

TECHNICAL SUPPORT DOCUMENT

I. GENERAL COMMENTS:

A. Company Information

City of Tucson, Department of Solid Waste Management, Los Reales Municipal Solid Waste Landfill

Physical Address:

5300 E. Los Reales Road
Tucson, AZ 85706

Mailing Address:

City of Tucson
Environmental Services Department
P.O. Box 27210
Tucson, AZ 85726

B. Background

This issuance is a renewal of the current 5-year permit that expired in 2008.

The landfill has been permitted by Pima County Department of Environmental Quality (PDEQ) since 1980, with the first 5-year permit being issued in September 2003. Due to a material mistake, PDEQ reopened the permit on March 13, 2006 to include the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Municipal Solid Waste Landfills – Subpart AAAA.

Since that reopening, there have been no finalized updates to the regulations that make up Part B (Specific Conditions) of the existing permit; The Part B within the 2013 permit renewal is essentially the same document that was released for issuance by EPA after its 45-day review period in December of 2006. Part B has been rearranged to present the permit by process and/ or equipment type.

The source should be aware that Amendments to 40 CFR 60, Subpart WWW were proposed on September 8, 2006 and May 23, 2002. Upon the issuance of the Final Rule, the facility will be responsible for notifying PDEQ of its applicability status and submit the appropriate documents for any needed permit revisions.

C. Attainment Classification

The source is in an area that is in attainment for all pollutants.

II. SOURCE DESCRIPTION

A. Process Description

Los Reales Landfill is a Municipal Solid Waste (MSW) landfill serving the City Of Tucson and part of Pima County. The landfill footprint currently includes 220 acres. The current landfill gas (LFG) collection and control system consists of an extraction well field, a blower/ flare station, and a compressor station. The primary control system is the off-site Tucson Electric Power – Irvington Generation Station (TEP-IGS) at which LFG is used as a supplementary fuel for burners that heat the Unit No. 4 boiler. The secondary control system is a John Zink Company candle flare located at Los Reales Landfill which is used when LFG cannot be delivered to TEP. The candle flare meets the requirements of 40 CFR Part 60.752(b)(2)(iii)(A).

B. Air Pollution Control Devices

COT – Los Reales Landfill transports the LFG to TEP as the primary control system. A secondary control system is the John Zink candle flare which has been rated to achieve 98% destruction efficiency for non-methane organic compounds (NMOCs).

III. REGULATORY HISTORY

A. Testing, Inspections & Permit Deficiencies

The source has been inspected regularly by PDEQ. Aside from 2005, when deficiencies were noted for failure to perform an EPA Method 22 and failure to notify PDEQ of being subject to the aforementioned NESHAP subpart, the only concerns have been minor fugitive dust issues.

In 2007, the source self-reported monitoring deficiencies performed by a private contractor.

All compliance issues were resolved under PDEQ’s “Opportunity to Correct” process.

B. Excess Emissions

There have been no reports of excess emissions by the Permittee.

IV. EMISSIONS ESTIMATES

A. Landfill Gas

LFG estimates were developed using the U.S. EPA Landfill Gas Estimation Model (LandGEM 3.02) model. The parameters used in the model reflected the site specific conditions.

B. Surface Emissions of Landfill Gas

Surface emissions of LFG (VOC, NMOC and HAPs) were estimated assuming all of the uncontrolled LFG (25 percent of LFG generated) is estimated through the surface of the landfill.

C. Flare emissions

Flare emissions were estimated assuming that 75 percent of the generated LFG is collected and sent to the blower/flare station. Controlled emissions of VOCs, HAPs, and NMOCs were estimated using 98 percent destruction efficiency.

The leachate PTE were provided by the source, based on site-specific analysis. The fugitive dust emissions were provided by the source using AP-42.

Emission Source	Facility-Wide Regulated Pollutant Emissions (tons/yr)								
	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAP Total	HAP Single	GHG
Landfill Gas Collection & Flare	5.30	5.30	24.23	3.86	88.44	2.13	5.12	4.87	82,293
Fugitive & Landfill Leachate	67.14	7.12	---	---	0.41	35.37	4.17	1.64	109,177

This facility is a True Minor source of all regulated criteria and hazardous air pollutants.

