



Department of Energy

Washington, DC 20585

September 27, 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 is in response to the June 27, 2012, Defense Nuclear Facilities Safety Board (Board) letter identifying safety issues with the Waste Isolation Pilot Plant (WIPP) maintenance program. Your letter requested a report within 90 days identifying the actions taken or planned by the Department of Energy to resolve these safety issues. This letter transmits the report from the Carlsbad Field Office (CBFO) and Washington TRU Solutions, LLC (WTS).

The Department shares your appreciation for the uniqueness and importance of the WIPP mission. This was the basis for my staff traveling to the WIPP site to fully understand the Board's issues and to evaluate the site actions, both those taken to date and those planned, in order to better coordinate the Office of Environmental Management's (EM) response to the Board's letter.

CBFO and WTS are committed to improving the maintenance management and work planning and control programs at WIPP. The enclosed report includes initial actions and compensatory measures taken to date, as well as planned actions for each of the issues identified in your letter. CBFO will continue to work with and coordinate discussions with your staff, EM, and WTS to ensure adequate resolution of these issues.

If you have any questions, please feel free to contact me or Mr. Matthew Moury, Deputy Assistant Secretary for Safety, Security, and Quality Programs, at (202) 586-5151.

Sincerely,

David Huizenga

Senior Advisor

for Environmental Management

Enclosure

cc: Matthew Moury, EM-40



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Enclosure

Waste Isolation Pilot Plant (WIPP) Maintenance Program Improvement Plan Summary

WIPP SUMMARY OF CORRECTIVE ACTIONS PLANNED

Maintenance Programs

The Carlsbad Field Office (CBFO) is reviewing activities associated with the improvements completed, on-going and planned for the Waste Isolation Pilot Plant (WIPP) site maintenance (including work planning and control) program improvement. The actions being taken by Washington TRU Solutions (WTS) on behalf of the WIPP site are targeted to not only address the items specifically identified by the Defense Nuclear Facilities Safety Board (Board), but also items identified through completion of a causal analysis, and designed to address both maintenance and the work planning and control programs.

Interim actions to prevent recurrence include the implementation of a temporary revision process for work control documents (WCDs); a 100 percent review of each Preventive Maintenance (PM) procedure for work scope, hazard identification and mitigation; a timely order for maintenance personnel with specific guidance focused on field execution and verbatim compliance expectations; increased management field presence; periodic maintenance all-hands sessions to ensure consistent management reinforcement of expectations, as well as feedback identified from management field presence; work control management review of high hazard/complex WCDs; implementation of placekeeping requirements; a review of the previous 12 months completed Annual System Walkdowns to ensure adequate level of participation, review and assessment per procedure; and implementation of subcontracting mechanisms, and corporate reach-back to obtain resources to augment Maintenance and Work Control functions.

General Findings

The CBFO and WTS acknowledged the observations noted and improvement opportunities involving maintenance programs as provided by the Board to Mr. David Huizenga in a letter dated June 27, 2012. WTS identified an expansive scope of work in the development of their corrective action plan (CAP). To ensure programmatic compliance with Department of Energy (DOE) Order 433.1B, *Maintenance Management for DOE Nuclear Facilities*, while working the CAP, WTS has implemented the following compensatory measures:

- For PM WCDs scheduled for in-field execution, WTS implemented a WCD temporary revision process including the binning of procedures using a graded approach. (Complete)

- Minor revisions will be processed utilizing temporary revisions (TRN) while WCDs requiring significant revisions will be processed utilizing a complete re-write of the WCD prior to in-field execution. (On-going)
- Conducted a review of every active PM procedure to ensure complete hazard identification and mitigation. (Complete)
- Implementation of a timely order for maintenance personnel outlining specific guidance related to field execution and verbatim compliance expectations. (Complete)
- Reorganized the Maintenance and Work Control Functions. For Work Control, the reorganization promotes a focus specific to WCD quality and administrative functions (i.e., WCD screening, development, planning, scheduling, closure, etc.). For maintenance, the reorganization promotes a focus specific to WCD review (to include verification and validation) and field execution. Specifically for maintenance managers and engineers, the roles and responsibilities focus predominantly on field execution, including coaching and mentoring to workers. This also improves the maintenance worker's level of involvement, ownership of the WCDs and subsequent improvement of field execution. The reorganization transition was supported by the temporary assignment of mentors for field coaching and mentoring using specific URS-based Criteria Review and Approach Documents (CRAD) and Conduct of Operations (CONOP) checklists. (Complete)
- A revision of WP 04-AD3031, *Monitoring Operational Activities* regarding data collection from Monitored Operational Evolutions (MOE) and Senior Supervisory Watches (SSW) so that data collection will include tracking and trending, evaluation for collective significance, and utilization of the issues management processes. (On-going)
- Implementation of periodic maintenance all-hands sessions to ensure consistent management reinforcement of expectations, clarification regarding WCD development and execution, informal training on specific related topics, and feedback identified from management field presence. (On-going)
- Develop criteria using guidance from the Institute of Nuclear Power Operations (INPO) and/or DOE Human Performance Tools to determine when placekeeping is required (i.e., hazard severity vs. complexity vs. document type such as continuous use WCDs). (On-going)
- Revision of MP 6.16, *Senior Management Review Board*, regarding placekeeping requirements. (On-going)
- Review of the previous 12 months completed Annual System Walkdowns to ensure adequate level of participation, review and assessment as procedurally required. (Complete)
- Implementation of subcontracting mechanisms and corporate reach-back to obtain resources to augment maintenance and work control functions. (On-going)

