

APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 40-08027/87-11

License: SUB-1010

Docket: 40-08027

Licensee: Sequoyah Fuels Corporation (SFC)
Kerr-McGee Center
Oklahoma City, Oklahoma 73125

Facility Name: Sequoyah Uranium Hexafluoride Conversion Facility

Inspection At: Gore, Oklahoma

Inspection Conducted: October 13-16, 1987

Inspector:

D. B. Spitzberg
D. B. Spitzberg, Senior Radiation Specialist
Nuclear Materials Inspection Section

11-3-87
Date

Approved:

R. J. Everett
R. J. Everett, Chief, Nuclear Materials
Inspection Section

11/4/87
Date

Inspection Summary

Inspection Conducted October 13-16, 1987 (Report 40-08027/87-11)

Areas Inspected: Routine, unannounced inspection of the Environmental Protection Program, including management controls, quality control of analytical measurements, and program implementation. Also inspected were two allegations of unsafe or improper practices received by Region IV (cases RIV-87-A-0073 and RIV-87-A-0077) and compliance with the NRC Order Modifying License dated August 19, 1987.

Results: Within the areas inspected, no violations or deviations were identified. One open item was identified in the area of environmental program implementation (paragraph 5.f). The allegations were substantiated; however, no violations of license requirements were identified as a result.

DETAILS

1. Persons Contacted

*W. L. Utnage, Facility General Manager
 *L. R. Lacey, Manager, Health, Safety and Environment
 J. H. Mestepey, Manager, Operations
 S. R. Fryer, Manager, Engineering
 D. R. Swaney, Manager, Quality Assurance
 M. R. Chilton, Area Manager, UF₄ Facility
 L. A. Tharp, UO₃ Area Manager
 G. Sakalosky, Manager, Health Physics
 S. P. Knight, Manager, Administration and Services
 D. R. Knoke, Manager, Laboratory
 C. Couch, Environmental Engineer
 K. Simeroth, Senior Health Physics Technician

The NRC inspector also met with other licensee supervisors, operators, and technicians.

*Denotes those present at exit briefing.

2. Licensee Action on Previous Inspection Findings

(Closed) Deficiency (40-08027/87-03/16) - Licensee revision of amendment application for the UF₄ conversion facility to describe the processing of environmental samples for isotopic analysis. By letter dated April 9, 1987, the licensee submitted to the NRC Revision 2, page II.14-1, to the amendment application, which changed the commitment for isotopic analysis of environmental samples to only those occasions following a nonroutine release. These samples would be submitted to the Kerr-McGee Technical Center for analysis. NRC Region IV letter dated April 17, 1987, identified the licensee's response to this, as well as other previously identified deficiencies related to the UF₄ conversion facility, as satisfactorily resolved. This item is closed.

3. Licensee Response to NRC Cylinder Valve Order

On August 19, 1987, the NRC issued an Order Modifying License requiring certain licensee actions related to specific lots of cylinder valves suspected of having defects. The licensee responded to the Order by letter dated September 17, 1987, stating that compliance had been achieved. During the inspection, the NRC inspector verified that the 52 affected valves in the licensee's warehouse inventory had been tagged out of use. None of these valves had shown visual defects. Also reviewed were internal memoranda alerting UF₆ operators to the valve order. All valves in the cylinder storage yard were being inspected according to temporary operating procedures to identify valves from the affected lots as cylinders were being removed from the yard for use or shipment.

Revisions to Operating Procedures N-280-1, "UF₆ Product Handling and Shipping"; N-280-3, "Steam Chest Operation"; and N-280-5, "Washing and Testing of Cylinders" were under committee review at the time of the inspection to incorporate the affected lots into the routine QA checks performed whenever cylinders are washed, filled, emptied, or shipped. On October 21, 1987, the NRC inspector telephoned the facility manager, who confirmed that the revisions would include the same checks for affected valves prior to heating cylinders in the autoclave at the UF₄ conversion facility.

The licensee had projected a potential critical shortage of usable cylinder valves, should resolution of the defect issue become protracted. Licensee information indicated that the sole domestic supplier was projecting first delivery of additional valves some 24 to 30 weeks following NRC approval of a QA program. The licensee's usable, on-hand inventory at the time of the inspection would be depleted in about 25 weeks at current use rates.

No violations or deviations were identified.

4. Allegation Review

- a. Allegation Case RIV-87-A-073 - An allexer stated that on August 26, 1987, at 8:30 p.m., he smelled some noxious gas, like fluorine, in a location south of the Sequoyah Facility.

