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OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

Erwin Citizens Awareness Network
P.O. Box 1151
Erwin, Tennessee 37650

November 27, 2009

NRC Chairman Gregory B. Jaczko
c/o Office of the Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

VIA: FED EX

RE: REQUEST FOR EXTENSION OF TIME TO PETITION FOR HEARING IN THE MATTER OF NUCLEAR FUEL SERVICES (NFS) 40-YEAR LICENSE RENEWAL APPLICATION; DOCKET NO. 70-143; NRC-2009-0435

Dear Chairman Jaczko:

We apologize to you and the Commission for the delay in submitting this extension request. But, since the Federal Register "Notice of Receipt of License Renewal Application From Nuclear Fuel Services, Erwin, Tennessee, and Opportunity to Request a Hearing" was published on October 6, 2009, Erwin Citizens Awareness Network members, as well as our assistants in Sierra Club, have been thoroughly engaged in nuclear issues that have confronted our region – just as you urged us to be in your November 26, 2008 letter to us:

> ***"As a proponent of transparency, public disclosure, and participation in the NRC's processes and decisions, especially with respect to facilities such as NFS, I hope that the Erwin CAN continues its involvement and efforts".***

Working constantly, we have spent countless hours educating ourselves through ADAMS searches -- printing, summarizing and studying each and every document -- in a determined struggle to try and catch-up after being kept in the dark during the three years of NRC's secrecy ("OUO") policy. Oftentimes, we have neglected our own health, our families and loved ones because of the importance we place on these issues to our community and, perhaps, to the country in general.

Some of the specific issues that we have addressed since the Federal Register Notice was published on October 6th, and that have caused this request to be delayed, include:

- **Preparation for and participation of Erwin Citizens Awareness Network (ECAN) and Sierra Club members in teleconference with DOE on October 8th regarding the dumping of nuclear waste from NY State in Tennessee;**

- **Preparation for and participation of ECAN and Sierra Club members in a meeting with a Tennessee Department of Health representative on October 17th regarding State cancer data showing that Unicoi County (where NFS is located) suffers from nearly twice the incidence of brain cancer than the State as a whole;**

- **Focusing on (and speaking with the press regarding) the major accident at NFS on October 13th (Event #45446) which required an NRC Augmented Inspection Team. The AIT report is expected by mid-December according to Region II;**

- **Finding an environmental attorney experienced with nuclear cases, then traveling to and meeting with attorney who might help with hearing petition and declaration filings;**

- **Preparation for and participation of ECAN and Sierra Club members in the Public Meeting conducted by NRC's Region II at Erwin Town Hall on October 29th. Even over the Thanksgiving holiday, we are working on feedback to the NRC about that meeting in an attempt to correct what we believe are misleading answers that Region II provided to the public in a 13-page Frequently Asked Questions document (copy enclosed). A DVD of the meeting is also enclosed, along with a Letter to the Editor by an ECAN member;**

- **Preparation for and participation of ECAN and Sierra Club members in a meeting, requested by Peter Habighorst after the October 29th Public Meeting, with him and other NRC officials responsible for the preparation of the EA regarding NFS's request for a 40-year license renewal. (The Table of Contents for the two 3-inch binders of materials provided to NRC at the November 17th meeting is enclosed). We continue to forward information, to Mr. Habighorst and James Park, in support of an Environmental Impact Statement on NFS;**

- **Focusing and commenting on yet another NFS accident which occurred on November 14th (Event #45497 was not released until November 19th), involving the newly-licensed UF6 processing in the Commercial Development Line – an extremely hazardous process that we challenged for two years. (We understand that the CD Line has been completely shut down, pending further investigations);**

- **Tracking NFS accidents, report timing, veracity of contents, and NRC public release of reports. Not only was public release of the last 2 event reports delayed by NRC for 5 days or more (because of the OUO policy, according to NRC staff), but also Event #45446 contained substantial errors of fact that minimized the severity of the accident and that were picked up in the NRC's press release as well as the media;**

- **Focusing and commenting on the release, on November 24th, of the "resolution" of the nearly four-year-old Fitness-for-Duty Issue involving the (yet unnamed) NFS Senior Executive and NFS's contract physician. For nearly a month, the alcohol-impaired Senior Executive continued to have access to Special Nuclear Material (Event #42480) -- a dangerously-long breach of security in the public's eyes, but, apparently, not according to the ADR findings.**

Further, ECAN and Sierra Club (and, possibly, other members of the public or public interest groups still to be determined) are unable to file their request for hearing by December 7, 2009 due to the fact that funding for legal help has not yet been raised and because an affordable attorney to help potential petitioners file their hearing request and declarations has not yet been selected.

Additionally, preparation for and travel regarding the Thanksgiving holiday, plus the seasonal flu and swine flu, have caused our members' time to be focused on personal matters. Finally, because the daughter of one of ECAN's advisors was diagnosed with Mononucleosis and Whooping Cough, resulting in the need to bring her home from college for medical treatment and recuperation, we have lost the time that she would have otherwise dedicated to the hearing petition.

As you can see, we have been busy; and a lot of that time has been spent interacting with members of the NRC staff. Therefore, on behalf of Erwin Citizens Awareness Network and Sierra Club (as well as other individuals or public interest groups who might join our petition for hearing), we respectfully ask the Commission to extend the deadline for filing a Hearing Request until after the Christmas and New Year's holidays. Specifically, potential petitioners ask that the deadline be extended by 30 business days from the current December 7th deadline, i.e., to January 20, 2010.

As Kurt Vonnegut said in his book, Hocus Pocus, "the two prime movers in the universe are time and luck." Perhaps we'll have both!

Respectfully submitted,

Barbara A. O'Neal
For Erwin Citizens Awareness Network

Linda C. Modica
For Sierra Club Nuclear Issues Activist Team

4 Enclosures:

(1) DVD of October 29, 2009 NRC Public Meeting in Erwin, TN
(2) NFS Frequently Asked Questions (distributed by NRC Region II at Oct. 29 meeting)
(3) Binder #1 and Binder #2 Contents: Themes for an NFS Environmental Impact Statement, provided to NRC on November 17, 2009
(4) Letter to Editor, Johnson City Press, November 18, 2009

No Author; No Attribution; No Date

Nuclear Fuel Services Frequently Asked Questions

Table of Contents

I. Authorized Releases to the Environment

A. Regulations for authorized environmental releases

i. What is the public dose limit?

The public dose limit is 100 millirem per year[1]. The public dose limit is roughly equal to 10 chest x-rays.[2] The public dose limit is 2 percent of the amount workers in the industry are allowed to receive -- 5,000 millirem per year.

