



# **IN SITU LEACH** **URANIUM RECOVERY** **RULEMAKING** **RECOMMENDATIONS**

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# INTRODUCTION

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With the Withdrawal of the Proposed Rule on 40 CFR Part 192 by the Environmental Protection Agency (EPA), Nuclear Regulatory Commission (NRC) Staff Free to Proceed With Its Own 10 CFR Part 40 Rulemaking Without Need to Conform to New EPA *Generally Applicable Standards*:

- Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA) Sets Up Three Tiered-System:
  - EPA Promulgates 40 CFR Part 192 *Generally Applicable Standards*;
  - NRC Prepares and Administers a Rulemaking to Conform Its Regulations to EPA Standards:
    - Implementation & Enforcement
  - Department of Energy (DOE) Typically Acts as Mandatory Long-Term Custodian of 11e.(2) Byproduct Material

# INTRODUCTION

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## NRC Staff Spent Considerable Time Addressing the Need for a New Rulemaking Prior to the Issuance and Subsequent Withdrawal of EPA's Proposed 40 CFR Part 192 Rule:

- Eliminate Perceived Commission “Regulation by License Condition” of In Situ Leach Uranium Recovery (ISR);
- Conduct a Transparent Process Taking Into Account Past Public Participation Efforts by Interested Stakeholders:
  - Administrative Litigations (e.g., Powertech, Strata, Hydro Resources);
  - NUREG-1910 *Generic Environmental Impact Statement* (GEIS) Development with Individual Public Comments and Stakeholder/Scoping Meetings;
  - Subsequent Conclusions From Tiering Supplemental Environmental Impact Statements (SEIS) for New Projects (Currently 6);
  - Stakeholder Recommendations

# INTRODUCTION

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## National Mining Association (NMA), as an Industry Representative, Proposes Several Themes for Development of New 10 CFR Part 40 Rulemaking:

- Limited Scope Rulemaking Focused on Updating Regulations to Address ISR-Specific Issues;
- Harmonize Existing Regulations With ISR Project Analyses;
- Codify Existing NRC Staff Legal and Regulatory Interpretations;
- Implement Adjudicatory Determinations That Now Have the Force and Effect of Law

## December, 2019/January, 2020 Timeframe:

- NRC Staff Prepares SECY Paper for Commission Review and Vote With Recommended Option of Limited-Scope Rulemaking;
- Paper Currently Under Commission Consideration, Final Rule Could Take up to Eighteen (18) Months for Total Process

# **STRUCTURE OF PRESENTATION**

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## NMA Recommendations for NRC Rulemaking:

- Additions:
  - Introductory Language for Appendix A Criteria;
  - Appendix A Terms Defined;
  - Appendix A, Criterion 9 Financial Assurance Additions

# **STRUCTURE OF PRESENTATION**

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## NMA Recommendations for NRC Rulemaking:

- Revisions to the Following:
  - 10 CFR Part 40.4 Definitions;
  - 10 CFR Part 40.32(e) Definition of Construction;
  - 10 CFR Part 40.42 Timeliness in Decommissioning;
  - Appendix A, Criterion 5B(5 & 6) Groundwater Clarifications;
  - Appendix A, Criterion 7 Groundwater Clarifications;
  - NUREG-1569 Revisions

# STRUCTURE OF PRESENTATION

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Recommendations of Thompson & Pugsley, PLLC (Not Reflective of Industry Views But Consistent With NMA's Message of Codifying Existing Law and Providing Clarity and Transparency):

- Reason for Additional Suggestions: Rarely Does NRC Get an Opportunity to Revise Uranium Recovery Regulations—Should Take Advantage of the Opportunity to Harmonize & Codify Additional Items:
  - Alternate Feed Guidance: Consistent with NMA Recommended Addition of Definition of “Ore;”
  - Kinetic Separation and Other Viable “Mining” Technologies and How They Factor Into Definitions of “Source Material Processing” or “Uranium Milling;”
  - Additional Definitions in 10 CFR Part 40.4
  - Significant Revisions to Existing Guidance (e.g., NUREG-1620, NUREG-1569)

