

August 18, 2010

Ms. Carol Rushin
Acting Regional Administrator
U.S. Environmental Protection Agency
Region 8
1595 Wynkoop Street
Denver, CO 80202-1129

SUBJECT: RESPONSE TO ENVIRONMENTAL PROTECTION AGENCY, REGION 8,
MARCH 3, 2010, COMMENT LETTER REGARDING IN-SITU URANIUM
RECOVERY SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENTS

Dear Ms. Rushin:

This letter responds to issues raised in your letter of March 3, 2010, regarding the three Draft Supplemental Environmental Impact Statements (SEISs) that the U. S. Environmental Protection Agency Region 8 (EPA) reviewed. In that letter, EPA expressed two primary concerns with the draft SEISs: (1) the narrow range of the wastewater disposal alternatives considered in the SEISs along with the limited discussion regarding waste management impacts; and (2) the lack of information regarding potential air emissions. In addition, EPA also raised concerns regarding the potential establishment of alternative concentration limits (ACLs) as groundwater restoration targets prior to completion of groundwater restoration, and the consideration of climate change and greenhouse gas emissions in the SEISs.

From March through August 2010, the U. S. Nuclear Regulatory Commission (NRC) staff participated in multiple teleconferences with EPA to better understand EPA's concerns and to share NRC's approach to address issues identified in the March 3, 2010 letter. NRC staff also met with EPA staff on March 30, 2010. The NRC appreciates EPA's review and comment.

With regard to the wastewater disposal options, the NRC considers that an applicant may choose amongst a range of options. The NRC does not mandate the type of disposal method utilized at in-situ uranium recovery (ISR) facilities. The granting of a NRC license requires the licensee to comply with all legally required permits, and facility operations will not commence until all required permits are in place. The NRC reviews the applicant's proposed disposal option to determine the environmental impacts; and in the case of Class I disposal wells, the license would be conditioned that the licensee cannot operate until receiving State approval for the proposed disposal method.

If a Class I disposal well permit is not issued by the State, an applicant could not operate until it had submitted, and NRC approved, a license amendment proposing an alternate disposal option. The impacts associated with the revised disposal option would be assessed in NRC's environmental review of the license amendment request. Nonetheless, in an attempt to address EPA's concern, as noted below, we have added information to discuss wastewater disposal options in the final SEIS for each facility.

NRC developed the Generic Environmental Impact Statement (GEIS) to assess the potential environmental impacts associated with the construction, operation, aquifer restoration, and decommissioning of an ISR facility located in four specific geographic regions of the western United States. During the development of the GEIS, NRC accepted public comments on the scope of the GEIS and held three public scoping meetings. As a result, NRC uses the GEIS to determine scope of environmental review for a site-specific ISR license application. The site-specific SEIS tiers, and incorporates by reference, from the GEIS relevant information, findings and conclusions concerning potential environmental impacts. NRC evaluates the license application, and other site specific information to assess the extent to which NRC can incorporate the GEIS information, findings and conclusions into the SEIS or make independent site-specific findings. The extent to which GEIS impact conclusions are incorporated into a site-specific SEIS depends on the consistency between the license applicant's proposed facility and activities and conditions at the proposed site, and the reference facility description and conditions evaluated in the GEIS.

Some issues identified in the March 3 letter, specifically, impacts to air quality from operating an ISR facility, and alternative wastewater disposal methods, were also considered in the GEIS. However, the NRC recognizes that the incorporation of GEIS information into the site-specific review may not have been clear. This issue has been addressed in all three final SEISs, which include additional analyses and information to address EPA's concerns as discuss below.

(1) Wastewater Disposal Analysis

A range of wastewater disposal alternatives were discussed in Sections 2.7 and 4.2.12.2 of the GEIS. Wastewater disposal practices that the NRC has previously licensed at specific sites include evaporation ponds, land application, and deep well injection. The GEIS concluded that the combination of state permitting actions, NRC license conditions and NRC inspections ensure that proper practices would be used to comply with safety requirements to protect workers and the public. The GEIS described the environmental impacts of wastewater disposal via these various methods and concluded that waste management impacts would be SMALL for all disposal alternatives.

