

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

REGION III

Report No. 70-925/80-02; 70-1193/80-02

Docket No. 70-925; 70-1193

License No. SNM-928; SNM-1174

Licensee: Kerr McGee Nuclear Corporation
Kerr McGee Center
Oklahoma City, OK 73135

Facility Name: Cimarron Facility

Inspection At: Cimarron Facility and Corporate Headquarters

Inspection Conducted: April 7-8, 1980

Inspector: N. E. DuBry

C. C. Peck for

6/12/80

Approved by: W. L. Fisher, Chief
Fuel Facility Projects and
Radiation Support Section

C. C. Peck for

6/12/80

Inspection Summary

Inspection on April 7-8, 1980 (Report No. 70-925/80-02; 70-1193/80-02)
Areas Inspected: Routine, unannounced safety inspection, including: organization; facility changes and modifications; internal reviews and audits (including criticality audits); safety meeting; maintenance; conduct of operations; emergency planning; training; labeling controls; surveys (including a wipe survey of a portion of the uranium facility); notifications and reports; liquid and airborne effluents; solid waste disposal; materials control; and follow up on regional concerns and public inquiries. The inspection involved 12 inspector-hours on site by one NRC inspector.

Results: One item of non-compliance against a licence condition was found relative to control in a material balance area. (Paragraph 13)

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DETAILS

1. Persons Contacted

W. Stevens, President of Kerr-McGee Nuclear Corporation
G. Rice, Vice President of Kerr-McGee Nuclear Corporation
F. McCann, Manager of Regulatory Compliance
G. J. Sinke, Health and Safety Coordinator
*A. W. Norwood, Cimarron Facility Manager
*R. L. Fine, Health Physics Supervisor, Cimarron Facility
J. L. Kegin, Maintenance and Utilities Supervisor, Cimarron Facility
M. W. Hodo, Administration and Accountability Clerk,
Cimarron Facility

The inspector also interviewed other licensee employees.

*Denotes those present at the exit interview.

2. General

This inspection, which began at 1:00 p.m. on April 7, 1980, was conducted to examine radiation protection, radioactive waste management, criticality safety, and environmental monitoring at the Cimarron facility, which includes uranium and plutonium plants. The inspection began with a visual observation of the uranium site, including a wipe survey of the area designated for coal liquefaction project use (Paragraph 23). Also noted during the tour were the licensee's decommissioning efforts in the uranium plant and modifications to the building to accommodate the above project (Paragraph 7). A visit to the emergency building also was included in this tour.

The plutonium site was toured to observe the progress of the solvent extraction (SX) system removal. It was noted during this tour, that the NDA counting unit glove box is now being used for bag-out.^{1/} The MBA storage areas also were observed (Paragraph 13).

This inspection also included a review of records located at the corporate headquarters.

3. Organization and Qualifications

Recent changes in the organization include Mr. Ronald Fine becoming the Health Physics Supervisor at the Cimarron Facility, replacing Mr. Donald Majors, who became Senior Compliance Specialist at the nuclear corporation headquarters. A new guard has also been hired to replace one to retire in mid-April 1980.

The Health Physics Supervisor has been employed as a health physics technician at the Cimarron facility for nine years. The present

^{1/} IE Inspection Report No. 70-925/80-01; No. 70-1193/80-01.

health physics organization at the facility includes a supervisor and four technicians. Efforts to hire an additional technician are in progress.

The current employee roster at the facility is twenty-three.

4. Training

Monthly safety meetings are being conducted. Quarterly training in health physics and fire prevention was provided to all employees in January 1980.

Progress of the health physics technicians' self-study course was not looked at during this inspection but will be addressed during a future inspection.^{2/}

No items of noncompliance or deviations were identified in this area.

5. Review and Audits

Examination of the licensee's internal weekly and monthly inspection reviews from January 17, 1980 to March 27, 1980, found identified items being addressed timely.

Results of the first quarterly 1980 audit by the Health and Safety Coordinator were not available for review during this inspection.

No items of noncompliance or deviations were identified.

