EXHIBIT GLE-021

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

Paul S. Ryerson, Chairman
Dr. James F. Jackson
Dr. Michael O. Garcia

In the Matter of	)	Docket No. 70-7016-ML
GE-HITACHI GLOBAL LASER ENRICHMENT LLC	)	ASLB No. 10-901-03-ML-BD01
(GLE Commercial Facility)	)	June 22, 2012

GE-HITACHI GLOBAL LASER ENRICHMENT'S PREFILED TESTIMONY ON TOPIC 4 (TRACKING AND IMPLEMENTATION OF APPLICANT COMMITMENTS)

I. INTRODUCTION

Q1. Please state your full names.

A1. My name is Julie Anne Olivier [JO]. I am the Licensing and Regulatory Affairs Manager for the Global Laser Enrichment (GLE) project in Wilmington, North Carolina.

My name is Robert Crate [RC]. I am the Operations Manager for the GLE project in Wilmington, North Carolina.

Q2. Please summarize your educational background and experience.

A2. [**JO**] I have a B.S. degree in Chemistry from the University of New Orleans and a Masters Degree in Environmental Science and Engineering from Virginia Polytechnic Institute and State University (Virginia Tech). In addition, I have completed post-graduate doctoral courses in Environmental Systems Engineering at Clemson University. During my career in the nuclear industry, I have held various technical, project management and licensing positions. I

was employed by the U.S. Nuclear Regulatory Commission (NRC) for over eight years (1999 to 2007). During my NRC tenure, I was a project manager for various fuel fabrication, enrichment, and other facilities, with duties ranging from the lead technical reviewer for licensing actions involving chemical safety, to the lead environmental reviewer responsible for ensuring compliance with the National Environmental Policy Act (NEPA). My responsibilities also included reviewing and inspecting various commitment tracking systems at commercial power reactors, fuel fabrication facilities, and uranium enrichment facilities. Since 2007, I have worked at GE-Hitachi (GEH), holding positions within the GLE project as the Senior Licensing Professional and the Licensing and Regulatory Affairs Manager, which is my current position.

[**RC**] I am Robert Crate. I have a B.S. degree in Sociology from the University of the State of New York and was certified by the U.S. Navy as a Nuclear Plant Engineering Officer. During my thirty-seven year career, I have been involved with all aspects of the nuclear industry, from the nuclear navy and U.S. Department of Energy (DOE) to, more recently, working at a commercial nuclear power plant and fuel fabrication facility.

From 1976 to 1985, I served on a nuclear powered submarine and reactor prototype plant, with responsibilities including the engineering officer of the watch and leading engineering laboratory technician. For the next nine years, I worked in various nuclear capacities at the DOE, holding positions that involved, for example, operating prototype nuclear reactors and as a radiological controls program manager. During this time, I also managed the radiation protection and health physics performance of eight nuclear reactor plants, two nuclear-powered moored training ships, and one reactor fuel examination and storage facility. After my tenure at DOE, I worked in the commercial nuclear industry from 1996 to 1998 as the radiation protection superintendent at the Brunswick Nuclear Power Plant, before beginning my employ at GE.

Aside from a one-year position as an Environmental, Health, and Safety (EHS) manager for the GE Power Systems Global Supply Chain, I have worked for the past 14 years at GE's Wilmington, North Carolina nuclear fuel fabrication facility. My responsibilities at the facility initially focused on operations at Global Nuclear Fuels—Americas (GNF-A), specifically fuel manufacturing. In particular, my duties involved ensuring the safe operation of a large uranium chemical process consisting of dry conversion process technology, ceramic operations and bundle fabrication in the U.S., as well as uranium powder packing operations in Japan.

As the Manager of the Fuels Growth Program from 2006 to 2010, I led a team of industry experts through a multi-phased project plan to commercialize the Australian SILEX uranium laser enrichment technology. This effort involved transferring the SILEX technology from Australia to the U.S. In 2010, I became the Operations Manager for the GLE project, with accountability for the safe and effective operation of GLE activities; a position that I currently hold.

Throughout my career I have been involved with the development and implementation of commitment tracking programs at the Brunswick Nuclear Plant and at GNF-A.

[**All**] Full copies of our *curriculum vitae* are attached to this testimony as Appendices A and B.

Q3. What is the purpose of your testimony?

A3. [**All**] The purpose of our testimony is to respond to Topic 4, "Tracking and Implementation of Applicant Commitments," one of six prefiled testimony areas identified by the NRC's Atomic Safety and Licensing Board (Board) in its May 16, 2012 Memorandum and Order. Our testimony addresses GLE's process for implementing and tracking mandatory and voluntary commitments, license conditions, and industry codes and standards contained in the

NRC's NUREG-2120, *Safety Evaluation Report for the GE-Hitachi Global Laser Enrichment LLC Laser-Based Uranium Enrichment Plant in Wilmington, North Carolina*, February 2012, public version (SER) and NUREG-1938, Vol. 1, Final Report, *Environmental Impact Statement for the Proposed GE-Hitachi Global Laser Enrichment, LLC Facility in Wilmington, North Carolina*, February 2012, public version (FEIS). In particular, our testimony: (1) reviews the various categories of commitments and regulatory requirements that play a significant role in meeting safety and environmental requirements; (2) explains how those commitments will be tracked and implemented; (3) discusses GLE's processes for identifying and implementing new or modified regulatory requirements; (4) summarizes GLE's programs for detecting and correcting noncompliances; and (5) briefly discusses the NRC's role in ensuring GLE's commitments are met.