NRC Review

After receiving the allegation, the NRC headquarters duty officer contacted the regional duty officer and the facility to inquire into the possible causes of the complaint. The licensee's shift supervisor on duty could not identify any abnormal conditions, but he ordered the fluorination circuit shut down as a precaution to perform a more exhaustive check. The guard at the south guard gate purportedly could not smell the alleged odor. The operations manager was notified by the shift supervisor. The regional duty officer also contacted the plant and requested that air samples be pulled to check for fluoride. It was noted that an allexer had also notified the EPA National Response Center of the complaint, identified himself by name, and left his telephone number to be informed of follow-up information.

The air samples pulled by the licensee were those located in the downwind direction at the east fence (E-1) and at Route 10 and I-40 (2108). These samples had undergone their weekly changeout earlier that day and, therefore, had sampled only 6 hours when pulled following the complaint. The results were reviewed by the operations manager, who determined that they were not indicative of a fluoride release problem but that further investigation would be performed. This information was conveyed to the NRC, who passed it on to the

EPA, who then informed the alleged. On September 4, 1987, the licensee called Region IV to further qualify the initial information on fluoride levels. After further internal review and comparison to the routine weekly samples, it was recognized that the 6-hour samples had exceeded the action level specified in the license. The levels reported at E-1 and 2108 were 0.021 $\mu\text{g}/\text{l}$ and 0.016 $\mu\text{g}/\text{l}$, respectively. (Action level for investigation specified by the license is 0.005 $\mu\text{g}/\text{l}$.) On September 9, 1987, the NRC inspector called the EPA representative who had been the point of contact on the allegation, informed her of the actual air sample results, and recommended that she pass the information to the alleged (whose identity had not been conveyed to the NRC).

During the inspection, the NRC inspector discussed with licensee representatives the results of their investigation as documented in internal memoranda dated September 1 and 17, 1987, and the analytical records of the air samples pulled. The suspected cause of the measured fluoride levels was identified by the licensee as the routine fluorine filter blowback procedure, which is implemented approximately once every 24 hours of operation in order to clear the filters from plugging with electrolyte crystals. On the night of the allegation, this had been performed at 7:50 p.m. Since the wind that evening was from the north, this could have resulted in fluorine or HF gases being released to the south as alleged. The blowback procedure described in N-400-9, "Fluorine Unit Filtering and Compressor Operation," called for the "bumping" or rapid pressuring of the filters with nitrogen to break up the electrolyte crystals. The nitrogen, along with any entrained fluorine or hydrofluoric acid (HF), would then be purged through the unscrubbed and unmonitored emergency vent stack. Evidence to support the release pathway was found by reviewing the cell room exhaust fluoride sample for August 26, 1987, which showed a concentration of 0.2 $\mu\text{g}/\text{l}$. This was less than the monthly average values for 1987, which ranged from 0.7 - 1.1 $\mu\text{g}/\text{l}$. In past operations, the blowback procedure had not led to environmental air samples exceeding the action level for fluoride; however, it did contribute to the levels that were measured. As a result of the investigation, the licensee revised Procedure N-400-9 to require purging the filters back through the fluorination towers to react any entrained fluorine and scrub out HF. The licensee's evaluation dated September 17, 1987, also showed a "conservative calculation" of fluorine released during the blowback procedure to be 8.59 pounds. This was less than the EPA reporting limit of 10 pounds in 24 hours. It should be noted that the reported air sample results were calculated on a 6-hour sample from the time of the routine weekly changeout on August 26, 1987, to the time they were pulled following notification of the complaint. Since the period overlapped the full blowback operation, the measured concentrations would be expected to be disproportionately high compared to results based on weekly samples.

Conclusion

The NRC inspector concluded that there was sufficient evidence to support the allegation. Immediate and long term corrective action designed to prevent recurrence was taken by the licensee. No violations or deviations were identified as a result of the investigation into the allegation.

- b. Allegation Case RIV-87-A-077 - The Sequoyah County Health Department advised Region IV that on September 15, 1987, several of its employees received automatic telephone messages from Sequoyah Fuels Facility. The calls purportedly consisted of test messages or emergency notifications. The Health Department contacted the facility, which advised that no emergency existed.

NRC Review

The NRC inspector reviewed the security shift captain's report for September 15 showing that at 11:15 p.m. an individual from the Health Department had called the plant to inquire into an automatic telephone message he had just received from the plant. Several facility employees on the automatic notification list also remembered receiving the messages at home the same evening. The NRC inspector spoke with the local telephone company representative who had worked with the licensee to install the telephone notification system. This individual had record of the unplanned activation of the VSSI system on September 15. This system is used to automatically notify certain licensee plant and corporate personnel, the Health Department, and six local residents in the event of an emergency. (Note: Notification of other local residents would be carried out by a different, but similar system.) The VSSI system could have been manually activated in the control room, at the south guard gate, or from a remote telephone by using a special access code. On September 15 there had been no planned test of the system nor did any licensee personnel have knowledge of either intentionally or accidentally activating the system manually from the facility. Following the event, the system was altered by deactivating the remote activation feature. Licensee representatives believe this will reduce the potential for inadvertent activation of the system in the future.

