

**DKL Holdings, Inc dba
Marana Regional Landfill
Permit #6133**

TECHNICAL SUPPORT DOCUMENT (TSD)

April 02, 2012

I. General Comments:

A. Company Information

1. DKL Holdings, Inc dba Marana Regional Landfill
2. Physical Address: 14805 West Avra Valley Road, Marana, AZ 85653.
Mailing Address: P.O. Box 32803, Tucson, AZ 85751-2803.

B. Background

The Marana Regional Landfill (MRLF) applied for an initial installation and operating permit on September 23, 2011. The application is for the construction and operation of a municipal solid waste landfill to be owned and operated by DKL Holdings Inc. The total site area is approximately 591 acres and is located 8 miles west of Interstate 10 and Avra Valley Road in Marana, Arizona.

The permit was deemed administratively incomplete on October 17, 2011. An extension to respond to PDEQ's application incomplete letter was requested by DKL Holdings Inc. The request was granted on December 9, 2011 and the response was received on January 17, 2012. The permit application was found administratively complete on February 7, 2012. This permit is an initial five year installation and operating permit to be issued to MRLF. The facility is required to obtain an air quality permit per Pima County Code (PCC) as it is subject to the New Source Performance Standards (NSPS) for Municipal Solid Waste Landfills, promulgated under 40 CFR 60, and WWW. In addition, Subpart WWW requires that the MRLF obtain a Title V (Class I) permit since the landfill exceeds a design capacity of 2.5 million cubic meters or 2.5 million megagrams. MRLF will operate a water pump and gasoline storage tank onsite. These two operations are subject to federal regulations as described later.

The types of wastes accepted for land filling are non-hazardous municipal solid waste, green waste, construction debris, manure livestock waste, inert materials, dead animals and other materials as listed in the permit. Waste will be delivered to the site by transfer trucks from transfer stations, commercial vehicles, and private vehicles.

Landfills subject to Subpart WWW with non-methane organic compound (NMOC) emissions that exceed 50 Mg/yr are required to design, construct, and operate a gas collection and control system (GCCS). LandGEM modeling using an NMOC gas concentration of 1900 ppm predicted that a GCCS would be required at MRLF in calendar year (CY) 2016. The 1900 ppm concentration value was noted in sampling results for NSPS Tier 2 testing and flare source testing (inlet gas) at two similar landfills in Arizona.

As currently proposed, no controls of emissions from the landfill waste are required. MRLF has stated in its application that if and when the 50 Mg/yr value is triggered, they will apply for and obtain the necessary permits for installation of the required control devices to comply with the NSPS.

C. Correspondence Timeline

**DKL Holdings, Inc dba
Marana Regional Landfill
Permit #6133**

The table below is a timeline of correspondence sent to and received from MRLF during preparation of the draft permit. This correspondence addresses the permit application only.

Correspondence	Date Submitted
Class I Air Quality Permit Application Received	9/23/2011
PDEQ Administratively Incomplete Application Letter to MRLF (Modeling Required per Pima SIP Rule 504)	10/17/2011
Air Dispersion Modeling Protocol Received	12/02/2011
Amended Application Received (PTE numbers revised)	12/5/2011
PDEQ approved MRLF Extension Request to Respond to Incomplete Letter	12/9/2011
Incomplete Application Response Received from MRLF (Dispersion Modeling Results submitted)	1/17/2012
Application Determined Administratively Complete	2/7/2012
Draft Permit Complete and Emailed to Applicant	3/1/2012
Draft Comments Received from Applicant	3/15/2012

D. Attainment Classification

The Landfill is located in a region that is designated as attainment for all criteria pollutants.

II. Source Description

The MRLF will primarily operate under the area fill method of disposal. Waste will be evenly spread in layers and compacted. A layer of soil or approved alternate material at least 6 inches will be spread over the waste as daily cover. Refuse will be covered at the end of each operating day in accordance with federal requirements found in 40 CFR §258.21. Alternate daily cover will range from tarps, shredded/ processed green wastes, bottom ash, shredded waste tires, petroleum contaminated soils, auto shredder fluff to crushed glass. The types of waste that will be accepted at the landfill are listed at the end of the permit as Attachment 1.

