Commonwealth of Kentucky
Division for Air Quality

REVISED STATEMENT OF BASIS / SUMMARY

Title V, Construction/Operating
Permit: V-18-053 R2

Bituminous Resources, Inc. dba Hopkins County Regional Landfill
419 Claude Young Road
White Plains, KY 42464

March 17, 2025
Amy K. Tempus-Doom, P.E., Reviewer

SOURCE ID:	21-107-00155
AGENCY INTEREST:	38541
ACTIVITY:	APE20240007

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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:

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

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

County: Hopkins
Nonattainment Area ☒ N/A ☐ PM_{10} ☐ $PM_{2.5}$ ☐ CO ☐ NO_X ☐ SO_2 ☐ Ozone ☐ Lead

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:
The Bituminous Resources, Inc. dba Hopkins County Regional Landfill (HCRL) located in Hopkins County, KY is primarily a municipal solid waste landfill that commenced construction, reconstruction or modification on or after May 30, 1991 and has a design capacity greater than 2.5 million cubic meters by volume. This landfill had a calculated emission rate of more than 50 megagrams per year of non-methane organic compounds (NMOC) in 2015, and installed a GCCS in 2011. The landfill has the ability to send the landfill gas to an open flare or an onsite renewable natural gas (RNG) facility. The RNG plant processes raw landfill gas from the GCCS owned and operated by HCRL 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 landfill consists of Unit 1, which accepted waste from 2005 until the present, Unit 2, which accepted waste from 2014 until the present, and Units 3 and 4, which have not begun accepting waste yet. Final cap has not been placed on any part of the landfill.

The source is required to obtain a Title V permit by 401 KAR 52:020, Section 1(4). The source includes a landfill and associated equipment including a Gas Collection and Control System (GCCS), flares, fuel (gasoline and diesel) tanks, haul roads, site construction, leachate storage tanks, and an industrial liquid waste solidification facility.

SECTION 2 – CURRENT APPLICATION AND EMISSION SUMMARY FORM

Permit Number: V-18-053 R2 Activities: APE20240007

Received: December 17, 2024 Application Complete Date(s): March 11, 2025

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:
HCRL submitted a significant revision application to add an RNG Plant and associated RTO (EU 010), an additional landfill flare #3 (EU 009), and a diesel-fired emergency generator (EU 011).

HCRL is proposing to construct and operate a Renewable Natural Gas (RNG) plant at the landfill. The RNG plant will process raw landfill gas from the gas collection and control system owned and operated by HCRL 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 will be injected into an existing natural gas pipeline.

As part of the RNG plant installation, emissions of regulated air pollutants will occur from a Regenerative Thermal Oxidizer (RTO), and a new open (candlestick) flare. A 150 kW diesel-fired emergency generator will also be installed for supplying backup power in the event of a power outage.

The raw LFG will be received by the RNG plant from the landfill's gas collection system (wellfield) and filtered, dewatered, compressed, and processed to remove impurities such that the final product will meet the specifications for pipeline quality natural gas.

The processes of removing impurities to arrive at the final pipeline-quality natural gas product will consist of several different adsorption processes that will remove hydrogen sulfide (H2S), VOC, siloxanes, carbon dioxide (CO2), water, oxygen, and nitrogen from the compressed, filtered, and dewatered LFG. An H2S removal system will reduce the concentration of H_2S to less than 4 parts per million by volume (ppmv), which is the maximum concentration of H_2S in the final product to be considered pipeline-quality. A two-vessel system with appropriate carbon media will be used to remove the bulk of H_2S in the incoming LFG stream. These vessels will operate on a lead-lag design. The bed material will be replaced once it is considered spent to maintain the required H2S removal, with the spent bed material sent to the landfill.

Carbon dioxide (CO_2) will be reduced down to below 3 percent by volume via a series of membranes that absorb the CO_2 in the gas. The first step in the CO_2 removal process is elimination of constituents such as volatile organic compounds (VOCs), non-methane organic compounds (NMOCs), trace H2S, and siloxanes. This Pressure Swing Adsorption (PSA) system is a pretreatment for the CO_2 Removal membranes and protects the membranes from potential fouling. CO_2 removal occurs in a two-stage membrane system in which CO_2 molecules pass through semi-permeable membranes while CH_4 molecules are retained. The process also removes a significant

portion of O_2 and H_2O due to the selectivity of the membranes. The CO_2 rich flow permeating from the first stage of membranes is used to regenerate the CO_2 PSA system and then the waste CO_2 and contaminates are combusted in the thermal oxidizer. The residue from the first stage flows to the second stage. To increase plant efficiency, the permeating flow from the second stage of membranes is recirculated to the feed gas compressors. The residue from the second stage flows to the next skid for nitrogen removal.

The final stage of gas separation is the removal of nitrogen and some oxygen by an additional PSA system, the Nitrogen Rejection Unit (NRU). This system consists of a valve skid, (5) media vessels, (2) additional rotary screw compressors, and (2) gas buffer vessels for maintaining consistent discharge flows. NRU waste gas will also be combusted in the thermal oxidizer. Any remaining O_2 in the product gas is removed in a deoxygenation catalyst bed. This system includes heat exchangers, an electric trim pre-heater and mole-sieve gas dehydration. The product RNG will be continuously monitored via gas chromatograph (GC) to ensure that the final product specifications are being met. If the GC indicates that the product gas streams (from the CO2 membrane system and from the PSA/NRU system) do not meet specifications, the off-spec gas will be sent to a new open (candlestick) flare to be located at the RNG plant.

The proposed RNG plant will initially be designed to process an inlet landfill gas flow rate of 3500 scfm. With the addition of some expansion equipment, the flow could increase to as much as 5000 scfm dependent on the future gas generation at the landfill. Even though the site is not currently generating 5000 scfm of landfill gas from the site, the equipment is being sized proactively to accommodate a worst-case future gas generation scenario. The thermal oxidizer and open flare #3 will both be sized for a maximum flow of 5000 scfm.

As part of the application process, HCRL submitted a revised GCCS plan including the ability to send gas to the RNG plant or new flare for the Division's review and approval pursuant to 40 CFR 63.1981(d) on March 3, 2025. The Division requested revisions to the submitted plan on March 11, 2025, and a final version of the revised plan was submitted to the Division on March 14, 2025. The Division approved the GCCS plan on March 17, 2025 (AAP20250002). Below are the determinations made by the Division regarding the GCCS plan and alternatives sought by the facility.

