



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

JUN 04 1985

PDR-016

Mr. Anthony L. Kimery  
3723 NW 13th  
Oklahoma City, OK 73107

IN RESPONSE REFER  
TO FOIA-85-348

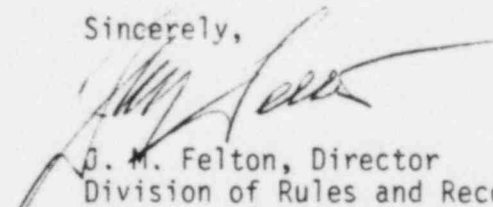
Dear Mr. Kimery:

This is in response to your letter dated May 5, 1985, in which you requested, pursuant to the Freedom of Information Act (FOIA), copies of the last two inspection reports relating to the Kerr-McGee facility in Gore, Oklahoma.

The documents listed on the enclosed appendix are responsive to your request. These documents are enclosed.

I have been advised that Mr. William Crow, of the Office of Nuclear Material Safety and Safeguards will be addressing the two remaining portions of your letter which do not fall under the FOIA.

Sincerely,



D. M. Felton, Director  
Division of Rules and Records  
Office of Administration

Enclosures: As stated

Re: FOIA-85-348

APPENDIX

1. 04/06/83 Letter to Kerr-McGee Corporation from Glen D. Brown (2 pages)  
enclosing Notice of Violation (2 pages) and NRC Inspection  
Report 40-8027/83-01 (11 pages)
2. 08/13/84 Letter to Sequoyah Fuels Corporation from R.E. Hall (2 pages)  
enclosing Notice of Violation (2 pages) and NRC Inspection  
Report 040-08027/84-01; 030-05948/84-01 (16 pages)

APR 06 1983

Docket: 40-8027/83-01

Kerr-McGee Nuclear Corporation  
ATTN: W. J. Shelley, Vice President  
Nuclear Licensing and Regulation  
Kerr-McGee Building  
Oklahoma City, OK 73102

Gentlemen:

This refers to the routine safety inspection conducted by Messrs. N. M. Shopenn and D. B. Spitzberg of this office on February 14-18, 1983, of the activities authorized by NRC Source Material License SUB-1010 and to the discussion of our findings held by the inspectors with members of your staff at the conclusion of the inspection.

The inspection was an examination of the activities conducted under the license as they relate to radiation safety and to compliance with the Commission's rules and regulations, and the conditions of the license. The inspection consisted of selective examinations of procedures and representative records, interviews of personnel, independent measurements, and observations by the inspectors.

The inspectors also reviewed the action you had taken with respect to three violations observed during our previous inspection which was conducted February 22-25, 1982. They verified that the corrective actions with respect to these items were implemented as stated in your reply of April 6, 1982, to our letter dated March 16, 1982.

During this inspection certain of your activities were found not to be conducted in full compliance with NRC requirements. Consequently, you are required to respond to this matter in writing in accordance with the provisions of Section 2.201 of the NRC "Rules of Practice," Part 2, Title 10, Code of Federal Regulations. Your response should be based on the specifics contained in the Notice of Violation attached to this letter.

One unresolved item was identified in the area of internal exposure control. The results of your investigation into this matter will be reviewed in the future. In addition, one open item was identified in the area of organization, management, and training.

MRPS *jd*  
NShopenn:jd  
3/2/83

MRPS *DBS*  
BSpitzberg  
3/24/83

MRPS *JE*  
JEverett  
3/24/83

TPB *GB*  
GBrown  
3/2/83

DDV&TP  
RBangart  
3/1/83  
*mb*

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APR 06 1983

In accordance with 10 CFR 2.790 of the Commission's regulations, a copy of this letter and the enclosed inspection report will be placed in the NRC's Public Document Room. If this report contains any information that you believe to be exempt from disclosure under 10 CFR 9.5(a)(4), it is necessary that you (a) notify this office by telephone within 10 days from the date of this letter of your intention to file a request for withholding; and (b) submit within 25 days from the date of this letter a written application to this office to withhold such information. If your receipt of this letter has been delayed such that less than 7 days are available for your review, please notify this office promptly so that a new due date may be established. Consistent with Section 2.790(b)(1), any such application must be accompanied by an affidavit executed by the owner of the information which identifies the document or part sought to be withheld, and which contains a full statement of the reasons on the basis which it is claimed that the information should be withheld to address, with specificity, the considerations listed in 10 CFR 2.790(b)(4). The information sought to be withheld shall be incorporated as far as possible into a separate part of the affidavit. If we do not hear from you in this regard within the specified periods noted above, the report will be placed in the Public Document Room.

The responses directed by this letter and accompanying Notice are not subject to the clearance procedures of the Office of Management and Budget as required by the Paperwork Reduction Act of 1980, PL 96-511.

Should you have any questions concerning this letter, we will be pleased to discuss them with you.

Sincerely,

"Original Signed by:  
G. D. BROWN"

Glen D. Brown, Chief  
Technical Programs Branch

Enclosures:

1. Appendix A - Notice of Violation
2. Appendix B - NRC Inspection Report 40-8027/83-01

bcc: c/o DMB (IE07)

AEOD/NR

IE/DFFMS/FFMB01

IE/RSB

NMSS

NRC PDR

bcc: RIV

J. Collins

R. Bangart

E. Johnson

Dale Smith, URFO

Inspectors

2. File

RIV File



APPENDIX A  
NOTICE OF VIOLATION

Kerr-McGee Nuclear Corporation  
Sequoyah Facility

Docket: 40-8027  
License: SUB-1010

As a result of the inspection conducted on February 14-18, 1983, and in accordance with the NRC Enforcement Policy (10 CFR Part 2, Appendix C), 45 FR 9987 (March 9, 1982), the following violations were identified:

1. License Condition 9 requires, in part, that the licensee shall possess and use licensed material described in items 6, 7, and 8 of the license in accordance with statements, representations, and procedures contained in the application dated July 1, 1975, as amended January 12, 1977, May 17, 1977, June 14, 1977, August 18, 1977, March 10, 1978, December 7, 1978, May 10, 1979, and April 7, 1980. Section 5.9 of Appendix A of the license application requires that direct reading alpha surveys be performed in the controlled and unrestricted areas.

Contrary to this requirement, direct reading alpha surveys had not been performed in controlled areas since September 27, 1982, or in unrestricted areas from September 17, 1982, to February 8, 1983.

This is a Severity Level IV violation (Supplement VI).

2. License Condition 14 requires, in part, that the licensee sample all airborne discharges having the potential for containing radionuclides at least quarterly to verify that the licensee's proposed method for determining the quantity of the principal radionuclides released to unrestricted areas in airborne effluents, as required for compliance with 10 CFR 40.65, will provide acceptably accurate estimates.

Contrary to this requirement, as of the date of the inspection the licensee had failed to sample airborne discharges containing radionuclides emitted through the HF offgas stack adequately to verify that the method used provided an acceptably accurate estimate of the quantities of the principal radionuclides contained in this effluent discharge. Specifically, the sampling technique used assumed a 100 percent recovery of radionuclides in the HF offgas stack samples, when in fact, it was demonstrated during the inspection that the technique would recover only 60-80 percent of the activity for measurement. Therefore, estimates of radionuclide release from this, one of the principal discharge points, was found to be low by a factor of 20-40 percent.

This is a Severity Level IV violation (Supplement VI).

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Kerr-McGee Nuclear Corporation

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Pursuant to the provisions of 10 CFR 2.201, Kerr-McGee Nuclear Corporation is hereby required to submit to this office, within 30 days of the date of this Notice, a written statement of explanation in reply, including:

- (1) the corrective steps which have been taken and the results achieved;
- (2) the corrective steps which will be taken to avoid further violations; and
- (3) the date when full compliance will be achieved.

