



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
REGION IV  
1600 E. LAMAR BLVD.  
ARLINGTON, TX 76011-4511

July 13, 2015

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

SUBJECT: NRC INSPECTION REPORT 040-08027/15-001

Dear Mr. Ellis:

This refers to the U.S. Nuclear Regulatory Commission (NRC) inspection conducted from April 29-May 1, 2015, at your Sequoyah Fuels Corporation site near Gore, Oklahoma. 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 enclosed report presents the results of this inspection.

This inspection included a confirmatory survey of several excavated areas. The confirmatory survey included measurement of ambient gamma radiation levels and collection of soil samples. The preliminary inspection findings were presented to your staff at the conclusion of the onsite inspection. The final inspection results were presented to your staff by telephone on June 26, 2015, after receipt of the NRC's revised soil sample results on June 17, 2015.

As discussed with your staff at the exit briefing, the results of the confirmatory survey indicate that additional remediation was necessary in three discrete areas north of the disposal cell. In the exit briefing, your staff agreed to remediate the three areas and to collect additional radiological samples after the remediation work has been completed. At the time of the final exit briefing, your staff had completed the remediation of two areas and planned to remediate the third area in the next few weeks. Details about these three areas are included in the enclosed inspection report. The NRC staff will continue to review your decommissioning efforts during future inspections.

As discussed with your staff at the exit briefing, the results of the confirmatory survey indicate that additional remediation was necessary in three discrete areas north of the disposal cell. This inspection finding suggests that your staff did not adequately survey the excavated areas prior to declaring the areas ready for final surveys. In the exit briefing, your staff agreed to remediate the three areas and to collect additional radiological samples after the remediation work has been completed. At the time of the final exit briefing, your staff had completed the remediation of two areas and planned to remediate the third area in the next few weeks. Details about these three areas are included in the enclosed inspection report. The NRC staff will continue to review the details associated with this incident and your continuing decommissioning efforts during future inspections.

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 Dr. Robert Evans, Senior Health Physicist, at 817-200-1234, or the undersigned at 817-200-1191.

Sincerely,

*/RA/*

Ray L. Kellar, P.E., Chief  
Repository and Spent Fuel Safety Branch  
Division of Nuclear Materials Safety

Docket No. 040-08027  
License No. SUB-1010

Enclosure:  
NRC Inspection Report 040-08027/15-001

cc w/encl: D. Silverman  
R. Ware  
A. Enstrom  
W. Andrews  
C. Eubanks  
D. Cates  
S. Hill  
J. Harris  
M. Broderick

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U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV

Docket: 040-08027

License: SUB-1010

Report: 040-08027/15-001

Licensee: Sequoyah Fuels Corporation

Location: P.O. Box 610, Gore, Oklahoma

Dates: April 29-May 1, 2015

Inspector: Robert Evans, Ph.D., P.E., C.H.P., Senior Health Physicist  
Repository and Spent Fuel Safety Branch  
Division of Nuclear Materials Safety  
Region IV

Approved by: Ray L. Kellar, P.E., Chief  
Repository and Spent Fuel Safety Branch  
Division of Nuclear Materials Safety  
Region IV

Attachment: Supplemental Inspection Information

Enclosure

## **EXECUTIVE SUMMARY**

### **Sequoyah Fuels Corporation NRC Inspection Report 040-08027/15-001**

This U.S. Nuclear Regulatory Commission (NRC) inspection was a routine, announced inspection of decommissioning activities being conducted at the Sequoyah Fuels Corporation site near Gore, Oklahoma. The inspector conducted a confirmatory survey which consisted of measurement of ambient gamma radiation levels and collection of split soil samples. The inspector concluded that the licensee was conducting decommissioning activities in accordance with regulatory and license requirements.

#### **Closeout Inspection and Survey**

- The inspector reviewed the licensee's final status survey design and sample results for four areas that were previously excavated. The four survey units included the northwest, north, and northeast areas adjacent to the disposal cell. The licensee's records indicate that it had designed and conducted its surveys in accordance with license requirements, and all sample results were less than the limits specified in the NRC-approved Reclamation Plan. The licensee's records indicate that the four areas had been effectively remediated. The licensee collected a sufficient number of systematic, duplicate, and replicate samples. All sample results were less than the cleanup level specified in the Reclamation Plan. (Section 1.2.a)
- The inspector conducted a confirmatory survey of the four excavated areas. The survey included measurement of ambient gamma radiation levels and collection of soil samples. All final soil sample results were less than the limits specified in the Reclamation Plan, with three exceptions. One sample (NRC-8) was not analyzed because it contained total uranium in concentrations that exceeded the action level based on an X-ray fluorescence meter scan. The second sample (NRC-5) contained total uranium in concentrations that exceeded the cleanup level. The third sample (NRC-4) contained thorium-230 in concentrations that exceeded the subsurface cleanup level. The licensee has since remediated and resurveyed two of three areas, and the licensee plans to remediate the third area in the near future. (Section 1.2.b)

