COMMISSION BRIEFING SLIDES/EXHIBITS

BRIEFING ON URANIUM RECOVERY

DECEMBER 11, 2008

U.S.NRC

United States Nuclear Regulatory Commission

Protecting People and the Environment

Briefing on Uranium Recovery Program Activities

List of Acronyms

December 11, 2008

FSME: Office of Federal and State Materials and Environmental Management Programs

UR: Uranium Recovery

ISL: In-Situ Leach

EPA: US Environmental Protection Agency

BLM: Bureau of Land Management

NRC: US Nuclear Regulatory Commission

MOU: Memorandum of Understanding

FY: Fiscal Year

GEIS: Generic Environmental Impact Statement

NMA: National Mining Association

ISR: In-Situ Recovery

Conv.: Conventional Mill

LLC: Limited Liability Corporation

RAI: Request for Additional Information

DWMEP: Division of Waste Management and Environmental Protection

EIS: Environmental Impact Statement

NEPA: National Environmental Protection Act

DILR: Division of Intergovernmental Liaison and Rulemaking

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Protecting People and the Environment

Briefing on Uranium Recovery Program Activities

December 11, 2008

Larry W. Camper, Director

Division of Waste Management and Environmental Protection/FSME

Presenters & Topics

- Larry W. Camper: Overview
- Bill von Till: Status of UR Applications
- Gregory Suber: Status of Environmental Reviews
- Gary Comfort: Status of ISL Rule
- Richard Turtil: Native American Outreach
- John Edwards & Stephen Heare: EPA's Perspective on ISL Requirements
- Mitchell Leverette: BLM and NRC MOU on Environmental Assessments

Overview of NRC's Uranium Recovery Program

- Key Messages
- Scope of the Uranium Recovery Program
- Demand for Uranium
- Current Application Forecast
- State of Preparation
- Outreach Activities
- Conclusions

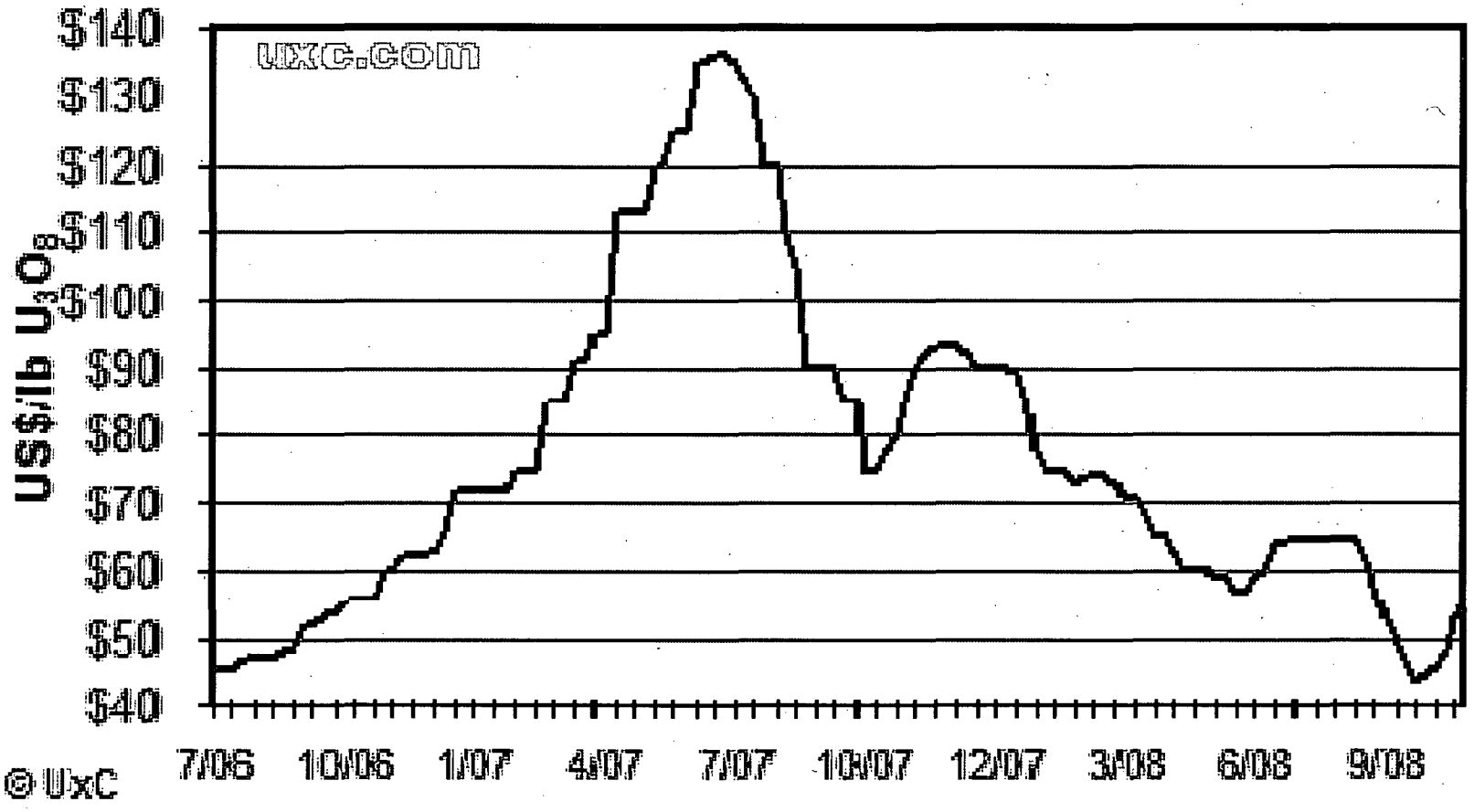
Key Messages

- New Licensing
- Environmental Reviews
- Organization Changes
- Outreach

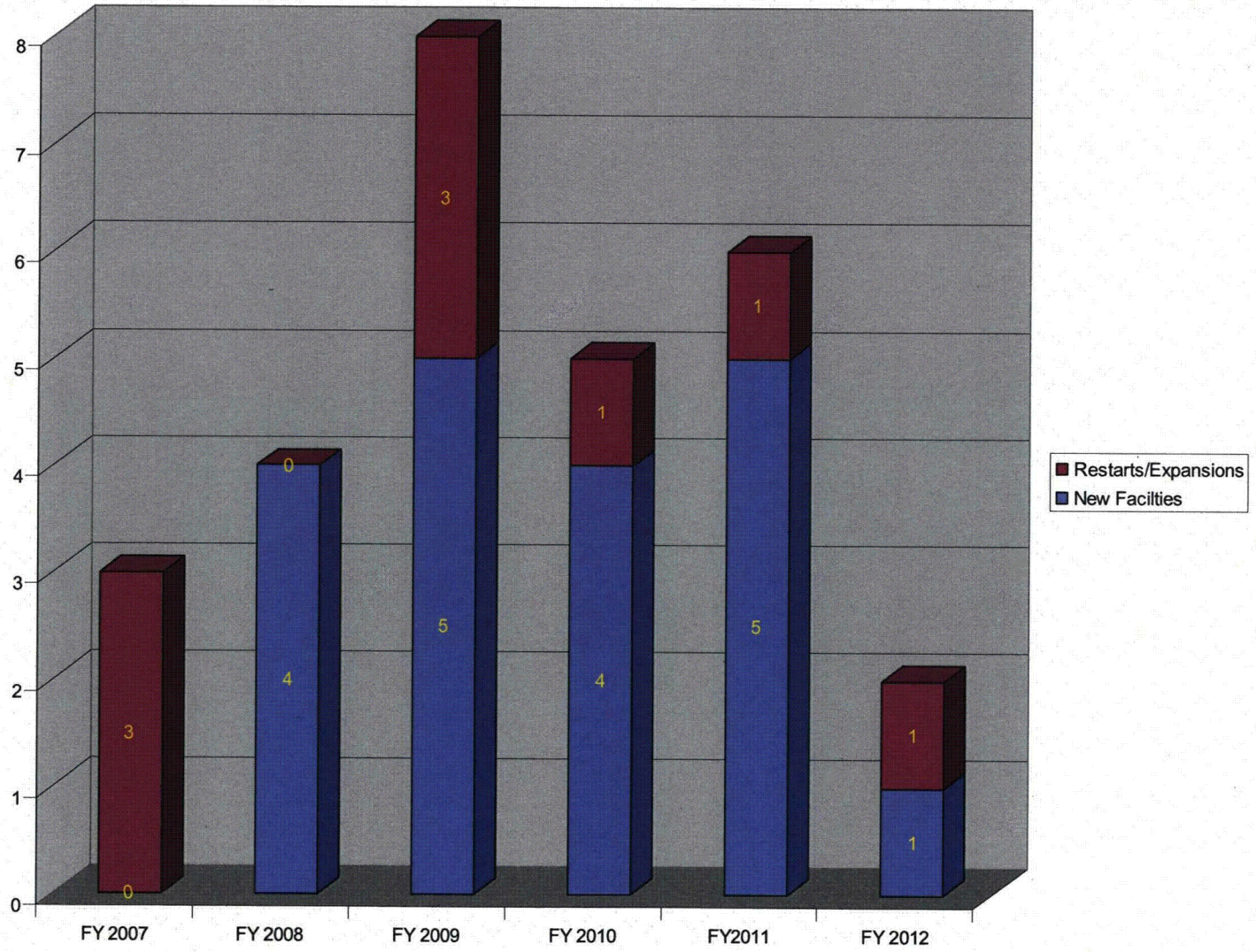
Scope of NRC's Current UR Program

- 32 Decommissioning Sites (Title I & II)
- 3 operating licenses; 2 on stand by
- 28 new facilities by FY12; 4 in-house
- Rulemaking/Guidance development

Demand for Uranium



Current Application Forecast



State of Preparation

- Staffing
- In-Situ Recovery Generic Environmental Impact Statement (GEIS)
- Guidance/Rulemaking Development
- Process Issues

Outreach Activities

- **Native American Tribes**
  - **Information Exchanges**
  - **Website**
  - **Government-to-Government meetings**

Outreach Activities

- Stakeholders
  - House Oversight Committee meetings
  - Federal: EPA, BLM
  - State: New Mexico, Wyoming, Agreement States
  - NMA
  - Public Meetings for GEIS
  - Website

Conclusions

- Staffing
- Complexity of Certain Sites
- Predicting Future Applications
- Overcoming Legacy Concerns

