



**TECHNICAL REVIEW AND EVALUATION  
OF APPLICATION FOR  
AIR QUALITY PERMIT No. 92848**

**I. INTRODUCTION**

This Class I Renewal permit is for the continued operation of Waste Management of Arizona, Inc.'s Gray Wolf Regional Landfill. Permit No. 92848 renews and supersedes Permit No. 65627. Permit No. 65627 had an expiration date of September 26, 2022, and the application for this permit renewal was submitted on January 19, 2022. This submission satisfied the permit condition requiring that a complete and timely application be submitted by the Permittee at least six (6) months, but no earlier than eighteen (18) months, prior to the expiration date of Permit No. 65627.

The facility's potential to emit (PTE) (discussed further in Section IV), without controls or operating limitations, of air pollutants is less than major source thresholds. A Class I permit is required under A.A.C. R18-2-302.B.4 because the facility is subject to Arizona Administrative Code (A.A.C.) R18-2-731 and, consequently, 40 CFR Part 60, Subpart Cf "Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills", which requires the Permittee to obtain a Title V permit because the facility has a design capacity equal to or exceeding 2.5 million megagrams and 2.5 million cubic meters. Additionally, the Permittee will install and begin operation of a gas collection and control system (GCCS) during this permit term (discussed further in Section II.B). The GCCS will consist of an active collection system and a non-enclosed flare control system. Minor New Source Review (NSR) requirements are not be triggered by the addition of the GCCS because the increases in potential emissions of regulated minor New Source Review (NSR) pollutants associated with this change do not exceed permitting exemption thresholds in A.A.C. R18-2-101(101).

**A. Company Information**

Facility Name: Gray Wolf Regional Landfill  
Mailing Address: P.O. Box 240  
Dewey, AZ 86327  
Facility Location: 23355 E Highway 169, Mile Post 11  
Dewey, Yavapai County, AZ 86327

**B. Attainment Classification**

This facility is located in an area that is classified as in attainment or unclassifiable for all criteria pollutants.

**II. PROCESS DESCRIPTION**

**A. Process Equipment**

The Gray Wolf Regional Landfill ("Landfill") is a municipal solid waste (MSW) landfill. It began operation in 1993 and was designed as an area fill landfill, meaning that the waste is spread and compacted on top of the ground rather than in trenches, and cover material is

spread and compacted over it. The design capacity for the Landfill is approximately 32.7 million cubic yards. The Landfill consists of a total of 422.5 acres of land, of which approximately 172.2 acres are dedicated to refuse disposal. The Permittee reported that, as of the end of the 2020 calendar year, approximately 3.9 million megagrams (MG) of waste was in place at the Landfill. The Landfill received on average 560 tons per operating day of non-hazardous residential, commercial, industrial, and inert wastes during the calendar year of 2020. Due to recent growth in the area, the facility is anticipating acceptance rates to increase to up to 1,200 tons per day by 2027.

The primary activities of the Landfill include the transportation and deposition of refuse along with the excavation and stockpiling of cover material and soil. A defined area of the Landfill is excavated, lined, and prepared to receive waste prior to the acceptance of refuse. Cell construction is performed as a cut-and-fill operation. Wastes are placed into the disposal area, spread and compacted with heavy equipment, then covered. Excavated materials are used for daily, intermediate, and final cover along with other cover materials. Existing site development includes paved and unpaved access roads, an office/scalehouse building, two (2) truck scales, fuel storage tanks, water storage tank, stormwater retention ponds, utilities, leachate/evaporation pond, truck shop, maintenance facility, and security fencing. A 240 hp diesel-fired generator is also on site to provide backup power to the Landfill. No products are produced at the Landfill.

The landfill accepts the following materials:

1. Municipal refuse and other wastes from household or commercial facilities
2. Green Waste
3. White goods (*i.e.*, household appliances)
4. Construction debris and demolition material
5. Incinerator ash
6. Waste and water treatment plant sludge which pass the paint filter test

**B. Control Devices**

On March 4, 2021, the Permittee submitted an NMOC Emission Rate Report in accordance with 40 CFR 60.38f(c) in which the NMOC emission rate, calculated using an average site-specific NMOC concentration according to Tier 2 procedures outlined in 40 CFR 60.35f(a)(3), was reported as 34.22 megagrams per year (MG/yr). Because the rate exceeded the NMOC emission rate threshold of 34 MG/yr, the Permittee was required under 40 CFR 60.33(e)(2) to take one of the following actions: 1) Submit a collection and control system design plan prepared by a professional engineer within 1 year of submitting this report, 2) Recalculate the NMOC emission rate using Tier 3 procedures within 1 year of the first calculated rate equaling or exceeding 34 MG/yr, or 3) Complete a Tier 4 analysis to demonstrate the site-specific surface methane emissions are below 500 ppm. The Permittee selected Option 1 and submitted a Collection and Control System Design Plan Report on January 21, 2021.

