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Office of Audits & Inspections

Audit Report

National Nuclear Security Administration Contractor Governance

DOE/IG-0881

February 2013



Department of Energy

Washington, DC 20585

February 19, 2013

MEMORANDUM FOR THE ACTING ADMINISTRATOR, NATIONAL NUCLEAR SECURITY ADMINISTRATION

FROM: 
Gregory H. Friedman
Inspector General

SUBJECT: INFORMATION: Audit Report on "National Nuclear Security Administration Contractor Governance"

INTRODUCTION

Since July 2007, the Department of Energy (Department) and the National Nuclear Security Administration (NNSA) have required contractors to implement self-assessment systems to measure performance and help ensure effective and efficient mission accomplishment. Each "contractor assurance system" was to include external and internal assessments, worker feedback mechanisms, issues management systems, lessons learned programs, and performance metrics. In essence, contractors assessed and evaluated their own performance with some level of Federal oversight. High quality performance metrics and measurement protocols are essential elements of NNSA's approach to contractor governance.

In 2009, in response to the President's Transparency and Open Government initiative, NNSA focused its performance directives with a vision of improving the management of contractors. While it did not alter the original contractor assurance system requirement, NNSA revised its policy in February 2011 to conform to the Presidential initiative and established a process to affirm the effectiveness of its contractors' assurance systems. The new process was intended to ensure that the contractors have an assurance system which enables NNSA to conduct effective and efficient line oversight. The guidance reiterated that contractor assurance systems were the primary tool to measure, improve, and demonstrate contractor performance and ensure that all mission objectives and contract requirements were met.

Given the near total reliance on contractor support in carrying out most of NNSA's mission, and, consequently, the importance of contractor performance, transparency and effectiveness efforts, we initiated this audit to evaluate the development of contractor assurance systems by NNSA and its contractors.

RESULTS OF AUDIT

Despite at least 5 years of effort, NNSA and its support offices and site contractors had not yet implemented fully functional and effective contractor assurance systems. During recent Office of Inspector General reviews, we identified significant implementation issues that adversely affected NNSA's ability to deploy an effective contractor governance system. Specifically:

- The contractor governance system was rendered ineffective by what Federal site level officials referred to as an "eyes on, hands off" approach to contract management. Most troubling, while Federal employees knew of problems at the contractor level, they perceived that the contractor governance approach prohibited them from intervening in contractor activities.
- Contractor weaknesses identified at the site level were not effectively communicated to senior management officials.
- Contractor self-assessments were not effective in identifying safety weaknesses subsequently identified by independent reviews.

Symptomatic of these shortcomings, we recently identified security and safety concerns at the Y-12 National Security Complex (Y-12) and the Sandia National Laboratories (Sandia) that demonstrated the need for improvements in contractor assurance systems and Federal oversight. Specifically:

- Y-12's contractor assurance system failed to identify and correct early indicators of multiple system breakdowns that contributed to a major security breach at that nuclear weapons facility;
- Information important to the security of Y-12 was not reported to senior level managers in the NNSA; and,
- Sandia, as part of its contractor assurance system, had not always performed effective self-assessments to identify safety weaknesses.

Although an NNSA Headquarters official told us that the contractor assurance systems at Y-12 and Sandia were considered to be "highly performing," we concluded that improvements were needed in both. The significance of the issues we discovered led to our general concerns with NNSA's approach to governance. Also, we found that Los Alamos National Laboratory had not developed its contractor assurance system to a level of maturity needed by NNSA to affirm its effectiveness. We also evaluated Nevada National Security Site's implementation of a contractor assurance system and did not identify any material problems.

Further, we found that Federal officials had not provided effective oversight of contractor operations as part of the governance approach. NNSA had indicated as part of its oversight approach that it would maintain transactional oversight in nuclear and high hazard activities such as those carried out at Y-12 and Sandia. Yet, Y-12 Federal officials told us that with the advent of NNSA's contractor governance system they perceived that they were no longer permitted to intervene in addressing identified problems, including those maintenance and system issues that eventually contributed to the Y-12 security breach. Additionally, we found that Federal officials at Sandia had not developed specific performance metrics to rate line level managers' implementation of key safety management controls despite evaluation reports that identified significant and persistent weaknesses in that area.

Additionally, management officials told us that they were working to improve the contractor assurance system implementation process. However, we identified weaknesses in NNSA's approach to ensuring that assurance systems were effectively implemented by the contractors. In particular, NNSA had not established or fully defined the relationship of contractor assurance systems to contractor performance plans used to determine contractor fee at all of its sites. Further, NNSA had not established milestones for completing the implementation and validation of assurance systems at contractor sites.

