

40-8027
9689-N

October 25, 1996

Route

**CERTIFIED MAIL
RETURN RECEIPT REQUESTED**

Mr. Michael F. Weber, Chief
Low-Level Waste and Decommissioning
Project Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Re: Letter, M.F. Weber to J.H. Ellis, dated September 19, 1996 "Review of Postulated Events That Could Transport Uranium Offsite"

Dear Mr. Weber:

In the referenced letter, you cited the requirements of 10 CFR 40.31(j) and requested that SFC: (1) review the current configuration of the facility and certify that we have done so, and (2) provide assurance that SFC is still in compliance with the requirements of 10 CFR 40.31(j).

- (1) Sequoyah Fuels Company has reviewed the current configuration of its facility, and hereby certifies that it has done so.
- (2) As described below, SFC is still in compliance with 10 CFR 40.31(j).

Basis for concluding that SFC is in compliance with 10 CFR 40.31(j)

Section 40.31(j) requires that each application to possess uranium hexafluoride in excess of 50 kg in a single container or 1000 Kg total must contain either (i) an evaluation showing that the maximum intake of uranium by a member of the public due to a release would not exceed 2 mg (40.31(j)(1)(i)) or (ii) an emergency plan (40.31(j)(1)(ii)). The regulation states that the evaluation may be supported by such factors as the way the radioactive material is stored or packaged (40.31(j)(2)(i)).

4/1
NL10

9611190296 961025
PDR ADOCK 04008027
C PDR

The regulation is focused on the potential intake of uranium in the chemical form resulting from the release of UF_6 . This is shown both by the fact that the regulation applies only to possession of UF_6 , and by the statement of considerations accompanying adoption of Section 40.31(j). There the Commission stated:

In Part 40, emergency plans would be required only for handling significant quantities of uranium hexafluoride. It was concluded in NUREG-1140 that uranium and thorium in chemical forms less volatile than uranium hexafluoride would not require emergency plans because plausible releases would not cause doses exceeding 1 rem effective dose equivalent, the threshold dose for requiring an emergency plan. The dose threshold would not be exceeded because the low volatility of uranium and thorium compounds, other than uranium hexafluoride, causes low release fractions and because the low specific activities of uranium and thorium result in low doses from a given weight of materials.

The chemical toxicity of uranium and thorium are also not of concern except for the highly soluble uranium from a uranium hexafluoride release. Other compounds of uranium or thorium would not cause as large an intake due to lower quantities released and are not as acutely toxic as the very soluble uranium compound created when uranium hexafluoride is released.

53 Fed. Reg. 14051, 14053 (April 7, 1989).

In its application for Amendment 20 to its license, SUB-1010, SFC provided a safety analysis that demonstrated that with the implementation of certain special controls, there were no credible events that could result in an intake of uranium in excess of 2 mg by a member of the public due to a release of UF_6 at the SFC facility. In approving Amendment 20, the NRC imposed these special controls as license conditions, and deleted the requirement for an emergency plan. No changes have taken place at the facility since the analysis was completed that would affect the validity of that analysis. SFC is in compliance with the license conditions imposed by Amendment 20 to SUB-1010.

With respect to other potential sources of uranium hexafluoride in the facility, after shutting down, SFC took the following actions:

- As part of the preliminary cleanout of the facility (following the permanent shutdown of all operations in 1993), the UF_6 systems in the main plant were drained of all accessible UF_6 . All UF_6 containing piping and equipment was then heated and purged with nitrogen gas through the HF scrubber until

uranium and fluoride compounds were no longer detectable in the main vent line. During subsequent removal of three UF_6 cold traps, which were sold to another licensee, no UF_6 was encountered.

- Similarly, the UF_6 feed system in the DUF_4 plant was also purged to remove all traces of DUF_6 .
- All filled UF_6 cylinders were shipped offsite.

With regard to chemical forms of uranium at the SFC Facility other than UF_6 , published NRC analyses adequately envelope the conditions at this Facility.

Aside from a potential UF_6 release, the only scenario with potential offsite consequences at the Facility during operation was a fire in the Solvent Extraction (SX) circuit. This scenario was addressed in section 4.3.2.1 of NUREG-1157, Environmental Assessment for Renewal of the SFC License SUB-1010 and in section 2.2.2.1 of NUREG-1140, A Regulatory Analysis on Emergency Preparedness For Fuel Cycle and Other Radioactive Material Licensees. The Staff concluded in NUREG-1157 that, "No offsite effects of consequence would be expected, but a major on-site cleanup would be necessary." A postulated SX fire was also addressed in section 2.2.2.1 of NUREG-1140. The analysis states, "It is notable that the fires that have occurred have caused little release of radioactive material even though two of the fires were very intense."

