USNRC Uranium Recovery Oversight Program

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Decommissioning and Uranium Recovery Licensing Directorate
Division of Waste Management and Environmental Protection
U.S. Nuclear Regulatory Commission

UR Facility Licensing Phases

Pre-licensing Meetings
Acceptance Review
Detailed Safety/
Environmental Reviews
Public Hearings

Inspections
License Renewals
Annual Financial
Assurance Reviews

At ISRs, Concurrent
With Operations
Consistent with 10 CFR
40, Appendix A
Stewardship of Tailings
Impoundments - DOE

Radiation Protection Regulations 10 CFR Part 20

- NRC Requirements:
  - Dose limits for radiation workers and members of the public
  - Monitoring and labeling radioactive materials
  - Environmental monitoring
  - Posting signs in and around radiation areas
  - Reporting the theft or loss of radioactive material
- Radioactive materials be used in a way that limits radiation exposure of individual members of the public to a dose that does not exceed 0.1 rem (100 mrem) in a year
- Adults working with radioactive material must be protected so as not to receive more than 5 rems (5,000 mrem) per year
- Workers are monitored with the use of dosimeters

Ensure Protection of Public Health and Safety and the Environment

- Safety reviews ensure regulations will be met through detailed evaluations of health physics, hydrogeology, engineering, and other key areas of site design and operation
- Environmental reviews consider impacts on the environment
- Inspections ensure operations continue to meet the regulations and license conditions

Application Content
In-Situ Recovery Facility

- Proposed Activities
- Site Characteristics
- Description of Proposed Facility
- Effluent Control Systems
- Operations
- Radiation Safety
- Groundwater Restoration & Decommissioning
- Financial Assurance
- Accidents

Application Content
Conventional & Heap Leach Facility

- Proposed Activities
- Site Characterization
- Description of Proposed Facility
- Management
- Operational Environmental Monitoring
- Radiation Safety & Controls
- Reclamation & Decommissioning Plan
- Financial Assurance
- Accidents

NRC Review Process

- Pre-licensing audits/technical meetings (open to the public)
- Acceptance review
- Notice of opportunity for hearing
- Safety reviews - SER
- Environmental reviews – EA/EIS
- Work with affected parties (e.g. States, other Federal Agencies and Indian Tribes)
- Licensing Decision

Health & Safety Focus Areas

- Health Physics/Radiation Safety
  - Radiation safety controls and monitoring
  - Effluent controls/monitoring
  - External radiation exposure monitoring
  - Airborne radiation monitoring
  - Bioassay program
  - Environmental monitoring
  - Radiological cleanup of lands, buildings and equipment
- Hydrogeology
  - Establishing baseline values
  - Well-field groundwater monitoring
  - Groundwater restoration
- Engineering
  - Solid and liquid waste management
  - Design of evaporation ponds
  - Design of tailings impoundments

Environmental Focus Areas

- Alternatives
- Environmental Impacts
  - Land Use, Transportation, Geology & Soils,
  - Water, Ecological, Air Quality, Noise, Historic/Cultural,
  - Visual/Scenic, Socioeconomic,
  - Environmental Justice, Public/Occupational Health, Waste Management
- Environmental Monitoring
- Cost Benefit Analysis
- Summary of Consequences

Operating & Expected UR Facilities

- NRC:
  - 8 Licensed facilities (7 ISRs - 1NE, 1NM, 5WY; 1 conventional mill - WY)
  - Expect 28 applications thru 2013
    - 21 ISR – 1 restart, 10 expansions, 10 new facilities
    - 2 new heap leach
    - 4 new conventional
  - 11 received
    - 5 completed
    - 3 under review
    - 1 on hold
    - 2 withdrawn/resubmit
- Agreement States:
  - 5 Licensed facilities (2 ISRs, 3 conventional)

Inspections

- Ensure that licensees meet NRC's regulatory requirements
- Frequency is based on the potential radiation hazard of the licensee's program;
- Address management organization and controls, radiation protection, radioactive waste management, emergency preparedness, environmental protection, and onsite construction
- Report prepared which summarizes the inspection and raises any violations of regulations or license conditions

Recent Licensing Activity

- Licensed 3 new ISRs – Lost Creek, Nichols Ranch Moore Ranch
- Time and cost
  - 3-3.5 years and $2.5 million
- Lessons Learned:
  - Early interactions with applicants
  - Early coordination with stakeholders and others

Decommissioning

- 43 Uranium Recovery sites
  - 39 Inactive conventional mills
    - 33 in decommissioning status
    - 6 Completed decommissioning (Licensed for long term stewardship)
  - 4 Active ISRs – partial decommissioning

Decommissioning Lessons-Learned

- **Adequate financial assurance is necessary to prevent orphaned sites**
- **Groundwater contamination = Time + $**
- **Liners and groundwater monitoring for the tailings impoundments to prevent groundwater contamination**
- **Groundwater flow and transport modeling is key to identifying remediation strategies**
- **Long-term stewardship, including post closure groundwater monitoring confirms long-term performance**

Decommissioning Program Enhancements

- **Resources**
  - **Project Management**
  - **Inspections**
- **Guidance**
- **DOE Interactions**
- **Metrics/database**
- **Outreach to Tribes**