



License vs. Amendment in In-Situ Recovery Licensing

Stephen J. Cohen

Team Leader

Uranium Recovery Licensing Branch

U.S. Nuclear Regulatory Commission

The Issue

- Increased number and variety of ISR applications for new facilities, restarts, and expansions
- Need to establish procedures regarding separate licenses vs. amendment of existing licenses for variety of application scenarios

Background/Past Practice

- NRC process generally requiring separate licenses for individual fuel cycle facilities; Typically, new facility=new license
- Changes to facilities approved by amending licenses
 - New tailings cell at a conventional mill
 - New evaporation pond at an ISR
 - Process changes; monitoring changes
- Some proposed licensing actions raise question of amendment or new license

Related Definitions

- **Wellfield** – An area within a mine unit from which source material is extracted by ISR operations, and which includes injection, production, and monitoring wells
- **Ion Exchange (IX) Plant** – A process building at an ISR Facility in which lixiviant from the production wells is run through ion exchange columns where resin beads selectively remove the uranium from the solution
- **Central Processing Plant (CPP)** – A process building at an ISR Facility in which the end product is yellowcake, produced as a slurry or a dried powder

Definitions (continued)

- **ISR Facility** – An operation that includes one or more wellfields, and either an IX Plant or a CPP
 - **ISR/resin** - An operation with one or more wellfields and only an IX Plant
 - **ISR/yellowcake** - An operation with one or more wellfields and a CPP
- **ISR Satellite** – An ISR/resin that transports its loaded resin to a CPP operated by the same company/licensee; The ISR/resin is a “satellite” of the CPP.



Background/Past Practice (continued)

- Unique nature of ISR uranium operations
- Example-licensing ISR/resin satellite facilities
 - Historically, NRC amended the associated existing ISR/yellowcake license
 - Most cases, satellite facility near the existing licensed facility, thus considered an extension of existing operation
 - Case where proposed satellite remote from the licensed ISR/yellowcake has raised amendment vs. new license question



Other Scenarios

- NRC received inquiries from companies considering other ISR facilities deviating from typical ISR/yellowcake
 - Stand-alone ISR/resin facilities
 - CPPs without wellfields
 - Additional CPP at satellite ISRs
- Other scenarios possible
 - Add second CPP
 - ?



Proposed Process – Primary-Site Amendments

- All additions or enhancements to a licensed uranium recovery facility at the primary site of the facility can be approved through an amendment to the license
 - Creation of multiple uranium recovery licenses at a single uranium recovery site not an efficient use of NRC resources
 - Allows amendment to the existing license for a request for an additional CPP at a facility that already has a CPP
 - Allows typical more minor amendments (add evaporation pond, modify process or monitoring program, etc) as in past



Proposed Process – Multiple-Site Amendments

- Certain facility additions not located at the primary licensed site can be approved through amendment
 - Need to show a **“strong connection”** to the primary facility
 - Facilities being of same type and ownership is not sufficient reason to meet strong connection requirement
 - Therefore, cannot use a single license (and single annual fee) to cover operationally or hydro-geologically separate facilities



Strong Connection

- Strong Connection requirement can be met in two ways
 - Operational Connection – Proposed addition of new ISR/resin facility that will ship resin to same entity's existing licensed CPP for further processing (satellite facility)
 - Hydro-Geologic Connection – Proposed addition of new ISR/resin facility and wellfields having ore zone stratigraphy, hydro-geologic containment, and external influencing factors similar to the existing facility
- Meeting either of these conditions allows multiple ISR operations at separate locations under a single license
- Applies only to facilities totally in Non-Agreement States

Hydro-Geologic Connection

- Compare the degree of similarity or difference between the proposed new site/wellfield(s) and the site/wellfield(s) under the existing license using eight factors significant to wellfield performance characteristics
 - Natural system factors
 - Regional structural setting
 - Regional stratigraphy and hydrogeology
 - Ore zone stratigraphy and lithology
 - Confining unit stratigraphy, continuity, permeability
 - Faults and structures that could affect groundwater flow
 - Human disruptive factors
 - Impacts from uranium mining on hydrogeology
 - Impacts from other natural resources extraction (coal bed methane withdrawal) on hydrogeology
 - Impacts from abandoned drill holes
- For a “strong hydro-geologic connection,” none of the evaluation factors should be identified as different



Proposed Process – Separate Licenses

- If none of conditions allowing license amendments can be met, proposed action would require separate license
- Therefore, a separate license would be needed for:
 - Constructing an unattached ISR/resin facility whose loaded resin is taken to another company's facility with a CPP for processing
 - Constructing a stand-alone CPP without wellfields that receives and processes resin from off-site ISRs
 - Creating a stand-alone facility by adding a CPP to a satellite ISR/resin

Table of ISR licensing action scenarios and corresponding process requirements

ISR-RELATED APPLICATION	LICENSING PROCESS	ENVIRON PROCESS
New applicant or existing licensee proposes a new ISR/yellowcake	License	Complex EA*
New applicant proposes a new ISR/resin, resin shipped to separate business entity's CPP	License	Complex EA*
Existing ISR/resin licensee proposes an additional ISR/resin w/ no strong connection	License	Complex EA*
Existing ISR/resin licensee proposes an additional ISR/resin close by with strong hydro/geo connection	Amendment	EA
Existing Licensee proposes satellite, i.e., remote ISR/resin w/ resin shipped to its licensed existing CPP (strong business connection)	Amendment	EA
New applicant or existing licensee proposes a stand-alone CPP at new site	License	Complex EA*
Existing licensee proposes a CPP at its ISR/resin	Amendment	EA
Existing ISR/yellowcake licensee proposes a CPP at its existing satellite ISR/resin	License	Complex EA*
Existing licensee proposes an additional CPP at its existing ISR/yellowcake	Amendment	EA
Existing licensee proposes restart of a facility in standby or decommissioning	Amendment	EA
Existing ISR licensee proposes additions, modifications, or enhancements to its licensed facility	Amendment	EA

•New licenses would require complex EAs that are tiered off of the GEIS issued in draft (7/28/08); If EA doesn't result in FONSI, an EIS would be required



Fee Issues

- Recognize potential for fee inequities
- Will consider potential changes to fee categories based on potential application expectations



Summary

- Number and variety of ISR applications = need for position on approach to licensing actions
- Additions or enhancements to a licensed uranium recovery facility at the primary site of the facility approved through a license amendment
- “Strong connection” facility additions not located at the primary licensed site approved through amendment
- Strong connection = operational or hydro-geologic
- If neither of conditions allowing license amendments met, proposed action requires separate license



Path Forward

- Regulatory Information Summary on licensing process close to completion
- Fee structure addressed during the annual fee rule process.