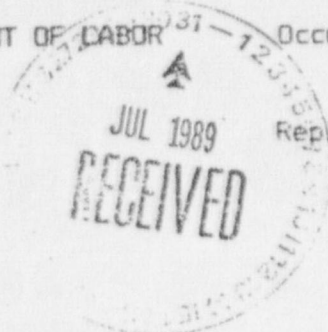


40-8027

U.S. DEPARTMENT OF LABOR Occupational Safety and Health Administration

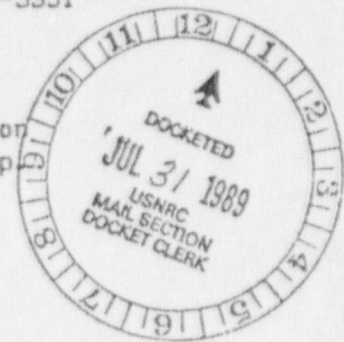


Reply to the attention of: Oklahoma City Area Office
420 West Main, Suite 725
Oklahoma City, OK 73102
405/231-5351

July 27, 1989

U.S. Nuclear Regulatory Commission
Attn: Mr. Pete J. Garcia, Jr.
Project Manager, Region IV
P.O. Box 25325
Denver, CO 80225

Re: NRC/OSHA Inspection
Sequoyah Fuel Corp.
Gore, Oklahoma



Dear Mr. Garcia,

July 10, 1989, through July 14, 1989, an on-site OSHA safety and health assessment evaluation inspection was conducted at Sequoyah Fuel Corporation, located at I-40 and Highway 10 in Gore, Oklahoma. This facility processes uranium ore concentrates recovered from mining and milling operations and converts the uranium ore concentrates into uranium hexafluoride (UF₆). This site also depletes UF₆ into uranium tetrafluoride (UF₄) and hydrofluoric acid (HF). The conversion process commences with taking the uranium ore concentrate and digesting with nitric acid. The mixed nitric acid solution or uranyl nitrate are pumped into a solvent extraction process, where impurities are removed from the uranium ore. The solution containing the purified uranium is then contacted with water in a counter current pulse column where the uranium is re-extracted into water. The purified uranyl nitrate solution enters the evaporation and boil down process and then is converted into uranium trioxide (UO₃) by thermal decomposition. The uranyl nitrate hexahydrate (UNH) flows to a denitration process where heat decomposes UNH to UO₃. A grinding operation pulverizes the UO₃ to a fine powder. The UO₃ powder is reacted with hydrogen in a two-stage process; (1) Countercurrent flow, fluid bed reactor (2) Uranium dioxide (UO₂) and water (H₂O). The water is removed, leaving UO₂ as a brown powder. The UO₂ powder flows into a two-stage stirred bed reaction with hydrogen fluoride (HF) whereby it is converted to uranium tetrafluoride (UF₄). The UF₄ powder travels to the fluorination area where elemental fluorine contact is made, producing UF₆. This highly purified UF₆ (99.99%) is drained into ten or fourteen ton cylinders, which are allowed to sit for five days, during which time the UF₆ liquid solidifies. Once solidified, the UF₆ can be further enriched, stored or shipped for future use.

This OSHA site visit was a team effort as part of a safety and health evaluation conducted by the Nuclear Regulatory Commission (NRC) during which OSHA served as consultative agency for the NRC in evaluating compliance with OSHA safety and health standards.

Areas reviewed were:

- | | |
|---------------------------|-----------------------|
| 1. Raffinate Holding Pond | 8. Receiving |
| 2. Sampling | 9. Digestion |
| 3. Solvent Extraction | 10. Denitration |
| 4. Reduction Plant | 11. Hydrofluorination |
| 5. Fluorination | 12. Shipping |
| 6. Chemical Tank Farm | 13. Ore Storage |
| 7. 6-4 Plant | 14. Maintenance |

This facility has no rail car unloading or rail spurr. All shipping and receiving is by truck. All programs related to OSHA compliance in regard to employee safety and health in the aforementioned areas were evaluated.

