



The Deputy Secretary of Energy

Washington, DC 20585

November 30, 2012

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DNF SAFETY BOARD

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

Dear Mr. Chairman:

This letter and the enclosure provide the Department of Energy's (DOE) response to the Defense Nuclear Facilities Safety Board (Board) letter and Technical Report (DNFSB/Tech-37) in the area of Work Planning and Control (WP&C) at the activity level.

WP&C is at the core of the Integrated Safety Management System, which, for more than 15 years, has served as DOE's overarching framework to safely plan, execute, and monitor work activities. The significance of WP&C is reflected in regulations and in existing departmental policies and requirements.

As the Board has recognized in its latest letter, DOE has, over the last few years, placed significant focus and emphasis on the importance of well-developed and consistently implemented WP&C programs to advance safe and successful execution of DOE mission activities. A few examples of the many activities taken by the National Nuclear Security Administration, the Office of Environmental Management, the Office of Science, and the Office of Health, Safety and Security to improve and strengthen WP&C implementation and oversight are detailed in the enclosed report.

As I acknowledged in my May 17, 2012, letter on this topic, there are ongoing site-by-site efforts to improve WP&C programs at DOE defense nuclear facilities. My letter also stated that DOE must integrate these site-specific improvement efforts into a complex-wide solution, and that it is critical to coordinate WP&C improvement initiatives with ongoing efforts to improve safety culture at our sites, on which effective WP&C systems depend.

This letter and the enclosed report provide DOE's continued commitments to develop such a complex-wide solution and to build on our ongoing efforts to improve WP&C at the activity level. Specifically, DOE has and will continue to undertake concerted efforts to apply lessons learned to address WP&C challenges. DOE will also continue to work with the Energy Facility Contractors Group to improve its WP&C Program Guideline document. The key commitments made by DOE to embrace continuous improvement in WP&C implementation consist of:



1. Enhancing complex-wide awareness of, and reinforcing, the need for rigorous activity-level WP&C.
2. Strengthening guidance and formality associated with contractor implementation and Federal monitoring of activity-level WP&C through the development of an implementation handbook for contractors and a DOE Guide on oversight and evaluation of the effectiveness of activity-level WP&C.
3. Enhancing Federal and contractor oversight of activity-level WP&C, including through a Deputy Secretary memorandum to communicate the special emphasis on oversight of WP&C implementation.

The lessons learned from these initiatives, as well as ongoing activities, will be used to further foster sustained, long-term improvements in activity-level work planning and control.

I have assigned Dr. Patricia R. Worthington, Director, Office of Health and Safety, within the Office of Health, Safety and Security, as the responsible manager for coordinating the Department's deliverables to the Board. Dr. Worthington may be reached at (301) 903-5926.

Sincerely yours,

A handwritten signature in black ink, appearing to read 'Dan B. Poneman', written over a horizontal line.

Daniel B. Poneman

Enclosure

cc w/enclosure:

Thomas P. D'Agostino, NNSA
David G. Huizenga, EM
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Dae Y. Chung, HSS
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Response to Defense Nuclear Facilities Safety Board Improvements to the Implementation of Integrated Safety Management at the Activity-Level: Work Planning and Control

Background

On August 28, 2012, the Defense Nuclear Facilities Safety Board (DNFSB or Board) issued a letter to the Department of Energy (DOE) expressing concern associated with the implementation of work planning and control (WP&C) at the activity level. The DNFSB requested a report and briefing that details the actions taken and planned by DOE to address the items raised in DNFSB/TECH-37, *Integrated Safety Management at the Activity Level*.

The following sections outline the actions taken to date and the additional actions planned to further improve implementation and execution of activity-level WP&C.

DOE Improvement Actions Taken to Date

Over the last several years, the Department has taken a number of actions to improve its processes for WP&C. This section will highlight and address the improvements made thus far.

