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**Subject:** Uranium Recovery GEIS

1/24/07

72 FR 40344

Attached please find Scoping Comments on Proposed Generic Environmental Impact Statement for ISL Uranium Recovery — 72 Fed. Reg. 40344-40346, July 24, 2007, as amended by 72 Fed. Reg. 61912, November 1, 2007.

Sarah Fields  
Glen Canyon Group/Sierra Club

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November 30, 2007

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RE: Scoping Comments on Proposed Generic Environmental Impact Statement for ISL Uranium Recovery — 72 Fed. Reg. 40344-40346, July 24, 2007, as amended by 72 Fed. Reg. 61912, November 1, 2007.

Below are scoping comments that supplement the Sierra Club comments submitted on September 4, 2007.

1. Any generic or site-specific Environmental Impact Statement must also address the impacts from historical uranium recovery operations. Some of these recovery operations took place in the vicinity of proposed in situ leach uranium recovery operations. Particularly, the Nuclear Regulatory Commission (NRC) must seek information on historical activities at recovery sites that were never licensed or had licenses were not terminated or were not properly terminated under NRC, Atomic Energy Commission (AEC), or Agreement State regulatory oversight.

These include sites where the following uranium recovery activities took place: research and development in situ leach operations, old stope leaching, backfilling of mines with mill tailings, heap leaching, and burning of lignite ores for their uranium content. Some of the sites where these activities took place are "lost;" some are documented as part of licensed activities, but the sites where the activities took place were never reclaimed; and some of the sites were licensed, but little or no reclamation took place. Some of the uranium recovery activities took place at sites that were considered to be uranium mines (some of which were licensed by the AEC), rather than mills, but the uranium recovery activities occurred at the mine site or the mine received mill tailings for backfill.

These historical activities AEC, NRC, and Agreement State oversight must be investigated and documented. Licenses must be properly terminated.

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2. At this time, many of the pertinent documents relating to the uranium recovery activities described above have been retired, so they are not available to the NRC, industry, and the public. The NRC should made documentation related to historical AEC and NRC licenses (both for mines and uranium recovery operations) available for the use of the public, industry, and state, tribal, and federal agencies. Without this information there is no way to properly characterize the background radiological and non-radiological characteristics of proposed operations and the cumulative impacts of past, current, and future uranium recovery activities in these areas.

3. The NRC must also characterize and document the sum of all of the environmental impacts from all of the past uranium recovery activities from licensed and non-licensed uranium recovery activities.

4. The NRC must also identify and remedy past regulatory assumptions and practices that have contributed to adverse environmental impacts from uranium recovery activities. For example, failure to properly require groundwater monitoring in the vicinity of all parts of a mill site (such as ore piles) that might contribute to ground and surface water contamination, failure to require adequate surety, and failure to assure that all of the money from a surety will actually be spent on reclamation (rather than on legal fees and administration, as was the case when the Atlas Corporation filed for bankruptcy for the Moab Uranium Mill).

Thank you for providing an additional opportunity to comment.

Sincerely,

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*Council*, 490 U.S. 360, 391 (1989) (“the broad dissemination of information mandated by NEPA permits the public and other government agencies to react to the effects of a proposed action at a meaningful time.”). Thus, the scope of the GEIS must be extremely limited.<sup>6</sup>

B. The GEIS’ Scope Should be Limited to Cumulative Impacts of Regional ISL Mining.

A GEIS is only appropriate for evaluation of the broad impacts of a proposed major federal action. *Nat’l Wildlife Federation v. Appalachian Regional Comm’n*, 677 F.2d at 888. Those impacts include the cumulative or synergistic effects of a proposal. *Id.* “Cumulative impacts” are defined as impacts from actions, which when viewed with impacts from other current or proposed actions, have cumulatively significant environmental impacts. *Churchill County v. Norton*, 276 F.3d at 1076, citing 40 C.F.R § 1508.25(a)(2). A cumulative environmental impact results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of who undertakes those other actions. *Id.*, citing 40 C.F.R. § 1508.7. Moreover, a proposal which a GEIS evaluates must define precisely the scope and limits of the proposed development and the region to be developed. *Kleppe v. Sierra Club*, 427 U.S. at 402.

Here, the NRC has not produced any information indicating that it is currently or imminently considering an ISL proposal that would be a major federal action. *See*,

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Part 51 regulations to mandate public comment on EAs, it could easily announce that it is rescinding its offer to submit EAs to public scrutiny at some future time. Moreover, the NRC says nothing about the extent or nature of the public input it says it will allow on site-specific EAs.

