Landfill Air NSPS Rules Update

Central Texas Chapter Meeting – November 19, 2019

Presented by:
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New Source Performance Standards (NSPS)

- EPA-Issued (40 CFR 60)
- Air Pollutants by Industry
- > 90 Industries Covered
- MSW Landfills Covered Since 1996
- New NSPS for Landfills 2016
- Requirements Filtering Down
- Gas Control System
How NSPS Relates

- Permits
  - Title V/NSR

- Landfill NSPS
  - Hazardous Air Pollutant LF Rules

- Other NSPS/Rules (i.e. Tanks, Engines)

- GHG and Inventory Reporting
General NSPS Implementation

“Existing” and Subject to State or Federal EG Requirements

July 17, 2014

Commence Construction, Reconstruction, or Modification

“New” and Subject to NSPS Requirements
New, Reconstructed, Modified?

- Know where your Landfill Stands
- New Sites = Construction, not Permitting
- Reconstruction/Modification
  - Capacity Increase
  - Not Minor (Alt. Liner or Daily Cover)
  - Construction not when Permitted
  - Unique Construction to Increase
- Once Shifts to NSPS always NSPS
Landfill NSPS and EG

• Subparts WWW and Cc Originally Issued on March 12, 1996
• Subpart Cc Followed Requirements of Subpart WWW
• Instead of Revising Subpart WWW and EG Subpart Cc Directly, EPA Updated via Issuance of new Subparts (Subparts XXX and Cf, Respectively)
• Each Landfill NSPS has an EG Rule
Original NSPS
(40 CFR 60, Subpart WWW)

• Proposed in 1991
• Finalized in 1996
• Hazardous Rules in 2003 (40 CFR 63, AAAA)
• Accepted waste > November 8, 1987 or has Remaining Capacity
• Capacity > 2.5 Million Mg or m$^3$
• Triggered Gas Systems for a few Landfills
New NSPS 2016
(40 CFR 60, Subpart XXX)

• Finalized August 29, 2016
• Immediately Impacted “New” or “Modified” Landfills (after July 17, 2014)
• Lowered Threshold for Gas System Install
• Did not Address Existing NSPS Rules
• Resubmit Prior NSPS Items
• With Coming EG will Apply to Most Landfills
Major Provisions of New Rules

• Landfill Sizes that Trigger Rule Provisions
  – Remain the same - 2.5 million Mg or m³

• NMOC Emissions Threshold to Control LFG
  – Reduced from 50 Mg/year down to 34 Mg/year
  – Closed Landfills Remain at 50 Mg/year (Subcategory)
EG Timelines When NSPS Issued

- **Local/State Plans:**
  - Until May 29, 2017 to **Submit** Plan to US EPA for Approval
  - EPA has 4 Months to **Review** the Plan
  - If Needed, 2 Months to Address EPA Comments and **Revise** Plan
  - Effective no later than November 2017 (actual October 2019)
  - If no Plan then Defaults to Federal Plan (due by Nov. 2017)

- **Industry Sued**
- **EPA Stay May 2017** (Expired)
- **Eight States EDF Sue EPA (2018)**
- **May 2019 EPA Ordered to Finalize EG November 6**
- **Didn’t Happen!!! Let’s Discuss Towards End**
## Landfill NSPS and EG

<table>
<thead>
<tr>
<th>Landfills that were last constructed / modified ...</th>
<th>Emission Guidelines</th>
<th>NSPS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cc (old)</td>
<td>Cf (new)</td>
</tr>
<tr>
<td>... before May 30, 1991</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>... on or between May 30, 1991 &amp; July 17, 2014</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>... after July 17, 2014</td>
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What to Know

- Landfill “New” or “Existing”
- State/Federal EG? Tribal Lands?
- Don’t Forget Closed Landfills
- Initial Filings 90 Days After EG Final
  - Initial Design Capacity Report
  - Initial Emissions Calculations (NMOC)
- Update Permit if Needed
- Plan for Subsequent Steps
Initial Design Capacity Report

• Ultimate Landfill Capacity
  – Permitted Number
  – Includes any Incidental Site Disposal Areas
  – If Mass/Density or Density/Mass Recalculate Annually

