



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

May 5, 2022

Mr. John Ellis, President  
Sequoyah Fuels Corporation  
P.O. Box 610  
Gore, OK 74435

SUBJECT: SEQUOYAH FUELS CORPORATION - NRC INSPECTION REPORT  
04008027/2022-001

Dear Mr. Ellis:

This letter refers to the routine, announced U.S. Nuclear Regulatory Commission (NRC) inspection conducted on April 5-6, 2022, at your Sequoyah Fuels Corporation site in Gore, Oklahoma. This inspection examined activities conducted under your license as they relate to public health and safety, the common defense and security, and to confirm compliance with the Commission's rules and regulations and the conditions of your license. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, tours of the site, independent radiological measurements, and interviews with personnel. The inspection findings were discussed with you and your staff at the conclusion of the onsite inspection on April 6, 2022. No violations were identified and no response to this letter is required.

In accordance with Title 10 of the *Code of Federal Regulations* (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 Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Website at <https://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not include any personal privacy or proprietary information so that it can be made available to the Public without redaction.

J. Ellis

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Should you have any questions concerning this inspection, please contact Ms. Linda M. Gersey, Health Physicist, at (817) 200-1299 or the undersigned at (817) 200-1249.

Sincerely,



Signed by Warnick, Gregory  
on 05/05/22

Gregory G. Warnick, Chief  
Decommissioning, ISFSI, and Operating  
Reactor Branch  
Division of Radiological Safety and Security

Docket: 040-08027

License: SUB-1010

Enclosure:

Inspection Report 040-08027/2022-001

Attachment

SEQUOYAH FUELS CORPORATION - NRC INSPECTION REPORT 04008027/2022-001 --  
DATED MAY 5, 2022

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ADAMS ACCESSION NUMBER: ML22125A116

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**U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV**

Docket No.: 040-08027  
License No.: SUB-1010  
Report No.: 040-08027/2022-001  
Licensee: Sequoyah Fuels Corporation  
Location: Gore, Oklahoma  
Dates: April 5-6, 2022  
Inspector: Linda M. Gersey, Health Physicist  
Decommissioning, ISFSI, and Operating Reactor Branch  
Division of Radiological Safety and Security  
Approved by: Gregory G. Warnick, Chief  
Decommissioning, ISFSI, and Operating Reactor Branch  
Division of Radiological Safety and Security  
Attachment: Supplemental Inspection Information

Enclosure

## **EXECUTIVE SUMMARY**

### Sequoyah Fuels Corporation NRC Inspection Report 040-08027/2022-001

The U.S. Nuclear Regulatory Commission (NRC) performed a routine, announced health and safety inspection on April 5-6, 2022, at the Sequoyah Fuels Corporation facility in Gore, Oklahoma. The inspection included observations of site activities, independent radiation surveys, review of records, and interviews with site personnel. In summary, the inspector concluded that the licensee was conducting decommissioning activities in accordance with regulatory and license requirements.

#### **Decommissioning Inspection Procedure for Materials Licensees**

- The inspector reviewed the licensee's radiation safety program activities to ensure compliance with regulatory and license requirements. The inspector determined that the licensee was conducting the radiation safety program as required and in a manner that was protective of public health and safety and the environment. (Section 1.2a)
- The inspector reviewed the licensee's groundwater and environmental monitoring programs to ensure compliance with the regulatory and license requirements. The inspector determined that the licensee was conducting these programs as required and in a manner that was protective of public health and safety and the environment. (Section 1.2b)
- The inspector reviewed the licensee's management organization and controls to ensure compliance with regulatory and license requirements. The inspector determined that the licensee had sufficient management oversight and audit processes in place to conduct operations in accordance with requirements. (Section 1.2c)

## Report Details

### Site Status

Materials License SUB-1010, License Condition 51, requires the licensee to conduct decommissioning activities in accordance with the Reclamation Plan dated July 2008 as amended (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML080220345 and ML08196023). The Reclamation Plan provides the instructions for dismantlement and removal of systems and equipment, demolition of structures, treatment of sludge and sediments, remediation of contaminated soils, and treatment of wastewater. Consistent with the Reclamation Plan, almost all waste material from decommissioning will be placed in an onsite engineered cell for permanent disposal.

