



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
611 RYAN PLAZA DRIVE, SUITE 400  
ARLINGTON, TEXAS 76011-4005

August 16, 2007

Mr. Roy Blickwedel  
Remediation Project Manager  
General Electric Company  
640 Freedom Business Center  
King of Prussia, PA 19406

SUBJECT: NRC INSPECTION REPORT 040-08907/07-001

Dear Mr. Blickwedel:

This refers to the inspection conducted on July 24, 2007, at United Nuclear Corporation's Church Rock facility in McKinley County, New Mexico. An exit briefing was conducted with you and your staff at the conclusion of the inspection. The enclosed report presents the results of that inspection.

The purpose of the inspection was to examine activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations, conditions of your license, and the approved decommissioning plan. Within these areas, the inspection consisted of selected examination of procedures and representative records, site tours, and interviews with personnel. No cited violations were identified; therefore, no response to this letter is required.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/Adams.html>. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction.

Should you have any questions concerning this inspection, please contact Robert Evans at (817) 860-8234 or the undersigned at (817) 860-8191.

Sincerely,

*/RA/*

D. Blair Spitzberg, Ph.D., Chief  
Fuel Cycle & Decommissioning Branch

Docket No.: 040-08907  
License No.: SUA-1475

United Nuclear Corporation

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Enclosure:

NRC Inspection Report  
040-08907/07-001

cc w/enclosure:

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bcc w/enclosure (via ADAMS distrib):

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DTMandeville, FSME/DWMEP/DURLD

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DBSpitzberg

JEWhitten

JMRazo

JFKatanic

RJEvans

RITS Coordinator

FCDB File

RIV Nuclear Materials File - 5th Floor

SUNSI Review Completed: RJE ADAMS:  Yes  No Initials: RJE  
 Publicly Available  Non-Publicly Available  Sensitive  Non-Sensitive

DOCUMENT NAME: s:\dnms\!fcdb\!rje\70890701.wpd final r:\ dnms

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| RIV:DNMS:FCDB | C:FCDB      |  |
| RJEvans       | DBSpitzberg |  |
| <b>/RA/</b>   | <b>/RA/</b> |  |
| 08/16/07      | 08/16/07    |  |

OFFICIAL RECORD

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U. S. NUCLEAR REGULATORY COMMISSION  
REGION IV

Docket No.: 040-08907

License No.: SUA-1475

Report No.: 040-08907/07-001

Licensee: United Nuclear Corporation

Facility: Church Rock Facility

Location: McKinley County, New Mexico

Inspection Date: July 24, 2007

Inspector: Robert J. Evans, PE, CHP, Senior Health Physicist  
Fuel Cycle & Decommissioning Branch

Accompanied by: Jason M. Razo, Health Physicist  
Nuclear Materials Inspection Branch

Douglas T. Mandeville, Geotechnical Engineer  
Decommissioning and Uranium Recovery Licensing Directorate  
Division of Waste Management and Environmental Protection  
Office of Federal and State Materials and Environmental  
Management Programs

Approved By: D. Blair Spitzberg, PhD, Chief  
Fuel Cycle & Decommissioning Branch

Attachment: Supplemental Inspection Information

## **EXECUTIVE SUMMARY**

Church Rock Facility  
NRC Inspection Report 040-08907/07-001

The inspection included a review of radiation protection, operator training/retraining, maintenance and surveillance, emergency preparedness, management organization and controls, onsite construction, radioactive waste management, transportation activities, and environmental protection. In summary, the licensee was conducting site decommissioning in accordance with regulatory and license requirements.

### **Radiation Protection; Operator Training/Retraining; Maintenance and Surveillance Testing; Emergency Preparedness**

- The licensee implemented a radiation protection program that was in compliance with 10 CFR Part 20 and the license (Section 1).

### **Management Organization and Controls**

- The licensee was conducting routine site operations and decommissioning activities in accordance with license and regulatory requirements (Section 2).

### **Onsite Construction; Radioactive Waste Management; Transportation Activities**

- Onsite construction activities were in accordance with license and construction specification requirements. An onsite tour confirmed that both the evaporation ponds and the final radon barrier were in good condition (Section 3).

### **Environmental Protection**

- The licensee conducted groundwater monitoring, corrective action program reviews, and annual land use surveys in accordance with regulatory and license requirements (Section 4).

