

U.S. NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Report No. 70-925/79-04; 70-1193/79-04

Docket No. 70-925/ 70-1193

License No. SNM-928; SNM-1174

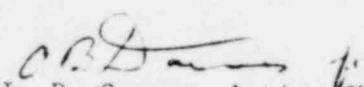
Licensee: Kerr-McGee Nuclear Corporation  
Kerr-McGee Center  
Oklahoma City, OK 73125

Facility Name: Cimarron Facility

Inspection At: Cimarron Facility, Crescent, OK  
Corporate Office, Oklahoma City, OK

Inspection Conducted: August 27-29, 1979; September 26-27, 1979

Inspector: N. E. DuBry

Approved By:  L. R. Greger, Acting Chief  
Fuel Facility Projects and  
Radiation Support Section

Inspection Summary:

Inspection on August 27-29 and September 26-27, 1979 (Report No. 70-925/79-04;  
70-1193/79-04)

Areas Inspected: Routine, announced safety inspection, including: organi-  
zation, facility changes and modifications, internal audits, safety  
meetings, maintenance, conduct of operations, emergency planning, training,  
procedures, instruments and equipment, exposure control, posting and  
labeling controls, surveys, notifications and reports, liquid effluent,  
airborne effluents, effluent control procedures, solid waste disposal, IE  
Circular No. 79-09, and shipping procedures. These areas were reviewed  
with emphasis on their relation to the upcoming solvent extraction unit  
dismantling. The inspection involved 38 inspector-hours onsite by one NRC  
inspector.

Results: No items of noncompliance or deviations were identified in  
nineteen of the areas inspected. One deficiency was identified in the  
notifications and reports area of this inspection.  
(Paragraph 15)

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## DETAILS

### 1. Persons Contacted

- \*A. W. Norwood, Cimarron Facility Manager
- +G. J. Sinke, Health and Safety Coordinator
- \*D. Majors, Health Physics Supervisor
- \*J. L. Kegin, Maintenance and Utilities Supervisor

\*Denotes those present at exit interview on August 29, 1979.

+Denotes those present at exit interview on September 27, 1979.

### 2. General

This inspection began at 12:50 p.m. on August 27, 1979, with a tour of the plutonium plant and emergency building. Members of the initial tour also included G. P. Adams, Ph.D. (Certified HP), and Dr. Carl R. Bogardus, M.D., representatives of the Oklahoma University Medical Center. Subsequent tours by the inspector included the uranium plant and the plutonium plant. Emphasis of the inspection included various items regarding removal of the solvent extraction (SX) system. During the second trip the inspector also reviewed the licensee's termination reports.

### 3. Organization

Recent changes in the management organization includes: Mr. Bill Stevens becoming President of Kerr-McGee Nuclear Corporation replacing Mr. Morgan Moore, who moves to Executive Assistant to the Vice Chairman of Kerr-McGee Corporation.

The Cimarron facility currently employs 20 plant experienced individuals. A recent change at the facility was the replacement of one of the guards.

There are current plans to hire additional personnel at the facility once work on the solvent extraction system begins.

### 4. Training

Monthly safety meetings are being conducted; quarterly training in health physics and fire prevention is also provided.

Records indicate that most of the Cimarron employees have attended training sessions.

Conversations with the licensee representatives indicate that training is planned for facility employees before physical work on the solvent extraction dismantling begins. No problems were noted in this area.

5. Review and Audits

The quarterly audit conducted in June 1979 by the Health and Safety Coordinator was reviewed by the inspector. Identified matters are being addressed by the licensee. No items of noncompliance or deviations were identified.

6. Maintenance

The licensee prepares Special Work Permits for jobs requiring radiation protection and contamination control. SWP's for April 1979 through August 1979 were reviewed. No problems were noted in this area.

Safety equipment and conditions in the plutonium plant routinely checked include: glove box fire alarms, standby ventilation fans, tests of the emergency generator, airflow checks, glove box negative pressures, and filter differential pressures. Records review from April 1979 to August 1979 found these tests are being done timely.

Licensee representatives stated the criticality alarm system and evacuation alarm, motion detection system in the barrel storage areas, and liquid level alarm in the solvent extraction unit would be installed, tested, and operational. Before work begins on the solvent extraction system.

