

STATEMENT OF BASIS

For the issuance of Draft Air Permit # 1009-AOP-R17 AFIN: 70-00098

1. PERMITTING AUTHORITY:

Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, Arkansas 72118-5317

2. APPLICANT:

Clean Harbors El Dorado, LLC
309 American Circle
El Dorado, Arkansas 71730

3. PERMIT WRITER:

Andrea Sandage

4. NAICS DESCRIPTION AND CODE:

NAICS Description: Hazardous Waste Treatment and Disposal
NAICS Code: 562211

5. ALL SUBMITTALS:

The following is a list of ALL permit applications included in this permit revision.

Date of Application	Type of Application (New, Renewal, Modification, Deminimis/Minor Mod, or Administrative Amendment)	Short Description of Any Changes That Would Be Considered New or Modified Emissions
6/21/2018	Renewal	Increases due to rounding and calculation corrections

6. REVIEWER'S NOTES:

Clean Harbors operates a hazardous waste treatment and storage facility located in El Dorado. The primary treatment process consists of incineration and some recycling activities. This permitting action is necessary to renew the facility's Title V air permit. There were no process or equipment changes. Hours of operation for SN-24B Fire Pump were increased to 500 hrs/yr. The total permitted emission changes are due to calculation corrections and rounding.

The permitted emission increases include 0.8 tpy PM, 0.5 tpy PM₁₀, 1.0 tpy VOC, 0.3 tpy CO, 1.2 tpy NO_x, 0.04 tpy Chlorine, 0.01 tpy Chromium, 0.05 tpy Florene, 0.04 tpy Hydrazine, 0.04 Hydrochloric acid, 0.04 Hydrogen fluoride, 0.57 tpy Methyl chloroform, 1.17 tpy Methylene chloride, 0.05 tpy Phenanthrene, 0.04 tpy Phosphine, 0.12 tpy Tetrachloroethylene, 0.04 Titanium tetrachloride, 4.75 tpy Single Organic HAP and 4.76 tpy Total Organic HAP. The permitted emission decreases include 14.54 tpy Manganese.

Manganese emission for SN-01 was set equal to PM₁₀ which resulted in a decrease. Manganese exceeded PM₁₀ in the previous permit. Chromium was missing for SN-08 which resulted in the increase. HAPs were added for SN-11 and SN-12. SN-24B Fire Pump changed hours of operation from 100 hrs/yr to 500 hrs/yr. Changes for SN-25 were due to calculation corrections and rounding. All other changes were due to rounding.

7. COMPLIANCE STATUS:

The following summarizes the current compliance of the facility including active/pending enforcement actions and recent compliance activities and issues.

CAO #2: Exceeded NESHAP limit for Low Volatile Metals (LVM) during emission test. CAO was closed on 1-17-18.

SN-01 and SN-44 CPT conducted on March 29-30, 2018. LVM did not pass for SN-44. Enforcement referral memo issued 11-1-18.

On September 19, 2018, ADEQ granted the facility permission to revise the schedule by which a final NOC is to be submitted while the facility continues to operate SN-44. On October 25, 2018, ADEQ approved a revised schedule necessitated by a delay for repair and maintenance. The facility will follow the revised schedule below.

Action	Initial Completion Date	Revised Completion Date
Review ductwork with metal specialist; replacement of any corroded parts if needed and take any corrective actions required	December 10, 2018	January 2, 2019
Conduct pre-test to verify repairs	December 18, 2018	Week of January 14, 2019
Conduct CPT retest for LVM	January 8, 2019	Week of February 4, 2019
Submit Final NOC	January 25, 2019	March 4, 2019

With passing retest results and the completion of the submission of a final Notice of Compliance (NOC), the facility will be in compliance and will remain in compliance with all permit conditions.

8. PSD APPLICABILITY:

a) Did the facility undergo PSD review in this permit (i.e., BACT, Modeling, etc.)? N

b) Is the facility categorized as a major source for PSD? Y

- *Single pollutant ≥ 100 tpy and on the list of 28 or single pollutant ≥ 250 tpy and not on list*

If yes for 8 (b), explain why this permit modification is not PSD.

This permit renewal does not increase any of the pollutants by an amount that would be considered a significant modification by PSD standards.

9. SOURCE AND POLLUTANT SPECIFIC REGULATORY APPLICABILITY:

Source	Pollutant	Regulation (NSPS, NESHAP or PSD)
SN-34	SO ₂ , opacity	40 CFR 60, Subpart Dc
SN-21	VOC	40 CFR 60, Subpart Kb
Equipment Leaks	VOC	40 CFR 60, Subpart VVa
Facility	VOC	40 CFR 61, Subpart C
Facility	VOC	40 CFR 61, Subpart E
Equipment Leaks	HAP	40 CFR 61, Subpart V
Facility	VOC	40 CFR 61, Subpart FF
SN-31, 37, 38, 39, 40, 41	HAP	40 CFR 63, Subpart DD
Tanks	HAP	40 CFR 63, Subpart OO
Containers	HAP	40 CFR 63, Subpart PP
Facility	ALL	40 CFR 63, Subpart EEE
SN-24A, 24B, 24D	HAP	40 CFR 63, Subpart ZZZZ
SN-24C, 24E	-	40 CFR 60, Subpart IIII

10. PERMIT SHIELD – TITLE V PERMITS ONLY:

Did the facility request a permit shield in this application? N

(Note - permit shields are not allowed to be added, but existing ones can remain, for minor modification applications or any Regulation 18 requirement.)

11. EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

12. AMBIENT AIR EVALUATIONS:

Include the results for any ambient air evaluations or modeling. Include NSR/PSD permits and permits that require an evaluation in accordance with revisions to the Arkansas State Implementation Plan, National Ambient Air Quality Standards, Infrastructure SIPs and NAAQS SIP per Ark Code Ann. § 8-4-318, dated March 2017 and the ADEQ Air Permit Screening Modeling Instructions.

a) NAAQS

A NAAQS evaluation is not required under the Arkansas State Implementation Plan, National Ambient Air Quality Standards, Infrastructure SIPs and NAAQS SIP per Ark. Code Ann. § 8-4-318, dated March 2017 and the ADEQ Air Permit Screening Modeling Instructions.

b) Non-Criteria Pollutants:

The non-criteria pollutants listed below were evaluated. Based on Department procedures for review of non-criteria pollutants, emissions of all other non-criteria pollutants are below thresholds of concern.

The facility emits HAPs related to incomplete combustion, waste incineration and handling, storage tanks and solvent recovery.

This permit does not contain a TLV table for organic HAPs since the Hazardous Waste Multipathway Risk Assessment dated November 16, 2012 included the evaluation of organic HAPs for all sources.

1st Tier Screening (PAER)

Estimated hourly emissions from the following sources were compared to the Presumptively Acceptable Emission Rate (PAER) for each compound. The Department has deemed the PAER to be the product, in lb/hr, of 0.11 and the Threshold Limit Value (mg/m^3), as listed by the American Conference of Governmental Industrial Hygienists (ACGIH).

Pollutant	TLV (mg/m^3)	PAER (lb/hr) = $0.11 \times \text{TLV}$	Proposed lb/hr	Pass?
Antimony Compounds	0.5	0.055	0.68	N
Arsenic	0.01	0.0011	0.0442*	N

Pollutant	TLV (mg/m ³)	PAER (lb/hr) = 0.11 × TLV	Proposed lb/hr	Pass?
Beryllium	0.00005	0.0000055	0.0234***	N
Cadmium	0.002	0.00022	0.0552**	N
Calcium cyanamide	0.5	0.055	3.07	N
Chlorine	1.45	0.1595	15.435	N
Chromium	0.01	0.0011	0.0252	N
Cobalt	0.02	0.0022	1.09*	N
Cyanide Compounds	0.75	0.0825	3.061	N
Dioxins/Furans ^a	0.001	0.00011	1.069E-7	Y
Fluorene	0.2	0.022	0.02*	Y
Hydrazine	0.01311	0.001311	2.08 ^c	N
Hydrochloric acid	2.98	0.3278	15.89	N
Hydrogen fluoride	0.409	0.04499	6.86	N
Lead	0.05	0.0055	0.0732*	N
Manganese	0.1	0.022	7.27*	N
Mercury	0.01	0.0011	0.051*	N
Methyl chloroform	1909.89	210.08	16.461	Y
Methylene chloride	173.68	19.104	31.441	N
Nickel	0.1	0.011	2.59*	N
Phenanthrene	0.2	0.022	0.02*	Y
Phosphine	0.417	0.0458	3.101	N
Phosphorus	0.1	0.011	3.061	N
Selenium	0.2	0.022	5.59	N
Tetrachloroethylene	169.52	18.64	5.331	Y
Titanium tetrachloride ^b	0.54	0.0594	3.101	N
H ₂ S	13.93	1.53	0.1	Y

^a Hypothetical value. The reviewing engineer screened these pollutants based on a hypothetical TLV of 0.001 mg/m³. The emission rates for dioxins and furans were based on the requirements of 40 CFR Part 63, Subpart EEE.

^b No TLV found. Used AEGL-1 (8-h)

^c Based on highest product received in past (51,000 lb/yr = 1.02 lb/hr); includes fugitives

* SN-08 & SN-34 = 0.01 lb/hr - Fluorene and Phenanthrene for SN-24 Emergency Generators and Fire Pump not included

** SN-08 & SN-34 = 0.001 lb/hr

*** SN-08 & SN-34 = 0.0001 lb/hr

2nd Tier Screening (PAIL)

AERMOD air dispersion modeling was performed on the estimated hourly emissions from the following sources, in order to predict ambient concentrations beyond the property boundary. The Presumptively Acceptable Impact Level (PAIL) for each compound has been deemed by the Department to be one one-hundredth of the Threshold Limit Value as listed by the ACGIH.

Modeling was only performed on pollutants that had a change in emissions for R17. All other modeling results were from the R-11 version of the permit.

Pollutant	PAIL ($\mu\text{g}/\text{m}^3$) = 1/100 of Threshold Limit Value	Modeled Concentration ($\mu\text{g}/\text{m}^3$)	Version	Pass?
Antimony Compounds	5.0	0.08226	R11	Y
Arsenic	0.1	0.03059	R11	Y
Beryllium *	0.0005	0.00214	R11	N
Cadmium	0.02	0.00613	R11	Y
Calcium cyanamide	5.0	0.29893	R11	Y
Chlorine	14.5	1.2703	R17	Y
Chromium	0.1	0.00262	R17	Y
Cobalt	0.2	0.1034	R11	Y
Cyanide Compounds	7.5	0.29893	R11	Y
Hydrazine*	0.1311	0.4223	R17	N
Hydrochloric acid	29.8	1.3179	R17	Y
Hydrogen fluoride	4.09	0.6271	R17	Y
Lead	0.5	0.03127	R11	Y
Manganese	1.0 ^a	0.6454	R17	Y
Mercury	0.1	0.0308	R11	Y
Methylene chloride	1,736.8	595.164	R17	Y

Pollutant	PAIL ($\mu\text{g}/\text{m}^3$) = 1/100 of Threshold Limit Value	Modeled Concentration ($\mu\text{g}/\text{m}^3$)	Version	Pass?
Nickel	1.0	0.2195	R11	Y
Phosphine	4.17	0.5279	R17	Y
Phosphorus	1.0	0.29893	R11	Y
Selenium	2.0	0.5019	R11	Y
Titanium tetrachloride	5.4	0.5279	R17	Y

^a TLV for manganese and inorganic compounds as manganese. Manganese cyclopentadienyl tricarbonyl has a lower TLV, however, since this compound is organic it would be emitted at a lower rate and pass the strategy.