NNSA has placed substantial reliance on its contractors' ability and willingness to identify and correct weaknesses that threaten the safe, secure, effective and efficient operation of the Department's national security facilities. Our findings suggest that this reliance may be unwarranted. Recently, NNSA recognized the need to address the very contractor assurance system issues we discovered. For example, NNSA's affirmation process identified improvements needed in the Y-12 and Sandia contractor assurance systems. Further, we were told that NNSA plans to reform its approach to contractor governance by implementing a new strategy that will move the organization towards consistent practice of its business systems, including contractor assurance systems, which could conform to standards by the International Organization for Standardization. The objective of this effort will be to ensure that contractor systems are designed and functioning effectively.

Contractor Assurance System Effectiveness

Although Y-12 and Sandia had contractor assurance systems affirmed by NNSA as either meeting or partially meeting expectations, respectively, the systems were not fully functional and effective as demonstrated by security and safety issues raised in two recent Office of Inspector General reports.

Y-12 Security

In our *Inquiry into the Security Breach at the National Nuclear Security Administration's Y-12 National Security Complex* (DOE/IG-0868, August 2012), we reported that contractor governance failed to identify and correct early indicators of multiple system breakdowns that contributed to a major security breach at Y-12. During the breach, three unauthorized individuals gained access to the area surrounding the Highly Enriched Uranium Materials Facility by severing three separate fences and defaced the building without being interrupted by the security measures in place. Prior to the security breach, the contractor's reporting systems and Federal oversight efforts indicated that the site's physical security systems were functioning as intended, as identified in site office quarterly reports to NNSA Headquarters. These site office quarterly reports were based on the contractor's self assessments, a key component of contractor assurance systems, and NNSA's assessment of the contractor's physical security. In fact, the Protective Force's performance was rated at a high level. Prior to the incident, NNSA officials told us that the site was considered to be one of the most innovative and high performing sites in the complex.

Despite the positive reports provided by the contractor and endorsements from Federal site managers, there were actually a number of known security-related problems at Y-12. For example, maintenance backlogs of critical security equipment were allowed to persist. The backlogs were allowed to accumulate even though the contractor had not performed any analyses to measure the effect of these problems and repair needs on the overall security posture. In

particular, we learned that even though both contractor and Federal officials received a daily report of all degraded equipment, they did not perform the evaluations necessary to determine whether the outages, when considered in aggregate, would have impacted security for a significant segment of a facility or area. Most troubling, local Federal security officials faulted NNSA's governance system because they perceived they could not take the necessary actions to prompt the contractor to complete needed security repairs affecting system readiness at Y-12.

Subsequent to our review of the Y-12 security incident, the NNSA Administrator commissioned a task force to analyze the NNSA security organization and oversight model and to recommend possible improvements. The task force identified weaknesses in the NNSA security oversight model that, in our view, had broad implications for NNSA's overall approach to contractor governance. In particular, the task force concluded that NNSA relied "...overwhelmingly upon Federal staff simply reviewing contractor-provided data, rather than effectively assessing performance itself." Additionally, the task force was particularly concerned that potentially critical management information regarding Y-12 security was not reported clearly to appropriate decision makers.

Sandia Safety

Our report on *Integrated Safety Management at Sandia National Laboratories* (DOE/IG-0866, May 2012), found Sandia had not always performed effective self-assessments, a key element of contractor assurance systems, to identify weaknesses that were subsequently identified by independent evaluations. An Integrated Safety Management (ISM) system is intended to prevent or reduce occupational injuries, illnesses and accidents by providing safe and healthy workplaces. Although line managers' self-assessments are required by ISM and are a vital part of contractor assurance systems, we found that only 3 of the 240 ISM self-assessments performed by managers since 2006 identified "significant" findings that required a formal corrective action plan. In contrast, since 2005, external reviews have identified numerous systemic, significant and repetitive findings on ISM implementation at the line level. We found that Sandia had not provided line managers with the tools and training necessary to perform the effective self-assessments required by contractor assurance systems. Additionally, the NNSA Site Office had not developed specific performance metrics, another key element of NNSA's approach to contractor governance to rate Sandia line level managers' implementation of a contractor assurance system.