<sup>6</sup> The environmental reports required by 10 C.F.R. § 51.45 *et. seq.*, does not remedy this situation. Those reports are prepared by the license applicant and therefore have an inherent bias. Moreover, the public does not have the opportunity to comment on these reports, except within the narrow confines of expensive and lengthy NRC adjudications.

Section IV, above. Thus, **before** the NRC should even consider issuing a GEIS on ISL mining, it must, at a minimum, define the region or regions<sup>7</sup> where it anticipates impacts will occur, the extent of anticipated ISL development, the timing of that development, and a coherent plan for licensing and regulating that development.

Only after the NRC has conducted this basic preliminary delineation should it evaluate the cumulative environmental impacts of proposed ISL development on a particular region. Such a cumulative impacts analysis should at a minimum include the cumulative impacts of ISL development on the quantity and quality of regional groundwater supplies, the cumulative impacts on regional airsheds, and the cumulative impacts on regional surface water supplies. Additionally, the NRC should evaluate the incremental impacts of proposed ISL uranium mining combined with the impacts of existing waste from past mining and milling. Further, the NRC should evaluate the combined impacts of ISL mining with proposed conventional mining and milling<sup>8</sup>. Finally, the NRC should evaluate the alternative of regional development of other forms of energy, such as wind and solar and compare the costs and benefits of renewable energy development with those of regional ISL mining for the purpose of providing fuel for nuclear power generation.

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<sup>7</sup> The Notice of Intent indicates that the GEIS is intended to cover ISL operations in the western United States. 70 Fed. Reg. at 40,345. This language remained intact in subsequent revisions of the Notice of Intent. The Notice of Intent does not include any definition of "western United States", nor does it include any indication whether the GEIS will encompass ISL operations in agreement states in the western United States or only non-agreement states. Moreover, this geographic scope, as vague as it is, clearly would not encompass ISL operations proposed in eastern states such as Michigan.

<sup>8</sup> The NRC has indicated that the ISL GEIS may assess the potential environmental impacts of conventional milling. 72 Fed. Reg. at 50,414. To the extent that the ISL GEIS may refer to impacts from conventional milling as a means of comparing them to impacts from ISL mining, the GEIS should not serve as a substitute for rigorous site-specific and regional environmental evaluation of conventional milling.

C. The Proposed GEIS Should Not Address Issues Best Left for Site-specific Analysis.

The very nature of ISL mining makes a GEIS inappropriate for meaningfully evaluating most environmental impacts. Some of the most important environmental analyses that are associated with ISL mining are local, unique, and therefore site-specific. These site-specific considerations cannot, by their very nature, be treated generically, and therefore must be excluded from the GEIS.

1. Hydrogeology is Site-specific and Therefore Unsuitable for Generic Analysis

The most fundamental environmental analysis associated with ISL mining is local hydrology and geology. While some gross generalizations can be made about uranium deposits amenable to ISL mining, i.e., they occur in transmissive and permeable sandstones, any meaningful hydrological and geological analysis on a generic scale is impossible. The NRC itself has acknowledged this fact in its Final Generic Environmental Impact Statement on Uranium Milling: “[B]ecause of the intensely site-specific nature of the chief environmental impacts from in situ extraction, those involving groundwater contamination, the staff does not consider it of value to do further general assessment of such impacts.” *Id.*, NUREG 0706, Vol. II, Sec. 1.1, at A-11. To date, the NRC Staff has offered no explanation nor given any technical reasons why it has now adopted the completely opposite view that a GEIS is suitable for assessing the groundwater impacts of ISL operations.

Local variability of geology, hydrology, faults, fractures, and dependence on groundwater supply is well established. In Kleberg County, Texas, for example, the groundwater flow rates and directions at Uranium Resources, Inc.’s Kingsville Dome ISL

project have been characterized as locally varying. *See*, George Rice, *Report to Kleberg County Citizen Review Board* at 5-6 (June 27, 2006) (“Rice Report”). A copy of Mr. Rice’s report is attached hereto as Exhibit 1. Additionally, the Goliad Aquifer, where the uranium deposits at the Kingsville Dome site are located, was deposited by meandering streams and thus rock grain sizes and permeability may “vary over a wide range.” *Id.* at 5.

The hydrogeology at the Crow Butte ISL project in northwestern Nebraska is likewise unique and locally variable. The geologic layer where uranium is mined at that site, the Basal Sand unit of the Chadron formation, is characterized as extremely variable due to it being the “depositional product of a large, vigorous braided stream system.” Collings, Stephen and Knode, Ralph, *Geology and Discovery of the Crow Butte Uranium Deposit, Dawes County, Nebraska* (1984), <http://www.wma-minelife.com/uranium/papers/crwbtt01.htm>, last visited Sept. 10, 2007. Additionally, the area where the Crow Butte mine is located is characterized by numerous local and regional faults, including the Toadstool Park Fault, the Bordeaux Fault and the White River Fault. *Id.* Clearly, hydrogeology is very site-specific and therefore not suitable for generic analysis. Moreover, the above examples illustrate variability on the local level. Wider, regional geographic areas can be expected to exhibit even greater variability.