Radioactivity is present in nature, various medical treatments, and several commercial products in addition to nuclear facilities. The dose resulting from these sources is called the background dose. The background dose or dose of an average individual living in the United States is 360 millirem per year. This dose is larger than the NRC public dose limit with the nuclear fuel cycle only contributing a small fraction to that dose as shown in the table below. Most of the background dose (300 millirem per year) is attributed to natural sources such as radon, natural radioactive components in rock and soil, and radiation from outer space.

Source: Princeton Univ. Envir. Health + Safety

Could radon data specific to Union County be provided? (see EPA website)

Average Annual Effective Dose Equivalent to Individuals in the United States[3]			
Source	**Effective Dose Equivalent (millirem)**		
Natural	~~200~~ 60		
Radon	~~100~~ 200		
Other than Radon – INTERNAL 40			
Total		300	
Nuclear Fuel Cycle	0.05		
Consumer Products	9		
Medical			
Diagnostic X-rays	39		
Nuclear Medicine	14		
Total		62	
Grand Total		about 360 millirem per year	

[1] International Commission on Radiological Protection, *Radiation Protection,* Recommendations of the International Commission on Radiological Protection, ICRP Publication 26, Pergamon Press, Oxford, UK, January 1977.

[2] Health Physics Society – Frequently Asked Questions: http://hps.org/publicinformation/ate/faqs/

[2] NRC Regulatory Guide 8.29 – Introduction Concerning Risks From Occupational Radiation Exposure-Table 3

ii. **Which regulatory agency has jurisdiction over effluents from Nuclear Fuel Services and which regulations apply to the control and release of effluents?**

The NRC has jurisdiction over radiological effluent releases, which are the liquid and gas releases, from the plant. NRC regulates the radiological parts of the effluents, while the State of Tennessee regulates the chemical parts.

Nuclear Regulatory Commission (NRC)
10 CFR 20.1301 (Dose limits for individual members of the public), and 10 CFR 20.1302 (Compliance with dose limits for individual members of the public) have jurisdiction over the radiological portions of plant effluents. 10 CFR 20.1301 requires that the dose to the public may not exceed 100 millirem in a year. 10 CFR 20.1302 describes two methods for complying with this limit. The first method of compliance is for the licensee to calculate the dose of the public member who is most likely to receive the highest dose. The second method is for the licensee to release effluents with concentrations less than the effluent concentrations listing in 10 CFR 20, Appendix B, Table 2. The second method is more conservative since it includes the dose to an individual continuously present at the site boundary. Both methods include airborne and liquid effluents and are crafted to ensure that the highest dose from the licensed operation does not exceed 100 millirem in a year.

The NRC regulation, 10 CFR 20.2003 (Disposal by release into sanitary sewerage) limits the radiological material discharged to the sanitary sewer. The monthly average concentration limit is listed in 10 CFR 20, Appendix B, Table 3. What's the number?

Tennessee Department of Environment and Conservation (TDEC)
The state has regulatory jurisdiction over the chemical constituents in the effluents. The state issues permits for all chemical releases from the site.

B. Nuclear Fuel Services effluents

i. **How many outfalls (liquid release points) does NFS have and are they authorized?**

Nuclear Fuel Services has four outfalls. Each outfall is authorized by Tennessee National Pollutant Discharge Elimination System (NPDES) permits.

Nuclear Fuel Services has one main outfall into the Nolichucky River. This is a discharge line which carries the treated water from the NFS onsite waste water treatment facility. The water is required to be sampled and must be below NRC regulatory limits for radionuclides before being released into the river. The NPDES permit TN002038 was issued by the TDEC and limits the non-radiological chemicals in the liquid effluent. The NRC receives notification if NFS violates its state permit. How many times NRC received?

The NPDES permit TN002038 lists a second outfall, but this outfall is no longer in operation. It was physically removed (pipe removed, capped and sealed) during environmental cleanup of the North Site.

The site has two other outfalls from the NFS property into Martin Creek for storm water. Nuclear Fuel Services does not release process material through these outfalls. They contain storm water runoff from the site and are authorized by NPDES permit TNR050873. The first storm water outfall carries the majority of storm water from the Contains rads

site. The second outfall carries storm water from the parking lots and a small portion of the east side of the plant property. It also includes the Banner Springs Branch, a natural groundwater spring that was re-routed around the NFS site. Nuclear Fuel Services monitors the storm water discharge for radiological constituents at a point downstream of both outfalls as required by its NRC license.

ii. **Where is the water from the lagoons (former waste water settling ponds) pumped?**

The NFS lagoons were used in the 1950s through the 1970s. The land around and beneath the lagoons has been cleaned up and the soil has been shipped to an authorized off-site disposal facility. Nuclear Fuel Services no longer uses settling ponds in their waste treatment process but processes liquid waste in contained tanks.

The North Site portion of the NFS property (where the lagoons were located) has been cleaned up. As a result of this process, the area contains large pits which have not yet been refilled with soil. The pits fill naturally with groundwater and rain water to form "onsite ponds." The licensee samples the surface water from these onsite ponds monthly.

The licensee pumps the water from the onsite ponds to the groundwater treatment facility. The facility treats the water and samples the final product before its release into the sanitary sewer. The groundwater treatment facility treats the water for volatile chemicals and also removes uranium and other heavy metals from the water. The NFS discharge to the sanitary sewer is below NRC regulatory limits. still contaminated

iii. **A June 1996 inspection report stated that a significant amount of groundwater was treated by the groundwater treatment facility. How can this vast amount of water be treated for uranium considering that the release limits are so small?**

The groundwater treatment facility was designed to process large amounts of water. The groundwater treatment facility releases are below the release limits.

Inspection Report 70-143/1996-014 from November 1996 states that at "the end of October 1996, the total volume of groundwater treated in the groundwater treatment plant since the start up (799 days) was 4,765,162 gallons." This is an average of 5,964 gallons per day, which is significantly less than a quarter of the facility's maximum capacity. The purpose of the groundwater treatment facility is to treat the water prior to discharge to the sanitary sewer of the City of Erwin - Publicly Owned Treatment Works. These discharges are conducted in accordance with a formally issued pretreatment permit. The radionuclides (including uranium) released into the sewer between January and June of 2009[4] were on average 1.0 percent and 0.7 percent of the NRC limits detailed in 10 CFR 20, Appendix B, Table 3.

[4] ML092570831- NFS Biannual Effluent Monitoring Report January through June 2009

iv. **In 2007, a 2005 inspector follow-up item (IFI 2005-03-04) was closed in Inspection Report 70-143/2005-07 for an elevated stack sample above the licensee's action limits. How did the inspector determine whether or not the elevated stack sample represented a release above regulatory limits?**

The release associated with the elevated stack sample was below the regulatory limits. The inspector follow-up item was originally opened when NFS identified an elevated stack sample during routine stack sampling. The elevated sample was caused by a buildup of liquid waste in the hydrogen dilution ventilation system. Nuclear Fuel Services submitted the air sample filter to an offsite laboratory for isotopic analysis. The inspector follow-up item was opened to ensure that the NRC reviewed the results of the analysis when they became available. The inspector follow-up item was later closed by another NRC inspector after reviewing the results. This inspector determined that the stack release did not contribute to a significant dose to the public, but did not elaborate in the report on how that conclusion was reached.

