

**Office of Enterprise Assessments Review of
Field Element Line Management Oversight at
Sandia National Laboratories**



March 2015

**Office of Nuclear Safety and Environmental Assessments
Office of Environment, Safety and Health Assessments
Office of Enterprise Assessments
U.S. Department of Energy**

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Acronyms

CBO	Compliance-Based Oversight
CPEP	Contractor Performance Evaluation Plan
CRAD	Criteria, Review, and Approach Document
DOE	U.S. Department of Energy
EA	Office of Enterprise Assessments
NNSA	National Nuclear Security Administration
OFI	Opportunity for Improvement
SBMS	SFO Business Management System Policies and Procedures
SFO	Sandia Field Office
SNL	Sandia National Laboratories

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EXECUTIVE SUMMARY

The U.S. Department of Energy's independent Office of Enterprise Assessments (EA), Office of Environment, Safety and Health Assessments, conducted a review of the Sandia Field Office (SFO) enhanced oversight process. EA performed this review at the request of SFO. Because the process is new and is not yet fully implemented, EA did not evaluate the effectiveness of implementation during this review.

The enhanced oversight process is a positive change in strategy to improve SFO oversight. SFO revised its oversight process to produce a rigorous method for documenting SFO oversight results in a manner that improves SFO's ability to track Sandia National Laboratories' (SNL's) performance issues to closure and to review SNL's contractor assurance system. The new process also allows SFO to provide better feedback to SNL through the Contractor Performance Evaluation Plan process.

Although EA identified a few specific deficiencies in the oversight procedures and some potential enhancements in other areas, SFO has effectively established the necessary procedural framework for its enhanced oversight process. Moving forward, SFO must make substantial effort to ensure its enhanced oversight process is effectively implemented. The SFO management team's support in improving the SFO oversight process is commendable.

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1.0 PURPOSE

The U.S. Department of Energy (DOE) independent Office of Enterprise Assessments (EA), Office of Environment, Safety and Health Assessments, conducted an independent review of the Sandia Field Office (SFO) enhanced oversight process. EA performed the review at the Sandia National Laboratories (SNL) in Albuquerque, New Mexico, from November 17 to November 21, 2014. This report discusses the scope, background, methodology, results, and conclusions of the review, as well as findings and opportunities for improvement (OFIs) identified during the review.

2.0 SCOPE

In response to an April 16, 2014 request from SFO, EA established the scope to review SFO's enhanced oversight process and the corrective actions directed at SFO oversight from the Site 9920 accident investigation board report issued in March 2014. The review scope did not include implementation.

3.0 BACKGROUND

The EA program is designed to enhance DOE safety and security programs by providing DOE and contractor managers, Congress, and other stakeholders with an independent assessment of the adequacy of DOE policy and requirements, and the effectiveness of DOE and contractor line management performance in safety and security and other critical functions as directed by the Secretary of Energy. The EA Independent Assessment Program is described in and governed by DOE Order 227.1B, *Independent Oversight Program*, and a comprehensive set of internal protocols, operating practices, assessment guides, and process guides.

EA evaluates safety and emergency management policies and programs throughout DOE with a particular emphasis on evaluating worker and public protection from the high consequence hazards that exist at many DOE sites. EA accomplishes its safety and emergency management oversight through two primary mechanisms: (1) a network of staff site leads who are assigned to monitor the activities at DOE sites with nuclear facilities or activities and coordinate office assessment activities at those sites, and (2) a program of targeted assessments that evaluate selected functional or topical areas at multiple sites across the DOE complex. Assessment activities are selected, prioritized, and planned based on such factors as risk to workers and the public, facility operational status, and performance history.

Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, manages and operates SNL as a contractor to the National Nuclear Security Administration (NNSA). Established in 1949, SNL is responsible for nuclear weapon ordnance engineering and production coordination, playing a pivotal role in ensuring the safety, security, and reliability of the nation's nuclear arsenal. Sandia has evolved into a multi-program national security laboratory that provides technologies to protect the nation's infrastructure, including its transportation, energy, telecommunications, and financial networks. SNL's missions are to ensure clean, abundant, and affordable energy and water; reduce the proliferation of weapons of mass destruction; help maintain U.S. military systems superiority; and defend our nation against terrorist attacks. SNL maintains a workforce of almost 10,000 employees, with main facilities in Albuquerque, New Mexico, and Livermore, California.

The NNSA SFO consists of approximately 85 Federal employees with technical and administrative expertise in diverse subjects, including contract management; business management; environment, safety, and health; quality; security; engineering; and nuclear safety basis. SFO is co-located with SNL at the Albuquerque, New Mexico, facilities.

4.0 METHODOLOGY

EA's review of the SFO enhanced oversight process included document reviews and interviews with Federal and contractor personnel. The review considered the requirements of DOE Order 226.1B, *Implementation of Department of Energy Oversight Policy*, and used selected elements of EA Criteria, Review, and Approach Document (CRAD) 45-21, Revision 1, *Feedback and Continuous Improvement Inspection Criteria and Approach – DOE Field Element*, as stated in Section 5.1.

5.0 RESULTS

The results of the EA review are presented below based on the selected criteria of CRAD 45-21.

5.1 SFO Oversight Program Documentation

DOE Field Element Line Management Oversight Inspection Criteria - DOE field element line management has established and implemented effective oversight processes that evaluate the adequacy and effectiveness of contractor assurance systems and DOE oversight processes. DOE field element assurance system programs and processes are in accordance with the policy and key elements outlined in DOE Policy 226.1 B, Department of Energy Oversight Policy; DOE Order 226.1 B, Implementation of Department of Energy Oversight Policy, Attachment 2; quality assurance requirements (as stated in 10 CFR 830, Subpart A; DOE Order 414.1D, Quality Assurance; and/or other applicable regulations); and applicable DOE directives.

SFO Management

The SFO management team has made a long-term commitment to enhancing the SFO oversight process. EA observed that the management team is supportive and actively engaged in the development, revision, approval, and implementation of the new process. As one of many examples, the management team has established the routine practice of meeting to review the implementation of the new process and to discuss, review, and/or approve proposed improvements, corrective actions, and training sessions.

Design Strategy and Function

EA reviewed the general design of the enhanced oversight process to determine whether it is meeting the design goals. The overall goal is to implement NNSA governance principles while maintaining a rigorous method for managing SFO oversight results. Supporting goals include improving SFO's ability to identify and track SNL's performance issues to closure, improving the method for reviewing SNL's contractor assurance system, and allowing SFO to provide better feedback to SNL through the Contractor Performance Evaluation Plan (CPEP) process. SFO developed a new oversight of the system framework and supporting lines of inquiry for oversight activities, and also selected the following assurance elements for this process: assessments, measures/metrics, issues and corrective action management, and continuous improvement (lessons learned/operating experience/best practices). For each assurance element, SFO defined sub-elements and associated sub-element lines of inquiry and trending codes. SFO enters oversight activities for the different functional areas into a common NNSA database (ePegasus) in

a standard format that includes the reporting of results, issues, trend codes, and other key data fields. SFO performs a rollup process that begins with subject matter experts making a performance determination for each functional area. The Assistant Managers then compile conclusions about performance effectiveness. SFO management discusses these results with the SFO Manager and Deputy Manager in quarterly SFO performance reviews, and for each quarter and at the end of the fiscal year, this effort ultimately results in the final SFO feedback to the CPEP process. The new oversight process (as defined in the current SFO procedures, policy, and charter) fundamentally meets the intended design goals. SFO has validated the overall effectiveness of this new process during the last several months of implementation, as well as identified some areas for improvement.

Much of SFO oversight involves shadowing SNL assessments or other activities. For assessments, the current lines of inquiry are limited to evaluating the validity of the final assessment. In order to fully evaluate the adequacy of an assessment, it is also useful to assess what type of safety conscious work environment was evident during the assessment or activity. An unhealthy environment could result in an invalid assessment, even if other aspects (e.g., report quality) indicate that the assessment was satisfactory. The current assurance element lines of inquiry do not include questions about the safety conscious work environment. (See **OFI-SFO-01**.)

