

# Landfills

# Air Pollution

Air Compliance and Enforcement  
Jeff Meyer

# Overview

- Landfill Overview
- Emissions
- Permit Applicability
- Potential to Emit
- Permit Requirements
- Federal Regulations



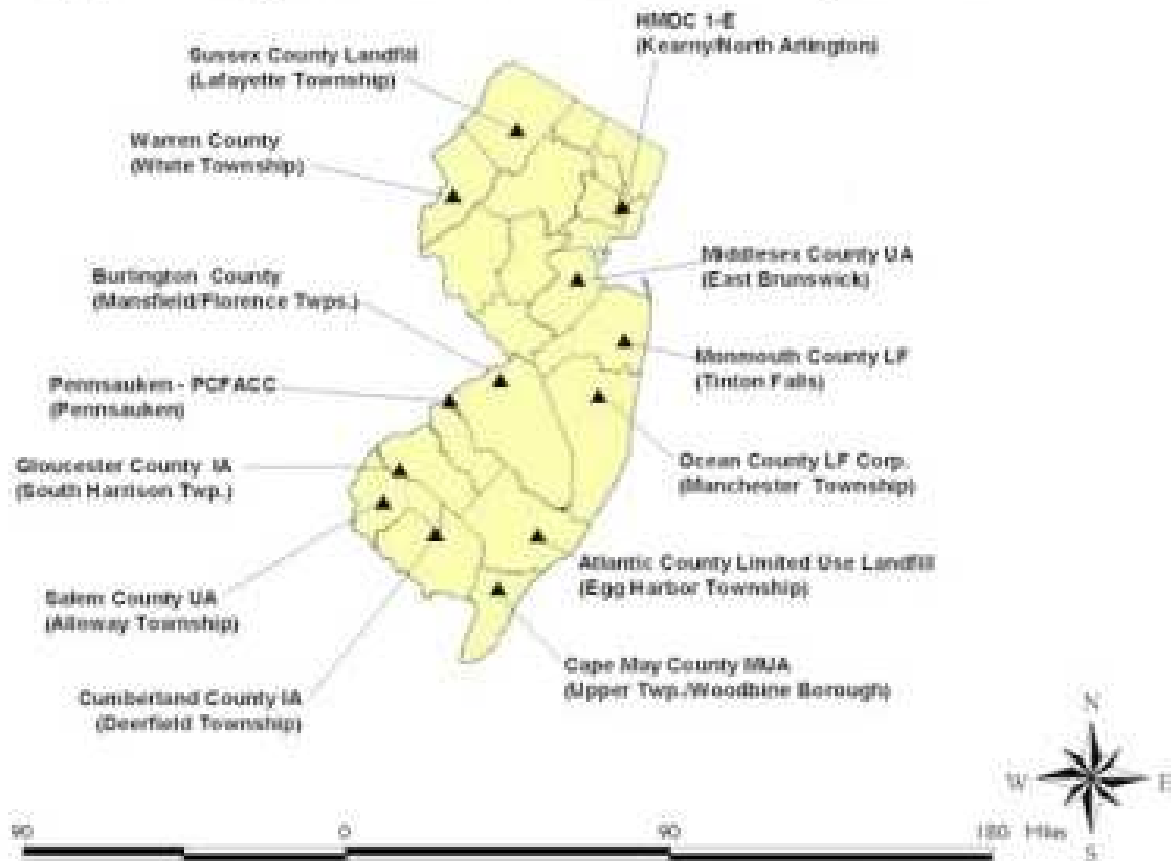
# Landfill Overview

- 846 Landfill sites in New Jersey
- 830 Closed and no longer accepting waste
- 13 Active Commercial Landfills
- 3 “Active Private Landfills