In the report, the Permittee proposed the installation and operation of an active collection system and a non-enclosed utility flare control system to reduce landfill gas emissions from the facility. The Permittee has proposed to install extraction wells and piping throughout the landfill to collect and divert landfill gas the flare. The gas collection and control system (GCCS) is required in 40 CFR Part 60, Subpart Cf to be installed and begin operation within 30 months of the Permittee submitting an NMOC Emission Rate Report showing an NMOC emission rate greater than 34 megagrams per year (MG/yr). Therefore, a due date of September 3, 2023 for installation and operation of the GCCS has been incorporated into the permit. The GCCS must meet the requirements of 40 CFR 60.33f(b) and (c)(1).

**C. Process Flow Diagram**

There are no process flow diagrams associated with this facility.

**III. COMPLIANCE HISTORY**

**A. Compliance Status**

A review of the compliance records for the facility indicates that there are no pending air quality cases. During the previous permit term, ADEQ reviewed the following reports for Gray Wolf Regional Landfill:

- 9 Semi-Annual Compliance Certifications
- 1 Initial Design Capacity Report, as required by 40 CFR 60.38f(a)
- 1 Collection and Control System Design Plan, as required by 40 CFR 60.38f(d)
- 1 NMOC Emission Rate Report, as required by 40 CFR 60.38f(c)

No deficiencies were noted during these report reviews. ADEQ also conducted ten (10) inspections over the course of the permit term: one full inspection in 2017, two full inspections in 2019, full inspections in 2018 and 2019, one full inspection and one partial inspection in 2020, and one full inspection and four partial inspections in 2021. Many of the partial inspection focused on compliance with fugitive dust control requirements, and one focused on compliance with asbestos management requirements under 40 CFR Part 61 Subpart M. The most recent inspection was conducted on December 7, 2021. No deficiencies were noted during the course of any of these inspections. There were no excess emissions or permit deviation reports submitted during the permit term.

**B. Performance Testing**

The Permittee completed and submitted results for one performance test during the permit term. The performance test followed the Tier 2 procedures in 40 CFR 60.35(a)(3) to determine an average site-specific NMOC concentration for the Landfill that was used for the annual recalculation of the NMOC emission rate. The average site-specific NMOC concentration was determined to be 456 parts per million volume (ppm<sub>v</sub>) as hexane, which resulted in a calculated NMOC emission rate of 34.22 MG/yr. Below is a summary of the performance test.

Table 1: Performance Test Results

Emission Unit	Pollutant	Date of Test	Results of Performance Test
Landfill	NMOC	1/5-1/7/2021	456 ppm <sub>v</sub> as hexane; 34.22 MG/yr

#### IV. EMISSIONS

##### A. Landfill Gas Emissions

The primary source of emissions from the landfill are a result of the natural decomposition of the waste materials and, to some extent, the evaporation of volatile organic compounds (VOCs) in the waste materials. Emissions occur as anaerobic microorganisms within the landfill degrade the waste and generate methane (CH<sub>4</sub>) and carbon dioxide (CO<sub>2</sub>). As this landfill gas (LFG) is generated, it builds pressure and moves through the waste, where it encounters and joins other elements that are present in the waste. The landfill gas (LFG) that is emitted from the landfill is assumed to be approximately 50% methane (CH<sub>4</sub>) and 49.95% carbon dioxide (CO<sub>2</sub>). The remaining 0.05% contains small amounts of non-methane organic compounds (NMOC) and hazardous air pollutants (HAPs).

Landfill gas emissions are considered to be non-fugitive because they may potentially be captured by a collection system. The annual rates of landfill gas emissions expected from the facility for calendar years 2022 through 2027 were estimated by the Permittee using the EPA Landfill Gas Emissions Model (LandGEM) Version 3.03. LandGEM estimates LFG gas emission rates based on known and predicted waste acceptance rates and waste-in-place totals, methane generation potential, and NMOC concentration. The PTE for this permit renewal is based on a LandGEM analysis conducted by the Permittee on January 7, 2022.

The Permittee is required to install and startup a GCCS by September 3, 2023. The installation and startup of the GCCS will lead to a lowering of emissions of HAPs and NMOC, but increases in emissions of particulate matter (PM), including PM<sub>10</sub> and PM<sub>2.5</sub>, nitrogen oxides (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>), and carbon monoxide (CO) due to the combustion process. Therefore, the facility's PTE has been calculated under two different scenarios: 1) Emissions prior to installation and startup of the GCCS, and 2) Emission after installation and startup of the GCCS.

Under Scenario 1, since the GCCS will be operating by September 3, 2023, it was determined that the landfill gas emission rate estimated by the LandGEM model for calendar year 2022 should be used to estimate the maximum potential emissions that may occur prior to operation of the GCCS. For the PTE under Scenario 2, the landfill gas emission rate estimated by the LandGEM model for calendar year 2027 was used to estimate the maximum potential emissions from the facility that may occur after the GCCS is operating. Under both scenarios, a list of hazardous air pollutants (HAPs) and their concentrations that may be expected to be found in uncontrolled LFG were taken from a

report from the Waste Industry Air Coalition (WIAC)<sup>1</sup>. The concentration of non-methane organic compounds (NMOC) was set equal to 456 ppm<sub>v</sub> as hexane, which is the average site-specific NMOC concentration that was determined from the Permittee's Tier 2 testing. Tier 2 testing occurred January 5-7, 2021, as shown above in Table 1. The VOC concentration was assumed to be 39% of the NMOC concentration, as recommended in AP-42 Chapter 2.4 "Municipal Solid Waste Landfills". It was also assumed that 75% of emissions are non-fugitive or capturable by a gas collection system, while 25% are not able to be captured. These percentages were based on the typical range of collection efficiencies for collection systems given in AP-42 Chapter 2.4.

