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Erwin, TN 37650  
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(423) 743-9141

21G-08-0190

GOV-01-55-04

ACF-08-0374

November 10, 2008

Director  
Office of Nuclear Material Safety and Safeguards  
U.S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, DC 20555

- References: 1) Docket No. 70-143; SNM License 124  
2) NFS letter from B. Marie Moore to Director, Office of Nuclear Material Safety and Safeguards, dated November 7, 2008, "Additional Information in Reply to Questions 2, 17, and 18 on the RAI Concerning NFS' CD Line Facility," (21G-08-0177)

**Subject: Redacted Version of "Additional Information in Reply to Questions 2, 17, and 18 on the RAI Concerning NFS' CD Line Facility"**

Dear Sir:

Nuclear Fuel Services, Inc. (NFS) hereby submits a redacted version of the subject information provided in Reference 2. The attached document is suitable for public release.

If you or your staff have any questions, require additional information, or wish to discuss this, please contact me, or Mr. Rik Droke, Licensing and Compliance Director, at (423) 743-1741. Please reference our unique document identification number (21G-08-0190) in any correspondence concerning this letter.

Sincerely,

**NUCLEAR FUEL SERVICES, INC.**

B. Marie Moore  
Vice President, Safety and Regulatory

21G-08-0190  
GOV-01-55-04  
ACF-08-0374

DMG/pdj  
Attachment

Copy:  
Regional Administrator  
U.S. Nuclear Regulatory Commission  
Region II, Atlanta Federal Center  
61 Forsyth Street, SW, Suite 23T85  
Atlanta, GA 30303

Mr. Manuel Crespo  
Project Inspector  
U.S. Nuclear Regulatory Commission  
Region II, Atlanta Federal Center  
61 Forsyth Street, SW, Suite 23T85  
Atlanta, GA 30303

Mr. Stephen Burris  
Senior Resident Inspector  
U.S. Nuclear Regulatory Commission

21G-08-0190  
GOV-01-55-04  
ACF-08-0374

**Attachment 1**

**Redacted Version of  
“Additional Information in Reply to Questions 2, 17, and 18  
on the RAI Concerning NFS’ CD Line Facility”**

**(7 pages)**



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21G-08-0177

GOV-01-55-04

ACF-08-0343

November 7, 2008

Director  
Office of Nuclear Material Safety and Safeguards  
U.S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, DC 20555

- References:
- 1) Docket No. 70-143; SNM License 124
  - 2) NFS letter from B. Marie Moore to Director, Office of Nuclear Material Safety and Safeguards, dated August 31, 2007, (TAC L32653) "License Amendment Request for Processing UF<sub>6</sub> in the CD Line Facility at the NFS Site," (21G-07-0086)
  - 3) NRC Letter from Kevin Ramsey to B. Marie Moore, dated May 23, 2008 (TAC L32653), "Nuclear Fuel Services, Inc., Request for Additional Information Concerning the CD Line Facility"
  - 4) NFS letter from B. Marie Moore to Director, Office of Nuclear Material Safety and Safeguards, dated June 19, 2008, "Reply to RAI Concerning NFS' CD Line Facility," (21G-08-0093)

**Subject: Additional Information in Reply to Questions 2, 17, and 18 on the RAI Concerning NFS' CD Line Facility**

Dear Sir:

In response to NRC questions arising from Reference 4, Nuclear Fuel Services, Inc. (NFS) hereby submits information to clarify the issues of concern. Your staff has also requested additional information regarding RAI Question 31 and the Government's guarantee related to Financial Assurance for D&D activities. NFS is currently working with DOE on this issue and will submit additional information under a separate cover letter.

<b>OFFICIAL USE ONLY</b>	
May be exempt from public release under the Freedom of Information Act (5 U.S.C. 552)	
Exemption number	2
Nuclear Regulatory Commission review required before public release	
Name and organization of person making determination	
Date of Determination	

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21G-08-0177  
GOV-01-55-04  
ACF-08-0343

The Attachment contains sensitive information and is marked as "Official Use Only," and is not suitable for public release. A redacted version of this submittal suitable for public disclosure will be provided under a separate cover letter.

