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

October 26, 2020

Lance Hauer
Legacy Site Team Leader
Environmental Remediation Global
Operations, Environment, Health & Safety
General Electric Company
475 Creamery Way
Exton, PA 19341

SUBJECT: CHURCH ROCK URANIUM MILL – NRC INSPECTION REPORT 040-08907/20-001

Dear Mr. Hauer:

This letter refers to the U.S. Nuclear Regulatory Commission's (NRC's) inspection conducted September 15 - 17, 2020, at your former Church Rock Uranium Mill site 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 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 "Agency Rules of Practice and Procedure," 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 Ms. Linda Gersey, Health Physicist, at 817-200-1191, or the undersigned at 817-200-1156.

Sincerely,

Heather J. Gepford, PhD, CHP, Branch Chief
Materials Licensing & Decommissioning Branch
Division of Nuclear Materials Safety

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

Enclosure:
NRC Inspection Report 040-08907/20-001

cc:
R. Spitz, Contract Project Manager
R. Santiago, Bureau Chief, NMED

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket:	040-08907
License:	SUA-1475
Report:	040-08907/20-001
Licensee:	UNC Mining and Milling Division of United Nuclear Corporation
Facility:	Former Church Rock mill site
Location:	McKinley County, New Mexico
Remote Dates: Onsite Date:	September 15-16, 2020 September 17, 2020
Inspectors:	Linda M. Gersey, Health Physicist Materials Decommissioning and Licensing Branch Division of Nuclear Materials Safety Marti R. Poston-Brown, Health Physicist Uranium Recovery and Materials Decommissioning Branch Division of Decommissioning, Uranium Recovery, and Waste Programs Office of Nuclear Materials Safety and Safeguards
Approved by:	Heather J. Gepford, PhD, CHP, Branch Chief Materials Licensing and Decommissioning Branch Division of Nuclear Materials Safety

Enclosure

EXECUTIVE SUMMARY

UNC Mining and Milling, a Division of United Nuclear Corporation
NRC Inspection Report 040-08907/20-001

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

Decommissioning of Materials Licensees and Management Organization and Controls

The licensee maintained adequate staffing and a program commensurate with the scope and risk associated with the current activities to ensure compliance with the license and regulatory requirements. The licensee conducted routine site inspections to ensure that adverse conditions were identified and corrected. The licensee also conducted annual audits and land use surveys in accordance with regulatory and license requirements. The licensee resumed quarterly groundwater sampling in July 2020, as required by the temporary exemption granted by the NRC due to the public health emergency. (Section 1.2)

Radiation Protection

The licensee implemented its radiation protection program in accordance with license and regulatory requirements. The licensee's records indicated that no workers were assigned an occupational exposure since the last inspection, all workers had received required training, and no contamination problems were identified. (Section 2.2)

Radioactive Waste Processing, Handling, Storage and Transportation

The licensee managed radioactive wastes in accordance with license requirements. The licensee voluntarily implemented an eradication program to removed deep rooted plants in the vicinity of the tailing impoundment that appears to be effective. Site staff continues to maintain access control to the restricted areas through the use of gates, fences, locks and postings. The licensee conducted groundwater sampling and monitoring in accordance with the license conditions and regulatory requirements. (Section 3.2)

Report Details

Site Status

United Nuclear Corporation's uranium mill operated from 1977-1982. The mill processed ore primarily from two nearby mines. Reclamation of the mill commenced in 1984, and the mill was fully decommissioned by 1992. The mill site was released from the license for unrestricted use in 1995.

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 south cell where two lined evaporation ponds are located. The ponds are used for evaporation of potentially contaminated groundwater extracted from the Zone 3 remedial action target area. The licensee also continued to monitor potential plumes in the Southwest Alluvium and Zone 1 target areas. In addition to implementation of the groundwater monitoring and corrective action programs, the licensee continued to conduct routine site maintenance and license compliance activities.

