

March 12, 2009

Mr. Michael Thomas
Environmental, Safety, and Health Manager
Uranerz Energy Corporation
1701 East "E" Street
P.O. Box 50850
Casper, WY 82605-0850

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION REGARDING THE URANERZ
ENERGY CORPORATION'S NICHOLS RANCH IN-SITU RECOVERY
PROJECT LICENSE APPLICATION ENVIRONMENTAL REPORT
(DOCKET NO.: 040-09067)

Dear Mr. Thomas:

By letter dated November 30, 2007, Uranerz Energy Corporation, (Uranerz) submitted a Source Materials License application to the U.S. Nuclear Regulatory Commission (NRC) staff for the Nichols Ranch In Situ Recovery (ISR), also known as in situ leach (ISL), Project, a proposed ISR facility in Johnson and Campbell Counties, Wyoming. By letter dated April 14, 2008, the staff informed you that we completed our acceptance review of your application and found it acceptable for technical review. NRC staff has now completed a detailed review of the Environmental Report supporting your application. The staff has determined that additional information is needed to complete the review of your license application.

The staff's Request for Additional Information (RAI) are enclosed. Within 30 days, please either provide the information requested or provide a schedule for submitting the information requested. Please note that untimely responses to this RAI could delay completion of the environmental review.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice for Domestic Licensing Proceedings and Issuance of Orders," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

M. Thomas

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If you have any questions concerning this letter, please contact me, either by telephone at (301) 415-7777 or by e-mail at ron.linton@nrc.gov.

Sincerely,

/RA/

Ron C. Linton, Project Manager
Uranium Recovery Licensing Branch
Division of Waste Management
and Environmental Protection
Office of Federal and State Materials
and Environmental Management Programs

Docket No.: 040-09067

Enclosure: As stated

cc: G. Mooney, WDEQ
M. Rogaczewski, WDEQ
D. McKenzie, WDEQ
P. Beels, BLM
E. Heffern, BLM
B. Rogers, FWS

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**Request for Additional Information
Regarding the Uranerz Energy Corporation's
Nichols Ranch ISR Project License Application
Environmental Report**

This Request for Additional Information (RAI) contains questions identified by the U.S. Nuclear Regulatory Commission (NRC) staff during its review of Uranerz Energy Corporation's (Uranerz) Nichols Ranch In Situ Recovery (ISR) Project License Application Environmental Report (ER). Because in some cases more information is presented in Uranerz Energy Corporation's Nichols Ranch ISR Project License Application Technical Report (TR) than in the ER, some of the questions may refer to sections of the TR. In this RAI, staff refers to the Nichols Ranch ISR Project, which consists of the Nichols Ranch Unit and the Hank Unit. In various portions of the RAI, the staff may request information for the entire Nichols Ranch ISR Project or for the Nichols Ranch Unit and Hank Unit, individually. The questions are organized and numbered by resource areas.

Air Quality

AIR-1 ER Section 3.6.2.2. The ER states that "Particulate emissions associated with the Nichols Ranch ISR Project will also be minimal." However, emission calculations are not provided for each phase of the proposed project.

- a) Provide emission estimates for vehicle traffic during each phase of the proposed project (construction, operation, decommissioning, aquifer restoration) including assumptions (i.e., number of vehicles, types of vehicles, fuel usage, type of fuel).
- b) Provide information on where the fuel may be stored and what leak protection would be available for the fuel storage.
- c) Provide information on the method of dust suppression during construction.

Alternatives

ALT-1 ER Section 2.2.1. Provide background information to justify the selection of the locations of the central processing plant, satellite facility, and roads. If other locations were considered, provide details on those locations and a justification for why those locations were less preferable to the chosen location.

ALT-2 ER Section 2.2.4. Provide additional physical details (i.e., approximate size, location, operations) on the two liquid effluent disposal alternatives to deep well injection (evaporation ponds and overland application) and the potential impacts resulting from these alternatives.

