



GOVERNMENT OF PUERTO RICO  
OFFICE OF THE GOVERNOR  
ENVIRONMENTAL QUALITY AREA



Air Quality Area

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STATEMENT OF BASIS – TITLE V PERMIT  
MUNICIPALITY OF SAN JUAN LANDFILL  
PFE-TV-4953-65-1101-2326

The Puerto Rico Environmental Quality Board (EQB) is issuing a draft Title V permit pursuant to 40 Code of Federal Regulations (CFR) Part 70 and Part VI of the Regulations for the Control of Atmospheric Pollution (RCAP) for the **Municipality of San Juan Landfill (MSJL)**. The facility is located at Kennedy Avenue, Puerto Nuevo in San Juan, Puerto Rico. EQB received a Title V permit application on December 2, 2000. On November 1, 2001 the initial application was amended. In a letter to **Municipality of San Juan Landfill**, dated April 19, 2002, the Air Quality Area acknowledged that the application was complete.

The **Municipality of San Juan Landfill** is a closed municipal solid waste landfill that was operated since 1964, and closed on December 17, 2000, and after that no more refuse has been received. The closure activities initiated on June 10, 1999. Landfill Technologies Corp., administers the Municipal Sanitary Landfill System (SLS). When the landfill received the waste, it was dumped from the hauling vehicle, spread and compacted by a compactor. The landfill gas (LFG) generated by the facility is collected in a landfill gas collection system. Collected landfill gas is currently routed through an enclosed flare (CD-1) as control.

The Landfill is subject to applicable requirements listed in Part VII - Emission Guidelines for Municipal Sanitary Landfill System of the Regulation for Control of Atmospheric Pollution (RCAP). Because the landfill design capacity is greater than 2.5 million megagrams (Mg) and 2.5 million cubic meters, and has the potential to emit more than 100 ton/año of the atmospheric pollutand carbon monoxide (CO), **MSJL** is required to have a Title V permit. Also, the landfill is required to install and operate a gas collection control system because the emissions for non-methane organic compounds (NMOC) exceed 50 megagrams (Mg) per year.

#### Emission Units and Control Device Identification

The Emission Unit and Control Device Identification section lists the significant emission units, associated control equipment and fuel type. This section is a general overview of the facility. The emission units and control equipments are the following:

**EU-01: Municipal Sanitary Landfill System.** The landfill accepted only non-hazardous municipal solid waste. Has a maximum design capacity of  $10.26 \times 10^6$  Mg. The annual average refuse acceptance rate was 314,222 ton/yr. Control equipment: An enclosed flare (CD-01)

**CD-01: Landfill Active Gas Collection and Control System.** Collected landfill gas is currently routed to an enclosed flare (CD-1), with a capacity of 1,500 scfm and a heat input of 90 MM Btu/hr. The fuel used is propane at a rate of 0.014 lb/hr. The fuel has a maximum content of sulfur of 1 x

10<sup>-6</sup> % per weight. The initial performance test for MSJL's enclosed flare performed on January 13, 2006 demonstrating NMOC destruction efficiency over 98%.

The landfill also includes equipment that is deemed insignificant, such as the air compressor, construction equipment (bulldozers, excavators, rollers, and trucks), pump for diesel fuel and air conditioner.

The emissions described on the following table represent the facility permissible emissions at the moment of the permit application and will be used only for payment purposes. According to Rule 610(a) of the RCAP, when MSJL applies for a modification, administrative change or minor modification to its Title V permit, the source will pay only those charges related with any emission increase (if any) per tonnage, based on the change and not based on the total fees paid previously according to Rule 610(a) of the RCAP.

Pollutants	Permissible Emissions (tons/year)
PM <sub>10</sub>	4.65
SO <sub>2</sub>	4.13
NO <sub>x</sub>	10.95
CO	220.31
NMOC	26.60
VOC	14.14
HAP's	5.17

According to EQB's resolution RI-06-02<sup>1</sup>, for the annual certification the emission calculations shall be based on MSJL actual emissions; although calculations based on the facility permissible emissions will be accepted. If MSJL decides to realize the calculations based on permissible emissions, MSJL shall pay the same charge per ton as the facilities that decide to do the calculations based on actual emissions. Also, according to EQB's resolution R-04-04-1<sup>2</sup>, to determine the modification and renovations fees, MSJL shall calculate the permissible emissions with the k, Lo, and C<sub>NMOC</sub> factors established on Rule 704(a) of the RCAP or the specific values of k and C<sub>NMOC</sub> as determined by Rule 704(c) and (d) of the RCAP.

The Tier 1 default values of k, Lo, and C<sub>NMOC</sub> in the NSPS and EG (Part VII of the RCAP) overstate the NMOC emissions rates for landfills, and are intended to be used to indicate the need to install a collection and control system. The Environmental Protection Agency (EPA) document Compilation of Air Pollution Emission Factors (AP-42) provides emission estimation procedures and default values that were used to determine the source permissible emissions. As established by EPA, AP-42 and the associated Landfill Gas Emissions Model contain the accepted and approved emission factors and the best methods currently available for estimating landfill gas emissions.

<sup>1</sup> EQB Resolution Payment procedure of Title V operation fees and charges for Title V renewal permits (Procedimiento de Pago de los cargos de operación de Título V y Cargos por renovación de permiso Título V) issued on March 20, 2006.

<sup>2</sup> EQB Resolution for Annual Calculation of gas emissions to the atmosphere for Sanitary Landfills. (Consulta a la Junta de Gobierno sobre el cálculo anual de las emisiones de gases a la atmosfera para Rellenos Sanitarios) issued on February 27, 2004.