On March 29, 2013, the U.S. Environmental Protection Agency (EPA) issued a Record of Decision for the disposition of mine waste at the nearby Northeast Church Rock mine site (Agencywide Documents Access and Management System (ADAMS) Accession No. ML13095A352). The EPA's selected remedy was 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. Between November 2013 - November 2016, EPA contractors collected samples from the mine site and tailings impoundment to support the development of a remedial design plan.

By letter dated September 24, 2018, the licensee requested an amendment to its NRC license to allow a revision to its reclamation plan on order to construct a repository for non-11e.(2) byproduct material mine waste on top of the 11e.(2) byproduct material tailings disposal area (ADAMS Accession No. ML18267A235). At the time of this inspection, NRC staff continued to review this request.

License Condition 25 provides the financial assurance requirements. By letter dated March 31, 2020 (ADAMS Accession No. ML20091J376), the licensee transmitted its annual surety update to the NRC.

1 Decommissioning Inspection Procedures for Materials Licensees (Inspection Procedure (IP) 87104) and Management Organization and Controls (IP 88005)

1.1 Inspection Scope

Ensure the licensee maintained adequate staffing and a program commensurate with the scope and risk associated with the current activities to ensure compliance with the license and regulatory requirements.

1.2 Observations and Findings

Since the previous inspection, the licensee had two changes to staffing. The changes included a new corporate Legacy Site Team Leader. By letter dated January 27, 2020, the licensee notified the NRC of a change in the Legacy Site Team Leader for the facility

(ADAMS Accession No. ML2081A284). The licensee's onsite staff consisted of five contractors, a reduction of one since the last inspection. The highest ranking official onsite was the site Project Manager. This individual reported to the licensee's Legacy Site Team Leader, who was located offsite. Other site staff included the assistant project manager/environmental technician, radiation safety officer (RSO), one field technician, and a project administrator. These contractors conducted site maintenance activities, operated the groundwater extraction wells, and collected groundwater samples. The licensee had sufficient staff for the limited amount of work in progress and to maintain compliance with the license and regulatory requirements.

The RSO conducted monthly site inspections to verify the condition of the radiologically restricted areas. The monthly inspections included visual observation of site fences, evaporation ponds, and weather-related damage. The RSO documented adverse conditions when identified as well as corrective actions needed to resolve the adverse conditions. The staff also conducted weekly evaporation pond inspections. Access to the tailings impoundment is controlled through the use of signs, gates and fences as required by License Condition 11.

The RSO conducted an annual As Low As Reasonably Achievable (ALARA) audit in accordance with the requirements of 10 CFR 20.1101(c). The most recent audit was submitted to the NRC by letter dated January 30, 2020 (ADAMS Accession No. ML20031D051). Based on the licensee's review, all license and regulatory requirements were fulfilled since the previous audit. The inspectors concluded that the ALARA audit met the requirements of 10 CFR 20.1101(c).

License Condition 31 requires the licensee to conduct an annual survey of land use (grazing, residence, wells, etc.) in the area within two miles of the facility and submit a report of this survey annually to the NRC. By letter dated March 20, 2020, the licensee had submitted the annual land use survey for 2019 (ADAMS Accession No. ML20097C638). During 2019, the licensee identified one new residential occupied home, bringing the total occupied homes to 34 within a two mile radius of the facility. In addition, three new monitoring wells had been drilled in support of the licensee's request to revise their reclamation plan to place mine waste on top of the tailings cell. The inspectors reviewed the 2019 annual land use survey and concluded it met the license requirements.

1.3 Conclusions

The licensee maintained adequate staffing and a program commensurate with the scope and risk associated with the current activities to ensure compliance with the license and regulatory requirements. The licensee conducted routine site inspections to ensure that adverse conditions were identified and corrected. The licensee also conducted annual audits and land use surveys in accordance with regulatory and license requirements. The licensee resumed quarterly groundwater sampling in July 2020, as required by the temporary exemption granted by the NRC due to the public health emergency.

