

September 26, 2011

Mr. Perry Robinson  
Licensing Manager  
Louisiana Energy Services, LLC  
PO Box 1789  
Eunice, NM 88231

SUBJECT: REVIEW OF TITLE 10 OF THE *CODE OF FEDERAL REGULATIONS* 70.72  
SUMMARY OF CHANGES (TAC NO. L33097)

Dear Mr. Robinson:

In a letter dated January 31, 2011, Louisiana Energy Services, LLC (LES) submitted a brief summary of facility changes 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 April 1, 2011, that LES provide the facility change packages for each of those changes.

In your correspondence dated May 5, 2011, you provided us with facility change packages as requested. With the exception of Facility Change Package CC-LS-2010-0012, Revision 03, our review of facility changes submitted determined that the change packages 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. For facility change CC-LS-2010-0012, Revision 03, this determination could not be made. This facility change will be referred to Region II for review during an inspection. 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.

In accordance with 10 CFR 2.390 of the NRC's Rules of Practice, a copy of this letter will be available electronically from the Publicly Available Records System component of the NRC Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

If you have questions, please contact me at 301-492-3187, or via email at [tyrone.naquin@nrc.gov](mailto:tyrone.naquin@nrc.gov).

Sincerely,

**/RA/**

Tyrone Naquin, Project Manager  
Uranium Enrichment Branch  
Division of Fuel Cycle Safety  
and Safeguards  
Office of Nuclear Material Safety  
and Safeguards

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

Enclosure:  
Review of Selected LES Facility  
Change Evaluations

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

If you have questions, please contact me at 301-492-3187, or via email at [tyrone.naquin@nrc.gov](mailto:tyrone.naquin@nrc.gov).

Sincerely,

**/RA/**

Tyrone Naquin, Project Manager  
Uranium Enrichment Branch  
Division of Fuel Cycle Safety  
and Safeguards  
Office of Nuclear Material Safety  
and Safeguards

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

Enclosure:  
Review of Selected LES Facility  
Change Evaluations

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

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## Review of LES Facility Change Evaluations

### Facility Change Package: 2010-0433 EG-3-2100-01-F-1

Short Description: The original analysis of accident sequence FF25-2 assumed that a release of 50 kilograms (kg) would result in intermediate consequences to the public. Based on this analysis/assumption, Louisiana Energy Services, LLC (LES), identified items relied on for safety (IROFS) 37, which shut down a ventilation system to limit the quantity of material that would be released to the environment and transported to offsite (public) receptors. Subsequent dispersion analysis led LES to conclude that a release of about 600 kg would result in low consequences offsite. The existing IROFS 36d limits the combustible load such that the maximum estimated release is less than 50 kg. With IROFS 36d in place to limit uranium hexafluoride (UF<sub>6</sub>) releases to less than 50 kg and the analysis that concludes releases of 600 kg UF<sub>6</sub> would be required to have consequences of the offsite public that are greater than "low," LES concluded there was no longer a need for IROFS 37 to assure compliance with the performance requirements of 70.61. LES deleted IROFS 37.

#### 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 To be determined (TBD)

Accident was previously identified and quantified.

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

YES  NO

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

YES NO

IROFS 37, which shut down a ventilation system to reduce the release mass, was removed. The documentation stated that the "original Integrated Safety Analysis (ISA) team assumed that the 50 kg release would result in intermediate consequences to the public." The change is based on information in a consequence analysis (CALC-S-0095) that demonstrated that a release of 600 kg results in low consequences to the public (Document LS-3-1000-04, Rev. 7, page 5 of 7).

The change analysis states that IROFS 37 was not necessary to meet the requirements of 70.61, given the existence of IROFS 36d. Further, the LES documents state "IROFS 36d is adequate to ensure that the material contained in the closed metal waste container and the cylinders is not released as described in the ISA description of the event" (Document LS-3-1000-04, Rev. 7, page 6 of 7). IROFS 36d limits the combustible loading to limit the release quantity.

Enclosure

It is pointed out that IROFS 36d was already in place and identified as “sole” IROFS.

Does the change alter any sole IROFS?

YES

NO

The analysis (LS-3-1000-04, Rev. 7, page 6 of 7) claims that while IROFS 37 was identified as a sole IROFS, this is clearly a mistake because IROFS 36d is also claimed as a sole IROFS for the same event sequence. This assessment seems reasonable and is acceptable.

