



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 EAST LAMAR BLVD
ARLINGTON, TEXAS 76011-4511

July 26, 2013

Mr. Larry Bush, Vice President
United Nuclear Corporation
P.O. Box 3077
Gallup, NM 87305-3077

SUBJECT: NRC INSPECTION REPORT 040-08907/13-001

Dear Mr. Bush:

This refers to the inspection conducted on July 18, 2013, at your former uranium mill in McKinley County, New Mexico. This inspection was an examination of activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel.

The inspection findings were presented to you and your staff at the conclusion of the onsite inspection. The enclosed report presents the results of this inspection. No violations were identified, and 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 you choose to provide one, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management 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 Mr. Robert Evans, Senior Health Physicist, at 817-200-1234 or the undersigned at 817-200-1191.

Sincerely,

D. Blair Spitzberg, Ph.D., Chief
Repository and Spent Fuel Safety Branch
Division of Nuclear Materials Safety

Docket: 040-08907
License: SUA-1475

Enclosure:
NRC Inspection Report 040-08907/13-001

cc w/encl: Roy Blickwedel, General Electric
Randall McAlister, General Electric
Mark Jancin, Chester Engineers, Inc.
Janet Brooks, U.S. Environmental Protection Agency
Sara Jacobs, U.S. Environmental Protection Agency
Eugene Esplain, Navajo Nation Environmental Protection Agency
Earle Dixon, New Mexico Environment Department
Michael Ortiz, New Mexico Environment Department
Jerry Schoeppner, New Mexico Environment Department
Deborah Steckley, U.S. Department of Energy
Dr. April Gil, U.S. Department of Energy

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/RA/

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Dr. April Gil, U.S. Department of Energy

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U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket: 040-08907

License: SUA-1475

Report: 040-08907/13-001

Licensee: UNC Mining and Milling
Division of United Nuclear Corporation

Location: McKinley County, New Mexico

Date: July 18, 2013

Inspector: Robert Evans, Ph.D., P.E., C.H.P., Senior Health Physicist
Repository and Spent Fuel Safety Branch

Approved by: D. Blair Spitzberg, Ph.D., Chief
Repository and Spent Fuel Safety Branch
Division of Nuclear Materials Safety

Attachment: Supplemental Inspection Information

Enclosure

EXECUTIVE SUMMARY

United Nuclear Corporation
NRC Inspection Report 040-08907/13-001

This inspection was a routine, announced inspection of decommissioning activities being conducted at the former United Nuclear Corporation mill in McKinley County, New Mexico. In summary, the licensee was conducting decommissioning activities in accordance with license and regulatory requirements.

Management Organization and Controls

- The licensee maintained adequate staffing to ensure compliance with license and regulatory requirements. The licensee conducted routine site tours to ensure that adverse conditions were being identified and corrected. The licensee also conducted annual audits to ensure that it remained in compliance with license and regulatory requirements. (Section 1.2)

Radiation Protection/Operator Training

- The licensee implemented its radiation protection program in accordance with license and regulatory requirements. (Section 2.2)

Radioactive Waste Management

- The licensee managed radioactive wastes in accordance with license requirements. (Section 3.2)

Effluent Control and Environmental Protection

- The licensee implemented its groundwater corrective action and monitoring programs in accordance with license and regulatory requirements. The licensee continued to conduct annual land use surveys as required by the license. (Section 4.2)

Report Details

Summary of Plant Status

United Nuclear Corporation's uranium mill operated between 1977 and 1982. The mill processed ore primarily from two nearby mines. Reclamation of the mill commenced in 1984, and the mill was fully decommissioned in 1992.

An estimated 3.5 million tons of tailings were disposed in the tailings impoundment. The impoundment consists of three areas—north cell, central cell, and south cell. A radon barrier was completed over the tailings material in 1996, with the exception of the area where two lined evaporation ponds are located. The ponds are currently situated on top of the south cell. The ponds are used for evaporation of potentially contaminated groundwater extracted from the Zone 3 remedial action target area. (A plume of potentially contaminated groundwater was previously identified northeast of the north cell, and this area was designated as Zone 3.) In addition to the Zone 3 remedial action, the licensee continues to monitor two other potential plumes in the Southwest Alluvium and Zone 1 areas. The final reclamation of the evaporation ponds has been deferred until the groundwater corrective action program is complete. At that time, any remaining mill debris will be placed into the evaporation ponds, and the remainder of the cell cover will be installed.