Embedded in the planning and execution of all DOE mission activities is the Integrated Safety Management System (ISMS). For more than 15 years, ISMS has served as the overarching framework to safely plan, execute, and monitor work activities. The DOE directives system and requirements reinforce the guiding principles of the ISMS philosophy and support its execution.

The central thesis and the fundamental principles of ISMS rest on effective hazard identification and analysis, execution of work, and feedback and improvement, such that we are consistently mindful of inherent risks and hazards that are associated with the planned work. Effective application of this knowledge, coupled with insights from worker feedback at the activity level, is needed for continuous improvement. As such, WP&C at the activity level becomes a pivotal element in safe execution of work.

DOE also recognizes that sustained improvements in mission performance, especially the success of WP&C at the activity level, is highly dependent on early, ongoing, and technically inquisitive and credible Federal and contractor monitoring of work activities.

A key insight gained as part of DOE's oversight of mission performance is that effective implementation of WP&C at the activity level is directly related to the prevailing institutional environment of trust, timely and credible information sharing, objective technical analysis, transparent and informed management decisions, and accountability. Toward that end, DOE also recognizes that ensuring clear delineation of roles, responsibilities, authorities, and accountabilities (R2A2) associated with WP&C at the activity level is crucial. These are also the basic components of a strong organizational safety culture. Consequently, safety culture deficiencies may underlie WP&C deficiencies. As such, process issues associated with WP&C may be masked by or the result of underlying safety culture issues that render even a sound

WP&C process ineffective. Efforts to improve WP&C must be informed by simultaneous evaluations of, and work to improve, safety culture.

As pointed out by the Board, over the years the Department has embarked on several diverse initiatives designed to address and improve key performance issues that influence effective WP&C at the activity level. These include actions taken by the Program and Staff Offices, such as the Office of Environmental Management (EM), the National Nuclear Security Administration (NNSA), the Office of Science (SC), and the Office of Health, Safety and Security (HSS). Below, a few examples of some of the improvement actions taken to date are presented:

- EM:
 - In 2010, EM developed WP&C Program Guidelines detailing EM Headquarters (HQ) expectations for a mature WP&C program. The Guidelines served as a model for contractor WP&C programs, and used during Integrated Safety Management (ISM) phases I and II, and annual verification reviews, as well as in regular field office oversight of these programs.
 - EM Field Offices have assigned dedicated subject matter experts to perform programmatic oversight of contractor WP&C programs.
 - EM HQ and Field Offices have incorporated WP&C programmatic and implementation oversight into their integrated oversight processes.
 - In 2011, EM's Office of Operational Safety (EM-42) participated in the development of the United Research Services (URS) corporate WP&C standard.
 - In 2011 and 2012, EM-42 participated in the development of the EFCOG Work Planning and Control Program Guideline document.
 - In 2012, EM-42 participated in the development of the WP&C Criteria and Review Approach Documents (CRADs) for DOE Guide (G) 226.1-2.
 - In 2012, EM-42 coordinated the DOE response to DNFSB letter regarding the Waste Isolation Pilot Plant (WIPP) Maintenance Management program. This response identified and directed initial actions, compensatory measures, and planned actions to address WP&C weaknesses of the maintenance program.
 - In 2012, EM-42 performed WP&C and/or Conduct of Operations (Con Ops) assessments at the Integrated Waste Treatment Unit, the Portsmouth DUF6 facility, the Portsmouth Gaseous Diffusion Decontamination and Decommissioning (D&D) Project, and the Separations Process Research Unit.

