

# memorandum

DATE: March 6, 2006

REPLY TO  
ATTN OF: M-3:Brown

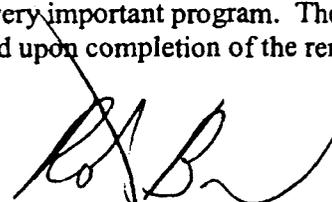
SUBJECT: **OAK RIDGE OFFICE SAFETY SYSTEM OVERSIGHT PROGRAM ASSESSMENT**

TO: Roy Schepens, Manager, Office of River Protection

As requested, the Oak Ridge Office (ORO) completed its initial Safety System Oversight (SSO) Program Assessment in December 2004. The assessment report was issued, and the findings and corrective actions are being tracked in the ORO corrective tracking system. ORO has made good progress in addressing the corrective actions. However, there are items that must be completed to fully implement the SSO Program. This report is being submitted to document ORO's completion of the final SSO Program Implementation as required by the FTCP Annual Plan.

The SSO Program and implementation plan were reviewed as a part of the ORO Independent Integrated Safety Management System (ISMS) Review conducted in September 2005; therefore, ORO is using this review as the final SSO Program assessment. The ISMS Review was led by Dana Bryson, who is a Senior Technical Safety Manager and the SSO Program Manager for the Office of River Protection.

In summary, during the ISMS Review closeout, Mr. Bryson conveyed that although the ORO SSO Program is still in its infancy, ORO has a good implementation plan that will meet the SSO Program requirements when the plan is completed. The ISMS Review report states that ORO should continue its emphasis on this very important program. Therefore, an SSO Program effectiveness review will be conducted upon completion of the remaining corrective actions.



Robert J. Brown  
Chief Operating Officer  
and Chairman, ORO DOE FTCP Panel

Attachment

cc w/attachment:  
Donald R. Erbschloe, SC-3, HQ/FORS  
Michael A. Mikolanis, SRS  
Stephen J. Coleman, ORP  
Gerald G. Boyd, M-1, ORO

**U.S. Department of Energy  
Oak Ridge Office**



**Review of the Oak Ridge Office  
Safety System Oversight Program**

**Final Report**

**December 2005**

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## **Executive Summary**

The Oak Ridge Office (ORO) completed its initial Safety System Oversight (SSO) Program Assessment in December 2004. The assessment report was issued, and the findings and corrective actions are being tracked in the Oak Ridge Issues, Open Items, and Nonconformances (ORION) system. ORO has made good progress in addressing the corrective actions that were identified. Since the initial SSO Program Assessment in December 2004, several assessments have been conducted that also reviewed the status of the ORO's implementation strategy and status of its SSO Program. These assessments were the external Integrated Safety Management System (ISMS) Review of ORO performed in September 2005 and the Operational Readiness Review for K-25/K-27 High Risk Equipment and Other Process Gas Equipment Removal at the East Tennessee Technology Park performed in November 2005.

This SSO Program review report is based primarily on the external ISMS Review of ORO performed in September 2005, during which the SSO Program was reviewed by an assessment team led by Dana Bryson, a qualified Senior Technical Safety Manager from the Office of River Protection (ORP). The review team found the level of knowledge of the SSO personnel interviewed to be exceptional and that the SSO personnel had met nearly all of the qualification requirements. During the ISMS Review closeout, the team conveyed that ORO has a very good SSO Program implementation plan that, if completed, will meet the SSO Program requirements. The ISMS Review report states that ORO should continue its emphasis on this very important program.

To this end, ORO continues to track its SSO Program commitments, especially the corrective actions identified during the SSO Program implementation assessment performed in 2004.

## **1.0 INTRODUCTION**

This Safety System Oversight (SSO) Program review report fulfills the commitment in the *Federal Technical Capability Panel Fiscal Year (FY) 2005 Annual Plan*, particularly Action 3.2, which states that reports on the SSO Program assessments will be completed by December 2005 (as modified by the Federal Technical Capability Panel [FTCP]).

The U.S. Department of Energy (DOE) Oak Ridge Office (ORO) completed its initial SSO Program Implementation Assessment in December 2004. The assessment report was issued, and the findings and corrective actions are being tracked in ORION, the ORO corrective tracking system. ORO has made good progress in addressing the corrective actions that were identified.

Since the initial SSO Program assessment in December 2004, several assessments have been conducted that also reviewed the status of the implementation of ORO's SSO Program. These assessments were the Integrated Safety Management System (ISMS) Review of ORO performed in September 2005 and the Operational Readiness Review (ORR) for K-25/K-27 High Risk Equipment and Other Process Gas Equipment Removal at the East Tennessee Technology Park (ETTP) performed in November 2005. However, the report is primarily based on the results of external ISMS review of ORO. Excerpts from the report on the ISMS Review of ORO are included in Attachment A.