Q4. Could you please provide a summary of your overall conclusions?

A4. [**All**] Yes. GLE has an inclusive process to ensure that commitments, license conditions, and other regulatory requirements are properly tracked and implemented to completion. GLE's compliance checklists provide the methodology for identifying and implementing existing, new or modified regulatory requirements. The Self-Assessment Program and Corrective Action Program (CAP) will provide reasonable assurance that GLE detects and corrects noncompliances and precursor conditions. Additionally, GLE's reporting and incident investigation procedures will provide direction on whether an event or discovery merits an investigation and reporting to the appropriate regulatory agency. Finally, in preparation for the NRC's Operational Readiness Review (ORR), GLE will perform comprehensive internal readiness reviews.

Q5. Please describe how your testimony is organized.

A5. [**All**] The testimony begins in Section II with an overview of the categories of commitments and regulatory requirements. Section III offers a detailed discussion of GLE's planned commitment tracking and implementation programs and procedures, including those for new regulatory requirements. Section IV explains GLE's processes for detecting and correcting noncompliances. Section V briefly addresses the NRC's role in ensuring GLE's commitments are met, focusing on GLE's preparations for the NRC's ORR. Finally, Section VI summarizes our conclusions.

II. CATEGORIES OF COMMITMENTS AND REGULATORY REQUIREMENTS

Q6. Please provide a brief overview of GLE's regulatory requirements and commitments.

A6. [**All**] GLE is responsible for ensuring the GLE Commercial Facility (CF) is designed, constructed, operated, maintained, and decommissioned in conformance with applicable regulatory requirements, as well as other relevant design requirements and industry standards, in order to protect the health and safety of its workers, the public, and the environment. A key aspect of GLE's responsibilities involves complying with applicable NRC regulations, license conditions, Orders, and other local, State, Federal, and International laws (e.g., statutes, regulations, directives, treaties, industry codes and standards (if adopted by a governmental body)) that apply to GLE's activities.

Under 10 CFR § 70.32 and 10 CFR § 40.41, GLE is required to adhere to certain standard license conditions set forth in those regulations. In addition to those requirements, the NRC Staff has proposed additional license conditions to address completion of post-licensing information, commitments or action items. GLE has also entered into various commitments with the NRC and other local, State, and Federal agencies.

Q7. Could you please explain how GLE defines a commitment?

A7. [**All**] GLE defines a commitment as a promise to perform an action made to a local, State, or Federal agency. Some commitments are tied directly to a regulatory requirement and others are not. Commitments are generally part of GLE's "licensing basis," that must be complied with, but they may not take the form of formal license conditions. Throughout the NRC licensing process, GLE has made various commitments, some, for example, in the form of mitigation measures in order to minimize impacts of the CF on the environment and some, for example, in the areas of radiation protection and chemical and industrial safety. GLE considers environmental mitigation measures to be a subset of commitments.

Q8. Does GLE identify categories of commitments?

A8. [**All**] Yes. There are both mandatory and voluntary commitments. Mandatory commitments are those required by a regulatory agency and include compliance with license conditions.

In addition to the mandatory commitments, GLE seeks to achieve and maintain the highest standards regarding protecting its workers, the public, and the environment by going above and beyond actions required by the regulations when practicable. In order to achieve this objective, GLE has made various voluntary commitments (sometimes referred to as voluntary actions) to the NRC and other local, State and Federal agencies during the licensing process. Voluntary commitments are not tied directly to a specific regulatory requirement. Mandatory and voluntary commitments will be tracked by a comprehensive GLE tracking and implementation process.

Q9. Do all commitments have the same significance?

A9. [**All**] No. Some commitments play a more significant role in meeting safety and environmental objectives than others, or must be complied with to meet regulatory requirements. For example, GLE's commitments to employ certain mitigation measures associated with accident prevention and consequence management play a significant role in meeting safety and environmental objectives, while GLE's commitment to establish a trash abatement program does not.

Q10. What is the process for entering into commitments with the NRC?

A10. [**All**] Commitments can be made in various forms, including through correspondence, a formal document issued by a regulatory agency, a presentation to a regulator, or through an agency inspection or a third-party audit. In some situations, commitments are made orally, though GLE follows a specific procedure for documenting those commitments.

Q11. When is prior NRC approval required for changes to commitments?

