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LES-10-00127-NRC

Attn: Document Control Desk
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Louisiana Energy Services, LLC
NRC Docket No. 70-3103

Subject: Submittal of License Amendment Request for Implementation of Fire Protection IROFS (LAR 10-08)

- References:
- 1) NEF-09-00216-NRC, License Amendment Request for the National Enrichment Facility to incorporate a new (QL- 1F) graded quality assurance program for fire protection features designated as IROFS (LAR-09-33), November 25, 2009.
 - 2) NEF-09-00046-NRC, License Amendment Request LAR-09-05, Part 21 Exemption, March 2, 2009.
 - 3) Letter from M. Tschiltz (NRC) to S. Cowne (LES), Approval of the Part 21 Amendment Request and License Amendment 17, April 13, 2009.
 - 4) LES-10-00099-NRC, Withdraw of LAR 09-33, May, 14, 2010.

On November 25, 2009, URENCO USA (UUSA) submitted a License Amendment Request (LAR-09-33) to incorporate a new QL-1F graded quality assurance program for fire protection features designated as Items Relied On For Safety (IROFS) (Ref.1). Subsequent to submittal of Ref.1, by letter dated May 14, 2010 (Ref. 4) LAR 09-33 submittal was withdrawn. As stated in Ref. 4, LAR 10-08 provides for submittal of revised information for LAR 09-33 under a separate LAR.

As required by Section 19 of the UUSA Quality Assurance Program Description (QAPD) and in accordance with Title 10 of the Code of Federal Regulations Part 70.34, Louisiana Energy Services, LLC (LES) herewith requests an amendment to the Materials License SNM-2010 to authorize a new QL-1F graded quality assurance program for fire protection features designated as IROFS.

This amendment proposes to:

- 1) Modify the QAPD, with associated changes in the Safety Analysis Report (SAR), to add a new QL-1F (Fire Protection) graded quality assurance level that is commensurate with the nuclear power industry and to apply this program to fire protection features designated as IROFS.
- 2) As required by 10 CFR 70.17 and 10 CFR 21.7, and in accordance with 10 CFR 70.34, UUSA herewith requests a modification to Materials License Condition 28,

NM5001

Basic Component, to align the Materials License with the nuclear power philosophy for fire protection for the National Enrichment Facility.

The submittal incorporates a description of the proposed changes (Enclosure 1) and the associated Licensing Basis Document (LBD) markup pages (Enclosure 2).

URENCO USA appreciates the efforts of NRC staff in supporting the review and approval of this license amendment request in a timely manner. This amendment is needed to support procurement, design and construction of Fire Protection related components.

If you have any questions, please direct them to Gary Sanford, Director of Quality and Regulatory Affairs, at 575.394.5704.

Respectfully,



David E. Sexton
Chief Nuclear Officer and Vice President of Operations

Enclosures: 1) Description of Proposed Changes
2) Mark-up Pages to the Licensing Basis Documents

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ENCLOSURE 1

Description of Proposed Changes

License Amendment Request (LAR-10-08)
**Background, Proposed Changes, Technical Analysis of Proposed Changes, Safety
Significance**

1 Introduction

1.1 Purpose

This document describes proposed changes to the Materials License SNM-2010 to authorize changes to the Quality Assurance Program Description (QAPD), and related changes in the SAR, to add a new QL-1F (Fire Protection) graded quality assurance level for fire protection features designated as IROFS for fire prevention and mitigation. This amendment also requests a modification to Materials License Condition 28, *Basic Component*, to define the applicable requirements for the procurement of a fire protection basic component, and align the Materials License with the nuclear power philosophy for fire protection.

1.2 Background

The objective of this License Amendment Request (LAR) is to change the QAPD to add a new graded quality assurance program designated QL-1F applicable to fire protection features designated as IROFS that would ensure that the systems utilized at UUSA are commensurate with the nuclear power industry. This level of quality has been accepted in the industry and demonstrated to provide an acceptable level of reliability.

- Through the application or inclusion of such designated IROFS into a graded Quality Level 1F program, UUSA would be able to directly procure a basic component (as defined by License Condition 28) from a commercial entity if: (1) the system, structure or component is manufactured to an established, acceptable national code or standard that includes some independent product endorsements based on qualification testing or periodic testing of selected characteristics of the component; and (2) the acceptability of the item's manufacture, testing, and/or certification has been reviewed and verified by UUSA prior to use as a basic component. These systems will meet the applicable requirements of the International Fire Code, the International Building Code (IBC), and the National Fire Protection Association (NFPA) in accordance with the NEF Code of Record, in Table 3.0-1 of the Integrated Safety Analysis Summary (ISAS). Fire rated features that are not specifically tested as identified in UL, ASTM, or NFPA are to be evaluated to be equivalent in performance to a nationally recognized fire standard. Under this proposed change the QL-1F designated IROFS would remain unaltered and their associated fire protective features would still be used to prevent the same accident sequences identified in the current ISAS. However, these IROFS would be subject to revised quality assurance requirements, as detailed in the revised QAPD (see Enclosure 2 for changes to and License Basis Documents (LBDs)). Irrespective of the inclusion

of fire protection features designated as IROFS into the proposed new QL-1F program, these IROFS would still be subject to all applicable reviews and approvals by the NRC.

An amendment to Materials License Condition 28, *Basic Component*, is requested to define the procurement process for a fire protection basic component that is commensurate with nuclear power industry practice. In previous submittals (References 2 and 3) UUSA requested and was granted an exemption to the Part 21 definition for a basic component. This request is to align our requirements to be equivalent to the requirements of the nuclear power industry for fire protection.

1.3 Key Supporting References to this License Amendment Request

Enclosure 2 contains the changes to the LBDs that require NRC approval in accordance with 10 CFR 70.72(c) and provisions for change in the QAPD.

2 Proposed Changes

2.1 Summary of Proposed Changes

This document describes proposed changes to the Materials License SNM-2010 to authorize changes to the QAPD, and related changes in the SAR, to add a new QL-1F (Fire Protection) graded quality assurance level for fire protection features designated as IROFS that is commensurate with the nuclear power industry and Regulatory Guide 1.189 (Fire Protection for Operating Nuclear Power Plants). This amendment also requests a modification to Materials License Condition 28, *Basic Component*, to align the Materials License with the nuclear power philosophy for the procurement of a fire protection basic component.

2.2 Modification to Quality Assurance Program Description for Fire Protection

UUSA proposes to modify the QAPD to add a new graded program for fire protection, termed QL-1F, and to apply this new program to any fire protection design feature designated as an IROFS. (See Section 3 for a technical analysis of this change.)

2.3 Modification to Materials License Condition 28

UUSA requests an amendment to Materials License Condition 28 to clarify fire protection requirements specific to the Basic Component and align the Materials License with nuclear power philosophy for fire protection. A proposed paragraph is suggested for insertion below the current definition of *Basic Component* in Materials License Condition 28. This paragraph would also be inserted below the current definition of *Basic Component* in the QAPD, Section 4. (See Section 3 for a technical analysis of this change.)

3 Technical Analysis of Proposed Changes

3.1 Modification to Quality Assurance Program Description for Fire Protection

3.1.1 Proposed Changes

UUSA proposes to modify the QAPD, and associated changes to the SAR, to add a new graded program for fire protection, designated QL-1F, and to apply this new program to fire protection features designated as IROFS.

Examples of fire protection features¹ that may be designated as IROFS, established to prevent or mitigate chemical releases at the UUSA Facility, consist of the following:

Structural Fire Barriers:

- Fire penetration seals
- Fire walls (including floors and ceilings)

Fire-barrier protective systems that will be closed or self-closing (e.g., utilizing fusible links):

- Fire doors
- Fire dampers

Isolation systems that will be closed or self-closing (e.g., close on loss of air and/or electrical power):

- Isolation dampers
- Isolation valves

Fire Detection and Suppression:

- Fire Detection Systems
- Fire Suppression Systems
- Automatic suppression systems and equipment
- Manual suppression systems
- Manual firefighting capabilities

3.1.2 Technical Basis for Changes

Fire protection features which perform an IROFS function are comprised of a combination of fire-rated barriers (e.g., fire doors, ventilation fire dampers, penetration seals, and fire walls, floors or ceilings). For fire protection systems designated as IROFS, a basic component (as defined by License Condition 28) may be directly

¹ Only those fire protection features designated as IROFS in the Integrated Safety Analysis Summary are subject to the requirements in Section 23 of the Quality Assurance Program Description. The list below contains other fire protection features that could be designated as IROFS in the future if necessary to meet the performance requirements of 10 CFR 70.61.

procured from a commercial entity if: (1) the system, structure or component is manufactured to an established, acceptable national code or standard that includes some independent product endorsements based on qualification testing or periodic testing of selected characteristics of the component; and (2) the acceptability of the item's manufacture, testing, and/or certification has been reviewed and verified by UUSA prior to use as a basic component. These systems and components meet the applicable requirements of the International Fire Code, the International Building Code (IBC), and the National Fire Protection Association (NFPA) in accordance with the NEF Code of Record, in Table 3.0-1 of the Integrated Safety Analysis Summary.

