November 19, 2009

Ms. Julie Olivier, Licensing Manager
GE Hitachi Global Laser Enrichment
P.O. Box 780
3901 Castle Hayne Road
Wilmington, NC 28402

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION – GENERAL ELECTRIC-HITACHI GLOBAL LASER ENRICHMENT LICENSE APPLICATION

Dear Ms. Olivier:

We have completed our initial review on the safety and security areas of your license application for a laser-based uranium enrichment facility proposed to be located in Wilmington, North Carolina. Your application was transmitted to us on June 26, 2009. Our review has identified that additional information is needed before the staff can take final action on your license application.

The enclosed Request for Additional Information (RAI) addresses the license application only. The RAI does not address the environmental review, which is addressed in two separate letters, dated October 7, 2009.

The enclosed RAI includes publically available comments. A separate letter is being transmitted covering security-related comments and proprietary information. A third separate letter is being transmitted covering comments on the Integrated Safety Analysis Summary containing Export Controlled Information.

In accordance with Title 10 of the *Code of Federal Regulations* 2.390 of the U.S. Nuclear Regulatory Commission's (NRC) "Rules of Practice," a copy of this letter will be available electronically in the public electronic reading room of the NRC's Agency-Wide Document Access and Management System (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/reading-rm/ADAMS.html

Please provide the requested information within 40 days of the date of this letter.

If you have any questions, please contact Mr. Timothy C. Johnson at (301) 492-3121, or via e-mail at Timothy.Johnson@nrc.gov.

Sincerely,

/RA/ Timothy Johnson for

Brian W. Smith, Chief
Fuel Facility Licensing Directorate
Uranium Enrichment Branch
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Material Safety
and Safeguards

Enclosure: Requests for Additional Informtion

Docket No.: 70-7016

cc:
William Szymanski/DOE
Patricia Campbell/GEH
Robert Brown/GEH
Tammy Orr/GEH
Mike Giles/CFC
Tom Clements/FOTE
David Springer/CFRW
Stephen Rynas/NCDENR
Jennifer Braswell/New Hanover County
Christopher O'Keefe/New Hanover County
Lafayette Atkinson/NCOSH
Bruce Shell/New Hanover County
Marty Lawing/Brunswick County
George Brown/Pender County
Bill Saffo/Wilmington
Malissa Talbert/Wilmington
Wanda Lagoe/NCOSH
Cameron Weaver/NCDENR
Emily Hughes/USACE
Lee Cox/NCDENR
David Weaver/New Hanover County
Albert Kennedy/GEH

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SFleger/RES	JBongara/NRR	SPeters/RES	JDavis/FSME
Hearing file	GEH website – NO		

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OFC	**UEB**		**UEB**		**OGC**		**UEB**	
NAME	TJohnson		THristopoiulos		CSafford by email		BSmith	
DATE	11/ 04 /09		11/19/09		11/ 12 /09		11/19/09	

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Request for Additional Information
General Electric-Hitachi License Application

General Information (Chapter 1)

GI-1 General

Clarify the enrichment level the applicant intends to produce at the facility.

Recent discussions with the applicant suggest that the enrichment level may be changed. The enrichment level of the facility is needed to ensure that adequate nuclear criticality safety provisions are in place.

The regulations in Title 10 of the *Code of Federal Regulations* (10 CFR) 70.22(a)(2) requires that the license application describe the activity in which Special Nuclear Material (SNM) will be produced.

GI-2 Section 1.1.2.1.1

Clarify whether or not SNM will be used in the cylinder shipping and receiving area.

Section 1.1.2.1.1 of the License Application (LA), states that this area will provide interim storage of product, feed, and sample/blend cylinders. At the end of this section, it only states that source material is used in this area, however, SNM should also be identified.

Regulations in 10 CFR 70.22(a)(2) require the license application to describe how SNM is to be used.

GI-3 Section 1.1.2.1.2

Explain why Section 1.1.2.1.2 states that SNM is used in the Feed and Vaporization area.

Section 1.1.2.1.2 states that both source and SNM will be used in the Feed and Vaporization Area. However, the use of SMN in this area would not normally be expected.

Regulations in 10 CFR 70.22(a)(2) require the license application to describe how SNM is to be used.

GI-4 Section 1.1.2.1.3

Identify the appropriate cylinders for enriched product for U-235 assays between 5 and 8 percent.

In the fourth bullet on p. 1-9, General Electric-Hitachi (GEH) Global Laser Enrichment states it will fill 30- and 48-inch cylinders with up to 8 percent enriched uranium. Note that 30- and 48-inch cylinders have enrichment limits between 1 and 5 percent depending on the cylinder type and its use and would be unacceptable for U-235 assays above those limits.

Regulations in 10 CFR 70.22(a)(7) and (8) require the applicant to describe the equipment, facilities, and procedures that will be used to protect health and minimize danger to life and property.

GI-5 Section 1.1.2.2.3 and Section 1.5

GEH states that the tails cylinder pad will have a 9000 cylinder capacity to accommodate ten years of facility operation. Based on this limit, staff will condition any license that may be issued to limit on-site storage to this limit.

Regulations in 10 CFR 70.22(a)(7) and (8) require the applicant to describe the equipment, facilities, and procedures that will be used to protect health and minimize danger to life and property.

GI-6 Section 1.1.4.1 and Table 1-1

State if mixed Resource Conservation and Recovery Act hazardous and low-level radioactive wastes are expected to be generated, provide an estimate of the volume of waste expected, and state how these wastes will be managed. State if all low-level radioactive wastes are expected to be Class A.

Regulations in 10 CFR 70.22(a)(7) and (8) require the applicant to describe the equipment, facilities, and procedures that will be used to protect health and minimize danger to life and property.

GI-7 Section 1.1.4.2 and Section 1.1.6

State where and for what liquid waste streams analyses will be made to ensure that liquid effluents meet the release requirements in 10 CFR Part 20 and National Pollution Discharge Elimination System (NPDES) release requirements. State if the effluents from the Radioactive Liquid Effluent Treatment System are monitored to demonstrate compliance with 10 CFR Part 20 liquid effluent release limits before releasing them to the Final Process Lagoon Treatment Facility. State what monitoring will be performed on gaseous effluents to meet 10 CFR Part 20 and the U.S. Environmental Protection Agency National Emission Standards for Hazardous Air Pollutants (NESHAPS) airborne release limits.

Sections 1.1.4.2 and 1.1.6 provide brief discussions of liquid and gaseous waste streams that will be generated at the facility, but do not mention how and where it will be demonstrated that the release limits in 10 CFR Part 20, NPDES, and NESHAPS standards will be met.

Regulations in 10 CFR 70.22(a)(7) and (8) require the applicant to describe the equipment, facilities, and procedures that will be used to protect health and minimize danger to life and property.

GI-8 Section 1.1.7

Provide data on the expected levels of trace impurities or contaminants in feed and product materials or provide references to specific American Society of Testing and Materials standards for feed and product materials.

Regulations in 10 CFR 70.22(a)(7) and (8) require the applicant to describe the equipment, facilities, and procedures that will be used to protect health and minimize danger to life and property. Guidance in NUREG-1520, "Standard Review Plan for the Review of a License Application for a Fuel Cycle Facility," Section 1.1.4.3(4), requests information on trace impurities and contaminants in materials used and produced by the facility.