## **2.0 SCOPE AND METHODOLOGY**

This SSO Program review report is based primarily on the external ISMS Review of ORO performed in September 2005, during which the SSO Program was reviewed by an assessment team led by Dana Bryson (ORP), a qualified Senior Technical Safety Manager (STSM). Further, this review report incorporates the following:

- The status of the corrective actions derived from the initial assessment of ORO's SSO Program implementation performed in December 2004
- The results of the ORR for K-25/K-27 High Risk Equipment and Other Process Gas Equipment Removal at ETTP performed in November that addressed, in part, the implementation of the SSO Program
- Pertinent ongoing SSO Program implementation activities

## **3.0 ACRONYMS**

AMEM	Assistant Manager for Environmental Management
AMESH	Assistant Manager for Environment, Safety, and Health
AMS	Assistant Manager for Science
CAAS	Criticality Accident Alarm System
CRAD	Criteria Review and Approach Document
DOE	Department of Energy
DSA	Documented Safety Analysis
EM	Environmental Management
FTCP	Federal Technical Capability Panel

I&C	Instrumentation and Control
ISMS	Integrated Safety Management System
M	Manual
MSD	Management System Description
O	Order
ORION	Oak Ridge Issues, Open Items, and Nonconformances System
ORO	Oak Ridge Office
ORO FRAM	ORO O 411.1-1G, <i>Manual of Safety Management Functions, Responsibilities, and Authorities, Level III, for Oak Ridge Office</i>
ORP	Office of River Protection
ORR	Operational Readiness Review
RCAAS	Radiation Criticality and Accident Alarm System
SSO	Safety System Oversight
STSM	Senior Technical Safety Manager
TQP	Technical Qualification Program

## 4.0 RESULTS

### Introduction

The following discussion, which corresponds to each of the Criteria Review and Approach Document (CRAD) objectives (see Attachment C) and reflects the specific requirements of the CRADs, is based on the aforementioned assessments and a review of existing ORO SSO Program implementation documentation, training records, and other amplifying information.

Note that due to a Congressional mandate, the responsibility for disposition of the U<sup>233</sup> material in the only defense nuclear facility (Building 3019A) at the Oak Ridge National Laboratory was recently transferred from the Assistant Manager for Science (AMS) to the Assistant Manager for Environmental Management (AMEM). Therefore, the AMS organization no longer expects to maintain SSO personnel. Instead, the AMEM has recently agreed to provide SSO personnel for the building and the U<sup>233</sup> material disposition.

### Program

There are two ORO organizations involved in establishing the SSO Program: the Assistant Manager for Environment, Safety, and Health (AMESH) and the AMEM. The AMEM is a line organization, and the AMESH is a support organization that is coordinating the development and institutionalization of the ORO SSO Program.

The ORO SSO Program is currently established, and it is institutionalized in primary ORO directives. ORO Manual (M) 100, *ORO Management System Description* (MSD), states that the AMESH “serves as ORO Program Sponsor for both the Facility Representative and Safety System Oversight Programs” and “safety system oversight engineers maintain cognizance, perform oversight, and conduct configuration management verification walkdowns of active safety systems credited in the safety basis documents of the facilities.” ORO M 411.1-1G, *Manual of Safety Management Functions, Responsibilities, and Authorities, Level III, for Oak Ridge Office* (ORO FRAM), addresses the functions, sub-

functions, authorities, and ownership of the ORO SSO Program. The SSO Program responsibilities are also described in ORO M 110, *Oak Ridge Office Organization Manual*, Chapters 6 and 9, which respectively correspond to the AMEM and AMESH.

The AMEM organization has prepared an SSO procedure, EM-2.2, *Environmental Management Safety Systems Oversight*, which was approved on December 7, 2005. Additional ORO SSO Program documents have been issued, such as ORO Order (O) 420, Chapter XV, *Safety System Oversight Program*, and the *ORO Safety System Oversight Office/Facility-Specific Qualification Standard*. Other program implementation documents have also been developed, such as the safety system-specific qualification cards. The specific safety systems to which ORO SSO personnel have been assigned are criticality safety, fire protection, ventilation (heating, ventilation, and air conditioning), and instrumentation and control.

The SSO Program and implementation plan were comprehensively reviewed during the external ISMS Review of ORO performed in September 2005; accordingly, ORO is using this ISMS Review as the primary input to the final SSO Program review. The ISMS Review was led by Dana Bryson, who is an STSM and the SSO Program Manager for the Office of River Protection. The ISMS Review team found the level of knowledge of the ORO SSO personnel interviewed to be exceptional and that the SSO personnel had met nearly all the qualification requirements. During the ISMS Review closeout, it was conveyed that ORO has a very good SSO implementation plan that, if completed, will meet the SSO Program requirements. The review report states that ORO should continue its emphasis on this very important program.

As noted earlier, ORO completed its initial SSO Program Assessment in December 2004, and the findings and corrective actions are being tracked in the ORO corrective tracking system. The following table illustrates the current status of those corrective actions.

