

APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Inspection Report: 40-8027/94-03

License: SUB-1010

Licensee: Sequoyah Fuels Corporation
P.O. Box 610
Gore, Oklahoma 74435

Facility Name: Sequoyah Facility

Inspection At: Gore, Oklahoma

Inspection Conducted: May 4-6, 1994

Inspector: G. Michael Vasquez, Senior Health Physicist

Approved: *D. Blair Spitzberg*
D. Blair Spitzberg, Acting Chief, Fuel Cycle and
Decommissioning Branch

6-22-94
Date

Inspection Summary

Areas Inspected: Reactive, unannounced inspection of a non-operating facility including the review of activities associated with cold trap removal and washing, and a review of a transportation incident which occurred on April 19, 1994.

Results:

- Licensee planning and implementation for cold trap removal and cleaning work were effective, and initial removal and cleaning work were successful (Section 1).
- Although the licensee was clearly responsible for all shipments it makes, it was unclear that the cause of the transportation incident of April 19, 1994, was directly due to licensee actions (Section 2).
- The licensee's response to the transportation event was prompt and corrective actions appeared appropriate (Section 2).
- The licensee had begun a project to remove barrels that contained contaminated soil or incinerator ash from their stored location north of the plant building to the soil storage cell (Section 3).

Summary of Inspection Findings:

- One (noncited) violation was identified (Section 2).

Attachment:

- Persons Contacted and Exit Meeting

DETAILS

1 COLD TRAP ACTIVITIES (88020)

During the previous inspection (NRC Inspection Report 40-8027/94-02 dated May 3, 1994), Sequoyah Fuels Corporation had begun activities for the removal and internal washing of three cold traps for sale to another NRC licensee. In preparation for this work, Sequoyah Fuels Corporation conducted numerous internal planning meetings involving engineers, former operations personnel (now called D&D personnel), quality assurance staff, Health & Safety staff, and associated Sequoyah Fuels Corporation managers. All of the planning activities were performed or coordinated by a designated Project Manager, who was a former senior shift supervisor. The Project Manager had communicated with Allied Signal, who routinely cleans out its cold traps, and had obtained a copy of the procedure Allied uses to perform this job. The Project Manager appeared to have been assigned appropriate responsibility for the job and, when interviewed, was knowledgeable about its details.

NRC Inspection Report 40-8027/94-02 dated May 3, 1994, described the activities associated with the planning, external decontamination, and cutting of cold trap No. 6, which was the first cold trap that Sequoyah Fuels Corporation removed. After removal of that cold trap, the Project Manager prepared for washing the inside of cold trap No. 6 by reviewing the procedure and walking through it with the crew that would perform the work. Then, on April 15, 1994, Sequoyah Fuels Corporation began the cleaning activity.

The cold trap was cleaned by first placing it on the cylinder wash station, which is located outdoors. Piping was assembled in accordance with Temporary Operating Procedure TOP 94-37. The Project Manager stated that he verified the set up and valve line-ups prior to beginning the activity. Then, a weak solution of soda ash was pumped through the cold trap from a wash tank. The gases were vented through a disperser into a scrub tank. The scrub tank was covered with a tarp and a suction line was placed inside the cover so that gases would be treated by the plant dust collector system.

An isolation zone was set up around the cylinder wash station and the two workers entering it wore appropriate protective clothing and respiratory protection (the respirators used canisters appropriate for any potential hydrogen fluoride gases). The inspector reviewed Hazardous Work Permit 6878 for the job. Worker precautions appeared reasonable.

During the activity, personnel reported that some "smoking" (generation of hydrogen fluoride gas) did occur, thereby indicating the presence of some uranium hexafluoride (UF₆) inside the cold trap. The workers followed the procedure and turned off the pump, isolated the feed valves, and allowed the gases to be vented to the scrub tank. Some smoke was observed coming out of the scrub tank and was generally ventilated to the plant dust collector system.

After no gases were observed and a sufficient time had passed, licensee representatives interviewed stated that the work slowly proceeded with the cleanout activities. The cleanout activities were uneventful after this time.

Licensee staff reviewed the activities associated with the removal and cleanout of cold trap No. 6. Procedures and memoranda were modified to improve the process. In some cases, health and safety precautions were increased. During the inspection, the inspector observed some of the activities associated with cutting lines on cold trap No. 5. No problems were noted. Workers were wearing prescribed protective clothing and respiratory protection, and the coordination between all the appropriate Sequoyah Fuels Corporation's organizations appeared appropriate.

2 TRANSPORTATION (86740)

2.1 Notification and Event Response

On April 19, 1994, Sequoyah Fuels Corporation notified the NRC of a transportation incident in which a liquid (water) was observed leaking from a drum of yellowcake onboard a truck bound from the licensee's facility (refer to PNO-IV-94-019 dated April 20, 1994). Three trucks were transporting the yellowcake shipment on Interstate 40 when one of the drivers noticed water leaking from the truck in front of him. The trucks pulled off the highway and called their dispatcher, who then notified the licensee.

