Defense Nuclear Facilities Safety Board Public Meeting on Oversight of Complex, High Hazard Nuclear Operations

Statement of Mr. Glenn Podonsky
Chief Health, Safety and Security Officer
U. S. Department of Energy

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INTRODUCTION

Mr. Vice Chairman and Members of the Defense Nuclear Facilities Safety Board (DNFSB or "Board"), I am pleased to have this opportunity to discuss the Department's actions in response to the Board's Recommendation 2004-1 and other significant recommendations, initiatives, and management actions affecting nuclear safety in the Department. As the Department's Chief Health, Safety and Security Officer, I am here to update you on what we are doing and where we stand on pertinent issues, including our commitment to programs and processes aimed at the safe operation of our nuclear facilities.

I am here to reinforce our commitment to ISM, to the principles of a strong safety culture and to an effective and strong nuclear safety posture. From the beginning of the development of ISM, the Office of Health, Safety and Security (HSS) and its predecessor organizations, to include the Office of Independent Oversight have strongly supported this model. Beginning in 1996, the Independent Oversight model examined the implementation of ISM and continues to do so today as we strive to facilitate continuous improvement and strong line management oversight and contractor assurance systems.

The Board issued Recommendation 2004-1 to prompt the Department to take actions to address three areas: strengthening Federal capabilities in providing safety assurance; learning from and reacting to internal and external operating experiences; and revitalizing our implementation of Integrated Safety Management. In response to that recommendation, and to resolve the various issues associated with these areas, the Department developed an implementation plan that included a number of end-state commitments. In brief, these included: ensuring Central Technical Authorities with adequate technical support; effective implementation of the Department's oversight model; a nuclear safety research function; strengthened technical qualifications of Federal safety assurance personnel; a formal safety delegation and assignment process; a formal Operating Experience Program as part of the Integrated Safety Management feedback and improvement mechanism; clear expectations for Federal organizations to implement Integrated Safety Management; enhanced field focus on work planning and work controls; and improved implementation of the Integrated Safety Management feedback and improvement function.

Implementation of most of the actions described in the implementation plan is clearly the responsibility of line management, and you have already heard from those managers. However, my office's interests cut across many aspects of these actions, and most significantly in those

areas related to the Independent Oversight role, the Operating Experience Program, our role as Departmental co-champion for Integrated Safety Management, and our responsibility for facilitating development of or changes to safety directives. I will provide my perspective on the status of our efforts to implement these commitments in a moment, but I first want to touch on two other closely related areas.

Government Accountability Report: *Department of Energy Needs to Strengthen Its Independent Oversight of Nuclear Facilities and Operations*

The first of those is a 2008 Government Accountability Office (GAO) report on the Department's independent oversight of nuclear facilities and operations that resulted in five recommendations. . The GAO recommended that the Secretary provide the Office of Health, Safety and Security (HSS) with sufficient responsibilities, technical resources, and policy guidance to enable it to: review the safety bases for new nuclear facilities and significant modifications to existing facilities; monitor the safety basis status of high-hazard nuclear facilities and ensure that all such facilities operate under current nuclear safety requirements; establish an increased presence at sites with nuclear facilities to provide more frequent observations of nuclear safety, more independent information to facilitate necessary enforcement actions, and more routine monitoring of the effectiveness of corrective actions; strengthen enforcement actions to prevent recurring violations of nuclear safety requirements; and establish public access to unclassified appraisal reports.

In 2009, the Department accepted the recommendations, and informed GAO about actions it was taking that are responsive to the needs outlined in those five areas. For example, HSS has:

- modified its protocols to place a higher scheduling priority for new or substantially modified nuclear facilities;
- has modified a procedure to better address the HSS role in reviewing start-up or re-start readiness of nuclear facilities;
- is designing a more useful safety basis tracking system;
- has better integrated the functions and activities of its inspection and enforcement organizations and developed additional limited scope oversight mechanisms to complement existing activities; and
- has made oversight results more readily available to the public.

Department of Energy Management Reform Initiatives

The second related area involves the Department's Management Reform Initiatives, which are addressing safety and security. The Secretary is committed to implementing significant management reforms within the Department, guided by five top tier principles.: focusing on mission outcomes, in all aspects of performance and performance evaluations; holding mission managers accountable for all aspects of performance; holding support managers accountable for enabling the mission, by providing advice and support to mission manager decision-making; accepting appropriate performance and operational risk, balanced with mission needs; and relying on national standards and rigorous peer review to the greatest extent possible. The Secretary has recognized that many aspects of safety performance within the Department are excellent, particularly in the area of worker safety and health. However, he also believes that it

might be possible to maintain high levels of safety performance, as well as necessary rigor in oversight and enforcement of high risk areas, under a modified structure that would support enhanced productivity and the achievement of mission goals. Further, the Secretary recognized the critical importance of and need for rigor in requirements, oversight and enforcement for high risk areas, particularly nuclear facilities and operations.