Consideration may be given to extending your response time for good cause shown.

Dated APR 0 5 1993

APPENDIX B

U. S. NUCLEAR REGULATORY COMMISSION  
REGION IV

NRC Inspection Report: 40-8027/83-01

License: SUB-1010

Docket: 40-8027

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

Facility: Sequoyah Uranium Hexafluoride Conversion Facility

Inspection At: Gore, Oklahoma

Inspection Conducted: February 14-18, 1983

Inspectors: N. M. Shopenn  
N. M. Shopenn, Radiation Specialist

3/21/83  
Date

D. B. Spitzberg  
D. B. Spitzberg, Radiation Specialist

3-18-83  
Date

Approved: R. J. Everett  
R. J. Everett, Chief, Materials Radiation  
Protection Section

3/24/83  
Date

Inspection Summary

Inspection conducted on February 14-18, 1983 (Report: 40-8027/83-01)

Areas Inspected: Routine, unannounced inspection of conversion facility operations and radiation safety program including organization, management, and training; facilities and equipment; internal exposure control; external exposure and contamination control; environmental monitoring and waste management; and independent measurements. The inspection involved 56 inspector-hours onsite by two NRC inspectors.

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11 pp.

Results: Within the six areas inspected, no violations or deviations were identified in four areas. Two apparent violations were identified in two areas (failure to perform direct radiation surveys - paragraph 6; and failure to properly sample stack effluent - paragraph 7). In addition, one unresolved item was identified in paragraph 5.b (location of air sampler heads and air flow rates used in determination of internal exposures); and one open item was identified in paragraph 3 (no established procedures in areas of health and safety).

DETAILS

1. Persons Contacted

J. W. Craig, Manager, Sequoyah Facility  
\*C. A. Grosclaude, Manager, Health Physics and Industrial Safety  
T. Cox, Accountability  
K. Simeroth, Senior Health Physics Technician  
J. Carr, Engineering  
J. Marler, Senior Staff Engineer, Oklahoma City  
\*J. Davenport, Production Manager

\*Denotes those individuals present at the exit briefing.

In addition, the inspectors interviewed three facility employees. Ms. B. Kosla of the NRC Uranium Fuel Licensing Branch accompanied the inspectors during the inspection.

2. Licensee Action on Previous Inspection Findings

- a. (Closed) Violation (40-8027/82-01). This item involved failure to conduct adequate surveys to assess worker exposure to airborne uranium in accordance with 10 CFR 20.103(a).

The inspector observed that the licensee was using the special urine sampling program as stated in their letter replying to the violation dated April 6, 1982.

- b. (Closed) Violation (40-8027/82-01). This item involved failure to post a radiation area with a sign or label bearing the radiation caution symbol and the words "CAUTION-RADIATION AREA" on an ash receiver within the cubicle as required by 10 CFR 20.203(b).

The inspector observed that the sign was posted as stated in the reply by the licensee dated April 6, 1982.

- c. (Closed) Violation (40-8027/82-01). This item involved failure to collect environmental samples during the period from October 1, 1980, to February 15, 1981, as required by License Condition 12.

The inspectors verified that the licensee has been collecting environmental samples in accordance with License Condition 12. Results of samples analyzed from February 26, 1982, through January 1, 1983, were reviewed.

3. Organization, Management, and Training

Discussions with licensee management revealed the following corporate organization at the time of inspection:



Bill Stevens, President, Kerr-McGee Nuclear Corporation  
Robert P. Luke, Executive Vice President, Kerr McGee Nuclear Corporation  
George Rice, President, Environmental and Health Management Division  
William J. Shelley, Vice President, Nuclear Licensing and Regulation  
G. J. Sinke, Coordinator, Radiation Health and Safety

Facility organization was as indicated in paragraph no. 1. The licensee stated that the facility staff was comprised of approximately 150 employees. The health physics and industrial safety organization included five technicians and one clerk.

The inspectors reviewed reports of safety audits performed weekly by the radiation safety staff and quarterly by site and corporate management. These were found to have included recommendations and actions in order to maintain radiation exposure to workers as low as reasonably achievable (ALARA) and otherwise were performed in accordance with Appendix A of the license application.

The inspectors found that the licensee introduced radiation safety requirements into nonroutine tasks utilizing Hazardous Work Permits approved by the radiation safety function. As noted by the previous inspection, not all routine tasks were controlled by Standard Operating Procedures. Established procedures were reviewed by the site radiation safety officer. The inspectors observed, as in previous inspections, that there were no license requirements for procedures such as air sampling, instrument calibration, internal exposure determination, training, bioassay, effluent and environmental monitoring, and contamination control. The Region IV staff will request that the Uranium Fuel Licensing Branch amend the license to require that written procedures be established in these areas. This item will be considered open pending the completion of this process. (40-8027/83-01)

The inspectors found the radiation safety training program to be conducted as stated in the application and observed no program changes since the last inspection. The inspectors reviewed samples of written exams administered to workers in conjunction with initial and refresher training courses and noted that "tailgate" safety meetings incorporating radiation safety had been held monthly with each shift group. An inspector interviewed three workers and determined that their understanding of radiation safety practices was sufficient to indicate compliance with 10 CFR 19.12. The inspectors observed that contractor employees were given health and safety orientation by the engineering staff. The records of the training had been maintained and were reviewed by the inspectors. The inspectors observed that notices were posted as required by 10 CFR 19.11 and 10 CFR 21.

#### 4. Facilities and Equipment

The inspectors toured the plant on February 14, 1983, and the holding pond areas on February 15, 1983, to observe operations in progress and to assure that equipment and facilities were in accordance with applicable license requirements. The licensee stated the plant process rate had averaged



approximately 6200 metric tons per year and the plant operating schedule had been 24 hours per day, 7 days per week. Licensee documents indicated that approximately 5 percent of processed materials consisted of yellowcake slurry.

The inspectors observed that the facility was generally clean and areas were being painted. The inspectors noted, however, that in the ladies change room, housekeeping was poor. The inspectors determined that there had been no assignment of personnel to do housekeeping in this area. During the exit interview the licensee representative stated that designated personnel will be assigned the duty of routine housekeeping in the ladies change room. The licensee showed the inspectors the current installation in progress of the miscellaneous digester in the slurry processing building. The purpose of the new digester is to take all scrap material and reprocess it for recovery of the uranium. The expected completion date is in May 1983.

The inspectors noted that incoming and outgoing containers were properly labeled and otherwise found transport of source material to be in accordance with Department of Transportation regulations. Forms NRC-741 were completed upon receipt and transfer of source material. The inspectors reviewed the completed forms and compliance with 10 CFR 40.64 was verified. The inventory reports required by 10 CFR 40.64(b) were also reviewed.

The inspectors reviewed the fire protection program and found no major changes since the previous inspection. The annual insurance underwriter's inspection report of April 1982 covered additional inspection effort on the SX foam dispensing system. The piping was checked for wall thickness to assure that corrosion had not destroyed its strength and integrity. The inspection located some partially plugged foam nozzles which were subsequently flushed and cleaned. The inspectors noted that one foam dispensing nozzle located on the northeast side at the east entrance appeared to be heavily corroded. Records of emergency training and fire drills were reviewed by the inspectors.

The inspectors reviewed the training and exercises that were performed in accordance with the new Radiological Contingency Plan as described in License Condition 14 issued March 25, 1982. The plan has been exercised and all aspects were reviewed by the inspectors.

No violations were identified.

