

March 7, 2017

Mr. Stephen R. Cowne  
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SUBJECT: STAFF EVALUATION OF LOUISIANA ENERGY SERVICES RESPONSE TO  
GENERIC LETTER 2015-01, "TREATMENT OF NATURAL PHENOMENA  
HAZARDS IN FUEL CYCLE FACILITIES" FOR ITS FACILITY IN EUNICE, NEW  
MEXICO (COST ACTIVITY CODE L33337)

Dear Mr. Cowne:

On June 22, 2015, the U.S. Nuclear Regulatory Commission (NRC) issued Generic Letter (GL) 2015-01, "Treatment of Natural Phenomena Hazards in Fuel Cycle Facilities" (Agencywide Documents Access and Management System [ADAMS] Accession Number ML14328A029). The GL 2015-01 was issued for two purposes: (1) to request that addressees submit information to demonstrate compliance with regulatory requirements and applicable license conditions regarding the treatment of natural phenomena events in the facilities' integrated safety analysis; and (2) to determine if additional NRC regulatory action is necessary to ensure that licensees comply with their licensing basis and existing NRC regulations.

The NRC staff has completed its evaluation of the Louisiana Energy Services (LES) (doing business as URENCO USA) response to GL 2015-01 dated September 18, 2015, (ADAMS Accession Number ML15265A047) for its facility located in Eunice, New Mexico. A Staff Evaluation Report of your response to the GL is enclosed. The purpose of this evaluation report is to document the staff's review of LES's response to GL 2015-01 to determine if the potential effects of natural phenomena hazards (NPH) events were adequately addressed in the LES integrated safety analysis summary (ISAS).

The NRC staff will perform an inspection using Temporary Instruction 2600/016, "Inspection Activities Associated with GL 2015-01," (ADAMS Accession Number ML15317A506) to independently verify implementation of controls regarding the treatment of NPH in the LES ISAS and to inform the closure process of NRC GL 2015-01. The results of these regulatory activities will allow the staff to verify that LES demonstrates compliance with regulatory requirements and applicable license conditions regarding the treatment of NPH at the LES facility.

S. Cowne

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In accordance with Title 10 of the *Code of Federal Regulations* Section 2.390 of the NRC's "Agency Rules of Practice and Procedure," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records System component of the NRC's ADAMS. ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

Sincerely,

**/RA/**

Margie A. Kotzalas, Chief  
Programmatic Oversight  
and Regional Support Branch  
Division of Fuel Cycle Safety, Safeguards,  
and Environmental Review  
Office of Nuclear Material Safety  
and Safeguards

Enclosure: NRC Evaluation of  
Generic Letter 2015-01 Response

Docket No.: 70-3103

REVIEW OF CLOSURE OF GENERIC LETTER 2015-01, "TREATMENT OF NATURAL PHENOMENA HAZARDS IN FUEL CYCLE FACILITIES" FOR URENCO USA FACILITY IN EUNICE, NEW MEXICO (COST ACTIVITY CODE L33337) DATED: March 7, 2017

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**ADAMS Accession Number: ML16256A072**

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**STAFF EVALUATION OF THE RESPONSE TO GENERIC LETTER 2015-01,**  
**“TREATMENT OF NATURAL PHENOMENA HAZARD IN FUEL CYCLE FACILITIES”**  
**URENCO USA FACILITY, EUNICE, NEW MEXICO**  
**DOCKET NUMBER 070-3103**

**I. Background**

On June 22, 2015, the U.S. Nuclear Regulatory Commission (NRC) issued Generic Letter (GL) 2015-01, “Treatment of Natural Phenomena Hazards in Fuel Cycle Facilities” (Agencywide Documents Access and Management System [ADAMS] Accession No. ML14328A029). The GL requests information from licensees of fuel cycle facilities to verify the assumptions in the facilities' integrated safety analysis (ISA) regarding how each facility addresses the potential consequences of natural phenomena hazard (NPH) events in the ISA. By letter dated September 18, 2015, Louisiana Energy Services (LES) responded to GL 2015-01 (ADAMS Accession No. ML15265A047) for its facility located in Eunice, New Mexico. The purpose of this evaluation report is to document the NRC staff's review of LES's response to GL 2015-01 and to determine if the potential effects of NPH events were adequately addressed in the LES ISA summary (ISAS).

LES is required to evaluate NPH in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) Section 70.64 “Requirements for new facilities or new processes at existing facilities.” Specifically, 10 CFR Paragraph 70.64(a)(2) states in part, that the design must provide for adequate protection against natural phenomena with consideration of the most severe documented historical events for the site. The staff reviewed the LES license application (ADAMS Accession No. ML040020256), including natural phenomena, and documented its findings in NUREG-1827, “Safety Evaluation Report for the National Enrichment Facility in Lea County, New Mexico,” dated June 2005 (ADAMS Accession No. ML051780290).