In addition to the specific contractor assurance system implementation problems identified at Y-12 and Sandia, NNSA had not fully provided the guidance and controls necessary to ensure effective implementation of contractor assurance systems across the weapons complex. In particular, NNSA had not provided guidance to site offices and contractors to determine the extent to which metrics measured in contractor assurance systems should be used to evaluate annual contractor performance; presumably a critical component in determining fees. Further, NNSA had not established long-term milestones for its contractors to develop a fully functional and effective contractor assurance system.

Contractor Assurance Systems and Performance Evaluation Plans

Although contractor assurance systems were intended to ensure that all mission objectives and contract requirements were met, NNSA had not clearly defined the relationship of the metrics tracked in the assurance systems to those contained in the contractor performance evaluation

plans used to determine fees. Further, NNSA's procedures for affirming that contractor assurance systems met expectations did not contain criteria for determining whether the contractor assurance systems' performance measures were linked to the performance evaluation plans.

Both contractor and NNSA site office staffs informed us that metrics tracked in contractor assurance systems and performance metrics in the contractor performance plans should be linked. Limited test work at one site, however, revealed that the linkage between contractor assurance system metrics and performance evaluation plan metrics was not always readily apparent. For example, multiple metrics tracked in the contractor assurance system related to a single metric in the performance evaluation plan. But, neither the contractor nor the NNSA site office had defined how the metrics tracked in the contractor assurance system would be used in determining the extent to which the contractor met the performance evaluation plan metric. Further, the contractor had not developed a crosswalk for the different metrics defining their relationship, thus rendering the relationship less than transparent.

The efficacy of contractor assurance systems in improving contractor performance is, in our view, highly dependent on well defined metrics and a transparent relationship between metrics in contractor assurance systems and performance evaluation plans. These elements, functioning together, are essential to a credible pay-for-performance regime; that is, reward excellence in contractor performance and penalize poor performance.

Implementation Schedule

We also found that NNSA had not established formal, long-term milestones for its contractors to develop fully functional and effective contractor assurance systems. For example, NNSA's Fiscal Year (FY) 2012 Implementation Plan contained short-term milestones for contractor assurance system actions to be completed by contractors during the fiscal year. The plan included priorities such as continuing to measure effectiveness of process changes, providing training to Federal and contractor leadership and staff to facilitate cultural changes, and improving communications with all stakeholders. However, NNSA had not established long-term milestones for completing implementation of systems, also known as affirming the contractor assurance systems. NNSA officials told us that they had a long-term goal for having fully functional and effective contractor assurance systems at its facilities by the end of FY 2013. However, as of December 2012, an NNSA official expected that it would not have fully functioning and effective contractor assurance systems at its facilities until 2014.

Until NNSA formalizes such milestones, we were unable to determine when NNSA will be in a position to determine whether each contractor's assurance system is effective and functioning at a "highly performing" level. In our judgment, establishing such milestones would substantially increase the likelihood that NNSA will complete contractor assurance system development across its contractor complex in a timely manner.

Contractor Governance Goals

Contractor assurance systems were intended to foster accountability and encourage risk-informed decision making on the part of both NNSA and its contractors. A fully functional and effective contractor assurance system could allow NNSA to tailor its oversight to a systems-based approach in which the contractor has demonstrated good performance, including an adequately

functioning assurance system, thereby reducing duplicative or transactional oversight in areas where operations are functioning efficiently. As demonstrated by the safety and security events identified at Sandia and Y-12, an effective contractor assurance system is critical to ensuring that NNSA effectively focuses its finite resources on identifying and correcting issues involving safeguarding its nuclear facilities and improving worker safety.

The contractor assurance system concept has laudable goals, such as reducing the cost of operations by eliminating potentially duplicative and/or redundant oversight, increasing productivity to maximize mission accomplishments, and monitoring contractor performance and evaluating risk management results. Without formalized implementation and execution plans and outcome expectations, neither NNSA nor independent reviewers can fully measure the efficacy of contractor assurance system development efforts, putting contractor assurance systems' goals at risk. Regardless of whether an assurance system is in place or not, effective oversight of the contractor by NNSA is essential.

Path Forward

To its credit, NNSA had self-identified deficiencies with contractor assurance system implementation and recognized the need to improve contractor assurance systems and its overall approach to contractor governance. In particular, as previously noted, NNSA's affirmation process identified improvements needed in the Y-12 and Sandia contractor assurance systems. For example, while NNSA affirmed the Y-12 contractor assurance system as fully meeting NNSA's expectations in June 2011, it also recommended that the contractor improve monitoring of specific changes, modification or updates to processes based on the lessons learned or operating experience of managers to ensure that these programs were being used to drive operational improvements in executing the Y-12 mission. Had Y-12 ensured that monitoring of security equipment backlogs drove operational improvements as recommended by the NNSA affirmation team, a major contributing cause of the security breach might have been mitigated.