* The facility performed alternate modeling for beryllium and hydrazine. The results are summarized in the following Table:

Pollutant	Highest Modeling Result ($\mu\text{g}/\text{m}^3$)	OEHHA – Chronic REL ($\mu\text{g}/\text{m}^3$)	Averaging Period	Pass?
Beryllium	0.00042	0.007	Annual	Pass
Hydrazine	0.086*	0.2	Annual	Pass

* Based on highest product received in past (51,000 lb/yr = 1.02 lb/hr); includes fugitives

REL = Reference Exposure Level

OEHHA = California Office of Environmental Health Hazard Assessment

Air quality standards established by the California Office of Environmental Health Hazard Assessment (OEHHA) were used to evaluate the modeling results. Said agency has promulgated a Chronic REL for the target pollutant.

ADEQ has accepted the use of OEHHA values as alternate air quality criteria in previous permitting actions for other Arkansas industrial facilities. The Air Division has determined that if the ambient air concentrations of a given HAP are less than 100% of the Chronic REL, then the emissions are acceptable from an air quality standpoint.

c) H₂S Modeling:

A.C.A. §8-3-103 requires hydrogen sulfide emissions to meet specific ambient standards. Many sources are exempt from this regulation, refer to the Arkansas Code for details.

Is the facility exempt from the H₂S Standards

N

If exempt, explain: _____

Pollutant	Threshold value	Modeled Concentration (ppb)	Pass?
H ₂ S	20 parts per million (5-minute average*)	10.2321 ppb or 0.0102 ppm	Y
	80 parts per billion (8-hour average) residential area	2.183 µg/m ³ = 1.566 ppb	Y
	100 parts per billion (8-hour average) nonresidential area	2.183 µg/m ³ = 1.566 ppb	Y

*To determine the 5-minute average use the following equation

$$C_p = C_m (t_m/t_p)^{0.2} \text{ where}$$

C_p = 5-minute average concentrationC_m = 1-hour average concentrationt_m = 60 minutest_p = 5 minutes

13. CALCULATIONS:

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
01	PM/PM ₁₀ : NESHAP limit	0.013 gr/dscf at 7% oxygen	Baghouse	Unknown	
01	SO ₂ : Sulfur feed rate	2045 lb/hr	Scrubber	98.9%	Sulfur content of fuel tested before burning
01	VOC: Testing and Material Balance	55,837 micrograms/L (groundwater) 1.1 lb/hr (combustion)	Incineration – Secondary Combustor	99.998%	125 gal groundwater/hr 1,095,000 gal groundwater/yr
01	CO: NESHAP limit	100 ppm	N/A	N/A	
01	NO _x : 2011 Stack Test	110.17 lb/hr, Standard Deviation = 24.01 lb/hr	N/A	N/A	2 standard deviation safety factor

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
01	Organic HAPs: Material Balance	Assumed 100% of waste is organic HAP	Incineration – Secondary Combustor	99.998%	61,025 lb feed/hr
01	HCl and Cl ₂ : NESHAP limit	32 ppmv	Scrubber	95%	
01	Mercury: NESHAP limit	130 µg/dscm	Activated Carbon	Unknown	
01	Lead and Cadmium (SVM): NESHAP limit	230 µg/dscm	Baghouse	Unknown	
01	Arsenic, Beryllium, Chromium (LVM): NESHAP limit	92 µg/dscm	Baghouse	Unknown	
01	Sb Co Mn Ni Se	489 µg/dscm 2224 µg/dscm 29719 µg/dscm 8898 µg/dscm 22245 µg/dscm			Conservative estimates
01	Dioxins/Furans: NESHAP limit	0.40 ng TEQ/dscm	Activated Carbon	Unknown	Combustion gas temp < 400 °F
07	Grain loading	25 gr/scf	Baghouse	99.9%	8,500 ft ³ /min
08	AP-42	Boiler factors Natural gas	N/A	N/A	8760 hr/yr
09 A&B	AP-42 Table 11.12-2	0.73 lb PM/ton 0.47 lb PM ₁₀ /ton	Baghouse	95%	20 tons/truck 2 trucks/hr 1,794 trucks/yr
11	Tanks 4.0	N/A	N/A	N/A	55,496 gal/yr
12	Tanks 4.0	N/A	N/A	N/A	109,716 gal/yr
16	Estimate	0.1 lb/hr	Scrubber	Unknown	
18	AP-42 Table 11.12-2	0.73 lb PM/ton 0.47 lb PM ₁₀ /ton	Baghouse	95%	20 tons/truc
47					1 truck/hr 600 trucks/yr
20	Grain loading	15 gr/ft ³	Baghouse	99.9%	1,200 ft ³ /min
21	Tanks 4.0	N/A	2 Carbon Canisters (in series)	99%	6,000 gal/hr 18,000,000 gal/yr

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
24A, B, C	AP-42 Table 3.3-1	0.31 lb PM/PM ₁₀ /MMBtu 0.29 lb SO _x /MMBtu 0.36 lb VOC/MMBtu 0.95 lb CO/MMBtu 4.41 lb NO _x /MMBtu	None	N/A	24A – 44.25 HP 24B – 196 HP 24C – 275 HP
24D, E	AP-42 Table 3.4-1	0.10 lb PM/PM ₁₀ /MMBtu 0.0505 lb SO _x /MMBtu 0.09 lb VOC/MMBtu 0.85 lb CO/MMBtu 3.20 lb NO _x /MMBtu	None	N/A	24D – 805 HP 24E – 755 HP
25	Drum Sampling and Drum Filling: Air Emission Models for Waste and Wastewater	6.2 lb VOC/1000 gallons S=1.45 (splash loading)	N/A	N/A	825,000 samples/yr 2,400,000 gal/yr 95 samples /hr
25	Waste Repackaging	0.0037 lb/drum	N/A	N/A	56,000 drums/yr
25	Pumps, Flanges, Valves: EPA's Protocol for Equipment Leak Emission Estimates dated November 1995	Varied. See permit application for emission factors	N/A	N/A	
25	Tanker and Railcar Cleaning: AP-42 Tables 4.8-1 and 4.8-2	5.1808 lb/car 0.686 lb/truck	N/A	N/A	152 rail cars/yr 1930 tank trucks/yr