In pursuing this reform, in August of this year the Deputy Secretary chartered an inclusive multi-organizational working group to identify and evaluate options for improving safety regulation at our sites, with a focus on enhancing productivity and achievement of mission goals while maintaining the highest standards of safety and safe operations. The scope of the effort included both occupational safety and health, and nuclear safety. The group evaluated the benefits, costs, and risks associated with improved methods of self-regulation and various options for external regulation, including those involving the Occupational Safety and Health Administration and/or the Nuclear Regulatory Commission. A similar effort examined security across DOE.

HSS recognized that any option ultimately resulting from the working group's efforts could benefit from near-term actions we could take to improve the current self-regulatory model. Consequently, we developed and are implementing a new vision to guide our efforts to carry out our responsibilities. This vision focuses on the three areas of mission support, maintaining required regulatory functions, and maintaining required corporate programs and enables us to refocus some of our efforts and resources to more effectively aid mission managers in fulfilling their safety-related responsibilities while maintaining necessary oversight and enforcement functions.

As the Department's reform efforts have become more mature, and the options for external regulation have become more informed, it is clear that the Department is moving forward to improve our current self-regulatory model. These improvements are not in conflict with our response to the GAO, and in fact we continue to implement the actions that are responsive to the GAO recommendations.

HSS recently finished a number of reviews of nuclear safety using some different approaches. At ANL and LLNL, we looked at facilities where DOE will be removing the nuclear materials and moving away from the nuclear mission. As a result, we focused on evaluating approaches to make de-inventory efforts safer and more effective in the remaining life of the facility. At Savannah River, we had conducted an inspection on construction and modifications, consistent with the GAO recommendation. In these unique cases, we used some new approaches to reporting. We have learned from these activities and now plan to take a short period to reevaluate priorities for the remainder of 2009 and beyond in light of the GAO recommendations and management reforms and then will establish an inspection schedule and revamp protocols as needed. We are looking at how to be more focused in our evaluations of nuclear safety. However, of particular importance to the Board, the second HSS vision area recognizes the need for continuing robust nuclear safety inspection and enforcement. Let me emphasize that we believe in and support the need for continued rigor in this area, we are funded to provide these services, and we intend to continue to implement rigorous program of inspection and enforcement activities. In addition, continuing support of Integrated Safety Management is an integral part of our mission support role, and our operating experience program is one of those

necessarily centrally managed corporate programs to be sustained as contemplated under the third vision area.

STATUS OF 2004-1 COMMITMENTS

Now let me get back to your main areas of interest here today – the Department's implementation of our commitments under the 2004-1 implementation plan. The Department's implementation plan emphasized three broad areas: Strengthening Federal Safety Assurance; Learning from Internal and External Operating Experience; and Revitalizing Integrated Safety Management Implementation. As you have heard from both NNSA and EM, while we made significant progress in the implementation of actions within each of these areas, work remains. I would like to discuss the status of actions for each of these areas.

Strengthening Federal Safety Assurance

Pursuant to commitments 4 and 5 of our implementation plan, we made plans to issue a DOE policy, a DOE order, and an accompanying guidance document addressing Departmental oversight. We completed development of a policy describing a corporate oversight model in June 2005 and issued the first version of the order in September 2005 followed by a revision in July 2007 to reflect lessons learned from experiences during initial implementation of the order. As a consequence of this iterative approach to the order, our development and issuance of the guidance document was delayed from May 2007. The Secretary provided a letter to the Board describing the circumstances related to this issue in August 2007.

In October 2007, HSS commenced an extensive effort to review a number of its directives, including the oversight order (DOE O 226.1A), and to revise them as necessary to ensure the elimination of overlapping, redundant, conflicting, unnecessarily burdensome or unclear requirements in these documents. We established a Department-wide working group of Federal and contractor subject matter experts to conduct the review and revision. That review is still ongoing, but will include consideration of comments from the Board.