## Report Details

### **Site Status**

United Nuclear Corporation's Church Rock uranium mill operated between 1977 and 1982. Reclamation of the mill commenced in 1984, and the mill was decommissioned in 1992. The NRC free-released the mill site and adjacent buildings in 1995.

At the time of the inspection, major site activities included groundwater cleanup and routine site maintenance. In addition, the licensee was conducting surface cleanup work at nearby mine sites although this work was not regulated by the NRC.

### **1 Radiation Protection; Operator Training/Retraining; Maintenance and Surveillance Testing; and Emergency Preparedness (83822/88010/88025/88050)**

#### **1.1 Inspection Scope**

The purpose of this portion of the inspection was to determine if the licensee's radiation protection program was in compliance with license and 10 CFR Part 20 requirements.

#### **1.2 Observations and Findings**

Two sets of procedures governed the radiation protection program. The Environmental Monitoring Procedures and the Personal Monitoring Procedures outlined various protocols related to radiation protection. Each set was reviewed annually by the licensee until 2005, but now, the procedures are only required to be reviewed prior to issuance of a radiation work permit. No radiation work permits were issued since the last inspection, conducted in 2005.

Various sampling and monitoring instruments were available and properly calibrated. The instruments included air monitors, alpha probes, and microRoentgen meters. The alpha probes were used at the tailings pond to check personnel and equipment for contamination if the work involved possible exposures to tailings material. The other instruments were not routinely used but could be placed into service if needed.

The radiation safety officer (RSO) attended a certified 40-hour RSO training course in December 2006. Employees and contractors with the potential to work near radiation areas received annual radiation safety refresher training administered by the RSO. The training included a written examination and a review of radiation safety topics applicable to the site. Four contract employees received the training thus far in 2007.

The RSO conducted an annual As Low As Reasonably Achievable (ALARA) review as part of the radiation protection program.

The licensee had not been required to conduct bioassay sampling since the last inspection, although sampling equipment was available to perform bioassays if required by radiation work permit.

The licensee was no longer required to conduct personal monitoring but had contingency plans to obtain appropriate thermoluminescent dosimeters if a radiation work permit required them.

Site tours were conducted by the inspector to observe activities in progress and equipment in operation. The inspector conducted a confirmatory radiological survey during site tours using a Ludlum Model 19 survey meter (NRC No. 015546, calibration due date of February 12, 2008). With a background of about 0.02 millirems per hour, the general area radiation exposure rates ranged up to 0.15 millirem per hour at the tailings impoundment evaporation ponds. These exposure rates were comparable to the licensee's measurements. All exposure rate measurements were below the criteria for a radiation area (5 millirems per hour).

### 1.3 Conclusions

The licensee implemented a radiation protection program that was in compliance with 10 CFR Part 20 and the license.

## **2 Management Organization and Controls (88005)**

### 2.1 Inspection Scope

The inspector evaluated whether the licensee and its contracted workforce were conducting decommissioning activities in accordance with license and regulatory requirements.

### 2.2 Observations and Findings

At the time of the inspection, company employees assigned to the site included the vice president and the RSO. Contractors were used to maintain the facility and site equipment. In addition, a contractor was used to maintain site records. Overall, the licensee had sufficient staff for the work in progress and for maintaining compliance with the license.

Although not required by the license, the licensee conducted and documented monthly site inspections to verify the integrity of the restricted areas. The RSO performed monthly inspections of the tailings ponds and site boundaries to check for fence breaches and other potentially hazardous conditions. Livestock entries and sign damage due to adverse weather conditions were typical findings. A brief written summary was attached to any findings identified during these monthly checks.

### 2.3 Conclusions

The licensee was conducting routine site operations and decommissioning activities in accordance with license and regulatory requirements.

### **3 Onsite Construction; Radioactive Waste Management; Transportation Activities (88001/88035/86740)**

#### **3.1 Inspection Scope**

A facility tour was conducted to verify that on-site construction was being undertaken in accordance with the license and construction specifications.

#### **3.2 Observations and Findings**

Several areas of the site were visited during the facility tour. The areas of interest were the evaporation ponds and the final radon barrier that was constructed over the tailings impoundment.

The 110-acre tailings impoundment consisted of the north, central, and south cells. Located within the south cell were two evaporation ponds that covered approximately 17 acres of the cell. The licensee used the two evaporation ponds to support groundwater remediation. With the exception of the area of the evaporation ponds, the placement of the final radon barrier was complete on the remainder of the tailings impoundment.