On March 29, 2013, the U.S. Environmental Protection Agency (EPA) issued a Record of Decision for the nearby Northeast Church Rock mine site. The EPA's selected remedy is to remove approximately 1 million cubic yards of waste material from the mine site and dispose of the material at the NRC-regulated tailings impoundment. The NRC and the U.S. Department of Energy are aware of the EPA's decision but have not formally approved the remedy, in part, because the EPA and the owner of the mine site have not developed the remedial design plan for the removal project.

To support the mine waste removal action, the licensee plans to sample the tailings material for compaction and moisture content. Prior to conducting this sampling, the licensee is expected to submit a sampling plan and a health and safety plan to the NRC for review. The licensee has indicated that it may conduct this sampling later this calendar year.

At the time of the inspection, the licensee was conducting groundwater extraction in the Zone 3 area, groundwater sampling in various locations around the tailings impoundment, and routine site maintenance activities.

1 Management Organization and Controls (88005)

1.1 Inspection Scope

The inspector reviewed the licensee's oversight and control of licensed activities.

1.2 Observations and Findings

The licensee's staff consisted of two company employees and seven contractors. The onsite employees included the vice president and radiation safety officer. Contractors conducted site maintenance activities such as operation of the groundwater extraction wells and repair of fences. Overall, the licensee had sufficient staff for the limited

amount of work being conducted and for maintaining compliance with license and regulatory requirements.

Although not required by the license, the radiation safety officer continued to conduct monthly site inspections to verify the integrity of the restricted areas. The monthly inspections included visual observation of site fences, evaporation ponds, and weather-related damage. The monthly reports documented adverse conditions when identified as well as any corrective actions needed to resolve the adverse condition.

The radiation safety officer conducted annual As Low As Reasonably Achievable (ALARA) audits. The audits are submitted to the NRC. The most recent audit was conducted during December 2012, and the audit was submitted to the NRC by letter dated January 30, 2013. The audits included license compliance reviews to ensure that the licensee implemented all requirements as specified in the license. Based on the licensee's review, all license and regulatory requirements had been fulfilled during 2012.

1.3 Conclusions

The licensee maintained adequate staffing to ensure compliance with license and regulatory requirements. The licensee conducted routine site tours to ensure that adverse conditions were being identified and corrected. The licensee also conducted annual audits to ensure that it remained in compliance with license and regulatory requirements.

2 Radiation Protection/Operator Training (83822/88010)

2.1 Inspection Scope

The inspector reviewed the licensee's implementation of its radiation protection program to verify compliance with Title 10 of the *Code of Federal Regulations* (CFR) Part 20 and license requirements.

2.2 Observations and Findings

The licensee maintained a radiation protection program that was commensurate with the limited amount of work in progress. The remaining radiologically restricted areas included the tailings impoundment and the contaminated equipment storage yard. The programs in place included worker training and instrument calibrations. The remainder of the radiation protection program was suspended based on the limited work activities in progress at the site.

The inspector reviewed the licensee's radiation protection training program. The radiation safety officer attended 40-hour refresher training during February 2013. The site staff received annual refresher training during 2012 which included a written examination. The vice president's training had expired, but this individual was not an occupational worker at the time of the inspection.

The licensee had radiation protection instrumentation available for use. The licensee continued to maintain instrumentation for measuring exposure rates, detecting surface contamination, and counting swipe samples. The instrumentation was being used to free-release vehicles or equipment from the site and to support activities in progress at a

nearby uranium mine site. The instrumentation was calibrated on an annual basis by the instrument vendor.

Due to limited work activities, the licensee suspended various radiation protection procedures and practices. The licensee has not issued a radiation work permit since 1996. The licensee also suspended dose monitoring, bioassays, and personnel air sampling. The licensee maintained equipment and procedures for these activities, and the licensee could reactivate these portions of the radiation protection program if necessary. For example, if the licensee elects to sample the tailings material for compaction and moisture content, then it will conduct the work using a radiation work permit. The radiation work permit will then specify the radiation protection controls that will be necessary to protect workers from the radioactive tailings material.

2.3 Conclusions

The licensee implemented its radiation protection program in accordance with license and regulatory requirements.

3 Radioactive Waste Management (88035)

3.1 Inspection Scope

The inspector interviewed licensee representatives, toured the site, and reviewed applicable records to determine if the licensee had established and maintained an effective program for managing radioactive wastes.

3.2 Observations and Findings

The 110-acre tailings impoundment consisted of the north, central, and south cells. The cells appeared to be in good condition with little observable erosion. Two evaporation ponds were located in the south cell. The ponds had limited amounts of water in each. At the time of the inspection, the licensee was extracting approximately 3-6 gallons per minute from seven extraction wells in the Zone 3 area. The water was being pumped into the north evaporation pond. Both ponds also had some rainwater at the time of the inspection. The licensee stated that the enhanced evaporation system, referenced in License Condition 32, has not been in service since about 2000 because there was not enough extraction flow to justify system operation.

