

Status Report on the Office of Environmental Management Implementation of the DOE Corporate Operating Experience Program

October 2008

INTRODUCTION

On December 28, 2007, the Chief Operations Officer for Environmental Management (EM) transmitted to the Defense Nuclear Facilities Safety Board (DNFSB) the first status report on the implementation of the Operating Experience Program (OEP) in EM. EM is committed to initiating a systematic line oversight approach to evaluate the effectiveness of site implementation, and to provide a report summarizing the results of the oversight activities to the DNFSB staff.

This report summarizes the results of line oversight of implementation effectiveness of Department of Energy (DOE) Order 210.2, *DOE Corporate Operating Experience Program*, in EM, as specified in Commitment 19.2 of the Department of Energy's (DOE) Implementation Plan, Revision 2, October 2006, for DNFSB Recommendation 2004-1, *Oversight of Complex, High-Hazard Nuclear Operations*.

EM is committed to the implementation of the DOE OEP at EM sites and at Headquarters (HQ) to ensure the systematic identification, collection, screening, analysis, evaluation, dissemination and use of lessons learned, best practices, and other operating experience documentation in order to prevent adverse events, improve safety performance, reduce technical risk and uncertainty, and protect our workers and the environment. EM policy is to include DOE Order 210.2 in all EM contracts for management or operation of a DOE site or facility and those contracts for EM programmatic cleanup and remediation activities. The EM OEP supports and integrates with quality assurance programs, Integrated Safety Management Systems, occurrence reporting requirements, technical reviews, and lessons learned procedures and activities. This policy is stated in the recently published Standing Operating Policies and Procedures (SOPP) Number 50, *EM Corporate Operating Experience Program*.

On April 14, 2008, the Deputy Assistant Secretary for Safety Management and Operations (EM-60) issued a memorandum directing all EM field elements to perform line oversight assessments and self assessments of their site-wide OEP, and to submit final reports to EM-60 prior to September 26, 2008. The assessments were to be conducted using the criteria, review, and approach document (CRAD) developed by EM-60 to help ensure effective and consistent assessment of the implementation of the OEP.

Based on the assessment reports received from the field, DOE Order 210.2 requirements have been implemented at all EM sites and the OEPs are in varying degrees of maturity and effectiveness. A review of the reports shows that while some sites have fully implemented the order, others are in the process of developing more effective processes to improve their programs. Different opportunities for improvement were identified at

various sites during the assessments and corrective actions are being taken to address them.

Two of the areas for improvement were identified across the EM contractors' OEPs. The first is the establishment of metrics specifically to measure program performance and to evaluate effectiveness of actions implemented from lessons learned. The second is weakness in the performance of required analysis and trending of reportable and nonreportable occurrences and submission of the results to DOE headquarters on a quarterly basis, as required by DOE Manual 231.1-2, *Occurrence Reporting and Processing of Operations Information*.

It should be noted that, during the conduct of these assessments, transitions to new contractors occurred at the Savannah River Site (SRS), Richland Operations Office (RL), and Office of River Protection (ORP), and the OEPs were initially transitioned to the new contractors with little modifications. Assessments of the incoming contractors' programs will be performed in 2009.

EM Field Element Self-Assessments of OEP Implementation:

EM-60 determined the effectiveness of the field elements by evaluating the results of self assessments conducted by each field element. A member of the Office of Safety Management (EM-61) familiar with DOE Order 210.2 requirements and who developed the EM CRAD used for the assessments, participated in two contractor assessments at the Oak Ridge Office (ORO) and RL.

Each EM field element was requested to conduct a self assessment against the EM prepared CRAD, and specifically the following performance objective:

EM Field Element OEP Implementation: The EM Field Element establishes an OEP that interfaces and facilitates OEP interactions needed between site contractors.

Criteria:

1. DOE OEP Coordinator is assigned to fulfill the duties outlined in DOE O 210.2.
2. OEP Coordinator and others (e.g., oversight SMEs or facility representatives) are registered for the HSS Document Notification Service to receive DOE Corporate OEP and Lessons Learned documents.
3. Lessons learned are incorporated into field element training, maintenance and work planning, work processes, operations and design and construction.
4. Contractor quarterly analyses of reportable and non-reportable events (per DOE M 232.1-2) are reviewed and provided, along with a DOE field element analysis, to Headquarters EM (with a copy to HS-32).