<b>ORO SSO Program Implementation Assessment Performed in December 2004</b>	
<b>Findings/Corrective Actions</b>	<b>Progress on Corrective Actions</b>
<b>SSO-DEF-1:</b> The ORO SSO Program is not established.	The ORO SSO Program has been established and institutionalized. (See the evidence list in Attachment B.) <b>Closed</b>
<b>CA-SSO-DEF-1-1:</b> The ORO SAB and FTCP will meet to decide the necessary management initiatives to establish the ORO SSO Program to meet the DOE SSO Program milestone of final implementation by 9/30/2005	<ul style="list-style-type: none"> <li>● The ORO SAB met on June 9, 2005, to concerning management initiatives for SSO Program. The SSO Program Corrective Action Plan (CAP) for the December SSO program review was approved by the SAB. <b>Closed</b></li> </ul>
<b>CA-SSO-DEF-1-2:</b> Formally assign SSO personnel and submit names to be included in the ORO Technical Qualification Program (TQP).	<ul style="list-style-type: none"> <li>● The Environmental Management (EM) organization's ETTP Criticality Accident Alarm System SSO Engineer and the EM Ventilation SSO Engineer have been assigned and entered into the TQP.</li> <li>● The Instrumentation and Control SSO Engineer has been assigned.</li> <li>● The remaining SSO position has not been assigned. (See the evidence list in Attachment B.) <b>Open</b></li> </ul>

ORO SSO Program Implementation Assessment Performed in December 2004	
Findings/Corrective Actions	Progress on Corrective Actions
CA-SSO-DEF-1-3: Assure that all assigned SSO personnel will satisfy interim qualification requirements and complete full qualification within 18 months.	<ul style="list-style-type: none"> <li>Interim qualification requirements have been established and satisfied for the EM Criticality Safety SSO Engineer.</li> <li>The Ventilation SSO Engineer has completed his interim qualification requirements and is awaiting management verification of acceptability.</li> <li>The ORO Manager has issued a list of SSO qualifying officials.</li> </ul> (See the evidence list in Attachment B.) <b>Open</b>
CA-SSO-DEF-1-4: Identify compensatory measures required to address SSO personnel assignment gaps.	<ul style="list-style-type: none"> <li>Compensatory measures have been identified and approved for SSO Program coverage within the EM organization. (See the evidence list in Attachment B.) <b>Closed</b></li> </ul>
CA-SSO-DEF-1-5: Update the <i>Annual Integrated Assessment Schedule</i> to reflect assessments by SSO personnel of the contractor's system engineering program.	<ul style="list-style-type: none"> <li>The EM organization has updated the <i>Annual Integrated Assessment Schedule</i> for conducting SSO assessments. (See the evidence list in Attachment B.) <b>Closed</b></li> </ul>
SSO-REC-1: All draft SSO Program documents need to be finalized, approved, and implemented.	<ul style="list-style-type: none"> <li>This finding includes the following corrective actions to be completed. <b>Open</b></li> </ul>
CA-SSO-REC-1-1: Develop, issue, and implement the ORO SSO Program document, ORO O 420, Chapter XV, Safety System Oversight Program.	<ul style="list-style-type: none"> <li>ORO O 420 Chapter XV, <i>Safety System Oversight</i>, was approved and issued July 19, 2005. <b>Closed</b></li> </ul>
CA-SSO-REC-1-2: Develop and obtain approval of the ORO SSO Office-specific Qualification Standard, Revision 0.	<ul style="list-style-type: none"> <li>The ORO SSO Offices-specific Qualification Standard was approved by the SAB at its June 9, 2005 meeting. <b>Closed</b></li> </ul>
CA-SSO-REC-1-3: Develop and issue approved line management implementing procedures and qualification cards for assigned SSO personnel.	<ul style="list-style-type: none"> <li>The EM organization updated their SSO procedure to comply with SSO Program requirements.</li> <li>A qualification card has been prepared and approved for the Criticality Safety SSO Engineer.</li> <li>The remaining qualification cards have been drafted by the EM organization.</li> </ul> (See the evidence list in Attachment B.) <b>Open</b>
CA-SSO-REC-1-4: Review and revise ORO management system documents (MSD, FRAM, ORO M 110, etc.) as necessary to reflect the SSO Program roles and responsibilities.	<ul style="list-style-type: none"> <li>All ORO management system documents have been revised to address the SSO program and are available on the Directives Management Groups home page. (ORO M 100; ORO M 110 Chapter 3, Change 6; ORO M 110, Chapter 6, Change 7; ORO M 411,1-1F)</li> </ul>
SSO-REC-2: ORO should consider developing a project plan for the SSO Program to address the deficiency. A senior manager should be assigned responsibility for overseeing implementation of the plan.	<ul style="list-style-type: none"> <li>The corrective actions for this recommendation have been completed as follows. <b>Closed</b></li> </ul>

ORO SSO Program Implementation Assessment Performed in December 2004	
Findings/Corrective Actions	Progress on Corrective Actions
CA-SSO-REC-2-1: A senior manager will be assigned to oversee the implementation of a corrective action plan for the assessment findings and will serve as the SSO program sponsor. An SSO Program Manager will be assigned to work with line management.	<ul style="list-style-type: none"> <li>ORO SSO Program Sponsor assigned by the SAB at its April 18, 2005 meeting. The SSO Program Manager also was assigned by the Program Sponsor. <b>Closed</b></li> </ul>
CA-SSO-REC-2-2: The ORO Program Sponsor will work with line management to develop a CAP to address the ORO SSO Implementation Assessment deficiency and recommendations. The CAP will serve as the project plan and will be approved by ORO senior management.	<ul style="list-style-type: none"> <li>The ORO SAB met on June 9, 2005, to concerning management initiatives for SSO Program. The SSO Program Corrective Action Plan (CAP) for the December SSO program review was approved by the SAB. <b>Closed</b></li> </ul>
SSO-REC-3: ORO should routinely track and report the status of the project plan tasks and activities to implement the SSO Program and periodically report the status to SSO Program principals and ORO senior management.	<ul style="list-style-type: none"> <li>The corrective action for this recommendation has been completed. <b>Closed</b></li> </ul>
CA-SSO-REC-3-1: Corrective actions from this plan will be put in ORION and tracked to completion with monthly reports being provided to SSO principals and ORO senior management.	<ul style="list-style-type: none"> <li>Corrective actions from the ORO SSO Program CAP were entered into ORION on June 14, 2005. ORION emails auto-notification reports on the status of corrective actions. <b>Closed</b></li> </ul>