V. APPLICABLE REQUIREMENTS

A. NESHAP (National Emission Standards for Hazardous Air Pollutants):

CFR 63, Subpart A General Provisions
40 CFR 63, Subpart AAAA for Municipal Solid Waste Landfills
40 CFR 63, Subpart ZZZZ for Compression-Ignition Engines (emergency)

B. NSPS (New Source Performance Standards):

CFR 60 Subpart A General Provisions
CFR 60 Subpart WWW for Municipal Solid Waste Landfills

C. State Implementation Plan (SIP), Pima County:

Rule 224 Fugitive Dust Producing Activities
Rule 315 Roads and Streets parts E, and F
Rule 316 Particulate Materials
Rule 318 Vacant Lots and Open Spaces
Rule 321 Emissions-Discharge: Opacity Limiting Standards and Applicability
Rule 343 Visibility Limiting Standard
Rule 344 Odor Limiting Standard

D. Pima County Code (PCC) Title 17, Chapter 17.16:

17.16.030 Odor Limiting Standards
17.16.040 Standards and Applicability (Visible Emissions)
17.16.050 Visibility Limiting Standards
17.16.060 Fugitive Dust Producing Activities
17.16.080 Vacant Lots and Open Spaces
17.16.090 Roads and Streets
17.16.100 Particulate Materials
17.16.110 Storage Piles
17.16.340 Stationary Rotating Machinery
17.16.390 Municipal Solid Waste Landfills

VI. PERMIT CONTENTS (Part B)

A. Applicability

Los Reales landfill is required to obtain a Class I permit pursuant to PCC 17.12.140.B.1.d since the facility is subject to the NSPS for Municipal Solid Waste landfills and its criteria that any MSW having a design capacity or greater than, or equal to 2.5 million megagrams, is subject to Part 70 permitting requirements. This section of the technical support document (TSD) describes how the permit was written, the federal, State Implementation plan (SIP) or local regulation that requires the condition. If no regulation requires the condition, the TSD explains the authority for requiring the condition and citations used.

B. Section 1: Landfill Operations

1. Emission Limits/ Standards:

II.A.1 - The Permittee is required to comply with 40 CFR 60, Subpart WWW per 40 CFR 63.1955(a)(1), PCC 17.16.390.C and 40 CFR 60, Subpart Cc.

II.A.2 – The Landfill emissions of NMOC equal or exceed 50 megagrams per year. The NSPS for Municipal Solid Waste landfills require that landfills that exceed this emission rate install a Landfill Gas Collection (LFG) collection system. The federal regulations contain guidance for installing the collection system and collecting of gas from the landfill. The requirements are found in 40 CFR 63.1955(b), 40 CFR 60.752(b)(2)(ii) and PCC 17.16.390.C.4.

II.A.3 – The LFG collection system must route the collected gas for use (sale or use onsite) that is approved by the Control Officer or to an open flare that destroys the gas. Either method employed must be proposed and approved through a design plan prior to implementation by the Permittee. The approved plan is called a Gas Collection and Control System (GCCS) design plan. The requirements are found in 40 CFR 60.752(b)(2)(iii)(A)&(C) and are enforced locally through PCC 17.12.190.

II.A.4 – Permit condition requires that the flare and collection system operation should be governed by the approved design plan and permit. The federal requirement is found in 40 CFR 60.752(b)(2)(iv).

II.A.5 – Specific technical requirements that the Permittee is required to follow for the operation of the collection system. The technical requirements follow the requirements of 40 CFR 60.753 which directs the Permittee to submit a GCCS design plan.

II.A.6 – Pima County Code and Pima County SIP requirements to limit gaseous or odorous material so as not cause pollution.

2. Compliance Provisions for the Municipal Solid Waste LFG Collection System:

III.A – Specific requirements that ensure technical compliance with II.A.2 in Part B, Section 1 of the permit. (Installation of a GCCS). The requirements are found in 40 CFR 60.755(a), 40 CFR 63.1955(c), 40 CFR 63.1960.