• Location Map/Map Showing Disposal Areas

• If Under Threshold Re-Report if Increases

• Being Over Capacity Requires Title V Permit if not Closed

• If Over Capacity and Closed, File Closure Report
Tier 1 Emissions Calculations

- Rule Requires Gas System for Landfills that Emit > 34 Mg/yr of NMOCS (50 Mg/yr Closed)
- Within 90 Days Report NMOCs
- Can Combine with Initial DCR
- Site-Specific NMOC from Prior NSPS?
- Use Default 4,000 ppmv NMOC?
- Use LandGEM Spreadsheet (Dry k)
- Remove Non-Degradable Trash
Closed Landfill Subcategory

- In EG Rule, MSW Landfills Closed by September 27, 2017 (13 Months after EG Rules Published) Continue with 50 Mg/yr NMOC threshold
  - Note that 40 CFR 60.38(f) has a Closure Report Requirement
  - Still Calculate Emissions
  - Not Available to NSPS Landfills
Tier 1 Emissions?

Under 34 Mg/yr?

- Recalculate/Report Annually
- 5-Year Reports if under 34 Mg/yr all 5 Yrs.
- Prepare to Test if Near 34 Mg/yr
Tier 1 Emissions?

Over 34 Mg/yr?

- Consider Site-Specific Testing?
- Plan for Gas System Contingency?
Tier 2 Landfill Gas Testing

- Default NMOC Conc. = 4,000 ppm
- Testing Should Show < 1,000 ppm
- Called “Tier 2” Testing in the Rule
- Have 180 Days to Re-Report after Tier 1
- Up to 50 Samples from Landfill
- Can Take from Gas Systems
- Use Summa Cans/Push-Probe Rigs
Tier 2 Emissions?

Under 34 Mg/yr?

• If < 34 Mg/yr
  Report Up to 5 Years

• Know When Over/Watch Waste Intake
Tier 2 Emissions?

Over 34 Mg/yr?

• Results Look Okay?
• Consider Further Tiers
• Plan Whether Design Gas System Same Time
Over 34 Mg/yr What Next?

• Tier 3 Testing?
  – Drilling Wells and Determining Site-Specific k
  – Within 1 Year of Showing >34 Mg/yr
  – Generally Quite Costly
  – Wells/Pressure Probes and Equipment
  – EPA Method 2E
  – Can Skip to Tier 4
Tier 4 Demonstration

• Tier 1, 2, 3 Remain the Same to Calculate NMOC Emissions

• Sites Between 34 - 50 Mg/yr Eligible for new Tier 4
  – Can Skip from Tier 2 to Tier 4
  – Cannot go back to Earlier Tiers after Tier 4

So what is it?
Tier 4 Demonstration

• Surface Scan (30-Meter Intervals/Penetrations)
• Must Perform 4 Quarterly Readings
• No Exceedances Above 500 ppm
• Continue to Report NMOC Emissions Annually
• Wind Speed Limits/Shield Required
• Can Leave Existing GCCS On (with Demonstration)
• Requires Notification of Testing/Electronic Reporting
• Requires Meticulous Recordkeeping
• If Fail Install GCCS 30 Months After NMOC Report >34 Mg/yr
Anemometer

Battery in backpack to power equipment

GPS

Data Recorder

FID

Wheel to keep sample tube height

Wind Speed Display

H₂S Meter

Stop Watch

Camera

Wind Barrier
What Happens Ultimately >34

• GCCS Design Plans Still Required
  – Now Requires only Notification and Signature Page
    Certifying it when Completed
  – If no Contact in 90 Days or told that no Review Needed
    Owner Continues at Own Risk

• When Must GCCS Design Plans be Updated?
  – 90 Days of Expanding GCCS to Area not Previously
    Covered in Plan
  – Prior to Expanding GCCS in a way not Included in Plan

• Flexibilities Require Approval/Updates
What’s in a GCCS Design Plan?

• Discussion of Materials and Compatibility
• Gas System Design through Landfill Closure
• Discussion of End Use
• Surface Monitoring Plan
• Flexibilities Section
• Maximum Flow Expected
• Condensate Generation and Management
• Several Other Items
GCCS Design Plan

Implementation Issues and Next Steps?

