Nuclear Fuel Services, Inc.
P.O. Box 337, MS 123
Erwin, TN 37650

(423) 743-9141

E-Mail :http://www.atnfs.com

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

21G-04-0021
GOV-01-55-04
ACF-04-0031

February 6, 2004

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) Letter from B.M. Moore to NRC, License Amendment Request for the Oxide Conversion Building and Effluent Processing Building at the BLEU Complex, dated October 23, 2003 (21G-03-0277)
3) NRC Licensing Review to Support License Amendment Request for Oxide Conversion Building and Effluent Processing Building, conducted on January 20, 2004

Subject: Commitment Letter to Address NRC Licensing Review Questions Pertaining to Instrumentation & Controls at the OCB and EPB

Dear Sir:

Nuclear Fuel Services, Inc. (NFS) hereby submits responses to questions raised during the referenced licensing review conducted in Rockville, Maryland. As noted in the attached responses, the Integrated Safety Analysis (ISA) Summary for the Oxide Conversion Building (OCB) and Effluent Processing Building (EPB) will be updated to support completion of this licensing review. As such, this submittal contains commitments that shall be incorporated in the ISA Summary for the OCB and EPB located at the BLEU Complex.

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-04-0021) in any correspondence concerning this letter.

NMSS01

Sincerely,

NUCLEAR FUEL SERVICES, INC.

B Marie Moore

B. Marie Moore
Vice President
Safety and Regulatory

JSK/lsn
Attachment

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

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

Mr. Dan Rich
Senior Resident Inspector
U.S. Nuclear Regulatory Commission

Attachment

NFS Response to NRC Licensing Review Questions Regarding Instrumentation & Control

NFS Response to NRC Licensing Review Questions Regarding Instrumentation & Control

Item: 01

NRC:

Sections 2.5, 2.9 and 2.10 of the OCB ISA Summary provide a brief discussion of the BLEU Complex electrical system. Provide a more detailed description of the electrical system for the OCB similar in level of detail to that provided in Section 2.3 of the BPF ISA Summary.

This information is required per 10 CFR 70.65(b).

FANP/NFS RESPONSE:

FANP/NFS will replace the electrical Section 2.5 of the OCB ISA Summary with the following:

Electrical

Electrical power is supplied to the site by Erwin Utilities from the Tennessee Valley Authority. Erwin Utilities is municipally owned and operated and has a single electrical substation approximately one mile northwest of the BLEU Complex. There is an electrical transformer (1000kVa) on the BLEU Complex grounds which is owned by Erwin Utilities. Utility power distribution to the transformer is owned and maintained by Erwin Utilities. Power is distributed throughout the BLEU Complex via underground cables to the electrical rooms.

Electrical power for the BLEU Complex is provided from the transformer and is distributed to the UNB electrical room and the OCB electrical room. Within each electrical room there is a main switchgear that distributes the load throughout the facility. Primary distribution will be accomplished through the MCC. Secondary distribution beyond the MCC will consist of step down transformers and distribution panels to provide the required voltage levels. Cable runs will utilize conduit runs and wireways. Control signal conductors will be separated from power system conductors to reduce electromagnetic interference (EMI).

Back-up Power

The site back-up power is available from two automatic transfer switches (ATS) and a single back-up generator. The UNB and OCB electrical rooms contain an ATS. The backup diesel generator is located outside the UNB electrical room. Both electrical rooms house an uninterruptible power supply (UPS) as well. If either automatic transfer switch detects the loss of utility power, a start signal is sent to the generator. When the appropriate voltage output is reached on the generator, then the back-up loads for the facility are transferred to generator power. The loads are automatically transferred back

after utility power has been restored for a predetermined time. The automatic transfer switch then allows the generator to operate for a predetermined cool-down period prior to shutdown. The UPS provides continuous power for certain key systems (such as the central control system (CCS)), whose loads are supplied through the UPS 100% of the time. The automatic switchover and UPS features help ensure continuous criticality detection and other surveillance during the absence of commercial power.

The OCB UPS is rated at 15kVa with battery backup and a 400kVa, 3phase, 480Vac diesel-driven generator.

Item: 02

NRC:

On the bottom of Page 343 and the top of Page 344 of the ISA Summary, a discussion pertaining to 10 CFR 70.64(a)(4), "Environmental and Dynamic Effects," is provided. Expand this discussion to include information similar to that provided in the NFS response dated November 5, 2003, for the staff's Question 50.

This information is required to determine if IROFS are adequate such that they meet the performance requirements of 10 CFR 70.61 and the requirements of 10 CFR 70.64(a)(4).

FANP/NFS RESPONSE:

Periodic testing, inspection and maintenance of IROFS will insure availability and operability.

FANP/NFS will replace Section 6.2, "Environmental and Dynamic Effects" with the following.

