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DRAFT GENERIC ENVIRONMENTAL IMPACT STATEMENT FOR IN-SITU LEACH URANIUM MILLING FACILITIES

Public Comment Meeting
Casper, Wyoming
September 25, 2008

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United States Nuclear Regulatory Commission

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Patrice M. Bubar, U.S. NRC

Deputy Director, Environmental Protection and Performance Assessment Directorate

Meeting Purpose

- Describe our activities to date to assess the environmental impacts of future uranium recovery operations
- Listen and gain insight on public's feedback on Draft Generic Environmental Impact Statement (GEIS)
- Second in a series of meetings for public participation

Meeting Topics

- NRC's Roles and Responsibilities – Emphasis on National Environmental Policy Act (NEPA)
- The Draft GEIS – Purpose and Approach
- NRC's Draft Findings
- GEIS Schedule
- Next Steps
- Public Comments

NRC Roles and Responsibilities

- The NRC is an independent agency
- Mission: Protect the public health and safety and the environment, and to promote common defense and security
- Has responsibility along with Agreement States for licensing commercial use of nuclear materials
- Openness and soliciting comments on our actions is one of our core values
- NRC's regulations governing the environmental review are in 10 CFR Part 51

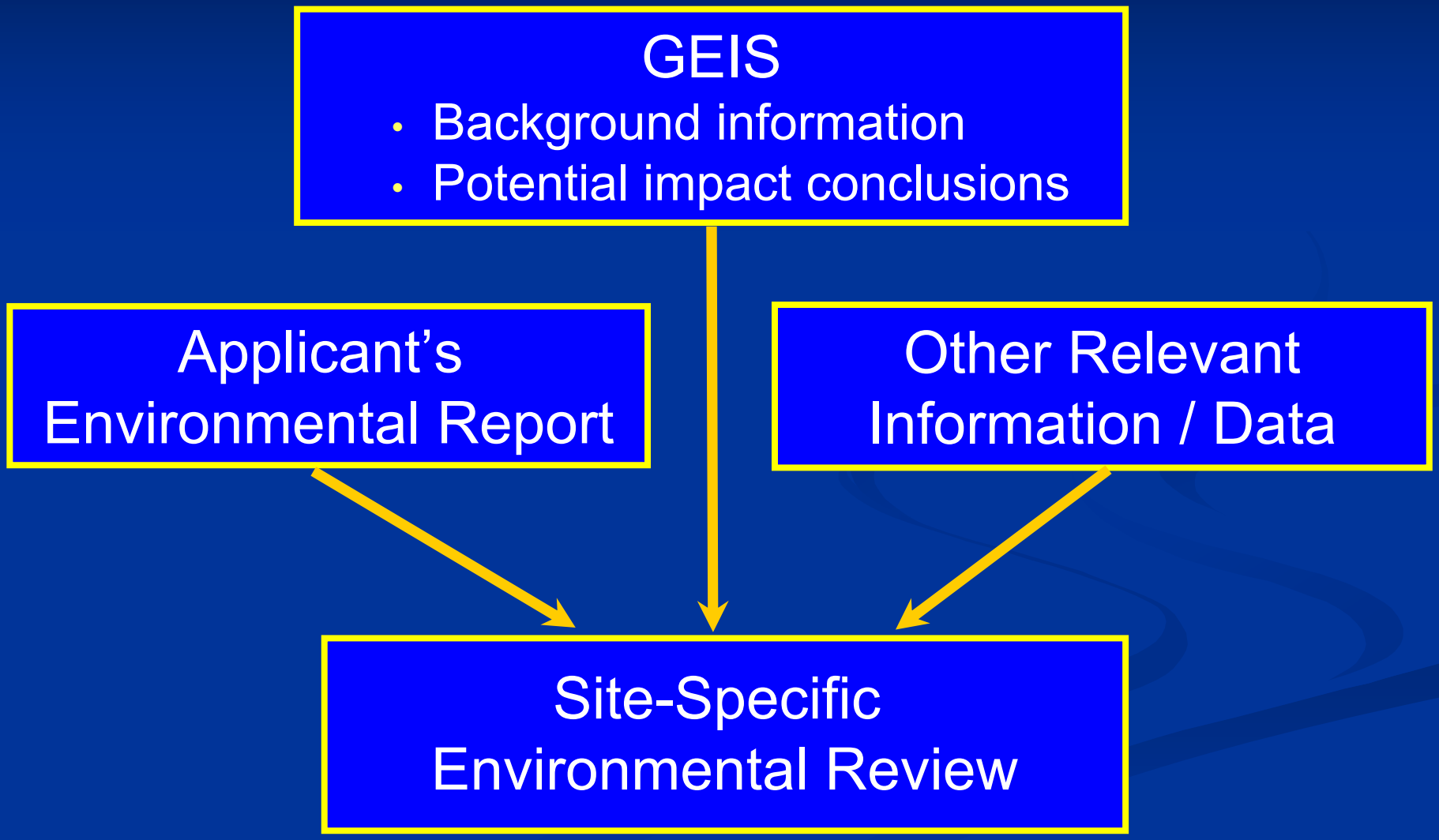
NRC's Licensing Review Process

- License Application submitted for review
- Review conducted in two steps:
  - Acceptance Review
  - Detailed Review
- Detailed Review composed of two parts:
  - Site-specific Environmental Review
  - Site-specific Safety Review

The Environmental Review Process

- GEIS
  - Scoping
  - Draft
  - Final
