



STATEMENT OF BASIS
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BAQ Air Permitting Division

Company Name:	Richland County Landfill Inc	Permit Writer:	Mareesa Singleton
Agency Air Number:	1900-0148	Date:	September 10, 2024
Permit Number:	CP-50000191 v1.0		

DATE APPLICATION RECEIVED: April 10, 2024; Accepted into expedited on April 16, 2024, and removed from the expedited program on May 29, 2024, due to comments being received on the project.

PROJECT DESCRIPTION: Construction permit application for a renewable natural gas (RNG) processing facility. The collected landfill gas (LFG) is currently being routed to an LFG-to-Energy facility which is owned, operated, and permitted by Santee Cooper or one of existing the control devices. The collected LFG would be sent to the RNG facility instead of the LFG-to-Energy with the existing utility flares serving as back-up.

The RNG facility will receive landfill gas (LFG) from the Landfill's existing gas collection system and through treatment (LFGT) and a refining process (GRP), it will produce RNG for sale and injection into a nearby pipeline. The plant and landfill share common ownership, and the plant will be incorporated into the Landfill's Title V operating permit.

The facility will also consist of a thermal oxidizer (TOX) unit to combust tail gas and a candlestick 3,000 scfm (182 million BTU/hr) process flare (PF) to combust off-spec refined natural gas. Under normal operation, the tail gases will be directed to a thermal oxidizer (TOX) for combustion. The TOX will supplement the fuel stream with natural gas (NG) to maintain the necessary combustion temperatures for control of waste gases. The flare would normally operate upon start-up of the RNG process, when the RNG will not yet be pure enough to inject into the pipeline. The flare is expected to operate under the following other scenarios:

- During an outage of the refining process, the startup of the system that initially produces off spec natural gas, and possibly during shutdown of the RNG process, treated gas will be directed to the process flare for limited periods.
- To combust off-spec process gas that cannot be transferred to the natural gas pipeline

The facility wide emissions for CO and SO₂ are above 250.0 tpy, thus making the facility a major source for PSD. Therefore, this project is subject to PSD analysis for its emission increases. The uncontrolled emissions for the project are greater than the PSD significant increase threshold for CO of 100.0 tpy and PM_{2.5} of 10.0 tpy. However, the facility is requesting to limit its potential to emit from this project by limiting the operation of the process flare to a maximum capacity of 500,000 million BTU/hr per year on a rolling 12-month basis (Methane content in the gas stream to the process flare will be continuously measured).

Additionally, the facility is requesting the operational flexibility to use natural gas in lieu of landfill gas in the following existing permitted sources: Leachate Evaporator System (LES-1), 988 scfm Heartland Evaporator Concentrator System (CONC), and 1,000 scfm Heartland Evaporator fired by LFG (CONC2). There will be no increase in emissions, or any additional regulations not already addressed in the permit due to the use of natural gas in these sources.

FACILITY DESCRIPTION: (SIC CODE: 4953/NAICS CODE: 562212) Richland County Landfill, Inc. (the "facility", "Richland") is a municipal solid waste (MSW) management facility. The landfill is owned and operated by Waste Management South Atlantic Area. The Landfill began accepting waste in 1971. The total permitted airspace volume of the original site is estimated at 15.7 million cubic yards. An expansion of the landfill in 2011 added an additional 36.8 million cubic



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yards of airspace, resulting in a total permitted airspace of 52.5 million cubic yards. The facility added the nearby Pinehill (TNT) C&D Landfill to this permit, which is also owned by Waste Management.

OPERATING PERMIT INCORPORATION: The facility operates under a general Title V operating permit. This project adds new regulations and limits and will therefore be incorporated as a minor modification. Since the general Title V permit is not designed for the types of limits that will be incorporated, a standard Title V permit will be issued. The new Title V Permit will be public noticed.

EMISSIONS

- Off-Spec/Process Flare data:
 - Design capacity: 3,000 scfm @ 100% CH₄ and 182 million BTU/hr.
 - Fuel Heating Value: 1,012 BTU/ft³ @ 100% CH₄.
 - Operational limit: 500,000 million BTU/yr = $\frac{(500000 \text{ million BTU}) \times (\frac{\text{year}}{8760 \text{ hours}})}{182 \text{ million BTU/hr}} = 31.4\%$ of design capacity.
- Thermal Oxidizer data:
 - Design capacity for natural gas: 225 scfm and 13.7 million BTU/hr.
 - Design capacity for waste gas: 3,061 scfm and 8.5 million BTU/hr.