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
25	Tanker Loading/Unloading: Air Emission Models for Waste and Wastewater	19.88 lb/1000 gallons S=1.45	Series Carbon Canister	95%	100 tankers/yr
25	Drum Pumping: Air Emission Models for Waste and Wastewater	19.88 lb/1000 gallons S=1.45	110-gallon carbon tank	95%	25 drums/hr 1,930 tankers/yr
25	Vacuum Truck Loading: Air Emission Models for Waste and Wastewater	0.18 lb/1000 gallons S=1.45	N/A	N/A	3,000 gal/hr 750,000 gal/yr
25	Equipment and Truck Wash Decontamination: Tanks 4.0	N/A	N/A	N/A	1,260,000 gal washwater/yr
25	Barrel Crushing	1.0 lb/hr	N/A	N/A	
25	Paved Roads: AP-42 13.2.1	0.1108 lb PM/VMT 0.0222 lb PM ₁₀ /VMT	N/A	N/A	8
25	Railcar Loading	18.01 lb/1000 gallons	Two carbon canisters in series	99%	4,800 gal/hr 1,380,000 gal/yr
25	Some pollutants emission rates are based on previous permit values	0.13% lb/hr; 0.67% tpy Chlorine, Hydrazine, Hydrochloric acid, Hydrogen fluoride, Phosphine, Titanium tetrachloride 1.46% lb/hr; 11.77% tpy Methyl chloroform 2.96% lb/hr; 24.47% tpy Methylene chloride 0.31% lb/hr; 2.35% tpy Tetrachloroethylene	N/A	N/A	HAPS based on VOC ratio method – previous testing

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
31	Waste Solvent Tanks: Tanks 4.0	N/A	Carbon Canisters in series when SCC unavailable	95%	15,000 gal/hr 11,720,000 gal/yr 15% annually sent to carbon canisters
31	Intermediate and Final Product Tanks: Tanks 4.0	N/A	Carbon Canisters in series when SCC unavailable	95%	1,831.25 gal/hr 8,790,000 gal/yr 15% annually sent to carbon canisters
32	Stack Testing	Average of stack test: 0.002 lb/hr PM/PM ₁₀ 7.5E-6 lb/hr mercury Plus a safety factor	Baghouse and Carbon Adsorber	N/A	2,542 bulbs/hr * 0.63 lb/bulb * 24 hr/day = 38,435 lb/day
33	Shredding and Mixing: AP-42 Table 11.19.2-2 Tertiary Crushing of Stone	0.0054 lb/ton each activity	N/A	N/A	12.5 ton/hr 75,200 ton/yr
	Waste Unloading and Waste Transfer: AP-42 13.2.4 Equation 1	0.000218 lb/ton each activity			
34	AP-42 Tables 1.4-1 through 4	Natural Gas Factors	N/A	N/A	33.75 MMBTU/hr
35, 36	AP-42 Section 13.4	PM/PM ₁₀ =Water Circulation Rate x Drift Rate x TDS	N/A	N/A	Drift Rate = 0.005% TDS = 13,600 ppm Water flow rate = 825 gal/min

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
37	AP-42 Table 4.7-1 (Highest of Range)	18.34 lb/ton	Carbon Canisters in series when SCC unavailable	95%	14.1 ton/hr 67,373 ton/yr
38	AP-42 Section 5.2 Equation 1	18.04 lb/1000 gallons HAPs estimated based on molecular weight and vapor pressure	Carbon Canisters in series	99%	4,800 gal/hr 1,771,000 gal/yr
39	AP-42 Section 5.2 Equation 1	18.04 lb/1000 gallons HAPs estimated based on molecular weight and vapor pressure	Carbon Canister	95%	4,400 gal/hr 879,000 gal/yr
40	AP-42 Section 5.2 Equation 1	18.04 lb/1000 gallons HAPs estimated based on molecular weight and vapor pressure	Vapor Balance System (emissions sent back to tanks)	90%	1 tanker/hr 6,000 gal/tanker 6,153,000 gal/yr
41	Pumps, Flanges, Valves: EPA's Protocol for Equipment Leak Emission Estimates dated November 1995	Varied. See permit application for emission factors	N/A	N/A	28 pumps 749 valves 597 connectors
42	AP-42 Section 13.4	PM=Water Circulation Rate	N/A	N/A	Drift Rate = 0.008%

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
43		x Drift Rate x TDS PM ₁₀ = 15%PM			TDS = 13,600 ppm Water flow rate = 6,200 gal/min
					Drift Rate = 0.0006% TDS = 13,600 ppm Water flow rate = 6,500 gal/min
44	PM/PM ₁₀ , Sb, Co, Mn, Ni, Se : NESHAP limit	0.0016 gr/dscf at 7% oxygen	Baghouse	Unknown	41,272.9 DSCFM
	SO ₂ : Sulfur feed rate	2045 lb/hr	Scrubber	98.9%	Sulfur content of fuel tested before burning
	VOC: 2011 CPT Testing	Feed Rate x removal efficiency	Incineration – Secondary Combustor	99.997%	61,025 lb/hr
	CO: NESHAP limit	100 ppm	N/A	N/A	
	NO _x : 2015 Emission Data (SN-01)	42.8 lb/hr, Standard Deviation = 6.7 lb/hr	N/A	De-NO _x 55% (hourly)	SN-01 (190 MMBtu/hr) SN-44 (155 MMBtu/hr) 2 standard deviation safety factor
	Organic HAPs: Material Balance	Assumed 100% of waste is organic HAP	Incineration – Secondary Combustor	99.997%	61,025 lb feed/hr
	Hydrazine	51,000 lb/hr	Incineration – Secondary Combustor	99.998%	
	Hydrogen Fluoride	100 lb/hr	Incineration – Secondary Combustor	99.4%	
	HCl and Cl ₂ : NESHAP limit	21 ppmv	Scrubber		