## 5. Internal Exposure Control

### a. Air Sampling

Licensee records listed 45 air sampling locations within the plant. These samplers have operated continuously utilizing a control plant vacuum system. The samples have been collected and analyzed at least once each 8-hour shift such that three samples have been collected each day at each location. Samples have been analyzed radiometrically by 1-minute counts using a gas proportional counter to determine

gross alpha activity. The licensee had calculated the lower limit of detection using this method and determined it to be  $7.5 \times 10^{-12}$  uCi/ml. Sample results have been available for review within several hours of sample collection. The inspectors noted that approximately 2 percent of the air samples obtained since the previous inspection had exceeded the MPC for uranium as listed in 10 CFR Part 20, Appendix B, Table 1.

The data obtained from the air sampling program has been averaged among the sample locations contained in ten general plant areas. The inspectors reviewed the graphical air sample data to determine the number of occasions where the daily average for any area exceeded the MPC and to determine the highest daily average noted. The following summarizes the results of this study:

Period	Occasions above MPC	Highest Average (MPC Multiple)
First half 1982	35	9.32*
Second half 1982	45	4.82

\*Decontamination room - supplied air breathing equipment required.

The inspectors observed that airborne radioactivity areas were posted as required by 10 CFR 20.203(d).

Each air sampler was calibrated weekly by means of a hand-held rotameter. Following a review of the air sample calibration records, an inspector accompanied one of the technicians through the plant to check the calibration of several samplers. The inspector noted in the review and calibration check the frequent occurrence of samplers which would drift out of calibration by as much as 100 percent above or below the nominal flow rate of 1 CFM.

The inspectors also reviewed the location of air sampler heads to determine if they met the placement criteria of Section 5.8 of the license application. Of particular concern was the location of the sampler in the yellowcake sampling room. It was positioned between 8 and 9 feet above floor level. The sampler head was too far removed from the breathing zone to deliver a representative sample. During the exit interview the RSO stated that the sample head in question would be moved to a more representative area and that a reevaluation of all sample head locations will be performed.

No violations were identified.

b. Exposure Determination

The inspectors reviewed contamination incident reports and a representative sample of weekly exposure records which showed the calculated internal exposure records in MPC-hours for each worker for

each 7-day interval. All plant personnel have been required to submit daily timecards tabulating the number of hours spent in each of the major process areas. The information has been entered into a computer which calculates the exposures based on averaged area airborne uranium concentration determined by the results of the air sampling program. The inspectors observed that the air concentrations used in these calculations were all derived assuming a nominal air sampling flow rate of 1 CFM. As previously stated in paragraph 5.a of this report, it was not uncommon for air samplers to be operated at a substantially smaller flow rate prior to weekly calibrations. Exposure determinations in these areas may have been underestimated. The use of non-conservative air sampling flow rates to derive air concentrations used in exposure calculations is considered an unresolved item (40-8027/83-02/01).

The licensee's weekly tabulations of exposure determinations were reviewed by the inspectors. The data included weekly MPC-hours for workers, both with and without respiratory protection. Each week the RSO queries the computer for workers exceeding the weekly exposure limit for soluble uranium in order to put workers who exceed it on work restriction. The licensee has been using a self-imposed action level of 20 MPC-hours for exposure control and has used a level of 30 MPC-hours for work restrictions until such time that the bioassay results indicate that the weekly exposure limit will not be exceeded. This was intended to compensate for the 3 to 5-day time lag preceding new data entry into the computer. Exposure records indicated no exposures in excess of the weekly exposure limit for soluble uranium.

No violations were observed.

c. Respiratory Protection

The inspectors found that the licensee has continued to use respiratory equipment in accordance with Regulatory Guide 8.15. Half-mask respirators have continued to be used in the sampling plant, while full-face and supplied air respirators have been used in other areas of the facility. A polydisperse DOP man-test system with a fit-test chamber continues to be used with the program. Medical records were reviewed by the inspectors. These records included vital capacity lung tests. The inspectors reviewed the comprehensive written procedures describing the program. Personnel interviewed by the inspectors demonstrated a good working knowledge of the procedures. The inspectors observed personnel at various locations throughout the plant properly utilizing respiratory protection equipment.

No violations were identified.

d. Bioassay

A review of pertinent records and discussions with licensee personnel established that the bioassay program has been operated as described

in the application. The routine urinalysis program has required that all workers submit a minimum of two samples per month and that shift workers submit three samples per month. Additional samples have been obtained in response to exposure incidents. The incident samples are subjected to a preliminary analysis onsite prior to shipment to the licensee's laboratory in Oklahoma City, or to an outside vendor. Routine samples are all fluorometrically analyzed for uranium content. The licensee stated that quality checks were performed to assure the accuracy of the assays.

As in the 1982 inspection, there were many instances of results in excess of the 10 ug/l action level specified in the license application. The highest result currently was 1400 ug/l. The inspectors noted that followup sampling indicated a rapid excretion and a return to concentrations below the action level within 24 to 48 hours post intake. Evaluation by the inspectors showed that none of the instances resulted in derived intakes in excess of 9.6 mg (40 MPC-hours). The inspectors did note there was an upward trend in the derived intakes including one of 39.6 MPC-hours. This indicates a need for a more rigorous action to keep the intake level down. The inspectors observed that these personnel were restricted from further exposure. This was continued until a subsequent sample indicated concentrations below the action level.

Licensee records indicated that workers were administered in vivo lung counting annually during 1982. There were 77 personnel monitored and the highest recorded level was 7.1 nCi uranium.

No violations were identified.

#### 6. External Exposure and Contamination Control

The inspectors reviewed the monthly film badge data covering the period from January 1982 through January 1983 and observed no exposures in excess of 10 CFR 20.201 limits. Data for the month of November 1982 was not available for review because the films were lost in the mail before they reached the vendor. The licensee had imposed an administrative dose of 0.04 rem nonpenetrating and 0.02 rem penetrating to the accumulated occupational exposures of all plant workers for this period. Records showed the highest penetrating exposure during the review period to be 0.59 rem/quarter and a maximum nonpenetrating exposure of 2.12 rem/quarter.

Beta-gamma survey data was reviewed which showed that surveys had been performed monthly in 12 plant areas. The surveys consisted of exposure rate measurements at surface contact and at 3 feet. The highest levels were consistently found in the ash hopper area and were principally due to the collection of the short-lived isotope thorium-234. Measured levels ranged to a high of 990 mR/h at contact and 20 mR/h at 3 feet. This area was normally inaccessible and posted as a radiation area.



The inspectors reviewed contamination survey data compiled weekly for approximately 80 locations in process and nonprocess areas such as lunch rooms, change rooms, and offices. Alpha smear surveys were performed on schedule; however, the inspectors noted that contrary to the requirements of the license application incorporated in License Condition 9, surveys for direct alpha contamination had been terminated as of September 17, 1982, and restarted in the nonprocess areas only as of February 8, 1983. This finding was cited as a violation. The licensee's action levels for contamination were reviewed in conjunction with cleanup records. It was noted that in some areas exhibiting consistently high levels of contamination, cleanup was somewhat less than expeditious and at times would not be undertaken for periods as long as a week.

The inspectors observed that workers were required to wear company-supplied protective clothing and footwear. They were not permitted to wear the footwear offsite. The personnel contamination control program, through the use of surveys and showering, was found to be unchanged from previous inspections. Records were reviewed indicating that spot surveys of personnel leaving the change rooms were performed by the health physics staff weekly. The licensee's administrative controls to prevent the release of contaminated items from the site was determined to be effective. Inspector review of these records and records of truck surveys revealed that potentially contaminated vehicles and equipment leaving the facility had been adequately surveyed.

