

# Enhanced Waste Stabilization and the RD&D Rule Kansas' Experience

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at  
EPA LMOP Conference  
January 23, 2013

# Subtitle D MSWLFs

- Subtitle D Landfills – 1990's to date
  - Composite liner at the base
  - “NO” liquids into the waste mass
  - No greater than 12 inch head of leachate on the composite liner, and
  - Composite cap.

# Subtitle D MSWLFs

- RESULT
  - Dry entomb relatively dry waste mass
  - How long could such a containment be sustainable?
  - What kind of post-closure activities would be required?
  - How long would post-closure care be required?

# 1990's through 2004, in Kansas

- Municipal Solid Waste had to pass the paint filter test
- Liquid waste streams would need to be conditioned to pass paint filter test – permit mod.
- Alternate Final Covers approved as a **variance** to the prescriptive regulation
  - One capillary barrier cover
  - Several ET covers
- **No greater than 12 inch head of leachate on the composite liner**

# So what happened in 2004, in Kansas

- Not just Kansas, the USA
- March 22, 2004, EPA promulgated the RD&D rule – 40 CFR 258.4
- Allows **approved states** to issue RD&D permits to certain MSWLFs.
- RD&D? PERMITS

# Permits

- Require **statutory** authority.
- Is based on standards established in **regulations** – typically.
- A regulator
  - is responsible for
  - is credible when
  - Is in his/her comfort zone when administering well defined standards.

# Permits (contd.)

- What standards could the regulator use to assess compliance?
- For the permit mod related to liquid restrictions
  - Get it to pass the paint filter test
    - Add flyash, or sawdust, or just plain old dirt available on site, and
    - Stir, and stir, and stir, till it passes the paint filter test!

# The Kansas Story

- The Bureau of Waste Management (BWM) obtains **approval** from EPA to administer the RD&D rule – November 2009
- This authorizes BWM to allow flexibility in three areas in Subtitle D MSWLFs:
  - Liquid waste streams may be approved for disposal,
  - Storm water run-on berms could be removed, allowing storm water to run onto the active disposal area, and
  - Alternative final covers could be approved.
- The Bureau of Waste Management announces that it encourages enhanced waste stabilization within MSWLFs which would, and could result in:
  - timely generation and therefore better management of LFG
  - Potentially minimize the period that post-closure care would be required for landfills



## The Kansas Story (contd.)

- Stakeholders in Kansas are overwhelming in favor of making Alternate Final Covers work
- Several Subtitle D landfill owners, and liquid waste generators, are serious about this option for managing liquid waste streams.

# The Kansas Story (contd.)

- **R**esearch, **D**evelopment and **D**emonstration Permit
- Permit it for **R**esearch
- Gather data
- **D**evelop the process and adjust it based on data gathered – an iterative process.
- Permit is renewed every two years in Kansas
- Continue development to **D**emonstrate a Design that matches the specific site.

# The Regulatory Standards during research, and development phase?

- Not greater than 12 inch head of leachate on the liner,
- Data to be reported to the regulatory agency
- No **regulated** hazardous waste (Subtitle C waste) into a Subtitle D landfill.
- **THAT's IT.**

# Looking Ahead in Kansas

- Research, Develop, Research, Develop....till we have a great Design.
- Goal is to **stabilize the waste mass** and **minimize** post-closure care period/requirements.
- Enhance biodegradation resulting in enhanced landfill gas production which can then be beneficially used.
- Final covers that can be erosion resistant and stable even while allowing infiltration of precipitation to facilitate biodegradation.







JUL 21 2011



SEP  
15  
2011





OCT 28 2011



OCT 19 2012



OCT 19 2012



R & R OILFIELD SERVICES  
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FEB 6 2013

# Another Request

- Generator – VVF Kansas City Services, LLC
- Waste – Pit grease – by-product waste of tallow/lard and grease used in soap manufacturing
- 3,000 gallons by tanker
- To be disposed in a composite lined landfill in the Kansas City area

# Another Request (contd.)

- The Material Safety Data Sheet
- Manufacturer – Cargill Meat Solutions
- Chemical name – Animal Fats and Fatty Acids
- Trade name – Tallow/Lard/Choice White Grease

# Another Request (contd.)

- From Beef to
- Soap to
- Landfill disposal to
- Landfill gas to Sacramento
- Resulting in enhanced stabilization of the waste in a landfill



*Our Mission: To protect and improve the health and environment of all Kansans.*





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# A Powder Room?

- Working together with mutual respect - from lawmaker to the person tuning the wells, and everybody in between.
- Every Landfill like a powder room
- We can do it!!

# Contact Information

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