• Emission Factors

Process	Pollutant	Emission Factor	Basis
TOX Natural Gas	CO	0.20 (lb/million BTU)	Manufacturer Data
	NOx	0.15 (lb/million BTU)	
TOX Combined Gases	CO	0.20 (lb/million BTU)	
	NOx	0.06 (lb/million BTU)	
Process Flare	CO	0.31 (lb/million BTU)	
	NOx	0.068 (lb/million BTU)	
TOX and Process Flare	PM	17 lb/10 ⁶ ft ³ CH ₄	AP 42 Table 2.4-5

*Conservatively assumes VOC = 100% of NMOC value as hexane

VOC/HAP/TAP Destruction Efficiency	
VOC Destruction Efficiency*	98.0%
Halogenated Destruction Efficiency*	98.0%
Non-Halogenated Destruction Efficiency*	99.7%
Mercury Compound Destruction Efficiency*	0.0%
Efficiency of the landfill gas collection system (N _{COL}) for HCl**	100%
Control efficiency of the landfill gas control or utilization device (N _{CNT})***	98%

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*Manufacturer's data; **Based on actual flowrate to the control device. ***Percent conversion of Cl to HCl.

VOC/HAP/TAP (AP 42 Tables 2.4-1 and 2.4-2)					
Pollutant	Mol. Wt. (g/gmol)	Conc. (ppmv)	Pollutant	Mol. Wt. (g/gmol)	Conc. (ppmv)
1,1,1-trichloroethane ^{HAP}	133.41	0.48	1,1,2,2-tetrachloroethane ^{TAP, HAP}	167.85	1.11
1,1-dichloroethane ^{HAP}	98.97	2.35	1,1-dichloroethene ^{HAP}	96.94	0.2
1,2-dichloroethane ^{HAP}	98.96	0.41	1,2-dichloropropane ^{HAP}	112.99	0.18
acrylonitrile ^{TAP, HAP}	53.06	6.33	benzene ^{TAP, HAP}	78.11	1.91
carbon disulfide ^{TAP, HAP}	76.13	0.58	carbon tetrachloride ^{TAP, HAP}	153.84	0.004
carbonyl sulfide ^{TAP, HAP}	60.07	0.49	chlorobenzene ^{TAP, HAP}	112.56	0.25
chloroethane ^{TAP, HAP}	64.52	1.25	chloroform ^{TAP, HAP}	119.39	0.03
chloromethane ^{TAP, HAP}	50.49	1.21	dichlorobenzene ^{TAP, HAP}	147.00	0.21
dichlorodifluoromethane ^{TAP}	120.91	15.7	dichlorofluoromethane ^{TAP}	102.92	2.62
dichloromethane ^{TAP, HAP}	84.94	14.3	Dimethyl sulfide ^{HAP}	62.13	7.82
ethyl mercaptan ^{TAP}	62.13	2.28	ethylbenzene ^{HAP}	106.16	4.61
hexane ^{TAP, HAP}	86.18	6.57	ethylene dibromide ^{TAP, HAP}	187.88	0.001
hydrochloric acid ^{TAP, HAP 6}	35.45	42	hydrogen sulfide ^{TAP}	34.08	5
methyl ethyl ketone ^{TAP}	72.11	7.09	mercury and compounds ^{TAP, HAP}	200.61	2.92E-04
methyl mercaptan ^{TAP}	48.11	2.49	methyl isobutyl ketone ^{TAP, HAP}	100.16	1.87
perchloroethylene ^{TAP, HAP}	165.83	3.73	toluene ^{TAP, HAP}	92.13	39.3
trichloroethylene ^{TAP, HAP}	131.40	2.82	vinyl chloride ^{TAP, HAP}	62.50	7.34
xylene ^{TAP, HAP}	106.16	12.1	VOC as NMOC (hexane)	86.18	595

- Sample Calculations:
 - NO_x and CO: Emission Factor (lb/million BTU) x Design capacity (million BTU/hr)
 - Example: CO for process flare = 0.31 lb/million BTU/hr x 182 million BTU/hr = 12.39 lb/hr
 - PM: Emission Factor/16,700 x Flowrate x 100% methane = *(17 lb/10⁶ ft³/16700) x 3000 scfm x 1 = 3.05 lb/hr
 - SO₂ emissions from process flare:



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- All sulfur (S) is conservatively assumed to be converted to SO₂; The S concentration is assumed to be equal to the H₂S concentration.; C_s = S Concentration = 5ppmv; Molecular Weight of SO₂ = 64 g/gmol.
- Volumetric Flow of Sulfur: 2 x (3,000 ft³/min) x (60 min/hr) x (8,760 hr/yr) x (m³/35.3198 ft³) x (5 ppmv S/1E+06) = 446.44 m³ S/yr (AP-42 Section 2.4.4.1, Equation 3).
- Mass Flow of SO₂: (446.44 m³/yr) x [(64 g/gmol x 1atm) x (2.2 lb/kg) / (8.205E-5 m³-atm/gmol-K x 1,000 g/kg x (273+25 K))] = 2570.79 lb SO₂/yr = 0.15 lb/hr SO₂ (AP-42 Section 2.4.4.1, Equation 4).
- VOC emissions from process flare:
 - Volume Flowrate of VOC: 2 x (3,000 ft³/min) x (1/(35.3 ft³/m³)) x (8,760 hr/yr) x (60 min/hr) x (595 ppmv/1E+06) = 53,155.58 m³ VOC/yr (AP-42 Section 2.4.4.1, Equation 3).
 - Uncontrolled Mass Flowrate of VOC: (86.18 g/gmol) x (53,155.58 m³ VOC/yr) x (2.2 lb/kg) x [(1 atm) / (8.205E-5 m³-atm/gmol-K x 1,000 g/kg x (273 + 25 K))] x (1-0.98) = 412,177 lb VOC/yr = 47.05 lb/hr VOC (AP-42 Section 2.4.4.1, Equation 4).
 - Controlled: Uncontrolled x (1-0.98) = 8,243.53 lb VOC/yr = 4.71E-04 lb/hr VOC
- HAP/TAP emissions from process flare:
 - Q(1,1,1trichloroethane) = 2 x (3,000 ft³/min) x (525,600 min/yr) x (m³/35.3198 ft³) x (0.48 ppmv S/ 1E+06) = 42.86 m³/yr (AP-42 Section 2.4.4.1, Equation 3).
 - Uncontrolled 1,1,1-trichloroethane = (42.86 m³/yr) x [(133.41 g/gmol x 1 atm) / (8.205E-5 m³-atm/gmol-K x 1,000 g/kg x (273 + 25 K))] = 233.84 kg/yr = 0.0594 lb/hr (AP-42 Section 2.4.4.1, Equation 4).
 - Controlled: Uncontrolled x (1-0.98) = 1.18 E-03
- HCl emissions from process flare:
 - Q (HCl)= 2x (3,000 ft³/min) x (60 min/hr) x (m³/35.3198 ft³) x (42 ppmv S/ 1E+06) = 0.43 m³/hr (AP-42 Section 2.4.4.1, Equation 3).
 - Uncontrolled HCl = (0.43 m³/hr) x [(35.453 g/gmol x 1 atm) / (8.205E-5 m³-atm/gmol-K x 1,000 g/kg x (273 + 25 K))] = 0.62 kg/hr (AP-42 Section 2.4.4.1, Equation 4).
 - Controlled HCl = 0.62 kg/hr x (100/100) *1.03*(98/100) = 0.63 kg/hr=1.38 lb/hr (AP-42 Section 2.4.4.1, Equation 10).

PROJECT EMISSIONS

Pollutant	Uncontrolled*		Controlled		PTE**	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
PM	---	---	3.13	13.73	1.05	4.6
PM ₁₀	---	---	3.13	13.73	1.05	4.6
PM _{2.5}	---	---	3.13	13.73	1.05	<10.0
SO ₂	---	---	0.589	2.58	0.388	1.7
NO _x	---	---	14.43	63.21	5.94	26.0
CO	---	---	60.87	266.6	22.12	<100.0
VOC	---	---	2.00	8.57	0.295	5.74
Total HAP	---	---	2.27	9.94	1.26	5.52
1,1,1-Trichloroethane	---	---	2.38E-03	1.04E-02	7.47E-04	3.27E-03
1,1,2,2-Tetrachloroethane	---	---	6.92E-03	3.03E-02	2.17E-03	9.52E-03