III.B – Each well or design component installation is required to be installed according to the GCCS and time requirement based on the age of the in-place waste. These elements are found in 40 CFR 755(b) and 40 CFR 63.1960.

III.C – Specific requirements that ensure technical compliance with II.A.5 in Part B, Section 1 of the permit. (methane operational standard). The requirements are found in 40 CFR 60.755(c), 40 CFR 63.1960 and the approved GCCS Design Plan.

III.D. – When showing compliance with III.C in Part B, Section 1 of the permit, the Permittee is required to follow these specific directions to ensure instrumentation calibration for surface monitoring devices. These provisions are found in 40 CFR 60.755(d) and 40 CFR 63.1960.

III.E. – Allowable permit exemptions for startups, shutdowns and malfunctions, within time element parameters specified in 40 CFR 60.755(e).

III.F. – Requirement to develop and implement a written startup, shutdown and malfunction (SSM) plan. The requirements are found in 40 CFR 63.1960 and 40 CFR 63.6(e)(3).

3. Specifications for Active Municipal Solid Waste LFG Collection Systems

IV.A – In order to collect the gas in the most comprehensive manner, collection wells and associated components are required to be placed as prescribed in 40 CFR 60.759(a) and 40 CFR 63.1960. These federal requirements also identify other items to be addressed during collection of gases. The approved GCCS design plan is required to be followed when siting active collection wells.

IV.B – Requirements for the construction of gas collection components. Specific directions are found in 40 CFR 60.759(b).

IV.C. – Requirements for the sizing and maximum flow rate consideration of the gas collection components. The reference for this is found in 40 CFR 60.759(c).

4. Monitoring Requirements

V.A.1 – Technical requirements for the installation of sampling port and thermometer at each wellhead. Requirements are found in 40 CFR 60.756(a).

V.A.2 – Technical requirements for installation of thermocouple and flow measuring device at flare. Requirements are found in 40 CFR 60.756(c).

V.A.3 – When employing a control device other than an open flare or an enclosed combustor, the Permittee is required to submit specifics of alternate LFG control device. Requirements are found in 40 CFR 60.756(d).

V.A.4 – When employing a collection system that does not meet the requirements specified in the federal standard, the Permittee is required to submit specifics of the alternate collection system specifications and/or monitoring parameters. This requirement is found in 40 CFR 60.756(e).

V.A.5 – When complying with III.C of the permit (surface methane operational standard), these requirements of when and how to monitor surface concentrations of methane shall be followed by the Permittee. Requirements are found in 40 CFR 60.756(f).

V.A.6 – Requirements for monitoring visible flare emissions to ensure compliance with II.A.3.b of Part B, Section 1 of permit. This permit condition was created by PDEQ to address the absence of specific monitoring required to show compliance with the referenced visible emissions limitation.

5. Recordkeeping Requirements

LFG Collection Systems

VI.A.1 – Requirement to keep the design capacity report and waste acceptance data readily accessible for a minimum of 5 years. The federal requirement is found in 40 CFR 60.758(a).

VI.A.2 – Requirement to keep initial performance and subsequent tests of the control equipment as well as vendor specs readily accessible. The federal requirement is found in 40 CFR 63.1980.

VI.A.3 – Requirement to keep equipment operating parameters and parameter exceedances records readily accessible for 5 years minimum. The federal requirement is found in 40 CFR 60.758(c).

The facility does not have a Data Acquisition and Handling System (DAHS) to maintain continuous operational records of the flame or flare pilot flame. To comply with this requirement, the Permittee has installed a mechanism that shuts off the flow of LFG to the flare once the operational temperature falls below 150 °F. The Control Officer has reviewed the operation of this system during an inspection conducted on August 12, 2013 and has approved this method of showing compliance with 40 CFR 60.758(c) that requires that the Permittee "...shall keep up-to-date, readily accessible continuous records of the flame or flare pilot flame monitoring specified under 40 CFR 60.756(c) (V.A.2 of Part B, Section 1) and up-to-date, readily accessible records of all periods of operation in which the flame or flare pilot flame is absent..."

