

Breaking the LFGTE Permit Log Jam

Federal Combustion Rules put States on Shaky Ground

16th Annual LMOP Conference and Project Expo

Presented by Matt Lamb, Sr. Scientist

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State of LFGTE Permitting in North Carolina



Log Jam at Taylors Falls 1884

Who is affected?

- ▶ **Private developers seeking to permit gensets**
- ▶ **Universities pursuing carbon footprint reduction**
- ▶ **County governments scrambling to meet ARRA deadlines**
- ▶ **State Energy agency administering EECBG funds**
- ▶ **Private landfill operators facing NSPS deadlines**

What is the Cause?



What is the Cause?



CAAAA90

What is the Cause?

WWW

CAAAA90

NSPS



3C/25C

What is the Cause?

WWW

CAAAA90



NSPS
NESHAP

MACT

3C/25C

What is the Cause?



WWW
NSPS
NESHAP
3C/25C

CAAAA90
MACT
ZZZZ

What is the Cause?



WWW MRR PSD CAAA90
NSPS
NESHAP
JJJJ
3C/25C
MACT GHG
ZZZZ

What is the Cause?

WWW MRR PSD AAA90
NSP
NESHAP
CISWI
3C/25C
NHSM
GHG
ZZZZ



What is Solid Waste?



What is Contained Gaseous Material?



What is Solid Waste?

- ▶ **Commercial and Industrial Solid Waste Incineration (CISWI) and Non-Hazardous Secondary Materials (NHSM) Rule amendments:**
 - ▶ Deleted exemptions for generators
 - ▶ Redefined the term “contained gaseous materials”
 - ▶ Comments, rule stays, reconsiderations, lawsuits, and court orders
 - ▶ Amended rules remained in effect
 - ▶ Unattainable CO limit of **157 ppm**

Conflicting Comfort

- ▶ EPA issued several “comfort” letters
 - ▶ American Forest and Paper Assoc. (May 2011)
 - ▶ Waste Management, Inc. (August, 2011)
 - ▶ *“burning of gaseous material... does not involve treatment or other management of a solid waste”*

BUT

- ▶ *“Landfill gas is not a traditional fuel”*
- ▶ NC DAQ confused by conflicting guidance
- ▶ Burden of proof on permittee

Two Paths to Permits



1. Schedule of Compliance

- ▶ **DAQ offered “Schedule of Compliance”**
 - ▶ **DAQ issues permit but considered permit holder non-compliant with CISWI**
 - ▶ **Offers SOC generous enough to allow reconsideration to become final**
 - ▶ **Risk borne by permittee**
 - ▶ **Difficult to finance a project that is non-compliant from day one**

2. Force EPA Determination

- ▶ **DAQ issued CISWI permit for an LFG flare**
 - ▶ **DAQ hopes during EPA review CISWI would be determined non-applicable**

OOPS

- ▶ **EPA issued permit as written, with CISWI conditions intact**

A Third Way

▶ Legitimacy Test

▶ Demonstrate that landfill gas:

1. Remains in control of the “generator”

OR

2. Is managed as a valuable commodity

3. Has significant heat content

4. Has contaminant levels comparable to traditional fuel

Cooperative Effort with DAQ

- ▶ Natural gas contaminants are difficult to identify/quantify
- ▶ Evaluation of LFG contaminants against emission limits/factors

Contaminant	ppmv (unless otherwise noted)	Source	ppmv (unless otherwise noted)	Source	MW	CFM	lb/hr	tpy	EPA de minimis (tpy unless otherwise noted)	Notes
	Natural Gas		LFG							
Nitrogen	3,100 - 25,000	Perry's Handbook	262,000	EPA Field Tests (Raw LFG)						NOx emission rate same as natural gas-fired enging
Sulfur	0.34 ppmw									See sulfur compounds below
Hydrogen Sulfide (H ₂ S)	1,800	Ohio Raw Gas Sample	336	EPA Field Tests (Raw LFG)						Lower than Traditional Fuel
Metals										
Arsenic (As)	35.5 - 86.5	EPA/OAQPS Survey for Final NHSM Rule	0.004	EPA Field Tests (Raw LFG)	74.9	519	2.42074E-05	0.00011	0.005 tpy	Lower than EPA de minimis
Beryllium (Be)	20.3 - 45.6	EPA/OAQPS Survey for Final NHSM Rule	No Data							
Cadmium (Cd)	3.6 - 8.3	EPA/OAQPS Survey for Final NHSM Rule	0.00098	EPA Field Tests (Raw LFG)	112	519	8.86852E-06	0.00004	0.01 tpy	Lower than EPA de minimis
Chlorine (Cl)	2140 - 2870	EPA/OAQPS Survey for Final NHSM Rule	No Data							
Chromium (Cr)	164.3 - 274.6	EPA/OAQPS Survey for Final NHSM Rule	0.008	EPA Field Tests (Raw LFG)	52	519	3.36125E-05	0.00015	0.002	Lower than EPA de minimis. The hexavalent was used as the most protective assumption.
Lead (Pb)	55.3 - 78.3	EPA/OAQPS Survey for Final NHSM Rule	0.005	EPA Field Tests (Raw LFG)	207	519	8.36271E-05	0.00037	0.01	Lower than EPA de minimis

Success!

- ▶ **Three landfill gas to energy projects permitted**
 - ▶ **Developer**
 - ▶ **University**
 - ▶ **County**
- ▶ **All three are currently under construction**

CISWI/NHSM Reconsideration Status

- ▶ **December 21, 2012: Reconsideration Rules are finalized**
- ▶ **Previous definition of “*contained gaseous fuels*” reinstated as:**

“...gases that are in a container when the container is combusted”



NC DAQ Status

- ▶ **Rule implementation within 60 days of publish date**
- ▶ **To date, no notice has been published in the Federal Register**

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