

August 26, 2010

Mr. Gary Sanford  
Director, Quality and Regulatory Affairs  
Louisiana Energy Services, LLC  
National Enrichment Facility  
P.O. Box 1789  
Eunice, NM 88231

SUBJECT: LOUISIANA ENERGY SERVICES - REVIEW OF TITLE 10 OF THE *CODE OF FEDERAL REGULATIONS* 70.72 SUMMARY OF CHANGES (TAC NO. L32942)

Dear Mr. Sanford:

In letters dated February 1, 2010, and March 24, 2010, Louisiana Energy Services, LLC (LES) submitted a brief summary of changes to the records made without prior U.S. Nuclear Regulatory Commission (NRC) approval, in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR), Section 70.72(c). The NRC staff selected a sampling of changes from your summary for detailed review to determine whether any of those changes were potentially safety significant. As a result of our review, we requested, in a letter dated February 24, 2010, that LES provide the facility change packages for each of those changes.

In your correspondence dated April 1, 2010, and April 22, 2010, you provided us with facility changes packages as requested. Our review of facility changes submitted determined that one of the change evaluations, 2009-0751, should have been sent for prior Commission approval. This particular package was also identified during the conduct of the Operational Readiness Reviews earlier this year, and a Notice of Violation was issued. The action was resolved through a licensing amendment. Additionally, for change evaluation 2009-0539, there is no indication that this package has been evaluated for the defense-in-depth requirement, per 10 CFR 70.64, in which this change may reduce the capacity for manual fire suppression.

The other change evaluations received were appropriately made in accordance with the requirements of 10 CFR 70.72 and that prior NRC approval of these changes was not required. The results from our review of the facility change packages are documented in the enclosure. We have no further questions at this time. An inspection may be performed at a future date, in accordance with our inspection schedule.

If you have any questions you may contact me on (301) 492-3187 or at [tyrone.naquin@nrc.gov](mailto:tyrone.naquin@nrc.gov).

In accordance with 10 CFR 2.390 of the NRC's "Rule of Practice," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

**/RA/**

Ty Naquin, Project Manager  
Uranium Enrichment Branch  
Fuel Facilities Licensing Directorate  
Division of Fuel Cycle Safety  
and Safeguards  
Office of Nuclear Material Safety  
and Safeguards

Docket No.: 70-3103  
License No.: SNM-2010

Enclosure: As stated

cc:  
Gregory Smith/LES  
Clint Williamson/LES  
Dave Sexton/LES

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**/RA/**

Ty Naquin, Project Manager  
 Uranium Enrichment Branch  
 Fuel Facilities Licensing Directorate  
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<b>OFC</b>	UEB	UEB	TSB	UEB	UEB
<b>NAME</b>	TNaquin	TRichmond	CTripp	GChapman	RWescott
<b>DATE</b>	7/14/10	7/19/10	7/19/10	7/20/10	7/29/10
<b>OFC</b>	MODB	MODB	MODB	TSB	UEB
<b>NAME</b>	SAtack	CRoman	LCampbell	PSilva	BSmith
<b>DATE</b>	08/02/10	08/03/10	8/25/10	8/6/10	8/26/10

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**Review of Louisiana Energy Services (LES) Facility Change Evaluation: 2009-0441  
Facility Change Package: ORM-3600-4**

Short Description:

This change is the initial submittal of ORM-3600-4, which establishes the specific testing requirements associated with sole items relied on for safety (IROFS) 16a (administratively limit moderator mass (oil and water) in cylinders containing enriched uranic material to ensure subcriticality by allowing no visible oil and limiting cylinder vapor pressure). The procedure contains the detailed testing criteria, independent verification requirements, and actions to be taken in the event of the compromise of IROFS16a.

Findings

Does the change create a new type of accident sequence that, unless mitigated or prevented, would exceed the performance requirements of 70.61?

**NO**

Does the change use new processes, technologies, or control systems for which the licensee has no prior experience?

**NO**

Does the change remove an IROFS without equivalent replacement of the safety function?

**NO**

Does the change alter any sole IROFS?

**NO**

Is the change prohibited by other regulations?