Findings and recommendations are as follows:

1. 1903.2. A copy of the OSHA poster was posted in the work place, informing employees of the protections and obligations provided for in the Act.
2. 1904.2. The company injury and illness log (OSHA 200's) were reviewed and evaluated. All record keeping was in compliance and no recommendations were made. A lost work day injury rate was calculated as follows:

YEAR	EMPLOYEES	LOST WORKDAY CASES	MAN HRS WORKED
1988	230	12	450168
1987	220	4	465792
Total Cases =			16
Total Man Hours =			915960
Lost Work Injury = $\frac{16 \times 200,000}{915960} = 3.49$			
Rate =			3.49

The employer's LWDI rate was well below the national average of 4.3. Injury and illness logs were examined from 1986, to 1989. The 1986 log was not used for calculations because the number of employees were greater than twenty. No conditions were observed where a partial inspection should have been conducted due to injury and illness trends. Most injuries were of sprain, strain or cuts and did not appear to be caused by any common unsafe factor. All instances and accidents were investigated and

corrective actions taken. In 1986, there was a special incident to be noted, in which a UF6 release killed one employee and injured 16. Inspection conducted by NRC and OSHA and corrective actions implemented.

3. 1910.20. The company regularly conducts sampling, medical examinations of employees and collects material safety data sheets for various substances. Section 1910.20 concerning access to employee exposure and medical records are followed completely. A copy of 1910.20, however, was not made readily available to employees as required under Section (g)(2) and it is recommended employees be informed of this section and its availability immediately.

4. 1910.22(a)(1). One yellow extension cord used to connect an electrical hair drier, which was used to provide heat on one sample UF6 cylinder in the UF6 fill area, was strung across an entrance creating a tripping hazard.

5. 1910.36(a)(1). Two (2) means of egress or exits were not provided for employees working in maintenance scheduled building, housed over the employee(s) break room.

6. 1910.39. The employer has complied with the NRC standard and implemented an in-depth radiological contingency plan which outlines action to be followed in a catastrophic occurrence. The company has a chemical safety contingency plan and a chemical spill prevention control and counter measure plan. These plans are explicit and contain sections on chemical emergencies, fires, nuclear emergencies and how to respond and evacuate. Alarm systems, evacuation procedures, employee assembly and trained response team are included and addressed in these plans. No recommendations are being made by OSHA in regard to compliance. The company directive is to evacuate to a safe area and let their trained in-house brigade and radiological response team handle these situations.

7. 1910.95. Occupational noise exposure. All areas of the plant have been monitored and hearing protection is mandatory for areas above 85 dBA. All employees receive audiometric testing on an annual basis. Training is provided and explicit procedures and instructions are included in the hearing conservation program.

8. 1910.96. Ionizing radiation. Sequoyah Fuel Corp. has complied with OSHA's standard for ionizing radiation. Personnel monitoring, airborne area sampling, wipe sampling and radiation detection by frisking with direct reading instrumentation, conducted daily. Caution signs, labels, and employee access restrictions are excellent and the emergency evacuation program is well designed.

9. 1910.132. Service workers employed in the laundry room and respirator clean room should be required to shower prior to exiting the plant and be provided personal protective clothing (Tyvek, smock, coveralls, etc.) to prevent exposure to surface contamination.

10. 1910.134. Respiratory protection. The company respirator program was reviewed and evaluated. This program had written standard operating procedures and instructions governing the selection on the basis of hazards. Persons assigned to tasks requiring respirators had been physically evaluated. Air quality was tested and monitored and all employees required to use respiratory protection had been quantitatively and qualitatively fit tested. Emergency and all other respirators were checked and maintained by persons certified and trained to do so. The respiratory program is excellent. In the written operational procedures, the employer did not delete one paragraph which stated the restriction of issuance of supplied respirators to three (3) when in reality the maximum restriction is ten (10), since the old air compressor had been replaced with a greater proficiency air compressor.

11. 1910.151. Emergency eye wash and showers were centrally located. However, many of the alarms installed on these devices were disconnected.

12. 1910.157(e)(3). Fire extinguisher #37 had not had an annual check since March of 1988, or a monthly check since May of 1989.

