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Defense Nuclear Facilities Safety Board
Public Hearing on Line and Independent Oversight

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Mr. Chairman, members of the Board, thank you for this opportunity to meet with you in this public forum to discuss effective oversight of our nuclear facilities. You provided written lines of inquiry prior to this meeting, and my formal response is organized around them. Of course, I will also be happy to answer any additional questions you may have.

Let me begin by describing our overall oversight approach as it currently exists. I will discuss its effectiveness, point out both its strengths and weaknesses, and use it as a basis for describing the changes we are considering. I will then discuss our approach to headquarters assessments, and will close with a brief discussion of the Central Technical Authority (CTA) function and its staffing.

The National Nuclear Security Administration (NNSA) oversight of our nuclear safety responsibilities has developed over many years and has proven highly effective in preventing nuclear accidents and significant radiological exposures to workers and the public. The primary responsibility for safety oversight has always rested closest to the work being performed, with the first line supervisors who are responsible for ensuring that work is performed in accordance with our nuclear safety requirements. That direct supervisory function starts with the contractor line management, consistent with the nuclear safety requirements that are imposed by regulation or included in the contract.

Oversight at the contractor level also includes contractor self assessment functions that vary somewhat from contractor to contractor, but that help provide line managers with a comprehensive assurance that key nuclear safety requirements are flowed down from the contract and are effectively implemented. Contractor self-assessments include systematic oversight as well as targeted assessments such as design reviews for construction projects, readiness reviews for startup or restart of nuclear facilities, verification of implementation of safety basis requirements, and reviews within functional areas such as those conducted by cognizant system engineers for vital safety systems. In a number of situations, our contractors have relied on corporate reach-back to bring in oversight resources from their parent corporations to address particular needs. In other cases, our contractors have engaged support contractors and contractors from other sites to provide needed subject matter expertise for their self-assessments.

On the Federal side, the primary responsibility for nuclear safety oversight is again vested with the line managers who are closest to the work being performed. These are generally our site office personnel led by Site Office Managers. Site Offices conduct day-to-day oversight through a variety of mechanisms. These include the use of facility representatives who spend most of their time in our nuclear facilities systematically observing contractor performance, safety system oversight personnel who are responsible for ensuring that the contractor's treatment of vital safety systems preserves their functionality, and a variety of subject matter experts who provide routine inspections within their functional areas.

NNSA Site Offices generally execute a systematic approach to oversight at both a systems level and a transactional level. At the systems level, Site Office personnel review the implementation of nuclear safety requirements through a combination of scheduled assessments that address key nuclear safety disciplines. Frequently, Site Office personnel observe or 'shadow' contractor self assessments, and they independently execute focused oversight functions. Focused oversight includes reviews of credited safety control implementation, reviewing readiness of nuclear facilities to begin operations, design reviews, and review of vital safety systems. These reviews provide direct insight regarding the adequacy of the contractor's implementation of nuclear safety requirements.

Site Office personnel also provide oversight through the review and approval of specific contractor deliverables. These include (but are not limited to) review and approval of contractor Training Implementation Matrices, Nuclear Maintenance Management Programs, Conduct of Operations Implementation Plans, Unreviewed Safety Question Procedures, Unreviewed Safety Question Documentation, Documented Safety Analyses, Technical Safety Requirements, Justifications for Continued Operations, and exemptions from or equivalencies to nuclear safety requirements. The review and approval of these key nuclear safety program documents provides a direct awareness and measure of control over how the contractor intends to implement nuclear safety requirements, and how unusual situations or significant changes that could affect safety are addressed.

Although our contractors and Site Offices serve as our primary mechanisms for conducting nuclear safety oversight, we also rely upon a number of headquarters-initiated oversight functions to ensure that delegated nuclear safety responsibilities are being executed appropriately, as well as to train and equip personnel while ensuring uniform understanding and application of the requirements. NNSA has assembled a network of resources at headquarters that provide this additional level of oversight of our field operations. Headquarters oversight functions are executed through line manager organizations such as the Defense Programs Office of Safety, as well as by functional area managers such as the Chief of Defense Nuclear Safety and other support organizations as circumstances warrant.

Headquarters organizations maintain regular contact with the field through numerous mechanisms that provide an opportunity for real time oversight. Headquarters personnel observe or participate in Site Office level discussions of significant operational events and also conduct regularly scheduled teleconferences with site personnel in a group setting to discuss emerging issues. These provide an opportunity for headquarters personnel to become engaged on specific issues when the need exists to do so.

Headquarters also provides oversight through a number of periodic or systematic assessments. The office of the Chief of Defense Nuclear Safety leads a Biennial Review of roughly eighteen nuclear safety areas at each of our Site Offices. Other focused assessments involving nuclear safety include Technical Independent Project Reviews of design and construction of nuclear facilities, as well as Accident Investigations.

Headquarters personnel observe or participate in field reviews (such as readiness reviews

and design reviews), and review selected safety documentation and reports to maintain awareness of situations in the field.