# NJDEP APPROVED COMMERCIAL SANITARY LANDFILLS

Landfill	NJEMS PI #	Class	City	Waste Types	Phone Number
Atlantic County UA	143393	I	Egg Harbor Township	10,13,13C,23,25,27	(609) 272-6950 (609) 646-5500
Burlington County	150098	I	Mansfield /Florence Twps.	10,13,13C,23,25, 27,27I	(609) 499-5303
Cape May Cty MUA	154930	I	Upper Twp./Woddbine Borough	10,13,13C,23, 25,27,27I	(609) 861-5701 (609) 465-9026
Cumberland County IA	133530	I	Deerfield Twp.	10,13,13C,23,25, 27,27I	(856) 825-3700
Gloucester County IA	132199	I	South Harrison Twp.	10,13,13C,23,25, 27,27I	(856) 478-6045
Keegan Landfill (NJMC)	133571	II	Kearny	13,13C,27	(201) 460-4678
Middlesex County UA	132314	I	East Brunswick	10,13,13C,23, 25,27, TRMW (1-7)	(732) 246-4313
Monmouth County	133927	I	Tinton Falls	10,13,13C,23, 25,27,27I	(732) 922-8686
Ocean County LF Corp	133642	I	Manchester	10,13,13C,23,25, 27,27I, TRMW (2-7)	(732) 657-5100
Pennsauken -PCFACC	132037	I	Pennsauken	10,13,13C,23, 25,27,27I	(856) 663-2772 <a href="http://www.pcfacc.com/psl.htm">www.pcfacc.com/psl.htm</a>
Salem County UA	132608	I	Alloway Township	10,13,13C,23, 25,27,27I	(856) 935-7900
Sussex County	132675	I	Lafayette Township	10,13,13C,23, 25,27,27I, TRMW (2-7)	(973) 579-6998
Warren County	132759	I	White Township	10,13,13C,23, 25,27,27I, TRMW (2-7)	(908) 453-2174 ext.223

# Operating Commercial Sanitary Landfills



# NJDEP APPROVED OPERATING PRIVATE SANITARY LANDFILLS

Landfill	ID#	Class	City	Waste Types
DuPont A&B	1713B	II	Deepwater	13,27
Hercules	1436B	II	Kenil	13,13C, 23,27
Phillipsburg Associates III	2119E	II	Phillipsburg	13,27

# Landfill Air Emissions

- **Primary source:** Landfill itself
  - LFG is a by-product of the decomposition of municipal solid waste (MSW):
    - ~50% methane (CH<sub>4</sub>)
    - ~50% carbon dioxide (CO<sub>2</sub>)
    - <1% non-methane organic compounds (NMOCs)
      - Hazardous air pollutants (HAP)
      - Greenhouse gases (GHG)
      - Volatile organic compounds (VOC)
    - Other non-organic compounds (e.g. hydrogen sulfide)
  - Gas generation, including rate and composition, proceeds through phases. Phase duration rate of gas generation varies with landfill conditions, i.e.:
    - Waste composition
    - Design
    - Cover materials
    - Climatic conditions
- **Other sources:** Combustion products from engines, flares, turbines, boilers, and particulate from roads and waste handling.

# Landfill Gas (LFG) Concerns

- May contribute to ground level ozone formation
- Cause an odor nuisance
- Cause a fire potential due to methane migration
- Contribute to toxics and HAPs in ambient air which can cause health problems
- Contribute to climate change problems due to large emissions of carbon dioxide and methane.



# LFG Collection Systems

- **Active collection systems**
  - pressure gradient created by use of mechanical blowers or compressors in order to extract LFG .
- **Passive collection systems**
  - natural pressure gradient created by the increased pressure within the landfill from LFG generation to mobilize the gas for collection or venting.
- Which type of system depends upon the landfill characteristics & operating practices.
- Gas extraction wells may be installed at the landfill perimeter, but are typically installed within the refuse of a landfill.
  - depth and spacing of wells vary with landfill characteristics and operations (i.e., lined or unlined, waste type, LFG generation, etc.)
- Offsite migration probes are often installed at the landfill perimeter for monitoring the operation of the collection system.