The NRC staff's site-specific review of deep well injection as a wastewater disposal method is limited to ensuring that the radiological dose requirements in 10 CFR Part 20 (20.2002) are met. As discussed in Section 1.7 of the GEIS, an Underground Injection Control (UIC) permit from EPA or the appropriate State agency, and an aquifer exemption from EPA are required for a licensee to use this wastewater disposal method at a specific site. The NRC's review of this wastewater disposal method is to ensure compliance with the dose limits in 10 CFR Part 20. The State of Wyoming's review and approval process for the UIC permit verifies that site-specific and regional aquifer characteristics limit the potential to contaminate underground sources of drinking water. A State UIC permit will not be issued if the discharge will either cause or contribute to the violation of State water quality standards.

For each of the three proposed ISR projects in Wyoming, if granted, an NRC license condition will require the licensee or applicant to obtain a State Class I UIC injection well permit before operations begin. (For example, on May 28, 2010, the Wyoming Department of Environmental Quality (WDEQ) finalized its approval of the Class I UIC permit authorizing Ur-Energy to drill, complete and operate up to five Class I injection wells at the Lost Creek site.) If the State does not grant a permit to the licensee (or applicant), the licensee (or applicant) would be required to

submit a license amendment request for NRC review and approval of a different wastewater disposal method before beginning operation. NRC would perform both safety and environmental reviews of the applicant's new wastewater disposal proposal. The final SEISs clarify this point.

In summary, when the impacts of waste disposal alternatives are similar, the NRC does not mandate, nor would the environmental analysis dictate, the particular type of wastewater disposal method utilized at an ISR facility. However, the NRC requires the license application to propose a wastewater disposal option for NRC's evaluation of the licensing request. If Class I UIC disposal is the proposed disposal option, then NRC conditions the license to require the licensee to obtain a UIC injection well permit before deep well injection and well field operations commence. By conditioning the license on the applicant getting necessary permits, the NRC can assure that the use of the selected option falls within the evaluation of environmental impacts for wastewater disposal options included in the GEIS.

In response to EPA comments, NRC has provided additional information on wastewater disposal options (e.g. evaporation ponds, land application, surface water discharge and Class V injection wells) in Chapter 2 of the final SEISs. Chapter 4 has also been revised to include a description of potential environmental impacts from implementing the alternative wastewater disposal options and a chart that compares the potential impacts and requirements.

In addition, EPA comments indicate that potential impacts from disposal of non-radioactive constituents (barium, cadmium, mercury, selenium) in liquid wastes were not adequately addressed, given the anticipated volumes and available methods. EPA commented that additional analysis was needed, including the potential cost to remove these other potentially harmful non-radioactive constituents, to address this concern. Under the Uranium Mill Tailings Radiation Control Act of 1978 and NRC implementing regulations, 11e.(2) byproduct material consists of either the tailings or wastes associated with the extraction of uranium or thorium for its source material content. These wastes include both radiological and associated non-radiological constituents. Therefore, the non-radiological constituents are components of the liquid 11e.(2) byproduct material to be disposed of via deep well injection or by other methods and therefore, separate remediation plans and costs for the non-radiological constituents are not required.

(2) Air Quality Impacts

The potential impact to air quality from drill rig engine emissions, fugitive dust emissions and emissions from processing operations are described in Sections 4.2.6.1 through 4.2.6.4 of the GEIS which characterized potential emissions during each phase of the ISR lifecycle.

To evaluate the potential impact on air quality from a large, commercial-scale ISR facility, Table 2.7-2 of the GEIS provides the annual total releases and average air concentrations of particulate (fugitive dust) and gaseous (diesel combustion products) emissions estimated for the construction phase of the Crownpoint, New Mexico ISR facility. These annual emissions are below the major source threshold for National Ambient Air Quality Standards (NAAQS) attainment areas. For the ISR facility lifecycle, the primary emissions sources are from diesel powered drilling and construction equipment. Section 1.7.2 of the GEIS also notes that operating ISR facilities are not major point source emitters and, therefore, are unlikely to be classified as major sources under the Title V permitting program.