During the 2009 environmental inspection, NRC inspectors followed up on the closed inspector follow-up item in order to gather more information. The inspectors reviewed how NFS calculated public dose from that elevated release and how they intended to prevent a recurrence. The inspectors determined that the licensee used an approved methodology and an off-site laboratory accredited by the National Environmental Laboratory Accreditation Program to aid in determining the dose. The dose value was below the NRC's limits defined in 10 CFR 20.1301 (100 millirem in a year and 2 millirem in any one hour). The inspectors also determined that the corrective actions to prevent recurrence were adequate and had been implemented.

v. **Are NFS effluents above the regulatory limit for uranium-234 and other isotopes?**

Nuclear Fuel Services effluents are currently below the regulatory limits for all isotopes, including uranium-234. The NRC license specifies that NFS use a combination of the public dose compliance methods described in 10 CFR 20.1302 (which are the explicit action levels listed in 10 CFR 20, Appendix B or a public dose calculation based on releases). Nuclear Fuel Services calculates public dose if the measured effluent concentrations are above the concentrations listed in 10 CFR 20, Appendix B. The radiological constituents in the liquid effluents and air effluents were below the 10 CFR 20, Appendix B levels for the first half of 2009. what about last year or the years before?

The concentration of uranium-234 in the liquid effluents is also below the effluent concentrations listed in 10 CFR 20, Appendix B, Table 2. The data is presented in the chart below.

	Nuclear Fuel Services Biannual Effluent Monitoring Report[5] Jan - June 2009 Average Concentration	Action Level for Effluent Concentration 10 CFR 20, Appendix B
Concentration of uranium-234	89 picocuries per liter	300 picocuries per liter

[5] ML092570831- NFS Biannual Effluent Monitoring Report January through June 2009

II. Environment

A. The 1986 Markey hearing files indicate that the ground around the NFS 310 Warehouse is contaminated. When was the 310 Warehouse built? Also, is there contamination, paint thinner, motors, and other waste buried 45 feet underneath this building?

The 310 Warehouse was constructed in 1969. At present, environmental sampling results indicate no significant radiological or chemical contamination underneath the 310 Warehouse.

The NRC staff requested that NFS investigate whether significant contamination (radiological or chemical) was present approximately 45 feet below the 310 Warehouse. The NFS investigation into NRC's request indicated no evidence of significant contamination below the 310 Warehouse. As part of the investigation, NFS interviewed the project engineer who managed the construction of the 310 Warehouse in 1969. He stated that there was no known burial in the land beneath it. To verify this conclusion, NRC reviewed summaries of the history of the 310 Warehouse, which has been used to store all types of radiological materials. In addition, NRC reviewed NFS's monitoring well records for the NFS property. NRC's review indicated that bedrock is present at a depth of approximately 20 feet. Therefore, burial of items at a depth of 45 feet was unlikely. In addition, NRC reviewed the sampling results for the last five years for monitoring wells near and downhill from the 310 Warehouse (Wells 104A, 105A, and 106A). NRC determined that all three wells were at or below the detection limits for gross alpha, gross beta, and technetium-99.

who is he?

The NFS response to NRC's request noted the fact that the southwest burial trenches (located approximately 30 feet west of the 310 Warehouse on NFS property) indeed once had equipment, tanks, and other large debris buried in them. The southwest burial trenches were approximately 15 feet deep. However, the trenches were emptied and the contaminated soils removed by May 2000. The NRC determined that no significant environmental issues currently exist in the area.

In addition, during NRC's routine environmental protection inspection, conducted July 20 through 24, 2009, the NRC inspectors reviewed groundwater sampling records for the site and did not identify any issues regarding the wells around the 310 Warehouse. The results of that inspection will be documented in NRC inspection report 70-143/2009-003, covering the period July 1 through September 30, 2009. This report is expected to be issued in November 2009.

Note: The ADAMS version of the Markey Hearings does not contain the "Region II Perceptions" - an important part of the hearing.

B. Nuclear Fuel Services purchased the property at 275 Stalling Lane in Erwin. Does this mean that the property was contaminated?

No, NFS never believed the property was contaminated. To confirm there was no contamination, NFS performed a radiological survey of the property, which was observed by the NRC. The survey found that the property was not contaminated.

When the contamination question was raised, NRC requested that NFS investigate. Nuclear Fuel Services advised that the land was purchased due to the value of the land and its proximity to the plant. Nuclear Fuel Services also advised, and NRC confirmed, that the house is located uphill from the NFS facility. Therefore, groundwater flows from the house to the plant. This fact eliminates groundwater as a potential pathway for contamination from the plant, leaving air as the only possible source of potential contamination to the house. Nuclear Fuel Services reviewed recent, offsite sampling results for air, stream, soil, and vegetation near the property. No contamination was found. In addition, NFS conducted a radiological survey of the property that was observed by an NRC inspector. Again, no contamination was found.

The NRC's routine environmental protection inspection, conducted on July 20 through 24, 2009, reviewed the licensee's air monitoring records and processes for the site. The inspectors did not identify any significant issues. The results of that inspection will be documented in NRC inspection report 70-143/2009-003, covering the period July 1 through September 30, 2009. This report is expected to be issued in November 2009.

C. Technetium in groundwater

i. What is the status of radioactive technetium-99 (Tc-99) contamination in the groundwater?

Technetium-99 is present in the groundwater onsite at NFS. Nuclear Fuel Services detected elevated levels of Tc-99 in onsite groundwater monitoring wells between 1998 and 2004. The highest level was recorded at 25,770 picocuries per liter (pCi/L) in July 1999. When it was first detected, well pumping was used to reduce Tc-99 concentrations. Since 2004, Tc-99 levels onsite have remained near or below 1 percent of the NRC limit from 10 CFR 20 Appendix B value for offsite water effluent releases of Tc-99 (60,000 pCi/L). Therefore well pumping was stopped.

ii. How did technetium-99 (Tc-99) get into the groundwater?

In the late 1990s, NFS was contracted to recover uranium that had been trapped in large filters. The material originated from one of the Department of Energy sites and contained Tc-99. As NFS processed the material, Tc-99 entered the plant's effluent. Nuclear Fuel Services installed filters which kept the airborne and liquid effluents within the regulatory limits. Nuclear Fuel Services periodically cleaned the filters and collected the filter debris in a large tank. The tank subsequently leaked through a concrete pad into the groundwater. After the leak was identified, it was repaired, stopping any additional Tc-99 from entering the groundwater. Subsequently, the material was removed and building and process area was torn down.

iii. **Has technetium-99 (Tc-99) entered the Nolichucky River?**

Was evidence sought?

