



**TECHNICAL REVIEW AND EVALUATION
OF APPLICATION FOR
AIR QUALITY PERMIT No. 92159**

I. INTRODUCTION

This Class I Renewal permit is for the continued operation of Mohave County Development Services' Mohave Valley Landfill. Permit No. 92159 renews and supersedes Permit No. 65028.

A. Company Information

Facility Name: Mohave Valley Landfill
Mailing Address: 967 Hancock Road, Suite 141
Bullhead City, AZ 86442
Facility Location: 3999 El Rodeo Road
Fort Mohave, AZ 86426

B. Attainment Classification

The Mohave Valley Landfill is located in Mohave County, which is designated attainment/unclassified for all criteria pollutants.

II. PROCESS DESCRIPTION

A. Process Equipment

The primary activities at the Mohave Valley Landfill are the transportation and disposal of refuse and the excavation and stockpiling of cover material. Excavated soil from cell construction is used for daily, intermediate, and final cover. The landfill accepts the following waste materials:

1. Municipal refuse, pesticide containers, and other wastes from households or commercial facilities
2. White goods
3. Construction debris
4. Demolition material
5. Dead animals
6. Shredder fluff/residue
7. Incinerator ash

8. Non-infectious medical wastes
9. Water and wastewater treatment sludges which pass the paint filter test
10. Industrial Waste

The Mohave Valley Landfill's design capacity is estimates to be 14,950,1000 cubic yards excluding final cover, or 7.5 million tons assuming a compaction ratio of 900 to 1,300 pounds per cubic yard. The Mohave Valley Landfill had approximately 1,605,581 tons of waste in place as of the end of 2020. The Landfill is projected to reach capacity in 2065.

B. Control Devices

The Mohave Valley Landfill was required to install and operate a landfill gas collection and control system after uncontrolled emissions exceeded 50 megagrams per year of nonmethane organic compounds (NMOC) in 2017. The gas collection and control system was operational on July 31, 2020.

The landfill gas collection and control system is composed of an active collection system that diverts landfill gas from extraction wells and collection trenches installed throughout the landfill to an unenclosed candlestick flare to control emissions of NMOCs.

III. 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.

This renewal will not result in any increase in emissions as there are no changes to any equipment. Hence the facility is exempt from the learning sites evaluations.

IV. COMPLIANCE HISTORY

A. Case Number 186954

A Notice of Violation was issued to the Mohave Valley – Development Services Department on November 25, 2019 based on an inspection conducted November 21, 2019. The Mohave Landfill was required to install, maintain, and operate a gas collection and control system within 30 months of reporting a nonmethane organic compound emission rate in exceedance of 50 megagrams per year, and failed to do so prior to the deadline of November 15, 2019.

The Mohave Valley Landfill was required to finalize a consent order to document a compliance schedule within 30 days of receipt of the Notice of Violation. The Mohave Valley Landfill was also required to submit an implementation plan of corrective actions that will take place until the completion of the gas collection and control system

requirements, including plans for surface emissions monitoring and perimeter migration probe within 20 days of receipt. The Notice of Violation was closed on March 20, 2020 after it was determined that the facility met the compliance provisions of the Notice of Violation.

B. Compliance Order Docket No. A-01-20

The Mohave Valley Landfill was issued a Compliance Order on January 9, 2020, which requires the Mohave Valley Landfill to submit documentation confirming progress of pre-construction activities for the required gas collection and control system and compliance with the requirements of 40 CFR 60.752(b)(2)(ii) after installation. The Department received the final report documenting compliance on August 3, 2020, and terminated the compliance order on August 31, 2020.

