



U.S. Department of Energy
Office of Inspector General
Office of Inspections and Special Inquiries

Inspection Report

Work Packages for Site Support Services
at Los Alamos National Laboratory

DOE/IG-0746

November 2006

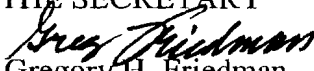


Department of Energy
Washington, DC 20585

November 29, 2006

MEMORANDUM FOR THE SECRETARY

FROM:


Gregory H. Friedman
Inspector General

SUBJECT:

INFORMATION: Inspection Report on "Work Packages for Site Support Services at Los Alamos National Laboratory"

BACKGROUND

The Department of Energy's Los Alamos National Laboratory (LANL) enhances global security by ensuring the safety and reliability of the U.S. nuclear weapons stockpile; developing technical solutions to reduce the threat of weapons of mass destruction; and solving problems related to energy, environment, infrastructure, health, and national security. Site support services at the Laboratory, including maintenance and repairs, are provided by the contractor KSL. Maintenance and repair work performed by KSL are controlled by the requirements of LANL Implementation Procedure IMP 300.2, *Integrated Work Management for Work Activities*. This document establishes the LANL Integrated Work Management process for doing work in a manner that protects people, the environment, property, and the security of the Nation.

To implement the provisions of IMP 300.2 and the Integrated Work Management process, maintenance and repair work at Los Alamos is performed through the use of work packages. A work package is a compilation of documents required to define the work, identify and analyze hazards, develop and implement controls, perform the work, and ensure performance. A work package requires various approvals designed to ensure that work steps, hazards, and controls are described in sufficient detail to safely perform the work.

The Office of Inspector General received an allegation that work packages at the Laboratory were being falsified in certain respects, compromising the safety of KSL work activities. We initiated this inspection to determine if: (1) work packages were being falsified as alleged; and (2) work packages were being prepared and approved in accordance with the provisions of IMP 300.2 and the Integrated Work Management process.

RESULTS OF INSPECTION

The allegations were substantiated, in part. While we could not corroborate all of the concerns provided by the complainant, we did identify work package issues and instances of non-compliance with the provisions of IMP 300.2 and the Integrated Work Management process. Specifically, we found that:

- Work package authorizing signatures and dates were often missing;



- An approving official could not affirm that three work package signatures were actually his; and,
- There was an attempt by a KSL field supervisor to have a subordinate change a date on a work package, as well as change notations made by an approving official.

In addition, during our inspection we identified three recent internal and external reviews at Los Alamos that addressed various issues concerning the KSL work package process. These reviews found widespread and systemic failure in implementing the provisions of IMP 300.2 and the Integrated Work Management process, with substantial negative impact on the development and authorization of KSL work packages. The reviews identified numerous work package problems, including:

- Missing signatures;
- Improper delegation of signature authority;
- Inadequate training of persons performing work or approving work packages; and,
- Hazards not properly identified in work package documentation.

Taken collectively, the issues identified by these reviews and our inspection reflect a work package process that is: (1) noncompliant with applicable policies and procedures, (2) seriously lacking in attention to details designed to assure the safe conduct of work activities, and (3) deficient in effective management control. Of particular note, these work package problems have existed since at least 2002, with various corrective actions having failed to resolve these problems. As a result, we made several recommendations to management designed to enhance the work package process and, thus, safety and security at the Laboratory.

MANAGEMENT REACTION

In responding to a draft of this report, management agreed with the report as presented and indicated that LANL has undertaken several initiatives related to the issues raised in the report. We found management's comments to be responsive to our findings and recommendations.

