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Office of Inspector General
Office of Audits and Inspections

Inspection Report

Radiological Waste Operations in Area G at Los Alamos National Laboratory

INS-O-13-03

March 2013



Department of Energy
Washington, DC 20585

March 20, 2013

MEMORANDUM FOR THE MANAGER, LOS ALAMOS FIELD OFFICE, NATIONAL
NUCLEAR SECURITY ADMINISTRATION

A handwritten signature in cursive script, reading "Sandra D. Bruce".

FROM: Sandra D. Bruce
Assistant Inspector General
for Inspections
Office of Inspector General

SUBJECT: INFORMATION: Inspection Report on "Radiological Waste
Operations in Area G at Los Alamos National Laboratory"

INTRODUCTION

Los Alamos National Laboratory (Los Alamos) has a national security mission that includes science, engineering and technology related to radioactive and hazardous materials such as plutonium, americium, asbestos and lead. Material Disposal Area G, located in Technical Area 54, is one of Los Alamos' active disposal areas for low-level radioactive waste. To help ensure that operations are conducted in a safe and efficient manner, Los Alamos developed a program to integrate management and radiological waste operations work practices in Area G. The National Nuclear Security Administration's (NNSA) Los Alamos Field Office is responsible for overseeing the operations of Los Alamos.

Title 10, Code of Federal Regulations, Part 830, *Nuclear Safety Management*, and Department of Energy (Department) and Laboratory requirements govern the conduct of Department contractors, personnel and other persons conducting activities that affect, or may affect, the safety of the Department's nuclear facilities. Assessments completed by the Los Alamos Field Office and the Department's Office of Enforcement and Oversight, Office of Health, Safety and Security in 2011 identified operational problems that could adversely impact safety at Los Alamos.

Because safety is an essential part of the Department's operations, we initiated an inspection to determine whether previously reported safety weaknesses had been addressed and whether radiological waste operations in Material Disposal Area G were being conducted in a safe manner.

RESULTS OF INSPECTION

We noted that Los Alamos developed corrective actions designed to address safety issues identified during the 2011 safety assessments. While progress had been made, our inspection

identified opportunities for further improvements regarding training, the consistency of Area G operational activities with safety requirements, and updating safety-related documents. Specifically, we found that:

- Seven individuals who worked in Area G did not complete the required safety training, and an additional two individuals' training files were not updated with the employees' most current training information.
- Some Area G operational activities were not conducted in a manner that was consistent with specific operational safety requirements. For example, during our tours of the facility we observed blocked emergency access roads, unsafe forklift operations, and potential cross-contamination of work/break areas.
- The *Technical Safety Requirements* document used to specify required safety and operational procedures contained numerous outdated or cancelled references.

In several observed instances, Los Alamos did not ensure Area G operated in a manner that supported the adequate protection of the workers and the environment, consistent with required safety standards and operational safety requirements. Further, Los Alamos did not periodically review the *Technical Safety Requirements* document to ensure that all references to applicable Laboratory procedures and Department and national consensus documents were updated and current. Because Los Alamos did not take sufficient steps to ensure that unsafe conditions were avoided or mitigated, these conditions may exist and could lead to personnel injury or property damage in Area G.

Based on these observations, we believe Los Alamos can take a number of steps to improve the safety of Area G operations for the workers. Therefore, we have made a number of recommendations designed to assist the NNSA with ensuring that Area G operations are conducted in a safe manner.

MANAGEMENT REACTION

Management generally agreed with the report's findings and recommendations and indicated it was in the process of implementing or completing corrective actions. However, management disagreed with our finding concerning the potential risk of spreading contamination between controlled and uncontrolled areas. While we agree that no accessible contamination was known to exist within the Radiological Controlled Area of Area G, and that the probability to spread contamination may not be great, we believe that the condition we observed did create the potential. The potential existed because employees were allowed to return to an area that they had just been cleared to leave. This occurred as a result of the circumvention of a radiological safety measure that was part of the site's overall radiation protection program (e.g. the use of hand and foot monitoring at the Radiological Controlled Area boundary). Management's formal comments are included in Appendix 2.

