Testimony of Roy J. Schepens Manager, Office of River Protection
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Good afternoon, my name is Roy Schepens and I am the Manager of the U.S. Department of Energy's (DOE) Office of River Protection (ORP) located in Richland, Washington. ORP was established, as directed by Congress, in 1998 to manage DOE's largest, most complex environmental cleanup project—Hanford tank waste retrieval, treatment, and disposal. ORP is an autonomous organization that is accountable and responsible for the project's success, thereby streamlining the management structure and the decision making process. By managing risks and vulnerabilities, the key objectives of ORP are:

- Complete site cleanup by 2032;
- Drive early progress on waste retrieval, treatment, and tank closure;
- Improve environment for contractor performance; and
- Reach agreement with regulators and stakeholders for a better technical solution.

For perspective, approximately sixty percent (by volume) of the nation's high-level radioactive waste is stored at Hanford in deteriorating tanks, threatening the Columbia River and the Pacific Northwest.

1. *Describe your site office's contractor oversight activities, including: types of oversight; directives that set requirements and expectations (including those levied from the headquarters level and those defined in field level directives) on oversight; the scope of topics involved; the frequency of oversight activities; any measurable performance criteria; lines of authority; resource availability/constraints; etc.*

   I would like to begin my discussions with a restatement of excerpts from Jim McConnell's (Deputy Technical Director for the Defense Nuclear Facilities Safety Board) opening remarks given on September 10, 2003: "The basic system by which DOE or any similar government agency ensures that its contractors clearly understand and achieve the government's expectations comprises three elements. The first element is rules, directives, consensus standards, and best practices that communicate requirements and guidance. The second element is a contract that establishes specific details of cost, scope, schedule, performance, and methods of interaction between DOE and its contractors to accomplish specific work. The third element is oversight, which ensures that the expectations established in the regulations and contracts are actually met. Through oversight, DOE checks to ensure that its expectations are understood and being fulfilled. If they are not, action is taken—as prescribed in the regulations or contact—to address the problem. In this manner, the three elements of the system—requirements, contracts, and oversight—work together to determine what DOE will receive from its contractors."

Since we all basically know what the rules, directives, consensus standards and best practices require relative to oversight, I will not further discuss them. At ORP, we have two prime contractors that execute our mission: CH2M HILL Hanford Group, Inc., the management and operating contractor responsible for the tank farm activities and supplemental waste treatment technologies; and Bechtel National, Inc., the contractor responsible for design, construction and startup of the Waste Treatment and Immobilization Plant (WTP). We manage the cost, scope, and performance objectives through two separate contracts—one with each prime contractor. I recognize that our contracting methods do have a direct association to safety in that we incentivize our contractors for accelerated performance. However, given the line of questioning for today's testimony, the contracting model used by DOE has only remote applicability. Instead, I want to describe the oversight philosophy that I have incorporated into the ORP contractor oversight activities.

The overarching idea is the formulation of a connection between safety culture and the safety of site cleanup activities. This means individuals at all levels of the organization consider *safety* as the overriding priority. Their decisions and actions are based on this priority, and they follow up to verify that safety concerns receive appropriate attention. The work environment, the attitudes and the behaviors of individuals, and the policies and procedures foster such a safety culture.

This philosophy has four components. First, we must remain focused on contractors' overall performance and effectiveness and not whether they just simply comply with requirements set forth by the contract. Second, senior line managers cannot depend on assessments or oversight functions conducted by one organization to measure safety successes or failures. Instead, they must rely on a combination of oversight activities conducted by both internal and external sources, the contractors' Self-assessment Program, and independent sources. Presumably, oversight functions performed by a variety of sources will have some redundancy, and while I believe some redundancy is necessary and an indicator of a mature oversight program, efficiencies must be managed. The third and most critical component requires that line managers drive for resolution of oversight issues, understand issues singularly and collectively, ensure understanding of root cause, and understand implications/consequences of findings when developing the schedule for corrective actions. As evidenced by the recommendations following the reactor pressure vessel head degradation at the Davis-Besse Nuclear Power Station, station managers failed to recognize the significance of the event and did not react aggressively to understand the implications of continual exposure of plant hardware to boric acid. These shortcomings and a host of others caused the vessel head to corrode to a dangerously reduced tolerance. Last, I reinforce the use and sharing of operating experiences and apply lessons-learned to prevent reoccurrences.