Attachment

cc: Deputy Secretary
 Administrator, National Nuclear Security Administration
 Under Secretary of Energy
 Under Secretary of Science
 Chief of Staff
 Chief Health, Safety and Security Officer
 Manager, Los Alamos Site Office
 Director, Policy and Internal Controls Management (NA-66)
 Director, Office of Internal Review (CF-1.2)
 Audit Liaison, Los Alamos Site Office

WORK PACKAGES FOR SITE SUPPORT SERVICES AT LOS ALAMOS NATIONAL LABORATORY

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Overview

INTRODUCTION AND OBJECTIVES

The Department of Energy's (DOE's) Los Alamos National Laboratory (LANL) is one of the largest multidisciplinary science institutions in the world. LANL enhances global security by ensuring the safety and reliability of the U.S. nuclear weapons stockpile; developing technical solutions to reduce the threat of weapons of mass destruction; and solving problems related to energy, environment, infrastructure, health, and national security. LANL was managed for the National Nuclear Security Administration by the University of California until December 21, 2005, when a new management contract with Los Alamos National Security, LLC, entered the transition phase. Los Alamos National Security assumed full contract responsibilities on June 1, 2006.

Since February 2003, site support services at LANL, including maintenance and repairs, have been provided by KSL, a joint venture of Kellogg Brown and Root Inc., Shaw Infrastructure Inc., and Los Alamos Technical Associates Inc. KSL continues to provide these services under the new management contract. Maintenance and repair work performed by KSL are controlled by the requirements of LANL Implementation Procedure IMP 300.2, *Integrated Work Management for Work Activities*. This document establishes the LANL Integrated Work Management (IWM) process for doing work in a manner that protects people, the environment, property, and the security of the Nation. The process is designed to address the hazards associated with environmental, safety, and health dangers and safeguards and security threats and vulnerabilities related to KSL work activities. The process also conveys the mechanisms and preventive measures used to reduce the risks posed by these hazards.

To implement the provisions of IMP 300.2 and the IWM process, maintenance and repair work at LANL is performed through the use of work packages. Work packages provide the information necessary to ensure that maintenance and repair work is performed consistent with the Facility Safety Plan. A work package is the compilation of all documents required to define the work, identify and analyze hazards, develop and implement controls, perform the work, and ensure performance. Contained within the work package is an Integrated Work Document (IWD), which requires various approvals designed to ensure that work steps, hazards, and controls are described in sufficient detail to safely perform the work.

The Office of Inspector General (OIG) received an allegation that work packages were being falsified in a variety of ways, compromising the safety of KSL work activities. It was specifically alleged that: (1) work package signatures of approving officials were lined through, re-signed, and re-dated; (2) work package numbers were covered using "white out," and then new numbers were applied to speed up the process of work packages reaching the field; (3) signatures of approving officials were copied and pasted onto original work packages, and then copied and sent to the field to be worked; and (4) an audit of work packages found widespread problems, to include documents without original signatures, names lined through and changed, and work performed before required signatures had been received.

The objectives of our inspection were to determine if: (1) work packages were being falsified as alleged; and (2) work packages were being prepared and approved in accordance with the provisions of IMP 300.2 and the IWM process. We sampled 217 work packages for the period May 2004 through April 2005 for LANL's Technical Area 50. The time period and the location were selected based on information provided in the allegation.

OBSERVATIONS AND CONCLUSIONS

We concluded that the allegations were partially substantiated. Although our sampling of work packages did not identify specific instances where work package signatures were lined through and re-signed or where work package numbers were covered and re-numbered, we did identify work package issues and instances of non-compliance with the provisions of IMP 300.2 and the IWM process. Specifically, we found that:

- Work package authorizing signatures and dates were often missing;
- An approving official could not affirm that three work package signatures were actually his; and,
- There was an attempt by a KSL field supervisor to have a subordinate line out and change a date on a work package, as well as change notations made by an approving official.

In addition, while we did not identify the specific work package audit discussed in the allegation, we did identify three recent internal and external reviews at LANL, including one conducted by DOE's Office of Security and Safety Performance Assurance, that addressed various issues concerning the KSL work package

process. These reviews found widespread and systemic failure in implementing the provisions of IMP 300.2 and the IWM process, with substantial negative impact on the development and authorization of KSL work packages. The reviews identified numerous work package problems, to include:

- Missing signatures;
- Improper delegation of signature authority;
- Inadequate training of persons performing work or approving work packages; and,
- Hazards not properly identified in work package documentation.