The Division approves of the general revised design plan as submitted on March 14, 2025 and outlined in Sections 1, 2, 3, and 4.

Hopkins County Regional Landfill (HCRL) has requested several alternative monitoring/recordkeeping/reporting scenarios in Section 5 of the design plan and operating clarifications in Section 6 of the design plan. Below is a detailed response for each one. For the sake of brevity, where appropriate, only the relevant sentences from the source have been included in this letter.

Request #5.1: "Monitoring of the parameters in §§62.16716 through §§62.16726/§§ 63.1957 through §§63.1983 may be performed with a portable monitoring instrument such as a GEM 2000/500, LMS, Envision Meter, or equivalent. The monitoring equipment will be verified to provide accurate measurement of all parameters for which it is used to measure. (See Appendix D-1)"

Division's Response: The Division approves of the use of portable gas composition analyzers in conjunction with Method 3A to monitor the oxygen level at a wellhead. Pursuant to 40 CFR 63.1961(a)(2)(iii), a 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. The portable gas composition analyzer may be used for other monitoring, provided that the analyzer meets the methods and requirements in the rule.

Request #5.2: "The requirements of 40 CFR §62.16720(b)/§63.1960(b) states that each collection device shall be installed no later than 60 days after the date on which the initial solid waste has been in place for a period of 5 years or more in active areas or 2 years or more if closed or at final grade. It is important to note that there may be occasions when HCRL decides to install collection devices included in the Revision prior to the onset of Federal EG/NESHAP requirements. Based on the abovementioned regulatory citation, a collection device installed prior to the requirements of Federal EG/NESHAP will not be subject to the operational and/or record-keeping requirements of Federal EG/NESHAP until the age of the initial waste meets the 5-yr/2-yr rule. To make certain that KDAQ is made fully aware of these special circumstances, HCRL will include information in the annual report required by Federal EG/NESHAP/Title V indicating the date of initial collection device installation and the Federal EG/NESHAP compliance date. A copy of some correspondence prepared by the EPA Region IV (letter dated May 31, 2007) has been included in Appendix D-3."

Division's Response: The Division concurs that the operational and recordkeeping requirements of the NESHAP do not apply to gas collectors installed in non-NESHAP areas.

Request #5.3: "During filling operations, vertical extraction wells periodically need to be "raised" and/or temporarily disconnected (i.e., the well casing extended 15-25 ft vertically) in order to not be buried under lifts of trash. The time frame between when a well is raised, and when the waste height and/or final cover is high enough to safely access the sample ports can often range from a few weeks to a few months. This can result in missed monthly readings at the well, since the well casing is too high for the technician to safely reach.

Since the EG/NESHAP allows for exclusion of surface monitoring in "dangerous areas" of the site, it is reasonable to request an alternative to monitoring 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 wells that can be safely accessed.

The number of wells that will be covered by the monitoring exemption at any one time will constitute only a fraction of the wells located at the site. If the facility cannot bring the waste height up to the new grade and re-attach the well within a reasonable amount of time (90 days), then HCRL personnel will initiate modifications to the lateral/wellhead for monitoring such as cutting the well back down and re-attaching it for monitoring. Using this alternative, the vast majority of the wellheads at the site will still be monitored on a monthly basis under the alternative proposed by HCRL, and an appropriate alternative monitoring and reporting procedure will be utilized."

Division's Response: The Division approves this request. All instances when extraction devices were excluded from monitoring because they were located in "dangerous" areas should be detailed in the Semi-Annual Report prepared to address that reporting period.

Request #5.4: "HCRL will incorporate the steps detailed in Section H – Alternate Operating Scenarios (Alternate Operating Scenario 2) of the Title V Operating Permit to request a higher operating value for temperature."

Division's Response: The Division approves the use of the procedure outlined in Section H of the Title V permit to request or revise Higher Operating Values (HOVs) for temperature at HCRL.

Request #5.5: "Subpart AAAA, §63.1961(a)(5) states that when a facility seeks to demonstrate compliance with the operational standard for temperature found in §63.1958(c)(1), the facility must initiate enhanced monitoring at each well with a landfill gas temperature greater than 62.8 degrees Celsius [145 degrees Fahrenheit]. That enhanced monitoring includes, among other things, measuring the carbon monoxide concentrations using Method 10 (40 CFR 60, Appendix A), as specified by §63.1961(a)(5)(vi). In lieu of Method 10, we plan to incorporate EPA Alt-143 as detailed in the EPA Determination letter included in Appendix D-3, or EPA Alt-144 as detailed in the EPA Determination letter included in Appendix D-4."

Division's Response: The Division approves the use of ALT-143 or ALT-144 in lieu of Method 10.

Request #6.2: "The as-built can only be generated/updated for a landfill after construction projects that include upgrades and additions to the gas collection system are completed. After construction has taken place, the survey crew performs quality checks and completes a shakedown process to ensure the construction was performed properly. Therefore, since there is no defined frequency for preparing/updating an as-built of the gas collection system, the landfill will update the as-built on an annual basis in years that changes or construction of the gas collection system are performed.

To the extent that HCRL requests an alternate timeline or an HOV for a well, an updated map will be available that includes the location of the well included in the request, even if the request is made prior to the annual update."

Division's Response: The Division acknowledges this statement in the GCCS plan and concurs that map updates will be necessary when an alternate timeline or an HOV is requested by HCRL. For clarification, no changes to the final GCCS design can be made without approval of a revised GCCS plan, however, to meet the requirement in 40 CFR 63.1983(d), annual map updates may be acceptable.

V-18-053 R2 Emission Summary				
Pollutant	2023 Actual (tpy)[3]	Previous PTE V-18-053 R1 (tpy)	Change (tpy)[2]	Revised PTE V-18-053 R2 (tpy)[1]
CO	35.29	159.20	+75.16	234.36
NO_X	7.74	34.92	+19.83	54.75
PT	67.89	9.49	+3.49	12.98
PM_{10}	19.46	9.49	+3.49	12.98
$PM_{2.5}$	3.69	9.49	+3.49	12.98
SO_2	1.73	126.3	+37.31	163.61
VOC	2.06	3.51	+2.08	5.59
Lead	0	0.0000002	+0.0000448	0.000045
Greenhouse Gases (GHGs)				
Carbon Dioxide	52,393	114,383	+61,608	175,991
Methane	7,835	9,704	+136	9,840
Nitrous Oxide	0.16	1.23	+0.38	1.61
CO_2 Equivalent (CO_2e)	248,316	357,339	+65,136	422,475
Hazardous Air Pollutants (HAPs)				
Cresols	0	1.67	+0	1.67
HCl	0.89	3.31	+1.76	5.07
Toluene	1.35	3.99	+0.06	4.05
Xylenes	0.48	1.44	+0.02	1.46
Combined HAPs:	2.72	21.94	+2.09	24.03

[1]Note: Potential to emit totals include federally enforceable controls, and contributions from Flare #3 (5000 scfm) only, as it is the worst case emissions scenario, and the RNG plant and all flares cannot run at the same time, i..e. if Flare #3 is running at the maximum throughput, nothing else can run. Totals do not include fugitive emissions, except HAPs.
[2]Note: Changes reflect the additional flare and the revised emissions factors due to changes published to AP-42 Chapter 2.4.
[3]Note: Actual reported emissions include fugitive emissions.

SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS

Emission Unit 001 - Municipal Solid Waste (MSW) Landfill

Initial Construction Date: 2005

Process Description: A MSW landfill that accepted that waste after November 8, 1987, commenced construction, reconstruction, or modification on or before July 17, 2014 and having a design capacity equal to or greater than 2.5 million megagrams by mass and 2.5 million cubic meters by volume, and an NMOC emission rate (Calculated according to 40 CFR 60.754) greater than 50 Mg/yr.

This landfill installed a Gas Collection and Control System (GCCS) in 2011. This system can send gas to EU 005, EU 008, EU 009, and/or EU 010.

The landfill consists of Unit 1, which accepted waste from 2005 until the present, Unit 2, which accepted waste from 2014 until the present, and Units 3 and 4, which have not begun accepting waste yet. Final cap has not been placed on any part of the landfill.

Permitted Design Capacity: 13,944,000 cubic yards (10,660,953 cubic meters)

Applicable Regulations:
401 KAR 53:010, *Ambient air quality standards*
401 KAR 63:002, Section 2(4)(hhh), 40 C.F.R. 63.1930 to 63.1990, Table 1 (Subpart AAAA), *National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills*
401 KAR 63:010, *Fugitive emissions*
401 KAR 63:015, *Flares*
40 CFR 61, Subpart M, *National Emission Standard for Asbestos*
40 CFR 63.11, *Control device and work practice requirements*

Comments: Emission factors from AP 42 - Table 2.4.1 (August 2024) and LandGEM. 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 in determination of SO_2 levels produced in the flare. Previous experience indicates the H_2S concentration in AP 42-Table 2.4.1 (August 2024) and LandGEM underestimates levels actually seen at landfills.

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.

Emission Unit 005 – Landfill Flare #1				
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	-	Daily qualitative observations and recordkeeping.

Initial Construction Date: 2011

Process Description: Open landfill flare which combusts landfill gas.
Model: LFG Specialties Model PCF82516
Maximum Capacity: 1362 scfm

Applicable Regulations:
401 KAR 63:002, Section 2(4)(hhh), 40 C.F.R. 63.1930 to 63.1990, Table 1 (Subpart AAAA), *National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills.*
401 KAR 63:015, *Flares.*
40 CFR 63.11, *Control device and work practice requirements*

Comments:
This flare is a control device installed to meet the requirements of 40 CFR 63.1959(b)(2)(iii). Emission factors from AP-42 Chapter 2.4 (August 2024) and AP-42, Chapter 13.5. Control efficiency for Non Methane Organic Compounds (NMOC) is 98%.

Emission Unit 002 - Industrial Waste Solidification Process

Initial Construction Date: 2005

Process Description: Mixing of liquid industrial wastes from various sources with dry mediums to form a solid to be landfilled.
Maximum Capacity: 8,345 tons (2,000,000 gal/yr) per year of liquid waste
Control Devices: None

Applicable Regulation:
401 KAR 63:010, *Fugitive emissions*

State-Origin Requirement:
401 KAR 63:020, *Potentially hazardous matter or toxic substances*

Comments: Emissions from source based on Toxicity Characteristic Leaching Procedure (TCLP) maximum values for listed HAPs and assumption of 100% VOC emission. If more refined data becomes available for each waste, the more refined data should be used by the source for HAP calculations to ensure all HAPs are accounted for.

Emission Unit 003 - Paved and Unpaved Haul Roads

Initial Construction Date: 2005

Process Description: Paved haul roads and unpaved haul roads.
Maximum Capacity: 89,091 VMT paved, 471,606 VMT unpaved
Control Devices: Water trucks

Applicable Regulation:
401 KAR 63:010, *Fugitive emissions*

Comments: Emission factors from AP 42 - 13.2.1 and AP 42 - 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.

Unpaved roadways include VMT associated with the heavy equipment for cover operations, dozing, compacting, and cover material loading/unloading.

Emission Unit 006 – Gasoline Storage Tank & Dispensing

Initial Construction Date: 2006

Process Description: Storage of gasoline with a throughput of less than 10,000 gallons/yr.
Storage Capacity: 300 gallon
Maximum Throughput: 10,000 gal/yr dispensed

Applicable Regulation:
401 KAR 63:002, Section 2(4)(ddddd), **40 C.F.R. 63.11110 to 63.11132, Tables 1 to 3 (Subpart CCCCCC)**, *National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities* applies to gasoline tank and dispensing.

Comments: Emission factors from Tanks 4.01D.

Emission Unit 008 – Landfill Flare #2

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	-	Daily qualitative observations and recordkeeping.

Initial Construction Date: 2024

Process Description: Open landfill flare which combusts landfill gas.
Maximum Capacity: 2,500 scfm

Applicable Regulations:
401 KAR 63:002, Section 2(4)(hhh), 40 C.F.R. 63.1930 to 63.1990, Table 1 (Subpart AAAA), *National*

Emission Unit 008 – Landfill Flare #2
Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills. **401 KAR 63:015**, *Flares.* **40 CFR 63.11,** *Control device and work practice requirements* **Comments:** This flare is a control device installed to meet the requirements of 40 CFR 63.1959(b)(2)(iii). Emission factors from AP-42 Chapter 2.4 (August 2024)and AP-42, Chapter 13.5. Control efficiency for Non Methane Organic Compounds (NMOC) is 98%.

Emission Unit 009 – Landfill Flare #3				
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	-	Daily qualitative observations and recordkeeping.

