



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION IV

611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

April 11, 1997

Cimarron Corporation
ATTN: S. Jess Larsen, Vice President
Kerr-McGee Center
P.O. Box 25861
Oklahoma City, Oklahoma 73125

SUBJECT: NRC INSPECTION REPORT 70-925/97-01

Dear Mr. Larsen:

On March 26, 1997, the NRC completed an inspection of the Cimarron site near Crescent, Oklahoma. The enclosed report presents the scope and results of that inspection.

The inspection covered the work in progress related to the placement of in-situ soil meeting Branch Technical Position option No. 2 criteria in pit No. 3. Soil sampling activities by the licensee were observed. Ten soil samples were collected from pit No. 3 for analysis by the NRC. The results of these soil samples will be compared to the results of the soil samples collected at the same locations by Cimarron as part of the NRC's confirmatory sampling program for the Cimarron site. No violations or deviations of regulatory requirements were identified during this inspection.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be placed in the NRC Public Document Room. Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

Ross A. Scarano, Director
Division of Nuclear Materials Safety

Docket: 70-925
License: SNM-928

Enclosure:
NRC Inspection Report
70-925/97-01

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Cimarron Corporation

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cc w/enclosure:

Kerr-McGee Corporation

ATTN: John C. Stauter

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Oklahoma City, Oklahoma 73125

Cimarron Corporation

ATTN: J. L. Kegin, Site Manager

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ENCLOSURE

U. S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket No.: 70-925

License No.: SNM-928

Report No.: 70-925/97-01

Licensee: Cimarron Corporation
Kerr-McGee Center
Oklahoma City, Oklahoma 73125

Facility: Cimarron Site

Location: Crescent, Oklahoma

Dates: March 26, 1997

Inspector: J. V. Everett, Health Physicist
Nuclear Materials Licensing Branch

Accompanied and
Approved by: D. Blair Spitzberg, Ph. D., Chief
Nuclear Material Licensing Branch

Attachment: Supplemental Information

EXECUTIVE SUMMARY

Cimarron Corporation, Cimarron Site
NRC Inspection Report 70-925/97-01

Cimarron is in the final stage of site remediation in preparation for termination of their nuclear material licensee. Several radiological inspections and surveys have been conducted at Cimarron as part of the overall NRC confirmatory survey process. This inspection was a continuation of this process. The licensee is authorized to bury soil at the Cimarron site that is contaminated with slightly enriched uranium as long as the soil meets the criteria of the NRC Branch Technical Position for option 2 soil. This inspection involved the sampling of soil placed in pit No. 3 to confirm compliance with the Option 2 soil limits.

- Scan surveys using a NaI detector were made of the soil in pit No. 3 by the NRC inspector. No hot spots were identified but in some locations the NRC instrument read as much as 50% higher than the licensee's. This difference will be examined within the context of the soil sample comparisons (Section 1).
- Collection of soil samples from pit No. 3 was performed during this inspection. Soil samples were collected from the same locations by both the NRC and the licensee. This sampling is part of the NRC confirmatory survey program for the eventual termination of the Cimarron nuclear materials' license. Comparison of the sample results will be tracked as a followup item (Section 1).

Report Details

Summary of Plant Status

The Cimarron site has been undergoing final remediation activities for termination of their NRC licensee. The work activity at pit No. 3 represented the final soil remediation effort underway by Cimarron and is planned for completion by this summer. Final survey activities for the site are underway. This inspection was a continuation of the NRC's confirmatory survey program for the Cimarron site.

1 Decommissioning Inspection and Confirmatory Survey (83890/88104)

1.1 Inspection Scope

Cimarron License Condition 23 of License SNM-0928 authorizes the burial of up to 14,000 cubic meters of soil contaminated with low-enriched uranium with concentrations less than the Branch Technical Position option No. 2 concentration limits. The limits for Branch Technical Position option No. 2 soil are 100 pCi/gm soluble uranium and 250 pCi/gm insoluble uranium. This inspection reviewed the compliance of this license condition related to the soil recently placed in pit No. 3.

1.2 Observation and Findings

Direct observation of the sampling activities of pit No. 3 was completed by the NRC inspectors. The licensee had completed the placement of the soil in the pit, compacted the soil, conducted compaction and density measurements, established a grid pattern in the pit, and was conducting soil sampling. Radiation levels were evaluated by the licensee using a portable NaI detector. Background radiation levels at the plant site averaged 7 microR/hr. Radiation levels inside pit No. 3 were measured by the licensee at 9-12 microR/hr. Confirmatory surveys were conducted by the inspector using a portable NaI detector. Background readings were measured at 7-8 microR/hr. Readings inside pit No. 3 were found to be 16-18 microR/hr, slightly higher than the readings obtained by the licensee; however, no localized hot spots were found during the survey. The difference in the general survey readings will be evaluated as part of the overall review of the results of the soil samples that were split between the licensee and the NRC. This will be tracked as part of NRC Followup Item 70-925/9701-01.