Is the change prohibited by other regulations?

YES

NO

### Conclusion

It is reasonable to eliminate IROFS 37 based on the dispersion analysis that related release quantity and rate to offsite consequences. Note: The NRC staff reviewer used Radiological Assessment System for Consequence Analysis to perform an independent consequence analysis for a 600 kg UF<sub>6</sub> release. This independent analysis predicted “low” public consequences from the 600 kg release.

The change is more of a correction/update and not the type of change envisioned when the criteria of 70.72(c) were established. The staff concludes that the change package demonstrates compliance with Title 10 of the *Code of Federal Regulations* (10 CFR) 70.72.

**Facility Change Package: 2010-0597**

**(1) NEF-BD-39a, Rev. 7**

**(2) Procedure LS-3-1000-04-F-1, 10 CFR 70.72(c) Screen/Evaluation, LS-3-1000-04, Rev. 7**

Short Description: This analysis determines the applicability of IROFS 39a to a new portion of the facility that is completed, the Uranium Byproduct Cylinder (UBC) storage pad. The LES documents state that the accident sequence used to develop IROFS 39a is based on releases from UF<sub>6</sub> piping or processes systems. The LES documents further state that such piping or process systems do not exist in the UBC storage pad. The LES analysis concludes that IROFS 39a does not apply to the UBC storage pad.

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      TBD

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

YES       NO

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

YES       NO

Does the change alter any sole IROFS?

YES       NO

The LES Document NEF-BD-39a, Rev. 7 correctly states that IROFS 39a is a sole IROFS.

The analysis concludes that IROFS 39a does not apply to the UBC storage pad because the accident sequence that is the basis for the IROFS does not apply to the UBC storage pad.

Is the change prohibited by other regulations?

YES       NO

Conclusion

The analysis is associated with the determination of the boundaries for IROFS 39a as new parts of the National Enrichment Facility (NEF) are prepared for operation. This analysis is part of compliance with Condition 19 of the LES license. This specific analysis concluded that IROFS 39a does not apply to the UBC storage pad and that this determination did not require prior commission approval. The staff concludes that the change package demonstrates compliance with 10 CFR 70.72.

**Facility Change Package: 2010-0608**

**(1) NEF-BD-39b, Rev. 8**

**(2) Procedure LS-3-1000-04-F-1/Screen/Evaluation, LS-3-1000-04, Rev. 7**

Short Description: This analysis determines the applicability of IROFS 39b to a new portion of the facility that is completed, the Uranium Byproduct Cylinder (UBC) storage pad. The LES documents state that the accident sequences used to develop IROFS 39b are based on the assumption that there would be fire-induced releases of UF<sub>6</sub> and that IROFS 39b (administrative control to evaluate the area) is necessary to protect workers from the UF<sub>6</sub> release. The LES documentation states that applicable fire sequences for the UBC storage pad are FF42-1, FF43-1, FF43-2 and FF44-1; and that fires that could release UF<sub>6</sub> are prevented by administrative control IROFS 36c, 36e, 36f and 36g, respectively. The LES documentation concludes that because of the use of IROFS 36c, 36e, 36f and 36g to prevent the release of UF<sub>6</sub>, IROFS 39b is not necessary and, therefore, it does not apply to the UBC.

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      TBD

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

YES       NO

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

YES       NO

Does the change alter any sole IROFS?

YES       NO

The LES Document NEF-BD-39b incorrectly states that IROFS 39b is not a sole IROFS. IROFS 39b is identified as a sole IROFS in the Integrated Safety Analysis Summary, Table 3.8-2 (Sole Items Relied on For Safety [IROFS]).

The LES analysis concludes that IROFS 39b does not apply to the UBC storage pad.

Is the change prohibited by other regulations?

YES       NO

## Conclusion

The analysis is associated with the determination of the boundaries for IROFS 39b as new parts of the NEF are prepared for operation. The analysis is part of compliance with Condition 19 of the LES license. This specific analysis concluded that IROFS 39b does not apply to the UBC storage pad and that this determination did not require prior Commission approval. The staff concludes that the change package demonstrates compliance with 10 CFR 70.72.