GI-9 Section 1.2.1.2

Provide the States in which GEH Nuclear Energy Holdings and General Electric (GE) Company are chartered. Information in Section 1.2.1.2 contains the name of the State in which parents of GEH are chartered. However, the name of the State in which these corporations are chartered was not provided.

Regulations in 10 CFR 40.31 and 10 CFR 70.32 require that each application for a license include information on the identity of the applicant.

GI-10 Section 1.2.2.1

Provide more detail describing the construction phases to include identifying the facilities and equipment that will be needed for each specific, planned construction phase. In the Integrated Safety Analysis (ISA) Summary, include any accident sequences that may be created because of ongoing construction activities that take place concurrently with operations.

The licensing basis documents, as currently written, describe a facility assuming that full operation will begin at the completion of construction. The licensing basis documents need to specifically define the facilities and equipment, applicable to the individual construction phases, so that the U.S. Nuclear Regulatory Commission (NRC) can verify that construction has been performed in accordance with the license.

Under 10 CFR 40.41(g) and 70.32(k), NRC must conduct a construction inspection before operations can begin to ensure that the facility has been constructed in accordance with the license.

The regulations in 10 CFR 70.65(b)(4) require the ISA Summary to contain information that demonstrate compliance with the requirements in 10 CFR 70.61 and 70.64.

GI-11 Section 1.2.2.2

Provide the proposed financial plan for the construction and operation of the facility (i.e., if known, the proposed actual percentages of debt and equity to be used in the financing of the project, and a brief statement on any long-term contracts or commitments in place or under negotiation).

Section 1.2.2.2 provides general project funding commitments, but does not include current detailed financial plan information.

The regulations in 10 CFR 70.22(a)(8) require financial qualifications of the applicant, "Where the nature of the proposed activities is such as to require consideration of the applicant's financial qualifications to engage in the proposed activities in accordance with the regulations in this chapter, the Commission may request the applicant to submit information with respect to his financial qualifications."

GI-12 Section 1.2.2.4

American Nuclear Insurers (ANI) currently provides $200 million in coverage for the GE fuel fabrication facility. We understand that this insurance policy of $200 million is all inclusive and covers the entire GE site encompassing both the fuel fabrication facility and the proposed uranium enrichment facility, which are on the same site. The existing GE fuel fabrication facility insurance is sufficient to fulfill NRC regulations. Provide written confirmation of the existing ANI issued insurance policy and its applicability to the proposed uranium enrichment facility for the staff to complete its review.

Section 1.2.2.4 states that nuclear liability insurance will take effect upon the receipt at the GEH facility of source material or SNM. Until such time, GEH will rely on the liability coverage of its parent companies assuming this liability is not to exceed $1 million during the construction period. Self-insurance of standard liability is a standing policy for the three parent organizations, and give the limited materiality ($1M), GEH will utilize the parent organization as back-stops if necessary in lieu of a specific insurance policy.

The regulations in 10 CFR 140.13(b) state that each holder of a license issued under Parts 40 or 70 of this chapter for a uranium enrichment facility that involves the use of source material or special nuclear material is required to have and maintain liability insurance. The liability insurance must be the type and in the amounts the Commission considers appropriate to cover liability claims arising out of any occurrence within the United States (US) that causes, within or outside the US, bodily injury, sickness, disease, death, loss of or damage to property, or loss of use of property arising out of or resulting from the radioactive, toxic, explosive, or other hazardous properties of chemical compounds containing source material or special nuclear material. Proof of liability insurance must be filed with the Commission as required by 10 CFR 140.15 before issuance of a license for a uranium enrichment facility under parts 40 and 70 of this chapter.

GI-13 Section 1.2.3

Provide information on any technium-99 (Tc-99) and transuranics that might be possessed as a result of feed, product, or tails cylinders that may have been contaminated by historical use of recycled materials at other facilities and provide materials specifications for feed and product materials to ensure that contamination levels are met.

The regulations in 10 CFR 30.32 and 10 CFR 40.31 require each application for a license to include the name, chemical and physical form, and maximum amount of licensed material that will be possessed.

GI-14 Section 1.2.5.3

Provide clarification on the commitment to provide full financial assurance for facility decommissioning at start-up.

In Section 1.2.5.3, GEH indicated that it would provide full financial assurance for facility decommissioning at start-up, but did not specifically state if start-up refers to the time that the licensee would take possession of licensed material. Because decommissioning obligation would begin at the time the licensee takes possession of licensed material, final, executed decommissioning financial assurance instruments need to be provided

prior to taking possession of licensed material. In addition, the applicant needs to clarify if full financial assurance for facility decommissioning refers to the full 6-million Separative Work Unit capacity of the facility.

Under 10 CFR 40.36 and 10 CFR 70.25, an applicant for a uranium enrichment facility must provide a decommissioning funding plan for providing financial assurance for decommissioning.

GI-15 Section 1.3.1.2; Integrated Safety Analysis Summary Sections 2.1.2 and 2.5.2

Provide the flood-level estimate corresponding to a flood hazard with an annual probability of 10^{-4} for the facility site. Either show that the facility is designed to withstand a flood with an annual probability equal to or smaller than 10^{-4}, or show that the consequences of the flood-induced accident sequence satisfy requirements in 10 CFR 70.61(c).

The applicant excluded flooding as a potential external hazard from further consideration for facility design and from the integrated safety analysis (ISA) for the proposed facility because the proposed facility will be located above the 100- and 500-year flood plains for the region. ISA Summary Table 4.16-1 indicates that natural phenomena causing facility flooding may have intermediate consequences. Consequently, the applicant should either demonstrate that the flood-induced accident event is unlikely (the applicant defines "unlikely" as an event with an annual probability between 1.0×10^{-4} and 1.0×10^{-5}) or that the consequences are within the limits stipulated in 10 CFR 70.61(c). Using the basis that the proposed facility is above the 500-year flood plain alone is not sufficient to exclude the potential flood hazard, because the 500-year flood is a likely, not an unlikely, event based on the applicant's definition.

The regulations in 10 CFR 70.64(a)(2) require the applicant to include adequate protection against natural phenomena in its design of the facility, and 10 CFR 70.62(c)(iv) requires the applicant to conduct and maintain an integrated safety analysis (ISA) that identifies potential accident sequences caused by credible external events. In addition, 10 CFR 70.61(c) requires the applicant to demonstrate an intermediate consequence accident event is either unlikely or its consequences are within acceptable limits.

GI-16 Section 1.3.3.3.2 and ISA Summary Section 2.5.7.1

Show that the facility is designed to withstand snow loads from snowfall events with an annual probability of 10^{-5} or smaller or show that the consequences of the snow-load-induced event satisfies 10 CFR 70.61(c).

ISA Summary Table 4.16-1 indicates that snow buildup on the facility roof may have high consequences. The applicant considered the snow-load-induced accident event by including a design basis ground snow load of 1.2 kiloPascals (kPa) (25 pounds per square foot (psf)) for the proposed facility. The applicant suggested that this design basis is sufficient to make the snow-load-induced accident event highly unlikely because the historical ground snow load (0.38 kPa (8 psf)) is substantially smaller than the design basis to be used for the facility design. However, the applicant does not show whether the historical ground snow load corresponds to the 1.0×10^{-5}/year ground snow load. Because the applicant did not characterize the ground snow load with an annual probability of 1.0×10^{-5}, the NRC staff cannot determine whether the design basis

ground snow load the applicant proposed is sufficient to make the ground snow-load-induced accident event highly unlikely.