Another important aspect of the enhanced oversight process is the software that supports the system. When ePegasus was implemented as the issues management system software for all NNSA field elements, SFO knew that it had some inherent limitations. SFO does not have the authority/control to resolve some of these ePegasus system limitations, though it is actively crafting innovative solutions to many of these challenges/issues. However, one particular issue greatly limits the system's usefulness: ePegasus cannot efficiently perform searches and create reports based on trending codes. Some SFO users have reverted to manual methods to complete trending code searches. (See **OFI-SFO-02**.)

Process Documents

The enhanced oversight process is defined in the SFO 0804 *SFO Oversight Policy*, the SFO series 0804 processes and procedures, and the *SFO Performance Review Charter* dated December 13, 2013 – collectively referred to as the SFO Business Management System Policies and Procedures (SBMS). EA reviewed the process documents for clarity, usability, and conformance with DOE Order 226.1 requirements. One challenge for these procedures is that SFO has two distinct SFO oversight sub-processes: one conducted at non-nuclear/low-moderate hazard activities or facilities (consistent with the NNSA governance model, 0804.02), and the other at nuclear/high hazard activities that include weapons related quality activities and facilities (designated as compliance-based oversight, 0804.03). One of the NNSA tenets of governance oversight (non-nuclear/ moderate-low hazard facilities) is that SFO does not assess these facilities except on rare occasions, based on significant poor performance by SNL and specific authorization by the SFO Deputy Manager. SFO governance oversight typically consists of operational awareness activities and shadowing of SNL assessments/activities. For compliance-based oversight (CBO), SFO routinely conducts the full range of oversight activities (assessments, shadowing, and operational awareness activities) and transmits any findings to the contractor for action. Governance-based oversight does not result in findings but generates documentation in ePegasus Gov-ISS for trending or ePegasus Gov-ISS Track for systemic or single significant deficiencies; the SFO contracting officer or representative reports these items to SNL for action. These two sub-processes have different methods and terminology for identifying and tracking deficiencies and for communicating oversight results to SNL. Comparing and evaluating the implementation and effectiveness of these two models were beyond the scope of this EA review.

As part of the SFO plan to revise the SFO oversight process procedures, SFO also performed a self-assessment of the revised SBMS's compliance with DOE Order 226.1B, *Implementation of Department of Energy Oversight Policy*. The SFO self-assessment identified two results:

- The SBMS does not address the role of the Central Technical Authority.
- The SBMS does not address the CBO requirement to ensure the performance and documentation of causal analyses for "high significant findings."

EA agrees with these results and identified an additional concern. For governance oversight, SFO identifies and records issues in ePegasus as defined in the Gov-ISS Track process. Issues identified in this process may also meet the criteria for a "high significant finding," as defined by DOE Order 226.1B, paragraph 4.b(4). For Gov-ISS Track issues with significance equivalent to a DOE Order 226.1B "high significant finding," the SFO SBMS does not ensure completion of a causal analysis, development of a corrective action plan to address the causes and prevent recurrence, and conduct of an effectiveness review. DOE Order 226.1B requires these steps to be documented and tracked. (See **OFI-SFO-03**.)

The SFO procedures are generally adequate, though several specific deficiencies are evident in the clarity and/or usability of the procedures. EA provided a full list of these observations to SFO during the onsite portion of the review. Examples of these observations include: (See **OFI-SFO-04**.)

