Commonwealth of Kentucky
Division for Air Quality

STATEMENT OF BASIS / SUMMARY

Title V, Operating
Permit: V-26-015

Benson Valley Landfill General Partnership
2157 Highway 151
Frankfort, KY 40601

May 28, 2026
Walker Reeves, Reviewer

SOURCE ID:	21-073-00053
AGENCY INTEREST:	1372
ACTIVITY:	APE20230004

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SECTION 1 – SOURCE DESCRIPTION

SIC Code and description: 4953, Refuse Systems (solid waste landfills)

Single Source Det. ☒ Yes ☐ No If Yes, Affiliated Source AI: 167923

Source-wide Limit ☐ Yes ☒ No If Yes, See Section 4, Table A

28 Source Category ☐ Yes ☒ No If Yes, Category:

County: Franklin
Nonattainment Area ☒ N/A ☐ PM_{10} ☐ $PM_{2.5}$ ☐ CO ☐ NO_X ☐ SO_2 ☐ Ozone ☐ Lead
If yes, list Classification:

PTE* greater than 100 tpy for any criteria air pollutant ☒ Yes ☐ No
If yes, for what pollutant(s)?
☐ PM_{10} ☐ $PM_{2.5}$ ☒ CO ☐ NO_X ☐ SO_2 ☐ VOC

PTE* greater than 250 tpy for any criteria air pollutant ☐ Yes ☒ No
If yes, for what pollutant(s)?
☐ PM_{10} ☐ $PM_{2.5}$ ☐ CO ☐ NO_X ☐ SO_2 ☐ VOC

PTE* greater than 10 tpy for any single hazardous air pollutant (HAP) ☐ Yes ☒ No
If yes, list which pollutant(s):

PTE* greater than 25 tpy for combined HAP ☐ Yes ☒ No

*PTE does not include self-imposed emission limitations.

Description of Facility:
Benson Valley Landfill in Franklin County, KY is a municipal solid waste (MSW) landfill that commenced construction in 1971 and was modified in 1994. The landfill has a design capacity of 13,181,615 megagrams and a calculated emission rate of more than 50 megagrams per year of non-methane organic compounds (NMOC). The landfill had previously installed a voluntary Gas Collection and Control System (GCCS) in 1997 and was required to operate it to comply with 40 CFR 60, Subpart WWW on January 1, 2016.

The landfill consists of Unit 1, which started accepting waste in 1971, and Unit 2, which started accepting waste in 2008.

The landfill has the ability to send the landfill gas to an open flare or the associated renewable natural gas (RNG) facility Ameresco Benson Valley RNG (AI 167923). The RNG plant processes raw landfill gas from the GCCS owned and operated by Benson Valley Landfill through membrane separation and adsorption processes to refine the methane concentration and remove contaminants to achieve pipeline-grade specifications for natural gas. The final product is injected into an existing natural gas pipeline.

The source is required to obtain a Title V permit by 401 KAR 52:020, Section 1(4) and 40 CFR 60.31f(c). The source includes a landfill and associated equipment including a Gas Collection and

Control System (GCCS), flare, fuel (diesel) tanks, haul roads, site construction, and leachate storage tanks.

The facility also has several listed trivial activities such as used oil, hydraulic oil and motor oil storage tanks for maintenance activities and several small non-road engines related to maintenance activities (all less than 35 HP). The trivial activities at the facility are all included under items #12 and #13 of the trivial activities list.

In the absence of an approved state plan implementing 40 CFR Part 60, Subpart Cf, the landfill is subject to the federal plan under 40 CFR Part 62, Subpart OOO. Upon approval of Kentucky's state plan, the 40 CFR 60, Subpart Cf requirements implemented via 401 KAR 61:036 will apply in lieu of the federal plan.

SECTION 2 – CURRENT APPLICATION AND EMISSION SUMMARY FORM

Permit Number: V-26-015 Activities: APE20230004

Received: 3/21/2023 Application Complete Date(s): 5/18/2023

Permit Action: ☐ Initial ☒ Renewal ☐ Significant Rev ☐ Minor Rev ☐ Administrative

Construction/Modification Requested? ☐Yes ☒No NSR Applicable? ☐Yes ☒No

Previous 502(b)(10) or Off-Permit Changes incorporated with this permit action ☐Yes ☒No

Description of Action:
Benson Valley Landfill General Partnership submitted an application to renew the current Title V permit. With this renewal, the following changes have been made:

- Maximum yearly capacity for EU003, Paved & Unpaved Haul Roads, was updated. The maximum capacity for unpaved haul roads was increased to 43,333 miles/year.
- Emission calculations for the landfill and flare (EP 001 and 002) were updated to use the current version of AP-42, Chapter 2.4 (May 2025), as well as worst-case site specific data for H_2S.
- Updated permit language to be consistent and clear.
- Added the requirements of 40 CFR 60, Subpart Cf and 40 CFR 63, Subpart AAAA, while removing the requirements of 40 CFR 60, Subpart WWW, which are no longer applicable. The requirements from 40 CFR 60, Subpart Cf that are predicated on the approval of the state plan are included in Section I of the permit. The rest of the requirements are included in Section B and co-cited with the corresponding requirements from 40 CFR 63, Subpart AAAA where appropriate.