Attachment

cc: Deputy Secretary
Administrator, National Nuclear Security Administration
Chief of Staff

REPORT ON RADIOLOGICAL WASTE OPERATIONS IN AREA G AT LOS ALAMOS NATIONAL LABORATORY

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RADIOLOGICAL WASTE OPERATIONS IN AREA G AT LOS ALAMOS NATIONAL LABORATORY

SAFETY ISSUES

In 2011, assessments completed by the Los Alamos Field Office (Field Office) and the Department of Energy's (Department) Office of Enforcement and Oversight, Office of Health, Safety and Security identified operational problems that could adversely impact safety at Los Alamos National Laboratory (Los Alamos). These assessments found deficiencies in environmental management, operations, safety basis procedures and engineering safety system oversight. In addition to these issues, we identified opportunities for further improvements regarding: (1) training discrepancies; (2) consistency of Material Disposal Area G (Area G) operational activities with operational safety requirements; and (3) the use of safety-related documents that referenced outdated requirements.

Training Discrepancies

We found that seven individuals who worked in Area G did not complete the required safety training. An additional two individuals' training files were not updated with the employees' most current training information. Examples of incomplete training included safety training in the areas of *Radiological Worker*, *Resource Conservation and Recovery Act* and *Resident Employee Training* that addresses field hazards. Training necessary to maintain specific skill proficiencies and unescorted entry into Area G was also not completed as required. Department Order 426.2, *Personnel Selection, Training, Qualification, and Certification Requirements for DOE Nuclear Facilities*, contains requirements to ensure personnel have requisite knowledge, skills and abilities to properly and safely perform work. The Los Alamos Standard Operating Procedures for *Personnel, Training and Qualification* requires personnel to receive training that addresses work-specific risks and hazards consistent with personnel roles and responsibilities. Responsible managers must identify the qualification requirements, training needs and proficiency requirements for personnel assigned to work.

Our review of Los Alamos' recently implemented training program, UTrain, which handles all employee training authorizations and training transactions, identified these errors. Specifically, our review of 42 files for employees working in Area G identified a total of 9 discrepancies. Four files showed that individuals had not maintained specific skill proficiencies, such as working around lead and asbestos, working in high noise areas and using fire extinguishers. Three files showed that individuals had not taken the necessary training courses to gain unescorted entry

into Area G, including *Hazardous Waste Operations and Emergency Response and Radiological Worker* training. Also, two other files were not updated with the employees' most current training information to include *Powered Air Purifying Respirator* and the *Hazardous Waste Operations and Emergency Response* training. Failure to take training necessary to maintain specific skill proficiencies could result in unsafe activities.

We also found that Los Alamos' implementation of UTrain could allow for future training discrepancies. As an example, training alerts were disseminated to employees by e-mail; however, if an employee did not have regular access to e-mail, the employee would not always know when training was required. Additionally, we were told by Los Alamos training officials that Laboratory craft workers were not receiving training alerts. We also noted that a number of Area G workers had similar issues. Failure to provide timely notification of training requirements could prevent Area G workers from maintaining the skill proficiencies in the areas previously discussed, which could result in Area G workers not being able to successfully deal with a safety incident or accident.

OPERATIONAL SAFETY ISSUES

Our review determined that some Area G operational activities were not conducted in a manner that was consistent with operational safety requirements. The following items are examples of concerns we found during our review.

Roadway Emergency Access

The emergency access roadway in Area G was blocked on two occasions; a practice that could limit access for wide vehicles such as ambulances and fire trucks. While there is no Los Alamos or Department policy or procedure that addresses this issue, the roadway in question is considered an "emergency access route" where the Los Alamos Fire Department has the responsibility to periodically conduct "walk-downs" to identify obstacles that impede emergency access. Therefore, we believe that delayed emergency vehicle access due to roadway obstruction could lead to additional and/or more severe worker injuries.