Fire protection components and systems are manufactured with the intent of meeting the established criteria of building and fire codes and standards. These codes require the components be classified and/or approved by a nationally recognized testing laboratory which is certified by the state authorities to assure component performance. Organizations such as the Underwriters' Laboratories classification (listing) service and Factory Mutual's approval service have established testing criteria for attributes that are important to component functionality. These attributes include materials, service life, durability for service, fire and smoke resistance and sensitivity, installation parameters, and other characteristics necessary to assure component performance. Fire protection features are managed and controlled as part of the UUSA Fire Safety Management Program.

Each major component that fulfills a portion of an IROFS function (as a Structural Fire Barrier) is described below:

- Walls/ceilings :
 - Walls in SBM 1001/1002 were constructed of steel reinforced poured concrete and meet QL-1 IROFS35 requirements. However, all future constructed SBMs and the superstructure (steel portion) of the CRDB have been redefined as QL-1G and IROFS27e for structure integrity to withstand extreme environmental conditions (e.g., tornado winds, seismic).
 - The application of the new QL-1F requirements (for fire protection) on IROFS35, and the applicable walls/ceilings that comprise the IROFS35 boundary, will ensure the performance requirements of 10 CFR 70.61 are not exceeded.
- Fire Penetration Seals:
 - Fire penetration seals have been procured to meet UL fire rating requirements for the IROFS barrier and installed in accordance with manufacturer's requirements. These penetration seals will be inspected and maintained as required by the NFPA, other applicable standards or procedures, and the UUSA Fire Safety Management Program.
- Fire Doors:
 - Fire doors have been procured to meet UL fire rating requirements for the IROFS barrier and installed in accordance with manufacturer's requirements.

- The automatic closure feature of these doors will be achieved through self closing/latching devices and periodic inspections to ensure they remain closed; or the use of fire watches will be required as a compensatory measure, when doors are left open during plant operations/maintenance. These doors will be inspected and maintained as required by the NFPA, other applicable standards or procedures, and the UUSA Fire Safety Management Program.
- Fire Dampers:
 - Fire dampers have been procured to meet the NFPA and other applicable standards for fire protection, and installed in accordance with manufacturer's requirements. Fire dampers will be equipped with fusible links to comply with automatic closure requirements. These fire dampers will be inspected and maintained as required by the NFPA, other applicable standards or procedures, and the UUSA Fire Safety Management Program.
- Rollup doors:
 - The UF₆ Handling Area of the SBM contains two rollup doors for the movement of transport cylinders to/from feed, product and tails stations. Fusible links that are UL-listed (fire rated) are installed at the doors (both sides) to provide for the automatic closure requirements of the IROFS. These fusible links will be installed in accordance with manufacturer's requirements. These doors and fusible links will be inspected and maintained as required by the NFPA, other applicable standards or procedures, and the UUSA Fire Safety Management Program.
- Isolation Valves and Dampers:
 - Current plans are to install a combination of UL-listed or UL-certified air-operated isolation valves and dampers to isolate GEVS, and to install air operated valves to isolate compressed air and nitrogen.

3.1.3 Conclusions

These design features and requirements are consistent with requirements imposed on fire protection features for nuclear facilities licensed under 10 CFR Part 50. The inclusion of these requirements under the QL-1F quality assurance program, exclusively for fire protection features designated as IROFS, will add additional rigor and regulatory oversight to ensure the prevention of fires, that if not accomplished could lead to UF₆ releases in excess of the performance requirements of 10 CFR 70.61. The QL-1F quality assurance program is commensurate with the establishment of fire protection programs as detailed in Regulatory Guide 1.189 (Fire Protection for Operating Nuclear Power Plants).

3.2 Modification to Materials License Condition 28

3.2.1 Proposed Change

UUSA requests an amendment to Materials License Condition 28 to clarify fire protection requirements specific to the Basic Component and align the Materials License with nuclear power philosophy for fire protection. The following paragraph is suggested for insertion below the current definition of *Basic Component* in Materials License Condition 28:

When applied to fire protection systems procured for facilities and other activities licensed under 10 CFR Part 70 of the chapter, basic component means a structure, system, or component, or part thereof, that affects their safety function, in which a defect or failure to comply with any applicable regulation in this chapter, order, or license issued by the Commission could create a substantial safety hazard. For fire protection systems designated as items relied on for safety, a basic component may be directly procured from a commercial entity by a Part 70 licensee if: (1) the system, structure or component is manufactured to an established, acceptable national code or standard that includes some independent product endorsements based on qualification testing or periodic testing of selected characteristics of the component; and (2) the acceptability of the item's manufacture, testing, and/or certification has been reviewed and verified by the licensee prior to use as a basic component.

3.2.2 Technical Basis for Change

This proposed change is required specifically to support the modification to the QAPD for fire protection to add a new graded program, designated QL-1F. The proposed changes to the QAPD, and associated changes to the SAR, are described in Section 3.1.1 above. The requested change to the Materials License Condition 28 clarifies the procurement of basic components specific to fire protection. This Condition aligns UUSA with the nuclear power industry's philosophy for the procurement and use of these components. These systems and components shall meet the applicable requirements of the International Fire Code, the International Building Code (IBC), and the National Fire Protection Association (NFPA) in accordance with the NEF Code of Record, in Table 3.0-1 of the Integrated Safety Analysis Summary.

These codes require the components to be classified and/or approved by a nationally recognized testing laboratory which is certified by the state authorities to assure component performance. Organizations such as the Underwriters' Laboratories classification (listing) service and Factory Mutual's approval service have established testing criteria for attributes that are important to component functionality.

3.2.3 Conclusions

The proposed revision to Materials License Condition 28 clarifies the definition of *Basic Component* as it applies to fire protection. This revision will enable the direct procurement of basic components by UUSA from a commercial entity per the

requirements of the License Condition. These requirements are consistent with those imposed on fire protection features for nuclear facilities licensed under 10 CFR Part 50. The inclusion of these requirements under the QL-1F quality assurance program, exclusively for fire protection features designated as IROFS, will add additional rigor and regulatory oversight to ensure the prevention of fires, that if not prevented could lead to UF₆ releases in excess of the performance requirements of 10 CFR 70.61. These codes and standards have been used throughout the nuclear industry. Use of these standards and codes by nuclear facilities has proven to be a reliable and safe manner of operation.

4 Safety Significant Determination

The proposed changes are acceptable approaches for limiting a potential chemical release due to the fire accidents. The changes do not propose any changes to the fire protection IROFS boundaries or associated design requirements. The proposed changes establish quality and reporting requirements, consistent with the nuclear industry, to provide a level of equipment reliability commensurate with the safety function being performed. As a result of the changes in this submittal, there are no impacts in the consequences to the public or to the workers. Accordingly, the proposed changes do not adversely impact the consequences from external events.

5 Environmental Considerations

There are no significant environmental impacts associated with the changes proposed in this LAR. The proposed changes do not meet the criteria specified in 10 CFR 51.60 (b) (2) since they do not involve a significant expansion of the site, a significant change in the types of effluents, a significant increase in individual or cumulative occupational radiation exposure, or a significant increase in the potential for or consequences from radiological accidents. Changes proposed in this LAR will not decrease the effectiveness of installed fire protection features. Consequently, a separate supplement to the Environmental Report is not submitted.

ENCLOSURE 2

Mark-up Pages to the Licensing Basis Documents

SAFETY ANALYSIS REPORT

Revision 25d

Markup for LAR 10-08

3.4 Compliance Item Commitments

uranium is then compared to a mass limit, which is based on the double-batching limit on mass of uranium in a vessel from the criticality safety analyses. The “bookkeeping measures” process is described in further detail below.

- For NEF, the “bookkeeping measures” are only applied to tanks where the mass of uranium involved, even when double batching error is considered, is far below the safe value. Bookkeeping measures are a documented running inventory estimate of the total uranium mass in a particular tank. The mass inventory for each batch operation is calculated based on the mass of material to be transferred during each batch operation and the mass inventory in the tank prior to the addition of the material from the batch operation.
- There are two types of batch operations that are considered. The first type is liquid transfer between tanks based on moving a volume of liquid with uranic material present in the volume. The second is transferring a number of components into the tank with the uranic material contained within or on the components transferred in each batch operation. For both types of operations, the initial mass inventory is set after emptying, cleaning, and readying the tank for receipt of uranic material. For each batch operation, the amount of uranic material to be transferred during a particular batch operation is estimated. This quantity of material is then credited/debited to/from each tank as appropriate. A new mass inventory in each tank is calculated. The calculated receiving tank mass inventory is compared to the mass limit for the tank prior to the transfer.
- For the second type, a transfer of a number of facility components into an open tank during a batch operation, the mass inventory on/within the components is estimated, and that mass credited to the receiving tank. The final mass inventory in the tank is calculated and the total is compared to the mass limit for the tank prior to the transfer. Open tanks associated with this system are located in the Decontamination Workshop.