Since the last routine inspection, conducted in March 2021 (ML21127A145), the licensee had completed the installation of the cover system on the cell side slopes, excavated additional material from the raffinate water treatment building area, and continued with final status surveys.

### **1 Decommissioning Inspection Procedure for Materials Licensees (Inspection Procedure 87104)**

#### 1.1 Inspection Scope

To determine if licensed decommissioning activities are being conducted in a manner that will protect the health and safety of the workers and the general public and in accordance with NRC requirements, the license, and the approved Reclamation Plan.

#### 1.2 Observations and Findings

##### a. Radiation Protection for Workers

Details of the licensee's radiation protection program were provided in Attachment D to the NRC-approved Reclamation Plan. The program requirements included external and internal exposure monitoring, air sampling, respiratory protection, bioassay, hazardous waste permits, contamination control, and instrumentation programs.

Attachment D, Section 2.4, states that external exposure monitoring, when required, will be accomplished using optically stimulated luminescence dosimeters. Further, radiation surveys may be performed to supplement personnel monitoring. As allowed by Title 10 of the Code of Federal Regulations (10 CFR) 20.1501(a)(1), the licensee downgraded its dosimetry requirements in 2011 based on actual results obtained from 2001-2010. At the time of the inspection, the only workers required to be monitored for external exposures were those authorized to operate the X-ray fluorescence analyzer.

Since the last NRC inspection, the licensee monitored four individuals for external exposures using optically stimulated luminescence dosimeters and ring badges, which are exchanged quarterly. The dosimetry records for the first three quarters in 2021 indicated no measurable external dose was received by the four individuals. During the third quarter of 2021, the dosimetry vender notified the licensee of their difficulties obtaining materials used for the dosimetry devices. The licensee agreed to continue using the third quarter 2021 dosimetry until the vender could obtain the necessary

materials. At the time of the inspection, the licensee still had not received new dosimetry devices. The inspector did not identify any concerns related to using the dosimetry devices until replacements were available.

Section 2.3 of Attachment D to the Reclamation Plan and License Condition 24 specify the internal exposure monitoring requirements, including action levels. Internal exposure monitoring was conducted using breathing zone (lapel) air samplers during work conducted under a hazardous work permit. The inspector reviewed the licensee's records for January 2021 through March 2022 and determined that no individual exceeded an action level.

The inspectors reviewed the licensee's records for assigned doses. During 2021, the licensee had monitored 15 workers. The maximum total effective dose equivalent (combined internal and external exposure) for an individual was 19 millirem, which was well below the regulatory limits of 5000 millirem. Due to historical external dosimetry readings of no measurable dose, the licensee did not anticipate any additional dose contribution for 2021 for the four individuals who continued to wear the third quarter 2021 dosimetry devices.

The respiratory protection requirements are provided in Section 2.2 of Attachment D to the Reclamation Plan. Since the previous inspection, the licensee issued respiratory protection to eight individuals while working under a radiation work permit to segment contaminated tanks for disposal in the cell. The inspector conducted a review of this program area and concluded that the licensee had established procedures, provided training, conducted medical evaluations and possessed sufficient equipment.

The bioassay requirements are provided in Section 2.3 of Attachment D to the Reclamation Plan. During 2021, the licensee collected 1,436 individual bioassay samples on a biweekly basis. The highest sample result was 2.58 micrograms of uranium per liter of urine, a value below the lowest action level of 15 micrograms of uranium per liter of urine as specified by License Condition 42. The majority of the bioassay samples were below detection limits. The results indicated that the licensee was not experiencing widespread contamination control problems.

Hazardous work permits were used to describe specific or special worker protection requirements for activities involving radioactive material that was not covered by a procedure. Since the previous inspection, the licensee had issued and closed 11 hazardous work permits. Four hazardous work permits remain open due to continuing work. These permits included personal protective equipment and monitoring requirements. Permits were issued for work activities that included segmentation of contaminated tanks and pipes, removing surface contamination in the former decontamination pad, and hauling debris, soil and sand to the disposal cell. The inspector found that the licensee implemented the hazardous work permit program for non-routine work activities in accordance with the instructions provided in the Reclamation Plan.

