



**Department of Energy**  
**National Nuclear Security Administration**  
Washington, DC 20585

January 31, 2013

OFFICE OF THE ADMINISTRATOR

The Honorable Peter S. Winokur  
Chairman  
Defense Nuclear Facilities Safety Board  
625 Indiana Avenue NW, Suite 700  
Washington, D.C. 20004

Dear Mr. Chairman:

The National Nuclear Security Administration (NNSA) has reviewed your letter dated August 30, 2012, regarding safety control strategies for nuclear operations at Lawrence Livermore National Laboratory (LLNL). Your letter requested a report and briefing providing NNSA's perspective and plans to improve the development, review, approval, and oversight of LLNL safety control strategies.

NNSA agrees with the Defense Nuclear Facilities Safety Board (Board) on the importance of maintaining rigor and conservatism in the development, review, and approval of safety control strategies at NNSA nuclear facilities. The NNSA Livermore Field Office (LFO) has also identified concerns with the quality and timeliness of LLNL safety basis documentation and has been pursuing actions to enhance LLNL performance in these areas. LFO has also recently implemented improvements in its process for the review and approval of safety basis documents, and taken additional actions in this area. The enclosure to this letter describes completed and future LFO and LLNL actions to improve their processes for development, review, and approval of LLNL Safety Basis documents.

During the development of this response to the Board's concerns, NNSA has been evaluating the causes for the security incident at Y-12. NNSA has extended this evaluation to examine the assumptions and dynamics that guide our organizational decision making at all NNSA sites with respect to not only security but also safety issues. At this time, NNSA has identified the following three fundamental lessons that can be learned from the Y-12 incident:

1. Make no assumptions,
2. Develop a questioning attitude and pay attention to the details, and
3. Embrace full and open communications.

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As a result, NNSA will be ensuring these lessons learned are considered by LLNL during its completion of the actions committed to in the enclosure. NNSA has formally communicated this expectation to LLNL stressing that LLNL should not only look at the three specific issues identified by the Board but adopt a forward looking attitude to ensure the quality of LLNL nuclear safety basis documents improves and that a robust safety culture is in place. The LFO Manager and LLNL each have committed to conduct in Fiscal Year 2013 management reviews with external nuclear safety experts of their respective nuclear safety basis processes (two separate reviews). A senior staff member from the Office of Environment, Safety & Health (NA-00-10), within the Office of Infrastructure and Operations, will lead the LFO management review.

As requested in your letter, NNSA will schedule a briefing to the Board following your receipt and review of this correspondence.

If you have any questions concerning this letter, please contact Dr. Jerry McKamy at (301) 903-7980.

Sincerely,

A handwritten signature in cursive script that reads "Neile L. Miller".

Neile L. Miller  
Acting Administrator

Enclosure

cc: M. Campagnone, HS-1.1  
M. Lempke, NA-00  
D. Nichols, NA-SH-1  
K. Davis, NA-00-LS

## Improvements to the Lawrence Livermore National Laboratory Safety Basis Development Process

The National Nuclear Security Administration's (NNSA) Livermore Field Office (LFO) noted quality and timeliness issues with Lawrence Livermore National Laboratory's (LLNL) Safety Basis submittals and evaluated LLNL's Nuclear Safety Basis performance as "yellow" in the 3<sup>rd</sup> Quarter of the Fiscal Year (FY) 2012 Performance Evaluation Plan (PEP), indicating the need for laboratory management attention. LFO noted planning and timeliness issues in the Plutonium and Radiography Facilities Documented Safety Analysis (DSA) annual update reviews, and the HYDOX safety basis amendment submittal. Further, LLNL's submission of the Hardened Engineering Building safety basis amendments left little time for appropriate review, which could have negatively impacted the deinventory of special nuclear material. LLNL's submission to resolve Conditions of Approval (COA) concerning the Tritium Facility DSA and Technical Safety Requirements (TSR) included inadequate performance criteria and surveillance requirements, requiring LFO direction to establish appropriate criteria. In response to LFO's concerns, LLNL revised its Nuclear Operations procedure, *Preparation of Major Safety Basis Submittals to DOE* (Reference 1). This revision was prepared to address issues associated with the quality and timeliness of safety basis submittals with a primary objective of improving safety basis quality through enhanced integration of stakeholder input during safety basis development. Notable changes include:

1. Designating the affected facility manager as the owner of safety basis issues;
2. Initiating red team reviews for more complex submittals to identify any lack of clarity, consistency issues, or need for supporting documentation early in the preparation process;
3. Adding guidance for proper integration of technical input from all stakeholders in preparation and review of submittals; and
4. Modifying the Scope and Key Issues Statement to include specific identification of LFO expectations, technical supporting analyses to be provided, facility manager concerns, and the safety control strategy being proposed (i.e., TSR changes, safety structure, system and component (SSC) changes, etc.).