- Site-specific Review

Use of the GEIS



Criteria for Exempted Aquifer

- Determination by EPA (per 40 CFR 146.4) that an aquifer or portion of an aquifer is <u>not</u> an underground source of drinking water, because:
  - Does not currently serve as a source of drinking water, *and*
  - Cannot now or will not in the future serve as a source of drinking water, *or*
  - Total dissolved solids content of the groundwater is more than 3,000 and less than 10,000 mg/L and it is not reasonably expected to supply a public water system

Summary of Restoration History

Site Location	Type	Wellfield	% Constituents Returned to Baseline	Approval Standard
Crow Butte Crawford, NE	Commercial	Mine Unit 1	68% (23/34)	Baseline values + pre-mining "class of use"
Smith Ranch-Highlands Douglas, WY	Commercial	Wellfield A	50% (17/34)	Baseline values + pre-mining "class of use"
Irigaray Johnson & Campbell Cos., WY	Commercial	Units 1 - 9	86% (30/35)	Baseline values + pre-mining "class of use"
Crow Butte Crawford, NE	Pilot	Wellfield 2	70% (23/30)	Baseline values + pre-mining "class of use"
Ruth Johnson Co., WY	Pilot	20-sand aquifer	68% (13/19)	Baseline values + pre-mining "class of use"

Government-to-Government Consultations

- Oglala Sioux (Pine Ridge Reservation)
- U.S. Department of the Interior
  - Bureau of Land Management
  - Fish & Wildlife Service
- U.S. Department of Agriculture (Forest Service)
- State of Wyoming Governor's Office
- State of Wyoming Department of Environmental Quality

Why Are We Here Tonight?

- Continue the listening process and public dialogue
- Answer any questions about the Draft GEIS

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Alan Bjornsen, U.S. NRC
Deputy Project Manager for Generic Environmental Impact Statement (GEIS)