During the second portion of the inspection it was noted that the criticality alarm system and evacuation alarms were installed and operational. The licensee representatives stated that the liquid level alarm would not be installed until gloves were placed on the box. This is an ALARA consideration.

7. Facility Changes and Modification

One auxiliary tank from the flocculation system is still waiting shipment.

The licensee has recently sold a furnace used for sintering fuel pellets and a box cooling hood to another fuel facility licensee. These two items are crated and awaiting shipment by sole use vehicle. A review of records indicates both units, which have been decontaminated and painted, contain less than 1 g U-235.

The licensee is also modifying the ventilation system in relation to the solvent extraction dismantling to insure a negative pressure within the glove box in relation to the area around the unit. The licensee representatives indicated that dismantling would not be started until the modifications to the ventilation system were completed and tested. No items of noncompliance or deviations were identified.

1/ IE Inspection Report 70-925/78-03; Report No. 070-1193/78-05.

8. Radiation Protection Procedures

Procedures reviewed with emphasis on their relationship to the upcoming solvent extraction system dismantling include:

<u>Procedure</u>	<u>Rev. No./Date</u>	<u>Title</u>
KM-NC-10-82	1/7-30-79	Radioactive Waste Packaging and Shipment
KM-NU-10-13*	Orig/9-13-73	Waste Monitoring and Disposal
KM-NP-10-73	5/1-10-78	Waste Monitoring and Disposal
KM-NU-15-3	3/10-24-78	Shipments of Special Nuclear Material
KM-NP-15-15	6/6-6-79	Shipments of Special Nuclear Material
KM-NU-15-6	3/10-24-78	Storage of Special Nuclear Material
KM-NP-15-17	6/10-19-78	Storage of Special Nuclear Material
KM-NU-15-6	6/10-19-78	Instruction for the completion of the Internal Transfer Form
KM-15-41	6/10-24-78	Instruction for Completion of Container Labels, Form KM-1592
KM-NP-37-5*	2/5-6-74	Removal of Waste from Process Area
KM-NP-37-7*	2/4-9-75	Solid Waste Shipment for Burial

\*These procedures need to be reviewed and updated by the licensee.

This matter was discussed during the first exit interview.

Review of KM-NC-10-82 raised a number of questions concerning liquid waste handling, particularly organic waste disposal. The following items were discussed with the licensee representatives during the inspection tours. The procedure states that the technique was reviewed and approved by NRC, NECO, and Washington State Department of Health. The licensee was not able to find which branch of the NRC was referred to. A copy of a letter from NECO (10-27-75) states that they had contacted the Washington State Department of Social and Health Services, Radiation Control Division, who had expressed no concern regarding the proposed method of burial of absorbed liquid containing plutonium. The inspector indicated that the procedure will have

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to be revised regarding shipment in the "Super Tiger", since the cask has not been approved for such a technique. The licensee stated procedure KM-NC-10-82 will be revised and they will be using an alternate shipping container. NRC cask Certificate of Compliance, NRC and DOT regulations and requirements can be met by the absorption method when using the alternate shipping container. No items of noncompliance or deviations were noted.

9. Emergency Planning - Facilities, Equipment, Procedures

The tour of the emergency building found survey instrument calibrations up-to-date. Supply stocks are low but will be resupplied to satisfy the medical consultant's desires before SX work begins.

Services of private physicians and an ambulance as well as the licensee's station wagon are still part of the program. Negotiations with the Oklahoma University Medical Center for consultation services and emergency medical care, both on and off site were being pursued during the first visit.

During the second visit to the site on September 26, 1979, the inspector learned that C. R. Bogardus Jr. M.D., Director of Radiation Therapy, Department of Radiological Sciences, Oklahoma University Medical Center has been retained as the medical consultant for the site. No problems were noted in this area.

10. Instruments and Equipment

The licensee appears to have adequate numbers of operable survey and monitoring instruments, which are being calibrated timely. A review of records and observation of meter calibration stickers indicated gamma survey meters are calibrated quarterly. Daily function and calibration checks, and quarterly calibrations are performed on portable and doorway alpha survey meters. Weekly calibration checks are done on the plutonium plant stack and continuous air monitors. Air monitor response and alarm setpoints are checked by health physics personnel once per shift. Problems found during the tours are being addressed immediately. A review of records from April 1979 to August 1979 found them to be complete. No items of noncompliance or deviations were noted.