- The definitions of verification, validation, and effectiveness in the SFO oversight procedures are not consistent. Some of this inconsistency is because ePegasus uses a different set of definitions for some of these terms.
- The SFO oversight procedures generally lack a background discussion of the differences in the oversight processes for non-nuclear/low-moderate hazard facilities and for nuclear/high hazard facilities. Additionally the SFO procedures do not identify the processes for determining hazard classification for nuclear and non-nuclear facilities/activities. This background information would help explain the logic of the steps in the procedures that support the different oversight processes.
- The SFO oversight procedures do not specify the responsibilities of SFO managers/staff for reviewing and approving corrective action plans.
- Assessment planning does not acknowledge the requirements of NNSA supplemental directive NA-1 SD 226.1A, *NNSA Line Oversight and Contractor Assurance System Supplemental Directive*.
- Some oversight procedures require the development of an assessment plan, but SFO has not generated a template to support assessment plan development.
- The oversight procedures identify shadowing as an oversight method, but SFO has not developed a specific protocol or guidance to ensure consistency and effectiveness in shadowing activities.

Training and Lessons Learned

SFO developed a comprehensive set of training material for the enhanced oversight process and presented it to the SFO staff in March 2014. SFO later made final revisions to the oversight procedures and commenced implementation in April 2014. SFO followed up the formal training by performing mentoring and continuous training sessions to help the staff with implementation and to clarify the process. Further, SFO has periodically gathered lessons learned from oversight process implementation and has defined improvement actions when needed and also folded these topics back into the continuous training. EA observed one continuous lessons-learned training session concerning best practices in entering oversight data in ePegasus and justifying the selected trending codes. The session was useful as expressed by the attendees. However, these continuous training sessions are not mandatory, and SFO has

not established a process for making the training material available to those who did not attend. (See **OFI-SF0-05.**)

5.2 SFO Oversight Planning Pilot Program

SFO developed corrective actions to improve its oversight in response to a judgment of need from the March 2014 Site 9920 accident investigation board report. SFO has started to implement these corrective actions by initiating a pilot program to integrate oversight planning within SFO and with SNL (SNL's 1000 Division was selected as the pilot organization.). The pilot program also improves SFO's process for selecting high hazard work activities (based on unmitigated consequences) for oversight. The pilot program is in the early stages of implementation. The planned process starts by interviewing the SNL Division senior leaders, using a defined question set, to gain their perspective on the upcoming work activities that present the highest hazards. Based on the input from SNL leaders and other insights, the SFO pilot team will create an initial SFO oversight plan. The SFO assistant managers will then review and update their oversight based on the pilot team's initial plan. The new oversight process will be reviewed for lessons learned and improved as needed. One action item for the pilot program is to revise as needed the SFO *Oversight Plans, Schedules and Revisions* procedure. The complete set of actions defined in the oversight planning program are adequate to initially address the assigned judgment of need, but the effectiveness of these actions in improving SFO's selection of oversight facilities and/or activities cannot be evaluated until the program is fully implemented.

6.0 CONCLUSIONS

SFO has effectively established the necessary procedural framework for its enhanced oversight process. The process supports NNSA's governance goals to produce an effective and efficient method for documenting SFO oversight results in a manner that allows SFO to track SNL's performance issues to closure and improves the method for reviewing SNL's contractor assurance system. The new process also allows SFO to provide better feedback to SNL through the CPEP process.

The revised process represents a positive change in strategy to improve SFO oversight. However, EA identified several specific deficiencies that, if corrected, would improve the oversight procedures' clarity and usability. Additionally, SFO must make substantial effort to ensure its enhanced oversight process is effectively implemented. EA also identified some additional areas for improvement, such as:

- Including a set of safety conscious work environment questions in the assurance area's lines of inquiry.
- Improving the ePegasus software's ability to perform trending code searches and reports.
- Ensuring that the oversight procedures for high significant findings or issues address the DOE Order 226.1B requirements.
- Establishing a method for making the training material for each continuous training session available to all SFO staff.

Despite these deficiencies and areas for improvement, SFO has effectively established the necessary procedure framework for its enhanced oversight process. The SFO management team's support in implementing and improving the SFO oversight process is commendable.

7.0 FINDINGS

None.