Forklift Warning Systems and Spotter Positioning

During four separate onsite visits, we found one forklift that did not have an audible reverse beeper and a forklift operator unloading drums who was not in line-of-sight and/or verbal communication with a spotter. This warning device and safe operating procedure are required by *EWMO* (Environment and Waste Management

Facility Operations) *DIVISION SPECIFIC FORKLIFT OPERATIONS* (EP-DIV-DOP-0111) and Los Alamos National Laboratory Procedure P101-4, *Fork Lift and Powered Industrial Truck*, respectively. Absent required audible warning devices on forklifts, a worker or workers not paying attention could be injured. Additionally, without proper spotter positioning and communication, a forklift operator could miss an obstruction and drop the load or injure other employees.

Radiological Safety Practices

Personnel moved between controlled (less than the releasable limit for radiological contamination) and uncontrolled (uncontaminated) zones, creating the potential to spread contamination to an uncontaminated facility. Specifically, a broken turnstile east of Area G forced employees to re-enter the controlled area after being cleared of contamination at a screening facility enroute to an uncontrolled break facility. With the turnstile broken, the employees went to the screening facility to be cleared for radiation contamination. The employees then obtained a key to a padlock for the vehicle gate, re-entered the controlled area to unlock the vehicle gate and walked to the break facility. Upon return, the employees repeated these steps. This condition conflicted with basic radiological safety practices outlined in Los Alamos National Laboratory Procedure P121, *Radiation Protection*, dated June 1, 2011. We were provided written notification that the turnstile was repaired on December 8, 2011.

NNSA disagreed with our statement that this issue created the opportunity for the spread of contamination to an uncontaminated facility. Area G is a Radiological Controlled Area (RCA) with Contamination Areas (CA) located within its boundaries. NNSA said that because processes are performed in the CA that could result in contamination such as "box remediation" and "drum venting," this area is subject to constant air monitoring and step off boundaries where anti-contamination clothing is taken-off and whole body monitoring is conducted. As an added safety measure, additional hand and foot monitoring is performed at the radiological buffer area around the CA and at the RCA boundary where the broken turnstile was located. NNSA took the position that as neither the RCA nor an uncontrolled area is "contaminated," there is no direct risk of spreading contamination via movement between those areas. NNSA said that while the observed temporary routing of employees through the RCA after screening is not the desired practice under routine operations, the action did not present a risk for the spread of contamination.

However, while we agree that no accessible contamination is known to exist within the RCA and that the probability to spread contamination may not be great, we believe that the condition we observed did create the potential for the spread of contamination outside the RCA. This potential existed because employees were allowed to return to an area that they had just been cleared to leave through the circumvention of a radiological safety measure that was part of the site's overall radiation protection program (e.g. the use of hand and foot monitoring at the RCA boundary). We believe that NNSA's intent to require Los Alamos to perform technical evaluations/justifications for future operational constraints of this type, to include recommendations for compensatory measures such as defined walkways from the monitoring station to the exit, should ensure that such constraints are managed in a manner consistent with the site's overall radiation policy.

Other Safety Concerns

We noted the following additional safety concerns during our walkthrough:

- Failure to properly "chock" wheels on one parked truck, as required by local safety regulations, creating the potential for property damage or injury to personnel;
- Failure to comply with aisle width standards between container stacks in one instance, as required by the *Waste Disposition Project Resource Conservation and Recovery Act Inspections* document, potentially hampering emergency operations; and,
- Missing the annual safety certification tag on a bridge ladder, as required by the *Waste Disposition Project Resource Conservation and Recovery Act Inspections* document, potentially compromising the safety of workers. The ladder was not in use at the time.

OUTDATED SAFETY DOCUMENTS

We found that the *Technical Safety Requirements* document in effect during our review contained numerous outdated or cancelled references to performance requirements and standards. Specifically, the *Technical Safety Requirements* document contained 29 Los Alamos references, of which 21 were either previously cancelled or replaced. For example, this document referenced Los Alamos Performance Requirement 230-02-00, *Facility Condition and Inspections* that was cancelled by Los Alamos National Laboratory Procedure P951, *Conduct of Maintenance*, in September 2006. Additionally, the eight remaining references were found to address outdated Department and national consensus documents. For example, Department Order 5700.6C, *Quality Assurance*, was cancelled by Department Order 414.1, *Quality Assurance*, that has since become Department Order 414.1D. In addition, National Fire Protection Association's (NFPA) 1999 edition of *NFPA 70: National Electrical Code*, was cited instead of the current 2011 edition, and the Institute of Nuclear Power Operations (INPO) 90-020, *Performance Objectives and Criteria for Corporate Evaluations*, was cited instead of the current, *INPO 05-003 Performance Objectives and Criteria*.