The objectives of oversight activities at ORP are simple. I want to continuously monitor our contractors' safety performance to bench mark it and drive improvement and efficiency. This requires a substantial field presence to determine the overall effectiveness of the contractors' implementation of the requirements we set forth in our contracts. Consistent with DOE's Policy 450.5, "Line Environment, Safety, and Health Oversight," we are committed to improving the quality of the contractors' self-assessment programs so that when combined with DOE line oversight, we have assurance that the DOE Safety Management System is implemented. In addition to the actual conduct of oversight activities by the federal staff, I believe that oversight must be conducted by personnel with appropriate credentials, training, and relative experience. And, my last point, we must routinely evaluate the effectiveness of federal oversight personnel using a combination of internal and external resources.

The execution of ORP's oversight activities follows a model well established at other successful sites:

- Develop an Annual Assessment Plan (AAP) – The plan is formulated by evaluating the previous assessment period's results, conducting an evaluation of safety performance against established metrics, understanding weaknesses identified in the contractors self-assessment program, and adding recurring assessments or those mandated by contract.

- Select, train, and qualify assessment personnel – Training and qualification requirements are specified by line managers for each type of assessment or oversight activity.

- Develop an assessment plan and conduct the assessment – An assessment team leader is identified for each assessment activity. The team leader assembles the assessment team and ensures team members are trained and qualified. The team reviews current issues, understands current facility/plant operations, reviews previous assessment reports and past deficiencies, and then develops a detailed assessment plan with specific lines of inquiry. Field work is therein planned and a performance-based assessment is executed. NOTE: In general, facility representatives do not develop assessment plans.

- Hold exit meeting with senior contractor management – Upon completion of an assessment, the assessment team provides the results in the formal setting of an exit meeting. The process of the exit meeting allows DOE to present oversight results, allows the contractor to understand and accept the results or refute them, and allows for discussion between the DOE and contractor on the attributes of acceptable corrective measures. Without exception, executive DOE and contractor management attend.

- Identify compensatory measures – Necessary compensatory measures are identified by line management to ensure safe operation of the facility until the contractors' corrective actions have been completed and federal staff have verified their effective implementation.

- Formally communicate assessment results to the contractor – The results of the assessment are officially transmitted to the contractor.

- Review assessment results – Senior line managers and the Director of Environment, Safety and Health evaluate assessment reports and ensure that cross-cutting issues are identified, addressed, and corrected.

- Track assessment findings to resolution – Any findings or follow-up actions from assessment activities are tracked through both ORP and contractor databases. Verification of the acceptability of the completed corrective actions is conducted by assessment team members or by competent federal staff assigned by line management.

- Feedback provided for development of next AAP -- This step completes the cycle and provides feedback and improvement for the forthcoming assessment cycle.

Following this proven model, we conduct a variety of oversight activities which include:

- Operational Assessments – Operational assessments are scheduled to coincide with contractor work activities (including design, construction, and operations) based on the risk of the activity, assessment results, assessment of first time activities, performance indicators, and assessment of non-routine activities.

- Facility Representatives (FR) – FR activities are structured to provide day-to-day operational awareness of the contractors' activities and safe operation of the facility. FR routine assessments are designed to promote a safety-conscious work place and for the FR to be a visible champion of Integrated Safety Management System (ISMS) in all work activities. FR focused assessments are developed to systematically conduct in-depth reviews of the contractors' safety programs and facility condition.

- Environmental, Safety and Health – Review contractor performance against formally established environmental, safety and health metrics.

- Management Walkthrough Program – Management walkthroughs are first-hand observations of discrete field activities by direct reports to the Manager. The walkthroughs are focused on evaluating specific attributes of the contractors' safety programs and/or plant operations. Walkthroughs are documented and findings are trended and entered into a tracking system, and verified closed. Collectively, my managers conduct field assessments for a minimum of 60 hours per month.

- For-cause Reviews – As circumstances dictate, we conduct for cause reviews as necessary.

