TESTIMONY
Glenn Podonsky
Director, Office of Independent Oversight and Performance Assurance
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Introductory Remarks

Thank you, Mr. Chairman, for inviting me to testify today. My office - the Office of Independent Oversight and Performance Assurance - was established by the Secretary of Energy as the independent evaluation element of the Department's integrated oversight system. We are responsible for evaluating environment, safety, and health; emergency management; cyber security; and safeguards and security programs at Department of Energy sites. Consistent with the scope of this hearing, I will focus my testimony today on our safety oversight role.

Role of Independent Oversight

The Office of Independent Oversight and Performance Assurance, OA for short, reports directly to the Secretary of Energy. Our primary role is to provide information to DOE senior management, DOE and NNSA program management, DOE field element managers, DOE policy offices, and contractor management. The information we provide is used by DOE management to improve their systems for managing safety and to correct deficiencies in technical aspects of ES&H programs. We also routinely provide information to non-DOE organizations, Congressional committees, and the Defense Nuclear Facilities Safety Board.

At the September 10 hearing, the DNFSB staff appropriately characterized DOE as having three distinct roles: a customer, an owner, and a regulator. In this paradigm, OA is unique within DOE in that we have no conflicting roles. DOE established OA such that it is not a customer or owner and thus we can focus solely on our independent oversight role. In this role, we perform some, but not all, of the functions normally associated with a regulator. Specifically, we evaluate safety performance and compliance with safety requirements. We also evaluate the effectiveness of DOE policy and provide feedback to improve it from time to time. Unlike a regulator, however, we are not involved in assessing penalties and fines; we do not issue licenses or authorize activities; and we are not responsible for establishing requirements. Other DOE elements, such as DOE's Price-Anderson Amendments Act enforcement office, perform such functions for DOE.

OA's mission is to provide independent evaluation and unbiased perspectives to the Secretary and line management. We are uniquely positioned to do so because of several factors:

- One, we have no responsibilities for managing facilities and are not responsible for facility budgets.
- Two, we have no responsibility for policy development. Sometimes, safety deficiencies result from unclear policies or requirements are unclear. We have no vested interest in policy and are at liberty to identify weaknesses.
- Three, the budget for our office is established as a separate line item, so our funding does not depend on those we inspect. The importance of an independent budget was recently highlighted by the Columbia accident investigation, which identified concerns about safety professionals and inspectors having to rely on line organizations for funding. OA has no such dependence.

Because of such factors, we have the independence necessary to provide unbiased evaluations.

A major feature of our program is that our inspections focus on performance. We find that reviews of documents and procedures are necessary, but not sufficient, to evaluate the effectiveness of safety programs. During inspections, we spend much of our time in the field watching how work is performed. For example, we evaluate whether nuclear facility operators can perform their routine and emergency functions by actually observing them perform these functions in their facilities.

Another important feature is that we evaluate DOE line management **and** contractor line management, and we focus on their combined effectiveness in meeting safety expectations. We provide DOE's independent check on how effective DOE line management is in ensuring safety in its three roles: as a customer, owner, and regulator.

OA has well-established processes for its activities. For example, we have rigorous processes for validating the information we collect to ensure that it is accurate and complete before we finalize our findings and ratings. We control our own schedule, so we can adjust our assessment schedules to respond to evidence of weak performance. We also have the flexibility to tailor our inspections based on operational and safety performance history and past assessment results.

A few years ago, in response to Board recommendation 98-1, DOE took the important step of requiring that DOE line management respond to OA findings with a formal corrective action plan. OA reviews the planned corrective actions to determine whether they adequately address the scope of the finding. Our experience has been that this requirement was a tremendous enhancement to the effectiveness of the OA process and ensures that findings are addressed. Thus, it improves the performance of the DOE complex.

Technical Competence

The DNFSB has repeatedly, and appropriately, stressed the importance of technically qualified and competent staff, including oversight inspectors. We agree wholeheartedly. We further believe that technical competence in the independent oversight organization is particularly important because we evaluate the overall effectiveness of integrated safety management programs-which we call ISM- and routinely interface with senior DOE and contractor management. We understand that the quality and credibility of our program depend on our inspectors' competence.

We are fortunate to have a team of experienced inspectors. Our technical personnel who perform safety inspections average over 25 years of operating and safety experience, and more than 5 years as inspectors with DOE independent oversight programs. They understand the DOE organization, facilities, safety requirements, and the OA process.

Our inspectors have extensive qualifications and education, as well as various certifications, across many ES&H disciplines. For example, we have personnel who have served as Senior Reactor Operators and Certified Health Physicists. Our technical personnel have degrees in relevant fields, such as nuclear, mechanical, electrical, chemical, and civil engineering; chemistry; physics; and biology, as well as radiological health physics and environmental health sciences. Over one-third of our safety inspectors have advanced technical degrees. Our inspectors also have significant prior experience with DOE sites and other organizations, such as the Nuclear Regulatory Commission, the Naval Nuclear program, and commercial nuclear sites.

