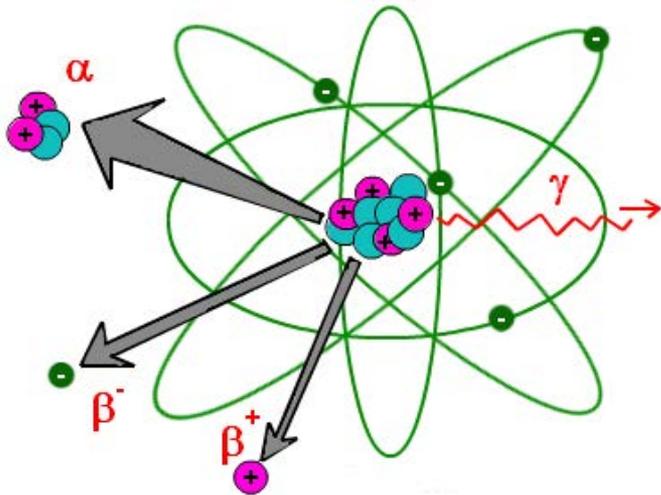


# The Disposal of NORM and TENORM in Kansas



by

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KDHE Environmental Conference

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# What is NORM and TENORM?

## NORM

Naturally Occurring  
Radioactive Material

## TENORM

Technically Enhanced NORM  
(concentration increased by  
human activity)

NORM means:

“any nuclide (nucleus) that is radioactive in the nuclide’s natural physical state”

Radioactive means that material emits ionizing radiation spontaneously (gamma rays, x-rays, alpha & beta particles, neutrons)

# What is NORM/TENORM Waste?

Solid waste defined in K.S.A. 65-3402 contaminated by NORM or TENORM

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Common wastes containing NORM/TENORM

- 1) Drilling waste (O&G, other)
- 2) Refractory materials (brick)
- 3) Water treatment filters
- 4) Coal combustion residuals
- 5) Oil field pipe (scale)
- 6) Boiler scale

# Disposal of NORM/TENORM in Kansas

## Pre-2015

Prohibited; included in definition of “low-level radioactive waste” (LLRW); all concentrations

## SB124 (2015)

NORM/TENORM is not LLRW if less than   X  

X - to be determined in rules and regulations to be adopted by KDHE Secretary

# Historical Management

- Mostly did not know NORM concentrations
- Some material rejected from recyclers and MSWLFs
- Some stockpiled
- Some misused (pipe for fences)
- Some disappeared
- Some transported out-of-state to LLRW facility

# Current Status

SAME - Until new regulations are adopted setting limits and disposal standards

## 3 Sets of Regulations Needed

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- 1) Radiation standards
- 2) New solid waste generator and facility standards
- 3) Special waste update

# Regulation Development Schedule

## 2015

July 30 • Regulations drafted

Stakeholders meetings and draft update

Aug 11 • Technical stakeholders

Sept 15 • All stakeholders

Late Oct • Final regulations

## 2016

Jan • Dept of Admin and KS A.G. reviews

May-June • Public notice period, hearings, comments

**July 1 • Required adoption**

# Radiation Regulations

- Definitions
- Exempt material/Limits
  - Concentration limit
  - Maximum exposure limit
- Analytical methods (lab and field testing)
- Storage
- Transfer and disposal
- General and specific licensing

# Three Categories of NORM/TENORM Waste

## Preliminary Proposal

- Exempt material -  $< 5$  pCi/g
- Still classified as LLRW -  $> 50$  pCi/g
- Eligible for disposal in Subtitle D MSWLF  
5 to 50 pCi/g

