.a.i, 4a; WWW 40 CFR 60.758 (c)(1)(i); 40 CFR 60.758(b)(2)(i).	Unable to determine if flares are operating within 50 degrees F. of required combustion temperatures.

There were also several areas of concern that are outlined below:

-The Company is adding sewage sludge and other types of wastewater sludge material to Cell 4E. For the purposes of NESHAP AAAA, these types of high-water content wastes are considered liquids for the purposes of showing compliance with bioreactor requirements in 40 CFR 63.1947, 63.1955(c), and 63.1955(c) through (f). This cell is not controlled by a landfill gas collection system that has been activated, so calculations need to be done to show that the percent moisture by weight expected in the waste mass to which liquid is being added is less than 40 percent. (Note: Recent Company disclosure that as much as 27 feet of leachate was sitting on parts of the landfill liner for Cell 4 suggests the waste mass may have become saturated. This could greatly accelerate the generation of landfill gas in a location that is not yet controlled by the gas well collection system.) The calculation must consider the waste mass, moisture content of the incoming waste, mass of the water added to the waste including any leachate recirculation and other liquids addition, and precipitation, and the mass of water removed or other water losses. Moisture level sampling or mass balances calculations can be used. Please provide these calculations as part of your response to this VN using the most recent data available.

-Letter of Concern dated January 2, 2019, outlined concerns about significant odors emanating from a leachate seep known as TS-01. This leachate seep has been present at the landfill since at least May 2018 and has yet to be resolved by the Company. Please provide an update on what the Company is doing to resolve this matter and the other areas of concern outlined in the letter.

The site visit conducted on March 12, 2019, identified new sources of odors at the facility in addition to the TS-01 seep and associated odorous "frac" tanks. These include a new leachate seep located just west of the TS-01 seep with a leachate creek draining down towards the base of the landfill, and two highly odorous landfill gas areas coming out of the ground located above the north geo-liner. Odors were also coming from a passive landfill gas vent located near Six-Mile road. In addition, there was a probable landfill gas bubble under the geo-liner on the northwest side of the landfill, a much larger gas bubble under the north geo-liner on the liner's west side, and a surface landfill gas seep just above the TS-01 area. Please provide an

update on how the Company will be dealing with these new areas of concern.

-Based on the three (3) visits to the active asbestos disposal areas, there is a concern that the asbestos waste is not being covered with soil each evening on days after a shipment has been received. Rather, it is suspected that it is being done when a disposal pit is full which can take days or weeks. The disposal area on top of the landfill is highly exposed to wind and any asbestos from a broken bag could be quickly blown downwind. It also could represent a hazard to workers servicing nearby landfill gas wells or truck drivers in the area. Please provide daily asbestos records for the month of January 2019 that shows exactly what asbestos wastes were received each day and subsequently disposed of. Provide this information with the response to the VN.

-Please provide a written update on the status of fixing the landfill gas blower flare issue and installing back-up electrical capacity for the flares as outlined in VN dated February 7, 2019.

-Inspection of the compost facility showed that there was a large pile of highly odorous leaves and other organic material that had been received that hadn't been placed in the windrows. It appeared that this material had already partially decomposed and was in an anaerobic state giving off ammonia and hydrogen sulfide odors. Please explain in detail why the Company is receiving material that is already partially decomposed and highly odorous or otherwise not quickly processing the material.

-Highly odorous piles of contaminated soils or other types of odorous waste materials continue to be stock piled at the top portion of the landfill to be used as daily cover at the active face portion of the landfill. There is no indication that this odorous material is being quickly covered upon placement either at the top of the landfill or at the open face. Please explain why the Company is continuing this practice despite it contributing to the well documented odor problem coming from the landfill.

-Arbor Hills Landfill Operations Evaluation Report prepared by Clarke M. Lundell, P.E. dated May 16, 2018, was reviewed as part of this inspection. This report outlined several recommendations that the facility should implement to improve operations at the landfill. Please provide a written update to the status of implementing these recommendations or otherwise provide comment on why these recommendations have not been implemented. Note that many of the recommendations are directly related to remedying the on-going odor problems at the landfill.