The proposed flare has a design capacity of 700 standard cubic feet per minute (scfm) and 21 million British Thermal Units per hour (mmBtu/hr). Under Scenario 2, 700 scfm was subtracted from the calendar year 2027 LFG emission rate to estimate the LFG emission rate from the landfill. For the flare, emissions were estimated at 700 scfm and 21 mmBtu/hr. Emission factors for HAPs and NMOC were the same as those for landfill emissions. To calculate total emissions, a destruction efficiency of 98% was applied for NMOC and VOCs based on United States Environmental Protection Agency's AP-42: Fifth Edition Compilation of Emissions Factors, Volume 1: Stationary Point and Area Sources ("AP-42") Chapter 13.5 "Industrial Flares". For HAPs, destruction efficiencies of 98% and 99.7% were applied for halogenated species and non-halogenated species, respectively, based on AP-42 Table 2.4-3 for flares. Emission factors for NO<sub>x</sub> and CO were taken from AP-42 Table 13.5-1, and the emission factor for PM was taken from AP-42 Table 2.4-5. AP-42 Chapter 2.4 recommends a default SO<sub>2</sub> emission factor of 47 ppm<sub>v</sub> in the absence of site-specific data. For this permit renewal, the emission factor for SO<sub>2</sub> was conservatively estimated at 250 ppm<sub>v</sub> to account for increasing disposal rates at the landfill.

Lastly, greenhouse gas (GHG) emissions from the flare were estimated using emission and CO<sub>2</sub>e equivalency factors from 40 CFR Part 98, Subpart A Table A-1 and Subpart C Table C-2. GHG emissions from the landfill are biogenic in origin, and, therefore, are not regulated under the Clean Air Act. EPA has also determined that CO<sub>2</sub> emissions from the burning of landfill gas are also biogenic in origin. Therefore, only emissions of CH<sub>4</sub> and nitrous oxide (N<sub>2</sub>O) were counted towards the GHG emissions for the flare.

## **B. Generator Non-Emergency**

The facility's non-emergency generator is certified to meet applicable Tier 4 emission standards in 40 CFR 1039.101 for engines with a rating greater than or equal to 130 kW and less than or equal to 560 kW. The emission factors for PM, CO, NO<sub>x</sub>, and VOCs were set equal to the applicable Tier 4 emission standards, with the assumption that VOCs are equal to non-methane hydrocarbons (NMHC). The emission factor for SO<sub>2</sub> was taken from AP-42 Table 3.3-1 for diesel-fired engines, and HAPs emission factors were taken from AP-42 Tables 3.3-2 and 3.3-3. Lastly, greenhouse gas (GHG) emissions from the engine were estimated using emission and CO<sub>2</sub>e equivalency factors from 40 CFR Part 98, Subpart A Table A-1 and Subpart C Tables C-1 and C-2. Emissions for all pollutants were estimated by multiplying emission factors for each pollutant by 240 hp, the power rating of the

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<sup>1</sup> Huitric, R., Sullivan, P., and A. Tinker. "Waste Industry Air Coalition Comparison of Recent Landfill Gas Analyses with Historic AP-42 Values." Waste Industry Air Coalition, January 2001.

engine, and by 8,760 hours per year, which is the maximum expected annual hours of operation for a non-emergency engine.

### C. Fugitive Emission Sources

Fugitive particulate matter (PM) emissions are due to traffic on paved and unpaved roads, application of a cover layer of soil, soil stockpiling, and cover layer distribution, and wind erosion of cover storage piles. Fugitive PM emissions from these sources were determined using the Permittee's estimates of cover usage and stockpile area, distances traveled by motor vehicle traffic and construction equipment, and using emission factors from AP-42 Chapters 13.2.1 "Paved Roads", 13.2.2 "Unpaved Roads", and 13.2.4.3 "Aggregate Handling and Storage Piles". Landfill leachate evaporation, petroleum-contaminated soil (PCS), and solvent and painting operations are sources of fugitive emissions of VOCs and HAPs. Emission factors for VOCs and HAPs were based on the Permittee's sampling of the leachate, a Safety Data Sheet (SDS) for the facility's most frequently used paint, and a recent calculation of VOC emissions from PCS for the facility's annual emissions inventory. Lastly, the 10% of LFG emissions that are not able to be captured are considered to be fugitive emissions. These fugitive VOC, HAPs, and NMOC emissions were calculated using the same methodology as the non-fugitive LFG emissions in Section IV.A, but using 10% of the uncaptured LFG emission rate for calendar year 2022 in Scenario 1 and calendar year 2027 in Scenario 2.