Initial Construction Date: 2024

Process Description: Open landfill flare which combusts landfill gas from EU 001 or off-spec gas from EU 010.
Maximum Capacity: 131 MMBtu/hr (5000 scfm landfill gas; 2453 scfm off-spec gas)

Applicable Regulations:
401 KAR 63:002, Section 2(4)(hhh), 40 C.F.R. 63.1930 to 63.1990, Table 1 (Subpart AAAA), *National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills.*
401 KAR 63:015, *Flares.*
40 CFR 63.11, *Control device and work practice requirements*

Comments:
This flare is a control device that must meet the requirements of 40 CFR 63.1959(b)(2)(iii). Emission factors from AP-42 Chapter 2.4 (August 2024) and AP-42, Chapter 13.5. Control efficiency for Non Methane Organic Compounds (NMOC) is 98%.

Flare Mode 1 represents combustion of raw landfill gas at a worst-case 55% methane and 750 ppmv H_2S, Flare Mode 2 represents off-spec gas with the highest methane load to the flare of 94% and 4 ppmv of H_2S with a corresponding flow rate of 2453 scfm, and a maximum of 1000 hours per year.

Emission Unit 010 - Renewable Natural Gas Plant				
Pollutant	**Emission Limit or Standard**	**Regulatory Basis for Emission Limit or Standard**	**Emission Factor Used and Basis**	**Compliance Method**
Opacity	< 20%	401 KAR 59:010, Section 3(1)(a)	-	Daily qualitative observations and recordkeeping.

Emission Unit 010 - Renewable Natural Gas Plant				
PM	Process Weight Rate (P): ≤ 0.5 tons/hour: 2.34 lbs/hr	401 KAR 59:010, Section 3(2)	AP 42 Table 2.4-5 AP 42 Table 1.4-2	Assumed to be in compliance based on the maximum process weight rate and emission factors provided by the application.

Initial Construction Date: 2025

Process Description:
Emission Unit 010 – Renewable Natural Gas (RNG) Plant
The RNG facility receives LFG from the landfill gas collection system. The resulting LFG stream is treated, compressed, and injected into local gas distribution or transmission networks.

Maximum Capacity:
EU 010 – RNG Plant: 5,000 scfm LFG
Regenerative Thermal Oxidizer (RTO): 21.00 MMBtu/hr

Control Devices for EU 010: Thermal Oxidizer and Flare (EU 009)

Applicable Regulations:
401 KAR 53:010, *Ambient air quality standards*
401 KAR 59:010, *New process operations*, applies to EU 010
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*

Comments:
Emission factors were determined from mass balances, AP-42 Tables 1.4-1 through 1.4-4 and 40 CFR 98 Tables C-1 and C-2 for natural gas usage, and AP-42 Tables 2.4-1, 2.4-2, 2.4-4, and 2.4-5 (August 2024) for landfill gas destroyed.

The RNG plant will initially be designed to process an inlet landfill gas flow rate of 3500 scfm. With the addition of some expansion equipment, the flow could increase to as much as 5000 scfm dependent on the future gas generation at the landfill. Even though the site is not currently generating 5000 scfm of landfill gas from the site, the equipment is being sized proactively to accommodate a worst-case future gas generation scenario.

Emission Unit 011 – Emergency CI RICE #1				
Pollutant	**Emission Limit or Standard**	**Regulatory Basis for Emission Limit or Standard**	**Emission Factor Used and Basis**	**Compliance Method**
CO	3.5 g/KW-hr	40 CFR 60.4205(b) referencing 40 CFR 60.4202	See notes.	Based on certified engine or maintenance of engine in a manner consistent with good air pollution control practice for minimizing emissions
NMHC + NOx	4.0 g/KW-hr	40 CFR 60.4205(b) referencing 40 CFR 60.4202	See notes.	

Emission Unit 011 – Emergency CI RICE #1				
PM	0.20 g/KW-hr	40 CFR 60.4205(b) referencing 40 CFR 60.4202	See notes.	and an initial performance test

Initial Construction Date: 2025

Process Description:
Cummins C150D6D 4-Stroke CI RICE for emergency use.

Maximum Continuous Rating: 324 HP (150 kW)
Fuel: Diesel
Controls: None

Applicable Regulations:
401 KAR 60:005, Section 2(2)(dddd), 40 C.F.R. 60.4200 through 60.4219, Tables 1 through 8 (Subpart IIII), *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines*, applies to stationary compression ignition (CI) internal combustion engines (ICE).
401 KAR 63:002, Section 2(4)(eeee), 40 C.F.R. 63.6580 through 63.6675, Tables 1a through 8, and Appendix A (Subpart ZZZZ), *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, applies to stationary reciprocating internal combustion engines at major or area sources of Hazardous Air Pollutants (HAP).

Comments:
Emission factors determined from manufacturer specifications, AP-42 Table 3.3-1 and 3.3-2, and 40 CFR 98 Table C-1 and C-2. Emissions estimated at 500 hours/yr to be conservative and account for emergency operation. This engine will not be used for powering normal plant operations.

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
001	None	C_{NMOC} M_{NMOC}	40 CFR 60.754(a)(3)	Once every 5 yrs until >50 Mg	U.S. EPA Method 25C	50 Mg	13 Mg/yr (2013)	157.6 ppmv as Hexane; 152,308 tpy waste disposed	CMN20090003	9/29/2009
001	None	C_{NMOC} M_{NMOC}	40 CFR 60.754(a)(3)	Once every 5 yrs until >50 Mg	U.S. EPA Method 25C	50 Mg	56.01 Mg/yr (2015)	693 ppmv as Hexane; 240,109 tpy waste disposed	CMN20140002	10/1/2014
001	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	N/A	TBD	TBD	CMN20240003	7/15/2024
005	Flare	Net heating value	40 CFR 60.18(f)(3)	Initial	US EPA Method 18	> 7.45 MJ/scm	12.0 MJ/scm	361 scfm	CMN20150002	12/16/2015
005	Flare	Actual Exit velocity	40 CFR 60.18(f)(4)	Initial	US EPA Method 1 & 2	< 37.2 m/s	18.9 m/s	361 scfm	CMN20150002	12/16/2015

