

Erwin Citizens Awareness Network
P. O. Box 1151
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October 31, 2008

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Fuel Cycle Licensing Directorate
Division of Fuel Cycle Safety and Safeguards
Office of Nuclear Material Safety and Safeguards
U. S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, MD 20852-2738

SUBJECT: Nuclear Fuel Services, Inc., SNM License-124

Dear Mr. Ramsey:

This responds to your October 20, 2008 letter regarding a question I asked at the October 2, 2008 Nuclear Fuel Services, Inc. (NFS) License Performance Review. The question, which I thought you would recognize, was read verbatim from the NFS document dated June 25, 2008, subject: Redacted Version of Reply to RAI Concerning NFS' CD Line Facility, (ML081790147).

In response to Question 1, NFS stated, "Specifically, the proposed operation would result in potential emissions from the source of less than five tons per year of each air contaminant and each regulated air pollutant that is not a hazardous air pollutant, less than 1,000 pounds per year of each hazardous air pollutant, and less than 0.1 mrem per year of radionuclides."

My question was: How many air contaminants, regulated and hazardous are there? What are the hazardous and regulated air contaminants, and what is the quantity of each? These are issues that affect our health and safety on a daily basis.

After the meeting, I also mentioned that NFS had exceeded their mass limits numerous times and also had releases into the environment. You appeared to disagree. The enclosed (incomplete) list will prove my point. This information is from NRC Inspection Reports, LPRs, and/or NFS Event Reports.

Sincerely,



Wanda Kelley

Member, Erwin Citizens Awareness Network

Enclosure

Copies to:
Commissioner Gregory Jaczko
Sierra Club Radiation Committee
Governor Phil Bredesen
We The People

The following are a few examples of known instances where NFS limits were exceeded. It is by no means comprehensive or conclusive. Research is ongoing as of October 2008.

NFS EXCEEDED LIMITS AND MASS LIMITS
 Note: (R) means word or text has been Redacted

2004

01/06/04: Failure to perform a detailed criticality safety evaluation as required by section 4.1.2 of the licensee application, for a temporary operation which occurred from September 9, 2002 through January 12, 2003 which involved more than a safe mass of licensed material where double batching was possible were performed. (5 Months!) (Inspection Report (IR) Nov. 30, 2003 through Jan. 24, 2004) ML040200552 & ML081360341

02/23/04: Refers to inadvertent transfer of (R) material, which occurred on July 17, 2002 (NRC Integrated IR 70-143/2002-205). (IR Nov. 30, 2003 through Jan. 24, 2004). ML081440460

03/12/04: License Performance Review (LPR), Jan. 20, 2003 through Jan. 24, 2004)

- Detailed criticality safety analysis not performed when changes to existing equipment and procedure changes were made in order to process licensed material where more than a safe mass existed and double batching was possible (Inspection Report 2004-001)
- Mass (R) limits for (R) containers of (R) were *exceeded* when material was moved from one (R) to another by operators who did not know the NCS requirements for the (R) area; (R) containers of (R) exceeded the (R) H/X ratio of the material prior to placing the material (R) had been established.
- Lack of supervisory oversight for a waste transfer operation in the (R) caused solution to be transferred from a favorable to an unfavorable geometry vessel that was *over the allowed procedural concentration limit* (Inspection Report 2004-001)
- Solution transferred from a favorable to an unfavorable geometry vessel that was *over the allowed procedural concentration limits*; Did not meet NCS limits for uranium concentration. LPR, 03/12/04, ML081440081

03/29/04: Employee did not notify nuclear criticality engineer that sample results were *above limits*. (IR Nov. 24, 2002 through Jan. 18, 2003) ML081500239

06/24/04: Removable surface contamination *greater than limits*. Event Report 40840

06/28/04: Based on environmental dosimetry results as of April 2004, the maximum assigned public exposure closest to the fence line was 81 mrem/yr, which exceeded NFS's ALARA goal of 80 mrem/yr. NFS attributed this change to the storage of natural uranium oxide in drums in building 310. (IR April 18, 2004 through May 29, 2004) ML081440457

09/20/04: From August 2003 to April 2004, stack (R) had *frequently exceeded* licensee established action points. (Nine Months!). (IR July 11, 2004 through Aug. 21, 2004) ML081440246

10/06/04: A violation involved NFS's identification of a previously unidentified failure mode for a piece of safety related equipment (SRE) during an ISA review. The amount of material available was sufficient to form a critical mass and the inability of the instrument to perform its specified criticality safety function under certain conditions constitutes a violation of Section 4.1.1.1 of NFS' License Application. (Enforcement Discretion, April 28, 2004 through May 29, 2004) ML081500427

10/26/04: Failure of Safety System Causing Unfavorable Geometry. The solution was determined to be *above the transfer concentration limit*. Event Report 41149