The Company was sent a VN outlining the violations and areas of concern and provided a response. See Attachment (27).

Since AHE is the contracted operator of the GCCS, portions of the Company's VN were also cited in a separate VN to AHE dated March 14, 2019.



Image 1(Fugitive Dust) : Fugitive Dust along Napier Road near entrance to landfill.

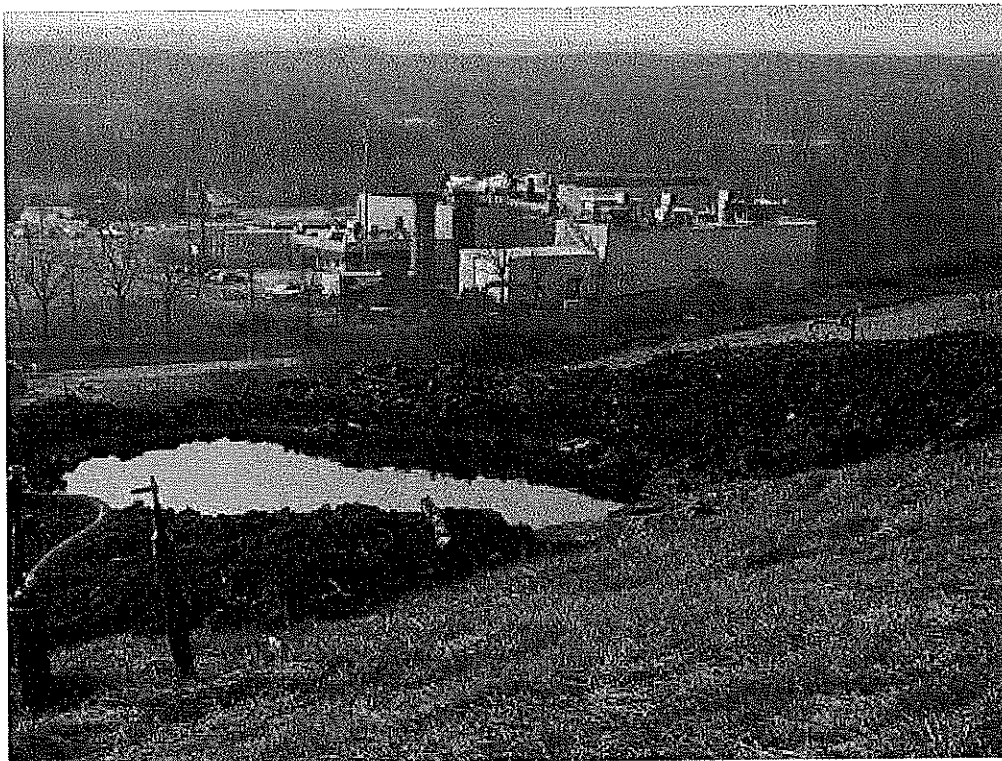


Image 2(Leachate Seep) : TS-01 leachate seep containment pond.

