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21G-09-0039
GOV-01-55-04
ACF-09-0066
February 18, 2009

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) NRC letter from D. Charles Payne to Mr. David Kudsin, dated February 3, 2009, (15N090031), Nuclear Fuel Services, Inc., NRC Inspection Report No. 70-143/2008-004 and Notice of Violation

Subject: Submittal of Additional Information Regarding NFS' Building 310 Warehouse

Dear Sir/Madam:

In response to a request made at a Pre-Decisional Enforcement Conference held on Friday, February 13, 2009, Nuclear Fuel Services, Inc. (NFS) hereby submits additional information with regard to the Building 310 Warehouse. The Attachment includes a revalidation analysis of the fire and chemical accident sequences for that facility.

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-09-0039) in any correspondence concerning this letter.

Sincerely,

NUCLEAR FUEL SERVICES, INC.

B. Marie Moore
Director of Safety and Regulatory

DMG/pdj
Attachment

COPY:

Regional Administrator
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Attachment
Follow-up Information Concerning
310 Warehouse Analysis Revalidation Effort

3 pages to follow

ATTACHMENT
Follow-up Information Concerning
310 Warehouse Analysis Revalidation Effort

As requested by NRC Region II at a Pre-Decisional Enforcement Conference held on Friday, February 13, 2009, additional information regarding the revalidation of the 310 Warehouse High consequence events due to chemical releases that could occur as a result of a fire is presented below. The accident sequences that resulted in High consequences (as presented in Tables 4-1 and 4-2 of the Building 310 Warehouse ISA Summary, Revision 2), were evaluated to determine if the chemical and fire evaluations were consistent with current warehouse practices or if they contained excessive conservatism.

Occupational Chemical Exposure

Table 4-1 of the Building 310 Warehouse ISA Summary addresses chemical occupational consequences due to fires. The reasons for re-categorizing the accident sequences that are listed in Table 4-1 as High consequences to Low consequences are discussed below:

All accident sequences with High consequences due to fires previously did not take any credit for the fact that chemicals are primarily stored in metal containers, and that the container integrity would not immediately be impacted by a small or moderate size fire. Also, it was previously assumed that NFS workers would remain in the building in the vicinity of a large fire, and that they would be exposed to potential chemical releases that could occur as the result of a fire. Re-examination of the 310 Warehouse inventory and operation verified that the chemicals of concern are either stored in metal containers or inside the flammable storage building located in the middle of the Warehouse. Due to the time and intensity required for a fire to breach the metal containers, the chemical evaluation now assumes that chemicals of concern would not immediately be involved in a fire. Since workers would leave the building prior to release of chemicals of concern stored in metal containers, all occupational chemical exposures due to fires are now in the Low consequence category.

Diesel fuel, methylene chloride and silicone previously had High consequences due to fires, but re-examination of the 310 Warehouse inventory verified that these chemicals are no longer stored in the 310 Warehouse. They have been removed from the chemical evaluation.

The previous chemical evaluation conservatively assigned High consequences to some chemicals of concern although no calculations were performed. The revised chemical evaluation that includes detailed calculations consistent with other analyses shows that the results are actually in the Low consequence category. This excessive conservatism has been removed from the chemical evaluation, and the resulting consequences are now Low.

Environmental Chemical Exposure

Table 4-2 of the Building 310 Warehouse ISA Summary addresses chemical environmental consequences due to fires. The specific accident sequences that are listed in Table 4-2 as High consequences and the reasons for their re-categorization to Low consequences are discussed below:

Accident sequence 310W (1.3) Propane forklift ignition of combustible storage inside north section of warehouse

The previous chemical evaluation conservatively assigned High consequences to this accident sequence although no detailed calculations were performed. Re-examination of the fire evaluation and warehouse operations indicates that propane forklifts are operated only in the North Bay of the warehouse for the purpose of delivering and removing items. A plausible fire that involves a propane forklift would be a breach in the fuel line. This would cause a torch fire 7 feet in length. The duration of this fire would be 7 minutes for a full propane cylinder. This torch fire could result in combustible material igniting from direct flame impingement and the potential to cause a large fire. The warehouse chemicals of concern were analyzed as being involved in a large fire, and the resulting consequences are now Low.