The *Basis for Interim Operations* was intended to update and replace the *Documented Safety Analyses* and the *Technical Safety Requirements* documents. The Field Office had required Los Alamos to review and modify approximately 150 policy and procedural documents. These support the *Basis for Interim Operations* and *Technical Safety Requirements* that were approved on March 1, 2012. NNSA agreed that the references had not been updated in the currently approved and implemented *Documented Safety Analyses*. NNSA also indicated that a new Area G *Documented Safety Analyses* was approved in March 2012 and does have updated references, but has yet to be implemented. In addition, NNSA indicated that safety basis documents undergo an annual review and approval process as required by Title 10 Code of Federal Regulations (CFR) 830.202 and that references were updated in the Area G *Technical Safety Requirements* document in September 2012. NNSA indicated that the words "or successor document" were added to references to ensure that the *Technical Safety Requirements* document remains current and technically accurate, even when reference changes occur between *Technical Safety Requirements* updates.

However, given the fact that the current *Technical Safety Requirements* document contained numerous outdated references, and that some of the outdated or cancelled references survived the annual review and approval process, we believe that continued attention to this issue is warranted to ensure that references to performance requirements and standards are kept current.

CONTRIBUTING FACTORS AND IMPACT

The issues discussed in this report occurred, in part, because Los Alamos did not always ensure Area G personnel operated in a manner that supported the adequate protection of the workers and the environment under the nuclear safety requirements of Title 10, CFR, Part 830, and related Department and Los Alamos requirements. Additionally, Los Alamos did not ensure that all personnel working in Area G were fully trained to perform required duties, and that UTrain files were updated to reflect current training records. Also, Los Alamos did not ensure that Area G operational activities were consistent with specific operational safety requirements. Finally, while the *Technical Safety Requirements* document had been reviewed as late as January 2012, Los Alamos did not properly ensure that all references to applicable Laboratory procedures and Department and national consensus documents were updated and current.

As a consequence, unsafe conditions could lead to personnel injury or property damage in Area G. Specifically, because of training deficiencies, some individuals may have been performing work activities without the necessary skills. In addition, some individuals may not have been aware of the applicable policies and procedures necessary to perform work in a safe manner. Because Area G operational activities were not always consistent with specific operational safety requirements, the potential exists for unsafe conditions that could have led to personnel injury or property damage. Finally, because of outdated references to requirements in safety-related documents, Los Alamos workers could have performed procedures that did not conform to current standards.

RECOMMENDATIONS

To address the issues outlined in our report and to help prevent recurrence, we recommend that the Manager, Los Alamos Field Office:

1. Ensure Area G employees receive UTrain notifications and take the training required to maintain current skills and perform work involving nuclear waste operations in a safe manner;

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2. Ensure Area G operational activities are consistent with specific operational safety requirements, such as those found in the *Waste Disposition Project Resource Conservation and Recovery Act Inspections* document; and,
 3. Conduct periodic reviews of Los Alamos safety-related documents to ensure that references such as Los Alamos performance requirements, Department requirements and national consensus documents are current.

**MANAGEMENT
REACTION**

Management generally agreed with the report's findings and recommendations and indicated it was in the process of implementing or completing corrective actions. However, management disagreed with the finding concerning the potential risk of spreading of contamination between controlled and uncontrolled areas. NNSA believes the issue relates to a misinterpretation of existing policies relating to controlled and uncontrolled areas.

Management comments have been provided in their entirety in Appendix 2.

**INSPECTOR
COMMENTS**

Management's comments and planned corrective actions are generally responsive to our report findings and recommendations. With regard to management's disagreement on the issue of spreading contamination, we agree that no accessible contamination was known to exist within the RCA of Area G, and that the potential to spread contamination may not be great. However, we believe that the condition we observed did create the potential for the spread of contamination outside the RCA. The potential existed because employees were allowed to return to an area that they had just been cleared to leave. This occurred as a result of the circumvention of a radiological safety measure that was part of the site's overall radiation protection program (e.g. the use of hand and foot monitoring at the RCA boundary).