- In 2011, EM-42 performed WP&C and/or Con Ops assessments at WIPP, Idaho Cleanup Project, Advanced Mixed Waste Treatment Project, and Office of River Protection Tank Farms.
- In 2011, EM-42 evaluated the URS programmatic review of the Washington TRU Solutions Work Planning and Control Program at WIPP and the Washington Closure Hanford Work Planning and Control Program at the River Corridor Closure Project.
- In 2011, EM Field Offices evaluated contractor WP&C programs as part of 2011 ISM annual declarations using the EM WP&C Guidelines or other EM CRADs addressing the EM Guidelines.
- In Fiscal Year (FY) 2013, EM-42 will assess contractor WP&C and conduct of operations programs at all large sites and several small sites in accordance with its assessment schedule.
- In FY 2013, EM-42 will assess the effectiveness of EM Field Office oversight of contractor WP&C and Con Ops programs in accordance with its assessment schedule.
- In 2012, EM Field Offices were required to assess the effectiveness of contractor WP&C programs using the EM WP&C guidelines as part of the FY 2012 Annual Integrated ISM and Quality Assurance Effectiveness Review Declaration.
- NNSA:
 - NNSA Site Offices and contractors perform WP&C assessments according to their annual assessment plans. Additionally, commitments made in letter responses to the DNFSB for the Los Alamos Site, Lawrence Livermore Site, Nevada National Security Site, and Y-12 Site, are being performed.
 - NNSA's HQ Office of Nuclear Safety and Governance Reform (NA-171) participated in several WP&C assessments:
 - In 2011, the Livermore Site Office coordinated with HSS and NA-171 to perform an independent review of WP&C for Laboratory programs.
 - In 2011, NA-171 and the Los Alamos Site Office shadowed a Facility-centered Assessment of the Science and Technology Operations Directorate and an Independent Assessment of work planning by the Los Alamos National Laboratory. These multi-week reviews, along with other shadow assessments conducted by the Site Office, provided the basis for the Laboratory's completion of FY 2011 Performance Evaluation Plan, Measure 18.4, and Deliverable 3a.
 - In 2012, NA-171 completed an independent review of Con Ops and Work Planning at the Y-12 site.

- In each case above, the respective Site Office is managing corrective actions and continued improvement in work planning and control.
- SC:
 - For Building 325 (the only defense nuclear facility within SC), work planning and control oversight has been integrated into the Pacific Northwest Site Office (PNSO) annual assessment program. Last year, work planning and control was evaluated PNNL-wide (Pacific Northwest National Laboratory-wide) as part of the annual Integrated Safety Management assessment and specifically included in safety system assessments at Building 325. PNSO has identified its FY 2013 assessments and, similarly will be including work planning and control activities with its functional area and safety system reviews.
- HSS:
 - Policy and Technical Assistance
 - Made improvements to a number of DOE directives, which ultimately influence and strengthen WP&C at the activity level. These include:
 - Updated DOE ISM set of directives such that all worker safety and health policies were integrated under the ISM umbrella policy and Federal requirements and roles, responsibilities, and authorities for safety were integrated into a single ISM Order (DOE O 450.2, *Integrated Safety Management*). Updated the DOE G 450.4-1C, *Integrated Safety Management Guide*, dated 9-29-2011, to provide DOE expectations and guidance related to development and implementation of ISM work planning and control.
 - Provided, in collaboration with NNSA, EM, and SC, technical input to the development of DOE G 226.1-2, *Federal Line Management Oversight of Department of Energy Nuclear Facilities, Appendix J, CRADs for Performing Assessment of Activity Level Work Planning and Control Implementation Activities*, dated June 21, 2012.
 - Updated several DOE guides that influence and impact activity-level WP&C, including:
 - *Worker Safety and Health Program* (DOE G 440.1-1B);
 - *Chronic Beryllium Disease Prevention Program* (DOE G 440.1-7A); and
 - *Occupational Radiation Protection* (DOE G 441.1-1C, Change 1).
 - Sponsored and provided technical support to organization-focused sessions, presentations, and briefings on activity-level WP&C at the annual ISM Champions Workshops.