Table 2 below includes fugitive emissions from the facility for Scenario 1 (pre-GCCS) and Scenario 2 (with GCCS). Note that only HAPs fugitive emissions are included in the total PTE in Tables 3 and 4.

**Table 2: Fugitive Emissions (tpy)**

<b>Pollutant</b>	<b>Fugitive Emissions from Permit No. 65627</b>	<b>Change in Fugitive Emissions</b>	<b>Fugitive Emissions (pre-GCCS)</b>	<b>Change in Fugitive Emissions</b>	<b>Scenario 2 Fugitive Emissions (with GCCS)</b>
NO <sub>x</sub>	0.00	0.00	0.00	0.00	0.00
PM <sub>10</sub>	40.13	+11.39	51.52	0.00	51.52
PM <sub>2.5</sub>	16.44	-6.77	9.67	0.00	9.67
CO	0.00	0.00	0.00	0.00	0.00
SO <sub>2</sub>	0.00	0.00	0.00	0.00	0.00
VOC	3.17	+2.75	5.92	-1.30	4.62
Pb	0.00	0.00	0.00	0.00	0.00
Toluene (Single Greatest HAP)	--*	+0.35	0.35	-0.20	0.15

HAPs (Combined)	2.8	+1.74	4.54	-0.53	4.00
NMOC	--*	+5.82	5.82	-3.34	2.48

\*Fugitive emissions for toluene and NMOC were not calculated during the previous permit renewal.

#### D. Summary of PTE

Table 3 shows the facility's total PTE under the pre-GCCS Scenario 1, as discussed in Section IV.A. Changes in emissions shown in Table 2 are due to changes in calculation methodology, such as updated emission factors and equations. Increases in VOCs and NMOC are also due in part to an increase in the predicted LFG emissions output, as modeled in LandGEM, as compared to the last renewal. These increases are due to the continued growth of the facility's waste acceptance and decomposition of the increasing waste-in-place. These changes are not considered a modification, and therefore, minor New Source Review (NSR) requirements are not triggered.

Table 4 shows the facility's PTE with an operating GCCS, or Scenario 2 as discussed in Section IV.A. After the installation and operation of the nonenclosed utility flare, the facility will see an increase in emissions of PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub>, and CO as combustion products of the flare, and a decrease in emissions of VOCs, HAPs, and NMOC from the landfill itself as LFG is collected and routed to and destroyed by the flare. The installation of the GCCS is a modification, but the associated increases in emissions do not exceed permitting exemption thresholds. Therefore, minor NSR requirements are not triggered by this modification. Overall, the facility's PTE under both Scenario 1 and 2 is below major source thresholds as well as the lower permitting exemption thresholds.

**Table 3: Potential to Emit – Pre-GCCS (tpy)**

Pollutant	Emissions from Permit No. 65627	Change in Emissions	Emissions (pre-GCCS)	Permitting Exemption Threshold	Minor NSR Triggered?
NO <sub>x</sub>	0.206	+0.49	0.69	20	No
PM <sub>10</sub>	0.003	+0.03	0.03	7.5	No
PM <sub>2.5</sub>	0.003	+0.03	0.03	5	No
CO	0.035	+6.02	6.05	50	No
SO <sub>2</sub>	0.004	+2.15	2.15	20	No
VOC	2.99	+4.14	7.13	20	No
Pb	0.00	0.00	0.00	0.3	No
Toluene (Single Greatest HAP)	1.42	-0.03	1.39	N/A	N/A

HAPs (Combined)	7.07	+0.31	7.38	N/A	N/A
NMOC	7.79	+9.66	17.45	N/A	N/A
GHG (CO <sub>2</sub> e)	123,350	-122.736.13	613.87	N/A	N/A

**Table 4: Potential to Emit – with GCCS (tpy)**

Pollutant	Emissions (pre-GCCS)	Change in Emissions	Emissions (with GCCS)	Permitting Exemption Threshold	Minor NSR Triggered?
NO <sub>x</sub>	0.69	+6.31	7.00	20	No
PM <sub>10</sub>	0.03	+3.13	3.16	7.5	No
PM <sub>2.5</sub>	0.03	+3.13	3.16	5	No
CO	6.05	+28.77	34.82	50	No
SO <sub>2</sub>	2.15	+5.33	7.49	20	No
VOC	7.13	-3.76	3.37	20	No
Pb	0.00	0.00	0.00	0.3	No
Toluene (Single Greatest HAP)	1.39	-0.79	0.60	N/A	N/A
HAPs (Combined)	7.38	-2.12	5.26	N/A	N/A
NMOC	17.45	-9.64	7.81	N/A	N/A
GHG (CO <sub>2</sub> e)	613.87	+54.29	668.16	N/A	N/A

**V. APPLICABLE REGULATIONS**

Table 5 identifies applicable regulations and verification as to why that standard applies. The table also contains a discussion of any regulations the emission unit is exempt from.