C. Inspections and Compliance Reporting

The Mohave Valley Landfill received two on-site inspection during the permit term and has submitted nine semiannual compliance certifications. The Mohave Valley Landfill submitted the following three permit deviations:

1. A permit deviation was submitted on 11/21/2019 to notify that the gas collection and control system had not been installed within the required 30-month timeline.
2. A permit deviation was submitted on 11/12/2020 to notify the Department of two instances where the gas collection and control system experienced downtime greater than five days due to missing and invalid data resulting from control system malfunctions.
3. A permit deviation was submitted on 10/15/2021 to notify the Department that the September 2021 monthly log of nitrogen or oxygen concentration from the landfill gas was not available.

The Department also reviewed the initial and revised gas collection and control system design plans, and the initial design capacity report as required under New Source Performance Standards (NSPS) Subpart Cf during this permit term.

D. Performance Testing

The Mohave Valley Landfill conducted performance testing on the candlestick flare on December 10, 2021, as required by National Emission Standards for Hazardous Air Pollutants (NESHAP) Subpart AAAA and NSPS Subpart XXX for unenclosed flares. The results of the performance test are outlined in Table 1 below:

Table 1: Performance Test Results

Emission Unit	Pollutant	Date of Test	Results	Threshold	Pass/Fail
Flare	Visible Emissions Observation	12/10/2021	0 minutes	5 minutes	Pass
Flare	Exit Velocity	12/10/2021	8.57 feet per second	80.53 feet per second	Pass
Flare	Heating Value	12/10/2021	16.26 Megajoules per standard cubic meter	>7.45 Megajoules per standard cubic meter	Pass
Flare	Heat Sensing Device	12/10/2021	Pass	Not Applicable	Pass

V. EMISSIONS

The Mohave Valley Landfill's landfill gas emissions were evaluated using EPA Landfill Gas Emissions Model (LandGEM) Version 3.03 and AP-42 Chapter 2.4 for Municipal Solid Waste Landfills. LandGEM was used to determine total landfill gas generation using the methane generation rate constant for areas receiving less than 25 inches of rainfall per year, the methane generation potential recommended in AP-42 Chapter 2.4, and the landfill's annual refuse acceptance rate. The Mohave Valley Landfill's NMOC emissions were calculated based on the 2016 Tier 2 NMOC sampling concentration and total landfill gas generation rate. Volatile organic compound (VOC) emissions were calculated using the recommended value for VOC concentration from AP-42 Chapter 2.4. The facility's gas collection and control system is assumed to collect 75% of landfill gases generated, as recommended by AP-42 Chapter 2.4, with a control efficiency of 98%.

Emissions from internal combustion engines were evaluated using emission factors from AP-42 Chapter 3.3 for Gasoline and Diesel Industrial Engines. Fugitive emissions of particulate matter from cover operations, unpaved roadways, and covered storage piles were evaluated using emission factors from AP-42 Chapter 13.2, AP-42 Chapter 13.3, and EPA WebFIRE, respectively. Fugitive emissions of VOCs from the diesel storage tanks were evaluated used emission factors from EPA WebFIRE.

The facility has a potential-to-emit (PTE) less than the major source thresholds for all regulated pollutants. The facility's PTE is provided in Table 2 below:

Table 2: Potential to Emit (tpy)

Pollutant	PTE Emissions	Fugitive Emissions (non-PTE)
NO _x	51.6	0
PM ₁₀	3.1	50.3
PM _{2.5}	3.1	20.3
CO	55.4	0

SO ₂	22.7	6.6
VOC	6.0	15.0
HAPs	1.1	1.8
NMOCs	2.3	37.9
GHG (CO ₂ e)	4313.7	-

VI. APPLICABLE REGULATIONS

Table 3 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 3: Applicable Regulations