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
	Mercury: NESHAP limit	8.1 µg/dscm	Activated Carbon	Unknown	
	Lead and Cadmium (SVM): NESHAP limit	10 µg/dscm	Baghouse	Unknown	
	Arsenic, Beryllium, Chromium (LVM): NESHAP limit	23 µg/dscm	Baghouse	Unknown	
	Dioxins/Furans: NESHAP limit	0.11 ng TEQ/dscm	Activated Carbon	Unknown	
	Ammonia Emission test	20ppm			Deer Park, TX 5ppm x 4 safety factor
45	Tanks 4.0.9d	N/A	SCC/Carbon Tank	99%	399,360 gallons/yr
46	AP-42 Table 11.17-7	0.01 PM grains/DSCF 55% of PM is PM ₁₀	Baghouse	99%	1,800,000 cubic feet/hr blower capacity

14. TESTING REQUIREMENTS:

The permit requires testing of the following sources.

SN	Pollutants	Test Method	Test Interval	Justification
01, 44	SO ₂ Removal Efficiency	6C	Every Five Years	To ensure compliance with SO ₂ limits
01, 44	Condensable PM	202	Every Five Years	To ensure compliance with PM limits
01, 44 (Comprehensive Performance Test)	D/F	0023A or 23 of Part 60 Appendix A (approval required)	Every 61 months and after a change in the design, operation, or maintenance practices of the source	NESHAP EEE
	Mercury	29		
	Lead and cadmium	29		
	Arsenic, beryllium, and	29		

SN	Pollutants	Test Method	Test Interval	Justification
	chromium			
	Carbon monoxide and hydrocarbons	CO or Hydrocarbon CEMS		
	HCl and chlorine gas	26/26A of Part 60 Appendix A, 320 or 321 of Part 63 Appendix A, or ASTM D 6735-01 and 26/26A with additional requirements		
	PM	5 or 5I of Part 60 Appendix A		
	Hydrocarbons (Destruction and Removal Efficiency Test)	Refer to NESHAP EEE	Once unless source is modified	
01, 44 (Confirmatory Performance Test)	D/F	0023A or 23 of Part 60 Appendix A (approval required)	31 months after the previous comprehensive performance test	NESHAP EEE
21	VOC concentration	21	See permit	To determine breakthrough. See CAM plan.
25	VOC concentration	21	See permit	To determine breakthrough. See CAM plan.
31	VOC	21	See Permit	To determine breakthrough. See CAM plan.
34	Opacity	9	See NSPS Dc	Per NSPS Dc
41	VOC	21	Varied. See 60, VVa	60, VVa
Carbon Canisters for Subpart DD Sources (unless use design analysis)	VOC	18	63, DD	63, DD

SN	Pollutants	Test Method	Test Interval	Justification
Incinerator for Subpart DD (unless use design analysis)	VOC	18	63, DD	63, DD
Leak Interface	VOC	21	63, DD	63, DD
35, 36, 42, 43	PM/PM ₁₀ (TDS)	Conductivity and TDS	Weekly conductivity testing, with quarterly direct TDS testing	To ensure proper maintenance and operation

15. MONITORING OR CEMS:

The permittee must monitor the following parameters with CEMS or other monitoring equipment (temperature, pressure differential, etc.)

SN	Parameter or Pollutant to be Monitored	Method (CEM, Pressure Gauge, etc.)	Frequency	Report (Y/N)
01, 44	Mercury Emissions	Monitors	Daily – ONLY if requirements of Plantwide Condition 24 are not met.	Y
01, 44	CO	CEM	Continuously	Y
01, 44	O ₂	CEM	Continuously	Y
01, 44	NO _x	CEM	Continuously	Y
01, 44	Opacity	COM or CPM	Continuously	Y
01, 44	PM	CEM	Not required until Agency promulgates all performance specifications and operational requirements	N/A
01, 44	Feedrates: Hazardous Waste; Ash; Chlorine and chloride; Mercury; Semivolatile Metals; Low Volatility Metals; Activated Carbon	CMS	Continuously	Y

SN	Parameter or Pollutant to be Monitored	Method (CEM, Pressure Gauge, etc.)	Frequency	Report (Y/N)
01, 44	Temperature: Secondary combustion chamber; waste fired boiler	CMS	Continuously	Y
01, 44	Flue gas flowrate	CMS	Continuously	Y
01, 44	Scrubber Pressure Drop	CMS	Continuously	Y
01	Scrubber Liquid Flowrate	CMS	Continuously	Y
44	Condenser Liquid Flowrate			
01	Scrubber Inlet Liquid pH	CMS	Continuously	Y
44	Condenser Inlet Liquid pH			
01, 44	Activated Carbon Carrier Fluid Flowrate	CMS	Continuously	Y
01, 44	Baghouse pressure drop, per cell	CMS	Continuously	Y
01, 44	Combustion Chamber pressure: Kiln; Secondary Combustion Chamber; Waste Fired Boiler	CMS	Continuously	Y
41	Equipment Leaks	See 60, VVa	See 60, VVa	
41	Equipment Leaks of Pumps	60.485a(b)	Monthly	Y
41	Equipment Leaks of Valves in Gas/Vapor/Light Liquid Service	60.485a(b)	Monthly	Y
41	Equipment Leaks of Connectors in Gas/Vapor/Light Liquid Service	60.485a(b)	See 60, VVa	Y
01, 44 SCC	Vent Stream Flow	CMS	Hourly	Y
Subpart DD Carbon Canisters	Concentration of Organic Compounds	CMS	Continuously	Y