A. Process Description

Activities conducted at the Landfill include landfilling operations, leachate management, cover operations, and recycling activities. The activities are described in detail below.

1. Landfill Operations

Municipal solid waste (MSW) and other types of solid waste are brought to the facility via transfer trucks, collection trucks and private vehicles. The MSW is disposed of in a lined disposal area, is compacted by heavy equipment and covered at the end of each workday. Landfill equipment used will include a variety of mobile equipment/ vehicles.

**DKL Holdings, Inc dba
Marana Regional Landfill
Permit #6133**

2. Liner System

The facility will incorporate a “bottom liner system” to collect and recover leachate from the landfill and prevent leachate from migrating out of the landfill. The liner system will consist of (from bottom to top) multiple layers of different material to create a barrier intended to be impenetrable and able to contain the waste and any leachate that may form.

3. Leachate Collection and Monitoring System

A leachate collection and removal system (LCRS) will be installed above the HDPE unit of the liner system. The LCRS will consist of a piping system that collects leachate percolating out of the waste and conveys the leachate to a sump where it can be removed from the landfill.

4. Landfill Gas Monitoring

When required by air quality EPA regulatory requirements, a methane gas monitoring plan will be developed and implemented. The Landfill Gas Monitoring System (LGMS) will include the installation of methane probes at the property boundary or within the buffer zones between the landfill footprint and the property boundary. These probes will be regularly monitored (at least quarterly). In addition, continuous methane monitors will be installed in site structures.

5. Disposal Operations

Landfill operators will be responsible for overseeing that all wastes are unloaded in the designated locations at the working face, which will be confined to the smallest possible area. Minimizing the size of the working face encourages better compaction and litter control. A compactor, dozer, or loader will be used for waste compaction. Waste will be spread immediately after unloading to minimize blowing litter and to keep the unloading area clear for additional loads. As required by EPA and ADEQ, at the end of each working day, a layer of at least 6 inches of daily soil cover material or an ADEQ-approved alternative daily cover will be placed on all exposed waste. This daily cover minimizes potential for rainfall to contact waste materials as well as providing control of litter, insects and rodents, and odors.

6. Evaporation Basins

If evaporation basins are required, they will be used to dispose of leachate and/or condensate generated and collected within the landfill and which cannot be utilized in lieu of well water for dust control within the lined landfill area. If evaporation basins are constructed, leachate and/or condensate collected from the landfill LCRS sumps or landfill gas collection system, respectively, would be piped or transported by water truck to the evaporation basins and allowed to evaporate.

B. Operating Schedule

The Landfill is permitted to operate 24 hours a day, 7 days per week (8760 hours per year).

C. Applicability Categories

The following categories are addressed by the permit:

**DKL Holdings, Inc dba
Marana Regional Landfill
Permit #6133**

1. Landfill Operations. (NSPS and NESHAP)
2. Combustion Processes.
3. Storage Tanks.
4. Mobile Sources

D. Air Pollution Control Equipment

The Landfill will utilize water, other equally effective controls and vehicle speed to control fugitive dust at the site.

III. Regulatory History

There is no regulated history of the landfill. This is a new permit to be issued for this facility

A. Testing & Inspections

None. This will be a new source.

B. Excess Emissions

None. This will be a new source

IV. Emission Estimates

Emissions are generated primarily from two sources. The first source of emissions is from construction and landfill operating activities. These fugitive emissions result from the operation of vehicles on the landfill surface and material handling activities, such as loading and unloading to storage piles. Construction activities may be initial excavation construction activities or construction activities after the landfill begins accepting waste. These emissions are reported as PM₁₀ and PM_{2.5}.

