



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

April 29, 2015

Bill Halliburton, Administrator
Cimarron Environmental Response Trust
c/o Environmental Properties Management, LLC
9400 Ward Parkway
Kansas City, MO 64114

SUBJECT: NRC INSPECTION REPORT 070-00925/15-001

Dear Mr. Halliburton:

This letter refers to the inspection conducted on March 31 to April 2, 2015, at the Cimarron facility located in Crescent, Oklahoma. This inspection was an examination of activities conducted under your license as they relate to public health and safety to confirm 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 results of the inspection were discussed with you and members of your staff at the exit briefing conducted at the conclusion of the site visit on April 2, 2015. 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 document system (ADAMS), accessible from the NRC's 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. Gerald Schlapper, Health Physicist, at 817-200-1273 or the undersigned at 817-200-1191.

Sincerely,

/RA/

Ray Kellar, P.E. Chief
Repository and Spent Fuel Safety Branch

Docket: 070-00925
License: SNM-928

Enclosure:
NRC Inspection Report 070-00925/15-001
w/Attachment: Supplemental Information

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Letter to Mr. B. Halliburton from Mr. R. Kellar dated 4/30/2015

SUBJECT: NRC INSPECTION REPORT 070-00925/15-001

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

Docket: 070-00925

License: SNM-928

Report: 070-00925/15-001

Licensee: Cimarron Environmental Response Trust

Location: Crescent, Oklahoma

Date: March 31-April 2, 2015

Inspector: Gerald Schlapper, PhD, CHP Health Physicist
Repository and Spent Fuel Safety Branch

Donald Stearns, Health Physicist
Repository and Spent Fuel Safety Branch

Approved by: Ray Kellar, P.E., Chief
Repository and Spent Fuel Safety Branch

Enclosure

EXECUTIVE SUMMARY

Cimarron Environmental Response Trust
NRC Inspection Report 070-00925/15-001

This inspection was a routine, announced inspection of decommissioning activities being conducted at the Cimarron site. Overall, the licensee was conducting decommissioning activities in accordance with regulatory and license requirements.

Decommissioning Inspection for Materials Facilities/Management Organization and Controls

- The licensee maintained site staffing in accordance with license requirements. The licensee had sufficient staff for the work in progress (Section 1.2).

Radiation Protection

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

Effluent Control and Environmental Protection (88045)

- The licensee had effectively implemented the license and regulatory requirements related to the collection of groundwater samples. Selected samples continue to exceed the NRC's total uranium limit. Ambient gamma radiation levels at the site were found to be essentially at background levels (Section 3.2).

Report Details

Site Status

The Cimarron Nuclear Fuel Production Facility was operated by Kerr-McGee from 1967 until 1975 when operations ceased. The site is approximately ½ mile north of the intersection of Oklahoma State Routes 74 and 33. Since closure, Kerr-McGee, and later Tronox, have been decommissioning the site in accordance with NRC Special Nuclear Material License SNM-928. Tronox filed for bankruptcy protection in January 2009, and upon emerging from bankruptcy in February 2011, the license was transferred to the Cimarron Environmental Response Trust. The trust is administered by Environmental Properties Management, LLC, a subsidiary of Burns & McDonnell. The goal of the Trust is to clean up the property with the trust funds available to the point that it can be released for unrestricted use.

The site historically consisted of approximately 830 acres of land, with several buildings remaining from licensed operations. Recently 117 acres of land west of Highway 74, released by the NRC for unrestricted use were sold. In addition 24 acres, that includes decommissioned buildings east of Highway 74, were purchased by another buyer. All buildings have been released for unrestricted use. With the sale of this real estate, the site now consists of approximately 700 acres with the north property line defined by the riverbank. The original site was divided into 15 subareas. Twelve of the 15 subareas have been released by the NRC for unrestricted use. The remaining three areas have not been released because the groundwater contains uranium concentrations that exceed the site-specific release criteria of 180 picocuries per liter (pCi/L) total uranium. The three areas with groundwater contamination that have been shown in annual sampling to exceed the release criterion are Burial Area 1, Western Alluvial Area, and Western Upland Area. The licensee continues to monitor the groundwater in these three areas in accordance with license requirements.