**II. GL 2015-01 Requested Actions**

In the GL 2015-01, the staff requested that all addressees provide information to verify the assumptions in their facilities' ISAs regarding how each facility provides adequate protection against the occurrence of natural phenomena events. Specifically, the staff asked that addressees take the following actions:

- a) Submit definitions of “unlikely,” “highly unlikely,” and “credible” in evaluating natural phenomena events in the ISA such as earthquakes, tornadoes, tornado missile impacts, floods, hurricanes, and other wind storms.
- b) Submit a description of the safety assessment for the licensing and design basis natural phenomena events, including the following information:
  - i. likelihood and severity of the natural phenomena events, such as earthquakes, tornadoes, floods, hurricanes, and other wind storms;
  - ii. accident sequences as a result of natural phenomena event impacts to facility structures and internal components;
  - iii. assessment of the consequences for the accident sequences from item ii that result in intermediate and/or high consequence events; and
  - iv. items relied on for safety (IROFS) to prevent or mitigate the consequences of the events from items ii and iii.

Enclosure

- c) For facilities subject to 10 CFR Part 70, Subpart H requirements, submit a description of the results of the ISA review used to comply with 10 CFR 70.62(c), identifying the characteristics of the licensing and design basis natural phenomena events applicable to the site, that evaluates possible changes in the methodology, likelihood, and severity of natural phenomena events with those used in the original design/evaluation of the facility.
- d) Submit for staff review a summary of the results of any facility assessments or walk downs, if performed, to identify and address degraded nonconforming, or unanalyzed conditions that can affect the performance of the facility under natural phenomena and have available for NRC inspection the documentation of the qualifications of the team.

### III. LES Response to GL 2015-01 and Staff Evaluation

1.0 NRC GL 2015-01, Requested Action (1)a: Submit the definitions of “unlikely,” “highly unlikely,” and “credible” in evaluating natural phenomena events in the ISA such as earthquakes, tornadoes, tornado missile impacts, floods, hurricanes, and other wind storms.

LES provided definitions of “unlikely,” “highly unlikely,” and “credible.” The staff verified that the definitions were consistent with the description in Section 3.1 and Table 3.1-5 of the LES ISAS. The staff previously evaluated the definitions for NPH events in the LES ISAS and documented its findings in NUREG-1827, Section 3.3.3.2.2.2. The staff finds that the evaluation in NUREG-1827, Section 3.3.3.2.2.2, remains acceptable. Therefore, the staff finds that LES has adequately responded to GL 2015-01 Requested Action (1)a.

2.0 NRC GL 2015-01 Requested Action (1)b: Submit a description of the safety assessment for the licensing and design basis natural phenomena events, including the following information:

- i. likelihood and severity of the natural phenomena events, such as earthquakes, tornadoes, floods, hurricanes, and other wind storms;
- ii. accident sequences as a result of natural phenomena event impacts to facility structures and internal components;
- iii. assessment of the consequences for the accident sequences from item ii that result in intermediate and/or high consequence events; and
- iv. IROFS to prevent or mitigate the consequences of the events from items ii and iii.

In its response, LES provided a description of its facility consistent with Section 3.2 of LES ISAS and NUREG-1827, Section 1.3. The external natural phenomena events LES evaluated include: seismic; high winds, tornadoes, and tornado missile hazards; floods; hurricanes; snow and ice; local intense precipitation; and internal flooding from on-site above ground storage tanks. The LES ISAS, Table 3.7-4, contains descriptions of the external events listed above. These descriptions include the accident sequences and the assessment of the consequences for the applicable accident sequences. The IROFS identified to implement the safety strategy for the applicable NPH event are described in Table 3.8-1 of the LES ISAS.

For flooding events, LES stated that the site is located above the 100 or 500-year flood elevation. The closest water conveyance is Monument Draw, a typically dry, intermittent stream. Therefore, a flood is not considered to be a design basis event for the LES site. As such, according to LES, with no credible sources of river or upstream dam flooding existing at the site, this yields an occurrence probability of  $< 10^{-6}$  per-event per-year. Based on this information, LES concludes that the risk of flooding due to an increase in the level of the stream is not credible.

The staff reviewed the flooding analysis and compared it to topographical and historical flooding data near the facility and concludes that it is highly unlikely that the facility will experience a flood that will challenge safe operations. The staff notes that LES defines the term credible in Section 3.1 of LES ISAS as external hazard events with an initiating event frequency greater than  $10^{-6}$  year. Therefore, in the case of flooding, the initiating event frequency is greater than  $10^{-6}$  year which categorizes the event as one that is credible. Furthermore, based on current data available for the site location, the staff agrees that the site is located outside the 1 percent (100 year flood) and 0.2 percent (500 year) annual chance floodplains. Overall, the staff found the information provided by LES adequately supports the staff position that it is highly unlikely that flooding could result in high or intermediate events as defined in Section 3.1 of the LES ISAS and in 10 CFR 70.61.