There is no evidence that Tc-99 has entered the river. Water samples from the river contain such low levels of radioactive isotopes that there is no need to specifically analyze the samples for Tc-99. In addition, monitoring wells between the site and the river have not indicated Tc-99 above 0.5 percent of the NRC limit from 10 CFR 20 Appendix B value for offsite water effluent releases of Tc-99 (60,000 pCi/L).

III. NRC Inspection Program, Licensing, and Enforcement

A. How many safety-related escalated enforcement violations (along with civil penalties) has NRC cited NFS for since 1989?

Since 1989, NFS has had eight escalated enforcement violations involving safety-related activities. Safeguards-related escalated enforcement actions (which involve physical security and material control and accounting) are handled as Official Use Only and therefore are not publically available. Of the eight safety-related escalated enforcement violations, four included civil penalties. The civil penalties totaled to $92,500.

The following is a list of the safety-related violations:

1. Failure to implement criticality safety controls, which resulted in a $10,000 civil penalty (Enforcement Actions (EA) 1990-124 and 1991-004);
2. Failure to implement a criticality safety control (EA 1991-186);
3. Failure of a process control that led to a fire and a failure to implement a criticality safety control, which resulted in a $37,500 civil penalty (EA 1992-231);
4. Failure to implement adequate configuration control and management systems, which resulted in a $12,500 civil penalty (EA 1996-213);
5. Failure to properly maintain criticality alarms (EA 2001-098);
6. Failure to properly implement a criticality safety control including the falsification of a record (EA 2003-178);
7. Failure to follow procedures for material transferred to the Waste Water Treatment Facility (EA 2004-197); and
8. Failure to properly implement criticality safety controls, which resulted in a $32,500 civil penalty (EA 2005-093).

B. Which confirmatory orders are currently being applied to NFS?

As of October 29, 2009, NFS is subject to only one safety-related confirmatory order, the order dated February 21, 2007[6].

On February 21, 2007, NRC issued a confirmatory order to NFS in response to six potentially escalated enforcement actions. The order required that NFS perform the following:

1. Respond in writing to the six enforcement actions listed in the order;
2. Submit a license amendment to strengthen the configuration control program;
3. Implement a third party assessment of the safety culture of the site;
4. Establish a safety culture improvement program; and
5. Implement a second third party safety culture assessment.

[6] The order can be reviewed in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/readingrm/adams.html, under accession number ML071990558

Due to the sensitive nature of the information and material NFS handles, the following physical security orders also apply to NFS:

1. Interim Compensatory Measures Orders (Issued August 21, 2002 and April 29, 2003);
2. Requirements for Protecting Certain Safeguards Information (Issued November 5, 2004);
3. Fingerprinting and Criminal History Check Requirements for Access to Safeguards Information (Issued March 1, 2007); and
4. Fingerprinting and Criminal History Records Check Requirements for Unescorted Access to Certain Radioactive Material or Other Property (Issued April 30, 2007).

The following physical security orders are available publicly in ADAMS:

1. ML042980004 - Requirements for Protecting Certain Safeguards Information
2. ML072640409 - Fingerprinting and Criminal History Check Requirements for Access to Safeguards Information
3. ML070950163 - Fingerprinting and Criminal History Records Check Requirements for Unescorted Access to Certain Radioactive Material or Other Property

C. Why did NRC not conduct an environmental impact statement for NFS?

The NRC has procedures for conducting environmental reviews[7]. For fuel facilities requesting license renewal or modifications, our procedure is to begin with an environmental assessment to determine whether any significant impacts are identified. If significant impacts are identified, NRC will prepare a more detailed environmental impact statement. However, if none are identified, the environmental review is complete and no environmental impact statement is required.

[7] Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, NUREG-1748.

IV. Facility and Operations

A. Is NFS storing radiological material at its Industrial Park Facility?

Yes. The Industrial Park Facility is a general-purpose warehouse used primarily for storage of low-level radioactive waste in approved shipping containers prior to loading onto railcars for shipment to a disposal facility.

B. What are the waste streams leaving the Commercial Development Line?

There are currently three general waste streams (liquid and solid) leaving the CD Line:

Scrubber blow-down: The building ventilation uses a scrubber system to remove contaminants from the various glove boxes as well as the room atmosphere. The scrubber water blow-down is directed to the waste water treatment facility. The water is processed using a lime treatment. Most of the ammonium fluoride in this solution would precipitate out as calcium fluoride and be shipped to an off-site disposal facility. Any remaining liquid hydrofluoric acid (HF) would be neutralized with a caustic to form water and a salt. The remaining liquid is sampled and sent to the Nolichucky river once the release criteria have been met.

Ammonium diuranate (ADU) filtrate: The sublimation stations convert the uranium hexafluoride (UF_6) to a solution composed of uranyl fluoride (UO_2F_2) and HF. This solution is then processed through the ADU precipitation system where ammonium hydroxide is added to precipitate out ammonium diuranate ($(NH_4)_2U_2O_7$). The liquid HF is converted to liquid ammonium fluoride (NH_4F). Most of the ammonium fluoride solution ends up in the filtrate water as waste. It is then pumped to the filtrate waste columns. From there it is pumped to the waste water treatment facility. So far only two of these transfers have been made (~1000 liters). The goal is to eventually solidify the contents of this tank. This solid waste will then be shipped to an authorized off-site disposal facility for burial.

Building solid waste (trash): This material is collected and placed in either 55 gallon drums or other bulk shipping container. Less than one drum per day is produced. This solid waste is then shipped to an authorized off-site disposal facility for burial.

C. What is the worst off-site release of hydrogen fluoride that can occur during operation of the Commercial Development Line?

The worst case accidental release (a fire involving a cylinder containing 24.9 kilograms UF_6) of hydrogen fluoride from operations related to the Commercial Development Line would result in a 0.4 parts per million potential exposure at the site boundary, which would result in no adverse public health effects. Therefore, the worst case accidental release of hydrogen fluoride gas would not require any offsite response.

V. General

A. During the presentation on September 24, 2009, NFS presented a slide regarding employee identified items. What were the items classified as having a "high" safety significance that were reported during 2006 and 2007?

Nuclear Fuel Services characterized seven items in the January 1, 2006, to September 18, 2009 timeframe as having a "high" safety significance. Of these events, only one event involved radioactivity while the others involved industrial safety. The NFS presentation can be reviewed in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/readingrm/adams.html, under accession number ML092730303.

