



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
612 EAST LAMAR BLVD, SUITE 400  
ARLINGTON, TEXAS 76011-4125

July 2, 2012

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

SUBJECT: NRC INSPECTION REPORT 070-00925/12-001

Dear Mr. Halliburton:

This refers to the inspection conducted on June 4, 2012, at the Cimarron facility in Crescent, 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 inspection results were presented to you at the conclusion of the onsite 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 "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/*

D. Blair Spitzberg, PhD, Chief  
Repository and Spent Fuel Safety Branch

Docket: 070-00925  
License: SNM-928

Enclosure:  
NRC Inspection Report 070-00925/12-001

cc w/enclosure:

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U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV

Docket: 070-00925  
License: SNM-928  
Report: 070-00925/12-001  
Licensee: Cimarron Environmental Response Trust  
Location: Crescent, Oklahoma  
Date: June 4, 2012  
Inspector: Gerald Schlapper, PhD, CHP Health Physicist  
Repository and Spent Fuel Safety Branch  
Approved by: D. Blair Spitzberg, PhD, Chief  
Repository and Spent Fuel Safety Branch  
Attachment: Supplemental Inspection Information

Enclosure

## **EXECUTIVE SUMMARY**

Cimarron Environmental Response Trust  
NRC Inspection Report 070-00925/12-001

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).

### Radiation Protection/Maintenance and Surveillance Testing

- The licensee implemented its radiation protection program in compliance with license and regulatory requirements (Section 2).

### Radioactive Waste Management

- The licensee implemented the license and regulatory requirements related to the management of radioactive wastes. Ambient gamma radiation levels 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. Since closure, Kerr-McGee followed by Tronox, have been decommissioning the site in accordance with NRC License SNM-928. Tronox filed for bankruptcy protection in January 2009 and, upon emerging from bankruptcy in February 2011, the license and site were transferred to the Cimarron Environmental Response Trust. The trust is funded from a combination of funding provided by Tronox upon its emergence from bankruptcy. The NRC and the Oklahoma Department of Environmental Quality (DEQ) are the designated beneficiaries of the Trust. The goal of the Trust, the Oklahoma Department of Environmental Quality, and the NRC is to clean up the property with the trust funds available to the point that it can be used for any purpose.

The site consists of approximately 830 acres of land, with several buildings remaining from licensed operations. All buildings have been decommissioned and released for unrestricted use. Final status survey reports have been submitted to the NRC for all portions of the site. The site has been 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 total uranium. The limit for uranium results from a dose model that equates the 180 pCi/l to a residual dose of 25 mrem per year based on a drinking water scenario. The three areas with groundwater contamination that exceed the license release criterion of 180 pCi/l 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 site must also comply with a limit set by NRC on Technetium-99 (Tc-99) of 3790 pCi/l. The 2011 groundwater assessment showed that all sampled locations complied with NRC limits on Tc-99. There is also an Environmental Protection Agency (EPA) dose based limit of 900 pCi/l for Tc-99 if the site is to qualify for unrestricted use. In the 2011 assessment, one well (Well 1346) exceeded this limit. An on-site disposal cell located in Sub Area N was constructed to contain a small volume of soils and debris with low levels of contamination. Materials with higher levels of contamination were shipped off-site for burial.

The Cimarron Environmental Response Trust is administered by Environmental Properties Management, LLC. One of the first responsibilities assigned to the Trust was to evaluate alternative groundwater remediation technologies. The Trust as the licensee submitted an evaluation of potential alternative groundwater remediation technologies to the NRC by letter dated June 30, 2011. Seven potential alternative groundwater remediation technologies were evaluated, all but one involved combinations of groundwater extraction and/or injection, mixing, treatment, and direct discharge or irrigation. The NRC subsequently provided a request for additional information to the licensee, and the licensee responded by letter dated September 16, 2011. Should the request receive NRC approval, the licensee expects to change groundwater remediation strategies from natural attenuation to some form of physical treatment system to remove the uranium followed by discharge to an appropriate pathway.

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

### **1.1 Inspection Scope**

The inspector reviewed management organization and controls to ensure that the licensee was conducting decommissioning activities in accordance with license requirements.

### **1.2 Observations and Findings**

The organizational structure is presented in Figure 3-1 of the Cimarron radiation protection plan. Because the licensee will have no employees, all staff consisted of contract workers. The highest ranking official of the licensee was the administrator followed by the project manager. Reporting to the project manager were the radiation safety officer and quality assurance coordinator. In recent years, the primary work activities were annual groundwater sampling and site maintenance. The inspector determined that the licensee had sufficient staff for the work in progress.

### **1.3 Conclusions**

The licensee maintained site staffing in accordance with license requirements. The licensee had sufficient staff for the work in progress.