The regulations in 10 CFR 70.64(a)(2) require the applicant to include adequate protection against natural phenomena in its design of the facility, and 10 CFR 70.62(c)(iv) requires the applicant to conduct and maintain an ISA that identifies potential accident sequences caused by credible external events. In addition, 10 CFR 70.61(b) requires the applicant to demonstrate a high consequence accident event is either highly unlikely or its consequences are within acceptable limits.

GI-17 Section 1.3.3.3.7 and ISA Summary Section 2.5.5

Assess the potential hazard of a Category 5 hurricane to the proposed facility.

Section 1.3.3.3.7 indicated that a Category 5 hurricane passing within approximately 138 kilometers (km) (86 miles (mi)) of New Hanover County is a likely event with a return period of 191 to 250 years. Consequently, the likelihood of a Category 5 hurricane causing facility damage, and if necessary, the potential consequences, should be assessed and documented in the ISA Summary.

The regulations in 10 CFR 70.64(a)(2) require the applicant to include adequate protection against natural phenomena in its design of the facility, and 10 CFR 70.62(c)(iv) requires the applicant to conduct and maintain an ISA that identifies potential accident sequences caused by credible external events. In addition, 10 CFR 70.61(b) requires the applicant to demonstrate a high consequence accident event is either highly unlikely or its consequences are within acceptable limits.

GI-18 Section 1.3.5.1

Provide allowable bearing pressure of soil used in the design and the method to estimate it. Also, provide design basis settlement and differential settlement values used in the structural design including the methods used to determine them.

This information is needed to assess adequacy of facility design.

The regulations in 10 CFR 70.64(a)(2) require the applicant to include adequate protection against natural phenomena in its design of the facility.

GI-19 Section 1.3.5.3

Provide information on soil liquefaction potential at the facility site.

The applicant's LA and ISA Summary did not include information regarding soil liquefaction potential. This information is necessary to assess whether the applicant adequately considered the natural-phenomena-induced accident events.

The regulations in 10 CFR 70.64(a)(2) require the applicant to include adequate protection against natural phenomena in its design of the facility. In addition, 10 CFR 70.62(c)(iv) requires the applicant to conduct and maintain an ISA that identifies potential accident sequences caused by credible external events.

Organization and Administration (Chapter 2)

OA-1 Section 2.1.2

Provide the qualifications of the principal managers for design and construction of the facility.

This section discusses the organizational structure for the design and construction of the facility. However, qualification of the principal managers for design and construction are not provided.

The regulations in 10 CFR 30.33, 10 CFR 40.32, 10 CFR 70.22, 10 CFR 70.23, and 10 CFR 70.62(d) require a management system and administrative procedures for the effective implementation of health, safety, and environment (HS&E) protection functions.

OA-2 Section 2.1.4

Provide a detailed discussion of management transitions during the proposed phased construction and simultaneous operations for multi-year periods.

In Section 1.2.2.1, GEH indicated it would perform construction in phases. However, Section 2.1.4 does not address how the management transitions will be accomplished for each phase of construction.

The regulations in 10 CFR 30.33, 10 CFR 40.32, 10 CFR 70.22, 10 CFR 70.23, and 10 CFR 70.62(d) require a management system and administrative procedures for the effective implementation of HS&E protection functions.

OA-3 Section 2.2.1

Provide the qualifications for the GEH President and Chief Executive Officer (CEO). Clarify what GEH parent company provides direction to the GEH President and CEO.

As stated in Section 2.2.1, the GEH President and CEO is responsible for providing overall direction and management of GEH activities, however, no qualifications for this position are stated. In addition, GEH Nuclear Energy Fuel Cycle Senior Vice President is stated to provide overall direction to the GEH President and CEO, but there are several parent companies named General Electric-Hitachi Nuclear Energy (e.g., General Electric-Hitachi Nuclear Energy Americas and General Electric-Hitachi Nuclear Energy Holdings) and the specific parent company is not completely defined.

The regulations in 10 CFR 30.33, 10 CFR 40.32, 10 CFR 70.22, 10 CFR 70.23, and 10 CFR 70.62(d) require a management system and administrative procedures for the effective implementation of HS&E protection functions.

OA-4 Section 2.2.3

Provide information on any stop-work authority given to the Quality Assurance (QA) Manager.

Section 2.2.3 indicates that the QA Manager has access to the Facility Manager and the authority and responsibility to contact the President and CEO regarding QA issues, but does not specifically address stop-work authority.

The regulations in 10 CFR 30.33, 10 CFR 40.32, 10 CFR 70.22, 10 CFR 70.23, and 10 CFR 70.62(d) require a management system and administrative procedures for the effective implementation of HS&E protection functions.

OA-5 Sections 2.2.4.1 and 2.2.7

Explain how, when the Facility Manager is absent, the Environmental, Health, and Safety (EHS) function will remain administratively independent of Operations.

In Section 2.2.7, the applicant states that the EHS function is administratively independent of the operations function. In Section 2.2.7.1, the applicant states that the EHS Manager reports to the Facility Manager. In Section 2.2.4.1, the applicant states that, in the absence of the Facility Manager, the Operations Manager may assume the responsibilities and authorities of the Facility Manager. It is unclear how the EHS function will remain administratively independent under this condition.

The regulations in 10 CFR 30.33, 10 CFR 40.32, 10 CFR 70.22, 10 CFR 70.23, and 10 CFR 70.62(d) require a management system and administrative procedures for the effective implementation of HS&E protection functions.

OA-6 Section 2.2.7.1

Provide information on the EHS Manager's independence for performing EHS audits, reviews, and control activities; independence to issue stop-work orders; and independence for approving facility changes or activities that require NRC approval.

Section 2.2.7.1 discusses the EHS Manager's responsibilities, but does not address independence for performing EHS audits, reviews, and control activities; for independence to issue stop-work orders; and approving facility changes or activities that require NRC approval.

The regulations in 10 CFR 30.33, 10 CFR 40.32, 10 CFR 70.22, 10 CFR 70.23, and 10 CFR 70.62(d) require a management system and administrative procedures for the effective implementation of HS&E protection functions.

OA-7 Section 2.2.7.5

Provide information on the qualifications of the Licensing Manager.

Section 2.2.7.5 discusses the licensing function within the Environmental, Health, and Safety Organization, but does not provide the qualifications of the Licensing Manager.

The regulations in 10 CFR 30.33, 10 CFR 40.32, 10 CFR 70.22, 10 CFR 70.23, and 10 CFR 70.62(d) require a management system and administrative procedures for the effective implementation of HS&E protection functions.

OA-8 Section 2.2.7.6

Provide information on the organization responsible for ensuring laser safety.

Section 2.2.7.6 describes the responsibilities of the Industrial Safety Manager, but does not discuss the responsibilities for ensuring laser safety.

The regulations in 10 CFR 30.33, 10 CFR 40.32, 10 CFR 70.22, 10 CFR 70.23, and 10 CFR 70.62(d) require a management system and administrative procedures for the effective implementation of HS&E protection functions.

OA-9 Section 2.2.7.8

Provide information on the responsibilities of the Radiation Protection Manager related to training personnel in radiation protection policy and practices.

Section 2.2.7.8 describes the responsibilities of the Radiation Protection Manager, but does not discuss the responsibilities for training personnel in radiation protection policy and practices.