Active System

FLIR (Forward Looking Infrared) Video of landfill gas from different points



# LFG Control & Treatment

- Combustion

- Energy Recovery

OR

- No Energy Recovery

- gas turbines

- flares (open or enclosed)

- internal combustion engines

- boiler-to-steam turbine systems



- Purification

- use of adsorption, absorption, and membranes to remove water (H<sub>2</sub>O), CO<sub>2</sub>, H<sub>2</sub>S, NMOCs, and siloxanes.
  - Can process LFG to pipeline quality natural gas



# Who needs an Air Permit?

NJAC 7:27-8: PERMITS AND CERTIFICATES FOR MINOR FACILITIES (AND MAJOR FACILITIES WITHOUT AN OPERATING PERMIT)

8.2(c) Any equipment or source operation that may emit one or more air contaminants, except (CO<sub>2</sub>), directly or indirectly into the outdoor air and belongs to one of the categories listed below, is a significant source (and therefore requires a preconstruction permit and an operating certificate), unless it is exempted...

- 8.2(c)17. Equipment used for the purpose of venting a closed or operating dump, sanitary landfill, hazardous waste landfill, or other solid waste facility, directly or indirectly into the outdoor atmosphere including, but not limited to, any transfer station, recycling facility, or municipal solid waste composting facility;

## NJAC 7:27-22: OPERATING PERMITS

- **7:27-22.2 Applicability**
- (a) 1. A facility which emits or has the potential to emit a **Hazardous Air Pollutant (HAP)** in an amount which equals or exceeds the amounts listed in (a)1i through iv below. For the purposes of this paragraph, the calculation of potential to emit shall include fugitive emissions, as defined at N.J.A.C. 7:27-22.1.
  - i. 10 tons per year of any HAP;
  - ii. 25 tons per year of any combination of HAPs;
  - iii. Such lesser quantity of any HAP as the EPA may establish by rule, pursuant to 42 USC 7412(a)(1), as the threshold amount for a major HAP facility.
  - iv. Such quantity of any radionuclides as the EPA may establish by rule.

OR.....

## NJAC 7:27-22: OPERATING PERMITS

- **7:27-22.2 Applicability**
- (a)2. A facility which emits or has the potential to emit **any of the air contaminants listed below** in Table 1, in an amount which equals or exceeds the threshold amount for that contaminant. Emissions of carbon dioxide (CO2) are not to be used in determining applicability under this section.

Air contaminant	Threshold Level
Carbon Monoxide	100 tons per year
PM-10	100 tons per year
TSP	100 tons per year
Sulfur Dioxide	100 tons per year
Oxides of Nitrogen	25 tons per year
VOC	25 tons per year
Lead	10 tons per year
Any other Air Contaminant, except CO2	100 tons per year

\*\*Shall include fugitive emissions if facility falls under stationary source categories regulated by a standard promulgated under 42 U.S.C. 7411, Standards of Performance for New Stationary Sources. However, for a facility in this category, fugitive emissions need only be included when calculating the potential to emit those air contaminants which EPA has regulated for that stationary source category.

# Potential to Emit

## How do I determine potential to emit?

- **Potential to Emit (PTE)**-max amount of emissions that can be generated by the landfill and all its associated equipment (flares, generators, etc.) at max physical capacity. PTE is very different from actual emissions.
  - **Uncontrolled landfill emissions**-primarily Methane (CH<sub>4</sub>) and Carbon Dioxide (CO<sub>2</sub>), which are greenhouse gases and must be included in the calculation of Carbon Dioxide Equivalent (CO<sub>2</sub>e), and some Non-Methane Organic Compounds (NMOC).
  - Can do the calculations **manually** using information from **EPA's AP-42** document at [www.epa.gov/ttn/chief/ap42/ch02/index.html](http://www.epa.gov/ttn/chief/ap42/ch02/index.html), chapter 2.4, using default or site-specific data.
  - Alternative- use EPA's **LandGEM model** (available at the same Web address), which is a Microsoft Excel spreadsheet-based model that calculates annual emissions of total LFG, CH<sub>4</sub>, CO<sub>2</sub>, and NMOC using user inputs. The model uses information from AP-42 for gas concentrations, but also allows additional user input if site specific data is available.
- Also account for the additional emissions that result from the combustion of LFG units that burn fuel other than LFG
  - Emission factors are in AP-42, depending on the type of combustion equipment. Be sure to document the source of all emission factors used for all calculations.