ORO's SSO Program implementation activities are also being tracked in other ways. For example, the ORO Safety Attainment Board (which is composed of senior managers and the directors of the Technical Support and Assessment Divisions from the AMEM, AMESH, and AMS) meets regularly to review significant safety issues and initiatives. At its October 17, 2005, meeting, the AMESH presented the status of ORO's SSO Program implementation and noted that:

- The corrective action plan is approved and being tracked in the Oak Ridge Issues, Open Items, and Nonconformances System (ORION). Seven of 12 SSO Program corrective actions have been completed.
- ORO O 420, Chapter XV, *Safety System Oversight Program*, dated July 19, 2005.
- The ORO *Safety System Oversight Office/Facility-Specific Qualification Standard* was issued on June 20, 2005.
- The ORO management system documents (MSD, ORO FRAM, and ORO M 110) have been reviewed and revised to capture SSO responsibilities.
- The ORO Manager issued a list of qualifying officials for the SSO Program on August 19, 2005.
- The recent ISMS Review team assessed several areas of the ORO SSO Program. The team confirmed the issues that had been identified previously. ORO SSO Program was found to be in its infancy.

An SSO Program Implementation Team was appointed early in 2005 to support the Safety Attainment Board and prepare implementation guidance and other materials. This team is composed of the SSO Program Coordinators from the AMESH and AMEM and a representative from the Training and Development Group. The AMS had a member on the team until the transfer of Building 3019A at the Oak Ridge National Laboratory to the AMEM. The team met May 10, August 4, September 9, September 29, and November 9, 2005. The meetings addressed corrective action status and preparation of the SSO procedures and qualification standard. The meeting minutes are included in the evidence file (see Attachment B).

### **Training and Qualification**

ORO issued the *ORO Safety System Oversight Office/Facility-Specific Qualification Standard* in June 2005. ORO's SSO Program training and qualification documents and materials have been developed. A qualification card has been prepared and approved by the AMEM for the Criticality Safety SSO Engineer, and qualification cards have been drafted for the remaining SSO positions. The AMESH, which is the coordinating organization for the ORO SSO Program, is led by a qualified STSM.

Assignments of three SSO personnel have been made. The Criticality Accident Alarm System (CAAS) SSO has been interim qualified. The Ventilation SSO Engineer has completed his interim qualification requirements and is awaiting management verification of acceptability. Compensatory measures have been established and will remain in place, until the Instrumentation and Control (I&C) SSO is qualified. The Fire Protection Engineer (FP) who will serve as the FP SSO has been hired with a report date of March 2006. Until the FP SSO is qualified, a qualified contractor is being used as a compensatory measure. The EM SSO Program supervisors, who hold STSM qualifications, are also designated as qualifying officials, and this has been documented in the ORO Manager's list of qualifying officials issued in August 2005. An additional SSO Program Manager in the EM organization is currently completing his STSM qualification.

General qualification requirements have been established for the SSO personnel. These requirements are listed in the *General Technical Base Qualification Standard* and the appropriate Functional Area Qualification Standards and Office/Facility-Specific Qualification Standards, while specific requirements are expected to be listed in the individual qualification cards that are based on the requirements of the *ORO Safety System Oversight Office-Specific Qualification Standard*. For example, one assigned SSO engineer has completed the Functional Area Qualification Standards for quality assurance, nuclear safety systems, chemical processing, technical program manager, and facility representative. The SSO Program training and qualification implementation process reflects the requirements described in the *ORO Technical Qualification Program Manual (A Desktop Reference for Supervisors and Participants)*. Currently, one qualification card has been completed (i.e., CAAS), and the other three are in final review.

### **Management**

The EM SSO supervisors and qualifying officials have been assigned responsibilities for qualifying the SSO Program candidates. These responsibilities are described in ORO O 420, Chapter XV, *Safety System Oversight Program*; the ORO *Safety System Oversight Office/Facility-Specific Qualification Standard*; and the ORO *Technical Qualification Program Manual (A Desktop Reference for Supervisors and Participants)*.

Position descriptions for SSO personnel incorporate an SSO label that states:

“This position is designated as a Safety System Oversight (SSO) position. The incumbent is a key technical resource qualified to oversee contractor management of safety systems and is responsible for overseeing the assigned systems to ensure they will perform as required by the safety basis and other applicable requirements. The incumbent performs assessments and investigations to confirm performance of assigned safety systems meet established safety and mission requirements and review sections of the DSA related to these systems. Position requires a working knowledge of assigned systems and the contractor’s application of the cognizant system engineer concept and safety program management.”

In addition, there is a check box on the front of the position description for SSO personnel. Other check boxes include the TQP and STSM designations.