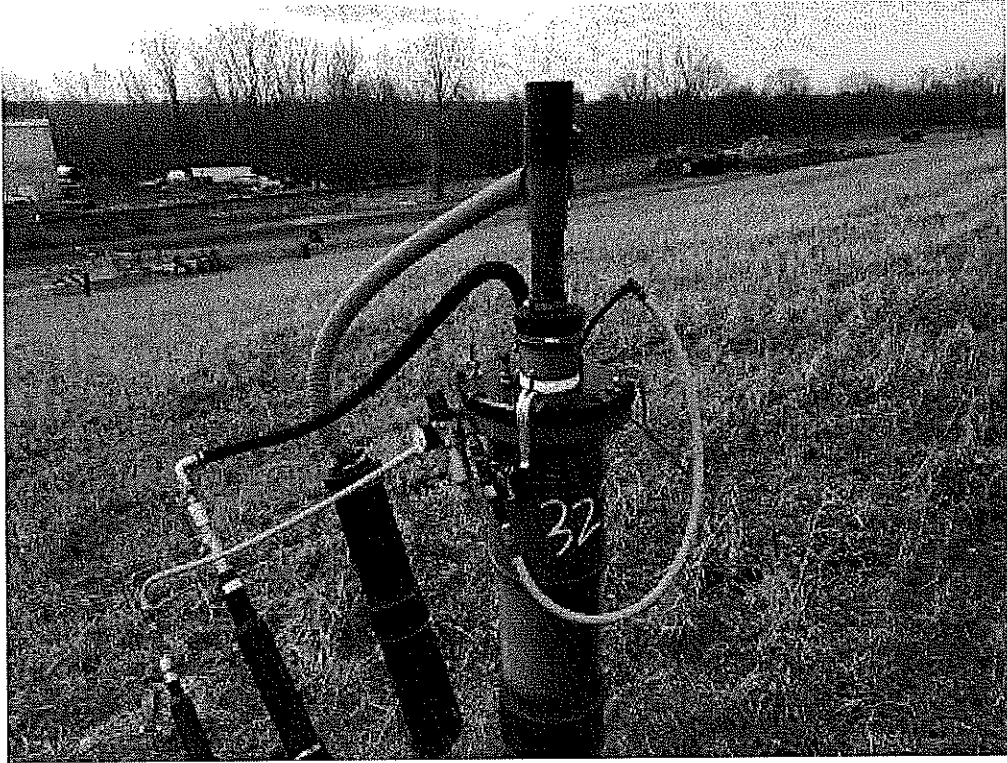


Image 3(Typical wellhead) : Typical landfill gas wellhead at the landfill.

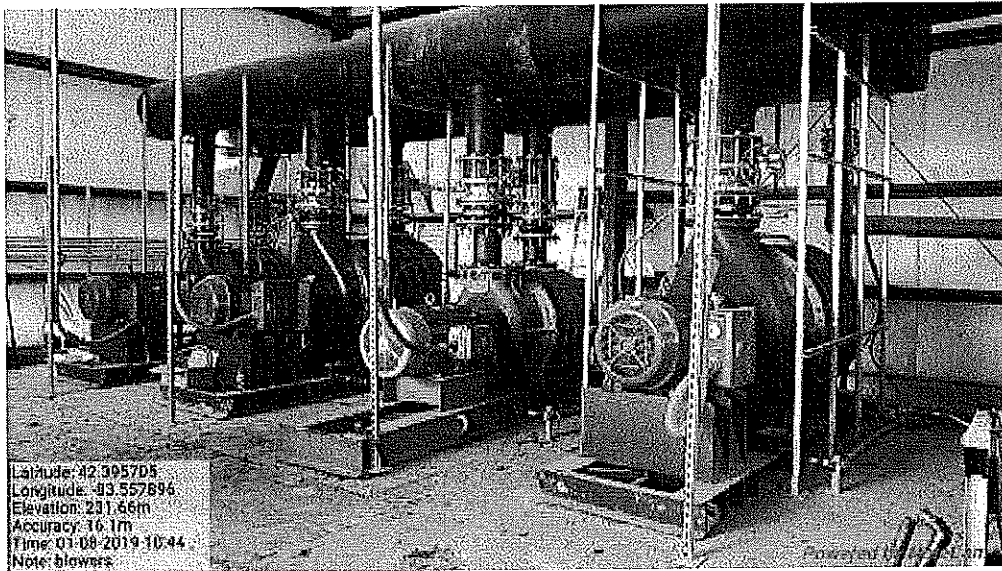


Image 4(Blowers) : Blowers for the 3 flares.