3.4.36 UF6 cylinders with faulty valves are serviced in the Ventilated Room. In the Ventilated Room, the faulty valve is removed and the threaded connection in the cylinder is inspected. A new valve is then installed in accordance with the requirements of ANSI N-14.1.

3.4.37 IROFS will be designed, constructed, tested and maintained to QA Level 1, with the following exceptions, except

- IROFS27e which will be designated and analyzed to QA Level 1, and will be constructed, tested, and maintained to QA Level 1 Graded.
- Fire protection features designated as IROFS which will be designed, procured, constructed, tested, and maintained to QA Level 1-Fire Protection (QL-1F)

IROFS will comply with design requirements established by the ISA and the applicable codes and standards (Listed in ISAS Table 3.0-1). IROFS components and their designs will be of proven technology for their intended application. These IROFS components and systems will be qualified to perform their required safety functions under normal and accident conditions for which they are credited, e.g., pressure, temperature, humidity, seismic motion, electromagnetic interference, and radio-frequency interference, as required by the ISA. IROFS components and systems will

11.2 Maintenance

This section defines the maintenance and functional testing programs to be implemented for the start-up and operations phase of the facility. Maintenance and functional testing implement management measures to ensure IROFS, as identified in the ISA Summary, will be available and reliable to perform their safety functions for start-up and operations.

- Surveillance/monitoring
- Corrective maintenance
- Preventive maintenance
- Functional testing.

Each of these functions provides important elements of maintaining IROFS as defined in the IROFS Boundary Definitions.

11.2.1 Maintenance Program Description

The Maintenance Program is responsible for all aspects of maintaining SSCs within the IROFS boundaries after turnover of the facility from Construction to Operations. Contractors supporting maintenance activities are subject to the requirements defined in implementing policies and procedures.

The Maintenance Program reports to the Vice President of Operations through the Technical Services Director. The Maintenance Program provides trained and qualified personnel, equipment and procedures for performance of maintenance and functional testing of SSCs at the NEF. The Maintenance organization plans, schedules, tracks, and maintains records for maintenance activities.

11.2.2 Maintenance Interfaces and Functions

Maintenance organizational and functional interfaces provide key elements of IROFS maintenance. Following is a description of key organizational and functional interfaces:

- A. Operations - Operations is a primary interface with maintenance operations. Communications regarding status of systems, planned outages, start-up, unexpected degradations and failures and surveillances all require close coordination between these organizations.
- B. Quality Assurance - The QA Organization provides the requirements for QA Level(s) associated with SSCs through implementation of the QAPD. QA is an approving function for QA Level 1, QA Level 1 Graded, QA Level 1-Fire Protection (QL-1F), QA Level 2AC and QA Level 2 activities as defined in the QAPD, for IROFS related activities.
- C. Procedures - Procedures associated with IROFS maintenance activities are developed and approved in accordance with LES approved processes as described in Section 11.4 of the Safety Analysis Report (SAR).

Minimum content of test procedures includes:

- Title
- Purpose
- Prerequisites
- Required System Conditions
- Limit and Precautions
- Acceptance Criteria
- Instructions on how to perform the test in the degree of detail necessary that qualified personnel can perform the required functions without direct supervision.

Test procedures applicable for QL-1 SSCs (typically IROFS) shall be developed, formatted and executed in accordance with Section 11 of the NEF QAPD. Section 21 of the QAPD also provides guidance for Quality Level 1 Graded application. Section 23 of the QAPD also provides guidance for QA Level 1-Fire Protection (QL-1F) application. Administrative IROFS are included within the scope of all testing programs.

Tests are designed to simulate upset conditions for IROFS to the extent practicable.

11.2.6.3 Preoperational Testing Program

Preoperation functional tests are completed prior to UF₆ introduction.

The Preoperational testing program comprises three parts:

- Constructor turnover
- Preoperational functional testing
- Initial start up testing.

Constructor Turnover

The constructor turnover tests ensure that construction activities were performed in accordance with approved and issued design documents, industry practices, codes and standards, and to confirm that vendors have met or exceeded contractual quality requirements. As systems or portions of systems are turned over to LES, preoperational testing shall begin. The Director of Commissioning & Acceptance is responsible for coordination of the preoperational and startup test program.

Preoperational Functional Testing

The preoperational test plan is available to the NRC prior to the start of testing. Revisions to the preoperational test plan are also made available to the NRC. Preoperational testing as a minimum includes all system or component tests required by the pertinent design code which were not performed by the constructor prior to turnover. In addition, preoperational tests include all testing necessary to demonstrate that the IROFS are capable of performing their intended function.

11.3 Training and Qualifications

This section describes the training program for the operations phase of the facility, including preoperational functional testing and initial startup testing. The operations phase is defined as the commercial production of enriched material. The training program requirements apply to those plant personnel who perform activities that affect IROFS, or items that are essential to the function of IROFS.

The QAPD provides training and qualification requirements, during the design, construction, and operations phases, for QA training of personnel performing QA levels 1, QA level 1 Graded, QA Level 1-Fire Protection (QL-1F), QA Level 2AC₁, and QA level 2 work activities; for nondestructive examination, inspection, and test personnel; and for QA auditors.

The principle objective of the LES training program system is to ensure job proficiency of facility personnel through effective training and qualification. The training program system is designed to accommodate future growth and meet commitments to comply with applicable established regulations and standards. Employees are provided with training to establish the knowledge foundation and on-the-job training to develop work performance skills. Continuing training is provided, as required, to maintain proficiency in these knowledge and skill components, and to provide further employee development.

Qualification is indicated by successful completion of prescribed training, demonstration of the ability to perform assigned tasks and the maintenance of requirements established by regulation. Training is designed, developed and implemented according to a systematic approach. A systematic approach may be a graded approach that applies the level of detail needed relative to safety. A graded approach incorporates other acceptable methods to accomplish the analysis, design, development, implementation, and evaluation of training.

11.3.1 Organization and Management of the Training Function

Line managers have responsibility for and authority to develop and effectively conduct training for their personnel. Training responsibilities for line managers are included in position descriptions. The training organization provides support to line managers by facilitating the planning, directing, analyzing, developing, conducting, evaluating, and controlling of a systematic performance-based training process. Performance-based training is used as the primary management tool for analyzing, designing, developing, conducting, and evaluating training.

Facility procedures establish the requirements for the training of personnel performing activities related to IROFS. Additionally they ensure the training program is conducted in a reliable and consistent manner. Procedures also allow for exceptions from training when justified and properly documented and approved by appropriate management.

Lesson plans or other approved process controlling documents are used for classroom and on-the-job training to provide consistent presentation of subject matter. When design changes or facility modifications are implemented, updates of applicable lesson plans are included in the change control process of the configuration management program. During the design and construction phase of this project, initial lesson plans are developed as the material is finalized.

11.5 Audits and Assessments

Assessment results are tracked and the data is periodically analyzed for potential trends. Needed program improvements are identified to prevent recurrence and/or for continuous program improvements. The resulting trend is evaluated and reported to applicable management. This report documents the effectiveness of management measures in controlling activities, as well as deficiencies. Deficiencies identified in the trend report require corrective action in accordance with the applicable CAP procedure.

Assessments of nuclear criticality safety, performed in accordance with ANSI/ANS-8.19, will ensure that operations conform to criticality requirements.

11.5.2 AUDITS

Audits of the QA Level 1, ~~and QA Level 1 Graded,~~ and QA Level 1-Fire Protection (QL-1F) work activities are performed in accordance with the QAPD. The audit scope will include those activities associated with IROFS and any items that are essential to the function of the IROFS and items required to satisfy regulatory requirements for which QA Level 1, ~~and QA Level 1 Graded,~~ and QL-1F requirements are applied will be the responsibility of the QA Department. Audits are focused on verifying compliance with regulatory and procedural requirements and licensing commitments.

Audits are performed to assure that facility activities are conducted in accordance with the written procedures and that the processes reviewed are effective. As a minimum, they shall assess activities related to radiation protection, criticality safety control, hazardous chemical safety, industrial safety including fire protection, and environmental protection.

Audits shall be performed routinely by qualified staff personnel that are not directly responsible for production activities. Deficiencies identified during the audits requiring corrective action shall be forwarded to the responsible manager of the applicable area or function for action in accordance with the CAP procedure. Future audits shall include a review to evaluate if corrective actions have been effective.

The Quality Assurance Department shall be responsible for performing the audits. Audits shall be performed in accordance QAPD requirements. The Audit Team members shall not have direct responsibility for the function and area being audited. Team members shall have technical expertise or experience in the area being audited and shall be indoctrinated in audit techniques. Audits shall be conducted on an annual basis periodically as described in the QAPD. The frequency of audits is based upon the status and safety importance of the activities being performed and upon work history. All major activities will be audited on an annual basis. The audit schedule is reviewed periodically and revised as necessary to ensure coverage commensurate with current and planned activities. All aspects of the Nuclear Criticality Safety Program will be audited at least every two years.

