

March 3, 2004

MEMORANDUM TO: Joseph G. Giitter, Chief
Special Projects Branch
Division of Fuel Cycle Safety
and Safeguards

THRU: Brian W. Smith, Chief **/RA/**
Special Projects Section
Special Projects Branch, FCSS

FROM: Timothy C. Johnson **/RA/**
Senior Mechanical Systems Engineer
Special Projects Section
Special Projects Branch, FCSS

SUBJECT: FEBRUARY 26, 2004, MEETING SUMMARY: LOUISIANA ENERGY
SERVICES' APPROACH FOR PREPARING THE INTEGRATED
SAFETY ANALYSIS

On February 26, 2004, U.S. Nuclear Regulatory Commission (NRC) staff held a meeting to discuss the Integrated Safety Analysis used by Louisiana Energy Services (LES) for its gas centrifuge uranium enrichment plant proposed to be located in Eunice, New Mexico. I am attaching the meeting summary for your use. This summary contains no proprietary or classified information.

Docket: 70-3103

Attachment: Louisiana Energy Services
Meeting Summary

cc: William Szymanski/DOE
Rod Krich/Exelon
James Curtiss/W&S
Peter Miner/USEC
James Ferland/LES
Dennis Holmberg/Lea County
James Brown/Eunice
Michael Marriotte/NIRS
CO'Claire/Ohio
Derrith Watchman-Moore/NM

Claydean Claiborne/Jal
Bobby Walloch/Hobbs
Troy Harris/Lovington
Betty Richman/Tatum
Glen Hackler/Andrews
William Floyd/New Mexico
Richard Ratliff/Texas
Jerry Clift/Hartsville
Lee Cheney/CNIC

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Summary of Meeting with
Louisiana Energy Services on Integrated Safety Analysis

Dates: February 26, 2004

Place: U.S. Nuclear Regulatory Commission offices
Rockville, MD

Attendees: See Attachment 1

Purpose:

The purpose of this meeting was to discuss the approach used by Louisiana Energy Services (LES) to perform its Integrated Safety Analysis (ISA) for its gas centrifuge uranium enrichment plant proposed to be located in Eunice, New Mexico.

Discussion:

After introductions, Messrs. R. Krich and M. Kennedy discussed the approach LES had taken to prepare its ISA for its proposed gas centrifuge plant in New Mexico (see Attachment 2). LES used two ISA teams; one to prepare a classified ISA and another to prepare an unclassified ISA. The classified ISA focused on areas involving classified technology, such as the centrifuges, detailed cascade design and testing, and classified systems. The unclassified ISA addressed the remaining plant systems. To ensure that the two ISAs were consistent, there were common members of both teams.

The ISA is based on experience at the Urenco facility in Almelo, The Netherlands. It relies heavily on operating data and maintenance records at Almelo. Although the Almelo facility is regulated under a different regulatory structure, Mr. Kennedy stated that LES believes that both regulatory systems result in a consistent level of safety for this facility design. Mr. Kennedy noted that, based on the ISA, they identified few design changes that would be needed for the LES plant. Urenco staff is considering incorporating these changes into the Urenco facilities.

The ISA hazard identification used a HAZOP approach and addressed both internal and external events. The HAZOP approach is a commonly used method for systematically identifying and evaluating failure hazards in the chemical and nuclear industries.

Mr. Kennedy explained the ISA approach with an event example of the failure of a heater used in the Feed Purification System. Using this example, he discussed the hazard selection, the evaluation of unmitigated and mitigated consequences, and the selection of items relied on for safety (IROFS) that would be needed to ensure compliance with the performance requirements in 10 CFR Part 70, Subpart H. Results of these evaluations are presented on risk index tables presented in the LES Safety Analysis Report.

Mr. Kennedy indicated that some systems would meet the performance requirements of 10 CFR Part 70 with only a single IROFS. NRC staff discussed the double contingency principle for nuclear criticality safety and the use of single IROFS. Mr. Kennedy explained that following the approach, it is possible to analyze criticality events such that only a single IROFS would be needed. Mr. Kennedy explained that analyses for nuclear criticality safety were performed and that the results of those analyses fed into the ISA process in the "Initiating Event Frequency." NRC staff indicated that it needs to evaluate this approach in more detail as part of its technical review.

Mr. Kennedy discussed the documentation of the ISA saying that the detailed documentation contains process safety information, including equipment reliability data from Urenco operating experience, ISA team meeting summaries, calculations, design information, and technical reports. The documentation is maintained in project files consistent with Quality Assurance Program Description requirements. As detailed designs are prepared or modified, the ISA will be updated to ensure that all future changes are evaluated. The update process will be used during licensing as well as during the plant's lifetime.

In response to an NRC staff question, LES did not take credit for its emergency plan in the evaluation of seismic events. However, LES may reconsider this position.

Regarding the chemical limits assumed in the chemical consequence analyses, NRC staff indicated that the limits may be too high and will follow-up further during more detailed discussions.

Another follow-up item for further discussion is the use of administrative controls to prevent cylinder overfilling and the operational experiences with this activity. NRC staff plan further discussions on this and other operational experiences during its site visit to the Almelo facility scheduled for mid-March 2004.

NRC staff asked about how quality levels in the LES Quality Assurance Program Description are implemented with respect to IROFS and non-IROFS systems, structures, and components (SSCs). LES indicated that all IROFS are Quality Level 1. Quality Level 2 SSCs are those that LES determines are not IROFS, but are important to plant operation, and, therefore, will have some quality assurance controls applied. These SSCs are needed for normal operations or have a safety function, but, credit for them is not taken in the ISA to meet the 70.61 performance criteria. LES further indicated that the unclassified ISA was prepared under Framatome's quality assurance program and the classified ISA was prepared under the Urenco quality assurance program. LES indicated that they have audited those quality assurance programs and determined that they meet the LES Quality Assurance Program Description commitments.

NRC staff asked what evaluations addressing loss-of-power events was performed. LES indicated that all equipment fails in the safe position in loss-of-power situations, and, therefore, no IROFS and no emergency power are required.

In response to a question, LES confirmed that prior to commencing operations, it would prepare documentation (including drawings) clearly delineating the boundaries of IROFS.

LES staff also indicated that the uranium byproduct cylinder pad and the natural gas and high-pressure CO₂ lines near the proposed plant were evaluated in the ISA. LES also noted that the CO₂ line will be relocated so it will not be a hazard during plant operations.

Action Items:

1. Set up in-office review meeting on unclassified ISA.

Attachments:

1. Attendee list
2. LES meeting handouts