The second source of emissions is fugitive organic and greenhouse gas pollutants from the uncontrolled landfill gas. Landfill gases are generated as a result of solid wastes decomposing following disposal. Organic wastes decompose aerobically as long as oxygen is present. Once oxygen is depleted, anaerobic decomposition becomes dominant. Inorganic wastes primarily decompose by chemical oxidation. Decomposition products of concern to this permitting action include carbon dioxide, methane (greenhouse gases), and non-methane organic compounds (NMOC). These pollutants will be emitted uncontrolled through the surface of the landfill.

There are minimal emissions that will be contributed from the operation of the water pump. Emission calculations were submitted with the application and through the modeling results. These have been reviewed and approved by PDEQ. The table below is a summary of the emissions at the facility. Although PDEQ concurs that emissions from the storage tanks are minimal and not required to be submitted, PDEQ has determined that these operations are not insignificant per PCC 17.04.340.A (Insignificant definition) as they are subject to applicable requirements. There is a federal applicable requirement for dispensing

**DKL Holdings, Inc dba
Marana Regional Landfill
Permit #6133**

operations from the gasoline storage tank found in 40 CFR 63 Subpart CCCCCC and PCC 17.16.230. The used oil storage tank is subject to PCC 17.16.430.

These values may be used for the following purposes:

- (i). Ascertaining “major source” status of MRLF pursuant to CAA Sec 501 (2) Only non-fugitive emissions may be used for such purposes as the landfill is not a categorical source;
- (ii). Comparing source potential-to-emit with emission rates allowable by relevant standards; and
- (iii). Comparing source potential-to-emit with emissions inventory and test data.

Pollutant Source	Pollutant	PTE (TPY)
Landfill Gas	NMOC	12.95
	VOC	5.05
	HAPs	3.29
	GHG (CO ₂ e)	67,884
Material Handling/ Hauling (includes waste placement and daily cover, unpaved roads, stockpile wind erosion)	PM ₃₀ (TSP)	627.75
	PM ₁₀	171.59
	PM _{2.5}	17.48
Diesel Engines	NO _x	14.94
	SO _x	0.99
	CO	3.22
	VOCs	1.19
	HAPs	0.02
	PM ₁₀	1.06
Plant-wide Totals	NMOC	12.95
	VOC	6.24
	HAPs	3.31
	PM₁₀	172.65
	PM_{2.5}	17.48
	NO_x	14.94
	SO_x	0.99
	CO	3.22
	GHG (CO₂e)	67,884

V. Applicable Requirements

A. Standards addressed by the permit:

**DKL Holdings, Inc dba
Marana Regional Landfill
Permit #6133**

1. Pima County State Implementation Plan (SIP):

- 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

2. Code of Federal Regulations Title 40:

- 40 CFR 60 Subpart WWW Standards of Performance for Municipal Solid Waste Landfills:
- 40 CFR 60 Subpart IIII Standards of Performance for Stationary Internal Combustion engines
- 40 CFR 63 Subpart ZZZZ National Emission Standards for hazardous Air Pollutants: Reciprocating Internal Combustion Engines

- 40 CFR 63 Subpart CCCCCC National Emission Standards for Hazardous Air Pollutants for Source Categories: Gasoline Dispensing Facilities

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

- 17.16.020 Noncompliance with Applicable Standards
- 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
- 17.16.450 Off-Road Machinery
- 17.16.470 Roadway and Site Cleaning Machinery

B. Standards which are not applicable:

PSD/NSR. PSD is not applicable because emissions at the facility are less than 250 TPY. Non-attainment NSR is not applicable because the facility is in an area that is classified in attainment for all pollutants.