In response to EPA's concern regarding air emissions, the NRC staff developed a site-specific emissions inventory to assess potential impacts on air quality. This analysis considered fugitive dust emissions and estimated emissions from diesel-powered drilling and construction equipment. Appendix D of the final SEISs provides details of the diesel emissions calculations. Section 2.1.1.1.6.1 and Section 4.7 of the final SEISs provide a site-specific analysis of air quality impacts. The results of the site-specific emission analyses support the GEIS conclusion that ISR facilities are not major sources of airborne emissions. The impact conclusion (SMALL impacts to air quality) from the draft SEISs remains valid.

While the staff's analysis of emissions within the context of Clean Air Act (CAA) regulations assesses the potential environmental impact on air quality, as required under the National Environmental Policy Act (NEPA) of 1969, the WDEQ has the authority to enforce the State implementing regulations under the CAA. The WDEQ would take the appropriate corrective actions to reestablish air quality attainment in protected areas should air quality become degraded.

With respect to additional EPA concerns identified in the March 3, 2010, letter, NRC responds as follows:

(1) Groundwater Restoration Targets

EPA commented that the SEISs do not fully assess the operational requirements and constraints associated with restoration activities. In particular, EPA indicated that NRC's use of ACLs could result in groundwater restoration values that are above baseline or EPA's maximum concentration limits (MCL). After production is complete, the licensee is required to initiate aquifer restoration activities to return the water quality within the production zone and any affected aquifers to pre-operational (baseline) water quality conditions or MCLs. If achieving these two aforementioned standards is not practically achievable at a specific site, then under EPA standards and NRC implementing regulations, the licensee may apply for an ACL which is a separate license amendment request subject to environmental review by NRC staff prior to approval. NRC's position continues to be that the use of ACLs is appropriate in cases where baseline conditions cannot be met, as long as the ACLs are protective.

For any given groundwater constituent, licensees and applicants are subject to the three ground water quality standards listed in 10 CFR Part 40, Appendix A Criterion 5B (5) – background, MCL or ACL. Under Criterion 5B (5), the concentration of a hazardous constituent must not exceed (a) the NRC- approved background concentration of that constituent in ground water; (b) the respective MCL value in the table in paragraph 5C if the constituent is listed in the table and if the background level of the constituent is below the value listed or; (c) an ACL established by the NRC. Under Criterion 5B(6), requests for ACLs would only be considered after an applicant has demonstrated that restoring the constituent at issue to background or MCL values is not practically achievable at a specific site. Only ACLs that present no significant hazard may be proposed by applicants for NRC consideration. The NRC may establish a site specific ACL for a hazardous constituent if it finds that the proposed limit is as low as reasonably achievable, after considering practicable corrective actions, and that the constituent would not pose a substantial present or potential hazard to human health or the environment as long as the ACL is not exceeded. Appendix C of each final SEIS contains a detailed discussion on both the development and NRC's review of ACLs.

(2) Climate Change and Greenhouse Emissions

EPA also suggested that the SEISs contain an expanded discussion of climate change and greenhouse gas (GHG) emissions. Section 5.7.1 of the final SEISs discusses climate change and GHG emissions to the extent practicable given the Council on Environmental Quality's (CEQ) recent draft guidance on this issue.

We have discussed the potential impact of GHG emissions on the global climate, which included the calculated annual and cumulative CO₂ emissions from the applicant's use of diesel construction equipment during construction and decommissioning of the production well fields and facilities. Because operating ISR facilities are not major sources of CO₂ or other GHG emissions, the construction equipment emissions (including well drilling rigs) produced during both construction and decommissioning phases represent the majority of GHG emissions. The emissions estimates are documented in a new Appendix D and summarized in Section 2.1.1.1.6. Section 5.7.1.2 considers the potential cumulative impact on climate from the projected emissions proposed action emissions together with those from other past, present, and reasonably foreseeable future actions.

NRC believes that the final SEISs adequately address EPA's concerns and that revised draft SEISs need not be made available for public comment.

Sincerely,

/RA/

Larry W. Camper, Director
Division of Waste Management
and Environmental Protection
Office of Federal and State Materials
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cc: Larry Svoboda
James Hanley

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