Date	Event Type	Description
February 16, 2006	Industrial	An employee was driving a forklift on a portable ramp connected to a tractor trailer. The portable ramp was not properly set up and separated from the trailer causing the forklift to fall from the ramp. The employee received injuries as he jumped from the forklift.
March 13, 2006	Radiological	During inspections of the facility, the employees identified an elevator pit which lay below floor level. The pit did not have any safety features to prevent a leak of uranium-bearing liquid into the pit. There was not any radiological material in the pit. A criticality did not occur.
November 10, 2006	Industrial	An employee injured his leg after he stumbled backward during construction work.
December 13, 2006	Industrial/ Electrical	During the removal of a tree, a limb fell across nearby power lines. This was characterized as a "near-miss" event as it did not result in serious injury. Nuclear Fuel Services conducted an investigation and collected "lessons learned" from the incident.
December 15, 2006	Industrial	During a fire, there was confusion regarding fire alarm pull stations. An industrial fire extinguishing technique is to create an oxygen-deficient environment which puts out the fire because a fire cannot burn without oxygen. An employee was exposed to the oxygen-deficient environment after miscommunication amongst employees. The employee was sent to the hospital for observation.
February 22, 2007	Health	An employee requested assistance after having a medical emergency.
December 6, 2007	Electrical/ Industrial	Electrical wiring was improperly disconnected from service. Although the event did not result in any injuries, the facility received an National Electrical Code violation.

FATALITY!

B. Did a criticality almost occur happen at NFS due to the March 6, 2006 spill of the high enriched uranium solution?

No. The liquid containing the high-enriched uranium was never close to the conditions required for a criticality accident. The issue was that NFS lost control of the liquid transfer and did not know where the liquid was going. NRC licensees that handle enriched uranium must maintain control of the material at all times to avoid conditions favorable for a criticality accident.

On March 6, 2006, nine gallons of high-enriched uranyl nitrate solution leaked into a glovebox and spilled onto the process floor. A criticality did not occur due to the functioning glovebox drains and lack of nuclear material that leaked. The puddle of solution was approximately six feet from an open elevator pit. The elevator pit had the potential of collecting the solution into a geometry favorable for criticality and did not have controls in place to prevent the build up. For additional details, refer to NFS inspection report 70-143/2006-006[8].

C. Has NFS ever operated a nuclear reactor called the Southwest Experimental Fast Oxide Reactor (SEFOR)?

No. Nuclear Fuel Services has never operated nor has it been licensed to operate any type of nuclear reactor facility including the SEFOR.

During the 1960s and 1970s, NFS manufactured SEFOR nuclear fuel in Building 234. The processing equipment was removed and the building torn down years ago. However, some contaminated material remains in the soil and in a cell below ground. Nuclear Fuel Services has erected a large tent over the building site. Nuclear Fuel Services has indicated an intent to resume work cleaning up the remaining contamination.

D. Is waste from the West Valley, NY former commercial spent fuel reprocessing facility located at NFS? Also, is waste from NFS located at Bumpass Cove, TN?

No. Waste from the West Valley, NY former commercial spent fuel reprocessing facility is not located at NFS. In addition, NFS does not have waste located at Bumpass Cove, TN.

The NRC was aware that the mixed oxide fuel work that NFS performed for West Valley in the 1970s resulted in contamination of the land beneath Building 234 on the NFS site. However, this waste resulted from operations at NFS, not the disposal of West Valley waste at NFS. Nuclear Fuel Services, under NRC's oversight, has and will continue to decommission and decontaminate that portion of the property. Nuclear Fuel Services has indicated an intent to resume Building 234 decommissioning activities as early as 2010.

In addition, waste from the NFS Erwin facility has not been buried at Bumpass Cove. The NRC staff conferred with the federal Environmental Protection Agency and state who?

[8] The inspection report can be reviewed in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/readingrm/adams.html, under accession number ML072630328.

officials who stated that the Bumpass Cove landfill was cleaned up and the site was archived as an EPA Superfund site[9] in 2003, meaning no further environmental action will be taken. For further details contact the Environmental Protection Agency or the Tennessee Department of Environment and Conservation.

E. What is the status of the Building 234 (plutonium) decommissioning?

Nuclear Fuel Services has not restarted the clean up or decommissioning of the plutonium building. However, they have indicated an intent to do so, perhaps as early as next year. The company is identifying the major tools and equipment needed to start the project. The NRC is evaluating the project and NFS' plans.

[9] EPA Superfund Site:
http://cfpub.epa.gov/supercpad/cursites/calinfo.cfm?id=0404056&prnt=Y

JOHNSON CITY PRESS, NOV. 18, 2009, PAGE 6-A

NFS, Nuclear Regulatory Commission don't understand 'disclosure'

On Oct. 29, the Nuclear Regulatory Commission held a public meeting in Erwin to answer questions and address concerns about Nuclear Fuel Services.

I would point out that an answer on page 12, item B of the NRC's handout, was in conflict with an NRC description to Congress of the infamous uranium spill on March 6, 2006, at NFS.

The question asked, "Did a criticality almost occur ...?" The NRC handout answer was "No."

NRC Commission Chairman Gregory B. Jaczko's report on Abnormal Occurrences to Congress on May 16, however, stated that criticalities were "possible" in the glove box and elevator pit. I don't like mincing words, but the spill was a major concern to the NRC and Congress, and brought to everyone's attention the safety culture deficiencies at NFS.

After the seriousness of the spill became evident, the NRC was concerned that too much information was being withheld and on May 21, 2008, they made public 727 documents from 2004-07.

A review of those documents, as well as the history of NFS problems, have led to skepticism of the Department of Energy, NFS and the NRC in respect to public health, safety and the environmental impact of NFS operations. There has never been an Environmental Impact Study of NFS.

Another concern has been the effluent self-reporting by NFS as an indicator of truth. Eugene Cobey, NRC staff, stated, "Inherent in that is a belief, because we require it, that the information that we're reviewing is accurate in all respects." Believing is not enough for concerned citizens.

NRC Commissioner Jaczko sent a response to local concerned citizens, known as ECAN, stating, "As a proponent of transparency, public disclosure, and participation in the NRC's processes and decisions, especially with respect to facilities such as NFS, I hope that the Erwin CAN continues its involvement and effort."