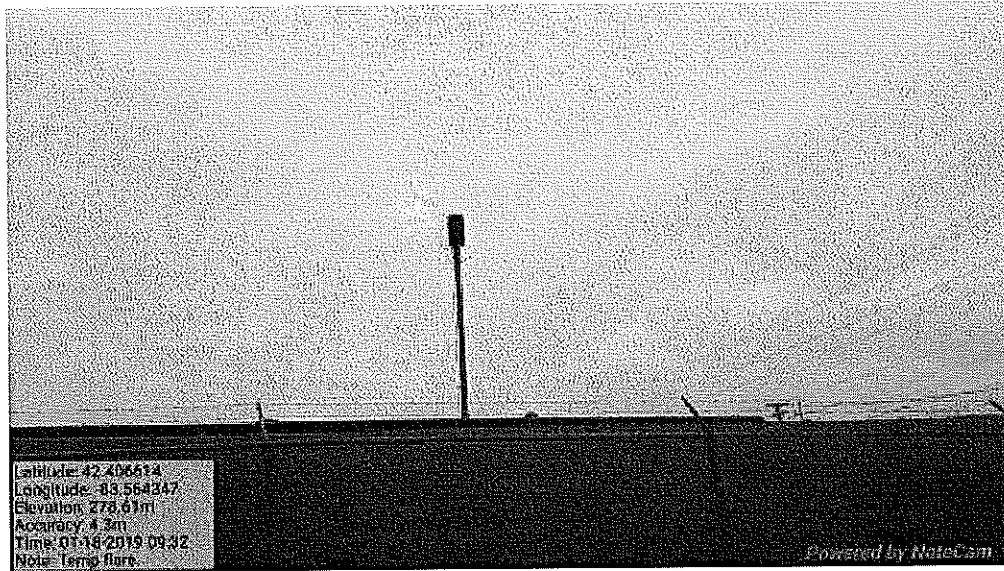


Image 6(Flare) : Candlestick flare when it was operating.



Image 7(Temp Flare) : Temporary Flare.

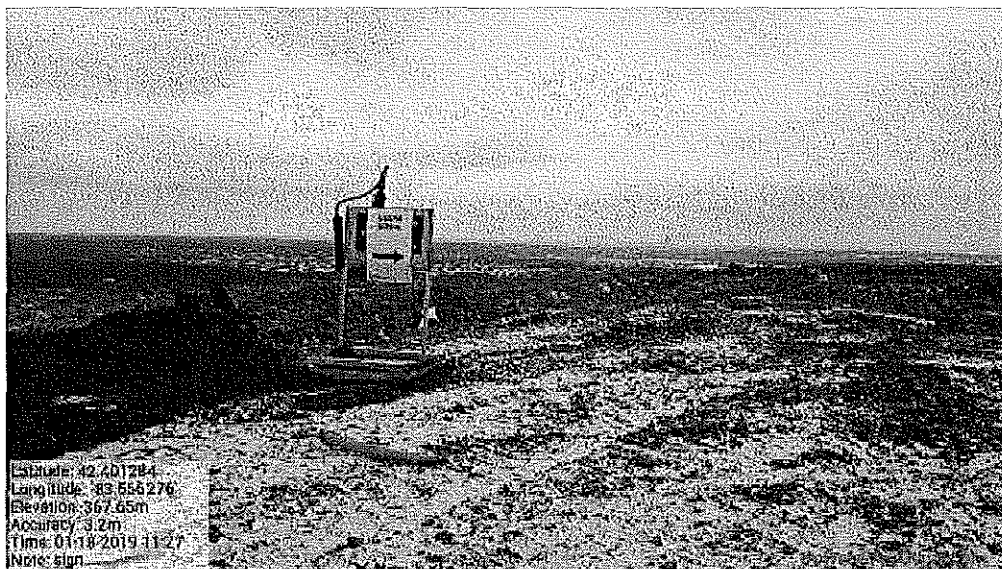


Image 8(Asbestos Sign) : Asbestos directional sign. (No warning signs present.)