The inspectors observed that the inventory of portable survey instruments and laboratory counting instruments was sufficient to support the radiation safety program. An inspector reviewed instrument calibration records and methods and determined that they were acceptable.

#### 7. Environmental Monitoring and Waste Management

The inspectors reviewed the 1982 semiannual effluent monitoring reports issued by the licensee and found them to be in compliance with 10 CFR 40.65. Air effluent data was reviewed in detail for each of the seven source terms identified in the application. The data indicated that no quarterly release of total airborne effluents exceeded the limit of 45,000 uCi required by the January 18, 1980, "Order to Modify License," which had been formulated to ensure compliance with 40 CFR 190. The inspectors observed that one of the principal source terms, the HF offgas scrubber stack, had been sampled differently than the other six source terms. This was due to the high moisture content of the effluent. The licensee's method of sampling has been to bubble a 1 CFM isokinetic sample through 400 ml of KOH scrubber solution. The method assumed a 100 percent collection efficiency for the scrubber solution. When questioned about confirmation of the 100 percent collection efficiency of the solution, the licensee's representative stated that there had not been any studies performed to validate the assumption. The inspector requested that a second stage scrubber be aligned in series with the first to perform a qualitative check of the method. This was undertaken for three consecutive 8-hour samples. The results indicated that roughly 20-40 percent of the sample had not been collected by the

single scrubber; therefore, the results obtained by this method were low by a similar percentage. This finding was identified to the licensee as a violation of License Condition 14 which requires that the sampling methods used provide acceptably accurate estimates of the effluent releases.

The inspectors reviewed site boundary air sample data and determined that the annual averages of all sample stations were below the MPC for unrestricted areas. Records containing the results of measurements made of liquid effluents, surface water, well water, and soil were found to be complete. All such monitoring required by License Condition 12 appeared to have been performed. The well sampling program continued to identify elevated  $\text{NO}_3$  levels near raffinate pond number 2 which had been identified to the NRC as a small leak in February 1979. Well FTP-2A near treated raffinate pond 3 had exhibited elevated uranium levels as high as 2839 ug/l since it was reported to the NRC in April 1980. The levels have as yet been unexplained as they are higher than the concentration of uranium in the raffinate pond. Data from other wells, including all offsite monitor wells, were within acceptable ranges and did not exhibit the elevated levels.

A tour of all the ponds were made by the inspectors on February 15, 1983. The inspectors checked on the repair of the hypalon liner of pond number 3 which was completed on March 24, 1982. Since it was repaired, the drainage sample collection area below the leak has been dry. The inspectors checked the pipes to the ponds for leaks. No leaks were observed and the licensee's records showed that there had not been any ruptures since the previous inspection.

The inspectors reviewed the use of the treated raffinate waste as a fertilizer. The licensee's report indicated that the material had been utilized in accordance with the license conditions. The licensee plans to continue the fertilizer program in late March 1983.

#### 8. Independent Measurements

The inspectors spot-checked exposure rates throughout the plant during the inspection. All areas above the 5mR/hr limit as specified in 20 CFR 20.203 were posted with "RADIATION AREA" signs.

An inspector collected a soil sample on February 15, 1983, at the perimeter fence in the southwest corner of the facility. A water sample from the combined effluent stream was obtained near the boundary fence on February 17, 1983. Two air samples were taken in the yellowcake sampling room of the sampling plant. The sample will be sent to the Idaho Health Services Laboratory for analysis. The analytical results of all samples will be compared to the licensee's results of samples taken at the same location.

#### 9. Exit Interview

The NRC inspector, N. M. Shopenn, met with licensee management (reference paragraph 1) at the conclusion of the inspection on February 18, 1983. The



inspector summarized the purpose and scope of the inspection and summarized the findings. Licensee commitments as mentioned in paragraphs 4 and 5.a were noted by the inspector and the unresolved and open items were discussed. Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items or items of noncompliance. Open items, while they are not items of noncompliance, are matters of concern which require attention.

AUG 13 1984

Rivera  
File Copy

Licenses: 35-12636-03  
SUB 1010

Sequoyah Fuels Corporation  
ATTN: J. C. Stauter, Director  
Nuclear Licensing and Regulation  
Kerr-McGee Center  
Oklahoma City, OK 73125

Gentlemen:

This refers to the routine, unannounced radiation safety inspection conducted by Mr. C. L. Cain of this office on July 17-19, 1984, of the activities authorized by NRC Source Material License SUB-1010 and NRC Byproduct Material License 35-12636-03 and to the discussion of our findings held by the inspector with members of your staff at the conclusion of the inspection. The enclosed NRC Inspection Report 040-08027/84-01; 030-05948/84-01 documents this inspection.

The inspection was an examination of the activities conducted under the license as they relate to radiation safety and to compliance with the Commission's rules and regulations, and the conditions of the license. The inspection consisted of selective examinations of procedures and representative records, interviews of personnel, independent measurements, and observations by the inspector.

No violations of NRC requirements were found during this inspection in regard to NRC Source Material License SUB-1010. However, certain of your activities associated with Byproduct Material License 35-12636-03 were found not to be conducted in full compliance with NRC requirements. Consequently, you are required to respond to this matter in writing in accordance with the provisions of Section 2.201 of the NRC "Rules of Practice," Part 2, Title 10, Code of Federal Regulations. Your response should be based on the specifics contained in the Notice of Violation enclosed with this letter.

Mr. Cain also reviewed the action you had taken with respect to two violations observed during our previous inspection of NRC Source Material License SUB-1010 which was conducted February 14-18, 1983. He verified that the corrective action with respect to these items was implemented as stated in your reply of April 26, 1983, to our letter dated April 6, 1983.

In accordance with 10 CFR 2.790 of the Commission's regulations, a copy of this letter and the enclosed inspection report will be placed in the NRC's Public Document Room. If this report contains any information that you believe to be exempt from disclosure under 10 CFR 9.5(a)(4), it is necessary that you (a) notify this office by telephone within 10 days from the date of this letter

NMSS:CC  
CCain/  
8/3/84

NMSE:JE  
JEverett  
8/6/84

NMS&SB  
RHall  
8/10/84

DRS&S  
RHall  
8/13/84

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of your intention to file a request for withholding; and (b) submit within 25 days from the date of this letter a written application to this office to withhold such information. If your receipt of this letter has been delayed such that less than 7 days are available for your review, please notify this office promptly so that a new due date may be established. Consistent with Section 2.790(b)(1), any such application must be accompanied by an affidavit executed by the owner of the information which identifies the document or part sought to be withheld, and which contains a full statement of the reasons on the basis which it is claimed that the information should be withheld from public disclosure. This section further requires the statement to address with specificity the considerations listed in 10 CFR 2.790(b)(4). The information sought to be withheld shall be incorporated as far as possible into a separate part of the affidavit. If we do not hear from you in this regard within the specified periods noted above, the report will be placed in the Public Document Room.

The response directed by this letter and accompanying Notice is not subject to the clearance procedures of the Office of Management and Budget as required by the Paperwork Reduction Act of 1980, PL 96-511.

Should you have any questions concerning this letter, we will be pleased to discuss them with you.