The inspector observed the status of the buried jetty, located northwest of the evaporation ponds. The jetty is designed to channel flow in the Pipeline Arroyo away from the south cell area. The buried jetty varies in depth, from approximately 8 to 20 feet deep. The surface of the jetty appeared to have some surface erosion, but a licensee representative stated that the jetty continues to perform its intended function of routing rainwater runoff away from the south cell. The functionality of the buried jetty will be reconsidered by the licensee and the NRC, if various government agencies approve the proposed plan to place mine wastes on top of the tailings material. Otherwise, the licensee plans to repair the surface features of the buried jetty at a later date.

The NRC inspector conducted radiological surveys during the site tour. The inspector measured ambient gamma exposure rates using a Ludlum Model 2401-S microRoentgen meter (NRC No. 079765, calibration due date of 10/18/13). With a

background of 10-15 microRoentgen per hour, most areas of the tailings cell and surrounding areas were measured at background levels. The highest measurements, 130-140 microRoentgen per hour, were observed at the edge of the evaporation ponds. This would be expected since the radon barrier cap has not been completed on this portion of the disposal cell.

3.3 Conclusions

The licensee managed radioactive wastes in accordance with license requirements.

4 Effluent Control and Environmental Protection (88045)

4.1 Inspection Scope

The inspector reviewed the licensee's effluent and environmental protection programs to ensure compliance with license and regulatory requirements.

4.2 Observations and Findings

License Condition 30 provides the details of the groundwater compliance monitoring program. At the time of the inspection, the program consisted of groundwater extraction, monitor well sampling, and groundwater elevation measurements. There were three remedial action target areas—Zone 3, Zone 1, and Southwest Alluvium.

In Zone 3, the licensee operated seven pumps to extract potentially contaminated groundwater from the subsurface area. The licensee previously injected alkalinity-amended water into this zone, but the licensee discontinued this activity in late-June 2012. The licensee notified the NRC that it had terminated the injection program by letter dated October 12, 2012. Since the injection program was not specifically required by the license, the licensee could discontinue injection without prior NRC approval.

The licensee continues to extract groundwater from the Zone 3 area. The amount of groundwater being extracted ranges from 3-6 gallons per minute. In addition, the licensee continues to sample approximately 35 wells on a quarterly basis. (Thirty-two of the 35 wells are listed in the license.) Several wells cannot be sampled because the wells are either dry or have insufficient fluid for sampling. In addition, the licensee installed and samples 13 wells specifically for plume monitoring. Finally, the licensee samples an additional 22 wells for water levels only.

The licensee continues to present the sampling results to the NRC in semiannual groundwater monitoring reports, as required by License Condition 30.C. The most recent semiannual report was submitted to the NRC by letter dated February 28, 2013. In addition, the licensee continues to submit annual groundwater corrective action program reviews to the NRC. The most recent annual report was submitted to the NRC on February 20, 2013.

The licensee submitted a license amendment request to the NRC by letter dated April 17, 2012. The licensee requested NRC approval to revise some of the groundwater protection standards as specified in License Condition 30.B. The NRC responded with a request for additional information by letter dated June 4, 2013. At the conclusion of the onsite inspection, the NRC had not approved the proposed change.

License Condition 31 specifies that the licensee shall conduct an annual survey of land use. The most recent annual land use survey report was submitted to the NRC by letter dated March 27, 2013. The survey included a review of the homes and wells located within 2 miles of the site. In summary, the licensee continued to report land uses in the vicinity of the site as required by the licensee.

4.3 Conclusions

The licensee implemented its groundwater corrective action and monitoring programs in accordance with license and regulatory requirements. The licensee continued to conduct annual land use surveys as required by the license.

5 Exit Meeting

The inspector reviewed the inspection scope and findings during an exit meeting conducted at the conclusion of the onsite inspection on July 18, 2013. During the inspection, the licensee did not identify any information 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 88005	Management Organization and Controls
IP 83822	Radiation Protection
IP 88010	Operator Training/Retraining
IP 88035	Radioactive Waste Management
IP 88045	Effluent Control and Environmental Protection

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

None

Discussed

None

LIST OF ACRONYMS

ADAMS	Agencywide Documents Access and Management System
ALARA	As Low As Reasonably Achievable
CFR	Code of Federal Regulations
EPA	Environmental Protection Agency
IP	Inspection Procedure
NRC	U.S. Nuclear Regulatory Commission