ALT-3 ER Section 2.0. Provide information as to why both units were considered for the Nichols Ranch Project instead of just the Nichols Ranch Unit or the Hank Unit.

ALT-4 ER Section 2.0. The ER states that the facilities were "located off of the ore zone on the most topographically suitable land within the project area" and that "the ease of access

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with the minimum disturbance was considered in selecting the plant locations.” Provide additional information on your site-selection process to support these statements.

Cultural Resources

- CR-1 ER Section 3.8. The applicant has not provided sufficient information regarding cultural resources to fully understand the potential impacts.
- a) Clarify if a cultural resources assessment was completed for the proposed access roads and permanent routes used to access the facilities.
 - b) Provide a complete description of any structure present within the boundaries of Site 48J02951 (homestead) and the results of any visual assessment completed for these buildings (if present) relative to the proposed project facilities. If the response contains sensitive information, please mark the sections in your response accordingly.
 - c) Provide the results of any visual assessment completed for Site 48CA6474 (rockshelter) relative to the proposed project facilities. If the response contains sensitive information, please mark the sections in your response accordingly.
 - d) Explain why only 240 acres of the proposed project site were included in the Class III cultural resources survey. If additional surveys have been completed, provide that information.

Cumulative Impacts

CUM-1 ER Section 2.3. Provide a map showing the current location of all coal-bed methane infrastructure within the Nichols Ranch Project area.

Ecology

ECO-1 Various sections of the ER state that some of the pipelines will be buried. Provide information on how many feet of pipeline will be placed aboveground, if any, and the potential for aboveground pipeline to impede wildlife migration.

ECO-2 Other sections of the ER state that livestock grazing and wildlife habitat will be excluded in areas of construction and site preparation activities. Please provide information as to how wildlife and livestock will be excluded (e.g., fencing) from these areas.

ECO-3 In ER Section 4.7.1.1.2.7, the ER states that “Forty raptor nests occur within the wildlife study area, of which 14 were determined to be active. Twelve of the 14 active nests were located in the Hank Unit and two of the active nests were located in the Nichols Ranch Unit.” However, TR Appendix D9 Section D9.2.8.2 states that “...40 raptor nests were found within the project area...of which 10 were determined to be active. Nine of the 10 active nests are located in the Hank Unit and one of the active nests is located in the Nichols Ranch Unit.” Clarify this discrepancy and provide the accurate number of active raptor nests within the Hank Unit and the Nichols Ranch Unit.

Geology and Soils

GEO-1 Provide information on how freezing and thawing issues related to the maintenance of header houses (i.e., a possible break in aboveground piping) will be addressed to minimize impacts to soils.

Land Use

LU-1 ER Section 3.1.2. The ER and TR state that the potential of drawdown extends several miles beyond the permit area near and around the Nichols Ranch Unit. The applicant has not provided sufficient information to fully understand the potential impacts due to this large drawdown area.

- a) A list and map of all potable and non-potable water resources related to residential, commercial, industrial, and public lands one mile beyond the predicted drawdown area identified in TR Section 7.2.3 for the proposed Nichols Ranch Unit.
- b) A list and map of the predominant activities conducted on each individual land parcel (e.g., grazing, oil & gas, coal-bed methane) that may involve potable or non-potable water sources one mile beyond the predicted drawdown area identified in TR Section 7.2.3 for the proposed Nichols Ranch Unit.
- c) A list and map of recreational sites and activities that may involve potable and non-potable water sources one mile beyond the predicted drawdown area identified in TR Section 7.2.3 for the proposed Nichols Ranch Unit.

LU-2 ER Section 3.1.2. Provide the details of any landowner/BLM agreements regarding the termination of grazing leases due to the proposed ISR operations.

LU-3 Provide a map showing the location of all utility lines onsite and specify whether or not these lines will be buried.

