

# **KDHE's Proposed C&D LF Regulation Changes**

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**at**

**Kansas Landfill Association 5th  
Annual Convention & Trade Show**

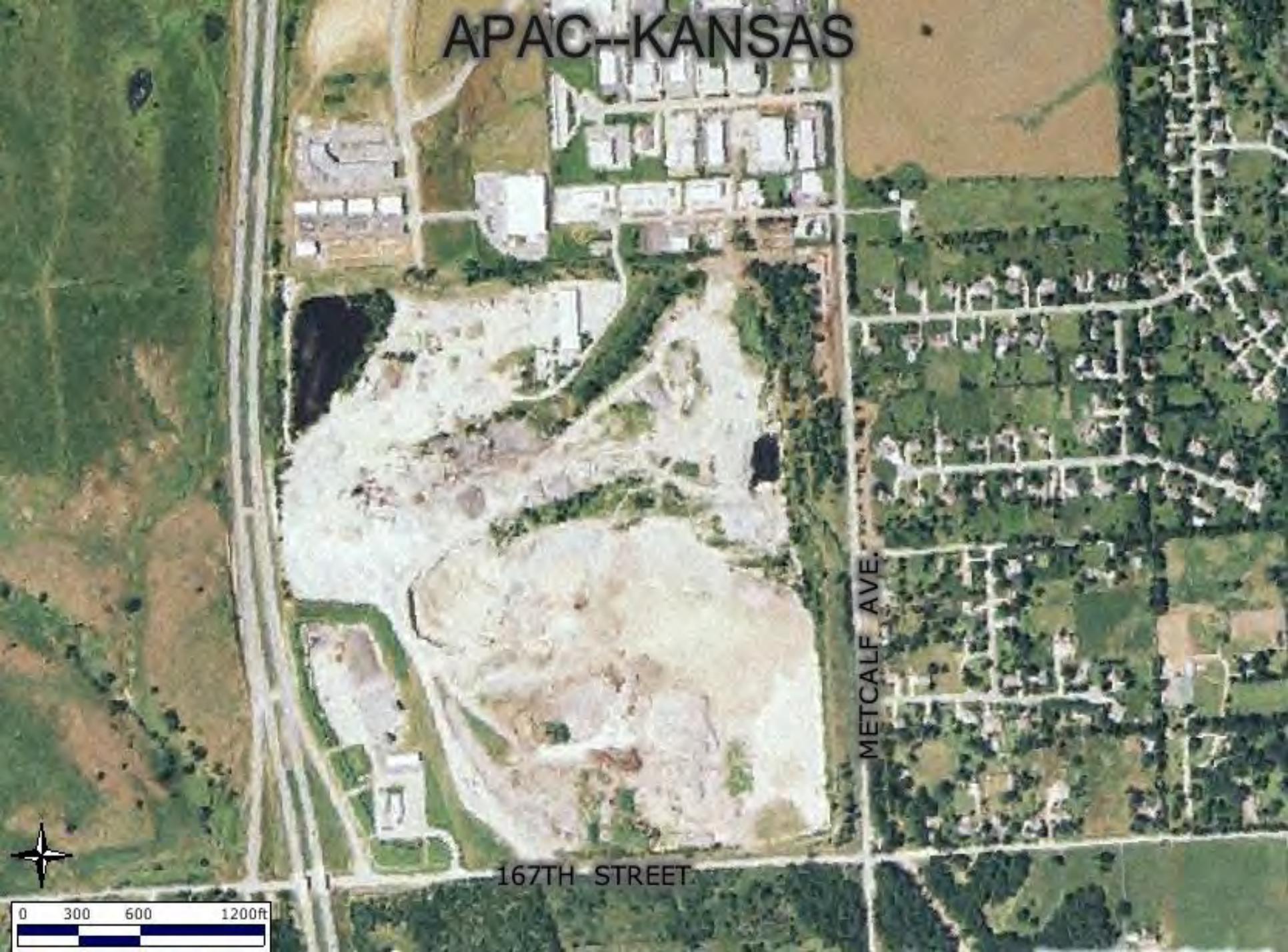
**Junction City**

**September 26, 2008**

# Overview of Presentation

- Why Considering Regulatory Changes?
- Brief Review of Key Current Regulations
- What C&D Landfills Will be Subject to Increased Level of Regulation?
- What is the Scope of the Proposed Changes?
- Future Schedule for Regulation Development

# APAC-KANSAS



METCALF AVE.