The regulations in 10 CFR 30.33, 10 CFR 40.32, 10 CFR 70.22, 10 CFR 70.23, and 10 CFR 70.62(d) require a management system and administrative procedures for the effective implementation of HS&E protection functions.

Integrated Safety Analysis (Chapter 3)

ISA-1 General

Provide a listing of applicable codes and standards, and any exceptions taken, in the license application.

A commitment to the use of codes and standards is needed to ensure that equipment will be designed to meet appropriate safety requirements. Since the ISA Summary is not a part of the application, commitments to the use of codes and standards is needed in the license application.

Regulations in 10 CFR 70.22(a)(7) and (8) require the applicant to describe the equipment, facilities, and procedures that will be used to protect health and minimize danger to life and property.

ISA-2 Section 3.2.4.3

Revise the license application to clarify the commitment to provide criticality accident alarm system (CAAS) coverage.

Section 3.2.4.3, states that areas where SNM is handled, used, or stored in amounts at or above the 10 CFR 70.24 mass limits have CAAS coverage. This statement is not entirely consistent with the regulatory requirements of 10 CFR 70.24. Regulations in 10 CFR 70.24 require that licensees authorized to possess greater than a critical mass of SNM shall provide CAAS coverage in *each* area where SNM is handled, used, or stored. The license application requests authorization to possess greater than a critical mass of SNM, therefore, an exemption to 10 CFR 70.24 must be requested to exclude areas from CAAS coverage where SNM is handled, used, or stored. Such a request should specify the areas where CAAS coverage may not be provided and justify that the 10 CFR 70.17 requirements for granting an exemption are met.

ISA-3 Section 3.2.5.8

Explain how likelihood index, T, is determined.

Section 3.2.5.8 and Table 3-7 both refer to likelihood index, T. However, no explanation is provided on how it is determined.

Regulations in 10 CFR 70.62(c)(v) require the identification of methods used to determine the consequences and likelihood of potential accident sequences.

ISA-4 Glossary and Sections 3.2.5.3 and 3.2.5.8

Explain how nuclear criticality safety (NCS) controls relate to items relied on for safety (IROFS) and safeguards.

In the Glossary, "Safety Controls" are stated as being IROFS, and, in Section 3.2.5.8, it is stated that safety controls and IROFS are synonymous. In Section 3.2.5.3, it is stated that safeguards are design features or administrative programs that provide defense-in-depth, but are not credited as IROFS. In Chapter 5, "Nuclear Criticality Safety," the applicant refers to safety controls (i.e., NCS controls) and does not use the term "safeguards." This implies that all NCS controls are IROFS. However, it appears that many NCS controls may not be IROFS. This implies that NCS controls can either be IROFS or safeguards, which conflicts with the statements in the license application.

Regulations in 10 CFR 70.61(e) require that each control or control system necessary to comply with the performance requirements of 10 CFR 70.61 be designated as an IROFS.

ISA-5 Section 3.2.6

Revise the license application to indicate that a qualified NCS engineer will be included on the ISA team.

Section 3.2.6, provides a discussion of the ISA team members. It is unclear that the ISA team requires someone with sufficient expertise in NCS to ensure that the ISA will adequately address NCS hazards.

Regulations in 10 CFR 70.62(c)(2) require that the ISA team include people with experience in NCS.

Human Factors

HFE-1 Sections 3.2.5.8 and 6.2.1

Provide a Human Factors Engineering (HFE) program plan that describes the planned activities such as task analysis, staffing analysis, human-system interface (HSI) design, verification and validation, using the element structure in "Human Factors Engineering Program Review Model," NUREG-0711.

Section 6.2.1 states that schemes to ensure safe operation include management measures, such as "procedures, training, human factors." The applicant's letter, dated September 4, 2009, responding to a request for information related to the acceptance

review, states that an insert will be added to Section 3.2.5.8 that states in part that, for IROFS, a HFE review of the HSI shall be conducted using the applicable guidance in "Human System Interface Design Review Guidelines," NUREG-0700, and NUREG-0711.

The regulations in 10 CFR 70.61(e) require a safety program that ensures each IROFS will be available and reliable.

HFE-2 Section 3.2.5.8

Discuss how operating experience will be utilized, whether or not there is a specific predecessor plant.

The applicant's letter, dated September 4, 2009, responding to a request for information related to the acceptance review, states that an insert will be added to Section 3.2.5.8 that states in part that, for IROFS, an HFE review of the HSIs will be conducted using the applicable guidance in NUREG-0700 and NUREG-0711. The Operating Experience Review element of NUREG-0711 focuses on operating experience as a key part of the HSI design process and includes the consideration of human factors issues from similar plants and similar systems within a plant. It also addresses operating experience for planned human factors engineering technology such as operator interfaces.

The regulations in 10 CFR 70.61(e) require a safety program that ensures each IROFS will be available and reliable.

HFE-3 Section 3.2.5.8

Clarify the use of NUREG-0700 and NUREG-0711 for HSI design.

The applicant's letter, dated September 4, 2009, responding to a request for information related to the acceptance review, states that an insert will be added to Section 3.2.5.8 that states in part that, for IROFS, an HFE review of the HSIs will be conducted using the applicable guidance in NUREG-0700 and NUREG-0711. NUREG-0700 is written to provide review guidelines for NRC in reviewing HSIs. In order to meet the acceptance criteria of NUREG-0700/0711, HSI design guidelines or an HSI style guide needs to be provided by the design organization (in this case GEH) to actually perform the HSI design, not just review it. Please discuss your plans in this area.

The regulations in 10 CFR 70.61(e) require a safety program that ensures each IROFS will be available and reliable.

Radiation Protection (Chapter 4)

RP-1 Section 4.1

Commit to 10 CFR Part 30, "Rules of General Applicability to Domestic Licensing of Byproduct Material."

Section 4.7.12 of the application describes the use of National Institute of Standards and Technology (NIST) traceable sources to be used for instrument calibrations. Because byproduct material will be used as calibration sources, it is necessary to comply with the requirements of 10 CFR Part 30.

The regulations in 10 CFR Part 30 apply to the use of byproduct material.

RP-2 Section 4.2

Modify the effluent release principle to state that radiation exposures shall be monitored and the annual average release concentration of radioactive material released in gaseous and liquid effluents at the boundary of the unrestricted area will not exceed the values in Table 2 of Appendix B of 10 CFR Part 20.

In Section 4.2, the applicant committed to an As Low As Reasonably Achievable (ALARA) program, but did not specifically state that it would meet the effluent release requirements in Table 2 of Appendix B to 10 CFR Part 20. In addition, in Section 4.2.1, the applicant committed to using Regulatory Guide 8.37, "ALARA Levels for Effluents from Materials Facilities" (RG 8.37). RG 8.37 recommends that the annual average release concentration of radioactive material released in gaseous and liquid effluents at the boundary of the unrestricted area will not exceed the values in Table 2 of Appendix B of 10 CFR Part 20.

Regulations in 10 CFR 20.1302 require that licensees make or cause to be made appropriate radiation surveys of radioactive effluents in accordance with Table 2 of Appendix B to 10 CFR Part 20.

RP-3 Section 4.2

Specify which GEH facility manager is responsible for the ALARA program.

Section 4.2 does not indicate which GEH manager is responsible for the ALARA program as recommended in Regulatory Guide 8.10, "Operating Philosophy for Maintaining Occupational Radiation Exposures As Low As Reasonably Achievable," which the applicant committed to in Section 4.12.