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PROJECT EMISSIONS						
Pollutant	Uncontrolled*		Controlled		PTE**	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
1,1-Dichloroethane	---	---	8.64E-03	3.78E-02	2.71E-03	1.19E-02
1,1-Dichloroethene	---	---	7.20E-04	3.15E-03	2.26E-04	9.90E-04
1,2-Dichloroethane	---	---	1.51E-03	6.60E-03	4.73E-04	2.07E-03
1,2-Dichloropropane	---	---	7.55E-04	3.31E-03	2.37E-04	1.04E-03
Acrylonitrile	---	---	1.87E-03	8.19E-03	5.87E-04	2.57E-03
Benzene	---	---	8.31E-04	3.64E-03	2.61E-04	1.14E-03
Carbon disulfide	---	---	2.46E-04	1.08E-03	7.72E-05	3.38E-04
Carbon tetrachloride	---	---	2.29E-05	1.00E-04	7.18E-06	3.14E-05
Carbonyl sulfide	---	---	1.64E-04	7.18E-04	5.15E-05	2.25E-04
Chlorobenzene	---	---	1.04E-03	4.58E-03	3.28E-04	1.44E-03
Chloroethane	---	---	2.99E-03	1.31E-02	9.40E-04	4.12E-03
Chloroform	---	---	1.33E-04	5.83E-04	4.18E-05	1.83E-04
Chloromethane	---	---	2.27E-03	9.94E-03	7.12E-04	3.12E-03
Dichlorobenzene	---	---	1.15E-03	5.02E-03	3.60E-04	1.58E-03
Dichlorodifluoromethane	---	---	7.05E-02	3.09E-01	2.21E-02	9.69E-02
Dichlorofluoromethane	---	---	1.00E-02	4.39E-02	3.14E-03	1.38E-02
Dichloromethane	---	---	4.51E-02	1.98E-01	1.42E-02	6.20E-02
Dimethyl sulfide	---	---	1.80E-02	7.90E-02	5.67E-03	2.48E-02
Ethyl mercaptan	---	---	7.89E-04	3.46E-03	2.48E-04	1.09E-03
Ethylbenzene	---	---	2.73E-03	1.19E-02	8.56E-04	3.75E-03
Ethylene dibromide	---	---	6.98E-06	3.06E-05	2.19E-06	9.60E-06
Hexane	---	---	3.15E-03	1.38E-02	9.88E-04	4.33E-03
Hydrochloric acid (Highest HAP)	---	---	2.09	9.14	6.55E-01	2.87
Hydrogen sulfide	---	---	7.09E-04	3.11E-03	2.23E-04	9.76E-04
Mercury	---	---	1.09E-04	4.76E-04	3.42E-05	1.50E-04
Methyl ethyl ketone	---	---	2.85E-03	1.25E-02	8.94E-04	3.92E-03
Methyl isobutyl ketone	---	---	1.04E-03	4.57E-03	3.28E-04	1.43E-03
Methyl mercaptan	---	---	6.67E-04	2.92E-03	2.10E-04	9.18E-04
Perchloroethylene	---	---	2.30E-02	1.01E-01	7.21E-03	3.16E-02
Toluene	---	---	2.02E-02	8.83E-02	6.33E-03	2.77E-02
Trichloroethylene	---	---	1.38E-02	6.03E-02	4.32E-03	1.89E-02
Vinyl chloride	---	---	1.70E-02	7.46E-02	5.35E-03	2.34E-02
Xylenes	---	---	7.16E-03	3.13E-02	2.25E-03	9.84E-03

*There are no uncontrolled emissions associated with this project. If landfill gas does not pass through the control devices, it is routed to the existing control at the facility. **Based on a process flare operating limit of 500,000 million BTU/yr.



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FACILITY WIDE EMISSIONS						
Pollutant	Prior to Construction*			Post Construction		
	Uncontrolled	Controlled	PTE	Uncontrolled	Controlled	PTE
	TPY	TPY	TPY	TPY	TPY	TPY
PM	5.22	101.8	94.62	5.22	115.5	99.22
PM ₁₀	1.23	93.9	86.74	1.23	107.6	91.34
PM _{2.5}	0.12	93.9	86.74	0.12	107.6	<10.0 from TOX and PF combined.
SO ₂	--	460.1	393.3	--	462.68	395.0
NOx	--	130.9	103.1	--	194.1	129.1
CO	--	627.1	<250.0 from F1A, LES-1, and CONC combined. <250.0 from F2 and CONC2 combined.	--	893.7	<250.0 from F1A, LES-1, and CONC combined. <250.0 from F2 and CONC2 combined. <100.0 from TOX, PF combined.
VOC	112.3	64.9	147.6	112.3	73.47	153.3
Highest HAP (Toluene)	19.64	--	<10.0 Facility Wide	19.64	--	<10.0 Facility Wide
Highest HAP (Hydrochloric acid)	--	15.3	<10.0 Facility Wide	--	24.44	<10.0 Facility Wide
Total HAP	55.00	16.2	<25.0 Facility Wide	55.00	21.72	<25.0 Facility Wide