13. 1910.1200. The company has established a hazard communication program and it appeared well written and covered most areas adequately. Employees had received training and appeared familiar with the location of the written section and the material safety data sheets. Several deficiencies were documented as follows:

a. 1910.1200(f)(4)(i) and (ii): Each container of hazardous chemicals in the workplace was not labeled, tagged or marked with the identity of the hazardous chemicals contained within or the appropriate hazard warning. The following discrepancies were observed:

1) Tank chemical farm - bulk storage tanks with capacities greater than 100,000 pounds had no hazard warnings. These tanks contained hazardous chemicals such as: Anhydrous hydrofluoric acid, 40% nitric acid, anhydrous ammonia, and aqueous hydrofluoric acid.

2) Solvent extraction plants - no hazard labels on process containers such as ammonium sulfate and tributyl phosphate.

3) One black 55 gallon barrel at column 36 adjacent to UF₆ fill area and in front of ash collection area - no label or name or warning hazard (methylene chloride).

- 4) Maintenance repair shop, adjacent to dip vat operation - 55 gallon barrel of potassium fluoride; no hazard warning label.
- 5) The UF₆ cylinder which could release hydrofluoric acid had no labels to identify the contents or the appropriate hazard warning.
14. 5(a)(1). Chemical farm tank area, where there is the high potential risk to high levels of hydrogen fluoride during a leak or rupture. A monitoring and alarm system should be installed.
15. Recommendation: Digest hallway above main H.P. Laboratory, stairs on the second floor at shoe cover exchange station, relocate shoe exchange station from top of stairs to bottom of stairs to prevent stumbling/falling during shoe cover exchange in a standing position.
16. In the solvent extraction building, a steam leak was noted from a valve stem on the West wall of the first floor at number 110 R.E.C. The leak could pose a hazard to employees trying to read gauges located directly below the leak.
17. Information. July 12, 1989, approximately 11:15 a.m., an empty Willard grain truck carrying nitric acid was releasing nitric acid vapors South of the plant near the I-40 entrance ramp after leaving the Sequoyah plant.
18. Tank entry/confined space. Sequoyah procedures for confined space/tank entry were reviewed and evaluated and found to be sufficient.
19. Sampling programs. The industrial hygiene and health physics section have a well developed personnel exposure monitoring program. Hydrofluoric acid, ammonia, dust, noise and radiation, etc., are evaluated as needed. In new operations, or as potential exposures develop, monitoring is conducted. Sampling protocol follows the guidelines and procedures developed by OSHA.
20. Preventive maintenance. The employer uses low carbon steel for handling hydrogen fluoride for low temperatures and monel for high temperatures. Where possible, all joints are welded according to ASME recommendations. All HF piping and containers are to be tested on an annual basis, using ultra sound for random thickness. Where corrosion is detected the piping is replaced.
21. HDT environment policy. Currently the company has implemented the following procedures for hot environment. Written policy consists of written internal memos and annual training. The employer provided electrolyte drinks, ice pouches and vortex Vests. Liberal breaks are enforced and a company nurse is on the premises. The cell room is the

hottest work area in the plant and maximum duration of exposure is 15 minutes per visit. OSHA 200's reflect no problems with that or employees experiencing heat stress.

OSHA OFFICIALS

Landis E. Powell, Industrial Hygienist, Oklahoma City, Oklahoma, Area Office

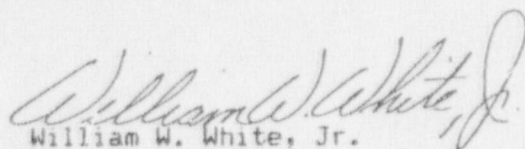
N.R.C. OFFICIALS

Pete Garcia, Jr., Project Manager, Team Leader, Region IV
Chuck Robinson, Headquarters, Washington, D.C.
Joe Dykstra, Consultant, Region IV
Blair Spitzberg, Senior Health Physicist
Ramon Hall, Director N.R.F.O.
W. Scott Pennington, NRC/NMSS Headquarters, Washington, D.C.