The Control Officer shall require that the Permittee maintain this mechanism according to manufacturer's specifications. Absent of manufacturer's specifications, the Permittee shall either develop an Operations and Maintenance plan for the mechanism or test the system approximately once per 12-month period to ensure that the shutdown mechanism is operational. All records created during any maintenance or testing procedures shall be kept for the operational life of the flare.

VI.A.4 – The federal regulation requires that the Permittee keep a plot map of existing and planned collectors readily accessible for the life of the system. The federal requirement is found in 40 CFR 60.758(d).

VI.A.5 – Requirement to keep records of operational standard exceedances readily accessible for 5 years. The federal requirement is found in 40 CFR 60.758(e).

VI.A.6 – Requirement to keep design capacity records and calculations readily accessible. The federal requirement is found in 40 CFR 60.758(f).

VI.A.7 – Requirement to keep a copy of the SSM (Startup, Shutdown and Malfunction) plan onsite at all times. The federal requirement is found in 40 CFR 63.1960 & 40 CFR 63.1980(b).

Visible Emissions from the Flare

VI.B.1 – Requirement to keep log book with specifics of each observation as required by the permit. The authority to require recordkeeping standards is PCC 17.12.180.A.4.

VI.B.2 – Requirement to document in a log book the results of any EPA Test Method 22 conducted as required by the permit. The authority to require recordkeeping standards is PCC 17.12.180.A.4.

6. Reporting Requirements

VII.A.1 – Federal requirement for the submittal of an initial design capacity report. Requirement is found in 40 CFR 60.758(a) and PCC 17.16.390.C.2.

VII.A.2 – Federal requirement for the submittal of an Non-Methane Organic Compound (NMOC) emission rate report. Requirement is found in 40 CFR 60.757(b) and PCC 17.16.390.C.2.

VII.A.3 – The Permittee is required to submit a Gas Collection and Control System (GCCS) design plan. Federal requirement is found in 40 CFR 60.757(c) and PCC 17.16.390.C.3.

VII.A.4 – A landfill may cease accepting waste and be scheduled for a permanent closure. In such occurrences, federal regulations require that a closure report is submitted to the Administrator and the Control Officer. The federal requirement is found in 40 CFR 60.757(d).

VII.A.5 – A landfill may cease accepting waste and be scheduled for a permanent closure. In such occurrences, federal regulations require that an equipment removal report is submitted to the Administrator and the Control Officer. The federal requirement is found in 40 CFR 60.757(e).

VII.A.6 – Requirement for submittal of semiannual reports of collection system activity. Requirement is found in 40 CFR 60.757(f) and should be part of the approved GCCS design plan.

VII.A.7 – The Permittee is required to submit an initial performance test report containing information identified by the permit and federal regulations. Requirements are found in 40 CFR 60.757(g).

7. Testing Requirements

VIII.A.1 – Procedures for the initial calculation of the NMOC Emission Rate as prescribed by federal regulations in 40 CFR 60.754(a).

VIII.A.2 – Procedures for the calculation of the NMOC emission rate upon installation of the GCCS. Requirements are found in 40 CFR 60.754(b).

VIII.A.3 – Procedures for estimating the NMOC emission rate for PSD calculation purposes. Requirement is found in 40 CFR 60.754(c).

VIII.A.4 – The Permittee is required to conduct an initial performance test upon initial startup. Requirements are listed in 40 CFR 60.8(a) and PCC 17.12.050.A.

C. (Part B) Section 2: National Emission Standards for Hazardous Air Pollutants (NESHAP) for Reciprocating Internal Combustion Engines ‘RICE’(40 CFR Part 63, Subpart ZZZZ)

1. Applicability

I.A through D - Description identifying if the facility is subject to the subpart.

2. Emission Limitations and Standards

II.A through F - Emission limitations and operating limitations for existing stationary Compression Ignition (CI) RICE located at an area source of HAP emissions must meet the requirements in Table 2d and operating limitations in Table 2b.

3. General Compliance Requirements

III.A and B - Compliance with permit conditions required at all times. The Permittee shall operate the affected source in a manner consistent with safety and good air pollutant control practices for minimizing emissions.