VI. Permit Contents

A. Section 1: Landfill Operations

1. Emission Limits/Standards:

**DKL Holdings, Inc dba
Marana Regional Landfill
Permit #6133**

- a. Municipal Solid Waste Landfill (NSPS and NESHAP) [II.A of Part B, Section 1 of the permit]
 - i. The Permittee is required to comply with 40 CFR 60 Subpart WWW, "Standards of Performance for Municipal Solid Waste Landfills" by recalculating the NMOC emission rate annually and submitting an annual emission report to the Control Officer. The procedures for calculating the emission rate are provided in the permit.
 - ii. Should the NMOC emission rate, exceed 50 megagrams per year, the Permittee is required to install a collection and control system in compliance with 40 CFR 60.752(b)(2).
 - iii. When the landfill is permanently closed, the Permittee is required to submit a closure notification to the Control Officer as provided for in 40 CFR 60.757(d).

b. Installation Permit Conditions

Per Pima County SIP Rule 504, a new major source for criteria pollutants (greater than 100 TPY) is required to submit modeling to show compliance with all applicable ambient air standards which are shown as maximum allowable pollutant concentrations in SIP Rule 342, Table 342.. According the SIP Rule MRLF is major for particulate matter (including fugitives), therefore is required to show compliance with the SIP total suspended particulate (TSP) standard of 150 $\mu\text{g}/\text{m}^3$ per averaged 24 hour period. This required that MRLF propose some limitations and controls on operations in order to meet the maximum allowable concentrations within Table 342.

The controls submitted in the modeling report that are practically enforceable have been incorporated in the permit as installation permit conditions.

The conditions resulting from the limitations and controls proposed by MRLF in the modeling report are

- i. a limitation to only operate 19 hours per day during mass excavation operations of Module 1B. A day for the purposes of this permit has been defined as a calendar day. MRLF's proposed hours of 19 hours per day were for Module 1B (landfill operation and future cell construction).
- ii. MRLF has proposed that vehicles will follow a proposed path along dirt roads during Module 1A and 1B construction/operation. Emissions modeled from dirt roads are dependent on the length and width of the road as well as the controls used. PDEQ will require that MRLF maintain all dirt roads at a distance of approximately 520 feet from the western fenceline and approximately 490 feet from the southern fenceline as proposed in the air dispersion modeling report submitted January 17, 2012.
- iii. In order to prevent emissions from crossing property boundary lines, MRLF is required to maintain all roads in active use according to prescribed permit conditions or Pima County Code. This ensures that all efficiencies proposed for vehicles on active roads are adhered to.

**DKL Holdings, Inc dba
Marana Regional Landfill
Permit #6133**

c. Standards for Particulate Matter

- i. Opacity limiting standards [II.B.1 of Part B, Section 1 of the permit]

These are standard opacity requirements for sources operating in Pima County.

- ii. Visibility limiting standards

These visibility standards prevent the Permittee from having visible emissions go beyond the property line of the facility. The Permittee is required to control air born particulate matter at all times using reasonable measures. As long as the Permittee is using reasonable measures, the Permittee is in compliance when the wind speed exceeds twenty five miles per hour. Emissions from undisturbed land are not affected by this requirement.

- iii. The Permittee is required to apply adequate amounts of water, or other effective dust suppressants until the area becomes permanently stabilized.

- iv. Vacant lots, open spaces, roads and streets

These generic Pima County Code dust control standards describe how the Permittee is required to control dust from onsite activities.

- v. Particulate Materials and Fugitive Dust Producing Activities

These generic Pima County Code dust control standards describe how the Permittee is required to control dust from on site activities which may include construction, transportation and storage of particulate matter.

- vi. Odor Limiting Standard

This standard requires the Permittee to control all odors from operations at the facility so as not to cause air pollution.

2. Monitoring Requirements

- a. Municipal Solid Waste Landfill (NSPS and NESHAP)

- i. This standard requires the Permittee to calculate the NMOC emission rate using the procedures specified in 40 CFR 60.754.