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
005	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.	No visible emissions	361 scfm	CMN20150002	12/16/2015
008	Flare	Net heating value	40 CFR 63.11(b)(6)(ii)	Initial	US EPA Method 18	> 7.45 MJ/scm	TBD	TBD	TBD	TBD
008	Flare	Actual Exit velocity	40 CFR 63.11(b)(7)(i)	Initial	US EPA Method 1 & 2	TBD	TBD	TBD	TBD	TBD
008	Flare	Visible Emissions	40 CFR 63.11(b)(4)	Initial	US EPA Method 22	No visible emission to exceed total of 5 minutes during any consecutive 2 hours.	TBD	TBD	TBD	TBD
009	Flare	Net heating value	40 CFR 63.11(b)(6)(ii)	Initial	US EPA Method 18	> 7.45 MJ/scm	TBD	TBD	TBD	TBD
009	Flare	Actual Exit velocity	40 CFR 63.11(b)(7)(i)	Initial	US EPA Method 1 & 2	TBD	TBD	TBD	TBD	TBD
009	Flare	Visible Emissions	40 CFR 63.11(b)(4)	Initial	US EPA Method 22	No visible emission to	TBD	TBD	TBD	TBD

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
						exceed total of 5 minutes during any consecutive 2 hours.				
010	Thermal Oxidizer	VOC & HAP DE and min. combustion chamber temp.	401 KAR 50:055, Section 2(a)	Initial and every 5 years	TBD	N/A	TBD	TBD	TBD	TBD
010	Thermal Oxidizer	H_2S ppm	401 KAR 50:045, Section 1	Initial	U.S. EPA Method 15/16; ASTM D4084; ASTM D5504; or Approved Alt.	N/A	TBD	TBD	TBD	TBD
010	Thermal Oxidizer	NMOC	40 CFR 63.1959(b)(2)(iii)(B)	Initial	U.S. EPA Method 25 or 25C; Method 3, 3A, or 3C.	98% reduction or 20-ppmv outlet conc.	TBD	TBD	TBD	TBD

Footnotes:

SECTION 4 – SOURCE INFORMATION AND REQUIREMENTS

Table A - Group Requirements:

Emission & Operating Limit	Regulation	Emission Unit
N/A		

Table B - Summary of Applicable Regulations:

Regulation	Basis of Determination	Emission Unit
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.	Site-wide
401 KAR 59:010	*New process operations,* applies to each affected facility, associated with a process operation, which is not subject to another emission standard with respect to particulates.	EU 010
401 KAR 60:005, Section 2(2)(dddd), 40 C.F.R. 60.4200 through 60.4219, Tables 1 through 8 (Subpart IIII)	*Standards of Performance for Stationary Compression Ignition Internal Combustion Engines*, applies to stationary compression ignition (CI) internal combustion engines (ICE).	EU 011
401 KAR 63:002, Section 2(4)(hhh), 40 C.F.R. 63.1930 to 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.	EU 001, 005, 008, 009, & 010
401 KAR 63:002, Section 2(4)(eeee), 40 C.F.R. 63.6580 through 63.6675, Tables 1a through 8, and Appendix A (Subpart ZZZZ)	*National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines,* applies to stationary reciprocating internal combustion engines at major or area sources of Hazardous Air Pollutants (HAP).	EU 011
401 KAR 63:002, Section 2(4)(ddddd), 40 C.F.R. 63.11110 to 63.11132, Tables 1 to 3 (Subpart CCCCCC)	*National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities,* applies to loading of gasoline storage tanks at gasoline dispensing facilities (GDF).	EU 006

Regulation	Basis of Determination	Emission Unit
401 KAR 63:010	*Fugitive Emissions,* applies to each affected facility which emits or may emit fugitive emissions provided such emissions are not elsewhere subject to an opacity standard within the administrative regulations of the Division for Air Quality.	EU 001, 002, & 003
401 KAR 63:015	*Flares,* applies to each affected facility which means flares as defined in 401 KAR 63:015, Section 2.	EU 005, 008, 009
401 KAR 63:020	*Potentially hazardous matter or toxic substances,* applies to each affected facility which emits or may emit potentially hazardous or toxic substances provide such emissions are not elsewhere subject to provisions of the administrative regulations of the Division for Air Quality.	EU 002
40 CFR 61, Subpart M	*National Emission Standard for Asbestos,* applies to each active asbestos waste disposal site.	EU 001
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.	EU 005, 008, 009

Table C - Summary of Precluded Regulations:

Precluded Regulations	Emission Unit
N/A	

Table D - Summary of Non Applicable Regulations:

Non Applicable Regulations	Emission Unit
N/A	

Air Toxic Analysis

401 KAR 63:020, *Potentially hazardous matter or toxic substances*

The Division for Air Quality (Division) has performed AERMOD on April 23, 2019 for potentially hazardous matter or toxic substances that may be emitted by the facility based upon the process rates, material formulations, stack heights and other pertinent information provided by the applicant. Based upon this information, the Division has determined that the conditions outlined in this permit will assure compliance with the requirements of 401 KAR 63:020.

Single Source Determination

N/A

SECTION 5 – PERMITTING HISTORY

Permit	Permit Type	Activity#	Complete Date	Issuance Date	Summary of Action	PSD/Syn Minor
G-07-001	Initial General Title V	APE20070001	3/15/2007	10/16/2007	Initial Title V General Permit	N/A
G-12-001	Renewal General Title V	APE20120001	10/4/2012	2/19/2012	Renewal of Title V General Permit	N/A
V-18-053	Renewal	APE20170004	10/10/2017	10/20/2020	Change from General permit to individual permit	N/A
V-18-053 R1	Sig Rev	APE20230002	3/18/2024	10/04/2024	Addition of EU008; Update reg applicability from 40 CFR 60, Subpart WWW to 40 CFR 63, Subpart AAAA	N/A

SECTION 6 – PERMIT APPLICATION HISTORY

Permit Number: V-18-053 R1 **Activities: APE20230002**

Received: June 15, 2023 Application Complete Date(s): March 18, 2024

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:
HCRL submitted a significant revision application to add an additional flare (EU 008) and update the insignificant activities list. With this revision, HCRL is now a major source for Title V.

In this revision, the Division has revised the permit to reflect the applicability of 40 CFR 63, Subpart AAAA (NESHAP) instead of 40 CFR 60, Subpart WWW which no longer applies. The Division does not currently have an approved state plan implementing 40 CFR 60, Subpart Cf (EG) and accordingly, the U.S. EPA implements the requirements of the EG through the federal plan codified in 40 CFR 62, Subpart OOO.

The Division is unable to apply 40 CFR 60, Subpart Cf requirements to the facility until a state plan implementing the regulation is approved. Until such time, the federal plan in 40 CFR 62, Subpart OOO applies and may not be included in the permit by the Division. The preamble to 40 CFR 62, Subpart OOO, as published in the Federal Register on May 21, 2021, states on page 27766, **VII. Title V Operating Permits**, *B. Title V and Delegation of Federal Plan*, paragraph 2, that a state or tribe may have authority to incorporate CAA section 111 requirements in their title V permits without first taking delegation of the Federal plan, but if they do not, then, "…a state or tribe should not issue a 40 CFR part 70 permit to a source before taking delegation of the CAA section 111 Federal plan." As such, any applicable requirements from 40 CFR 62, Subpart OOO have not been included in the permit and no other Part 60 requirements apply.