A11. [**All**] GLE is required to obtain NRC approval before making any changes to the License Application (LA) that would decrease the effectiveness of its commitments or conflict with a license condition. In accordance with 10 CFR § 70.72, "Facility changes and change process," prior to implementing a change to the site, structures, processes, systems, equipment, components, computer programs, and activities of personnel, the change must be evaluated to determine if a license amendment is required to be submitted. In accordance with 10 CFR § 70.72(d)(1), for changes that require NRC approval, GLE will submit an amendment request to the NRC. Such changes cannot be implemented until NRC approval is granted.

Q12. Are there circumstances in which GLE is authorized to make changes without the NRC's approval?

A12. [**All**] Yes. Upon documented completion of a change request for the CF, GLE may make changes to the CF without prior NRC approval, subject to the following circumstances: (1) there is no degradation in the safety commitments in the License; and (2) the change, test, or activity does not conflict with any condition specifically stated in the LA. Any changes to the site, structures, processes, systems, equipment, components, computer programs, and activities of personnel may be made without prior NRC approval if the specific requirements in 10 CFR § 70.72(c), inclusive, are met.

For changes that do not require NRC approval, under 10 CFR § 70.72(d)(2), GLE will submit to the NRC annually, within 30 days after the end of the calendar year during which the changes occurred, a brief summary of all changes. In addition, in accordance with 10 CFR § 70.72(f), GLE will maintain records of changes to the CF that include a written evaluation that provides the bases for the determination that the changes did not require prior NRC approval. These records will be maintained until termination of the license.

III. GLE'S COMMITMENT TRACKING AND IMPLEMENTATION PROCESS

A. Mandatory Commitments and License Conditions

Q13. How does GLE plan to track and implement its current mandatory regulatory commitments?

A13. [**JO**] GLE is in the final stages of completing detailed "compliance checklists" that will be based upon the following licensing basis documents to ensure mandatory commitments are tracked and implemented appropriately:

- NRC Special Nuclear Material license, *including license conditions*
- LA, Chapters 1-11
- Fundamental Nuclear Material Control Plan

- Decommissioning Funding Plan
- Radiological Contingency and Emergency Response Plan
- Quality Assurance Plan
- Classified Matter Protection Plan
- Classified Matter Transportation Plan
- Nuclear Material Transportation Security Plan
- Physical Security Plan
- Fire Hazards Analysis
- Human Factors Engineering Plan
- Waste Minimization Plan

In addition to being used to comprehensively identify mandatory commitments that arise from these documents, the checklists will map the commitments and license conditions to regulatory requirements and GLE procedures, and each requirement and procedure will be identified as a separate line item in the checklist. Actions associated with implementing each procedure will also be identified on the checklist, along with an action owner and responsible manager. The action owner will be an individual assigned to a position as defined in LA Chapter 2, Organization and Administration, and thus will have the requisite education and experience for that role. These individuals will receive guidance from the responsible manager; the person assigned the responsibility to ensure implementation of the commitment.

An electronic calendar system will be used to capture the action, action owner, responsible manager, and relevant due dates. The calendar system will provide automatic reminders to the action owner and responsible manager to prevent the owner from missing an action. If the action is overdue, the system will notify the action owner and responsible manager.

When the action is complete, the action owner will acknowledge completion of the task in the program, and the responsible manager will verify and close-out the action.

Q14. Please explain how GLE will develop these compliance checklists.

A14. [**JO**] For each licensing basis document, an individual (e.g., a regulatory affairs engineer or experienced consultant) knowledgeable in each of the above areas will review the respective licensing basis documents line-by-line to determine whether the information is a regulatory requirement, a mandatory commitment, a voluntary commitment, or simply descriptive background information. After making this assessment, GLE's Licensing and Regulatory Affairs Manager will conduct a peer-review of the checklists. For each regulatory requirement or mandatory commitment, the checklist contains a reference to the appropriate regulation, guidance document, or correspondence document, if any, that applies.

Q15. How are commitments from the Integrated Safety Analysis (ISA) tracked and implemented?

A15. [**JO**] Commitments from the ISA baseline documentation are tracked and implemented according to a checklist format similar to that described above for the licensing basis documentation. The ISA baseline documentation is listed below:

- Process Hazards Analyses
- Quantitative Risk Analyses
- Calculations
- Technical Reports
- ISA Summary
- Items Relied On For Safety Boundary Packages
- Criticality Safety Analyses

For ISA commitments, GLE followed a similar process to the licensing basis documentation to determine the baseline design commitments by conducting a comprehensive review of each document listed above. After determining the complete list of commitments, GLE consolidated the commitments into Technical Reports (TR). The TRs contain detailed information on a system-by-system basis, with baseline design commitments and assumptions, along with the corresponding basis and reference documents, listed in a tabular format therein. As described above for the licensing basis documents, these assumptions and commitments in the TRs will be compiled into detailed compliance checklists that are mapped to regulatory requirements, commitments and a GLE implementing procedure. An assigned action owner and responsible manager for each commitment will ensure the commitments are properly implemented according to the assigned due date.

Q16. Has GLE committed to implement any industry codes or standards?

