

November 22, 2004

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

THRU: Brian W. Smith, Chief /RA/
Gas Centrifuge Facility Licensing Section
Special Projects Branch, FCSS

FROM: Timothy C. Johnson, Project Manager /RA/
Gas Centrifuge Facility Licensing Section
Special Projects Branch, FCSS

SUBJECT: NOVEMBER 4, 2004, TELEPHONE SUMMARY: LOUISIANA
ENERGY SERVICES DISCUSSIONS ON NUCLEAR
CRITICALITY SAFETY AND INTEGRATED SAFETY ANALYSIS

On November 4, 2004, the U.S. Nuclear Regulatory Commission (NRC) staff held a telephone conference call with staff from Louisiana Energy Services (LES) to discuss nuclear criticality safety and integrated safety analysis issues related to the LES uranium enrichment plant proposed to be built in Eunice, New Mexico. I am attaching the telephone summary for your use. The summary contains no proprietary or classified information.

Docket: 70-3103

Attachment: Louisiana Energy Services
Telephone Summary

cc:	William Szymanski/DOE	Claydean Claiborne/Jal	Rod Krich/LES
	Monty Newman/Hobbs	James Curtiss/W&S	Troy Harris/Lovington
	Peter Miner/USEC	Betty Richman/Tatum	James Ferland/LES
	Glen Hackler/Andrews	Dennis Holmberg/Lea Cty	John Parker/NMED
	James Brown/Eunice	Richard Ratliff/Texas	M. Marriotte/NIRS
	Jerry Clift/Hartsville	CO' Claire/Ohio	Lee Cheney/CNIC
	Derrith Watchman-Moore/NMED	Joseph Malherek/PC	Ron Curry/NMED
	Tannis Fox/NMED	Patricia Madrid/NMAG	Glenn Smith/NMAG
	Lindsay Lovejoy/NIRS		

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

THRU: Brian W. Smith, Chief /RA/
Gas Centrifuge Facility Licensing Section
Special Projects Branch, FCSS

FROM: Timothy C. Johnson, Project Manager /RA/
Gas Centrifuge Facility Licensing Section
Special Projects Branch, FCSS

SUBJECT: NOVEMBER 4, 2004, TELEPHONE SUMMARY: LOUISIANA
ENERGY SERVICES DISCUSSIONS ON NUCLEAR
CRITICALITY SAFETY AND INTEGRATED SAFETY ANALYSIS

On November 4, 2004, the U.S. Nuclear Regulatory Commission (NRC) staff held a telephone conference call with staff from Louisiana Energy Services (LES) to discuss nuclear criticality safety and integrated safety analysis issues related to the LES uranium enrichment plant proposed to be built in Eunice, New Mexico. I am attaching the telephone summary for your use. The summary contains no proprietary or classified information.

Docket: 70-3103

Attachment: Louisiana Energy Services
Telephone Summary

cc: William Szymanski/DOE
Monty Newman/Hobbs
Peter Miner/USEC
Glen Hackler/Andrews
James Brown/Eunice
Jerry Clift/Hartsville
Derrith Watchman-Moore/NMED
Tannis Fox/NMED
Lindsay Lovejoy/NIRS

Claydean Claiborne/Jal
James Curtiss/W&S
Betty Richman/Tatum
Dennis Holmberg/Lea Cty
Richard Ratliff/Texas
CO'Claire/Ohio
Joseph Malherek/PC
Patricia Madrid/NMAG

Rod Krich/LES
Troy Harris/Lovington
James Ferland/LES
John Parker/NMED
M. Marriotte/NIRS
Lee Cheney/CNIC
Ron Curry/NMED
Glenn Smith/NMAG