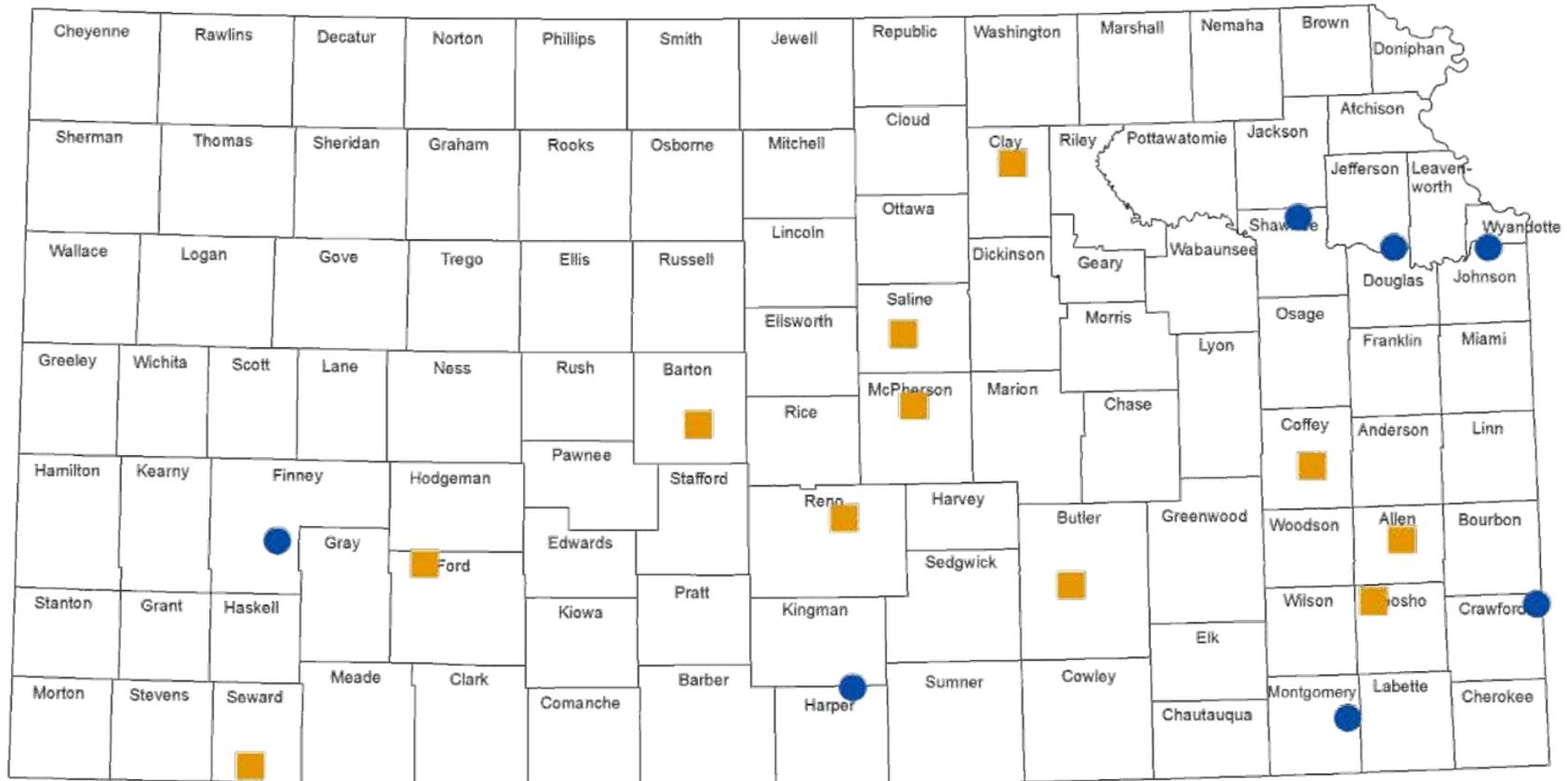
# Solid Waste Regulations

- Definitions
- Grace period of one year for disposal
- Generator requirements (storage, SWDAs, recordkeeping, reporting)
- Landfill design and operating standards
- Disposal limit
- Monitoring (leachate, groundwater, gas)
- General license and fee (\$190/yr)

# Special Waste Regulations

- Address radioactivity in addition to hazardous as appropriate
- Expand disposal option to industrial landfills if design/operations satisfied
- Notice requirements to KDHE radiation control program if problems

# Possible NORM/TENORM Disposal Sites in Kansas



■ Publicly Owned    
 ● Privately Owned

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# Questions ?