If you or your staff have any questions, require additional information, or wish to discuss this, please contact me, or Mr. Rik Droke, Licensing and Compliance Director, at (423) 743-1741. Please reference our unique document identification number (21G-08-0177) in any correspondence concerning this letter.

Sincerely,

**NUCLEAR FUEL SERVICES, INC.**



**B. Marie Moore**  
Vice President  
Safety and Regulatory

DMG/pdj  
Attachment

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**Attachment**

**Additional Information in Reply to Questions on the RAI Concerning  
NFS' CD Line Facility**

**NRC:**

**2.**  
**Section 3.1.3 and Table 3-3 of the Integrated Safety Analysis (ISA) Summary state that a full 5A cylinder contains 15 kg of UF6. [REDACTED]**  
**[REDACTED] However, ANSI N14.1, Table 1, lists a 5A cylinder as having a maximum fill limit of 25 kg (55 lbs.) of UF6. Please explain why the accident analyses do not consider a cylinder containing 25 kg of UF6.**

**This information is needed to verify compliance with 10 CFR 70.62 which requires, in part, that each licensee perform an analysis that identifies the radiological and chemical hazards related to licensed processes at its facility.**

**NFS RESPONSE:**

NFS' previous reply stated "Revision to Table 3-3 will be reflected in the CD Line ISA Summary to be submitted prior to facility start-up. A revision to the Emergency Plan will also be submitted at this time as well." To clarify, the Emergency Plan will be updated to incorporate this information and will be available for NRC review prior to facility start-up. However, the update will be submitted to the NRC when the annual review committed to in Section 7.1 of the Emergency Plan is complete, expected to be in the second quarter of 2009 timeframe.

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NRC:

17.

**Section 7.13 of the Fire Hazards Analysis (FHA) for Building 301 states that “this FHA assumes that following detection of a fire situation, a minimum five trained firefighters are always available, via the NFS Plant Fire Brigade or the Erwin Public Fire Department, to respond to this area and effectively suppress a fire within a 15.0 to 20.0 minute time frame.” Given the cross-cutting nature of the detection system and fire brigade availability, both of these features are required to be listed as IROFS, and comply with 10 CFR 70.61(e).**

**10 CFR 70.65(b)(4) states that the ISA Summary must contain “information that demonstrates the licensee’s compliance with the performance requirements of 10 CFR 70.61.” The acceptance criteria in Standard Review Plan, Section 7.4.3.2, Fire hazards Analysis, states - the ISA Summary is acceptable if the credible fire hazards (e.g., from the FHA) are identified for each process fire area, and information is provided to detail how each fire hazard was considered and addressed (i.e., the management measures and/or IROFS) for each process accident sequence that consequence could exceed the performance requirements in 10 CFR 70.61**

**NFS RESPONSE:**

NFS’ previous reply credited IROFS FIRECD-1 “Weekly Operations Combustible Control Review” in order to meet the performance criteria of 10CFR70.61. After further discussion with the NRC, NFS will not implement FIRECD-1, but will instead credit 2 additional IROFS:

- CDG-12: “Limit number of stored UF6 cylinders allowed in B301 to prevent a significant UF6 release due to a fire,” and
- CDG-14: “Verification that 5A and 2S cylinders are empty except for solid ‘heel’ material prior to removal from [REDACTED] Stations.”

By limiting the amount of source material that can be affected by a fire, the subsequent potential radiological and chemical consequences will be controlled.

In addition to the IROFS above that apply during normal processing, NFS will also implement IROFS CDS3-24 “Full-time fire watch for the Main Processing Room must be in place prior to removing a non-processed 5A cylinder from [REDACTED] Station [REDACTED] in the event the cylinder valve check fails and must be replaced.” CDL Operations has identified the potential need to replace a leaking 5A cylinder valve prior to processing. Due to space constraints, this operation will be done in the Heel Removal Station.