Taken collectively, the issues identified by these reviews and our inspection reflect a work package process that is noncompliant with applicable policies and procedures, that is seriously lacking in attention to details designed to assure the safe conduct of work activities, and that is deficient in effective management control. We believe this situation represents a potentially serious threat to the safety of associated work processes. Of particular note, these work package problems have existed since at least 2002, with various corrective actions having failed to resolve these problems.

Details of Findings

WORK PACKAGE ALLEGATIONS

Although our sampling of the 217 work packages did not identify specific instances where work package signatures were lined through and re-signed or where work package numbers were covered and re-numbered, we did identify work package issues and instances of non-compliance with the provisions of IMP 300.2 and the IWM process, as follows.

Missing Signatures And Dates

We found that work package authorizing signatures and dates were often missing. This appeared to be a systemic issue involving signatures for the authorization, verification, and certification of various work package elements. Specifically, while reviewing our sample of work packages for the alleged irregularities, we repeatedly observed instances where authorizing signatures and dates were missing. Therefore, we took a subsample of 24 work packages and specifically examined them to determine if all required signatures and dates were present. We determined that 11 of the 24 work packages were missing signatures and dates. For example, one work package did not include:

- The signature and date of the LANL Work Management Team Leader approving the Post-Job Review/Lessons Learned and Closeout Form;
- The signature and date of the Responsible Division Leader (RDL) approving the Environment, Safety and Health Site Hazard and Control Form; and,
- The signature and date of the Person-in-Charge verifying that three of the assigned workers had the authorization and training to perform the work safely.

As another example, a work package did not include:

- The signature and date of the Facility Coordinator/Designee accepting or rejecting the work order;
- The signature and date of the RDL approving the Environment, Safety and Health Site Hazard and Control Form; and,
- The signature and date of the Person-in-Charge verifying that four of the assigned workers had the authorization and training to perform the work safely.

Questionable Signatures

We found three instances where an approving official could not affirm that work package signatures were actually his. As part of our sampling of the 217 work packages, we looked for any evidence that signatures of approving officials were lined through, re-signed, and re-dated. During this review, we identified that the signatures of one official were not consistent, to include being significantly different in several instances. Subsequently, we focused on 14 work packages where this official had signed a total of 36 times in various capacities.

These signatures, which provided various approvals and gave specific assurances that work activities met safety and security requirements, contained multiple inconsistencies. We interviewed this official and had him review the 36 signatures. The official told us that 33 of the signatures were definitely his. However, he told us that two of the remaining three signatures were questionable and that he could not say for sure that they were his. He told us that the third signature, where his first name was misspelled, was highly questionable and that it was very unlikely he would have misspelled his first name. In this instance, the official's signature represented significant safety and security certifications. Specifically, the official's name was signed as the LANL Work Management Team Leader, certifying that "In my judgment, this work meets Laboratory requirements to meet safety and security requirements. I have ensured that the work activities in the IWD/Work Package are within the operating envelope as stated in the Facility Safety Plan or Authorization Basis." The official told us that he had not authorized anyone to sign for him in the three instances.

Attempt to Modify Work Package

We found that there was an attempt by a KSL field supervisor to have a subordinate line out and change a date on a work package, as well as change notations made by an authorizing official. Under the provisions of IMP 300.2, the applicable RDL is the person with ultimate responsibility, authority, and accountability for a facility, including safety, security, and environmental compliance. The RDL is required to review and sign all work packages for facilities under his or her control prior to commencement of the work. The RDL's signature is found on the IWD, as well as the Environment, Safety and Health Site Hazard and Control Form, which identifies hazards and concerns that could potentially affect worker safety.

In 2004, a work package had been annotated and approved by the RDL. Subsequently a KSL employee was instructed by a supervisor to line out a date on the work package and change

notations made by the RDL. After the KSL employee raised this issue to another supervisor, this instruction was rescinded. We determined that the RDL was not aware that there had been an attempt to modify this work package after his approval.