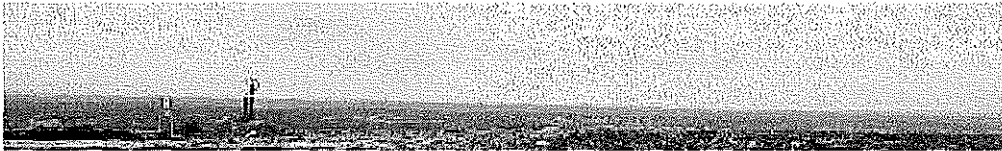


Image 10(Asbestos Disposal) : Asbestos Disposal

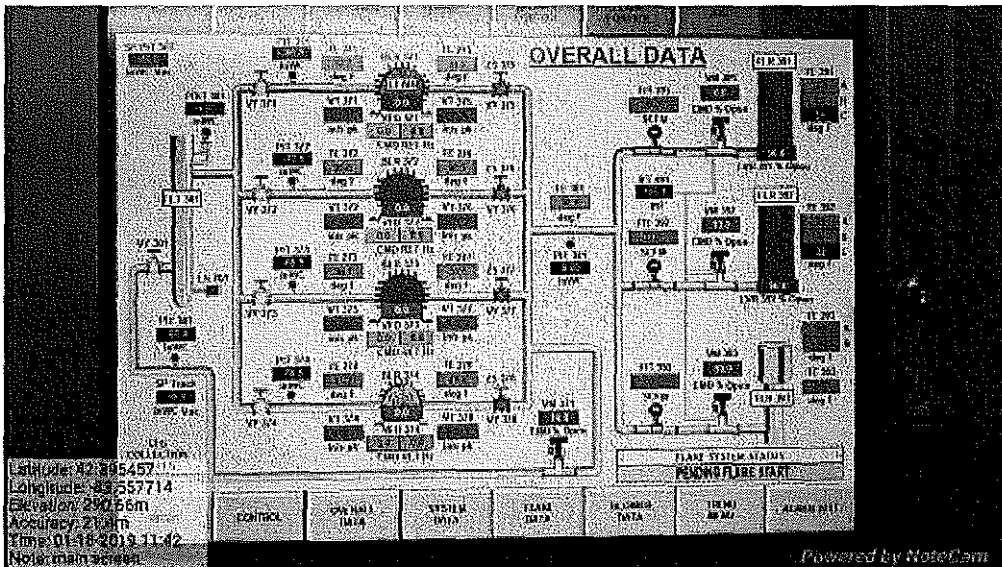


Image 11(Flare process) : Flare process diagram.

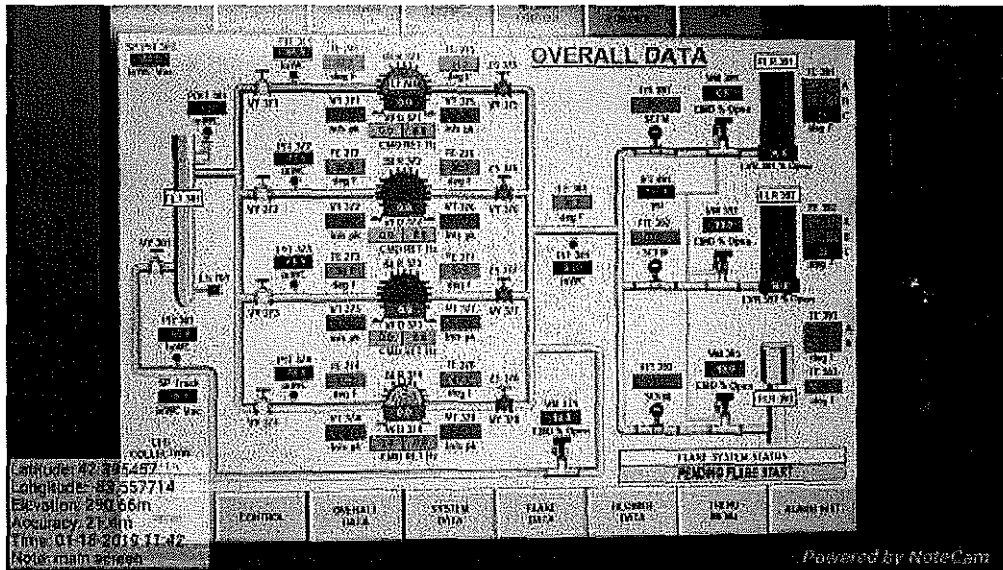


Image 12(Leachate process) : Leachate system sketch.