5. Operating experience reports are implemented by the field element and applicable contractor organizations.
6. Self-assessments of OEP effectiveness are conducted (may be conducted as part of ISMS verifications and/or annual effectiveness reviews).
7. Provides oversight of contractor OEP procedures and implementation effectiveness.
8. Monitors contractor sharing of lessons learned.
9. Maintains process to identify lessons-learned or operating experience trends (operations as well as safety) on a field office or EM project level, and to share with HQ EM and other field elements.
10. Screens contractor-developed operating experience information to ensure Field Element operational awareness, and recommends locally developed lessons learned for inclusion in the DOE Corporate Lessons Learned Database
11. Contractor management is held accountable for recurrence of significant adverse events.
12. A summary of the programmatic lessons learned from a field element perspective and access to the historical operating experience and lessons learned for departing contractors are provided to new contractors following the awarding of major contracts.
13. Responds, as required, to EM/HSS concerning actions taken in response to DOE Corporate and EM Operating Experience documents (e.g., EM Safety Alerts; HSS developed Safety Operations Reports and Safety Alerts).

Discussion:

Based on the assessment reports provided by the EM field elements, DOE Order 210.2 field-level requirements have been implemented and their OEPs are in varying degrees of maturity and effectiveness. Field elements with OEPs that are the most mature are primarily at larger sites, including ORO, Savannah River Operations Office (SR), and RL; however, these field elements have identified several areas for improvement, which are being addressed.

The Office of River Protection (ORP) comprehensive self-assessment report indicates a formal program was developed, but six of the 13 criteria were marginally implemented resulting in three findings and five observations. While the ORP field element OEP needs to complete a number of actions to improve its program, the ORP comprehensive assessments of the ORP Tank Farms Contractor and the Waste Treatment and Immobilization Plant found no implementation issues in either of the contractor's programs.

Other field elements including the Idaho Operations Office, Carlsbad Field Office (CBFO) and several non-defense sites reported that their programs have been developed and implemented. The CBFO self assessment was based on quality assurance related assessments. The CBFO conducted an OEP-specific assessment as part of their annual Integrated Safety Management System (ISMS) effectiveness assessment; however the results of that ISMS assessment had not been developed at the time of the EM-wide OEP implementation effectiveness evaluation.

A number of good practices were identified as part of the EM-wide review, including:

- ORO develops and maintains a current "ORO Operating Experience and Lessons Learned Program Reference Material" binder that is provided to all ORO contractors that provides such information as:
 - Lessons Learned (LL) point of contacts for ORO and contractor OEP Coordinators
 - Useful LL Internet Hyperlinks
 - LL Recordkeeping and Reporting procedures
 - Template and Instructions for Development of LLs
 - Attributes of a Mature ORO LL Program
 - DOE O 210.2
 - ORO OEP Order
 - DOE LL Standard
 - INPO Reference Documents
 - Example Response to DOE Corporate OE document
- ORO conducts site-wide Annual OEP Coordinators Meeting to provide resources, share program information, and to convey ORO OEP expectations.
- ORO Manager conducts quarterly meetings between ORO, Y-12 Site Office, and contractor senior managers to discuss safety topics and share OEP/LL information.
- ORO OEP issues a daily email with timely OEP and other safety related information (other sites have requested to be on the daily email distribution.)
- The RL has supported development of the Hanford Information Lessons Learned Sharing (HILLS) database by the management and operating contractor. The new Hanford site-wide database includes LLs from the DOE LL database as well as a large number of Hanford contractor-developed LLs, and is very user-friendly and has an enhanced search capability. The HILLS can also "push" new LLs to appropriate managers and subject matter experts.

These good practices will be shared with the EM field element and contractor OEP coordinators in an effort to provide opportunities for improvement at their sites. Sharing opportunities will be through the monthly DOE OEP Coordinators Committee calls and at formal committee meetings.

The formalization of the HQ OEP SOPP, will help address several recurring issues noted at some of the field elements. For example, a number of field elements noted that they were not receiving, and/or evaluating contractor quarterly performance and recurring

event analyses nor reporting such information to EM HQ. The EM HQ OEP Coordinator now will review quarterly analyses of reportable and non-reportable events submitted by contractors and field elements to **identify** operating experience trends and lessons learned. The EM Coordinator will now track receipt of these quarterly performance analyses from all sites/contractors, and also will follow-up as necessary to ensure full implementation of this requirement. In addition, the EM Coordinator, per the SOPP, will monitor ORPS for EM event reports needing DOE lessons learned and will ensure they are submitted to the DOE corporate database. This will provide a quality crosscheck between the ORPS and DOE OEP/LL database to ensure all EM LLs are developed when specifically required by DOE Order 210.2 or DOE Manual 231.1-1.

