



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

August 9, 2016

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

SUBJECT: NRC INSPECTION REPORT 070-00925/2016-001

Dear Mr. Halliburton:

This letter refers to the inspection that the U.S. Nuclear Regulatory Commission (NRC) conducted on July 22, 2016, 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, site tour, 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 July 22, 2016. The enclosed report presents the results of the 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 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 document 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 or proprietary information so that it can be made available to the Public without redaction.

B. Halliburton

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Should you have any questions concerning this inspection, please contact Mr. Don Stearns, Health Physicist, at 817-200-1176, or the undersigned at 817-200-1197.

Sincerely,

/RA/

Jack E. Whitten, Chief
Fuel Cycle and Decommissioning Branch
Division of Nuclear Materials Safety

Docket No: 070-00925
License No: SNM-928

Enclosure:
NRC Inspection Report 070-00925/2016-001
w/Attachment: Supplemental Information

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

Docket: 070-00925

License: SNM-928

Report: 070-00925/2016-001

Licensee: Cimarron Environmental Response Trust

Location: Crescent, Oklahoma

Date: July 22, 2016

Inspector: Donald Stearns, Health Physicist
Fuel Cycle and Decommissioning Branch

Gerald Schlapper, PhD, CHP, Health Physicist
Fuel Cycle and Decommissioning Branch

Accompanied by: Richard Kaiser, Health Physicist
Fuel Cycle and Decommissioning Branch

Jack E. Whitten, Chief
Fuel Cycle and Decommissioning Branch

Attachment: Supplemental Inspection Information

Enclosure

EXECUTIVE SUMMARY

Cimarron Environmental Response Trust Inspection Report 070-00925/2016-001

This Nuclear Regulatory Commission (NRC) inspection was a routine, announced inspection of decommissioning activities being conducted at the Cimarron site in Crescent, Oklahoma. 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).

Radiation Protection

- The licensee implemented its radiation protection program in compliance with license and regulatory requirements (Section 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 of ground water continue to exceed the NRC's total uranium limit. Ambient gamma radiation levels taken at the site were found to be essentially at background levels (Section 3).

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 Cimarron Environmental Response Trust is to clean up the property with the funds available to the point that it can be released for unrestricted use.

The Cimarron site originally consisted of approximately 830 acres of land, with several buildings remaining from licensed operations. Land west of Highway 74, 117 acres, was released by the NRC for unrestricted use. In addition, 24 acres that includes decommissioned buildings east of Highway 74, were released for unrestricted use and purchased by another corporation in 2015. 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.

The licensee was authorized to bury up to 500,000 cubic feet of soil contaminated with low-enriched uranium in accordance with License Condition 23. 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. The license 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. In addition, the license condition 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.

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

1.1 Inspection Scope

The NRC 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). Since the licensee has no full time employees, all staff consisted of part-time workers. The highest ranking official is the administrator followed by the project manager. Reporting to the project manager are 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 inspectors 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 the private owner in 2015.

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 NRC inspectors 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. A radioactive material storage area is located in the passage way by the backdoor of the site administrative building in 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 of the radiation protection plan 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 inspectors 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 Title 10 *Code of Federal Regulations* (CFR) 20.1101. The inspector reviewed the audit issued on March 31, 2015, and found that the audit composition 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 identified or improvements needed in the program. The audit for calendar year 2016 has not been completed as of the date of this inspection.

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 overarching 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. 096531, calibration due date of October 21, 2016). The inspectors measured the ambient gamma radiation exposure rates at various locations around the site, including the some location where the groundwater samples were being collected. Background exposure rates measured 5-8 micro Roentgens (uR)/hour. All general site measurements ranged from 6-10 uR/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 approved radiation protection plan. Section 15 of the radiation protection plan provides the environmental monitoring program requirements for surface and groundwater monitoring. The plan requires the licensee to collect groundwater samples from 29 wells and two surface water samples. By letter dated July 21, 2015 (ML15223A064) the licensee submitted analytical results from the 2015 annual environmental sampling program. The required 31 samples were collected during March and April, 2015 as part of the site-wide 2015 groundwater assessment sampling program which involved the sampling of approximately 210 monitoring wells. The additional monitoring wells were installed to allow for better delineation of uranium exceeding the maximum contaminant levels. Samples were analyzed for gross alpha, gross beta, isotopic uranium, total uranium, nitrate and fluoride. By letter dated July 7, 2016 (ML16203A135) the licensee submitted data obtained for the 2016 annual environmental monitoring program. Samples were collected from May 9 – 12, 2016, and submitted to the contracted laboratory for analysis. Samples were analyzed for the same parameters as those samples analyzed in the 2015 annual environmental monitoring program.

The licensee for groundwater recovery is considering a "pump and treat" strategy for removing uranium from the groundwater. When approved by the NRC, the licensee plans to construct and operate an ion exchange system to remove uranium from the groundwater and to also install deep trenches down to the two sandstone layers. The licensee continues to monitor additional wells to delineate migration of uranium and chemicals of concern, primarily nitrates and fluoride where concentrations 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 inspectors reviewed the scope and preliminary results of the inspection at the conclusion of the onsite inspection on July 22, 2016. 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

INSPECTION PROCEDURES USED

87104 Decommissioning Inspection Procedure for Materials Facilities

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

LIST OF ACRONYMS

| | |
|-------|---|
| ADAMS | Agencywide Documents Access and Management System |
| ALARA | As Low As Reasonably Achievable |
| CFR | <i>Code of Federal Regulations</i> |
| NRC | U.S. Nuclear Regulatory Commission |
| µR/hr | micro Roentgens per hour |
| pCi/l | picocuries per liter |

B. Halliburton

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Jack E. Whitten, Chief
Fuel Cycle and Decommissioning Branch
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ADAMS ACCESSION NUMBER: ML16222A428

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| OFFICE | RIV/DNMS/FCDB | FCDB | | C/FCDB |
| NAME | DLStearns | GASchlapper | | JWhitten |
| SIGNATURE | /RA/ | /RA/ | | /RA/ |
| DATE | 8/8/16 | 8/8/16 | | 8/9/16 |

OFFICIAL RECORD COPY

Letter to Mr. B. Halliburton from Mr. J. Whitten dated August 9, 2016

SUBJECT: NRC INSPECTION REPORT 070-00925/16-001

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