

December 14, 2005

MEMORANDUM TO: James W. Clifford, Acting Chief
Special Projects Branch
Division of Fuel Cycle Safety
and Safeguards

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

FROM: William M. Troskoski, Sr. Engineer */RA/*
Mixed Oxide Facility Licensing Section
Special Projects Branch, FCSS

Paul M. Bell, Lead Quality Assurance Engineer */RA/*
Mixed Oxide Facility Licensing Section
Special Projects Branch, FCSS

SUBJECT: NOVEMBER 28 - DECEMBER 1, 2005, LOUISIANA ENERGY
SERVICES NATIONAL ENRICHMENT FACILITY QUALITY
ASSURANCE PROGRAM ONSITE REVIEW

On November 28 - December 1, 2005, U.S. Nuclear Regulatory Commission (NRC) staff conducted an onsite review of the Quality Assurance Program for the Louisiana Energy Services (LES) National Enrichment Facility (NEF) gas centrifuge uranium enrichment project proposed to be located in Hobbs, New Mexico. The review took place in the Shaw Group Engineering office in Cherry Hill, New Jersey. I am attaching a meeting summary for your use.

Enclosure: Louisiana Energy Services Meeting Summary

Docket: 70-3103

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Louisiana Energy Services National Enrichment Facility

Quality Assurance Program Onsite Review

Dates: November 28 - December 1, 2005

Place: Shaw Group Engineering Office
Cherry Hill, New Jersey

NRC Attendees: William Troskoski
Paul Bell
Deborah Seymour

Purpose:

The purpose of this second onsite review was to confirm that the applicant had properly initiated its Quality Assurance (QA) Program with respect to the various engineering and design activities for the National Enrichment Facility (NEF). The flow down of selected Integrated Safety Analysis (ISA) Summary requirements and commitments were also reviewed to provide assurance that the assumptions and initial conditions would remain valid throughout the design process.

Discussion:

The staff met with representatives of Louisiana Energy Services (LES) and its architect-engineer (A-E), Nuclear Technology Solutions (NTS), at the Shaw Group's engineering offices in Cherry Hill, New Jersey, to discuss the overall project status and QA program implementation. The following significant items were reviewed:

- NTS of Shaw, Stone & Webster has completed about 90% of the structural/civil design. The electrical and mechanical portions are about 30% complete. The applicant expects to issue construction content bid requests during the first half of CY 2006.
- Review of IROFS 27C, a sole items relied on for safety (IROFS) for building design features provided for natural phenomena protection, indicated that the design inputs for seismic, tornado, and precipitation, were appropriate. The staff was informed that a design change had been implemented to address recent changes in the local and state building codes. As a result, the applicant now plans to change from a pre-cast structure to a poured-in-place concrete construction method. This method is endorsed by the applicable codes.
- Other IROFS are expected to be developed early next year. The process IROFS that will be provided by Urenco will undergo an "Americanization" review by the ISA team to assure that the appropriate codes, standards and regulations that apply to the NEF are met.
- The applicant will be developing an IROFS Boundary Package for each IROFS. As part of that package, an "independence" review will be performed down to the component level. Additionally, the IROFS Boundary Package will also include the specific management measures to be applied to each IROFS. The staff informed the applicant

that a followup audit of completed IROFS Boundary Packages is contemplated for early next year.

- The applicant is in the process of determining how it will address the “safe-by-design” components for nuclear criticality safety. Consideration is currently being given to the establishment of “safe-by-design” packages similar to the IROFS Boundary Packages.
- The staff discussed the Atomic Safety and Licensing Board’s question of material compatibility with hydrogen fluoride, which is a chemical reaction product resulting from water interacting with uranium hexafluoride. The applicant stated that the technical specification and its basis were developed by Urenco in the 1970s. Since this is dual use technology, arrangements will be made for the appropriate transfer of information.
- The applicant requested staff feedback regarding the possible declaration of IROFS 27A and 27B as “safe-by-design” features. These IROFS concern the building foundation height and a berm to control roof ponding and site flooding to withstand the effects of a local intense precipitation event (17 inches of precipitation in one hour) in order to assure moderation control. Application of strict double contingency requirements would be prohibitive for both the berm and foundation height. This matter will be discussed with the Technical Support Group.
- Design inputs, including all license application commitments, will be tracked in accordance with procedure LS-110, Commitment Tacking. The commitments will include applicable codes and standards.
- The applicant developed, is refining, and has begun to implement, a program and a policy governing the preparation, review, approval and revision of procedures. The staff noted that the procedure use policy included the following: directions for when procedures are used as general guidance, are followed step-by-step, or are signed off for each step; directions for when a procedure must be physically at the job site; actions to be taken when procedures conflict, procedures are inadequate for the intended tasks, or unexpected results occur; actions to be taken when an activity governed by a procedure is interrupted; and authorization to deviate from written procedures during an emergency if necessary to protect personnel and equipment, and the controls needed for such deviation. The staff also noted that human factors considerations, such as sequence of procedure steps and the placement of notes and caution statements, would be incorporated into procedures to reduce the likelihood of error. The staff did not identify any significant issues relative to procedure policy and program.
- The staff reviewed the measures applied by the applicant to control documents issued by the project. The project’s system for document control is implemented through a computer based Electronic Document Management System (EDMS) built on Documentum ®. The Electronic Data Management System contains databases for selective indexing, archiving, and prevention of the incorrect use of documents. Hard-copy records of activities affecting quality which include, but not limited to: calculations, drawings, design change requests, system descriptions, engineering specifications, and requests for information are scanned and entered into electronic databases. The project is currently pursuing the implementation of a Documentum ® add-on feature