Additionally, in this revision, the Division corrected the design capacity for HCRL from 8,730,000 cubic yards (6,674,600 cubic meters) to 13,944,000 cubic yards (10,660,953 cubic meters). This is not due to any modification of the landfill but was an error made in the issuance of the renewal permit. The permittee also submitted updated maximum VMT numbers for EU 003, the paved and unpaved haul roads.

As part of the application process, HCRL submitted an initial GCCS plan for the Division's review and approval pursuant to 40 CFR 63.1981(d) on December 18, 2023. The Division requested additional information on January 26, 2024. HCRL provided an updated GCCS plan and response to this request on March 18, 2024. The Division requested additional information on June 3, 2024. HCRL provided responses to this request on June 7, 2024. The Division approved the GCCS plan on June 10, 2024 (AAP20230001). Below are the determinations made by the Division regarding the GCCS plan and alternatives sought by the facility.

The Division approves of the general design plan as updated on June 7, 2024 and outlined in Sections 1, 2, 3, and 4.

Hopkins County Regional Landfill (HCRL) has requested several alternative monitoring/recordkeeping/reporting scenarios in Section 5 of the design plan and operating clarifications in Section 6 of the design plan. Below is a detailed response for each one. For the sake of brevity, where appropriate, only the relevant sentences from the source have been included in this letter.

Request #1: "Monitoring of the parameters in §§62.16716 through §§62.16726/§§ 63.1957 through §§63.1983 may be performed with a portable monitoring instrument such as a GEM 2000/500, LMS, Envision Meter, or equivalent. The monitoring equipment will be verified to provide accurate measurement of all parameters for which it is used to measure. (See Appendix D-1)"

Division's Response: The Division approves of the use of portable gas composition analyzers in conjunction with Method 3A to monitor the oxygen level at a wellhead. Pursuant to 40 CFR 63.1961(a)(2)(iii), a 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. The portable gas composition analyzer may be used for other monitoring, provided that the analyzer meets the methods and requirements in the rule.

Request #2: "Section 40 CFR §62.16720(c)(4)/§63.1960(c)(4) of the Federal EG/NESHAP requires the GCCS owner or operator to take corrective action to remedy any incidents of methane concentrations more than 500 ppm above background that are detected during SEM. HCRL will perform the initial SEM event and 10-day/30-day re-monitoring events in accordance with the Federal EG/NESHAP. For any location where monitored methane concentration equals or exceeds 500 parts per million above background three times within a quarterly period, a new well or other collection device shall be installed within 120 calendar days of the initial exceedance, unless an alternative timeline has been established. For SEM exceedances, alternative corrective measures may include modifications to the GCCS other than the installation of additional LFG collection devices to meet the 120-day timeline unless an alternative timeline has been established. The following alternative remedies will be implemented to correct SEM exceedances within the 120-day timeline. These corrective actions may include, but are not limited to, one or more of the following measures:
a. Installation of, or upgrades to, conveyance and/or control equipment (e.g., larger flare, additional blowers, etc.).
b. Installation of a liquid management system in the extraction wells or sumps.
c. Installation/modification of other ancillary equipment (e.g., larger air compressor, additional air and condensate force main lines, etc.)
d. Installation of additional or replacement LFG collection devices;
e. Repair of the HCRL cap/cover to minimize LFG migration and/or air infiltration.
f. Repair or replace header valves.
Please note that this list is not intended to be exhaustive. Other actions that result in the remediation of an exceedance within the 120-Day timeframe would also be covered under this alternative. Any enhancements made to the existing GCCS will be documented in the Semi-Annual

Reports prepared for compliance with Federal EG/NESHAP/Title V requirements. Please note that HCRL will be proactively implementing this variance to ensure that exceedances are addressed as expeditiously as possible. In the event that the GCCS cannot be brought back into compliance during the 120-day assessment period, HCRL will prepare an alternative compliance schedule for review and approval by the Kentucky Department of Air Quality (KDAQ)."

Division's Response: The regulation specifies that "cover maintenance or adjustments to the vacuum of the adjacent wells to increase the gas collection in the vicinity of each exceedance must be made" in 40 CFR 63.1960(c)(4)(ii). The Division understands that this request is being made due to the regulatory language not specifying that other actions may be made. The Division is clarifying that HCRL is *required* to conduct cover maintenance or adjustments to the vacuum of the adjacent wells to increase gas collection in the vicinity of each exceedance, but HCRL may *also* conduct other activities to remedy the exceedance and reduce the likelihood of a measured exceedance upon re-monitoring. The listed activities are generally those that the Division would expect landfills to take to prevent re-monitored exceedances, and do not require approval unless the landfill seeks to implement them as an alternative remedy under 40 CFR 63.1960(c)(4)(v) for correcting the exceedances after measuring three exceedances at a location within a quarter.

Request #3: "During the operating life of the landfill, it may connect the leachate collection system (leachate clean-out risers, leachate vaults, horizontal leachate collection trenches, etc.) to the GCCS to help control odors, increase the quantity of LFG available for beneficial use, or meet other landfill operating needs beyond regulatory compliance with the rule. This Plan has been prepared to meet the required level of LFG control without the use of these connections.
Moreover, in the future, the facility may decide to connect perimeter Landfill Gas Collectors installed outside of waste to the GCCS. These types of collectors tend to produce very little LFG; however, the fact that these extraction devices have been installed outside of waste mitigates the opportunity for subsurface combustion. It is also important to note that operational requirements of the Federal EG/NESHAP only apply to interior LFG collectors.
For this reason, the landfill does not believe that the operating requirements of the rule should be applied to voluntarily added collectors because these collectors only act to enhance the performance of the system beyond that required by the rule. Further, because these devices are installed for purposes other than to meet the requirements of the rule, their design may preclude their ability to meet the stipulated operational requirements.
The leachate collection system, when connected to the gas collection system, is not always operated under a negative pressure because they are sometimes closed off for operational purposes, maintenance purposes, or measure positive pressure due to the pumping action of the leachate pumps. Therefore, the leachate collection system, if connected, will be allowed to operate at a positive pressure and will not require monthly monitoring if they are not functioning as Federal EG/NESHAP compliance points. Furthermore, any perimeter LFG collectors installed outside of waste that are connected to the GCCS will be exempt from Federal EG/NESHAP requirements. (Appendix D-2)"

Division's Response: Regarding "the perimeter gas collectors", the Division acknowledges this request, and clarifies that any interior well will be subject to the control and monitoring requirements in 40 CFR 63, Subpart AAAA 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 63.1990, 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 NESHAP.