The EM OEP Coordinator will continue to provide line oversight of field element OEP implementation per the EM SOPP and keep senior management informed of field implementation progress.

Line Oversight of the Contractor Operating Experience Programs at EM Sites:

EM-60 assessed the effectiveness of the implementation of DOE Order 210.2 by its contractors by evaluating the results of the assessments conducted by the field elements. Each EM field element was requested to conduct assessments of the effectiveness of the implementation of the contractor OEP against the EM-developed CRAD, specifically the first four performance objectives. The EM CRAD was the base document used by the EM field elements to develop and conduct these line oversight assessments.

As previously noted, in 2008 EM had transitions of major contractors at RL, ORP, and SR. These previous contractors had mature OEPs and those programs were transitioned to the new contractors. The oversight assessments were performed for the former contractors' programs; line oversight assessments on the effectiveness of the implementation by the incoming contractors will be performed in fiscal year 2009. These are: RL-CH2M Hill, new Plateau Remediation Contractor; SRS-Savannah River Nuclear Solutions (SRNS), new management and operations contractor; and ORP-Washington River Protection Solutions (WRPS), new tank farms contractor.

Performance Objective 1: OEP Resources and Management - Contractor provides appropriate resources to manage and maintain a viable OEP as required by DOE O 210.2.

Criteria:

1. Responsibilities for the OEP are established and formally documented.
2. Processes and procedures are documented for the DOE Corporate OEP requirements.
3. OEP is integrated with the ISMS, Quality Assurance (QA) Program Plan, Contractor Assurance Program, and event reporting and trending practices. These management processes are modified when necessary to address operating experience.

4. The Contractor has designated an OEP Coordinator to manage and provide oversight of its OEP and to facilitate the identification, documenting, sharing and use of internal and external operating experience information. (The assessment reports should **identify** the designated OEP Coordinator for each contractor assessed using this CRAD.)
5. The OEP Coordinator has access to senior management regarding emergent operating experience issues and operating experience trends that needs management attention.

Discussion:

Based on the assessment reports provided by the EM field elements and EM-60 follow-up discussions, DOE Order 210.2 has been implemented by all major contractors and most contractors at the small sites, and their OEPs are in varying degrees of maturity and effectiveness. Contractors with OEPs that are the most effective are mostly at larger sites, including Oak Ridge, the Savannah River Site, ORP and RL. Experienced OEP coordinators have been assigned to manage and provide oversight of their OEPs, and their functions have been formally documented in site procedures. Resources have been provided to maintain viable OEP/LL programs. The Waste Isolation Pilot Plant (WIPP) contractor has greatly improved their OEP over the last year. In general, all these contractors identified several areas for improvement, which are being addressed.

Performance Objective OEP-2: Contractor Screening, Sharing, and Use of Operating Experience Information - Contractor implements procedures to maintain a viable Corporate OEP as required by DOE O 210.2.

Criteria:

Screening

- a. All DOE Corporate Operating Experience documents and DOE Lessons Learned are screened for applicability to the contractors programs and work activities.
 - b. External organization operating experience from U.S. and foreign government agencies and industry, professional societies, trade associations, national academies, and universities are screened periodically for applicability to contractor programs and work activities.
 - c. OEP Coordinators and others are registered for the HSS Document Notification Service to receive DOE Corporate OEP and Lessons Learned documents.
2. Sharing
- a. Applicable operating experience documents and lessons learned are distributed to appropriate personnel (e.g., those responsible for operations, training, maintenance and work planning, work processes, and **design/construction** projects) for review, analysis, implementation of necessary actions, or simply as routine information.

- b. Identified actions from operating experience documents or lessons learned that are applicable to contractor programs or work activities and track implementation of the actions.
3. Feedback
- a. Contractors provide feedback as directed (e.g., in ORPS reports or by memorandum) by DOE Corporate Operating Experience documents (either HSS or EM HQ generated) requiring formal feedback or corrective action tracking.
 - b. Contractor OEP Coordinators track feedback on operating experience information gleaned from non-DOE sources that require programmatic changes or changes in work practices or equipment.
4. Operating Event Causal Investigation and Performance Trend Analysis
- a. Contractors investigate and identify causes of operating experience events, accidents, and occupational **injury/illnesses**, and periodically assess (at least quarterly per Section 5.8 of DOE M 232.1-2) trends to identify recurring issues and actions to address their root cause. Identified recurring **event/issues** are documented in ORPS (as Significance Category " R).
 - b. Periodic performance trend and recurring event/issue analysis reports are developed and provided to contractor and DOE line managers (with a copy to HS-32).
 - c. Corrective actions are taken for identified recurring issues or adverse trends.