SEQUOYAH CORP

Rean Graves, Jr., President
Lee R. Lacry, Mgr. Nuclear License & Environmental Comp.
S. R. Fryer, Mgr. Engineering
Gerald Helms, Senior Analytical Chemist
J. H. Mestepey, V. P. Operations
Ken Simgroth, Asst. R.S.O.
M. Nichols, R.S.O. Mgr. Health & Safety
Peggy Cook, Controller
S. Clark, Regulation Reports/Coordinator
Scott P. Knight, V. P. Administration
David R. Swaney, Mgr. Quality Assurance
Jim Carr, Mgr. Waste Processes
Ron Adkisson, V. P. BOJ Development

Sincerely,


William W. White, Jr.
Area Director

U.S. NUCLEAR REGULATORY COMMISSION

PRINCIPAL INSPECTOR (Name, last, first, and middle initial)

PRINCIPAL INSPECTOR (Name, Post, Post, and Mobile No.)
Garcia, Pete J.
REVIEWER

INSPECTOR'S REPORT
Office of Inspection and Enforcement

INSPECTORS
D. B. Spitzberg
V. R. Scovill

W.S. Pennington

LICENSEE/VENDOR	TRANSACTION TYPE	DOCKET #ID (8 digits) OR LICENSE NO. (BY PRODUCT) (13 digits)	REPORT		NEXT INSP. DATE	
			NO.	SEQ.	MO.	YR.
Sequoia Fuels Corp	X I - INSERT	014008727	8903	A	09	90
	M - MODIFY			B		
	D - DELETE			C		
	R - REPLACE			D		
	1	2	14	15	16	

PERIOD OF INVESTIGATION/INSPECTION						INSPECTION PERFORMED BY				ORGANIZATION CODE OF REGION/HQ CONDUCTING ACTIVITY (See IEMC 0530 "Manpower Reporting - Weekly Manpower Reporting" for code)			
FROM			TO			X	1 - REGIONAL OFFICE STAFF	2 - RESIDENT INSPECTOR	3 - PERFORMANCE APPRAISAL TEAM	OTHER	REGION	DIVISION	BRANCH
MO.	DAY	YR.	MO.	DAY	YR.						4	4	2
07	10	89	07	14	89								
											33	34	35

REGIONAL ACTION (Check one box only)		TYPE OF ACTIVITY CONDUCTED (Check one box only)							
<input type="checkbox"/>	1 - NRC FORM 581	<input checked="" type="checkbox"/>	02 - SAFETY	<input type="checkbox"/>	06 - MGMT. VISIT	<input type="checkbox"/>	10 - PLANT SEC.	<input type="checkbox"/>	14 - INQUIRY
<input type="checkbox"/>		<input type="checkbox"/>	03 - INCIDENT	<input type="checkbox"/>	07 - SPECIAL	<input type="checkbox"/>	11 - INVENT. VER.	<input type="checkbox"/>	15 - INVESTIGATION
<input checked="" type="checkbox"/>	2 - REGIONAL OFFICE LETTER	<input type="checkbox"/>	04 - ENFORCEMENT	<input type="checkbox"/>	08 - VENDOR	<input type="checkbox"/>	12 - SHIPMENT/EXPORT		
		<input type="checkbox"/>	05 - MGMT. AUDIT	<input type="checkbox"/>	09 - MAT. ACCT.	<input type="checkbox"/>	13 - IMPORT		

INSPECTION/INVESTIGATION FINDINGS (Check one box only)								TOTAL NUMBER OF VIOLATIONS AND DEVIATIONS	ENFORCEMENT CONFERENCE HELD	REPORT CONTAIN 2790 INFORMATION	LETTER OR REPORT TRANSMITTAL DATE							
A	B	C	D	1 - CLEAR 2 - VIOLATION 3 - DEVIATION 4 - VIOLATION & DEVIATION	A	B	C	D	A	B	C	D	NRC FORM 591 OR REG. LETTER IS USED			REPORT SENT TO HQ FOR ACTION		
													MO.	DAY	YR.	MO.	DAY	YR.
X					012													