The licensee established and implemented a contamination control program in accordance with the requirements specified in Section 2.6 of Attachment D to the Reclamation Plan. The various types of contamination control surveys included equipment release surveys, spot checks of laundry, unrestricted area and restricted area room surveys. The inspector reviewed a random sampling of the survey records and

concluded that the records provided information on the area or component surveyed instrumentation used to conduct the survey and the results of the survey.

The inspector performed a spot check of the portable survey instruments in use at the site. Instruments in use were found to be in calibration. The inspector also reviewed surveys conducted within and outside the radiologically restricted area. Radiation survey forms reviewed included daily routine contamination surveys, daily source checks, equipment releases, quarterly dose rate surveys, quarterly contamination surveys of unrestricted areas and other daily, weekly, monthly, quarterly or annual surveys. The inspector concluded that the surveys were appropriately performed at the required intervals.

License Condition 9.4 states, in part, that the licensee shall follow the guidance set forth in Regulatory Guide 8.31, "Information Relevant to Ensuring that Occupational Radiation Exposure at Uranium Recovery Facilities will be As Low As is Reasonably Achievable (ALARA)," or NRC-approved equivalent. Regulatory Guide 8.31, Section C.2.5 states, in part, that all new employees should be instructed by means of an established course in the inherent risks of exposure to radiation and the fundamentals of protection against exposure to uranium and its progeny before beginning their jobs. The licensee's records indicated that orientation and initial training was provided to new employees and contractors during 2021. The licensee conducted annual refresher training to all site workers in January 2022.

b. Groundwater and Environmental Monitoring

The licensee conducted groundwater compliance monitoring as required by License Condition 49 and the licensee's groundwater monitoring plan (ML050680228). Routine groundwater monitoring was conducted for the constituents of concern, and the protection standards for each constituent is detailed in License Condition 49.B. The licensee sampled the 6 background wells, 64 compliance wells, 4 corrective action monitoring locations, 6 seep and drainage locations, and 4 surface monitoring locations on an annual basis. Seep and drainage locations were sampled on a quarterly basis. These numbers reflect the removal of monitoring locations for the 005 collection trench (2224A) and the 005 monitor trench (2224B) to support decommissioning.

The licensee maintained the groundwater corrective action plan (GCAP) (ML102380151) approved by the NRC per License Condition 53. The purpose of the GCAP is to reduce the hazardous constituents in the impacted compliance wells. As the site is decommissioned and the contaminated soils and shales are excavated and placed in the disposal cell, the source for contamination of the groundwater should be removed or eliminated. The inspector determined that the licensee was implementing the GCAP in accordance with license and regulatory requirements.

The annual groundwater samples were collected in April 2020, and the quarterly sampling was performed in January, April, July, and December 2020, and January 2021. No groundwater monitoring wells were plugged or abandoned since the last inspection.

The inspector reviewed a draft version of the licensee's 2021 Annual Groundwater Report. This draft report contained monitoring program changes, analytical results for all compliance wells, background wells, seep and drainage locations, and surface water monitoring. The report also included trending of sample results for compliance and

corrective action monitoring. The licensee continued to make progress in groundwater cleanup. The inspector found the draft report to be in compliance with License Conditions 49 and 53. At the time of the inspection, the final 2021 Annual Groundwater Report had been submitted to the NRC; although the document had not been placed into ADAMS.

The licensee's environmental protection program is defined in Chapter 5 of the Reclamation Plan, approved by the NRC by letter dated December 21, 2010, (ML102740446). The environmental monitoring program consisted of four fence line air monitoring locations, storm water discharge from Outfall 008, and annual monitoring of the ammonium nitrate fertilizer program. The licensee discontinued radon monitoring at the fence line after the second quarter of 2019, due to consistently negligible radon concentration values at the fence line. The State of Oklahoma Department of Environmental Quality permits the land application of treated waste water and the discharge of storm water via Outfall 008 through the licensee's Oklahoma Pollution Discharge Eliminations System Permit.