*Emission taken from 2022-09-09_1900-0148cf.sob statement of basis.

SPECIAL CONDITIONS, MONITORING, LIMITS

The process flare is limited to a maximum heat rate of 500,000 million BTU per year to demonstrate compliance with PSD significant increase limits of less than 100.0 tons per year for CO emissions and less than 10.0 tons per year of PM_{2.5}. The calculation demonstrating compliance is below.

$$CO \text{ Emissions } \left(\frac{\text{tons}}{\text{year}} \right) = \left(HR \times EF \times \frac{1 \text{ ton}}{2000 \text{ lb}} \right) + \text{Maximum CO emissions from TOX (from combined gases)}$$



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Where:

$$HR = \text{Heat Rate, } \frac{\text{million BTU}}{\text{year}}$$

EF = Emission factor for GRP Process Flare (PF)

Maximum CO emissions from TOX (from combined gases) = 19.4 tons per year

$$CO \text{ Emissions } \left(\frac{\text{tons}}{\text{year}} \right) = \left(\frac{500,000 \text{ million BTU}}{\text{year}} \times \frac{0.31 \text{ lb}}{\text{million BTU}} \times \frac{1 \text{ ton}}{2000 \text{ lb}} \right) + \frac{19.4 \text{ tons}}{\text{year}}$$

$$CO \text{ Emissions } \left(\frac{\text{tons}}{\text{year}} \right) = 77.5 + 19.4 = 96.9 \text{ which is less than the PSD significant emission level for CO of 100.0 tpy.}$$

$$PM_{2.5} \text{ Emissions } \left(\frac{\text{tons}}{\text{year}} \right) = (FR \times EF \times 100\%) \times OP + \text{Maximum } PM_{2.5} \text{ emissions from TOX}$$

Where:

FR=Maximum design LFG flowrate $\left(\frac{ft^3}{\text{minute}} \right)$

EF = PM emission factor from AP-42, Table 2.4-5 and conversion factor of 16700 to convert to lb/hr/dscfm (note "a" of Table 2.4-5).

100%=percent methane in the LFG

OP=operational limit of 31.4% of the design capacity

Maximum $PM_{2.5}$ emissions from TOX = 0.36 tons per year

$$PM_{2.5} \text{ Emissions } \left(\frac{\text{tons}}{\text{year}} \right) = \left(\frac{3000ft^3}{\text{min}} \times \frac{17 \text{ lb}}{16700 \times 10^6 \text{ ft}^3} \times 100\% \times \frac{8760 \text{ hours}}{\text{year}} \times \frac{\text{ton}}{2000 \text{ lb}} \right) (31.4\%) + \frac{0.36 \text{ tons}}{\text{year}}$$

$$PM_{2.5} \text{ Emissions } \left(\frac{\text{tons}}{\text{year}} \right) = 4.20 + 0.36 = 4.6 \text{ which is less than the PSD significant emission level for } PM_{2.5} \text{ of 10.0 tpy.}$$

REGULATIONS

Applicable - Section II(E) (Synthetic Minor) - For sources F1A, LES-1, and CONC, the facility will maintain an existing CO limit of <250.0 tpy. These limitations will be demonstrated by a 12-month rolling sum of LFG flow rates to the F1A, LES-1, CONC and 12-month rolling sums for CO.

The facility will maintain an existing facility-wide synthetic minor limitations of <25.0 TPY HAP combined and <10.0 TPY HAP individual. These limitations will be demonstrated by a 12-month rolling sum for individual and total HAP.

For sources F2 and CONC2, the facility will maintain an existing CO limit of <250.0 tpy. The limitations restrict the flowrate of F2 to 5,000 scfm while CONC2 is operating simultaneously with F2. This limitation will be demonstrated by a 12-month rolling sum of LFG flow rates to the CONC2 and F2 and 12-month rolling sums for CO.