2 Radiation Protection (IP 83822)

2.1 Inspection Scope

Verify that the licensee has established a radiation protection program, commensurate with the scope and risks associated with the licensee's activities, to satisfy the NRC regulatory and license requirements and to ensure adequate protection of the environment and the safety and health of workers and the public.

2.2 Observations and Findings

The licensee maintained a radiation protection program commensurate with the limited amount of work in progress. The existing radiologically restricted areas included the evaporation ponds, waste disposal area, and contaminated equipment yard. During the inspection, the radiation protection programs in place included worker training and instrument calibrations. Equipment release surveys and personnel contamination surveys were conducted as needed to support site activities. Since the previous inspection, no radiation work permits had been initiated since no non-routine work was conducted. Although the licensee does not monitor routinely for occupational radiation exposure, due to historical exposures of less than 10 percent of the NRC limits, they have procedures and equipment in place to initiate monitoring for internal and external exposures if needed.

Radiation safety training was provided annually to all site workers. Visitors to the site were also provided safety and health training before being allowed to access areas other than the administration building. Staff who prepare samples for shipment to laboratories for analysis received U.S. Department of Transportation Hazardous Materials training every three years. The inspectors reviewed a selection of training documents and found them to be adequate.

The licensee maintains radiation protection instrumentation for use. The licensee has 10 radiation protection instruments in inventory including microR meters, standard rate meters with Geiger-Mueller pancake probes, and standard scalers with alpha, beta, or gamma scintillation probes. These meters are used for equipment and material release surveys and surveys of onsite conditions. The inspectors reviewed a selection of the survey records generated since the last inspection as well as the instrument calibration records. The inspectors concluded that the appropriate instrument was used for each type of survey conducted and all instruments were in calibration at the time of use.

License Condition 20 specifies that written procedures for radiation protection shall be established. The licensee established procedures for radiation protection and environmental monitoring. The inspectors verified that these site procedures were reviewed annually by the RSO.

2.3 Conclusions

The licensee implemented its radiation protection program in accordance with license and regulatory requirements. The licensee's records indicated that no workers were assigned an occupational exposure since the last inspection, all workers had received the required training and no contamination problems were identified.

3 Radioactive Waste Processing, Handling, Storage and Transportation (IP 88035)

3.1 Inspection Scope

The inspectors 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 and groundwater monitoring.

3.2 Observations and Findings

The inspectors observed the three cells of the tailings impoundment. The cells appeared to be in good condition with little observable erosion. The herbicide used to control the deep-rooted plants near the evaporation ponds continued to work well to keep those plants under control. The inspectors observed that the deep-rooted plants did not show any indication of new growth. The licensee continued to periodically check these plants to determine if there is a need to reapply the herbicide.

The south cell contained two evaporation ponds. These ponds were designed to hold a total of ten million gallons of water. The licensee stopped flow to the ponds on July 31, 2020, when the ponds were at capacity, in anticipation of the summer monsoon season. The heavy summer rains did not occur, and the summer was fairly dry, so the licensee restarted flow to the ponds on August 31, 2020, when the silt began to be exposed. The licensee recently installed a new pump for the facility water well that increased the average water flow from approximately 40 gallons per minute (gpm) to 60 gpm. Each pond was receiving water at an average of 30 gpm. The ponds were posted as a radioactive materials area. The inspectors performed radiological surveys to identify the exposure rates around the facility. The highest exposure rate measured by the inspectors was 35 microroentgen per hour or approximately twice background. Other areas measured by the inspectors were only slightly above the 14 microroentgen per hour measured as background using a Ludlum 19 calibrated to radium-226 (NRC inventory No. 15518, Serial No. 33033, calibration due date of December 18, 2020). Background was measured in the parking lot before assessing the mill tailings area.

During the site tour, the inspectors noted that the licensee continued to control access to the site using signs, gates and fences. All signs, gates and fences were in good condition. Signs were clearly visible and legible.