In addition, Reference 2 states that LLNL plans to conduct a management self-assessment of the safety basis development process in FY 2013. LFO will review the results of this assessment, including the improvements committed to above, to ensure it measures the effectiveness of the LLNL process.

## Livermore Field Office Oversight of Nuclear Safety Documents

The LFO oversight processes are defined in LFO Work Instructions (WI) and Processes. LFO WI 421, *Review and Approval of Nuclear Safety Basis Documents* (Reference 3) has gone through numerous improvements since 2010. Notable changes include:

1. Addition of the Scope and Key Issues Statement (SKIS) to facilitate better planning of the safety basis submittal between LFO and LLNL. It defines the scope of the DSA/TSR changes or significant safety basis amendments, including control changes or COAs that may be incorporated. This gives LFO advance notifications of proposed, major changes

to facilities or operations, summarizes important issues, and reaffirms that prior commitments will be incorporated in the new submittal. Understanding the scope of a submittal enables LFO to select the review team to include appropriate expertise for the review;

2. Addition of checklists for each DSA chapter and TSR section. The checklists facilitate review assignments by the review team leader and ensure a thorough review of the documents;
3. Enhanced direction concerning resolution of technical disagreements within LFO. This includes responsibilities for the Review Team Leader, the Senior Technical Safety Advisor (STSA), and the affected LFO Assistant Managers. Unresolved disagreements are required to be raised to the Safety Basis Approval Authority (SBAA) with the option of using the LFO Differing Professional Opinion Process. The Review Team Leader is required to document the resolution of significant issues;
4. Addition of required reading assignments by the Review Team Leader to review team members to include the SKIS, the previous annual update Safety Evaluation Report (SER), LFO WI 421, DOE Standard 1104-2009 (*Review and Approval of Nuclear Facility Safety Basis and Safety Design Basis Documents*), the submittal to be reviewed, and other pertinent documents;
5. A requirement that the Review Team Leader provide Assistant Managers and Technical Deputies progress reports during the review. The Review Team Leader is expected to inform management of a delay of more than one month, and for more than three months, the SBAA must be informed with a revised schedule and justification for the delay;
6. A requirement that the LFO Technical Deputy conduct a kick-off meeting to discuss expectations of the review team;
7. Detail, such as development of a review schedule, was added to the elements of review plan;
8. Addition of a step for the STSA to perform a high-level review of the Review Comment Records and, as warranted, to generate additional comments to the contractor; and
9. Finally, a step was added for the Review Team Leader to conduct a meeting with the review team, STSA, Assistant Managers, and Technical Deputies to discuss key issues and path forward prior to finalizing the SER.

LFO has also initiated the following actions:

1. The LFO Site Manager provided direct feedback on the timeliness and quality of safety basis submittals in separate meetings to the LLNL Director of Nuclear Operations and the LLNL Principal Associate Director for Operations and Business;
2. The LFO Site Manager performs detailed cross-cutting reviews of all safety basis approvals;
3. Issues with LLNL submittals have been documented in LFO approval letters, associated COAs, and LSO PEP appraisals;
4. The LFO Site Manager is coordinating with the Lawrence Livermore National Security, LLC (LLNS) Deputy Laboratory Director on a management review, to include external nuclear safety expertise, of the LLNS and LFO nuclear safety basis development processes (two separate reviews);

5. The LFO Site Manager engages on key nuclear safety issues with senior leadership at standing team meetings; and
6. LFO continues a systematic review of the Plutonium and Tritium Facility DSAs with a focus on credited SSCs. LFO will address its results in responding to another Board letter concerning LLNL nuclear facility safety systems.

#### References

1. AB-002, *Preparation of Major Safety Basis Submittals to DOE*, Revision 2, dated September 14, 2012
2. NOD12-15 (D. Boyd, B. Goodwin/K. Davis), *Response to Defense Nuclear Facilities Board Letter Concerning Adequacy of Safety Controls for Nuclear Operations at Lawrence Livermore National Laboratory*, dated September 28, 2012
3. National Nuclear Security Administration Livermore Field Office Work Instruction 421, *Review and Approval of Nuclear Safety Basis Documents*, approved July 18, 2012