# NMA RECOMMENDATIONS

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## 10 CFR Part 40.4 Definitions & Revisions to Definitions:

- “Byproduct Material:” Re-Define and Clarify the Term “Tailings:”
  - Assist With Implementation and Enforcement of EPA 40 CFR Part 61, Subpart W Rule;
  - UMTRCA Never Envisioned the 11e.(2) Byproduct Material Health and Safety Risk Associated with Evaporation Ponds
- “In Situ Recovery:” New Definition:
  - Rulemaking Primarily Deals with ISR and Definition is Required;
  - Starting Point for Development of 10 CFR Part 40 as a “Uranium Milling” and Not Just a Conventional Milling Regulatory Program



# NMA RECOMMENDATIONS

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## 10 CFR Part 40.4 Definitions and Revisions to Definitions (Not NMA Comments But Consistent with Message of Codifying Existing Law):

- “Ore:” To Codify the Definition from the Commission:
  - Definition is Essential to Understanding Alternate Feed Guidance or New Rule & Commission Litigation—Clarify Role of Term “Ore” in 11e.(2) Byproduct Material Definition
- “Uranium Milling:” To Separate Activities That Are “Mining” or “Source Material Processing:”
  - Kinetic Separation White Paper Indicative of Need to Differentiate Between the Activities;
  - Activities at Conventional Mining Sites Need Bright Line for When AEA Jurisdiction Attaches

# NMA RECOMMENDATIONS

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- 10 CFR Part 40.32(e) “Construction Rule” Revisions and Clarifications:
  - NRC Staff Rule Revisions Offer Clarification of a Prior Issue Associated with an ISR Site Activities That Could Have Been Classified as Construction But Was Not Clearly Delineated in the Regulations or Guidance;
  - Clarification Names Many of These Activities, But Straight-Forward Language Would be More Useful and Transparent:
  - Items Recommended For Inclusion:
    - Complete Monitoring Well Network Installation (As Opposed to Wells for Criterion 7 “Baseline” That Eventually Become Monitor Wells);
    - ISR Central Plant or Conventional Mill Building Construction;
    - Tailings Impoundment Construction;
    - Complete ISR Wellfield Installation (As Opposed to Wells for Criterion 7 “Baseline” That Eventually Become Production or Injection Wells);
  - Should Make Clear That This Rule Does Not Mandate Denial of a License Application, *But Merely Could Be Grounds for Denial*

# **NMA RECOMMENDATIONS**

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## **10 CFR Part 40.42 Timeliness in Decommissioning Revisions:**

- Rule Original Intended for All Site Decommissioning Activities at Uranium Milling Sites;
- Amended Through Work with American Mining Congress/National Mining Association to Exempt Tailings Impoundment Reclamation Due to Practicality Issues;
- Advent of ISR and Experience with Groundwater Restoration Shows 24 Month Timeframe is Not Always Feasible;
- Ending Revision, License Applicants Have Been Proposing Alternate Schedules;
- Exemption of Wellfield Restoration Would Alleviate This Requirement and Provide Clarity as the Tailings Impoundment Exemption Did in the 1980s

# NMA RECOMMENDATIONS

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## Introductory Language for 10 CFR Part 40, Appendix A Criteria:

- Main Purpose of the Rulemaking is to Harmonize Existing 10 CFR Part 40 Regulations & Appendix A Criteria (Primarily to Address Conventional Milling) With ISR Operations—Utilize Existing Criteria Where Appropriate and Revise or Add Where Necessary:
  - Introduction to Appendix A Offers Significant information on Uranium Milling—Should Be Reflective of *All Forms of Uranium Milling* (i.e., ISR);
  - Defines ISR Operations as Uranium Milling Under Commission 2000 Decision;
  - Sets Forth UMTRCA Relationship Between EPA Generally Applicable Standards and NRC Implementation and Enforcement Powers;
  - Identified ISR as a “Phased” Operation, Hence All Administrative Decisions Recognizing This on Issues Such as Groundwater are Codified;
  - Stresses Harmonizing NRC Regulations With Those Espoused by Agreement States