OBJECTIVE The objective of this inspection was to determine whether previously reported safety weaknesses had been addressed and whether radiological waste operations in Material Disposal Area G (Area G) were being conducted in a safe manner.

SCOPE This inspection was conducted from September 2011 through March 2013, at the National Nuclear Security Administration (NNSA) Albuquerque Complex, the Los Alamos Field Office (Field Office) and the Los Alamos National Laboratory (Los Alamos).

METHODOLOGY To accomplish the inspection objective, we:

- Reviewed and analyzed Title 10, Code of Federal Regulations, Part 830, *Nuclear Safety Management*, and Department of Energy (Department), NNSA and Los Alamos guidance and requirements documents;
- Received informational briefings from the Department, NNSA and Los Alamos personnel;
- Participated in a video conference with the Department's Environmental Management officials;
- Interviewed personnel at the Field Office and Los Alamos;
- Conducted four walkthroughs of Area G; and,
- Received a UTrain familiarization briefing and reviewed Los Alamos training records.

This inspection was conducted in accordance with the Council of the Inspectors General on Integrity and Efficiency, *Quality Standards for Inspection and Evaluation*, January 2012. Those standards require that we plan and perform the review to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our objectives. We believe the evidence obtained provides a reasonable basis for our findings and conclusions based on our objectives. Accordingly, the inspection included tests of controls and compliance with laws and regulations to the extent necessary to satisfy the inspection objective. In particular, we assessed the Department's compliance with the *Government Performance and Results Act Modernization Act of 2010* by reviewing Los Alamos' performance measurement

Appendix 1 (continued)

processes related to the Safety Program. We found that Los Alamos National Security, LLC, had performance measures in the areas of *Legacy Transuranic Waste Disposition*, *Sustained Implementation of Formality of Operations*, *Conduct of Operations Maturity*, and *Conduct of Training*. These measures appear to address training, operational safety and the Documented Safety Analyses. Because our review was limited, it would not necessarily have disclosed all internal control deficiencies that may have existed at the time of our inspection. Finally, we relied on computer-processed data, to some extent, to satisfy our objective. We confirmed the validity of such data, as appropriate, by conducting interviews and reviewing source documents.

The exit conference was waived by NNSA management.

MANAGEMENT COMMENTS



Department of Energy
National Nuclear Security Administration
Washington, DC 20585



February 5, 2013

MEMORANDUM FOR SANDRA D. BRUCE
ASSISTANT INSPECTOR GENERAL
FOR INSPECTIONS
OFFICE OF INSPECTOR GENERAL

FROM: CYNTHIA A. LERSTEN
ASSOCIATE ADMINISTRATOR
FOR MANAGEMENT AND BUDGET

SUBJECT: Comments on the Draft Inspection Report for Radiological Waste
Operations in Area G at Los Alamos National Laboratory;
S11IS010/2011-02377

The National Nuclear Security Administration (NNSA) has completed its review of the Inspector General's (IG) draft report "Radiological Waste Operations in Area G at Los Alamos National Laboratory." NNSA generally agrees with the findings and conclusions in the report with the exception of the potential risk of spreading contamination between controlled and uncontrolled areas within the Area G fence perimeter. NNSA believes this issue simply relates to a misinterpretation of existing policies related to controlled and uncontrolled areas and trust that the clarifications we have provided in the attachment to this memorandum will sufficiently resolve any concerns.

NNSA agrees with the three recommendations in the report and has begun or completed actions to address the issues identified in the recommendations. It is the intent of NNSA to ensure Area G is operated in a manner that ensures the adequate protection of the workers, the public, and the environment. The attachment to this memorandum provides the specific actions we are taking to address the recommendations. Also attached are selected General and Technical comments to help improve the clarity and factual accuracy of the report.

