

Testimony of Dr. Daniel B. Bullen
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Good evening Mr. Sullivan and Ms. Roberson. Thank you for the opportunity to testify today. My name is Daniel Bullen. I am the group lead for Nuclear Programs and Analysis at the Defense Nuclear Facilities Safety Board. My group is responsible for overseeing the Department of Energy's implementation of Board Recommendation 2011-1, *Safety Culture at the Waste Treatment and Immobilization Plant*.

All actions in DOE's implementation plan have been completed with one exception. In Action 1-6, DOE committed to reviewing the contract for the WTP Project and to, and I quote, "implement appropriate mechanisms to achieve balanced priorities and include safety culture elements." End quote. The completion of Action 1-6 is necessary to ensure that the contract properly awards the safety performance that DOE expects of the contractor. The delay in completion of Action 1-6 is due to the fact that the baseline for the project is currently being re-evaluated, and the contract will not be re-negotiated until the new baseline has been determined.

There have been areas where implementation of the plan has resulted in improvements within DOE. However, there have been other areas where implementation was less effective due to inadequacies in the plan.

DOE's efforts have led to increased awareness and understanding of organizational culture and its impacts on the safety of operations at defense nuclear facilities. The concepts of safety culture are being discussed at all levels within DOE and its contractor organizations, and DOE's senior leaders have been engaged in establishing their expectations and communicating their support for improving safety culture within the complex.

An important outcome of DOE's efforts was the procurement of outside expertise in organizational psychology and the development and application of in-house expertise and tools, in the Office of Enterprise Assessments. In early 2012, that capability provided the first full picture of the organizational weaknesses within the WTP Project and the cultural dysfunctions that led to those weaknesses. Since that time the Office of Enterprise Assessments' independent safety culture assessment team has provided valuable insight into the organizational cultures at other major defense nuclear facility construction projects, key DOE Federal organizations, and the Pantex Plant.

However, there were some basic weaknesses that only became apparent during the plan's implementation. The plan was developed and approved by DOE prior to the completion of the 2012 independent safety culture assessment of the WTP Project. As a result, the plan was based on preliminary analysis and assumptions about the underlying causes of the organizational weaknesses that led to the Board's decision to issue the Recommendation. DOE did issue an addendum to the implementation plan to clarify their approach to resolving the findings of the independent assessment at WTP. However, the implementation plan was not modified to ensure that these findings and their underlying causes were incorporated in its actions at other defense

nuclear facilities.

The Board issued the Recommendation because it was concerned that, and I quote, “both DOE and contractor project management behaviors reinforce a subculture at WTP that deters the timely reporting, acknowledgement, and ultimate resolution of technical safety concerns.” End quote. However, DOE’s implementation plan identified only four underlying causes of the issues that led to the Recommendation: (1) DOE’s failure to establish expectations for safety culture; (2) the inadequate mitigation of unintended impacts on culture during shifts in project execution phases; (3) the need for DOE and contractor managers to acquire more knowledge and awareness of safety culture; and (4) ineffective technical issues resolution and communication at WTP. None of these underlying causes directly address the Board’s concern about management behaviors reinforcing subcultures that act counter to good nuclear safety practices.

Both ORP and BNI have recognized the importance of the findings from the various assessments of their safety culture. They developed improvement plans with a number of actions to address these safety culture concerns and have nearly completed implementing those actions. ORP and BNI have expended considerable effort and resources to improve their safety culture by adapting concepts and principles from other organizations. However, these actions have not been in place long enough to judge their effectiveness in addressing the respective issues.

DOE conducted extent of condition reviews to determine if similar cultural weaknesses existed at other defense nuclear facilities and projects. Those assessments were conducted using one of two approaches. The same independent expert team that was used for the WTP reviews was used for the review of major defense nuclear facility construction projects. In contrast, self-assessments were conducted by sites with defense nuclear facilities and the associated federal offices.

The independent assessment team identified issues with the safety culture of the projects. Additionally, the team conducted assessments of the Pantex Plant and selected DOE Headquarters elements, where they also identified significant issues. DOE’s senior leadership has recognized the importance of these issues.

The primary focus of the self-assessments was on whether a safety conscious work environment existed at each site and not on the broader safety culture concerns raised by the Board. The Recommendation did not tie the extent of condition reviews to the state of the safety conscious work environment at each site. By limiting the scope of these reviews, the question of whether the Board’s broader safety culture concerns were occurring at other sites was not addressed.

The self-assessments lacked meaningful guidance and expectations, and the assessment teams did not have adequate training. This had a significant detrimental impact on most of the self-assessments. In contrast, the independent assessments demonstrated that the application of consistent and appropriate tools and techniques, along with qualified and experienced team members yielded meaningful and workable results.

Some of the self-assessment reports clearly demonstrated the thoughtful, self-critical, and introspective mindset required to make this type of assessment successful; however, a high

frequency of confirmation bias was observed in most of the reports. Confirmation bias in such assessments creates situations where valid safety culture and safety conscious work environment concerns may be overlooked or ignored because such observations do not fit within the assessment team's perception of that organization.

DOE directed that sites with defense nuclear facilities develop plans to assure sustainment of a robust safety culture, but gave them the flexibility to select tools suitable for the specific conditions at their site. As with the self-assessments, the lack of meaningful guidance, expectations, and training had significant detrimental impact on the overall quality and usefulness of the sustainment plans. Again, some of the individual plans displayed very good understanding of the issues that needed to be addressed at the site, and they presented well-thought-out approaches to addressing those issues.

Consistent with our analysis, DOE's independent safety culture assessment team identified similar concerns regarding the effectiveness of the self-assessments and weaknesses associated with the sustainment plans during their oversight of those activities.

In summary, the implementation plan has essentially been completed. DOE has characterized safety culture issues at WTP and continues to implement corrective actions. DOE has completed extent of condition reviews that identified issues at other defense nuclear facilities. The Board's staff will continue to monitor the status of these issues as part of our routine oversight activities.

Thank you for the opportunity to speak. This concludes my testimony.