# **NMA RECOMMENDATIONS**

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## **Introductory Language for 10 CFR Part 40, Appendix A Criteria:**

- **Additional Definitions for Uranium Milling Terms Recommended:**
  - “Class of Use” for Groundwater Restoration;
  - “Excursion” to Provide Clarity That It Does Not Mean Process Constituents Have Migrated to a Non-Exempt Aquifer; But Merely, An Early Warning Indicator at Monitor Wells (Then Makes Sense to Draw Aquifer Exemption Boundary Beyond Those Wells);
  - “Indicator Parameters” as Site-Specific Constituents That Are Most Mobile in the Recovery Zone Environment;
  - “Upper Control Limits” as Representative of Commission-Approved Background Groundwater Quality Under Criterion 5B(5)

# NMA RECOMMENDATIONS

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## 10 CFR Part 40, Appendix A, Criterion 5B(5):

- Administrative Litigations and Other Interpretations Have Shown a Fundamental Misunderstanding in the Nature of The Application of Criterion 5B(5) to Uranium Mills:
  - ACLs Are Available to Licensees As a Matter of Law;
  - EPA *Has No Jurisdiction* to Define the Requirements for ACLs;
  - Criterion 5 Sets Groundwater Quality Standards for Post-License Issuance Regardless of Site;
  - Criterion 5 is Actually a *Two-Tiered* Standard and Not Three;
  - As Low As Reasonably Achievable (ALARA) is Mandatory for ACLs

# NMA RECOMMENDATIONS

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## Revisions and Additions to Criterion 5B(5):

- Addition of Clarifying Language for ISR Wellfields Clearly Defining What Constitutes “Commission-Approved Background;”
- Differentiate From Criterion 7 “Baseline;”
- Need for This to Remain Consistent with Part 40.32(e) “Construction Rule;”
- Make Clear No Need for Technical and Environmental Assessment of Potential ACL Numbers in Initial Operating License Application

# NMA RECOMMENDATIONS

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## Revisions and Additions to Criterion 7:

- Addition of Clarifying Language for ISR Wellfields Clearly Defining What Constitutes “Baseline;”
- Differentiate From Criterion 5 “Commission-Approved Background;”
- Need for This to Remain Consistent with Part 40.32(e) “Construction Rule;”
- Make Clear No Need for Technical and Environmental Assessment of Potential ACL Numbers in Initial Operating License Application as Criterion 7 Only Requires Information Sufficient for Grant of a License;
- Phased Nature of ISR Along With Pre-Operational Inspection License Conditions Results in Criterion 5B(5) “Commission-Approved Background” and Not Criterion 7 “Baseline



# NMA RECOMMENDATIONS

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## Revisions and Additions to Criterion 5B(6):

- Criterion 5B(6) Typically Known for ACL Requirements, Including ALARA Principle:
  - ISR Operations Are Different Because Wellfields Are Not Transferred to a Mandatory Long-Term Custodian and Site's Surface is Released for Unrestricted Use;
  - State-Based Safe Drinking Water Act Programs Have Embraced the Concept of "Class of Use" When Determining What Type of ACL to Apply;
  - Ore Zone Aquifers Are Exempt From Serving as Public Drinking Water Sources, Class of Use Critical to Classifying Water Quality;
  - Makes Logical Sense to Incorporate "Class of Use" Into ACL Requirements;
  - Can Vary With States Based on Water Quality But Can Be Harmonized With Commission ACL Requirements

# **NMA RECOMMENDATIONS**

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## **Revisions and Additions to Criteria 9 & 10 Requirements for Financial Assurance:**