### **Oversight Performance**

The contractor’s system engineer program is being overseen by the EM SSO engineers. This is in accordance with the EM SSO procedure, EM-2.2, *Environmental Management Safety Systems Oversight*, the purpose of which is “to establish requirements and responsibilities for the Environmental Management (EM) Safety System Oversight (SSO) program to ensure EM SSO staffing and coverage meet the requirements to adequately oversee active safety systems and the contractor’s system engineering program.”

During the ISMS Review of ORO performed in September 2005, the team interviewed and conducted a system walkdown with an ORO SSO candidate. The ISMS Final Report stated that they “found the candidate’s level of knowledge and system familiarity to be exceptional. Nearly all SSO qualification requirements for that individual have been completed, based on the draft version of the qualification card.”

Similarly, in the *Final Report for the Operational Readiness Review of the K-25/K-27 High Risk Equipment and Other Process Gas Equipment Removal at the East Tennessee Technology Park*, the assessment team made a few observations about the SSO Program:

“In Rev. 22 of EM List of Active Safety Systems, dated September 2005, the Foam Delivery System Automatic Shut-off was added as a safety system. The Foam System has been brought on site for the ORR and is in a trailer parked outside K-25. This valve is considered a safety system since it would limit the

volume of hazardous chemical available to a fire to 5 gallons or less if a hose ruptures. No one is officially assigned as DOE SSO for this foam system; but as an interim measure, until an engineer is officially designated, two of the K-25/27 Facility Representatives are acting as the primary SSO, and two staff from the EM Safety Basis Project team act as backups.”

The ORR report further states “There is only one active safety system permanently located in the K-25 Building itself. This is the Radiation Criticality and Accident Alarm System (RCAAS), which is listed as a safety significant system. Since this is such an old and ‘one-of-a-kind’ system, a specific qualification standard has been developed for the cognizant SSO and is in final draft.” Note that this qualification standard was approved in November 2005.

SSO personnel’s oversight responsibilities are described in EM-2.2, *Environmental Management Safety Systems Oversight*, and in ORO O 420, Chapter XV, *Safety System Oversight Program*. These responsibilities include the following:

- Provide oversight of safety systems and monitor the performance and effectiveness of the contractor’s implementation of its system engineer program in accordance with the requirements of DOE M 426.1-1A.
- Attend contractor meetings with DOE Facility Representatives and contractor personnel responsible for system performance (e.g., cognizant system engineers and design authorities).
- Interface with external organizations that provide insights on SSO Program performance.
- Coordinate with DOE Facility Representatives to ensure the operability of specific safety systems and report operability concerns to line management.
- Perform assessments and periodic evaluations of equipment configuration, material condition, design status, and technical adequacy and enter the assessment results into ORION.
- Perform evaluations of the contractor’s troubleshooting activities, investigations, root cause evaluations, and selection and implementation of corrective actions.
- Serve as a subject matter expert in the development or revision of ORO functional area qualification standards, mentor assigned backups, and assist other SSO candidates to acquire the knowledge and experience so as to satisfy the functional area and site-specific qualification standards equivalent to those required to attain SSO qualification.

## **5.0 CONCLUSIONS**

The ORO SSO Program is fully established and institutionalized, and program implementation is progressing. Three of the four SSO engineers are in place and working to complete qualification requirements. The remaining position is expected to be assigned by April 2006. Until all personnel are assigned and qualification requirements met, compensatory actions will remain in place.

Corrective actions from the SSO Program Review performed in December 2004 and similar reviews are being tracked in ORION. Additional implementation activities are being overseen and tracked by the ORO Safety Attainment Board, along with the AMESH and AMEM SSO Program Coordinators.

Attachment A – Report Excerpts from the 2005 ISMS Review of ORO

- “ORO maintains a highly qualified staff in support of the Federal Technical Capabilities Program (FTCP) and the site mission. The Technical Qualification Program (TQP) is well maintained, and progress is excellent. Training and qualification records are complete and easily auditable. Review of the ORO 2005 staffing analysis and interviews of various management personnel indicate that, with the exception of Facility Representatives and some Safety System Oversight (SSO) personnel (fire protection and nuclear safety), staffing is at the required levels. The requirement to staff the function of SSO personnel in the face of competing demands for reductions in the workforce and budget place ORO management in a difficult position; however, management appears to be addressing the issue through the use of support service contractors and assigning collateral duties.” (Page 6)
- “The expanded use of Facility Representatives is an important asset in assuring effective oversight of the contractors. The improvements noted in the AMEM Facility Representative Program and their expanded use of Facility Representatives in non-defense and non-nuclear facilities contribute significantly to the observed oversight effectiveness. Implementation of a Safety System Oversight Program, continued improvements to the ORO Facility Representative Program, and further expansion of the use of Facility Representatives in non-defense non-nuclear facilities would continue improvement of oversight effectiveness.” (Pages 8-9)
- “The ORO SSO Program was assessed as part of this ISMS review. The team confirmed the issues identified in the December 2004 ORO review of the program. The ORO SSO Program was found to be in its infancy, with two designated SSOs and no qualified SSOs. However, the team interviewed and conducted a system walkdown with an ORO SSO candidate and found the candidate’s level of knowledge and system familiarity to be exceptional. Nearly all SSO qualification requirements for that individual have been completed, based on the draft version of the qualification card. ORO should continue to place emphasis on this very important oversight program.” (Pages B-6 and B-7)
- “It was also noted that although the SSO qualification standard exists, it will not be assigned pending final determination of personnel to be assigned to these responsibilities.” (Page B-29)
- “Review of the ORO 2005 staffing analysis and interviews of various management personnel indicate that, with the exception of some SSO personnel (fire protection and nuclear safety), staffing is at the required levels. Interviews of management indicate that each organization generally possesses personnel of the correct skill mix and that any shortages are overcome through reallocation of budget and various staffing alternatives, such as assignment of collateral duties, matrixed personnel, directed transfer, support service subcontractors and, in some cases, retraining of personnel. The requirement to staff the SSO function in the face of competing demands for reductions in workforce and budget place ORO management in a difficult position; however, management appears to be adequately coping with the issue. Of note, ORO management is not implementing the available recruitment and retention programs, such as those suggested in DOE M 426.1-1, *Federal Technical Capability Manual* Chapter II, and did not identify all of the positions in the *Federal Technical Capabilities Program Corrective Action Plan – List of Key Positions*.” (Page B-29)