Therefore, if HCRL 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 NESHAP 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 NESHAP 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.

Regarding collecting gas from the leachate collection system, HCRL may formally propose alternative monitoring procedures or alternative operating parameters for subject collection systems but the source cannot be exempt from the operating parameter and monitoring requirements altogether for all GCCS connections to leachate management structures. Leachate cleanout riser and leachate sump extraction points will be subject to the control and monitoring requirements in 40 CFR 63, Subpart AAAA 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 and monitoring requirements apply both to extraction points that must be connected to the GCCS and to extraction points that are connected to the GCCS at the discretion of the landfill owner/operator.

Request #4: “The requirements of 40 CFR §62.16720(b)/§63.1960(b) states that each collection device shall be installed no later than 60 days after the date on which the initial solid waste has been in place for a period of 5 years or more in active areas or 2 years or more if closed or at final grade. It is important to note that there may be occasions when HCRL decides to install collection devices included in the Revision prior to the onset of Federal EG/NESHAP requirements. Based on the abovementioned regulatory citation, a collection device installed prior to the requirements of Federal EG/NESHAP will not be subject to the operational and/or record-keeping requirements of Federal EG/NESHAP until the age of the initial waste meets the 5-yr/2-yr rule. To make certain that KDAQ is made fully aware of these special circumstances, HCRL will include information in the annual report required by Federal EG/NESHAP/Title V indicating the date of initial collection device installation and the Federal EG/NESHAP compliance date. A copy of some correspondence prepared by the EPA Region IV (letter dated May 31, 2007) has been included in Appendix D-3.”

Division’s Response: The Division concurs that the operational and recordkeeping requirements of the NESHAP do not apply to gas collectors installed in non-NESHAP areas.

Request #5: “During filling operations, vertical extraction wells periodically need to be "raised" and/or temporarily disconnected (i.e., the well casing extended 15-25 ft vertically) in order to not

be buried under lifts of trash. The time frame between when a well is raised, and when the waste height and/or final cover is high enough to safely access the sample ports can often range from a few weeks to a few months. This can result in missed monthly readings at the well, since the well casing is too high for the technician to safely reach.

Since the EG/NESHAP allows for exclusion of surface monitoring in "dangerous areas" of the site, it is reasonable to request an alternative to monitoring 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 wells that can be safely accessed. All instances when extraction devices were excluded from monitoring because they were located in "dangerous" areas will be detailed in the Semi-Annual Report prepared to address that reporting period."

Division's Response: The Division approves this request. The number of wells that will be covered by the monitoring exemption at any one time will constitute only a fraction of the wells located at the site. If the facility cannot bring the waste height up to the new grade and re-attach the well within a reasonable amount of time (90 days), then the Division expects modifications to be made to the lateral/wellhead for monitoring such as cutting the well back down and re-attaching it for monitoring. Using this alternative, the vast majority of the wellheads at the site will still be monitored on a monthly basis under the alternative proposed by HCRL, and an appropriate alternative monitoring and reporting procedure will be utilized.

Request #6: "…It is important to note that some LFG collectors may have high temperatures caused by the accumulation of heat that is generated through the methanogenic process and/or from abiotic reactions occurring within the waste due to a variety of accepted waste materials. Whether from biological or abiotic reactions, higher temperatures are frequently not attributed to a subsurface oxidation event. Therefore, the following procedure is proposed for higher temperatures at LFG collectors:

Collectors exhibiting operating temperatures above 145 degrees Fahrenheit, but below 161 degrees Fahrenheit with no signs of smoke or subsurface oxidation, will be operated, monitored, and reported at their operating temperature with no further action required. However, if it is suspected that an oxidation event is occurring at the collector(s), the situation will be further investigated (e.g., collector will be tested for elevated carbon monoxide, monitored for visible evidence of combustion, etc.) If it is confirmed that an oxidation event is occurring, the LFG collector(s) will be shut down as provided for under 63.1958(b), and corrective action measures shall be implemented. Any collectors shut down due to oxidation will be discussed in the semi-annual report."

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 63.1958(c)(2) 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. Pursuant to 40 CFR 63.1961(a)(5), where HCRL seeks to demonstrate compliance with the operational standard for

temperature in 40 CFR 63.1958(c)(1), unless a higher operating temperature value has been approved, HCRL must initiate enhanced monitoring at each well with a measurement of landfill gas temperature greater than 62.8 degrees Celsius (145 degrees Fahrenheit) according to the requirements in 40 CFR 63.1961(a)(5)(i) through (ix). The enhanced monitoring in 40 CFR 63.1961(a)(5) can be stopped once a higher operating value is approved, at which time the monitoring provisions issued with the higher operating value should be followed, or once the measurement of landfill gas temperature at the wellhead is less than or equal to 62.8 degrees Celsius (145 degrees Fahrenheit).

Request #7: "Subpart AAAA, §63.1961(a)(5) states that when a facility seeks to demonstrate compliance with the operational standard for temperature found in §63.1958(c)(1), the facility must initiate enhanced monitoring at each well with a landfill gas temperature greater than 62.8 degrees Celsius [145 degrees Fahrenheit]. That enhanced monitoring includes, among other things, measuring the carbon monoxide concentrations using Method 10 (40 CFR 60, Appendix A), as specified by §63.1961(a)(5)(vi). In lieu of Method 10, we plan to incorporate the alternative detailed in the EPA Determination letter included in Appendix D-4."

Division's Response: The Division approves the use of ALT-143 in lieu of Method 10.

Request #8: "…If the site receives no response from the KDAQ within 40 days of submittal to the KDAQ, the site will assume the alternative timeline is approved and the exceedance and corresponding alternative timeline will not be considered a reportable deviation in subsequent Title V reports."

Division's Response: The Division denies this request. The Division does not accept the automatic assumption of approval by HCRL as it relates to alternative timelines submitted. The Division works with facilities to approve alternative timelines in a timely fashion on a case by case basis, and requests additional information as necessary to process any submitted requests.