6. Maintenance

The inspector reviewed the Special Work Permits (SWP) for jobs requiring radiation protection and contamination control. From February 6, 1980, to April 7, 1980, three SWP's were issued and one SWP completed. A total of nine SWP's were open during this inspection.^{3/}

Routine checks of safety equipment and conditions in the plutonium plant included: glove box fire alarms, standby ventilation fans, tests of the emergency generator, airflow checks, glove box loss of negative pressure alarm checks, glove box negative pressures, filter differential pressures, criticality and evacuation alarm systems, and the motion detection system. A review of records from February to March 1980 found these checks being done timely. A review of weekly liquid level alarm checks from November 1979 to April 1980 found them complete.

No items of noncompliance or deviations were identified in this area.

^{2/} IE Inspection Report 70-925/80-01; 70-1193/80-01
^{3/} Ibid

7. Facility Changes and Modifications

One auxiliary tank from the flocculation system is still awaiting shipment.^{4/}

The licensee is still preparing the uranium site for the coal liquefaction project. Included in the modification is a separation wall to prevent access to the nondecontaminated area by unauthorized personnel. Licensee representatives stated that additional pellets of >5% uranium may be found in the nondecontaminated area.

The inspector conducted a wipe survey of the area intended for release. (Paragraph 23)

8. Radiation Protection Procedures

There have been no revisions to procedures or change of^{5/} status of procedures in for revision since a previous inspection.

No items of noncompliance or deviations were noted.

9. Emergency Facilities and Equipment

A tour of the emergency building found the modifications almost complete, supplies stocked, and survey instrument calibrations current. The chief medical consultant is continuing his biweekly tour of the site facilities.

No problems were noted in this area.

10. Instruments and Equipment

Weekly operability and calibration checks for February and March 1980 appeared complete. The licensee appears to have adequate numbers of operable, calibrated survey and monitoring instruments.

No problems were found in this area.

11. External Exposure Control

First quarter film badge data for 1980 were not yet available for review. This area was not addressed during this inspection.

12. Internal Exposure Control

a. Bioassay Program

1. Uranium Plant

Biweekly urinalysis data for January 1980 showed that alpha activity was below the minimum detectable level of 10 dpm/l.

^{4/} IE Inspection Report No. 70-925/78-03; Report No. 70-1193/78-05

^{5/} IE Inspection Report No. 70-925/80-01; Report No. 70-1193/80-01

(Licensee action level is 65 dpm/l).

2. Plutonium Plant

First quarter 1980 urinalysis results for those working in the plutonium plant were not back from the vendor laboratory and, therefore, were unavailable for review.

Nasal smears from February 11, 1980 to April 7, 1980, gave no indications of problems or trends.

b. In-plant Air Sampling and Airborne Exposure Evaluation

1. Uranium Plant

The inspector reviewed the records of in-plant air sampling from January 15, 1980 to April 2, 1980. Air concentrations ranged from 0.0005 to 7.1 MPC. The highest in-plant sample was based on a lapel sample for an individual who was wearing respiratory protective equipment at the time. Based on the licensee's records, the high individual working in the uranium plant has received about 25 MPC-hours of airborne exposure from January 29, 1980 to March 19, 1980.

2. Plutonium Plant

The inspector reviewed the records of in-plant air sampling from January 18, 1980, to April 2, 1980. Air concentrations ranged from 0.003 to 31.5 MPC, based on soluble plutonium. One sample result on February 15, 1980, was 315 MPC. No work was being done in this area, and air sample and lapel sample results in an adjacent area gave no significant counts and no personal exposure was involved.

On two occasions, on February 27 and 29, 1980, lapel samples of an individual working in the solvent extraction area without respiratory protective equipment resulted in 9 and 45 MPC-hours of airborne exposure, respectively. The licensee conducted solubility tests to be able to use the insoluble concentration limits of 10 CFR 20 Appendix B to calculate personal exposure. The test results appeared satisfactory, but final evaluation will await urinalysis results.

The final results of urinalyses and air sample results for the first quarter of 1980 were not complete during this inspection.

No items of noncompliance or deviations were identified in this area.

13. Posting, Labeling, and Control

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

Work permits are used for nonroutine work for which specific procedures have not been written or for work where there may be radiation or contamination hazards.

