

**Department of Energy**

Washington, DC 20585

December 21, 2010

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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 20004-2901

Dear Mr. Chairman:

On September 22, 2010, the Defense Nuclear Facilities Safety Board forwarded an evaluation performed by your staff of the electrical system and electrical safety at the Waste Isolation Pilot Plant (WIPP). The letter requested a report outlining actions taken or planned by the Department of Energy (DOE) to address the inadequacies in the electrical safety program, deficiencies in the motor control center, and other issues identified during the evaluation.

DOE has taken action to address the issues identified by your staff. The enclosed corrective action plan summary provides the actions planned or taken by WIPP personnel. These corrective actions have been discussed with your staff during its development and have been reviewed and found acceptable by the Carlsbad Field Office.

If you have any further questions, please contact me or Mr. Kenneth G. Picha, Jr., Acting Deputy Assistant Secretary for Safety and Security Program at (202) 586-5151.

Sincerely,

A handwritten signature in black ink, appearing to read "Inés R. Terry", written over a circular stamp or mark.

Inés R. Terry
Assistant Secretary for
Environmental Management

Enclosure



ENCLOSURE - WIPP CORRECTIVE ACTION PLAN SUMMARY

Electrical Safety and Electrical Safety Program

FINDING 1: Unprotected 480-Volt Motor Control Center (MCC)

The penetrations at the top of the MCC were sealed in July 2010. An extent of condition review was completed in August 2010 and identified five additional penetrations needing to be sealed, that have been subsequently repaired. The repair methodology was reviewed with the MCC manufactures to ensure there was no impact regarding heat transfer of the sealed units in August 2010. The last of the five additional configurations was repaired in November 2010. Repairs to the roof of the pump house were finished in November 2010.

FINDING 2: Electrical Safety Program

The WIPP Electrical Safety Program has been evaluated against the elements contained in Appendix A of *DOE's Electrical Safety Handbook*. As suggested by the Board's staff, WIPP benchmarked its program against both the Savannah River Site and Idaho National Lab Electrical Safety Programs.

An Electrical Safety Program Improvement Team was chartered in October 2010 to provide guidance to improve the WIPP Electrical Safety Program. The team conducted a gap analysis against the Electrical Safety Programs of the benchmarked facilities and the *DOE Electrical Safety Handbook* () (DOE-HDBK-1092-2004) resulting in an enhanced Electrical Safety Program Manual for WIPP that was approved in November 2010. Implementation of the enhanced Electrical Safety Program is currently in process and is projected to be completed in March 2011. The enhancements to the program include new procedure development, revisions to existing procedures, training required to implement the new/revised procedures, development of new electrical training courses and revision to existing electrical training courses to be completed in March 2011.

FINDING 3: Non-Nationally Recognized Testing Laboratory (NRTL) Components

Procurement procedures were implemented in July 2010 and November 2010 to ensure that electrical components are procured to meet Non-Nationally Recognized Testing Laboratory (NRTL) requirements. Assessments are in process to evaluate store stocked items to identify the non-NRTL items prior to use, including the relationship of those items that are like-for-like spares for currently installed components and to evaluate credit card purchases of electrical components to identify components that will need to be replaced to meet NRTL requirements. The output of those assessments will identify any additional necessary corrective actions to disposition identified non-NRTL components. These assessments will all be completed in January 2011.

ENCLOSURE - WIPP CORRECTIVE ACTION PLAN SUMMARY
Electrical Safety and Electrical Safety Program

FINDING 4: Incomplete Electrical Calculations

Washington TRU Solutions LLC (WTS) initiated actions to revise electrical calculations in accordance with IEEE Standard-141, *IEEE Recommended Practice for Electric Power Distribution for Industrial Plants*, and IEEE Standard-242, *IEEE Recommended Practice for Protection and Coordination of Industrial and Commercial Power Systems*. A review of the switching/substation level short circuit ratings vs. calculated short circuit current values and estimates completed in November 2010 verify that there are no calculated short circuit values which exceed the circuit interruption capacity of the installed equipment. A review of MCCs based on available MCC spare breakers, MCC busses and Main breaker ratings, completed in November 2010, verify that there are no calculated short circuit current values which exceed circuit interruption capacity of the installed equipment. WTS will utilize the SKM Systems Analysis, Inc. software to revise the electrical calculations to ensure completion in September 2011.

FINDING 5: Non-Safety Electrical System Supplying Power to Safety-Significant Loads

WTS evaluated the non-safety electrical systems that supply power to Safety-Significant (SS) loads as part of the WIPP Documented Safety Analysis (DSA) Annual Update process and as a result proposed a change to the DSA to clarify why safety significant supply power is not required for safety significant loads based upon accident analysis and system design. That action was complete in October 2010.

In addition, WTS prepared a Potential Inadequate Safety Analysis (PISA) determination on the issue in September 2010. Changes to the DSA to address this inadequacy were prepared and the DSA is currently with CBFO for approval. CBFO is currently developing the Safety Evaluation Report (SER) that will drive a WTS DSA Implementation Plan and IVR process to occur in the spring of 2011.

FINDING 6: Underground Substation Replacement

Replacement of substation #4 is currently included as part of the next WIPP maintenance outage scope scheduled for December 2011. Preparation activities for this substation will include an evaluation for use of partial discharge testing for the existing 13.8 kV cable and other 13.8kV cables of similar age scheduled in June 2011. Defective cables identified during testing will be evaluated for adequacy, replaced, if necessary, and tracked to completion.

ENCLOSURE - WIPP CORRECTIVE ACTION PLAN SUMMARY
Electrical Safety and Electrical Safety Program

FINDING 7: Delayed Recovery from Power Outages

WTS completed the event investigation after the unplanned power outage experienced during the Board's staff visit resulting in the following actions:

- Identified improvement opportunities and revised existing procedures for loss of power events including alignment of alternate power, HVAC checks and Salt Hoist checks. In addition, a new procedure is being developed for individual scenarios (i.e., loss of busses, substations, UPSs, underground ventilation, compressed air to underground, etc.) and will include direction/checklist of required actions;
- Initiated an extent of condition review of existing procedures regarding response actions for other unplanned events;

Upon completion of the extent of condition review, the findings will be tracked within the WTS tracking system. The above actions will be completed in February 2011.

FINDING 8: Fire Water System

The probable cause of the false alarm experienced during the Board's staff visit has been identified as a pressure switch actuation due to a leaking valve in the system and will be corrected as part of the WIPP maintenance outage currently in process and will be completed in January 2011.

Personnel who work on fire protection and suppression systems will receive additional training to meet the national fire code standards in May 2011.

WIPP has completed numerous material condition upgrades to the fire water system to include:

- Ten post-indicator valve replacements (PIV); additional PIV replacements are scheduled throughout FY 2011;
- System isolation capabilities to allow continued maintenance and upgrade without requiring complete system outages;
- Sprinkler line installations;
- Replacement of the underground fueling station;
- Additional material condition upgrades are scheduled during the 2010 outage due to plant configuration.

The last of these upgrades was completed in November 2010.