## Attachment B – Evidence

### Corporate

- ORION Status Report, printed December 14, 2005
- ORO M 100, *ORO Management System Description*, Revision 1, September 9, 2005
- ORO M 110, *Oak Ridge Office Organization Manual*, March 29, 2005
- ORO M 411.1-1G, *Manual of Safety Management Functions, Responsibilities, and Authorities, Level III, for Oak Ridge Office*, November 7, 2005
- ORO memorandum from G. Boyd, Manager, to S. McCracken, AMEM, and G. Malosh, AMS, subject: “Designation of Qualifying Officials for the Oak Ridge Office Safety System Oversight Qualification Cards,” August 19, 2005
- ORO memorandum from L. Kelly, AMESH, to P. Dockery, Training and Development Group, subject: “Technical Qualification Program Assignment and Due Date,” October 11, 2005, regarding S. Foster’s assignment of the TQP Safety System Oversight Qualification Standard
- ORO O 420, Chapter XV, *Safety System Oversight Program*, July 19, 2005
- ORO Safety Attainment Board Agenda for October 17, 2005, including a update of the SSO Program by L. Kelly, AMESH
- ORO Safety System Oversight Program Planning/Coordination Team Meeting Minutes for meetings conducted on May 10, August 4, and September 9, 2005
- *ORO Technical Qualification Program (TQP) FY 2006 First Quarter Report*, December 1, 2005
- *ORO Technical Qualification Program (TQP) Statistical Monthly Report*, December 1, 2005
- *Safety System Oversight Office/Facility-Specific Qualification Standard*, Revision 0, June 2005
- Standard Position Description language for SSO personnel
- *Technical Qualification Program Manual (A Desktop Reference for Supervisors and Participants)*, Revision 1, December 2002

### AMEM

- EM-2.2, *Environmental Management Safety Systems Oversight*, Revision 1, December 7, 2005
- *Final Report for the Operational Readiness Review of the K-25/K-27 High Risk Equipment and Other Process Gas Equipment Removal at the East Tennessee Technology Park*, November 2005
- *Integrated Schedule of Assessments, First Quarter FY 2006, Environmental Management Accelerated Cleanup Program*
- *Oak Ridge EM Active Safety System Oversight Coverage*, Revision 22, September 2005
- EM-ORO-RCAAS-001, *Oak Ridge EM Active Safety System Oversight Training and Qualification Program Qualification Standard and Card*, November 28, 2005
- ORO memorandum from P. Dockery, Training and Development Group, to B. Hawks, EM-90, subject: “Technical Qualification Program Start Date,” November 30, 2005, highlighting B. Hawks’ new SSO assignment
- ORO memorandum from S. McCracken, AMEM, to P. Dockery, Training and Development Group, subject: “Technical Qualification Program Assignment and Due Date,” July 13, 2005, regarding B. Hawks’ assignment of the TQP SSO Qualification Standard
- ORO memorandum from S. McCracken, AMEM, to R. Brown, ORO FTCP Panel Chair, subject: “Safety System Oversight Program Compensatory Measures,” August 8, 2005

**Other**

- Headquarters memorandum from the FTCP Chairman to Distribution, subject: "Quarterly Report on Federal Technical Capability," November 10, 2005, with attached *Status of Qualifications in the Technical Qualification Program (TQP)* and *Status of Filling Technical Skill Gaps*, both dated June 30, 2005

**Attachment C – SSO Program Review Objectives and Criteria**

**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 TQP. (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 SSO requirements are defined and implemented. For example, the functions, responsibilities, and authorities of personnel assigned to perform safety system oversight and their interface/support of Facility Representatives are clearly defined, 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's 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))

## 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 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*. (DOE 426.1-1A, Chapter III, Sections 1, 5.a, and 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, Sections 1 and 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, Sections 1 and 4.a)
- TQ.1.5 SSO supervisors have established methods to assign initial qualification dates, track progress toward qualification, and ensure retraining/re-qualification occurs as required for each SSO candidate in the qualification process. (DOE M 426.1-1A, Chapter III, Sections 1 and 2.c (4) through (6))