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The facility wide emissions for CO and SO₂ are above 250.0 tpy, thus making the facility a major source for PSD. The uncontrolled emissions for the project are greater than the PSD significant increase threshold for CO of 100.0 tpy and PM_{2.5} of 10.0 tpy. However, the facility is requesting to limit its potential to emit from this project by limiting the operation of the process flare to a maximum capacity of 500,000 million BTU/hr per year.

Synthetic Minor Limits					
Permit ID	Equipment ID	Permit Issue Date	Pollutant	Emission Limit (TPY)	Explanation
-CC	Facility Wide	September 18, 2007	CO	<250.0 TPY	LFG flow to existing control devices is restricted to 2,338,920,000 scf/yr to avoid PSD major (updated to 2,628,000,000 scf/yr). Compliance is demonstrated with a 12 MRS for flowrate and CO emissions.
-CF	F2/CONC2 (Project Only)	September 9, 2022	CO	<250.0 TPY	LFG flow to F2 is limited to 5,000 scfm while CONC2 operates simultaneously. The limits are taken to avoid PSD permitting and for the project to remain minor-to-minor; Compliance is demonstrated by maintaining a 12 MRS of landfill gas flowrates to the equipment and CO emissions. Site will be PSD major following the addition of the project.
-CF	Facility Wide	September 9, 2022	HAP	<25.0 total, <10.0 individual	The limits are taken to avoid becoming a major source of HAP; Compliance is demonstrated by Individual and total HAP 12MRS
This Permit	RNG (Project Only)	This Permit	CO PM _{2.5}	Process Flare maximum operating capacity of 500,000 million BTU/hr	The limits are taken to avoid a PSD Significant Increase of 100.0 tpy of CO and 10.0 tpy of PM _{2.5} .

Applicable - Standard No. 1 (Emissions from Fuel Burning Operations) - The thermal oxidizer and process flare are direct fired and do not meet the definition of a fuel burning operations.

Applicable - Standard No. 3 (state only) (Waste Combustion and Reduction) - The thermal oxidizer and process flare each burn gases derived from waste and are each subject to this Standard as industrial incinerators. They are subject to the 20% opacity limit of Section III(I)(1) and the PM limit of Section III(I)(2). The waste analysis required in Section V is waived in accordance with Part G due to special knowledge of the waste. The monitoring specified in Section VI is



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only required for sources burning municipal or hazardous waste; therefore, monitoring is not required. The requirement for PM testing in Section VIII allows for the Department to waive the testing. This facility's testing has been waived since only gaseous waste is combusted and it is not a source of PM emissions.

(S.C. Regulation 61-62.5, Standard No. 3, Section IX(D)) An exemption from all of the Operator Training Requirements in S.C. Regulations 61-62.5, Standard No. 3, Section IX(C) has been granted for the thermal oxidizer and process flare. This is a State Only requirement.

Applicable - Standard No. 4 (*Emissions from Process Industries*) – The Gas refining Process (GR) is subject to 20% opacity. These sources are not subject to Section XI of this Standard since they have no process particulate emissions.

Not Applicable - Standard No. 5 (*Volatile Organic Compounds*) - The equipment will be installed after the effective dates for existing processes and the facility does not contain any of the processes described in Section II; therefore, this Standard does not apply.

Not Applicable - Standard No. 5.2 (*Control of Oxides of Nitrogen (NOx)*) - The thermal oxidizer and process flare function as control devices; therefore, this Standard does not apply.

Applicable - Standard No. 7 (*Prevention of Significant Deterioration*) - The facility is not one of the 28 specifically listed source categories. Therefore, its major source threshold is 250.0 tpy. The facility currently has a federally enforceable facility wide limit of less than 250.0 tpy for CO. The facility currently has a project only federally enforceable limits for 1900-0148-CF for CO to avoid PSD permitting thresholds. The facility wide emissions for CO and SO₂ are above 250.0 tpy, thus making the facility a major source for PSD.

A major modification is any physical change in or change in the method of operation of an existing major stationary source that causes both a significant emissions increase and a significant net emissions increase. The PSD significant emissions increase for the project are provided in the Table below. The uncontrolled emissions for the project are greater than the PSD significant increase threshold for CO of 100.0 tpy and PM_{2.5} of 10.0 tpy. However, the facility is requesting to limit its potential to emit for the project limit by limiting the operation of the process flare to 500,000 million BTU/hr per year.