DOE has established and continues to improve implementation of our multi-tiered corporate oversight model and processes defined in the oversight policy and order across the Department and they are widely used in assessments performed by the headquarters, the field, contractors, and my office in the areas of safety, safeguards and security, and cyber security. However, the development and implementation of these oversight models is a dynamic process. As the Department continues to learn from the implementation of the policy and the order, we identify additional opportunities to improve the process through consolidation and reduction of unnecessary burdens without decreasing process effectiveness. While no decisions have been made, the management principles and the ongoing management reform efforts envision some changes in the role of DOE line management and HSS in overseeing contractor operations, including a return to the GOCO model of reliance on and partnership with contractors that manage DOE sites. The challenge for HSS is to ensure that any revisions to the DOE oversight model are carefully considered and ensure adequate oversight, particularly of high hazard nuclear activities.

Commitment 16 of our implementation plan requires a verification of federal assurance capability. We initiated a review in early 2009 to evaluate Central Technical Authorities down through the NNSA and EM program offices, including sampling at several sites. We are working to complete headquarters data gathering, data analysis, and report preparation by the end of this year.

Learning from Internal and External Operating Experience

As part of its response to Recommendation 2004-1, the Department committed to improving its operating experience program. We have completed the promised actions to satisfy that commitment, and we continue to enhance the program in many ways.

Our program employs a number of formal vehicles to share operating experience within the Department, including Special Alerts and Bulletins; Operating Experience Summaries; Occurrence Reports and summaries; lessons learned, and many others. In Fiscal Year 2009, we shared a total of 1941 operating experience products complex-wide.

Capturing external lessons was a key point emphasized in the 2004-1 recommendation. Our program includes a concerted effort to look outside the Department to learn from industry events. Since 2004, the Department has published and distributed 30 Operating Experience Summary articles (7 in FY 2009) and 3 Safety Advisories in a variety of disciplines with information derived from external events.

In November 2007, we established an Operating Experience Committee to support line managers and the Departmental community in their efforts to develop and sustain effective operating experience programs at all appropriate levels within the Department. Active membership in this committee continues to grow, and has increased in the past year from 65 to 250 members. Current members represent almost the entire Departmental complex, and include external members who actively represent entities such as your Board's staff, the Department of Defense, the Nuclear Regulatory Commission, and others within the U.S. This year, five new groups have joined from Canada and the United Kingdom, and we have traded visits with the United Kingdom to our respective operating experience conferences. This is opening up new opportunities for obtaining external operating experience from those countries. The committee conducts business monthly and has formed many working subgroups that are actively addressing issues that will improve the operating experience program across the Department.

DOE is expanding its lessons learned repository beyond safety and health issues so that it captures security and project management lessons learned, and we are looking for other area of inclusion that would benefit the Department. We continue to strengthen our Suspect, Counterfeit, and Defective Item program and work closely with the program offices and the field to meet this increasing global challenge. The success of our program has led other organizations, such as the Electric Power Research Institute and Nuclear Regulatory Commission, to approach us to gather information on how to improve their own programs.

We believe that the Department's Operating Experience Program has met the intent of Board Recommendation 2004-1 and, in collaboration with its external partners, continues to expand and strengthen its ability to foster learning throughout the complex and beyond.

Commitment 20 requires an effectiveness assessment of implementation of the Department's Operating Experience Program. We initiated a review in early 2009 to meet this commitment. The review encompasses evaluations of headquarters, site, and contractor implementation by sampling implementation at a number of sites. As with the review of Commitment 16 mentioned above, we have just completed our sampling of DOE sites and are currently completing headquarters data gathering and intend to complete data analysis and report development by the end of this year.

ISM Revitalization

For the past 15 years, the Department has employed ISM as the foundation of our safety program, and we credit the program with many of the safety improvements – including culture changes – that we have achieved during that time.

The Department committed to revitalize our ISM efforts in its response to Recommendation 2004-1, and we completed all actions related to commitments 21, 22, and 23 during the 2005-2007, including development of the ISM Manual and establishment of the ISM Champion process. The requirements of the ISM Manual – such as development of ISM Description Documents, annual effectiveness reviews, and the declaration process – have also been met throughout the complex. The ISM Champion process is currently operating efficiently, providing an effective forum for sharing best practices and lessons learned, and we are making continuous improvements to the process. Within the ISM framework, we believe that the Voluntary Protection Program (VPP) is the single most effective approach for promoting worker involvement that builds a strong safety culture. With this in mind, we have strongly supported line management efforts in sustaining and expanding VPP programs at our sites.