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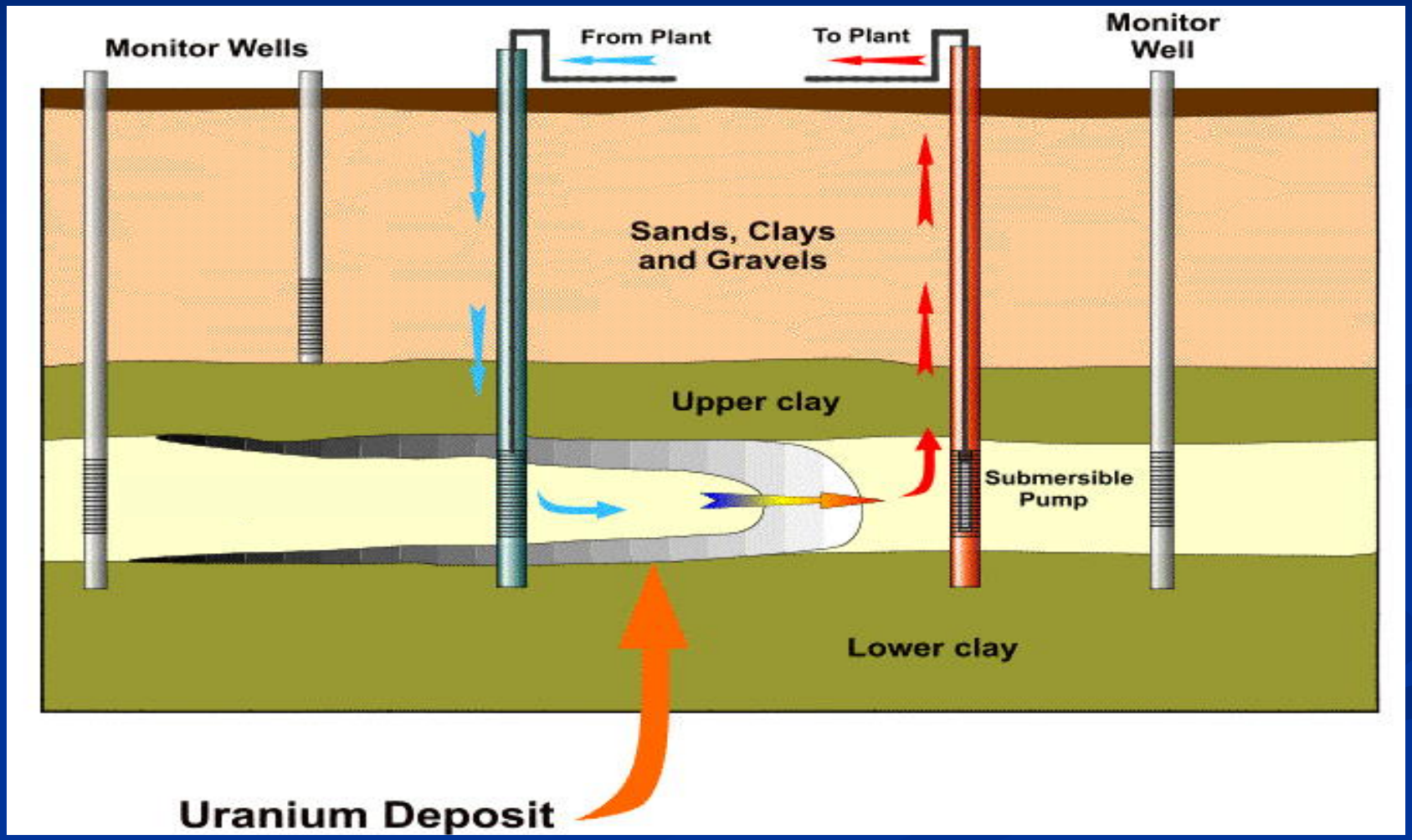
- In-Situ Leach Process
- Background on the GEIS
- Approach taken in the Draft GEIS
- Findings in the Draft GEIS