**Table 5: Applicable Regulations**

Unit & year	Control Device	Rule	Discussion
Landfill, 1993	GCCS	A.A.C. R18-2-731	Standards of Performance for Existing Municipal Solid Waste Landfills – These standards apply to the landfill because it is a municipal solid waste landfill that was constructed before July 17, 2014 and that has accepted waste after November 8,



Unit & year	Control Device	Rule	Discussion
		<p data-bbox="743 541 909 642">NSPS 40 CFR Part 60, Subpart Cf</p> <p data-bbox="743 1010 909 1142">NESHAP 40 CFR Part 63 Subpart AAAA</p> <p data-bbox="743 1482 909 1583">NESHAP 40 CFR Part 61, Subpart M</p>	<p data-bbox="930 310 1424 373">1987. These standards require compliance with 40 CFR Part 60, Subpart Cf.</p> <p data-bbox="930 411 1430 940">Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills – These emission guidelines apply to this landfill. The guidelines allow the Permittee to opt into complying with 40 CFR 63.1958, 63.1960, and 63.1961 from NESHAP Subpart AAAA instead of 40 CFR 60.34f, 60.36f, and 60.37f from NSPS Subpart Cf. The Permittee has chosen to opt into complying with these requirements. The Permittee must always comply with these sections of Subpart AAAA going forward because Subpart Cf does not allow the Permittee to revert back to complying with the corresponding sections of Subpart Cf.</p> <p data-bbox="930 978 1430 1409">National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills – Sections 40 CFR 63.1958, 63.1960, and 63.1961 apply, as discussed above. Additionally, because the Permittee has opted into these requirements, the Permittee is also required to comply with the reporting requirements in 40 CFR 63.1981(h), (j), and (k). The full requirements of Subpart AAAA do not apply because the reported uncontrolled NMOC emissions from the landfill has not exceeded 50 MG/yr.</p> <p data-bbox="930 1446 1430 1843">National Emission Standard for Asbestos – The Permittee must comply with the requirements of 40 CFR 61.154 because the landfill meets the definition of an “active waste disposal site”, as provided in 40 CFR 61.141 that receives asbestos-containing waste material from asbestos mills; manufacturing, fabricating, demolition, renovation, and spraying operations, and/or operations that convert asbestos containing waste into nonasbestos (asbestos-free) material.</p>

Unit & year	Control Device	Rule	Discussion
Generator Non-Emergency, August 2014	Diesel particulate filter	NSPS 40 CFR Part 60, Subpart III  NESHAP 40 CFR Part 63, Subpart ZZZZ	Standards of Performance for Stationary Compression Ignition Internal Combustion Engines – These standards are applicable to the Generator because it is a stationary compression ignition internal combustion engine that was manufactured after the NSPS Subpart III applicability date of 4/1/2006.  National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines – The Generator is considered “new” under Subpart ZZZZ as it was constructed after 6/12/2006. The Generator meets the requirements of Subpart ZZZZ by meeting the requirements of NSPS Subpart III (40 CFR 63.6590(c)(1)).
Fugitive dust sources	Water Trucks, Dust Suppressants	A.A.C. R18-2 Article 6 A.A.C. R18-2-702	These standards are applicable to all fugitive dust sources at the facility.
Abrasive Blasting	Wet blasting; Dust collecting equipment; Other approved methods	A.A.C. R-18-2-702 A.A.C. R-18-2-726	These standards are applicable to any abrasive blasting operation.
Spray Painting	Enclosures	A.A.C. R18-2-702 A.A.C. R-18-2-727	These standards are applicable to any spray painting operation.
Demolition/renovation Operations	N/A	A.A.C. R18-2-1101.A.8	This standard is applicable to any asbestos related demolition or renovation operations.

## VI. PREVIOUS PERMIT REVISIONS AND CONDITIONS

### A. Previous Permit Revisions

There were no revisions made to Permit No. 65627 during the previous permit term.

### B. Changes to Current Renewal

Table 6 addresses the changes made to the sections and conditions from Permit No. 65627:

**Table 6: Previous Permit Conditions**

Section No.	Determination			Comments
	Added	Revised	Deleted	
Att. "A"		X		General Provisions: Revised to represent the most recent template language
Att. "B" Section I		X		Facility Wide Requirements: Revised to represent the most recent template language
Att. "B" Section II		X		Landfill Requirements: All requirements of 40 CFR Part 60, Subpart WWW have been removed and replaced with applicable requirements from A.A.C. R18-2-731, 40 CFR Part 60, Subpart Cf, and 40 CFR Part 63, Subpart AAAA. Of significant note is the addition of applicable requirements for the proposed collection and control system.
Att. "B" Sections III and III.A		X		Asbestos: Additional clarifying language was added to the introductory paragraph. Section III.A was renamed from "Emission Limits" to "Emission and Operational Standards"
Att. "B" Condition III.B.1.a		X		Asbestos – Monitoring/Recordkeeping: This condition previous referred to Attachment D as an example of the form to be used for waste shipment records. Attachment D is no longer included in the permit, so the condition was revised to refer to Figure 4 in 40 CFR Part 61, Subpart M, as written in the rule (40 CFR 61.154(e)(1).
Att. "B" Conditions III.B.1.a(4) and c, III.C.1 and 2		X		Asbestos – Monitoring/Recordkeeping: Reporting requirements in Conditions III.B.1.a(4) and c were moved down into Conditions III.C.1 and 2.
Att. "B" Conditions III.B.3-5 and III.C.3 and 5.		X		Asbestos – Monitoring/Recordkeeping: Conditions III.B.3 and 4.a were moved into the Reporting section as new Conditions III.C.3 and 5. Conditions III.B.4 and 5 were renumbered as Conditions III.B.3 and 4.
Att. "B" Condition III.C.4	X			Asbestos – Reporting: The requirements of 40 CFR 61.154(h) were added.
Att. "B" Section IV		X		Non-Emergency Compression Ignition (CI) Internal Combustion Engine (ICE): This section was renamed.
Att. "B" Section IV.B		X		Non-Emergency Compression Ignition (CI) Internal Combustion Engine (ICE): A new section header was added entitled "New Source Performance Standards (NSPS) Under 40 CFR Part 60,

