U.S. Department Of Energy

Implementation Assessment of the Y-12 Site Office Safety System Oversight Program

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Assessment performed by

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EXECUTIVE SUMMARY

The National Nuclear Security Administrations Y-12 Site Office is satisfactory implementing the Safety System Oversight (SSO) functions as described in DOEM-426.1-1A. Federal Technical Capability Panel Manual. Y-12 has in place procedures and process that have established Safety System Oversight functions and developed qualifications for the positions that will be responsible for those functions. The Site Office has designated five positions that will require SSO qualification, have prepared qualification standards and qualification cards and is tracking progress of the qualification status.

NOTEWORTHY PRACTICES

Y-12 as part of their self assessment program has self assessed the SSO process.

The Site Office has started a Vital Safety System Oversight File where walk downs and assessments of systems are file by building safety system.

The Site Manager has assigned for each Vital Safety System a System Engineer (SSO), a Facility Representative, and an Authorization Basis Engineer.

OPPORTUNITY for IMPROVEMENT

Vital Safety Systems have been designated however there is not a direct linkage of these systems to Documented Safety Analysis.

SCOPE AND METHODOLGY

The review was performed by the Director of Tritium Operations, Savannah River Site Office, who is a qualified Senior Technical Safety Manager and Federal Technical Capability Panel Agent. Criteria and Review Approach Documents (CRADS) prepared by the Federal Capability Panel were used to perform the assessment (attachment A). Y-12's Self Assessment against each CRAD was reviewed with selective areas picked for supporting documentation and independent analysis. Management and individuals qualifying in the SSO program were interviewed and a walk down of a Vital Safety System with the responsible Federal Engineer was performed.

DOCUMENTS REVIEWED

YSO Safety System Oversight (SSO) Program Self-Assessment

Technical Qualification Standard, Revision 6, September 2004

National Nuclear Security Administration – Y12 Site Office, Technical Qualification In-Progress Report, Week Ending 12/10/04

Y-12 Site Office Safety System Oversight Qualification Standard

Technical Qualification Training Program, YSO-2.1, February 9, 2004

YSO System Engineer Program, YSO-7.4, Rev 2, 8/03/01

Assignment of Safety System Oversight Responsibility, October, 22, 2004

Y-12 Site Office Qualifying Officials List, Revision 9, September 10, 2004

INTERVIEWS or DISSCUSSIONS WITH

Dan Hoag, Assistant Manager for Operations Management

Doug Dearolph, Assistant Manager for Technical and Engineering

Jay McDonald, SSO Lead

Mark Sundie, Training Manager

Chelsa Hubbard, SSO, Technical Division

Dave McGinty, SSO Technical Division

Jim Hutton, SSO Technical Division

Rick Swatzell, SSO Technical Divison

RESULTS

The results of the assist visit are documented below following the program objectives contained in Safety System Oversight Implementation Assessment Criteria and Review Approach Documents, attachment A:

PROGRAM (PGM)

OBJECTIVE

PGM.1 An effective SSO Program is established by the Field Element Manager to apply engineering expertise to maintain safety system configuration and to assess system condition and effectiveness of safety management program implementation.

Y12 SSO program is part of their Technical Qualification Program requiring individuals entering into the SSO program to achieve General Technical Bas Qualification and a Functional Area qualification. Competency Standards have been established and individual qualification progress is status weekly. An improvement area is to link Vital Safety Systems to Documented Safety Analysis. Functions and responsibilities of SSO are in YSO Procedure 7.4, which also specifies the relationship to Facility Representatives. Qualifying Offices have been designated for specific qualifications

TRAINING AND QUALIFICATION (TQ)

OBJECTIVE

TQ.1 SSO personnel and supervisors with responsibilities for SSO personnel are appropriately trained and qualified, or are in the process of achieving qualification.

YSO Assistant Managers and the lead SSO are qualified STSMs. Site specific qualification cards have been developed and five candidates have been assigned to SSO. Completion dates have been established and qualification status reports are being prepared.

MANAGEMENT (MG)

OBJECTIVE

MG.1 SSO Supervisors effectively perform their SSO program responsibilities.