Unit & year	Control Device	Rule	Discussion
Municipal Solid Waste (MSW) Landfill	Unenclosed Flare, Active Collection System	A.A.C. R18-2-731 40 CFR 60 Subpart Cf 40 CFR 60 Subpart XXX 40 CFR 63 Subpart AAAA	A.A.C. R18-2-731 applies to MSW landfills that began construction, reconstruction, or modification on or before July 17, 2014 and accepted waste at any time since November 8, 1987 or has capacity available for future waste deposition. This standard requires the Permittee to comply with 40 CFR 60 Subpart Cf, or satisfy the requirements of 40 CFR 60 Subpart Cf by complying with 40 CFR 60 Subpart XXX. The Permittee elected to comply with 40 CFR 60 Subpart XXX to satisfy the requirements of A.A.C. R18-2-731 and 40 CFR 60 Subpart Cf. 40 CFR 63 Subpart AAAA applies to MSW landfills that has accepted waste since November 1987, 1987 or has additional capacity for waste deposition, and has a design capacity greater than 2.5 million megagrams and 2.5 million cubic meters with estimated uncontrolled emissions equal to or greater than 50 megagrams per year NMOC.
Generator	None	40 CFR 60 Subpart III	40 CFR 60 Subpart III applies to stationary compression ignition non-emergency internal combustion engines manufactured after 2007.

Unit & year	Control Device	Rule	Discussion
Asbestos Handling		40 CFR 61.154 Subpart M	40 CFR 61.154 Subpart M applies to active waste disposal sites that receive asbestos-containing waste material from asbestos mills; manufacturing, fabricating, demolition, renovation, and spraying operations; and operations that convert asbestos containing waste into nonasbestos (asbestos-free) material.
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.

VII. PREVIOUS PERMIT REVISIONS AND CONDITIONS

A. Previous Permit Revisions

Table 4 provides a description of the permit revisions made to Permit No. 65028 during the previous permit term.

Table 4: Permit Revisions to Permit No. 65028

Permit Revision No.	Permit Revision Type	Brief Description
76762	Minor Permit Revision	Installation of the gas collection and control system

B. Changes to Current Renewal

Table 5 addresses the changes made to the sections and conditions from Permit No. 65028:

Table 5: 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 Operations: Revised to reflect the requirements of NSPS Subpart XXX and NESHAP Subpart AAAA
Att. "B" Section III			X	Collection and Control System: Combined with Section II to better reflect the current operating scenario of the Mohave Valley Landfill
Att. "B" Section IV		X		Asbestos: Revised to clarify applicability.
Att. "B" Section V		X		Internal Combustion Engines: Revised to reflect the most recent revisions to NSPS Subpart III
Att. "C"		X		Equipment List: Revised to reflect the current equipment operating at the facility and include the equipment information provided.

VIII. MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS

Table 6 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.

Table 6: Permit No. 92159

Emission Unit	Pollutant	Emission Limit	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
MSW Landfill	NMOC Methane		<p>Monitor landfill gas temperature on a monthly basis. Enhanced monitoring is required if well temperature exceeds 63.8 degrees Celsius (145 degrees Fahrenheit) and 73.9 degrees Celsius (165 degrees Fahrenheit).</p> <p>Install, operate, and maintain a heat sensing device at the pilot light or flame, and a device that records flow to the flare and bypass of the flare.</p> <p>Conduct surface emissions monitoring for methane on a quarterly basis.</p>	<p>Keep records of the design capacity report, current amount of solid waste in place, and the year-by-year waste acceptance rate.</p> <p>Keep records of control system equipment data as measured during the initial performance test or compliance determination.</p> <p>Keep records of equipment operating parameters.</p> <p>Keep a readily accessible plot map showing each existing and planned collector in the system.</p> <p>Keep records of exceedances of operational standards and associated corrective actions and monitoring.</p> <p>Keep records of the annual recalculation of site-specific</p>	<p>Submit an amended design capacity report to provide notification of an increase in design capacity of the landfill within 90 days of the increase.</p> <p>Submit a revised design plan at least 90 days before expanding operations to an area not covered by the previously approved plan, or prior to installing or expanding the system in a way that is not consistent with the previously submitted design plan.</p> <p>Submit a closure report within 90 days of waste acceptance cessation.</p> <p>Submit an equipment removal report 30 days prior to removal or cessation of the control equipment.</p> <p>Submit semiannual reports documenting parameter exceedances, control system bypass, periods the system was not operating, locations of each exceedance of 500-ppm methane</p>

