Status of NNSA Enterprise Nuclear Criticality Safety (NCS) Programs

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Agenda

➢ NA-ESH Overview

➢ Summary of Metrics

Lawrence Livermore National Laboratory (LLNL)	Los Alamos National Laboratory (LANL)	Y-12	Sandia National Laboratory (SNL)
NCS Program Health: **Excellent**	NCS Program Health: **Good**	NCS Program Health: **Good**	NCS Operational Implementation: **Excellent**

➢ LANL NCS Committee (NCSC)/Critical Safety Support Group (CSSG)

➢ Y-12 Conduct of Operations (ConOps)/Birdcage

NA-ESH Overview

Current Report Format:	Site Health Grades:
NA-ESH is satisfied with the current report format.	NA-ESH agrees with grades. No marginal or unsatisfactory performance ratings.

NA-ESH Trends Noted:

➢ NCS Staffing Attrition at LANL and Y-12

➢ Several ConOps Issues: procedures and posting

➢ M&O partners are self-identifying NCS related issues, the causes, and corrective actions to prevent recurrence

NA-ESH Overview

Performance based on:	New Grading Methodology:	Grading Categories:
"Program Health" & "Operational Implementation"	- Developed in collaboration with DOE Offices - Establishes a qualitative approach for grading - Uses NA-ESH Checkerboard grading philosophy	- Excellent - Good - Marginal - Unacceptable

LANL Metrics Summary

NCS Program Health: Good

The program elements meet the minimum requirements or any minor non-compliances are actively being corrected or improved.

NCS Program Improvements:

- ➢ Criticality Safety Evaluation Document (CSED) 'backlog' completed (Evaluation of the Safety of the Situation (ESS) deficient CSEDs)
- ➢ Working to implement the new CSEDs
- ➢ LANL leadership actively engaged in addressing staffing attrition
    - ▪ Lost eight qualified Criticality Safety Analysists (CSA)s
    - ▪ Staffing adequate to support current work
    - ▪ Developing new staffing analysis to address current/future needs
    - ▪ New immersion program: Revising Sr. CSA Qualifications and productive Nuclear Criticality Safety Program (NCSP) Pipeline

No criticality safety infractions reported for LANL and Nevada National Security Site (NNSS) operations.

LLNL Metrics Summary

NCS Program Health: Excellent

➢ The program elements consistently exceed the requirements
➢ Many program elements are considered best in class and worthy of consideration by each DOE site

Notable NCS Program Elements:

➢ Exceptional internal technical support to Livermore operations
➢ Award winning external technical support
➢ Variety of rewarding work for NCS engineers to improve job satisfaction and retention

Two minor infractions at the Nevada National Security Site (NNSS) regarding implementation of Criticality Safety Index (CSI) limits

Y12 Metrics Summary

NCS Program Health: Good

The program elements meet the minimum requirements or any minor non-compliances are actively being corrected or improved.

NCS Program Improvements:

> Completed Roadmap for Improving the Y-12 Nuclear Criticality Safety Program (YAREA-F-1956 April 2022)

> Y12 leadership actively engaged in addressing staffing attrition (staffing adequate to support current work)

- Lost 13 Qualified CSAs
- Staffing adequate to support current work;
- CNS hiring in excess of the mission need to account for losses;
- CNS cross training and rotating NCS engineers to meet workload demands across the three sites (Y-12, Pantex, UPF).

> Joint NPO/CNS "Disciplined Operations Council" to improve operational execution, training, and communication of line management expectations

SNL Metrics Summary

NCS Program Health: Good

> ➢ The program elements consistently exceed the requirements, and
> ➢ Many program elements are considered best in class and worthy of consideration by each DOE site.

SNL provides significant support to the DOE complex and International Agencies.

> ➢ NCSP implementation assessments at LLNL, NNSS, and PNNL
> ➢ Provided Criticality Safety Program (CSP) documents (procedures, processes, charters) to LANL, LLNL, SRS, Y-12 and PNNL to enhance their CSPs.
> ➢ First time CSP criticality safety training provided to Emergency and First Line Responders
> ➢ Criticality Safety (CS) training to United Kingdom, University of NM, and NNSA ESH-20 CSP hands-on training classes
> ➢ Supported and performed French CS experiments.

Number of infractions/non-compliances at an eighth year low. Only one infraction/non-compliance identified during a CSP annual facility assessment.

LANL NSCS/CSSG Reports

NA-ESH has reviewed both reports and has discussed with NA-LA

- ➢ NCSC Annual Report
- ➢ CSSG Report

NA-ESH agrees that there are several recommendations that LANL needs to address.

Feedback from the Los Alamos Field Office and LANL confirms that they are working to address the recommendations.

NA-ESH is closely monitoring progress

Y-12 ConOps and Birdcage Issue

Issue:	Actions

➢ Birdcages not loaded per NCS requirements
➢ Verifications not performed prior to intra/inter-facility transfers
	CNS performed causal analysis and established long-term corrective actions to prevent recurrence.
	
	    ➢ -Management walking the spaces: increased supervisors and disciplined operations specialist floor time presence
	    ➢ - Procedure improvements (level of detail, clarity, and ease of use)
	    ➢ - Training improvements (training material, increased training staff, and Production Supervisor Oral Boards)

➢ **NPO Reactive Assessment completed**
➢ **NA-ESH monitoring progress**

Questions?