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Status of Uranium Recovery Applications

December 11, 2008

William von Till, Chief

Uranium Recovery Licensing
Division of Waste Management and Environmental Protection/FSME

Key Message

New application reviews on track

Discussion Topics

- New application review procedures
- Process for estimating new applications
- Upcoming applications
- Applications received to date
- Status of reviews

New Application Review Schedules

- Conduct acceptance review
- Request for Additional Information
- Reviews are a two-year process

Process for Estimating Applications

- February 2007 Pre-licensing Workshop
- Meetings and Letters of Intent
- Contact with potential applicants
- National Mining Association Annual Workshop

Application Types

Facility	Quantity
New ISR Facility	11
New Conventional Mill	7
Combined ISR-Conv.	1
ISR Expansion	7
ISR Restart	1
Conventional Expansion	1
TOTAL	**28**

Status of Applications

New Facility Status	Acc. Rev.	RAIs issued	Estimated Completion Date
Uranium One/Energy Metals (Moore Ranch)	12/20/2007	5/14/2008	12/20/2009
Uranerz (Hank and Nichols)	4/14/2008	9/11/2008	4/14/2010
Lost Creek ISR, LLC (Lost Creek)	6/10/2008	in progress	8/10/2010
Uranium One/Energy Metals (Jab and Antelope)	in progress	-	-
Expansion/Restart Status	**Acc. Rev.**	**RAIs issued**	**Estimated Completion Date**
Cameco/Crow Butte Resources (Plant Upgrade)	Action Completed December 2007		
Cogema (Christensen Ranch)	Action Completed September 2008		
Cameco/Crow Butte Resources (North Trend)	8/28/2007	in progress	

Conclusions

- Process for estimating applications
- Process for tracking status
- New application reviews on track
- Inspections

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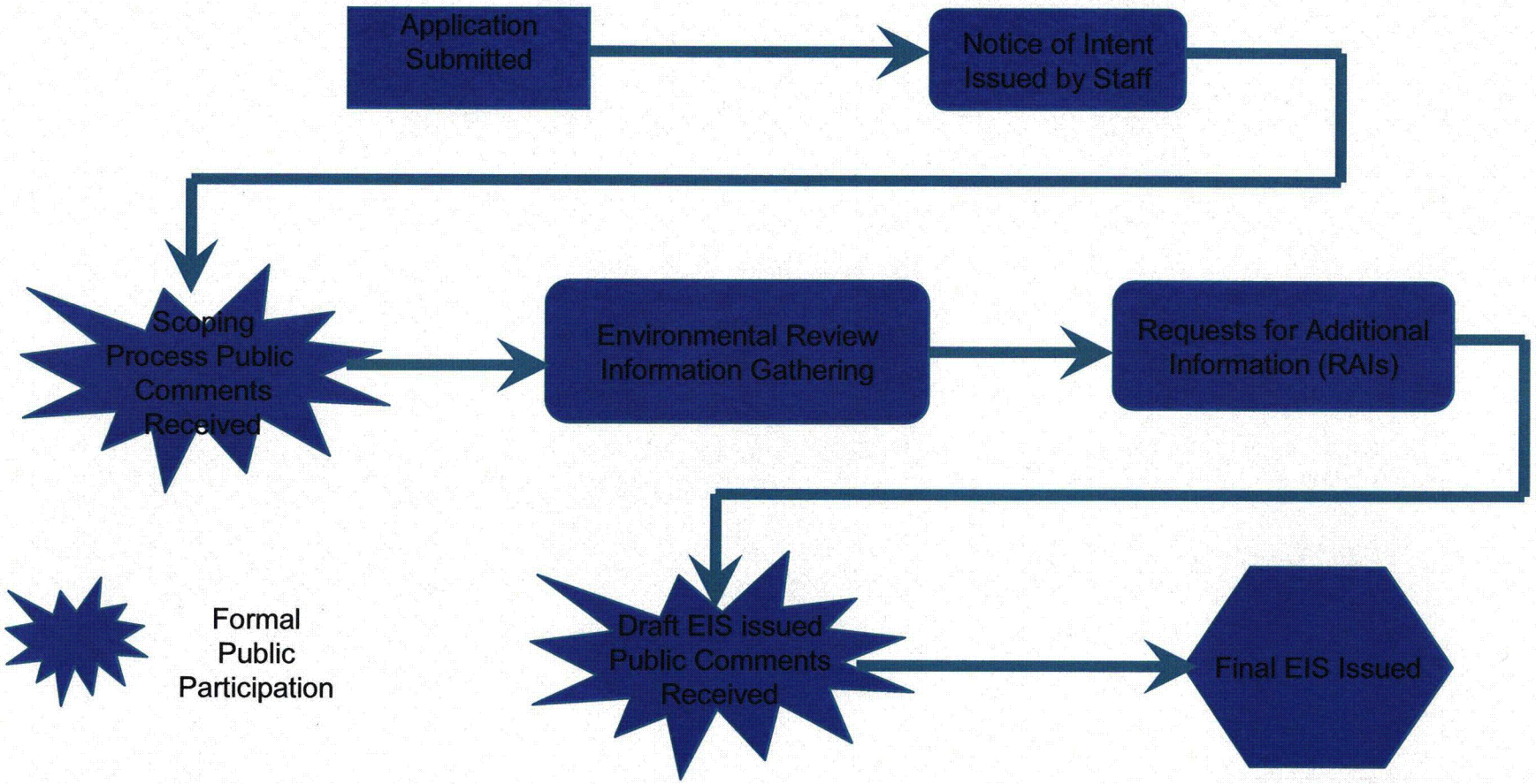
Status of UR Environmental Reviews

December 11, 2008

Gregory F. Suber, Chief

Environmental Review Branch/DWMEP/FSME

Typical Environmental Review Process



Generic Environmental Impact Statement Development

- GEIS Concept Envisioned by Staff
- Engaged Stakeholders during Scoping Process
- State of Wyoming is a Cooperating Agency
- Gathered Extensive Information
- Draft GEIS for Public Comment

Generic Environmental Impact Statement Development

- Comment Period closed
  November 7, 2008
- Comments from Diverse Stakeholders
- Comments Covered Variety of Topics

Overall 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***
Public Comment Meetings	**August & September 2008**
Comment Period ends	***November 7, 2008***
Final GEIS issued	**June 2009**

Site-Specific Review Process

- Environmental Review for Each Application
- Evaluation Considers Conclusions in GEIS
- Additional Public Participation during Site-Specific Review
- Review Results Comply with NEPA Process

Bureau of Land Management Outreach Coordination Effort

- Headquarters and Local officials during Draft Comment Period
- Memorandum of Understanding for NEPA Reviews
- Field Offices on Individual Projects

Conclusions

- **Tiering Process Consistent with NEPA**
- **Process Results in Efficient, Effective Review**
- **Expanded Public Participation**
- **Actively Engaged with Local, State, Federal Agencies and Tribes**

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Rulemaking on Ground Water Protection at *In Situ* Recovery Facilities

December 11, 2008

Gary Comfort, Sr. Project Manager

Rulemaking Branch A/DILR/FSME

Rule Objectives

- **Ground water protection regulations for *in situ* recovery**

- **Reduce/eliminate dual regulation**

Cooperation with Other Agencies

- Diverse working group members
- Role of Environmental Protection Agency
- Review by Agreement States

Sources of Rule Language

- Existing guidance
- Existing license conditions
- Environmental Protection Agency's Underground Injection Control Program

Areas Addressed in Rule

- Pre-operational requirements
- Operating and monitoring requirements
- Groundwater restoration requirements
- Corrective action requirements

Recent Issues

- Period of post-closure monitoring and care
- Use of secondary maximum contaminant limits
- Changes to Criterion 13
- Definition of corrective action

Conclusions

- **One open issue with Environmental Protection Agency**
- **Rulemaking to Commission by April 2009**

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Outreach to Native American Tribes

December 11, 2008

Richard H. Turtil, Chief

Intergovernmental Liaison Branch/DILR/FSME

Key Messages

- **Native American Tribal interest in Uranium Recovery**
- **Staff outreach and communication with Native American Tribes**
- **Tribal Sovereignty and government-to-government communications**

Generic Environmental Impact Statement Public Outreach

- Scoping/Draft Comment Meetings
- Meetings with the Navajo Nation and the Oglala Sioux
- Government-to-Government Meetings

Relationship Building and Enhancing Communication

- The Navajo Nation/Five Year Plan
- Enhanced Web Information

Communication and Outreach Challenges

- **Tribal Policy Positions on Uranium Recovery**
- **Legacy Waste and Site Abandonment**

Conclusions

- **Staff efforts focus on:**
  - **Outreach and communication**
  - **Greater awareness of Tribal interests**
  - **Heightened recognition of Tribal Government positions on Uranium Recovery**
- **Challenges exist in building trust in NRC/Tribal relationships**

NRC PRESENTATION

December 11, 2008

Donald R. McKenzie
Administrator
Wyoming DEQ/LQD

Items For NRC Consideration

- NRC Presence in Wyoming
- NRC EISs
- Groundwater Restoration
- Agreements
- NRC Rules
- Primacy

Local NRC Office

- **Majority of uranium activity in the West, particularly Wyoming**

- **Wyoming BLM & DEQ players are identified and working on mutual problems**

Local NRC Office (continued)

- Appropriate NRC contacts are not always obvious to BLM & WDEQ

- Physical presence needed to provide NRC program oversight in Wyoming

Generic EIS

- **Preliminary draft schedule tight, but comments seem to be addressed or are being addressed**

- **Wyoming wants to be a cooperating agency in site specific EISs/EAs**

Groundwater Restoration

- NRC commitment to making groundwater restoration a priority

- Historical sites still have problems

Agreements

- **NRC-BLM MOU needed**
- **NRC-BLM-Wyoming MOU needed**

New NRC Rules

- Consider Wyoming insitu rules
- Wyoming rules have been used as a model for other states
- Allow state flexibility when writing rules

Primacy

- NRC & Wyoming redundancies, such as surface reclamation groundwater restoration, spill cleanups
- Wyoming currently unable to assume primacy for the whole NRC program, specifically safety
- Options

Think Globally & Act Locally

- **Presence**
- **Cooperation**
- **Commitment**
- **Process**
- **Flexibility**
- **Efficiency**

STATEMENT OF MILTON BLUEHOUSE JR
ENVIRONMENTAL JUSTICE AND TRIBAL LIAISON
ON BEHALF OF
DEPUTY SECRETARY JON GOLDSTEIN
NEW MEXICO ENVIRONMENT DEPARTMENT
OFFICE OF THE SECRETARY
FOR THE NRC BRIEFING ON URANIUM RECOVERY
ROCKVILLE, MARYLAND
DECEMEBER 11, 2008

The New Mexico Environment Department (NMED) appreciates the Nuclear Regulatory Commission's (NRC) request for state input on the NRC Draft Generic Environmental Impact Statement (GEIS) for In-Situ Leach (ISL) Uranium Recovery Facilities. New Mexico Governor Bill Richardson and NMED Secretary Ron Curry hope that this willingness on the part of the NRC -to seek state input- will continue on to an agreement whereby the NRC conducts individual Environmental Impact Statements (EIS) for specific license applications in the State of New Mexico.