Discussion:

Several contractors are not consistently performing the required analysis and trending of reportable and nonreportable occurrences and providing the results to DOE on a quarterly basis as required by DOE Manual 231.1-2. The formalization of the headquarters OEP program will help address this recurring issue. The EM HQ Coordinator will now track receipt of these quarterly performance analyses from all **sites/contractors**, and will follow up as necessary to ensure full implementation of this requirement.

Some noteworthy practices identified at the sites are:

At RL, Fluor Hanford, Inc. (FHI) developed the Hanford Information Lessons Learned Sharing (HILLS) database with improved search capability and user friendliness. This is a major improvement in the program and full implementation of the system on a **site-wide** basis will enhance the LL program and will be a valuable tool to help manage and track OPEX/LL information on the Hanford site. The new Mission Support Contractor (MSC) will assume the management of the HILLS database in the future and will serve as the main focal point for contractor OPEX operations at Hanford. The present FHI OPEX program coordinator will stay with the Project Hanford Management Contract (PHMC) "Prime" contract until the MSC comes on site. DOE anticipates that the current PHMC personnel will be selected by the MSC contractor to continue the OPEX program work. The new Plateau Remediation Contractor has adopted the FHI OPEX program procedures for immediate use, has assigned an experienced OPEX program coordinator, and will be assessed again by RL for compliance in FY2009.

At ORO, Isotek Systems, LLC (Isotek) instituted a practice of putting together "Best and Brightest" Review Teams. Experts from other sites and industry are brought in to look at a particular topic (e.g., structural summit, hot cell design, and back end process). In this way, Isotek gains the benefit of OPEX information and LL from these outside experts. Isotek has instituted new practices based on the input from these teams. Another Isotek practice is to start its meetings with a safety topic, and often ends them with a "safety sendoff," which is a brief statement or OPEX information shared on a safety topic.

Also at ORO, Bechtel Jacobs Company LLC's (BJC) OPEX/LL Program Manager established a network of LL coordinators across the company who augment the sharing and use of LL applicable to the specific functions and work activities of their organizations. Each LL coordinator and subject matter expert (who reviews LL) is provided an orientation session and training so they can effectively perform their LL roles and responsibilities. BJC has initiated several practices to enhance communications and sharing of OPEX information including: (1) upcoming installation of computer monitors at key work locations (e.g., entry portals, facility meeting locations, etc.) to display company information, including safety-related information, to reach workers who do not have routine access to computers or e-mail, (2) the BJC *Eye on Safety* and BJC *Safety Notes* are positive communication tools, and (3) the formation of a Voluntary Protection Program Committee and special communications team to evaluate and develop recommendations for improving communications.

At SRS, both contractors currently use the Site Tracking, Analysis and Reporting (STAR) system to ensure applicable operating experience documents and lessons learned are distributed to appropriate personnel (e.g., those responsible for operations, training, maintenance and work planning, work processes, and design/construction projects) for review, analysis, implementation of necessary actions, or simply as routine information.

For EM programs at the Idaho National Laboratory, CH2M-WG Idaho, LLC (CWI) conducts a daily issues call each morning among OEP coordinators, performance assurance management, and CWI line management. This call (known as the SAC – Safety Assessment Center) gives a prompt review of all issues (problems, ORPS, accidents, findings) identified since the previous daily call and discusses the lessons learned from the events. In some cases, the issues and their lessons are formally transmitted through the OEP to both CWI workers and to the DOE HSS system.

At WIPP, the Washington TRU Solutions (WTS) Lessons Learned Working Group screens monthly external organization operating experience from U.S. and foreign government agencies and industry, professional societies, trade associations, national academies, and universities for applicability to the WTS programs and work activities. The Lessons Learned Working Group members are each assigned specific **websites** recommended by DOE HS and other members. Each member searches its assigned **websites** and is required to monthly review a minimum of 35 external operating experience articles. This results in an average of 350 external operating experience articles being screened monthly for applicability to the WTS programs and work

activities, in addition to all DOE operating experience documents and DOE lessons learned.

Performance Objective 3: Required Lessons Learned Development – Local and DOE Corporate Lessons Learned are developed, documented and shared for events as required by DOE directive or direction.