DISTRIBUTION: Docket 70-3103
NMSS r/f FCSS r/f SPB r/f RPierson
JHolonich, FCSS YFaraz, GCFLS SSteele, GCFLS HFelsher/TSG
MGalloway, TSG LClark/OGC ACoggins/OGC ABradford/DWM
JPark/DWM JDavis/DWM SFlanders/DWM KEverly/NSIR
TCombs/OCA SGagner/OPA DMcIntyre/OPA RVirgilio/OSTP
RHannah/RegII KClark/RegII DSeymour/RegII DAYres/RegII
JHenson/RegII RTrojanowski/RegII VMitlyng/RegIII DHartland/RegIII
WMaier/RegIV WTroskoski Hearing file
LES website - No

ML043210016

OFC	GCFLS		GCFLS		TSG		GCFLS	
NAME	TJohnson/os		LMarshall				BSmith	
DATE	11/16/04		11/16/04		11/22/04		11/22/04	

OFFICIAL RECORD COPY

Telephone Conference Call Summary

Nuclear Criticality Safety and Integrated Safety Analysis

Date and Time: 8:00 AM; November 4, 2004

Call Participants:	H. Felsher/NRC	W. Troskoski/NRC
	B. Smith/NRC	T.C. Johnson/NRC
	R. Krich/LES	B. Hubbard/Areva
	D. Green/Excel	D. Pepe/Areva
	A. Brown/Urenco	P. Hale/Urenco

On November 4, 2004, a conference call between U.S. Nuclear Regulatory Commission (NRC) and Louisiana Energy Services (LES) staffs was held to discuss criticality and Integrated Safety Analysis (ISA) issues related to LES' application for a uranium enrichment facility proposed to be located in Eunice, New Mexico.

Discussion:

During the call, NRC staff discussed issues related to criticality safety and the ISA Summary (see Attachment) resulting from the review of LES' Revision 3 application submitted on September 30, 2004, and additional information provided on October 4, 2004, on ISA accident sequences for criticality safe-by-design components and the ISA Summary. The issues in the Attachment were broken down into Priority 1 and 2 issues and the discussions on these issues were as follows:

Priority 1 issues:

1. Descriptions of IROFS in the ISA Summary

NRC staff indicated that the descriptions of the specific Items Relied on for Safety (IROFS) and the accident sequences were unclear. Also, it was unclear how IROFS in the ISA Summary related to accident sequences. As an example, LES staff described for one accident sequence how the actual IROFS, identified only generally in the ISA Summary, would be applied. Based on that information, NRC staff indicated that a future NRC onsite review may be needed to understand the IROFS and accident sequences. However, LES staff indicated that the detailed information was not yet available for an NRC on-site review. LES staff acknowledged that their criticality-related IROFS are generic at this time, but indicated that once their plant design is more complete, additional details will be added to the accident sequences and that the lists of IROFS will be expanded to added more specificity for the accident sequences.

2. Independence of IROFS in the ISA summary

LES indicated in the ISA Summary that IROFS that needed to be independent would be independent. NRC staff stated that a clear commitment to independence and a description of how independence would be achieved are needed. LES staff will provide that information from the IROFS boundary procedure in the ISA Summary.

3. Initiating event indices for accident sequences in the ISA Summary

NRC staff questioned how initiating event indices are applied to several external accident sequences (i.e., the uncontrolled and controlled indices were not the same). LES staff explained that for some controlled and uncontrolled accident sequences the nature of the accident changed and so would the initiating event indices for the same accident sequence. For example, the uncontrolled accident for excessive roof drainage involves a building designed to the Uniform Building Code. However, in the controlled accident, the building is redesigned to accommodate a larger rainfall event having a different initiating event index. NRC staff stated that it would review this item further.

4. Identical accident sequences in the ISA Summary

NRC staff indicated that there are several accident sequences that are identical in the ISA Summary. LES staff agreed to revise the ISA summary to provide clarification and differentiation between the accident sequences.

5. ISA process for criticality safe-by-design components and location of information

NRC staff indicated that it is unclear what LES meant by “safe-by-design” for criticality safety components and how LES implemented the safe-by-design ISA process. LES staff explained the rationale that the safe-by-design ISA process (i.e., definition, criteria) is applied to more than just the favorable geometry components. LES staff indicated it will provide additional clarifying information in a letter to NRC and will also revise the ISA Summary accordingly.