Taken together, our contractor oversight; corporate oversight, reach-back and assistance; Site Office and headquarters oversight functions provide multiple layers of oversight to ensure that nuclear safety requirements are being effectively implemented. NNSA receives additional oversight and assistance by external organizations such as the Office of Health, Safety and Security, and of course the Defense Nuclear Facilities Safety Board. The Government Accountability Office and the Office of the Inspector General also evaluate and provide input on nuclear safety matters as situations warrant.

The strength of the existing NNSA oversight arrangement is that these overlapping layers of oversight result in many experts at several levels helping to ensure that nuclear safety requirements are being implemented effectively. The strength is also related to the weakness of the existing approach. As the oversight approach has evolved, the number of organizations involved has resulted in some confusion regarding oversight roles and responsibilities. It also appears that our approach to oversight of non-nuclear-safety areas may have generalized from our approach to nuclear safety, resulting in an inappropriate concentration of oversight resources on less important non-safety requirements. At the contractor level, the need to support oversight conducted by multiple organizations has sometimes resulted in unpredictable impacts on operations when demands for contractor resources to support non-contractor oversight and production schedules have come into conflict.

Concerns over the lack of coherence in the existing process and its somewhat conflicting nature led NNSA over the past few years to seek a way to streamline our approach to oversight of our contractors. This investigation of alternatives led me to establish, in January of this year, a limited, six-month moratorium on certain low-risk headquarters assessments of our Site Offices and their contractors. The moratorium did not include higher risk reviews and day-to-day facility operational awareness activities, especially in the nuclear facilities. The principal purpose of suspending certain low-risk assessments was to free up resources to evaluate our governance model and associated roles and responsibilities, and to come up with more effective approaches to oversight.

Once complete, organizations that are responsible for the suspended low-risk assessments will revise their assessment schedules in accordance with the new NNSA integrated assessment model that is currently being developed. This will result in a rebalancing of priorities to ensure that an appropriate degree of grading is applied to oversight, with the higher consequence, higher hazard activities receiving proportionally more oversight than would low consequence, low hazard activities. Some of the suspended activities, such as the nuclear safety Biennial Reviews, will resume following the moratorium—although there may be some modifications to streamline the approach. For the Biennial Reviews, the assessment schedule will not be compressed, it will simply slip six months and reviews that would have been conducted in the first half of the calendar year will now occur in the second half.

Once the moratorium is over, full-time resources employed to work on governance matters will largely be released to their normal duties. However, I anticipate that there will be some additional refinements needed to governance changes arising from the moratorium; so, I will periodically ask the personnel who are currently involved to assist in evaluating feedback and modifying our approach as necessary.

As the moratorium is not yet over, we have not yet finished determining the specific changes that we will make to our oversight of non-nuclear safety. We have adopted a set of operating principles that are designed to take maximum advantage of the expertise of our contractors and of the consensus standards that are available in industry. We have also taken steps to transition to “performance based contracting” (PBC) at our contractor sites for oversight of non-nuclear operations.

The advantages of this approach are that the contractor's parent organization plays a much more active role in the management of the contract, while the federal offices define the deliverables via a revised contract performance evaluation plan. Federal oversight is increasingly risk informed while the contractor's accountability and ability for delivering mission results in the most cost effective and efficient manner is increased.

The new PBC model allowed our contractor at our non-nuclear site in Kansas City to use industrial standards where appropriate, and transferred responsibility for the design and implementation of standard operational administrative and support processes from NNSA to the contractor. NNSA moved more towards determining the desired outcome and the

contractor was allowed to determine the method for achieving it. NNSA increased its use of the Contractor Assurance System, third party and/or peer reviews and for-cause type reviews in place of additional line management oversight reviews.

Prior to shifting to the PBC model, the Kansas City contractor had demonstrated strong safety performance. Subsequent review of the safety performance has shown continuing improvement in its Total Recordable Case (TRC) rates and an overall safety performance that exceeds that of private industry. Since the transition to the current approach began in 2007, Kansas City has achieved a 33% reduction in TRC rates, from 1.02 in 2007 to 0.68 thus far in 2010. For comparison purposes, private industry TRC rates hover between 2.7 and 2.9, whereas the Kansas City Plant rate has been between 0.56 and 1.02. The 2010 rate is approximately four times lower than private industry's best available statistics. In addition, the prime contractor has worked approximately 4.1 million hours without a Day Away from Work Case (the last case occurred in June 2009).

Beyond sound safety performance, the Kansas City Site Office currently projects a cost savings or avoidance of roughly \$40 million over the first five years under the new approach. In a resource-constrained environment, such savings on low-value activities makes more funding available for high-value activities such as upgrades to safety systems that are needed to meet Departmental safety expectations.

Currently, NNSA has asked the Sandia Site Office and Sandia National Laboratories (New Mexico) and the Nevada Site Office and National Security Technologies, to take

steps toward implementing similar performance based principles at their respective sites for non-nuclear operations. Once we have demonstrated the practicality of this approach, we will evaluate extending the model to non-nuclear activities at our other sites.