LU-4 ER Section 4.1.1. The applicant states that all topsoil removed during construction will be stockpiled in a designated location. For each phase of the proposed project (construction, operation, decommissioning, and aquifer restoration), provide the estimated volume and onsite storage location for the stockpiles.

Noise

NOI-1 ER Section 3.7. The ER states that noise produced above background levels will be limited. However, no background levels are provided.

- a) Please provide field noise measurement data to determine background ambient sound levels.
- b) If no field measurements were taken, provide the methodology of how the ambient background sound levels were determined to assess noise impacts.

NOI-2 ER Section 4.9.1. The ER states that “noise is created by the construction/drilling activities in the wellfield, from truck traffic for the operation, and from the operation of the processing plants...” However, no projections of noise levels were provided for the proposed project.

- a) Provide projections of typical equipment and their reference sound levels that would be associated with activities during each phase of the proposed project.
- b) Provide estimated daily or peak hour traffic volumes and number of trucks on local roadways that will be utilized daily during each phase of the proposed project.

Public and Occupational Health

POH-1 ER Section 3.11.1. The ER provides a general description of natural background radiation; however, it does not address the specifics for Wyoming and the surrounding environmental for the proposed facilities. Provide additional information indicating whether or not the background radiation or radioactive levels for the site are different than that assumed otherwise for Wyoming and or the normal background exposure.

POH-2 ER Section 3.11.2. A statement is made in the ER that “Emission rates for these chemicals are well below the threshold that would trigger a permit.” Provide a comparison of the annual use, projected air emissions and concentrations, and applicable permit levels to substantiate the above statement.

POH-3 ER Section 3.11.3. Table 3.10 presents the results of calculated annual doses at the facility site boundary and members of the public for demonstrating compliance with the public dose limit. This assessment appears to be based on information presented in TR Appendix D11 with Section D11.5 providing limited information on assumptions used for the modeling. Additional information/bases is needed to describe/document the modeling used for estimating source term and basis for the various pathway modeling parameters used in the MILDOS-Area modeling.

- a) Provide details of the modeling and basis for selection of assumptions used for calculating the source term in TR Appendix D11 Section D11.5.7, the transport and exposure assumptions in TR Appendix D11 Section D11.5.5, and the meteorological parameters in TR Appendix D11 Section D11.5.6.
- b) Provide the bases for selection of the modeling parameters as summarized in TR Appendix D11 Tables D11.17 and D11.18.

POH-4 ER Sections 3.12 and 4.15. The ER identifies types of radioactive solid and liquid wastes anticipated to be generated during plant operation; however, limited information is provided on anticipated generation rates (annual volumes). Provide additional information on anticipated generation of liquid and solid radioactive wastes, chemical wastes, and mixed wastes, including wastes from potential site-contaminating events.

POH-5 TR Section 7.5. The TR states that since the NRC has performed a complete analysis of accidents in NUREG/CR-6733 and NUREG-0706, a facility-specific analysis of

potential accidents was not performed. Provide additional information that demonstrates that the proposed facility design and operating conditions are reasonably bounded by the two NRC NUREG documents or provide a site-specific evaluation.

POH-6 ER Section 4.2. The ER provides an evaluation of a hypothetical transportation accident using NUREG-0706 as the basis. One of the mitigation measures proposed for a transportation accident is the use of a referenced “Uranerz Energy Corporation Incident Response Guide”; however, no specifics are provided as to the content of this guidance document.

- a) Provide sufficient detail for this guide indicating it’s effectiveness as a mitigation measure.
- b) The ER states that “The carrier will also be required to maintain accident response capability to specifically include spill response.” Provide details for assessing the effectiveness of such identified measures.

POH-7 TR Section 4.2.1. The TR discusses the use of deep well injection for disposal of byproduct liquid waste. Per 10 CFR 20.2002, provide a technical justification or an evaluation of potential radiological impact for such disposal addressing proposed total radioactivity and potential radiological doses to members of the public for any feasible exposure pathways.