Additionally, NNSA affirmed that Sandia's contractor assurance system partially met expectations in March 2012, and noted, among other things, that the contractor's, "assessment process is not mature as indicated by inconsistent performance and varying execution of the Sandia processes over the past few fiscal years resulting in a lack of repeatable and predictable assessment results indicative of highly effective [contractor assurance system] CAS." The NNSA affirmation report recommended that Sandia implement corrective actions by communicating with and training personnel about assessment tools and by performing an effectiveness review after new assessment tools had been implemented. These corrective actions are planned for completion by February 2013.

Most importantly, NNSA has recognized the need to reform its approach to contractor governance. In December 2012, an NNSA official told us that the agency has decided to overhaul its governance process, currently outlined in NNSA Policy Letter-21, to strengthen and apply it consistently across the weapons enterprise. Additionally, the overhaul will be accomplished in conjunction with broader management initiatives in developing a business system that conforms to the International Organization for Standardization's quality management standard, ISO 9001, for quality assurance.

SUGGESTIONS

NNSA's planned initiative to reform its contractor governance model is an important step. Based on our body of work in NNSA, we believe that comprehensive and sustained effort is critical. As such, we suggest that in conjunction with other in-process initiatives, the National Nuclear Security Administration should:

1. Provide for effective oversight of contractors by clarifying the roles and responsibilities of contractor staff, NNSA field staff, and NNSA Headquarters staff;
2. Establish effective lines of communication between the sites and senior NNSA managers;
3. Mandate effective contractor self-assessments of operations;
4. Define formal long-term milestones for completing its new business management processes, which includes applying a consistent approach to contractor governance; and,
5. Establish NNSA's expectation for linking metrics contained in performance evaluation plans with those measured in the contractor assurance systems.

NNSA management generally agreed with our conclusions and stated that they must continue to reform, enhance and mature their contractor assurance and governance systems and the Federal oversight of them. In addition, they agreed with the suggested actions noted and will address them in their future efforts to re-evaluate and enhance their processes. Management's comments are included in their entirety in Attachment 3.

Attachments

cc: Deputy Secretary
Associate Deputy Secretary
Chief of Staff

OBJECTIVE, SCOPE AND METHODOLOGY

OBJECTIVE

The objective for this audit was to evaluate the development of contractor assurance systems by National Nuclear Security Administration (NNSA) and its contractors.

SCOPE

We conducted the audit from January 2011 to December 2012, at NNSA Headquarters in Washington, DC; the Nevada Site Office and National Security Technologies, LLC in Las Vegas, Nevada; the Nevada National Security Site (Nevada) in Mercury, Nevada; the Los Alamos Site Office and Los Alamos National Laboratory (Los Alamos) in Los Alamos, New Mexico; and at the NNSA Albuquerque Complex, the Sandia Site Office and Sandia National Laboratories (Sandia) in Albuquerque, New Mexico.

METHODOLOGY

To accomplish the audit objective, we:

- Reviewed Department of Energy (Department) guidance, and policies and procedures applicable to contractor assurance systems and oversight;
- Reviewed pertinent prior Office of Inspector General audits, as well as related reports from NNSA, the site offices, and contractors;
- Interviewed key Federal and contractor personnel associated with contractor assurance systems and governance;
- Reviewed NNSA's implementation plans and milestone reports;
- Reviewed policies and procedures on the contractor assurance systems related to assessments, issues management, incident reporting, lessons learned, worker feedback, performance, and measuring feedback;
- Discussed the contractor assurance systems' implementation status of environment, safety and health; safeguards and security; emergency management; and cyber security programs at Los Alamos, Nevada and Sandia; and,
- Reviewed completed affirmation reports for Nevada, Sandia and Y-12 National Security Complex.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient,

appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective. The audit included tests of controls and compliance with laws and regulations to the extent necessary to satisfy the audit objective. In particular, we assessed the Department's implementation of the *GPR Modernization Act of 2010* and found that NNSA had established performance measures related to developing contractor assurance systems. Because our review was limited, it would not necessarily have disclosed all internal control deficiencies that may have existed at the time of our audit. We did not rely on computer-processed data to accomplish our audit objective.

Management waived an exit conference.