The regulations in 10 CFR 20.1101(b) require that licensee use, to the extent practicable, procedures and engineered controls to achieve occupational doses and doses to the public that are ALARA.

RP-4 Section 4.5.6

Modify your process for evaluating personnel training to include a practical assessment for certain employees, in addition to a computer-based test.

In Section 4.5.1, the applicant committed to conducting a radiation protection training program consistent with American Society for Testing and Materials (ASTM) ASTM E1168-95, "Standard Guide for Radiological Protection Training for Nuclear Facility Workers." Section 5.4.2 of ASTM E1168 requires that "workers whose radiological protection depends on their effective use of equipment, facilities, or specialized procedures shall be observed by a qualified trainer while using such equipment and shall be individually graded."

Regulations in 10 CFR 19.12 require licensees to provide instructions to workers on radiation safety.

RP-5 Section 4.6.1.1

Provide the codes and standards to be used for design, fabrication, installation, and testing of the ventilation systems.

Section 4.6.1.1 provides a general description of the ventilation systems, but does not describe the codes and standards to be used for system design, fabrication, installation, and testing.

The regulations in 10 CFR 20.1701 require a licensee to utilize engineering controls (e.g., containment, decontamination, or ventilation) to control the concentration of radioactive material in the air.

RP-6 Section 4.6.2.2.3

Specify that determination of medical fitness to use respiratory protection equipment will be made by a physician.

The regulations in 10 CFR 20.1703(c)(5) require that a physician make such a medical determination.

RP-7 Section 4.7.12

Provide additional detail for calibrating radiation instruments (e.g., codes and standards to be used, use of contractor services, etc.).

Section 4.7.12 provides insufficient information on instrument calibration. In Section 4.7, you commit to Regulatory Guide 8.2, "Guide for Administrative Practices in Radiation Monitoring," which refers to American National Standards Institute (ANSI) ANSI N13.2, "Guide for Administrative Practices in Radiation Monitoring." In Section 4.7.2 of ANSI N13.2, the standard states that calibration services can be contracted, or they can be developed in-house. Specify which manner your calibration services will be completed. Consider committing to ANSI N323, "Radiation Protection Instrumentation Test and Calibration."

Regulations in 10 CFR 20.1501(b) require that instruments and equipment used for quantitative radiation measurements be periodically calibrated for the radiation measured.

RP-8 Section 4.7.14

Provide information on sealed source inventory and leak testing procedures.

Section 4.7.14 states that sealed sources will be inventoried periodically and leak tested in accordance with International Standards Organization (ISO) ISO-2919, "Radiation Protection – Sealed Sources – General Requirements and Classification." ISO 2919 does not describe inventory or leak testing procedures.

The regulations in 10 CFR 31.5(c)(2) require that leak tests will be done on 6 month intervals. Leak test recommendations are given in Branch Technical Position, "License Condition for Leak-Testing Byproduct Material Sources," April 1993.

Nuclear Criticality Safety (Chapter 5)

NCS-1 Sections 5.1 and 5.4.2

Clarify how the criticality safety analyses (CSAs) will demonstrate that processes will remain subcritical under normal and credible abnormal conditions. Explain how the ISA process will ensure that NCS IROFS alone (i.e., without reliance upon other NCS controls or controlled parameters) will ensure that processes will remain subcritical under normal and credible abnormal conditions.

Sections 5.1 and 5.4.2 imply that the CSAs will demonstrate compliance with the double contingency principle and that this is the only method GEH will use to demonstrate that processes will remain subcritical under normal and credible abnormal conditions. This suggests that controls identified for double contingency purposes would then be declared as IROFS. It is unclear if this is the intent since it is not clearly stated in the license application.

Regulations in 10 CFR 70.61(d) require that all nuclear processes be subcritical under both normal and credible abnormal conditions. 10 CFR 70.61(e) requires that each control or control system necessary to comply with 10 CFR 70.61(d) be designated as an IROFS.

NCS-2 Section 5.3.5

Commit to maintain a documented evaluation that demonstrates the CAAS meets the requirements of 10 CFR 70.24.

Information is needed to ensure a CAAS is in place that will adequately meet the requirements of 10 CFR 70.24.

Regulations in 10 CFR 70.24 require a CAAS be maintained in each area where SNM is handled, used, or stored for facilities authorized to possess greater than a critical mass of SNM.

NCS-3 Section 5.3.5

Commit to design the CAAS such that it complies with Paragraphs 5.2 and 5.3 of ANSI/ANS-8.3-1997, “Criticality Accident Alarm System,” or provide justification for not doing so.

As this is a new facility, it is expected that the CAAS will be designed to remain operational during a design basis earthquake, fires, and other credible events.

Regulations in 10 CFR 70.24 require that licensees authorized to possess greater than a critical mass of SNM shall provide CAAS coverage in each area where SNM is handled, used, or stored. 10 CFR 70.64(a) requires that the design of the facility protect against natural phenomenon, fire, explosion, environmental, and dynamic effects.

NCS-4 Section 5.4.1.3

Commit to only reject data outliers in the NCS code validation based upon inconsistency of the data with known physical behavior.

Paragraph 6.3.2 of ANSI/ANS-8.24-2007, "Validation of Neutron Transport Methods for Nuclear Criticality Safety Calculations," permits the rejection of data outliers using established statistical rejection methods. The NRC staff position is that the rejection of outliers using statistical methods alone may eliminate an important aspect of the physical system that is important to the validation.

Regulations in 10 CFR 70.61(d) require that all nuclear processes be subcritical under both normal and credible abnormal conditions, including use of an approved margin of subcriticality for safety.

NCS-5 Section 5.4.1.3.2

Revise the license application to include either (1) the additional methods used to determine the bias uncertainty or (2) the criteria for selection of such methods. Explain how it is determined that the use of an additional method is necessary.

Section 5.4.1.3.2 states that the bias uncertainty may be estimated using one of three specified statistical methods or additional methods when necessary. The additional methods are not specified.

Regulations in 10 CFR 70.61(d) require that all nuclear processes be subcritical under both normal and credible abnormal conditions, including use of an approved margin of subcriticality for safety.

NCS-6 Section 5.4.1.4

Revise the license application to include the criteria or methods used to extend the area of applicability.

Section 5.4.1.4 states that any extrapolation beyond the area of applicability should be supported by an established mathematical method or sound engineering judgment.

Regulations in 10 CFR 70.61(d) require that all nuclear processes be subcritical under both normal and credible abnormal conditions, including use of an approved margin of subcriticality for safety.

NCS-7 Section 5.4.4.1

Clarify the criteria for establishing safe mass limits based upon the minimum critical mass.

Section 5.4.4.1, states that a mass limit may be based upon 45 or 75 percent of the minimum critical mass, depending upon the situation. Is the minimum critical mass based upon handbook values? What assumptions regarding other parameters such as geometry, reflection, and chemical form are used?

Regulations in 10 CFR 70.61(d) require that all nuclear processes be subcritical under both normal and credible abnormal conditions, including use of an approved margin of subcriticality for safety.

NCS-8 Section 5.4.4.3

Provide the following information regarding the use of enrichment as an NCS parameter:

a. Describe how the maximum credible enrichment is determined when controls on enrichment are not used;
b. List the areas where enrichment control is credited for NCS purposes; and
c. Specify the enrichment used in NCS analysis for each node or area where uranium is present.