RESULTS OF OTHER REVIEWS

Although we did not identify the specific work package audit discussed in the allegation, we did identify three recent internal and external reviews that addressed various issues concerning the KSL work package process. In our view, the results of these reviews supported the overall contentions in the allegation we received. These reviews included:

- A September 29, 2005, KSL Management Assessment titled “KSL Implementation of Integrated Work Management for Work Activities.”
- A November 2005 DOE Office of Security and Safety Performance Assurance, Office of Independent Oversight, “Inspection of Environment, Safety, and Health Programs at the Los Alamos National Laboratory.”
- A March 8, 2006, review commissioned by the LANL Facility Management Division titled “IMP 300, *Integrated Work Management for Work Activities*, Implementation Assessment Report.”

These reviews found widespread and systemic failures in implementing the provisions of IMP 300.2 and the IWM process, with substantial negative impact on the development and authorization of KSL work packages.

KSL Management Assessment

The KSL Management Assessment was conducted by KSL to determine if KSL was implementing the requirements of IMP 300.2 for performing work in a safe, secure, environmentally responsible manner. The assessment identified 13 findings, to include:

- A lack of objective evidence that personnel were trained to the requirements of IMP 300.2;
- Incomplete work package documents; and,
- Missing required signatures on work package documents.

The assessment team concluded that the overall implementation of IMP 300.2 was inconsistent and lacked appropriate formality and

attention to detail. The assessment report stated that “The prevalence of missing or incomplete signatures and data on forms suggests that required reviews and involvement of responsible personnel is less than adequate and could be a precursor [to] a significant failure of control in regards to Integrated Work Management for Work Activities.”

Independent Oversight Review

The review by the Office of Independent Oversight assessed the effectiveness of environment, safety, and health programs at LANL. The review identified 26 findings and included issues such as:

- IMP 300.2 did not provide sufficiently clear requirements in all areas to ensure effective implementation across LANL, and for those requirements that were clearly defined in IMP 300.2, several LANL Divisions were not effectively implementing the requirements;
- Some LANL Divisions stated that their IWDs were compliant with or equivalent to IMP 300.2 requirements, even though their IWDs did not meet the IMP 300.2 requirements;
- Training required for KSL worker activities had not always been completed, and training documents did not always verify that adequate training was provided;
- In some cases, IWDs had not been adequately revised to reflect recent changes in hazards or controls prior to performing work;
- Subject matter expert involvement was lacking in the identification and analysis of hazards associated with work activities; and,
- IWDs did not have signatures from both the Responsible Laboratory Line Manager and the RDL as required by IMP 300.2.

The review team concluded that longstanding weaknesses in LANL processes have been repeatedly identified, but have not been adequately addressed. Their report noted that LANL injury and illness rates are among the highest in the complex and stated that “hazards to workers had not been adequately identified, analyzed, and controlled.”

IMP 300 Implementation Assessment Report

The Implementation Assessment commissioned by the LANL Facility Management Division reviewed activities associated with the performance of maintenance work and compliance with IMP 300.2 and other governing procedures. The assessment team reviewed 101 of 7,514 maintenance work packages created between July 1, 2005, and December 22, 2005, including examples from each of the Facility Maintenance Units at LANL. The assessment found that IMP 300.2 had not been fully addressed and identified numerous deficiencies and inconsistencies in work packages across all 12 Facility Maintenance Units. All 101 work packages reviewed contained one or more problems, to include:

- Work authorizations not properly authorized;
- RDL signature authority improperly delegated;
- RDLs and Persons-in-Charge not trained for their respective roles;
- Training and qualifications of workers not applying to the specific work activities;
- Points of Contact and Persons-in-Charge not identified on IWDs; and,
- Job Hazard Analysis tool not in use.

The assessment team concluded that, although some individual issues associated with work packages were not of particular significance, considered collectively, they reflected a lack of effective quality reviews contrary to Laboratory requirements. The assessment team also concluded that, across all Facility Maintenance Units, there was a general inattention to detail.

RECOMMENDATIONS

We recommend that, given the potential significance of the issues associated with KSL work activities at LANL and their impact on safety and security, the Manager, Los Alamos Site Office, ensures that LANL provides immediate attention to and continued oversight of KSL work package activities and ensures that:

1. All KSL work packages are developed and approved in accordance with applicable policies and procedures.
2. All KSL work package activities are conducted in accordance with the requirements of IMP 300.2 and the IWM process.