The evaporation ponds appeared to be in good condition. At the time of the inspection, the licensee maintained more than three feet of freeboard above the water surface elevation. The hypalon liner for the evaporation ponds was installed in 1989 and currently does not show signs of distress. A series of bubbles had developed beneath the liner system at the bottom of both ponds. There was no indication that the presence of these bubbles negatively impacted the performance of the liner system. The licensee indicated that these bubbles appeared and disappeared intermittently, and that their presence may be related to weather conditions. The pond evaporation misting system was not in operation due to low pumping volumes from the reclamation wells.

Installation of the final radon barrier was completed in 1996. During the facility tour, no exposed tailings were identified. This finding indicated that the final radon barrier remained intact. Vegetation was becoming established on top of the final radon barrier. Further establishment of vegetation will likely help the site continue to blend in with the surrounding area. In summary, the final radon barrier appeared to be in good condition.

#### **3.3 Conclusions**

Onsite construction activities were in accordance with license and construction specification requirements. An onsite tour confirmed that both the evaporation ponds and the final radon barrier were in good condition.

### **4 Environmental Protection (88045)**

#### **4.1 Inspection Scope**

The inspector reviewed the licensee's environmental monitoring program for compliance with regulatory and license requirements.

## 4.2 Observations and Findings

### a. Groundwater Monitoring

In accordance with License Condition 30, the licensee is required to implement the groundwater compliance monitoring and corrective action programs. Groundwater remediation was in progress in Zone 3, an area downgradient of the north cell. A variable number of wells, up to 8 wells, were being pumped based on availability of groundwater. Since the total flow rate was approximately 3 gallons per minute, the licensee did not have to operate the enhanced evaporation system in the evaporation ponds.

The licensee recently installed a new well (RW-A) in Zone 3. The well will be placed into service in the near future. The purpose of the well was to help assure capture of impacted groundwater in Zone 3. In recent months, the licensee conducted two subsurface tests, a shallow hydro-fracture test and an alkalinity stabilization pilot study. Details of the tests were provided to the NRC under separate correspondence.

License Conditions 12 and 30 require the licensee to submit semi-annual groundwater monitoring reports and annual corrective action program reviews to the NRC. The reports for 2005-2006 were reviewed during the inspection. The licensee collected the required number of samples, and the samples were analyzed for the chemical and radiological constituents identified in the license. Selected wells in Zone 3 continue to exceed the groundwater protection standards listed in License Condition 30.B, and the licensee continues to implement the groundwater corrective action program at the site.

### b. Annual Land Use Survey

License Condition 31 requires the licensee to conduct annual surveys of land use. The land use surveys for 2005-2006 were reviewed. Any significant changes in land use are noted in the reports including changes in residential home sites and water wells. The nearest residence is located about 1.5 miles northwest of the site, and the land near the site was used primarily for grazing by sheep, cattle, and horses. Based on the available information, potential doses to the nearest members of the public were maintained well below the 100 millirem per year dose limit specified in regulations.

## 4.3 Conclusions

The licensee conducted groundwater monitoring, corrective action program reviews, and annual land use surveys in accordance with regulatory and license requirements.

## 5 **Exit Meeting Summary**

The inspector reviewed the scope and findings of the inspection during an exit meeting conducted at the conclusion of the onsite inspection on July 24, 2007. The licensee did not identify any documents or other information provided to, or reviewed by, the inspector, as proprietary.

**SUPPLEMENTAL INSPECTION INFORMATION**

**PARTIAL LIST OF PERSONS CONTACTED**

United Nuclear Corporation

L. Bush, Vice President  
M. Chischilly, Radiation Safety Officer

**INSPECTION PROCEDURES USED**

|          |   |
|----------|---|
| IP 83822 | Radiation Protection                            |
| IP 86740 | Inspection of Transportation Activities         |
| IP 88001 | Onsite Construction                             |
| IP 88005 | Management Organization and Controls            |
| IP 88010 | Operator Training/Retraining                    |
| IP 88025 | Maintenance and Surveillance of Safety Controls |
| IP 88035 | Radioactive Waste Management                    |
| IP 88045 | Environmental Protection                        |
| IP 88050 | Emergency Preparedness                          |

**ITEMS OPENED, CLOSED AND DISCUSSED**

Opened

None

Closed

None

Discussed

None

**LIST OF ACRONYMS USED**

|       |                                 |
|-------|---------------------------------|
| ALARA | As Low As Reasonably Achievable |
| IP    | Inspection Procedure            |
| RSO   | Radiation Safety Officer        |