associated with the use of "Smart Lists." This proposed upgrade to the electronic database will enhance the EDMS's capability to identify drawings and diagrams that have been placed on hold or require status confirmation.

- The auditing process used by Shaw, Stone & Webster is conducted for programmatic activities in accordance with their Standard Nuclear Quality Assurance Program. Each audit is conducted with emphasis placed on the status and importance of the item or activity. NTS has recently developed a Management Quality Project Plan, which is used to implement the LES Design Control and Configuration Management Programs. Nuclear Technology Solutions (NTS) has performed an implementation audit of the Project Plan. One audit initiated by LES evaluated the effectiveness of the Shaw, Stone & Webster Standard Nuclear Quality Assurance Program, and Project Implementation Plan. Primary areas evaluated by LES include: the Project Management Plan for Project Quality and Project Procedures, Design Control, Engineering Service Scopes of Work (ESSOWs), Document Control, QA Records, Corrective Action, and Training and Control of Safeguards Information. An additional audit was performed of Enrichment Technology Corporation (ETC) United Kingdom QA Program and Project Quality Plan.
- Staff reviewed the applicant's design change control process and the determination factors used for design development, which included applicable design bases, design inputs, and regulatory requirements. A QA Level 1 structural design criteria and sample calculation for "Seismic Ground Design Response Spectra," was reviewed by staff to ensure compliance with Engineering Assurance Procedure (EAP) 5.4, "Project Drawings," and licensing commitments. Design change requests were also reviewed for compliance with LES procedure EG-9501, "Design Change Control." Design change forms are appropriately identified annotating the proposed change, quality level designation and reason for the proposed change. The project has not developed or issued any system descriptions that identify structure, system, or component functions that will be used to ensure that IROFS meet performance requirements. The staff informed the applicant that a follow-up audit of completed system descriptions and IROFS Boundary Packages is contemplated for early next year.
- The applicant's Computerized Training Records System and QA training were reviewed in accordance with Engineering Assurance Procedure EAP 2.4, "Indoctrination, Continuing Education and Certification Requirements." Engineering personnel receive the appropriate training commensurate with their project specific work assignments and technical discipline. QA program informal training is administered through required reading assignments. Lead auditor and auditors receive formal project training in auditing and QA programmatic elements.
- The staff reviewed the applicant's Corrective Action System and associated Corrective Action Requests (CARs). The corrective action system includes provisions for stop work action, inspection reporting, problem reporting, and identifying and reporting defects in accordance with 10CFR Part 21. One (1) Corrective Action Request has been issued to date. CAR 05-NEF-001 was issued regarding inadequate QA indoctrination of a contractor. The status of the CAR is being tracked and remains open, pending formal corrective action.

- ESSOW -114489-G001 was reviewed by staff.

NTS awarded a contract to Kleinfelder, Inc., an Albuquerque, NM, based Geotechnical Contractor. The description of the NTS ESSOW awarded to Kleinfelder Inc. specified technical and quality assurance requirements for subsurface investigations, which included drilling, survey of boring locations and laboratory testing. Terms and conditions of NTS's ESSOW to Kleinfelder Inc. classified the contract as QA Level 1, IROFS, and required pre-award approval of the Contractor's QA Program. The applicant acknowledged that Kleinfelder Inc.'s QA Program had been audited however, outstanding corrective actions remained open. Work was allowed to proceed prior to approval of the contractor's QA Program. A subsequent review of preliminary audit notes of an in-process audit recently conducted by LES, indicated that this discrepancy will be addressed in their formal audit report as a "Finding," and will be corrected through the LES corrective action process. The staff informed the applicant of the importance of ensuring the application and flow-down of technical review requirements associated with QA Level 1 service contracts for IROFS, prior to initiating work. A followup audit of completed corrective actions is contemplated for early next year.