

ISMS Training Document
Track 2, Activity 15 – November 2010
Safety System Oversight Program

Activity

Describe the features and benefits of the ORO Safety System Oversight (SSO) Program.

At the completion of this activity, fill out the Self-Certification Form certifying that you have read this activity sheet.

Note: When regulations, Department of Energy (DOE) directives, or other industry standards are referenced in this ISMS activity, please use the most recent version.

Key Documents

- The Department of Energy Implementation Plan for the Defense Nuclear Facilities Safety Board Recommendation 2000-2, *Configuration Management, Vital Safety Systems* ([Closed by the Board August 8, 2007](#))
 - The Department of Energy Implementation Plan for the Defense Nuclear Facilities Safety Board Recommendation 2004-1, *Oversight of Complex, High-Hazard Nuclear Operations*
 - [DOE O 426.1, Federal Technical Capability Appendix D, Safety System Oversight Duties, Responsibilities, Knowledge, Skills, and Abilities](#)
 - ORO Directives Management Group, Key Management Documents, http://www-internal.oro.doe.gov/dmg/oro_keymanagementdoc.htm
 - SCMS Procedures or other Oak Ridge Office documents
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What's In It For Me

Safety System Oversight (SSO) personnel are a key technical resource assigned to oversee contractor management of safety systems at DOE Oak Ridge Office (ORO) defense nuclear facilities. Unlike Facility Representatives who are responsible for monitoring the safety performance of DOE defense nuclear facilities and day-to-day operational status, SSO personnel are responsible for overseeing assigned systems to ensure they will perform as required by the safety basis and other applicable requirements. SSO personnel are highly qualified individuals who perform assessments and investigations to confirm performance of assigned safety systems in meeting established safety and mission requirements.

The completion of this activity will help you gain an understanding of how the ORO Safety System Oversight Program is implemented.

Program Background

On March 8, 2000, the Defense Nuclear Facilities Safety Board (DNFSB) issued Recommendation 2000-2, concerning the degrading conditions of vital safety systems and the capability to apply engineering expertise to maintain the configuration of these systems. Specifically, the Recommendation identified possible degradation in confinement ventilation systems and noted that DOE has not adopted the nuclear business' long-standing practice of designating system engineers for systems and processes that are vital to safety.

The DNFSB recommended that the Department take action to assess the condition of its confinement ventilation systems, develop programs for

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contractor and federal technical personnel that strengthen safety system expertise, and improve the self-assessment processes that evaluate the condition of vital safety systems. The designation of SSO personnel is a direct result of this DNFSB recommendation and is reinforced in DNFSB Recommendation 2004-1.

To this end, DOE ORO line management is responsible for safety at DOE facilities and for meeting mission objectives and goals. Integrated Safety Management (ISM) System processes help to ensure systems are able to perform their design safety functions. Effective implementation of ISM relies upon the ability to apply engineering expertise to maintain safety system configuration and assess system condition and effectiveness of safety management program implementation. ORO SSO personnel are knowledgeable of assigned systems and the contractor's application of the system engineer concept and safety program management as described in DOE O 420.1, *Facility Safety*. Note: At ORO, only AMEM facilities have SSOs.

**Purpose of the
Safety System
Oversight Program**

The purpose of the SSO Program is to ensure that:

- Line management determines the appropriate level of oversight for safety systems for their facilities based on a graded approach.
- Line management assigns sufficient personnel to oversee the contractors' system engineer programs and to ensure that active safety systems credited in safety basis documents will perform as required by the safety basis and other applicable requirements.

**Significant Duties of
ORO SSO Personnel**

The significant duties (as listed in SCMS Procedures or other Oak Ridge Office documents and other ORO SSO Program documents) include the following:

1. Maintain communication with the counterpart contractor system engineer and cognizant oversight of assigned safety systems, and monitor the performance and effectiveness of implementation of the contractor's system engineer program.
2. Attend contractor meetings with DOE Facility Representatives and contractor personnel responsible for system performance (e.g., cognizant system engineers and design authorities).
3. Review system health/status reports, design assessment reports, and research and development efforts and test results.
4. Interface with external organizations that provide insights on performance.
5. Perform other oversight activities on a routine basis.
6. Coordinate with Facility Representatives to ensure the operability of specific safety systems and to report the system status to line management. SSO personnel focus on the details of safety system operability implementation, while Facility Representatives focus on the integrated operational aspects of these systems and programs with respect to the overall operation of their assigned facilities.
7. Perform assessments, periodic evaluation of equipment configuration, material condition, design status, and technical adequacy and enter the

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assessment results into the ORION. The effect of aging on system equipment and components, the adequacy of application of work control and change control processes, and appropriateness of system maintenance and surveillance should be considered with respect to reliable performance of safety function(s) and/or impact on design, procurement, and installation.

8. Perform evaluations of the contractor's troubleshooting activities, investigations, root cause evaluations, and selection and implementation of corrective actions. These evaluations will also be performed at the request of line management. SSO personnel may be requested to respond to off normal events and investigations and should be able to provide relevant insights and serve as the DOE subject matter expert on issues related to their assigned systems.
9. Provide support to other Federal personnel, as appropriate. This will include supporting program/project managers and Facility Representatives responsible for implementing Integrated Safety Management in the operation, maintenance, and configuration management of facility safety systems.
10. Assess the contractor's compliance with relevant DOE regulations, applicable DOE directives, industry standards, contract requirements, safety basis requirements, and other system requirements.
11. Confirm that configuration documentation, procedures, and other sources of controlling information are current and accurate.
12. Report potential or emerging hazards immediately to DOE line management and Facility Representatives. Stop tasks, if required, to prevent imminent impact to the health and safety of workers and the public, to protect the environment, or to protect the facility and equipment and immediately notify the on-duty or on-call Facility Representative and DOE line management.
13. Serve as a subject matter expert in the development or revision of Functional Area Qualification Standards, mentor assigned backups, and qualify other candidates to the same Functional Area Qualifications and site-specific Qualification Standards attained to achieve SSO qualification.
14. Maintain cognizance of the planned and approved work scope to maintain and improve assigned safety systems.

SSO Assignments

The specific safety systems to which SSO personnel will be assigned are criticality accident alarm system, fire protection, instrumentation and control, and ventilation systems. Coverage is typically determined by a graded approach, with systems/facilities that pose little hazard receiving modest attention and those that pose a high hazard receiving more coverage. Staffing is then established based on the coverage needed for a specific safety system in a specific facility. Generally, at ORO, safety system oversight is a collateral duty.

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To Learn More

Click on these documents for more information about the DOE and ORO Safety System Oversight program.

- The Department of Energy Implementation Plan for the Defense Nuclear Facilities Safety Board Recommendation 2000-2, *Configuration Management, Vital Safety Systems* ([Closed by the Board August 8, 2007](#))
 - [The Department of Energy Implementation Plan for the Defense Nuclear Facilities Safety Board Recommendation 2004-1, *Oversight of Complex, High-Hazard Nuclear Operations*](#)
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