- How to submit comments

In-Situ Leach (ISL) Process

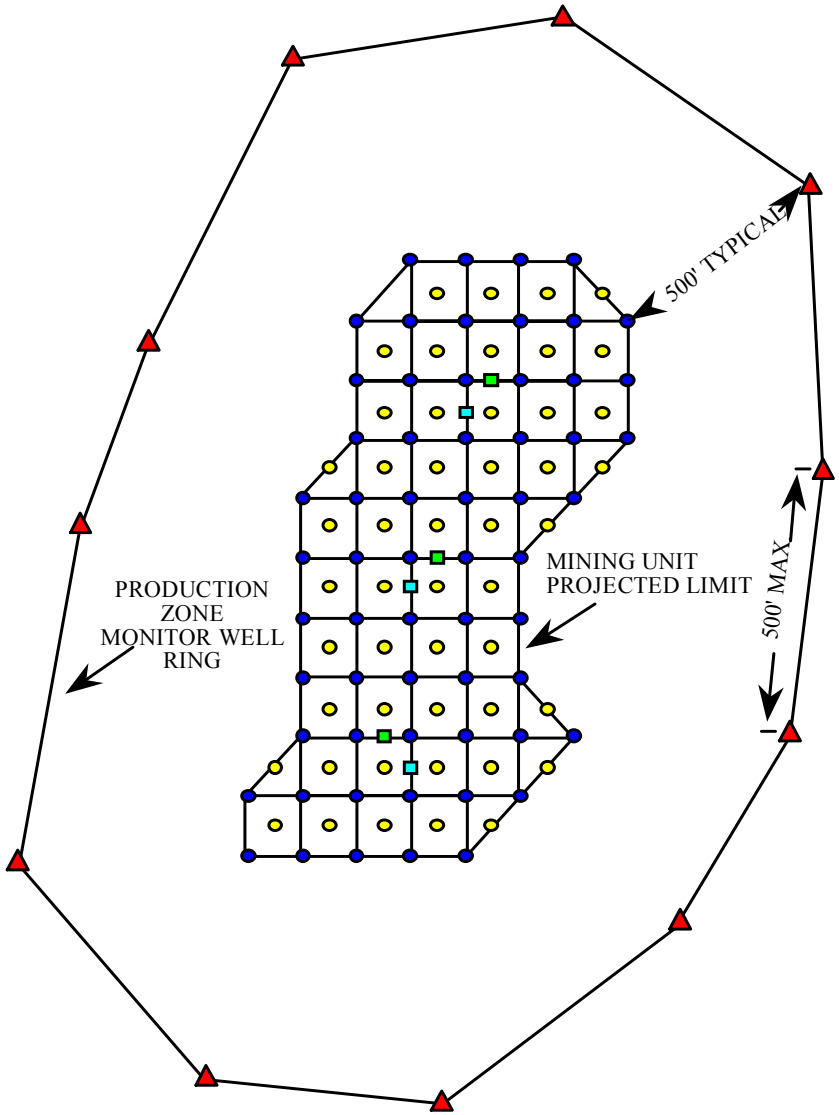
1. Distinct from conventional mining and milling
2. Three general components:
   * Mobilize
   * Process
   * Restore