Section No.	Determination			Comments
	Added	Revised	Deleted	
				Subpart IIII for Stationary Non-Emergency CI ICE". Sections IV.B through E of the previous permit were moved under this new Section IV.B header.
Att. "B" Conditions IV.B.3, 4.b, and 5.d	X			Non-Emergency Compression Ignition (CI) Internal Combustion Engine (ICE): These conditions were added containing the applicable requirements from 40 CFR 60.4209(b), 60.4211(g), 60.4212(a) & (b), and 60.4214(c).
Att. "B" Section IV.C	X			Non-Emergency Compression Ignition (CI) Internal Combustion Engine (ICE): Added a new section entitled "National Emission Standards for Hazardous Air Pollutants (NESHAP) Under 40 CFR Part 63, Subpart ZZZZ NESHAP Requirements for Stationary Non-Emergency Reciprocating ICE", which contains applicable requirements of 40 CFR Part 63, Subpart ZZZZ.
Att. "B" Condition V.B.3.b(1)		X		Fugitive Dust Requirements: The requirement to perform visible emission surveys of fugitive dust sources has been decreased from a frequency of every two weeks to every month. The Permittee does not have a history of violating the opacity standard for fugitive dust sources, and the monthly frequency is consistent with permits issued by the Department to other landfill facilities in the state.
Att. "B" Section VI			X	Mobile Source Requirements: Section VI containing mobile source requirements have been deleted as they've been determined to be not applicable.
Att. "B" Section VI		X		Other Periodic Activities: Section VII "Other Periodic Activities" in the previous permit has been renumbered as Section VI.
Att. "C"		X		Equipment List: Revised to reflect the most recent equipment operating at the facility and to include equipment information provided. The proposed flare was added to the equipment list.

**VII. MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS**

Table 7 contains an inclusive but not an exhaustive list of the monitoring, recordkeeping and reporting requirements prescribed by the air quality permit. The table below is intended to provide insight to the public for how the Permittee is required to demonstrate compliance with the emission limits in the permit. Records are required be kept for a minimum of 5 years as outlined in Section XII of Attachment “A” of the permit.

**Table 7: Permit No. 92848**

<b>Emission Unit</b>	<b>Pollutant</b>	<b>Emission Limit/ Operating Standard</b>	<b>Monitoring Requirements</b>	<b>Recordkeeping Requirements</b>	<b>Reporting Requirements</b>
Landfill	Methane	<500 ppm above background at the surface of the landfill	After installation and startup of the gas collection system, monitor surface concentrations of methane along the entire perimeter of the collection area and along a pattern that traverses the landfill at 30-meter intervals (or a site-specific established spacing) for each collection area on a quarterly basis using an organic vapor analyzer, flame ionization detector, or other portable monitor. Conduct surface testing	Keep records of all exceedances of the 500-ppm methane concentration, the reading in the subsequent month whether or not the second reading is an exceedance, and the location of each exceedance.	Include in the semi-annual report the location of each exceedance of the 500-ppm methane concentration and the concentration recorded at each location for which an exceedance was recorded in the previous month.

Emission Unit	Pollutant	Emission Limit/ Operating Standard	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
			<p>at all cover penetrations.</p> <p>Determine the latitude and longitude coordinates of each exceedance using an instrument with an accuracy of at least 4 meters. The coordinates must be in decimal degrees with at least five decimal places.</p>		
Landfill	N/A	Operate each interior wellhead in the collection system with a landfill gas temperature less than 62.8 degrees Celsius (145 degrees Fahrenheit)	Monitor temperature of the landfill gas on a monthly basis. Initiate enhanced monitoring at each well with a measurement of landfill gas temperature greater than 62.8 degrees Celsius (145 degrees Fahrenheit). Monitor nitrogen or oxygen concentration in the landfill gas on a monthly basis.	<p>Keep records of each wellhead temperature monitoring value of 62.8 degrees Celsius (145 degrees Fahrenheit) or above, each wellhead nitrogen level at or above 20 percent, and each wellhead oxygen level at or above 5 percent.</p> <p>If required to conduct the enhanced monitoring, keep records of all enhanced monitoring activities.</p>	<p>Include in the semi-annual report a statement of the wellhead operational standard for temperature the Permittee complied with for the reporting period, and indicate the number of times the temperature standard was exceeded. Include results of enhanced temperature monitoring.</p> <p>Submit a 24-Hour High Temperature Report within 24 hours of when a landfill gas temperature measured at either the wellhead or at any point in the well</p>