OA Federal staff who perform safety inspections are in the DOE Technical Qualification Program. All OA technical safety personnel meet the applicable qualification requirements, with the exception of some newer hires who are in the process of completing some office-specific requirements.

In addition to assuring technical competence before bringing people into OA, we also provide process orientation and mentoring to new inspectors to ensure that they understand our inspection process and expectations. We also provide ongoing training when it benefits the individual and enhances the effectiveness of the OA program.

Inspection Focus Areas and Insights

In our evaluations, we assess the effectiveness of selected aspects of ISM and the implementation of ISM at the working level. This scope includes all aspects of environment, safety, and health. It encompasses facility safety and worker safety and environmental protection, as well as a wide range of other programs. We design each inspection based on site-specific factors and past performance. However, we also look at selected ISM elements, such as the unreviewed safety question process, to develop complex-wide perspectives on important topics.

OA has noted that ISM programs are maturing and are having a demonstrable positive impact on safety. We have seen improving trends in worker injury rates and environmental compliance performance metrics. These improvements can be attributed to the increased rigor of hazards analysis and controls associated with ISM, and associated efforts, such as the use of behavior-based safety programs and increased worker involvement in the development of controls and procedures. We also see a number of aspects of safety programs that are positive or improving at most DOE sites. For example, environmental programs are generally rigorous and well structured, and there have been improvements in the clarity of safety responsibilities.

However, adherence to procedures and requirements is a continuing concern. OA inspectors have caused work to stop on a number of occasions when we identified deficiencies during inspections. In addition, despite an emphasis on worker empowerment throughout the DOE complex, we have noted cases where work was not stopped when workers could not follow a deficient procedure. Continued management attention and effective supervision will always be needed to ensure that corners are not cut in the face of schedule and cost pressures. We also have noted a number of isolated deficiencies in exposure assessments and worker safety controls that indicate a need for increased rigor and attention to detail in implementing otherwise effective site hazards analysis processes. Another concern that is evident at several sites is the effectiveness of subcontractor safety programs. At some sites, some requirements do not adequately flow down to subcontractors, and some subcontractors do not provide the level of training expected at DOE sites.

In the past two years, we have renewed our focus on safety-related systems, such as reactor emergency cooling water and fire protection systems. We have developed new inspection techniques and processes that involve taking a very detailed and technically-based look at selected systems. These reviews indicate that most aspects of essential systems are well implemented, but some aspects of design, testing, and maintenance were deficient, and the site's internal reviews had not identified the deficiencies. In one case, we identified deficiencies in the analysis of design of a nuclear reactor; specifically, the design did not consider certain phenomena associated with dry piping and vortexing. A contributing factor was that the site apparently did not keep up with design issues that had been addressed in the commercial nuclear industry. In this case, we saw some of the organizational factors that the Columbia accident investigation cited as contributing factors, such as reduced safety engineering resources, schedule pressures, and an insufficiently questioning attitude. We also noted deficiencies in configuration management, testing and surveillance, and preventive maintenance at several facilities. For example, DOE has many aging facilities and systems, and has not always kept up its configuration management.

In addition, during recent inspections we have examined unreviewed safety question processes, or USQs. USQ guidance documents need to be improved to ensure that DOE expectations are clearly communicated to the field. We are also concerned that site personnel sometimes appear to be reluctant to implement the formal USQ process. Instead, they sometimes do an informal analysis to get a grip on the answer before-or

sometimes instead of- the formal process. This tendency can negate the benefits of formal analysis and communication to management that the formal processes provide. We see a few similarities to the problems noted in the Columbia accident report with respect to communication deficiencies and less-than-formal analyses.

DOE Line Management Safety Oversight and Contractor Assurance Programs

A major focus of these hearings is the ongoing changes in DOE safety oversight. As DOE's independent oversight office, OA has a long history of evaluating line management's safety oversight and contractor assurance programs. We believe that effective contractor assurance programs, combined with effective DOE line management oversight, are the linchpins of the integrated safety management program.

Please note that we use the terminology "contractor assurance program" rather than contractor self-assessments. The term "contractor assurance program" encompasses not only self-assessments, but also other feedback and improvement mechanisms such as issues management and lessons learned. The "contractor assurance program" terminology is consistent with the draft DOE oversight policy and NNSA guidance.

At the September 10 hearing, the Board raised some appropriate questions about DOE's ongoing efforts to streamline oversight and whether these efforts will lead to less effective safety performance. Through our inspections, we have collected information about the effectiveness of DOE safety oversight and contractor assurance programs for almost 10 years, providing us with historical perspectives and insights that may be useful to the Board's deliberations.