NRC staff requested that LES provide information about the regular and criticality safe-by-design ISA processes in the Safety Analysis Report (SAR). LES staff indicated that it interpreted the regulations and guidance to require this information in the ISA Summary only. NRC staff stated they would review the regulations and guidance associated with this issue and inform LES if any additional actions are necessary.

6. ANS-8.7 clarification in the SAR

NRC indicated that a reference to requirements in ANS-8.7 in Section 5.2.1.5 in the SAR is unclear as to what specifically the reference applies to. LES will revise the statement to provide clarification.

Priority 2 issues:

1. Enrichment levels needed

LES staff confirmed that the 5.0 weight percent U-235 enrichment requested would cover all normal and credible abnormal conditions and approval for higher assay levels would not be needed.

2. Editorial changes

LES agreed to make the editorial changes to the SAR and ISA Summary identified by NRC staff except for the criticality accident alarm system (Priority 2 Issue No. 6) because LES intends to meet 10 CFR 70.24 without an exemption.

Attachment

Nuclear criticality safety issues list

Priority 1 Issues

ISA summary Table 3.7-1 and Table 3.7-3: LES needs to justify why it is sufficient to meet the regulatory requirements by having IROFS identified in the ISA summary only as: (1) the name of the IROFS as a functional statement, (2) examples of the IROFS, (3) a score that is the same for each example of the IROFS (i.e., even though examples for the same IROFS are very different), and, (4) if more than one IROFS or example is needed for an accident sequence, then a statement that they are independent. In addition, the same IROFS is used in different sequences and so without unique identifiers of IROFS with accident sequences, it will be very difficult to identify the appropriate management measures for the IROFS/accident sequence as well as keep track of changes in the future. LES needs to clarify why some examples of 'Administrative' IROFS are not administrative (e.g., for IROFS14a/b-physical barriers, transfer cart).

ISA summary Table 3.7-2 and Table 3.8-1: LES needs to clarify in the license application how certain IROFS are independent of one another (e.g., 14a/b, 15a/b). This is important because the IROFS are used for over 20 accident sequences. The same is true (but for various number of accident sequences) for other IROFS (e.g., 16a/b/c/d, 19a/b/c/d, 30a/b/c, 31a/b/c/d, 45a/b/c/d). In addition, ISA summary Table 3.7-4 and Table 3.8-1 for external accident sequences: LES needs to clarify for 'EE-LP-BLD (CR)', how IROFS27a/b are independent of each other. The same is true for IROFS44a/b for the other NCS external accident sequence.

ISA summary Table 3.7-3 and Table 3.7-4: In the ISA summary tables for internal events, LES is consistent for having the 'Initiating Event Index' the same for the controlled and uncontrolled accident sequences. However, in the tables for external events, LES is not consistent because for the two NCS accident sequences and other non-NCS accident sequences, LES changed the 'Initiating Event Index' between the controlled and uncontrolled accident sequences. LES needs to correct this because otherwise LES is double counting the effect (i.e., once on the 'Initiating Event Index' and once for having the IROFS).

ISA summary Table 3.7-2 and Table 3.8-1: LES needs to clarify the difference between certain accident sequences that appear to be the same (e.g., PT3-4 vs. PT4-1, FR1-1 vs. FR2-1, DS1-2 vs. DS2-2).

License application: LES needs to provide a definition of 'Safe-By-Design' in Chapter 3.0 and how components are determined to be 'Safe-By-Design' because it appears that the term does not mean the same as 'Favorable Geometry Equipment' where NCS is solely based on the geometric dimension and the enrichment to allow for an very easy comparison (i.e., no calculations needed) between design and operation attributes.

LES needs to copy information from ISA summary Section 3.1 to Chapter 3.0 (i.e., Section 3.1.1, Section 3.1.2-except table containing ISA Team Member & Experience/Qualification, Section 3.1.8, Table 3.1-1, Table 3.1-3 through Table 3.1-6, Table 3.1-8 through Table 3.1-11) because this information is the commitment and description of the ISA processes used.