11. External Exposure Control

Review of quarterly film badge data showed that whole body dose from gamma radiation for the first quarter of 1979 did not exceed 160 millirems for any individuals. No items of noncompliance or deviations were noted.

12. Internal Exposure Control

a. Bioassay Program

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(1) Uranium Plant

A review of biweekly urinalysis data from April 1979 to July 1979 shows that alpha activity in samples was generally below the detection limit of 10 dpm/l. The highest concentration was 33 dpm/l, in early April, with follow-up samples less than 10 dpm/l.\*

(2) Plutonium Plant

First and second quarter records of urinalysis for those routinely working in the plutonium plant were reviewed. All samples analysed were below the detection limit of 0.1 dpm per sample.

\*A memo to the facility health physicist from the processing vendor lab stated, "laboratory in which the Cimarron Urinalysis for Uranium is performed was found contaminated with low level  $U_3O_8$  plus other radioactive materials. This may have spiked samples prior to April 28, 1979."

b. In-Plant Air Sampling and Airborne Exposure Evaluation

(1) Uranium Plant

The inspector reviewed the records of in-plant air sampling conducted on either 8-hour or 24-hour basis from April 19, 1979 to August 19, 1979. Air concentrations ranged from about 1/20 to 1/400 MPC with the highest in-plant sample being 5% of MPC.

(2) Plutonium Plant

The inspector reviewed the records of in-plant air sampling from April 20, 1979 to August 19, 1979. Air concentrations generally ranged from 1/10 to 1/500 MPC, based on the more conservative soluble plutonium. A special sample on July 12, 1979, indicated a concentration of 1.8 MPC. Respiratory protective devices were in use at the time. Urinalysis and nasal smear records gave no indication of significant body intake.

Level air sample and nasal smear records for April 18, 1979, to August 22, 1979, were reviewed. No items of noncompliance or deviations were identified.

13. Posting, Labeling, and Controls

During the tours, posting requirements of 10 CFR 19.11 and posting of radiation and contamination areas in both plants were found adequate.

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Work permits are used for nonroutine work for which a specific procedure has not been written.

The inspector attended the morning Cimarron facility management meeting where the day's planned activities are discussed. No items of noncompliance or deviations were noted.

#### 14. Surveys

Wipe surveys continue to be conducted routinely at both plants. Survey data from April 14, 1979, to August 22, 1979 were reviewed.

Routine smear surveys of the nonproductive areas of the plutonium and uranium plants showed no significant removable activity. In the process areas the highest removable activity in the uranium plant was about 3500 dpm/100 cm<sup>2</sup>. One 10,000 dpm/100 cm<sup>2</sup> survey from a duct leak was found on May 17, 1979. This was cleaned by May 19, 1979. In the production areas of the plutonium plant removable activity was generally less than 100 dpm/100 cm<sup>2</sup>, except for one area in B01 which had an isolated fixed activity of 50,000 dpm/100 cm<sup>2</sup>.

The June 1979 quarterly gamma/neutron survey record was reviewed. The production area ranged from 0 to 0.80 mrem/hr neutron exposure and 0 to 4 mrem/hour gamma. The highest readings were located in the scrap recovery room.

Source leak check records from April 1979 to August 1979 were reviewed. No items of noncompliance or deviations were identified.

#### 15. Notifications and Reports

Licensee statements and records indicate there have been no thefts or loss of licensed material, overexposure of personnel, or releases of radioactive material requiring a special report by the licensee. There was one shipment of licensed material offsite in May 1979. No problems were noted in a review of the records and documentation.

During the second inspection trip the employee termination reports maintained at the corporate office were reviewed for the period from January 1976 to August 1979. For the majority of cases reviewed the requirements of 10 CFR 20.101, 10 CFR 20.102, 10 CFR 20.408 and 10 CFR 19.13d were met. However, for nineteen individuals the termination reports were not sent to the Commission and the individual within 90 days after the employee finished the work assignment, as required by 10 CFR 20.408(b). One item of noncompliance was found.