First, we should not confuse the quantity of assessments with the quality of safety oversight. More is not necessarily better. Before the late 1990s, DOE line management was conducting many safety assessments including assessments by site offices; operations offices; the Headquarters Office of Environment, Safety and Health; and multiple Headquarters program offices. The overall process was burdensome and not very effective. The various inspections often resulted in conflicting direction, and contractors spent considerable time and resources responding to findings that were not based on clear requirements. Furthermore, the quality of the reviews was often poor because the assessors did not have clear criteria, sufficient technical competence, or appropriate experience in assessment techniques. In short, DOE line management line oversight was frequent and redundant but not effective.

In the late 1990s, the pendulum swung too far the other way. DOE Policy 450.5 was issued in 1997 in an effort to rein in the multitude of inspections and to prompt DOE contractors to strengthen their own assurance programs. This policy called for DOE to scale back its onsite assessments and devote more effort to such activities as operational awareness and monitoring of performance measures. These changes were to be made only **after** the contractors established effective assurance programs. Unfortunately, in many cases, this policy was not well implemented. Many DOE line management

organizations transitioned to the new paradigm before ensuring that their contractors' assurance programs were comprehensive, rigorous, and self-critical.

DOE has recently developed a draft policy on oversight and an associated DOE notice that provides expectations for implementation. Although these are still undergoing internal review and are not yet final, we view the development of the draft policy and notice as a potentially significant positive step in further clarifying expectations.

We have seen some improvements contractor assurance programs. The programs are continuing to mature and improve. **However, contractor assurance programs still vary in effectiveness and, for the most part, are not yet sufficiently robust, rigorous, and self-critical to warrant reductions in DOE line management oversight.** Many NNSA, Office of Environmental Management, and Office of Science organizational elements have been reorganized recently or are currently undergoing reorganizations to improve their efficiency and effectiveness. For the most part, DOE and NNSA program office and field element management recognize that their current oversight systems are not mature and that they need to continue to focus on the needed improvements.

Our reviews indicate that DOE field elements' Facility Representative programs are functioning adequately for the most part but that some other aspects of DOE safety oversight are not sufficiently rigorous or robust at most sites. Some weaknesses have resulted from the major NNSA reorganization that streamlined its management structure, shifting most responsibilities for assessments to the field elements. While there are advantages to this approach, during the transition there were some imbalances between the safety oversight workloads and the field element staffing. However, NNSA is working these transition issues by providing support from service centers and ramping up field element staffing. We note that DOE safety oversight activities are better coordinated and better focused because they are being designed and performed primarily by the DOE field element personnel who are most familiar with the site.

In short, we believe that DOE line management oversight will improve as a result of clearer expectations and the transition of responsibilities to the field elements, but that the transition has experienced a number of start-up problems that DOE and NNSA program office and field element management are working to address.

One area that needs improvement at headquarters and at almost all sites is issues management. By issues management, we refer to the full range of activities needed to ensure that identified deficiencies are corrected. An effective process for issues management includes analysis of causes, identification of corrective actions and recurrence controls, corrective action tracking and monitoring, closure of corrective actions and verification of effectiveness, and analysis of trends. DOE and contractor issues management processes currently exhibit a number of common weaknesses. For example, corrective action management systems have not always been effective in preventing recurrence because of deficiencies in analysis of root causes and extent of condition. On a positive note, we recognize that DOE's Office of Environment, Safety

and Health is in the process of revising the Occurrence Reporting and Processing System requirements to improve its usefulness.

Summary

To summarize, OA is the independent oversight for the Secretary of Energy. OA serves a unique role within DOE and has no conflicting priorities. Therefore, we can provide valid, objective evaluations that help DOE line management identify areas that need improvement and where resources need to be applied.

OA inspections indicate that the ISM process is resulting in improved safety performance. However, further improvements are needed in a number of areas. We are encouraged by the improvements in contractor assurance programs, but they are not yet fully effective. Similarly, DOE line management oversight is becoming more focused and efficient but has suffered from deficiencies in implementation, some of which have resulted from reorganizations and restructuring of responsibilities.

OA tailors its inspections based on the sites past performance and the effectiveness of its DOE line management oversight and contractor assurance programs. For example, we may devote fewer inspection resources to environmental programs if there is a longstanding record of good performance and effective safety oversight. This approach lets us focus more resources on areas where deficiencies are evident or suspected. However, DOE line management oversight and contractor assurance programs are areas that will warrant continued OA attention for the foreseeable future. Most of the programs we have reviewed have been rated as needing improvement. For this reason, OA does not plan to reduce its independent oversight of DOE line management oversight or contractor assurance programs. In fact, we have been devoting more inspection resources to this area in the past year and plan to continue this trend.

The Secretary and the Deputy Secretary have repeatedly demonstrated their commitment to safety in the Department. We have witnessed the honoring of that commitment through their personal involvement in ensuring that the Department management systems continue to improve in order to maintain a strong and enduring safety culture.

As mentioned by the Deputy Secretary, one of the hallmarks of a strong safety culture is learning from experience. The Columbia Accident Report provides DOE with an opportunity to learn, to determine the parallels and to prevent or correct similar failures in management, organization, and oversight.

I will be happy to take any questions you have at this time.