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

- MG.1.3 Supervisors of SSO personnel have established SSO personnel qualification schedules and are tracking the progress. (DOE M 426.1-1A, Chapter III, Sections 1 and 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, Sections 1 and 2.c(5))
- MG.1.5 Supervisors ensure SSO personnel are trained and qualified to perform their assigned duties. (DOE M 426.1-1A, Chapter III, Sections 1 and 2.c(6))
- MG.1.6 SSO responsibilities are included and measured in Individual Performance Plans. (DOE M 426.1-1A, Chapter III, Sections 1 and 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, Sections 1 and 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, Sections 1 and 2.c(9))

## **OVERSIGHT PERFORMANCE (OP)**

### **OBJECTIVE**

**OP.1 - Collectively, SSO personnel provide oversight of the contractors' system engineer programs.**

#### **Criteria**

- OP.1.1 Oversight performed by SSO personnel establishes that the contractor's 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))

**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 SSO 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))

United States Government

Department of Energy

Oak Ridge Office

# memorandum

DATE: March 6, 2006

REPLY TO  
ATTN OF: M-3:Brown

SUBJECT: **OAK RIDGE OFFICE SAFETY SYSTEM OVERSIGHT PROGRAM ASSESSMENT**

TO: Roy Schepens, Manager, Office of River Protection

As requested, the Oak Ridge Office (ORO) completed its initial Safety System Oversight (SSO) Program Assessment in December 2004. The assessment report was issued, and the findings and corrective actions are being tracked in the ORO corrective tracking system. ORO has made good progress in addressing the corrective actions. However, there are items that must be completed to fully implement the SSO Program. This report is being submitted to document ORO's completion of the final SSO Program Implementation as required by the FTCP Annual Plan.

The SSO Program and implementation plan were reviewed as a part of the ORO Independent Integrated Safety Management System (ISMS) Review conducted in September 2005; therefore ORO is using this review as the final SSO Program assessment. The ISMS Review was led by Dana Bryson, who is a Senior Technical Safety Manager and the SSO Program Manager for the Office of River Protection.

In summary, during the ISMS Review closeout, Mr. Bryson conveyed that although the ORO SSO Program is still in its infancy, ORO has a good implementation plan that will meet the SSO Program requirements when the plan is completed. The ISMS Review report states that ORO should continue its emphasis on this very important program. Therefore, an SSO Program effectiveness review will be conducted upon completion of the remaining corrective actions.

*RB*

Robert J. Brown  
Chief Operating Officer  
and Chairman, ORO DOE FTCP Panel

Attachment

cc w/attachment:  
Donald R. Erbschloe, SC3, HQ/FORS  
Michael A. Mikolanis, SRS  
Stephen J. Coleman, ORP  
Gerald G. Boyd, M-1, ORO

Routing Symbol SE-32 Initials/Signature <i>Harris</i> Date <i>2/28/06</i>
Routing Symbol SE-32 Initials/Signature <i>Allen</i> Date <i>2/28/06</i>
Routing Symbol SE-30 Initials/Signature <i>Kelly</i> Date <i>3-2-06</i>
Routing Symbol EM-90 Initials/Signature <i>Muller</i> Date <i>2/28/06</i>
Routing Symbol EM-90 Initials/Signature <i>MEC</i> Date <i>2/28/06</i>
Routing Symbol M-3 Initials/Signature <i>Brown</i> Date
Routing Symbol M-1 Initials/Signature <i>Boyd</i> Date

**UPDATE TO THE FINDINGS/CORRECTIVE ACTIONS TABLE FOUND  
IN THE ORO DECEMBER 2005 SSO PROGRAM ASSESSMENT REPORT**

<b>ORO SSO Program Implementation Assessment Performed in December 2004</b>	
<b>Findings/Corrective Actions</b>	<b>Progress on Corrective Actions</b>
<b>SSO-DEF-1:</b> The ORO SSO Program is not established.	The ORO SSO Program has been established and institutionalized. (See the evidence list in Attachment B.) <b>Closed</b>
<b>CA-SSO-DEF-1-1:</b> The ORO SAB and FTCP will meet to decide the necessary management initiatives to establish the ORO SSO Program to meet the DOE SSO Program milestone of final implementation by 9/30/2005	<ul style="list-style-type: none"> <li>The ORO SAB met on June 9, 2005, to concerning management initiatives for SSO Program. The SSO Program Corrective Action Plan (CAP) for the December SSO program review was approved by the SAB. <b>Closed</b></li> </ul>
<b>CA-SSO-DEF-1-2:</b> Formally assign SSO personnel and submit names to be included in the ORO Technical Qualification Program (TQP).	<ul style="list-style-type: none"> <li>The ETPP Criticality Accident Alarm System SSO Engineer, the Ventilation SSO Engineer, Instrumentation and Control SSO Engineer and Fire Protection System SSO Engineer have been assigned and entered into the TQP. <b>Closed</b></li> </ul>
<b>CA-SSO-DEF-1-3:</b> Assure that all assigned SSO personnel will satisfy interim qualification requirements and complete full qualification within 18 months.	<ul style="list-style-type: none"> <li>Interim qualification requirements have been established and satisfied for the Criticality Safety and Ventilation system SSO Engineers.</li> <li>The ORO Manager has issued a list of SSO qualifying officials.</li> <li>All SSO Engineers have been entered into the TQP and assigned qualification dates of 18 months or less.</li> <li>The Fire Protection SSO Engineer is expected to complete Interim Qualification by Oct 2006. <b>Open</b></li> </ul>
<b>CA-SSO-DEF-1-4:</b> Identify compensatory measures required to address SSO personnel assignment gaps.	<ul style="list-style-type: none"> <li>Compensatory measures have been identified and approved for SSO Program coverage within the EM organization. (See the evidence list in Attachment B.) <b>Closed</b></li> </ul>
<b>CA-SSO-DEF-1-5:</b> Update the <i>Annual Integrated Assessment Schedule</i> to reflect assessments by SSO personnel of the contractor's system engineering program.	<ul style="list-style-type: none"> <li>The EM organization has updated the <i>Annual Integrated Assessment Schedule</i> for conducting SSO assessments. (See the evidence list in Attachment B.) <b>Closed</b></li> </ul>
<b>SSO-REC-1:</b> All draft SSO Program documents need to be finalized, approved, and implemented.	<ul style="list-style-type: none"> <li>This finding includes the following corrective actions to be completed. <b>Closed</b></li> </ul>
<b>CA-SSO-REC-1-1:</b> Develop, issue, and implement the ORO SSO Program document, ORO O 420, Chapter XV, Safety System Oversight Program.	<ul style="list-style-type: none"> <li>ORO O 420 Chapter XV, <i>Safety System Oversight</i>, was approved and issued July 19, 2005. <b>Closed</b></li> </ul>