Quality of WCDs

Near-term actions to upgrade WCDs to ensure they are high-quality include:

- For PM WCDs scheduled for in-field execution, WTS implemented a WCD temporary revision process including the binning of procedures using a graded approach. (Complete)
- Minor revisions will be processed utilizing TRN while WCDs requiring significant revisions will be processed utilizing a complete re-write of the WCD prior to in-field execution. (On-going)
- Conducted a review of every active PM procedure to ensure complete hazard identification and mitigation. (Complete)
- Reorganized the Maintenance and Work Control Functions. For Work Control, the reorganization promotes a focus specific to WCD quality and administrative functions (i.e., WCD screening, development, planning, scheduling, closure, etc.). For maintenance, the reorganization promotes a focus specific to WCD review (to include verification and validation) and field execution. Specifically for maintenance managers and engineers, the roles and responsibilities focus predominantly on field execution, including coaching and mentoring to workers. This also improves the maintenance worker's level of involvement, ownership of the WCDs and subsequent improvement of field execution. The reorganization transition was supported by the temporary assignment of mentors for field coaching and mentoring using specific URS-based CRAD and CONOP checklists. (Complete)
- A revision of WP 04-AD3031, *Monitoring Operational Activities* regarding data collection from MOE and SSW so that data collection will include tracking and trending, evaluation for collective significance, and utilization of the issues management processes. (On-going)

Additional corrective actions being taken to address the quality of WCDs include:

- Trained and certified WTS work control planners as well as key maintenance, engineering and technical training personnel to Professional Procedures Association (PPA) standards. The training was provided by Global Procedure Services, LLC in June 2012. Currently, nine of the ten work control planners, four cognizant engineers (CE) and two maintenance planners are PPA certified and will focus specifically on corrective maintenance WCDs while the subcontract PPA writers focus on PM WCDs. (Complete)
- WTS reduced the large population of qualified planners by limiting the number of certifications in an effort to promote quality and consistency in the development of WCDs. (Complete)
- WTS Technical Training will develop a PPA training standard and certification process for all WTS personnel who develop WCDs at the WIPP site. Once developed, the training will be provided to affected personnel. (On-going)

- WTS technical training will develop a new, higher tier work control planner qualification card for personnel responsible for the planning of WCDs. Once developed, the training will be provided to affected personnel. (On-going)
- WTS technical training will develop a training program tailored for a specific audience, ranging from workers (WCD end-user) to personnel who review and approve WCDs. Once developed, the training will be provided to affected personnel. (On-going)
- WTS technical training will develop a WCD verification & validation (V&V) training course. Once developed, the training will be provided to affected personnel. (On-going)
- Implementation of a standardized WCD template. Development of the template incorporates guidance related to detail and specificity within the WCD vs. worker training, sectional requirements such as Precautions & Limitations, and clarification regarding verb use and terminology. (On-going)
- Upgrade of the WCD writer's software to provide better interface with other current software platforms. (On-going)
- Implementation of a strategy to re-write PM WCDs. Recognizing the magnitude of this scope, the process is being managed as a small project, including subcontracted certified PPA writers and a dedicated WTS cross-functional team to focus on high-quality WCD development, V&V and approval. Cognizant resources will be utilized to ensure all technical data is specified as appropriate. Procedure content and intent will be evaluated to differentiate which PMs should be continuous use and which should become reference only. (Complete)
- Re-write PM WCDs per the strategy outlined above. (On-going)
- Revision to procedure 10-WC3010, *Maintenance PM/MWO Controlled Document Processing*, to include detail on the V&V process, WCD re-write strategy and the WCD template. (On-going)

Guidance for Development of WCDs

Near-term actions to ensure adequate guidance for the development of WCDs are not required as the existing procedure infrastructure is adequate to support the process until the governing documents are revised.