V-26-015 Emission Summary			
Pollutant	**2025 Actual (tpy)[3]**	**PTE V-26-015 (tpy)[2]**	**Combined Facility PTE (tpy)[1]**
CO	5.58	123.67	123.79
NO_X	4.72	27.13	27.71
PT	51.11	6.70	6.73
PM_{10}	16.36	6.70	6.73
$PM_{2.5}$	17.06	6.70	6.73
SO_2	1.84	65.02	65.19
VOC	0.76	1.94	1.97
Lead	0	0	0
Greenhouse Gases (GHGs)			
Carbon Dioxide	23,306	83,242	83,368
Methane	5,736	327	327
Nitrous Oxide	0.29	0.87	0.90
CO_2 Equivalent (CO_2e)	183,991	92,620	95,756
Hazardous Air Pollutants (HAPs)			
Hydrochloric Acid	0.79	3.04	3.04
Toluene	0.03	1.21	1.21
Combined HAPs:	0.83	6.49	6.49

[1]**Note**: The "combined Facility PTE" includes both emissions from Benson Valley Landfill and Ameresco Benson Valley RNG. Because they are considered a "single source" their emissions must be counted together. The worst-case emissions for the combined facility PTE occur when the RNG facility does not operate and all landfill gas emissions are destroyed in Benson Valley Landfill's flare. Therefore, the flare and RNG plant at Ameresco are not counted toward the combined facility PTE because the landfill can only generate a set quantity of gas.

[2]**Note:** This is the individual PTE for Benson Valley Landfill and does not include Ameresco Benson Valley RNG.

[3]**Note:** The actual reported emissions include emissions from fugitive sources not otherwise counted toward the Title V PTE.

SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS

Emission Unit 002 - Municipal Solid Waste (MSW) Landfill

Initial Construction and Modification Date: 1971, modified 1994

Process Description:
A MSW landfill that has accepted waste since November 8, 1987, commenced construction, reconstruction, or modification before July 17, 2014, having a design capacity equal to or greater than 2.5 million megagrams by mass or 2.5 million cubic meters by volume, and an NMOC emission rate (Calculated according to 40 CFR 63.1959) greater than 50 Mg/yr.

This landfill voluntarily installed a Gas Collection and Control System (GCCS) in 1997, and submitted a GCCS plan for approval on September 29, 2016, after the landfill exceeded the 50 Mg/yr threshold on January 1, 2016, and became subject to the requirement to install and operate a GCCS according to 40 CFR 60, Subpart WWW. The system may send gas to EU001 or to the adjacent Ameresco Benson Valley RNG (AI 167923) facility. The GCCS plan was approved by the Division in the renewal process for V-18-013 (APE20170004), issued on September 30, 2018.

The landfill consists of Unit 1, which started accepting waste in 1971, and Unit 2, which started accepting waste in 2008.

Permitted Design Capacity: 17,703,340 cubic yards (13,535,175 cubic meters)

Applicable Regulations:
401 KAR 53:010, *Ambient air quality standards*, This regulation contains the primary and secondary Ambient Air Quality Standards for sulfur oxides, particulate matter, carbon monoxide, ozone, nitrogen dioxide, lead, hydrogen sulfide, gaseous fluorides, total fluorides, and odors are specified in Appendix A of 401 KAR 53:010.

401 KAR 61:036, *Emission guidelines and compliance times for municipal solid waste (MSW) landfills*, applies to each MSW landfill that commenced construction, modification, or reconstruction on or before July 17, 2014. This regulation requires compliance with **40 CFR 60, Subpart Cf,** *Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills.*

401 KAR 63:002, Section 2(4)(hhh), 40 C.F.R. 63.1930 through 63.1990, Table 1 (Subpart AAAA), *National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills*, applies to each municipal solid waste (MSW) landfill that has accepted waste since November 8, 1987 or has additional capacity for waste deposition and has a design capacity equal to or greater than 2.5 million megagrams (Mg) and 2.5 million cubic meters (m^3) and has estimated uncontrolled emissions equal to or greater than 50 megagrams per year (Mg/yr) NMOC as calculated according to 40 CFR 63.1959.

401 KAR 63:010, *Fugitive emissions*, applies to each affected facility which emits or could emit fugitive emissions not elsewhere subject to an opacity standard within 401 KAR Chapters 50 through 68.