**Facility Change Package: 2010-0517  
CC-EG-2010-0279**

Short Description: Change to an ISA accident sequence description for OC2-1 (External Construction) to clarify the type of equipment that can be allowed inside the SBM-1001 IROFS 50b and 50c boundary without affecting safety. The analysis would allow appropriately sized construction vehicles into the IROFS 50b and 50c boundary in order to complete final grading and other construction activities near the areas of concern.

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

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

YES  NO

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

YES  NO

Does the change alter any sole IROFS?

YES  NO

Is the change prohibited by other regulations?

YES  NO

Conclusion

This change modifies the OC2-1 (External Construction) accident sequence description of the ISA summary. It provides clarification, based on an engineering evaluation, of the type of equipment that can be allowed inside the SMB-1001 IROFS 50b and 50c boundary without challenging the safety function of the IROFS. The staff's review supports this conclusion. This evaluation only applies to SBM-1001 and does not change IROFS boundary, availability, functionality, or equipment. The staff reviewed the facility change package and concludes it complies with 10 CFR 70.72.

**Facility Change Package: 2010-0526  
CC-EG-2010-0143**

Short Description: Review of Document ETUS-WP-0471, Hot Acceptance Test, TC21 Centrifuge Test Facility (CTF) NEF. The CTF is being modified to accommodate performance testing of TC21 gas centrifuges. The document is a revision of ETUS-WP-047, Hot Acceptance Testing, TC12 CTF NEF. Change package CC-EG-2010-0143 was used to evaluate the acceptability of the revision against the requirements of 10 CFR 70.72.

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  TBD

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

YES  NO

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

YES  NO

Does the change alter any sole IROFS?

YES  NO

Is the change prohibited by other regulations?

YES  NO

Conclusion

Note: It is noted that on Part I – Applicability Determination, page 1, that the description notes that “Changes made in Issue 5 are all within the scope of the previously performed 70.72(c) evaluation performed.” However, page 3 is marked that there is no 70.72(c) evaluation performed.

The TC21 document and the TC12 document were both reviewed for consistency. There are minor additions to the new document, which account for physical differences between the two centrifuge types. It is noted that this change does not involve change to site structures, processes, systems, equipment, components, procedures, or instructions that could impact control of the licensed material. The staff concludes that the change package demonstrates compliance with 10 CFR 70.72.

**Facility Change Package: 2010-0586**  
**TQ-3-0500-02**

Short Description: Revision to TQ-3-0500-02, ISA Team Training and Qualification

Screening: To add guidance on positions which are able to be qualified as ISA Team Members and to clarify requalification requirements and responsibility for performing actions

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

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

YES       NO

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

YES       NO

Does the change alter any sole IROFS?

YES       NO

Is the change prohibited by other regulations?

YES       NO

Conclusion

This change provides additional guidance and clarification to the TQ-3-0500-02, ISA Team Training Qualification procedure. The staff reviewed this facility change package, including TQ-3-0500-02 Procedure, Revision 3, and concludes it complies with 10 CFR 70.72.

**Facility Change Package: 2010-0368  
CC-EG-2010-0122**

Short Description: IROFS C22 for mass balance to supplement IROFS C6 in EC3-1 accident scenario

Screening: NRC prior approval not required due to only adding more descriptive information

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

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

YES  NO

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

YES  NO

Does the change alter any sole IROFS?

YES  NO

Is the change prohibited by other regulations?

YES  NO

Conclusion

The staff reviewed this facility change package. This change request was for the revision of the Operations Requirements Manual and BDD for IROFS C22. These documents were revised to provide more descriptive information on the new IROFS C22. The staff concludes that the change package demonstrates compliance with 10 CFR 70.72.

**Facility Change Package: 2010-0497  
CC-EG-2010-0221**

Short Description: Adds the helium leak test cart into the ISA. The LES analysis is to demonstrate that a mobile cart that will not have special nuclear material introduced into the internals of the cart.

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

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

YES  NO

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

YES  NO

Does the change alter any sole IROFS?

YES  NO

Is the change prohibited by other regulations?

YES  NO

Conclusion

The staff reviewed this facility change package. This change adds the helium leak test cart to the ISAS, providing a description of the cart and its use. The change introduces a mobile rig that may affect other safe-by-design components as the cart is used throughout the facility. The staff reviewed the facility change package and concludes it complies with 10 CFR 70.72.

**Facility Change Package: 2010-0525  
ETUS-WP-018**

Short Description: Revision 9 of ETUS-WP-019

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

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

YES  NO

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

YES  NO

Does the change alter any sole IROFS?