At the direction of senior leadership, we are continuing to take additional steps to enhance the safety culture component of ISM in cooperation with the Energy Facilities Contractor Group (EFCOG). In 2007, we formed a joint EFCOG/DOE ISM Safety Culture Task Team. The Team consists of a diverse group of senior leaders representing major DOE and NNSA contractors, subject matter experts, external industry experts, and DOE and NNSA personnel, and is formally sponsored by myself and a member of EFCOG's Executive Board. The Safety Culture Task Team has identified three safety culture focus areas with potential for having the most impact on improving safety effectiveness within the complex: Leadership, Employee/Worker Involvement, and Organizational Learning. For each of these three focus areas, the Team has identified and developed related attributes that can be developed to improve the safety culture. These include:

- Leadership – clear expectations and accountability, management engagement and time in field, risk-informed conservative decision making, open communication and fostering an environment free from retribution, demonstrated safety leadership, and staff recruitment, selection, retention, and development;

- Employee/Worker Engagement – personal commitment to everyone's safety, teamwork and mutual respect, participation in work planning and improvement, and mindful of hazards and controls; and
- Organizational Learning – performance monitoring through multiple means, use of operational experience, trust, questioning attitude, reporting errors and problems, and effective resolution of reported problems.

The Team has documented these attributes and other safety culture tools and, as part of a pilot activity across the complex, has provided them to various organizations for their use in assessing and improving the characteristics of their prevailing organizational cultures. Results of these activities and lessons learned are routinely shared during EFCOG ISMS/Quality Assurance (QA) Working Group Meetings and Annual ISM Workshops sponsored by the DOE ISM Champions.

The ISM Champions Workshop has been yet another important vehicle for facilitating the sharing of best practices and for improving the effectiveness and efficiency of the Department's ISM system. Interest in this activity has grown significantly in the past several years as witnessed by the success of the last workshop held in Knoxville, TN. It included active participation by high-level Departmental managers, including the Deputy Secretary; leaders of contractor, worker, and safety organizations; and a diverse set of stakeholders (including other Government Agencies, private entities, academia, the international community, and vendors), yielding approximately 1000 attendees.

In addition to the aforementioned activities we have taken steps to improve our safety directives, including the ISM Manual, based on lessons we have learned as a result of ISM implementation experiences across the complex. Specifically, as part of our Directives Review Process, a working group comprised of subject matter experts from across the Department has been engaged in converting this manual into an order, and at the same time reviewing each Manual requirement to identify possible overlaps and inconsistencies with other DOE requirements, and to clarify, document and preserve the technical bases for each requirement for future reference.

While there is broad support for the ISM concept within DOE, some have suggested that ISM requirements should be less prescriptive and more flexible, including options for using alternative corporate processes. While no decisions have been made, the DOE community, as noted above, is reevaluating the Manual, particularly as it is applied to non-nuclear facilities and lower hazard operations. Again, as a key participant in this process, the challenge for HSS is to ensure that any revisions to the Manual are carefully considered and ensure an adequate safety management system, particularly for higher hazard nuclear activities. As with all safety-related directives, the Department will consider the comments of the Board as part of that process.

STATUS OF 2009-1 COMMITMENTS

Before I conclude I would like to briefly address our response to your Recommendation 2009-1, involving risk assessment methodologies at defense nuclear facilities. I do this because I want to emphasize our commitment to fully addressing this recommendation and because I believe there is a connection between 2004-1 and 2009-1, in that both provide us feedback on where we can

improve our nuclear safety performance. In your recent recommendation, you expressed concern that DOE was using quantitative risk assessment methods without having in place a clear policy and set of procedures to govern the application of these methods at facilities that perform nuclear operations. In 2009-1, you recommended the Department take four actions to resolve the concern: establish a policy on the use of quantitative risk assessment for nuclear safety applications; consistent with this policy, establish requirements and guidance in a DOE directive or directives that prescribe controls over the quality, use, implementation, and applicability of quantitative risk assessment in the design and operation of defense nuclear facilities; evaluate current ongoing uses of quantitative risk assessment methodologies at defense nuclear facilities to determine if interim guidance or special oversight is warranted pending the development of formal policy and guidance; and establish a requirement to identify deficiencies and gaps in ongoing applications of quantitative risk assessment along with the additional research necessary to fill those gaps in support of the development and implementation of the final policy and guidance.

As you know, the Secretary accepted your recommendation and provided an implementation plan that we will be using to respond to it. While we believe we have an appropriate and useful set of requirements and standards to control the use of risk assessments to support nuclear safety decisions, we also believe, as you identified in Recommendation 2009-1, that it is appropriate to reevaluate our current uses of quantitative risk assessments to see if they should be improved and whether there may be opportunities to take advantage of advances in this field.