# NJDEP Air Quality Permitting Program

## State of the Art (SOTA)

### Manual for Equipment Used to Vent Landfills

- Developed June 2010
- Made public but is still DRAFT
- Used for guidance
- Each landfill permit application is evaluated on a case by case basis
- SOTA applies to:
  - all newly constructed, reconstructed or modified equipment
    - emits contaminants in excess of their SOTA thresholds
    - used for the purpose of venting a closed or operating dump, sanitary landfill, hazardous waste landfill, directly or indirectly into the outdoor atmosphere which are subject to the SOTA provisions of the New Jersey Administrative Code (N.J.A.C.) 7:27-8 and N.J.A.C. 7:27-22.



# Emissions-SOTA Applicability

- When accounting for the emissions to determine SOTA applicability....
  - Potential to Emit Emissions for the equipment should include, but may not be limited to
    - all collected air contaminant emissions that are discharged through a stack through passive or active venting
    - all uncollected air contaminant emissions that are not emitted to the atmosphere through a stack.

# SOTA Thresholds-Preconstruction Permit

- SOTA thresholds for source operations which must obtain a Preconstruction Permit pursuant to N.J.A.C. 7:27-8 can be found in Appendix I.
- Appendix I, Table 1 lists the SOTA threshold for “any air contaminant” as 5 tons per year (tpy).
  - “Any air contaminant” is defined in this section as: any 112 (r) contaminant; any stratospheric ozone depleting substance, or any greenhouse gas except carbon dioxide (CO<sub>2</sub>).
- Consequently, the SOTA threshold for methane is 5 tpy.

# SOTA Thresholds-Operating Permit

- The SOTA thresholds for source operations which must obtain an Operating Permit, pursuant to N.J.A.C. 7:27-22, can be found at N.J.A.C. 7:27-22.35 (b)
- Threshold for Hazardous Air Pollutants are the de minimis levels specified by the EPA pursuant to 42 U.S.C. §7412(g) and the threshold for **any other air contaminant** is 5 tpy.
- N.J.A.C. 7:27-22 defines “**Air contaminant**” as any substance, other than water or distillates of air, present in the atmosphere as solid particles, liquid particles, vapors or gases

# SOTA Performance Levels

- SOTA performance levels are not a substitution for complying with any applicable regulations contained in the N.J.A.C. 7:27.
- Other sections of N.J.A.C. 7:27 which may be applicable include, but may not be limited to, the following:
  - 1) N.J.A.C. 7:27-5 “Prohibition of Air Pollution (includes odor provisions)”
  - 2) N.J.A.C. 7:27-7 “Sulfur”
  - 3) N.J.A.C. 7:27-17 “Control and Prohibition of Air Pollution by Toxic Substances”
  - 4) N.J.A.C. 7:27-18 “Control and Prohibition of Air Pollution from New or Altered Sources Affecting Ambient Air Quality (Emission Offset Rules)”
  - 5) N.J.A.C. 7:27-19 “Control and Prohibition of Air Pollution by Oxides of Nitrogen.”

# SOTA Performance Levels: Landfills Subject to MACT (Maximum Achievable Control Technology )

- Pursuant to N.J.A.C. 7:27-8.12(e)3 for preconstruction permits and pursuant to N.J.A.C. 7:27-22.35(c) for operating permits:
  - If subject to 40 CFR 63, Subpart AAAA, then compliance with all of the provisions of that MACT standard is equivalent to SOTA for any HAPs.
  - This applies solely to the emissions of individual HAPs. Other contaminants and contaminant categories, such as total suspended particulates and total volatile organic compounds, may be subject to other requirements.

## **SOTA Performance Levels: Landfills not subject to MACT OR Landfills subject to MACT that have contaminants that are not HAPs emitted in excess of SOTA levels**

### **METHANE:**

- **No control device** is necessary for methane if the landfill gas **methane concentration is < 20%** by volume or the landfill gas **flow rate is < 5** cubic feet per minute (ft<sup>3</sup>/min), as measured at the venting or extraction well.
- SOTA performance standards for methane emissions, where the **methane concentration is ≥ 20%** by volume and the landfill gas **flow rate is ≥ 5** cubic feet per minute (ft<sup>3</sup>/min), refer to table on following slide.....