YES  NO

Is the change prohibited by other regulations?

YES  NO

Conclusion

The staff reviewed this facility change package. This change request was for the implementation of a revision of ETUS-WI-094. This document is for the hot acceptance test of the TC12 centrifuges. The revision to the work instruction was made to add clarification to steps to aid the operators. No additional review of this change evaluation is required. The staff reviewed the facility change package and concludes it complies with 10 CFR 70.72.

**Facility Change Package: 2010-0614  
EG-3200-01**

Short Description: Revision of EG-3-3200-01, Nuclear Criticality Safety Evaluations, to account for condition reports (2010-667, 2010-694, 2010-1702, and 2010-1758). The analysis provides more descriptive information.

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

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

YES  NO

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

YES  NO

Does the change alter any sole IROFS?

YES  NO

Is the change prohibited by other regulations?

YES  NO

Conclusion

The staff reviewed this facility change package. This change provides requirements for clarification of guidance, identification of quality level on the document, control of design inputs, revision of an analysis, and determination of impact of revision onto other documents. The staff reviewed the facility change package and concludes it complies with 10 CFR 70.72.

**Facility Change Package: 2010-0423**  
**Rev. 6 to Procedure OP-3-2000-02, Fire Response**

Short Description: Utilization of the Criticality alarm system

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

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

Does the change remove an IROFS without equivalent replacement of the safety function? YES  NO

Does the change alter any sole IROFS? YES  NO

Is the change prohibited by other regulations? YES  NO

Conclusion

This facility change package addresses providing additional direction in the referenced procedure to utilize the criticality accident alarm system speakers connected to the fire alarm system to warn personnel in the cascade mini-halls of evacuation. The cascade mini-halls do not have public address speakers. There is no adverse impact to safety or the environment.

The staff has reviewed the facility change package submitted by the licensee and agrees with the above determinations. The staff concludes that the change package demonstrates compliance with 10 CFR 70.72.

**Facility Change Package: 2010-0460**  
**Rev. 7 to Procedure OP-3-0694-01, Fire Water System Operation**

Short Description: Offsite monitoring of Fire Alarms by Siemens

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

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

Does the change remove an IROFS without equivalent replacement of the safety function? YES  NO

Does the change alter any sole IROFS? YES  NO

Is the change prohibited by other regulations? YES  NO

Conclusion

This facility change package addresses deletion of directions to contact Siemens in the referenced procedure. Operations personnel now monitor the fire alarm system in the Control Room 24 hours a day, 7 days a week. Therefore, Siemens has been removed as offsite monitoring, as allowed by The National Fire Protection Agency 72, National Fire Alarm Code. There is no adverse impact to safety or the environment.

The staff has reviewed the facility change package submitted by the licensee and agrees with the above determinations. The staff concludes that the change package demonstrates compliance with 10 CFR 70.72.

**Facility Change Package: 2010-0479**

Short Description: Revision 7 to Procedure OP-3-2000-01, Hazardous Release Response; Revision 7 to Procedure OP-3-2000-02, Fire Response; Revision 6 to Procedure OP-3-2000-04, Earthquake Response; Revision 6 to Procedure OP-3-2000-06, Severe Weather; Revision 4 to Procedure OP-3-2000-07, Flooding; Revision 3 to Procedure OP-3-2000-08, Winter Storm Warning; and Revision 1 to Procedure OP-3-2000-12

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

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

Does the change remove an IROFS without equivalent replacement of the safety function? YES  NO

Does the change alter any sole IROFS? YES  NO

Is the change prohibited by other regulations? YES  NO

Conclusion

This facility change package addresses revising the referenced procedures to reflect a change in the method of instructing employees to take precautions during certain events. Additionally, the revisions delete the directions for Safety personnel to communicate with site staff as that responsibility has been transferred to Operations personnel. The change is administrative in nature and has no adverse impact to safety or the environment.

The staff has reviewed the facility change package submitted by the licensee and agrees with the above determinations. The staff concludes that the change package demonstrates compliance with 10 CFR 70.72.

**Facility Change Package: 2010-0650**  
**NEF-BD-39c, Rev. 6**

Short Description: Revise BDD NEF-BD-39c to expand the area that requires training prior to a worker being allowed unescorted access and to correct the title of that training.