During the tour of the plutonium plant, empty, open 55-gallon drums were observed in Waste Shipment Storage Room 121 MBA-121. This is in noncompliance with item 9.0(c) of the licensee's application dated November 29, 1978, incorporated as Amendment No. 3 to license LMP-1174, which states, "No empty or partly filled drums (or other shipping containers) will be placed in room 121."

14. Survey

Survey data from February 1, 1980, to April 3, 1980, were reviewed.

Routine smear surveys in the nonproduction areas of the uranium and plutonium plants showed no significant removable activity. The highest area of removable activity found in the uranium plant process area was 5000 dpm/100cm², with the general level being 500 dpm/cm². In the plutonium plant production area removable activity is generally less than 100 dpm/100cm². One area in B01 still has an isolated fixed contamination of about 50,000 dpm/100cm².

First quarter 1980 gamma/neutron survey records were reviewed. Radiation levels in the production area ranged up to 0.44 mrem/hour neutron in the scrap recovery area and 5 mR/hour gamma in the solvent extraction area.

No items of noncompliance or deviations were identified.

15. Radioactive Effluents

a. Liquid

There has been no liquid release offsite since the sanitary lagoon stopped flowing on January 20, 1976 (See Paragraph 23). Records show one liquid batch release from the plutonium plant to the sanitary lagoon on February 9, 1980, of 6200 gallons totaling 3.05 μ Ci.

b. Airborne

Laundry stack releases from the uranium plant for February and March 1980 were reviewed. The records indicate that 0.26 μ Ci of gross alpha activity was released at an average concentration of 7.0E-14 μ Ci/ml from the uranium plant.

Sampling and analysis of the filtered effluent from the plutonium building stack, from February through March 1980, shows that about 0.39 Ci of gross alpha activity was released at an average concentration of $3.4E-15 \mu\text{Ci/ml}$.

A review of the uranium plant airborne effluents revealed the licensee had forgotten to include the November 1979 dissolver stack release of $5.2 \mu\text{Ci}$ in the semiannual report (Paragraph 17).

No items of noncompliance or deviations were noted in this area.

16. Radioactive Solid Material

There have been no shipments of radioactive solid waste material from the site since a previous report.^{6/}

The moratorium on shipping fissile material has required the licensee to store solid waste. The licensee representatives indicated they will be revising Procedure KM-NP-15-68 (Safe Operating Limits - Storage Areas) to raise the limit of material to be placed in MBA-121. The inspector discussed with the licensee what criticality monitoring would be done after this revision. This matter will be reviewed during a future inspection.

17. Notifications and Reports

Licensee statements and records indicate there have been no thefts or losses of licensed material, overexposure of personnel, or releases of radioactive material requiring a special report by the licensee. There have been no shipments of licensed material off-site since a previous inspection.^{7/}

The licensee's effluent records and offsite effluent report for the second six months of 1979, dated February 7, 1980, did not agree. The licensee had failed to include the airborne release from the dissolver stack.

Employee termination reports, maintained at the corporate office, were reviewed for the period August 1979 to March 1980.

No items of noncompliance or deviations were identified.

18. Liquid and Airborne Effluent Monitoring Instruments

Liquid is released from the plutonium plant to the sanitary lagoon (Paragraph 23) on a batch basis. It is sampled and analysed before being released.

6/ IE Inspection Reports No. 70-925/80-01; No. 70-1193/80-01

7/ IE Inspection Reports No. 70-925/80-01; No. 70-1193/80-01

Records reviewed for February and March 1980 indicate that the plutonium building stack monitor was timely calibrated and checked for proper trip and alarm settings.

No problems were noted in this area.

19. 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.

20. Respiratory Protection Program

The licensee's respiratory protection program is as previously described in IE Inspection Reports No. 70-925/79-04, No. 70-1193/79-04, No. 70-925/80-01, and No. 70-1193/80-01. The licensee representative stated that personnel at the Cimarron facility would receive respiratory protective equipment refit testing in July 1980. The inspector noted that the licensee is maintaining a quality assurance program by checking and repairing respiratory equipment timely.

No items of noncompliance or deviations were noted.