A16. [**JO**] Yes. In addition to the licensing basis documents and ISA baseline documentation described above, GLE has committed to use numerous industry codes and standards, as well as regulatory guidance documents, to construct, operate, and decommission the CF, as described in the LA. GLE is in the process of preparing compliance checklists for each of these codes, standards, and regulatory guides as well. If GLE finds that it cannot meet these commitments, the process owner will make a conservative decision, with oversight and approval by the responsible manager, regarding how best to proceed. For example, if the direction in one industry standard conflicts with the direction in another, GLE will use a conservative approach to determine which direction to follow, and will then document the resolution of the issue on the checklist. This information will be maintained in dedicated records

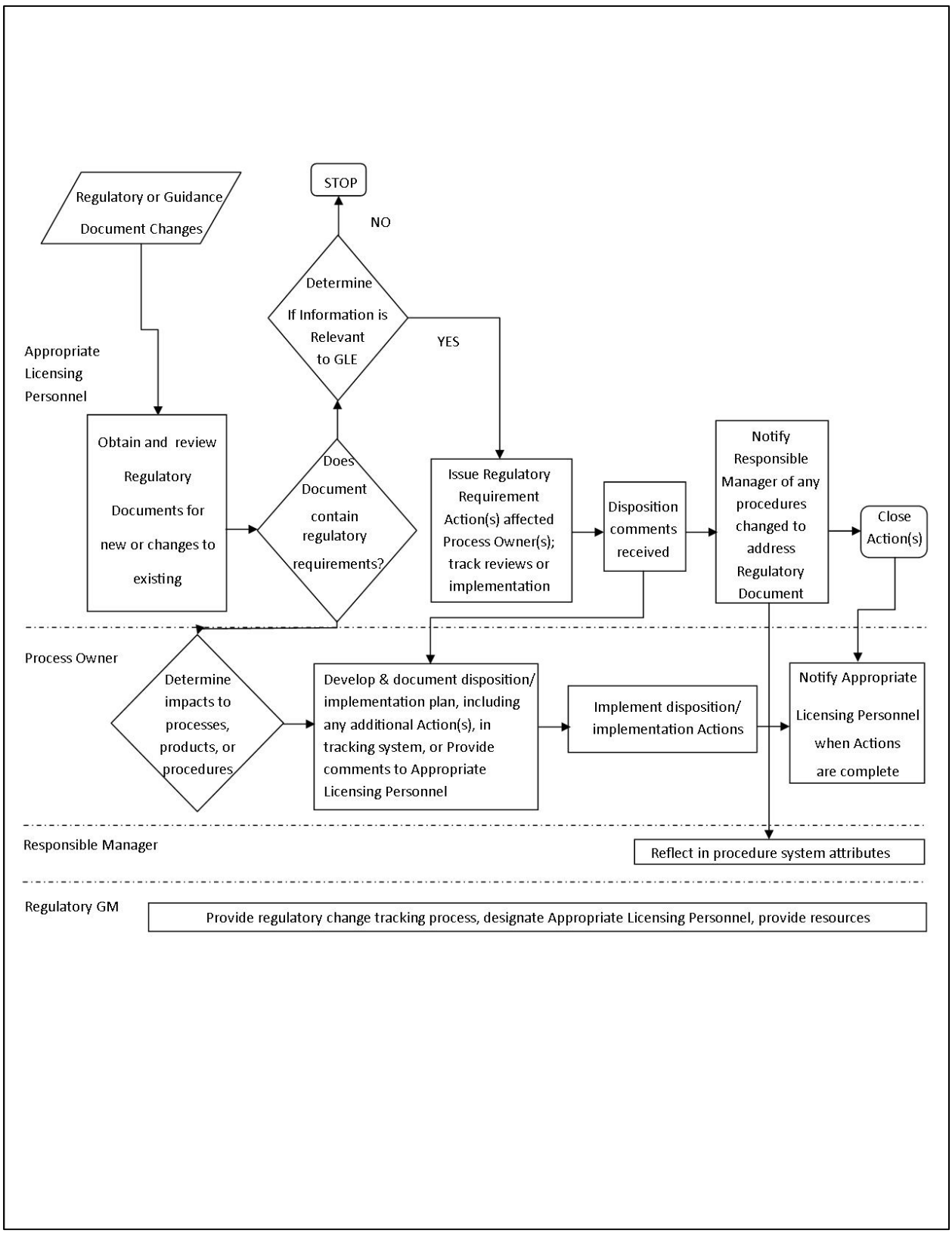
that will either be submitted directly to the NRC upon request or made available to the NRC during an inspection.

Q17. Will all of the checklists described above be made available to the NRC for review?

A17. [**JO**] Yes. GLE will transfer the compliance checklists discussed above, which capture all of GLE's requirements and commitments, to a database that will allow electronic searching for individual regulatory requirements and commitments. The database will be updated as actions are taken on commitments, with the ability to print reports. During onsite NRC visits, the database will be available for review.

Q18. Aside from *current* mandatory commitments and license conditions, how does GLE plan to review, track and implement new or modified regulatory requirements and guidance?