40 CFR 60.18, *General control device and work practice requirements*, applies to control devices (flare) used to comply with applicable subparts of 40 CFR part 60.

40 CFR 61, Subpart M, *National Emission Standard for Asbestos*, applies to each active asbestos

Emission Unit 002 - Municipal Solid Waste (MSW) Landfill

waste disposal site.

40 CFR 63.11, *Control device and work practice requirements*, applies to control devices (flare) used to comply with applicable subparts of 40 CFR part 63.

Comments:
Emission factors from AP-42 Chapter 2.4 (May 2025) and site-specific data, including worst-case site specific H_2S concentration of 488 ppm. H_2S monitoring for the landfill gas collection system has been included in the permit and is used for accurate quantification of fugitive H_2S emissions and SO_2 emissions produced by the flare.

Monitoring of liquid levels for gas wells is included in the permit to ensure adequate gas collection which is dependent on the availability of well perforations. Excessive liquid in wells can also inhibit proper methane production and degrade monitored well parameters causing excessive oxygen intrusion and high temperatures.

The permit also includes alternate operating scenarios for GCCS Removal, Requests for Higher Operating Values (HOV), and Requests for Decommissioning of Gas Collectors.

If Benson Valley Landfill receives (from the Division of Waste Management) an increase in the permitted volume design capacity of the landfill by either lateral or vertical expansion based on its permitted design capacity as of July 17, 2014, the landfill must submit an application to the Division incorporating into the permit the requirements of 40 CFR 60, Subpart XXX with a specified date that construction on the lateral or vertical expansion is expected to occur. Pursuant to 40 CFR 60, Subpart XXX, modification does not occur until the permittee commences construction on the lateral or vertical expansion.

Emission Unit 001 - Landfill Flare				
Pollutant	**Emission Limit or Standard**	**Regulatory Basis for Emission Limit or Standard**	**Emission Factor Used and Basis**	**Compliance Method**
Opacity	< 20%	401 KAR 63:015, Section 3	-	Weekly qualitative observations and recordkeeping.

Initial Construction Date: 2013

Process Description:
Open landfill flare which combusts landfill gas.
Maximum Capacity: 3000 scfm

Applicable Regulations:
401 KAR 61:036, *Emission guidelines and compliance times for municipal solid waste (MSW) landfills,* applies to each MSW landfill that commenced construction, modification, or reconstruction on or before July 17, 2014. This regulation requires compliance with **40 CFR 60, Subpart Cf,** *Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills.*

401 KAR 63:002, Section 2(4)(hhh), 40 C.F.R. 63.1930 through 63.1990, Table 1 (Subpart AAAA), *National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills*, applies to each municipal solid waste (MSW) landfill that has accepted waste since November 8, 1987 or has additional capacity for waste deposition and has a design capacity equal to or greater than 2.5 million megagrams (Mg) and 2.5 million cubic meters (m^3) and has estimated uncontrolled emissions equal to or greater than 50 megagrams per year (Mg/yr) NMOC as calculated according to 40 CFR 63.1959.

401 KAR 63:015, *Flares*, applies to each affected facility which means flares as defined in 401 KAR 63:015, Section 2.

40 CFR 60.18, *General control device and work practice requirements*, applies to control devices (flare) used to comply with applicable subparts of 40 CFR part 60.

40 CFR 63.11, *Control device and work practice requirements*, applies to control devices (flare) used to comply with applicable subparts of 40 CFR part 63.

Comments:
This flare is a control device installed to meet the requirements of 40 CFR 60.33f(c)(1) and 40 CFR 63.1959(b)(2)(iii)(A). Emission factors from AP-42 Chapter 2.4 (May 2025), Table 2.4-1, AP-42 Chapter 13.5, Table 13.5-1, and worst-case site specific H_2S concentration of 488 ppm. Control efficiency for Non-Methane Organic Compounds (NMOC) is 98%.

Emission Unit 003 - Paved and Unpaved Haul Roads

Initial Construction Date: 1971

Process Description:
Paved haul roads and unpaved haul roads.
Maximum Capacity: 26,800 VMT paved, 43,333 VMT unpaved, 8,260 VMT for cover/construction vehicles.
Control Devices: Water trucks

Applicable Regulation:
401 KAR 63:010, *Fugitive emissions*, applies to each affected facility which emits or could emit fugitive emissions not elsewhere subject to an opacity standard within 401 KAR Chapters 50 through 68.

Comments:
Emission factors from AP-42 Chapter 13.2.1 and AP-42 Chapter 13.2.2. Potential emissions are calculated using the "maximum capacity" listed, however, roads at landfills change often, and the maximum capacity does not reflect the usage of the roads at any given time. The maximum capacity represents the maximum that the PTE was calculated with, and a permit revision application should be submitted if this maximum is not adequate to estimate the potential emissions of the activity in the future.