The two deliverables in the implementation plan (regular progress briefings and a response to the Board identifying what policies, directives, standards or infrastructure improvements we will make as a result of the year long study) are supported or reinforced by a number of related actions that I will commit to you today that we intend to take. These actions will: reiterate the Department's current expectations regarding the use of risk assessment to inform nuclear safety decisions; provide for training of our managers and staff on those expectations; and provide assistance to line management in using risk assessments appropriately and consistent with expectations. We believe that, collectively, these actions represent an aggressive effort to address the recommendation. I will briefly outline each of our intended actions.

First, HSS will issue an Information Notice to reiterate the Department's current expectations and requirements for assessments of nuclear safety risks. This will help address the concern that there is no specific policy for use of risk assessment in nuclear safety by summarizing existing requirements to which risk assessments are subject. It will also clarify expectations for those who may wish to use quantitative risk assessment to better inform nuclear safety decisions. The Information Notice will consolidate our risk assessment expectations of Secretary of Energy Notice (SEN)-35-91, *Nuclear Safety Policy*, and 10 CFR Part 830, *Nuclear Safety Management*, along with its supporting guides and standards.

Second, we will form a Risk Assessment Expert Group, led by a Senior Technical Safety Manager, to assist line managers in the planning and peer review of important risk assessments. To institutionalize this working group, I soon will be sending a memorandum and draft Charter to the program offices, requesting that they designate members for the Steering Committee which will mange the working group's activities. The Charter will be finalized soon and expert

members to support peer reviews of nuclear safety significant risk assessments will be identified by the working group's Steering Committee.

I have directed my Responsible Manager for Recommendation 2009-1 to work with your staff as we act in these two areas. He has informally shared the draft Information Notice and draft charter with Board staff members and will soon be providing final draft copies for their comment. We also would both welcome and encourage your staff's participation with the working group's activities.

We intend to improve existing and create new training opportunities addressing risk assessments. This is intended to further ensure that expectations are clearly communicated and to advance a more consistent understanding of the benefits, limitations and difficulties associated with the application of risk assessments to nuclear safety-related decisions. In September, we added a nuclear safety risk assessment module as part of our Nuclear Executive Leadership Training. Additionally, our National Training Center is developing a risk assessment and risk management course which we plan to pilot in early 2010.

We plan to update SEN-35-91, our nuclear safety policy that includes safety goals and other risk assessment/risk management expectations. Its revision will serve to address the risk assessment policy needs. However, taking that step will require additional information before we determine what changes to the policy are warranted.

Additionally, we intend to conduct a study of the uses of risk assessments to ensure that the Department's needs are met in this area, and we will make a "needs determination" based on the results of the study and other pertinent input. We believe our current process works and is effective in protecting the workers and the public and generally achieves the goals set forth in SEN 35-91. But as your Recommendation pointed out, there have been many advances in the use of risk assessment in support of safety decisions for high-hazard operations that the Department could use to improve its effectiveness. The study, in conjunction with other actions, will help us gain the necessary knowledge to fully respond to Recommendation 2009-1 by developing or changing, as necessary, our directives, standards or infrastructure.

This process will be transparent to the Board. We will continue to brief you on these activities and associated products, and we will seek you and your staff's advice as we move forward. Finally, at the conclusion of the study, when the Department determines what new or changed directives, standards or other materials are needed to better use risk assessment to support nuclear safety decisions, we will keep you and your staff informed and involved in our efforts to develop those outcomes.

CONCLUSION

Let me conclude my remarks by again expressing my belief that the Department has made significant progress in its efforts to implement planned actions in response to Recommendation 2004-1. There is no disagreement that additional work remains before all issues raised by the recommendation are fully addressed. Similarly, there are important steps yet to be completed in response to the closely related 2008 GAO recommendations and your own Recommendation

2009-1. We look forward to continuing to work with members of the Board and your staff as we continue to make improvements. I assure you that it is my intent and that of my staff to remain fully involved and to continue to play a significant role in the rigorous pursuit of the Department's efforts to sustain and further strengthen what I believe to be effective programs to assure the safe operation of all our facilities, particularly our defense nuclear facilities. While it is essentially a line management responsibility to accomplish the Department's missions safely, the Office of Health, Safety and Security recognizes its significant responsibilities associated with helping line managers achieve the safety-related aspects of their goals. In the specific areas of nuclear safety inspection and enforcement, my organization has a more primary responsibility, and I assure you that our dedication to meeting those responsibilities will remain paramount as the Department migrates to a new management paradigm. As I previously emphasized, we believe in and support the need for continued rigor in these areas, the Secretary and senior line managers concur with the need to maintain effective programs in these areas, we are funded to provide these services, and we intend to continue to implement rigorous nuclear safety inspection and enforcement activities.

Thank you.