Section 5.4.4.3 describes the use of enrichment as an NCS parameter. However, since this is an enrichment facility more information is needed to understand how enrichment will be used as an NCS parameter.

Regulations in 10 CFR 70.61(d) require that all nuclear processes be subcritical under both normal and credible abnormal conditions, including use of an approved margin of subcriticality for safety.

NCS-9 Section 5.4.4.8

Clarify whether or not neutron absorbing materials other than fixed neutron absorbers will be used for NCS purposes.

Section 5.4.4.8 does not clearly indicate that only fixed neutron absorbers will be used for NCS. If other types of absorbers (e.g., boric acid in the cylinder wash) will be used for NCS then the license application should discuss the applicable industry standards.

Regulations in 10 CFR 70.61(d) require that all nuclear processes be subcritical under both normal and credible abnormal conditions, including use of an approved margin of subcriticality for safety.

Chemical Safety (Chapter 6)

CS-1 Section 6.1.6 and Table 6.3

Provide limits for dermal exposure to hydrogen fluoride (HF).

Section 6.1.6 and Table 6.3 address dermal exposures to HF, but do not include specific exposure limits for high consequence and intermediate consequence events. The applicant needs to provide specific exposure limits to implement the performance objectives in 10 CFR 70.61. If specific exposure limits are not proposed, NRC staff will address dermal exposures in a license condition.

The regulations in 10 CFR 70.61(b)(4) and (c)(4) require that the applicant address the risk of credible high and intermediate consequence events for acute chemical exposures to an individual from licensed material or hazardous chemicals produced from licensed material. the regulations in 10 CFR 70.65(b)(7) require an ISA contain a description of the proposed quantitative standards used to assess the consequences to an individual from acute chemical exposure to licensed material or chemicals produced from licensed materials that are on-site or expected to be on-site.

Fire Safety (Chapter 7)

FS-1 Section 7.1.3

Provide the minimum qualifications relative to fire protection of the facility staff who will assist the GEH Facility Manager in maintaining fire safety.

Section 7.1.3 of the LA states that the GEH Facility Manager ensures that the fire protection program is adequately implemented, but does not describe fire safety staff qualifications.

Regulations in 10 CFR 70.22(a)(6) require that the license application describe the technical qualifications of the staff to engage in the proposed activities.

FS-2 Section 7.1.3.5

Describe the compensatory fire protection and fire prevention measures to be employed.

Section 7.1.3.5 of the LA addresses control of impairments and lists determinations of needed compensatory fire protection and fire prevention measures as a fire protection impairment procedure. The applicant needs to describe the compensatory fire protection and fire prevention measures that will be used.

The regulations in 10 CFR 70.22(a)(8) require that the license application describe proposed procedures to protect health and to minimize danger to life or property.

FS-3 Section 7.3.2

Clarify if the Operations Building is NFPA 220, "Standards on Types of Building Construction," Type I.

As described in Section 7.3.2 of the LA, the Operations Building appears to be NFPA 220 Type I construction. However, it is unclear if the building is a mixture of NFPA 220 Type I and Type II fire resistant designs.

The regulations in 10 CFR 70.22(a)(7) require that the license application describe the proposed equipment and facilities to protect health and minimize danger to life or property.

FS-4 Section 7.3.3

Provide the minimum fire resistance of barriers used to separate fire areas and identify if the fire barriers are designated as IROFS in any fire accident scenarios.

Section 7.3.3 of the LA states that fire resistance is commensurate with potential fire severity between the major process areas. However, specific information on the fire resistance of fire barriers and their designation as IROFS is needed.

The regulations in 10 CFR 70.22(a)(7) require that the license application describe the proposed equipment and facilities to protect health and minimize danger to life or property. Regulations in 10 CFR 70.64(b)(1) address in the baseline design criteria the preference for engineered controls over administrative controls.

FS-5 Section 7.3.6

Provide the fire resistance of ductwork used in the ventilation system as described in Section 7.3.6 of the LA. Describe if the fire resistance rating is used only to prevent spread of contamination as a result of fire or fire spread.

Additional information is needed to evaluate the fire safety of the ventilation system ductwork and the impacts of the spread of contamination during fires.

The regulations in 10 CFR 70.22(a)(7) require that the license application describe the proposed equipment and facilities to protect health and minimize danger to life or property.

FS-6 Section 7.3.6

Describe the standards used with regard to fire resistance for the high-efficiency particulate air (HEPA) filters and high-efficiency gas adsorption (HEGA) filtration systems.

Section 7.3.6 of the LA discusses HEPA and HEGA filter systems, but does not describe the codes and standards that will be used to address the fire resistance of these filters.

The regulations in 10 CFR 70.22(a)(7) require that the license application describe the proposed equipment and facilities to protect health and minimize danger to life or property.

FS-7 Section 7.5.4

Describe the standpipe systems (Class I, II, or III) to be installed in the facility. Describe any employee training that will be conducted in the use of Class II systems, if provided, or if these systems will be for the use of fire brigade personnel only.

Section 7.5.4 of the LA discusses standpipe systems, but does not address the types of standpipe systems to be used or the training provided for their use.

The regulations in 10 CFR 70.22(a)(7) require that the license application describe the proposed equipment and facilities to protect health and minimize danger to life or property.

FS-8 Section 7.6.1

Describe the minimum, around-the-clock staffing of the fire brigade.

Section 7.6.1 of the LA describes the on-site fire brigade, but does not address the around-the-clock staffing levels.

The regulations in 10 CFR 70.22(a)(8) require that the license application describe the proposed procedures to protect health and to minimize danger to life or property.

Decommissioning (Chapter 10)

D-1 Section 10.1.1 and Figure 10.1

Provide an alternate schedule for decommissioning and provide justification for the longer schedule if decommissioning is expected to take longer than 24 months.

Section 10.1.1 states, and Figure 10.1 indicates, that decommissioning will take about 3.5 years.

Regulations in 10 CFR 70.38(h) require that decommissioning be completed no later than 24 months following the initiation of decommissioning. Regulations in 10 CFR 70.38(i) allow the Commission to approve a request for an alternate schedule for completion of decommissioning if the alternative is warranted by consideration of 5 factors specified in 70.38(i)(1)-(i)(5).

D-2 Section 10.1.2

Eliminate or revise the statements at pages 10-5 and 10-6 to eliminate all ambiguity concerning the sale of salvaged materials assumption.

The introductory paragraph of Section 10.1.2, "Decommissioning Steps," at page 10-5 lists as the fourth decommissioning activity "sales of salvaged materials," and Section 10.1.2.1, "Overview," at page 10-6 states that depleted uranium hexafluoride (UF_6) material, "if not sold or disposed of prior to decommissioning, will either be sold, disposed of by the U.S. Department of Energy, or will be converted to a stable, non-volatile uranium compound and disposed of in accordance with regulatory requirements." These statements are somewhat misleading, because they suggest that sale of salvaged material is a possible assumption of the decommissioning cost estimate. NRC guidance in NUREG-1757, Volume 3, specifies that the decommissioning cost estimate should not include any credits for the value of salvaged materials. The submission at other points (i.e., page 10-7 and Section 10.1.2.5, "Sale of Salvaged Materials," at page 10-8) makes clear that no credit is taken in the DFP for salvage value.