Let me use a recent situation with one of ORP's contractors to highlight how DOE line management oversight works to improve safety performance. On November 25, 2003, while conducting a normal facility walkthrough, line management (in this case a Facility Representative) entered the control trailer for the tank 241-S-112 pumping activity. His intent was to verify contractor personnel training and knowledge, and check on the status of the pumping activity. His questioning revealed significant deficiencies in the operator's training and knowledge. He also observed inappropriate alarm response actions and procedure violations. He brought these issues to contractor management's attention who then directed that the pumping activity be stopped and a critique conducted. Thereafter, I issued a letter to the contractor directing the necessary actions to be taken to improve the contractor's performance. Those actions include a review of training, conduct of operations, procedure use, contractor oversight, and self-assessment programs. I also directed that compensatory measures be taken to ensure safe operations continue during the review. DOE line management will follow all recovery activities and verify all corrective actions to ensure that appropriate corrective actions are taken and that the corrective actions are effective.

2. *Describe your site office's self-assessment activities and expectations, including: types of self assessment; directives that set requirements and expectations (including those levied from the headquarters level and those defined in field level directives) on self assessments; the scope of topics involved; the frequency of self assessment activities; any measurable performance criteria; lines of authority; resource availability/constraints; etc.*

   A common attribute of high performing organizations is their process of self-evaluation and improvement. At ORP, our self-assessment activities are identified by senior management and scheduled in the Annual Assessment Plan. Over the last year or so, ORP has completed several self-assessment activities including: 1) an ISMS review; 2) an assessment of our response the tanks farm's vapor event; 3) use of recognized project management and project controls experts to evaluate our processes for managing the WTP project; 4) a top-to-bottom organization review to evaluate the effectiveness of office-wide communication; and 5) routine use of recognized engineering consultants. In the near-term, we have assessments planned of our new Safety System Oversight training and qualification program and an assessment of the effectiveness of federal project managers. In general, I anticipate ORP will conduct about two self-assessment activities per quarter.

3. *Describe the necessary technical staffing for your site office, with particular emphasis on the competencies needed to perform the activities outlined in #1 and #2, above. Provide the status of current site office staffing and qualifications. Discuss the differences between the necessary and the current conditions, if any, and outline actions being taken to address these differences.*

During the past year and a half, I have evaluated the organization to ensure that ORP has the necessary technical competence to perform Federal responsibilities; restructured the ORP organization to provide accountability and clear roles and responsibilities; and augmented the organization with approximately 125 years of nuclear experience by hiring personnel from other DOE organizations. At this time, I believe that I have the necessary technical staffing in my organization to execute our mission. We are committed to regularly evaluating our skill set and modifying it accordingly.

My organizational goals are three-fold: first, get the right person for the job; second, ensure that the individual maintains/improves qualification for the job; and third, provide career/advancement opportunities within the DOE organization. ORP has a staff of 109 FTEs, with 86 of the 109 filling technical positions. Of those 86 technical positions, 13 hold doctoral degrees and an additional 25 hold masters degrees. Currently, 78 of the 86 personnel (91%) are technically qualified in accordance with the Technical Qualification Program (TQP). In addition, I have eleven Facility Representatives to cover the Tank Farms and WTP. I also have efforts under way to implement the Safety System Oversight Program to further support line management and the Facility Representatives as experts on specific safety systems, and qualify Facility Engineers responsible for specific WTP facilities. These personnel will be an additional resource knowledgeable of their specific facility or system.

However, when specialty skill needs arise as we progress through WTP construction and tank closure activities, I plan to utilize staff detailed from DOE-Headquarters or other site offices, or bring in outside consultants with specialized experience/credentials. For example, ORP has routinely used the services of recognized civil-structural experts to review the more complex design attributes of the High Level Waste Building. The use of outside staff and consultants is effective for satisfying short-term skill needs, particularly in an environment where specialty skill needs change dramatically as a project proceeds. For the long-term, I have also prepared a succession plan, which I will periodically reevaluate as the life-cycle of the mission evolves. At that time, I will take actions as necessary.