NNSA appreciates the recommendations contained in the report, and thanks the inspectors who were very supportive after the inspection in conducting follow-up meetings to help clarify the results of their work while on-site. If you have any further questions on the comments provided or the implementation of the recommendations please contact Dean Childs, Director, Internal Control at (301) 903-1341.

Attachment



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NNSA RESPONSE TO IG DRAFT INSPECTION REPORT
Radiological Waste Operations at Area G

Response to Report Recommendations

Recommendation 1: Ensure Area G employees receive UTrain notifications and take the training required to maintain current skills and perform work involving nuclear waste operations in a safe manner.

Management Response: Concur

The National Nuclear Security Administration (NNSA) has reviewed the seven instances noted in the report wherein Area G employees did not complete certain required safety training and the two instances wherein employee files were not updated to reflect the employees' most recent training information. All of those issues have been corrected.

In reviewing the IG's findings, it was noted that the OIG review of the UTrain system records was conducted just three months after Los Alamos National Laboratory (LANL) began to use the new system and discrepancies did exist between training assigned and training required for job duties at that time. In addition to correction of the known discrepancies, Area G uses a companion system to UTrain called the Worker Qualification and Authorization System (WQAS). The WQAS is now used widely at Area G and recognized by Area G managers as an important tool to determine the qualifications of employees, and identify who can be authorized to perform specific work tasks. The key attribute of the system is that workers are not authorized to perform work until they are qualified to perform the work.

In addition, NNSA recognizes and appreciates the IG's concern regarding training notifications for employees who do not have e-mail access. Currently, employees who do not have access to e-mail are informed by their first line managers of upcoming training requirements in pre-job meetings. As an additional control measure, Training Coordinators are assigned to work groups and follow up with individuals to help ensure required training is completed on time. Craft workers are notified by Training Coordinators of training that is required and when the training is scheduled.

NNSA has corrected the specific instances noted by the IG, and believes that the collective on-going controls noted above are effective in ensuring that training for all employees is current and documented appropriately. NNSA considers this recommendation closed.

Appendix 2 (continued)

Recommendation 2: Ensure Area G operational activities are consistent with specific operational safety requirements, such as those found in the *Waste Disposition Project Resource Conservation and Recovery Act Inspections* document.

Management Response: Concur

Los Alamos Site Office (LASO) will ensure Area G operational activities are consistent with specific operational safety requirements and has established the following corrective actions to address the specific areas noted in the report:

Roadway Emergency Access – Los Alamos National Security (LANS) has reviewed current policies regarding roadway emergency access and has determined that they adequately address requirements for keeping roadways free of obstruction and/or alternative routing of emergency vehicles when roadway access is not available. However, it is critical that all employees and security personnel be cognizant of these requirements, be vigilant in ensuring roadways are not blocked, and report any observed roadway blockages to appropriate personnel. To support this imperative, LANS will brief personnel to ensure there is appropriate awareness of the expectation of clear roadways and notify security managers to re-emphasize these requirements with officers. The estimated completion date for this corrective action is March 30, 2013.

Forklift Warning Systems and Spotter Positioning – In December 2012, LANS updated the Environment and Waste Management Facility Operations (EWMO) Division Specific Forklift and Drum Handler Equipment Operations procedure to implement the new Area G Technical Safety Requirements (TSRs) and correct existing TSR references. The revised procedure now has document number EP-DIV-DOP-20086. Procedure EP-DIV-DOP-20086 continues to require that each forklift is inspected by the operator at the start of each work shift to ensure that the backup alarm on the forklift is operable, and this inspection is documented on a EWMO Forklift Inspection Log sheet. Forklift operators were briefed as a part of the procedure change process. NNSA Considers this item closed.

Radiological Safety Practices – As noted in the “General Comments” section of this document, below, NNSA disagrees with the IG’s conclusion that the issues observed by the Inspection Team represent a risk of spreading contamination from a “Controlled Area” to an “Uncontrolled Area.” No accessible contamination is known to exist in a “Radiological Controlled Area” (RCA). As neither a RCA nor an uncontrolled area is “contaminated,” there is no direct risk of spreading contamination via movement between those areas. While the observed temporary routing of employees through the RCA after screening is not the desired practice under routine operations, the action did not present a risk for the spread of contamination. (See the General Comments for a more detailed comment and path forward on this issue). NNSA considers this item closed.