YSO SSO supervisor is a qualified STSM. SSO candidates have been formally designated by the Site Manager in Assignment of Safety System Oversight Responsibilities dated October 22, 2004. Supervisor has established qualification dates and is providing sufficient time for qualification and is tracking progress towards qualification. Self Assessments of the SSO program are included in the YSO Self Assessment Schedule

OVERSIGHT PERFORMANCE (OP)

OBJECTIVE

OP.1 Collectively, SSO personnel provide oversight of the Contractors' System Engineer Program

YSO has published a matrix that assigns each Vital Safety System to a System Engineer (SSO) for engineering, a Facility Representative for conduct of operations and an Authorization Basis Engineer. The SSO supervisor has established an assessment schedule for vital safety systems assigned to SO engineers. A walk down of a Vital Safety System (fire sprinkler system) was performed with the cognizant SSO engineer that confirmed system knowledge and interaction with counterpart contract engineers. Additionally YSO has established oversight assignments for facilities that will starting up or restarted.

CONCLUSION

The Y-12 Site Office is satisfactory implementing the Safety Oversight functions as described in DOEM-426.1-1A. Federal Technical Capability Panel Manual. Five positions have been designated SSO and individuals assigned to theses positions are progressing towards qualification.

Wayne Richardson
Director, Tritium Operations

Safety System Oversight (SSO) Program
Implementation Assessment
Criteria and Review Approach Documents (CRADs)

Revision 0

PROGRAM (PGM)

OBJECTIVE

PGM.1 An effective SSO Program is established by the Field Element Manager to apply engineering expertise to maintain safety system configuration and to assess system condition and effectiveness of safety management program implementation.

Criteria

PGM.1.1 The SSO Qualification Program is part of the Technical Qualification Program (DOE M 426.1-1A, Chapter III, Section 1, 2.b (1)).

PGM.1.2 The SSO Program establishes appropriate training, qualification, and performance requirements for SSO personnel and the supervisors are held accountable for achieving them (DOE M 426.1-1A, Chapter III, Section 1, 2.b (2)).

PGM.1.3 The safety systems and safety management programs included in the SSO Program align with those systems and programs identified in the applicable Documented Safety Analysis (DOE M 426.1-1A, Chapter III, Section 1, 4.c).

PGM.1.4 Safety system oversight requirements are defined and implemented, for example, functions, responsibilities, and authorities of personnel assigned to perform safety system oversight and their interface/support of Facility Representatives are clearly defined, and SSO staffing needs are identified and there is a plan or process to ensure future staffing needs are met and maintained (DOE M 426.1-1A, Chapter III, Section 1, 2.b (3) & (4)).

PGM.1.5 Affected DOE and contractor managers understand the SSO role and relationship to Facility Representatives and the contractor's cognizant System Engineers, and provide the necessary access and support (DOE M 426.1-1A, Chapter III, Section 1, 3.d).

PGM.1.6 Qualifying Officials are assigned to sign site-specific Qualification Cards (DOE M 426.1-1A, Chapter III, Section 1, 2.b (6)).

PGM.1.7 The SSO Program contains features to verify that SSO candidates possess the required level of knowledge and/or skills to perform assessments and investigations to confirm performance of safety systems in meeting established safety and mission requirements (DOE M 426.1-1A, Chapter III, Section 1, 2.b (5)).

Approach

Record Review: Review documentation (e.g., site technical qualification program documents, SSO Program Plan, SSO Program procedures, qualification cards and/or standards, internal memorandums, Documented Safety Analyses, etc.) which establish the SSO Program and describe its implementation to determine that the program is complete and comprehensive.

Interviews: Interview management personnel with responsibilities for implementing and executing the SSO program to determine if they are familiar with the role of SSO personnel relative to the Facility Representatives and the contractor's cognizant system engineers, if they provide adequate resources for training, qualification, future staffing, and performance of SSO personnel, and if they appropriately qualified to perform their assigned role in the SSO program. Interview qualifying officials to determine if they are familiar with their role and responsibility, they are currently qualified, and they are performing their assigned role.

Field Observation: Evaluate any process used by or directed by the Field Element Manager to determine the effectiveness of SSO Program Performance.

TRAINING AND QUALIFICATION (TQ)

OBJECTIVE

TQ.1 SSO personnel and supervisors with responsibilities for SSO personnel are appropriately trained and qualified, or are in the process of achieving qualification.

Criteria

TQ.1.1 Supervisors with responsibilities for SSO personnel maintain Senior Technical Safety Manager (STSM) qualification (DOE M 426.1-1A, Chapter III, Section 1, 2.c (1)).

TQ.1.2 Site-specific qualification standards and cards have been developed and a documented process is implemented to assure that SSO candidates meet, at a minimum, the SSO knowledge, skills, and abilities specified in the *Federal Technical Capability Manual* DDOE 426.1-1A, Chapter III, Section 1, 5.a & 5.b)

TQ.1.3 All SSO personnel have completed or are completing the General Technical Base Qualification Standard (DOE-STD-1146-2001) and one or more Functional Area Qualification Standard(s) in a technical area linked to their individual job descriptions (DOE M 426.1-1A, Chapter III, Section 1, 4.a).