• Since “at Own Risk” Still Need Approvals?
• Know What to File if Have an Existing GCCS
• What about Previously Approved Flexibilities under NSPS?
Increments of Progress

- EG Rule Requires Multiple Interim Submittals
  - 18-Month Period between GCCS Plan and Startup
  - Contracts/Purchase Orders 6 Months
  - Start Construction/Installation 9 Months
  - Construction/Installation Complete 29 Months After Initial NMOC Over 34 Mg/yr (1-Month Cushion)
  - Initial Performance Test Scheduled at least 150 Days after Control Date (Report Due 180 Days)
Gas System and Control

- 30 Months after Reporting > 34 Mg/yr
- Cover Areas 2 Years Final / 5 Years Intermediate
- Open Flare Still Acceptable
- Surface Scans Quarterly
- Monthly Well Monitoring
- Initial and Annual Reporting Required
Reporting – Liquids Practices

- EPA did not create a category for landfills that add liquids.
- But….if over capacity threshold, must report data.
- Collect data:
  - Volume recirculated
  - Quantity based records or engineering estimates
  - Surface area and waste in Mg in recirculation area
  - Waste disposed of annually in recirculation areas
  - First report initial year and last 10 years
  - Due 13 months after rule finalized
Electronic Reporting

• Requiring Electronic Reporting
  – EPA Central Data Exchange (CDX)
  – Compliance & Emissions Data Reporting Interface (CEDRI)

• Following Reports Required:
  – NMOC Emissions Rate Reports
  – Annual Reports
  – Performance Tests
  – Tier 4
  – Liquids Recirculation/Additions Data
Electronic Reporting (cont.)

- Only if Form Available; Otherwise Hard Copy
- Once form Available for 90 Days Required
- Any Source Test Results must be Reported Electronically within 60 Days of Testing
- Hard Copy Reports not needed for EPA but will likely Submit through CDX since Rules Require
Landfill NESHAP Schedule

• 40 CFR Part 63, Subpart AAAA Currently Requires Landfills to Comply with Existing Rules (NSPS Subpart WWW and EG Subpart Cc)
• Proposed Revision Removes Several Requirements, Harmonizes NSPS Rules
• Court Case Requires Final Rule by March 2020

Will This Action Resolve NSPS Rules?
Startup, Shutdown, and Malfunction

- Standards Apply at all Times, Including Periods of Startup Shutdown and Malfunction (SSM)
- Removed 5-day and 1-hour Downtime Limitations
- Site must Close Valves/Stop Gas Mover within 1-hour of Shutdown (Work Practice Standard)
- Sites must Comply with Work Practice Standards
- Specific SSM Criteria for Required Monitoring System Malfunctions (e.g., Flow and Temperature)
Quarterly Surface Scans

• Sites with Required Gas Systems
  – Still Quarterly – 500 ppm
  – Must Monitor Penetrations
  – No Integrated Sampling/Numerical Wind Limits
  – Must Report Longitude/Latitude of Each Exceedance
  – Instrument Accuracy of at least +/- 4 Meters
  – Coordinates must be in Decimal Degrees with at least Five Decimal Places
  – Follow-Up Requirements for Exceedances Same
Surface Scan Details

Implementation Issues and Next Steps if Required to do Scans?

- New Monitoring Equipment for GPS
- Additional Resources Required for Monitoring
- Know Definition of Penetration
  - Includes Wellheads, Gas System Penetrations
  - Includes Distressed Plants, Cracks, Seeps
  - Does NOT Include: Litter Fencing, Flags, Signs, Trees, Utility Poles
Wellhead Standards

• Removal of the Operation Standards for Oxygen/Nitrogen
  – Monthly Wellhead Monitoring/Recordkeeping Still Required
  – Negative Pressure and Temperature Requirements Maintained
Alternative Timelines

• Well Corrections for Temperature and Pressure
  – Rules say 5 Days for Initial Adjustment and 15 Days to get into Operating Range

• New Tiered System for Alternative Timeframes
  – 15 Days (Standard In Rule)
  – Between 15-60 Days
  – Between 60-120 Days
  – 120 Days