2. Cultural Properties are Site-specific and Not Suitable for Generic Analysis

Like geology and hydrology, cultural properties require a site-specific analysis. For example, some ISL sites, such as the Kingsville Dome project, might have very few culturally significant sites. However, other areas where ISL mining is proposed, such as the Mt. Taylor area in New Mexico, have very dense concentrations of culturally

important sites and areas. These can range from individual shrines to the mountain as a whole, along with surrounding geographical features. *See, Benedict, Cynthia, Addendum to Report 2007-03-033, Cultural Resource Survey of 21 Drill Holes and Access Roads located on La Jara Mesa, Cibola County, New Mexico, Tribal Consultation and Designation of Mt. Taylor as a Traditional Cultural Property* (May 31, 2007)<sup>9</sup>, attached hereto as Exhibit 2. Moreover, the specific importance of a particular site can vary from culture to culture. *Id.* Therefore, cultural properties cannot be analyzed generically.

3. Local Water Quality is Site-specific and Not Suitable for Generic Analysis

Another fundamental environmental analysis that is critical for ISL operations is water quality. *See, e.g.,* NUREG-1569, § 2.7.1(4) at 2-21. Water quality is highly variable locally, and can have extreme variations regionally. For example, pre-mining groundwater quality at URI's Kingsville Dome project site has been characterized as poor. Rice Report at Tables 4.1-1 – 4.1-6 at 14-19 and 20. However, even given the overall poor groundwater quality at the Kingsville Dome site, some of the individual wells exhibited drinking water quality groundwater. *Id.* at 20.

Constrast the groundwater quality at Kingsville Dome with the groundwater quality at Crownpoint, New Mexico, the site of Hydro Resources, Inc.'s proposed ISL project. As demonstrated in the final environmental impact statement for that project, the groundwater quality at Crownpoint is excellent and meets all EPA drinking water standards. *See, Final Environmental Impact Statement for the Crownpoint Uranium Solution Mining Project, NUREG-1508* (February 1997), Table 3.12.

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<sup>9</sup> The Forest Service is reconsidering its "no adverse effect" determination made in that report. Personal communication between the New Mexico Environmental Law Center and Cibola National Forest Ranger District.

Groundwater quality is demonstrably variable locally and regionally. It is therefore unsuitable for generic evaluation and should not be included in the proposed GEIS.

4. Socioeconomics are Site-specific and not Suitable for Generic Analysis

Socioeconomics are also highly variable and site-specific. Based on 2000 Census data of some counties where ISL mining is currently conducted, the range of incomes and population demographics is highly variable. For example, while the racial composition of Converse County, Wyoming, site of the Smith Ranch-Highland ISL project, and Dawes County, Nebraska, site of the Crow Butte ISL project, is predominantly white, Kleberg County, Texas, site of the Kingsville Dome ISL project, has a large Hispanic population. A spreadsheet of the income and race data from Census 2000 is attached hereto as Exhibit 3. Compare these populations with those of Church Rock, site of the proposed Crownpoint Uranium Project, which is almost exclusively Native American and the variability is placed in stark contrast. A summary of the racial and economic data of Church Rock is attached hereto as Exhibit 4. However, in Cibola County, New Mexico, located directly adjacent to the county where Crownpoint and Church Rock are located, the white and Native American populations are of roughly equal size, with a substantial Hispanic population. *See Exhibit 3.*

The economic make up of the counties surveyed is likewise heterogeneous. As demonstrated in Exhibit 3, median family income and poverty rates are highly variable between the represented counties. Because socioeconomics are locally and regionally variable, they are unsuitable for generic treatment in the proposed GEIS. That analysis should therefore be excluded from the GEIS' scope.

5. Wildlife and Wildlife Habitat Impacts Are Site-specific and are not Suitable for Generic Analysis

The variety of wildlife and wildlife habitat, as well as the impacts which will occur to individual species, are so site-specific that it would be scientifically invalid to apply any analysis in the GEIS to site-specific conditions, except as general background on impacts. Differences will occur from site to site, as well as region to region. Just the species alone from site to site will vary dramatically, as will the habitat within which individual species dwell. Analysis for the sagebrush sea areas of Wyoming will be unlike analysis for a forested area in Michigan, or creosote habitats in New Mexico. Road building will impact some species more than other; some species will not cross a road. Changes to water quality and quantity will impact some species more than others. Fish and other aquatic species (including plants), for example, will be more sensitive to changes in water conditions than pronghorns. These and many other conditions will vary substantially from site to site, making any analysis in the generic EIS suitable for only the most generalized understanding of environmental impacts to wildlife.