The highly flammable solvent inventory has been removed from the SFC site and the solvent extraction equipment and piping were nitrogen purged until flammable vapors were no longer detectable in the vent lines. A solvent-related fire is no longer possible at the SFC site.

The only significant remaining quantities of combustible materials are the composite roofing materials of the process buildings, the wood structural materials and plastic distributors in the cooling tower and the stacks of used pallets. None of these materials contain significant quantities of uranium, nor are they in close proximity to a large source of uranium. Any possible effect arising from a fire in these materials would be bounded by the SX fire assessment.

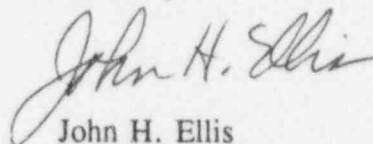
The drummed yellowcake which was being stored on-site at the time of shutdown (25 million pounds of uranium) has been removed from the site. Accessible uranium compounds were removed from the equipment to the extent practical. The equipment access ports were then reclosed, providing containment of the remaining uranium compounds. Approximately, 400,000 kg of the depleted uranium tetrafluoride stored in 55-gallon steel drums has been moved into the DUF_4 plant which is locked to prevent access. The dry uranium compounds remaining on-site, namely U_3O_8 , UO_3 , UO_2 , and DUF_4 are of low solubility (predominately Class Y) and are not readily dispersible.

The only credible scenario for releasing a large amount of this source material to the surrounding area would be a tornado strike at the Facility. A tornado strike was analyzed in NUREG-1140, section 2.2.2.2^{1/}, and it was concluded that the doses caused by the release of source material resulting from a tornado are so much smaller than doses from other accidents, that tornados are not discussed further. SFC is adequately bounded by the Staff's analysis.

Finally, the uranium contained in the sludges that remain on-site is not in a respirable form. The raffinate sludge was consolidated into three relined clarifier ponds inside Restricted Area 1 which is protected by a security guard and fence. Failure of a raffinate sludge pond was analyzed during license renewal and is not considered credible by the Staff (see NUREG-1157, section 4.3.2). Consequently, SFC has not undertaken additional analyses to support this evaluation.

Based on the above assessment, an emergency response plan is not required by 10 CFR 40.31(j). Should you have any questions concerning this response, please call me at (918) 489-3390.

Sincerely,



John H. Ellis
President, SFC

^{1/} A detailed assessment of this scenario is contained in NUREG-706, Volume 1, "Final Generic Environmental Impact Statement on Uranium Milling," September, 1980, p. 7-4. This assessment conservatively calculates doses from a tornado strike at a Uranium Mill to be on the order of 10^{-7} rem. An analogous assessment for the SFC DUF₄ Inventory would yield a maximum dose on the order of 10^{-6} rem.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of)
)

SEQUOYAH FUELS CORPORATION)

Docket No. 40-08027

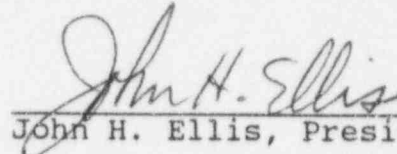
(Source Material)
)

License No. SUB-1010))
)

October 25, 1996

AFFIDAVIT OF JOHN H. ELLIS

JOHN H. ELLIS, being duly sworn, hereby deposes, says and affirms that he is President of Sequoyah Fuels Corporation; that he has read and is familiar with the contents of the letter to Michael F. Weber of the U.S. Nuclear Regulatory Commission from John H. Ellis of the Sequoyah Fuels Corporation dated October 25, 1996; and that the facts set forth therein are true and correct to the best of his knowledge, information, and belief.


John H. Ellis, President

ACKNOWLEDGMENT

STATE OF OKLAHOMA)
)

COUNTY OF SEQUOYAH)

SUBSCRIBED AND SWORN BEFORE ME, a Notary Public in and for the State of Oklahoma on the 25th day of October, 1996.


Notary Public

SEAL

Commission expires:

My Commission Expires June 13, 1999