• Be Aware of Prior Flexibilities in GCCS Design Plans
Alternative Timelines

• 5/15-Day Adjustments (Standard)
• Up to 60 Days Allowed – Root Cause Analysis
  – Kept On-Site, not Submitted or Approved
  – Analysis Investigates to Find Cause
  – Document the Corrective Action Also
• >60 but <120 Days Implementation Schedule Required
  – Notification Required within 75 Days
  – No Approval Needed but Include in Semi-Annual Report
    (Schedule, Root Cause Analysis, Document Corrective Action)
• >120 Days
  – Submit Root Cause Analysis and Timeline within 75 Days
  – Assume Proceed After Submittal – Don’t Wait on Approval
  – Document that and Corrective Action in Next Semi-Annual Report
LFG Treatment

• Defined Treatment System: System that Filters, De-Waters and Compresses Landfill Gas for Sale or Beneficial Use

• Expanded Types of Beneficial Use
  – Vehicle Fuels, high-BTU for Pipeline Injection, Raw Material for Chemical Manufacturing

• Clarified Beneficial End-Use Dictates Level of Treatment

• Clarified End-User of Treated Gas not Subject to Rule; end User must Follow Applicable Rules (i.e., ZZZZ, JJJJ)

• Prepare Site-Specific Treatment Monitoring Plan
Treatment Implementation Issues

- If Landfill Clarify Responsibilities
- Treatment Monitoring Plan in Landfill GCCS Plan
- Current Treatment Exemption Conversion (Timing)
- Set Monitoring Parameters
Capping/Removing GCCS

• Alternative Criteria for Capping/Removal
  – Landfill is Closed
  – GCCS has Operated for at Least 15 years; or
  – Demonstrate Unable to Operate due to Declining Flows
  – Must show NMOC Emissions < 34 Mg/year (or 50) for 3 Consecutive Sampling Events

• Also…..
  – For 1% Rule, if Closed and Separate, Actual Gas Recovery and Tier 2 Data Can be used for Estimates
EG Legal Track

• Where we left off earlier…..
  – EPA Had EG Deadline of November 6th
  – Moving to Approve Submitted State EGs
  – Published a Federal EG
  – Rulemaking to Give Themselves Time
  – Judge Denied Delay, Gave 60 Days
  – New Deadline January 7, 2020
  – Will EPA Appeal?
  – Industry Lawsuit?
Some Final Items/New Mexico

- Update Permits?
- Texas EG Status?
- Title V Permit Language
- Permitting For Flare?
- No Copies to EPA
### New Regulation Navigation Tools

**EPA Regulation Navigation Tools**

NEW-NSPS Subpart XXX: Municipal Solid Waste Landfills That Commenced Construction, Reconstruction, or Modification After July 17, 2014.

Regulation Navigation (Reg Nav) tools help owners and operators of facilities in certain industries determine the requirements of specific regulations. Reg Nav tools are online and interactive, and use the information entered to assess potential regulatory requirements.

Reg Nav tools do not store or save information, so you must print or save any output that you want to use or reference. Note that the Reg Nav requirements may not be complete. Refer any questions to your local authority.

Reg Nav tools are available for seven regulations dealing with air pollutants:

<table>
<thead>
<tr>
<th>Air Pollutant</th>
<th>Regulation</th>
<th>Reg Nav Tool</th>
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<tbody>
<tr>
<td></td>
<td>Subpart ZZZZ</td>
<td>Reciprocating Internal Combustion Engines (RICE)</td>
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<tr>
<td></td>
<td>Subpart JJJJ</td>
<td>Brick and Structural Clay Products Manufacturing</td>
</tr>
<tr>
<td></td>
<td>Subpart WWW</td>
<td>Municipal Solid Waste Landfills</td>
</tr>
<tr>
<td>New Source Performance Standards</td>
<td>Subpart III &amp; Subpart JJJJ (one tool)</td>
<td>Stationary Compression Ignition Internal Combustion Engines and Spark Ignition Internal Combustion Engines</td>
</tr>
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<td>Subpart XXX</td>
<td>Municipal Solid Waste Landfills That Commenced Construction, Reconstruction, or Modification After July 17, 2014</td>
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**ISPS Subpart XXX - Standards of Performance for Municipal Solid Waste Landfills**

40 CFR Part 60 Subpart XXX
QUESTIONS?

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