A18. [**JO**] GLE adopted and applies a procedure for monitoring regulatory guidance and requirements that has two primary objectives: (1) to provide guidance concerning the review and implementation of new or modified U.S. and foreign regulations, directives, and regulatory guidance; and (2) to establish the process for submitting comments to regulatory agencies, as deemed appropriate. In general, this GLE procedure provides guidance on how to monitor regulatory guidance and rules by using a subscription service, by daily reviews of the *Federal Register*, participation in technical committees, or through internet browsing of the Agencies' websites. New or modified information obtained from these sources will be evaluated to determine whether it applies to GLE. If the change applies to GLE, regulatory requirement action(s) are issued to the affected process owner, who, in turn, recommends how to incorporate the change or new requirement into GLE programs, and provides the associated documentation for implementation and tracking. A pictorial representation of this process is provided below.


Regulatory or Guidance Document Changes
STOP
NO
Determine If Information is Relevant to GLE
YES
Appropriate Licensing Personnel
Obtain and review Regulatory Documents for new or changes to existing
Does Document contain regulatory requirements?
Issue Regulatory Requirement Action(s) affected Process Owner(s); track reviews or implementation
Disposition comments received
Notify Responsible Manager of any procedures changed to address Regulatory Document
Close Action(s)
Process Owner
Determine impacts to processes, products, or procedures
Develop & document disposition/ implementation plan, including any additional Action(s), in tracking system, or Provide comments to Appropriate Licensing Personnel
Implement disposition/ implementation Actions
Notify Appropriate Licensing Personnel when Actions are complete
Responsible Manager
Reflect in procedure system attributes
Regulatory GM
Provide regulatory change tracking process, designate Appropriate Licensing Personnel, provide resources

B. Voluntary Commitments

Q19. What is the process for determining whether to implement a voluntary commitment?

A19. [**JO**] As described in GLE's May 2, 2012 response to ASLB SER questions 36 and 37, the criteria that GLE will use to determine the feasibility of implementing a voluntary commitment is based upon the following factors:

- Regulations or ordinances that require implementation of specific mitigation measures (e.g., construction Best Management Practices according to New Hanover County Erosion and Sedimentation Control Ordinance).
- Availability of the mitigation measure (e.g., low-sulfur fuel oil and ultra-low sulfur diesel fuel).
- The potential for conflict between mitigation measures (e.g., conducting soil-disturbing activities during favorable meteorological conditions versus timing activities to reduce noise and traffic impacts).
- Overall feasibility with respect to project schedule.
- Cost-benefit analysis.

If a voluntary commitment is not feasible to complete, GLE will note it in the same tracking system discussed above for mandatory commitments, along with a justification of why the action will not be performed. In addition, GLE will likely consult with the governing regulatory authority.

IV. DETECTING AND CORRECTING NONCOMPLIANCES

Q20. Could you explain how GLE will detect, document, and resolve potential noncompliances?

A20. [**RC**] GLE's CAP was established to ensure that a broad range of conditions, including improper implementation of commitments, and noncompliances are detected, reported, and resolved appropriately in order to improve quality and performance. Essentially, the CAP is a repository designed to capture significant conditions adverse to quality, safety and other

conditions that may be precursors to more significant issues, possibly involving noncompliances with commitments or other regulatory requirements. Many of these issues are identified through other GLE programs, including, for example, its Self-Assessment, Quality Assurance, 10 CFR Part 21, and Configuration Management programs, which are captured and resolved through the CAP. The CAP includes condition reporting, investigation, analysis, corrective action, preventive action, trend analysis, and reviews. Approved written policies, plans, and procedures specify requirements for documenting conditions adverse to quality including identification, classification, appropriate notifications, and corrective actions taken. In addition, follow-up actions to verify implementation of corrective actions and trending analyses are required for significant conditions adverse to quality. The CAP also allows for continuous improvement through entry and resolution of new requirements and commitments.

Q21. What is the primary method for identifying noncompliances for inclusion in the CAP?

A21. [**RC**] The primary method to identify noncompliances is through GLE's Self-Assessment Program, which was developed based on widely-used nuclear industry guidance adopted from Institute of Nuclear Power Operations Principles for Effective Self-Assessment and Corrective Action Programs.

Q22. What is the main objective of the Self-Assessment Program?

A22. [**RC**] The primary objective of GLE's Self-Assessment Program is to provide a proactive process for self-critical, candid and objective evaluation of performance against established goals or existing standards of excellence, including compliance with regulatory requirements, license conditions and commitments. The program drives the organization to liberally document evidence of performance problems and other concerns in the CAP. This process helps to ensure that appropriate corrective and preventive actions are executed. The

Self-Assessment Program also requires ongoing evaluations of organizational performance, functions and processes, and periodic focused self-assessments, which evaluate programs, processes, or performance areas against specific criteria. Assessments will determine the capability to provide safe, consistent, and reliable results, and to consider the effectiveness of human-system interface.

Q23. Can you provide an overview of the programs and processes for which GLE plans to conduct self-assessments?