With the operational limit, there is not a significant emission increase for the project, Therefore, the significant net emissions increase for the project does not need to be evaluated to determine PSD applicability.



STATEMENT OF BASIS
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 BAQ Air Permitting Division

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PSD Significant Emissions Increase for the Project*						
Pollutant	Uncontrolled (TPY)	PTE (TPY)**	Baseline Actual Emission (BAE) (TPY)	Significant Emission Increase (SEI) (TPY) PTE - BAE = SEI	Significant Emissions Level (SEL) (TPY)	Significant Increase for PSD SEI>SEL?
SO ₂	2.58	1.7	0	1.7-0=1.7	40.0	No
CO	266.6	96.9	0	96.9-0=96.9	100.0	No
PM	13.73	4.6	0	4.6-0=4.6	25.0	No
PM ₁₀	13.73	4.6	0	4.6-0=4.6	15.0	No
PM _{2.5}	13.73	4.6	0	4.6-0=4.6	10.0	No
NO _x	63.21	26.0	0	26.0-0=26.0	40.0	No
VOC	8.57	1.29	0	1.29-0=1.29	40.0	No
H ₂ S	1.05	0.330	0	0.330-0=0.330	10	No
Municipal solid waste landfills Nonmethane organic compounds	0	0	0	0-0=0	50.0	No

*GHG gases are not included because they are for BACT applicability purpose only. **Based on process flare operation limit of a maximum capacity of 500,000 million BTU/yr.

Applicable - 61-62.6 (Control of Fugitive Particulate Matter) – The facility is subject to statewide requirements.

40 CFR 60 and 61-62.60 (New Source Performance Standards (NSPS))

Subpart Cf (Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills)

Applicable - The MSW Landfill is subject to this Subpart because it commenced construction, modification, or reconstruction on or before July 17, 2014. Additionally, the landfill gas treatment (LFGT) shall be conducted in accordance with this Subpart.

Not Applicable - The C&D Landfill is not a MSW landfill, so it is not subject to this standard.

Not Applicable - The process flare and the thermal oxidizer combust treated gas, not landfill gas and thus are not subject to this Subpart.

Not Applicable - Subpart Cc (Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills)

The facility is not subject to this Subpart because it is subject to 40 CFR 60, Subpart Cf.

Not Applicable - Subpart WWW (Standards of Performance For Municipal Solid Waste Landfills) The landfill was previously subject to Subpart because the active lined MSW landfill was constructed after the applicability date of May 30, 1991 and the landfill’s permitted waste capacity exceeds the 2.5 million cubic meters and 2.5



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million megagrams threshold established by 40 CFR 60 Subpart WWW. However, the facility is now subject to 40 CFR 60 Subpart Cf.

Not Applicable - Subpart XXX (Standards of Performance for Municipal Solid Waste Landfills That Commenced Construction, Reconstruction, or Modification After July 17, 2014) This facility is not subject to this standard because the MSW Landfill was not modified, constructed, or reconstructed after July 17, 2014. The C&D Landfill is not a MSW landfill, so it is not subject to this standard.

Not Applicable - Subpart OOOOb (Standards of Performance for Crude Oil and Natural Gas Facilities for Which Construction, Modification or Reconstruction Commenced After December 6, 2022) The operation does not meet the definition of Crude oil and natural gas source category per 40 CFR 60.5430b.

40 CFR 61 and 61-62.61 (National Emission Standards for Hazardous Air Pollutants (NESHAP))

Applicable – This source is a disposal site for asbestos and is subject to all applicable requirements of Subparts A and M.

Not Applicable – The C&D Landfill does not contain any items subject to this part.

40 CFR 62 (Approval and promulgation of state plans for designated facilities and pollutants)

Not Applicable - Subpart A (General Provisions) and Subpart OOO (Federal Plan Requirements for Municipal Solid Waste Landfills That Commenced Construction On or Before July 17, 2014 and Have Not Been Modified or Reconstructed Since July 17, 2014) The facility is not subject to this Standard because it is subject to 40 CFR 60 Subpart Cf.