- Institutionalized evaluation of WP&C at the activity level as an integral part of DOE Voluntary Protection Program (VPP) assessments.
 - Provided significant technical assistance to Headquarters Programs and Field Offices to support implementation of worker safety and health policy, including work planning and control, such as resolution of technical issues related to implementation of work planning and control requirements in title 10, Code of Federal Regulations (C.F.R.), parts 835, 850, and 851.
- Analysis
 - Developed and disseminated HSS Operating Experience Documents, communicating examples of lessons learned for improving WP&C based on occurrences reported through the Occurrence Reporting and Processing System (ORPS), and conclusions of accident investigations.
- Independent Oversight:
 - Independent Oversight has recently improved its oversight model to one that establishes a site lead at each of the nuclear facility sites. A key element of a sound nuclear safety program is strong performance in implementing WP&C.
 - Independent Oversight has conducted several safety culture reviews during 2011 to 2012 as part of the Implementation Plan to Recommendation 2011-1. The results of these safety culture reviews provide several useful insights in identifying areas for improvement in safety culture at a site that ultimately will also improve elements of WP&C.
- ISM Champions Workshop:
 - On September 12-15, 2011, DOE convened an ISM Workshop in Kennewick, Washington, that was attended by over 1,000 participants from across the DOE complex and from external organizations. There were 10 technical tracks over a 2-day period with one technical track dedicated solely to WP&C, and all of the other tracks with few exceptions had a strong link to WP&C. A key focal point of the WP&C track was a discussion of the EFCOG work planning and control program guidelines document. Nearly 20 technical papers were presented in the WP&C sessions that covered a wide range of diverse DOE missions and diverse presenters from workers to safety and security professionals to senior DOE and contractor managers. The ISM proceedings are posted on the ISM Web site to ensure that lessons-learned from all of the technical sessions and presentations from senior DOE and contractor leadership and experts from other Agencies, private sector, and academia can be readily assessed and continually reviewed and used.

- EFCOG:
 - DOE worked closely with, and supported, the EFCOG development of the work planning and control program guideline document. Once the guideline document was released, Program and Staff Offices participated in a corporate review and concluded that the EFCOG guideline is a useful aid to provide lessons learned and can be used to support development and implementation of effective WP&C programs for applicable areas of responsibilities. Comments were identified to address how the guideline document could be further improved.
 - The Department's overall recommendations for improving the EFCOG Guide are to: (1) demonstrate stronger ties with DOE requirements; (2) obtain greater consensus and engagement within the EFCOG community; and (3) revise the document in response to DOE comments.

Planned DOE Actions

The Department embraces continuous improvement in all aspects of day-to-day work. It recognizes that the pursuit of safety excellence is a dynamic process and must be ingrained within, and throughout, project lifecycles.

The Board has identified a series of actions in DNFSB/TECH-37, Section 4. *Key Factors for Improvement*, aimed at improving implementation of activity-level WP&C. These include:

- Renewed focus and emphasis.
- Inclusion of requirements and guidance in DOE directives system to govern the necessary elements of a strongly functioning WP&C program.
- Meaningful DOE and contractor oversight of activity-level WP&C, including:
 - Formal set of CRADs; and
 - Requirements for routine and thorough assessment.

Also included in the Board's report are two areas highlighted for improvement. These are: (1) the integration of work packages and documents used to direct execution of work; and (2) Incorporate back into the WP&C processes lessons learned from field work to improve both the processes and future planned work and, thereby prevent costly and/or recurring deficiencies.

The Department believes that the aforementioned factors are consistent with the overall direction of its ongoing activities to improve activity-level WP&C. A key driver in improving activity-level WP&C is the reality that the nature, profile, and inherent risks and hazards associated with doing DOE work changes as work progresses through different phases and milestones. These include the recognition that in different stages of work new hazards may be introduced and/or the magnitude of known hazards may be underappreciated. The contractor, as the entity most familiar with the hazards and changing conditions, must operate in a safety-conscious work

environment and follow processes that it believes are critical to the safety of its personnel, the environment, and the public. As such, contractors must be fully responsible for the effective implementation of activity-level WP&C. Both contractor and Federal management must establish those conditions in which WP&C and its supporting safety culture continually improves and strengthens.