Uranium Mobilization – Well Field

Uranium Mobilization – Injection/Recovery



Typical ISL Wellfield Layout



- INJECTION WELL
- PRODUCTION WELL

- PRODUCTION ZONE MONITOR WELL
- OVERLYING AQUIFER MONITOR WELL
- UNDERLYING AQUIFER MONITOR WELL

Uranium Processing and Restoration

NRC License for an In-Situ Leach Facility

- Construction
- Operation
- Aquifer Restoration
- Decommissioning

Other Permits & Approvals

- Aquifer exemption (EPA/State)
- Permit to operate injection wells (EPA/State)
- Waste discharge permits (including storm water) (EPA/State)
- Federal/State land use (BLM, NE/SD/WY)

Need for the GEIS

1. Volume of expected license applications
2. Thorough and consistent approach to NRC's environmental reviews

Purpose of the GEIS

- Evaluates environmental issues common to the ISL process
- Provides a starting point in NRC's site-specific environmental reviews

Scope of the GEIS

What does the GEIS include?

1. Addresses the construction, operation, aquifer restoration, and decommissioning of ISL facilities

2. Evaluates potential environmental impacts to specific resource categories (for example: air quality, water resources, land use)

Approach Taken in the Draft GEIS

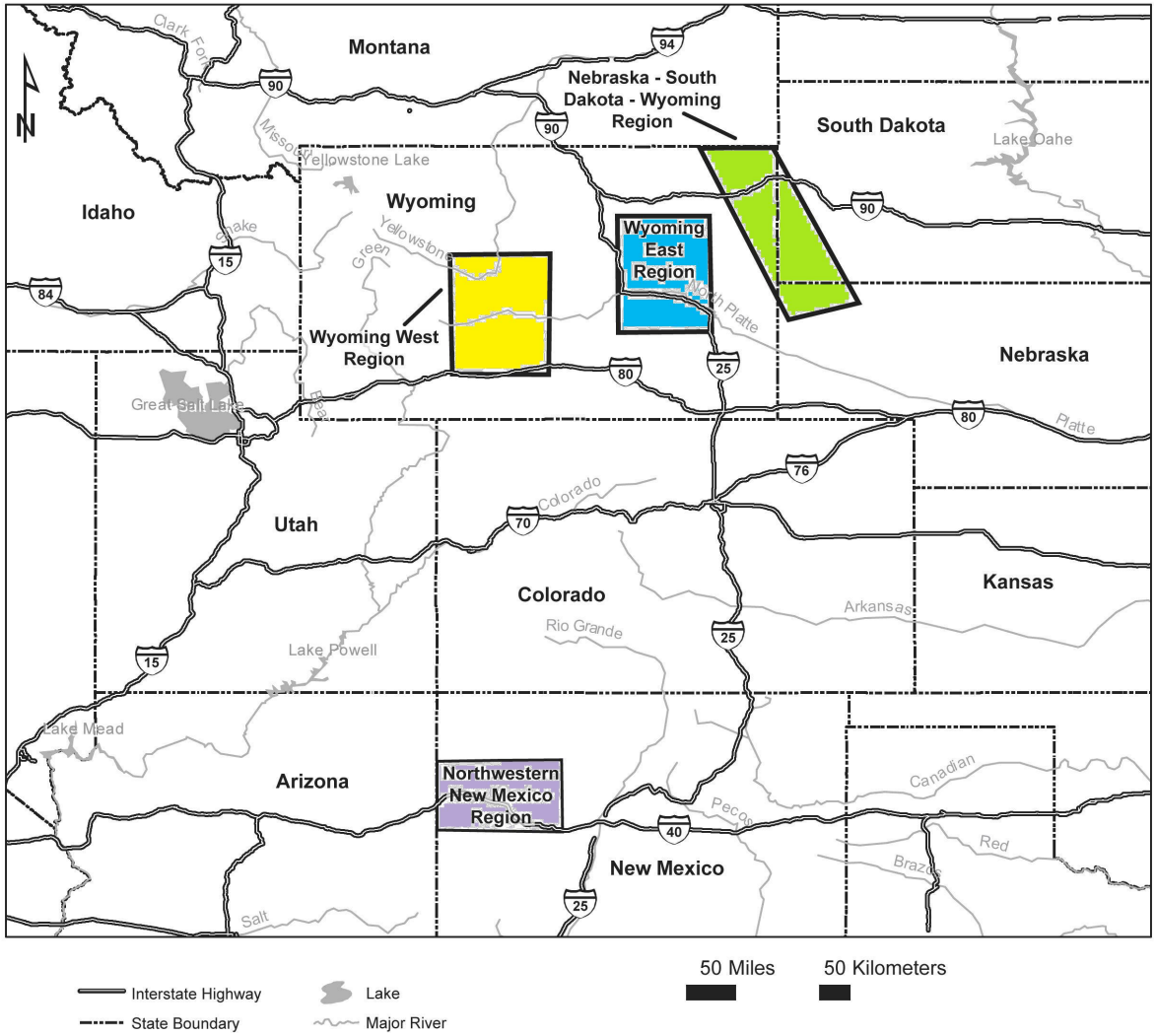
1. Identify uranium milling regions
2. Describe the ISL process
3. Describe the environment in each of the milling regions
4. Evaluate potential environmental impacts in each milling region from the ISL process

