

March 11, 2010

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

SUBJECT: LICENSE AMENDMENT REQUEST FOR THE NATIONAL ENRICHMENT
FACILITY TO OPERATE WHILE CONSTRUCTING (LAR 09-14) (TAC No. L32849)

Dear Mr. Sanford:

On June 19, 2009, you transmitted a Licensing Amendment Request (LAR) to describe the operation of the National Enrichment Facility while continuing to construct the balance of the facility. On October 23, 2009, you transmitted responses to our Requests for Additional Information dated September 24, 2009. On January 7, 2010, you forwarded a revision to the original licensing action and on January 27, 2010, transmitted a correction to the revision. We reviewed the submittals and are enclosing a Safety Evaluation Report of our review. Louisiana Energy Services submitted a LAR to incorporate additional items relied on for safety (IROFS) for new accident sequences to support operations while construction activities continue. The Safety Analysis Report (SAR) and the Integrated Safety Analysis (ISA) Summary were also updated to provide a general description of the potential differences that would exist between a fully completed facility described in the ISA Summary, Sections 3.3 through 3.8, and what is expected to exist during various phases of plant operations.

Based on the above review, the proposed revisions are acceptable. Within 30 days, please submit final page changes for the applicable licensing basis documents as you described in both the January 7, 2010, and January 27, 2010, correspondence. We will amend License Number SNM-2010 upon receipt.

An environmental assessment for this action is not required since this action is categorically excluded under Title 10 of the *Code of Federal Regulations* (10 CFR), Section 51.22(c)(10).

In accordance with 10 CFR 2.390 of the U.S. Nuclear Regulatory Commission's (NRC's), "Rules of Practice," a copy of this letter and its enclosures will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of 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).

If you have any questions regarding this letter, please contact Mr. Ty Naquin of my staff at (301) 492-3187, or via e-mail to Tyrone.Naquin@NRC.gov.

Sincerely,

/RA/

Michael D. Tschiltz, Deputy Director
Fuel Facility 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:

William Szymanski/DOE
Gary Don Reagan/Hobbs
Cindy Padilla/NMED
Glen Hackler/Andrews
Gary Schubert/Lea County
Michael Marriotte/NIRS
Jon Goldstein/NMED
Tannis Fox/NMED
Lindsay Lovejoy/NIRS

Alton Dunn/Jal
Daniel Stenger/H&H
Betty Rickman/Tatum
Matt White/Eunice
Richard Ratliff/Texas
CO'Claire/Ohio
Joseph Malherek/PC
Gary King/NMAG
Clint Williamson/LES

Gregory Smith/LES
David Trujillo/Lovington
Reinhard Hinterreither/LES
John Parker/NMED
Lee Cheney/CNIC
Roger Mulder/Texas
Ron Curry/NMED
Glen Smith/NMAG

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DATE	02/19/2010	02/22/2010	03/9/2010	03/10/2010	03/9/2010	03/10/2010	03/11/2010

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LICENSEE: Louisiana Energy Services (LES)
National Enrichment Facility (NEF)
Lea County, New Mexico

SUBJECT: LICENSE AMENDMENT REQUEST FOR THE NATIONAL
ENRICHMENT FACILITY TO OPERATE WHILE CONSTRUCTING (LAR
09-14) (TAC NO. L32849)

PROPOSED CHANGES

On June 19, 2009, LES submitted a License Amendment Request (LAR) to incorporate additional items relied on for safety (IROFS) for new accident sequences to support operations while construction activities continue. The Safety Analysis Report (SAR) and the Integrated Safety Analysis (ISA) Summary were also updated to provide a general description of the potential differences that would exist between a fully completed facility described in the ISA Summary §3.3 through §3.8 and what is expected to exist during various phases of plant operations. The LAR also requested to add additional methods of identifying new accident sequences, such as the What-If/Checklist Method, or the Failure Modes and Effects Analysis (FMEA). The U.S. Nuclear Regulatory Commission (NRC) provided a Request for Additional Information (RAI) on the subject LAR on September 24, 2009. LES responded to the NRC RAI on October 23, 2009, and provided a revision to the LAR on January 7, 2010. A correction to this submittal, to provide further description of IROFS was submitted January 27, 2010. The new IROFS are a result of the performance of an "Operate While Constructing" ISA. Four new accident sequences were identified in the ISA along with eight new IROFS.

REGULATORY REQUIREMENTS

The regulatory basis for this review is the general and additional contents of the application as required by Title 10 of the *Code of Federal Regulations* (10 CFR) 70.22 and 70.65. In addition, the integrated safety review should focus on providing reasonable assurance of compliance with 10 CFR 70.61, 70.62, and 70.64. The acceptance criteria the NRC uses for reviews of ISAs are outlined in Chapter 3.0 of NUREG-1520 (NRC, 2002).