Emission Unit	Pollutant	Emission Limit	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
				<p>density, design capacity, and supporting documentation.</p> <p>Keep records of all collection and control system monitoring data for measured operating parameters.</p>	<p>concentration standard, date and location of new wells or collection systems, corrective actions taking more than 60 days to correct the exceedance, and enhance monitoring (if applicable).</p> <p>Submit reports of date, time, well identifier, temperature, and carbon monoxide reading within 24 hours if well temperature exceeds 76.7 degrees Celsius and carbon monoxide concentration is greater than or equal to 1,000 ppmv.</p> <p>Submit reports documenting corrective action and corresponding timeline associated with exceedances of well temperature standards.</p>
Asbestos Handling	Asbestos			<p>Maintain waste shipment records for all asbestos-containing material received.</p> <p>Maintain records of location, depth and area, and quantity of asbestos-containing material within the disposal site on a map or diagram of the disposal area.</p>	<p>Submit a copy of records of asbestos waste disposal locations and quantities upon closure.</p> <p>Notify the Director at least 45 days prior to excavating or otherwise disturbing any asbestos-containing waste material that has been deposited and is covered.</p>

Emission Unit	Pollutant	Emission Limit	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
Fugitive Dust	PM	40% Opacity	A Method 9 observer is required to conduct a biweekly survey of visible emissions.	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.	
Abrasive Blasting	PM	20% Opacity		Record the date, duration and pollution control measures of any abrasive blasting project.	
Spray Painting	VOC	20% Opacity Control 96% of Overspray		Maintain records of the date, duration, quantity of paint used, any applicable SDS, and pollution control measures of any spray painting project.	
Demolition/ Renovation	Asbestos			Maintain records of all asbestos related demolition or renovation projects including the "NESHAP Notification for Renovation and Demolition Activities" form and all supporting documents	

IX. COMPLIANCE ASSURANCE MONITORING (CAM)

The CAM rule applies to pollutant-specific emission units (PSEU) at a major Title V source if the unit meets all of the following criteria:

- A. The unit is subject to an emission limit or standard for the applicable regulated air pollutant;
- B. The unit uses a control device to achieve compliance with the emission limit or standard; and
- C. The unit has "potential pre-control device emissions" of the applicable regulated air pollutant equal to or greater than 100% of the amount (tons/year) required for a source to be classified as a major source. "Potential pre-control device emissions" means potential to emit (PTE, as defined in Title V) except emissions reductions achieved by the applicable control device are not taken into account.

The Mohave Valley Landfill is not subject to Compliance Assurance Monitoring because the facility is not subject to an emission limit or standard, and it does not have potential pre-control device emissions equal to or greater than the major source threshold.

X. LIST OF ABBREVIATIONS

A.A.C.	Arizona Administrative Code
ADEQ	Arizona Department of Environmental Quality
A.R.S.	Arizona Revised Statutes
CAM	Compliance Assurance Monitoring
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CO ₂ e	CO ₂ equivalent basis
EPA	Environmental Protection Agency
GHG	Greenhouse Gases
HAP	Hazardous Air Pollutant
MSW	Municipal Solid Waste
NAAQS	National Ambient Air Quality Standard
NESHAP	National Emission Standards for Hazardous Air Pollutants
NMOC	Nonmethane Organic Compounds
NO _x	Nitrogen Oxides
NSPS	New Source Performance Standards
PM10	Particulate Matter less than 10 µm nominal aerodynamic diameter
PM2.5	Particulate Matter less than 2.5 µm nominal aerodynamic diameter
PSEU	Pollutant-Specific Emission Unit
PTE	Potential to Emit
SO ₂	Sulfur Dioxide
TPY	Tons per Year
VOC	Volatile Organic Compound