

October 4, 2004

NEF#04-038

ATTN: Document Control Desk  
Director  
Office of Nuclear Material Safety and Safeguards  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

Louisiana Energy Services, L. P.  
National Enrichment Facility  
NRC Docket No. 70-3103

Subject: Integrated Safety Analysis Accident Sequences for Criticality Safe-By-Design Components

- References:
1. Letter NEF#03-003 dated December 12, 2003, from E. J. Ferland (Louisiana Energy Services, L. P.) to Directors, Office of Nuclear Material Safety and Safeguards and the Division of Facilities and Security (NRC) regarding "Applications for a Material License Under 10 CFR 70, Domestic licensing of special nuclear material, 10 CFR 40, Domestic licensing of source material, and 10 CFR 30, Rules of general applicability to domestic licensing of byproduct material, and for a Facility Clearance Under 10 CFR 95, Facility security clearance and safeguarding of national security information and restricted data"
  2. Letter NEF#04-002 dated February 27, 2004, from R. M. Krich (Louisiana Energy Services, L. P.) to Director, Office of Nuclear Material Safety and Safeguards (NRC) regarding "Revision 1 to Applications for a Material License Under 10 CFR 70, "Domestic licensing of special nuclear material," 10 CFR 40, "Domestic licensing of source material," and 10 CFR 30, "Rules of general applicability to domestic licensing of byproduct material"
  3. Letter NEF#04-029 dated July 30, 2004, from R. M. Krich (Louisiana Energy Services, L. P.) to Director, Office of Nuclear Material Safety and Safeguards (NRC) regarding "Revision to Applications for a Material License Under 10 CFR 70, "Domestic licensing of special nuclear material," 10 CFR 40, "Domestic licensing of source material," and 10 CFR 30, "Rules of general applicability to domestic licensing of byproduct material"

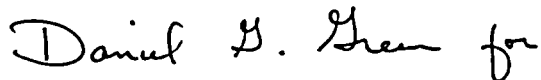
*NM5501*

By letter dated December 12, 2003 (Reference 1), E. J. Ferland of Louisiana Energy Services (LES), L. P., submitted to the NRC applications for the licenses necessary to authorize construction and operation of a gas centrifuge uranium enrichment facility. Revision 1 to these applications was submitted to the NRC by letter dated February 27, 2004 (Reference 2). A subsequent revision (i.e., revision 2) to these applications was submitted to the NRC by letter dated July 30, 2004 (Reference 3).

In a July 26, 2004, conference call between LES and NRC representatives, discussions were held concerning modifications to accident sequences for criticality safety for the Integrated Safety Analysis (ISA). On September 9, 2004, LES and NRC representatives conducted an in-office meeting in the LES office in Washington, D.C. During this in-office meeting, modified ISA accident sequences and associated documentation for two criticality safe-by-design components were presented. Based on discussions during the conference call and subsequent meeting, the ISA accident sequences and associated documentation have been modified to address criticality safe-by-design components. Some of the associated information involves classified information (i.e., confidential national security information (CNSI)). This classified information has been separated from the unclassified information and is being submitted separately in accordance with 10 CFR 95.39, "External transmission of documents and material." The unclassified version of the information, in the form of revised ISA Summary pages, is included in the Enclosure, "Integrated Safety Analysis Accident Sequences for Criticality Safe-By-Design Components." This unclassified information will be formally incorporated into the ISA Summary in a future revision.

If you have any questions or need additional information, please contact me at 630-657-2813.

Respectfully,

A handwritten signature in cursive script that reads "Daniel B. Green for".

R. M. Krich  
Vice President – Licensing, Safety, and Nuclear Engineering

Enclosure:

Integrated Safety Analysis Accident Sequences for Criticality Safe-By-Design Components

cc: T.C. Johnson, NRC Project Manager

**ENCLOSURE**

**Integrated Safety Analysis Accident Sequences  
for  
Criticality Safe-By-Design Components**

#### **Addition to Section 3.1.1.3.2**

The definition of "highly unlikely" is taken from NUREG-1520 (NRC, 2002). Additionally, a qualitative determination of "highly unlikely" can apply to passive design component features (e.g., tanks, piping, cylinders, etc.) of the facility that do not rely on human interface to perform the criticality safety function (i.e., termed "safe-by-design"). For failure of passive safe-by-design components to be considered "highly unlikely," these components must also meet the criterion that the only potential means to effect a change that might result in a failure to function, would be to implement a design change (i.e., geometry deformation as a result of a credible process deviation or event does not adversely impact the performance of the safety function). The evaluation of the potential to adversely impact the safety function of these passive design features includes consideration of potential mechanisms to cause bulging, corrosion, and breach of confinement/leakage and subsequent accumulation of material. The evaluation further includes consideration of adequate controls to ensure that the double contingency principle is met. For each of these passive design components, it must be concluded, that there is no credible means to effect a geometry change that might result in a failure of the safety function and that significant margin exists between the normal operating conditions and design/analysis conditions assumed in the Criticality Safety Analysis. In addition, the configuration management system required by 10 CFR 70.72 (implemented by the NEF Configuration Management Program) ensures the maintenance of the safety function of these features and assures compliance with the double contingency principle, as well as the defense-in-depth criterion of 10 CFR 70.64(b).

**All subsequent pages removed under 10 CFR 2.390 (pages 5 through 176).**