Emission Unit	Pollutant	Emission Limit/ Operating Standard	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
			<p>For each wellhead with a measurement of landfill gas temperature greater than or equal to 73.9 degrees Celsius (165 degrees Fahrenheit), annually monitor temperature of the landfill gas every 10 vertical feet of the well.</p>	<p>If required to submit the 24-hour high temperature report, keep a record of the email transmission.  Comply with recordkeeping requirements for corrective actions.</p>	<p>is greater than or equal to 76.7 degrees Celsius (170 degrees Fahrenheit) and the carbon monoxide concentration measured is greater than or equal to 1,000 ppm<sub>v</sub>.  Include in the semi-annual report for any corrective action analysis for which corrective actions take more than 60 days to correct the exceedance following a high temperature reading, and, for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates. Comply with corrective action notification requirements in the permit.</p>
Landfill	N/A	Operate the collection system with negative pressure at each wellhead except under 40 CFR	Measure gauge pressure in the gas collection header applied to each individual well monthly	<p>Keep records of any positive pressure readings.  Comply with recordkeeping requirements for corrective actions.</p>	<p>Include in the semi-annual report for any corrective action analysis for which corrective actions take more than 60 days to correct the exceedance following a high temperature reading, and, for action(s) not already completed, a schedule for implementation,</p>

Emission Unit	Pollutant	Emission Limit/ Operating Standard	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
		63.1958(b)(1)-(3).			including proposed commencement and completion dates. Comply with corrective action notification requirements in the permit.
Landfill - Flare	N/A	<p>No visible emissions except for periods not to exceed a total of 5 minutes during any 2 consecutive hours</p> <p>Operate the flare at all times when emissions may be vented to it. Flares shall be operated with a flame present at all times.</p>	<p>Conduct an initial performance test on the flare as required in 40 CFR 60.18.</p> <p>Install, calibrate, maintain, and operate a heat sensing device, such as an ultraviolet beam sensor or thermocouple, at the pilot light or the flame itself to indicate the continuous presence of a flame.</p> <p>Install, calibrate, maintain, and operate a device that records flow to the flare and bypass of the flare.</p>	<p>Maintain records of all visible emission readings, heat content determination, flow rate or bypass flow rate measurements, and exit velocity determinations made during the performance test as specified in 40 CFR 60.18</p> <p>Keep continuous records of the indication of flow to the control system and the indication of bypass flow or records of monthly inspections of car-seals or lock-and-key configurations used to seal bypass lines.</p> <p>Keep continuous records of the flame or flare pilot flame monitoring and all periods of operation in</p>	<p>Report results of performance testing within 60 days of the testing.</p> <p>Include in the semi-annual report a description and duration of all periods when the non-enclosed flare control system was not operating and length of time the non-enclosed flare control system was not operating.</p> <p>Include in the semi-annual report a description and duration of all periods when the gas stream was diverted from the non-enclosed flare control system through a bypass line or the indication of bypass flow</p>



Emission Unit	Pollutant	Emission Limit/ Operating Standard	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
				<p>which the flame or flare pilot flame is absent.</p> <p>Keep records of periods when the control device is not operating.</p>	
Landfill	N/A	N/A	Calculate annually the NMOC emission rate according to Condition II.G.2 of Attachment "B" of the permit.	Keep record of the calculated annual NMOC emission rate.	Notify ADEQ Director if calculated annual NMOC emission rate is equal to or exceeds 50 MG/yr.

Emission Unit	Pollutant	Emission Limit/ Operating Standard	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
Landfill	Asbestos	None	None	<p>For all asbestos-containing waste material received, maintain waste shipment records and send a copy of the signed waste shipment record to the waste generator within 30 days.</p> <p>Maintain, until closure, records of the location, depth and area, and quantity in cubic meters (cubic yards) of asbestos-containing material within the disposal site on a map or diagram of the disposal area.</p>	<p>Notify the Director in writing at least 45 days prior to excavating or otherwise disturbing any asbestos-containing waste material that has been deposited at a waste disposal site and is covered.</p> <p>If the Permittee discovers improperly enclosed or uncovered asbestos-containing waste materials, or any asbestos-containing waste material not sealed in leak-tight containers, by the following working day report in writing the presence of a significant amount of improperly enclosed or uncovered waste.</p> <p>If the Permittee discovers a discrepancy between the quantity of waste designated on the waste shipment records and the quantity actually received, and if the discrepancy is not resolved within 15 days after receiving the waste in accordance with Condition III.B.1.c of Attachment “B” of the</p>

