February 18, 2015

MEMORANDUM TO: Bill Von Till, Chief
Uranium Recovery Licensing Branch
Division of Decommissioning, Uranium Recovery,
and Waste Programs
Office of Nuclear Material Safety
and Safeguards

FROM: David Brown, Sr. Health Physicist **/RA/**
Uranium Recovery Licensing Branch
Division of Decommissioning, Uranium Recovery,
and Waste Programs
Office of Nuclear Material Safety
and Safeguards

SUBJECT: SUMMARY OF FEBRUARY 4, 2015 MEETING WITH URANERZ ENERGY CORPORATION

On February 4, 2015, the U.S. Nuclear Regulatory Commission (NRC) staff met with representatives of Uranerz Energy Corporation to discuss its application for an amendment to its source materials license for the Nichols Ranch In Situ Recovery Project. The associated meeting notice was issued on January 22, 2015, and is available at NRC's Agencywide Documents Access and Management System (ADAMS) Accession No. ML15022A181. A summary of the meeting is enclosed.

Docket No.: 040-09067

Enclosure: Meeting Summary

CONTACT: David Brown, NMSS/DUWP
(301) 287-9110

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OFFICE	DWUP	DWUP	DWUP	DWUP	DWUP
NAME	DBrown	SAchten via email	EStriz via email	RLinton via email	DBrown
DATE	02/10/15	02/11/15	02/12/15	02/12/15	02/18/15

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MEETING SUMMARY

DATE:	February 4, 2015
TIME:	9:00 a.m. – 11:00 a.m., EST
PLACE:	The U.S. Nuclear Regulatory Commission Three White Flint North, North Bethesda, MD Room 1D09
PURPOSE:	To discuss the Uranerz Energy Corporation May 8, 2014 license amendment request for the Nichols Ranch In Situ Recovery Project
ATTENDEES:	See attached list

BACKGROUND:

On May 8, 2014, Uranerz Energy Corporation (Uranerz) submitted an application to amend its Source Material License for the Nichols Ranch In Situ Recovery Project to include licensed activities in a proposed Jane Dough Unit located immediately south of, and contiguous with, the Nichols Ranch Unit (Agencywide Documents Access and Management System (ADAMS) Accession Number ML14164A274). On September 11, 2014, NRC staff informed Uranerz that the application is publicly available in ADAMS and that staff had begun an acceptance review (ADAMS Accession Number ML14251A346). On November 25, 2014, staff informed Uranerz that its application was deficient due to lack of sufficient information regarding the coalescing of the A and B Sands on the eastern side of the proposed Jane Dough Unit (ADAMS Accession Number ML14317A447).

On December 9, 2014, Uranerz and NRC staff met to discuss the issues identified in the staff's November 25, 2014, letter. NRC proposed four path forward options and the summary of this meeting is available at ADAMS Accession Number ML14345A959. On January 19, 2015, Uranerz responded to the NRC staff's November 25, 2014 letter, stating that it plans to submit revised documents by the end of February, if the NRC is agreeable to revised analyses, which Uranerz proposed to discuss at a meeting during the first week of February 2015 (ADAMS Accession Number ML15022A263). On February 4, 2015, Uranerz and NRC staff met to discuss Uranerz's revised analyses. This is a summary of the February 4, 2015, meeting.

DISCUSSION:

Mr. David Brown, NRC Sr. Health Physicist, opened the meeting with a statement on the purpose of the meeting and introductions.

Hydrogeology

Mr. Mike Thomas, Uranerz, explained how Uranerz plans to revise its May 8, 2014, application to address concerns discussed at the December 9, 2014, meeting.

The following exhibits from the May 8, 2014 application were used to illustrate the issue:

Enclosure

- Exhibit JD-D5-1, “Jane Dough Unit North-South Cross Section A-A’,”
- Exhibit JD-D5-2, “Jane Dough Unit North-South Cross Section B-B’,” and
- Exhibit JD-D5-10, “Jane Dough Unit West-East Cross Section J-J’”.

Mr. Thomas explained that, of the four options described in the NRC staff’s December 9, 2014, meeting summary, Uranerz proposes a revised approach that is a hybrid of Options 2 and 3. That is, Uranerz will define the production zone as the AB sand where the A and B sand have coalesced and there is no confining unit (aquitard) between the A sand and the overlying B sand. Over most of the AB sand, the overlying aquifer to be protected would normally be the F sand aquifer, the bottom of which is separated from the top of the B sand by no less than 100 feet of aquitard.