SN	Parameter or Pollutant to be Monitored	Method (CEM, Pressure Gauge, etc.)	Frequency	Report (Y/N)
Subpart DD Carbon Canisters	Concentration of Organic Compounds	CMS	Daily or no greater than 20% of the time required to consume the total carbon working capacity	Y
01, 44 SCC	Concentration of Organic Compounds	CMS	Continuously	Y

16. RECORDKEEPING REQUIREMENTS:

The following are items (such as throughput, fuel usage, VOC content, etc.) that must be tracked and recorded.

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
01, 44	Opacity	20%	Continuously	N
01	Sulfur Feed Rate	2045 lb/hr 2681.8 tpy	Monthly	Y
44		2045 lb/hr 1590 tpy		
01, 44	Scrubber efficiency for SO ₂ from test	98.9%	5 yrs	Y
01, 44	PM, cyanide compounds, hydrazine, hydrogen fluoride, phosphine, and titanium tetrachloride Testing results	See Permit Limits	5 yrs	Y
01	NO _x Emissions	158.2 lb/hr 451.0 tpy	Continuously	Y
44		56.2 lb/hr 38.0 tpy		
01	Utilization Rate of Recovered Energy from liquid waste	74% Maximum	Monthly	Y
07	Opacity	5%	Weekly	Y
07	Bag Filter Inspections	N/A	Daily	Y

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
08	Natural Gas	15,840,000 scf/yr	Monthly	Y
09A&B	Opacity	5%	Weekly	N
09A&B	Number of trucks containing lime	1794 trucks/yr combined	Monthly	Y
11	Gasoline	55,496 gal/yr	Monthly	Y
11	Vapor Pressure of Gasoline	6.2 psia at 70°F	As Needed	N
12	Diesel Fuel	109,716 gal/yr	Monthly	Y
18 & 47	Opacity	5%	Weekly	N
18 & 47	Number of trucks of flyash and/or lime	520 trucks/yr	Monthly	Y
20	Opacity	5%	Weekly	N
21	Operating plan for carbon canisters and maintenance performed	N/A	N/A	N/A
21	Vessel Analysis	Size	N/A	N
21	Organic liquids	18,000,000 gal/yr	Monthly	Y
21	Vapor Pressure of tank contents	6.159 psia at 65°F	As Needed	N
21	VOC Concentration between carbon canisters	500 ppmv or greater requires replacement of one or both carbon canisters	See Permit	Y
21	Inspection Documentation for carbon canisters	N/A	Daily	Y
24	Opacity	5%	Daily when operating	N
24A, C, D, E	Hours of Operation	100 hrs each	Monthly when operating	N
24B	Hours of Operation	500 hrs each	Monthly when operating	N

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
25	Drum Filling	2,400,000 gal/yr	Monthly	Y
25	Waste Repackaging	56,000 drums/yr	Monthly	Y
25	Tanker and Railcar Cleaning	152 rail tank cars/yr	Monthly	Y
25	Tanker and Railcar Cleaning	1930 tank trucks/yr	Monthly	Y
25	Tanker Loading/Unloading	100 tankers/yr	Monthly	Y
25	Tanker Loading/Unloading	1930 tankers pumped/yr	Monthly	Y
25	Vacuum Truck Loading	750,000 gal rain water collection/yr	Monthly	Y
25	Equipment and Truck Wash/Decontamination	1,260,000 gal wash water/yr	Monthly	Y
25	Paved roads	3,100 vehicle miles traveled via 18-wheel traffic/yr	Monthly	Y
25	Paved roads	133,360 vehicle miles traveled via Clean Harbors vehicles/yr	Monthly	Y
25	Road Maintenance Plan Recordkeeping	N/A	N/A	N
25	Railcar Loading	1,380,000 gal/yr	Monthly	Y
25	Railcar Loading: VOC Concentration between carbon canisters	500 ppmv or greater requires replacement of one or both carbon canisters	See Permit	Y
25	Railcar Loading: Inspection Documentation for carbon canisters	N/A	Daily	Y
31	Throughput of Waste Solvent	11,720,000 gal/yr	Monthly	Y
31	Throughput of Intermediate and Final	8,790,000 gal/yr	Monthly	Y

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
	Products			
31	Throughput of waste solvent while venting to carbon canister	1,758,000 gal/yr	Monthly	Y
31	Throughput of intermediate and final products while venting to carbon canister	1,318,500 gal/yr	Monthly	Y
31	Vapor Pressure of Tank Contents	6.159 psia at 65°F	As Needed	N
32	Amount of bulbs processed per day	38,435 lbs of bulbs/day	Daily	N
32	Opacity	5%	Weekly	N
33	Opacity	5%	Weekly	N
33	Throughput	75,200 tons/yr	Monthly	Y
33	VOC and HAP content	0	As Needed	N
34	Amount of fuel combusted per NSPS	N/A	Monthly	N
34	Records required by NSPS	See NSPS	See NSPS	Y
37	Throughput of Solvent	67,373 tons/yr	Monthly	Y
37	Throughput of solvent while venting to carbon canister	10,106 tons/yr	Monthly	Y
38	Loadout to Railcar	1,771,000 gal/yr	Monthly	Y
39	Loadout to 55 gallon drums	879,000 gal/yr	Monthly	Y
40	Loadout to Tanker Trucks	6,153,000 gal/yr 1 tanker/hr	Monthly As needed	Y N
41	Items specified in 60.486a(a)(3)	See 60, VVa	Varied. See 60, VVa	N
41	Leak detected log (items specified in 60.486a(c))	See 60, VVa	As Needed when each leak detected	N
41	Log for 60.486a(e)	See 60, VVa	As Needed	N
41	Log for 60.486a(j)	N/A	As Needed	N