Emission Unit 004 - Site Construction & Operation

Initial Construction Date: 1971

Process Description:
Material handling including equipment operations of bulldozer(s), compactor(s), excavator(s) and loader(s), soil material and soil covering operations.

Maximum Capacity: Aggregate (4,000 tons/year), Clay (27,500 tons/year), Fill (350,000 tons/year), Cover (3,000 tons/year), 6,439 VMT for loading/unloading
Control Devices: Dust Suppression (Wet Sweeping, Water Application, Chloride Dust Control, etc)

Applicable Regulation:
401 KAR 63:010, *Fugitive emissions*, applies to each affected facility which emits or could emit fugitive emissions not elsewhere subject to an opacity standard within 401 KAR Chapters 50 through 68.

Comments:
Emission factors from AP-42-13.2.4.

SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS (CONTINUED)

Testing Requirements\Results

Emission Unit(s)	Control Device	Parameter	Regulatory Basis	Frequency	Test Method	Permit Limit	Test Result	Thruput and Operating Parameter(s) Established During Test	Activity Graybar	Date of last Compliance Testing
002	None	C_{NMOC} M_{NMOC}	40 CFR 60.754(a)(3)	Once every 5 years until >50 Mg	U.S. EPA Method 25C	50 Mg	2.89 Mg/yr	67.9 ppmv as Hexane	N/A	1/27/2000 & 2/1/2000 - 2/2/2000
002	None	C_{NMOC} M_{NMOC}	40 CFR 60.754(a)(3)	Once every 5 years until >50 Mg	No retest, only recalculation	50 Mg	Projected 6.96 Mg/yr in 2004	No retest; Increased waste acceptance rate required recalculation	N/A	Recalculation submitted 4/25/2002
002	None	C_{NMOC} M_{NMOC}	40 CFR 60.754(a)(3)	Once every 5 years until >50 Mg	U.S. EPA Method 25C	50 Mg	17.62 Mg/yr	196 ppmv as Hexane	CMN20060003	12/21/2006
002	None	C_{NMOC} M_{NMOC}	40 CFR 60.754(a)(3)	Once every 5 years until >50 Mg	U.S. EPA Method 25C	50 Mg	48.48 Mg/yr; Projected >50 Mg/yr in 2016	478 ppmv as Hexane	CMN20110003	12/16/2011

Emission Unit(s)	Control Device	Parameter	Regulatory Basis	Frequency	Test Method	Permit Limit	Test Result	Thruput and Operating Parameter(s) Established During Test	Activity Graybar	Date of last Compliance Testing
002	None	H_2S ppm	401 KAR 50:045, Section 1	Within 180 days of final permit issuance, Annually thereafter	U.S. EPA Method 15/16; ASTM D4084; ASTM D5504; or Approved Alt.	N/A	TBD[1]	TBD[1]	CMN20190003	6/4/2019
002	None	H_2S ppm	401 KAR 50:045, Section 1	Annual	U.S. EPA Method 15/16	N/A	373 ppm	1,749 scfm	CMN20200003	8/3/2020
002	None	H_2S ppm	401 KAR 50:045, Section 1	Annual	U.S. EPA Method 15/16	N/A	325 ppm	1,400 scfm	CMN20210003	8/10/2021
002	None	H_2S ppm	401 KAR 50:045, Section 1	Annual	U.S. EPA Method 15/16	N/A	70 ppm	1,361 scfm	CMN20220003	8/16/2022
002	None	H_2S ppm	401 KAR 50:045, Section 1	Annual	U.S. EPA Method 15/16	N/A	330 ppm	1,493 scfm	CMN20220008	12/6/2022
002	None	H_2S ppm	401 KAR 50:045, Section 1	Annual	U.S. EPA Method 15/16	N/A	190 ppm	255 scfm	CMN20230004	8/8/2023
002	None	H_2S ppm	401 KAR 50:045, Section 1	Annual	U.S. EPA Method 15/16	N/A	117 ppm	458 scfm	CMN20240004	8/6/2024