SOTA performance stds for methane emissions, where methane concentration  $\geq 20\%$  by vol. & landfill gas flow rate is  $\geq 5 \text{ ft}^3/\text{min}$ .

Landfill Gas Methane Concentration (LGMC)-LGMC (% by volume) / Landfill Gas Flow Rate(LGFR) ( $\text{ft}^3/\text{min}$ ) - *	SOTA Performance Standards
1. LGMC $\geq 20\%$ ; and $< 35\%$ ; and 2. LGFR $\geq$ to $5 \text{ ft}^3/\text{min}$ .	Spark ignited flare or equivalent
1. LGMC $\geq 20\%$ ; and 2. LGFR $\geq 5 \text{ ft}^3/\text{min}$ and $< 150 \text{ ft}^3/\text{min}$ .	Spark ignited flare or equivalent
1. LGMC $\geq 35\%$ ; and 2. LGFR $\geq 150 \text{ ft}^3/\text{min}$ .	1. A. Landfill Gas Collection Efficiency of at least 75%; or B. Methane concentrations of 500 ppmv, for instantaneous surface monitoring and 25 ppmv for integrated surface monitoring; and 2. A. Destruction and Removal Efficiency of at least 98%; or B. Less than 20 parts per million by volume dry basis (ppmv), as equivalent hexane, corrected to 3% oxygen at the outlet of the combustion unit.

\* as measured at the venting or extraction well

# Table continued...

- **Instantaneous surface monitoring:** monitoring to determine the methane concentration in excess of background & obtaining the reading at the time of the measurement. Such monitoring may include taking a sample 0-3 inches above the landfill and using a portable flame ionization detector to instantaneously measure the methane concentration.
- **Integrated surface monitoring :** monitoring a set number of landfill grids to determine the methane concentration. Such monitoring may include taking a sample 0-3 inches above the landfill and collecting that sample over an 8-10 hour period.



# SOTA Performance Standards -VOCs

Refer to the previous table for  
Methane SOTA Performance Standards.

# NO<sub>x</sub> SOTA Performance Standards

- Oxides of Nitrogen (NO<sub>x</sub>): shall be achieved if the LGMC\* is ≥ 35% and the LGFR\* ≥ 150 ft<sup>3</sup>/min:

Type of Combustion Device	NO <sub>x</sub> SOTA performance standards
Flare	0.025 pounds per Million British Thermal Unit
Internal Combustion Engine	0.6 grams per brake horsepower-hour
Turbine	25 ppmvd @ 15% O <sub>2</sub>

\*LGMC -Landfill Gas Methane Concentration

\*LGFR- Landfill Gas Flow Rate

# SO<sub>2</sub> SOTA Performance Standards

- Sulfur dioxide (SO<sub>2</sub>): shall be achieved if the LGMC\*  $\geq$  35% and the LGFR\*  $\geq$  150 ft<sup>3</sup>/min:
  - A minimum 95% removal of all sulfur compounds, extracted by the landfill gas collection system, prior to the combustion device; or
  - A maximum SO<sub>2</sub> concentration of 310 parts per million, by volume, corrected to 0 (zero) % oxygen at the stack of the combustion device.

\*LGMC -Landfill Gas Methane Concentration

\*LGFR- Landfill Gas Flow Rate

# CO SOTA Performance Standards

- Carbon monoxide: shall be achieved if the LGMC\*  $\geq$  35% and the LGFR\*  $\geq$  150 ft<sup>3</sup>/min:

Type of Combustion Device	CO SOTA performance standards
Flare	0.06 pounds per Million British Thermal Unit
Internal Combustion Engine	2.5 grams per brake horsepower-hour
Turbine	130 ppmvd @ 15% O <sub>2</sub>

\*LGMC -Landfill Gas Methane Concentration

\*LGFR- Landfill Gas Flow Rate

# Total Suspended Particulates(TSP)/PM-10/Opacity SOTA Performance Standards

- Total Suspended Particulates(TSP)/PM-10/Opacity: shall be achieved if the LGMC\*  $\geq$  35% and the LGFR\*  $\geq$  150 ft<sup>3</sup>/min:

Type of Combustion Device	TSP/PM-10/Opacity
Flare	1. Designed and operated consistent with the requirements in 40 CFR 60.18; and 0.06 pounds per Million British Thermal Unit or PM-10 emissions; and 2. 10% opacity, not including startup and shutdown
Internal Combustion Engine	10% opacity, exclusive of condense water vapor, not including start-up and shut-down
Turbine	10% opacity, exclusive of condense water vapor, not including start-up and shut-down

\*LGMC -Landfill Gas Methane Concentration

\*LGFR- Landfill Gas Flow Rate



- Several reduced sulfur compounds are emitted from landfills - have the potential to cause significant off-site problems, such as odors or health impacts.
- Compounds include, but are not limited to, hydrogen sulfide ( $\text{H}_2\text{S}$ ), methyl mercaptan ( $\text{CH}_3\text{SH}$ ), dimethyl sulfide ( $(\text{CH}_3)_2\text{S}$ ), carbon disulfide ( $\text{CS}_2$ ) and dimethyl disulfide ( $(\text{CH}_3)_2\text{S}_2$ ).
  - Compounds are not classified as criteria pollutants, toxic compounds, or hazardous air pollutants & do not have a SOTA emissions threshold.
  - However, their emissions should be incorporated into any SOTA analysis for  $\text{SO}_2$  since one mechanism used to control the reduced sulfur compounds is combustion, which results in the creation of  $\text{SO}_2$ .

# ODORS

- All source operations covered by preconstruction permit must meet the air pollution odor provisions at N.J.A.C. 7:27-5 “Prohibition of Air Pollution” and N.J.A.C. 7:27-8.3(j).
- All source operations covered by an Operating Permit must meet the air pollution odor provisions at N.J.A.C. 7:27-5 and 7:27-22.16(g)8.
- No permittee shall allow any air contaminant, including those detected by sense of smell to be present in the outdoor atmosphere in a quantity and duration which is, or tends to be, injurious to human health or welfare, animal or plant life or property, or which would unreasonably interfere with the enjoyment of life or property.....

# Available Technologies-Methane and VOCs

- The following technologies could be used to control both methane and volatile organic compounds
  - **Continuous spark ignited flare**, with a minimum spark interval of at least every 2 seconds and continuous electronic spark ignition sequence.
  - **Enclosed Flame Thermal Oxidizer** with appropriately designed air intake modulators
  - **Internal Combustion Engine** – reciprocating or a combustion turbine in which power, produced by heat and/or pressure produced by combustion is converted to mechanical work.
  - **Combustion Turbine**



# Available Technologies - NO<sub>x</sub>

- The following technologies could be used to control NO<sub>x</sub> :
  - Low NO<sub>x</sub> Burners
  - Selective Catalytic Reduction
  - Non-Selective Catalytic Reduction
  - Good Combustion Practices

# Available Technologies –SO<sub>2</sub>

- The following technologies could be used to control SO<sub>2</sub>:
  - Wet scrubbing
  - Activated carbon used to remove the reduced sulfur compounds from the flue gas stream prior to combustion.
  - Other adsorption media used to remove the reduced sulfur compounds from the flue gas stream prior to combustion.

# Available Technologies- CO

- The following technologies could be used to control CO:
  - Thermal oxidizer
  - Catalyst

# Exclusions

- HAPs, TXS, and any other contaminant besides methane, VOC, carbon monoxide, nitrogen oxide(s), sulfur dioxide, and total suspended particulates/PM-10/Opacity emitted above SOTA thresholds will be evaluated on a case by case basis pursuant to N.J.A.C. 7:27-8.12(e)5 for preconstruction permits and pursuant to N.J.A.C. 7:27-22.35(c)5 for operating permits, unless the landfill is subject to MACT provisions.