The history of uranium mining in the State of New Mexico stems from the early 1950's up until the 1980's. Testimony given by Robert G. McSwain, the Acting Director of the Indian Health Service before the U.S. House Committee on Government Oversight and Reform on October 23, 2007 provided detailed information uranium mining's health and environmental impact within the New Mexico portion of the Navajo Nation has had disproportionate negative results in impacted communities. (Testimony attached)

Today, uranium mine cleanup activities are conducted at various locations. In one example, NMED is currently undertaking clean up activities at the Homestake Mining Company's Uranium Milling Facility near Milan, New Mexico where underlying ground water aquifers have been contaminated by seepage from tailings disposed of at the mill site with radiological and non-radiological contaminants and associated constituents, including uranium, thorium-230, combined radium-226 and radium-228, selenium, vanadium, molybdenum, sulfate, chloride, nitrate, and total dissolved solids. Tailings from the uranium recovery mill were discharged to two unlined tailings impoundments from 1958 to 1990.

The resulting environmental degradation, and public and health impacts from nearly half a century of uranium mining in New Mexico led Governor Bill Richardson to request, on July 31, 2007, that the NRC "not attempt to limit the public's right to review and comment upon individual Environmental Impact Statements for specific license applications." (Governor Richardson's letter to the NRC, attached) Governor Richardson's concern was echoed on Oct. 6, 2008 by NMED Secretary Ron Curry, in a letter sent to the NRC. (Letter attached) Additionally, Secretary Curry noted that, "Given the unique environmental, geographical, cultural, historical, economic, and regional aspects of New Mexico, [the GEIS] is contrary to the goals and purposes of the National Environmental Policy Act (NEPA) for the NRC to use [the] GEIS approach in this instance."

The request for the NRC to conduct site specific EIS for ISL uranium mining recovery operation applications is based on the following reasons:

- Given that the State of New Mexico relies on groundwater for 90 percent of the state's drinking water supply, all ground water in the arid southwest State of New Mexico is protectable and could be a potential drinking water supply if it contains less than 10,000 mg/l Total Dissolved Solids (TDS). In New Mexico, impact significant levels during the operation, restoration, and decommissioning would be "Large" because the Westwater Canyon Aquifer is a potential drinking water source, and because very few, if any, ISL sites have been restored to pre-operational conditions. An impact significant level of "Large" will result in a "finding of significant impact" under the NEPA Evaluation.

- The integrity of aquitards in isolating ore bearing aquifers from other aquifers may be jeopardized within the Grants Uranium District from thousands of exploration holes, many which may not have been properly abandoned, and from mine workings that connect large subsurface areas within the district; all of which may provide a conduit for vertical excursions. Each application would require a site specific review to determine if the integrity of the aquitard(s) in any given location, and would result in a "finding of significant impact" in the NEPA evaluation, if any.

- Given the people of color and low income population in New Mexico, any proposed ISL uranium mining recovery operations will pose environmental justice issues that the NRC GEIS process cannot adequately address. The unique cultural and environmental justice issues will require a full environmental justice analysis to be undertaken with each application, and site specific information will be needed which may change the conclusions of the GEIS that people of color and low income populations in the area may receive disproportionately high and adverse environmental and health impacts from the ISL uranium recovery facilities. Further, the State of New Mexico is committed to full public participation in its permitting processes in which each permit is evaluated on a case-by-case basis.

- The NRC GEIS approach to ISL uranium mining recovery is contrary to the federal government's "Government-to-Government" relationship with federally recognized tribes as illustrated in President Bush's support of Executive Order 13175, "Consultation and Coordination with Indian Tribal Governments." Some thirty-five sovereign Native American nations claim cultural affiliation with historical properties in New Mexico, including archaeological sites, landscapes, traditional cultural properties and scared sites. Impacts on New Mexico's Indian Tribes, Pueblos, and Nations will undoubtedly result in a "finding of significant impact" in a NEPA evaluation. In this context, the NRC is urged to adopt full EIS review for Uranium mining recovery operation applications for specific sites within New Mexico.

- Uranium mining recovery regulations in the State of New Mexico are not prescriptive. In other words, ISL uranium recovery operations are determined on a site-by-site basis and fall under the NMED Ground Water Quality Bureau's discharge permitting authority and under NMED's Underground Injection Control (UIC) primacy from the U.S. EPA; Class III and Class I UIC Permits. Because of the lack of 'historical' data that ISL uranium recovery operations are unable to restore groundwater resources to 'background conditions,' it is important that individual EIS be conducted for ISL uranium recovery sites.

On ending, Governor Bill Richardson and NMED Secretary Ron Curry respectfully request that the NRC conduct in depth, site specific environmental impact analysis for ISL uranium mining recovery facilities and operations in the State of New Mexico, and for the NRC to pursue robust public participation from all impacted New Mexicans and their communities. Thank you.

Attachments:
New Mexico Governor Bill Richardson's letter to the Nuclear Regulatory Commission, July 31, 2007.

New Mexico Environment Department Secretary Ron Curry's letter to the Nuclear Regulatory Commission, October 6, 2008.

Statement of Robert G. McSwain, Director, Indian Health Services, U.S. Department of Health and Human Services on The Health and Environmental Impact of Uranium Mining on the Navajo Nation before The House Committee on Government Oversight and Reform United States House of Representatives, Tuesday, October 23, 2007.

Attach. 1

State of New Mexico
Office of the Governor

Bill Richardson
Governor

July 31, 2007

Dr. Dale Klein, Chairman
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Chairman Klein:

It has come to my attention that the U.S. Nuclear Regulatory Commission (NRC) plans to create a "generic environmental impact statement" (GEIS) concerning newly proposed uranium recovery operations, including in-situ leach (ISL) recovery facilities and conventional mills to be located in the western United States. The NRC has stated that the purpose of this "generic" process is "to aid in a more efficient environmental review for each separate license application."

I share your goal of efficiency in governmental oversight; however, in this case, I believe that your attempt at efficiency will negatively impact the ability of New Mexico's citizens to participate in the NRC licensing process for individual facilities. As the Governor of a state with large uranium reserves and an extensive history of environmental degradation and public impacts as a result of past uranium mining practices, I write to request that you not attempt to limit the public's right to review and comment upon individual Environmental Impact Statements for specific license applications.

There is nothing generic about the concerns that many New Mexicans have with proposals to reopen or start new uranium mining and milling operations in their communities. Our citizens have a right to full involvement in decisions that could have far-reaching impacts on their homes and water resources. In New Mexico, discharge permit applications for uranium operations are evaluated in a case by case manner, and this individual review is particularly important for uranium operations due to the varying hydrologic, geologic, and ecologic conditions of each particular site. Such a review allows the state and the public the opportunity to address site-specific concerns unique to each individual facility. The NRC's GEIS proposal would be contrary to the State of New Mexico's public participation permitting process. Given the concerns of many citizens in New Mexico about the public health, environmental, and cultural impacts of new uranium mining actions, a process to eliminate public review of individual NRC permit actions in New Mexico would be disrespectful to our many sovereign Native American Tribes and Pueblos and the general public.

Unlike the Navajo Nation, the State of New Mexico currently has not taken a broad policy position on uranium mining. However, if uranium mining and milling are to resume in New Mexico, the state must be sure that the public is given a robust opportunity to participate in the decisions and that all environmental, water resource, and potential public health issues are thoroughly examined for each operation. The State of New Mexico is committed to an open, transparent and thorough review process of all uranium permits and we implore the NRC to commit itself to the same level of public involvement.

I applaud your desire to look at the overall impacts of uranium mining, milling and leaching, but not at the cost of diminished Environmental Impact Statement reviews for future uranium operations. I hope you consider my recommendation to issue and allow the public to review individual Environmental Impact Statements for proposed uranium mines and mills in New Mexico on a case by case basis.

Sincerely,

Bill Richardson
Governor of New Mexico

BR/zw

Attach. 2

NEW MEXICO
ENVIRONMENT DEPARTMENT

Office of the Secretary

BILL RICHARDSON
Governor

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RON CURRY
Secretary
JON GOLDSTEIN
Deputy Secretary

October 6, 2008

Chief, Rulemaking, Directives and Editing Branch
U.S. Nuclear Regulatory Commission
Mail Stop T6-D59
Washington, DC 20555-0001

Re: New Mexico Environment Department Comments On NRC's Draft Generic Environmental Impact Statement (GEIS) For *In-Situ* Leach (ISL) Uranium Recovery Facilities

Dear Branch Chief:

Enclosed please find the comments of the New Mexico Environment Department (NMED) on the U.S. Nuclear Regulatory Commission's (NRC) proposed Draft Generic Environmental Impact Statement (GEIS) For *In-Situ* Leach (ISL) Uranium Recovery Facilities. In general, the NMED opposes the use of a GEIS because of our fear that it will limit the ability of individuals to have meaningful involvement in the federal approval process for these facilities. This is in keeping with Governor Bill Richardson's July 31, 2007 letter to NRC Chairman Dale Klein on this issue.

NMED appreciates the willingness of the NRC to solicit state input on this issue and hopes that this willingness will continue through an agreement to conduct individual Environmental Impact Statements for specific license applications in the State of New Mexico.

A. General Comments

A GEIS often is used as a tool in the "tiering" process to serve as a master document whereby subsequent, site specific environmental reviews only amount to an environmental assessment with heavy reliance on the "generic" document. This means that instead of performing a comprehensive, in-depth environmental review at each site in New Mexico for each license application, the Nuclear Regulatory Commission (NRC) would only conduct an environmental assessment and rely on the GEIS for a large portion of its site specific analysis. Given the

unique environmental, geographical, cultural, historical, economic, and regional aspects of New Mexico, it is contrary to the goals and purposes of the National Environmental Policy Act (NEPA) for the NRC to use a GEIS approach in this instance.