#### 16. Radioactive Effluents

##### a. Liquid

There has been no liquid release offsite since the sanitary lagoon stopped flowing on January 20, 1976. Records indicate

there have been three liquid batch releases from the plutonium plant to the sanitary lagoon between April 1979 and June 1979. The batches total about 14,000 gallons of water containing about 9 microcuries of gross alpha activity resulting in an average concentration of approximately  $1.7 \text{ E-}7 \text{ uCi/ml}$ .

b. Airborne

Laundry stack releases from the uranium plant for April 1979 to July 1979 were reviewed. The records indicate about 0.13 uCi of gross alpha activity was released with an average concentration of  $2.3 \text{ E-}14 \text{ uCi/ml}$  from the uranium plant.

Sampling and analysis of the filtered effluent from the plutonium building stack shows that for April 1979 to July 1979 about 2.2 uCi of gross alpha activity was released at an average concentration of about  $1.6 \text{ E-}14 \text{ uCi/ml}$ . No items of noncompliance or deviations were identified.

17. Radioactive Solid Wastes

Licensee representatives stated there<sup>2/</sup> have been no solid waste shipments since the previous inspection. Three items await shipment (Paragraph 7).

The procedure for packaging organic liquid waste was discussed with the licensee (Paragraph 8).

The method for packaging the heavy industrial glass pipe (about 8' lengths) used in part of the solvent extraction system was discussed. The licensee representative stated that he would be contacting the Transportation Certification Branch, Division of Fuel Cycle and Material Safety, U.S. NRC. He will be asking for relief from item 5(b)(1)(iv)(Hard waste) of Radioactive Materials Packages Certificate of Compliance No. 6400, which states glassware shall be crushed and sealed in metal containers. The licensee does not want to crush the glass columns, based on occupational hazards and ALARA considerations. This matter will be looked at further during a future inspection.

18. Records and Reports of Radioactive Effluents

The licensee's records and reports of radioactive effluents were reviewed for January 1979 to July 1979. There appears to be agreement between the monthly records and the first half 1979 semiannual report.

<sup>2/</sup> IE Report Nos. 70-925/79-02; 70-1193/79-02.

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No items of noncompliance or deviations were found.

19. Liquid and Airborne Effluent Monitoring Instruments

There have been no liquid releases offsite since January 1976. Liquid is released from the plutonium plant on a batch basis (Paragraph 16a) and is sampled and analyzed before release.

A review of records for April 15, 1979, to August 22, 1979, indicate the licensee continues to calibrate the plutonium building stack monitor and checks for proper trip and alarm settings on a timely basis. No problems were noted.

20. Procedures for Controlling Releases

The licensee has a system involving management review and approval for controlling procedure changes. No recent procedure changes have been put into effect for controlling effluent releases. No items of noncompliance or deviations were identified.

21. Respiratory Protection Program

The licensee completed fit testing site personnel in July 1979. The licensee has also used a Respirator Mask Test Console as part of the quarterly assurance program.

The licensee indicated that respirator fit testing would be conducted on any staff addition at the Cimarron facility. No items of noncompliance or deviations were noted.

22. IE Circular 79-09

The licensee has responded to Circular 79-09, occurrence of Split or Punctured Regulator Diaphragm in Certain Self-Contained Breathing Apparatus. A review of records revealed the regulator diaphragms on the Scott air pack had been inspected and tested per a Kerr-McGee Safety Bulletin of June 1, 1979. No ruptured diaphragms were found.

23. Exit Interview

The following items were discussed during the first exit interview:

- a. There appears to be a need to update some radiation protection procedures (Paragraph 8).
- b. Licensee representatives stated that the solvent extraction (SX) system dismantling would not begin until a medical consultant and medical coverage had been confirmed (Paragraph 9).
- c. The training planned for pre-SX dismantling work, and the training for new hires was discussed. Licensee training responsibilities were taken up if a proposed research and development group begins work on the site.

- d. A closer control of internal exposure, especially when work on the SX begins, was discussed with the licensee.
- e. The inspector indicated the importance of insuring that packaging of radioactive material conforms with the "Certificate of Compliance." This matter was emphasized during telephone conversations with the licensee representatives on August 31, 1979 and September 4, 1979. It was again discussed on September 27, 1979 with the licensee representative at the corporate office (Paragraph 8 and 17). The licensee indicated he would be contacting the Transportation Branch, U.S. NRC, concerning shipment of the glass piping.

One item of noncompliance concerning the issuing of 90-day termination reports (Paragraph 15), was found during the second phase of the inspection. This matter was discussed at the second exit interview.

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