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

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

YES  NO

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

YES  NO

Does the change alter any sole IROFS?

YES  NO

Is the change prohibited by other regulations?

YES  NO

Conclusion

The staff reviewed this facility change package. The modification to the BDD for sole IROFS 39c was simply to clarify its application to workers and visitors (i.e., references to procedures and training) and did not modify the safety function. IROFS 39c is an enhanced administrative IROFS intended to provide credit for worker evacuation to mitigate chemical exposure. The staff concludes that the change package demonstrates compliance with 10 CFR 70.72.

**Facility Change Package: 2010-0597**  
**NEF-BD-39a, Rev. 7**

Short Description: Revise BDD NEF-BD-39a to close the open item regarding the definition of the area of concern for the UBC pad. The intent of IROFS39a is to administratively limit exposure by requiring worker action to evacuate the area(s) of concern in the event of a seismic event consistent within the assumptions of the consequence analysis.

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

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

YES  NO

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

YES  NO

Does the change alter any sole IROFS?

YES  NO

Is the change prohibited by other regulations?

YES  NO

Conclusion

The staff reviewed this facility change package. The modification to the BDD for sole IROFS 39a was simply to remove its applicability to the UBC Storage Pad because the licensee had determined there is no postulated release at the UBC Storage pad as a result of a design basis seismic event. IROFS 39a is an enhanced administrative IROFS intended to provide credit for evacuation to mitigate chemical exposure. The UBC storage pad only contains solid UF<sub>6</sub> or empty cylinders. The consequence analysis assumed a release from process systems or piping which do not exist at the pad. There was no change to the safety function of the administrative IROFS. The staff concludes that the change package demonstrates compliance with 10 CFR 70.72.

## Facility Change Package: 2010-0500

Short Description: Revision 3 to Configuration Change Number CC-EG-2009-0012. This activity is associated with the approval and implementation of CC-LS-2010-0007, Modify Receptor Definitions in NEF Consequence Methodology. The "local worker" receptor has been combined with "area worker" and been replaced with a new "facility worker" receptor in the LES consequence methodology. A facility worker is now the only worker receptor. This review is an evaluation of Configuration Change CC-EG-2009-0012, Revision 03.

### Background

On July 26, 2010, LES transmitted an update to the Licensing Basis Documents (LBDs). The modification was reviewed by LES as Configuration Change CC-LS-2010-0007, and submitted to support a request from the NRC. These LBDs and the configuration change package were reviewed for technical and regulatory compliance. On January 31, 2011, the NRC sent a letter to LES documenting the results of the review.

The ISA methodology revision combined the receptor concepts of 'local worker' and 'area worker,' replacing them with one receptor, the 'facility worker.' Originally, it was assumed that the local worker could remain within a 1.5 meter radius of the release point for up to 10 seconds without any response or action. LES stated this assumption was "overly conservative and unnecessary," and modified this to reflect that a worker causing the release is expected to immediately sense and recognize the release, reacting with prompt response and action, and not receive a dose significantly greater than a worker elsewhere in the area. The justifications used and the (underlined) agency comments are below:

1. Vacuum System Delay

UF<sub>6</sub> systems at LES are at negative pressure. No outflow of UF<sub>6</sub> vapor occurs during the initial time of air in-leakage, which is typically on the order of 5 to 20 seconds for ruptures of 4 inches in diameter or less. It is likely that the worker will respond to the sound of in-rushing air, and the worker can be expected to evacuate the immediate area promptly.

The NRC staff indicated that this assumption is not valid for every accident sequence at the facility involving a local worker and should not be relied upon for accident sequences that have a different failure mechanism.

2. See and Flee

An HF release would cause a visible cloud and pungent odor. Employees are trained in proper actions to take in response to a release and should take immediate, self-protective action upon detecting any significant HF odor.

The NRC staff indicated that even though it is expected that a worker will react promptly upon detection of HF, it is preferable to rely on engineered or passive controls than to rely on personnel actions or administrative controls (10 CFR 70.64(b)(1)). In 2007, at another facility there was an incident in which one worker was exposed with HF. After investigation, it was determined that 'see and flee' failed to prevent the exposure. Therefore, for previously

identified accident sequences that could result in high consequences to the local worker, it is recommended that the same IROFS used to prevent or mitigate the event remain in effect until further evaluated.