Other Safety Concerns – LASO met with the auditors to review the circumstances noted in the report. As a result, we have requested certain clarifications regarding the observations on chocking of wheels and tagging of the bridge ladder. Upon review of the final report with

Appendix 2 (continued)

these clarifications, LANL will take action as necessary to correct any verified control deficiency. Estimated completion date is June 30, 2013.

Recommendation 3: Conduct periodic reviews of Los Alamos safety-related documents to ensure that references such as Los Alamos performance requirements, Department requirements and national consensus documents are current.

Management Response: Concur in Principle

Safety basis documents undergo an annual review and approval process as required by 10 CFR 830.202(c)(2). References were updated in the Area G Technical Safety Requirements (TSRs) in September 2012 and the words “or successor document” were added to references to ensure that the TSRs remain current and technically accurate, even when reference changes occur between TSR updates.

The references have not been updated in the currently approved and implemented Area G DSA. An evaluation was conducted in June 2009 under the Unreviewed Safety Question (USQ) process that resulted in a determination that there was no impact to the safety basis for Area G.

A new Area G DSA was approved in March 2012 and does have updated references but has not yet been implemented. Implementation of this DSA is scheduled for September 30, 2013.

Appendix 2 (continued)

General Comments

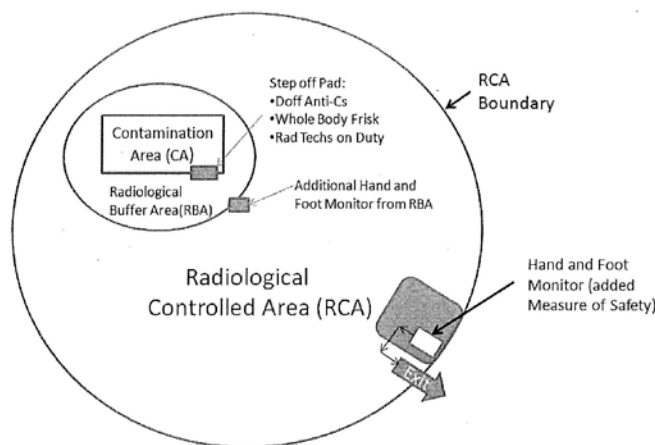
1) Page 2, Radiological Safety Practices

NNSA disagrees with the finding that practices involved in re-routing employees as a result of the broken turnstile in the perimeter fence at the east end of Area G created the potential to spread contamination to an uncontaminated facility. The perimeter fence of Area G is posted as a "Radiological Controlled Area" (RCA). No accessible contamination is known to exist, but possible due to the posted contamination areas (CA) associated with our process, i.e. box remediation, drum venting, etc. Each of these areas is controlled for the contamination area as prescribed by Procedure P-121, Radiation Protection. The controls for the contamination areas that encompass the process areas include constant air monitoring, step off boundaries where anti-Cs are doffed and whole body monitoring occurs. Additionally, each contamination area maintains a buffer area to provide further control of contamination prior to entry back into the RCA.

The monitoring requirement at the Area G exits to the perimeter fence provides an extra measure of safety in an overall radiation protection program. Known sources of radioactive contamination are programmatically controlled at their source as described above. In addition, the Radiation Protection Organization conducts numerous routine surveys in the areas surrounding known sources of radioactive contamination to ensure that the controls established are effective. Additionally, there have been no personnel contamination found at the RCA boundary or exits since the RCA monitoring process was established.

The physical layout of Area G entry and exit points requires minimal traversing back into the RCA after the hand and foot monitoring. This routine practice has been reviewed and approved by the Radiation Protection Organization. See Figure 1 below.

Figure 1. Basic Depiction of the Radiological Boundaries within Area G



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Appendix 2 (continued)

The added distance that the individual observed during the inspection traveled through the RCA due to the malfunctioning turnstile is not the desired practice under routine operations. As a result, LANL RP-1 management will begin performing technical evaluations/justifications for situations that arise where operational constraints present situations where monitoring stations and exits are not as close as possible. This will include recommendations of compensatory measures such as establishing defined walkways from the monitor to the exit. Estimated closure June 2013.