LES needs to add to Chapter 3.0 the following information that should have been in the submittal dated 10/2004 regarding Favorable Geometry Equipment:

- add to 'Addition to Table 3.1-9 of (-5)' that 'Significant margin also exists.';
- add to 'Addition to Table 3.7-2' that 'These passive safe-by-design features are considered items which may affect items relied on for safety. As a result, QA Level 1 requirements apply to these features.'; and
- modify 'Addition to Table 3.7-2' in the second part of the conclusion by replacing the word 'large' with 'significant'

Proposed 09/30/04 Rev. 4: LES needs to clarify the bullet in Section 5.2.1.5 (Additional NCS Analyses Commitments) (p. 5.2-6) regarding ANSI/ANS-8.7 as to what 'these requirements' means (e.g., replace "... these requirements ..." with "... the requirements for subcriticality of operations, margin of subcriticality for safety, and selection of controls requirements in 10 CFR 70.61(d) ...")

Priority 2 Issues
LES needs to confirm that enrichment limit asked for and needed is 5.0 wt.% U-235.
LES needs to correct inconsistencies both within the classified & between the unclassified and classified ISA summary provided in 09/2004 and 10/2004: (1) name of Dump System, (2) Centrifuge Test System - missing item in second table, names of components, (3) Liquid Effluent... and others - meaning of "X"-slab, (4) Ventilated Room System - inconsistent number for Oil Trap..., and (5) Cylinder Preparation System - missing last two items from unclassified in classified. Also, inconsistent reporting of results.
LES needs to make sure that last bullet on p. 5.1-1 (i.e., 'Safety parameters and procedures will be established') of Rev. 3 is not lost in the upcoming Rev. 4 because it was not on p. 5.1-1 of the proposed Rev. 4 and p. 5.1-2 was not included in the proposed Rev. 4.
Proposed 09/30/04 Rev. 4: LES needs to correct the units in Section 5.1.2 (Control Methods for Prevention of Criticality) and Section 5.2.1.3.1 (Reflection Assumption) in the upcoming Rev. 4 because 2.5 cm does not equal 1.0 inch.
LES needs to correct ISA summary Section 3.8.1 (third paragraph) so that it replaces the reference to the 'double contingency protection requirement' (i.e., which doesn't exist) to something else (e.g., "subcritical under all normal and credible abnormal conditions").
LES needs to understand that Section 5.3 (CAAS) of the license application means that LES does not have flexibility to deal with times when the CAAS is not working (i.e., 10 CFR 70.24 must be met at all times). Consider adding back information concerning compensatory measures, etc... that was moved from Section 5.3 to Section 3.1.5 of the ISA summary in the 09/04 submittals.
LES needs to correct the 'Page Removal and Insertion Instructions for Rev. 3' in the upcoming Rev. 4 (i.e., Rev. 3 did not include p. 5-iii/iv, p. 5.1-3/4 through p. 5.1-7/8).
LES needs to correct the 'List of Effective Pages' for Rev. 3 in the upcoming Rev. 4 (i.e., p. 5.6-1 through p. 5.6-2 do not exist).
LES needs to add the missing 'Table' page for Chapter 5.0 in the upcoming Rev. 4.
LES needs to correct the errors in 'Controlled Likelihood Category' for accident sequences PB1-3 and PB2-6, which should both be '-5' and not '-6' in ISA summary Table 3.7-1 (p. 3).
Proposed 09/30/04 Rev. 4: LES needs to correct the page numbers for Chapter 5.0 (NCS) 'Table of Contents' for Section 5.2.1.6 (should be p. 5.2.6) and Section 5.2.1.7 (should be p. 5.2.8) in the upcoming Rev. 4.
Proposed 09/30/04 Rev. 4: LES needs to correct the date for NRC Regulatory Guide 3.71 to '1998' in the bullet for ANSI/ANS-8.10-1983 in Section 5.2.1.5 (Additional NCS Analyses Commitments) in the upcoming Rev. 4.