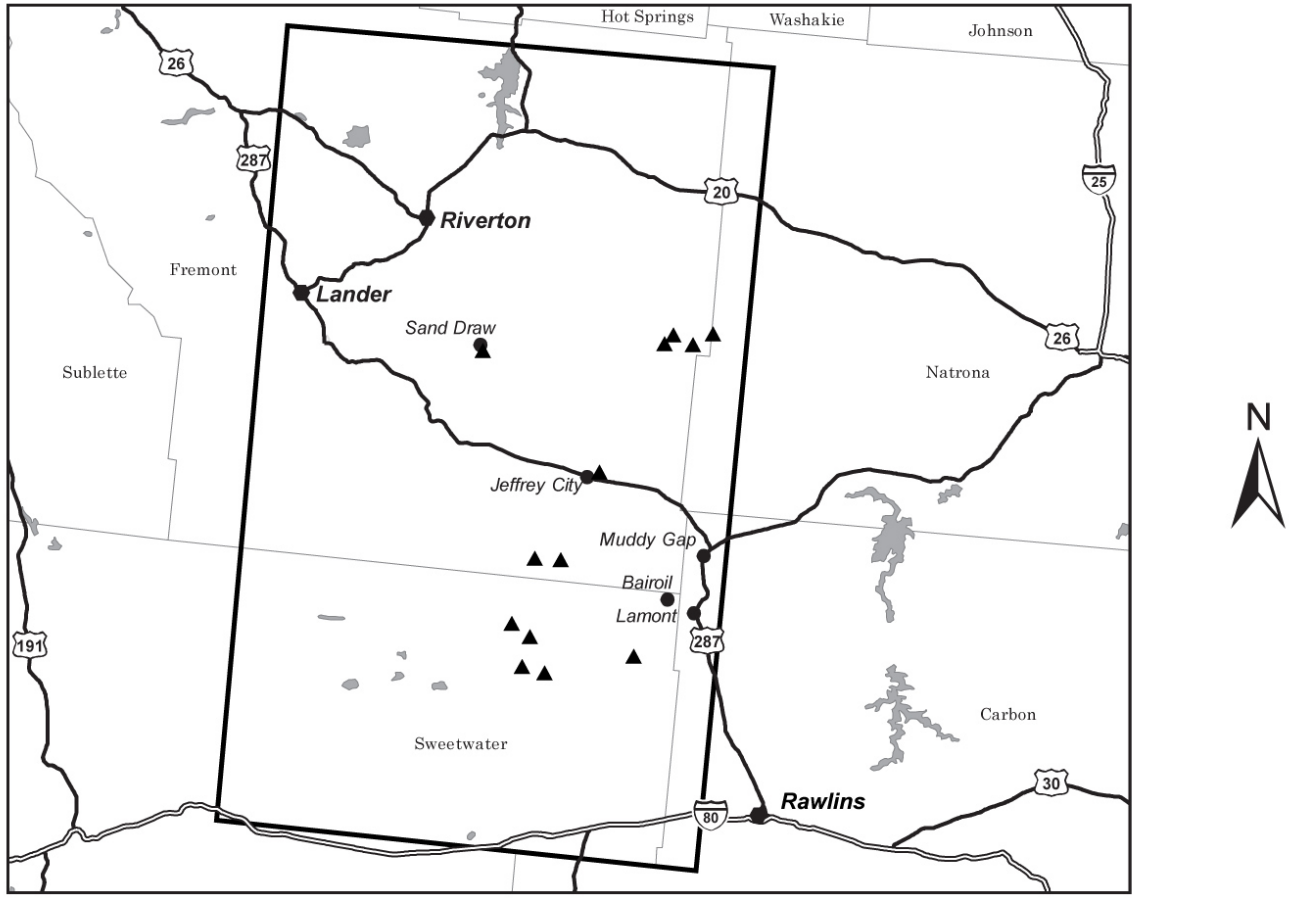
Approach Taken in the Draft GEIS

1. Identify uranium milling regions

1. Identify Uranium Milling Regions

- Considerations:
  - In States where NRC has regulatory authority for licensing ISL facilities
  - Locations of current and past milling activities
  - Industry plans for new sites using the ISL process
  - Historical uranium deposits in WY, NE, SD, and NM
- Four uranium milling regions identified


Montana
Nebraska - South Dakota - Wyoming Region
South Dakota
Lake Oahe
Yellowstone Lake
Wyoming
Idaho
Wyoming East Region
Wyoming West Region
Nebraska
Great Salt Lake
Utah
Colorado
Kansas
Lake Powell
Lake Mead
Arizona
Northwestern New Mexico Region
New Mexico
Interstate Highway
State Boundary
Lake
Major River
50 Miles
50 Kilometers



WYOMING WEST REGION

20 10 0 20 Miles

20 10 0 20 Kilometers

▲ Ur Milling Site (NRC)

Wyoming West Milling Region

Interstate Highway

US Highway

Water bodies (Lakes, Bays, ...)

Counties

Approach Taken in the Draft GEIS

1. Identify uranium milling regions
2. Describe the ISL process

2. Describe the ISL Process

- Construction, operation, aquifer restoration, and decommissioning of ISL facilities
- Radiological health and safety, waste management, transportation, and financial assurance
- Experience of NRC-licensed ISL facilities

Approach Taken in the Draft GEIS

1. Identify uranium milling regions
2. Describe the ISL process
3. Describe the environment in each of the milling regions

3. Describe the Environment

- Describe for each of the four uranium milling regions
- Describe in terms of the environmental resource categories identified in NUREG-1748

Environmental Resource Categories

- Air Quality
- Ecological Resources
- Geology & Soils
- Historic & Cultural Resources
- Land Use
- Noise
- Public & Occupational Health
- Socioeconomics
- Threatened & Endangered Species
- Transportation
- Visual & Scenic Resources
- Waste Management
- Water Resources

Approach Taken in the Draft GEIS

1. Identify uranium milling regions
2. Describe the ISL process
3. Describe the environment in each of the milling regions
4. Evaluate potential environmental impacts in each milling region from the ISL process