STAFF ANALYSIS

The four additional accident sequences proposed are as follows:

- OC1-1 - A fire in a construction site preparation vehicle located near the Uranium Byproduct Cylinder (UBC) storage pad which affects a uranium hexafluoride (UF₆) cylinder.
- OC2-1 - Failure of an external construction vehicle or human error resulting in an impact to areas of concern;
- OC3-1 - Failure of an internal construction vehicle or human error resulting in an impact to process equipment; and,
- OC4-1 – Failure of an external construction crane or human error resulting in an impact to an area of concern

Each of these sequences was assigned a frequency index number for the initiating event of -1 based on the NUREG-1520 criteria of a few failures during the facility lifetime. This failure index was also based on limited evidence from industry events involving chemical releases caused by construction vehicles. The staff considers this frequency index conservative for the above sequences based on the limited duration of construction operations as compared to normal process operations.

Every sequence except sequence OC3-1 was determined by the licensee to have a high uncontrolled consequence to the public and/or nearby workers. Sequence OC3-1 was determined by the licensee to have an intermediate uncontrolled consequence to local workers and a low uncontrolled consequence to area workers and the public. Local workers are defined as being within 1.5 meters of the release. This definition primarily accounts for the driver of the construction vehicle. The staff considers the uncontrolled consequences to be appropriate based on the below atmospheric normal operating system pressure.

The IROFS proposed to be added to the ISA and their corresponding failure probability index numbers (FPIN) are:

- IROFS50a – Administratively control proximity of site preparation vehicles around the UBC Storage Pad. This IROFS consists of a barrier a short distance beyond an inner barrier to prevent a fire due to impact of construction vehicle with the UBCs, resulting in a release of UF₆. When used in conjunction with IROFS50h, IROFS50a is the outer barrier. FPIN = -2.
- IROFS50b – Administratively control proximity of external site construction vehicles around areas of concern to prevent a release of UF₆. When used in conjunction with IROFS50c, IROFS50b is the outer barrier. FPIN = -2.
- IROFS50c – Administratively control proximity of external site construction vehicles around areas of concern to prevent a release of UF₆. When used in conjunction with IROFS50b, IROFS50c is the inner barrier. FPIN = -2.
- IROFS50d – Administratively control proximity of internal construction vehicles relative to operating process equipment of concern to prevent a release of UF₆ associated with an impact. FPIN = -2.
- IROFS50e – Administratively control the movement of internal construction vehicles to prevent impact with operating process equipment of concern resulting in a release of UF₆. IROFS50e is implemented by requiring the use of a spotter to independently monitor and supervise internal construction vehicle movement. FPIN = -1.
- IROFS50f – Administratively control proximity of external construction cranes around areas of concern to prevent a release of UF₆. IROFS50f is implemented by establishing a no swing zone when the crane is closer than a safe distance from an operating area of concern. The no swing zone is a physical demarcation visible to the construction crane operator. FPIN = -3.
- IROFS50g – Administratively control movement of external construction cranes around areas of concern to prevent a release of UF₆. IROFS50g is implemented by requiring use of a spotter to independently monitor and supervise external construction crane movement. FPIN = -1.
- IROFS50h – Administratively control proximity of site preparation vehicles around the UBC Storage Pad. This IROFS is similar to IROFS50a in its function, which is to alert a vehicle operator upon impact to allow for sufficient distance to stop or alter course upon impact. It is a barrier, at a minimum distance of 30 feet from the UBC,

and within IROFS50a, substantial enough to alert operators of vehicles of UBC storage Pad proximity to prevent a fire from an impact with UBCs resulting in a release of UF₆. FPIN = -2.

None of these barrier systems can be considered as two completely independent IROFS. However, likely conservatisms in the event initiation frequency and the 30 foot buffer between a reportable IROFS failure and a building or cylinder impact provide an acceptable balance to the lack of independence.

Evaluation of Accidents

Sequence OC1-1 will be prevented by IROFS50a and IROFS50h. IROFS50a is an outer barrier and prevents a construction vehicle from impacting the inner barrier or causing a fire close enough to the UBC to rupture a cylinder and cause a release. IROFS50h prevents a construction vehicle from making contact with a UF₆ cylinder resulting in a fire and subsequent UF₆ release. IROFS50h is implemented by establishing a temporary barrier at least 30 feet from the cylinders on the UBC storage pad. IROFS50a is implemented by establishing an outer barrier around the inner barrier at a sufficient distance to allow a construction vehicle that makes contact with the outer barrier to alert the operator before penetrating the inner barrier. The barriers will be temporary water or sand ballasted barricades, concrete jersey barriers, or walls. The barriers will be of sufficient strength to alert the vehicle operator upon impact with the barrier and provide for deceleration of the vehicle to avoid causing a release exceeding 10 CFR 70.61 performance requirements. The failure of IROFS50a or IROFS50h is defined as a site preparation vehicle's location as being within a distance of 30 feet from areas of concern. No minimum separation distance between the two barriers is specified. The shorter the distance between barriers, the likelihood of a reportable failure increases. Hence, the barriers can be located as conditions permit as long as the inner barrier is at least 30 feet from any cylinder.