Corrective actions following issuance of the audit report require compliance with the applicable CAP procedures. Audit reports are required to contain an effectiveness evaluation and statement for each of the applicable QA program elements reviewed during the audit. The audit is closed with the proper documentation as required by the applicable audit procedure. The QA organization will conduct follow-up audits to verify that corrective actions were taken in a timely manner. In addition, future audits will include a review to evaluate if corrective actions have been effective.

11.8 Other QA Elements

The QA Program and its supporting manuals, procedures and instructions are applicable to items and activities designated as QA Level 1, 1 Graded, QA Level 1-Fire Protection (QL-1F), 2AC, and 2.

The Quality and Regulatory Affairs Director is responsible for developing and revising the QA Program and assuring it is in compliance with applicable regulations, codes and standards.

The QA Program specifies mandatory requirements for performing activities affecting quality and is set forth in procedures which are distributed on a controlled basis to organizations and individuals responsible for quality. Revisions to these procedures are also distributed on a controlled basis. Applicable portions of the QA Program are documented, approved and implemented prior to undertaking an activity.

A management assessment of the QA program is performed at least six months prior to scheduled receipt of licensed material on the site. Items identified as needing completion or modification are entered into the CAP and corrective action completed before scheduled receipt of licensed material. LES Management monitors the QA program prior to this initial management assessment through project review meetings and annual assessments. This management assessment along with integrated schedules and program review meetings ensure that the QA program is in place and effective prior to receiving licensed material.

The LES QA program for design, construction, and preoperational testing continues simultaneously with the QA program for the operational phase while construction activities are in progress.

Anyone may propose changes to the QA Program supporting manuals and procedures. When reviewed by the Quality and Regulatory Affairs Director and found acceptable and compatible with applicable requirements, guidelines and LES policy, the changes may be implemented. The QA Program and supporting manuals and procedures are reviewed periodically to ensure they are in compliance with applicable regulations, codes, and standards. New or revised regulations, codes, and standards are reviewed for incorporation into the QA Program and supporting manuals and procedures as necessary.

Personnel performing activities covered by the QA program shall perform work in accordance with approved procedures, and must demonstrate suitable proficiency in their assigned tasks. Formal training programs are established for quality assurance policies, requirements, procedures, and methods. Ongoing training is provided to ensure continuing proficiency as procedural requirements change. New employees are required to attend a QA indoctrination class on authority, organization, policies, manuals, and procedures.

Additional formal training is conducted in specific topics such as NRC regulations and guidance, procedures, auditing, and applicable codes and standards. Supplemental training is performed as required. On-the-job training is performed by the employee's supervisor in QA area-specific procedures and requirements. Training records are maintained for each person performing quality-related job functions.

11.8 Other QA Elements

The Vice President - Operations and Chief Nuclear Officer and President assesses the scope, status, adequacy and regulatory compliance of the QA Program through regular meetings and correspondence with the Plant Manager and the LES QA organization. Additionally, LES QA, through the Quality and Regulatory Affairs Director, periodically informs the LES Plant Manager or President of quality concerns that need management resolution.

LES participates in the planning and scheduling for system turnover as construction is completed. Prior to system turnover, written procedures are developed for control of the transfer of systems, structures, components and associated documentation. The procedures include checklists, marked drawings, documentation lists, system status, and receipt control.

Major work activities contracted by LES shall be identified and controlled. Principal contractors shall be required to comply with the applicable portions of 10 CFR 50, Appendix B (CFR, 2003b), as determined by LES. The performance of contracted activities shall be formally evaluated by LES commensurate with the importance of the activities to safety.

Facility components and processes are assigned a QA level based on their safety significance. Each component will receive a classification of QA Level 1, QA Level 1 Graded, QA Level 1-Fire Protection (QL-1F), QA Level 2AC, QA Level 2, or QA Level 3 that applies throughout the life of the facility and is based on the following definitions:

QA Level 1 Requirements

The QA Level 1 Program shall conform to the criteria established in 10 CFR 50, Appendix B (CFR, 2003b). These criteria shall be met by commitments to follow the guidelines of ASME NQA-1 as specified in the QA Program Description. The QA Level 1 QA program shall be applied to those structures, systems, components, and administrative controls that have been determined to be IROFS (except IROFS27e to which QA Level 1 Graded and fire protection features designated as IROFS to which QL-1F applies), items that are essential to the functions of the IROFS, and items required to satisfy regulatory requirements for which QA Level 1 requirements are applied.

QA Level 1 Graded Requirements

The QA Level 1 Graded QA Program applies exclusively to IROFS27e structures. IROFS27e structures are structures whose failure has been analyzed to result in consequences that exceed the 10 CFR 70.61 performance requirements. The QA Level 1 Graded program is applied to design, procurement, construction and other activities as described in Section 21 of the QAPD. The QA Level 1 Graded Program applies to:

- Separation Building Modules (SBMs) with the exception of slab on grade or supports for internally housed QA Level 1 IROFS that are required to perform a safety function for a seismic event.
- Cylinder Receipt and Dispatch Building (CRDB) superstructure with the exception of the Bunkered Area structure which is designated QL-1. The non-bunkered area foundation is designated QL-1G; slab on grade is designated QL-3.

11.8 Other QA Elements

QA Level 1-Fire Protection (QL-1F Requirements)

QA Level 1-Fire Protection Program shall conform to applicable portions of 10 CFR 50, Appendix B (CFR, 2003b) and shall be met by commitments to follow the guidelines as specified in the QA Program Description. The graded QL-1F Program shall be applied exclusively to those fire protection features designated as IROFS. Such IROFS designated fire protection features are those whose failure has been analyzed to result in consequences that exceed the 10 CFR 70.61 performance requirements. The QL-1F program is applied to design, procurement, and other activities as described in Section 23 of the QAPD.

QA Level 2AC Requirements

QA Level 2AC is applied to certain Support Equipment for Administrative Control IROFS. The QA Level 2AC Support Equipment activities shall be identified in applicable QA procedures, implementing documents, and documents specifying quality requirements or prescribing activities affecting quality. These requirements are implemented by LES and LES contractors through the use of approved QA programs and procedures.

Any removal of the management measure designed to provide assurance of the Support Equipment relied upon by the worker, or removal of the Support Equipment quality requirements from the Administrative Control, IROFS Boundary, would be considered a reduction in commitment and require regulatory approval prior to implementation.

QA Level 2 Requirements

The QA Level 2 program is an owner defined QA program that uses the ASME NQA 1. General QA Level 2 requirements are described in Section 20, "Quality Assurance Program for QA Level 2 Activities". For contractors, the QA Level 2 program shall be described in documents that must be approved by LES. The QA Level 2 program shall be applied to Owner designated structures, systems, components, and activities. An International Organization for Standardization (ISO) 9000 series QA program may be acceptable for QA Level 2 applications provided it complies with LES Quality Assurance Program Description requirements. The QA program manual must be reviewed and accepted by the LES QA Manager.

QA Level 3 Requirements

The QA Level 3 program is defined as standard commercial practice. A documented QA Level 3 program is not required. QA Level 3 governs all activities not designated as QA Level 1, QA Level 1 Graded, QA Level 2AC or QA Level 2. Any removal of the management measures designed to provide assurance of other equipment attributes, identified in Table 3.4-1 of the SAR, that are used by the worker would be considered a reduction in commitment and require regulatory approval prior to implementation.

Appendix A, "LES Quality Assurance Program Description" of this chapter provides additional details and commitments to other QA elements that will be implemented to support the Management Measures described in this chapter.

**SAFETY ANALYSIS REPORT
APPENDIX A**

**QUALITY ASSURANCE
PROGRAM DESCRIPTION**

Revision 25d

Markup for LAR 10-08

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INTRODUCTION

Louisiana Energy Services (LES) maintains full responsibility for ensuring that the enrichment facility is designed, constructed, operated, and decommissioned in conformance with applicable regulatory requirements, specified design requirements, applicable industry standards and good engineering practices in a manner to protect the health and safety of the employees and the public. To this end, the LES Quality Assurance Program conforms to the criteria established in Title 10 of the Code of Federal Regulations 10 CFR 50, Appendix B, Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants. The program also satisfies the requirements of Title 10 of the Code of Federal Regulations, Part 71, Subpart H, Quality Assurance for Packaging and Transportation of Radioactive Material. The criteria in 10 CFR 50, Appendix B and 10 CFR 71 Subpart H, are met by LES's commitment to follow the guidelines of the American Society of Mechanical Engineers (ASME) Quality Assurance (QA) standard NQA-1-1994, Quality Assurance Program Requirements for Nuclear Facilities, including supplements as revised by the ASME NQA-1a-1995 Addenda. See Section 4 Procurement Document Control for specific LES exemptions to 10 CFR 21.3 for the definitions of "commercial grade item", "basic component", "critical characteristics", "dedicating entity", and "dedication".

The LES QA Program described herein covers design, construction (including pre-operational testing), operation (including testing), maintenance and modification, and decommissioning of the facility. This Quality Assurance Program Description (QAPD) describes the requirements to be applied to those structures, systems and components (SSC's), and activities that have been designated Quality Assurance (QA) Level 1, ~~and QA Level 1 Graded.~~ QA Level 1-Fire Protection (QL-1F), and QA Level 2. The QA Levels and applicable requirements of the QAPD are defined in Section 2, Quality Assurance Program.