21. Incident Reviews

While cutting pipe in the SX glove box on February 27, 1980, a hole in a glove resulted in 5000 dpm/100cm² contamination to a worker's coverall. The lapel sampler and area sampler were 6.7E-11 μ Ci/ml and 1.2E-12 μ Ci/ml, respectively. This resulted in about 9 MPC-hours airborne exposure to the workers involved. Licensee records indicate that corrective action had been taken, including discussions with the employees.

On February 29, 1980, while cutting pipe in the SX glove box elevated airborne levels of 3.4E-10 μ Ci/ml were measured by workers lapel sampler. This resulted in about 44 MPC-hours airborne exposure to the workers involved. (Respiratory protection devices were not in use). The cause was a leaking window. The licensee determined that the equipment being used for cutting had shaken contamination from the window seams. The licensee appears to have taken appropriate corrective actions to prevent future occurrences.

22. Allegations

The inspector discussed with corporate officers the recent allegations (March 6, 1980) by a cattlemen's group that Kerr-McGee was feeding contaminated forage to beef cattle. The contacted licensee representative stated this was an approved research project being conducted at

the Sequoyah facility and that no meat had reached the human food chain. These facts were reconfirmed during this meeting and the matter has been referred to USNRC Region IV.

23. Coal Liquefaction Project

During the tour of the uranium facility, the inspector noted steps being taken to ensure positive boundary separation between controlled and uncontrolled areas at the uranium facility (Paragraph 7). The inspector conducted a wipe survey of the area being prepared for the liquefaction project, with the following results.

Wipe survey of Kerr-McGee Uranium Plant (Cimarron Facility)
on April 7, 1980.

<u>Location*</u>	<u>Alpha (net)</u> <u>dpm/100cm²</u>	<u>Beta (Net)</u> <u>dpm/100cm²</u>
1	Bkgd	24.6
2	6.6	9.2
3	11.9	Bkgd
4 (Ducting)	6.6	Bkgd
5	10.6	Bkgd
6	1.2	Bkgd
7	5.2	11.8
8	Bkgd	Bkgd
9	Bkgd	Bkgd
10	7.9	Bkgd
11	Bkgd	14.4
12	5.2	Bkgd
13	3.9	Bkgd
14	Bkgd	Bkgd
15	Bkgd	Bkgd
16	1.2	9.2
17 (Ducting)	53.3	52.8
18	1.2	19.5
19	13.2	Bkgd
20	24	40
21	88.9	24.6
22	27.1	47.0
23	11.9	29.6
24	20.2	19.7
25	55.9	19.7
26	28.4	19.7
27	40.8	Bkgd
28	13.3	12.2
29	11.9	37.1
30 (hood)	304.5	502.2
31	7.8	2.2
32	5.1	34.6
33	3.7	37.1

<u>Location</u>	<u>Alpha (Net)</u> <u>dpm/100cm²</u>	<u>Beta (Net)</u> <u>dpm/100cm²</u>
34	28.4	19.7
35	50.4	101.7
36	7.8	29.6
37	40.8	27.1
38	41.5	12.2
39	61.4	149.0
40	Bkgd	Bkgd

*See attached survey map

This survey does not constitute an official USNRC release of this area.

The inspector discussed with the licensee what effect the increased use of the sanitary lagoon would have on effluent releases (Paragraph 15a). The licensee stated he would observe the level in the lagoon and begin an effluent monitoring program if conditions warrant.

Also discussed briefly is what emergency planning is being done, especially fire control at the uranium facility. Preliminary review of the coal liquefaction project indicates that substantial amounts of volatile material will be on hand (licensee letter to USNRC - September 18, 1979).

24. Exit Interview

The inspector met with the licensee representatives denoted in Paragraph 1 at the conclusion of the inspection. The inspector summarized the scope and findings of the inspection:

- a. The potential need for monitoring the sanitary lagoon. (Paragraph 23)
- b. A positive separation between controlled and uncontrolled areas when the coal liquefaction project starts. (Paragraph 23)
- c. The need to submit a revised six month effluent report for July to December 1980 (Paragraph 17). The licensee agreed to submit the revision.
- d. The criticality control of MBA 121 if the proposed procedure change is made. (Paragraph 16)

In a telephone conversation on April 9, 1980, the inspector asked the licensee for copies of criticality audits from March 1979. The inspector also informed the licensee of a noncompliance item against license conditions (Paragraph 13).