In parallel, roles, responsibilities and accountabilities of the Federal workforce at these sites and in headquarters will be more clearly aligned and defined with regards to both mission performance and oversight. Upon final implementation, there will be a significant distinction between NNSA oversight of nuclear safety, which will be essentially unchanged from our current practices, and NNSA oversight of non-nuclear safety areas. I anticipate that there will be far less transactional oversight, and far fewer process-related requirements on the non-nuclear safety area than there will be for the nuclear safety area. Application of this approach requires an evaluation of the requirements in the contract and the consensus standards or other provisions that could replace them. At this point in the effort, we are still evaluating potential changes that may be made to the Sandia contract, so I can not tell you what the final requirement set will look like.

As we work to implement this approach, we are mindful that both the Sandia and Nevada sites have nuclear facilities as well as non-nuclear facilities. Our intent is to apply this approach to the non-nuclear operations, but not to affect the safety of our nuclear facilities. Accordingly, we are carefully evaluating any changes to the implementation of the directives and regulations that NNSA has identified as having an impact on nuclear safety. Some directives, such as those covering packaging and transportation, quality

assurance, and design and construction, apply to both nuclear and non-nuclear facilities and help ensure the safety of our nuclear facilities. Where possible, we intend to simply retain the applicability of those requirements to the nuclear facilities even if alternative approaches are approved for the non-nuclear facilities. Where that is not feasible, we intend to carefully evaluate any alternatives proposed to ensure that a truly equivalent level of performance and supporting methodology is retained for our nuclear facilities.

Evaluating alternatives to balance requirements and resources – considering the effect on safety as well as available resources and other drivers – is an inherent task of line management. But achieving a proper balance never requires a decision that trades mission accomplishment for adequate safety. The nature of our enterprise requires safety to be integrated into all of the activities we conduct. Consequently, safety impact generally carries the greatest weight when establishing overall priorities for competing proposed activities, so that the overall decision making approach ensures adequate safety.

For its ongoing operations, NNSA uses a number of metrics to help gage the significance of needed safety enhancements. With respect to occupational safety, we track metrics similar to those tracked by most industries, including Total Reportable Cases and Days Away/Restricted Time. We also track near misses, electrical incidents and other significant occurrences. With respect to nuclear safety, the principal metric I use to determine where additional attention and resources are needed is how well our sites perform in nuclear safety assessments. For design and construction projects, and for age-related matters of our aging infrastructure, this is augmented by the results of the safety

analyses, which help to determine where significant expenditures to support both mission and safety are needed to meet Departmental expectations.

Let me close with a discussion of NNSA's implementation of the NNSA Central Technical Authority, or "CTA" function. When established by the Secretary of Energy, the CTA was assigned eight responsibilities associated with nuclear safety requirements. These responsibilities have not changed. In brief, the CTA concurs on nuclear safety requirement applicability and inclusion in contracts, and on exemptions; works with the Department on revisions to nuclear safety requirements and concurs on those revisions; and the CTA maintains operational awareness on implementation of nuclear safety requirements. The CTA reviews and assesses nuclear safety staffing, and provides input into the selection of DOE and NNSA nuclear safety research and development activities.

When the Secretary first established the NNSA CTA, he assigned principal staff support responsibility to the Office of the Chief of Defense Nuclear Safety (CDNS). When NNSA declared the CTA function implemented, CDNS had eight technical personnel on its staff. After some re-organization, attrition, and hiring actions recently taken, CDNS has that same number of personnel. All CDNS technical personnel are required to qualify as Senior Technical Safety Managers, and all are band five members of the excepted service.

Additional support for the CTA function comes from the office of the Senior Advisor for Environment, Safety and Health and from the Office of Safety in Defense Programs, both

of which work closely with CDNS to ensure adequate support to the CTA functions. In addition, NNSA takes advantage of field expertise to augment staff capabilities while providing valuable opportunities for field personnel to be exposed to technical areas at other sites. An example of this approach is the conduct of Biennial Reviews of nuclear safety performance. NNSA uses these reviews to assess many areas of CTA responsibility. When we review a Site Office, we staff the review team with subject matter experts from other Site Offices as well as from other headquarters organizations, including the Office of Health, Safety and Security. Creating a blended team of headquarters and field personnel helps ensure uniform understanding of the requirements across the enterprise while enabling a vital CTA function with minimum of full time assigned staff.

Similarly, the CTA has responsibilities to issue expectations and guidance on technical matters affecting nuclear safety. When such matters arise, the CTA staff leads the effort but depends upon significant coordination and support from subject matter experts throughout the NNSA enterprise and from elsewhere within the Department. The approach that we have taken to staffing the CTA functions has resulted in a small but effective organization that meets the Department's goals and expectations for the CTA function in a robust manner.

Again, thank you for this opportunity to speak with you today and for your attention. I will be happy to answer any questions you may have.