**NO**

Conclusion

The change involved the initial issuance of a procedure implementing enhanced administrative IROFS16a. The change did not alter the safety function or description of the IROFS in the Integrated Safety Analysis (ISA) Summary, affect any accident sequences relying on IROFS16a, or involve any new or unusual technology. Staff reviewed the facility change package and concludes it complies with Title 10 of the *Code of Federal Regulations* (10 CFR) 70.72.

**Review of LES Facility Change Evaluation: 2009-0552  
Facility Change Package: EG-3-3200-1/2**

Short Description:

This change involved revisions to two administrative procedures. Procedure EG-3-3200-1, "Nuclear Criticality Safety Evaluations," Rev. 2, provides instructions for evaluating changes involving or affecting uranium to determine that the entire process will be subcritical under normal and credible abnormal conditions. Procedure EG-3-3200-2, "NCSA," Rev. 2, provides instructions for calculational analysis of individual systems or components and their interaction with other systems or components containing enriched uranium to ensure that criticality safety criteria are met. The procedures were renumbered by virtue of being moved to Engineering and were also changed to provide more detailed guidance on the use of bounding assumptions.

Findings

Does the change create a new type of accident sequence that, unless mitigated or prevented, would exceed the performance requirements of 70.61?

**NO**

Does the change use new processes, technologies, or control systems for which the licensee has no prior experience?

**NO**

Does the change remove an IROFS without equivalent replacement of the safety function?

**NO**

Does the change alter any sole IROFS?

**NO**

Is the change prohibited by other regulations?

**NO**

Conclusion

This change involves administrative procedures for implementation of the Nuclear Criticality Safety Program. This did not alter any of the commitments in the Safety Analysis Report (SAR) or necessitate changes to the ISA Summary. Staff reviewed the facility change package and concludes it complies with 10 CFR 70.72.

**Review of LES Facility Change Evaluation: 2009-0751  
Facility Change Package: CC-EG-2009-0285**

Short Description:

This change communicates the completion of one report and 17 criticality safety calculations, the results of which are summarized in the report, ETC4077747, "Determination of Critical and Safe Parameters for Generic Uranyl Fluoride Systems of 5%, 6%, and 7% <sup>235</sup>U Enrichment," Issue 1.

Findings

Does the change create a new type of accident sequence that, unless mitigated or prevented, would exceed the performance requirements of 70.61?

**NO**

Does the change use new processes, technologies, or control systems for which the licensee has no prior experience?

**NO**

Does the change remove an IROFS without equivalent replacement of the safety function?

**NO**

Does the change alter any sole IROFS?

**NO**

Is the change prohibited by other regulations?

**YES**

Conclusion

This change involved the calculation of safe and critical dimensions, areal density, mass, slab thickness, uranium mass, spherical volume, and water mass, for uniform uranyl fluoride systems at 5, 6, and 7wt% <sup>235</sup>U. The change did not involve any modification to existing processes or the ISA Summary. While the change package states that this has no impact on existing operations, the staff notes that these calculations were approved "for unlimited use." It is not immediately clear to the staff how these new calculations are to be used in the facility. The staff concludes that calculations referred to in this change package were used to make changes to the approved margin of subcriticality for safety, as described in the SAR, and were, in fact, prohibited by other regulations.

The change package only contains cover sheets for most of these 17 calculations, and contains the full calculation report ETC4064439, "The Nuclear Criticality Safe and Critical Sphere Volumes for 6% Enriched Uranyl Fluoride," Rev. 1. The safe and critical sphere volumes (19.3 and 25.3 liters respectively) are consistent with the values reported for 6wt% <sup>235</sup>U in Table 5.1-1 of the current version (Rev. 25) of the SAR. The SAR version approved in the Safety Evaluation Report (SER) (NUREG-1827) listed the corresponding safe and critical sphere volumes as 18 and 24 liters respectively. This Change Package was under review at the same time Operational Readiness Reviews were being conducted on site and the staff previously characterized the changes to the SAR values as a violation (VIO 70-3103/2010-006-02). The use of a higher bounding enrichment than that currently approved may necessitate revalidating

the code, and may require a larger subcritical margin to account for a lack of benchmark data in this area. The performance of such calculations does not in itself constitute a concern, but would if they are used as the basis for criticality safety limits or to modify facility operations.

Staff reviewed the facility change package and concludes it does not comply with 10 CFR 70.72. Pre-approval of this action would normally be required. Because this particular issue was cited as a violation through the readiness reviews, this and other changes noted to the margin of subcriticality were submitted formally for review as a License Amendment Request (LAR 10-07) and were approved on June 10, 2010.

