

Environmental Analyses & In Situ Uranium Recovery Facilities

Prepared for the National Mining Association/Nuclear Regulatory Commission Annual Conference

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05/23/2007

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Introduction

■ Nuclear Power is Experiencing a Renaissance:

- New Power Reactors Planned on a World-Wide Basis;
- Letters of Intent Submitted to NRC for New Domestic Power Reactors;
- Streamlined Licensing Procedures Available:
 - COL Process;
 - Pre-Approval of Reactor Designs
- Uranium Spot-Market Prices Up to \$120/Lb.;

■ As a Result, the Nuclear Regulatory Commission (NRC) and Its Agreement States Will be Receiving a Wide Variety of New License Applications Uranium Recovery Projects

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Creating a Full Domestic Fuel Cycle

■ Development of New Power Reactors Requires an Adequate, Reliable Supply of Uranium for Reactor Fuel;

■ To Supply New Power Reactors with Fuel, the United States Must Either:

- Import Almost All of Its Necessary Uranium Supply
- OR
- Create a Viable Domestic Uranium Supply

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Uranium Recovery Licensing

- NRC Has Been Informed by the Domestic Uranium Recovery Industry That It May Receive as Many as Twelve (12) New Uranium Recovery Facility Applications Within the Next Three (3) Years;
- It is Likely that Many, if Not Most, of These New License Applications Will be for Uranium Deposits Amenable to the In Situ Recovery (ISR) Process;
- In Order to Facilitate Expedient Review of These Applications, It Is Imperative That the Licensing Process Be Thorough But Streamlined:
 - Process Can Be Streamlined Since ISR Uranium Recovery is the Lowest Risk Activity in the Nuclear Fuel Cycle

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NRC Licensing Process

- There are Several Recommended Steps for Engaging NRC in the Licensing Process:
 - Pre-Application Discussions;
 - Submission of Complete License Application & Environmental Report (ER);
 - Responses to Requests for Additional Information (RAIs);
 - Agency Environmental & Technical Analyses;
 - Potential Administrative Proceedings

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Pre-Application Discussions

- Initiating Discussions with Relevant Regulatory Personnel Provides Benefits to Applicants:
 - Identify Appropriate NRC Staff/Agreement State Project Manager and Application Review Team;
 - Discuss Relevant NRC/Agreement State Guidance for License Application;
 - Identify Relevant Licensing Issues

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Submission of License Application & Environmental Report

■ Applicants Should Form a Critical Path for Completion and Submission of Complete License Application:

- Compilation & Analysis of Pre-Application Data;
- Review Previous Licensee Submissions;
- Preparation of ER;
- Format License Application & ER Pursuant to NRC/Agreement State Guidance;
- Submit Notice of Intent Letter to NRC/Agreement State (3-5 Months Prior to Application Submission)
- Submit Complete License Application

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Response to Request(s) for Additional Information

■ Applicants Should Factor Potential RAIs Into Critical Path:

- Minimize Potential RAIs;
- NRC Has Announced Goal of Only One Round of RAIs Per Application;
- Goal Can Only Be Achieved if License Application is Thorough and Response to RAIs Are "Spot On"

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Agency Environmental & Technical Analyses for ISR Projects

■ New ISR License Applications are Evaluated Using a Two-Tiered Approach:

- Technical Evaluation;
- Environmental Evaluation

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Technical Analyses

■ NRC/Agreement States Will Review License Application for Technical Adequacy:

- Groundwater Analyses;
- Dose Assessments;
- Financial & Technical Qualifications;
- Financial Assurance (Restoration Action Plans)

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Environmental Analyses for ISR Projects

■ NRC Also Will Conduct a Comprehensive Environmental Analysis of Each License Application:

- NRC's Environmental Evaluation of a Proposed New ISR Project or New Satellite Facility is Guided by its National Environmental Policy Act (NEPA) Regulations (10 CFR Part 51) and Applicable Guidance (NUREG-1748);
- Three Types of NEPA Environmental Analyses:
 - 10 CFR § 51.20: Categorical Exclusions (CATXs) (Not Applicable to ISR Facilities);
 - 10 CFR § 51.21: Environmental Assessments (EAs) & Finding of No Significant Impact (FONSI);
 - 10 CFR § 51.22: Environmental Impact Statements (EISs)

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Environmental Analyses for ISR Projects

■ Prior to 1999-2000, ISR Uranium Recovery Projects Generally Did Not Require an EIS:

- The Portion of the ISR Process Underground Was Referred to as "Uranium Milling" But Did Not Trigger an EIS;
- ISR Uranium Recovery is Extremely Low Impact & *HAS NEVER* Resulted in Adverse Impacts to Underground Sources of Drinking Water, as Defined by EPA
- Thus, No EIS Was Necessary for New ISR Projects or Satellite Well-Fields

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Environmental Analyses for ISR Projects

■ **In 1994, NRC Re-Asserts Jurisdiction Over ISR Well-Fields (Letter from Malcolm Knapp, NRC):**

- Underground Aspects of ISR Facility Are Not Solely Mining;
- Pregnant Lixiviant is Processed Ore;
- Underground Aspects Do Not Involve Byproduct Material

■ **In 1997-1998, NMA Issued a White Paper Stating that NRC Did Not Have Jurisdiction Over Well-Fields at ISR Uranium Recovery Sites:**

