

# Regulatory Shift in Landfill NSPS and Emissions Guidelines, State Implementation, Compliance hurdles and Emissions Challenges

A new NSPS and Updated Emissions Guidelines (EG)

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# Plan for Session

- What are the NSPS?
- What are the Emissions Guidelines (EG)?
- Changes included in XXX, and why
- What happened to WWW?
- New Mexico SIP and XXX/EG
- GCCS Design
- Monitoring, Recordkeeping, Reporting
- How do I comply?

# History of NSPS and EG

- February 1996, USEPA promulgated NSPS (Subpart WWW) and Emissions Guidelines (Subpart Cc) for new and existing landfills, respectively.
  - New landfills constructed, modified or reconstructed on or after 5/30/1991
  - Cc applied to existing facilities constructed prior to 5/30/1991
  - Both Rules required GCCS\*\* installation if NMOC\* emissions exceeded 50 Mg/yr
- October 2016, USEPA promulgated NSPS (Subpart XXX) and Emissions Guidelines (Subpart Cf) for new and existing landfills, respectively
  - New landfills constructed, modified or reconstructed after 7/17/2014.
  - Cf applies to existing facilities that have accepted waste after 11/8/1987 and that have commenced construction, modification or reconstruction on or before 7/17/2014
  - Both new Rules require GCCS installation if NMOC emissions exceed 34 Mg/yr (50Mg for closed landfills)

\*NMOC – Non-methane organic compound

\*\*GCCS – Landfill gas collection and control system

# What are NSPS

- New Source Performance Standards, 70+/- pollution control standards in 40 CFR 60 meant to regulate emissions from affected facilities.
- *Landfill* NSPS (40 CFR 60 Subpart XXX) Regulate the uncontrolled emissions from Landfills, and focus on NMOC.
  - New or modified facilities with a des. cap. > 2.5 million Cubic meters or 2.5 million megagrams are required to submit initial amended DCRs, then calculate annual NMOC emissions estimates and design and build a GCCS.
    - Cerro Colorado
    - Corralitos
    - Caja del Rio
    - Camino Real
    - Rio Rancho

# NSPS Subpart XXX (August 2016)

- XXX created “to reduce emissions of methane-rich Landfill gas from new, modified, and reconstructed sources”
- Applies to landfills that commenced construction or modification after July 17, 2014
  - Modification:
  - Commenced:
- Compared to the last NSPS (WWW), substantially lower NMOC emissions thresholds have been established for facilities before requiring GCCS construction.
  - Existing, new, modified and reconstructed; 34Mg NMOC/yr



# 40 CFR 60 Subpart Cf – Emissions Guidelines (EG)

- Applies to existing landfills (a facility constructed, modified or reconstructed after May 30 1991, but prior to July 17, 2014)
- Most of EG is identical to Subpart WWW
  - NMOC threshold emissions reduced
  - EG adds a closed landfill NMOC threshold of 50Mg/yr for GCCS installation
  - Addition of Tier 4 surface emissions monitoring option
- Compared to the last NSPS (WWW), substantially lower NMOC emissions thresholds for existing active facilities (-30%) before required GCCS construction.

# New Mexico and the Rules

- NM Incorporated NSPS (XXX) by reference into NMAC on 4/28/2017 (20.2.64.109.B NMAC)
- EG are established under Section 111(d) of the CAA, and states are required to implement the rules through individual state implementation plans (SIPs)
- Subpart Cf EG was written New Mexico's revised State Implementation Plan (SIP) submitted to EPA in late May 2017, with exceptions (20.2.64.109.A NMAC)
- EPA Approved the NM SIP revisions 9/11/2019 (eff. 10/11/19)