**Review of LES Facility Change Evaluation: 2009-0397  
Facility Change Package: CC-RP-2009-0001**

Short Description:

This change increased the lower limit of detection (LLD) for effluent sample analysis from 2.5E-15 uCi/mL to 1E-14 uCi/mL. The original LLD was based on Class Y compounds (specifically U<sub>3</sub>O<sub>8</sub>) and the licensee had difficulty meeting the LLD under certain conditions. The change was justified by the licensee because Class Y materials are not the Class of materials of concern at the facility and the program should instead be based on Class W materials.

Findings

Does the change create a new type of accident sequence that, unless mitigated or prevented, would exceed the performance requirements of 70.61?

**NO**

Does the change use new processes, technologies, or control systems for which the licensee has no prior experience?

**NO**

Does the change remove an IROFS without equivalent replacement of the safety function?

**NO**

Does the change alter any sole IROFS?

**NO**

Is the change prohibited by other regulations?

**NO**

Conclusion

This change modifies the National Enrichment Facility Environmental Report which stated required lower limits of detection. The change increased the gaseous effluent Minimum Detectable Concentration (MDC) to 1% of the limits in 10 CFR 20 Appendix B, Table 2, Column 1. This is considered an acceptable practice as the primary materials of concern are Class D although the licensee also acknowledges the possibility of Class W type materials being present. Previous limits were based on Class Y materials which are not expected to be present. The final MDC values are less than 5% of the 10 CFR 20 Appendix B, Table 2, Column 1 value for Class W uranium which is consistent with guidance in Regulatory Guide 4.16 and NUREG-1520. The change is applicable only to cumulative emission estimates. Real time monitoring to alert personnel of a release of uranium hexafluoride (UF<sub>6</sub>) will not be affected by this change.

Staff reviewed the facility change package and concludes it complies with 10 CFR 70.72.



**Review of LES Facility Change Evaluation: 2009-0673  
Facility Change Package: EG-3-2100-05**

Short Description:

The proposed activity is EG-3-2100-05, Commercial Grade Dedication (CGD) Process, Rev. 3. This procedure establishes responsibilities and methods for the CGD process. This process prepares reviews, evaluates, and accepts CGD Plans for items or services not readily available from a supplier with a quality program meeting the LES requirements, to ensure they are suitable for the applicable quality assurance level.

Findings

Does the change create a new type of accident sequence that, unless mitigated or prevented, would exceed the performance requirements of 70.61?

**NO**

Does the change use new processes, technologies, or control systems for which the licensee has no prior experience?

**NO**

Does the change remove an IROFS without equivalent replacement of the safety function?

**NO**

Does the change alter any sole IROFS?

**NO**

Is the change prohibited by other regulations?

**NO**

Conclusion

This change does not modify any content included in the ISA Summary. The ISA Summary (Table 3.0-1, "NEF Licensing Code of Record") lists two industry standards that LES commits to: (1) Electric Power Research Institute (EPRI) NP-5652, "Guideline for the Utilization of Commercial Grade Items in Nuclear Safety Grade Applications," June 1988, and (2) EPRI TR-106439, "Guideline on Evaluation and Acceptance of Commercial Grade Digital Equipment for Nuclear Safety Applications," October 1996). LES also commits to adhere to these industry standards as part of License Condition 20.

The changes made in Revision 3 of the commercial grade dedication procedure, EG-3-2100-05, do not alter the commitment to these two industry standards. The procedure references the standards and does not incorporate any changes in this revision that (1) alter the compliance with the guidance contained in these standards; (2) modify the revision of the standard used as reference; or (3) affect any management measures or other safety program elements.

The U.S. Nuclear Regulatory Commission (NRC) staff reviewed the facility change package and concludes it complies with 10 CFR 70.72.

**Review of LES Facility Change Evaluation: 2009-0586  
Facility Change Package: CC-EG-2009-0291**

Short Description:

CC-EG-2009-0291 is an owner acceptance review titled Temporary Location of Weigh Scale in the UF<sub>6</sub> Area. The affected drawing is LES-1001-C-STL-009-01 Rev.3, which is designated "QA Level 1 & 3." This revision of this drawing temporarily locates the cylinder Weigh Scale as well as the Container Support Stillage in the UF<sub>6</sub> area until the Cylinder Receipt and Dispatch Building is completed. The designated location for the scale is near Column Line F south of the rail and the stillage is near Column Line E north of the rail. The drawing also reserves a space for a ventilation room near Column Line D south of the rail.