The New Mexico Environment Department (NMED) recommends that the NRC conduct a site-specific EIS for all proposed ISL uranium recovery operation applications for New Mexico based for the following reasons:

1. Many of the impact significance levels range from "Small to Large", particularly all groundwater related categories, depending on site-specific conditions. In New Mexico, impacts during operation, restoration, and decommissioning would be "Large" based on the fact that the aquifer (Westwater Canyon member) is a potential drinking water source and very few, if any ISL sites have been restored to pre-operational conditions. New Mexico relies on groundwater for 90% of its drinking water supply and all groundwater in New Mexico is protectable and is a potential drinking water supply if it contains less than 10,000 mg/l total dissolved solids (TDS). A significance level of "Large" will result in a "finding of significant impact" in the NEPA evaluation.

2. The Grants uranium district contains thousands of exploration holes, many of which may not have been properly abandoned and extensive mine workings that connect large subsurface areas within the district, both of which reduce the integrity of aquitards in isolating ore bearing aquifers from others and providing a conduit for vertical excursions. Each application would require a site-specific review to determine the integrity of the aquitard(s) in a given location and would result in a "finding of significant impact" in the NEPA evaluation, if they exist.

3. The majority of uranium resources in New Mexico are located in the Grants Mineral Belt in the northwestern portion of the State. This area includes large portions of "Indian Lands." Consequently, any proposed ISL uranium recovery and processing operations in New Mexico will pose unique cultural and environmental justice issues that the GEIS process will not adequately address. Given the minority and low income population in New Mexico, environmental justice issues will be involved with most, if not all applications. Therefore, a full environmental justice analysis will need to be performed for every application as stated on page 6-19 lines 17-18 and site-specific information will be needed which may change conclusion of GEIS that minority or low-income populations in the area would receive disproportionately high and adverse environmental of health impact from the ISL facility activities.

4. Potential impacts on New Mexico's sovereign Tribes and Pueblos will undoubtedly result in a "finding of significant impact" in the NEPA evaluation, which will require the NRC to perform an Environmental Impact Statement (EIS). In this context, the NRC should adopt the full EIS process for reviewing any proposed activity that will occur at specific sites within New Mexico. In addition, a generic approach is contrary to the principles of government-to-government consultation with the many sovereign Native American Tribes and Pueblos in New Mexico. Some thirty-five Native American tribes claim cultural affiliation with historical properties in New Mexico, including archaeological

sites, landscapes, traditional cultural properties and sacred sites. In many cases, traditional Native American cultural properties consist of cultural landscapes and special landforms with spiritual relationships that could be affected by this undertaking having long-term adverse impacts or potentially detrimental effects to the very existence of the people.

5. The proposed GEIS is contrary to the State of New Mexico's commitment to full public participation in its permitting processes in which each permit is evaluated on a case-by-case basis. This individual review is particularly important for uranium operations due to the extensive history of environmental degradation and public impacts as a result of past uranium mining and milling practices, the varying hydrologic, geologic and ecologic conditions of each particular site, and cultural resources unique to New Mexico. A full EIS process is also consistent with the NRC's decision to complete an EIS for new nuclear reactor applications rather than following a GEIS process.

Furthermore, there are a number of concerns over air quality issues that should be addressed including:

1. The use of baghouses for air pollution control would necessitate a pre-application meeting with the New Source Review Permit Section of the Air Quality Bureau prior to any construction or operational activities to discuss possible permitting options.

2. It is stated in the GEIS that generators will be used at facility. If these units are used as back-up energy supply, records should be kept of the hours of operation of the generator. An application for a construction permit must be submitted for stand by generators used 500 hours per year or more.

3. To further ensure air quality standards are met, applicable local or county regulations requiring noise and/or dust control must be followed; if none are in effect, controlling construction-related air quality impacts during projects should be considered to reduce the impact of fugitive dust and/or noise on community members.

4. Areas disturbed by project activities, within and adjacent to the project area, should be reclaimed to avoid long-term problems with fugitive dust. During the construction activities, dust control measures should be taken to minimize the release of particulates. Long-term dust control can be achieved by paving, re-vegetating, or using dust suppressants on disturbed areas following construction.

5. All asphalt, concrete, quarrying, crushing, and screening facilities contracted in conjunction with the proposed project must have current and proper air quality permits. For more information on air quality permitting and modeling requirements, please refer to 20.2.72 NMAC.

NRC should note that an operator of a proposed ISL facility must also obtain a water right or appropriation permit from the Office of the State Engineer in order to extract water from the ground.

B. Specific Comments

1. Page xli, Groundwater Impacts, Operation: The alteration of ore body aquifer chemistry significance level of "Small" during operation is too low. Small to Large would be more appropriate due to the fact that two of the three reasons listed for "Small" are not valid in New Mexico; the aquifer would not be a potential drinking water source and the aquifer would be expected to be restored within statistical range of preoperational baseline quality during the restoration period. All groundwater in New Mexico is protectable and could be a potential drinking water supply if it contains less than 10,000 mg/l total dissolved solids (TDS) given that New Mexico relies on groundwater for 90% of its drinking water supply. Groundwater within the Grants Mining District is known to contain less than 10,000 mg/l TDS. Although it is a goal to restore groundwater to preoperational conditions, this has not been successfully accomplished at many, if any ISL facilities. Therefore, alterations of ore body aquifer chemistry should be revised to Moderate to Large.

2. Page xlii, Groundwater Impacts, Decommissioning: The groundwater impact significance level of "Small" during decommissioning is too low. Small to Large would be more appropriate, given that ongoing contamination issues may be significant at sites that have failed to achieve aquifer restoration of water quality.

3. Page 1-16, Section 1.6.3.4: NMED would like to clarify that it is the New Mexico "Environment" and not "Environmental" Department. While NMED was established in 1991, its predecessor agency, the New Mexico Environmental Improvement Division (NMEID) existed from 1977 through 1991.

4. Page 1-23, Section 1.7.5.4: As a clarification, the NMED authority comes from Title 20, Chapter 6, Part 2 of the New Mexico Administrative Code.

5. Pages 1-23 to 1-24, Section 1.7.5.4: Before the federal appeals court in Denver, there is an ongoing appeal, which will affect the jurisdictional authority for regulation of ISL facilities in Indian Country. Note that on lines 30-34, page 3.5-1, this issue is mentioned as an ongoing jurisdictional dispute in the checkerboard area.

6. Page 2-11, Section 2.3.1.1: The Office of the State Engineer has promulgated regulations on well completion in confined conditions (Westwater Canyon member of the Morrison formation) that must also be adhered to.

7. Page 2-14, Section 2.3.2: The State of New Mexico requires an operator to obtain a Discharge Permit for evaporation ponds used in the management of waste water.

8. Page 2-18, Section 2.4.1.3: The Grants uranium district has thousands of exploration holes, many of which may not have been properly abandoned and extensive mine

workings that connect large areas within the district, thus reducing the integrity of aquitards in isolating ore bearing aquifers from others and providing a conduit for vertical excursions.

9. Page 2-19, Section 2.4.1.4; Page 8-6, Section 8.3.1.2:

    a. The setting of upper control limits (UCLs) under NMED authority would have to consider water quality standards in 20.6.2.3103 NMAC, such that the selected UCLs do not exceed the numerical standards, if background is determined to be lower than applicable standards. NMED agrees with a contingency plan that identifies water quality changes as early as possible, but the UCLs should follow state regulations to ensure compliance with numerical standards.

    b. NMED does not agree that an excursion should be defined when two or more contaminants of concern (COCs) are discovered above the UCLs in a given monitoring well. NMED would consider an excursion if a single COC is discovered above the UCLs in a single monitoring well.

    c. Line 2 and 3 states "If an excursion cannot be recovered, the licensee may be required to stop injection of lixiviant into a well field". NMED considers this an illegal discharge and would require the operator to cease injection immediately.

10. Page 2-29, Section 2.5.4: Line 44 refers to "class-of-use". New Mexico does not classify groundwater. The New Mexico Water Quality Act protects all groundwater that contains less than 10,000 mg/l TDS.

11. Page 2-31, Section 2.6: Line 29 should read "...lands are returned to pre-production...".

12. Page 2-41, Section 2.10: This section refers to 10 CFR Part 40, Appendix A, Criterion 9 for establishing financial surety, but does not provide specifics for ISL facilities. NMED suggests the financial surety be based on the extraction of a minimum of 10 pore volumes (page 2-29, line 1-3).

13. Page 2-48, Section 2.11.5:

    a. The NRC should mention the potential or give an example of a site that may require Alternate Concentration Limits (ACLs) because aquifer restoration goals were not successfully achieved.

    b. Line 17 does not list other exceedenaces greater than baseline range in Table 2.11-4 – manganese and TDS.

14. Page 2-49, Section 2.11.5: Lines 24-25 states "Davis and Curtis (2007) generally concluded that for the sites and data they examined, aquifer restoration took longer and required more pore volumes than originally planned." This statement along with the statement on page 2-51, lines 4-9, suggest that restoration of groundwater quality to

baseline conditions is achievable given removal of a sufficient number of pore volumes. These conclusions are based on a limited number of sites and are inconsistent with the U.S. Geological Survey Study on ISL restoration issued in January 2007 (NUREG/CR-6870). NMED recommends the NRC evaluate a larger number of sites, including ISL sites in agreement states such as Texas, in order to evaluate the success rate of restoration of groundwater quality to baseline conditions.

15. Page 3.5-4, Section 3.5.2: The NRC should consider that the first uranium mill that becomes operational in the Grants uranium district may be used by other uranium mines in the area as a destination for ore and fluids processing. Therefore, local transportation and pipeline infrastructure to the mill may be much more extensive in addition to the interstate shipment of yellowcake from the mill.

16. Page 3.5-6, Section 3.5.3: Line 26 states "The sandstone-type uranium deposits in the Grants district are generally in a geologic setting favorable for exploitation by ISL milling". It must be noted that extensive conventional mining resulting connection of large subsurface areas and inadequate plugging of exploration holes has compromised these favorable conditions for ISL milling in portions of the Grants uranium district.