## **2 Radiation Protection/Maintenance and Surveillance Testing (83822, 88025)**

### **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. Due to the licensee's determination that, pursuant to 10 CFR 20.1502(a)(1), no adult was likely to receive a dose in one year in excess of 10 percent of the limit, the licensee discontinued use of personnel dosimetry in 2008. For similar reasons, the licensee also suspended all occupational air sampling and bioassays. In addition, the licensee no longer conducted routine radiation, equipment release, and surface contamination surveys because it had demonstrated the absence of any contamination except for groundwater.

Based on current site conditions, there were no posted radiologically restricted areas at the site. The RSO stated that, if conditions at the site changed, the licensee would re-establish portions of the radiation protection program as necessary.

The training requirements are provided in Section 2 of the radiation protection plan. The licensee provided site orientations for visitors. The inspector participated in this training and found it to be adequate based on the current activities underway at the site. Job-specific training requirements are addressed in each individual activity plan or work plan.

### 2.3 Conclusions

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

## 3 **Radioactive Waste Management (84850)**

### 3.1 Inspection Scope

The inspector reviewed the radioactive waste management and transportation programs for compliance with license and regulatory requirements.

### 3.2 Observations and Findings

License Condition 27(d) provides the access control requirements. The licensee continued to maintain site fences and gates, and the licensee continued to conduct routine site tours when individuals were onsite. The licensee no longer possessed radioactive material on site, so the licensee did not have to maintain security and control of radioactive material per 10 CFR 20.1801 or 20.1802.

The licensee conducted site tours to allow the inspector and other visitors to observe the condition of the facility. During site tours, the inspector observed the condition of buildings, site fences, and gates. Overall, the licensee continued to maintain site structures, fences, and gates. The licensee noted during the tour that the site had recently experienced high winds. The inspector observed the presence of fiberglass insulation and metal siding on the ground near the titanium dioxide building. Upper floors of the building were observed to be in part without siding and thus open to the environment. These areas were the source of the insulation and metal siding observed around this facility.

License Condition 23 allowed the licensee to bury up to 500,000 cubic feet of soil contaminated with low-enriched uranium below certain concentrations. The inspector toured the burial area. No subsidence or erosion was observed, and the vegetative cover was being maintained over the burial area. The inspector observed the presence of survey markers delineating the extent of the burial area.

During site tours, the inspector conducted radiation surveys with a Ludlum Model 19 micro-Roentgen survey meter (Serial Number 84259, calibration due date January 10, 2013). The inspector measured the ambient gamma radiation exposure rates at various locations around the site. Background measured 5-6 microRoentgens per hour. All general area site measurements ranged from 6-10 microRoentgens per hour. In summary, the gamma exposure rates observed during the tour of the site were essentially at background levels. The inspector also conducted measurements in Sub Area F, with emphasis on an area containing concrete rubble. General area measurements above the concrete rubble at a height of approximately one meter ranged from 6-12 microRoentgens per hour, equal to background levels. In addition the inspector scanned randomly selected locations with a Ludlum 14C survey meter equipped with a probe Model 44-9 beta-gamma frisker (Serial Number 17301, calibration due date January 10, 2013). Typical results ranged from 500-800 counts per minute (cpm) per probe area, with a peak reading of 1200 cpm per probe area. Background levels measured onsite ranged from 400-700 cpm per probe area; thus these readings



confirm that the rubble is essentially at background levels. In addition, these results can be compared with random measurements taken by the inspector of concrete rubble in Sub Area G of 400-800 cpm per probe area. The concrete in Sub Area G had previously been approved for release without restrictions.

### 3.3 Conclusions

The licensee had effectively implemented the license and regulatory requirements related to the management of radioactive wastes. Ambient gamma radiation levels at the site were found to be essentially at background levels.

## 4 **Exit Meeting**

The inspector reviewed the scope of the inspection and the results of the survey of the Area F concrete rubble area during the exit meeting conducted at the conclusion of the onsite inspection on June 4, 2012. 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. Halliburton, Administrator

J. Lux, Project Manager, Environmental Properties Management

J. Maisler, Radiation Safety Officer, Enercon

Oklahoma Department of Environmental Quality

M. Broderick, Environmental Program Manager, Land Protection Division

D. Cates, Professional Engineer, Land Protection Division

**INSPECTION PROCEDURES USED**

87104 Decommissioning Inspection Procedure for Materials Facilities

88005 Management Organization and Controls

83822 Radiation Protection

88025 Maintenance and Surveillance Testing

84850 Radioactive Waste Management

**ITEMS OPENED, CLOSED, AND DISCUSSED**

Opened

None

Closed

None

Discussed

None