PRIOR REPORTS

- [*Implementation of Beryllium Controls at Lawrence Livermore National Laboratory*](#) (DOE/IG-0851, June 2011). All actions necessary to resolve previously observed weaknesses in a National Nuclear Security Administration (NNSA) review and an Office of Enforcement investigation regarding Lawrence Livermore National Laboratory's (Livermore) Beryllium Prevention Program had not been completed even though Livermore reported that it had completed a number of corrective actions designed to address the weaknesses. This occurred, in part, because the Livermore Site Office oversight efforts were not completely effective. Neither the Livermore Site Office nor Livermore corrective active verification and closure processes ensured that initiated actions were fully implemented.
- [*Security Planning for National Security Information Systems at Lawrence Livermore National Laboratory*](#) (OAS-M-11-03, April 2011). Certain national security information systems at Livermore were incomplete and did not always describe security controls and how they were implemented. The Livermore Site Office was not always notified when security-significant changes were made to those systems. These issues occurred, in part, due to insufficient performance monitoring by NNSA and Livermore Site Office officials. NNSA officials relied on Livermore Site Office officials to provide sufficient oversight.
- [*Nuclear Safety: Safety Basis and Quality Assurance at the Los Alamos National Laboratory*](#) (DOE/IG-0837, August 2010). Los Alamos National Laboratory continued to experience problems fully implementing numerous critical nuclear safety management measures because its management had not focused sufficient attention on implementing the nuclear safety Quality Assurance Program throughout the Laboratory. Also, the Los Alamos Site Office had not always taken the actions necessary to ensure nuclear safety at the Laboratory was improved by not establishing performance measures requiring updates of Documented Safety Analyses. Further, the Los Alamos Site Office had not established metrics requiring the Laboratory to correct identified system quality assurance weaknesses.



Department of Energy
National Nuclear Security Administration
Washington, DC 20585



February 5, 2013

MEMORANDUM FOR DAVID SEDILLO
DIRECTOR, WESTERN AUDITS DIVISION
OFFICE OF INSPECTOR GENERAL

FROM: CYNTHIA LERSTEN
ASSOCIATE ADMINISTRATOR
FOR MANAGEMENT AND BUDGET

SUBJECT: Comments on the Office of Inspector General Report Draft Letter
Report Titled, "National Nuclear Security Administration Contractor
Governance" (A11LV024/2011-00026)

The National Nuclear Security Administration (NNSA) appreciates the opportunity to review the subject draft letter report. NNSA generally agrees with the report's conclusions that we must continue to reform, enhance and mature our contractor assurance and governance systems and the federal oversight of them. We agree with the suggested actions noted in the report and will address them in our future efforts to re-evaluate and enhance our processes. Our goal is to achieve uniformly consistent, effective, risk-based oversight at a reasonable cost to the taxpayers, and we believe that refining, rather than abandoning, our approach is the best path forward. However, we would offer three management points to consider before the document is finalized and several technical and editorial comments to consider in the attachment.

- a. NNSA agrees that the draft report properly identifies that the Contractor Assurance Systems and the federal oversight of them are not fully functional and effective. However, the report, as written, does not acknowledge that the deficiencies have generally been self-identified and actions are underway to address them.
- b. The first bullet on page 2; the third sentence in the last paragraph on page 2; and the first full sentence on page 4 share the same core point that federal oversight functions were rendered ineffective at Y-12 because of the "eyes on-hands off" approach that underlies the federal oversight approach. The auditors link this point as a causal factor in the Y-12 security breach. However, it should be noted that the "eyes on-hand off" approach never applied to nuclear security matters; this was a misperception by some federal officials. Therefore, the causal attribution should be the misperception by some federal officials, not the NNSA's oversight policy.
- c. The third paragraph under Path Forward on page 6, states that, "In December 2012, an NNSA official told us that the agency was adopting a new approach to contractor governance . . . across the weapons complex." However, the criteria to be met for the



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path forward have not been determined, nor has senior NNSA management endorsed any specific path forward. Accordingly, the subject sentence should be modified. NNSA suggests the following wording instead:

“NNSA has decided that it will overhaul its governance processes, currently outlined in NAP-21, to strengthen them and apply them consistently across the weapons Enterprise. The overhaul will be accomplished in conjunction with the broader management initiative of developing a business system that conforms to ISO 9001 for quality assurance.”

If you have any further questions regarding this response, please contact Dean Childs, Director, Internal Control, at (301) 903-1341.

Attachment

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