# Federal Regulations

- NSPS CFR Part 60 Subpart Cc
- NSPS CFR Part 60 Subpart WWW
- NESHAP 40 CFR 63 Subpart GGG
- NESHAP 40 Part 63 Subpart AAAA



# NSPS CFR Part 60 Subpart Cc

- Applies to existing MSW landfill for which construction, reconstruction, or modification **commenced before May 30, 1991.**
- Landfills **closed prior to November 8, 1987** are not regulated by Subpart Cc
- Cc has same requirements as and refers to WWW
- No size cut-off for Cc applicability
- Applies to open and closed landfills

DOES NOT APPLY TO NJ BECAUSE THERE IS NO STATE PLAN  
(refer to 40CFR62 Subpart GGG instead)

# NSPS CFR Part 60 Subpart WWW

Subpart WWW applies to:

- MSW landfills that commenced construction, reconstruction or modification **after May 30, 1991**
- Modification: increase in volume design capacity by either horizontal or vertical expansion
- No size cut-off for WWW applicability
- Applies to open and closed landfills

# WWW Requirements

- All sources, regardless of size must submit a design capacity\* report on the capacity of the landfill
- Submit amended report if “small” landfill increases capacity  $\geq$  2.5 million megagrams or million cubic meters
  - Due 90 days after date of commencing construction/modification/reconstruction

\***Design capacity** is maximum amount of waste a landfill can ultimately accept.



# Design Capacity Report-WWW

Required information to be submitted:

- Map or plot of landfill, identifying all areas where solid waste may be landfilled, includes closed areas
- Maximum design capacity
  - If specified in permit issued by state, copy may be submitted as part of report
  - If not in permit, calculate using good engineering practices, provide calculations in report.

# Design capacity is $\geq 2.5$ million megagrams and 2.5 million cubic meters – WWW cont.

Calculate NMOC (nonmethane organic compounds) emission rate

- **< 50 megagrams/yr**

Submit annual emission report and recalculate annually using method in the rule.

**Stop** when emission rate  $\geq 50$ , requirements below, **OR** stop when landfill is permanently closed

- Submit a closure notification when closed.

- **$\geq 50$  megagrams/yr**

Submit collection & control design plan within 1 yr

Install collection & control system as per WWW 60.752(b)(2)

- Shall be capable of meeting emission guidelines within 30 months after date NMOC emission rate report showed NMOC emissions  $\geq 50$  megagrams/yr

# Applicability Table-WWW

based on §§ 60.33c(a) and 60.752

Design Capacity (Million Mg &/or Million m3)	Emissions (Mg/yr NMOC)	Design Capacity Report Required	Periodic NMOC Emission Reports Required	Controls Required	Title V Permit Required
<2.5	< 50	Yes	No	No	*
<2.5	≥ 50	Yes	No	No	*
>2.5	< 50	Yes	Yes	No	Yes
>2.5	≥ 50	Yes	Yes	Yes	Yes

\* part 70 or 71 requires a permit if the landfill is a major source as defined in part 70 or 71 or is subject to part 70 or 71 for some other reason (e.g., subject to another NSPS or NESHAP). A landfill is a major source and requires a title V permit if the air emissions are > 100 tons/yr or the HAP emissions are >10 tons/yr for one HAP or 25 tons/yr for a combination of HAP's or if it emits major source levels of criteria pollutants such as VOC (major source thresholds are different for attainment and nonattainment areas--see the definition in 40 CFR section 70.3(a)).

# CFR Part 62 Subpart GGG

- Applies to landfills that commenced construction, reconstruction, or modification **before May 30, 1991 and..**
- Accepted waste at any time since November 8, 1987 **OR** has additional waste capacity for future waste deposition
  - Does not apply to landfills that submitted negative declaration (defined in GGG 62.14351) letter as per GGG 62.14352(c) and
- Emissions, procedures, test methods, monitoring, reporting, and recordkeeping requirements refer WWW.
- In addition, facility must submit “increments of progress” reports, which are due within 10 days of completing each increment (refer to next slide)
- Design capacity < 2.5 million megagrams or million cubic meters
  - Not required to obtain operating permit unless required to under another rule.