These factors are used also to determine if the source is a major source. Having an uncontrolled emission rate greater than 50 megagrams per year (Mg/yr) of NMOC does not make a landfill a major source of Hazardous Air Pollutants (HAP). The 50 Mg/yr NMOC emission rate is not used to determine whether a landfill is a major source for HAP emissions.

The following table summarizes the applicability<sup>3</sup> of Municipality of San Juan Landfill with regards to the principal air pollution regulatory programs:

Regulatory Program		Applicability
RCAP	Part VII	YES
Title V	(40 CFR Part 70 and Part VI of RCAP)	YES
NSPS	(40 CFR Part 60 subpart WWW)	NO
NSPS	(40 CFR Part 60 subpart Cc)	NO
PSD	(40 CFR Part 52)	NO
NESHAP	(40 CFR Part 61)	NO
NESHAP	(MACT – 40 CFR Part 63 subpart AAAA)	YES

**Emission Guidelines (EG) and Compliance Schedule for Municipal Sanitary Landfill System established under Part VII of the RCAP (it is the EPA approved and effective state plan that implements Title 40 Code of Federal Regulations (40 CFR) part 60, subpart Cc.)**

It is subject to Part VII of the RCAP because MSJL commenced construction before May 30, 1991 and has a design capacity greater than or equal to 2.5 million Mg or m<sup>3</sup>. Facilities that are subject to this part must submit annual emission reports and must install controls if emissions of NMOC are greater than or equal to 50 Mg per year. The facility used Tier 1 calculations to determine the NMOC emissions potential, the NMOC emissions were greater than 50 Mg/year, the facility submitted a collection and control design and installed a collection and control system. Also this part requires to effectively capture the gas generated, minimize off-site migration of subsurface gas, and route the collected gas to the enclosed flare (CD-1) that shall be operated to reduce NMOC by 98% by weight.

**National Emission Standards for Hazardous Air Pollutants (NESHAP): Municipal Solid Waste Landfills - 40 CFR, Part 63, Subpart AAAA**

The National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills (40 CFR Part 63 Subpart AAAA) applies to area sources that are subject to Part VII of the RCAP (have design capacities of 2.5 million Mg and 2.5 million m<sup>3</sup> or more, and estimated uncontrolled NMOC emissions of 50 megagrams per year (Mg/yr) or more). For area source landfills that meet these applicability criteria, the control technologies chosen from EPA are the same as Part VII of the RCAP, so the MACT does not impose additional control requirements.

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<sup>3</sup> Is important to mention that not all of the permit conditions need to be explained in this document, because the legal and factual bases for the conditions are self-evident as stated in the Title V Operating Permit. This means, that all the applicable requirements are cited in the Title V permit with a reference to the requirement. For example: if the restriction came from a construction permit, the condition will cite the construction permit number, if it came from the regulation it will cite the RCAP specific rule, and if the restriction came from a federal standard, the condition will cite the federal standard or regulation. If the restriction came from the emissions calculation and a cumulative increase, the condition will establish that. Also, state only requirements are clearly identified.

For determining whether a landfill must apply controls and demonstrate control performance, Part VII of the RCAP relies on the surrogate of landfill gas measured as NMOC, rather than HAP. NMOC is an appropriate surrogate for HAP because all HAP are contained in the NMOC portion of landfill gas. Control of NMOC to meet the Part VII of the RCAP requirements ensures destruction of organic HAP.

The only additional requirement that the NESHAP impose to the SLS are some additional compliance determination and reporting requirements that are necessary under section 112 general provisions of the Clean Air Act. These include startup, shutdown, and malfunction (SSM) provisions, use of continuous parameter monitoring data to determine compliance with the operating condition requirements, and reporting of deviations every 6 months as opposed to every year. The monitoring instruments, frequency of monitoring and required records of monitoring data are not different from the EG (Part VII of the RCAP).

The NESHAP makes references to specific requirements of the New Source Performance Standards (NSPS) - Standards of Performance for Municipal Solid Waste Landfills under 40 CFR part 60 subpart WWW. Those requirements are equivalent to the requirements under the Emission Guidelines in Part VII of the RCAP. The permit includes footnotes that establish the equivalence. Those references to the NSPS do not mean that the landfill is subject to the NSPS. The landfill will be subject to the NSPS once is modified or reconstructed.

The following requirements are not applicable to MSJL:

- Emission Guidelines and Compliance Times for Municipal Sanitary Landfill System under 40 CFR Part 60 Subpart Cc. This subpart is only applicable to the Administrators of air quality programs, EQB in this case, that submitted a State plan (approved as Part VII of the RCAP) that implements the emission guidelines contained in this subpart.
- Standards of Performance for Municipal Solid Waste Landfills that commenced construction, reconstruction or modification after May 30, 1991 under 40 CFR part 60 subpart WWW. This subpart is not applicable because the landfill is operating since 1973, and was not reconstructed or modified after May 30, 1991.

The reporting frequency for compliance certification for this source shall be annual. Unless specifically designated otherwise, all terms and conditions of the Title V Operating Permit, including any provisions designed to limit the source's potential to emit, are enforceable by EPA, and citizens, under the Federal Clean Air Act. Those terms and conditions which are designated as state-only enforceable, as indicated by the permit, are enforceable only by EQB.

EQB found that this Draft Title V Operating Permit satisfies the requirements of Part VI of the RCAP.