<p><b>CA-SSO-REC-1-2:</b> Develop and obtain approval of the ORO SSO Office-specific Qualification Standard, Revision 0.</p>	<ul style="list-style-type: none"> <li>• The ORO SSO Offices-specific Qualification Standard was approved by the SAB at its June 9, 2005 meeting. <b>Closed</b></li> </ul>
<p><b>CA-SSO-REC-1-3:</b> Develop and issue approved line management implementing procedures and qualification cards for assigned SSO personnel.</p>	<ul style="list-style-type: none"> <li>• The EM organization updated their SSO procedure to comply with SSO Program requirements.</li> <li>• All ORO SSO qualification cards has been prepared and approved. <b>Closed</b></li> </ul>
<p><b>CA-SSO-REC-1-4:</b> Review and revise ORO management system documents (MSD, FRAM, ORO M 110, etc.) as necessary to reflect the SSO Program roles and responsibilities.</p>	<ul style="list-style-type: none"> <li>• All ORO management system documents have been revised to address the SSO program and are available on the Directives Management Groups home page. (ORO M 100; ORO M 110 Chapter 3, Change 6; ORO M 110, Chapter 6, Change 7; ORO M 411,1-1F). <b>Closed</b>.</li> </ul>
<p><b>SSO-REC-2:</b> ORO should consider developing a project plan for the SSO Program to address the deficiency. A senior manager should be assigned responsibility for overseeing implementation of the plan.</p>	<ul style="list-style-type: none"> <li>• The corrective actions for this recommendation have been completed as follows. <b>Closed</b></li> </ul>
<p><b>CA-SSO-REC-2-1:</b> A senior manager will be assigned to oversee the implementation of a corrective action plan for the assessment findings and will serve as the SSO program sponsor. An SSO Program Manager will be assigned to work with line management.</p>	<ul style="list-style-type: none"> <li>• ORO SSO Program Sponsor assigned by the SAB at its April 18, 2005 meeting. The SSO Program Manager also was assigned by the Program Sponsor. <b>Closed</b></li> </ul>
<p><b>CA-SSO-REC-2-2:</b> The ORO Program Sponsor will work with line management to develop a CAP to address the ORO SSO Implementation Assessment deficiency and recommendations. The CAP will serve as the project plan and will be approved by ORO senior management.</p>	<ul style="list-style-type: none"> <li>• The ORO SAB met on June 9, 2005, to concerning management initiatives for SSO Program. The SSO Program Corrective Action Plan (CAP) for the December SSO program review was approved by the SAB. <b>Closed</b></li> </ul>
<p><b>SSO-REC-3:</b> ORO should routinely track and report the status of the project plan tasks and activities to implement the SSO Program and periodically report the status to SSO Program principals and ORO senior management.</p>	<ul style="list-style-type: none"> <li>• The corrective action for this recommendation has been completed. <b>Closed</b></li> </ul>
<p><b>CA-SSO-REC-3-1:</b> Corrective actions from this plan will be put in ORION and tracked to completion with monthly reports being provided to SSO principals and ORO senior management.</p>	<ul style="list-style-type: none"> <li>• Corrective actions from the ORO SSO Program CAP were entered into ORION on June 14, 2005. ORION emails auto-notification reports on the status of corrective actions. <b>Closed</b></li> </ul>

## ORO SSOE Training and Qualification Status

4/12/2006

	Safety System	SSOE	TQP Assigned	Interim Qualification	Full Qualification Completion Date
1	Criticality Accident Alarm System	Hawks	Yes	Completed 1/28/2005	Scheduled to be fully qualified 5/30/2007
2	Ventilation	Foster	Yes	Completed 4/13/2006	Scheduled to be fully qualified 10/14/2007
3	Instrumentation and Control	Moon	Yes	Not expected to interim qualify	Scheduled to be fully qualified 10/10/2007
4	Fire Protection	Smith	Yes	Expected to be completed by 10/2006	Scheduled to be fully qualified 10/14/2007