The licensee submits semi-annual effluent monitoring reports, which include the fence line air monitoring results and the outfall releases, to the NRC as required by 10 CFR 40.65. The inspector reviewed the licensee's August 19, 2021, (ML21242A266) semi-annual effluent report, which provided data for the first half of 2021. At the time of the inspection, semi-annual report for the second half of 2021 was not available for review. The inspector noted that the analytical results indicated there were no airborne releases of uranium, thorium-230, or radium-226 during the first half of 2021. Liquid samples from the storm water discharged from Outfall 008 during the first half of 2021, indicated less than two percent of the average annual limits for uranium, thorium-230, and radium-226. The inspector determined that the results showed compliance with regulatory and license requirements. The licensee did not perform land application of ammonium nitrate fertilizer during the first half of 2021.

c. Management Organization and Controls

The licensee's organizational structure is presented in Section 2.2 and Figure 2-1 of the license renewal application, referenced in License Condition 9.1. The organizational requirements for reclamation are also provided in Section 1.0 of the Quality Assurance (QA) Program, referenced in License Condition 51.C. The licensee's staff consisted of two employees and approximately 40 contractors. One employee had retired since the last inspection and that individual's duties were being performed by the contract radiation safety officer. The licensee used contractors for QA oversight, geotechnical support, cell construction, radiation safety support, and miscellaneous site maintenance activities as needed. At the time of inspection, all management-level positions were filled with experienced staff. The inspector concluded that the licensee had sufficient staff to ensure compliance with license and regulatory requirements.

The inspector reviewed the licensee's oversight programs and interviewed licensee staff responsible for implementing these programs. The oversight programs included routine site inspections, reviews, and audits.

Routine audits and program reviews are required by License Condition 9.1, the Reclamation Plan, and 10 CFR 20.1101(c). The licensee's ALARA (As Low As Is Reasonably Achievable) Committee held a meeting in January 2022 to review the

radiological data for 2021 and to establish ALARA goals for 2022. The committee reviewed radiological data including occupational exposures. The committee established ALARA goals including lower action levels for bioassays and internal exposures.

License Condition 9.1, Enclosure 2, Section 2.8, specifies that the health and safety manager shall conduct an inspection of all plant activities involving radioactive material on a monthly basis. The inspector reviewed the licensee's monthly reports and concluded that the reports provided detailed accounts of activities that had been completed in previous months.

Attachment A of the licensee's Reclamation Plan contains technical specifications for the disposal cell, and these technical specifications were most recently revised in May 2019. The inspector verified that documentation of construction inspection work was being conducted and observed in accordance with technical specifications Section 1.6, "Construction Documentation."

Daily QA reports summarized activities on site and discussed the general conditions of the site and disposal cell. The reports outlined areas needing attention, such as work activities performed by the various contractors, any QA testing and surveying, ongoing discussions and key decisions, important communications, and minor design modifications. The inspector reviewed the daily reports issued since the last routine inspection. The reports provided detailed information of the activities in progress since the previous inspection. The site QA Manager maintained an electronic file with photographs of key construction activities.

### 1.3 Conclusions

The inspector reviewed the licensee's radiation safety program activities to ensure compliance with regulatory and license requirements. The inspector determined that the licensee was conducting the radiation safety program as required in a manner that was protective of public health and safety and the environment.

The inspector reviewed the licensee's groundwater and environmental monitoring programs to ensure compliance with regulatory and license requirements. The inspector determined that the licensee was conducting these programs as required in a manner that was protective of public health and safety and the environment.

The inspector reviewed the licensee's management organization and controls to ensure compliance with regulatory and license requirements. The inspector determined that the licensee had sufficient management oversight and audit processes in place to conduct operations in accordance with requirements.

## **2 Exit Meeting Summary**

The NRC inspector presented the inspection findings to the licensee's representatives at the conclusion of the onsite portion of the inspection on April 6, 2022.

## SUPPLEMENTAL INSPECTION INFORMATION

### Partial List of Persons Contacted

#### Licensee Personnel

J. Ellis, President

R. Miller, Contractor, RMA

K. Schlag, Contractor, RMA

### Inspection Procedures Used

IP 87104      Decommissioning Inspection Procedure for Materials Licensees

### Items Opened, Closed and Discussed

#### Opened

None

#### Closed

None

#### Discussed

None

### List of Acronyms

ADAMS	Agencywide Documents Access and Management System
CFR	<i>Code of Federal Regulations</i>
GCAP	groundwater corrective action program
IP	NRC Inspection Procedure
NRC	U.S. Nuclear Regulatory Commission
QA	quality assurance