
Background:

Integrated Safety Management (ISM) is the foundational approach that defines all U.S. Department of Energy (DOE) safety programs. Conceptually it is very simple: Define and then mitigate the risks to the employees and the public. Recently¹, U.S. Energy Secretary Steven Chu expanded the definition to include safe behavior.

ISM has been part of DOE for over two decades. Hanford has done a commendable job in emphasizing ISM, yet some gaps remain in its implementation. Recent past issues, such as the findings on beryllium and the safety concerns at the vitrification plant could have been largely avoided with proper ISM implementation. Currently, real progress is being made on ISM both at RL and ORP. This advice offers some suggestions to augment this effort.

One clear area for improvement is to recognize that ISM is hierarchical in nature. Listed below are examples of organizational levels which are included within the ISM hierarchy:

1. site-wide or facility level operations
... (e.g. is the facility operating within its safety envelope?)
2. work planning
... (e.g. have the lessons learned been reviewed in planning the work?)
3. execution of work
... (e.g. have the workers been trained to deal with the risks?)

Care must be used not to make training of employees and implementation of the ISM unnecessarily complex. Recognition of the target audience and organizational level during training and implementation will mitigate this risk.

ISM is an integral part of all aspects of work, from the design of new facilities, decommissioning of existing facilities and all aspects of work management; planning, scheduling, authorization, execution, and review. The functional criteria for a new facility must ensure that the risks are defined and mitigated in the future operation and maintenance of the facility (HAB Advice #258 - Safety Culture at the Waste Treatment and Immobilization Plant).

A comparison between the DOE and Naval Reactors safety approaches reveals that the Navy has a limited number of facility representatives and relies heavily on a rigorous contractor self-assessment program. Strengthening this feature at Hanford would improve its ISM program. DOE-RL's self-assessment metric is commendable.

The key to improving the ISM behavior is to align the motivations of employees with that of the management/leadership. Behaviors that demonstrate integrity, fairness, caring for the needs of

¹ December 5, 2011 Memo to DOE Department Heads issued by Secretary Chu and Deputy Secretary Poneman

employees, and actively listening to all employee concerns and issues will nurture desired ISM behaviors.

Advice:

Interface

1. The Board advises DOE to assess the DOE-contractor interface to determine the root causes that led to previous ISM execution issues. In particular, the following areas should be included:
 - a. Examine the contractual process used to establish the functional requirements of new facilities;
 - b. Determine if the facility representatives and other points of direct contract interface are sufficient in number, located properly and adequately trained to recognize ISM deficiencies;
 - c. Examine each contractor's management structure for compatibility with ISM; and
 - d. Determine the strength of the contractual language requiring a strong contractor self-assessment program.

Process

2. The Board advises DOE that the functional requirements of all future facilities include a rigorous risk identification and mitigation analysis of future operation and maintenance activities.
3. The Board advises DOE that ISM training should be focused on the level that is appropriate to the personnel being trained. It should include the strong message that each person is responsible for safety within their sphere of influence.
4. The Board advises DOE that the Enhanced Work Planning process should be included as an integral part of ISM for all contractors.
5. The Board advises DOE to place a stronger emphasis on rigorous contractor self-assessment to augment the facility representatives.

Behavior

6. The Board advises DOE that future requests for proposals (RFPs) and the selection of new senior contractor leadership should emphasize the principles of safe behavior as part of the table top exercise. Benchmark the process used at Sellafield, England.
7. The Board advises DOE to encourage the contractors to conduct an assessment of management behavior using an employee/peer feedback process, such a 360 review, to focus corrective actions on the small number of managers that may have issues.

8. The Board advises DOE to augment the recent DOE list of Safety Culture Associated Attributes, adding integrity, caring for employee welfare, listening and feedback on all issues, and continuous improvement.

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