

Radionuclides Implementation Strategy



**New Mexico Municipal League Annual
Conference
August 29, 2007**

Radionuclides Rule Review

- Sets a new MCL for:
 - Uranium (30 $\mu\text{g}/\text{L}$)
- Retains the existing MCLs for:
 - Radium-226/228
 - 5 pCi/L
 - Gross alpha particle radioactivity
 - 15 pCi/L
 - Beta particle and photon activity
 - 4 mrem/yr
- Revises monitoring requirements
 - Standardized monitoring framework

Standardized Monitoring Framework - Radionuclides

Compliance Period 2002-2004	Compliance Period 2005-2007
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Compliance Period 2008-2010	Compliance Period 2011-2013	Compliance Period 2014-2016
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Grandfather Data

Initial Monitoring

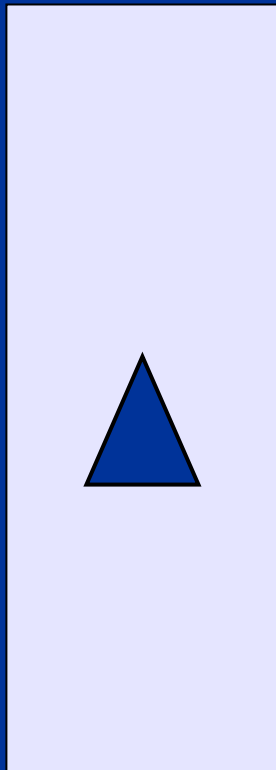
Monitoring Results

First Compliance Cycle

6/00 12/8/03

2003 2007

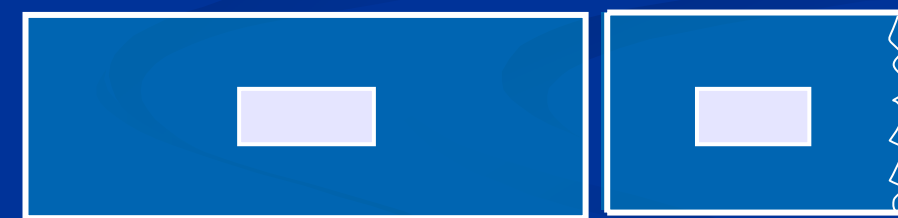
08	09	10	11	12	13	14	15	16
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< Detect Limit



≥ Detect Limit but ≤ 1/2 MCL



> 1/2 MCL but ≤ MCL



> MCL



TENORM

Regulated by numerous federal regulations

- Defined as naturally occurring materials whose radionuclide concentrations or potential for exposure is enhanced as a result of human activities
 - Includes waste streams generated by water treatment plants
 - Also includes mining, fertilizer production, and oil and gas production.

Treatment Options & Residual Generated

Solid Residuals by Treatment Type

Treatment	Spent Resins/ Media	Spent Membranes	Sludge
IX	X		
RO		X	
AA	X		
Coagulation/Filtration	X		X
Lime Softening	X		X
Green Sand Filtration	X		X
Co-Precipitation w/Barium Sulfate	X		X
Electrodialysis/Reversal		X	
Pre-formed Hydrous Manganese Oxide Filtration	X		X

Liquid Residuals by Treatment Type

Treatment	Brine	Backwash	Rinse Water	Acid Neutral Water	Concentrate
IX	X	X	X		
RO					X
AA		X	X	X	
Coagulation/Filtration		X			
Lime Softening		X			
Green Sand Filtration		X			
Co-Precipitation w/Barium Sulfate		X			
Electrodialysis/Reversal					X
Pre-formed Hydrous Manganese Oxide Filtration		X			

Disposal of Water Treatment Plant Waste Containing Radionuclides

Options for Disposal are Influenced by . . .

- Concentration of radionuclides and co-occurring contaminants in the waste stream
 - Hazardous Waste
 - Technologically Enhanced Naturally Occurring Radioactive Material (TENORM)
 - Low-Level Radioactive Waste (LLRW)
 - Mixed Waste
- Federal, State, & Local Regulations
 - Disposal facility policies
- Type of residuals
 - Liquid or solid

**Regulations & Regulatory
Agencies
Impacting Disposal**

New Mexico Radiation Control Act (74-3-1 through 74-3-16 NMSA)

■ Radiation Control Bureau

- All regulatory requirements regarding NORM resulting from drinking water sources are currently regulated under 20.3.3.3 NMAC (Licensing of Radioactive Material).
- Source Material – Uranium – exempt when concentration is by weight less than 0.05 percent of the mixture.
- By-Product Material – Radium – No exemption. Generation of radium in any quantity must be under the scope of a Specific License.

Environmental Improvement Board

Solid Waste Act, NMSA 1978.

■ Solid Waste Bureau

- There are currently no regulatory guidelines for the disposal of NORM waste materials at local solid waste disposal facilities in the State of New Mexico.
- A minimum value has not been established for radioactive material.
- All "radioactive material" is prohibited at solid waste facilities.

Clean Water Act (CWA)

33 USC 1251 to 1387

■ **Surface Water Quality Bureau**

- Direct discharges under a National Pollutant Discharge Elimination System (NPDES) permit
- Discharges to a publicly owned treatment works (POTW)
- Federal NPDES regulations do not set specific limits on radionuclides in discharges
- EPA regulations on the use and disposal of the sewage sludge produced by POTWs currently do not cover radioactive material

Water Quality Control Commission

20.6.2 NMAC

- **Groundwater Quality Bureau**
 - Regulate all discharges to groundwater
 - Land Application
 - Underground Injection (UIC)
 - Surface impoundments
 - Goal is to protect the environmental quality of New Mexico's ground water resources as mandated by the Water Quality Act

RCRA

42 USC 6901 et. seq.

■ Hazardous Waste Bureau

- The identification, management, and disposal of solid wastes (including sludge)
- If you generate solid waste, you must determine whether the waste is hazardous
 - Exhibits toxicity, corrosivity, reactivity, or ignitability criteria listed under 40 CFR 261.3(a)(2) and (b)
- Presence of radionuclides does not *ITSELF* make the waste hazardous

STATE STRATEGY

- 95% of Initial Sampling Completed.
- Drinking Water Bureau developing Implementation Strategy.
 - Targeting Completion by December 2007
 - Working with other NMED Bureaus.
 - Already completed Coordination with Radiation Control Bureau
 - Incorporating Identified Impacts in Engineering Reviews for new construction.
 - Stakeholder Input

Questions

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