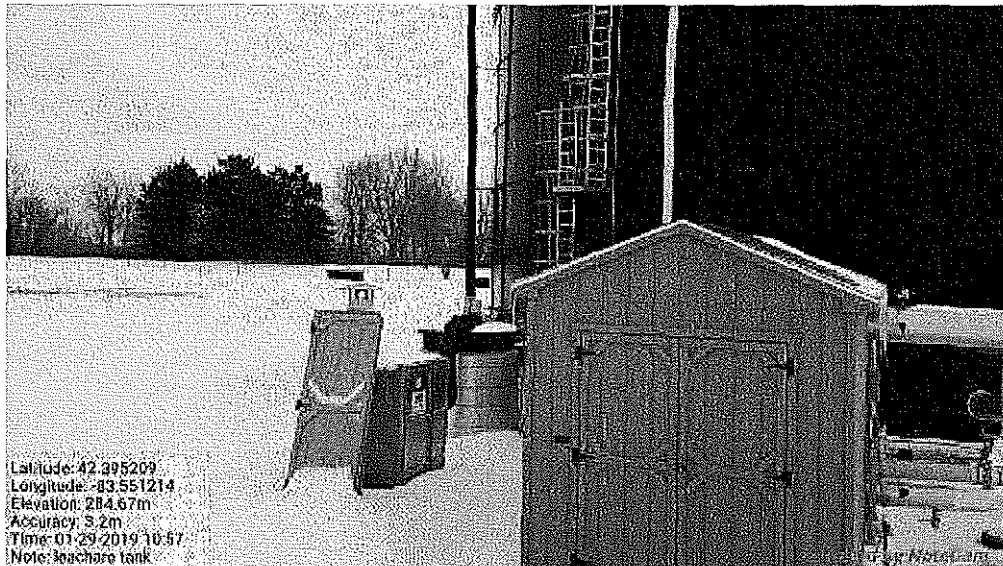


Image 13(Leachate carbon) : New leachate tank carbon treatment system.



Image

going.