- ii. After calculating the emission rate the Permittee compares the calculated NMOC mass emission rate to the standard of 50 megagrams per year. If the NMOC emission rate calculated is less than 50 megagrams per year, then the Permittee is required to submit an annual emission rate report with the recalculated NMOC mass emission rate. If the calculated NMOC emission rate is equal to or greater than 50 megagrams per year, then the Permittee is required to either install a gas collection system in accordance with 40 CFR 60.752(b)(2) or determine a site-specific NMOC concentration and recalculate the NMOC emission rate using the

**DKL Holdings, Inc dba
Marana Regional Landfill
Permit #6133**

procedures in 60.754(a)(3). If the NMOC emission rate is equal to or greater than 50 megagrams per year, then the Permittee is required to either install a gas collection system in accordance with 40 CFR 60.752(b)(2) or determine the site-specific methane generation rate constant using the procedures in 60.754(a)(4). If this rate is still equal to or greater than 50 megagrams per year then the Permittee shall install the gas collection system in accordance with 40 CFR 60.752(b)(2). There are three Tiers that the Permittee may use to calculate the NMOC emission rate.

b. Particulate Matter

The Permittee is required to conduct a survey of any visible emissions from sources of fugitive dust. If the emissions appear to exceed 20% the Permittee is required to conduct a Method 9 observation. If the Method 9 results show that the visible emissions exceed 20% then the Permittee shall take immediate action to reduce the opacity below 20%.

c. Installation Permit Conditions

i. The Permittee is required to propose and maintain an Operation & Maintenance Plan (O & M Plan) that prescribes a schedule of maintaining active roads to prevent excess emissions. The plan is due to be submitted within 60 days of start-up. These days will allow MRLF to determine the effectiveness of the O & M Plan.

ii. The Permittee is required to maintain a map/ plan onsite that clearly shows the active roads onsite.

3. Recordkeeping Requirements

a. Municipal Solid Waste Landfill (NSPS and NESHAP)

The Permittee is required to keep readily accessible or on site records of all required monitoring for at least 5 years. Keeping these records verifies that the Permittee is recalculating the design capacity of the landfill.

b. The Permittee is required to keep records of the following for fugitive dust surveys: the date the observations were made, fugitive dust sources observed, results of the observations, and any corrective actions taken. These records verify that the Permittee is monitoring all fugitive dust sources and showing compliance with emission limits and standards. Pima County Code requires all records to be kept on site or readily accessible for a period of five years.

c. Installation Permit Conditions

The Permittee is required to maintain a record of the actual operating hours of the landfill in order to show compliance with the 19-hour operating requirement during construction of Module 1B.

**DKL Holdings, Inc dba
Marana Regional Landfill
Permit #6133**

4. Reporting Requirements

- a. Municipal Solid Waste Landfill (NSPS and NESHAP)
 - i. The Permittee is required to submit the initial design capacity report as required by federal regulations.
 - ii. The Permittee is required to submit an NMOC emission rate report to the Control Officer annually or as allowed by 40 CFR Part 60 Subpart WWW. The Control Officer may request such additional information as may be necessary to verify the reported NMOC emission rate. The NMOC emission rate report shall include all the data, calculations, sample reports and measurements used to estimate the annual emissions.
- b. Facility Wide Requirements

These are standard Pima County Code permit reporting requirements for Title V sources which include excess emissions and deviations, compliance certifications, semi annual reports of required monitoring and emissions inventory reports. Reports are to be submitted as required by the permit and Pima County Code.

5. Testing Requirements

- a. The only required testing is EPA Method 9, visible emissions observation test. This test is to be used as required by the permit when emissions appear to exceed 20% opacity.
- b. If any other tests are necessary or required by the Control Officer, a written request with the appropriate test methods shall be made to the Control Officer or Permittee respectively.

B. Section 2: Combustion Processes

The combustion equipment identified within this section has the potential to emit significant quantities of regulated air pollutants. This equipment includes non-road engines, such as, portable emergency generators or fire pump not subject to NSPS Subpart IIII or NESHAP ZZZZ, and one stationary water pump which is subject to NSPS IIII and NESHAP ZZZZ. The EPA has established conditions that apply to this engine. PDEQ has included in the permit the federal conditions that apply to the stationary equipment.

1. Operational Limitation:

Standards consisting of certified emission limits and useful life for certification of the engines, fuel requirements, installation restrictions for engines and methods of compliance for the Permittee. The Permittee is required to operate and maintain all subject units according to the manufacturer's instructions or procedures developed by the Permittee and approved by the engine manufacturer.