The licensee used a 4 x 4 x 16-inch NaI detector to perform soil analysis for uranium. The software and computer system were being upgraded to a more sophisticated system. The detector and power source will remain the same. Cimarron Radiation Protection Procedure KM-CI-RP-47, Cimarron soil counter operations, Revision 3 approved March 24, 1997, was reviewed. This procedure included provisions for daily operational checks, shift operational checks, monthly operational checks, scale calibration checks, Cs-137 energy and efficiency checks,

background determinations, sample counting and statistics. The U-235 concentration in the soil samples was determined based on the 186 kev peak. Total uranium was determined by using a scaling factor applied to the U-235 value.

A preliminary analysis of the NRC soil samples was completed by the licensee on the new computer system to confirm that uranium concentrations were near background levels prior to the NRC removing the samples from the site. NRC samples were then sent to the NRC Region III laboratory and ORISE for analysis. Upon completion of the sample analysis by Region III and ORISE, the results will be compared to the Cimarron results to confirm that uranium levels are below the required license condition limits. Comparison of the analytical results will be tracked as part of NRC Followup Item 70-925/9701-01.

License Condition 23.d established requirements for soil compaction. The soil was required to be compacted to 95 percent of maximum dry density. Cimarron had contracted with Chase Environmental to test the soil for compaction density. The tests were conducted on March 24, 1997, and concluded that the 95 percent requirement had been met in pit No. 3.

1.3 Conclusion

Scan surveys and collection of soil samples from pit No. 3 were performed during this inspection. Soil samples were collected from the same locations by both the NRC and the licensee. This sampling is part of the NRC confirmatory survey program for the eventual termination of the Cimarron nuclear materials' license.

2 **Exit Meeting Summary**

The inspector presented the inspection results to the representatives of the licensee at the conclusion of the on-site inspection on March 26, 1997. Licensee representatives acknowledged the findings as presented. The licensee did not identify as proprietary any information provided to, or reviewed by, the inspector.

PARTIAL LIST OF PERSONS CONTACTED

Cimarron Corporation

J. Kegin, Site Manager
K. Morgan, Radiation Safety Officer

Contractor Personnel

H. Newman, Nextep Environmental
W. Rogers, Technical Consultant

State of Oklahoma

G. Smith, Senior Environmental Specialist, ODEQ

NRC Personnel

D. Spitzberg, Ph.D., Chief, Nuclear Materials Licensing Branch
J. Everett, Health Physicist, Nuclear Materials Licensing Branch

INSPECTION PROCEDURES USED

IP	83890	Closeout Inspection and Survey
IP	88104	Decommissioning Inspection Procedure for Fuel Cycle Facilities

ITEMS OPENED, CLOSED AND DISCUSSED

Opened

70-925/9701-01	IFI	Comparison of NRC and licensee soil sample results
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70-925

CIMARRON CORPORATION LETTER OF TRANSMITTAL

DATE: 04/18/97

TO: KEN KALMAN, Project Manager
Low-Level Waste & Decon Project Branch
Division Waste Management
MAIL DROP T7F27
WASHINGTON, DC 20555-0001

FROM: Mickey Hodo, Quality Assurance Manager
Cimarron Corporation
P.O. Box 315
Crescent, OK 73028

- ☒ First Class Mail
☐ Overnight--Fed Ex
☐ Second Day--Fed Ex

- ☐ Internal
☐ UniShippers
☒ Other Certified

- ☐ Overnight--UPS
☐ Second Day Air--UPS

COPY NO.	DATE	DESCRIPTION
1 copy	04/18/97	Area "N" Disposal Cell 3 Lift 0-1 Foot

These are transmitted as checked below:

- ☐ For Approval
☐ As requested
☐ Disapproved
☐ Approved as submitted
☐ Returned for corrections
☐ For review and comment

- ☒ For your use
☐ Return corrected prints

REMARKS The above items are for your use. Please sign and return transmittal letter to me.

NOTE:

SIGNATURE:

Mickey W. Hodo

OK

ACKNOWLEDGEMENT OF RECEIPT

**PLEASE RETURN ONE SIGNED
COPY TO SENDER**

I HAVE RECEIVED THE DOCUMENTS IDENTIFIED ABOVE AND THE PRIOR REVISIONS OF THESE HAVE BEEN
- DESTROYED N/A VOIDED N/A

PRINTED NAME OF RECIPIENT:

Kenneth L Kalman

SIGNATURE OF RECIPIENT:

Kenneth L Kalman

DATE RECEIVED:

4/22/97

120059

If enclosures are not noted, kindly notify Cimarron Corporation