CHRIS TIPTON
Erwin

THEMES FOR AN NFS ENVIRONMENTAL IMPACT STATEMENT

Binder #1 – Public Input
November 17, 2009

1. NFS-Erwin History of Accidents and Serial Non-Compliance with NRC Regulations:

- Supplied: ECAN "Known Safety Issues" Summary, 65 pages
- Supplied: ECAN "Criticality" Summary, 11 pages
- Supplied: ECAN, "Event Report Summary, 1990-2009", 46 pages
- Supplied: ECAN, "BLEU Timeline, 74 pages
- Supplied: ECAN, "Chronological Order of Amendment 79", 2 pages " (Binder #1, Tabs A, B, C, D & E, respectively)
- Forthcoming: ECAN, "NFS Violation History"

2. Worker Injuries, Exposure, potential exposure and contamination:

- Note: Question whether fuel cycle facilities are more dangerous than reactors?
- Note: In the 1986 Congressional Hearings, it states "Internal NRC documents and the public record show that NFS Erwin is the most dangerous uranium fuel production plant that the NRC licenses. It has the worst record of fines of any comparable plant. NRC has been more interested in protecting NFS than in regulating it."
- Note: NFS has highest limits of 5,000 mrem…making their ALARA higher than any other plant
- Need analysis of potential impacts of NFS offsite releases in light of BEIR VII's latest findings
- Supplied: NIOSH 2008 Report – 45 pages (Binder #1, Tab F)
- Note: Believe that downblending program and other DOE weapons work might qualify current NFS workers for Special Exposure Cohort status
- Supplied: PNO-II-04-002, May 19, 2004, Fatality of Contract Construction Worker (ML081360253) (Binder #1, Tab G)
- Supplied: Rep. Edward Markey 1986 Congressional Hearings – 283 pages (Binder #1, Tab H) (See specifically "**Region II Perceptions**," mysteriously omitted from copy on ADAMS ML093010396)
- Supplied: DVD "On Strike for their Lives", 60 Minutes, Nov. 29, 1981 (Binder #1, Tab I)

3. Air releases & Public Exposure:

- Supplied: NRC, "NFS Questions & Answers", 1980 NRC Public Meeting in Erwin, 30 pages (From archives of Appalachia, ETSU Library) (Binder #1, Tab J)
- Need total annual and cumulative Chemical, Radiological and Particulate routine off-site releases by NFS, Studsvik and Aerojet
- Need total annual and cumulative Chemical, Radiological and Particulate accidental off-site releases by NFS, Studsvik and Aerojet

- Supplied: NFS Fenceline radiation data; Studsvik Fenceline radiation data, Source: TDEC, Mark Hammon, Environmental Monitoring, Nashville (Binder #1, Tab K & L, respectively)
- Need fenceline data from prior years, as far back as possible, and for more recent quarters and analysis of cumulative impacts of air pollutants emitted by NRC & Agreement State licensees
- Need annual dose re-construction of offsite public radiation exposures for all years of NFS operation
- Supplied: Table listing CERCLA & Other Hazardous Chemicals Discharged by NFS (Binder #1, Tab M)
- Supplied: Table "NFS Air Emissions, 1992-2006" (Binder #1, Tab N)
- Need analysis of cumulative health impacts of all offsite radiological, chemical and particulate exposures
- Supplied: Table "NFS/NUMEC Comparisons", 2 pages; Narrative, 12 pages (Binder #1, Tab O)

4. Drinking Water Impacts:

- Need proof that groundwater contamination by NFS has not spread to drinking water (including the River and private wells) by doing a dye test
- Need independent water samples from Railroad Well (public source of drinking water).
- Supplied: Two charts of Erwin Utilities Railroad Well showing high & rising levels of Tetrachloroethylene (PCE) and Chloroform, 1989-2003, from Schreiber Report; "Erwin Utilities Hopes railroad well project will be included in federal budget, Johnson City Press, March 8, 2009 (Binder #1, Tab P)
- Note: Banner Spring (previous source of public drinking water).
- Need analysis of past and present impacts. (See 1986 Congressional Hearings).
- Note: Jonesborough and Greeneville get drinking water from Nolichucky River)
- Need projected cumulative impacts on Nolichucky River downstream of NFS
- Supplied: "Living on Karst," The Nature Conservancy, Dec. 2003, 26 pages (Binder #1, Tab Q)
- Note specifically the map showing the dye test
- Need dye tests to track contaminant plumes and to identify any intersections with drinking water well capture zones, faults, fractures and karst features
- Plutonium Plume – Show where is it now and where it is projected to go?
- Supplied: Five articles including "Plutonium Thumbs a Ride," Academic Press, 1999; "Plutonium, other contaminants found offsite near NFS", Elizabethton STAR, April 3, 2002; "Colloids in Russia: Have Plutonium, Will Travel," Scientific American, Oct. 26, 2006; "Plutonium hitchhikers take the fast stream," Chemistry World, Oct. 26, 2006; and "Plutonium hitchhikes in groundwater," COSMOS Magazine, Oct. 27, 2006 (Binder #1, Tab R)
- Supplied: "Declaration of January 6, 2003 by Dr. Arjun Makhijani" (Binder #1, Tab S)
- Supplied: Chart "Nolichucky River at Embreeville, Tenn.", USGS, showing low flow rates of river during late 1980s and 1999-2002 period (Binder #1, Tab T)
- Need analysis of impact of low-flow rates of Nolichucky on concentration of contaminants discharged by NFS & Aerojet, including historical periods since onset of NFS operations

- Need analysis of fish, other aquatic life and plants in and around the River. Fish show contamination in past studies.
- Supplied: "Gross Alpha and Beta Radioactivities Associated with Aquatic Environments of Upper East Tennessee Impacted by Industrial and Mining Activities," Archives of Environmental Containment and Toxicology, 1985 (Binder #1, Tab U)
- Supplied: "Water Quality in Upper Tennessee River Basin," 1994-98, USGS, Cir. 1205, Year 2000, 32 pages (Binder #1, Tab V)
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THEMES FOR AN NFS ENVIRONMENTAL IMPACT STATEMENT

Binder #2—Public Input
November 17, 2009

5. Qualifications and Credentials:
- Need proof of qualifications and credentials of NFS officers, managers, and supervisors responsible for safety, security, health, and the environment.
- Need names of the ISA team members – for all ISAs produced by NFS -- and proof of their credentials.
- Note: Former workers question that NFS executives have the diplomas and credentials they claim to have.
- Supplied: EA#2000-067 which states the fact that "Senior shift supervisor directed NFS operators to electrically acknowledge that they had received training before the training occurred" (Binder #2, Tab A)
- Supplied: ML090090121 which states that "a senior NFS manager placed a letter in the senior executive's personnel file…which stated that the senior executive had entered a substance abuse rehabilitation program when, in fact, the senior executive had not done so". (Binder #2, Tab B)
- Supplied: ML091880007 which includes PIRCS 14537 where the manager assigned to approve the apparent cause corrective action did not exist. (Binder #2, Tab C)

6. Environmental sampling:
- Need proof of integrity in environmental sampling since NRC documents prove that records have been falsified at the highest levels. In other words, the public challenges the NRC to prove that data provided to NRC by NFS is always accurate.
- Note: Former employees have stated in public that NFS supervisors have instructed workers to dilute and otherwise falsify water samples when they were "too hot".
- Supplied: NRC, OI Annual Report, 2004, p. 9 which states that an NFS "supervisor falsified transfer records of special nuclear materials" – a Severity Level III violation. (Binder #2, Tab D)
- Need independent tests of soil offsite at various locations near NFS.
- Note: NRC's "Nuclear Fuel Services FAQ" document states on page 8 that Enforcement Action #EA 2003-178 involved the "failure to properly implement a criticality safety control including the falsification of a record".