Conclusion

The allegation was substantiated. The precise cause of the event could not be determined; however, action to reduce the potential for recurrence has been implemented by the licensee. No violations or deviations were identified.

5. Environmental Protection

The NRC inspector reviewed the licensee's environmental protection program to determine compliance with the requirements of the license, 10 CFR Parts 20 and 40, and 40 CFR 190. The following functional areas were reviewed:

a. Management Controls

The NRC inspector reviewed the licensee's organization, staffing, and training as it pertains to the environmental programs and found these areas to be in conformance with applicable requirements of the license. Except for certain designated responsibilities such as environmental air monitoring, the routine program is implemented by an environmental engineer and one technician, both under the direction of the Manager, Health, Safety and Environment.

b. Internal Audits and Inspections

The NRC inspector reviewed records of internal audits of the environmental program areas, including corporate ALARA audits; Health, Safety and Environment Progress Reports; and permit and action level exceedance investigations. At the time of the inspection, no audits of environmental areas had been scheduled or performed as part of the facility's ongoing Quality Assurance program during its first annual scheduling cycle, which ended October 2, 1987. Records showed that in 1987 the facility had been inspected by the EPA on April 30 and August 11, 1987, and by the Oklahoma Water Resources Board on April 22-23, 1987.

c. Procedures

The NRC inspector reviewed the following procedures associated with the environmental protection program and found them to be adequate in supporting the program's activities:

HS-008	Revision 4	Environmental Action Level Exceedance Investigation
HS-801	Revision 3	Airborne and Liquid Effluent Monitoring
HS-802	Revision 1	Environmental Radiological Monitoring
HS-803	Revision 1	Ammonium Nitrate Fertilizer Program - Forage Sampling
HS-804	Revision 0	Ammonium Nitrate Fertilizer Program - Water Sampling
HS-805	Revision 1	Groundwater Sampling

HS-806	Revision 1	Environmental Monitoring - Ammonium Nitrate Fertilizer Program - Soils
HS-807	Revision 1	Collection, Preparation, and Shipment of Bottom Sediment
HS-808	Revision 1	Collection, Preparation, and Shipment of Fruit and Vegetable Samples
HS-811	Revision 1	Collection of Fish Samples by Seining
HS-812	Revision 0	Facility Surface Water Sampling
HS-813	Revision 1	Forage Storage, Handling, and Reporting

d. Quality Control of Analytical Measurements

The NRC inspector reviewed the chain of custody records for environmental samples. He also discussed instrument calibration, use of reference standards, and blank samples and found these areas to be in conformance with the license and Regulatory Guide 4.15. Analytical results for environmental samples appeared to meet the detection and uncertainty levels specified in the license.

e. Environmental Monitoring Stations

The NRC inspector visited the environmental air sampling stations 2105, 2106, 2107, and nearest residence and found them all to be operating properly. Also visited was one of the newly constructed, but as yet nonoperational, sampling weirs located at an outfall for storm water runoff.

f. Environmental Monitoring Results and Reports

The NRC inspector reviewed monthly EPA Discharge Reports, NPDES Exceedance Reports, Semiannual Effluent Discharge Reports pursuant to 10 CFR 40.65, and action level exceedance investigation reports, and found such reports to be in conformance with procedures, the license, and applicable regulations. A representative sample of the results of environmental monitoring, and sampling associated with the treated ammonium nitrate fertilizer program were reviewed. It was determined that sampling was being performed as required and results were below applicable regulatory limits. It was noted that the investigation of certain soil and vegetation samples at locations 2404 (west 1000 feet) and 2407 (south 6000 feet), which had exceeded the action levels for fluoride (soil) and uranium (vegetation), had not been completed. These samples were obtained in April 1987 and were resampled in June 1987. This is considered an open item (40-08027/8711-01) pending completion and review of the licensee's investigation of the action level exceedance of soil and vegetation samples at these locations.

g. Independent Measurements

During the inspection, the NRC inspector split water samples with the licensee from the combined effluent discharge (2207) and the treated ammonium nitrate (raffinate) pond 6 for independent analysis of natural uranium, gross alpha, and gross beta. Also split was a combination stream sediment sample to be analyzed for uranium, radium, and thorium. The NRC samples will be analyzed by the Idaho National Engineering Laboratory (DOE) for comparison to licensee results.

6. Exit Meeting

The NRC inspector met with the licensee's representatives denoted in paragraph 1 at the conclusion of the inspection to discuss the findings.