Emission Unit(s)	Control Device	Parameter	Regulatory Basis	Frequency	Test Method	Permit Limit	Test Result	Thruput and Operating Parameter(s) Established During Test	Activity Graybar	Date of last Compliance Testing
002	None	H_2S ppm	401 KAR 50:045, Section 1	Annual	U.S. EPA Method 15/16	N/A	274 ppm	1,204 scfm	CMN20240007	11/19/2024
002	None	H_2S ppm	401 KAR 50:045, Section 1	Annual	U.S. EPA Method 15/16	N/A	211 ppm	1,525 scfm	CMN20250004	7/8/2025
002	None	H_2S ppm	401 KAR 50:045, Section 1	Annual	U.S. EPA Method 15/16; ASTM D4084; ASTM D5504; or Approved Alt.	N/A	TBD	TBD	TBD	2026
001	Flare	Net heating value	40 CFR 60.18(f)(3)	Initial	US EPA Method 18	> 7.45 MJ/scm	16.15 MJ/scm	1,318 scfm	CMN20180001	5/15/2018
001	Flare	Actual Exit velocity	40 CFR 60.18(f)(4)	Initial	US EPA Method 1 & 2	< 60 ft/s	28 ft/s	1,318 scfm	CMN20180001	5/15/2018
001	Flare	Visible Emissions	40 CFR 60.18(f)(1)	Initial	US EPA Method 22	No visible emission to exceed total of 5 minutes during any consecutive 2 hours.	11 seconds	1,318 scfm	CMN20180001	5/15/2018

Footnotes: [1]The test report for this H2S sampling event was not submitted to the Division.

Performance testing must be conducted in accordance with 401 KAR 50:045. The permittee must submit a test protocol to the Source Sampling Section at least 60 days prior to testing. Retesting may be required if results are invalid, if process or control device changes occur, or if compliance cannot be demonstrated. A test report must be submitted to the Source Sampling Section no later than 45 days after the completion of fieldwork.

SECTION 4 – SOURCE INFORMATION AND REQUIREMENTS

Table A - Group Requirements:

Emission and Operating Limit	Regulation	Emission Unit
N/A	N/A	N/A

Table B - Summary of Applicable Regulations:

Applicable Regulations	Emission Unit
401 KAR 53:010, *Ambient air quality standards*	Site-wide
401 KAR 61:036, *Emission guidelines and compliance times for municipal solid waste (MSW) landfills*, requiring compliance with **40 CFR 60, Subpart Cf,** *Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills*	EU 001, 002
401 KAR 63:002, Section 2(4)(hhh), 40 C.F.R. 63.1930 through 63.1990, Table 1 (Subpart AAAA), *National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills*	EU 001, 002
401 KAR 63:010, *Fugitive emissions*	EU 002, 003, 004
401 KAR 63:015, *Flares*	EU 001
40 CFR 60.18, *General control device and work practice requirements*	EU 001
40 CFR 61, Subpart M, *National Emission Standard for Asbestos*	EU 002
40 CFR 63.11, *Control device and work practice requirements*	EU 001

Table C - Summary of Precluded Regulations:

Precluded Regulations	Emission Unit
N/A	N/A

Table D - Summary of Non Applicable Regulations:

Non-Applicable Regulations	Emission Unit
N/A	N/A

Air Toxic Analysis
N/A

Single Source Determination
Benson Valley Landfill General Partnership, Source ID #: 21-073-00053 (A.I. #1372), and the adjacent Ameresco Benson Valley RNG, Source ID #: 21-073-00112 (A.I. #167923), are considered by the Cabinet and the United States Environmental Protection Agency to be a "single source" in determining applicability under 401 KAR 51:017, Prevention of significant deterioration of air quality (PSD) and 401 KAR 52:020, Title V permits. Each source is subject to 401 KAR 52:020 and will be issued individual Title V operating permits. Pursuant to the respective Title V permits, each permittee is responsible and liable for their own violations unless there is a joint cause for the violations.

SECTION 5 – COMPLIANCE ASSURANCE MONITORING

40 CFR 64, *Compliance assurance monitoring* (CAM) applies to a pollutant-specific emissions unit at a major source that is required to obtain a part 70 or 71 permit if the unit satisfies all of the following criteria:

(1) The unit is subject to an emission limitation or standard for the applicable regulated air pollutant (or a surrogate thereof), other than an emission limitation or standard that is exempt under 40 CFR 64.2(b)(1);

(2) The unit uses a control device to achieve compliance with any such emission limitation or standard; and

(3) The unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source.

Emission Unit	**Criteria 1 (Y/N)**	**Criteria 2 (Y/N)**	**Criteria 3 (Y/N)**	**Does CAM apply? If Y for criteria 1, 2, AND 3, then Yes, Otherwise, No.**
001	N	N	N	No
002	N	N	N	No
003	N	N	N	No
004	N	N	N	No

***** If Yes, CAM applies for any of the emission units above, then see further clarification for each listed emission unit in **Section 3**.