Corrective actions being taken to address the Board Staff comments include:

- Development of a 10-WC3012, *WCD Writer's Guide*, incorporating PPA guidance and Human Performance Improvement (HPI) elements along with the requirement of DOE STD-1029, *Writers Guide for Technical Procedures*. (On-going)
- Revision to procedures 10-WC3010, *Maintenance PM/MWO Controlled Document Processing*, and 10-WC3011, *Work Control Process* to remove guidance related to WCD development to eliminate redundancy. (On-going)
- Revision to procedure 15-PS.2, *Procedure Writer's Guide*, to clarify the Guide is only used during the development of operations procedures (i.e., waste handling,

radcon, etc.) and not in the development of maintenance WCDs which are covered by 10-WC-3012. (On-going)

- Train affected personnel on the above mentioned procedures. (On-going)

Compliance with WCDs

Near-term actions to ensure compliance with WCDs during field execution include:

- For PM WCDs scheduled for in-field execution, WTS implemented a WCD temporary revision process including the binning of procedures using a graded approach. (Complete)
- Minor revisions will be processed utilizing TRN while WCDs requiring significant revisions will be processed utilizing a complete re-write of the WCD prior to in-field execution. (On-going)
- Implementation of a timely order for maintenance personnel outlining specific guidance related to field execution and verbatim compliance expectations. (Complete)
- Reorganized the Maintenance and Work Control Functions. For Work Control, the reorganization promotes a focus specific to WCD quality and administrative functions (i.e., WCD screening, development, planning, scheduling, closure, etc.). For Maintenance, the reorganization promotes a focus specific to WCD review (to include verification and validation) and field execution. Specifically for maintenance managers and engineers, the roles and responsibilities focus predominantly on field execution, including coaching and mentoring to workers. This also improves the maintenance worker's level of involvement, ownership of the WCDs and subsequent improvement of field execution. The reorganization transition was supported by the temporary assignment of mentors for field coaching and mentoring using specific URS-based CRAD and CONOP checklists. (Complete)
- A revision of WP 04-AD3031, *Monitoring Operational Activities* regarding data collection from MOE and SSW so that data collection will include tracking and trending, evaluation for collective significance, and utilization of the issues management processes. (On-going)
- Implementation of periodic maintenance all-hands sessions to ensure consistent management reinforcement of expectations, clarification regarding WCD development and execution, informal training on specific related topics, and feedback identified from management field presence. (On-going)

Additional corrective actions being taken to address compliance with WCDs include:

- Implementation of contractor assurance program elements including internal and external assessments targeting maintenance and work control processes utilizing the URS Work Control Standard appendix B criteria. These criteria were modified to drill down based on WTS programmatic requirements. (Complete)

Placekeeping

Placekeeping practices though optional, are currently available and in use at WIPP as part of the HPI initiatives previously implemented.

Near-term actions to require placekeeping practices include:

- Work control management reviews of all high hazard/complex WCDs to ensure placekeeping brackets are included. (On-going)
- Revision to procedure MP 6.16, *Senior Management Review Board*, to include evaluation regarding placekeeping requirements. (On-going)

Additional corrective actions being taken to address placekeeping include:

- Develop criteria using guidance from INPO and/or DOE Human Performance Tools to determine when placekeeping is required (i.e., hazard severity vs. complexity vs. document type such as continuous use WCDs). (On-going)
- Revision of the WCD development software to include placekeeping brackets where appropriate. (On-going)
- Revision of procedure WC 10-3011, *Work Control Process*, including the Planner WCD Checklist, to address placekeeping criteria. (On-going)
- Train affected personnel on the above mentioned procedures, including how to perform placekeeping (i.e., reader/performer, performance of steps multiple times, etc.). (On-going)

Post-Maintenance Testing

Actions being taken to address the Boards' concerns include:

- Benchmarking Post Maintenance Testing (PMT) processes and procedures from within the DOE complex as well as INPO. Documents currently under evaluation for programmatic inclusion are SRNS' 1Y9.01, *Post Maintenance Testing*, a draft PMT procedure from WTP, and several examples from INPO and the commercial nuclear industry. (On-going)
- Once benchmarking is complete, WTS will develop and implement a PMT procedure. (On-going)
- Train affected personnel on the above mentioned procedure. (On-going)
- Revision to procedures 10-WC3010, *Maintenance PM/MWO Controlled Document Processing*, and 10-WC3011, *Work Control Process*, to improve worker involvement with WCD review regarding PMT, thus resulting in a better WCD for field execution. (On-going)

Annual System Walkdown

Near-term actions to ensure compliance with DOE Orders for safety systems, as well as WTS procedures include:

- A review of the previous 12 months of completed Annual System Walkdowns to ensure adequate level of participation per procedure WP 09-CN3025, *Annual System Health/Walkdown/Requalification*. (Complete)
- Based on the results of the review, re-perform any walkdown or conduct additional walkdowns. (On-going)

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Additional corrective actions being taken to address Annual System Walkdowns include:

- Revision of WP 09-CN3025, *Annual System Health/Walkdown/Requalification*, to clarify roles and responsibilities. (On-going)
- Perform a validation of DOE Order compliance for safety systems for assignment of CE personnel. (On-going)
- Assess the Engineering organizational structure to ensure balance of the Configuration Management workload against the number of systems at WIPP. (On-going)
- Assignment of a primary Cognizant System Engineer (CSE), alternate CSE, and Cognizant Manager for all safety class (SC) structures, systems, and components (SSC), safety significant (SS) SSCs, as well as systems that perform important defense-in-depth functions as described in the documented safety analysis (DSA). (Complete)

Pre-job Reviews

Near-term actions to improve pre-job reviews include:

- The piloting of a “reverse pre-job brief” process to ensure adequate understanding of work scope, tasks, expected results, and interfaces by the workers involved in WCD execution. After reviewing the WCD and associated job hazard analysis, the workers brief their first line supervisor on the tasks they will be performing and hazard controls that will be implemented during the performance of work. (On-going)

Additional corrective actions being taken to address Pre-job Reviews include:

- Revision of WP 04-AD3030, *Pre-job and Post-job Review Processes*, to clarify and simplify the pre-job brief types and include the reverse pre-job brief process. (On-going)
- Train affected personnel on the above mentioned procedure. (On-going)

Maintenance/Work Control Resources

Near-term actions to ensure successful execution of the WTS mission in both maintenance and work control include:

- Implementation of subcontracting mechanisms for critical skills. (On-going)
- Implementation of additional corporate reach-back for critical skills to include the utilization of one PM writer. (On-going)
- WTS has subcontracted the following skills related to work control and maintenance (On-going):
 - Six PM writers;
 - One Underground electrical planner;
 - One PM re-write administrative support person;
 - One records coordinator; and
 - Two electricians.

Additional corrective actions being taken to address Maintenance/Work Control resources include:

- Continuation of human resource processes to actively recruit, hire, and retain critical skills for Maintenance and Work Control functions. (On-going)
- Implementation of process efficiencies surrounding the work control process, including backlog management, graded approach (fix-it-now, minor maintenance, expedited work methods), and procurement. (On-going)
- Initiation of multiple infrastructure improvement projects to address material condition and life extension issues. (On-going)
- WTS has hired two electricians through external posting process and backfilled the following positions through the WTS Human Resource process (On-going):
 - Two electricians;
 - Two Instrumentation and Control technicians;
 - One maintenance engineer; and
 - One work control closure position.

CBFO Oversight

The CBFO has identified the following steps to address the concerns as reported by the Board:

- CBFO has assigned a staff member to complete the qualification standards for both Facility Maintenance Management and Electrical Systems and Safety Oversight in accordance with the CBFO Technical Qualification Program (TQP). The Facility Maintenance Management qualification standard is the same standard that the recently departed CBFO Facility Engineering Manager completed to provide oversight of the WIPP Maintenance Program for CBFO. These qualifications will be completed by the assigned CBFO staff member in the

Fall of 2013 to satisfy the 18-month qualification standard completion requirement in the CBFO TQP. Once these qualifications have been completed, the CBFO staff member will be assigned Safety System Oversight (SSO) duties and oversight of the applicable WIPP Maintenance Management and Electrical SC/SS SSCs, as well as applicable systems that perform important defense-in-depth functions as described in the documented safety analysis (DSA) and as described in the Maintenance and Electrical Safety Project Manager position description. In the meantime, other qualified SSO individuals are temporarily covering the oversight of those applicable SC/SS SSCs, as described below. These actions address the gaps in oversight left due to the recently departed CBFO Facility Engineering Manager who was previously responsible for overseeing the WIPP maintenance program for CBFO. (Complete)

- CBFO has assigned a qualified SSO for oversight of every SC/SS SSC, as well as systems that perform important defense-in-depth functions as described in the DSA. (Complete)
- As part of continuing training for CBFO staff with SSO duties, two training courses (SAF-270, *Safety System Oversight Duties and Responsibilities* and SAF-271, *Safety System Oversight Assessment*) are scheduled to be held in Carlsbad during the week of September 24, 2012. (On-going)
- CBFO is planning to conduct a SSO staffing analysis during the first part of fiscal year 2013 to further refine the CBFO organizational oversight needs for safety systems at WIPP facility. (On-going)