17. Page 3.5-18, Section 3.5.4.3.1:

    a. The NRC should clarify whether the Mesaverde Group Aquifer includes the Tres Hermanos A, B, and C, which are sandstones within the Mancos Shale. It should also be noted that the Tres Hermanos units have been used for livestock watering.

    b. The NRC should note that pumping from underground mine workings has lead to depressurization of aquifers (e.g., Westwater Canyon member of the Morrison Formation) in the Ambrosia Lake Area. The intra-aquifer connections from underground mine workings and improperly abandoned exploration borings have resulted in a deterioration of the integrity of aquitards to isolate aquifers from one another.

    c. The NRC should note that the Dakota sandstone is used by the Moquino Mutual Domestic Water Users Association near Bibo and Seboyeta east of Mt. Taylor.

18. Page 3.5-20, Section 3.5.4.3.3: The NRC should note that the Ambrosia Lake vicinity contains Westwater Canyon member of the Morrison Formation ground water that may be used in the future as a water supply.

19. Pages 3.5-17 to 3.5-21, Section 3.5.4.3: This section has a mix of regional and local ground water properties. However, the local ground water resources are not comprehensive in terms of existing and potential aquifers in the Grants uranium district.

20. Page 3.5-21, Section 3.5.4.3.3: The NRC should note that groundwater quality in the Grants uranium district varies greatly due to extensive mining in the area and associated dewatering activities.

21. Page 3.5-62, Section 3.5.10.1; Table 3.5-16: The NRC should compare the population estimates with the State Demographer's results to ensure the best estimates of New Mexico population. Using the 2000 U.S. census data results in an underestimate of the current population. Go to the web site: http://www.unm.edu/~bber/demograp2.htm

22. Page 3.5-77, Section 3.5.11: NMED is unclear why prior mining and milling are not considered in background radiological conditions.

> *The total effective dose equivalent is the total dose from external sources and internal material released from licensed operations. Doses from sources in the general environment (such as terrestrial radiation, cosmic radiation, and naturally occurring radon) are not included in the dose calculation for compliance with 10 CFR Part 20, even if these sources are from technologically enhanced naturally occurring radioactive material (TENORM), such as pre-existing radioactive residues from prior mining (Atomic Safety and Licensing Board, 2006), lines 31-36.*

23. Page 4.5-10, Section 4.5.4.2; Page 4.5-11, Section 4.5.4.2.2: Vertical excursions may be more prevalent in New Mexico due to the aquitards compromised ability to limit migration due to extensive mine working connections and inadequate plugging of exploration borings.

24. Page 4.5-13, Section 4.5.4.2.2.2, line 42: same comment as #12.

25. Page 4.5-15, Section 4.5.4.2.2.3: The NRC should note that New Mexico has primacy from the United States Environmental Protection Agency (EPA) for the Underground Injection Control program.

26. Page 8-3, Section 8.3.1.1: This section discusses establishing pre-operational baseline conditions, but does not provide details on how it is calculated. NMED suggests, at a minimum 3 pre-operational groundwater conditions be established: 1) non-mineralized area; 2) reduced portion of the ore body; and 3) oxidized portion of the ore body.

27. Page 9-2, Section 9: Line 36 states that NRC will conduct tribal consultation with the Navajo Nation for potential cultural and resource impacts, but fails to list other tribal entities such as Acoma Pueblo, Zuni Pueblo, Hopi, and Laguna Pueblo.

C. Other Considerations

All surface water discharges from in-situ leach and related facilities require National Pollutant Discharge Elimination System (NPDES) permit coverage. In New Mexico, NPDES permits are issued by the EPA. Three distinct types of activities at these facilities require NPDES permit coverage under, potentially, three different NPDES permits: individually drafted NPDES permits

for discharges of process wastewaters; NPDES multi-sector general storm water permit coverage for discharges of storm water from mining and processing areas (haul roads, access roads, railroads, conveyor belts and associated areas, equipment storage and maintenance yards, processing buildings and structures, and inactive areas, etc.); and NPDES construction general storm water permit coverage for all construction activities, including exploration, which results in the disturbance of $\geq$ 1 acre. Sampling requirements (and effluent limits if applicable) are defined in two of the above NPDES permits (EPA is currently in the process of developing effluent limits for construction activities).

EPA requires NPDES Construction General Permit (CGP) coverage for storm water discharges from construction projects (common plans of development) that will result in the disturbance (or re-disturbance) of one or more acres, including expansions, of total land area. Among other things, this permit requires that a Storm Water Pollution Prevention Plan (SWPPP) be prepared for the site and that appropriate Best Management Practices (BMPs) be installed and maintained both during and after construction to prevent, to the extent practicable, pollutants (primarily sediment, oil & grease and construction materials from construction sites) in storm water runoff from entering waters of the U.S. This permit also requires that permanent stabilization measures (revegetation, paving, etc.), and permanent storm water management measures (storm water detention/retention structures, velocity dissipation devices, etc.) be implemented post construction to minimize, in the long term, pollutants in storm water runoff from entering these waters. In addition, permittees must ensure that there is no increase in sediment yield and flow velocity from the construction site (both during and after construction) compared to pre-construction, undisturbed conditions (see Subpart 10.C.1)

EPA requires that all "operators" (see Appendix A) obtain NPDES permit coverage for construction projects. Generally, this means that at least two parties will require permit coverage. The owner/developer of the construction project who has operational control over project specifications, the general contractor who has day-to-day operational control of those activities at the site, which are necessary to ensure compliance with the storm water pollution plan and other permit conditions, and possibly other "operators" require appropriate NPDES permit coverage for these projects.

In addition, USEPA requires NPDES Storm Water Multi-sector General Permit (MSGP) coverage for facilities that engage in "industrial activities" as defined at 40 Code of Federal Regulations Part 122.26(b)(14). Uranium in-situ leach projects meet this definition (specifically 40 CFR Part 122.26(b)(14)iii, Standard Industrial Classification code 1094 covered under MSGP Sector G – Ore Mining and Dressing), and require appropriate NPDES permit coverage prior to beginning operations.

Among other things, this permit also requires that a SWPPP be prepared for the site and that appropriate BMPs be installed and maintained to prevent, to the extent practicable, pollutants in storm water runoff from entering waters of the U.S. A SWPPP should include such things as:

1. A description of potential pollutant sources which includes such things as a site map, an identification of the types of pollutants that are likely to be present in storm water discharges, an inventory of the types of materials handled at the site that potentially may be

exposed to precipitation, a list of significant spills and leaks of oil, toxic or hazardous pollutants, sampling data, a narrative description of the potential pollutant sources from specific activities at the facility (i.e., pumping operations, road construction, raw material storage and handling, material transportation, fueling and other equipment maintenance), and identification of specific potential pollutants (i.e., dust, total suspended solids, total dissolved solids, turbidity, pH, nitrates, oil, grease, ethylene glycol, heavy metals, radionuclides, and others); and

2. A description of appropriate measures and controls which includes the type and location of existing and proposed non-structural and structural BMPs selected for each of the areas where industrial materials or activities are exposed to storm water. Non-structural and structural BMPs to be described and implemented include such things as good housekeeping, preventive maintenance, spill prevention and response procedures, periodic inspections, employee training, record keeping, non-storm water evaluations and certifications, sediment and erosion control, as well as implementation/maintenance of traditional storm water management practices (i.e., sediment/settling ponds, check dams, silt fences, straw bale barriers, perimeter berms, runon diversion structures), where appropriate. The MSGP also requires preparation and implementation of a reclamation plan for the site.

Finally, EPA requires individual NPDES permit coverage for discharges of process wastewaters from mining, leaching and processing operations, including drilling operations. These permits typically contain both technology and water quality based effluent limits, sampling requirements, etc. NPDES regulations at 40 CFR Part 122.44(d) require that NPDES permits include effluent limits necessary to achieve water quality standards established under § 303 [33 U.S.C. 1313 - Water Quality Standards and Implementation Plans] of the federal Clean Water Act (CWA), including State narrative criteria for water quality. 40 CFR Part 122.4(i) requires that a discharge not "cause or contribute to the violation of water quality standards." The New Mexico Water Quality Control Commission (WQCC) has adopted surface water quality standards under authority of the New Mexico Water Quality Act [Chapter 74, Article 6 NMSA] pursuant to CWA § 303, which are codified as *Standards for Interstate and Intrastate Surface Waters, 20.6.4 NMAC.*

Regardless of whether or not an NPDES permit has been issued, state surface water quality standards must be met at all times and violation of these standards are enforced by the New Mexico Environment Department under authority of the New Mexico Water Quality Act.

Thank you for the opportunity to comment on this far reaching proposal. We applaud the desire of the NRC to look at the cumulative impact of proposed ISL facilities across the Western U.S. but ask you do not do so at the expense of in depth, site specific environmental impact analysis.

Sincerely,

Ron Curry for
Ron Curry
NMED Secretary

Attach. 3

Testimony

Statement by
Robert G. McSwain,
Director
Indian Health Services
U.S. Department of Health and Human Services
on
The Health and Environmental Impact of Uranium Mining on the Navajo Nation
before
House Committee on Government Oversight and Reform
United States House of Representatives

Tuesday, October 23, 2007

Mr. Chairman and Members of the Committee:

Good Morning, I am Robert G. McSwain, the Acting Director of the Indian Health Service (IHS). I am accompanied by two other individuals: RADM Douglas G. Peter, M.D., Deputy Director and Chief Medical Officer of the Navajo Area and RADM (Ret) Gary Hartz, Director, IHS Office of Environmental Health and Engineering. Today, I am pleased to have this opportunity to testify on what is known about the health and environmental impact of uranium mining on the Navajo Nation.

The IHS has the responsibility for delivery of health services to an estimated 1.9 million Federally-recognized American Indians and Alaska Natives through a system of IHS, tribal, and urban (I/T/U) operated facilities and programs based on the government-to-government relationship and Acts of Congress. The mission of the agency is to raise the physical, mental, social, and spiritual health of American Indians and Alaska Natives to the highest level, in partnership with the population we serve. The agency's goal is to assure that comprehensive, culturally acceptable personal and public health services are available and accessible to the service population. Our duty is to uphold the Federal government's responsibility to promote healthy American Indian and Alaska Native people, communities and cultures, and to honor and protect the inherent sovereign rights of Tribes.