Accident sequence 310W (1.4) Ignition of TBP in center section of warehouse

The previous chemical evaluation assumed that TBP/Norpar was involved in a moderate fire. However, re-examination of the chemical evaluation showed that an incorrect dispersion coefficient was used. Also, the fire evaluation previously assumed that TBP/Norpar was routinely received at the 310 Warehouse and was frequently moved around inside the building. Review of the warehouse operation indicates that these are legacy materials that are not routinely received at Building 310 (the inventory is static), and they are stored in the flammable storage building. Therefore, it is not expected that TBP/Norpar would be involved in a small or moderate fire. The chemical evaluation was revised to indicate that TBP/Norpar would be involved in a large fire using a dispersion coefficient that is consistent with other analyses, and the resulting consequences are now Low. The chemical evaluation conservatively assumes that 12 drums were filled with liquid TBP/Norpar, with corresponding release of combustion products of concern.

Accident sequence 310W (1.5) Combustible material exposure fire to mixed radioactive wastes in steel drums

The previous chemical and fire evaluations assumed that these chemicals of concern were routinely transported in and out of the 310 Warehouse, so they could be subjected to impact accidents resulting in spills. It was assumed that a small fire could occur at the time of this spill and the contents of the containers could become involved in the fire. Based on re-examination of the warehouse operation, these containers are not routinely transported in the warehouse (the inventory is static), so the potential for involvement in a small fire is low. However, these chemicals of concern could be involved in a large fire. Re-analysis of these chemicals in a large fire results in low consequences.

Accident sequence 310W (1.6) Combustible material exposure fire to PCBs in steel drums

The previous chemical evaluation assumed that liquids containing PCBs involved in a moderate fire resulted in High consequences. However, re-examination of the chemical evaluation showed that an incorrect dispersion coefficient was used. The chemical evaluation for this sequence has now been split into two parts. The first sequence analyzes one drum of PCBs as part of a small fire, and the resulting consequences are now Low. The second sequence

analyzes 20 drums of PCBs using the dispersion coefficient for a pool fire that results from a large fire, and the resulting consequences are also now Low. The re-analysis is conservative because it assumes 100% of the contents of the drums spill and assumes that all the PCBs are converted to the combustion product of concern.

Accident sequence 310W (1.7) Portable heater fire in small office in center of warehouse

The previous chemical evaluation conservatively assigned High consequences to a spill and ignition of 5 gallons of kerosene (the amount in one portable heater) although no calculations were performed. The revised chemical evaluation that includes detailed calculations consistent with other analyses shows that the results of kerosene involved in a small fire are actually in the Low consequence category. This excessive conservatism has been removed from the chemical evaluation. Involvement of kerosene in a large fire using a dispersion coefficient that is consistent with other analyses results in Low consequences.

Accident sequences 310W (1.8) Lightning strike causes ignition inside building, 310W (1.9) External exposure from liquefied hydrogen tank located 75 feet east (flashfire or explosion), and 310W (1.11) External exposure-Flammable gas cylinders stored approx 50 feet north - cylinder BLEVE

The previous chemical evaluation conservatively assigned High consequences to these accident sequences although no detailed calculations were performed. Re-examination of the fire evaluation shows that the potential for a fire to impact 310 Warehouse inventory due to these sequences is negligible and no further evaluation is required. This excessive conservatism has been removed from the chemical evaluation.

Accident sequence 310W (1.12) Incompatible material spills

The previous chemical evaluation assumed that multiple incompatible material spills were High consequences although detailed calculations showed that the results were actually in the Low consequence category. This excessive conservatism has been removed from the chemical evaluation, and the resulting consequences are now Low.

Accident sequences 310W (1.1) Electric fire at panel north wall, 310W (1.2) Truck unloading (east corner of north wall) diesel fuel fire, 310W (1.13) Electric forklift battery charging fire, and 310W (1.15) Electric forklift ignition of combustible storage inside south section of warehouse

The previous chemical evaluation conservatively assigned High consequences to these accident sequences although no detailed calculations were performed. Re-examination of the fire evaluation shows that the potential for a fire to impact 310 Warehouse inventory due to these sequences is low. This excessive conservatism has been removed from the chemical evaluation, and the resulting consequences are now Low.