167TH STREET







# Effluent from Water Scrubber June 2006



# Where Did the Scrubber Water and Storm Water Go?



# East Pond









# What Do We Have Now?

- Tight shale base with some undulations, but no designed leachate collection system to help drain the contact water to a low point; contact water is ponding in the waste mass

# What Do We Have Now? (cont.)

- Organic wastes in the landfill
- Sheetrock/wallboard made from paper and  $\text{CaSO}_4$

# What Do We Have Now? (cont.)

- Infiltration of process water and run-on water from storm events during the days, months, and years

# What Do We Have Now? (cont.)

- Waste mass is about 74 acres with a contact water depth of about 10 feet
- Est. 80,000,000 gal of contact water with low oxygen levels due to the microbial degradation of large quantities of organic wastes
- With the anaerobic (low oxygen conditions) high concentrations of organics -  $\text{CH}_4$  (gas) and inorganic  $\text{H}_2\text{S}$  (gas) are produced

# Why – Is this Facility of Major Concern?

- Approximately 5,000 addresses are within 1 mile of this facility that operates an asphalt plant and a C&D landfill; within 1.5 miles there are 5 Blue Valley District schools – 2 elementary schools, 1 middle school, and 2 high schools

# Why is This Facility of Major Concern? (cont.)

- The data from the landfill gas collection system show that the  $\text{CH}_4$  concentrations currently range from 34% to 36% (lower explosive limit is 5 %)
- The current  $\text{H}_2\text{S}$  concentrations in the landfill range from 4 ppm to 120 ppm
- The current average concentrations from the LFG extraction system are 54 ppm  $\text{H}_2\text{S}$

# Why is this Facility a Major Concern? (cont.)

- The average concentration of  $\text{H}_2\text{S}$  is **54 ppm or 54,000 ppb**
- Public health protection standards and guidelines are as presented in the following table

# Risk Based Comparison of H<sub>2</sub>S Levels for Workers & Receptors

Agency	H <sub>2</sub> S Exposure Standards, Guidelines & Test date (ppm)	Comments
NIOSH	100	IDLH (Immediately dangerous to life or health)
	54	9/08 avg. LF gas conc. in waste at APAC-KS LF
OSHA	20	Worker exposure – 15 min. ceiling
NIOSH	10	Worker exposure – 10 min. ceiling
ATSDR	0.07	Acute minimal risk – 14 days cont. exposure
ATSDR	0.02	Intermediate minimal risk – 15-365 days of continuous exposure
USEPA	0.0014	Reference concentration – lifetime exposure
USEPA	0.0005	Odor detection threshold

# Current Design Regs

- Major design features 28-29-304
  - storm water control – prevent flow onto active areas for a 25 y, 24 h storm event
  - contact water control & management (one or more of the following)
    - Storage (outside the waste mass)
    - Beneficial use (no recirculation into waste)
    - Treatment on-site or haul off-site to WWTP
    - Discharge thru NPDES/WW Permit or Deep Well

# Current Operational Regs & Policies

- Major Operational features 28-29-308
  - Water management
  - Access control
  - Cover (at least once for every 2,000 T of waste accepted)
  - Waste screening – enhanced for larger C&D LFs

# Enhanced Waste Screening

- Applicable to Larger C&D LFs:
- Accepting waste from out-of-state TS
  - Requires screening of every load
- Facilities receiving  $> 100$  T or 200 cu yds
  - Requires screening 1 load/ 50 T (100 cy) recd
- Non-compliant facilities
  - Revise screening plan in the FOP to higher level

# Key Operational Needs!

- Operational and Safety Training for Supervisory and Operational Personnel
- Providing Operational Personnel the Proper Operating Equipment and Storage Containers
- Waste Screening

# Key Needs in Current Landfill Management!

- Have a consulting engineer on retainer to:
  - Review your phasing plan to ensure proper CQA occurs prior to disposal
  - Review your operations annually
  - Prepare your annual closure and post-closure cost estimate