A23. [**RC**] Yes. As part of the Self-Assessment Program, GLE will perform periodic assessments and audits of the following programs and functions:

- Engineering
- Design Control
- Configuration Management
- Radiation Protection
- Chemical Safety
- Nuclear Criticality Safety
- Industrial Safety
- Fire Safety
- Environmental Monitoring
- Material Control and Accountability
- Security
- Human Factors
- Quality Assurance
- Records Management
- Supplier Quality Programs

These assessments and audits will be performed in accordance with the requirements of the Quality Assurance Program, and will utilize personnel who have no direct responsibility for performing the activities being verified. This will include independent third party audits. These assessments and audits will be performed at a periodicity either indicated in the associated licensing basis document or at the discretion of the responsible program manager. Assessment and audit results will be documented, reported to, and reviewed by responsible GLE Management. Appropriate documented corrective actions will be taken to resolve any discrepancy or noncompliance. Corrective actions will be tracked until verified and closed, through the CAP described above.

Q24. In general, what is GLE's process for handling noncompliances?

A24. [**RC**] Should GLE determine that a noncompliance has occurred, it will be evaluated in accordance with its Reporting Procedures to determine if the NRC or other regulatory agencies need to be notified. In addition, when a noncompliance occurs, GLE will institute a corrective action request, which requires GLE to determine whether an Incident Investigation is necessary.

Q25. When are Incident Investigations conducted?

A25. [**RC**] Incident Investigations are performed to ensure that the noncompliance is understood and appropriate corrective actions are identified and implemented to prevent recurrence. The implementing procedure requires that noncompliances get documented in an investigation report. These reports are entered into the CAP and the associated corrective actions are tracked to completion. The objectives of the incident investigation and reporting procedures are to establish the validity of the data related to the incident, to develop and implement corrective action plans when appropriate, to document an event which was or could become a

danger to persons or property, and to ensure that proper levels of GLE Management and public agencies are notified as appropriate.

V. NRC'S ROLE IN COMMITMENT TRACKING

Q26. What is the NRC's role in overseeing the commitment tracking program?

A26. [**All**] In addition to the NRC's inspection program and procedures for ensuring that licensee commitments are adequately implemented, the programs and associated documentation described above will be available to the NRC during onsite inspections and visits. In addition, GLE will comply with requests for information from the NRC and provide the information to the NRC upon request. As stated in the NRC Staff's answer to ASLB question 36, the NRC will, according to 10 CFR § 70.32(k), perform an ORR before authorizing the start of CF operations.

Q27. How does GLE plan to prepare for the NRC's ORR?

A27. [**All**] GLE will perform comprehensive internal readiness reviews. The purpose of the internal readiness review will be to ensure that the new process or activity is ready for the NRC's ORR. GLE will form a multi-disciplinary team and utilize the NRC inspection manual or other relevant guidance documents to perform the review. It is GLE's goal to perform the internal readiness review prior to scheduling the NRC inspection, thus allowing time for potential corrective actions to be implemented and evaluated before the NRC arrives. In addition, GLE will also perform various, albeit more limited, internal readiness reviews before beginning a new process or activity, including radioactive material handling, connecting new computer networks, and installing new safety or security equipment.

VI. CONCLUSION

Q28. Please summarize your overall conclusions regarding Topic 4.

A28. [**All**] GLE has an inclusive process to ensure that commitments, license conditions, and other regulatory requirements are properly tracked and implemented to completion. As described above, GLE's compliance checklists provide the methodology for identifying and implementing existing, new or modified regulatory requirements. The Self-Assessment Program and the CAP will ensure that GLE detects and corrects noncompliances and precursor conditions. Additionally, GLE's reporting and incident investigation procedures provide guidance on whether an event or discovery merits an investigation and reporting to the appropriate regulatory agency. Finally, in preparation for the NRC's ORR, GLE will perform comprehensive internal readiness reviews.

Q29. Does this conclude your testimony?

A29. [**All**] Yes.

Q30. In accordance with 28 U.S.C. § 1746, do you state under penalty of perjury that the foregoing testimony is true and correct?

A30. [**All**] Yes.

Executed in accord with 10 C.F.R. § 2.304(d)
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EDUCATION

1992, BS Chemistry, University of New Orleans
1993, MS Environmental Science and Engineering, Virginia Tech
Post-Graduate Doctoral Courses, Environmental Systems Engineering, Clemson University

PROFESSIONAL EXPERIENCE

Global Laser Enrichment, Wilmington NC
Licensing and Regulatory Affairs Manager (4/10 to Present)

- Responsible for managing the Federal, State, and Local government interactions
- Responsible for obtaining a license from the Nuclear Regulatory Commission to construct and operate the commercial laser enrichment facility
- Technical lead for environmental issues

Senior Licensing Professional (10/07 to 4/10)

- Technical lead for preparing and submitting the Global Laser Enrichment License Application to the Nuclear Regulatory Commission
- Author of chemical safety, environmental protection, decommissioning, management measures, and administration chapters of the License Application
- Interface between design and safety analysis teams