SECTION 6 – PERMITTING HISTORY

Permit	Permit Type	Activity #	Complete Date	Issuance Date	Summary of Action	PSD/Syn Minor
S-94-165	Initial	N/A	8/9/1994	9/23/1994	Construction/ Operating of a Landfill Flare	N/A
S-94-165 (Revised)	Revision	N/A	8/14/1997	8/22/1997	Addition of a Gas Extraction and Flare System	N/A
S-00-064	Renewal	APE20050004	3/27/2000	6/14/2000	Renewal	N/A
G-07-001	Initial	APE20050006	2/19/2007	10/17/2007	Initial General Title V Permit	N/A
G-12-001	Renewal	APE20120002	10/5/2012	2/19/2013	Renewal General Title V Permit	N/A
V-18-013	Renewal	APE20170004	1/30/2018	9/30/2018	Change from General permit to individual permit	N/A

SECTION 7 – PERMIT APPLICATION HISTORY

N/A

APPENDIX A – ABBREVIATIONS AND ACRONYMS

AAQS – Ambient Air Quality Standards
BACT – Best Available Control Technology
Btu – British thermal unit
CAM – Compliance Assurance Monitoring
CFM – Cubic Feet per Minute
CO – Carbon Monoxide
Division – Kentucky Division for Air Quality
ESP – Electrostatic Precipitator
GHG – Greenhouse Gas
HAP – Hazardous Air Pollutant
HF – Hydrogen Fluoride (Gaseous)
HOV – Higher Operating Value
H_2S – Hydrogen Sulfide
MSDS – Material Safety Data Sheets
MSW – Municipal Solid Waste
mmHg – Millimeter of mercury column height
NAAQS – National Ambient Air Quality Standards
NESHAP – National Emissions Standards for Hazardous Air Pollutants
NMOC – Nonmethane Organic Compounds
NO_x – Nitrogen Oxides
NSR – New Source Review
PM – Particulate Matter
PM_{10} – Particulate Matter equal to or smaller than 10 micrometers
$PM_{2.5}$ – Particulate Matter equal to or smaller than 2.5 micrometers
PSD – Prevention of Significant Deterioration
PTE – Potential to Emit
SO_2 – Sulfur Dioxide
TF – Total Fluoride (Particulate & Gaseous)
VMT – Vehicle Miles Traveled
VOC – Volatile Organic Compounds

APPENDIX B – GCCS PLAN HISTORY AND REQUESTED ALTERNATIVES

This landfill voluntarily installed a Gas Collection and Control System (GCCS) in 1997, and submitted a GCCS plan for approval on September 29, 2016, after the landfill exceeded the 50 Mg/yr threshold on January 1, 2016, and became subject to the requirement to install and operate a GCCS according to 40 CFR 60, Subpart WWW.

Benson Valley Landfill submitted a GCCS plan for review and approval by the Division on September 29, 2016. The GCCS plan was approved by the Division in the renewal process for V-18-013 (APE20170004), issued on September 30, 2018. Below are the determinations made by the Division regarding the GCCS plan and alternatives sought by the facility.

The Division approved of the submitted GCCS design plan as outlined in Sections 1-4; however,

Benson Valley Landfill requested several alternative monitoring/recordkeeping/reporting scenarios in Section 5 of the submitted design plan. Below is a detailed response for each one. For the sake of brevity, only the relevant sentences from the source have been included in this response.

Request #1: *Section 5.1 – Surface Emission Monitoring: "Therefore, this alternative is to exclude Benson Valley from SEM in unsafe areas (i.e., active working face area, active construction areas, and final cover construction areas.)."*

Division's Response: 40 CFR 60.753(d) already provides for exclusion of dangerous areas, so Division approval of exclusion of dangerous areas is unnecessary.

Request #2: *Section 5.2 – Nonproductive Wells: "It is proposed that vertical LFG extraction wells which meet the above criteria be placed on the alternative operating and monitoring plan and temporarily be removed from further NSPS operation and monitoring requirements."*

Division's Response: The Division denies this request. The Division cannot approve blanket Revised Standard Operating Procedures (RSOPs). Determinations must be made on a case-by-case basis. Each RSOP request must be supported by data and the affected well should be indicated on a map when submitted. Section H of the permit specifies the procedure for requesting an RSOP for a particular well.

Request #3: *Section 5.3 – Wellhead Temperatures: "Therefore, the site is proposing the following alternative operating and monitoring plan for those vertical LFG extraction well(s) that are unable to meet the 131ºF NSPS operating temperature threshold:…"*

Division's Response: The Division denies this request. The Division cannot approve blanket Higher Operating Values (HOVs). Determination must be made on a case-by-case basis. 40 CFR 60.753(c) reads "The owner or operator may establish a higher operating temperature, nitrogen, or oxygen value at ***a particular well***." This implies that blanket approvals of HOVs are unacceptable. Each HOV request must contain supporting data that the elevated temperature does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens. Section H of the permit specifies the procedure for requesting an HOV for a particular well. The affected well should be indicated on a map along with an indication of whether there are any physical signs of a fire such as smoke or subsidence in the area around the well. (See ADI No. 0800018)