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Table 4-6 Fire Safety Risk Assessment

Item	What if...?	Cause	Initiating Event Failure Frequency Index Number	Mitigative / Preventive IROFS <sub>1</sub> and IROFS failure	Mitigative/ Preventive IROFS <sub>2</sub> and IROFS failure	Effectiveness of Protection IROFS <sub>1</sub>	Effectiveness of Protection IROFS <sub>2</sub>	U/C	Likelihood Index	Likelihood Category	Consequence Category	Controls (Depth)
<b>High Consequences</b>												
<b>CDL-RPO-006, CDL-OCC-CHEM-22, and CDL-ENV-CHEM-22 Fire Exposure to UF<sub>6</sub> Cylinders in Staging Area</b>												
CDL04 /05.035 and CDL06.035	Fire in cylinder storage area	Mechanical failure Human error	-1	<b>FIRE-2</b> Administrative Control: Monthly surveillances are conducted to ensure compliance with the combustible control program to minimize fire potential. Monthly surveillances are conducted [REDACTED]	<b>CDG-12</b> Administrative Control: Limit number of stored UF <sub>6</sub> cylinders allowed in B301 to prevent a significant UF <sub>6</sub> release due to a fire  <b>AND</b> <b>CDG-14</b> Administrative Control: Verification that 5A and 2S cylinders are empty except for solid 'heel' material prior to removal from [REDACTED] Stations	-2	-2	U C	-1 -5	3 1	3 3	Operator fire extinguisher training Fire detection NFS Plant Fire Brigade Erwin Public Fire Department
CDL10 014	Fire in Main Processing Area during valve repair of non-processed 5A cylinder	Mechanical failure Human error	-1	<b>FIRE-2</b> Administrative Control: Monthly surveillances are conducted to ensure compliance with the combustible control program to minimize fire potential. Monthly surveillances are conducted [REDACTED]	<b>CDS3-24</b> Administrative Control: Full-time fire watch for the Main Processing Room must be in place prior to removing a non-processed 5A cylinder from [REDACTED] Station in the event the cylinder valve check fails and must be replaced	-2	-2	U C	-1 -5	3 1	3 3	Fire detection NFS Plant Fire Brigade Erwin Public Fire Department

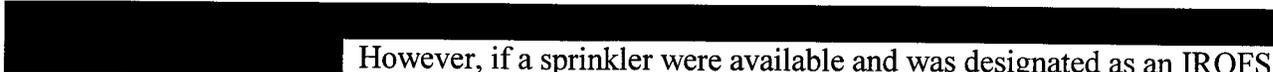
NRC:

18.

It is our understanding that an automatic sprinkler system is normally required by the Building Code, however a sprinkler system has not been installed because of criticality safety concerns. During our meeting on March 10, 2008, it was noted that the sprinkler system would have been considered an IROFS. Demonstrate in the ISA Summary how the proposed IROFS provide an equivalent level of safety to an automatic sprinkler system.

10 CFR 70.65(b)(4) states that the ISA Summary must contain "information that demonstrates the licensee's compliance with the performance requirements of 10 CFR 70.61." The acceptance criteria in Standard Review Plan Section 7.4.3.2, Fire hazards Analysis, states - the ISA Summary is acceptable if the credible fire hazards (e.g., from the FHA) are identified for each process fire are, and information is provided to detail how each fire hazard was considered and addressed (i.e., the management measures and/or IROFS) for each process accident sequence whose consequence could exceed the performance requirements in 10 CFR 70.61.

NFS RESPONSE:

 However, if a sprinkler were available and was designated as an IROFS, it would be assigned an Effectiveness of Protection (EOP) Index of -2 since it would be considered "a single functionally tested Active Engineered Control" per NFS-HS-A-68, "ISA Risk Assessment Procedure." FIRE-2 and CDG-12/CDG-14/CDS3-24 are the IROFS that will be credited to protect against the fire scenarios that result in high consequences (see NFS response to Question 17). Since each of these IROFS are considered per NFS-HS-A-68 as administrative controls "protected by a trained operator performing a routine task with an approved procedure," they will each be assigned an EOP Index of -2. Use of IROFS FIRE-2 and CDG-12/CDG-14/CDS3-24 meet the performance criteria in 10 CFR 70.61 without the need to credit any other IROFS.