## Report Details

### Summary of Plant Status

License Condition 51 allows the licensee to conduct decommissioning in accordance with the Reclamation Plan dated July 2008, as amended. The licensee commenced with site decommissioning in April 2009. To decommission the site, the licensee planned to dismantle and remove systems and equipment, demolish structures, treat sludges and sediments, remediate contaminated soils, and treat wastewater. Most of the residual waste material will be placed in an onsite cell for permanent disposal.

Since the previous inspection, conducted in March 2015 (ADAMS Accession Number ML15113A199), the licensee continued to remediate the site and continued to place waste material into the cell for permanent disposal. Other work completed by the licensee in recent months included remediation of the storm water capture area, DUF<sub>4</sub> (depleted uranium tetrafluoride) building foundation, Pond 1 spoils pile, north burial pit (formerly known as solid waste burial area No. 2), northeastern area (formerly a burial and burn site), fluoride clarifier basin, north/south fluoride settling basins, and clarifier basins Nos. 1 and 4.

The licensee also rerouted the disposal cell leachate and leak detection fluid drainage from three sets of sumps to a single transport tanker. The transport container was in service during the inspection, collecting leachate water primarily from the Phase II portion of the cell. In the future, the licensee plans to use two drain tanks, one for clean water and the second for contaminated water.

During the inspection, the licensee's contractor continued to demolish the cell rooms in the former main processing building. The contractor continued to place waste debris in the disposal cell. The licensee demolished the laundry building after the onsite inspection. The remaining site structures within the radiologically restricted area include the remnants of the main process building, water treatment facility, and oil storage building. The licensee continued to store equipment previously salvaged from the former DUF<sub>4</sub> building. The licensee plans to transfer this salvaged material to a different NRC licensee in the near future. Further, the licensee continued to store residual DUF<sub>4</sub> material and natural uranium in 77 drums. The drums were stored in two metal shipping containers at the former yellowcake storage pad. The licensee plans to ship this material for recycling or disposal at some point in the future.

The licensee still possessed approximately 11,000 tons of bagged raffinate sludge, material that was removed from the four clarifier basins. The licensee also possessed 851 bags of sediments removed from the emergency basin, north ditch, and sanitary lagoon. The licensee continued to stage the bagged sludge and sediment material for possible transfer to an out-of-state uranium mill for use as alternate feed material. If the licensee is unable to transfer the material to the mill, the Reclamation Plan allows the licensee to dispose of the material in the onsite disposal cell. The licensee plans to make a final decision about the disposal of the raffinate sludge and pond sediments in the near future.

## **1 Closeout Inspection and Survey (83890)**

### **1.1 Inspection Scope**

The inspector attempted to ensure that the licensee was conducting decommissioning and associated radiological surveys in accordance with license requirements.

## 1.2 Observations and Findings

### a. Review of Final Status Survey Results

License Condition 51 stipulates that site decommissioning be conducted in accordance with the guidance provided in the Reclamation Plan dated January 2008, as amended. At the time of the inspection, the licensee had excavated four areas adjacent to the disposal cell. These areas were located to the northwest, north, and northeast of the cell. The four areas included the area just north of the former Pond 1 spoils pile, the area south of the former north burial pit, and the foundation and yard of the former DUF<sub>4</sub> building. Before the licensee could backfill these areas, the licensee had to verify that the ground surfaces met certain radiological characteristics.

The NRC-approved Reclamation Plan provides two sets of survey requirements, depending on the radionuclides of concern in that area. In certain areas, the radionuclides of concern include thorium-230, radium-226, and natural uranium. These areas include the clarifier basins, Pond 2, and Pond 1 spoils pile area. For the remainder of the site, the radionuclide of concern is natural uranium.