It is not just direct human caused-impacts to wildlife and wildlife habitat which will affect species, although these impacts will be the greatest. Upsetting the ecology of a project area will have potentially long-term indirect and cumulative impacts as well, particularly for species that are already on the brink of existence. These impacts too will vary dramatically from mine site to mine site and thus cannot be adequately analyzed in the GEIS.

D. The GEIS Should Not Include an Environmental Justice Review

Finally, an environmental justice analysis is not appropriate under a GEIS.

Indeed, the NRC concedes as much in its final notice of the NRC environmental justice policy. There, the NRC stated:

The Commission believes it is difficult to foresee or predict many circumstances, if any, in which a meaningful NRC [environmental justice] analysis could be completed for a generic or programmatic EIS given the lack of site-specific information.

69 Fed. Reg. 52,040, 52,046 (Aug. 24, 2004). However, as noted in the Notice of Intent for the ISL GEIS, the NRC is considering including an environmental justice analysis in the GEIS. 72 Fed. Reg. at 40,346.

Including an environmental justice analysis in the GEIS would not only run counter to the Commission's view on the NRC's NEPA responsibilities, it would effectively eliminate any site-specific environmental justice analysis. As shown above in section V.A., if a GEIS is adopted, NEPA would then only require an environmental assessment to be completed for specific proposed ISL projects. *See*, 40 C.F.R. 1508.28. Based on the EA, the NRC would then determine whether to rest on the findings of the GEIS and find that the site-specific project has no significant environmental impact or require a supplemental site-specific environmental impact statement. 10 C.F.R. 51.31. This determination to require a site-specific supplemental environmental impact statement is entirely discretionary. *Van Abbema v. Fornell*, 807 F.2d 633, 637 (7<sup>th</sup> Cir., 1986); 10 C.F.R. 51.92.

In the context of an EA, the NRC has determined that no environmental justice analysis is required except when the proposed project creates a "clear" potential for off-site impacts. 69 Fed. Reg. at 52,045. While the NRC never elaborates on what

constitutes a “clear” potential for offsite impacts, the ISL industry’s and NRC’s penchant for characterizing ISL mine sites as hermetically contained suggests that site-specific environmental justices analysis would become a thing of the past. *See, e.g., In the Matter of Hydro Resources, Inc.*, LBP-99-30, 50 NRC 77, 123 (1999) (Finding the “vastness of the desert” raised serious questions about HRI’s Church Rock operation’s potential adverse effects on nearby residents and that while radiation contamination from past mining was “regrettable” that fact did not bear on new mining). Because environmental justice analyses are likely to be severely limited in the context of ISL operations, the NRC should not include environmental justice in the GEIS and should amend its environmental justice policy to require supplemental environmental impact statements analyzing environmental justice in **every** instance where an operation is proposed in or near an environmental justice community or alternatively, require an environmental justice analysis for every EA in every instance where an ISL operation is proposed in or near an environmental justice community.

## **VI. Conclusion**

For the above reasons, the NRC should do the following with respect to its proposed GEIS:

1. Withdraw the published notices of intent and implement a comprehensive evaluation of ISL milling performance and compliance, particularly the industry’s complete inability to restore groundwater to pre-mining conditions, conducted by an independent, third-party contractor with no ties to the uranium ISL industry or federal nuclear installations.

2. Withdraw the published notices of intent and re-evaluate current NRC licensing practices that jeopardize human health, safety and the environment.
3. Based on the results of the aforementioned evaluations, formulate a coherent proposal for a major federal action upon which a GEIS could be based. The proposal must include the regional geographical boundaries of proposed ISL development and the expected extent and nature of future ISL development.
4. Prior to determining whether a GEIS is warranted, the NRC should engage in meaningful government to government consultations with potentially affected Indian tribes.
5. If an ISL milling GEIS is found to be warranted, begin the NEPA process again for a GEIS that is limited to the regional cumulative and synergistic impacts of proposed ISL mining.
6. If an ISL milling GEIS is found to be warranted, the NRC should also amend its environmental justice policy to require a supplemental EIS for every operation proposed in or near a low-income or minority community. Alternatively, the NRC should amend its environmental justice policy to require that every EA include an environmental justice analysis for any ISL operation proposed in or near a low-income or minority community.

Thank you for this opportunity to comment on the proposed ISL GEIS.

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