TQ.1.4 All SSO personnel have completed or are completing the site-specific qualification standard associated with assigned safety systems (DOE M 426.1-1A, Chapter III, Section 1, 4.a).

TQ.1.5 SSO Supervisors have established methods to assign initial qualification dates, track progress toward qualification, and ensure retraining/requalification occurs as required for each SSO candidate in the qualification process (DOE M 426.1-1A, Chapter III, Section 1, 2.c (4) through (6)).

Approach

Record Review: Review qualification records to establish that supervisors and managers of SSO are qualified as an STSM and that SSO personnel are trained and qualified. Review qualification and requalification schedules, staffing plans, training plans, travel funding, etc. to determine that sufficient resources are provided for training, retraining, qualifying, and requalifying SSO personnel.

Interviews: Interview supervisors, training coordinators, SSO personnel, and budget personnel to establish that training and qualification plans and schedules are being executed as planned and that sufficient resources are provided to meet the schedules.

Field Observation: Observe activities associated with the qualification process, such as qualification boards, exams, walk throughs to determine that the training and qualification process is implemented and functioning effectively.

MANAGEMENT (MG)

OBJECTIVE

MG.1 SSO Supervisors effectively perform their SSO program responsibilities.

Criteria

MG.1.1 Site-specific SSO qualification standards and cards are developed (DOE M 426.1-1A, Chapter III, Section 1, 2.c (2)).

MG.1.2 Supervisors have identified and approved SSO candidate selection (DOE M 426.1-1A, Chapter III, Section 1, 2.c (3)).

MG.1.3 Supervisors of SSO personnel have established SSO personnel qualification schedules and are tracking progress (DOE M 426.1-1A, Chapter III, Section 1, 2.c (4)).

MG.1.4 Supervisors facilitate SSO qualification (e.g., ensure sufficient time and training are provided to complete qualification tasks) (DOE M 426.1-1A, Chapter III, Section 1, 2.c (5)).

MG.1.5 Supervisors ensure SSO personnel are trained and qualified to perform assigned duties (DOE M 426.1-1A, Chapter III, Section 1, 2.c (6)).

MG.1.6 SSO responsibilities are included and measured in Individual Performance Plans (DOE M 426.1-1A, Chapter III, Section 1, 2.c (7)).

MG.1.7 Ensure SSO qualifications are maintained current by training and assignments planned in Individual Development Plans (DOE M 426.1-1A, Chapter III, Section 1, 2.c (8)).

MG.1.8 SSO Supervisors periodically evaluate program effectiveness and implement corrective actions in a timely manner (DOE M 426.1-1A, Chapter III, Section 1, 2.c (9)).

Approach

Record Review: Review qualification cards, Individual Performance Plans, and other SSO program documents and procedures to establish that managers and supervisors are effectively performing their responsibilities as defined in the SSO program. Review other documentation used by supervisors to establish SSO program effectiveness and implementation of corrective actions.

Interviews: Interview supervisors and managers to establish that they are familiar with their assigned roles, they perform their assigned duties, monitor the effectiveness of the SSO program and ensure any identified corrective actions are implemented.

Field Observation: Observe any activities associated with SSO program effectiveness evaluations and/or corrective action implementation.

OVERSIGHT PERFORMANCE (OP)

OBJECTIVE

OP.1 Collectively, SSO personnel provide oversight of the Contractors' System Engineer Program.

Criteria

OP.1.1 Oversight performed by SSO personnel establishes that the contractor System Engineer Program is effectively implemented with goals, objectives, and performance measures (DOE M 426.1-1A, Chapter III, Section 1, 2.a (1)).

OP.1.2 SSO personnel maintain communication with the contractor's cognizant System Engineer (DOE M 426.1-1A, Chapter III, Section 1, 2.a (1)).

OP.1.3 SSO personnel monitor performance of the contractor's cognizant System Engineer Program (DOE M 426.1-1A, Chapter III, Section 1, 2.a (1)).

OP.1.4 SSO personnel attend selected contractor meetings with Facility Representatives and contractor personnel responsible for system performance (e.g., cognizant System Engineers, design authorities, and program managers) (DOE M 426.1-1A, Chapter III, Section 1, 2.a (3)).

Approach

Record Review: Review oversight documentation, such as SSO assessment reports, SSO walk throughs, correspondence, SSO activity records or logs, corrective action documents, etc. to establish that SSO personnel are overseeing implementation and execution of the contractor system engineer program. Review the contractor's system engineer program to determine whether there are any program weaknesses or deficiencies that have not been identified by SSO personnel.