4. Monitoring, Installation, Collection, Operation, and Maintenance Requirements

IV.A through D. - Requirement to operate and maintain the stationary RICE and any control device according to manufacturer's emission-related written instructions or develop your own maintenance plan. Requirement to install a non-resettable hour meter if one is not already installed. Requirement to minimize the engine's times spent at idle during startup and minimize the engine's startup time. Option to use an oil analysis program to extend specified oil change requirement.

5. Demonstration of Continuous Compliance with the Emission Limitations and Operating Limitations

V.A - Requirement to demonstrate compliance with standards in Table 2d according to the methods in Table 6.

V.B - Requirements for specific RICE including existing emergency stationary RICE located at area sources.

6. Reporting Requirements

VI.A through C – Description of what reports are required to be submitted and when.

7. Recordkeeping Requirements

Requirement to keep records of all notification and reports submitted. Records of occurrence and duration of each malfunction. Records of performance tests. Records of required maintenance. Records of actions taken during periods of malfunction to minimize emissions. Requirement to keep records required in Table 6. Requirement to keep records of maintenance conducted. Requirement to keep records of hours of operation including documentation of emergency hours and non-emergency hours. Description of the form and how long the Permittee must keep records.

8. Testing Requirements

Locally Enforceable Conditions identifying the specific testing provisions required to demonstrate compliance with the emission limitations and standards of the permit.

D. (Part B) Section 3: Fugitive Dust Activities

1. Emission Limits/ Standards:

II.A.1 – Prohibition from emitting dust/ airborne particulate matter in excess of 40% opacity from fugitive dust operations. This standard is also federally enforceable under SIP Rule 321.

II.A.2 – This permit condition limits the emissions of visible emissions beyond the property boundary lines. This standard is federally enforceable under SIP Rule 343. An exception applies when the wind speeds exceed 25 mph. For this exception to apply, the Permittee must have taken all required and necessary control measures to ensure that emissions do not cross the property boundary line.

II.A.3 – The Permittee is required to apply the necessary suppressants to prevent dust from crossing boundary lines. The Permittee is allowed to go above and beyond what is required by the permit to control emissions. Additionally, the permit condition is federally enforceable under SIP Rule 224.

II.A.4 – The Permittee is required to prevent excessive amounts of particulate matter from any vacant lots or open spaces from becoming airborne. Use of these areas in any form is required to be in compliance with prescribed Pima County Code conditions and SIP rule 318.

II.A.5 – Fugitive dust control requirements for road construction, maintenance and use. The condition is also federally enforceable under Pima SIP Rule 315.

II.A.6 – Particulate material standard that gives the Permittee examples on how to control emissions for various types of operations. This standard is federally enforceable under Pima SIP Rule 316.

II.A.7 – Storage pile fugitive dust control standard. This standard is federally enforceable under Pima SIP Rule 316.

II.A.8 – General fugitive dust control standards for all dust producing activities. This standard is federally enforceable under Pima SIP Rule 224.

2. Monitoring Requirements:

III.A.1 – Requirement for visual survey at least once every 14 days to ensure compliance. Authority to required monitoring for fugitive dust is found in PCC 17.12.180.A.3.

III.A.2 – Requirement to conduct EPA Method 9 on any visible emissions that appear to exceed 20 percent opacity. Authority to required monitoring for fugitive dust is found in PCC 17.12.180.A.3.

III.A.3. – Requirement to take immediate action upon confirmation of an opacity exceedance. The Permittee is required to prevent emissions or control the source of the emissions to an extent that the 20% opacity is not exceeded.

3. Recordkeeping Requirements:

IV.A – Requirement to record the specifics of each observance as specified by the permit. The requirement to maintain records is authorized by PCC 17.12.180.A.4.

4. Reporting Requirements:

V.A – Requirement to report any instance of opacity violations. The requirement for reports is authorized by PCC 17.12.180.A.5.

E. (Part B) Section 4: General Facility-wide Reporting Conditions

This section contains general reporting requirements that are applicable to all emission units and emission producing activities at the site. They describe how the Permittee is required to submit or notify the department when a report is required. These include excess emissions, permit deviations, semiannual monitoring reports when required, compliance certifications and emission inventory reporting.