Sincerely,

"Original Signed By  
R. E. Hall"

R. E. Hall, Acting Chief  
Nuclear Materials Safety and  
Safeguards Branch

Enclosure:

1. Appendix A - Notice of Violation
2. Appendix B - NRC Inspection  
Report 040-08027/84-01; 030-05948/84-01

cc:

Sequoyah Fuels Corporation  
ATTN: J. C. Carr, Manager  
Sequoyah Facility  
P. O. Box 610  
Gore, OK 74435

bcc: c/o DMB (IE-07)

J. Collins  
R. Bangart  
T. Westerman  
Inspector  
S. File  
Lic. Fee File  
Info Systems  
RIV Files  
TPB

APPENDIX A  
NOTICE OF VIOLATION

Sequoyah Fuels Corporation

Docket: 030-05948  
License: 35-12636-03

Based on the results of the inspection conducted on July 17-19, 1984, and in accordance with the NRC Enforcement Policy (10 CFR Part 2, Appendix C), 49 FR 8583 (March 8, 1984), the following violations were identified:

1. License Condition 15 requires, in part, that installation, initial radiation survey of devices, relocation, and removal from service of the devices containing licensed material shall be performed only by the device manufacturer or by other persons specifically authorized by the Commission or an agreement state to perform such services.

Contrary to this requirement, several devices had been removed from service, relocated, or reinstalled by the licensee.

This is a Severity Level IV violation (Supplement VI).

2. License Condition 17 requires, in part, that licensed material shall be possessed and used in accordance with statements, representations, and procedures contained in the application dated June 15, 1979. Item 13 of the application states that gauge shutters will be locked in the "closed" position whenever the gauges are not installed.

Contrary to this requirement, a gauge stored in a licensee warehouse at the time of the inspection was not secured with its shutter locked.

This is a Severity Level IV violation (Supplement VI).

3. License Condition 13.A.(1) requires, in part, that the sealed source in the Technical Operations Model T0/571 device shall be tested for leakage and/or contamination at intervals not to exceed 6 months.

Contrary to this requirement, such tests were not performed between August 1982 and November 1983, a interval of 15 months.

This is a Severity Level V violation (Supplement VI).

Pursuant to the provisions of 10 CFR 2.201, Sequoyah Fuels Corporation is hereby required to submit to this office, within 30 days of the date of this Notice, a written statement or explanation in reply, including:

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- (1) the corrective steps which have been taken and the results achieved;
- (2) the corrective steps which will be taken to avoid further violations; and
- (3) the date when full compliance will be achieved.

Consideration may be given to extending your response time for good cause shown.

Dated AUG 13 1984



APPENDIX B

U. S. NUCLEAR REGULATORY COMMISSION

REGION IV

NRC Inspection Report: 040-08027/84-01  
030-05948/84-01

Licenses: SUB-1010  
35-12636-03

Dockets: 040-08027  
030-05948

Licensee: Sequoyah Fuels Corporation  
ATTN: J. C. Stauwer, Director  
Nuclear Licensing and Regulation  
Kerr-McGee Center  
Oklahoma City, OK 73125

Facility: Sequoyah Uranium Hexafluoride Conversion Facility

Inspection At: Gore, Oklahoma

Inspection Conducted: July 17-19, 1984

Inspector: C. L. Cain  
C. L. Cain, Radiation Specialist

8/3/84  
Date

Approved: R. J. Everett  
R. J. Everett, Chief, Nuclear Materials Safety  
Section

8/9/84  
Date

Inspection Summary

Inspection Conducted July 17-19, 1984 (Report: 040-08027/84-01;  
030-05948/84-01)

Areas Inspected: Routine, unannounced inspection of conversion facility operations and radiation safety program including organization, management, and training; facilities and equipment; internal exposure control; external exposure and contamination control; waste management and environmental monitoring; fixed gauge operations; and independent measurements.

The inspection involved 24 inspector-hours onsite by one NRC inspector.

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Results: No violations or deviations were identified in regard to License SUB-1010. However, two open items were identified (failure to properly calibrate air samplers, paragraph 5.a, and failure to perform detailed analysis of internal exposures nearing regulatory limits, paragraph 5.b). Three violations were identified in regard to License 35-12636-03 as follows (paragraph B):

1. Removal from service, relocation, and reinstallation of gauges by an unauthorized agent (License Condition 15).
2. Failure to lock gauge shutters when gauges were not installed (License Condition 17).
3. Failure to perform leak tests (License Condition 13.a.(1)).

## DETAILS

### 1. Persons Contacted

- \*J. C. Carr, Manager, Sequoyah Facility
- \*C. A. Grosclaude, Manager, Health Physics and Industrial Safety
- \*G. J. Sinke, Staff Health Physicist, Kerr-McGee Corporation
- K. Simeroth, Senior Health Physics Technician
- D. Knoke, Laboratory Supervisor

\*Denotes those individuals present at the exit briefing.

The NRC inspector also interviewed three facility employees.

### 2. Licensee Action on Previous Inspection Findings

(Closed) Violation (040-08027/83-01): Failure to perform direct reading alpha contamination surveys. The NRC inspector verified that such surveys have been performed weekly in accordance with the licensee's commitment.

(Closed) Violation (040-08027/83-01): Failure to adequately evaluate stack effluent. The NRC inspector reviewed records which indicated that the licensee's committed corrective action of using a multi-stage sample train had been implemented.

(Open) Open Item (040-08027/83-01): Failure to establish written procedures for health physics functions. Although the licensee had not yet completed this effort, a clear commitment to establish such procedures has been documented in Chapter 12 of the license renewal application dated October 17, 1983. Since the renewed license will reference the application as a license requirement, this item will be reviewed for compliance during the next inspection.

(Closed) Unresolved Item (040-08027/83-01): Use of nonconservative air sampling flow rates to derive air concentrations used in exposure calculations. The NRC inspector reviewed records of weekly air sampler calibrations and noted that relatively few samplers were found to have greatly reduced flow rates prior to calibration. Also, since personnel exposures are calculated based on the average of several sampler locations, the effect of this phenomenon is expected to be negligible.

### 3. Organization, Management, and Training

Effective September 1983, Kerr-McGee Corporation consolidated its nuclear operations in Oklahoma and Wyoming into a wholly-owned subsidiary named Sequoyah Fuels Corporation. During May 1984, J. C. Carr was appointed manager of the Sequoyah facility reporting to R. P. Luke, Executive Vice President of Sequoyah Fuels. Also since the last inspection,

J. C. Stauter was appointed Director, Nuclear Licensing and Regulation, replacing the retiring W. J. Shelley.

The facility manager stated that his staff size was essentially unchanged since the last inspection and was comprised of approximately 150 employees. The health physics staff also was unchanged and included, in addition to the manager, a senior health physics technician, a health physics technician assigned to each of the four work shifts, and a clerk.

The licensee presented various reports of internal review and audit of facility health physics activities. Weekly safety and housekeeping inspections have been performed by the health physics technicians, and results have been reported by the health physics manager to the facility manager. The health physics manager also has submitted monthly progress reports to the facility manager which have summarized radiation exposure and other health physics data.

An ALARA committee comprised of five personnel from the corporate and facility staffs audited facility licensed activities during the first quarter of 1984 and submitted a report of their findings. The corporate staff health physicist has also conducted quarterly reviews of facility safety programs.

The NRC inspector reviewed several hazardous work permits and noted that the program was essentially unchanged since the last inspection. The licensee had also issued one new health physics procedure entitled "Monitor Well and Surface Water Sampling Procedures."

The NRC inspector found the radiation safety training program to be conducted as stated in the application and observed no program modifications since the last inspection. The NRC inspector reviewed samples of written exams administered to workers in conjunction with initial and refresher training courses and noted that "tailgate" safety meetings incorporating radiation safety information had been held monthly with each work crew. The NRC inspector interviewed three workers and determined that their understanding of radiation safety practices was sufficient to indicate licensee compliance with 10 CFR Part 19.12. The NRC inspector observed that notices were posted as required by 10 CFR Part 19.11 and 10 CFR Part 21.