Three major pieces of legislation are at the core of the Federal government's responsibility for meeting the health needs of American Indians/Alaska Natives: the Snyder Act of 1921,

P.L. 67-85, the Indian Health Care Improvement Act (IHCIA), P.L. 94-437, as amended, and the Indian Self Determination and Education Assistance Act (ISDEAA), P.L. 93-638, as amended. The Snyder Act authorized regular appropriations for "the relief of distress and conservation of health" of American Indians/Alaska Natives. The IHCIA was

enacted "to implement the Federal responsibility for the care and education of the Indian people by improving the services and facilities of Federal Indian health programs and encouraging maximum participation of Indians in such programs." Like the Snyder Act, the IHCIA provided the authority for Federal government programs that deliver health services to Indian. The ISDEAA promotes Tribal administration of Federal Indian programs, including health care.

The IHS and Tribal programs provide a comprehensive scope of individual and public health services, including preventive, clinical, and environmental health services. In addition, the IHS and Tribal health programs purchase medical care and urgent health services through the Contract Health Services program, when health care is otherwise not available at their facilities

The IHS has 12 Area Offices located throughout the continental United States and in Alaska. One of these Area Offices is located in Window Rock, Arizona, where the capital of the Navajo Nation is located. The Navajo Area Indian Health Service (NAIHS) is responsible for the delivery of health services to American Indians in the states of Arizona (AZ), New Mexico (NM), and Utah (UT), a region known as the Four Corners area of the United States (U.S.). The Navajo reservation, geographically, is approximately the size of the state of West Virginia with a population density which is one tenth of the U.S. average of 85 people per square mile.

Comprehensive health care is provided by NAIHS and the Navajo Nation through inpatient, outpatient, contract and community health, and environmental health programs through six hospitals, ten health centers, thirteen health stations and community based activities. In FY 2007, over 1.2 million outpatient visits and 56,000 inpatient service days were provided by 4,500 Indian Health Service and Tribal staff. The IHS sanitation construction program funded first time water and sewer service to 1,098 Navajo homes in FY 2007. The Navajo Nation and local health corporations administer approximately $89 million of the annual NAIHS funding to deliver and support the delivery of health care services to Navajo people.

The Navajo population has a median age of 24 years which is twelve years below that of the entire U.S. population, and the annual per capita income of $7,100 is one-third of the average in the U.S. The five leading reasons of death for the Navajo people (1999-2001) include unintentional injuries, cancer, heart disease, diabetes, and influenza/pneumonia. Cancer mortality rates for the Navajo Area death rates (1999-2001) are lower than that of all other races in the U.S. except for cervical cancer which is about twice as high as the U.S. rate for all races.

The leading reasons for outpatient visits to NAIHS in FY 2004 were diabetes, hypertension, upper respiratory infections, routine child care, ear infections, pregnancy and childbirth related, accidents, musculo-skeletal conditions and supplemental procedures (prevention tests).

The Health and Environmental Impact on the Navajo Nation

I will be discussing the role of the Indian Health Service with respect to Navajo patients with health problems associated with exposure to uranium. Uranium is ubiquitous in the earth's crust but is especially concentrated in larger amounts in the southwest United States and the Navajo Nation. Naturally present uranium decays into radium and radon - a colorless, odorless and radioactive gas at normal temperatures. Radon decays further into additional radioactive elements (radon daughters or progeny) that are solids which collect on dust particles. These decay products emit alpha and beta particles and gamma radiation.

During mining operations in the southwest United States, radon and its progeny were inhaled into the lungs, and it is believed that exposure to high concentrations of alpha decay particles has caused lung cancer in some miners. In addition to cancer, chronic pulmonary disease also developed in some miners due to the inhalation of the silica dust particles.

An estimated 3,000-5,000 Navajos worked in uranium mines. The Navajo Nation reports the presence of over 1,300 abandoned mines on reservation land alone. Some miners also worked in Colorado (where the largest number of mines were located), Utah and in New Mexico (which produced the largest amount of uranium ore).

Prior to enactment of the Radiation Exposure Compensation Act (RECA) in 1990, individuals with lung cancer or chronic pulmonary disease were identified and treated by IHS staff. RECA authorized compensation for the former uranium miners. IHS in the Navajo Area assisted with dedicated screening staff and funding to conduct medical exams. IHS staff also collected health history information from multiple facilities and assisted the Navajo Nation in establishing a registry containing the data to assist former miners and their survivors with the documentation of health histories and current medical condition. All information gathered is maintained by the Navajo Nation, not by the IHS.

In 2002, the Navajo Area Radiation Exposure Screening and Education Program (RESEP) began operations as one of seven HHS RESEP grants in the United States. NAIHS works closely with the Navajo Nation Division of Health, Office of Navajo Uranium Workers, to implement the grant which is funded through August 31, 2008. Special clinics at multiple NAIHS clinical sites are by RESEP staff from the Shiprock, New Mexico, IHS hospital. Screening is provided to (a) miners who worked at least one year above ground and/or underground from 1942 through 1971; (b) uranium millers or ore transporters, and (c) downwinders (those living in defined counties from 1951-1958 or in 1962).

Various pulmonary and kidney function related tests are performed during RESEP exams every three years. In between these regular screenings, NAIHS staff at all Navajo Area IHS facilities follow these individuals as part of their regular workload. It is of note that, since 2002, the RESEP program has not found a new case of lung cancer case in a uranium worker; but, many still live with chronic pulmonary scarring and are at a higher

risk for the development of lung cancer than the average individual. IHS continues to treat affected miners appropriate to their health condition.

1990-1991 Radon Survey of Navajo Homes

In 1990-1991, the Indian Health Service OEHE working with the Navajo Nation Environmental Protection Agency (NNEPA) and the U.S. Environmental Protection Agency (U.S. EPA) undertook a radon survey of private homes. EPA had established 4 pCi/L as a "guideline" for indoor radon levels. The survey used a statistical sampling technique to identify Navajo homes on or near the reservation normally occupied year-round. For the short term survey, charcoal test canisters were placed in just over one thousand homes during the winter months. In 10 percent of the homes, alpha test devices were put in place for one year to determine an annual average indoor radon concentration. In 1992 the results of the testing revealed 772 statistically valid measurements showing an average radon level of 1.7 pCi/L (U.S. average was estimated at 1.3 pCi/L). Ninety two percent of homes had levels below the U.S. EPA recommended guideline of 4 pCi/L. The year-long term radon test device results were positively correlated with the short-term survey results. Individual home owners were notified of the results. The conclusion drawn from this survey was that, in spite of surface soils rich in natural uranium, most Navajo occupied homes do not have a problem with higher than recommended levels of radon compared to the U.S. average.

Uranium Milling/Mine Waste Piles

Health concerns for milling personnel are similar to those described above for uranium miners. The risks appear to have been less for millers than miners because mines contained far more concentrated radon gas. But abandoned mine and milling tailing piles contained increased radium which seeped into local surface and ground water and spread to nearby lands via wind dispersal. Moreover, unfortunately tailing pile material has been discovered in the past to have been used by locals in home building materials, necessitating the abandonment/destruction of identified homes under the authority of Navajo Nation programs.

In 1990 the Agency for Toxic Substance and Disease Registry, the HHS component that addresses the public health effects of contaminants, advised authorities of an immediate and significant danger to people's health for one set of mines. The EPA conducted an emergency removal of the waste. EPA contracted with a Native American company to do that work.

Uranium and Water Quality Issues

The increased exposure to radionuclides in drinking water results in increased risks of bone cancer and changes in kidney function by direct toxicity to kidney cells. In December 2000, the U.S. EPA issued new rules regulating uranium in community water systems to reduce toxic kidney effects and the risk of cancer. By December 31, 2007, all regulated water systems must complete initial monitoring.

Since the passage of P. L. 86-121 in 1959, IHS has been constructing community water systems in Indian country which meet all EPA standards for safe drinking water and, in the case of the Navajo Area, turning these systems over to the Navajo Tribal Utility Authority (NTUA) to operate and maintain. Compliance with the Safe Drinking Water Act on Navajo reservation land has been the responsibility of the Navajo Nation since 2001. Only 3 percent of Navajo Nation community water systems in 2005 had reportable health-based violations (any violations exceeding maximum contaminant levels, not just radio-nuclides) in comparison to numbers for the states of Arizona (11%), New Mexico (13%), Utah (6%) and Colorado (9%).

Currently, a Navajo Nation Institutional Review Board approved study is underway with funds awarded by HHS to the University of New Mexico, Health Sciences Center. The Navajo Uranium Assessment and Kidney Health Project is supported by a $2.3 million five-year grant. Indian Health Service staff are collaborating with this effort, as medical record reviews, health exams and laboratory analysis will be essential to the success of this project.

The study is designed to (1) assess water quality and use in 100 water sources in Northwestern New Mexico communities with Navajo residents; (2) reduce uranium exposure from unregulated water sources used as drinking water; and (3) calculate relative risks for chronic kidney disease from ingestion of uranium and other kidney toxicants from unregulated water sources, evaluating urinary biomarkers over time in relationship to disease progression.

Historical data indicate that up to 25 percent of unregulated water sources in the western Navajo exceeded drinking water standard for kidney toxicants (including uranium). Preliminary analysis of eastern Navajo Nation data shows that this same percentage is being found for New Mexico unregulated water sources on or near Navajo lands. In the New Mexico study area, many families still haul water from multiple sites, including unregulated water sources, in spite of warnings by health providers and environmental health staff.

Concluding Remarks

The Indian Health Service strives every day to be true to our mission to elevate the health status of eligible Indian people. We work in partnership with Tribes and many other organizations and governments to provide preventative and curative, community- and health care facility-based services to our large beneficiary population. Most of our resources are dedicated to addressing the most prevalent health problems in Indian Country. Every patient/family we serve is equally important in the eyes of our staff with regard to the unique health problems presented by each.

When IHS staff recognize unique trends in health statistics or a unique presentation of illness (such as with Hantavirus on the Navajo Nation over a decade ago) they work diligently to identify the cause or causes. This includes working with specialists or

special programs (like CDC) to assist in uncovering the source of the problem the patient is experiencing. For example, Navajo Neuropathy was clinically pursued by our staff in conjunction with outside experts. Genetic researchers now conclude that a single gene mutation is the cause of this disorder.

The IHS is committed to addressing the health care needs of the citizens of the Navajo Nation, including those who may be impacted by the effects of uranium mining.

Thank you for the opportunity to present this testimony before the Committee. I will be pleased to answer any questions you may have for the IHS on this important subject.