License Condition 23 authorized the licensee to bury up to 500,000 cubic feet of soil contaminated with low-enriched uranium. This condition further states that the licensee shall periodically monitor the disposal area for subsidence, erosion, and status of the vegetative cover for at least 5 years. The five year monitoring period expired in September 2007. The license condition also states that notification shall be placed on the land title to declare the volume, average uranium concentration, and exact location of the buried contaminated soil. The inspectors verified the presence of delineation markers for this area.

The licensee completed construction of the onsite disposal cell and filed an addendum to the warranty deed (land title) in September 2002. The addendum provided a legal notice of the buried contaminated soil as required by License Condition 23(b). Licensee records indicate that 452,186 cubic feet of uranium contaminated soil containing 0.98 Curies of uranium was placed in the 2.62 acre containment cell.

1 Decommissioning Inspection Procedure for Materials Licensees/Management Organization and Controls (87104, 88005)

1.1 Inspection Scope

The inspectors reviewed management organization and controls to ensure that the licensee was conducting decommissioning activities in accordance with license requirements. The inspectors also conducted a site tour to observe the condition of the facility and land areas.

1.2 Observations and Findings

The organizational structure for the site staff during decommissioning is presented in Figure 3-1 of the Cimarron radiation protection plan (RPP-001, Rev. 1, effective February 3, 2012). The inspectors noted that RPP-001 requires minor changes to reflect current practices. Those changes were documented by the licensee and will be incorporated in a revision to be issued at a future date. Because the licensee has no full time employees, all staff consisted of part-time workers. The highest ranking official was the administrator followed by the project manager. Reporting to the project manager were the radiation safety officer and quality assurance coordinator. The radiation protection plan names the radiation safety officer, as required by the license. To support the groundwater sampling effort, a field geologist and groundwater-sampling technicians were added to the staff. The field geologist functions as an activity lead for the groundwater monitoring effort. The inspector determined that the licensee had sufficient staff for the work in progress.

During the tour of the site the inspectors observed that the licensee maintained the overall condition of the site structures, fences, and gates in good condition. Fencing and gates have been installed to define the area purchased by a private owner in 2015. The inspectors also toured the contaminated soil burial area. No subsidence or erosion was observed and the vegetative cover was being maintained.

1.3 Conclusions

The licensee maintained site staffing in accordance with license requirements. The licensee had sufficient staff for the work in progress. Land areas and facilities were being maintained in acceptable condition.

2 Radiation Protection (83822)

2.1 Inspection Scope

The inspector examined the radiation protection program for consistency with license and regulatory requirements.

2.2 Observations and Findings

License Condition 26 refers to the radiation protection plan that provides the program requirements. Based on current site conditions, there were no posted radiologically restricted areas at the site. Radioactive material storage areas were located in the passage way by the backdoor of the site administrative building where 55 gallon barrels of resin material are stored and on a locked interior closet where exempt sealed instrument check sources are stored. The licensee's representatives stated that they would re-establish portions of the radiation protection program, as required by changes in site radiological conditions.

Section 4 of the radiation protection plan outlines the As Low As Reasonably Achievable (ALARA) program for the site. Section 4.3 of the radiation protection plan specifies the ALARA committee responsibilities to include the need for quarterly meetings and requirements for review of plans for new activities. Section 4.4 specifies the

membership of the ALARA committee and sets minimum participation for a quorum. The ALARA Committee is structured in compliance with license condition 27(e)3. The inspector verified that meetings were held as required during the four quarters prior to the inspection date. The inspectors validated that a quorum was present for all meetings. Minutes of the meetings contained assessments of the status of the radiation protection program.

Section 5.2 of the radiation protection plan requires an annual audit of the radiation protection plan as required by 10 CFR 20.1101. The inspector reviewed the audit conducted during December and issued on March 31, 2015 and found that the structure of the audit was based on guidance found in NUREG-1556, Volume 7, Appendix L. The audit was conducted by the project quality assurance coordinator with support from the Radiation Safety Technician and the project manager. The audit noted no deficiencies in the program.