- Supplied: Event Report FC900662, 11/11/90 on contaminated sludge in old POTW digester and Inspection Report, January 10, 1991 which has 2 time series of data on U-234 and Alpha contamination of municipal sewer; "Motion filed in sludge suit", Erwin Record, 02/03/04 (Binder #2, Tab E)
- Note: Page 7 of the IR where Alpha concentrations exceeded 6300 picocuries/liter
- Need pre-1981 & post-1989 annual alpha concentration data for municipal sewer

7. Plant building stability & construction

- Need proof of integrity of plant building construction vis-a-vis design basis threats.
- Supplied: Project on Government Oversight's comments regarding NFS, Sep. 11, 2008 (ML082660535) and Feb. 3, 2009 (ML090350043). (Binder #2, Tab F)
- Need proof that past licensing bases have not changed, and that engineer changes to buildings and backfits may not now be required.
- Need proof that buildings that cannot meet current fire codes, but that are allowed by NRC to be kept in operation in Erwin, do not jeopardize the health and safety of workers or the public should a fire or explosion accidentally occur or should a fire or explosion be intentionally caused.
- Forthcoming: Framatome whistleblower's statement re BLEU building construction

8. Public Health and Safety:

- Need off-site dose reconstruction for MEOI and general public in Erwin as far back as possible
- Supplied: ATSDR Report, May 2007 - 88 pages (Binder #2, Tab G)
- Note: See specifically public comments to ATSDR Public Health Assessment
- Supplied: DOE, EIS-0240-SA1, October 11, 2007, 35 pages (Binder #2, Tab H)
- Note that page 11 of the Supplement Analysis states that, because of the closer proximity of the maximally-exposed offsite individual, that Erwin would incur a "1 in 71 Latent Cancer Fatality risk" due to NFS's downblending operations.
- Need explanation of why DOE's finding does NOT constitute a significant impact of NFS's downblending operations.
- Supplied: TN Dept. of Health Cancer Statistics on 5-county Region of Interest; TN Health Dept., Regional Epidemiologist, "Cancer Information, Incidence & Mortality Data, Unicoi County"; Map of Washington Street Cancers (Binder #2, Tab I)
- Note: Brain Tumor incidence for Unicoi County is nearly double the State rate
- Note: Rising mortality rates in Unicoi County from Non-Hodgkins Lymphoma, Leukemia, Colon and Female Breast Cancer
- Note: In the home on Washington Street closest to NFS, all four members of the Wilson family died of cancer
- Supplied: Line Charts: Offsite Total Effective Dose Equivalent and Quarterly Offsite Dose-External, Q1'04-Q4'07 (Binder #2, Tab J)
- Need historical and subsequent dose data plotted, and explanation for the Q4'05 spike which is not referenced in event or inspection reports
- Supplied: ECAN, "SCUBA Excerpts," 15 pages; "Table 3. Summary Table of SCUBA Team Conclusions Related to Meeting NRC Regulatory Expectations for Each of the NRC RIS 2006-13 Safety Culture Components"; Erwin Record Cartoons, Nov. 10, 2009 & Dec. 4, 2007 (Binder #2, Tab K)

9. Flooding Risk:

- Supplied: TVA, Floods on Nolichucky River and North & South Indian Creeks in Vicinity of Erwin, TN, March 1967 - 70 pages (Binder #2, Tab L)
- Need the licensing basis regarding flooding and the design flood basis
- Need probable maximum precipitation projections
- Need analysis of how rain-induced flooding from upgradient areas can impact flooding on NFS site and off-site at its Industrial Park warehouse
- Note: Surface water flooding can impact ground water elevations which can in turn contribute to building instability – e.g., tiles in ladies changing room
- Supplied: ECAN, "Excerpts from EAs/FONSIs regarding Floodplains", 2 pages (Binder #2, Tab M)
- Supplied: "Raging River caused damage to Linear Park", Johnson City Press, 09/17/2004 and "Erwin seeks FEMA funds to repair trail," Johnson City Press, 10/14/04 (Binder #2, Tab N)
- Note that the Linear Trail is across the street from the Industrial Park where NFS stores low-level radioactive waste in its general purpose warehouse

10. Seismic Risk Analysis:

- Supplied: "Tennessee would suffer Great Shakes", Johnson City Press, Nov. 22, 2008. A new federal study predicts Tennessee would see the highest level of damage if a major earthquake were to shake the New Madrid Seismic Zone in the southern and central part of the country. The Federal Emergency Management Agency released the two-year study this week as part of the Catastrophic Earthquake Disaster Response Planning Initiative. Besides Tennessee, the seismic zone includes areas of Alabama, Arkansas, Illinois, Indiana, Kentucky, Mississippi and Missouri (Binder #2, Tab O)
- Supplied: NRC, Report to Congress on Abnormal Occurrences Fiscal Year 1998, ML072470275, pages 1-2 (Binder #2, Tab P)
- Need seismic risk to NFS's UF6 operations relative to risk to UF6 operations in Paducah, Kentucky
- Note: Seismic risk analysis is even required by NRC for LEU, so should certainly be a requirement for HEU
- Note: Appalachian Tectonic Belt referenced on page 3-11, 1999 NRC EA as follows: "The Erwin Plant is located in the Appalachian Tectonic Belt, an area of moderate seismic risk. The site is in an area classified by the 1994 Uniform Building Code as seismic hazard zone 2, which means moderate damage could occur to the buildings if there were an earthquake.
- Note: Unicoi County Emergency Plan: Area has four major fault systems; NFS is in three. NFS is situated on top of five fractures and two fault lines. The regional geologic structure of the area is dominated by four major fault systems. NFS is located within three (3) earthquake zones, the Appalachian Tectonic Belt and the New Madrid Seismic Zone, the most seismically active area east of the Rocky Mountains. In 1993, an additional seismic zone was identified in East Tennessee running roughly parallel to Interstate 75 between Chattanooga and Jellico. The risk associated with this seismic area has not been rigorously quantified. Unicoi County is at moderate risk of being affected by a large New Madrid earthquake. The strongest earthquake recorded in East Tennessee

was a 4.6 event in Blount County in 1973 and was widely felt. The most recent earthquake above MMI IV (magnitude 3.9) occurred Oct. 26, 1995 about 50 miles from the NFS site. There is concern a large magnitude event grows more probable with each passing year. Such an event could directly affect more than 75% of the county's population, primarily through a disruption of pipelines, as well as damage to older masonry structures. (p. 3-11, Figure 3.3, 1999 NRC EA; Unicoi County Emergency Plan, 4/07/06, p. xiii).