**DKL Holdings, Inc dba
Marana Regional Landfill
Permit #6133**

2. Opacity:

The Permittee cannot allow any equipment under his control to emit effluents (such as exhaust from a generator) that exceed specific values of opacity (the degree to which light cannot pass through the plume of effluent/exhaust.) The Permittee demonstrates compliance with this regulation by checking the exhaust from the emergency generator under his control quarterly, and keeping complete records of these checks.

In addition, should the engine(s) not be constant speed engine(s), the Permittee is also required to certify the opacity levels according the federal requirements specified in the permit. If the engine(s) are constant speed engine(s), the federal opacity requirements do not apply and only the local 20% opacity standard is applicable.

3. Fuel Requirements:

The Permittee is prohibited from firing fuels other than those allowed by the permit. This is a material permit condition as alternate fuels may result in an increase in emissions for this group of equipment to above major source thresholds.

C. Section 4: Storage Tanks

The Permittee has two storage tanks onsite that store gasoline and used oil. The gasoline tank is subject to NESHAP subpart CCCCCC and PCC 17.16.230 'Standards of Performance for Storage Vessels of Petroleum Liquids' and the used oil tank is subject to PCC 17.16.430 'Standards of Performance for Unclassified Sources'

VII. Previous Permit Conditions

Since this permit is for a new facility, there are no previous permit conditions.

**DKL Holdings, Inc dba
Marana Regional Landfill
Permit #6133**

Attachment 1

The following wastes are allowable categories of wastes to be received at the MRLF. This is a general list and may not be inclusive of all types of waste to be received at the landfill. A more thorough and complete list of allowable wastes is defined by state and/ or federal municipal solid waste regulations.

- Municipal Solid Waste (MSW): including household waste, commercial solid waste, non-hazardous sludge, conditionally exempt small quantity generator waste, and industrial solid waste.
- Vegetative (Green) Waste: as defined at ARS §49.701.36, vegetative (green) waste includes waste derived from plants, including tree limbs and branches, stumps, grass clippings and other waste plant materials.
- Construction and Demolition Debris: as defined at ARS §49.701.5 & 7, construction and demolition debris includes solid waste derived from the construction, repair, remodeling, or demolition of building or other structures.
- Inert Material: as defined at ARS §49.701.15, inert material is material that is not flammable, will not decompose, and will not leach substances in concentrations that exceed Aquifer Water Quality Standards using a water leach test that is designed to approximate natural infiltrating waters. Inert materials include concrete, asphaltic pavement, brick, rock, gravel, sand, soil and metal, if used as reinforcement in concrete, but does not include special waste, hazardous waste, glass or other metal.
- White Goods: White goods containing CFCs must have a certification that the CFCs have been properly recycled by a certified technician.
- Automobiles.
- Animal Carcasses. The carcass(es) is placed in an excavation made in or near the working surface and immediately covered with other MSW or daily cover soil.
- Pesticide and other empty containers from conditionally exempt small quantity generators.
- Non-hazardous, non-infectious, treated, biomedical wastes.
- Special Wastes: As defined by ARS §49.851, special wastes are non-hazardous wastes which require special handling and management to protect public health or environment. These wastes include categories listed at ARS §49.852 or adopted by rule pursuant to ARS §49.855. This plan constitutes a special waste management plan in accordance with ARS §49.857. Disposal of special wastes will comply with BMP's as adopted by the Department.
- Petroleum contaminated soil (PCS) as defined in ARS §49.852(A)(1) and ARS §49.851(A)(3) may be accepted and will be managed in accordance with ARS §49.855.
- Non-friable and regulated asbestos-containing material.
- Shredded, sliced, or quartered tires, (Including "alligator" pieces.)
- Landscape rubble as defined in ARS §49.701.17.
- Sewage sludge, septage and other wastes passing the paint filter test.
- Other Non-Hazardous Wastes: Any other non-hazardous solid waste, as defined at ARS §49.701.01 or 40 CFR §258.2 which is not prohibited by statute or regulation from receipt at an MSWLF may be accepted by MRLF.