The BLEU Complex facilities and equipment are designed to minimize problems from variations (both normal and from credible upsets) in the ambient and process conditions under which the IROFS equipment is expected to operate. Consideration in the design of the facility and equipment is given to the following to prevent loss of safety functions:

- *Protection of piping and vessels from vehicles and forklifts.*
- *Protection of fittings from external impact.*
- *Corrosion protection.*
- *Vibration from pumps/fans etc.*
- *Water discharge from sprinkler systems (or other splash).*
- *Weather*
- *Other facility siting factors including the railway, air traffic patterns, and nearby commercial facilities.*

As such, IROFS will be qualified to demonstrate that they can perform their safety functions under the environmental and dynamic service conditions in which they will be required to function and for the length of time their function is required.

Specific requirements for each IROFS will be contained in the ISA file.

FANP/NFS gave appropriate consideration to the purchase of equipment and instruments by a determination of applicability and specifying proper sizing and materials of construction. Periodic testing, inspection, and maintenance of IROFS will insure availability and operability.

Item:03

NRC:

On Page 327, OBS-16, "Blender pressure indication warns operator of upset condition," is listed as an administrative control. Correct the ISA Summary to list these as "Enhanced Administrative Controls." Also discuss the use of "enhanced" for the Radiation Protection Program monitoring and instruments listed as administrative controls on Page 61.

This information is required to determine if these components (when and if used as IROFS) are adequate such that they meet the performance requirements of 10 CFR 70.61.

FANP/NFS RESPONSE:

NUREG-1520 defines "Augmented (Enhanced) Administrative Control" as "A procedurally required or prohibited human action, combined with a physical device that alerts the operator that the action is needed to maintain safe process conditions, or otherwise adds substantial assurance of the required human performance". (It should be noted that NUREG-1520 lists the definition of "Augmented Administrative Control", but uses the term "Enhanced Administrative Control" in the remainder of the document. The term "Enhanced Administrative Control" is used throughout the ISA Summary.

[redacted]n Page 327 Type will be changed to an "Enhanced Administrative Control".

"Enhanced" will be removed from the "Radiation Protection Program monitoring and instruments" on Page 61. This is not an "enhanced" administrative control. The instrumentation does not alert the operator that an action is needed, it only provides feedback after the administrative action has been completed.

Item:04

NRC:

Throughout Section 3 of the ISA Summary, filters, scrubbers, heaters, and blowers such as the HEPA filters and the Process Exhaust Ventilation Scrubber listed on Page 61 and the vacuum-pressure system blower listed on Page 74 are included under "Active Engineered Controls." Also the Compressed Air Dryer System is listed on Page 326 as an active engineered control. Discuss whether or not these controls rely on electrical power to perform their safety functions. If appropriate, revise the discussion of utility services provided on Page 347 of the ISA Summary.

This information is required to determine if these components (when and if used as IROFS) are adequate such that they meet the performance requirements of 10 CFR 70.61.

FANP/NFS RESPONSE:

The Passive Engineered Controls, Active Engineered Controls and Administrative Controls listed throughout Section 3 are provided to give an overall scope of controls, including "defense in depth". The required IROFS are listed in Table 6-1, "IROFS for OCB and EPB". However, FANP/NFS will revise the Passive Engineered, Active Engineered and Administrative Controls of Section 3 so that all IROFS are clearly labeled to differentiate them from "defense in depth". In addition, the different control levels will follow the definitions set forth in NUREG-1520.

The following two IROFS definitions will be changed to better show how their safety functions do not rely on electrical power or other utilities.

Compressed Air Dryer System

Existing IROFS OBS-11

IROFS ID #	Safety Function Description	Failure Description
[redacted]	Compressed air dryer system - removes residual moisture in compressed air supply - prevents water ingress into the moderation controlled area (hygrometer detects moisture in airline, and switches over to alternate desiccant vessel).	Water enters moderation controlled area due to compressed air dryer system failure

Revised IROFS OBS-11

IROFS ID #	Safety Function Description	Failure Description
[redacted]	Compressed air supply valve interlocked closed if high moisture is detected.	Interlock fails to close compressed air supply valve on high moisture condition.

Vacuum-pressure System Blower

Existing IROFS HYD-5

IROFS ID #	Safety Function Description	Failure Description
[redacted]	Vacuum-pressure system blower	Vacuum-pressure system blower fails to maintain negative pressure on system

Revised IROFS HYD-5

IROFS ID #	Safety Function Description	Failure Description
[redacted]	Hydrogen supply valve interlocked closed if loss of calciner negative is detected, preventing build up of explosive atmosphere in equipment.	Interlock fails to close hydrogen supply valve on loss of calciner negative condition for greater than TBD time period.

The revised IROFS descriptions highlight how the OCB and EPB IROFS are designed to fail-safe on loss of utilities (power, compressed air, etc.) on both a plantwide and/or local area failure.