11/01/04: In down blending areas, NFS noted an increase in the Deep Dose Equivalent (DDE), which was attributed to the radioactive material inventory and the nature of selective work activities, including interaction with the BLEU material, which had an *increased external gamma hazard*. Unusually high incidence of radiological contamination problems in BPF(BLEU Processing Facility) were identified. Eight personnel contamination events were recorded for the month of August 2004. (IR Aug. 22, 2004 through Oct. 2, 2004). ML081440455

12/13-17/04: Licensee released liquid waste effluent from the Caustic Discard (R) without the demonstration the U235 concentration was less than (R); *Less than a safe mass of enriched uranium was involved in the transfer*. (Inspection Report 70-143/2004-207, 02 /11/05). ML081440512 & ML081440511

2005

02/09/05: NRC staff review of licensee's safety basis documentation found the NCS controls in place to prevent double batching to produce more than a safe mass were

not sufficient to adequately prevent credible changes in process conditions that could lead to a criticality accident. See 01/06/04 ML081360341

02/11/05: Licensee released liquid waste effluent from the Caustic Discard (R) without the demonstration that the U235 concentration was less than (R); *Less than a safe mass* of enriched uranium was involved in the transfer. (IR Dec. 13, 2004 through Dec. 17, 2004) ML081440512 & ML081440511

04/04/05: From process startup in June 2004 to Jan. 7, 2005 the safety related equipment process logic controller (SRE PLC) for the (R) process *was not capable of performing the criticality safety purpose it was specified* in that the PLC was not capable of monitoring or detecting holdup of material in the process and would not properly control (R) material mass as required. (Eight Months!) (IR Jan. 23, 2005 through March 5, 2005). ML081440195

04/28/05: Inadequately Controlled or Analyzed Pathway for Material Accumulation. A solution accumulated in a HEPA filter housing on the building (R) roof. Analysis of the solution determined the liquid to be a caustic byproduct of the process. Further analysis indicated that approximately 3 grams of U235 were in the HEPA housing and filter. Further Reviews of the system design identified potential pathways from the Uranium-Aluminum dissolution system that *did not appear to be adequately controlled or analyzed*. Event Report 41651 (See 06/27/05 for more details).

05/16/05: Insoluble activity in the BLEU complex sewer effluent was not analyzed. Monthly samples were required *but not obtained for September, October, and November of 2004 and January, 2005*. (Four Months!) (IR March 5, 2005 through April 6, 2005). ML081440509

06/22/05: Request for Possession Limit Increase for the NFS site (Amendment 62). Due to radiological effects to workers and the public, the staff used its discretion and elected to perform an EA since NFS requested a large quantity of HEU. Results of EA contained in letter dated June 22, 2005-another (FONSI) Finding of No Significant Impact. ML072630137 & ML081410186

06/27/05: (IR April 17, 2005 through May 28, 2005).

- o On April 7, 2005, licensee attempted to rework (R) waste solution (R). The operation required manipulation of several manual valves, and the lineup was performed in error such that the waste solution was pumped to the off-service (R) column. The operation eventually filled the column, which overflowed into the (R), filled the process off-gas piping, and overflowed into the (R) dilution ventilation system on the roof. System was not shut down

until April 28, and the event was reported to the NRC on April 29--over three weeks later. Event Report 41651

- During a routine stack sample collection on May 2, 2005, licensee determined the sample from the (R) dilution stack (R), BPF Process Exhaust (R) indicated an initial *elevated reading of 53,961.90 disintegrations per minute (DPM) for alphas, and 192,528.74 dpm for betas*. The samples were held for 7 days and recounted by licensee to allow radon and its associated daughters to decay. After the 7-day decay count, the alpha reading indicated 3,381.48 dpm and the beta reading indicated 1,267.10 dpm. Licensee's action limit for alpha is 130 dpm and 5,000 dpm for betas. As of May 19, 2005, the alpha reading on the stack air filter was still above licensee's action limit of 130 dpm. (Three weeks or longer!)
- Interviews with licensees' representatives and a review of records, identified a negative observation. According to a radiation technician, the airflow from the rotameter dropped from a normal 40 liters per minute (lpm) to 15 lpm during a period of approximately 5 months. Probe from stack was clogged and required cleaning, however stack sample collection procedures did not provide adequate instructions for removal and cleaning of the probe. Technician used history and skill of the craft to remove and clean the probe. ML081440507

*08/05/05: Elevated isotopic analysis on a stack sample above licensee's action limit (See details in 06/27/05) concerned an elevated result on a stack sample above licensee's action limit on May 2, 2005. The reading was above the Plant action limits of 130 dpm for alpha and 5,000 dpm for beta. An investigation was unable to state how much material might have been vented out the stack. Since the system normally operated continuously and no system isolation or lockout was utilized, the inspector questioned how licensee maintained control over the system. Poor maintenance practice resulted in *increased exposure*. (IR May 29, 2005 through July 9, 2005) ML081480303*