4. *Describe the changes that will be required to ensure that the existing site oversight program meets the changes DOE [via proposed DOE P 226.1, ESE direction, or NNSA's Line Oversight/Contractor Assurance System Policy Letter, as appropriate] is pursuing. What is the status of implementation of these changes? When will these changes be fully implemented? What interim or compensatory measures are included in the transition plan to ensure safety is not compromised while these changes are implemented? What metrics will be used to determine that the change has been successfully completed?*

   ORP reviewed the stated draft policy for acceptability and provided review comments for consideration. In short, I agree with the oversight principles as they relate to continuous improvement and efficiency, personnel competence, and the establishment of meaningful performance indicators. My oversight program has incorporated these concepts. There are several other aspects of the draft policy that I would be hesitant to incorporate at this time. For example, I believe it is prudent to have some redundancy in oversight activities—although efficiencies must be managed—as additional data points from a variety of sources provide greater confidence in the overall safety performance. I have chosen not to rely solely on contractors' self assessment programs and instead use the results of their assessments as a single data point. I insist that DOE line management conduct their own assessment and evaluate results in the aggregate before making a determination of acceptability.

   One final thought: The draft policy could lead one to focus only on high risk activities and while I conceptually agree that high risk activities have the greatest consequence-potential, it is trouble with "peripheral" work activities that we most often overlook. In this light, I have structured my assessment and oversight processes with the flexibility to allow my line managers to selectively oversee field activities based on their operational awareness without undue restriction.

5. *In the Deputy Secretary's testimony on October 21, 2003, he stated, "the Secretary has directed that all Headquarters and field senior managers review the Columbia investigation report and take necessary actions on lessons learned." At your site, what is the status of these reviews? What lessons learned and corrective actions have resulted from reviews of the Columbia Accident Investigation Board report?*

   I and my senior managers have reviewed the referenced accident investigation report. We often review similar reports from industry. For example, we have reviewed and discussed the lessons learned published by Institute of Nuclear Power Operations following the reactor pressure vessel head degradation at the Davis-Besse Nuclear Power Station. We also review select publications like *Safety Culture: A Survey of the State-of-the-Art*, (NUREG-1756) a study prepared by the Nuclear Regulatory Commission's Advisory Committee on Reactor Safeguards. From these reports and others, we have learned much and consequently I have instituted several changes over the last year. For example, I ensure that line managers and senior staff understand the "details" of technical issues and operational incidents or events vice having only a cursory or "conceptual" understanding. I insist that line managers recognize extent-of-condition and push for resolution. We strive for openness and

information exchange between organizations and attempt to be aware of circumstances that could be mistakenly perceived as stifling. My office reviews applicable lessons learned from ORP sites and within the complex, and then makes wide distribution to all managers, staff members, and Contractors. I also began conducting all employee meetings to provide feedback and lessons learned to all employees immediately following operational events.

We will continue our awareness of industry lessons learned to continually refine our own safety culture.

6. *Describe your site's corrective action program, with particular emphasis on how it is integrated with your contractor oversight program. What program or process is used to identify and resolve the root causes of safety issues in order to prevent their re-occurrence? Is this program robust and mature enough to support the transfer of significant responsibility for conduct of safety oversight activities to the contractor? If not, what are you doing to strengthen it?*

Both ORP contractors use similar processes to identify and correct deficiencies. The process begins with the identification of items, services, or activities that are adverse to safety, health, operations, quality, security, and the environment by site personnel. These items are then documented and submitted for review and categorization. Trained personnel investigate the deficiency and select a category for the deficiency. Depending on category assigned, the deficiency be formally investigated by an investigation team including a formal root cause analysis. Corrective actions are tracked to closure and validated by the Quality Assurance (QA) organization. Identified deficiencies are tracked and trended by the QA organization.

DOE line management follows significant deficiency activities including investigation of the deficiency, evaluation of the contractors root cause analysis, evaluation of the adequacy of the corrective actions, and verification of adequate implementation of the corrective actions. Verification of adequate implementation of the corrective actions often involves an assessment of the effectiveness of the corrective actions.

I believe that contractors are and should be performing a significant portion of the safety oversight of the work activities. Contractor programs like the Safety Evaluation Task Observation program, safety office assessments, management safety walk downs, and the facility safety representatives provide a significant portion of the safety oversight on the site. DOE must hold our contractors accountable for safety. DOE needs to continuously monitor our contractors' safety performance to benchmark it and drive improvement and efficiency. We are committed to improving the quality of the contractors' self-assessment programs to assure that the DOE Safety Management System is implemented. To improve our contractors' safety performance, DOE line management personnel must be in the field promoting a safety conscious work place, be visible champions of ISMS, and verify the contractors' safety performance.