As described in Section 19, Provisions for Change, subsequent changes to the LES QA Program that shall be incorporated in this QAPD. Any changes that reduce the commitments in the approved QAPD will be submitted to the Nuclear Regulatory Commission (NRC) for review and approval prior to implementation.

and is thus a high enough level to authorize a stop work. In addition, the President is ultimately responsible for all procurement quality, construction and design. Since the QA Manager reports to the Quality and Regulatory Affairs Director who is responsible for Performance Assessment and Feedback, The QA Manager has a direct relationship with the President for quality concerns with Performance Assessment and Feedback. This ensures the QA Manager has sufficient independence for all issues affecting quality.

The LES QA Manager has been assigned by the President to maintain the LES QAPD. The QA Manager is responsible for providing technical support, independent audits, verifications and independent inspections. These responsibilities are defined in approved procedures controlled under the QAPD. These responsibilities are applicable during construction, testing, operation and decommissioning phases of the enrichment facility. The QA organization is sufficiently independent from cost and schedule considerations and has stop work authority. The QA organization also has sufficient authority, access to work areas and organizational freedom to perform quality activities such as:

- Identifying quality problems
- Initiating and recommending solutions to quality problems through designated channels
- Verifying implementation of solutions
- Assuring that further processing, delivery, installation, or use of items is controlled until proper disposition of nonconformances, deficiencies or unsatisfactory conditions has occurred

ORGANIZATIONAL INTERFACES

The organizational interfaces within LES, between the LES organization and contractors, and project applicable regulatory agencies are identified in the appropriate plans, contracts and implementing procedures. These documents contain the appropriate protocols, applicable roles, responsibilities and approval authorities for the specific topics for which they apply. LES design interfaces shall be identified and procedurally controlled. Design efforts shall be coordinated among interfacing organizations as detailed in LES procedures. Interface controls shall include the assignment of responsibility and the establishment of implementing documents among interfacing design organizations for the review, approval, release, distribution and revision of documents involving design interfaces. LES design information transmitted across interfaces shall be documented and procedurally controlled. LES transmittals of design information and/or documents shall reflect the status of the transmitted information and documents. Incomplete designs that require further evaluation, review or approval shall be identified. When it is necessary to initially transmit the design information orally or by other informal means, design information shall be promptly confirmed through a controlled implementing document.

DELEGATION OF WORK

The delegation of work between LES and contractors is identified in applicable plans, contracts and implementing procedures. In all cases of delegation, LES retains the overall responsibility for all work performed under the direction of LES. All LES QA Level 1, QA Level 1 Graded, QA Level 1F, QA Level 2AC, QA Level 2 and QA Level 3 work activities shall meet the requirements of this QAPD. Responsible managers have the authority to delegate tasks to another qualified individual within their organization provided the designated individual possesses the required

The QL-1F Program is a graded quality assurance program that applies exclusively to fire protection features designated as IROFS. Such IROFS designated fire protection features are those whose failure has been analyzed to result in consequences that exceed the 10 CFR 70.61 performance requirements. The QL-1F program is applied to design, procurement, and other activities as described in Section 23. The QL-1F Program applies to:

- Any fire protection features designated as IROFS.

The QA Level 2AC (QL-2AC) program description is provided in Section 22, Quality Assurance Program for QA Level 2AC of this QAPD. QA Level 2AC is applied to Administrative Control IROFS Support Equipment for Administrative Control IROFS. The QA Level 2AC Administrative Control IROFS Support Equipment activities shall be identified in applicable QA procedures, implementing documents, and documents specifying quality requirements or prescribing activities affecting quality. These requirements are implemented by LES and LES contractors through the use of approved QA programs and procedures.

The QA Level 2 program description is provided in Section 20, Quality Assurance Program for QA Level 2 of this QAPD. These requirements are implemented by LES and LES contractors through the use of approved QA programs and procedures. The Owner defined QA Level 2 SSCs and their associated activities i.e., those SSCs that are not IROFS, provide support of normal operations of the facility, and do not affect the functions of the IROFS and SSCs that minimize public, worker, and environmental risks are evaluated against the requirements in Section 20, of this QAPD. This evaluation identifies which QA controls are needed to ensure these SSCs meet their intended functions. This evaluation may also include nuclear industry precedent in the application of augmented QA requirements. The QA Level 2 SSCs which support normal operations shall be identified in applicable QA procedures and implementing documents and documents specifying quality requirements or prescribing activities affecting quality.

The QA program is established at the very earliest aspects of the project. It is comprised of five levels defined as follow:

QA LEVEL 1 REQUIREMENTS

The QA Level 1 Program shall conform to the criteria established in 10 CFR 50, Appendix B. These criteria shall be met by commitments to follow the guidelines of ASME NQA-1-1994, including supplements as revised by the ASME NQA-1a-1995 Addenda. The QA Level 1 QA program shall be applied to those structures, systems, components, and administrative controls that have been determined to be IROFS (except IROFS27e to which QA Level 1 Graded applies and fire protection features designated as IROFS to which QL-1F applies), items that are essential to the functions of the IROFS, and to items required to satisfy regulatory requirements for which QA Level 1 requirements are applied.

QA LEVEL 1 GRADED REQUIREMENTS

The QA Level 1 Graded QA program applies exclusively to IROFS27e structures. IROFS27e structures are structures whose failure has been analyzed to result in consequences that exceed the 10 CFR 70.61 performance requirements. The QA Level 1 Graded program is

applied to design, procurement, construction and other activities as described in Section 21. The QA Level 1 Graded program applies to:

- Separation Building Modules (SBMs) with the exception of slab on grade or supports for internally housed QA Level 1 IROFS that are required to perform a safety function for a seismic event.
- Cylinder Receipt and Dispatch Building (CRDB) superstructure with the exception of the Bunkered Area structure which is designated QL-1. The non-bunkered area foundation is designated QL-1G; slab on grade is designated QL-3.

QA LEVEL 1 FIRE PROTECTION REQUIREMENTS¹

The QL-1F Program applies exclusively to fire protection features designated as IROFS. Such IROFS designated fire protection features are those whose failure has been analyzed to result in consequences that exceed the 10 CFR 70.61 performance requirements. The QL-1F Program is applied to design, procurement, and other activities as described in Section 23.

QA LEVEL 2AC REQUIREMENTS

Administrative Control IROFS are safety functions provided by human actions as discussed in NUREG-1520,

In 10 CFR Part 70, an administrative control is an IROFS if it is the human action necessary to meet safety performance requirements, and it is supported by management measures (training, quality assurance, procedures, etc.) that ensures the action will be taken if needed.

Administrative Control IROFS Support Equipment are not "items which are determined to be essential to the function of the IROFS." Administrative Control IROFS Support Equipment is used by the worker to perform the actions of the Administrative Control IROFS. This equipment is not essential to a passive or active engineered safety feature that must operate without any human interaction.

The QA Level 2AC Program is applied to Administrative Control IROFS Support Equipment Components. The worker utilizes Administrative Control IROFS Support Equipment to perform the human action of the administrative control. This equipment is specified in Table 3.4-1 of the Safety Analysis Report. In addition, the QL requirements applicable for this equipment are specified in Section 22 of this QAPD.

Any removal of the management measure designed to provide assurance of the Administrative Control IROFS Support Equipment used by the worker, or removal of the Administrative Control IROFS Support Equipment quality requirements from the Administrative Control IROFS Boundary, would be considered a reduction in commitment and require regulatory approval prior

¹ No other Section of the QAPD shall apply to the fire protection features designated as IROFS unless otherwise specified in Section 23.

to implementation. Current application of management measures to this Administrative Control IROFS Support Equipment and/or attributes is defined in the administrative control IROFS Boundary Definition Documents.

General QA Level 2AC requirements are described in Section 22, Quality Assurance Program for QA Level 2AC. An International Organization for Standardization (ISO) 9000 series QA program may be acceptable for QA Level 2AC applications provided it complies with applicable LES QAPD requirements and the contractor's QAPD is reviewed and accepted by the LES QA Manager.

QA LEVEL 2 REQUIREMENTS

The QA Level 2 program is an LES defined QA program that uses the ASME NQA 1 standard as guidance to identify and manage activities that do not meet the requirements for inclusion in the QA Level 1, QA Level 1 Graded, or QA Level 1F (or QL-1F), or QA Level 2AC program, but have elements or characteristics that may warrant control under a quality program more detailed than the QA Level 3 program. General QA Level 2 requirements are described in Section 20, Quality Assurance Program for QA Level 2. For contractors, the QA Level 2 program shall be applied to LES designated structures, systems, components, and activities. An International Organization for Standardization (ISO) 9000 series QA program may be acceptable for QA Level 2 applications provided it complies with applicable LES QAPD requirements and the contractor's QAPD is reviewed and accepted by the LES QA Manager. The QA Level 2 SSCs which support normal operations shall be identified in applicable QA procedures and implementing documents and documents specifying quality requirements or prescribing activities affecting quality.