10/28/05: Discard of Caustic Solution to Waste Tank Without Sample and Analysis (SRE) Failure. Event Report 42089

11/08/05: Exceeded Mass Limit Requirements (Unanalyzed Condition). Failure of IROFS for Environmental Safety Program. Event Report 42131

*12/16/05: On Oct. 28, 2005 licensee failed to close and lock the block and bleed valves, and subsequently released approximately (R) of liquid waste effluent from (R) to unfavorable geometry tanks *without confirmation of the U-235 concentration*. (IR Oct. 2, 2005 through Nov. 12, 2005), ML081480307*

2006

02/03/06: Licensee relied on a safety limit of (R), a calculated single parameter limit from Table 1 of the consensus standard ANSI/ANS-8.1, for the concentration of (R) material in a non-uniform aqueous solution *stored in unsafe geometry WWTF tanks without discussing or justifying the limit in criticality analysis* for the tanks to demonstrate sub-criticality for normal and credible abnormal conditions. (IR Dec. 12 through Dec. 16, 2005). ML081490103

06/09/06: On March 6, 2006, an accidental spill of 37 liters of HEU in the BLEU Processing Facility (BPF). (Special Inspection Team (SIT) March 13-17, 2006). ML072630328 (Note: NFS did not report spill to NRC within 24 hours. Public unaware for 13 months; cover-up by NRC).

04/17/06: Licensee's external exposure had almost reached the ALARA goal set for the year 2005, due to handling of higher radiation level material in the down blending areas. (IR Feb. 5, 2006 through March 18, 2006), ML081490105 &ML081490350

05/23/06: Failure of an Administrative IROFS in the Environmental Safety Program (WWTF). In the Wastewater Treatment Facility (WWTF), a caustic solution transfer was made and the *mass limit was exceeded for uranium; Approximately 270 liters of unsampled caustic discard solution was transferred.* (IR March 19, 2006 through April 29, 2006). ML073060269

11/07/06: Notice of Violation issued because NFS, CAAS for (R) which covers (R) of the WWTF, had only one operable detector in service from May 31, 2006 to July 15, 2006 and *does not* meet the intent of the regulation to ensure that reliable detector coverage for that area is maintained. *It neither met the requirement of 10 CFR 70.24(a) (1) nor NFS' commitment to the ANSI/ANS standard.* (Three Months!) (NRC Response to Notice of Violation 70-143/2006-206-205-01) ML081490354

2007

01/28/07: On Dec. 3, 2007, an operations supervisor directed discharge of waste material to waste treatment tanks that *did not* meet discharge criteria. Various process systems were shut down in order to effect repairs to questionable vents and drains. (IR Dec. 3, 2007 through Dec. 31, 2007) ML080290115

03/01/07: Accumulation of fissile materials *exceeding* the controlled limit found in an enclosure. (IR Feb. 11, 2007 through March 24, 2007) ML073060098, Event Report 43204

03/16/07: A caustic transfer was made from HEU to LEU side of BPF facility with *elevated* uranium (U) content. (IR Feb. 11, 2007 through March 24, 2007), ML073060098

07/16/07: Transfer of waste water from a geometrically safe to an unsafe geometry. Operator failed to properly select correct tank at control panel and sent contents to wrong waste water tank. (IR May 6, 2007 through June 16, 2007), ML073050514

12/03/07: An operations supervisor directed discharge of waste material to waste treatment tanks that *did not* meet discharge criteria. Various process systems were shut down in order to effect repairs to questionable vents and drains. ML080290115

12/28/07: Additional smears not taken to define extent of contamination outward that *exceeded* licensee applicable limits. (IR Oct. 21, 2007 through Dec. 1, 2007), ML073620551

2008

03/28/08: Filters Not Scanned Properly for Activity Prior to Packaging. (Loss or Degraded Safety Items). Some of the filters were not scanned and were assigned nominal U-235 mass values. Approval of the instructions was based on the implication that all of the cartridge filters had been scanned. Event Report 44104

09/08/08: Failure to adequately demonstrate subcritical margin for routine and expected abnormal conditions associated with the centrifuge bowl cleaning station. Transfer of bowls from the centrifuge station to the bowl cleaning station not adequately controlled to assure subcritical margin as described in the nuclear criticality evaluation. (LPR Jan. 1, 2008 through July 5, 2008), ML082520608

10/17/08: *Inadvertent transfer of un-sampled discard solution*. Transfer of low uranium concentration discard solution from Tank WF03 to WWTF Tank 29 without final sample and analysis due to inadvertently opening incorrect valve. Event Report 44579

(Note: This document is a product of the Erwin Citizens Awareness Network, P. O. Box 1151, Erwin, TN. 37650)