Regulations in 10 CFR 70.25(a)(1) require that an applicant for a uranium enrichment facility license submit a decommissioning funding plan. Regulations in 10 CFR 40.36(d) and 10 CFR 70.25(e) require that a decommissioning funding plan contain a cost estimate for decommissioning and a description of the method of assuring funds for decommissioning.

D-3 Section 10.1.2.7

Provide details of the initial radiation survey, to be performed prior to initial operation.

The initial radiation survey, discussed in Section 10.1.2.7, should be adequate to establish background for use as a reference area for the final survey at decommissioning time. The 7 samples discussed in Environmental Report Sections 3.11.2 are too few and are located outside the enrichment facility proposed site boundary; none are located within the site itself. The following NRC references contain NRC guidance for determining background radiation and selecting background reference areas:

a. "Consolidated Decommissioning Guidance, Volume 2, Characterization, Survey, and Determination of Radiological Criteria," NUREG-1757, Volume 2, Revision 1, September 2006;

b. "A Nonparametric Statistical Methodology for the Design and Analysis of Final Status Decommissioning Surveys," NUREG-1505, Revision 1, June 1998, Section 2.2.5;

c. "Multi-Agency Radiation Survey and Site Investigation Manual," NUREG-1575, Revision 1, August 2000, Section 4.5.

D-4 Section 10.2.1.2

Clarify that the labor costs are based on the costs that would be incurred by an independent third party conducting the decommissioning activities or explain why the proposed rates are at least equivalent to the costs that would be incurred by an independent third party conducting the decommissioning activities.

NRC guidance in "Consolidated Decommissioning Guidance," NUREG-1757, Volume 3, for developing a site-specific cost estimate for decommissioning specifies that the cost estimate "should assume the work will be performed by an independent third-party contractor." The use of third-party costs will help to ensure that if the licensee is unable or unwilling to perform the decommissioning, sufficient financial assurance will be available so that an independent third-party contractor can be hired to do the work. Any alternative labor cost estimates should have a "clear and reasonable" basis that is provided in the DCE and be at least equivalent to independent third-party costs.

The list of "Major Assumptions" in Section 10.2.1.2 of the submission does not contain any statement that the labor costs are based on the costs that would be incurred by an independent third-party contractor. Table C3.21, "Assumptions," does contain a statement that "Overhead and profit on contractor labor is assumed to be 15%" and that "Craft labor rates were taken from RS Means and professional labor rates provided by GE-Hitachi Nuclear Energy Americas LLC, one of the two immediate parent companies of the applicant, and from EnergySolutions data." Neither statement, however, adequately establishes that all labor costs are based on the assumption that the work will be performed by independent third-party contractors and not direct employees of the applicant or GE-Hitachi Nuclear Energy Americas LLC.

Regulations in 10 CFR 70.25(a)(1) require that an applicant for a uranium enrichment facility license submit a decommissioning funding plan. Regulations in 10 CFR 40.36(d) and 10 CFR 70.25(e) require that a decommissioning funding plan contain a cost estimate for decommissioning and a description of the method of assuring funds for decommissioning.

D-5 Section 10.2.2

Revise to show total decommissioning cost estimate, including the contingency.

Section 10.2.2 of the submission at page 10-16 states, "The total estimated cost to dispose of UF_6 tails over the 40-year license, including a six-year ramp up to full capacity and the 25 percent contingency factor, is approximately $2.4 billion." However, this total does not in fact include the contingency. As Table 10-1, "Total Decommissioning Costs," on page 10-21, shows, the total cost of UF_6 tails disposal including 25 percent

contingency is $3,034,073,000. Page 10-16 of the submission should be revised to state the cost as approximately $3.034 billion.

Regulations in 10 CFR 70.25(a)(1) require that an applicant for a uranium enrichment facility license submit a decommissioning funding plan. Regulations in 10 CFR 40.36(d) and 10 CFR 70.25(e) require that a decommissioning funding plan contain a cost estimate for decommissioning and a description of the method of assuring funds for decommissioning.

D-6 Section 10.2.3

Delete the emphasized phrase to eliminate any ambiguity suggesting that an external trust might be used.

Section 10.2.3 of the submission at page 10-17 states in its final sentence, "the surety bond will require that the surety company will deposit any funds paid under its terms directly into either an external trust or a standby trust." (Emphasis added). The draft financial assurance instruments submitted by the applicant include an Appendix A containing a "Model Surety Bond" that parallels the model Surety Bond in NUREG-1757, Volume 3, Appendix A. The model surety bond in NUREG-1757 and the model submitted by the applicant both refer only to a standby trust, not an external trust.

D-7 Table 10-1

Correct Table 10-1 to provide the correct amount for UF_6 tails disposal.

In Table 10-1, "Total Decommissioning Costs," the entry for UF_6 Tails Disposal is given as "$2,427,25" (*sic*.). Subtracting the amount for 25 percent contingency (UF_6 tails) from the UF_6 Tails Disposal Total suggests that the amount of $2,427,258 should be

included in the table for UF_6 tails disposal. Table 10-1 should be corrected to provide the correct amount for UF_6 tails disposal.

D-8 Decommissioning Funding Plan, Appendix A

Modify the financial assurance instruments.

The model financial instruments submitted by the applicant generally parallel the model instruments presented in NUREG-1757, Volume 3, Appendix A. The following additions or revisions should be considered by the applicant:

a. Amend the Model Surety Bond included in Appendix A to list the NRC docket number after the NRC license number, as recommended in NUREG-1757;

b. In the Model Surety Bond, in the paragraph beginning, "The Principal and Surety hereby agree to adjust the penal sum of the bond yearly," delete the phrase "provided that the penal sum does not increase by more than 20 percent in any one year." Although this phrase appears in the model surety bond in NUREG-1757, NRC no longer considers it necessary;

c. In Appendix B entitled, "Standby Test Agreement," (emphasis added) modify the submission to label the document as the "Standby Trust Agreement;"

d. In Section 6 (b) of the Model Standby Trust, delete the phrase “such as Government National Mortgage Association, Federal National Mortgage Association, and Federal Home Loan Mortgage bonds and certificates.” Although this phrase appears in the model standby trust in NUREG-1757, NRC no longer considers it necessary;

e. In Section 10 of the Model Standby Trust, capitalize “grantor” in the phrase “barring the grantor from asserting any claim or liability against the Trustee. . . ;“ and

f. Revise the Model Specimen Certificate of Resolution to reflect the fact that the applicant is organized as a limited liability company (LLC) and not as a corporation. The Certificate should include the name of the State under whose laws the LLC is organized, replace the word “corporation” with the words “limited liability company,” and, if necessary, replace the words “Board of Directors” and “President” with the word “Manager” or “Managers” or the equivalent titles of the decision-making person or body of persons responsible for the management of GE-Hitachi Global Laser Enrichment, LLC.

Regulations in 10 CFR 70.25(a)(1) require that an applicant for a uranium enrichment facility license submit a decommissioning funding plan. Regulations in 10 CFR 40.36(d) and 10 CFR 70.25(e) require that a decommissioning funding plan contain a cost estimate for decommissioning and a description of the method of assuring funds for decommissioning.

Management Measures (Chapter 11)

MM-1 Chapter 11.1

Provide criteria that will be used to evaluate changes to the licensing bases that are not associated with the safety program (i.e., not a management measure, IROFS, or process safety information) or specified in 10 CFR 70.32 to determine whether prior NRC approval is required. Provide information on how this evaluation will be documented and at what frequency will changes be provided to the NRC.