The health physics manager also described the training that he and his staff had received in recent years. The manager stated that he had attended a week long course in May 1984 concerning radioactive waste reduction and 10 CFR Part 61 compliance. He further indicated that occasionally he had been permitted to attend other training courses. The manager stated that the technicians have either participated in a home study course designed by Rockwell or have attended a health physics course at Oklahoma State University.

No violations or deviations were identified.

4. Facilities and Equipment

The NRC inspector toured the plant and project site on several occasions during the inspection in order to observe operations in progress and to assure that equipment and facilities were in accordance with applicable license requirements. Plant process buildings were noted to be generally clean and orderly. The licensee provided plant process rate data for 1983 and asked that it remain proprietary. The NRC inspector noted that the process rate was less than in previous years and that the plant had operated continuously except for a maintenance shutdown lasting several weeks during the spring of 1984. The licensee stated that essentially all yellowcake had arrived at the site as drummed, dried material and that bulk slurry shipments have continued to decline.

The NRC inspector also reviewed the recently completed miscellaneous digester facility located south of the solvent extraction building. Process wastes such as ash and filter wastes are drummed after collection and then returned to this area for digestion and reinjection into the solvent extraction circuit. The licensee explained that although the facility is new, this activity does not constitute a process circuit change and should effect an overall reduction in airborne uranium. The NRC inspector observed that the drum dumping portion of the facility was enclosed and isolated from the operator.

Incoming yellowcake drums and outgoing  $UF_6$  cylinders were noted to be marked "Radioactive-LSA," and transport of source material appeared to comply with 49 CFR Part 173.425. Forms NRC-741, completed upon receipt and transfer of source material, were reviewed and compliance with 10 CFR Part 40.64(a) was verified. The 1983 source material inventory report required by 10 CFR Part 40.64(b) was also reviewed.

The fire protection program was briefly reviewed and no major changes were noted since the last inspection. The insurance underwriter had performed a site inspection since the last NRC inspection and had reported results by letter dated July 8, 1983.

No violations or deviations were identified.

5. Internal Exposure Control

a. Air Sampling

The licensee has continued to monitor the plant work locations continuously using 45 sample heads connected to a central plant vacuum system. When the miscellaneous digestion facility is operating, three additional samples are collected in that area.



Sample filters have been replaced every 8 hours and have been analyzed by a gas proportional counter to determine gross alpha activity.

The samplers normally operate at 1 CFM and are calibrated weekly using a hand held rotometer which is periodically compared with a laboratory grade rotometer. The licensee presented a letter dated January 19, 1981, from the manufacturer of the flowtubes used in the lab rotometer. The letter stated that the flowtubes are tested against master flowmeter tubes which have been calibrated on equipment that is traceable to the National Bureau of Standards. (NBS). This would indicate that the samplers have been calibrated with no better than a quaternary traceable NBS standard, when various industry standards suggest a primary or secondary standard. Such is recommended by Regulatory Guide 8.25, "Calibration and Error Limits of Air Sampling Instruments for Total Volume of Air Sampled," dated August 1980. This was identified as an open item (040-08027/8401-01), and the licensee committed to correct the action.

Air sample data were somewhat lower than that noted by this NRC inspector during the 1982 inspection. The highest sample result noted was 32 times the maximum permissible concentration (MPC) for natural uranium. Data for 1982 had ranged to as high as 85 MPCs. Also, the number of high sample results was lower.

The licensee has also assigned use of lapel samplers to workers when special work is not in the vicinity of a sample head. Sample results with this equipment have ranged to 40 MPCs for the several daily fluorination tower ash receiver changeouts. Such work has been performed using supplied-air respirators. Much of the work with lapel samplers has been in the contaminated waste storage yard. Lapel samplers have been calibrated using a bubble tube, a primary standard.

The NRC inspector used the licensee's certified calibration source to check the calibration of the gas proportional alpha counter. The licensee's results were verified. The licensee has also used a 0.6 absorption factor to compensate for alpha absorption in filter paper.

After review of air sampling data, the NRC inspector determined that airborne radioactivity areas were posted as required by 10 CFR Part 20.203(d). Sample heads appeared to be located so as to be representative of worker breathing zones. The licensee pointed out that the sample head in the sampling plant had been relocated after discussions with the NRC inspector the previous year.

b. Exposure Determination

The NRC inspector reviewed contamination incident reports and weekly exposure summary records which summarized calculated internal exposure in MPC-hours for each worker each week. Both fixed sample head data and lapel sampler data have been combined for these records. Workers have been required to submit daily time cards tabulating the number of hours spent in each of the major plant process areas.

The licensee has conservatively considered all airborne uranium to be soluble even though some components have consisted of insoluble  $UO_2$  and high-fired yellowcake. As in years past, many exposures to highly soluble  $UF_6-UO_2F_2$  were recorded.

Contamination incident reports have been completed whenever any sample has exceeded 3 MPC. The licensee issued 33 of these reports between January 4 and May 19, 1984. These have always been associated with special work or minor plant incidents. In these cases, worker exposure has been calculated by averaging all samplers in a particular process area and multiplying by the area assignment duration. Respiratory protection factors have been credited where applicable. These data plus routine occupancy in process areas and associated sampler data have been inputs to a computer program which outputs weekly exposure for each worker.

The highest recorded weekly exposure was 38.8 MPC-hours which is 97 percent of the weekly limit. There were many other exposures in excess of 30 MPC-hours. The NRC inspector noted that calculation of these exposures was based on parameters whose certainty was relatively imprecise, such as:

1. Air sampler flow rate data (due to a questionable calibration standard as previously indicated).
2. Area occupancy time data (due to inherent errors associated with worker time cards).
3. Data representing the average concentration of numerous air samplers in a given work area.

The licensee stated that in the future a special review would be performed for individuals whose weekly exposure exceeded 30 MPC-hours. This review would include examination of precise work locations and associated occupancy intervals. This commitment will be considered as an open item (040-08027/8401-02) and will be reviewed during a subsequent inspection.



Several compensating, conservative factors were also acknowledged including (1) assumption of exclusively soluble uranium even though some insoluble material is also likely, and (2) use of the insoluble MPC which is 26 percent lower than that for soluble uranium.

c. Respiratory Protection

The licensee was found to have continued use of respiratory protective equipment as in past years. Half-masks have been used in the sampling plant, while full-face and supplied-air respirators have been used in other parts of the facility. Exposure records indicated that proper protection factors had been applied for those workers wearing respirators. A polydisperse DOP man-test system with a fitting chamber has been used to fit new hires. No other worker had undergone repeat fit testing since 1978.

Records also indicated that personnel had been trained and had been administered written exams. Records included annual vital capacity lung test results and comprehensive written procedures. Workers were observed to be properly utilizing respirators, and equipment cleaning, inspection, and storage facilities were noted to be adequate.

d. Bioassay

Bioassay data were found to reflect the lower air concentration data. The highest urine sample result was 1,000 ug/l, and rarely was a result in excess of 100 ug/l. The higher data was associated with incidents involving  $UF_6$  which characteristically exhibits rapid clearance. The licensee has evaluated exposures in conjunction with Regulatory Guide 8.22, "Bioassay at Uranium Mills," and has required workers to be restricted from further exposure in those cases where further sampling has been necessary. None of the exposure incidents have resulted in derived intakes in excess of 9.6 mg (40 MPC-hours).

Urine samples have been fluorometrically analyzed at the site lab, and 10 percent of the samples have been split with a commercial lab. Comparison of data between the two laboratories were noted to be within acceptable agreement. Blank and spike samples have also been appropriately included with each process batch.