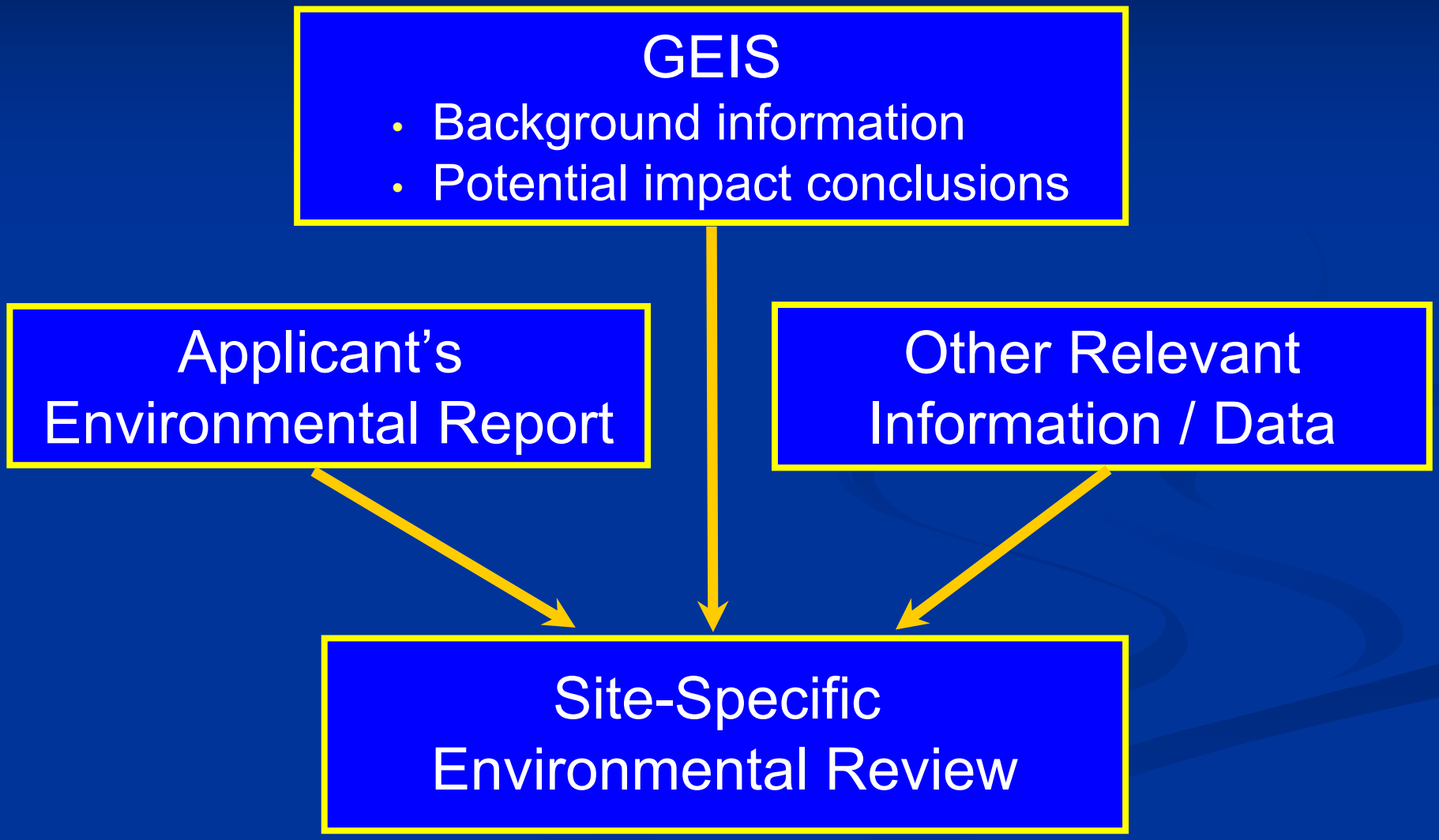
4. Evaluate Potential Environmental Impacts

- Evaluates potential impacts
  - in each uranium milling region
  - for each phase of the ISL process
  - to each of the environmental resource areas
- Characterizes the significance of the potential impacts
- Describes possible mitigation measures

Significance Categories of Environmental Impacts

- SMALL – not detectable, or are so minor that they would not noticeably alter nor destabilize any important attribute of the resource
- MODERATE – sufficient to noticeably alter, but not destabilize, important attributes of the resource
- LARGE – clearly noticeable and sufficient to destabilize important attributes of the resource