The Board has accurately noted a number of efforts by the Department to improve effectiveness of its activity-level WP&C processes and procedures. While the Department believes that its directives provide sufficient clarity, requirements, and expectations governing the activity-level WP&C, it recognizes that continuous improvement is essential. The Department recognizes that the activity-level WP&C is vital to perform work safely.

- As part of its continuous improvement, the Department has planned the following additional actions in the area of WP&C

The actions listed below are designed to be implemented in an integrated fashion and collectively improve, strengthen, and influence effective implementation of activity-level WP&C. Specifically:

1. Enhance complex-wide awareness of, and reinforce the need for, rigorous and tailored activity-level WP&C. This objective will be achieved as follows:
 - a. Convene a special Workshop of ISM Champions focused on Activity-Level Work Planning and Control. The Workshop focus will be on soliciting feedback on site-specific activity-level work planning and control. These include discussions on use and upfront application of lessons learned from previous operations (e.g., accident investigations; ORPS; Operating Experience from sites and the HSS corporate program) in activity-level WP&C, overview of work planning and control-related lessons learned from across DOE, effects of ongoing improvement actions and initiatives, potential weaknesses and vulnerabilities in current activity-level WP&C practices, and site-specific recommendations. The Workshop will also focus on identifying any potential gaps in activity-level WP&C guidance.

Co-Leads: EM, NNSA, SC, and HSS
DOE ISM Champions (HSS and EM)

Expected Completion Date: Second Quarter CY 2013 (Location TBD)

- b. Conduct an analysis of the WP&C deficiencies identified by the DNFSB to determine common trends, causal factors, or systematic weaknesses with DOE's WP&C processes or implementation. In addition, review ORPS for the last 3 years to determine if there are any common trends or areas of weaknesses with work planning and control. Based on the results of these two analyses, identify specific corrective actions to address the findings.

Lead: HSS

Co-Leads: EM, NNSA, and SC

Expected Completion Date: February 2013

2. Strengthen guidance and formality associated with contractor implementation and Federal monitoring of activity-level WP&C. This objective will be achieved as follows:
 - a. Develop contractor implementation guidance (following DOE O 252.1A process for a DOE handbook) to provide DOE performance expectations for a fully effective activity-level work planning and control system. This guidance will also capture attributes and good practices for effective WP&C implementation.

OPI: HSS

Co-Leads: EM, NNSA, SC, and Office of Nuclear Energy (NE)

Expected Completion Date: Project Justification Statement: January 2013;

Submission of draft handbook into the Technical Standards RevCom Process: August 2013

- b. Develop a DOE Guide on Federal oversight and evaluation of the effectiveness of Activity-Level WP&C. This document will be developed consistent with formal DOE processes, including the involvement of the Directives Review Board, and RevCom review and comment resolution process. The technical content of the guide will be designed to measure effectiveness of WP&C systems and identify situations in which the desired outcome is not achieved; it will contain a clear set of expectations and criteria to evaluate the effectiveness of contractor's WP&C processes in ensuring safe and effective work activities; and it will share best practices on oversight, rather than promoting a single acceptable approach to WP&C. The contractor implementation handbook and Federal oversight guide will build on:
 - i. The DOE requirements and guidance documents for ISM and Line Oversight and Contractor Assurance Systems.
 - ii. The EFCOG guidance document, where appropriate and applicable, including any subsequent updates made by EFCOG in response to DOE comments resulting from the 30-day review.
 - iii. DOE analysis of activity-level WP&C lessons learned, best practices, and operating experience program.
 - iv. Current DOE requirements and expectations governing the activity-level WP&C implementation.
 - v. Lessons learned from implementation of ongoing DOE improvement actions.
 - vi. Ongoing efforts to assess and improve safety culture across the DOE complex.

vii. DNFSB/TECH-37.