All workers have been sampled under the program at least twice per month. Shift workers have been required to submit a sample at the beginning of each 10-day shift cycle.

The licensee has continued to subject half of the plant staff to in-vivo counting each year. During August 19 to September 1, 1983,

65 workers were counted, and the highest recorded result was 11.1 nanocuries of natural uranium.

No violations or deviations were noted.

6. External Exposure and Contamination Control

Monthly film badge data for 1983 were reviewed, and the highest penetrating, whole body exposure for the year was 810 millirems. The licensee has also performed routine monthly radiation surveys using an ion chamber device in and around the plant buildings. As in previous years, the highest levels were associated with the ash receiver enclosures which were posted and enclosed.

Also reviewed were weekly survey data for fixed and removable alpha contamination at approximately 100 locations in process areas and in nonprocess areas such as lunch rooms, change rooms, and offices. Data were somewhat lower than for previous years, and whenever areas were identified as contaminated, corrective action appeared to be prompt as evidenced by survey records.

Workers were observed to be wearing company supplied protective clothing including footwear. Several plant locations were provided for workers to exchange dirty canvass shoe covers for clean ones. Workers were required to shower and/or survey themselves prior to exiting the process areas. Records were reviewed which indicated that weekly spot surveys of personnel leaving the change rooms were performed by the health physics staff.

Also reviewed were surveys for both fixed and removable contamination on materials and equipment released for use offsite. The licensee also stated that the security staff will not release a shipment from the site unless it is accompanied by a health physics release form. Records were also reviewed relating to contamination surveys for trucks arriving the site with yellowcake as well as those departing the site after unloading and those leaving with  $UF_6$  cylinders.

The inventory of portable survey instruments appeared to be sufficient to support the radiation safety program. Instrument calibration methods and records were also found to be appropriate.

No violations or deviations were noted.

7. Waste Management and Environmental Monitoring

License Amendment 25 requires the licensee to submit to NRC a comprehensive plan for the disposal of solid wastes by January 24, 1985. This plan is currently being developed by the licensee. The NRC inspector

reviewed the status of both the solid and liquid waste programs as reported below.

The licensee has stored liquid raffinate effluent from the solvent extraction process in the four clarifier ponds west of the facility buildings. Barium coprecipitation treatment equipment near these ponds is used to form and remove from the raffinate most of the solids containing radioactive material. The treated raffinate solution has been stored in Ponds 3E, 3W, and 4, while the sludge has been maintained in the clarifier ponds. The raffinate sludge, which contains approximately 0.3 percent uranium, is being stored in anticipation of approval of a volume reduction process and the subsequent shipment of the solids for reprocessing at the licensee's uranium mill in New Mexico. The licensee is awaiting approval to continue deep-well injection of most of the raffinate solution although some, approximately a third of the amount produced annually, may continue to be dispersed as fertilizer on licensee-owned land. During 1984, the licensee continued fertilizer application on the 160, 270, and 885 acre plots adjacent to the plant site, as well as the Rabbit Hill site approximately 15 miles to the west.

A separate solid waste, fluoride sludge, containing much smaller quantities of radioactivity, is currently being stored in a settling basin and a holding pond on the southwest quadrant of the site. Miscellaneous dry solid scrap has been compacted into approximately 140 large bales and has been stored on the far north side of the site along with approximately 2,000 barrels of other miscellaneous, potentially contaminated waste materials.

During a tour of the outlying portions of the project site on July 18, 1984, the NRC inspector reviewed the licensee's waste processing and storage facilities. Although freeboards were adequate, large quantities of raffinate were in storage in Ponds 2, 3, and 4. Large quantities of hay produced on the fertilized acreage were being stored on licensee property nearby. The NRC inspector also reviewed the clarifier ponds, the fluoride sludge ponds, the deep well used to inject raffinate underground, the barium coprecipitating treatment equipment, and the compounds where the bales and barrels of dry solids were stored. The catchment basins and pumpback stations south and west of Pond 2 were also noted.

Prior to the site inspection, the NRC inspector reviewed in the regional office the semiannual effluent monitoring reports issued by the licensee for the first and second halves of 1983 and found them to be in compliance with 10 CFR Part 40.65. Air effluent data were reviewed in detail at the site for each of the seven source terms identified in the application plus the newly instituted miscellaneous digestion dust collector exhaust. The NRC inspector noted that the HF offgas scrubber exhaust was being sampled in accordance with the licensee's response to the previous NRC inspection except that a three-element train was being utilized instead of the

two-element one originally described. The sample was first being bubbled through a potassium hydroxide solution before passing through two series particulate filters. Data review by the NRC inspector indicated that no quarterly release of total airborne effluents exceeded the limit of 45 mCi required by Amendment 9.

Site boundary air sample data were reviewed and found to be below the MPC for unrestricted areas. The licensee also presented solubility analysis and particle size distribution data for a composited air sample close to the nearest resident. Both types of analysis were performed by the licensee's Technical Center in Oklahoma City. Solubility data were reviewed for each quarterly analysis from the fourth quarter of 1981 through the fourth quarter of 1982. Later analyses were incomplete. Data generally indicated 40 percent Class Y and 60 percent Class D. Semiannual particle size analyses were reviewed for 3 years from April 1980 to April 1983. Generally, the data reflected an AMAD of less than 1 micron for 80 percent of the particles.

Data pertaining to radioactivity in surface water were reviewed and found to be comparable to those of past years. Sampling has been continuous at the combined effluent stream and monthly or quarterly at the other locations such as site ponds, rivers, and reservoirs. Uranium concentrations in the effluent stream have been less than 6 percent of the unrestricted area MPC.

The licensee has also monitored 67 wells on the project site. The highest data were associated with Wells 2314 and 2319 southwest of Pond 2. Vegetation, soil, and bottom sediment sample data were also reviewed, and no trends were identifiable. Samples have been analyzed at the licensee's Technical Center.

No violations or deviations were noted.

#### 8. Fixed Gauge Operations

The NRC inspector also reviewed licensed activities associated with Byproduct Material License 35-12636-03 which authorizes possession and use of fixed nuclear density gauges. The licensee was found to possess 12 gauges, all of which were authorized by the license and were properly labeled in accordance with 10 CFR Part 20.203. Records of receipt were available as required by 10 CFR Part 30.51(a), and installation survey records completed by the manufacturer were also available for review. The licensee also had records of semiannual physical inventories as required by License Condition 16.

However, three violations of NRC license conditions were identified during the inspection. The first related to the removal from service, relocation, and reinstallation of gauges by the licensee even though such



activities are not authorized under the license. At least five of the gauges had been previously removed from pipes or bins to which they had originally been attached. Two had been reinstalled on bins in the third floor hydrofluorination area on licensee constructed stanchions approximately 7 inches from the bin. The NRC inspector was able to place a survey meter near the open shutter of either device and measure exposure rates in excess of 1,000 mR/h. Failure to have device relocation and installation performed by an authorized agent was identified as a violation of License Condition 15.

The second violation related to the three relocated gauges that had been stored on a pallet in an adjacent licensee warehouse. Two of the gauge shutters were locked in the closed position, but one shutter, although closed, was not locked and could be hand operated. Failure to lock the shutter was identified as a violation of License Condition 17 which requires that licensed material shall be possessed and used in accordance with statements made in the license application. Item 13 of the application stated that "Shutters of liquid density gauges [sic] will be locked in the "closed" position whenever the gauges [sic] are not installed in pipes."