- Criterion 9 Provides for Financial Assurance for Uranium Mill Sites;
- Criterion 10 Requires Updated Financial Assurance Amount for Long-Term Care Contribution;
- ISRs Provide for Additional Requirements Due to the Phased Nature of the Operation;
- Hydro Resources, Inc. Administrative Litigation Offers Additional Interpretations:
  - Commission Ruling in CLI-00-8 States That Financial Assurance Need Not Be in Place Prior to Commencement of Operations;
  - Cannot Obtain an Initial Operating License Without an NRC-Approved Restoration Action Plan (Clear Format Available from Prior License Applications);
  - Restoration Action Plan Requirements Only Apply to Initial Wellfield Prior to Operations; Subsequent Plans Required As Wellfields Progress; Typical Financial Assurance Annual Updates Continue to Apply

# **ADDITIONAL** **RECOMMENDATIONS**

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There Are Also Additional Recommendations Not Contained in NMA's Comments on the Proposed NRC Rulemaking But Consistent with NMA's Message of Codifying Existing Law and Maintaining Transparency:

- Prudent to Consider Expanding Scope of Revisions While Maintaining Primary Purpose of Transparency, Clarification, and Codification of Existing Requirements;
- Given the Infrequency of NRC-Initiated Rulemakings for 10 CFR Part 40, NRC Staff Should Consider Addressing All Potential Issues;
- Additional Items Still Have Application in NRC and Agreement States, Provides Opportunity for Agreement States to Include Such Revisions in Future Rulemakings

# ADDITIONAL RECOMMENDATIONS

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## Additional Revisions and Additions:

- Codification of Alternate Feed Guidance Into Regulation:
  - Definition of “Ore” (First Requirement) is Law Per Commission Decisions;
  - Consistency with 10 CFR Part 40 Requirements is Already Law So Completely Enforceable;
  - Allowance of Materials With *Characteristic* RCRA Hazardous Waste is Law;
  - Allowance of *Listed* RCRA Hazardous Waste is Part of Exclusion of Source Material from RCRA Regulation If Its Source Material Content Exceeds *Licensable* Levels (Greater Than 500 PPM)

# ADDITIONAL RECOMMENDATIONS

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## Additional Revisions and Additions:

- Definition of “Equivalent Feed;”
  - Taken From WRT License and Can Allow for Transport of IX Resins Loaded With Uranium Without a License Amendment (Eliminates Unnecessarily Duplicative Reviews)
- Kinetic Separation As “Mining” or “Source Material Processing;”
  - NRC AEA Jurisdiction Has No Bright Line Test for Where it Attaches, Especially in Light of New Recovery Technologies;
  - It Has Been Forty (40) Years Since Last Time This Issue was Fully Analyzed From a Legal Perspective

# **ADDITIONAL** **RECOMMENDATIONS**

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## Revisions to NUREG-1569 Contemplated Without Knowing Scope of Commission's Mandate:

- Appendix Setting Forth Template on Restoration Action Plans;
- Roadmap for Successful Section 106 Process Initiation;
- Model ISR “Mill” Simulation;
- Statement on Applicability of Guidance to License Applications;
- Radon Roadmap for Compliance with Regulations;
- Equivalent Feed Discussion from RIS;
- Site Closure and License Termination Guidance;
- Specific License Renewal Criteria

# QUESTIONS PRESENTED

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In Light of the New Memorandum of Understanding (MOU) Between NRC and EPA, What Implications Does This Have for the Rulemaking?;

Should NRC Ensure That the Rulemaking is Sufficiently Robust to Mitigate the Need for Future EPA Rulemakings?;

Considering the Large Timeframe Between Rulemaking Conducted for an Evolving Industry, Should NRC Consider Codifying Everything That Exist in Law?;

What is the Best Way to Conduct the Rulemaking to Ensure Stakeholder Input and to Address Any Concerns?