QA LEVEL 3 REQUIREMENTS

The QA Level 3 program is defined as standard commercial practice. A documented QA Level 3 program is not required. QA Level 3 governs all activities not designated as QA Level 1, QA Level 1 Graded, QA Level 1F, QA Level 2AC, or QA Level 2.

Any removal of the management measures designed to provide assurance of other equipment attributes, identified in Table 3.4-1 of the SAR, that are used by the worker would be considered a reduction in commitment and require regulatory approval prior to implementation.

QUALITY ASSURANCE TRAINING

Personnel who are assigned to perform QA Level 1 activities receive LES QA Indoctrination Training. This training includes general criteria, such as an introduction to applicable codes, standards, QA Procedures, QAPD elements and job responsibilities and authorities. Personnel assigned to perform QA Level 1, ~~and QA Level 1 Graded~~, or QA Level 1F activities are also required to complete training in the specific LES QA procedures needed to perform their job roles and responsibilities as assigned by their supervisor. Detailed QA training is provided on the LES QAPD and job specific QA procedures prior to an employee beginning QA Level 1, ~~and QA Level 1 Graded~~, or QA Level 1F work. Supervision is responsible for ensuring that personnel performing work under their supervision are appropriately trained. LES will also include a version of QA Indoctrination Training as part of the general employee training for those individuals required to take the training.

The Training Manager provides the support function for coordinating this QA training. Plant Support provides centralized training support for supervision in coordinating training and maintaining QA training records. This responsibility is carried out as support for line management. LES supervisory personnel are responsible for determining the type and extent of the training to be provided to an individual, and ensuring that the training is properly documented for personnel performing QA Level 1, ~~and QA Level 1 Graded,~~ and QA Level 1F activities. Retraining is performed and documented, when applicable, shall occur in order to maintain proficiency or when changes to work methods, technology, or job responsibilities occur.

MANAGEMENT ASSESSMENTS

The Vice President - Operations & Chief Nuclear Officer and President are responsible for ensuring that management assessments are conducted annually to determine if the LES QA Program is effective. Recommendations are provided to the Vice President - Operations & Chief Nuclear Officer and President for action. Functional Managers and the QA Manger conduct assessments annually of QA activities under their control. The managers report the results to the Vice President - Operations & Chief Nuclear Officer or President for review. The results of these assessments are reviewed by senior management to determine the adequacy of implementation of the LES QA Program and to direct any needed changes for program improvements.

QUALIFICATION/CERTIFICATION OF INSPECTION AND TEST PERSONNEL

Inspection and test personnel performing QA Level 1, QA Level 1 Graded, QA Level 1F, and QA Level 2AC activities shall be certified in accordance with LES procedures that meet the requirements of NQA-1-1994 Part I Supplement 2S-1, Supplementary Requirements for the Qualification of Inspection and Test Personnel.

QUALIFICATION/CERTIFICATION OF NONDESTRUCTIVE EXAMINATION (NDE) PERSONNEL

Nondestructive Examination (NDE) personnel performing QA Level 1, QA Level 1 Graded, QA Level 1F, or QA Level 2AC activities shall be certified in accordance with LES procedures that meet the requirements of NQA-1a-1995 Part 1 Supplement 2S-2, Supplementary Requirements for the Qualification of Nondestructive Examination Personnel and American Society of Nondestructive Testing (ASNT) Recommended Practice No. SNT-TC-1A, Personnel Qualification and Certification in Nondestructive Testing, December 1988 Edition. Qualification/certification records meeting the requirements of Supplement 2S-2 shall be established and maintained as QA records.

QUALITY ASSURANCE AUDIT PERSONNEL

Audit personnel performing QA Level 1 or QA Level 1 Graded, or QA Level 1F activities shall be certified in accordance with LES procedures that meet the requirements of NQA-1a-1995 Part 1 Supplement 2S-3 Supplemental Requirements for the Qualification of Quality Assurance Program Audit Personnel.

SECTION 4 PROCUREMENT DOCUMENT CONTROL

The elements of the LES QA Program described in this section and associated procedures implement the requirements of Criterion 4, Procurement Document Control, of 10 CFR 50, Appendix B, and the commitment to Basic Requirement 4 and Supplement 4S-1 of NQA-1-1994.

LES quality related procurements shall be issued only to those suppliers that have been evaluated and qualified as acceptable for the particular scope of material, equipment and services to be procured in accordance with procedures. The material, equipment and services shall be procured from approved suppliers utilizing procurement documents, approved in accordance with procedures controlled under the QAPD. Applicable design bases and other requirements necessary to assure adequate quality shall be included or referenced in procurement documents for items and services. Procurement documents shall require suppliers to have a quality assurance program consistent with the applicable requirements of 10 CFR 50 Appendix B and this QAPD. The requirements of 10 CFR 21, Reporting of Defects and Noncompliance, are invoked during design, construction, testing and operations of QA Level 1 procurement or dedication of items and services including the dedication of items or services used to satisfy the requirements of 10 CFR 50, Appendix B or 10 CFR 70, Domestic Licensing of Special Nuclear Material. LES will also apply the requirements of 10 CFR 21 where appropriate, regardless of QA level in accordance with approved procedures.

LES is exempted from the definitions of "commercial grade item", "basic component", "critical characteristics", "dedicating entity", and "dedication" in 10 CFR 21.3, as replaced by the following:

Commercial grade item: A commercial grade item means a structure, system or component, or part thereof that affects its Items Relied on for Safety (IROFS) function that was not designed and manufactured as a basic component. Commercial grade items do not include items where the design and manufacturing process require in-process inspections and verifications to ensure that defects or failures to comply are identified and corrected (i.e., one or more critical characteristics of the item cannot be verified).

As described above, some NEF components are designed and specified by vendors such as ETC. Where such components are designated as Items Relied On For Safety (IROFS), LES will commercially dedicate the items using one or more acceptance methods to verify the critical characteristics related to the IROFS function of the item. Inspections, tests and special process verifications performed by the vendor may be credited for control of critical characteristics on the basis of a commercial grade survey performed in accordance with approved procedures.

Basic component: A basic component means a structure, system, or component, or part thereof that affects their IROFS function, that is directly procured by the licensee or activity subject to the regulations in part 70 and in which a defect or failure to comply with any applicable regulation in this chapter, order, or license issued by the Commission would create a substantial safety hazard (i.e., exceed performance requirements of 10 CFR 70.6 1). In all cases, basic components includes IROFS-related design, analysis, inspection, testing, fabrication, replacement parts, or consulting services that are associated with the component hardware whether these services are performed by the component supplier or others.

When applied to fire protection systems procured for facilities and other activities licensed under 10 CFR Part 70 of the chapter, basic component means a structure, system, or component, or part thereof, that affects their safety function, in which a defect or failure to comply with any applicable regulation in this chapter, order, or license issued by the Commission could create a substantial safety hazard. For fire protection systems designated as items relied on for safety, a basic component may be directly procured from a commercial entity by a Part 70 licensee if (1) the system, structure or component is manufactured to an established, acceptable national code or standard that includes some independent product endorsements based on qualification testing or periodic testing of selected characteristics of the component and (2) the acceptability of the item's manufacture, testing, and/or certification has been reviewed and verified by the licensee prior to use as a basic component.

Critical characteristics: Critical characteristics are those important design, material, and performance characteristics of a commercial grade item that, once verified, will provide reasonable assurance that the item will perform its intended IROFS function.

Dedication: Dedication is an acceptance process undertaken to provide reasonable assurance that a commercial grade item to be used as a basic component will perform its intended IROFS function and, in this respect, is deemed equivalent to an item designed and manufactured under a 10 CFR 50, Appendix B, quality assurance program. This assurance is achieved by identifying the critical characteristics of the item and verifying their acceptability by inspections, tests, or analyses performed by the purchaser or third-party dedicating entity after delivery, supplemented as necessary by one or more of the following: commercial grade surveys; product inspections or witness at holdpoints at the manufacturer's facility, and analysis of historical records for acceptable performance. In all cases, the dedication process must be conducted in accordance with the applicable provisions of 10 CFR Part 50, Appendix B. The process is considered complete when the item is designated for use as a basic component.

Dedicating entity: Dedicating entity means the organization that performs the dedication process. Dedication may be performed by the manufacturer of the item, a third-party dedicating entity, or the licensee itself. The dedicating entity, pursuant to Section 21.21 (c) of this part, is responsible for identifying and evaluating deviations, reporting defects and failures to comply for the dedicated item, and maintaining auditable records of the dedication process. In cases where LES applies the commercial grade item procurement strategy and performs the dedication process, LES would assume full responsibility as the dedicating entity.

Procurement Document Content

LES procurement documents issued for QA Level 1 items or services shall include the following provisions, as applicable to the procured material, equipment or service as described in approved procedures controlled under the QAPD:

- Statement of the scope of work to be performed by the supplier.
- Technical requirements including:
 - Design bases, identified or referenced in the procurement documents.