- NRC Misapplied Statutory Definitions of AEA Materials;
- NRC Ignored Comprehensive EPA Underground Injection Control (UIC) Regulations for Protection of Underground Sources of Drinking Water;
- NRC Jurisdiction Threatens to Interfere with the Timely Opening & Closing of Facilities

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Environmental Analyses for ISR Projects

■ **In 2000, the Commission Disagreed With NMA and NRC Staff and Labeled the Underground Portion of an ISR Process "Milling Underground" and Declared That Restoration Fluids Are 11e.(2) Byproduct Material;**

■ **As a Result of the Commission's Decision, NRC Staff's Position is that All New ISR Uranium Recovery Projects Require an EIS**

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Environmental Analyses for ISR Projects

■ **NRC NEPA Regulations at 10 CFR § 51.21(b)(8) States That an EIS is Required for:**

- "Issuance of a license to possess and use source material for *uranium milling* or production of uranium hexafluoride pursuant to part 40 of this chapter."

■ **Given Twelve or More Potential New ISR Project Applications, Requiring a Separate EIS for Each Project Could Set Back the Availability of New Domestic Sources of Uranium By 4-6 Years**

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Environmental Analyses for ISR Projects

■ New NRC Staff Proposal to Expedite Review of ISR Uranium Recovery License Applications by:

- Creating a Generic EIS (GEIS) Specifically Tailored to ISR Uranium Recovery;
- Engage the Industry, Agencies, and Members of the Public in the Scoping and Notice-and-Comment Process

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New Generic EIS for ISR Uranium Recovery

■ Why a GEIS Would Work to Streamline the Licensing Process:

- ISR Uranium Recovery Projects are Essentially "Cookie-Cutter:"
 - Surface Facilities Essentially Identical for New Facilities;
 - Differences in Number, Types, and Concentrations of Naturally Occurring Constituents in Mining Zone Aquifer, or Portion Thereof, Can Be Generically Analyzed (e.g., Tailings Liquor in NUREG-0706 (GEIS on Uranium Milling));
 - Uranium Amenable to ISR Processes are Found in Similar "Roll-Front" Deposits;

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New Generic EIS for ISR Uranium Recovery

■ Why a GEIS Would Work to Streamline the Licensing Process:

- Could Reduce Environmental Review Requirement to an EA Barring Significant Site-Specific Issue(s):
 - Demonstration that ISR License Application Falls Within the Bounds of the ISR GEIS Analyses;
 - Site-Specific Issues/Anomalies Can Be Analyzed in an EA;

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New Generic EIS for ISR Uranium Recovery

- Creation of a Defensible GEIS Will Require Commission Approval and Commitment of Substantial Staff Resources;
- The Domestic Uranium Recovery Industry Has The Operating Experience, Technical "Know-How, and Data to Provide Substantial Assistance to NRC Staff in Creating the ISR GEIS:
 - Submission of an Industry-Wide Generic ER for NRC's Consideration

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New Generic EIS for ISR Uranium Recovery: Process

- The Domestic Uranium Recovery Industry is Positioned to Submit a Draft ER Based on:
 - Availability of Comprehensive Environmental Studies;
 - Availability of Technical Studies & Data;
 - Availability of NRC Guidance (Standard Review Plans, Contractor Studies);
 - Recent Administrative Proceedings (Hydro Resources, Inc.);
 - Extensive Industry Operating Knowledge (30 Plus Years)

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New Generic EIS for ISR Uranium Recovery: Benefits

- A New Generic EIS Would Provide the Industry & NRC With Numerous Benefits:
 - Streamline the Environmental Review Process for New Projects and Particularly Satellite Well-Fields;
 - Provide Industry, Government, and Members of the Public with a Comprehensive Analyses of the Low-Risk Nature of ISR Uranium Recovery;
 - Streamline License Applications by Incorporating Generic EIS by Reference;
 - Reduce Financial Burden of License Applications for Applicants;
 - Reduce Human Resource Impacts on NRC & Applicants;
 - Assure Adequate Protection of Public Health, Safety, and the Environment;
 - Assist with Development of Viable Domestic Supply of Uranium for the Nuclear Power Industry

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Another Potential Approach

■ Petition the Commission to Re-Visit the 2000 Decision that the Underground Portion of the ISR Process is "Milling Underground;"

- Would Require a "Legal" Conclusion and Not a "Technical" Conclusion;
- Would Result in Negation of Regulatory Requirement for EIS for Each New ISR Uranium Recovery Project;
- Would Leave Discretion as to Whether an EIS is Required with NRC Staff & the Commission
- Would Not Require Amendment to Existing NRC Regulations (i.e., Underground Ore Body Already is not 11e.(2) Byproduct Material);
- Would Not Require Intensive Study and Analyses as Legal Analyses is Essentially Complete

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Conclusions

■ Re-Emergence of the U.S. Nuclear Power Industry is Reflected by:

- Widespread Political Endorsement of Nuclear Power;
- Market Price for Uranium Commodity;
- Environmental Community Response;
- Concerns About Energy Dependence in Light of War on Terror

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Conclusions

■ Industry Stands Ready to Assist NRC in Streamlining the Licensing Process;

■ New Generic EIS Proposal Should be Pursued Expeditiously;

■ Industry Can Supply a Generic ER in a Format Resembling a Traditional EIS to Assist in the Development of a Comprehensive ISR GEIS

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