Statements for Ben House & Danny Charley

December 11, 2008

Ben House:

I want to thank the Commission for the opportunity to speak today. My name is Ben House and I am the President of the Eastern Navajo Allottee Association. I represent hundreds of families who have for generations owned their own land outside the boundaries of the Navajo Nation. We are in favor of new uranium operations in the Grants Mineral Belt and we believe that the In situ method of mining uranium is environmentally responsible.

Our country needs to become energy independent and the region of New Mexico that is my home is

desperately in need of economic development. Uranium mining will meet both of those goals. America needs the new uranium mines to fuel the growing nuclear reactor fleet domestically and globally. More nuclear power is needed to supply clean and inexpensive electric power.

New Mexico is fortunate to have large uranium resources that when developed will provide jobs and bring positive economic benefits to our community. The return of the uranium industry will also have a ripple effect throughout Western New Mexico. The jobs associated with uranium mining are high paying that will keep our sons and daughters from moving from our communities.

I want to thank the NRC for drafting the Generic Environmental Impact Statement. The document will be helpful in determining the potential environmental impacts at *in situ* recovery facilities. The G-E-I-S shows that uranium mining will have a small footprint in McKinley County. This county in Northwest New Mexico is where most future ISR projects will be located. In this county, 85 percent of the land is used for agricultural purposes and 83 percent of that land is used for livestock grazing. Coal and uranium activities use less than 1% of the land in McKinley County. The G-E-I-S also shows that uranium bearing aquifers exist in Northwest New Mexico. These uranium bearing aquifers are not fit for drinking. This is the case whether these uranium bearing aquifers are mined or not.

The G-E-I-S has also done a good job of gathering data of ISR operations over the past 30 years. And during that time there has not been a major environmental accident at any ISR site in the United States.

Again I want to thank the NRC for the opportunity to address this very important issue to the Eastern Navajo Allottee Association. We support the NRC and their efforts with the G-E-I-S.

Danny Charley:

I also want to thank the NRC for this opportunity to speak about an issue that is very important to me. My name is Danny Charley and I am a member of the Eastern Navajo Allottee Association. For generations, my family has lived and worked on land outside the jurisdiction of the Navajo Nation. We are self-sufficient and prefer to find our own way to support our families. We believe that ISR uranium recovery is the best solution to mining the uranium on our land. It will provide the economic development that holds the promise of a better future for our children.

I applaud the NRC for drafting the G-E-I-S document. The G-E-I-S contains a tremendous amount of

information on environmental and social conditions found in northwestern New Mexico. I am very comfortable that future operations can be permitted and conducted without harming the workers or the environment. I thank the NRC for compiling this information to educate the public on this important issue.

I also believe that the mining industry has improved their practices and they have learned important lessons from the previous mining cycle. I also know that there is regulatory oversight from both federal and state agencies ensuring that the people, the land and the water will be safe. This is important.

The current energy situation is a wake-up call to many Americans who realize that we cannot afford to be at the mercy of hostile foreign governments for our energy needs. We have the power here in our own backyards to supply our country's needs for future generations of Americans. It is important that we develop domestic sources of uranium to promote energy independence for our nation. Nuclear power fueled by New Mexico uranium will help reduce greenhouse gas emissions globally.

All available sources of energy must be used to meet increased future demand. I thank the NRC for making the ISR licensing process more efficient. I believe that it is a very smart public policy to protect the workers, public health, and the environment, thank you.

The Uranium Recovery Industry

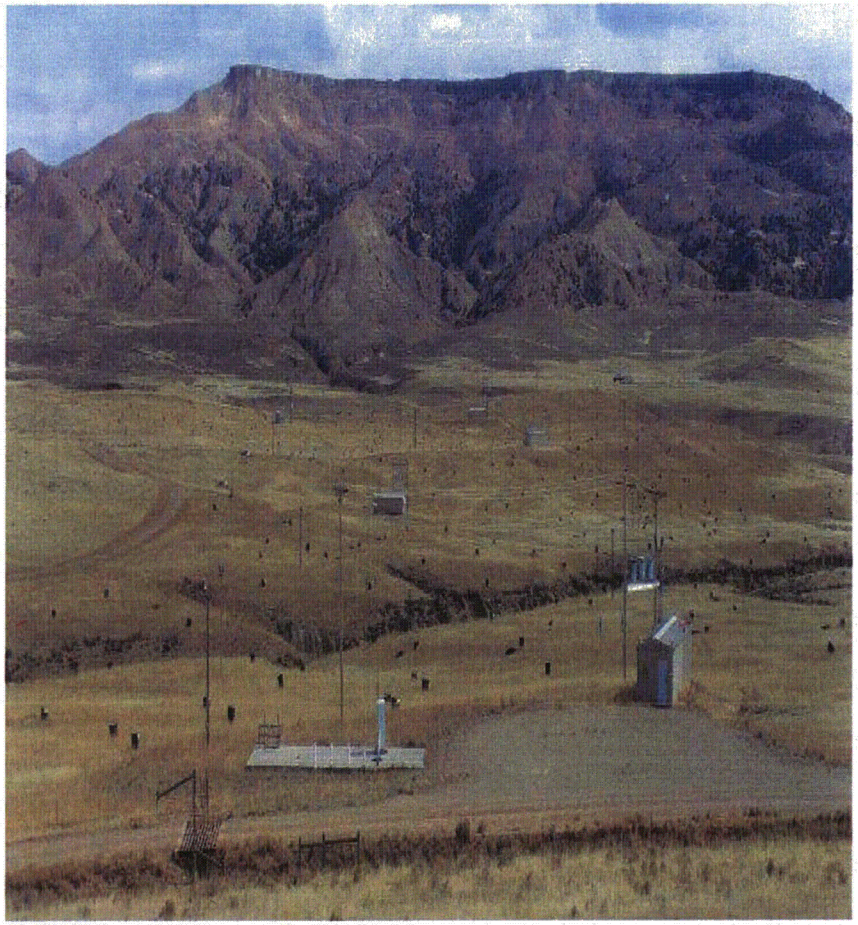
National Mining Association
December 11, 2008

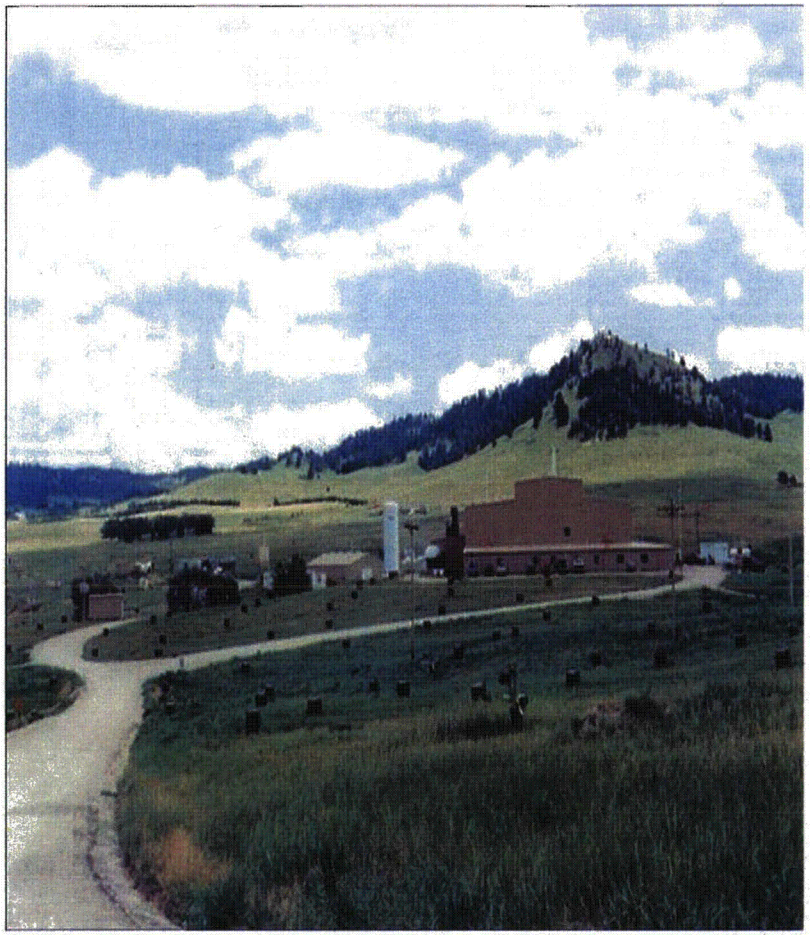
NMA
THE AMERICAN RESOURCE

Generic Environmental Impact Statement

- NMA strongly supports GEIS
  - Necessary to handle anticipated applications while assuring adequate protection of health, safety and the environment
- NMA submitted extensive comments
  - Generic Environmental Report in scoping process
  - Comments on the Draft GEIS
- NMA agrees with NRC that the majority of impacts associated with ISR are "small"
- GEIS & Part 51 assure site-specific environmental analyses

Typical Wellfields





NMA
THE AMERICAN RESOURCE

Potential Threats to Usefulness of GEIS

- Benefits of GEIS should not be undermined
  - NRC must adhere to deadline to finalize
  - NRC should authorize certain preconstruction activities
  - NRC, BLM and state agencies should coordinate required environmental assessments
  - NRC must continue use of performance based licensing per commission policy

NRC Rulemaking for Groundwater Protection at ISR Facilities

- Issue of longstanding importance to the industry
- Agree with EPA that currently there are no generally applicable UMTRCA standards
- Now "tailored" rulemaking – to make EPA 40 CFR part 192 standards applicable "as a matter of law" to ISR restoration, including giving the licensee the legal right to apply for an ACL (with state prior class of use a factor in an ACL determination)

NMA
THE AMERICAN RESOURCE

Demand for Uranium

- Spot market price up 25% over the past 5 weeks
- Strong demand (Since 1990 consumption > production)
- 2008 Forecast downgraded from 125 million pounds to 115 million pounds
- 440 Nuclear Reactors worldwide
- 35 new plants currently under construction
  - 20 potential new plants in the US

Importance of Domestic Uranium

- Domestic production provides energy security -- US current reliant on foreign sources for 85-90%
- At current prices, DOE forecasts US has almost 900 million pounds of uranium reserves
- Creation of jobs, infrastructure and other economic benefits
  - Illustrated by the recent New Mexico State University study, "Economic Impact of Uranium Mining and Milling Operations in the State of New Mexico"