Section 3.2.3 of the Reclamation Plan specifies that the licensee will conduct final status surveys based on the radionuclides of concern for that area. The areas recently reclaimed by the licensee consisted of areas that contained uranium contamination only. The licensee is required to survey these areas using the guidance provided in NUREG-1575, Revision 1, "Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)." Detailed guidance for conducting final status surveys was provided in Attachment B, "Final Status Survey," of the Reclamation Plan. Additional details are provided in site procedure AI-33, "Final Status Survey, Class 1 Soils."

In accordance with MARSSIM guidance, the licensee collected soil samples and measured ambient gamma radiation levels. Two types of soil samples were collected. The licensee collected systematic samples using a grid system and biased samples based on the results of the gamma radiation surveys. By procedure, the licensee was also required to collect duplicate and replicate samples at a rate of one sample for every 10 systematic samples collected (10-percent). The duplicate samples were used to demonstrate sampling precision, while the replicate samples were used to demonstrate accuracy. The licensee was not required to collect duplicate and replicate samples for biased soil samples.

Section 3.2.2 of the Reclamation Plan provides the cleanup criteria for radionuclides in soil. The soil cleanup level for natural uranium is 100 picocuries per gram (pCi/g), regardless of depth. If the soil sample results are less than the cleanup levels, then the licensee has effectively remediated the areas. If the sample results are above the cleanup levels, the licensee is required to conduct additional reclamation work in that area. (In practice, total uranium is measured in lieu of natural uranium.)

In addition to soil sampling, the licensee conducted scan surveys to identify areas of elevated radioactivity. The licensee established an action level of three times background. Prior to conducting the walk-over scan survey of an excavated area, the licensee conducted survey measurements in a background area. The licensee then compared the measurements in the excavated area to the background measurements.



Any area that exhibited elevated contamination was flagged for further investigation or remediation.

The inspector reviewed the licensee's final status survey design and survey results for the four areas to ensure that the licensee had remediated and final status surveyed the areas in accordance with Reclamation Plan requirements.

The first survey unit was located just north of the former Pond 1 spoils pile and west of the Phase II portion of the disposal cell. This area was approximately 3,880 square meters ( $\text{m}^2$ ) in size. During the inspection, a transport tanker was located within this survey unit, collecting leachate drainage from the disposal cell. (The licensee previously discontinued use of collection sumps.) The licensee conducted gamma scans and soil sampling to demonstrate compliance with the uranium cleanup level. The gamma scan survey results did not identify any area with elevated gamma radiation above the action level (three times background).

The licensee established 250  $\text{m}^2$  survey grids in this area, as recommended by MARSSIM, and collected 18 systematic and three biased samples in this survey unit. The licensee also collected one set of duplicate and replicate samples from this survey unit. A second sample set was subsequently discarded by the licensee. (Although the licensee did not collect a sufficient number of duplicate and replicate samples that met or exceeded the 10-percent procedure limit, the overall number of duplicate and replicate samples is expected to meet or exceed the 10-percent limit when all survey units are combined into one final status survey report.) Using the guidance provided in MARSSIM, the licensee needed to collect at least 16 systematic soil samples; therefore, the licensee collected a sufficient number of samples. The inspector reviewed the sample results and noted that the highest total uranium sample result was 14.5 pCi/g with a cleanup level of 100 pCi/g.

The licensee also collected three biased soil samples in the eastern edge of the survey unit, adjacent to the disposal cell. These sample results contained elevated concentrations of total uranium, ranging from 115 to 311 pCi/g. These sample points were located within the footprint of the disposal cell. Table 3-1 of the Reclamation Plan specifies that the derived concentration guideline level for these sample points is 570 pCi/g. Accordingly, these three sample points did not exceed the uranium activity concentration for locations situated within the footprint of the disposal cell.

The second survey unit was located north-northwest of the Phase II portion of the disposal cell. This area is located between the former north burial pit and the disposal cell. The survey unit was approximately 4,343  $\text{m}^2$  in size. The licensee's survey included gamma scans and soil sampling for natural (total) uranium concentrations. None of the licensee's scan survey results exceeded the action level (three times background).

The licensee collected 15 systematic soil samples and one biased sample from this area, plus two sets of duplicate and replicate samples. The recommended minimum number of samples, using MARSSIM guidance based on the survey unit size, was 17 samples. When combined with adjacent survey grids, the licensee collected a sufficient number of systematic, duplicate, and replicate samples. The highest soil sample result for natural (total) uranium was 52 pCi/g. In summary, all soil sample results were below the cleanup level of 100 pCi/g.