Request #4: *Section 5.4 – Alternate for Corrective Measures: "As such, the site is seeking KDEP approval for an alternative to this corrective measure protocol. If the condition cannot be*

corrected within 15 days of the initial exceedance, the site is proposing to continue monitoring the exceedance and to make system adjustments for a period of 120 days from the date of the initial exceedance. If the well(s) can be brought back into compliance during the 120 day period, no further action will be taken. However, if the well(s) cannot meet the standard within 120 days, the site will take one of the following actions:…"

Division's Response: The Division denies this request. Benson Valley Landfill may request alternative procedures to measure Nitrogen, Oxygen, and/or Temperature or request Higher Operating Value limits. If the facility is unable to correct exceedances within 15 days of well installation or replacement, an alternative timeline request must be made. (See ADI No. 0800018)

Request #5: *Section 5.5 – Odor Control: "Therefore, the facility is requesting that the NSPS operated limits not apply to components strictly designed for leachate collection. To verify comprehensive control of the GCCS, the site will perform the required surface emissions monitoring."*

Division's Response: The Division denies this request. The Benson Valley Landfill may formally propose alternative monitoring procedures or alternative operating parameters for subject collection systems but the source cannot be exempt from the operating parameter requirements altogether. Leachate cleanout riser and leachate sump extraction points will be subject to the control and monitoring requirements in Subpart WWW if they are collecting gas from areas where waste has been in place for five years or more in active areas or where waste has been in place for two years or more either in closed areas or in areas that are at final grade. The operational requirements apply both to extraction points that must be connected to the NMOC control system and to extraction points that are connected to the NMOC system at the discretion of the landfill owner/operator. (See ADI No. 0800018, 0600096, and a letter dated 11/7/2008 from EPA Region 4 to Ronald Gore)

Request #6: *Section 5.6 – Migration Control Wells: "Due to the nature of LFG's ability to travel through porous material and take the path of least resistance, LFG migration may occur. If LFG migration is detected, vertical LFG extraction wells may be installed for migration control purposes. Any future vertical LFG extraction wells installed for this purpose will be excluded from the NSPS operation, monitoring, record keeping, and reporting requirements as they are not interior wells as defined in 40 CFR 60.751."*

Division's Response: The Division acknowledges this request, and clarifies that any interior well will be subject to the control and monitoring requirements in Subpart WWW if they are collecting gas from areas where waste has been in place for five years or more in active areas or where waste has been in place for two years or more either in closed areas or in areas that are at final grade.

According to the definitions in 40 CFR 60.751, an interior well is defined as any well or similar collection component located inside the perimeter of the landfill waste. A well only has to be within the perimeter (i.e., within the outer boundary) of the landfilled waste in order to be an interior well. The well does not have to actually be in contact with the waste in order to be considered "interior." If the perimeter migration control collection lines and risers run under the waste, for instance, or if the wellheads are located within the outer boundary of the landfill waste, then the perimeter control wells would be considered "interior wells." Interior wells that extract gas from active areas where waste has been in place for five years or more or that extract gas from closed areas that have been at final grade for two years or more are subject to the applicable

requirements of the NSPS.

Therefore, if Benson Valley Landfill installs a well or similar collection component *inside* the perimeter of the landfilled waste to aid in controlling off-site migration, this well would also be subject to the NSPS operation, monitoring, recordkeeping, and reporting requirements. If the well is *outside* the perimeter of the landfill waste, then the well would not be subject to the NSPS operation, monitoring, recordkeeping, and reporting requirements. An approval of an alternative is not necessary, because the rule clearly defines when wells are considered "interior" or not. (See ADI No. 0800018)

Request #7: *Section 5.7 – Control Device Reporting Requirements: "40 CFR 60.757(f)(3) requires the owner/operator of the GCCS to provide in the Semi-Annual NSPS report, a description and duration of all periods when the control device was not operating for a period exceeding 1-hour. This NSPS provision is meant to refer to cases where the control device is not operating for a period exceeding 1-hour and results in venting of uncombusted landfill gas. As such, only the control device downtimes greater than 1 hour that result in venting of uncombusted landfill gas will be reported in the NSPS reports."*

Division's Response: The Division acknowledges this request. It is consistent with the language of 40 CFR 60.757(f)(3) and does not require an approval as an alternative to the NSPS.

Request #8: *Section 5.8 – Operational Standards: "40 CFR §60.753(c) requires nitrogen or oxygen to be monitored at each wellhead, but not both. As such, for this site oxygen will be used to determine the NSPS operational standard at each wellhead."*

And
"40 CFR 60.753(c)(2) requires the oxygen to be determined by an oxygen meter using Method 3A or Method 3C. However, a portable gas chromatograph, GEM-500, GEM-2000, LMS or equivalent in lieu of the laboratory methods will be used to measure oxygen concentrations. This method is the typical method used for landfills and is convenient as the equipment is available on-site to analyze landfill gas samples. The Semi-Annual NSPS report will indicate when these instruments are used to collect oxygen data."