License Condition 30 provides requirements for the groundwater compliance monitoring program. At the time of the inspection, the program consisted on groundwater extraction, monitor well sampling and groundwater elevation measurements in three target remediation areas – Zone 1, Zone 3 and the Southwest Alluvium.

By letter dated June 8, 2020, the licensee requested temporary relief from the quarterly groundwater monitoring requirements in License Condition 30A, due to COVID-19 public health emergency restrictions and public health orders issued in the State of New Mexico (ADAMS Accession No. ML20161A367). The NRC granted a temporary exemption from quarterly groundwater monitoring in letter dated June 18, 2020 (ADAMS Accession No, ML20162A199). The exemption required resumption of quarterly groundwater sampling in July 2020. The inspectors verified the licensee had resumed its quarterly groundwater monitoring in July 2020.

During previous inspections, it was identified that the licensee had discontinued sampling at two wells (GW-2 and GW-3) due to concerns associated erosion along the Pipeline Arroyo making it unsafe for the employees to sample those wells. The inspectors determined that no additional wells have been removed from the sampling protocol due to additional erosion. The licensee had initiated the process of adding some wells on Navaho land for background water quality but have been unable to complete the installation of these wells due to COVID-19 restrictions in place on the Navaho lands.

The licensee continued to provide groundwater sampling results to the NRC in semiannual groundwater monitoring reports as required by license conditions 12 and 30.C. The most recent semiannual report was submitted to the NRC on August 20, 2020 (ADAMS Accession No ML20248H334).

The inspectors walked down portions of the Pipeline Arroyo area and collected pictures along the significant bend area. Due to the lack of monsoon rains this summer, the erosion appears to be less significant than seen in the past. A plan is being developed to redirect the flow with the construction of a stepped barrier to slow down the flow and dissipate some of the energy of the water as it flows through the arroyo. The inspector noted that the access path to the arroyo bend has become smaller and the licensee agreed that an alternate approach may be necessary in the next year or so.

3.3 Conclusions

The licensee managed radioactive wastes in accordance with license requirements. The licensee voluntarily implemented an eradication program to removed deep rooted plants in the vicinity of the tailing impoundment that appears to be effective. Site staff continues to maintain access control to the restricted areas through the use of gates, fences, locks and postings. The licensee conducted groundwater sampling and monitoring in accordance with the license conditions and regulatory requirements.

4 Exit Meeting Summary

The inspectors presented the inspection results to the licensee's representatives at the conclusion of the onsite portion of the inspection on September 17, 2020. During the inspection, the licensee did not identify any information reviewed by the inspectors as proprietary.

SUPPLEMENTAL INFORMATION

Partial List of Persons Contacted

Licensee

L. Hauer, Legacy Site Team Leader
M. Chischilly, Radiation Safety Officer
R. Spitz, Project Manager

Inspection Procedures Used

IP 83822	Radiation Protection
IP 88005	Management Organization and Controls
IP 88035	Radioactive Waste Processing, Handling, Storage and Transportation
IP 87104	Decommissioning Inspection Procedure for Materials Licensees

Inspection Procedures Not Used

IP 88010	Operator Training//Retraining (Reviewed under IP 83822)
IP 88025	Maintenance and Surveillance of Safety Controls (Reviewed under IP 83822)
IP 88050	Emergency Preparedness (Not applicable, since no formal program)
IP 86740	Transportation of Radioactive Materials (Reviewed under IP 83822)
IP 88045	Effluent Control & Environmental Protection (Not applicable per ML20196F900)

Items Opened, Closed, and Discussed

Opened

None

Closed

None

Discussed

None

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ADAMS ACCESSION NUMBER: ML20297A604

■ SUNSI Review By: LMG | ADAMS: ■ Yes ☐ No | ☐ Non-Publicly Available ■ Publicly Available | ■ Non-Sensitive ☐ Sensitive | Keyword: NRC-002

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