We also recommend that the Manager, Los Alamos Site Office:

3. Have LANL and KSL evaluate the recent assessments of the IMP 300.2 and the IWM processes and develop a “lessons learned” to be used in correcting work package deficiencies.

**MANAGEMENT
COMMENTS**

In comments on a draft of this report, the National Nuclear Security Administration agreed with the report as presented and indicated that LANL has undertaken several initiatives related to the issues raised in the report.

**INSPECTOR
COMMENTS**

We found management’s comments to be responsive to the report findings and recommendations.

Appendix A

SCOPE AND METHODOLOGY

We conducted the majority of our fieldwork from September 2005 through March 2006. Our review included interviews with DOE officials from the Los Alamos Site Office, officials from LANL Maintenance Divisions, and subcontractor employees. We also reviewed applicable policies and procedures regarding integrated work management at LANL.

This inspection was conducted in accordance with the “Quality Standards for Inspections” issued by the President’s Council on Integrity and Efficiency.

Appendix B

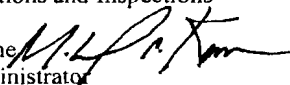


Department of Energy
National Nuclear Security Administration
Washington, DC 20585



November 6, 2006

MEMORANDUM FOR Christopher R. Sharpley
Deputy Inspector General
for Investigations and Inspections

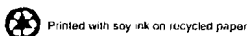
FROM: Michael C. Kane 
Associate Administrator
for Management and Administration

SUBJECT: Comments to Draft Inspection Report Los
Alamos's Support Services Work Packages,
S05IS039/2006-30192

The National Nuclear Security Administration (NNSA) appreciates the opportunity to review the Inspector General's (IG) draft inspection report, "Work Packages for Site Support Services at Los Alamos National Laboratory." We understand that this inspection was based on an allegation received by the IG that work packages were being falsified in a variety of ways, compromising the safety of KSL, a Laboratory subcontractor, work activities. We equally understand that the inspection objectives were to determine if work packages were being falsified and if work packages were being prepared and approved in accordance with directions.

NNSA agrees with the report as presented. Since June, the Laboratory has initiated several initiatives related to the issues raised, such as:

- The Laboratory issued an Integrated Corrective Action Plan which addresses several of the noted issues related to "IMP 300.2" and the Integrated Work Management Processes observed in assessments. An Improvement Plan for the Integrated Work Management processes will be issued in January 2007.
- The Laboratory finalized its Maintenance Planner Training and Qualification Program. This performance based training and qualification program includes a graded approach for qualifications based on the complexity of assignments and will improve consistency and discipline in work planning and management.



For the recommendations focused on KSL work packages being developed in accordance with policies and work packages being conducted in accordance with the published requirements, NNSA agrees. The Laboratory has held a series of “Stand Downs” to re-emphasize the importance of the preparation/review/approval of IWM documentation. The Laboratory is developing new programs to facilitate the compliant execution of work such as a Conduct of Operations Manual, a Conduct of Maintenance Manual, and a Conduct of Engineering Manual. A working group has been formed to enhance the Implementation Plan for IMP 300.2. The Laboratory is implementing the Maintenance Planner Training and Qualification Program.

For the recommendation focused on the development of a “Lessons Learned” system, the Laboratory and the subcontractor is incorporating any lessons learned into the Maintenance Planner training program and will share, as appropriate, lessons learned with others in the NNSA complex. NNSA will monitor the Laboratory’s success and progress through the Laboratory’s verification and audit process in its Contractor Assurance System.

Should you have any questions related to this response, please let me know.

- cc: Ed Wilmot, Manager, Los Alamos Site Office
- Frank Russo, Senior Advisor, Environment, Safety and Health
- David Boyd, Senior Procurement Executive
- Karen Boardman, Director, Service Center

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2. What additional information related to findings and recommendations could have been included in the report to assist management in implementing corrective actions?
3. What format, stylistic, or organizational changes might have made this report's overall message clearer to the reader?
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