Section 4 Procurement Document Control

- Specific documents (such as drawings, codes, standards, regulations, procedures or instructions) describing the technical requirements of the material, equipment or services to be furnished, shall be specified along with their revision level or change status.
- Tests, inspections or acceptance requirements that LES will use to monitor and evaluate the performance of the supplier shall be specified.
- Quality Assurance Program requirements including:
 - A requirement for the supplier to have a documented quality assurance program that implements applicable requirements of 10 CFR 50, Appendix B and this QAPD in place before the initiation of work. The extent of the quality assurance program shall depend on the scope, nature or complexity of the material, equipment or service to be procured. The supplier shall also incorporate the appropriate requirements into any sub-tier supplier issued quality related procurement documents.
 - A requirement invoking NRC reporting requirements of 10 CFR 21 for QA Level 1 procurements.
- Right of access to supplier, including sub-tier, facilities and records for inspection or audit by LES, or other designee authorized by LES.
- Provisions for establishing witness/inspection hold points beyond which work cannot proceed by the supplier without LES QA Manager authorization. The Procurement Director may also establish hold points indicating work that cannot proceed without authorization by the Procurement Director.
- Provisions for documentation required to be submitted to LES for information, review or acceptance shall be identified along with a document submittal schedule. Record retention times, disposition requirements and record maintenance responsibilities shall be identified for documentation that will become quality assurance records.
- Provisions for requiring the suppliers to report to LES in writing adverse quality conditions resulting in work stoppages and nonconformances. Requirements for LES approval of partial and full work releases and disposition of nonconformances will be defined.
- Provisions for identifying spare and replacement parts or assemblies and the appropriate delineation of technical and quality assurance data required for ordering these parts or assemblies. Commercial Grade procurements shall also be identified in procurement documents.

Procurement Document content for QA Level 1-Graded or QA Level 1F items or services shall be in accordance with Section 21.4 or Section 23.4, respectively.

Procurement Document Review and Approval

Procurement document reviews shall be performed and documented before issuing the procurement documents to the supplier. A review of the procurement documents and any changes thereto shall be made to verify that documents include all applicable requirements specified under Section 4, Procurement Document Content, above and contain appropriate provisions to ensure that material, equipment or services will meet the governing requirements. Procedures controlled under the QAPD shall ensure the provisions of NQA-1-1994, Supplement 4S-1 are addressed. Reviewers shall include representatives from the Procurement and QA organizations. The QA review shall assure compliance to quality assurance requirements.

SECTION 18 AUDITS

The elements of the LES QA Program described in this section and associated QA procedures implement the requirements of Criterion 18, Audits, of 10 CFR 50, Appendix B, and the commitment to Basic Requirement 18 and Supplement 18S-1 of NQA-1-1994 Part 1.

In accordance with the description of the QA organization during the various phases of design, construction, and operation provided in Section 1, Organization, the LES QA Manager shall verify LES compliance with all aspects of the LES QA Program and determine QA Program effectiveness by ensuring that planned and scheduled audits are conducted. Elements that have been selected for audit shall be evaluated against specified requirements. An auditing function reports to the LES QA Manager and has the organizational independence and authority to execute an effective audit process to meet all requirements of the QAPD. Objective evidence shall be examined to the depth necessary to determine if these elements are being implemented effectively. LES audits are performed in accordance with written procedures or checklists by appropriately trained and qualified personnel who do not have direct responsibility for performing the activities being audited. Audit results are documented and provided to the appropriate management for review and corrective action as applicable. Follow-up actions are taken where indicated.

AUDIT SCHEDULES

Internal or external audits shall be scheduled in a manner to provide coverage, consistency and coordination with ongoing work, and at a frequency commensurate with the status and importance of the work. Internal or external audits shall be scheduled to begin as early in the life of the work as practical and shall be scheduled to continue at intervals consistent with the schedule for accomplishing the work. As a minimum, internal audits of LES QA Level 1, QA Level 1 Graded, QA Level 1F, and QA Level 2AC activities shall be at least once per year or at least once during the life of the activity, whichever is shorter. Regularly scheduled internal audits shall be supplemented by additional audits of specific subjects when necessary to provide an adequate determination of the effectiveness of the QAPD. Internal audits to determine QAPD effectiveness shall be performed on selected work products. The audit schedule shall be developed annually and revised as necessary to ensure that coverage is maintained current. Frequency of audits should be based upon evaluation of all applicable and active elements of the QAPD applicable to LES workscope. These evaluations should include an assessment of the effectiveness of the applicable and active elements of the QAPD based upon previous audit results and corrective actions, nonconformance reports, identified trends, and significant organizational changes. Audits may be supplemented by QA Surveillances conducted in accordance with approved procedures to ensure that QA is providing sufficient oversight of important QAPD activities. These surveillances are performed by the QA organization.

AUDIT PLANS

A documented audit plan shall be developed for each audit. This plan shall identify the audit scope, requirements for performing the audit, type of audit personnel needed, work to be audited, organizations to be notified, applicable documents, audit schedule, and implementing documents or checklists to be used.

SECTION 20 QUALITY ASSURANCE PROGRAM FOR QA LEVEL 2

This section outlines LES defined Quality Assurance Program for QA Level 2 requirements. For contractors, the QA Level 2 program shall be described in documents that must be approved by LES.

An International Organization for Standardization (ISO) 9000 series QA program may be acceptable for QA Level 2 applications provided it complies with LES QAPD requirements and the ISO program is reviewed and approved by the LES QA Manager.

QA Level 2 program activities are those activities that do not meet the requirements for inclusion in the QA Level 1, QA Level 1 Graded, QA Level 1F, or QA Level 2AC program, but have elements or characteristics that may warrant control under a quality program more detailed than the QA Level 3 program. QA Level 2 requirements may be applied to activities and SSCs for the following reasons:

- To minimize the adverse consequences of radiation to the worker, public and the environment after initiation of accidents involving licensed material or their byproducts.
- To minimize the adverse consequences of hazardous chemicals produced from licensed material, such as UF₆, to the worker, public and the environment after initiation of releases or accidents.
- Other items/processes that management decides are a good practice.

ORGANIZATION

The organization, lines of responsibility and authority are clearly established and documented.

PERSONNEL QUALIFICATIONS

Measures are established to provide for indoctrination and training of personnel to ensure suitable proficiency is achieved and maintained. Where specific qualifications are required by codes and standards, measures shall be taken to document the qualifications.

PROCEDURES

Work activities are performed in accordance with written procedures. Procedures shall contain the appropriate criteria for determining that prescribed activities have been satisfactorily accomplished.

DOCUMENT CONTROL

Procedures are established to ensure that appropriate documents are properly initiated, changed, and controlled to prevent use of incorrect or superseded documents.

DESIGN CONTROL

The design shall be defined, controlled, and verified. Applicable design inputs shall be appropriately specified on a timely basis and correctly translated into design documents. Design interfaces are identified and controlled. Design adequacy is verified by persons independent of those who performed the design. Design changes are governed by control

SECTION 23 QUALITY ASSURANCE PROGRAM FOR QUALITY ASSURANCE LEVEL 1- FIRE PROTECTION (QL-1F)

This section outlines the requirements for the graded QL-1F Program. This section applies only to fire protection features designated as Items Relied On For Safety (IROFS). The requirements of this section are intended to provide reasonable assurance that such a designated IROFS will perform its intended function by fulfilling the appropriate design, procurement, fabrication, and construction requirements necessary to demonstrate this functionality. Such IROFS are those fire protection features (e.g., designated structural fire barriers, isolation systems, fire detection and suppression, and fire prevention measures) whose failure during a fire could result in consequences that exceed the 10 CFR 70.61 performance requirements.

When applied to fire protection systems procured for facilities and other activities licensed under 10 CFR Part 70 of the chapter, basic component means a structure, system, or component, or part thereof, that affects their safety function, in which a defect or failure to comply with any applicable regulation in this chapter, order, or license issued by the Commission could create a substantial safety hazard. For fire protection systems designated as items relied on for safety, a basic component may be directly procured from a commercial entity by a Part 70 licensee if (1) the system, structure or component is manufactured to an established, acceptable national code or standard that includes some independent product endorsements based on qualification testing or periodic testing of selected characteristics of the component and (2) the acceptability of the item's manufacture, testing, and/or certification has been reviewed and verified by the licensee prior to use as a basic component.

Fire protection features shall be procured, constructed, and installed with appropriate UL/FM fire ratings and/or ASTM tested designs, as applicable. These systems shall meet the applicable requirements of the International Fire Code (IFC), the International Building Code (IBC), and the National Fire Protection Association (NFPA) in accordance with the NEF Code of Record, in Table 3.0-1 of the Integrated Safety Analysis Summary. Fire rated features that are not specifically tested as identified in UL, ASTM, or NFPA are to be evaluated to be equivalent in performance to a nationally recognized fire standard.

Because some IROFS involve elements of fire protection (e.g., designated fire barriers, smoke detection, and control of combustibles), specifically defined portions of the Quality Assurance Program are invoked for fire protection to ensure that required fire protection attributes are adequately provided and maintained. In the context of the application of the QA Program to fire protection, only the subset of fire protection (e.g., designated structures, systems, components, procedures, etc.) related to IROFS is included.