The licensee stated that the overall health and safety program for the site remains based on the plan of the parent company of the licensee/contractor, Environmental Property Management, Burns & McDonnell, dated April 26, 2013. The Burns & McDonnell over-arching plan contains 24 chapters that address specific hazards and controls that exist throughout the company. All employees are required to complete a one-hour general safety and health orientation class. Individuals performing field work must also complete 10 hours of occupational safety and health training prior to beginning work activities at Burns & McDonnell sites.

During site tours, the inspectors conducted radiation surveys using a Rad-eye Model B20 survey meter (NRC No. 096533, calibration due date of 9/24/2015). The inspectors measured the ambient gamma radiation exposure rates at various locations around the site, including the areas where the groundwater samples were being collected. Background measured 5-6 microRoentgens per hour. All general site measurements ranged from 6-10 microRoentgens per hour.

2.3 Conclusions

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

3 **Effluent Control and Environmental Protection (88045)**

3.1 Inspection Scope

The inspectors reviewed the licensee's implementation of its environmental protection program for compliance with license and regulatory requirements.

3.2 Observations and Findings

License Condition 26 states that the licensee shall conduct the radiation protection program in accordance with the radiation protection plan. Section 15 of the radiation protection plan provides the environmental monitoring program requirements. The program currently consists of surface water and groundwater monitoring. The Plan requires the licensee to collect groundwater samples from 29 wells and surface water samples from two river locations for a total of 31 samples. There are 5 replicates of one

sample taken for concurrent testing to show results are repeatable. The samples are required to be collected annually and analyzed for fluoride, nitrates/nitrites, gross alpha activity, gross beta activity, and uranium isotopes. The radiation protection plan also stipulates that the licensee submit the sample results to the NRC.

The latest sampling event that has been submitted to NRC and approved occurred in May 2014. The licensee collected samples from 85 of 88 wells designated to be sampled, including 30 of 31 sample locations required by the radiation protection plan. Three wells were not sampled because they were found to be dry during the 2014 sampling effort. The licensee submitted the sample results to the NRC by email dated July 15, 2014 (ML14339A524). Based on these sample results, the three areas previously identified with contaminated groundwater, Burial Area 1, Western Upland Area, and Western Alluvial Area, continue to contain uranium contaminated groundwater that exceeds the licensed limit of 180 picocuries of uranium per liter of water. The highest sample result, 1967 picocuries of uranium per liter was collected from Monitor Well TMW-09 which is located within Burial Area 1.

The groundwater sampling effort for 2015 was underway during the time of the inspection. The 2015 sampling effort will produce samples from 211 wells in addition to the 29 wells required as outlined in the radiation protection plan. The inspectors verified that the 2015 sampling plan was approved by the NRC project manager.

The NRC approved groundwater remediation strategy, natural attenuation, does not appear to be effective in cleaning up the uranium in the groundwater. The licensee is currently considering its options for a new strategy for removing uranium from the groundwater. Depending on the option chosen by the licensee and approved by the NRC, the licensee may construct and operate an ion exchange system that will be used to remove uranium from the groundwater.

The licensee recently drilled and sampled geoprobe borings, in part to delineate the extent of migration of chemicals of concern as well as uranium levels in the groundwater. Certain areas of the site contain groundwater with elevated nitrate and fluoride concentrations that exceed the drinking water standards established by the U. S. Environmental Protection Agency.

3.3 Conclusions

The licensee had effectively implemented the license and regulatory requirements related to the collection of groundwater samples. Selected samples continue to exceed the NRC's total uranium limit. Ambient gamma radiation levels at the site were found to be essentially at background levels.

4 **Exit Meeting**

The inspector reviewed the scope and preliminary results of the inspection at the conclusion of the onsite inspection on April 2, 2015. During the inspection, the licensee did not identify any information reviewed by the inspector as proprietary.

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Cimarron Environmental Response Trust

B. Britton, Field Geologist, Enercon
J. Lux, Project Manager, Environmental Properties Management
J. Maisler, Radiation Safety Officer, Enercon

INSPECTION PROCEDURES USED

87104 Decommissioning Inspection Procedure for Materials Licensees
88005 Management Organization and Controls
83822 Radiation Protection
88045 Effluent Control and Environmental Protection

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

None

Discussed

None