Regulations in 10 CFR 70.72 provide requirements for evaluating whether changes to site, structures, processes, systems, equipment, components, computer programs, and activities of personnel require prior NRC approval before implementation. However, many licensing basis documents are not site, structures, processes, systems, equipment, components, computer programs, or activities of personnel and therefore, changes to these documents cannot be made using the facility change process of 10 CFR 70.72.

Licensees are permitted to make changes to the licensing bases without prior approval as specified by license conditions (10 CFR 70.32). For example, 10 CFR 70.32(i) states that the licensee may change an approved emergency plan without NRC approval, if the change does not decrease the effectiveness of the plan. Similar provisions are included for the safeguards contingency plan (70 CFR 70.32(g)), physical security plan (10 CFR 70.32(e), materials control and accounting plan (10 CFR 70.32(c)(1)(iii)), and plan for physical protection of SNM in transit (10 CFR 70.32(d)).

An applicant or licensee may propose a license condition to allow other licensing bases changes without prior NRC approval. License conditions of this type should contain the following:

1. Criteria for preapproval;
2. Commitment to document the licensee's evaluation supporting the findings that preapproval is not required; and
3. Reporting frequency for providing changes to the NRC after implementation.

MM-2 Section 11.1.2

Provide a definitive statement as to what is meant by the phrase "maintained current as IROFS." Provide information on the applicant's plans to use "IROFS Boundary Packages" to organize and control information related to each IROFS.

Section 11.1.2, "Design Requirements," states that IROFS identified in the ISA Summary and design documents are maintained current as IROFS and are identified in more detail during the final design.

The license application needs to specifically define the phrase "maintained current as IROFS" in sufficient detail to understand its function in relation to the performance requirements of 10 CFR 70.61. "IROFS Boundary Packages" should be considered to organizing and updating information on IROFS.

Regulations in 10 CFR 70.62(d) require that management measures shall be established to ensure compliance with the performance requirements of 10 CFR 70.61. The management measures shall ensure that engineered and administrative controls and control systems that are identified as IROFS are designed, implemented, and maintained, as necessary, to ensure that they are available and reliable to perform their function when needed, to comply with the performance requirements of 10 CFR 70.61.

MM-3 Sections 11.4.1 and 11.8.2

Describe how the "stop work" provision applies to the accomplishment of work as specified in procedures other than implementing QA procedures (i.e., operating procedures/instructions).

Section 11.4.1 of the license application describes two categories of procedures: management control procedures (which include QA procedures) and operating procedures/instructions. Section 11.8.2 of the license application states that when work cannot be accomplished as specified in implementing QA procedures, work is stopped until corrective action is taken.

Procedures are a functional element of management measures as defined in 10 CFR 70.4. The regulations in 10 CFR 70.62(d) require that management measures ensure that engineered and administrative controls and control systems that are identified as IROFS are implemented and maintained to ensure they are available and reliable to perform their function when needed.

MM-4 Section 11.5

Provide information on whether independent assessments of safety program elements will be conducted by offsite groups or individuals not involved in licensed activities.

Audits and assessments are one of the eight functional elements of management measures as defined in 10 CFR 70.4.

Regulations in 10 CFR 70.62(d) require that management measures ensure that engineered and administrative controls and control systems that are identified as IROFS are implemented and maintained to ensure they are available and reliable to perform their function when needed.

MM-5 Section 11.7

Describe procedures to promptly detect and correct any deficiencies in the records management system or its implementation.

Section 11.7 does not discuss the detection and correction of deficiencies in the records management system or its implementation.

The regulations in 10 CFR 70.62(a)(2) state that each licensee or applicant shall establish and maintain records that demonstrate compliance with the requirements for process safety information, integrated safety analysis, and management measures. In addition, records management is a functional element of management measures and 10 CFR 70.62(d) requires that management measures ensure that engineered and administrative controls and control systems that are identified as IROFS are implemented and maintained to ensure they are available and reliable to perform their function when needed.

MM-6 Chapter 11.7

Provide criteria that will be used to determine which records must have controlled access.

Section 11.7 does not discuss the criteria for determining which records must have controlled access.

Records management is a functional element of management measures as defined in 10 CFR 70.4. 10 CFR 70.62(d) requires that management measures ensure that engineered and administrative controls and control systems that are identified as IROFS are implemented and maintained to ensure they are available and reliable to perform their function when needed.

MM-7 Section 11.8.2

Review the definition of commercial grade item for Part 70 licensees as stated in 10 CFR 21.3 and determine whether an exemption is needed to procure certain unique components associated with uranium enrichment. Provide information on whether the applicant considers IROFS to be basic components as defined in 10 CFR 21.3.

Regulations in 10 CFR 21.3 authorize the use of a commercial grade dedication program for nuclear power plants. Other non-reactor licensees have been granted exemptions to procure unique components. See NRC's letter to Louisiana Energy Services, dated February 11, 2009 (ML083400454).

MM-8 Section 11.8.2

Explain how the following factors are considered in determining an IROFS' contribution to risk reduction:

1. Degree to which functional compliance can be demonstrated by test, inspection, or maintenance methods;
2. Anticipated lifespan;
3. Importance of data generated; and
4. Reproducibility of results.

Section 11.8.2.2 of the license application describes factors that are considered in implementing a graded QA approach.

The regulations in 10 CFR 70.62(d) state that measures applied to all IROFS may be graded commensurate with the reduction in risk attributable to that IROFS.

MM-9 Section 11.8.2

Describe the extent to which management measures, including the QA program requirements, will be applied to QL-1, QL-2, and QL-3 IROFS to ensure they are available and reliable to perform their safety function as required by 10 CFR 70.62(d).

Section 11.8.2 does not discuss how management measures will be applied to QL-1, QL-2, and QL-3 IROFS.

The regulations in 10 CFR 70.62(d) require that management measures ensure that engineered and administrative controls and control systems that are identified as IROFS are implemented and maintained to ensure they are available and reliable to perform their function when needed. The application of measures may be graded commensurate with the reduction of risk attributable to the IROFS.

MM-10 Section 11.8.2

Explain how records of QL-3 IROFS will be maintained to meet the records requirements of 10 CFR 70.72(f), 10 CFR 70.62(2) and (3), and 10 CFR 21.51.

Records management is a functional element of management measures as defined in 10 CFR 70.4. However, there is no discussion of how records will be maintained for QL-3 IROFS.

The regulations in 10 CFR 70.62(d) require that management measures ensure that engineered and administrative controls and control systems that are identified as IROFS are implemented and maintained to ensure they are available and reliable to perform their function when needed.

MM-11 Section 11.8.2

Describe how the Quality Assurance Program Description (QAPD) applies to QL-3 IROFS.

The QAPD states that application of the program is mandatory for IROFS and describes requirements applicable to QL-1 and QL-2 IROFS.

Other QA elements, such as the QA program, are management measures as defined in 10 CFR 70.4. The regulations in 10 CFR 70.62(d) require that management measures ensure that engineered and administrative controls and control systems that are identified as IROFS are implemented and maintained to ensure they are available and reliable to perform their function when needed.

MM-12 Section 11.8.2

Confirm that the requirements of Part 21 will be followed. Additionally, describe how the dedication process for basic components (QL-1, QL-2, and QL-3 IROFS) procured commercially will meet the requirements of this part.

The regulations in 10 CFR 21 are not referenced in the license application.