Request #9: "The as-built can only be generated/updated for a landfill after construction projects that include upgrades and additions to the gas collection system are completed. After construction has taken place, the survey crew performs quality checks and completes a shakedown process to ensure the construction was performed properly. Therefore, since there is no defined frequency for preparing/updating an as-built of the gas collection system, the landfill will update the as-built on an annual basis in years that changes or construction of the gas collection system are performed."

Division's Response: The Division acknowledges this statement in the GCCS plan. For clarification, no changes to the final GCCS design can be made without approval of a revised GCCS plan, however, to meet the requirement in 40 CFR 63.1983(d), annual map updates may be acceptable. To the extent that HCRL requests an alternate timeline or an HOV for a well, an updated map must be available that includes the location of the well included in the request, even if the request is made prior to the annual update.

V-18-053 R1 Emission Summary				
Pollutant	2023 Actual (tpy)[3]	Previous PTE V-18-053 (tpy)	Change (tpy)[2]	Revised PTE V-18-053 R1 (tpy)[1]
CO	35.29	8.23[4]	+150.97	159.20
NO_X	7.74	6.98[4]	+27.94	34.92
PT	67.89	3.35	+6.14	9.49
PM_{10}	19.46	3.35	+6.14	9.49
$PM_{2.5}$	3.69	3.35	+6.14	9.49
SO_2	1.73	2.73	+123.57	126.3
VOC	2.06	1.91	+1.6	3.51
Lead	0	0	+0.0000002	0.0000002
Greenhouse Gases (GHGs)				
Carbon Dioxide	52,393	50,060	+64,323	114,383
Methane	7,835	8,283	+1,421	9,704
Nitrous Oxide	0.16	0.43	+0.8	1.23
CO_2 Equivalent (CO_2e)	248,316	257,261	+100,078	357,339
Hazardous Air Pollutants (HAPs)				
Cresols	0	1.67	+0	1.67
HCl	0.89	1.17	+2.14	3.31
Toluene	1.35	2.56	+1.43	3.99
Xylenes	0.48	0.92	+0.52	1.44
Combined HAPs:	2.72	14.55	+7.39	21.94

[1]Note: Potential to emit emissions updated with this revision due to site specific data for H_2S and includes federally enforceable controls. Totals do not include fugitive emissions, except HAPs.
[2]Note: Changes reflect the additional flare and the revised emissions factors due to changes published to AP-42 Chapter 2.4.
[3]Note: Actual reported emissions include fugitive emissions.
[4]Note: The Division previously used lower emission factors for CO and NOx for enclosed flares in AP-42 Chapter 2.4.

Permit Number: V-18-053 **Activity: APE20170004**

Received: August 11, 2017 Application Complete Date(s): October 10, 2017

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

Construction/Modification Requested? ☐Yes ☒No

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

Description of Action:

The Bituminous Resources, Inc. dba Hopkins County Regional Landfill submitted an application on August 11, 2017 to renew the current Title V General operating permit G-12-001, which expired on February 19, 2018, with a specific Title V operating permit. There were no changes or

construction requested with this submittal.

Based on the Tier 2 testing performed at this facility and actual waste acceptance rates, the Division has determined that the NMOC emissions, calculated according to 40 CFR 60.754(a) for the purposes of determining when a GCCS system is required to be installed, exceeded 50 Mg of NMOC in 2015.

Based on the concentration of NMOC (C_{NMOC}) determined in the last Tier 2 test performed in 2014 (698 ppmv as hexane), using the correct equation in 40 CFR 60.754(a)(1), and the amount of actual waste received, the facility NMOC emissions are:

Year	Waste Acceptance (tons)	NMOC (Mg/yr)
2014	240,109	49.40
2015	242,401	56.01
2016	334,894	62.38
2017	493,696	71.90
2018	531,770	86.93

Based on the data available to the Division, the Division has determined that HCRL exceeds the 50 Mg NMOC threshold, must submit a GCCS plan for review and approval, and must install a GCCS to comply with 40 CFR 60, Subpart WWW.

The permittee shall submit a collection and control system design plan prepared by a professional engineer to the Division within 1 year of the calculated NMOC emission rate exceeding 50 Mg and install a collection and control system that captures the gas generated within the landfill as required by 40 CFR 60.752(b)(2)(ii)(A) or (B) and (b)(2)(iii) within 30 months after the first annual report in which the emission rate equals or exceeds 50 megagrams per year.

Additionally, on March 26, 2020, the U.S. EPA published the National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills Residual Risk and Technology Review final rule in 85 FR 17261. The final rule included changes to 40 CFR 63, Subpart AAAA, 40 CFR 60, Subpart Cf, 40 CFR 60, Subpart WWW, and 40 CFR 60, Subpart XXX, and became effective on March 26, 2020. The Division has incorporated the relevant changes to the MSW landfill rules applicable to this facility into the proposed permit, along with the requirement to apply for a permit revision incorporating the provisions of 40 CFR 63, Subpart AAAA that go into effect on September 27, 2021.

V-18-053 Emission Summary		
Pollutant	2017 Actual (tpy)	PTE V-18-053 (tpy)**
CO	20.2	8.23
NOx	3.71	6.98
PT	87.1	3.35
PM_{10}	23.1	3.35
$PM_{2.5}$	3.27	3.35
SO_2	0.83	2.73
VOC	1.92	1.91
Lead	0	0

Greenhouse Gases (GHGs)		
Carbon Dioxide	20,411	50,060
Methane	2,350	8,283
Nitrous Oxide	0.08	0.43
CO2 Equivalent (CO2e)	79,185	257,261
Hazardous Air Pollutants (HAPs)		
Cresols	0	1.67
HCl	0.43	1.17
Toluene	1.18	2.56
2,4,5-Trichlorophenol	0	3.34
Combined HAPs	1.60	14.55

**Potential to emit emissions updated with this renewal V-18-053 and includes controls. Totals do not include fugitive emissions, except HAPs.

APPENDIX A – ABBREVIATIONS AND ACRONYMS

AAQS – Ambient Air Quality Standards
BACT – Best Available Control Technology
Btu – British thermal unit
CAM – Compliance Assurance Monitoring
CO – Carbon Monoxide
Division – Kentucky Division for Air Quality
ESP – Electrostatic Precipitator
GHG – Greenhouse Gas
HAP – Hazardous Air Pollutant
HF – Hydrogen Fluoride (Gaseous)
MSDS – Material Safety Data Sheets
mmHg – Millimeter of mercury column height
NAAQS – National Ambient Air Quality Standards
NESHAP – National Emissions Standards for Hazardous Air Pollutants
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)
VOC – Volatile Organic Compounds