Item:05

NRC:

On Page 64 of the ISA Summary, low wattage heaters are listed as active engineered controls. On Page 78, low wattage heaters are listed as passive engineered controls. Discuss this possible conflict.

This information is required to determine if these components (when and if used as IROFS) are adequate such that they meet the performance requirements of 10 CFR 70.61.

FANP/NFS RESPONSE:

Low wattage heaters shall be removed from the active engineered controls section of Page 64 of the ISA Summary. Low wattage heaters are passive engineered controls, due to their inherent power limiting capabilities that physically prevent them from generating enough heat to cause a significant safety condition.

Item:06

NRC:

At the bottom of Page 89 of the ISA Summary, an administrative control is listed involving an operator maintaining the blender arm in motion or dry nitrogen purge. Describe in detail how an operator performs this function.

This information is required to determine if these actions (when and if used as IROFS) are adequate such that they meet the performance requirements of 10 CFR 70.61.

FANP/NFS RESPONSE:

The operator will initiate the nitrogen purge when the blender contains more than [redacted] kg of oxide powder ([redacted]). As a back-up if the nitrogen purge fails, the operator will start the blender operation. This Administrative Control shall be performed by a trained operator as part of a routine task. (Protection Index = -2, ISA Summary Table 5-5). In addition, once the operator initiates the blender operation and/or nitrogen purge in the CCS, then a failure of either operation will result in an alarm condition.

Item:07

NRC:

On Pages 165 and 167 of the ISA Summary, periodic inspections are listed under "Administrative Controls." Discuss why these inspections are specifically listed as administrative controls instead of being included as management measures as typical for periodic inspections/surveillances.

This information is required to determine if these controls (when and if used as IROFS) and applied management measures are adequate such that they meet the performance requirements of 10 CFR 70.61.

FANP/NFS RESPONSE:

Periodic inspections shall be removed from the "Administrative Controls" section. Periodic inspections/surveillances are listed in section 4.4 "Management Measures for IROFS" of the ISA Summary.

Item:08

NRC:

Under Item 49.1.2.1 on Page 300 of the ISA Summary, "enhanced administrative control – system valve lineup" is listed as an IROFS. Describe this IROFS and its classification as an enhanced administrative control.

This information is required to determine if this IROFS is adequate such that it meets the performance requirements of 10 CFR 70.61.

FANP/NFS RESPONSE:

This IROFS will be revised and designated as a passive engineered control. The IROFS safety function (preventing dead-heading of pump and subsequent overheating) is provided by ensuring that there is always a recirculation path open on the discharge of the pump. This path is provided by the recirculation piping and the manual valves that are maintained in an open position during operation and shutdown conditions. The only need to close the valves will be for isolation during non-routine maintenance. Management measures such as a seal device on the valves, maintenance procedures, and startup after maintenance instructions are applied to make sure this passive-control IROFS is available and reliable. This same philosophy will be applied to all the pumps where dead-head prevention is required (generally the ammonium nitrate pumps).

Item:09

NRC:

The third paragraph on Page 314 of the ISA Summary appears to reference the wrong tables. Correct this apparent error.

This is an editorial comment.

FANP/NFS RESPONSE:

The third paragraph on Page 314 of the ISA Summary will be changed to reference "Table 5-5" instead of "Table 5-4".

As addressed during the licensing review for the BPF (See NFS response to Request for Additional Information Question 49, dated November 5, 2003 (21G-03-0288)), the Effectiveness of Protection Index is an index assigned to:

1. Qualitatively envelop the protection afforded by an IROFS to prevent or mitigate an accident sequence with the required management measures applied ensuring the IROFS is reliable and available to perform its function upon demand.

2. Qualitatively envelop the protection afforded by an IROFS to prevent or mitigate an accident sequence with the required management measures applied while establishing the vulnerability of the IROFS to an intermediate consequence or the failure of a second IROFS in a high consequence event.

Item:10

NRC:

The question was asked on the details of operator responses to alarm conditions specified as Enhanced Administrative controls. Specifically, the documentation and training required to perform these functions.

Verbal question.

FANP/NFS RESPONSE:

The management measures for the different control types (Active Engineered, Passive Engineered, Administrative and Enhanced Administrative) are documented in Table 4-14 of the ISA Summary.

Item:11

NRC:

Describe how the central control system (CCS) monitors and controls the behavior of IROFS.

Verbal question.

FANP/NFS RESPONSE:

Active engineered controls (both IROFS and "defense in depth") are monitored by feedback signals such as valve limit switches, motor contactors, pressure loops, etc. These feedback signals are monitored by the CCS to ensure that they are in their commanded and safe operating positions, and that communication with the devices has not been lost. An alarm condition (due to process upset, equipment malfunction, loss of power, etc), or loss of communication with a device that is part of an IROFS will result in that IROFS safety function being executed.