In NUREG-1827, the staff reviewed the likelihood and severity of the natural phenomena events and the resulting accident sequences, consequences, and IROFS to prevent or mitigate the consequences of the events. The staff concluded in NUREG-1827 that it had conducted an on-site review of both the classified and non-classified portions of the ISA and concludes that LES has appropriately addressed the baseline design criteria, as required by 10 CFR 70.64.

Based on the review of the information above, the staff finds that LES adequately addressed consequences and likelihood of each accident sequence for NPH events at LES. Therefore, the staff finds that LES has adequately responded to GL 2015-01 Requested Action (1)b.

NRC GL 2015-01 Requested Action (1)c: For facilities subject to 10 CFR Part 70, Subpart H requirements, submit a description of the results of the ISA review used to comply with 10 CFR 70.62(c), identifying the characteristics of the licensing and design basis natural phenomena events applicable to the site, that evaluates possible changes in the methodology, likelihood, and severity of natural phenomena events with those used in the original design/evaluation of the facility.

As documented in NUREG-1827, LES developed an ISA methodology in accordance with NUREG-1513, "Integrated Safety Analysis Guidance Document," (ADAMS Accession No. ML011440260) and performed accident analyses in accordance with NUREG/CR-6410, "Nuclear Fuel Cycle Facility Accident Analysis Handbook," (ADAMS Accession No. ML072000468). LES provided a description of structures (buildings and areas) that are required to withstand the design basis NPHs and external hazards as part of the ISA. The staff verified that the methodology, likelihood, and severity of natural phenomena events remains consistent with those used in the original design, evaluation, and licensing of the facility. Therefore, the staff finds that LES has adequately responded to GL 2015-01 Requested Action (1)c.

NRC GL 2015-01 Requested Action (1)d: Submit for staff review a summary of the results of any facility assessments or walk downs, if performed, to identify and address degraded, nonconforming, or unanalyzed conditions that can affect the performance of the facility under natural phenomena and have available for NRC inspection the documentation of the qualifications of the team.

In its response, LES stated that a surveillance requirement description exist for each individual IROFS. LES provided a list of IROFS applicable to NPH accident sequences, the associated surveillance requirement description, and the date when the surveillance was completed. LES also stated that all surveillances yielded satisfactory results and the work orders are maintained in accordance with the LES Records Management Program.

The Cylinder Receipt and Dispatch Building (CRDB) internal bunker building is an IROFS27c structure. For IROFS27c, Surveillance Requirement 700.5.1 is used to ensure the CRDB internal bunker building integrity. This surveillance requirement describes how planned and preventive maintenance is performed in accordance with LES site procedures. It also describes the method of performing post event walk downs to verify the CRDB internal bunker building has not been damaged during seismic or tornado events.

IROFS27e applies to the Separations Building Modules (SBMs), Interconnecting Corridor, CRDB superstructure or shell, and Uranium Byproduct Cylinder Storage Pad crane. Surveillance Requirement 700.1.1 is used to ensure the integrity of these structures and crane. This surveillance requirement describes how planned and preventive maintenance is performed in accordance with LES site procedures. It also describes the method of performing post event walk downs to verify the above mentioned buildings and crane have not been damaged during seismic, tornado, high wind, roof snow load, roof ponding, or site flooding due to local intense precipitation events.

LES Surveillance Requirements 700.6.1 and 700.6.2 are used to verify IROFSC23. IROFSC23 mitigates the chemical releases to the worker and the public from centrifuges in all SBMs and beyond. Surveillance Requirement 700.6.1 describes how to verify the design feature of centrifuges. Surveillance Requirement 700.6.2 describes how to verify that the number of centrifuges that are crashed, idled, or non-dedicated does not exceed the limit per enclosure.

The Product Liquid Sampling Autoclave is designed to earthquakes and tornado missile impact. IROFS28 is a design feature to maintain Product Liquid Sampling Autoclave leak tight integrity. LES Surveillance Requirement 470.3.1 describes how a visual external inspection will be performed.

The staff will inspect the bases, execution, and results of the above mentioned surveillance requirements during the implementation of Temporary Instruction (TI) 2600/016, "Inspection Activities Associated with NRC GL 2015-01," (ADAMS Accession No. ML16293A899). Therefore, the staff finds that LES has adequately responded to NRC GL 2015-01 Requested Action (1)d.

#### **IV. Conclusion**

On the basis of this evaluation, the staff finds that LES adequately responded to Requested Actions (1)a through (1)d of GL 2015-01. The staff will perform an inspection using TI 2600/016 to independently verify that LES is in compliance with the regulatory requirements and applicable license conditions regarding the treatment of NPH in its ISA. The results of these regulatory activities will allow the staff to verify LES demonstrates compliance with regulatory requirements and applicable license conditions regarding the treatment of natural phenomena hazards at the facility.