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
41	See 60.487a(b)	N/A	Semiannual	Y
41	See 60.487a(c)	N/A	Semiannual	Y
45	Diesel fuel throughput	399,360 gallons per year	Monthly	N
46	Opacity	5%	Daily	N
01, 44 SCC	Temperature	≤50°F below average combustion temperature during most recent test	Continuous	Y
01, 44 SCC	Vent stream flow	Must be established	Continuous	Y
63, Subpart DD sources	63.696(g)(1) and (g)(2)	N/A	Semiannual	N
Tanks (Level 2)	Inspections	N/A	Annual	N
Closed vent systems	Inspections and Monitoring	N/A	63, DD 63.695(c)	N
Closed vent complying with 63.693(c)(1)(ii)	Inspections	N/A	63.695(c)(2)	N
Closed vent systems	Defect repair	N/A	As Needed	N
63, Subpart DD control device systems	Malfunctions 63.696(h)(1) to (h)(3)	N/A	As Needed	Y
Plantwide	Divert Stack Procedures	See Plantwide Conditions 10, 11, 13, and 15	As needed	Y
Plantwide	Monthly Fuel Use	No limit specified, used to show compliance with NSPS Dc	Monthly	N
01, 44	Operating Record Requirements	See NESHAP EEE	As needed	N
01	Total Hazardous Waste Feedrate	13,383 lb/hr Kiln 1 30,168 lb/hr	Continuously (Hourly Rolling	Y ¹

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
44*		Kiln 2	Average)	
		13,601 lb/hr (secondary combustion chamber)		
		3,873 lb/hr (waste fired boiler)		
		20,000 lb/hr Kiln		
		15,000 lb/hr SCC		
01	Pumpable Hazardous Waste Feedrate	5,005 lb/hr Kiln 1 9,527 lb/hr Kiln 2	Continuously (Hourly Rolling Average)	Y ¹
13,601 lb/hr SCC				
3,873 lb/hr (waste fired boiler)				
44*		7,000 lb/hr Kiln		
15,000 lb/hr SCC				
01	Ash Feedrate	15,695 lb/hr	Continuously (Rolling 12-hr average)	Y ¹
164.2 lb/hr (WFB)				
44*		20,000 lb/hr		
01	Chlorine and Chloride Feedrate	Total: 2718 lb/hr	Continuously (Rolling 12-hr average)	Y ¹
1,020 lb hr (WFB)				
44*		4,000 lb/hr		
01	Mercury Feedrate	0.46 lb/hr	Continuously (Rolling 12-hr average)	Y ¹
		0.187 lb/hr (WFB)		

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
44*		0.46 lb/hr		
01	Semi volatile metals feedrate	123 lb/hr	Continuously (Rolling 12-hr average)	Y ¹
44*		116 lb/hr (kiln)		
01		3.12 lb/hr (WFB)		
01	Low volatile metals feedrate	44 lb/hr	Continuously (Rolling 12-hr average)	Y ¹
44*		114 lb/hr (kiln)		
01		2.87 lb/MMBtu And 30 lb/hr (WFB)		
01	Activated carbon feedrate	22.4 lb/hr	Continuously (Hourly Rolling Average)	Y ¹
44*		23 lb/hr		
01	Secondary combustion chamber temperature	1,851°F	Continuously (Hourly Rolling Average)	Y ¹
44*		1,800°F		
01	Waste fired boiler temperature	1,856°F	Continuously (Hourly Rolling Average)	Y ¹
01	Flue gas flowrate	100,568 acfm	Continuously (Hourly Rolling Average)	Y ¹
44*		89,000 acfm		
01	WFB Max combustion air flow rate	8,630 acfm	Continuously (Hourly Rolling Average)	Y ¹
01	Scrubber pressure drop	33.8 in. w.c.	Continuously (Hourly Rolling Average)	Y ¹
01	Scrubber liquid flowrate	664 gpm	Continuously (Hourly Rolling Average)	Y ¹
44*	Condenser liquid flowrate	4500 gpm		
01	Scrubber liquid pH	3.4	Continuously (Hourly Rolling Average)	Y ¹
44*	Condenser liquid pH	2.7		
01	Activated carbon	30 scfm	Continuously	Y ¹

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
44*	carrier fluid flowrate	3 scfm	(Hourly Rolling Average)	
01, 44*	Baghouse pressure drop, per cell	1 in. w.c. (minimum) 16 in. w.c. (maximum)	Continuously (Hourly Rolling Average)	Y ¹
01, 44*	Combustion chamber pressure: kiln, secondary combustion chamber	Below atmospheric	Instantaneous	Y ¹
01	waste fired boiler			
01, 44	CO Emissions	100 ppmv	Continuously	Y ¹

1. CMS performance report and summary report.

* SN-44 Target limits – To be updated with permit modification when CPT is completed.

17. OPACITY:

SN	Opacity	Justification for limit	Compliance Mechanism
01, 44	20%	Dept. Guidance	COMS
04	5%	Dept. Guidance	Natural Gas as Fuel
07	5%	Dept. Guidance	Weekly
08	5%	Dept. Guidance	Natural Gas as Fuel
09	5%	Dept. Guidance	Weekly
18	5%	Dept. Guidance	Weekly
20	5%	Dept. Guidance	Weekly
22	5%	Dept. Guidance	Weekly
25	Off-site 5%	Dept. Guidance	Inspections
32	5%	Dept. Guidance	Weekly
33	5%	Dept. Guidance	Weekly

SN	Opacity	Justification for limit	Compliance Mechanism
34	20%	NSPS Dc	Performance Testing as required by NSPS
42, 43	20%	Dept. Guidance	Conductivity & TDS sampling
46	5%	Dept. Guidance	Daily

18. DELETED CONDITIONS:

Former SC	Justification for removal
157	Test data submitted and unit is in compliance – Permit 1009-AOP-R16 issued February 13, 2018.

