

# Uranium Milling Regulations

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# CDPHE Authority

- Per agreement between US Nuclear Regulatory Commission and Governor, CDPHE is sole regulator of radioactive materials
- Colorado Radiation Control Act (CRS 25-11-101, et seq)
- Colorado Rules and Regulations Pertaining to Radiation Control (6 CCR 1007-1)
- Statute and Regulations reviewed by NRC for compatibility

# CDPHE Regulatory Scope

- “...regulations apply to all all persons who receive, possess, own, acquire, use, process, store, transfer, or dispose any source of radiation...” *Regulations Section 1.1.4*

# CDPHE Radiation Management Functions

- Compliance Assistance
- Licensing (Specific and General)
- Compliance Inspections
- Security of sources of concern
- Incident and Allegation Response
- Regulatory Development
- Remediation Oversight

# CDPHE Uranium Regulation

- Naturally Occurring Radioactive Materials (NORM) and Technologically Enhanced NORM (TENORM)
  - Drinking water sludge
  - Uranium overburden
- Uranium Recovery
  - Uranium mills
  - In situ recovery
- Do not regulate uranium ore in its natural state, or conventional mining (MSHA – DNR)
- Exemptions for depleted uranium (less U-235) in counterweights and unimportant quantities
- Feds regulate enriched uranium (more U-235)

# Local Authority

- Land use and zoning issues
- Review of Environmental Report
- Comment on license application

# Other Authorities

- NRC retains authority over federal sources, reactors and large irradiators
- EPA retains authority over radon emissions from mill tailings piles and mines (NESHAPS).
- MSHA has authority over industrial safety at mills, and radiation for miners.
- DNR has authority over permitting at mines
- DOT has authority over transportation.

# Status of Uranium Facilities in Colorado

- Cotter Cañon City Mill
  - Active license; currently in stand down; Superfund site.
- PowerTech In Situ Recovery (Weld County)
  - Collecting baseline data for license application
- Energy Fuels Pinon Ridge Mill (Paradox Valley)
  - Collecting baseline data for license application
- UMETCO Uravan Mill
  - Decommissioning physically completed, Superfund site.
- Maybell and Durita in license termination process

# Lessons Learned

- Public health and environmental protection
- Importance of siting
- New technologies and methods
- More focus on facilities as well as impoundments
- Water/liquids management
- Control of tailings
- Design cells in stages
- Decommissioning timing
- Adequate financial assurance

# Uranium Mill Regulatory Requirements Summary

- CDPHE
  - Radioactive Materials License
  - Surface water discharge permit (if applicable)
  - Air Permits (construction and operation)
  - Solid or hazardous waste (if applicable)
- Local Government (or federal or state)
  - Land Use
- EPA
  - Air permit (Radon NESHAPS)
- Other agencies (if applicable)

# Radioactive Material License Application Process

- Application submitted to CDPHE
- Completeness determination by CDPHE
- Public hearings/meetings about the application
- Consultation with other agencies
  - County Commissioners review environmental report
- Adequacy determination by CDPHE
- Decision document and draft license (if applicable) by CDPHE
- Public hearing on license, if requested
- Appeals process

# Radioactive Material License Application Highlights

- Project description
- Area/site characteristics
- Materials management description
- Equipment, facilities, procedures
- Radiation protection for workers and public
- Decommissioning/financial assurance
- Environmental Assessment Report

# Area/Site Characteristics

- Site location
- Demographics
- Meteorology
- Hydrology
- Geology
- Seismology

# Decommissioning/Financial Assurance

- Plans required up front
  - How is the plant going to be torn down?
  - How is the site going to be reclaimed?
  - What will the cap look like?
- Money committed up front
  - Assumes third party does all the work
  - Based on worst case scenario

# Environmental Assessment Report

- Radiological and non-radiological short term and long term impacts
  - Environmental
    - Surface water
    - Groundwater
    - Soils
    - Air
    - Radon
    - Flora
    - Fauna
  - Economic

# Environmental Assessment Report (cont'd)

- Radiological and non-radiological short term and long term impacts (cont'd)
  - Social
  - Technical
  - Transportation
    - Infrastructure
    - Effects of accidents
  - Other
- Can require “such other information as the Department may deem necessary”  
*(Regulations Section 18.3.1)*

# County Role

- Up to \$50,000 provided by applicant to assist review of the application and environmental report
- County Commissioners provide comment to CDPHE on environmental report within 90 days of first public meeting
- County technical input critical to evaluation of social, economic and local impacts

# License Application Resources

- Regulations Parts 1, 3, 4, 10 and 17
- Regulations Part 18, Licensing Requirements for Uranium and Thorium Processing
- Regulations Part 18, Appendix A, Criteria relating to the Operation of Mills and the Disposition of the Tailings or Wastes from these Operations
- NRC Guidance: NuReg 1620, Reg Guides 3.5, 3.8, 4.14, etc.

# License Review Timeline

- Application submitted at least 9 months prior to anticipated construction
  - Superseded by RCA timeline (below)
- Construction prohibited prior to license approval
- Preoperational monitoring for one full year prior to any major site construction (and data required in application)
- Completeness determination within 30 days of submittal

# License Review Timeline (cont'd)

- First public meeting/hearing within 45 days of completeness determination; second with 30 days of the first
- County Commissioner review of environmental report within 90 days of first public meeting
- CDPHE approve or deny application within
  - 270 days of response from County Commissioners, or
  - 360 days of second public meeting if no County Commissioner response

# Public Process

- Application and related documents placed on CDPHE web site and in local repository
- Comments received throughout review process
- Mandatory public meetings/hearings by applicant at 45 and 30 days
- Additional public meetings by CDPHE throughout review process
- Public hearing after decision may be held
- The most stakeholder-focused process in US

# Licensed Facility Oversight

- Monitoring of chemicals and radiation (workers and public), radon, particulates, discharges and groundwater, vegetation, biota
- Yellowcake Inventory
- Documentation and reporting
- Compliance inspections
- Enforcement

# Closeout

- Site must be cleaned up and restored at end of operations
- Mill tailings and contaminated facilities buried on-site in engineered disposal cells
- Thick cap to contain the radon and keep water out
- 1,000 years post closure monitoring by Feds.

# Questions?

- Contact –
  - Steve Tarlton, 303-692-3423
  - Warren Smith, 303-692-3373
  - Toll Free, 1-888-569-1831, then last four digits of phone number
- Visit Radiation Management web site at <http://www.cdphe.state.co.us/hm/rad/>