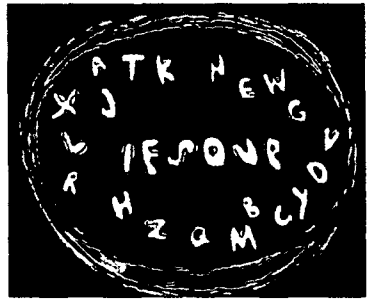
International Forum on Sustainable Options for Uranium Production (IFSOUP)

11 December 2008
Michelle R. Rehmann,
Uranium Program Manager
IFSOUP/Tetra Tech

Rev. 12/5/08

Origin and Need for IFSOUP

- Originated fall 2007
- Concept: adopt sustainable practices to avoid legacy sites
- Means to organize:
  - Workshops
  - Training courses
  - Forums for debate
  - Information dissemination



IFSOUP Inaugural Meeting Participants

- IAEA, Austria
- US NRC
- IIIRM
- WNA, UK
- CETEM, Brazil
- CNEA, Argentina
- BLM
- SEAB, Canada
- CAMECO, Canada
- WM Mining Inc., USA/Mongolia
- Virginia Uranium Inc., USA
- UTEP
- Tetra Tech
- Talisman

IFSOUP Objectives

- International forum to discuss and exchange experience on sustainable uranium mining/production
- Solution holders problem holders
- Technology transfer
- Promote stakeholder participation

IFSOUP Objectives - Continued

- Mining company education/assistance/support
- Multi-sector, forum for workshops, panels, and short courses
- Be globally driven
- Aid junior operators, state-owned enterprises, regulators and other stakeholders
- Cooperate with/complement NRC's and IAEA's efforts

Topics

- Define sustainability in context
- Coordinate worldwide initiatives
- Indigenous peoples
- Principles of Code(s) of Practice
- Cameco Sustainability Approach (added over time) vs. new projects starting with sustainability plans
- ISL – technical and environmental issues
- Uranium mining in previously unmined countries
- Success stories

Regulatory Leadership in Sustainable Practices

- **Key to Project Success and Instilling Public Confidence**
- **Economic - support community economic development, including clear, predictable, and reliable regulatory governance**
- **Social-strong and respected regulation**
- **Environmental-safe projects protective of human health and the environment**

Findings to Date

- Good examples exist
- Challenge to disseminate
- Need for further discussion of ISL technical issues
- Communication constraint
- Need for further discussion of specific needs of indigenous peoples

Tribal Member Delegation

- Coordinated with IIIRM
- Tribal Participants (Navajo, Spokane, Oglala Sioux, Acoma)
- Donors (Black Range Minerals, Uranium Energy Corp., PowerTech, Inc., Uranium Resources Inc., Strathmore Minerals Corp., Fletcher Newton)
- Pre-Workshop Sustainability Discussion and Attendance at NMA/NRC 2008 Uranium Recovery Workshop

Activities to Date

In its first year, IFSOUP has....

- **Interfaced with NRC's and IAEA's Networks**
- **Expanded to 150+ participants**
- **Generated growing involvement through outreach to stakeholders**
- **Opened www.ifsoup.org**
- **Developed Diverse Secretariat**
- **Convened in Phoenix, Arizona; Denver, Colorado (2 meetings); Beijing, China; and Vail, Colorado**

Next Steps

Following first year results, IFSOUP will....

- **Continue facilitating agency, NGO and UR industry networking to foster and implement safe, sustainable options for uranium production**
- **Continue broadening its diverse network and constituency**
- **Incorporate as a non-profit to gain access to grants or other funding essential to continue its mission**

IFSOUP Website and Contact Information

www.ifsoup.org

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List of Acronyms

BLM: Bureau of Land Management

CETEM: (to be added)

CNEA: (to be added)

IAEA: International Atomic Energy Agency

IFSOUP: International Forum on Sustainable Options for Uranium Production

IIIRM: International Institute for Indigenous Resource Management

List of Acronyms - continued

ISL: In Situ Leach (or ISR, In Situ Recovery)

SEAB: Saskatchewan Environmental Assessment Branch, Canada

UR: Uranium Recovery

US NRC: United States Nuclear Regulatory Commission

UTEP: University of Texas El Paso

VUI: Virginia Uranium Inc.

WNA: World Nuclear Association

December 11, 2008

Statement of the Natural Resources Defense Council before the Nuclear Regulatory Commissioners' Briefing on Uranium Recovery

The Natural Resources Defense Council (NRDC) is a national non-profit environmental organization with offices in Washington, D.C., New York City, San Francisco, Chicago, Los Angeles, and Beijing, China. NRDC has a nationwide membership of over one million individuals and online activists. NRDC's activities include maintaining and enhancing environmental quality and monitoring federal agency actions to ensure that federal statutes enacted to protect human health and the environment are fully and properly implemented. Since its inception in 1970, NRDC has sought to improve the environmental, health, and safety requirements at nuclear facilities operated by Department of Energy (DOE) and at commercial nuclear sites licensed by the Nuclear Regulatory Commission (NRC) and their predecessor agencies.

As has been detailed by other participants in today's program, most notably the tribal representatives, the history of uranium mining and milling across the American West has been one of severe environmental and social harm. Despite the history of environmental and public health harms, the framework for the regulation of uranium recovery is a mishmash of federal and state oversight, with little accountability for lax decisions and a decided unwillingness to enforce protective standards if these would increase costs to the industry. The NRC, the Environmental Protection Agency (EPA), the DOE, the Interior Department (specifically the Bureau of Indian Affairs under its trust responsibility) all hold portions of responsibility for the regulation of past, present, and future harms resulting from uranium recovery. Literally decades after the original harm from uranium recovery was first inflicted on the Western land, water, and communities, the NRC has commenced drafting what we hope will be a rational, protective regulatory structure for any future uranium ISL mining. Unfortunately, if the *Draft Generic Environmental Impact Statement for In-Situ Leach Uranium Milling Facilities*, 73 Fed. Reg. 43795 (July 28, 2008) (Draft GEIS) is indicative of how the agency intends to go about managing its responsibilities for uranium recovery, we are concerned. Our comments on the Draft GEIS were timely submitted on November 7, 2008 and provide detailed illustrations of our concerns that we will not repeat here.

For the purposes of today's discussion, issuing the Draft GEIS before the NRC has even commenced fixing a failed regulatory regime is putting the cart before the horse. As we noted in our recent comments, the Draft GEIS identifies no broad national purpose, no overarching need for a proposed action beyond that of aiding industry's license applications, and no meaningful weighing of alternatives. Since the purpose and need for agency action is so ill-defined, it is by no means clear whether a GEIS is even appropriate or warranted, especially without a searching technical and legal review that could suggest the imposition of a regulatory program that *avoids*

repeating the harms of the past. In short, it's our assessment that the agency's purpose and need as expressed by the Draft GEIS is essentially procedural – to streamline its consideration and approval of license applications for uranium recovery. We commented in November and do so again today that the Draft GEIS places the NRC in the peculiar position of using the National Environmental Policy Act (NEPA) to revise its own rules without a proposal for rulemaking.

Today, however, we gather here to consider the idea of that rulemaking. We understand that the NRC Staff may submit for the Commissioners' consideration a Draft ISL rule in April of 2009 that will ostensibly impose some rationality and protective standards on the mishmash of federal and state oversight. As far as we know, other federal or state agencies may have seen a draft of the ISL rule, but no member of the public – at least those not affiliated with a participating governmental entity – has seen a draft of the ISL rule. A lack of transparency and openness has been an unfortunate hallmark of the nuclear industry since its inception and the NRC would be wise to depart from that history.

And others are showing the way. Just this past year, Colorado, an Agreement State, passed the "Land and Water Stewardship Act of 2008." This Colorado law represents a first effort to impose rational and protective public health and environmental standards for future ISL uranium mining. We commend Colorado for stepping forward to address this matter. More important, today we encourage the NRC to follow the good example of Colorado in any rulemaking drafts. Placing protection of the environment and surrounding communities at the forefront is an excellent start. Central to Colorado's effort was the idea that the entirety of environmental harms were to be taken into consideration *prior to issuing a license* (including a transparent and technically valid measurement of existing groundwater quality). Just as important, we expect that with new regulations the Colorado law will demand a demonstration that any mining, if it does take place, can be demonstrated be safe and able to restore the affected environment to its pre-mining state. The NRC would do well to emulate those concepts as it works this winter.

And as aquifer restoration is of paramount concern for NRDC and many others, we further recommend that the NRC Staff rectify the wholly inadequate presentation found on the subject in the Draft GEIS. In a draft rulemaking for ISL groundwater protection, the NRC must commence with a comprehensive environmental analysis of the restoration history of mines and their individual wellfields. After such a presentation, the NRC Staff would then analyze the extent to which each of those individual wellfields were restored to original water quality and then present a hard look analysis of any associated long-term environmental impacts. That hard look analysis would analyze, among many factors, the original estimation of baseline water quality, the original estimation of pore volumes, horizontal and vertical flare factors, the impact of excursions, and any unforeseen problems that emerged (like, for example, the inadequacy of financial surety set aside for decommissioning).

The amount of work confronting the NRC is significant. Decades of regulatory neglect are not an easy thing to overcome, but we expect that any effort to finally commence work on a regulatory process for ISL uranium mining that is protective of the environment will begin with the concepts noted above. We also note that because of the splintered nature of the legal framework for uranium recovery, for the NRC to properly proceed here, the agency must continue working with its federal colleagues at the U.S. Environmental Protection Agency and the U.S. Department of the Interior to develop a regulatory framework for uranium recovery

cleanup and licensing that protects of public health and the environment. We encourage future efforts to be more transparent and open to the public.

Moreover, before the NRC proceeds to any more licensing decisions in advance of proposed rule changes, the NRC should commence its own particular portion of the work by focusing on evaluation of ISL uranium mining performance in the past 35 years, including in agreement states like Texas and Wyoming. And consistent with its regulatory obligations under NEPA and in a manner consistent with our November 2008 comments on the Draft GEIS, the NRC must also do a dramatically better job of defining the region or regions where it anticipates significant environmental and public health impacts, the extent of known and anticipated ISL uranium mining and milling in these regions, the timing of these developments, and a plan for licensing under new and more protective rules that is adequate to the scale of the task envisioned.

Thank you for inviting me here today and I look forward to answering any questions.

Sincerely,

_____/s/_____

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