The third survey unit was located to the north and northeast of the Phase I portion of the disposal cell. This survey unit was approximately 3,284 m<sup>2</sup> in size. The survey included gamma scans and soil sampling for total uranium concentrations. None of the licensee's scan surveys results exceeded the action level. The licensee collected 14 systematic samples, 9 biased samples, and two sets of duplicate and replicate samples. The MARSSIM-recommended number of samples, based on survey unit size, was 13 samples. The licensee collected a sufficient number of samples in this survey unit. The highest systematic soil sample result was 92 pCi/g, while the highest biased sample result was 35 pCi/g. All sample results were below the cleanup level of 100 pCi/g.

Finally, the inspector reviewed the licensee's survey results for the former DUF<sub>4</sub> building foundation and yard, located to the east of the Phase I portion of the disposal cell. The surveyed area totaled about 6,644 m<sup>2</sup> in size. The licensee conducted ambient gamma radiation scans in this area, and all survey results were less than the action level. The licensee collected 27 systematic samples and no biased samples. The licensee also collected three sets of duplicate and replicate samples. Based on MARSSIM guidance, the recommended number of sample points was 27; therefore, the licensee collected a sufficient number of samples in the survey unit. The highest total uranium sample result was 12.3 pCi/g. All sample results were below the 100 pCi/g cleanup level.

In summary, the licensee's records indicate that the four areas, located to the northwest, north, and northeast of the disposal cell, had been effectively remediated. The licensee collected a sufficient number of systematic, duplicate, and replicate samples. All sample results were less than the cleanup level specified in the Reclamation Plan.

b. Confirmatory Survey

The inspector conducted a confirmatory survey of the four survey units. The purpose of the survey was to confirm the effectiveness and accuracy of the licensee's final status surveys relative to whether the areas met the acceptance criteria established in the Reclamation Plan. The confirmatory survey included measurement of ambient gamma exposure rates and collection of soil samples.

The inspector conducted the gamma scan using a Ludlum Model 12 count rate meter with 2-inch by 2-inch sodium iodide probe (NRC No. 20888G, calibration due date of 07/30/15). Prior to conducting the gamma scan, the inspectors measured ambient background level to establish an action level for the survey meter. The background measurement was recorded outside of the restricted area in the yard adjacent to the administrative building. Because the licensee's action level for gamma radiation exposure rates was three times the background level, for consistency, the NRC inspectors' action level was also set at three times the measured background level.

The inspector conducted walk-over scan surveys of the four areas with the Model 12 count rate meter. With a background of 10,000-12,000 counts per minute (cpm), the count rates in the first survey unit, located west of the Phase II portion of the disposal cell, ranged from 8,000 to 12,000 cpm. The count rates in the second survey unit, located to the north-northwest of the Phase II cell area, ranged from 10,000-18,000 cpm. One elevated "hot spot" was identified in this survey unit. This small area measured 32,000 cpm on contact. Further discussion of this location is provided below. The count rates in the third survey unit, located to the north-northeast of the Phase I portion of the cell, ranged from 7,000-18,000 cpm. Finally, the fourth survey unit, located to the east of

the Phase I portion of the cell, ranged from 9,000-16,000 cpm. In summary, no general area survey measurement exceeded the action level of three times background (approximately 33,000 cpm), although one location in the second survey unit almost exceeded the action level.

The inspector collected 12 soil samples for comparison to the cleanup levels. Three samples were collected from each of the four survey units. The inspector selected the sample points based on elevated ambient gamma radiation measurements, observation of drainage points, or changes in soil characteristics. Immediately after the samples were collected, the licensee conducted a scan measurement of the 12 samples using an X-Ray Fluorescence (XRF) meter. The licensee's screen indicated that one sample, NRC-8, collected from the hot spot discussed above, exceeded the cleanup level. The inspector agreed to remove this sample from the set of samples, and the licensee agreed to investigate and remediate the area as necessary.