OPI: HSS

Co-Leads: EM, NNSA, SC, and NE

Expected Completion Date:

Submittal of Justification Memorandum to the DRB: February 2013;

Submit draft guidance into RevCom: September 2013

- c. Develop a DOE CRAD to assess the effectiveness of activity-level WP&C implementation. The objective of this action is to consolidate and formalize core expectations and performance requirements that govern activity-level WP&C. Application of the CRAD will strengthen the technical basis, transparency, and consistency of line management oversight and monitoring of work. This CRAD will be included in Guide 226.1-2.

The CRAD will place special emphasis on ensuring clarity of expected outcomes of DOE requirements and expectations associated with key activity-level WP&C elements, including proper identification of hazards and ensuring that the hazards unique to a work activity are identified; proper integration of work packages and documentation used to direct execution of work; verifying that prior to new work being planned, lessons learned from previous DOE operations were reviewed and incorporated as basis for new work planning for that new activity; currency and completeness of procedures; appropriateness of controls, training and qualifications, communication; work performed by subcontractors; and interface management with other affected organizations and groups.

The CRAD and Lines of Inquiry (LOI) will be based on:

- viii. Current DOE requirements and expectations governing the activity-level WP&C.
- ix. Existing activity-level work planning and control CRADs within the Federal and contractor communities, including applicable CRADS in DOE Order 226.1B, *Implementation of DOE Oversight Policy*.
- x. Analysis to address gaps in current DOE activity-level WP&C guidance.
- xi. The EFCOG Work Planning and Control Program Guideline document where appropriate and applicable (e.g., site-specific work planning and control documents that may vary from EFCOG guidance document).
- xii. Insights gained from DNFSB/TECH-37, Federal and contractor line oversight issues, reportable events, and accidents attributed to activity-level WP&C.
- xiii. Lessons learned, best practices, and the DOE operating experience program.
- xiv. Work planning and control evaluation tools used as part of the DOE-VPP evaluation.

The CRADs and LOIs will reference existing DOE requirements/expectations, and as such, they are not intended to become an instrument to impose new requirements.

OPI: HSS

Co-Leads: EM, NNSA, SC, and NE

Expected Completion Date: Draft document: May 2013

- d. Evaluate current ISM clause in DOE contracts. The objective of this action is to evaluate the clarity of DOE expectations associated with activity-level WP&C, including expectations for defining scope of work, hazard identification and analysis, and feedback and improvement. Any needed adjustments would be vetted within DOE and addressed as part of formal DOE processes prior to inclusion in contracts.

Co-Leads: EM, NNSA, and SC (HQ Chief Operating Officers)

Expected Completion Date: April 2013

3. Sustained Federal and contractor oversight of effectiveness of activity-level work planning and control. The objective of this activity is to maintain technical vigilance and focus by ensuring that oversight of activity-level WP&C is a visible element of the DOE Federal (HSS and line management) and contractor assessments/oversight plans.

Specifically, the Department commits that activity-level WP&C will be a visible element of FY 2013 and FY 2014 planned HQ and Field oversight and technical assistance activities. Additionally, this expectation will also be conveyed by the Field Offices to prime contractors to ensure that activity-level WP&C is a visible aspect of contractor-developed Integrated Assessment Schedule for FY 2013 and FY 2014 and incorporated into site Performance Evaluation Management Plans. This action will be effectuated by a Deputy Secretary memorandum to communicate the special emphasis on oversight of activity-level work planning and control implementation.

Co-Leads: EM, NNSA, SC, and HSS

- o Expected Completion Date: January 2013

The insights gained from oversight will be used to derive further continuous improvement in activity-level WP&C.

The Department believes that these new actions, when coupled with those already taken or in progress, will foster and sustain long-term improvements for activity-level work planning and control.