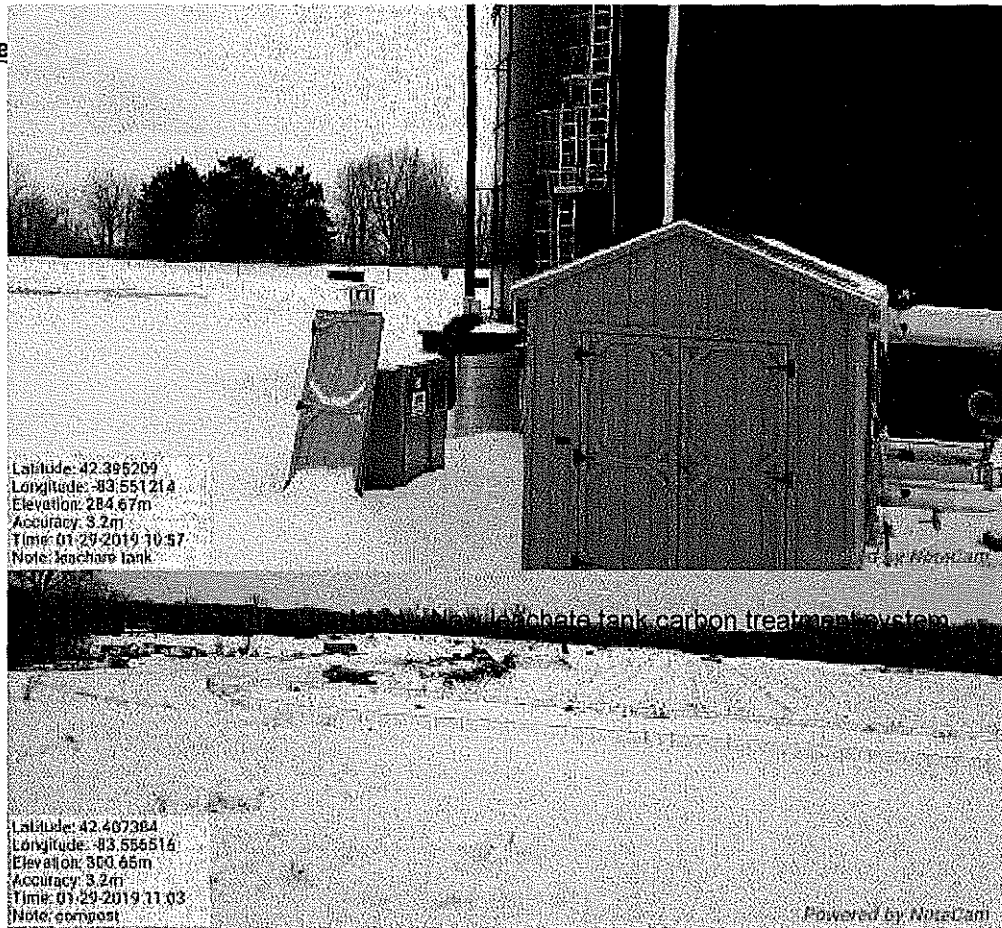


Image 15(Compost facility) : Compost facility.

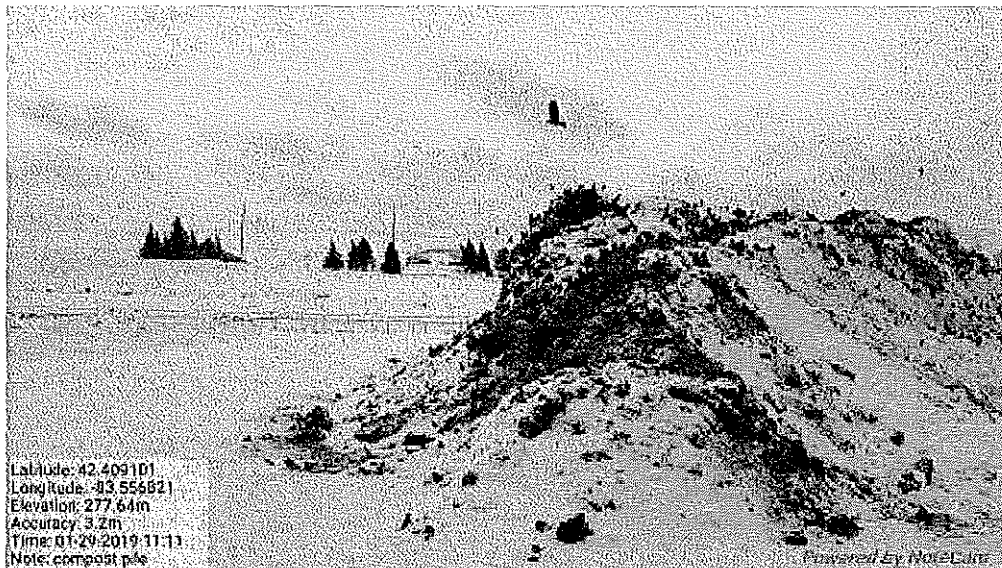


Image 16(Compost) : Receiving pile of highly odorous leaves and other material at Compost facility.