# Regulatory Hurdles and Emission Challenges

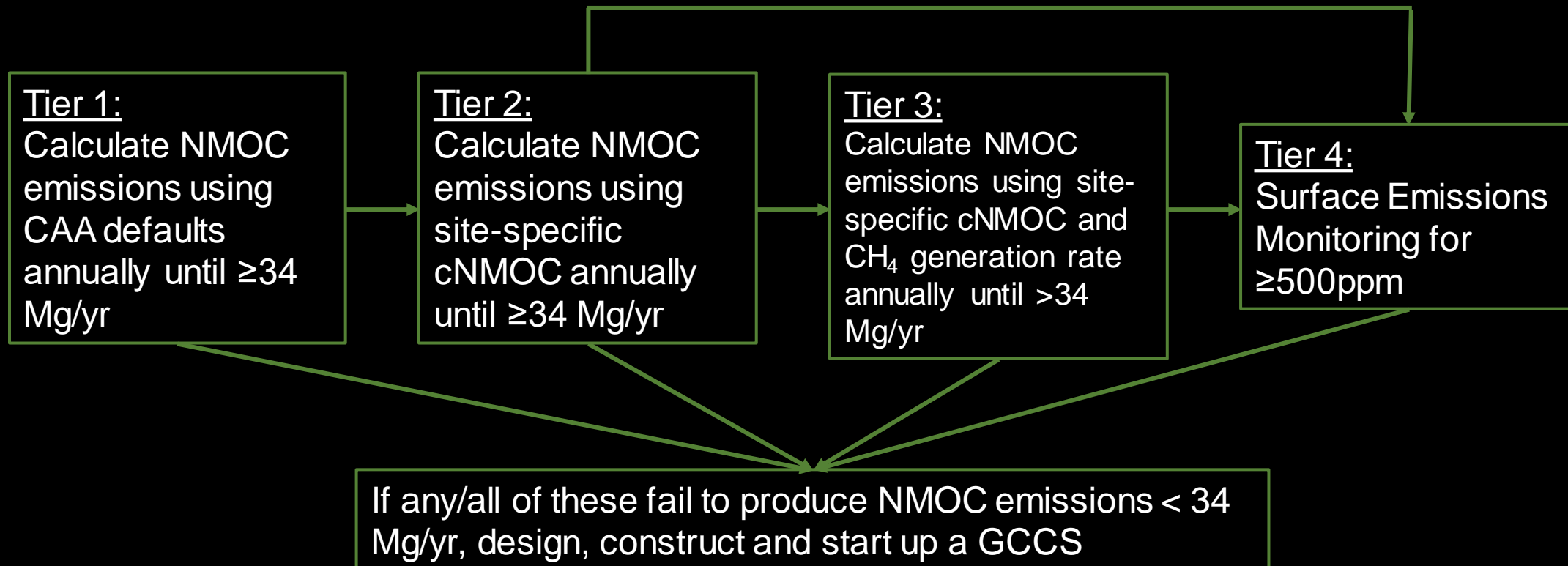
- NMOC Emission threshold reduction
- Facilities that were in a good place may be subject to GCCS requirements
  - Will require additional NMOC testing to establish a better estimated emission rate
  - Tier 3 testing option (not always chosen due to cost or level of effort)
  - Tier 4 surface emissions testing – very strict – one strike. (MUST detect <500ppm CH<sub>4</sub> at the surface to continue).
- More to follow...



# NMOC – Non-Methane Organic Compounds

\*Facilities having a Design Capacity greater than 2.5 million megagrams or 2.5 million cubic meters are required to install a GCCS or recalculate annual NMOC emissions.

*\*\*Introducing the Tier system of 40 CFR 60.764\*\**



# Tier 4 Surface Emissions Equipment and Params.

In addition to a PID/FID/IR methane leak detector:

- (A) The owner or operator must use a wind barrier, similar to a funnel, when onsite average wind speed exceeds 4 miles per hour or 2 meters per second or gust exceeding 10 miles per hour. Average on-site wind speed must also be determined in an open area at 5-minute intervals using an on-site anemometer with a continuous recorder and data logger for the entire duration of the monitoring event. The wind barrier must surround the SEM monitor, and must be placed on the ground, to ensure wind turbulence is blocked. SEM cannot be conducted if average wind speed exceeds 25 miles per hour.