8.0 OPPORTUNITIES FOR IMPROVEMENT

EA identified the following OFIs. These potential enhancements are not intended to be prescriptive or mandatory. Rather, EA offers them to be reviewed and evaluated by the responsible line management organizations and accepted, rejected, or modified as appropriate, in accordance with site-specific program objectives and priorities.

OFI-SFO-01: Consider including questions about the safety conscious work environment in the lines of inquiry for assessments and potentially in other assurance areas. Consider consulting an expert in the field of human behavior for guidance in developing these questions.

OFI-SFO-02: Consider improving ePegasus's ability to perform trending code searches and reports, and resolve other difficult software challenges/issues. Consider assembling a special team to consider options, including the feasibility of shifting to a different software system.

OFI-SFO-03: Consider revising the appropriate procedures in SBMS to ensure that issues identified through the non-CBO process (governance model) that are equivalent to "high significant findings" in DOE Order 226.1B undergo a causal factors analysis, identification and implementation of corrective actions to address the causes and prevent recurrence, and an effectiveness review. Require these steps to be documented and tracked.

OFI-SFO-04: Consider reviewing and correcting the identified deficiencies in the enhanced SFO oversight procedures in order to improve clarity and usability.

OFI-SFO-05: Consider establishing a method for making the training material for each session available to those who missed the training.

9.0 EA Follow-Up Items

EA will assess the effectiveness of SFO's enhanced oversight implementation during subsequent targeted reviews in 2015 and beyond.

Appendix A Supplemental Information

Dates of Review

Onsite Review: November 17-21, 2014

Office of Enterprise Assessments Management

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Appendix B

Documents Reviewed and Interviews

Documents Reviewed

0804 SFO Oversight Policy, 5/14
0804.01 Plan Manage and Improve SSO Oversight Process, 8/18/10
0804.01.01 SSO Oversight Plans Schedules and Revisions, 8/12
0804.01.01.01 SSO Oversight Plan Template, 8/12
0804.01.02 SSO Oversight Performance Monitoring, 8/18/10
0804.01.03 Compliance-Based Assessment Determination, 8/18/10
0804.01.03.01 CBAD Form, 1/15/14
0804.01.04 SSO Self Assessments, 8/18/10
0804.01.04.01 Self-Assessment Report Template, 1/15/14
0804.01.05 SSO Issues Management, 8/18/10
0804.01.05.01 SSO Issues Management Verification Form, 4/22/14
0804.01.06 SSO Oversight Procedure Exceptions, 8/18/10
0804.01.06.01 Exceptions Form, 9/10/10
0804.01.07 SSO Oversight Continuous Improvement, 8/18/10
0804.01.07.01 Continuous Improvement Form, 9/10/10
0804.02 Evaluate Contractor Performance Using the Assurance System, 5/14
0804.02.01 Conducting Oversight and Documenting Oversight Results, 5/14
0804.02.01.01 Guidance Managing Oversight Results, 5/14
0804.02.02 Reporting Contractor Performance, 4/14
0804.03 Process - Evaluate Contractor Performance using Compliance-Based Oversight, 5/14
0804.03.01 Conducting Oversight and Documenting Oversight Results, 5/14
0804.03.02 Compliance-Based Contractor Assessments, 5/14
0804.03.03 Compliance-based Contractor Issues Management, 5/14
0804.04 Glossary, 5/15/11
FY15_SSO Operations Oversight Plan, 9/30/14
FY_2013_PER_Sandia_Corporation, 12/23/13
Sandia-Oversight of Operations Training, 5/17-20/2014
FY2015 PEP, 9/25/14
NAP-21 Transformational Governance and Oversight NAP, 3/2/11
NNSA NA-SN Site integrated Assessment Plan (SIAP) 2014

Interviews

SFO Director, Performance Assurance
SFO Program Analyst
SFO Program Manager
SFO Performance Assurance Specialists (2)
SFO Assistant Managers (4)
SFO Subject Matter Experts/Safety Management Program Owners (3)
SNL Manager, Performance Assurance Systems and Planning Integration
SNL Quality Engineer