19. GROUP A INSIGNIFICANT ACTIVITIES:

Source Name	Group A Category	Emissions (tpy)						
		PM/PM ₁₀	SO ₂	VOC	CO	NO _x	HAPs	
							Single	Total
10,000 gal Diesel Storage Tank and Dispenser Unit	A-3	0	0	0.03	0	0	0.03	0.03
Nine (9) Solar Sipper Recovery Systems	A-13	0	0	0.0014	0	0	0	0
Surface Water Treatment	A-13	0	0	0.00014	0	0	0.00003	0.00014
SN-22 Brine Plant Sources (other than listed)	A-13	0	0	0	0	0	0	0
Filter Aid Loading Operation (at Tank	A-13	0.0000078	0	0	0	0	0	0

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597) (formally SN-22)								
Bulk Solid Mixing Process Backup Carbon Filter	A-13	0	0	0.91	0	0	0.91	0.91
Railcar Unloading Emergency Scrubber	A-13	0	0	0	0	0	0	0

20. VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

List all active permits voided/superseded/subsumed by the issuance of this permit.

Permit #
1009-AOP-R16

APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

Fee Calculation for Major Source

Revised 03-11-16

Facility Name: Clean Harbors El Dorado, LLC
 Permit Number: 1009-AOP-R17
 AFIN: 70-00098

\$/ton factor	23.93	Annual Chargeable Emissions (tpy)	1022.53
Permit Type	Minor Mod	Permit Fee \$	500

Minor Modification Fee \$	500
Minimum Modification Fee \$	1000
Renewal with Minor Modification \$	500

Check if Facility Holds an Active Minor Source or Minor Source General Permit ☐

If Hold Active Permit, Amt of Last Annual Air Permit Invoice \$ 0

Total Permit Fee Chargeable Emissions (tpy) 5.11

Initial Title V Permit Fee Chargeable Emissions (tpy)

HAPs not included in VOC or PM:

Chlorine, Hydrazine, HCl, HF, Methyl Chloroform, Methylene Chloride, Phosphine, Tetrachloroethylene, Titanium Tetrachloride

Air Contaminants:

All air contaminants are chargeable unless they are included in other totals (e.g., H2SO4 in condensible PM, H2S in TRS, etc.)

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
PM		83.5	84.3	0.8	0.8	84.3
PM ₁₀		58.7	59.2	0.5		
PM _{2.5}		0	0	0		
SO ₂		94.8	94.8	0	0	94.8
VOC		43.9	44.9	1	1	44.9
CO		233.7	234	0.3		
NO _x		534.3	535.5	1.2	1.2	535.5
Lead Compounds	<input type="checkbox"/>	0.26	0.26	0		

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
Antimony Compounds	<input type="checkbox"/>	2.97	2.97	0		
Arsenic Compounds	<input type="checkbox"/>	0.14	0.14	0		
Beryllium Compounds	<input type="checkbox"/>	0.14	0.14	0		
Cadmium Compounds	<input type="checkbox"/>	0.26	0.26	0		
Calcium cyanamide	<input type="checkbox"/>	13.37	13.37	0		
Chlorine	<input checked="" type="checkbox"/>	67.51	67.55	0.04	0.04	67.55
Chromium Compounds	<input type="checkbox"/>	0.12	0.13	0.01		
Cobalt Compounds	<input type="checkbox"/>	4.69	4.69	0		
Cyanide Compounds	<input type="checkbox"/>	13.37	13.37	0		
Dioxins/Furans	<input type="checkbox"/>	1.00E-02	1.00E-02	0		
Fluorene	<input checked="" type="checkbox"/>	0.02	0.07	0.05	0.05	0.07
Hydrazine	<input checked="" type="checkbox"/>	9.04	9.08	0.04	0.04	9.08
Hydrochloric acid	<input checked="" type="checkbox"/>	69.5	69.54	0.04	0.04	69.54
Hydrogen fluoride	<input checked="" type="checkbox"/>	30.03	30.07	0.04	0.04	30.07
Manganese Compounds	<input type="checkbox"/>	46.3	31.76	-14.54		
Mercury Compounds	<input type="checkbox"/>	0.16	0.16	0		
Methyl chloroform	<input checked="" type="checkbox"/>	19.86	20.43	0.57	0.57	20.43
Methylene chloride	<input checked="" type="checkbox"/>	27.08	28.25	1.17	1.17	28.25
Nickel Compounds	<input type="checkbox"/>	11.26	11.26	0		
Phenanthrene	<input type="checkbox"/>	0.02	0.07	0.05		
Phosphine	<input checked="" type="checkbox"/>	13.45	13.49	0.04	0.04	13.49
Phosphorus	<input type="checkbox"/>	13.37	13.37	0		
Selenium Compounds	<input type="checkbox"/>	24.4	24.4	0		
Tetrachloroethylene	<input checked="" type="checkbox"/>	14.53	14.65	0.12	0.12	14.65
Titanium tetrachloride	<input type="checkbox"/>	13.45	13.49	0.04		
Single Organic HAP	<input type="checkbox"/>	36.99	41.74	4.75		
Total Organic HAP	<input type="checkbox"/>	37.08	41.84	4.76		
H2S	<input checked="" type="checkbox"/>	0.1	0.1	0	0	0.1

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
Ammonia	<input checked="" type="checkbox"/>	9.8	9.8	0	0	9.8