Nuclear Regulatory Commission, Rockville, MD
Senior Project Manager (10/6 to 10/07)

- Project Manager for Category I fuel fabrication facility
- Project Manager for gas centrifuge facility
- Acted as the Section Chief from 08/01/05 to 10/14/05
- Senior environmental reviewer, which includes preparation of documentation (e.g., Environmental Assessments, Categorical Exclusions) to ensure compliance with the National Environmental Policy Act (NEPA)
- Senior analyst for evaluations involving decommissioning of fuel conversion and fabrication facilities
- Senior technical reviewer for licensing actions involving chemical safety
- Prepared budget for the branch to be used in strategic planning

Special Assistant to the Chairman for Materials and Security (10/05 to 10/06)

- Reviewed and evaluated Commission papers, and provided recommendations to the Chairman regarding technical and policy decisions
- Prepared Congressional correspondence from the Chairman regarding security and nuclear materials issues.
- Represented the Chairman in meetings with staff and industry

Project Manager (5/99 to 10/05)

- Project manager for four fuel fabrication facilities
- Lead environmental reviewer for the fuel manufacturing section, which included preparation of documentation (Environmental Assessments, Categorical Exclusions) to ensure compliance with the National Environmental Policy Act (NEPA)
- Lead analyst for evaluations involving decommissioning of fuel conversion and fabrication facilities
- Technical reviewer for licensing actions involving chemical safety

Dames and Moore, Orchard Park, NY

Engineering Specialist (4/97 to 4/99)

- Technical lead for field laboratory chemical analyses performed on soil and water samples for a chemical landfill remediation project at the U.S. Department of Energy's Brookhaven National Laboratory
- Project manager and lead author of the multi-volume West Valley Safety Analysis Reports, the primary document required by the Department of Energy to ensure safe operation and deactivation of nuclear facilities
- Lead analyst for all safety evaluations involving chemical reactions including the use of acids to clean out underground radioactive waste tanks, and the generation of oxides of nitrogen gases in process test facilities
- Authored extensive documentation including hazards assessments, facility deactivation plans, process safety requirements, procedural checklists, and position papers to demonstrate compliance with Department of Energy regulations and to ensure the safety of client activities
- Provided engineering calculations and technical guidance for Department of Energy contractors to ensure compliance with state emissions laws and reportable quantities of hazardous chemicals

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EDUCATION

B. S. Sociology, University of the State of New York
Certified Navy Nuclear Plant Engineering Officer

PROFESSIONAL EXPERIENCE

Global Laser Enrichment, Wilmington NC
Operations Manager (4/10 to Present)

- Responsible for safe and effective operation of the Global Laser Enrichment Program activities.

GE Hitachi, Wilmington NC
Manager, Fuels Growth Program (04/06 to 04/10)

- Navigated complex government regulations to obtain necessary authorizations to transfer third generation uranium enrichment technology from Australia to the U.S.
- Coordinated shipments of radioactive and sensitive laboratory equipment from Lucas Heights, AU to Wilmington, NC.
- Led a dynamic global team of industry experts through a multi-phased project plan to scale-up and commercialize the Silex technology. This included the relocation of twelve Silex scientists and their families to the U.S. along with the staffing of specialized laser experts to facilitate the technology.
- Worked through government agencies to obtain necessary site and personnel security clearances to commence detailed design work.

Manager, Fuel Manufacturing Operations (03/02 to 03/06)

- Responsible for the safe and effective operation of a large uranium chemical process consisting of a Dry Conversion Process (DCP) technology, Japan powder packing operations, Ceramic Operations, and Bundle Fabrication.
- Led a team of 24 exempt employees (engineers and supervisors) and 300 hourly manufacturing employees with a $50M annual budget. Achieved excellent regulatory performance in all areas. NRC licensee performance reviews (LPR's) in 2003 and 2005 had no areas of concern and maintained Occupational Safety and Health Administration (OSHA) VPP status with an improving trend.
- Set production records for powder produced and bundles fabricated. Utilized Six Sigma and Lean manufacturing tools to improve manufacturing processes and reduce base costs.
- Led the initial launch of the Human Performance program for all manufacturing operations.

GE Power Systems, Schenectady, NY

Global Supply Chain - Environmental, Health, and Safety Manager (01/01 to 03/02)

- Staff Manager responsible for environmental, health, and safety (EHS) programs for global supply chain manufacturing facilities in the United States, Mexico, and Hungary.
- Created a digitized due diligence process for direct material suppliers in low cost countries to ensure compliance with local EHS laws and GE requirements (protection of workers and the environment if local laws were not sufficiently protective).

Global Nuclear Fuel - Americas, Wilmington NC

Manager, Fuel Fabrication for Global Nuclear Fuels (12/99 to 12/00)

- Manager responsible for safe and effective operation of all fuel fabrication activities.
- Supervised 19 salaried staff, 150 hourly employees, and 40 contractors.
- Responsible for ensuring all operations were conducted in accordance with NRC license requirements. In addition, responsible for facility shipping operation and nuclear facility configuration management.
- Championed ceramic operations improvement program that raised fuel pellet yield from 72% to 90% in less than one year and saved over one million dollars (continued annual savings).

