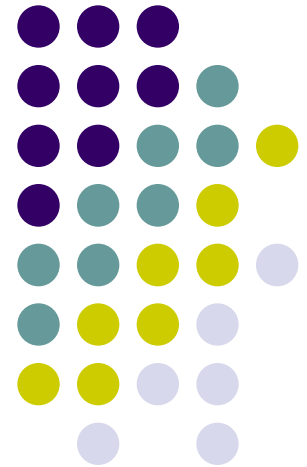


Integration of Safety in Design



Steven A. Stokes
DNFSB Staff
May 23, 2007

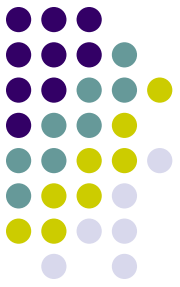


Board Public Meetings



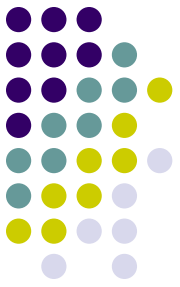
- December 7, 2007— Board considered Department of Energy's (DOE) incorporation of safety into the design and construction of new and modification of existing DOE defense nuclear facilities at the earliest stages of a project.
- July 19, 2006— Board focused on the progress DOE had made in implementing the Deputy Secretary's safety-in-design initiative.
- March 22, 2007— Board considered early identification of issues, implementation status of DOE Order 413.3A, development of DOE-STD-1189, and lessons learned in two projects.

Observations from the Board's August 21, 2006 Letter



- Revised directives need to be implemented as a system.
- Critical direction related to safety-in-design contained in the standard, such as details associated with the Conceptual Safety Design Report, should be required for all projects.
- Ongoing efforts to train and qualify federal project directors and integrated project teams to properly implement safety related requirements should continue to be a top priority.

Observations from the Board's August 21, 2006 Letter



- The ability to identify and resolve safety-related technical risks early in the design process is likely the most critical aspect affecting the ultimate success of DOE's safety-in-design initiative.
- DOE must consistently be able to review each project thoroughly prior to Critical Decision-1, and identify safety-related technical risks and risk resolution strategies that minimize risks to the public and workers, as well as overall project uncertainties.
- Technical risks and risk resolution strategies must be thoroughly reviewed as part of the Energy Systems Acquisition Advisory Board process, sufficient funding and resources must be allocated.

Staff Observations – Typical Causes of Technical Issues



- *The lack of clear design requirements.*
- *The lack of agreement on the analytical approach.*
- *The lack of clear expectations as to when in the design phase a specific design requirement must be met.*

Staff Observations – Pilot Efforts UPF and IWTU



- *Design maturity*
- *Rigorous implementation of directives*
- *Technically strong integrated project teams*
- *Sound design process*
- *Management of technical uncertainty*