# What is the Focus of the Proposed C&D Landfill Regulatory Changes?

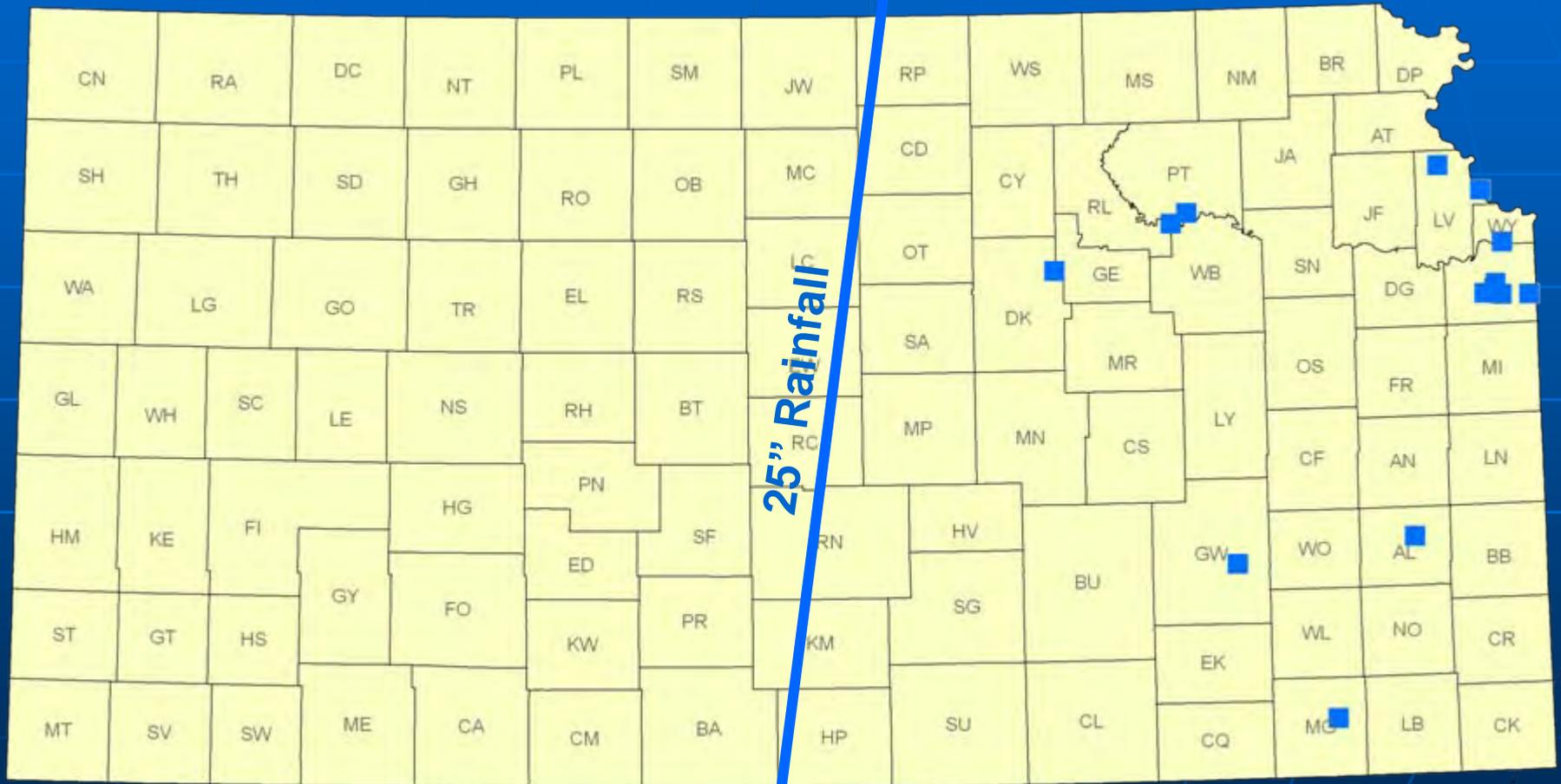
## ■ Landfill Gas Monitoring and Control

- Facility Applicability:
- Precipitation > 25/yr
- Permeability of in-situ soil liner –  
 $1 \times 10^{-7}$  cm/sec or less
- For Comparison: Concrete –  $1 \times 10^{-12}$  cm/sec, HDPE 60 mil geomembrane liner –  $1 \times 10^{-14}$  cm/sec

# What types of C&D LFs Will Likely Be Affected?

- Quarries with shale base or sites with low permeability bases –  $1 \times 10^{-7}$  cm/sec or less

# Quarry C&D Landfills



# Distribution of Active C&D Landfills Known or Believed to be in Quarries

Permit No.	County	Owner
101	Allen	Allen Co.
669	Dickinson	Blixt
118	Greenwood	Greenwood Co.
487	Johnson	APAC-KS
263	Johnson	Deffenbaugh
763	Johnson	Asphalt Sales
790	Johnson	O'Donnell &
840	Johnson	Holland Corp.
804	Leavenworth	American Roofing
862	Leavenworth	Larkin Excavating
515	Montgomery	Heartland Cement
851	Pottawatomie	Acres of CD Landfill
843	Riley	Tarkio CD Disposal

# Draft - Landfill Design

- Construct at least 2 foot drainage layer across the base of the landfill
- Contact water collected and removed from the containment unit/cell
- Minimize infiltration
- Fully control generated gases from migrating offsite

# Draft - Landfill Operations

- Monitor H<sub>2</sub>O content in waste to determine adequacy of water management practices
- Phase waste placement to shed precipitation and minimize infiltration
- Cover wastes frequently with soil or approved material to minimize infiltration
- Control head of contact water to less than 1 foot in the drainage layer

# Draft - C&D Landfill Gas Monitoring

- Gas monitoring plan as part of FOP
- Type of monitoring
- Gas monitoring system
- Alarm system
- Gas sampling & analysis for methane & H<sub>2</sub>S

# Draft - Landfill Gas Control

- Active gas controls may be required - depending on the concentrations and volumes of methane and H<sub>2</sub>S onsite and at property boundary

# Draft - Corrective Action

- If methane gas levels exceed 25% of the lower explosive limit or 1.25% for buildings on the LF property
- If methane gas levels exceed 50% of the lower explosive limit or 2.5% in soil at the LF boundary
- H<sub>2</sub>S will also be included

# Estimated Schedule for Development

- December 2008 – Complete Draft
- January 2009 – Internal Review Completed
- March 2009 – Review Completed by Stakeholders
- May 2009 – Administrative Review Completed

# Estimated Schedule for Development (cont'd)

- June 2009 – Place on Public Notice in KS Register
- July 2009 – Hold Public Hearing
- August 2009 – Review Comments & Revise
- October 2009 – Publish Regulation in KS Register

# Questions?

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