[illegible]

NRC FORM 766 (11-81) IE MC 0535	U.S. NUCLEAR REGULATORY COMMISSION INSPECTOR'S REPORT Office of Inspection and Enforcement	PRINCIPAL INSPECTOR (Name, last, first, and middle initial) <i>Garcia, Pete J.</i> REVIEWER
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INSPECTORS <i>D.B. Spitzberg</i> <i>V.R. Scovill</i>	<i>W.S. Pennington</i>
--	------------------------

LICENSEE/VENDOR	TRANSACTION TYPE	DOCKET NO. (6 digits) OR LICENSE NO. (BY PRODUCT) (13 digits)	REPORT NO.	SEQ.	MO.	YR.
<i>Sequoyah Fuels Corp.</i>	<input checked="" type="checkbox"/> I - INSERT <input type="checkbox"/> M - MODIFY <input type="checkbox"/> D - DELETE <input type="checkbox"/> R - REPLACE	<i>04008027</i>	<i>8903</i>	<i>A</i>	<i>09</i>	<i>90</i>

PERIOD OF INVESTIGATION/INSPECTION	INSPECTION PERFORMED BY	ORGANIZATION CODE (OF REGION/HQ CONDUCTING ACTIVITY (See IEMC 0530 "Manpower Reporting - Weekly Manpower Reporting" for code))
FROM: <i>07/10/89</i> TO: <i>07/14/89</i> <input checked="" type="checkbox"/> 1 - REGIONAL OFFICE STAFF <input type="checkbox"/> 2 - RESIDENT INSPECTOR <input type="checkbox"/> 3 - PERFORMANCE APPRAISAL TEAM	OTHER	REGION: <i>4</i> DIVISION: <i>4</i> BRANCH: <i>2</i>

REGIONAL ACTION (Check one box only)	TYPE OF ACTIVITY CONDUCTED (Check one box only)
<input type="checkbox"/> 1 - NRC FORM 591 <input checked="" type="checkbox"/> 2 - REGIONAL OFFICE LETTER	<input checked="" type="checkbox"/> 02 - SAFETY <input type="checkbox"/> 03 - INCIDENT <input type="checkbox"/> 04 - ENFORCEMENT <input type="checkbox"/> 05 - MGMT. AUDIT <input type="checkbox"/> 06 - MGMT. VISIT <input type="checkbox"/> 07 - SPECIAL <input type="checkbox"/> 08 - VENDOR <input type="checkbox"/> 09 - MAT. ACCT. <input type="checkbox"/> 10 - PLANT SEC. <input type="checkbox"/> 11 - INVENT. VER. <input type="checkbox"/> 12 - SHIPMENT/EXPORT <input type="checkbox"/> 13 - IMPORT <input type="checkbox"/> 14 - INQUIRY <input type="checkbox"/> 15 - INVESTIGATION

INSPECTION/INVESTIGATION FINDINGS (Check one box only)	TOTAL NUMBER OF VIOLATIONS AND DEVIATIONS	ENFORCEMENT CONFERENCE HELD	REPORT CONTAIN 2,790 INFORMATION	LETTER OR REPORT TRANSMITTAL DATE
<input checked="" type="checkbox"/> 1 - CLEAR <input type="checkbox"/> 2 - VIOLATION <input type="checkbox"/> 3 - DEVIATION <input type="checkbox"/> 4 - VIOLATION & DEVIATION	<i>02</i>	<input type="checkbox"/> 1 - YES	<input type="checkbox"/> 1 - YES	NRC FORM 591 OR REG. LETTER IS DUE: <i>07/10/89</i> REPORT SENT TO HQ FOR ACTION:

MODULE INFORMATION															MODULE INFORMATION																								
MODULE NUMBER INSP.										MODULE REQ. FOLLOWUP					MODULE NUMBER INSP.										MODULE REQ. FOLLOWUP														
TYPE	NUMBER	PHASE	MANUAL	CHAPTER	PROCEDURE	NUMBER	LEVEL	SEQ. #	PRIORITY	DIRECT INSPECTION EFFORT IN STAFF HOURS EXPENDED THIS INSPECTION	PERCENTAGE COMPLETED TO DATE	STATUS	PHASE	MANUAL	CHAPTER	PROCEDURE	NUMBER	LEVEL	TYPE	NUMBER	PHASE	MANUAL	CHAPTER	PROCEDURE	NUMBER	LEVEL	SEQ. #	PRIORITY	DIRECT INSPECTION EFFORT IN STAFF HOURS EXPENDED THIS INSPECTION	PERCENTAGE COMPLETED TO DATE	STATUS	PHASE	MANUAL	CHAPTER	PROCEDURE	NUMBER	LEVEL		
B	1	5	8	18	0	4	5		A					B	1	5	9	12	7	10	16						A												
Environmental Protection															Independent Inspection																								
B	1	5	8	18	0	5	10		A					B	1	5	9	12	7	10	16						A												
Emergency Preparedness																																							
B	1	5	9	12	7	10	1		A	<i>0.60</i>				B	1	5	9	12	7	10	1						A												
Follow up on Inspector Identified Problems																																							
B	1	5	9	12	7	10	2		A	<i>0.05</i>				B	1	5	9	12	7	10	2						A												
Follow up on Noncompliance																																							

DOCKET NO. (8 digits) OR LICENSE
NO. (BY PRODUCT) (13 digits)

REPORT

MODULE NUMBER

NO.

SEQ.

583822

INSPECTOR'S REPORT
(Continuation)

Office of Inspection and Enforcement

04008027

8903

VIOLATION SEVERITY OR DEVIATION

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VIOLATION OR DEVIATION (Enter up to 2400 characters for each item. If the text exceeds this number, it will be necessary to paraphrase. Limit lines to 50 characters each.)

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License Condition No. 9 of Source Material License SUB-1010 references Chapters 1-8 of the license renewal application, as revised. Chapter 3.3.4.6 stated that surface contamination surveys shall be conducted on a weekly basis, and all areas which exceed the specified action levels shall be cleaned within 72 hours of notification of the survey results.

Contrary to this requirement, no documentation is available to indicate cleanup of contaminated areas reported for the weeks ending June 15, June 2, and May 25, 1989 indicating cleanup within 72 hours.

INSPECTOR'S REPORT
(Continuation)

Office of Inspection and Enforcement

DOCKET NO. (8 digits) OR LICENSE
NO. (BY PRODUCT) (13 digits)

04008027

REPORT

NO.

SEQ

8703

MODULE NUMBER

588005

VIOLATION SEVERITY OR DEVIATION

1 2 3 4 5 6

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VIOLATION OR DEVIATION (Enter up to 2400 characters for each item. If the text exceeds this number, it will be necessary to paraphrase. Limit lines to 50 characters each.)

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License Condition No. 9 of Source Material License SUB-1010 references Chapters 1-8 of the license renewal application, as revised. Chapter 2.7.1 of the renewal application states that written procedures shall be established for all operations and safety-related activities involving source or hazardous materials, and that procedures shall be reviewed and revised as necessary at least every 18 months.

Contrary to this requirement, Procedure LAB-001, entitled "Laboratory Quality Control Program" has not been reviewed since September 1986, the procedures for fluorometric analysis of uranium and fluoride analysis are undated and not finalized, and a procedure for plasma spectrometry has not been established.

8027/PJG/89/08/28/I

DISTRIBUTION

c/o DMB (1E-07)

Docket File No. 40-8027

LFMB

PDR

ABBeach, RI''

PGarcia

DSpitzberg, RIV

VScovill

WSPennington, NMSS

DCarroll

GSanborn, RIV

JPerry, Info Systems

YElko, RIV

DMcHard, RCPD, OK

LLO Branch, LLWM

Suspense File

URFO r/f

CONCURRENCE:

DATE:

PGarcia/URFO/db

PJG

9/14/89

VScovill/URFO

PJG for
via telecon

9/14/89

DSpitzberg/RIV

PJG
via telecon

9/13/89

WSPennington/NMSS

PJG

9/12/89

REHall/URFO

REH

9/13/89