Emission Unit	Pollutant	Emission Limit/ Operating Standard	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
					permit, immediately report the discrepancy in writing.
Generator Non-Emergency	PM	0.02 g/kW-hr	The diesel particulate filter must be installed with a backpressure monitor that notifies the Permittee when the high backpressure limit of the engine is approached.	<p>Keep records of fuel supplier specifications.</p> <p>Maintain a copy of engine certifications or other documentation demonstrating that the engine complies with the applicable standards.</p> <p>Keep records of any corrective action taken after the backpressure monitor has notified the Permittee that the high backpressure limit of the engine is approached.</p>	None
	NO <sub>x</sub>	0.40 g/kW/hr			
	NMHC	0.19 g/kW-hr			
	CO	3.5 g/kW-hr			
Fugitive Dust	PM	40% Opacity	A Method 9 observer is required to conduct a survey of visible emissions every 2 weeks.	Record of the dates and types of dust control measures employed, and if applicable, the results of any Method 9 observations, and any corrective action taken to lower the opacity of any excess emissions.	Report all 6-minute periods in which the opacity exceeded 40%.

Emission Unit	Pollutant	Emission Limit/ Operating Standard	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
Abrasive Blasting	PM	20% Opacity	None	Record the date, duration and pollution control measures of any abrasive blasting project.	None
Spray Painting	VOC	20% Opacity Control 96% of the overspray	None	Maintain records of the date, duration, quantity of paint used, any applicable MSDS, and pollution control measures of any spray painting project.	None
Demolition/ Renovation	Asbestos	None	None	Maintain records of all asbestos related demolition or renovation projects including the “NESHAP Notification for Renovation and Demolition Activities” form and all supporting documents	None

## VIII. ENVIRONMENTAL JUSTICE ANALYSIS

The U.S. EPA (Environmental Protection Agency) defines Environmental Justice (EJ) to include the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. The goal of completing an EJ assessment in permitting is to provide an opportunity for overburdened populations or communities to allow for meaningful participation in the permitting process. Overburdened is used to describe the minority, low-income, tribal and indigenous populations or communities that potentially experience disproportionate environmental harms and risks due to exposures or cumulative impacts or greater vulnerability to environmental hazards.

There are increases in emissions associated with the installation and operation of a GCCS included in this permit renewal. However, these increases are below permitting exemption thresholds. Therefore, the change is exempt from an environmental justice analysis.

## IX. LEARNING SITE EVALUATION

In accordance with ADEQ's Environmental Permits and Approvals near Learning Sites Policy, the Department is required to conduct an evaluation to determine if any nearby learning sites would be adversely impacted by the facility. Learning sites consist of all existing public schools, charter schools and private schools the K-12 level, and all planned sites for schools approved by the Arizona School Facilities Board. The learning sites policy was established to ensure that the protection of children at learning sites is considered before a permit approval is issued by ADEQ.

There are increases in emissions associated with the installation and operation of a GCCS included in this permit renewal. However, these increases are below permitting exemption thresholds. Therefore, the change is exempt from a learning sites evaluation.

## X. AMBIENT AIR IMPACT ANALYSIS

There are increases in emissions associated with the installation and operation of a GCCS included in this permit renewal. However, these increases are below permitting exemption thresholds. Therefore, the change is exempt from an ambient air impact analysis.

## XI. LIST OF ABBREVIATIONS

A.A.C.	Arizona Administrative Code
ADEQ	Arizona Department of Environmental Quality
AQD	Air Quality Division
AQRV	Air Quality Related Values
ARM	Ambient Ratio Method
A.R.S.	Arizona Revised Statutes
BACT	Best Available Control Technology
Btu/ft <sup>3</sup>	British Thermal Units per Cubic Foot
CAM	Compliance Assurance Monitoring
CEMS	Continuous Emissions Monitoring System
CFR	Code of Federal Regulations
CH <sub>4</sub>	Methane

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CO	Carbon Monoxide
CO <sub>2</sub>	Carbon Dioxide
CO <sub>2</sub> e	CO <sub>2</sub> equivalent basis
EPA	Environmental Protection Agency
FERC	Federal Energy Regulatory Commission
°F	degrees Fahrenheit
ft	Feet
g	Gram
GHG	Greenhouse Gases
HAP	Hazardous Air Pollutant
HHV	Higher Heating Value
hp	Horsepower
hr	Hour
IC	Internal Combustion
kW	Kilowatt
MW	Megawatts
NAAQS	National Ambient Air Quality Standard
NO <sub>x</sub>	Nitrogen Oxides
NO <sub>2</sub>	Nitrogen Dioxide
N <sub>2</sub> O	Nitrous Oxide
NSPS	New Source Performance Standards
O <sub>3</sub>	Ozone
Pb	Lead
PM	Particulate Matter
PM <sub>10</sub>	Particulate Matter less than 10 µm nominal aerodynamic diameter
PM <sub>2.5</sub>	Particulate Matter less than 2.5 µm nominal aerodynamic diameter
PSD	Prevention of Significant Deterioration
psia	Pounds per square Inch (absolute)
PTE	Potential to Emit
sec	Seconds
SF <sub>6</sub>	Sulfur Hexafluoride
SIA	Significant Impact Area
SIL	Significant Impact Level
SO <sub>2</sub>	Sulfur Dioxide Significant Impact Levels
TPY	Tons per Year
VOC	Volatile Organic Compound
yr	Year