## Table 3 to Subpart GGG of Part 62—Generic Compliance Schedule and Increments of Progress

Compliance date applies to landfills with design capacities  $\geq 2.5$  million megagrams and 2.5 million cubic meters that are subject to this subpart

Increment	Date - after initial NMOC emission rate report or 1 <sup>st</sup> annual emission rate report showing NMOC emissions $\geq 50$ Mg/yr.
Increment 1-Submit final control plan	1 year
Increment 2—Award Contracts	20 months
Increment 3—Begin on-site construction	24 months
Increment 4—Complete on-site construction	30 months
Increment 5—Final compliance	30 months

- Alternative dates can be submitted for approval
- Design capacity < 2.5 million megagrams or million cubic meters
  - No schedule to achieve increments

# NESHAP Part 63 Subpart AAAAA

- State of NJ delegated authority
- Applicability
  - Applies to existing and new MSW landfills
  - Accepted waste since November 8, 1987 or has additional capacity for waste deposition and meets one of the following:
    - Major source (as defined in 40 CFR 63.2 of Subpart A)
    - Co-located with a Major source (as defined in 40CFR 63.2 of Sub A)
    - Area source landfill that has a design capacity  $\geq 2.5$  million Mg and 2.5 million cubic meters & estimated uncontrolled emissions  $\geq 50$  MG/yr NMOC as calculated per WWW
  - **OR** Accepted waste since November 8, 1987 or has additional capacity for waste deposition, that **includes a bioreactor** and meets one of the following:
    - Major source (as defined in 40 CFR 63.2 of Subpart A)
    - Collocated with a Major source (as defined in 40CFR 63.2 of Sub A)
    - Area source landfill that has a design capacity  $\geq 2.5$  million Mg and 2.5 million cubic meters and not permanently closed as of 1/16/2003

# Compliance Dates - AAAAA

- **Existing affected sources**-commenced construction or reconstruction **before** November 7, 2000. (Were to comply by 1/16/2004).
- **New affected sources** –commenced construction or reconstruction **after** November 7, 2000. (Were to comply by 1/16/2003).

If a **major source** or **co-located with a major source** or an **area source** landfill that has a **design capacity**  $\geq 2.5$  million Mg and 2.5 million cubic meters & estimated uncontrolled **emissions**  $\geq 50$  **MG/yr** NMOC as calculated per WWW

- Comply by date required to install collection and control system by WWW or by EPA approved and effective State plan, whichever is later
- No longer have to comply when do not have to apply controls as per WWW, the Federal plan, or EPA approved and effective State plan

# Compliance Dates AAAA- Bioreactor

\*Were to comply by 1/16/2004 if existing or by 1/16/2003 if new affected source.

- If own/operate a bioreactor, landfill not permanently closed as of 1/16/2003 and has a design capacity  $\geq 2.5$  million Mg and 2.5 million cubic meters ...
- If existing affected source (were to run collection & control by 1/17/2006)
  - Install a collection & control system that meets WWW, the Federal plan, or EPA approved and effective State plan, whichever earlier
- If new affected source **OR** existing and didn't initiate liquid addition to bioreactor until after 1/17/2006
  - Install collection & control system before initiating liquids addition
  - Operate gas collection & control system w/in 180 days of- liquid addition **OR** achieving moisture content of 40% by wt (refer to AAAA 63.1980(g) and (h) for calculation details), whichever is later

No longer have to comply if: meet control system removal criteria, bioreactor meets criteria for nonproductive area, or bioreactor portion of landfill is closed as per WWW. If closed, submit closure report.



# Requirements - AAAA

- Comply with WWW or the Federal plan, or EPA approved and effective State plan
  - Except annual report described in WWW (60.757(f))-submit every 6 months
- For approval of collection & control system alternatives refer to WWW
- If own/operate a bioreactor, landfill not permanently closed and has a design capacity  $\geq 2.5$  million Mg and 2.5 million cubic meters – additional requirements
  - Develop and maintain SSM plan (Startup, Shutdown, Malfunction plan)
  - Submit initial semiannual compliance report & performance test results described in WWW (60.757(f)) w/in 180 days after required to operate collection & control system
  - If submit semiannual compliance report for bioreactor and conventional portion of landfill, may delay submittal of report for bioreactor-refer to AAAA 6.1980(f)(1) through (3)

# Questions????