Use of the GEIS



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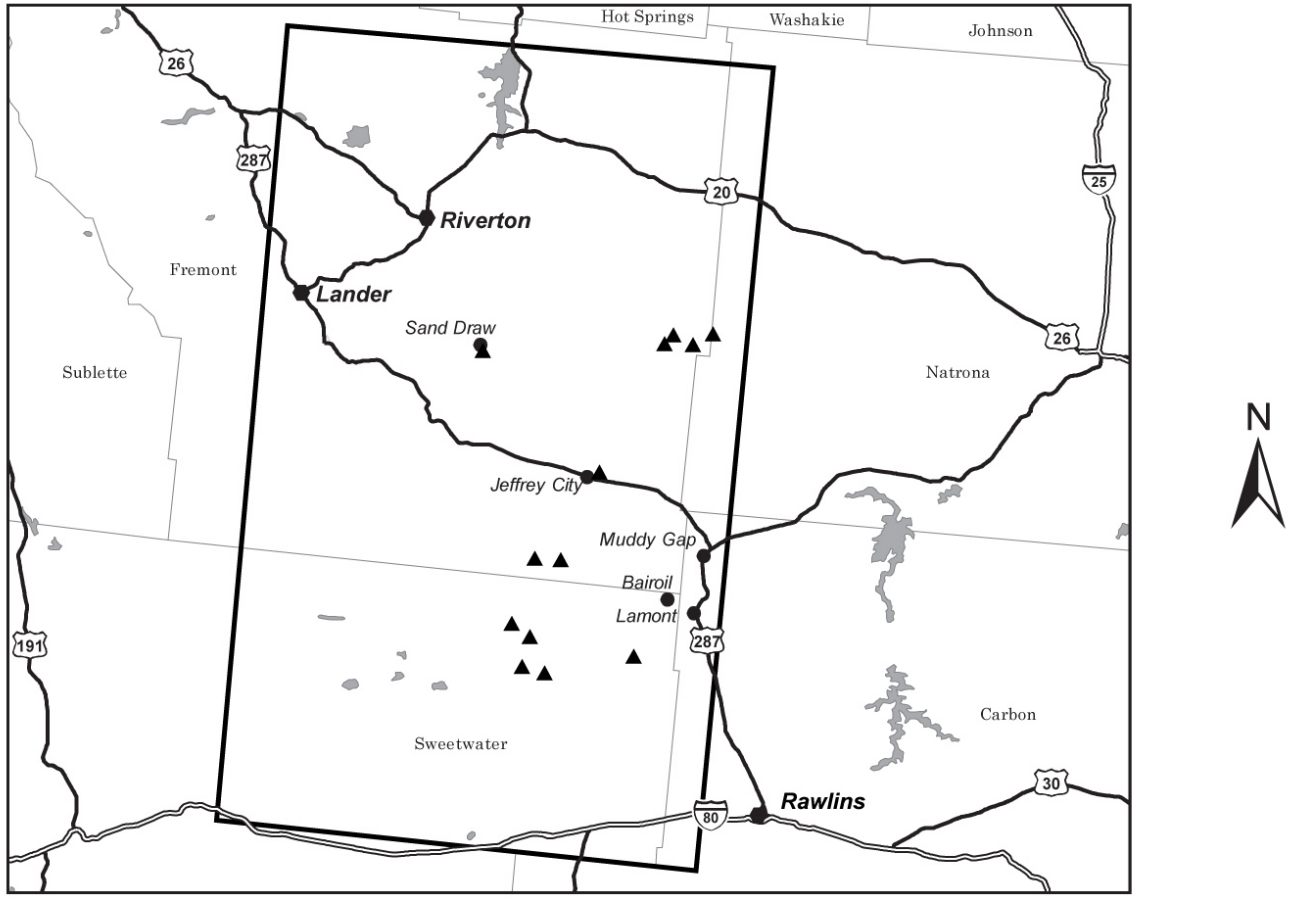
NRC's Findings in the Draft GEIS for the Wyoming West Uranium Milling Region



WYOMING WEST REGION

20 10 0 20 Miles

20 10 0 20 Kilometers

▲ Ur Milling Site (NRC)

Wyoming West Milling Region

Interstate Highway

US Highway

Water bodies (Lakes, Bays, ...)

Counties

Resource Areas with Small Potential Impacts

- Aquatic Ecology
- Air Quality
- Visual & Scenic Resources
- Waste Management

Resource Areas with Small to Moderate Potential Impacts

- Transportation
- Surface Water
- Terrestrial Ecology
- Noise
- Socioeconomics
- Public & Occupational Health

Resource Areas with Small to Large Potential Impacts

- Land Use
- Geology & Soils
- Groundwater
- Threatened & Endangered Species
- Historic & Cultural Resources

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Overall GEIS Schedule
and
How to Comment on the Draft GEIS

Overall GEIS Schedule

Notice of Intent published	July 24, 2007
Scoping Meetings	August & September 2007
Scoping Period ends	November 30, 2007
Draft GEIS issued	July 28, 2008
Draft GEIS Public Comment Meetings	August & September 2008
Draft GEIS Public Comment Period ends	October 7, 2008
Final GEIS issued	June 2009

Comments on Draft GEIS

By regular mail – postmarked by October 7, 2008

Chief, Rules Review and Directives Branch
Mail Stop T-6D59
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

By e-mail – by midnight, October 7, 2008

NRCREP.Resource@nrc.gov
with 'Uranium Recovery GEIS' in the subject line

Contact Information

Questions on Draft GEIS

James Park, Project Manager, Environmental Review Branch (ERB)

(800) 368-5642 ext 6935

Questions on in-situ leach process

Stephen Cohen, Team Leader, Uranium Recovery Licensing Branch (URLB)

(800) 368-5642 ext 7182

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Questions on Presentations

Comments on the Draft GEIS