

TENORM Policy and Guidance
Revision 2013
Stakeholder Process Kickoff Meeting

October 8, 2013

TENORM Policy

- Limit the potential annual exposures resulting from TENORM and unimportant quantities of source material to a maximum of **25 mrem** for any individual member of the public
- Develop mechanisms to address radiation protection requirements while minimizing additional regulatory structure or burden

TENORM Policy Revisions

- Radiation Management Unit (RAM) now has significant experience applying the TENORM policy to water treatment residuals, contaminated soils and other materials
- Change in “source material” definition
- Shift approach from material-specific to media-specific
- Include dose from Radon progeny in dose assessment

TENORM Policy Revisions

Source material definition:

- Changed to align with NRC definition
- Includes uranium or thorium, or any combination thereof, in any physical or chemical form
- TENORM excludes source material
- Propose to include unimportant quantities (UQ) of source material along with TENORM

TENORM Policy Revisions

Shift in approach:

- Currently material-specific (e.g. drinking water residuals)
- Propose media-specific (e.g. diffusely contaminated soil-like materials, liquids, surface-contaminated objects)
- Provides greater applicability and flexibility

TENORM Policy Revisions

- Maintain a regulatory process that is simple, equitable, consistent and predictable
- Retain and develop generic steps for TENORM and UQ management and disposal
- Retain the current optional case-by-case approach

Applying the TENORM/UQ Policy

Initiated through:

- Direct request to RAM
- Referral to RAM from another department entity (e.g. solid waste, drinking water, wastewater) or external agency
- Identification by department staff from inspection, incident report or other means

Applying the TENORM/UQ Policy

Initial contact should include, to the extent available:

- The current state, condition and location of the material
- Any chemical or radiological characterization information
- The origination of the material through process knowledge or documentation
- Contact information for the possessor and/or owner of the material
- The planned disposition of the materials (e.g. disposal, beneficial reuse, storage, transfer, etc.)

Regulations Applicable to TENORM

- Regulations Pertaining To Solid Waste Sites and Facilities (6 CCR 1007-2)
- The Colorado Primary Drinking Water Regulations (5 CCR 1003-1)
- Surface Water Quality Classification and Standards (5 CCR 1002-31)
(Regulation 31)
- Basic Standards for Ground Water (3.11.0) 5 CCR 1002-41 (Regulation 41)
- Beneficial Use of Water Treatment Sludge and Fees Applicable to the
Beneficial Use of Sludges (6 CCR 1007-2, Section 8)
- Pretreatment Regulations (Regulation 63) (5 CCR 1002-63)
- Biosolids Regulations (Regulation 64) (5 CCR 1002-64)
- Statewide Water Sampling and Monitoring (new COGCC Rule 609 and
amended Rule 318A.e.(4)) (2 CCR 404-1)
- Others?

Developing the Policy

- Identify the materials to be considered
- Evaluate potential exposure pathways
- Develop generic dose assessments
- Select generic evaluation criteria
- Establish amounts that result in acceptable levels of exposure

Proposed Generic Dose Assessments

Management	Liquids	Solids	Surface-Contaminated Objects
Storage and evaporation	X		
Discharge to Sewer	X		
Discharge to Surface water	X		
Discharge to ground water	X		
Deep Well Injection	X		
Beneficial reuse: Land application: road dust suppression	X		
Beneficial reuse: Land application: agricultural irrigation	X	X	
Disposal in RCRA D solid waste landfill		X	X
Disposal in RCRA C hazardous waste landfill		X	X
Disposal by land burial on site		X	
Beneficial reuse: Compost feed		X	
Descaling activities and management of solids			X

Generic Acceptable Levels

Limits above background ¹	May Be Managed Without Consideration of the Radioactive Constituents if Less Than:	Will Require a Radioactive Materials License and Will Be Directly Regulated if Greater Than:
Combined Ra-226/Ra-228	3 pCi/g	50 pCi/g
Natural Uranium	30 pCi/g	339 pCi/g ²
Natural Thorium	3 pCi/g	55 pCi/g ²

¹ If both U Nat and Th Nat are present unity applies (i.e. the sum of the fractions of the limits for U Nat and Th Nat may not exceed 1)

² Source materials greater than 0.05% by mass