The third violation regarded licensee failure to conduct leak tests every 6 months on a sealed source in a Technical Operations Model 571 calibration unit containing 15 millicuries of cobalt-60. Such a test, although conducted and found to yield acceptable results on June 8, 1984, had not been conducted between August 1982 and November 1983, an interval of 15 months. This deficiency was identified as a violation of License Condition 13.A.(1). Other sealed sources had been tested at their proper 3-year intervals, and sample analysis at the Kerr-McGee Cimarron facility indicated acceptable results.

#### 9. Independent Measurements

The NRC inspector performed exposure rate surveys throughout the plant on two occasions and found all areas to be properly posted. No area directly accessible to personnel, except near the nuclear gauges as previously noted, exhibited rates in excess of 30 mR/h.

#### 10. Exit Interview

The NRC inspector met with licensee management (reference paragraph 1) at the conclusion of the inspection on July 19, 1984. The NRC inspector summarized the purpose, scope, and findings of the inspection.



# U.S. NUCLEAR REGULATORY COMMISSION

PRINCIPAL INSPECTOR NAME: Mr. Charles L. Coir

## INSPECTOR'S REPORT Office of Inspection and Enforcement

REVIEWER

INSPECTOR:

LICENSEE/VENDOR

TRANSACTION TYPE

BOOKING NO. (8 digits) UP (1 digit)  
NO. BY PRODUCTION (13 digits)

REPORT

NEXT INSPECTION DATE

NO

SEC

MC

VR

Signature: [Handwritten]

(Uranium mill - Page 1)

- ☒ I - INSERT
- ☐ M - MODIFY
- ☐ D - DELETE
- ☐ R - REPLACE

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PERIOD OF INVESTIGATION/INSPECTION

INSPECTION PERFORMED BY

ORGANIZATION CODE OF REGION/NC CONDUCTING ACTIVITY (See IRLC 2010 "Management Region" and "Weekly Management Reporting" for code)

FROM

TO

☒ 1 - REGIONAL OFFICE STAFF

OTHER

MC

DAY

VR

MC

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VR

☐ 2 - RESIDENT INSPECTOR

☐ 3 - PERFORMANCE APPRAISAL TEAM

REGION

DIVISION

BRANCH

4

B

A

REGIONAL ACTION  
(Check one box only)

TYPE OF ACTIVITY CONDUCTED (Check one box only)

☒ 1 - IRLC FORM 801

☐ 2 - REGIONAL OFFICE LETTER

☒ 02 - SAFETY

☐ 03 - INCIDENT

☐ 04 - ENFORCEMENT

☐ 05 - NRC AUDIT

☐ 06 - NRC VISIT

☐ 07 - SPECIAL

☐ 08 - VENDOR

☐ 09 - MAT ACCT

☐ 10 - PLANT SEC

☐ 11 - INVENT VER

☐ 12 - SHIPMENT/EXPORT

☐ 13 - IMPORT

☐ 14 - INQUIRY

☐ 15 - INVESTIGATION

INSPECTION INVESTIGATION FINDINGS  
(Check one box only)

TOTAL NUMBER OF VIOLATIONS AND DEVIATIONS

ENFORCEMENT CONFERENCE HELD

REPORT CONTAINS 270C INFORMATION

LETTER OR REPORT TRANSMITTAL DATE

A

B

C

D

☒ 1 - CLEAR

☐ 2 - VIOLATION

☐ 3 - DEVIATION

☐ 4 - VIOLATION & DEVIATION

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☐ 1 - YES

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☐ 1 - YES

IRLC FORM 801  
OR REG  
LETTER ISSUED

REPORT SENT  
TO NC FOR  
ACTION

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AUG 14 1984

MODULE INFORMATION

MODULE INFORMATION

TYPE	MODULE NUMBER INS*					SEC	PRIORITY	DIRECT INSPECTION EFFORT IN STAFF HOURS EXTENDED TIME INSPECTION	PERCENTAGE COMPLETED TO DATE	STATUS	MODULE REG FOLLOWUP					TYPE	MODULE NUMBER INS*					SEC	PRIORITY	DIRECT INSPECTION EFFORT IN STAFF HOURS EXTENDED TIME INSPECTION	PERCENTAGE COMPLETED TO DATE	STATUS	MODULE REG FOLLOWUP																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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\* CIRCLE SEQUENCE H VIOLATION OF DEVIATION

U.S. NUCLEAR REGULATORY COMMISSION <b>INSPECTOR'S REPORT</b> Office of Inspection and Enforcement		PRINCIPAL INSPECTOR (NAME AND TITLE) Chief, Chapter 1 REVIEWER
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INSPECTOR'S  	TRANSACTION TYPE I - INSERT M - MODIFY D - DELETE R - REPLACE	DOCKETING SYMBOL OR LICENSE NO. BY PRODUCT (113 digits)	REPORT MC    SEC    MC    VR	NEXT INSP. DATE
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PERIOD OF INVESTIGATION INSPECTION FROM: MC DAY YR    TO: MC DAY YR	INSPECTION PERFORMED BY 1 - REGIONAL OFFICE STAFF 2 - RESIDENT INSPECTOR 3 - PERFORMANCE APPRAISAL TEAM OTHER:	ORGANIZATION CODE OF REGION/HQ CONDUCTING ACTIVITY (See ENR, BSC, "Manpower Region" Rep - Manpower Reporting for code) REGION    DIVISION    BRANCH
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REGIONAL ACTION (Check one box only) 1 - BRC FORM B1 2 - REGIONAL OFFICE LETTER	TYPE OF ACTIVITY CONDUCTED (Check one box only) 02 - SAFETY    06 - MGMT VISIT    10 - PLANT SEC 03 - INCIDENT    07 - SPECIAL    11 - INVENT. VER 04 - ENFORCEMENT    08 - VENDOR    12 - SHIPMENT/EXPORT 05 - MGMT AUDIT    09 - MAT ACCT    13 - IMPORT	14 - BOUTRY 15 - INVESTIGATION
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INSPECTION INVESTIGATION FINDINGS (Check one box only) A    B    C    D 1 - CLEAR 2 - VIOLATION 3 - DEVIATION 4 - VIOLATION & DEVIATION	TOTAL NUMBER OF VIOLATIONS AND DEVIATIONS A    B    C    D	ENFORCEMENT CONFERENCE HELD A    B    C    D    1 - YES	REPORT CONTAIN 2 Pgs INFORMATION A    B    C    D    1 - YES	LETTER OR REPORT TRANSMITTAL DATE MC DAY YR    MC DAY YR
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MODULE INFORMATION										MODULE INFORMATION															
MODULE NUMBER INSP					PRIORITY	DIRECT INSPECTION EFFORT IN STAFF HOURS EXPENDED THIS INSPECTION	PERCENTAGE COMPLETED TO DATE	STATUS	MODULE REG FOLLOWUP					MODULE REG FOLLOWUP											
TYPE	NUMBER	PHASE	MANUAL CHAPTER	PROCEDURE NUMBER					LEVEL	TYPE	NUMBER	PHASE	MANUAL CHAPTER	PROCEDURE NUMBER	LEVEL	TYPE	NUMBER	PHASE	MANUAL CHAPTER	PROCEDURE NUMBER	LEVEL				
	56	28	1,2	B		0.00	1.00	C						58	28	2,0	B		0.90	1.00	C				
Maintenance									Emergency Plan Fire																
	57	18	4,6	B		0.02	1.00	C						58	38	2,2	B		0.07	1.00	C				
Conduct of Operations									Ref. Prot.																
	58	08	1,8	B		0.02	1.00	C						58	48	2,4	B		0.03	1.00	C				
Environmental Programs									Ref. Waste Mgmt.																
	58	27	1,1	B		0.00	1.00	C						58	48	4,9	B		0.00	1.00	C				
Emergency Plan Eval./Revs.									Contractor Measurements																