*40 CFR 60.764(A)(6)*



# Rule Comparisons

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## WWW/Cc

50 Mg NMOC threshold for all facilities (closed or open) for control installation

2.5 million Mg/2.5 million m<sup>3</sup> Design Capacity threshold

Requires install of GCCS in 5yo waste in an active area and 2yo waste if closed or at final grade



## XXX/EG

34 Mg NMOC threshold for all open facilities (for GCCS installation)

Landfills closed before 9/27/2017 keep a 50Mg threshold for GCCS installation and get their own subcategory.

2.5 million Mg/2.5 million m<sup>3</sup> Design Capacity threshold remains

Requires install of GCCS in 5yo waste in an active area and 2yo waste if closed or at final grade

# GCCS Operations and Maintenance

WWW/Cc

Maintain negative pressure at wellheads

$N_2 < 20\%$  or  $O_2 < 5\%$

Temperatures must be less than 131 F

Corrective actions for T&P noncompliance.



XXX/EG

Maintain negative pressure at wellheads

Monitor  $N_2$  and  $O_2$ , but no compliance limit

Temperatures must be less than 131 F

Corrective actions are gone, and exchanged for root cause analyses and corrective action analyses for T&P exceedances.

# Surface Emissions Monitoring

WWW/Cc

Quarterly SEM monitoring schedule

30 meter spacing of walked path over the entire landfill surface and around waste perimeter

Methane readings greater than 500 ppm must be noted



XXX/EG

Quarterly SEM monitoring schedule

30 meter spacing of walked path over the entire landfill surface and around waste perimeter

Quarterly scans of ALL cover penetrations to accompany SEM walk

Each methane reading of 500 ppm or more requires corrective action and follow up readings at 10 and 30 days.



# Tier System for NMOC Estimation

## WWW/Cc

Tier 1 – calculate NMOC emissions rate using CAA defaults

Tier 2 – calculate NMOC emissions using site-specific NMOC concentration [cNMOC] – more realistic

Tier 3 – calculate site-specific methane generation rate constant to be used in conjunction with [cNMOC] – even more accurate but not often used (\$\$)



## XXX/EG

Retains Tiers 1, 2 and 3 in their existing form.

Adds Tier 4 (facilities without GCCS)

T4 can be used after T2 and/or T3, even if NMOC emissions are greater than 34 Mg (but less than 50 Mg)

- Quarterly scans

- 30-meter spaced pattern over the waste surface when sustained winds are below 25 mph

- GPS track of path needed for locating areas of concern or exceedances for reporting.

# Monitoring, Recordkeeping and Reporting (without GCCS)

- Annual NMOC Emissions rate reporting
- Title V Semiannual Monitoring Reports
- Title V Annual Compliance Certifications
- Excess Emissions Reporting
- New Mexico Emissions Inventory
- Annual GHG Reporting

**CDX** Central Data Exchange



*New Mexico*  
**ENVIRONMENT**

Department

*Secure Extranet Portal (SEP)*





# Landfill Gas Collection and Control

- Gas collection and control system (GCCS)
  1. Costly to install (can exceed \$1M)
  2. Submit a stamped GCCS Design Plan to Administrator within 1 year of reported NMOC exceedance date
  3. Construct and start up GCCS within 30 months from the date of the most recent annual NMOC emissions rate report where NMOC emissions exceeded 34Mg.
  4. Unexpected obstacles during planning and construction
  5. Must account for all startups, shutdowns and malfunctions in annual reports
  6. Initial Performance Test and first Annual Report within 180 days of startup (can submit concurrently)
  7. Continue annual reporting, maintenance, repair, expansion, permitting until closed.



# Monitoring and Reporting (with GCCS)

- Wellfield requirements (40 CFR 60.766)
  - T and P ports on each wellhead
  - Monthly wellfield OM&M
  - Monthly checks of the Flare systems
- Reports required (40.CFR 60.767)
  - Annual reports containing:
    - Parameter exceedances
    - Description and duration of LFG diversion from control device
    - Description of control device downtime
    - Periods when the collection system was not operating
    - Quarterly Surface Emissions Monitoring
    - Wellfield details (well date and location)
    - Any root cause analyses and corrective actions taken







# Questions?