Division's Response: The Division approves of the request to monitor oxygen instead of nitrogen for compliance with the NSPS at each wellhead. The Division also approves of the use of portable gas composition analyzers in conjunction with Method 3A to monitor the oxygen level at a wellhead. The portable gas composition analyzer may be used to monitor the oxygen level at a wellhead provided that the analyzer is calibrated and meets all QA/QC requirements according to Method 3A. ASTM D6522-11 may be used as an alternative to Method 3A for wellhead monitoring as long as all the quality assurance is conducted as required by ASTM D6522-11.

Request #9: *Section 5.9 – Extraction Well Monitoring: "Since the NSPS allows for exclusion of surface monitoring in "dangerous areas" of the site, it is reasonable to request an alternative to monitoring vertical LFG extraction wells that are deemed dangerous for personnel to access (i.e., raised, active and construction areas). As such, the site proposes that monthly readings be taken only at vertical LFG extraction wells that can be safely accessed. This request is in accordance with Section 60.752(b)(2)(i)(B), which allows the facility to propose alternatives to the monitoring procedures in the NSPS."*

Division's Response: The Division denies this blanket request. The rule does not allow monthly

wellhead monitoring to be postponed or eliminated, so this part of your request is denied. However, Benson Valley Landfill may propose alternative monitoring procedures or alternative monitoring parameters for each well on an individual basis. (See ADI No. 0800018)

Request #10: *Section 5.10 – Use of an Alternative Sampling Method: "It is proposed that EPA Method 25A may be used to test the enclosed flare outlet NMOC concentration and EPA Method 25C will be used on the inlet for any enclosed flare installed at the site in the future."*

Division's Response: The Division denies this request. Until Benson Valley Landfill applies to permit and install an enclosed flare, an approved alternative is not necessary. Any requests for alternatives to test methods should be made for each specific flare when it is permitted.

Request #11: *Section 5.11 – Collection Device Abandonment: "Due to changing conditions such as damage to a vertical LFG extraction well during operations or long term non-productive areas, vertical LFG extraction wells may need to be re-drilled, abandoned, and/or decommissioned. It is proposed that the site will proceed with such changes without prior approval from the Administrator provided that a certified updated GCCS Layout drawing be included in the Semi-Annual NSPS report."*

Division's Response: The Division denies this request. Requests for decommissioning or abandonment and design changes are to be approved by the Division, pursuant to 40 CFR 60.753(b)(3). Re-drilling of wells does not require prior approval from the Division, provided that the re-drilled well is consistent with the GCCS design plan. The process for decommissioning well or requesting revised standard operating procedures (in the case of low-production wells) must be done on an individual basis and is specified in Section H of the permit.

Request #12: *Section 5.12 - Early Installation of Collection Devices and Control Devices: "However, there may be occasions when the site will decide to install collection devices prior to the onset of NSPS requirements. Based on the foregoing regulatory citation, any collection device installed prior to the requirements of NSPS will not be subject to the operational and/or record-keeping requirements of NSPS until the age of the initial waste placed reaches 5 years old if in an active area or 2 years old if closed or at final grade."*

And
"Based on the foregoing regulatory citation, any control device that is only used to control LFG collected from areas of the landfill where LFG collection is occurring prior to the onset of NSPS requirements will not be subject to the operational and/or record-keeping requirements of NSPS until the age of the initial waste placed reaches 5 years old if in an active area or 2 years old if closed or at final grade."

Division's Response: The Division concurs that the operational and recordkeeping requirements of the NSPS for gas collectors or flares installed in non-NSPS areas.

Request #13: *Section 5.13 - Flow Meters When No Bypass Is Present: "LFG flares owned by Benson Valley will be designed to satisfy the foregoing LFG flow measurement/lock-and-key waiver criteria; therefore, the site is requesting to not be required to install and operate flow-measuring device in accordance with the requirements of the NSPS on future flare designed with no physical means to bypass the LFG flow before it reaches the control device. If the site decides to install a flow measuring device, it will not be required to monitor or record flow in accordance with NSPS."*

Division's Response: The Division denies the request to remove the requirement for flare flow monitoring at Benson Valley Landfill. This data is required for EPA Greenhouse Gas (GHG) reporting, in addition to being necessary to ensure that the main valve is operating correctly, and to demonstrate compliance with the flare tip velocity maximum of 60 ft/sec in 40 CFR 60.18. The same report submitted to the EPA for GHGs should be submitted to the KYDAQ.