The elements of the QA Program invoked for fire protection features designated as IROFS are described in the following Sections 23.1 through 23.19.

For engineered fire protection IROFS, items manufactured, procured, and installed in accordance with industry standards (e.g., NFPA, UL) that include independent product assessments by a nationally recognized testing laboratory, certified by state authorities, can be used to assure component performance.

The QL-1F Program is based upon the following:

- Management measures shall be identified for fire protection features designated as IROFS in IROFS Boundary Definition Documents in accordance with LES procedures.
- Critical elements of these IROFS for performance, construction, fabrication, or implementation will be defined during the design phase. Appropriate requirements will be implemented to ensure that the final "as-built" structure(s) include these critical elements and are controlled through the design, procurement, construction, and operations phases.
- Procurement controls of materials and services shall be in accordance with design requirements.

SECTION 23.1 ORGANIZATION

The roles, responsibilities and organizational interfaces (applicable to LES) to assure that those responsible for the design, procurement, fabrication, construction, and implementation of fire protection features designated as IROFS meet the requirements of the QL-1F Program shall be identified. The responsibility begins with the establishment of a QA Program at the very earliest aspect of the project, where possible.

LES persons or organizations responsible for verification that a quality assurance program has been established and verified that activities affecting quality have been correctly performed shall have sufficient authority, access to work areas, and organizational freedom to:

- (a). Identify quality problems:
- (b). Initiate, recommend, or provide solutions to quality problems through designated channels:
- (c). Verify implementation of solutions:
- (d). Assure that further processing, delivery, installation, or use is controlled until proper disposition of a nonconformance, deficiency, or unsatisfactory condition has occurred.

Such persons or organizations shall have direct access to responsible management at a level where appropriate action can be affected. Such persons or organizations shall report to a management level such that required authority and organization freedom are provided, including sufficient independence from cost and schedule considerations.

SECTION 23.2 QUALITY ASSURANCE PROGRAM

A documented quality assurance program shall be implemented and maintained at LES in accordance with this section. The program shall identify the activities and items to which it applies. The establishment of the program shall include consideration of the technical aspects of the activities affecting quality. The program shall provide control over activities affecting quality to an extent consistent with their importance.

The program shall be established at the earliest time consistent with the schedule for accomplishing the activities.

The program shall provide for the planning and accomplishment of activities affecting quality under suitably controlled conditions. Controlled conditions include the use of appropriate equipment, suitable environmental conditions for accomplishing the activity, and assurance that prerequisites for the given activity have been satisfied.

The program shall provide for indoctrination and training, as necessary, of personnel performing activities affecting quality to assure that suitable proficiency is achieved and maintained.

SECTION 23.3 DESIGN CONTROL

Designs and modifications of fire protection systems are reviewed and overseen by qualified personnel to assure inclusion of appropriate fire protection requirements. Field changes and design deviations that affect the intent of the design are subject to the same level of controls, reviews, and approvals that were applicable to the original document. Quality standards, such as appropriate fire protection codes and standards and/or certification by testing laboratories, are specified in the design documents.

Quality standards are specified in the design documents, such as appropriate fire protection codes and standards, and deviations and changes from these quality standards are controlled.

New designs or plant modifications, including fire protection systems, are reviewed by qualified personnel to ensure inclusion of appropriate fire protection requirements.

SECTION 23.4 PROCUREMENT DOCUMENT CONTROL

Procurement documents for fire protection materials, basic components, equipment, and services are reviewed, approved and documented by qualified personnel to verify the adequacy of fire protection and quality requirements. This review assures that fire protection and quality requirements are correct; that there are adequate acceptance and rejection criteria; and that the procurement document has been properly prepared, reviewed, and approved.

SECTION 23.5 INSTRUCTIONS, PROCEDURES, AND DRAWINGS

Inspections, tests, administrative controls, and training that govern the fire protection program are prescribed in accordance with documented instructions, procedures, or drawings.
Procedures governed by the fire protection program are reviewed to assure proper inclusion of fire protection requirements.

The installation or application of fire protection features designated as IROFS is performed by trained personnel using approved procedures.

SECTION 23.6 DOCUMENT CONTROL

Documents that furnish documentary evidence of quality of critical elements are specified, prepared, and maintained. Documents shall be legible, identifiable, and retrievable.

SECTION 23.7 CONTROL OF PURCHASED MATERIAL, EQUIPMENT AND SERVICES

Measures are established to ensure conformance with the procurement specifications and documents. Measures are established to ensure suppliers of material, equipment, or services are capable of supplying these items to the requirements specified in the procurement documents.

LES Engineering shall define design requirements applicable to the components and material furnished for the fire protection features designated as IROFS.

SECTION 23.8 IDENTIFICATION AND CONTROL MATERIALS, PARTS AND COMPONENTS

After receipt and before the storage of a fire protection component, part, or material, inspection is performed by qualified personnel as necessary to ensure that the item or service is adequately identified and complies with the specifications delineated in the associated procurement documents. These inspections and subsequent identification of status are performed in accordance with material receiving and inspection procedures.

Fire protection equipment, such as fusible links, shall be stored in a controlled environment in accordance with manufacturer and/or testing laboratory recommendations, as applicable (e.g. within specified temperature parameters).

The controls necessary to ensure that only correct and accepted items are used or installed shall be implemented, including requirements for identification of materials, parts and components. Specific identification requirements which should be considered are as follows:

- Identification markings, when used, shall be applied using materials and methods which provide a clear and legible identification and do not detrimentally affect the function or service life of the item. Such markings shall be transferred to each part of an item when subdivided and shall not be obliterated or hidden by surface treatments or coatings unless other means of identification are substituted.
- Sufficient precautions shall be taken to preclude identifying materials in a manner that degrades the function or quality of the item being identified.

Specific control requirements shall include documented processes for the following:

- Identification and segregation of nonconforming or rejected materials, parts, or components to ensure that they are not inadvertently used.
- Verification of correct identification of materials (including consumable materials or items with a limited shelf life), shall be required to prevent the use of incorrect or defective items.
- Maintaining and replacement of markings and identification documents due to damage during handling, aging or environmental exposure.

The requirements for fire protection features designated as IROFS will include provisions for segregated and controlled lay-down areas for such IROFS components.

SECTION 23.9 CONTROL OF SPECIAL PROCESSES

Control of Special Processes shall be in accordance with Section 9 of the QAPD.

SECTION 23.10 INSPECTION

A program for independent inspection of activities affecting fire protection will be established and executed by, or for, the organization performing the activity to verify conformance to documented installation drawings and test procedures for accomplishing activities. The inspection program includes:

- a. Periodic inspections of fire protection systems and associated equipment to assure these items will continue to perform their intended functions.
- b. Periodic inspections of materials subject to degradation such as fire stops, seals and fire retardant coatings to assure that such items have not been damaged or deteriorated.

SECTION 23.11 TEST CONTROL

Following installation, modification, repair, or replacement of fire protection equipment, material, or components, sufficient testing is performed to demonstrate that the equipment, material, or component will perform satisfactorily in service and that design criteria are met. Written test procedures are prepared by the responsible engineering group and incorporate the requirements and acceptance limits contained in applicable design documents.

SECTION 23.12 CONTROL OF MEASURING AND TEST EQUIPMENT

Control of measuring and test equipment shall be in accordance with the requirements of Section 12 of the QAPD.

SECTION 23.13 HANDLING, STORAGE, AND SHIPPING

Fire protection equipment, such as fusible links, shall be stored in a controlled environment in accordance with manufacturer and/or testing laboratory recommendations, as applicable (e.g. within specified temperature parameters).

SECTION 23.14 INSPECTION, TEST, AND OPERATING STATUS

Following installation, modification, repair, or replacement of fire protection equipment, material, or components, sufficient testing is performed to demonstrate that the equipment, material, or component will perform satisfactorily in service and that design criteria are met. Written test procedures are prepared by the responsible engineering group and incorporate the requirements and acceptance limits contained in applicable design documents.

SECTION 23.15 NONCONFORMING ITEMS

Controls for the Nonconforming Items for the QL-1F Program shall be in accordance with the requirements of Section 15 of the QAPD.

SECTION 23.16 CORRECTIVE ACTION

Corrective Action requirements for the QL-1F Program shall be in accordance with the requirements of Section 16 of the QAPD.

SECTION 23.17 QUALITY ASSURANCE RECORDS

Requirements for the identification, generation and control of records for the QL-1F Program shall be in accordance with the requirements of Section 17 of the QAPD.

SECTION 23.18 AUDITS

Auditing requirements for the QL-1F Program shall be in accordance with the requirements of Section 18 of the QAPD. In addition, the audit team shall include a fire protection engineer. The fire protection engineer, can be a licensee employee, but should be an outside independent fire protection consultant every third year. This audit team approach will ensure that the technical requirements as well as the QA requirements are adequately assessed.

SECTION 23.19 PROVISIONS FOR CHANGE

Changes to the QL-1F Program shall be in accordance with Section 19 of the QAPD.