POH-8 ER Section 6.1. The ER includes an in-depth evaluation of data from the baseline radiological environmental monitoring program. However, it is unclear if this program is to be continued during operations. Provide details on the proposed operational program, including sampling media, sampling locations (with an accompanying map), frequency of sampling, types of analyses, detection levels, and quality control measures.

POH-9 ER Section 6.1.1. The ER presents results from the baseline radiological monitoring program. Several locations within the Nichols Ranch Unit and Hank Unit were identified with elevated levels of radioactive materials, predominantly Ra-226, which was attributed to previous exploration activities. Provide an evaluation of impacts from these elevated levels/areas to public and worker dose.

Socioeconomics

SOC-1 ER Section 4.12.1. The ER states that Uranerz “anticipates employing approximately 45-55 people” when the project is up and running. Provide an estimated breakdown in the number of employees needed for each phase of the proposed project (construction, operation, decommissioning, and aquifer restoration).

Surface Water and Wetlands

SW-1 TR Section 2.7.1. The applicant has not provided sufficient information on surface water features for staff to fully understand potential impacts from the ISR operation.

- a) Provide a map showing the locations of all natural and artificial surface water channels and ponds, specifically indicating if it is a natural or artificial feature.
- b) The terms “intermittent” and “ephemeral” appear to be used interchangeably in the TR and ER. Please confirm and identify on the map any channels with intermittent flow.

SW-2 TR Section 2.7.1.3. The applicant relies upon previous reporting from data collected decades ago.

- a) Provide justification for reliance on old data.
- b) If available, provide more recent monitoring data.
- c) Provide a map showing the locations of the 1970s water quality samples and if available, the locations of recent sampling.
- d) Provide the methodology used for the recent water sampling.

SW-3 TR Appendix D10. “Waters of the U.S.” are surface water features that fall under the jurisdiction of the Army Corps of Engineers (Corps) through the Clean Water Act.

- a) Provide a map showing all “Waters of the U.S.” and wetlands as defined by the Corps. Provide labels on the map to distinguish between ephemeral channels and man-made or natural ponds onsite.
- b) Several National Wetlands Inventory wetlands classified as Palustrine Emergent wetlands are not included in the delineation inventory in Appendix D10. Provide descriptions with supporting data to justify their exclusion as surface waters/wetlands.

SW-4 TR Section 7.2.1. This section provides generalities regarding location of proposed work in relation to surface water features and wetlands. Specific locations or blocks of areas will be needed to determine impacts to wetlands.

- a) Provide a detailed map showing proposed well locations, new road work, underground piping, utilities, and processing plants in relation to all channels, wetlands and ponds. If details are unknown, please show on the detailed map the areas where they might occur.
- b) Estimate the number of injection and processing wells that may be placed in surface water features and the approximate distance between wells.
- c) Quantify the number of new road crossings, pipe crossings, utility crossings, and buildings that may be placed in surface water features.
- d) Provide justification for the encroachments and steps taken to avoid, minimize, and mitigate such impacts.

Transportation

TRA-1 ER Section 3.2. The ER describes current road conditions and maintenance schedules; however additional information is necessary to accurately characterize transportation impacts. Specifically, please provide the following information:

- a) Specify the potential destinations of the dried yellowcake, the radioactive waste, and the non-radioactive waste.
- b) Specify the approximate transportation routes for shipment of the dried yellowcake, radioactive waste, and non-radioactive waste to be used during construction, operation, aquifer restoration, and decommissioning.

TRA-2 ER Section 4.3.2. The ER states that “on-site and local roads would be plowed, maintained, and improved as necessary.” Additional information is necessary to adequately assess the proposed mitigation strategies. Discuss how the onsite and local roads will be maintained throughout the life of the project.

Waste Management

WM-1 ER Section 3.1.2. The ER mentions the use of approved septic systems for sanitary wastes from restrooms and lunchrooms. Provide the approximate location and size of the septic system leach field.