

Hanford Advisory Board Draft Advice

Topic: Integrated Safety Management

Authors: Mike Korenko and Keith Smith

Originating Committee: Health Safety & Environmental Protection

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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 by systematically integrating safety into management and work practices at all levels in the planning and execution of work¹. Recently, U.S. Energy Secretary Steven Chu enhanced the concept of ISM by including safety culture, and further emphasized the safety culture concept through the inclusion of safety culture expectations within the ISM guidance document.²

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 Waste Treatment and Immobilization Plant (WTP) could have largely been avoided with proper ISM implementation. Currently, real progress is being made on ISM both at DOE-Richland Operations Office and DOE-Office of River Protection. In spite of this progress, the Board doesn't believe that many workers feel they "own" the ISM system (HSS report, Part 2, Executive Summary, pages XIV-XIX); therefore, safety culture problems remain systemic. This advice offers some suggestions to augment this effort.

One clear area for improvement is to recognize that ISM is hierarchical. For example, ISM applies to the site-wide or facility level (Is the facility operating within its safety envelope?), to the enhanced work planning level (Have the lessons learned been reviewed in planning the work?), and to the worker level (Have the workers been trained to deal with the risks?). Mixing these levels in describing ISM is creating unnecessary complexity in training and implementation. Care must be used to not 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, including 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).

¹ DOE P 450.4A, *Integrated Safety Management Policy*

² December 5, 2011 Memo to DOE Department Heads issued by Secretary Chu and Deputy Secretary Poneman

A comparison between DOE and Naval Reactors safety approaches reveals that the Navy has a limited number of oversight personnel 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 (safety culture of an organization) is to align the motivations of employees with that of management/leadership. Behaviors that demonstrate integrity, fairness, caring for the needs of employees, and actively listening to all employee concerns and issues will result in a healthy safety culture.

Advice:

Interface

1. The Board advises DOE to:
 - a. Ensure contractual requirements of all future facilities include a rigorous risk identification and mitigation analysis of future operation and maintenance activities (e.g. lifetime criteria of pumps in the WTP);
 - a. Ensure the facility representatives and other points of direct contract interface are sufficient in number, located properly and adequately trained to recognize ISM deficiencies;
 - b. Examine each contractor's management structure (e.g. clear lines of authority and roles and responsibilities of management within the ISM hierarchy) to ensure it meets ISM standards and expectations;
 - c. Ensure the contractual language requires a strong contractor self-assessment program.

Process

2. The Board advises DOE to ensure that ISM training be focused on the level that is appropriate to the personnel being trained. It should include the strong message that all personnel are responsible for safety within their sphere of influence, and they share ownership of the ISM process (e.g. peer-led safety councils).
3. The Board advises DOE to verify that Enhanced Work Planning is working as designed and as expected and that it is not being mitigated and diluted in favor of cost and schedule priorities without adequate justification.
4. The Board advises DOE to place a stronger emphasis on rigorous contractor self-assessment and on subsequent contractor corrective action plans.

Behavior

5. The Board advises DOE to stress that future requests for proposals (RFPs) and the selection of new senior contractor leadership should emphasize the expectation of a strong safety culture orientation and behavior.³
6. The Board advises DOE to encourage the contractors to assess management behavior using an employee/peer feedback process (such as the 360° review) and to focus corrective actions on the small number of managers who do not demonstrate appropriate safety culture expectations.
7. The Board advises DOE to augment the recent DOE list of “Safety Culture Associated Attributes” by adding caring for the welfare of fellow employees, open two way communication on all issues, and emphasizing the importance of continuous improvement and personal integrity.

³ Examples of techniques to test leadership include the Source Evaluation Board’s table top exercise, and benchmarking the contractor selection processes used at Sellafield, England.