The inspector submitted the remaining 11 soil samples to the NRC's contract laboratory, Oak Ridge Associated Universities in Oak Ridge, Tennessee. The samples were analyzed by gamma spectroscopy for determination of total uranium concentrations. The licensee collected split samples and submitted the samples to its contract laboratory for radiochemical analysis. The NRC's sample results and the licensee's split sample results are presented in Table 1 below in units of picocuries per gram (pCi/g):

**Table 1: Split Sample Results for Total Uranium Concentrations**

NRC Sample	Licensee Sample	Sample Location	NRC (pCi/g)	Licensee* (pCi/g)
NRC-1	HA-1934	Southwest corner of DUF <sub>4</sub> building yard	8.8 ± 1.7	7.51
NRC-2	HA-1935	Southeast corner of DUF <sub>4</sub> building yard	4.29 ± 0.81	2.44
NRC-3	HA-1936	Northeast corner of DUF <sub>4</sub> building yard by drainage ditch	4.1 ± 1.1	2.45
NRC-4	HA-1937	Northeast corner area near monitoring wells	43.8 ± 6.7	35.2
NRC-5	HA-1938	North of cell by telephone pole	186 ± 28	157
NRC-6	HA-1939	North of cell, adjacent to cell wall	3.09 ± 0.67	1.86
NRC-7	HA-1940	North of cell, cell wall under drainage conduit	45.2 ± 6.8	43.7
NRC-8	HA-1941	North-northwest corner area, adjacent to cell	Sample not analyzed	
NRC-9	HA-1942	North-northwest corner area, near fence	41.5 ± 6.4	29.4

NRC-10	HA-1943	Northwestern area near road	3.89 ± 0.77	3.10
NRC-11	HA-1944	Northwestern area near cell	67 ± 10	55.9
NRC-12	HA-1945	Northwestern area, low point	5.29 ± 0.97	5.46

\*Licensee's sample results were converted from units of micrograms per gram to units of pCi/g

The inspector compared the sample results to the NRC-approved cleanup level of 100 pCi/g for natural (total) uranium. All sample results were less than the cleanup level, with one exception. The sample result for NRC-5, collected in the north-northeastern survey unit, exceeded the cleanup level.

The inspector noted that the NRC's sample results were similar to the licensee's sample results, suggesting good correlation between the two laboratories. Some variations in sample results can be explained by different laboratory sample protocols and possible inadequate mixing of split samples in the field.

The licensee acknowledged the exceedance at the location where sample NRC-5 was collected and agreed to remediate that area. The licensee also remediated the area where sample NRC-8 was collected, in the north-northwest corner area adjacent to cell. According to information provided by the licensee after the onsite inspection, in early May 2015, the licensee excavated these two areas. An area of approximately 18-19 m<sup>2</sup> was excavated around the location of sample NRC-5 to a depth of about 0.6 meters. This resulted in the removal of a soil volume of approximately 11 cubic meters (15 cubic yards). This soil was removed and transported to the disposal cell. In addition, an area of approximately 230 m<sup>2</sup> was excavated to a depth of about 1 meter near the location of sample NRC-8. This resulted in a soil volume of about 210 cubic meters (300 cubic yards) being removed and transported to the disposal cell. The licensee conducted radiological surveys, including soil sampling, during and after the excavations to guide and confirm removal of soil with uranium concentrations greater than the cleanup level. Some of the area was backfilled to support the construction schedule.

The licensee subsequently submitted the soil resample results from these two areas to the NRC (the NRC did not split these samples with the licensee):

**Table 2: Sample Results for Total Uranium Concentrations after reclamation**

NRC Sample	Licensee Sample	Sample Location	NRC (pCi/g)	Licensee* (pCi/g)
Location of NRC-8	HA-1946	North-northwest corner area, adjacent to cell	NA	57.9
Location of NRC-5	HA-1947	North of cell by telephone pole	NA	3.45

\*Licensee's sample results were converted from units of micrograms per gram to units of pCi/g

Both sample results were less than the cleanup level of 100 pCi/g, suggesting that the licensee had effectively remediated the two areas.

After the conclusion of the onsite inspection, the NRC became aware that soil sample NRC-4 contained thorium-230 in concentrations greater than the cleanup limit of 43 pCi/g for subsurface soil. The NRC's contract laboratory provided informal laboratory results indicating that this sample contained  $790 \pm 130$  pCi/g of thorium-230, based on a limited gamma spectroscopy analysis. No other NRC sample result exceeded the licensee's cleanup level for subsurface thorium-230.

At the request of the NRC staff, the licensee reanalyzed its split sample and confirmed that the sample contained thorium-230 in excess of the cleanup level. Using alpha spectroscopy, the licensee's sample result for thorium-230 radioactivity was  $1090 \pm 13.3$  pCi/g. In response to this finding, the licensee agreed to conduct additional remediation at the location where sample NRC-4 was collected and to obtain additional samples in the vicinity of the area to confirm if the uranium and thorium cleanup levels have been met.