Interviews: Interview SSO personnel, Facility Representatives, and contractor system engineers to establish the level of interface between SSO personnel and the contractor's cognizant system engineers.

Field Observation: Observe any oversight activities of the contractor's system engineer program performed by SSO personnel.

OBJECTIVE

OP.2 SSO personnel are knowledgeable and familiar with assigned safety systems and/or programs.

Criteria

OP.2.1 A qualified SSO is, in fact, knowledgeable of the system status, performance, maintenance, operations, design, and vulnerabilities of their assigned systems or programs. This is evidenced by:

- OP.2.1.1 SSO personnel regularly and routinely review periodic system health/status reports (DOE M 426.1-1A, Chapter III, Section 1, 2.a (2)).
- OP.2.1.2 SSO personnel review test results, investigation reports, root cause analyses, etc (DOE M 426.1-1A, Chapter III, Section 1, 2.a (2)).
- OP.2.1.3 SSO personnel interface with external organizations that can provide insights on performance (DOE M 426.1-1A, Chapter III, Section 1, 2.a (2)).
- OP.2.1.4 SSO personnel perform assessments, periodic evaluations of equipment configuration and material condition and safety management program implementation (DOE M 426.1-1A, Chapter III, Section 1, 2.a (3)).
- OP.2.1.5 SSO personnel evaluate the effects of aging on system equipment and components, the adequacy of work control and change control processes, and consider the appropriateness of system maintenance and surveillance activities with respect to reliable performance of safety function(s) (DOE M 426.1-1A, Chapter III, Section 1, 2.a (3)).
- OP.2.1.6 SSO personnel identify technical issues and participate actively in the resolution of the issues.

OP.2.2 Safety systems and safety management programs have established goals, objectives, and performance measures

OP.2.3 SSO personnel perform evaluations of contractor troubleshooting, investigations, root cause evaluations, and selection and implementation of corrective actions, in conjunction with Facility Representatives (DOE M 426.1-1A, Chapter III, Section 1, 2.a (4)).

OP.2.4 SSO personnel provide support to other Federal employees, as appropriate. (DOE M 426.1-1A, Chapter III, Section 1, 2.a (5))

OP.2.5 SSO personnel assess contractor compliance with relevant DOE regulations, industry standards, contract requirements, safety basis requirements, and other system requirements (DOE M 426.1-1A, Chapter III, Section 1, 2.a (6)).

OP.2.6 SSO personnel confirm configuration documentation, procedures, and other sources of controlling information are current and accurate (DOE M 426.1-1A, Chapter III, Section 1, 2.a (7)).

OP.2.7 SSO personnel report potential or emergent hazards immediately to DOE line management and Facility Representatives (DOE M 426.1-1A, Chapter III, Section 1, 2.a (8)).

OP.2.8 SSO personnel 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 (DOE M 426.1-1A, Chapter III, Section 1, 2.a (8)).

OP.2.9 SSO personnel serve, when assigned, as qualifying officials in the development or revision of Functional Area Qualification Standards, mentor assigned backups, and qualify other candidates to the Functional Area Qualifications Standards needed to achieve Safety System oversight qualification (DOE M 426.1-1A, Chapter III, Section 1, 2.a (9)).

OP.2.10 SSO personnel maintain cognizance of the appropriate funding and resources to maintain and improve safety systems (DOE M 426.1-1A, Chapter III, Section 1, 2.a (10)).

OP.2.11 Methods have been established for SSO personnel to routinely communicate system/program performance information and issues with STSMs and the Field Office Manager (DOE M 426.1-1A, Chapter III, Section 1, 2.a (1)).

Approach

Record Review: Review oversight documentation, such as SSO assessment reports, SSO walk throughs, correspondence, SSO activity records or logs, corrective action documents, etc. to establish that SSO personnel are performing required oversight. Review contract requirements and their flow down through the contract to the safety systems and safety management programs to establish the effectiveness of SSO personnel oversight that the contractor complies with all requirements relative to safety systems and programs. Review a sample of the safety system health reports, safety system test reports, safety system investigation reports, safety system root cause analyses, etc. to determine the effectiveness of SSO personnel knowledge and familiarity with this information.

Interviews: Interview SSO personnel to determine their knowledge of and familiarity with assigned safety systems and safety management programs, and the reports that the contractor may generate in relation to the systems and programs.

Field Observation: Observe SSO personnel walk downs and other activities in the field to establish the level of SSO personnel knowledge and familiarity of safety systems.