Manager, Industrial Safety and Hygiene for Global Nuclear Fuels (07/98 to 1/99)

- Responsible for the effective implementation of the Industrial Safety, Hygiene, Fire Protection, Emergency Planning, and Security programs.
- Revised the lockout/tagout, confined space, and respiratory protection programs to improve implementation, effectiveness, and regulatory compliance.
- Acted as the Fuel Component Operation (FCO) Product Line Manager for four months. During this time was responsible for managing the shop transition from three to four shifts (continuous operation) and provided the production focus to return the tubing product line to an "on-schedule" status in order to meet customer commitments.

Carolina Power and Light (CP&L), Brunswick Nuclear Plant (BNP)

Radiation Protection Superintendent (01/96 to 07/98)

- Radiation Protection Superintendent responsible for implementing the radiological health and safety programs for all 1100 plant employees (E&RC Department).
- Responsible for all aspects of the radiation protection program for two 800 Mwe boiling water reactor plants. Supervised six radiation protection field supervisors and 40 technicians (up to 100 technicians during outages). Implemented dose reduction, contamination control, and training improvements. BNP 1997 site dose was 300 rem less than 1996 levels, personnel contamination events were reduced by 50 percent and the Radiation Protection training program was accredited by INPO. The site received an excellent rating by WANO (INPO 1) during a two-week on-site assessment.
- Supervisor for BNP Radwaste Programs (Operations Department). Responsible for supervising all routine and non-routine liquid waste processing in support of plant operations including liquid effluent reduction. Implemented facility operational improvement initiatives, material condition upgrade projects (corrective maintenance and plant modifications), and radioactive tank and sump cleaning project. Reduced liquid releases in 1996 to the lowest ever for the BNP. Received a Quality Achievement award

(CP&L's highest employee award) for this effort (greater than 90 percent reduction achieved).

Nuclear Technology Division, Office of Naval Reactors, U.S. DOE, Washington, DC
Radiological Controls Program Manager (08/93 to 12/95)

- Program Manager for the radiation protection and health physics performance of eight land based nuclear reactor plants, two nuclear-powered moored training ships, and one reactor fuel examination and storage facility. Responsibilities included oversight of operating prototype reactor plant radiological controls, review of engineering tests, review of reactor plant operating procedures, approved design criteria for new radiological facilities, and approved decommissioning procedures in order to release facilities for unrestricted use.
- Headed teams of experienced Program personnel in conducting radiological controls assessments of reactor plant sites and nuclear Naval shipyards. In this capacity, acted for the Naval Nuclear Propulsion Program Director, Admiral Bruce DeMars.
- Managed development and implementation of all aspects of Program radiation protection and health physics policies. Responsible for technical review and administration of all Naval Nuclear Propulsion Program radiological control manuals. Teamed with the U. S. Navy Bureau of Medicine and Surgery to write the exposure control policy for protection of the unborn child to facilitate assignment of women to nuclear-powered aircraft carrier duty.

Naval Reactors, Department of Energy, Norfolk Naval Shipyard, Portsmouth, Virginia
Radiological Controls Project Officer (07/91 to 07/93)

- Provided oversight and assessment of all aspects of shipyard radiation protection programs ensuring compliance with all applicable Federal requirements in support of overhaul, repair, refueling, testing of nuclear submarine and surface ship reactor plants. Acted for the Senior Naval Reactors Representative in his absence, supervising 12 assistants and resolving technical issues with senior shipyard management, including the Shipyard Commander.

Naval Reactors, Department of Energy, Moored Training Ship, Goose Creek, South Carolina
Chemistry and Radiological Controls Officer (01/88 to 07/91)

- Successfully established the Radiological Controls program for the Navy's first Moored Training Facility. This was the first new prototype radiological controls program in 25 years. Contributed to the comprehensive environmental studies and assessments required for start up of the nuclear-powered moored training ship training facility. This included coordinating regulator interface and permit application in order to obtain required state environmental discharge permits.

Department of Energy, West Milton Field Office, Ballston Spa, New York
Radiological, Environmental, Safety and Health Assistant (05/85 to 01/88)

- Monitored the operation of four land-based prototype reactor plants including all aspects of the plant radiation protection programs. Government representative on final watchstanding and oral examinations for Naval Officer's qualification as Engineering

Officer of the Watch.

United States Navy

Leading Engineering Laboratory Technician (01/76 to 05/85)

- Leading Engineering Laboratory Technician (USS NATHANAEL GREENE SSBN 636) Responsible for all aspects of shipboard water chemistry and radiological controls program. Directly supervised and trained up to 14 technicians during complex ship overhaul in this capacity. Prototype staff instructor at the Modifications and Additions to a Reactor Facility (MARF) reactor plant. Qualified as Engineering Watch Supervisor and Engineering Officer of the Watch.