According to documentation and licensee representatives interviewed, the appropriate managers reviewed the appropriate procedures and then authorized the driver to break the seal and look in the trailer. At the time, the licensee noted that no airborne problem should exist since the leak area was wet. The driver reported that he observed a wet spot (no standing water) covering approximately 10 square feet. The leak, he reported, had stopped, and the water appeared to be coming from a single drum in the second row from the back of the trailer. Water was also observed on a mud flap, and some drops were dripping outside the truck onto the ground.

Sequoyah Fuels Corporation then decided to dispatch a response team to the location and instructed the drivers to remain there. Later, Sequoyah Fuels Corporation notified the National Response Center and the NRC Operations Center by telephone and NRC Region IV by Fax. NRC notified the states of Arkansas and Oklahoma and FEMA Region VI. The state of Arkansas dispatched a representative to the location. The licensee made followup notifications to the Transportation Safety Board, the Arkansas Department of Health, NRC, and the Arkansas Highway Patrol.

The licensee responders took the emergency response trailer to the scene. The trailer was inventoried prior to departure to ensure the appropriate equipment and supplies were available. A light connector was missing from the trailer, so the departure was delayed a short period while another was procured from Gore.

The licensee's emergency response team arrived on the scene around 1:15 a.m. on April 20, 1994. Representatives from the Arkansas Highway patrol and the Arkansas Department of Health had arrived prior to Sequoyah Fuels Corporation's emergency team. The response teams' inspection noted no visible liquid, no visible damage to the shipment, and no visible holes in the leaking drum.

Sequoyah Fuels Corporation's health and safety supervisor conducted fixed and removable contamination surveys inside the truck. Contamination levels showed that contamination was very limited, and in those few places with contamination, it was very low levels. Maximum removable surveys indicated 200 disintegrations per minute per 100 square centimeters (dpm/100 cm²) of alpha activity and 800 dpm/100 cm² of beta. Fixed surveys indicated levels below Sequoyah Fuels Corporation's release limit, except one spot which measured 15,000 dpm/100 cm² alpha. (15,000 dpm/100 cm² is Sequoyah Fuels Corporation's release limit.)

Sequoyah Fuels Corporation's health and safety supervisor also conducted contamination surveys outside the truck and on the ground. Survey documentation indicated that contamination was less than 200 dpm/100 cm² alpha and beta was not detected.

When the suspect drum was moved, a small amount of water sloshed out of the drum. No holes were observed in the lid, but the locking nut was noted to have been loose. When the lid was removed, the gasket was reported to have been badly deteriorated. The licensee reported that about 4 inches of water was perched on top of the yellowcake (the yellowcake was solid). This left about 2 inches of airspace between the surface of the water and the bottom of the lid. The 2 inches of airspace was assumed by the licensee to have contained water that may have sloshed out creating the incident.

The licensee added dry cement compound to the water to solidify the liquid. The suspect drum was of Russian origin and was not designed like the US 55-gallon barrels. Therefore, the replacement lid would not fit. A gasket from a US barrel was molded to fit the Russian lid, and the lid was replaced. The licensee determined that because the lid had no holes and the gasket had been replaced, there was no need to place the drum in an overpack.

The area of the trailer where the water had spilled was cleaned with absorbent towels. Once the area dried, it was resurveyed and released. After the drum was replaced in the trailer, the trailer was again surveyed and released. The licensee reported that the representatives from the state of Arkansas were satisfied with the surveys. By about 4:30 am, the job was completed. The drum has since been returned to the Sequoyah Facility.

2.2 The Licensee's Investigation

At the time of the inspection, the licensee was near completion of its investigation of the transportation incident. The licensee had compiled all notes from the involved individuals and was reviewing various aspects of the event. The Safety Engineer had primary responsibility for reviewing the adequacy of the emergency procedures and equipment. The Director, D&D was responsible for conducting experiments on the drum and for implementing corrective actions. Corrective actions included ensuring the locking bolt is tightened on each drum, in addition to the already required visual inspections, cleaning, smear surveys, etc.

The licensee had noted that the drum had been received onsite in June 1991 and had remained on the yellowcake storage pad, with no processing, since that

time. Therefore, at the time of the inspection, the licensee believed that water could have been inside the drum when it was originally shipped from Russia, or that water could have gotten inside it during transit, or during the period while it was on the yellowcake storage pad. Licensee representatives noted that the lid to the drum had no holes and, except for the gasket, appeared to be in good shape.

Licensee personnel speculated that another option might be that a Sequoyah Fuels Corporation worker, sometime in the 3 years since the drum arrived onsite, may have noticed that the lid on that drum had deteriorated badly and merely replaced the lid with a good one, without removing the water inside. However, there were no records regarding this.