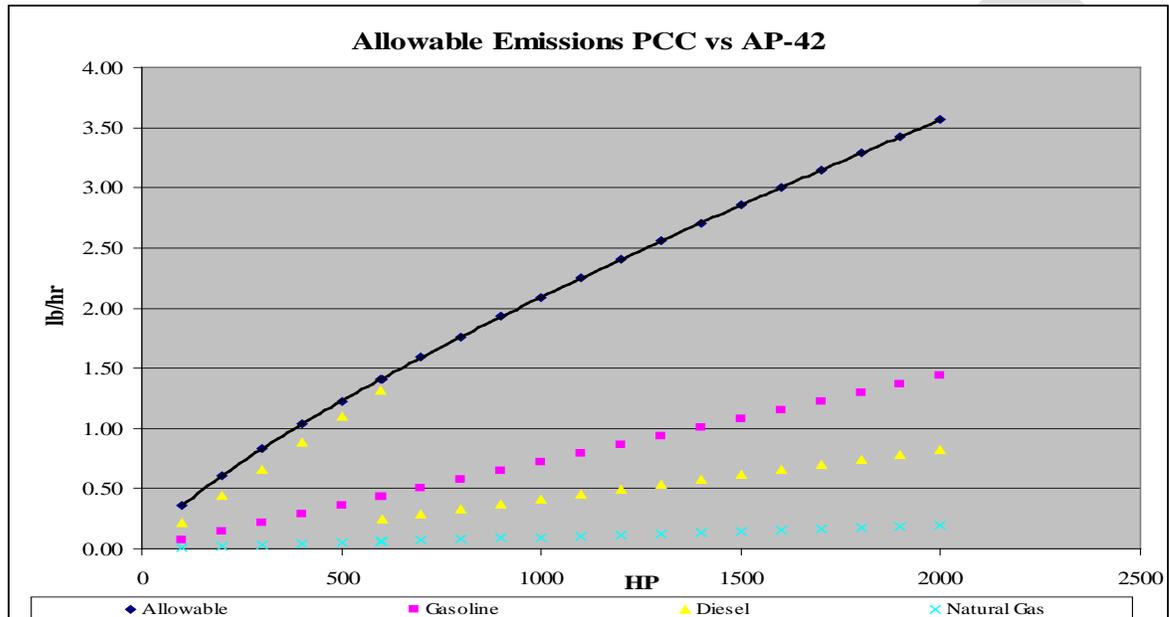
F. Alternate Operating Scenarios:

The applicant has not requested any alternate operating scenarios.

G. Miscellaneous Comments:

Non Applicable Conditions

PCC 17.16.340.C limits the emissions of particulate matter from stationary rotating machinery. Allowable emissions are well above potential emissions from the combustion processes and the permit condition does not need to be included. 40 CFR Part 70 however requires that all applicable conditions be included in Title V operating permits. The following Chart illustrates the relationship between the allowable emissions and the potential emissions from the generator:



AP-42 estimated emissions are demonstrably less than allowable emissions, and with the exception of small diesel engines, AP-42 estimated emissions are significantly less than the allowable emissions. Therefore, it is not necessary to include the standard in the permit explicitly but, by reference in Attachment 1.

VII. CONTROL TECHNOLOGY DETERMINATION

No control technologies need to be determined.

VIII. PREVIOUS PERMIT CONDITIONS

None removed. The permit has been reorganized into equipment/ processes type sections.

IX. INSIGNIFICANT ACTIVITIES

The following activities are considered insignificant pursuant to PCC 17.04.340(A)(114)(h):

“Internal combustion (IC) engine-driven compressors, IC engine-driven electrical generator sets, and IC engine-driven water pumps used only for emergency replacement or standby service” and are not subject to any applicable requirement. Equipment may also be determined by the Control Officer as insignificant is listed. Such equipment is determined to be insignificant by either size or its emissions potential.

This source declares:

Equipment	Fuel	Capacity (HP)	2010 Actual Operating Hours
Air Compressor	Diesel	10	62
Tarpomatic Engines	Diesel	20	146
Pressure Washer	Diesel	16	38