Criteria:

1. The contractor has established and implemented procedures to ensure DOE lessons learned are developed, implemented locally and provided to DOE-Corporate Lessons Learned database for contractor events requiring a Type A or B accident investigation per DOE O 225.1A.
2. The contractor has established and implemented procedures to ensure DOE lessons learned are developed and provided to DOE-Corporate Lessons Learned database for events reported as a Significant Category (SC) 1, SC 2, Operational Emergency or SC R and for SC 3 reported events if required by local procedures.

Discussion:

Most EM site contractors fully meet this objective as Lessons Learned programs have been developed and implemented for a number of years and are well established and mature at most sites which nominally satisfy the requirements of DOE Order 210.2.

A common deficiency was identified during the assessments for several contractors (e.g., Fluor Hanford, Inc., Washington Closure Hanford, Wackenhut Services, Inc., Parsons Infrastructure & Technology) in that their procedures for lessons learned do not require lessons learned to be submitted to the DOE corporate database for significance category (SC) 2 occurrences. An inconsistency exists between DOE Manual 231.1-2 and DOE Order 210.2 on this respect. DOE M 231.1-2 requires that all SC-2 occurrences have associated lessons learned submitted to the DOE Corporate Database. DOE Order 210.2 does not contain the same requirement. EM has informed HS-30 of this inconsistency for their action.

At SRS, Parsons Infrastructure & Technology (Parsons) is performing design and construction services for one facility, the Salt Waste Processing Facility. Parsons does not have procedures for reporting Type A or B Accident Investigations nor for supporting lessons learned development and submission to the DOE Corporate Database for events reported as SC 1, SC 2, Operational Emergency, or SC R. When this assessment was performed in June 2008 the requirements of DOE O 210.2 had not been formally incorporated into Parson's contract. Parsons has agreed to enhance their compliance status as part of their initial implementation of the DOE O 212.2 requirements, which should be formally in the Parsons' contract by December 2008.

Performance Objective 4: OEP Feedback and Improvement - The contractor takes action to ensure implementation of the DOE Corporate OEP is effective and actions are taken to assure continuous improvement.

Criteria:

1. The contractor performs periodic self-assessments (may be done as part of the review of contractor ISMS effectiveness) of the OEP and implements any necessary corrective actions.
2. The contractor establishes and monitors metrics to inform management on the effectiveness of the OEP.

Discussion:

Contractors at larger sites meet this objective. Most self assessments of the OEP are performed during the ISMS annual reviews. At several sites these line oversight assessments were the first focused assessments of the OEPs. Contractors are taking actions to include requirements for the performance of periodic self assessments in their OPEX/LL procedures.

The lack of metrics specifically to measure OEP performance or evaluate the effectiveness of actions implemented from lessons learned is noted across the complex. This is a concern that will be worked with HS-30 as a DOE complex-wide corporate policy effort to develop evaluation criteria and definitive statements of programmatic performance and effectiveness.

Summary

Below is a summary of implementation at the major EM DNFSB sites.

Summary Implementation Table

Federal Element /Contractor	Federal Objective	Contractor Objective 1	Contractor Objective 2	Contractor Objective 3	Contractor Objective 4
SR	Met – 1 observation				
WSRC		Met	Met -1 find, 1 obs	Met	Met
WSI		Met - 1 find	Met - 1 find	Partially Met	Met
Parsons		Not fully implemented	Not fully implemented	Not met	Met
ORP	Marginally met – 6 of 13 criteria marginally implemented (3 finds, 5 obs)				
CH2M HILL		Met	Met	Met	Met - 1 finding closed, 1 obs
BNI		Met	Met - 1 obs	Met	Met - 3 obs
ATL		Met	Met - 1 obs	Met	Met
RL	Met – 1 opportunity for improvement				
WCH		Met	Met	P. met – 1 find	Met
FHI		Met - 1 obs	Met	Met	Met
ORO	Met – 3 observations; AMEM – 2 obs				
BJC		Met - 2 obs	Met - 1 find, 1 obs	Met - 1 obs	Met
EnergX		Met	Met	Met – 1 find	Met
Isotek		Partially met - 1 find, 1 obs	Partially met - 2 finds, 5 obs	Met	Partially met - 1 find, 1 obs
CBFO	Met using QA assessment; specific OEP assessment w/ ISMS review				
WTS		Met	Met - 1 obs	Met	Met
ID	Partially met - 3 findings				
BBWI		Met	Met	Met	Met
CWI		Met	Met	Met	Met