Sequence OC2-1 will be prevented by IROFS50b and 50c. Each of these IROFS administratively establishes a barrier of sufficient strength around an operating area of concern to alert operators of site construction vehicle proximity. The operating area of concern, as shown in the 2nd diagram in the January 27, 2010 submittal (LES-10-00020), is the UF₆ Handling Area. Similar to IROFS50a and 50h, the barriers in IROFS50b and IROFS50c will be water or sand ballasted barricades, concrete jersey barriers, or walls at least 30 feet from the hazard.

Sequence OC3-1 is prevented by IROFS50d and IROFS50e. Each of these IROFS administratively controls proximity of internal construction vehicles relative to operating process equipment of concern in the Separations Building Module (SBM) UF₆ Handling Area. IROFS50d controls proximity to operating process equipment by establishing physical barriers (walls, tape, posts, etc.). IROFS50e controls proximity to equipment by the use of a spotter. In this sequence, it clearly states that in the event proximity and movement of internal construction vehicles relative to the operating feed station(s) cannot be maintained, operations with internal construction vehicles, relative to the operating feed station(s) are immediately suspended. The IROFS described are considered enhanced IROFS, and appropriate management measures are applied in areas of training, certification, procedures, etc.

Sequence OC4-1 is prevented by IROFS50f and 50g. Each of these IROFS administratively controls proximity and movement of construction cranes around areas of concern. IROFS50f controls proximity of cranes by establishing a zone in which the crane boom cannot swing or, "a no swing zone," when the crane is closer than a safe distance from the operating area of concern defined as the boom reach plus half the load length. Barriers will be used to define the

approved crane position. The, “no swing zone,” is a boom swing sector containing the area of concern and extending 30 degrees on each side. IROFS50g requires use of a spotter to independently monitor and supervise external construction crane movement relative to the operating areas of concern.

Additional methods for identifying accident sequences were evaluated, and are consistent with NUREG-1513, Integrated Safety Analysis Guidance Document. These methods are additions to the Hazard and Operability Analysis method used for the original ISA. Specifically for this LAR, the What-If/Checklist Method was used.

PHASED OPERATION EVALUATION

The SAR and the ISA Summary were updated to include new sections for Phased Operation. The initial startup of the facility does not include all of the facilities, systems, process and IROFS described in the ISA Summary §3.3 through 3.8. The licensee has indicated their intent to startup the facility in a phased approach. Initial operation will only begin when the facilities, systems, processes, and IROFS required are operational to support initial plant operations are operational. The initial plant operation phase is described below:

Initial Plant Operation—UF₆ operations will be conducted in SBM 1001. In addition to the permanent plant equipment, some temporary systems will be installed in the UF₆ Handling Area of SBM 1001 to support initial plant operations in place of those permanent plant systems that are not yet completed. These systems include a storage area for a small amount of solid and liquid waste, and any contaminated equipment that requires storage in preparation for decontamination and repairs, waste treatment or disposal. The local Extract Gaseous Effluent Ventilation System (GEVS) function will be combined with the Pumped Extract GEVS to support initial plant operations.

Subsequent phases were minimally described in the submittal and more detail will be supplied by the licensee upon approaching each production phase, to include updating the SAR and ISA. Tables 3.9-1 and 3.9-2 in the ISA Summary identify accident sequences that are applicable for each phase of operation. Those tables indicate that several accident sequences will not be applicable during initial plant operation because some of the systems will not be available. However, the operations performed by those systems may be performed during the initial plant operation by a temporary system. Therefore the licensee should evaluate if those accident sequences will be applicable to the temporary systems. If a similar accident sequence will be applicable to the temporary systems, the licensee will have to identify the IROFS that will be used to comply with the regulations in 10 CFR 70.61. Any new types of accident sequences identified will require review and approval.

ISA Summary §3.9 as presently written, is incomplete, in that many described changes are conceptual and have not completed the LES configuration change process.

Prior to start-up of the facility, LES has committed to complete a review and update of the ISA Summary, consistent with the requirements of 10 CFR 70.72 that demonstrates the final facility configuration for initial plant operations, including any new accident sequences, and corresponding IROFS.

FINDINGS

The NRC staff finds the construction related sequences and associated IROFS identified with LAR 09-14 meet the performance requirements of 10 CFR 70.61. The additional methods of identifying new accident sequences, such as the What-If/Checklist Method, or FMEA, are acceptable and in keeping with NUREG-1513. The description of phased operations is incomplete. However, prior to start-up of initial plant operations, the SAR and ISA Summary will be updated.

ENVIRONMENTAL REVIEW

Issuance of the requested amendment to the LES license is subject to the categorical exclusion provided in 10 CFR 51.22(c)(11) and will not have a significant impact on the human environment. Therefore, in accordance with 10 CFR 51.22(c)(11), neither an environmental assessment nor an environmental impact statement is required for the proposed action.

CONCLUSIONS

The staff has reviewed the amendment and finds that the new accident sequences, methods, and corresponding IROFS satisfy the performance requirements of 10 CFR 70.61.

PRINCIPAL CONTRIBUTORS

Rex Wescott
Cinthya Roman