Mr. Tom Michel, Hydro-Engineering, a Uranerz contractor, explained how Uranerz has revised the 5-layer model described in Addendum 3D of the Uranerz technical report, “Jane Dough Site Numerical Groundwater Modeling” (ADAMS Accession Number ML14164A313). In the revised model, the three distinct ore zones are identified in the A sand as layers one, two and three (or upper, middle, and lower ore zones) with two additional layers defining the B sand. Based on the modeling, Mr. Michel explained that Uranerz has decided to join the A and B sands as one production ore zone for the east side of the license area in Production Area No. 2. Mr. Michel explained that Uranerz does not intend to mine the upper ore zone in Production Area No. 1 (west side of Jane Dough), where the A and B sands are generally separated by an aquitard.

NRC staff stated that, given this change in the definition of the ore zone in Production Area 2, Uranerz would need to identify and characterize a different overlying aquifer. Mr. Bruce Larson, Uranerz, described the possible candidates for overlying aquifer using draft isopach maps that he brought to show NRC staff. These maps showed the thickness and extent of overlying C, F and G aquifers in the Jane Dough Unit. Mr. Larson demonstrated that the C sand is the closest sand overlying the combined A and B sand production zone, but is very discontinuous and absent or thin over the license area. In addition, Mr. Michel stated the transmissivity of the C sand was measured at about 1 gallon per day per foot. NRC staff stated this low transmissivity may not meet the NRC definition of an aquifer. The next overlying sand is the F sand, which is saturated and continuous, and may be a suitable candidate.

NRC asked Uranerz to provide an updated discussion of the selection of overlying aquifer for Production Area 2 in the revised application, including pumping tests which show isolation of the selected aquifer from the combined A and B sand production zone and a description of the background water quality of the selected aquifer. The staff and Uranerz discussed the results of existing license area pumping tests, in which water levels in overlying aquifers were monitored for changes while water was pumped from the A and AB sand aquifers. One of the pumping tests conducted in Production Area 2 indicated no hydrologic response in the overlying F sand. NRC staff indicated this pumping test could be used to support the isolation of the F sand if it is selected as the overlying aquifer in Production Area 2. If additional information is needed to characterize the overlying aquifer, which can only be obtained from wellfield installation and aquifer testing of Production Area 2, NRC requested that Uranerz provide a discussion as to why characterization should be deferred until wellfield testing is completed and make a commitment to perform this evaluation in the revised application.

Dr. Elise Striz, NRC, summarized that in the amended application, Uranerz should, among other things, revise and provide the following items for each selected proposed production area: a comprehensive description of the ground water modeling (including electronic files); a description of the proposed network of monitoring wells including location (density) and screen

intervals; an estimate of the bleed rate required to maintain an adequate inward gradient; and an estimate of the flare and estimated pore volumes for restoration. Dr. Striz also explained the applicant should be aware that in the case where restoration of a constituent within the wellfield cannot achieve background or maximum contaminant levels (MCLs), an alternate concentration limit (ACL) may be proposed. However, an ACL application requires that the licensee demonstrate that if the constituent meets the ACL within the restored wellfield, the groundwater quality will meet background or MCLs (whichever is higher) at the point of exposure (POE) which is currently defined as the edge of the aquifer exemption boundary. Dr. Striz explained that the applicant should be aware that the POE applies at the horizontal and vertical aquifer exemption boundary. Dr. Striz also informed Uranerz that for an ACL to be approved, Uranerz will need to perform a hazard and risk assessment for potential future users at the POE.

PUBLIC DISCUSSION:

Mr. Mark Rogaczewski, Wyoming Department of Environmental Quality (WDEQ) sought clarification of NRC's position on the application of ACLs.

Ms. Kerry Aggen, BLM, and Mr. Stephen Cohen, SENES Consultants, also asked NRC staff to clarify its position on the application of ACLs.

Ms. Ruth Thomas, Environmentalist Inc., asked about cattle feed grown at or near the Nichols Ranch ISR project. Ms. Thomas also asked for more information about the project. Mr. Brown committed to call Ms. Thomas later to discuss what additional information Ms. Thomas would like and provide that information.

ACTION ITEMS:

As stated in its January 19, 2015, letter, Uranerz plans to complete and submit revisions to the Jane Dough amendment application by the end of February 2015.

ATTACHMENT: Meeting Attendees

MEETING ATTENDEES

Date: February 4, 2015

Topic: Meeting between Uranerz Energy Corporation and U.S. Nuclear Regulatory Commission on Nichols Ranch License Amendment to Expand Operations to the Jane Dough Unit

Name	Affiliation
Dave Brown	NRC
Elise Striz	NRC
Jill Caverly	NRC
Ron Linton	NRC
Bruce Larson	Uranerz
Mike Thomas	Uranerz
Dawn Kolkman	Uranerz
Tom Michel	Hydro Engineering
George Hoffman	Hydro Engineering
Stephen Cohen	SENES
Mark Rogaczewski	Wyoming DEQ
Kerry Aggen	BLM
Ruth Thomas	Environmentalists, Inc.

Attachment