At the time of the inspection, the licensee was performing an experiment to see if water could get inside the drum. The experiment involved filling the top of the lid with water and waiting to see if water could migrate or travel over the top, follow the lip down through the deteriorated gasket, inside the drum. The experiment had not concluded by the conclusion of the inspection.

Further, the licensee noted to the inspector that Sequoyah Fuels Corporation had shipped thousands of drums (licensee estimates were in excess of 10,000) to Allied Signal with no incident. Further, Allied had processed over 3,000 of these drums and has not reported finding drums with water inside them. Therefore, this event appeared to be an isolated instance.

The inspector noted that no Condition Report had been written on the event at the time of the inspection. While licensee representatives stated that it was an oversight, the inspector noted it was an important oversight. A Condition Report would drive the licensee to ensure the investigation was formal and systematic and that the evaluation would ensure reviews of affected procedures, adequacy of short-term corrective actions, and evaluation of precursors to the event that might have been noted by workers but not reported. The licensee stated that a Condition Report would be generated.

The licensee's investigation of the incident was also reviewing the adequacy of its emergency procedures and equipment and lessons learned from the experience. There were several equipment problems noted and some suggestions for improvement in the licensee's response. Examples include the truck's battery discharging from the extended use of the emergency flashers, the unfamiliarization of some emergency responders with the supplies inside the emergency response trailer, the need for better lighting inside the trailer, and the need to add certain items to the inventory such as labeled plastic bags for radioactive wastes, and the drum dolly that the responders took.

The fact that water existed in the shipping container and sloshed out of the drum during shipment indicated that the drum was not a strong, tight container as required. This was identified as a violation of 10 CFR 71.5, 49 CFR 173.425(b)(1). This violation is not being cited because the conditions of paragraph VII.B.2 of Appendix C to 10 CFR Part 2 were satisfied. The licensee took prompt and effective actions to mitigate the event, the event was an isolated occurrence, and the licensee's corrective actions to prevent recurrence were appropriate.

3 CONTAMINATION CONTROLS (88020)

The inspector observed that activities at the UF⁶ plant were limited to the routine care of the utilities and the cold trap job. No activities were being conducted in the DUF⁴ plant. Sequoyah Fuels Corporation management had rearranged its crew that performed yellowcake shipping to begin a project to remove the barrels on the north side, near the south burial grounds. Many of these barrels had deteriorated and much of the soil or ash inside some barrels was exposed to the elements or leaking onto the grounds (NRC Inspection Report 40-8027/94-02 dated May 3, 1994).

According to licensee plans, a crew would move the barrels to the soil storage cell 1 day per week. A Temporary Operating Procedure 94-63 dated May 3, 1994, had been developed to perform this activity, but its implementation was still being evaluated at the time of the inspection. The licensee estimated that the job would take from 15 to 21 weeks to complete.

The licensee had performed fixed and removable contamination surveys in the area. Many of the most degenerated drums were surveyed. Removable contamination surveys ranged up to 27,886 disintegrations per 100 square centimeters (dpm/100 cm²) of beta activity and up to 4,061 dpm/100 cm² of alpha activity. Licensee analyses of two samples of drum contents that were leaking showed 1300 micrograms of uranium per gram of soil (ug/g) and 19,000 ug/g.

Licensee representatives also noted that they were reviewing the situation with other items, such as old equipment in the bone yard, that might be contributing low levels of contamination to the ground. Sequoyah Fuels Corporation planned to identify other sources and schedule their disposition.

The inspector was also informed that the licensee had inspected DUF⁴ slag drums that were stored outdoors near the DUF⁴ plant. The licensee had found two drums with pinhole leaks and they were transported to the DUF⁴ plant. The licensee was evaluating the possible storage of the remainder of these slag drums inside the DUF⁴ plant. This action would reduce the probability for further drum degeneration or leakage.

ATTACHMENT

1 PERSONS CONTACTED

1.1 Licensee Personnel

G. Barrett, Safety Engineer
*R. Cook, Vice President and Controller
*J. Ellis, President
*M. Freudiger, Health & Safety Supervisor
*C. Harlan, Director, Regulatory Compliance
R. Hughes, Former UF⁶ shift supervisor
*S. Lambson, Manager, Decommissioning and Decontamination
H. Leatherman, Engineer
*R. Miller, Manager, Health & Safety
#*B. Reid, Manager, Quality Assurance
K. Schlag, Environmental Engineer

In addition to the personnel listed above, the inspector contacted other licensee personnel during this inspection period.

*Denotes personnel present at the pre-exit briefing conducted on May 6, 1994.

#Denotes personnel present during the telephonic exit briefing conducted on May 9, 1994.

2 EXIT MEETING

On May 6, 1994, the inspector met with licensee representatives to discuss the scope and findings of the report. The licensee did not identify as proprietary any information provided to, or reviewed by, the inspector.