40 CFR 63 and 61-62.63 (National Emission Standards for Hazardous Air Pollutants (NESHAP) for Source Categories)

Applicable: Subpart A: General Provisions and Subpart AAAA The facility is a MSW landfill that has accepted waste since November 8, 1987, or has additional capacity for waste deposition, its permitted waste capacity exceeds the 2.5 million cubic meters and 2.5 million megagrams threshold and the landfill has emissions that are greater than 50 Mg/year of NMOC as calculated according to 40 CFR 60.754(a). Additionally, the landfill gas treatment (LFGT) shall be conducted in accordance with this Subpart.

Not Applicable - The C&D landfill side is not subject to AAAA as it does not meet the definition of an MSW landfill.

Not Applicable – The process flare and the thermal oxidizer combust treated gas, not landfill gas and thus are not subject to this Subpart.



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Not Applicable - 61-62.68 (Chemical Accident Prevention Provisions) - The facility does not store or use chemicals subject to 112(r) above threshold quantities.

Not Applicable - 40 CFR 64 (Compliance Assurance Monitoring) - This regulation applies to Title V facilities that use add-on control devices to comply with a regulatory limit. The facility is subject to a less than 250.0 tpy synthetic minor PSD avoidance limit for CO emissions. Long term limits of this type are not subject to this regulation.

AMBIENT AIR STANDARDS REVIEW

Applicable - Standard No. 2 (Ambient Air Quality Standards) - All emissions from the PF and TOX (including several that are below the applicable exemption emission rates) were included in an updated AERMOD analysis. The facility has demonstrated compliance with this standard. See modeling summary dated April 24, 2024, for more details.

Applicable - Standard No. 8 (state only) (Toxic Air Pollutants) - The de minimis and AERMOD analyses were updated to include emissions from the new sources. The facility has demonstrated compliance with this standard. See modeling summary dated April 24, 2024, for more details.

PERIODIC MONITORING					
ID	Regulatory Requirement	Measured Parameter	Required Monitoring Frequency	Reporting Frequency	Monitoring Basis/ Justification
TOX and PF	S.C. Regulation 61-62.1, Standard No. 4, Section IX	Opacity	Semiannual	Semiannual	The facility only burns gaseous fuels.
TOX	S.C. Regulation 61-62.1, Section II(J)(2)	Minimum Temperature	15 Minutes	Semiannual	Temperature is used to determine destruction efficiency
PF	S.C. Regulation 61-62.1, Section II(J)(2)	Presence of Flame Indicator	Continuous	Semiannual	Presence of flame required for process flare operation. The process flare only operates periodically (Quarterly Anticipated). Monthly maintenance checks will also be performed.



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PUBLIC NOTICE

This construction permit(s) has undergone a 30-day public notice period, in accordance with SC Regulation 61-62.1, Section II(N) and SC Regulation 61-62.1, Section II(E), by limiting the operation of process flare (PF) to a maximum of 500,000 million BTU per year. The comment period was open from May 15, 2024 to June 13, 2024 and the draft permit was placed on the BAQ website during that time period. Comments were received during the comment period.

CHANGES FOLLOWING PUBLIC NOTICE PERIOD

- Permit:
 - Table A.2: The design capacity of the flare was changed from 6,000 scfm to 3,000 scfm.
 - Condition B.5: Clarified language regarding monitoring of daily operating heat rate to provide for recording of the calculated operating heat rate and the semiannual reporting of the 12 month rolling sums of the calculated operating heat rate. 2) Add the algorithm to calculate the heat rate.
 - Condition B.23: Add regulation 40 CFR 60.37f(h) with monitoring requirements applicability and the definition of a monitoring system malfunction.
 - Condition B.24: Add relevant language from regulation 40 CFR 60.38f(h), including the reporting frequency.
 - Condition C.6: Add regulation 40 CFR 63.1961(h) with monitoring requirements applicability and the definition of a monitoring system failure.
 - Condition C.7: Add relevant language from regulation 40 CFR 63.1981(h) including the reporting frequency.
- Statement of Basis:
 - Project Description: Added the current use of the collected landfill gas and the planned flare operating scenarios.
 - Regulatory Review: Add 40 CFR 60 Subpart OOOOb non-applicability determination.
 - The design capacity of the flare was changed from 6,000 scfm at 50% methane content with a fuel heat heating value of 506 BTU/ft³ to 3,000 scfm at 100% methane content with a fuel heat heating value of 1,012 BTU/ft³.

SUMMARY AND CONCLUSIONS

It has been determined that this source, if operated in accordance with the submitted application, will meet all applicable requirements and emission standards.