

September 14, 2004

NEF#04-036

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

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

Subject: Clarifying Information Related to Vehicle Fires

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

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September 14, 2004
NEF#04-036
Page 2

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

In conference calls between LES and NRC representatives, held on June 30, 2004, and September 2, 2004, the NRC requested that clarifications be provided concerning fire safety. Each of these clarifications was addressed in Reference 3, with the exception of clarifications regarding vehicle fires. The information concerning vehicle fires is included in the Enclosure, "Clarifying Information Related to Vehicle Fires."

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

Respectfully,



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

Enclosure:
Clarifying Information Related to Vehicle Fires

cc: T.C. Johnson, NRC Project Manager

ENCLOSURE

Clarifying Information Related to Vehicle Fires

Clarifying Information Related to Vehicle Fires

NRC Clarification Request

Provide clarification on why the National Enrichment Facility (NEF) Integrated Safety Analysis (ISA) fire scenarios in the Cylinder Receipt and Dispatch Building (CRDB) did not include cylinder(s) present on delivery vehicle (semi-tractor trailer flatbed)?

LES Response

As discussed in a June 30, 2004, conference call between NRC and LES representatives, this issue had been identified by LES, but had not yet undergone evaluation. LES has subsequently become aware of significant changes to UF₆ cylinder transportation regulations that have been promulgated by the U.S. Department of Transportation (DOT) [69 FR 3632] and by NRC [69 FR 3698].

Transportation regulations in 49 CFR 173.420 have been modified such that, effective October 1, 2004, each package designed to contain 0.1 kg or more of fissile, fissile excepted, or non-fissile uranium hexafluoride offered for transportation must be designed to withstand the thermal test specified in 10 CFR 71.73(c)(4) without rupture of the containment system.

This change will impact the handling of cylinders at the NEF. Since the DOT rule change will now require thermal protection (e.g., overpack or other protective assembly) for all off-site UF₆ shipments, cylinder handling practices will change. The handling practice for incoming cylinders containing UF₆ (e.g., 48Y feed) will be to offload the integral cylinder/protective assembly to the loading dock area prior to opening or removal of the protective assembly. Similarly, outgoing cylinders containing UF₆ (i.e., 30B product and in the future, potentially 48Y uranium byproduct cylinders) will be individually loaded into an overpack or protective assembly, as applicable, prior to placement on the trailers. As a result, cylinders containing UF₆ on a truck will be protected from a theoretical truck fire by the associated overpack or protective assembly.

A theoretical truck fire in the CRDB loading bay was previously analyzed and shown to not pose a threat of rupturing cylinders in the building or on the loading dock applying a minimum of 1 meter (3 feet) spatial separation. This theoretical truck fire aggregated the cumulative combustible load of the vehicle (i.e., 500 liters (132 gallons) of diesel fuel and 744 liters (196 gallons) of fuel equivalent to other content) into a pool fire of 5 meters (16 feet) in diameter. The duration of this fire was calculated to be approximately 22 minutes. This fire severity is less than that required by 10 CFR 71.73(c)(4) for qualification of the cylinder thermal overpack/protective assemblies (i.e., full engulfment of the cylinder in an 800°C (1475°F) hydrocarbon fire for 30 minutes). Additionally, there are conservative assumptions in the analysis that make exposure from this theoretical fire more severe than would be expected to realistically occur (e.g., the bulk fuel load of the tractor is actually spatially separated from the trailer holding the cylinders, three-fifths of the fuel load cannot physically "pool," and cylinders would not be "engulfed"). As a result, the cylinder handling practices, including use of cylinder overpack/thermal protective assemblies, resulting from the DOT rule change will ensure that cylinders containing UF₆ on a truck will be protected from a theoretical truck fire. Finally, the on-site movement of feed, product, and uranium byproduct cylinders will not utilize semi-tractor trailers. Fires involving other movement vehicles were evaluated in the current NEF ISA.

Clarifying Information Related to Vehicle Fires

In a future revision to the NEF ISA and ISA Summary, the CRDB Truck Bay fire scenario will be revised to include a summary of the conditions described above and the overpack/protective assemblies will be designated as Items Relied On For Safety (IROFS).