Two groundwater monitoring wells are situated near the location where sample NRC-4 was collected. One well is about 2.4 meters deep. This well will be removed by excavation to the depth of the well. The other well is about 11.6 meters deep. The contaminated soil around this well will be removed, and the well will be sealed off. At a later date, the licensee plans to formally plug the well in accordance with State of Oklahoma requirements. Plugging and abandonment of this well cannot be completed at this time because overhead power lines prevent a drilling rig from setting up on the well.

The licensee reviewed old aerial photographs and interviewed a former employee who was present since the facility started operations. The licensee speculates that the thorium contamination was most likely due to placement of backfill in an old drainage pathway. The backfill included debris which probably contained thorium-230 contamination. Most of the backfill material was previously excavated from this area and placed into the disposal cell.

After discovery of thorium-230 contamination near the monitoring wells, the licensee conducted further reviews to determine the extent of the thorium contamination. As part of this review, the licensee reanalyzed soil samples previously collected from the general area. One sample, collected near a power pole east of the monitoring wells, also contained thorium-230 radioactivity greater than the cleanup level. The licensee subsequently decided to remediate the thorium-230 impacted soil in a few months, after removal or relocation of the power lines in the area. Following excavation of the area around the monitoring wells and power pole, the licensee will conduct a final status survey, including analysis of soil samples for both uranium and thorium-230 concentrations.

In summary, the confirmatory survey results suggest that the licensee had adequately remediated the four areas located adjacent to the northwest, north, and northeast of the disposal cell, with three exceptions. At the conclusion of the inspection period, the licensee had remediate two of three areas, and the licensee planned to remediate the third area in the next few months. The NRC will review the licensee's efforts to remediate the thorium-230 contamination during a future inspection.

### 1.3 Conclusions

The inspector reviewed the licensee's final status survey design and sample results for four areas that were previously excavated. The four survey units included the northwest, north, and northeast areas adjacent to the disposal cell. The licensee's records indicate that it had designed and conducted its surveys in accordance with license requirements, and all sample results were less than the limits specified in the NRC-approved Reclamation Plan. The licensee's records indicate that the four areas had been effectively remediated. The licensee collected a sufficient number of systematic, duplicate, and replicate samples. All sample results were less than the cleanup level specified in the Reclamation Plan.

The inspector conducted a confirmatory survey of the four excavated areas. The survey included measurement of ambient gamma radiation levels and collection of soil samples. All final soil sample results were less than the limits specified in the Reclamation Plan, with three exceptions. One sample (NRC-8) was not analyzed because it contained total uranium in concentrations that exceeded the action level based on an X-ray fluorescence meter scan. The second sample (NRC-5) contained total uranium in concentrations that exceeded the cleanup level. The third sample (NRC-4) contained thorium-230 in concentrations that exceeded the subsurface cleanup level. The licensee has since remediated and resurveyed two of three areas, and the licensee plans to remediate the third area in the near future.

## 2 **Exit Meeting**

The inspector reviewed the preliminary inspection scope and findings during an exit meeting that was conducted at the conclusion of the onsite inspection. The final inspection findings were presented to the licensee's staff by telephone on June 26, 2015, after receipt of the NRC's corrected confirmatory survey soil sample results on June 17, 2015. During the inspection, the licensee did not identify any information reviewed by the inspector as proprietary.

## **SUPPLEMENTAL INFORMATION**

### **PARTIAL LIST OF PERSONS CONTACTED**

#### Sequoayah Fuels Corporation

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S. Munson, Manager, Health, Safety and Environment  
B. Reid, Director, Decommissioning, RMA  
K. Schlag, Manager, Quality Assurance, RMA

### **INSPECTION PROCEDURES USED**

IP 83890      Closeout Inspection and Survey

### **ITEMS OPENED, CLOSED, AND DISCUSSED**

#### Opened

None

#### Closed

None

#### Discussed

None

### **LIST OF ACRONYMS**

ADAMS	Agencywide Documents Access and Management System
CFR	Code of Federal Regulations
cpm	counts per minute
DUF <sub>4</sub>	depleted uranium tetrafluoride
IP	Inspection Procedure
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
m <sup>2</sup>	square meters
NRC	U.S. Nuclear Regulatory Commission
pCi/g	picocuries per gram
XRF	X-Ray fluorescence meter