3. Worker Evaluation Speed

Another assumption for the methodology revision is that the receptor will walk away at a speed of 1 meter per second. Under these conditions, workers originally at the release point will be outside of the immediate area of the release (1.5 meters) in less than 2 seconds.

This assumes that the worker does not suffer any problem after the release (e.g., visibility problems or the individual falls to the floor after the accident, etc.). It was noted by the staff that a human reliability analysis was not submitted by the applicant to support this assumption.

4. Acute Exposure Guideline Level (AEGL) 10-Minute Limit

The methodology revision applies the 10-minute AEGL limits for the facility worker. These limits are 10-minute exposures that are applied to the 2.5-minute exposure, therefore building in conservatism.

Consideration should be given that in some accident scenarios the worker causing the release may be more likely to receive a more significant intake of soluble uranium than a worker located elsewhere. Ensure consideration of all potential exposure paths, so that the worker will not exceed the performance requirements in 10 CFR 70.61.

The NRC staff indicated in the above-referenced letter that separate configuration changes will have to be initiated to evaluate each proposed change to separate accident sequences. The regulations in 10 CFR 70.72 require that each of these configuration changes be evaluated to determine whether an amendment request is required.

Comments on CC-EG-2009-0012, Revision 03

After change CC-LS-2010-007 was implemented, the licensee submitted another Configuration Change Package CC-EG-2009-0012, Revision 03, to demonstrate through calculation (CALC-S-00116) that the uncontrolled consequences to the facility worker for the new accident sequence, PB5-2, are low if the "local worker" is now considered to be a "facility worker;" therefore, the licensee concluded that no controls (IROFS) are required to meet the performance requirements of 10 CFR 70.61.

PB5-2 is a credible accident sequence in which liquid UF<sub>6</sub> from the liquefied product cylinder is released to the inside of the autoclave. Upon UF<sub>6</sub> release, HF and UO<sub>2</sub>F<sub>2</sub> are generated due to a reaction with water vapor contained in the air of the closed autoclave. At the end of the sampling cycle and cooldown of the autoclave, the operator opens the autoclave door and is exposed to HF and UO<sub>2</sub>F<sub>2</sub>. On page 176 of ISA Document No. 51-2400533-002, the licensee indicated that this event is calculated to result in high consequences to the worker and the public. IROFS 13 and IROFS 17 would be used to prevent this event from happening.

On CC-EG-2009-12, the licensee changed their original conclusion based on the assumption that the local worker can be now considered to be the facility worker. However, NRC staff believes the assumptions made by the licensee in Configuration Change CC-LS-2010-007 to combine the local worker and the facility worker are not applicable for this accident sequence; and therefore, the licensee should not assume that the local worker can be combined with the facility workers without an accident specific justification. The staff believes that the original assumption that the local worker would be at a 1.5m radius from the release point for about 10 seconds is not overly conservative for this accident scenario (PB5-2). This position is based on: (1) the fact that there is a local operator interface near the sampling autoclave that can be used to control the sampling operation and, therefore, would result in an operator near the sampling autoclave; and (2) industry experience shows that there has been operator exposure to UF<sub>6</sub>/HF when there have been leaks at UF<sub>6</sub> handling operations—even though the operators were trained in and carried out “see and flee” practices.

### Conclusion

The staff concludes that the consequences to the local worker (e.g., the operator that opens the autoclave door or the worker located at the immediate vicinity of the autoclave) were not properly evaluated on Configuration Change CC-EG-2009-0012, Revision 03. To remove the “local worker” from the product sampling accident analysis, an acceptable justification for such action must be provided. Otherwise, the licensee should estimate the unmitigated consequences to the local worker. The assumptions made by the licensee should not take credit for any facility features or IROFS (e.g., HVAC system, IROFS 39, etc.) to be consistent with the guidance provided in NUREG-1520, Revision 01. If the consequences to the local worker exceed the performance requirements of 10 CFR Part 70.61, the licensee should provide adequate protection (e.g., maintain IROFS 13 and IROFS 17) to the worker to prevent chemical and radiological exposures.

10 CFR 70.72(a)(2) requires, in part, that the licensee must address the impact of the change on safety and health or control of licensed material, while performing a facility and/or process change to an existing license. For this configuration change, the licensee appears to have not adequately addressed the impact of the change on safety, and therefore additional inspection activities are required to evaluate this facility change.