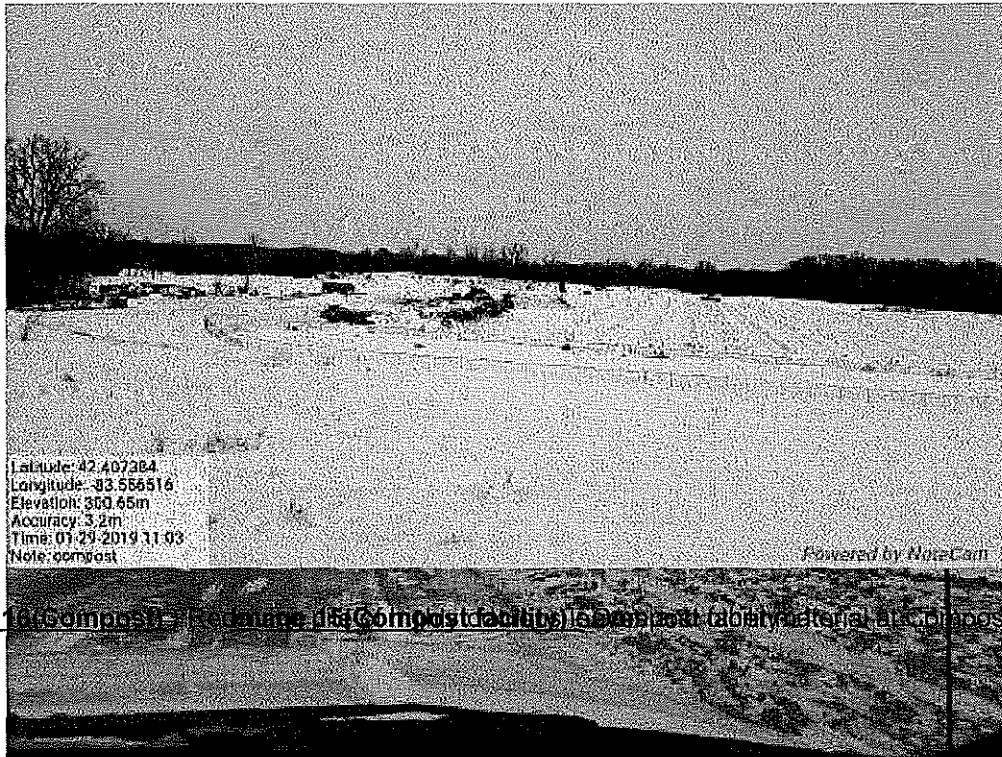


Image 16 (Compost Facility): Compost facility material at compost facility.

Image 17 (Top of landfill): Top of landfill. Shows large area that may not have interim cover.

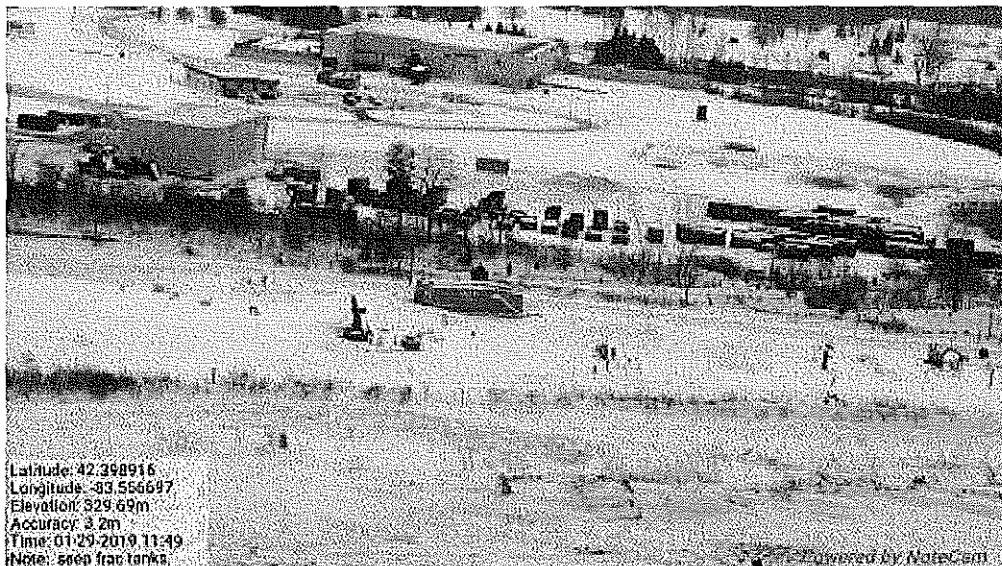


Image 18(F



-01 leachate

Image 17(Top of landfill) Image 19(Active Face) Active face area may not have interim cover.

NAME

M. Kovalchik

DATE

4/9/2019

SUPERVISOR

4/10/2019