Testimony of James J. McConnell
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Good morning, my name is Jim McConnell and I am the Deputy Technical Director for the Defense Nuclear Facilities Safety Board. At the beginning of the first session on oversight held in September, I provided some remarks on behalf of the Board's staff concerning the role of oversight in the larger system by which DOE directs its activities. I am pleased this morning to add to that discussion focusing more specifically on DOE's current and planned oversight activities.

At the last public meeting I described the system that DOE uses in its roles as customer, owner, and enforcer, to communicate its expectations to its contractors and the methods DOE uses to ensure that its expectations are fulfilled. I discussed the role of oversight in this model and suggested a list of questions that would be useful to consider during these public meetings. I would like to restate those questions and provide just a few additional comments that might be useful to consider during today's discussions with DOE officials.

First:

Can DOE's management and oversight be streamlined without degrading its ability to ensure public health and safety?

There is a school of thought that organizations involved in complex, high risk activities such as DOE can streamline their organizations without degrading their ability to accomplish their mission safely. One of the key attributes these so-called "high performing organizations" is an independent and technically competent engineering enterprise that centrally controls the technical safety specifications and expectations of the organization, including the technical waiver authority, that then allows the freedom for the organization to decentralize control of operations. This point was emphasized in the Columbia accident investigation and was highlighted by the Naval Reactors program representatives at the last meeting.

It is also generally accepted that redundancy in systems—be they engineered systems or human organizational systems, if properly implemented, can improve overall system reliability. It is interesting to note that the Columbia Accident Investigation Board identified reductions in institutional redundancy at NASA as one of the organizational contributors to the Columbia shuttle accident. On the other hand, organizational redundancy can be expensive. DOE personnel have commented many times in the past that it is inefficient to have "checkers checking checkers." One of the objectives of DOE's current changes to its oversight structure appears to be reducing redundancy to improve efficiency. It will be interesting to learn how DOE has balanced the apparently conflicting interests of institutional redundancy and efficiency.

A third point relevant to DOE's oversight policy decisions concerns contract models. One perspective of DOE's recent contract model changes is that incentives to complete work quickly implicitly provide an incentive for contractors to work safely. The logic is that schedule delays caused by safety problems will prevent achieving performance goals therefore contractors are motivated to work safely.

This logic holds—to an extent. Almost no one would take an action if he or she knew that it would result in someone getting hurt. Conversely, almost everyone would put an additional safety control in place if he or she knew that it would prevent an accident that would otherwise occur.

The more realistic scenario, however, involves what decision a contractor will make under uncertainty—that is, how much risk is acceptable for how much benefit. DOE's recent policy changes regarding contract structuring—for example accelerated clean-up incentives— clearly have increased the benefits of successful risk-taking. All else being equal, this would predictably lead to riskier decision-making. It will be useful to hear today how DOE's safety oversight practices will ensure that appropriate decision-making criteria are maintained.

One final comment on this topic is a practical question. If the DOE system will rely heavily on the contractors to develop data that will be used as a basis for contractual and regulatory action, how will DOE ensure continued open, honest, and critical self-assessments on the part of its contractors?

The second area of questions from the last meeting was:

What criteria should be used to judge the adequacy of the Federal or contractor oversight systems?

It is difficult to define acceptance criteria for these new oversight systems in advance. Clearly, the best information on the adequacy of any oversight model is the long-term performance of DOE and its contractors. However, DOE, particularly NNSA, is making changes to its organizational structure and staffing prior to and during this transition that could make it difficult to react to problems if they occur. In addition, much of the discussion and planning for new oversight models that the Board's staff has observed or studied focuses on the generation and presentation of data, with a strong emphasis on information technology. It is not clear yet that the performance metrics in use and planned by DOE and its contractors will provide adequate leading indicators of safety problems. It will be interesting to learn more about how DOE has developed and validated its performance metrics and how DOE will monitor its new programs to detect problems and deviations from expectations soon enough to take action before other alternatives (such as HQ level technical safety assessments) are precluded.

The ability to highlight negative trends and safety problems should not be the only measure of the adequacy of a safety oversight system. A complete and robust safety oversight system should also identify proper root causes of problems, establish effective corrective action plans, verify that the plans are executed, and ensure that the fundamental problems are corrected. It will be useful to learn more about how DOE and its contractors will judge the adequacy of this part of their system.

The last question I raised at the September meeting was:

What are there minimum levels of Federal or contractor oversight that should be maintained?

One of the potential problems of DOE's reorganization is that local field elements may not have adequate numbers of appropriately skilled and educated personnel to perform the oversight responsibilities that will be assigned to them.

It appears that DOE headquarters-level line management oversight is being reduced if not outright eliminated in some cases. The concern here is that senior DOE line managers may not have a separate source of data on safety issues to help them form conclusions. Independent information is necessary to allow senior managers to hold their subordinates accountable for their decisions. Over-reliance on a common data source (that is, field-level assessments) can lead to "common-mode failure" at the organizational level. It will be useful to hear today how DOE's planned oversight model will address this issue.

With these questions and comments in mind, I look forward to hearing from the DOE representatives this morning.