Findings

Does the change create a new type of accident sequence that, unless mitigated or prevented, would exceed the performance requirements of 70.61?

**NO**

Does the change use new processes, technologies, or control systems for which the licensee has no prior experience?

**NO**

Does the change remove an IROFS without equivalent replacement of the safety function?

**NO**

Does the change alter any sole IROFS?

**NO**

Is the change prohibited by other regulations?

**NO**

This change does not create a new type of accident sequence. Any IROFS or sole IROFS were removed or altered as a result of this revision.

Conclusion

Staff reviewed the facility change 2009-0586 and concludes it complies with 70.72.

**Review of LES Facility Change Evaluation: 2009-0781  
Facility Change Package: CC-EG-2009-0408**

Short Description:

This Configuration Change encompasses the design and utilization of the Mobile Feed Sampling Rig (MFSR) that is used to take samples of UF<sub>6</sub> feed cylinders for analysis to ensure that the material meets the proper American Society for Testing & Materials specifications and enrichment limits prior to the material being introduced to the cascades. The MFSR is not currently described in the License Basis Documents. This Change Package includes the new markups to describe the system and it also includes a new chemical accident sequence that is mitigated by the application of IROFSC21 that was recently approved by the NRC via an SER, IN-09-00195-NRC (LAR-09-08). Under this change, the use of IROFSC21 (an orifice spool piece) is applied to the MFSR to mitigate the consequences of a chemical release as described in the new Accident Sequence UF3-2.

Background:

This change results in the addition of a new accident sequence (UF3-2) that is of the same type as accident sequences TT3-1, PT5-1, & EC4-1 that are mitigated by the use of a sole IROFS (IROFSC21). This accident scenario is that a UF<sub>6</sub> plug forms on the discharge line of the MFSR's vacuum pump causing high pressure in the vacuum pump and thus failing seals leading to a release of UF<sub>6</sub> to the UF<sub>6</sub> Handling Area.

The proposed change describes a new accident sequence that unless mitigated or prevented, would exceed the performance requirements of 70.61 (high consequences to the workers). The frequency index number for the initiating event was determined to be (-2). This failure frequency index was selected based on evidence from history of similarly designated URENCO European plants, which have a combined plant history of greater than 30 years, and have not had a failure of this type.

This accident is mitigated by the use of flow restriction orifice (IROFSC21) with an orifice diameter specific to the MFSR. The orifice spool piece is detailed in ETC4066112 Rev. 0 and is a passive engineered flow restriction device that ensures that the maximum flow rate is less than the flow rate assumption of the consequence analysis. A failure probability index of (-3) was selected for IROFSC21. This corresponds to a single passive engineered IROFS per NUREG-1520 criteria. The use of this IROFS (with different orifice opening diameters for different applications) was approved under LAR-09-09 (Assay Sampling Vacuum Pump/Trap Set) and LAR-09-08 (Tails Evacuation Vacuum Pump/Trap Set and Cascade Sampling Rig)<sup>1</sup>. The use of the Mixed-Bed Trap was approved in LAR-09-09 and this same trap is used in the MFSR.

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<sup>1</sup> Letter to Stephen Cowne. Safety Evaluation Report of the License Amendment Request for the NEF IROFS3 Design Modification for Tails Take-Off TT3-1 and Cascade Sampling Rig EC4-1 Vacuum Pump and Trap Sets (LAR 09-08). November 2009.

## Findings

The NRC finds that the description of the new accident sequence (UF3-2) is acceptable. Implementation of IROFSC21 provides reasonable assurance that the abovementioned high consequence event is highly unlikely. The NRC finds the licensee provides reasonable assurance that IROFSC21 will ensure compliance with the performance requirements of 70.61.

Does the change create a new type of accident sequence that, unless mitigated or prevented, would exceed the performance requirements of 70.61?

**NO**

Does the change use new processes, technologies, or control systems for which the licensee has no prior experience?

**NO**

Does the change remove an IROFS without equivalent replacement of the safety function?