- Note: Former employees concerned with liquefaction, and block mites; old lunchroom building crumbled when it was taken down
- Need ages of all the buildings and risks associated with functions in those buildings

11. Demographics:

- Note: Close proximity of Maximally Exposed Offsite Individual (MEOI) -- Schools, Shopping Areas, Hospital, Nursing Homes, City/County Government Offices and Public Safety Office.
- Note: Markey Hearing file states that "The NRC's own staff has singled out the plant for its unique dangers for accidental exposure to nearby residents," (1986 Congressional Hearings)
- Supplied: NRC letter to Mayors stating that "the population risk of 1 chance in 71 translates to an individual risk of 1 chance in 85 million; Cartoon, Erwin Record, April 1, 2008; "Explanations add up to big fat zero", Erwin Record, March 25, 2008 (Binder #2, Tab Q)
- Need derivation of the 1 in 85 million calculation
- Need population data for 50-mile radius around Erwin

12. Terrorism and Intentional Destructive Acts:

- Supplied: GAO Letter to Rep. Shays, Sept. 11, 2007 re "Nuclear Security: DOE and NRC Have Different Security Requirements for Protecting Weapons-Grade Material from Terrorist Attacks" (Binder #2, Tab R)
- Note: Aircraft Impact Rule should be applied to Cat. 1 facilities as well as reactors.
- Note: 9th Circuit Court of Appeals ruling should also be applied to Cat. 1 fuel facilities
- Supplied: Greeneville Sun, June 1, 2005 article on POGO report; "NRC plans second on-site inspector for NFS", Elizabethton Star, Feb. 6, 2004; "Chase suspects held without bond", Citizen-Times, May 10, 2004; (Binder #2, Tab S)
- Note: Project on Government Oversight estimates the cost of bringing NFS security force up to DOE standards "at least $180 million" over three years
- Note: Media reports on men of "middle eastern" appearance who had been in Erwin on Sept. 11, 2001 and who left hurriedly.
- Need quantification of impact of terrorist or intentional destructive act on workers and public

13. Decommissioning:

- Supplied: GAO, NRC's Decommissioning Procedures and Criteria Need to Be Strengthened, May 1989 (ML070800431) (Binder #2, Tab T)
- Need proof and verification in writing that plans, funds, and deadlines are in place and adequate to cover the complete decommissioning of NFS.

- Note: From 1986 Congressional Hearings: "The company considers information on its decommissioning fund and on estimated costs to be proprietary. The NRC has supported this preposterous claim, which means that the citizens and elected officials of Tennessee do not know that the NFS fund is woefully inadequate to do the job."

14. Material Control and Accountability/Loose Nukes:

- Need quantification of health, safety & national security impacts all of the lost and unaccounted for material over the years and to date.
- Note: Former workers have estimate that at least 400 pounds of HEU have been lost, stolen or were otherwise unaccounted for over past 20 years of NFS operations
- Note: ATSDR comments provide support for worker estimates
- Supplied: NRC, Enforcement Actions: Significant Actions Resolved, Material Licensees, July-Dec. 1999 (ML003729792) – "unauthorized removal of seven grams of Uranium - 235 contained in high enriched uranium"; NRC, Report to Congress on Abnormal Occurrences Fiscal Year 2002, April 2003 (ML030970356), pages 30-33 and ML030870474 Voting Records re "Accountability Failure at Nuclear Fuel Services" (Binder #2, Tab U)
- Supplied: Hilgartner et al, Nukespeak, Chapter 15, 4 pages (Binder #2, Tab V)
- Supplied: "Table 9.1 License History" (Binder #2, Tab W)
- Note: Over the course of 10 years, NFS was granted 12 license amendments for extensions of the deadlines for conducting physical inventories of SNM or for performing receipt measurements.

15. Fires/Explosions:

- Need analysis of impact of worst-case scenarios such as hydrogen and chemical explosions, a fire in Warehouse 310, a rail car explosion near NFS
- Supplied: Event Report FC960215 on April 2, 1996 Incinerator Fire; Event Report FC940839 on 10/11/1995 (Binder #2, Tab XYZ)
- Note: AIT report and Markey Hearings discuss 1983 fire. If corrective actions had been taken following the 1983 fire, NFS might have prevented the 1996 incinerator fire. See ECAN summary "Known Safety Issues" for other fires and explosions.
- Note: Major previous fires occurred in 1983, 1992 & 1993 when a fire occurred on top of the plutonium building
- Need quantification of cumulative impacts to workers and public of all fires and explosions

16. Studsvik/Aerojet:

- Note: Studsvik is located on property owned by NFS, and that NFS is a part owner of Studsvik;
- Supplied: "Studsvik Interim Report", January-September 2009; Studsvik Event Number 36970 & 38018; Cartoons (Binder #2, Tab A-1)
- Need history of Studsvik operations, sources and types of waste processed, radiation levels of inputs and outputs, what they do, who regulates them, what materials or processes are regulated, and how often TDEC, TOSHA, or RadHealth inspect Studsvik

- Need history of Aerojet's operations, sources of DU, exposures to workers and public, materials or processes regulated, and how often TDEC, TOSHA or RadHealth inspect Aerojet
- Need assessment of cumulative impacts of Studsvik's and Aerojet's operations, and how they compound impacts of NFS operations must be included with NFS

17. TDEC (Tennessee Dept. of Environment and Conservation):

- Need explanation of TDEC's role and responsibilities at NFS, Studsvik and Aerojet
- Supplied: TDEC letter to Wanda Kelley, March 4, 2009 (Binder #2, Tab B-1)
- Need list of chemicals regulated by TDEC and those regulated by NRC
- Need unannounced, unscheduled, random water & air testing as well as inspections

18. Environmental Justice/Government Secrecy

- Note tone of articles on "Atomic Appalachia", with government and the nuclear industry both taking advantage of low socio-economic, rural, Appalachian people
- Supplied: "Nuclear Plant Leaks Waste, Raises Fear on Cancer Rate", Atlanta Journal and Constitution (AJC), April 30, 1978; "Is Erwin an atomic Love Canal?," Kingsport Times-News, Jan. 22, 1981; "A big job for a little town", The Progressive, April 1981; "Little progress made at nuclear plant", AJC, Nov. 29, 1981; "Erwin N-fuel plant called 'nightmare'", Knoxville News-Sentinel, Sept. 18, 1986; "Nuclear fuel plant in unlikely place", The Oak Ridger, Feb. 14, 2000; LEAK! Cartoon, Kingsport News, Aug. 29, 2007 (Binder #2, Tab C-1)