**NO**

Does the change alter any sole IROFS?

**NO**

Is the change prohibited by other regulations?

**NO**

## Conclusions

Based on the review and evaluation of the information submitted by LES, the NRC concludes the proposed change describes a new accident sequence that unless mitigated or prevented, would exceed the performance requirements of 70.61. The aforementioned accident sequence was not previously described in the ISA Summary. However, it is not a new type of accident sequence, and the change does not use new processes, technologies, or control systems for which the licensee has no prior experience. A passive engineered control is implemented to reduce the consequences to the workers to acceptable levels. NRC staff concludes that the use of the proposed IROFS for the new accident sequence is acceptable and should be approved.

This revision does not involve the removal or alteration of an IROFS or a Sole IROFS. IROFSC21 was previously approved by NRC under LAR-09-08. Staff reviewed the facility change and concludes it complies with 10 CFR 70.72.

**Review of LES Facility Change Evaluation: 2009-0476  
Facility Change Package: CC-EG-2007-0199**

Short Description: During construction of the Technical Support Building (TSB) Heating Ventilation and Air Conditioning, a lack of fire dampers through fire rated walls was identified that does not meet the required code. The proposed change has changed fire ratings of certain walls and doors to one hour rated thereby eliminating the need for an estimated 10 fire dampers in TSB room 227.

Findings

Does the change create a new type of accident sequence that, unless mitigated or prevented, would exceed the performance requirements of 70.61?

**NO**

Does the change use new processes, technologies, or control systems for which the licensee has no prior experience?

**NO**

Does the change remove an IROFS without equivalent replacement of the safety function?

**NO**

Does the change alter any sole IROFS?

**NO**

Is the change prohibited by other regulations?

**NO**

Conclusion

Fire barriers and penetrations in the TSB are no longer credited for IROFS35 because all licensed material has been moved out of the TSB. Therefore, the proposed change does not involve removal, without at least an equivalent replacement of the safety function, of an IROFS that is listed in the ISA Summary and is necessary for compliance with the performance requirements of 10 CFR 70.61. Staff reviewed the facility change package and concludes it complies with 10 CFR 70.72.

**Review of LES Facility Change Evaluation 2009-0169  
Facility Change Package: CC-EG-2007-0267**

Short Description: The operations workaround is being implemented because of spurious CAB fire alarms that result from various routine fire protection systems operations. These alarms cause unnecessary cycling of various organizations and contribute to desensitizing personnel to fire alarms.

Findings

Does the change create a new type of accident sequence that, unless mitigated or prevented, would exceed the performance requirements of 70.61?

YES NO X

Does the change use new processes, technologies, or control systems for which the licensee has no prior experience?

YES NO X

Does the change remove an IROFS without equivalent replacement of the safety function?

YES NO X

Does the change alter any sole IROFS?

YES NO X

Is the change prohibited by other regulations?

YES NO X

Conclusion

This change expands the scope of activities where pre-emptive operator action is taken to alert various organizations to disregard fire protection system alarms in the immediate future. This pre-emptive operator action alters worker response to some fire alarms but makes no change to the worker response to an actual fire and thus does not affect IROFS39b in particular or any sole IROF listed in the ISA Summary. Staff reviewed the facility change package and concludes it complies with 10 CFR 70.72.

**Review of LES Facility Change Evaluation 2009-0539  
Facility Change Package: CC-EG-2009-0348**

Short Description: This change pertains to the removal of the underground fire water lines that are located just south of the centrifuge assembly building (CAB). Terminating and adding restraining plugs to the remaining 6" fire pipe which will facilitate the construction of the CAB expansion as shown in attachment 1 of the EG-DCR-2009-103.

Findings

Does the change create a new type of accident sequence that, unless mitigated or prevented, would exceed the performance requirements of 70.61?

YES                      NO X

Does the change use new processes, technologies, or control systems for which the licensee has no prior experience?

YES                      NO X

Does the change remove an IROFS without equivalent replacement of the safety function?

YES                      NO X

Does the change alter any sole IROFS?

YES                      NO X

Is the change prohibited by other regulations?

YES                      NO Comment below

Conclusion

The change may reduce the capacity for manual fire suppression which is required for defense-in-depth as per 10 CFR 70.64. However, there is no indication that this package has been evaluated for this requirement.