- 2) Memo, Page 2, 1st Paragraph after bullets – The paragraph appears to be more expansive than the finding in describing the overall issues identified. NNSA suggests replacing the paragraph with the following sentence for a more balanced statement proportionate with the findings observed:

“Based on these observations, Los Alamos can take a number of steps to improve the safety of Area G operations for the workers. We made a number of recommendations...”

Appendix 2 (continued)

Technical Comments

- 1) Page 2, Forklift Warning Systems Section: Please correct cited document numbers to EP-DIV-DOP-0111 and P 101-4
- 2) Page 3, Other Safety Concerns, 1st Bullet: Please clarify if during the observed instances the vehicle observed was in the process of loading or unloading. While the IG correctly noted that local policies simply require wheels to be chocked, the OSHA Standard 1910.178(m)(7) that is cited in the report only requires chocking of vehicles while loading/unloading.

As such, if the vehicle was in the process of loading or unloading, then the language may accurately remain as stated. If not, then the sentence should read: "...as required by local safety regulations..."
- 3) Page 3, Other Safety Concerns, 2nd Bullet: Please change "barrel stacks" to "container stacks." The use of the term container is more consistent with terms used at the facility.
- 4) Page 3, Other Safety Concerns, 3rd Bullet: Please clarify whether the noted bridge ladder was in use at the time. As a safety control, all personnel are required to visually inspect all ladders for defect and proper inspection tag. This will help further distinguish between potential user non-compliance and inspection/tagging backlog or oversight.

PRIOR REPORTS

- Audit Report on [*Nuclear Safety: Safety Basis and Quality Assurance at the Los Alamos National Laboratory*](#) (IG-0837, August 2010). The Department of Energy's (Department or DOE) Los Alamos National Laboratory (Los Alamos) is a government-owned, contractor-operated facility that is part of the National Nuclear Security Administration's (NNSA) nuclear weapon complex. Los Alamos' primary mission is to ensure the safety, security and reliability of the Nation's nuclear deterrent force. To meet its mission, Los Alamos employees and subcontractors operate in close proximity to or in contact with special nuclear materials, explosives and hazardous chemicals. The Department considers safety an integral part of its mission, operating in compliance with nuclear safety requirements of Title 10, Code of Federal Regulations, Part 830, *Nuclear Safety Management*. The Regulation requires contractors to complete the Documented Safety Analyses, which identify hazards associated with relevant work processes, update it as conditions change, and to design and implement controls over such hazards. Further under Department Order 414.1C, *Quality Assurance*, contractors are required to develop and implement a Quality Assurance Program to prevent or detect safety or other problems in the workplace. The Documented Safety Analyses and Quality Assurance requirements are critically important and are designed to protect workers, the public and the facilities from the devastating effects of nuclear-related accidents. We found that until Los Alamos corrects weaknesses in the analysis of hazards, establishes compensating internal controls, identifies and addresses all unresolved quality assurance issues and completes implementation of its ongoing initiatives, there is no assurance that safety risks associated with work processes are minimized. These corrective actions are critical to maximizing the reliability and performance of Los Alamos safety systems.
- Inspection Report on [*Implementation of Nuclear Weapons Quality Assurance Requirements at Los Alamos National Laboratory*](#) (INS-L-11-02, July 2011). NNSA's Los Alamos is a multidisciplinary research and production institution responsible for the design and production of nuclear weapons components. In its effort to attain the highest quality in weapons engineering design and manufacturing, the Department established the *DOE/NNSA Weapon Quality Policy (QC-1)*. The policy requires that items, services and processes that do not meet established requirements be identified, controlled and corrected. To that end, NNSA and Los Alamos conduct surveys to help ensure that problems are identified and corrected. We did, however, identify a potential opportunity to improve the effectiveness of the program. Specifically, we found that Los Alamos may not have focused on identifying and evaluating the cause or causes of frequently cited weaknesses related to certain design and production activities. Therefore, additional effort may be needed to determine whether weaknesses reported in the surveys are systemic in nature.

CUSTOMER RESPONSE FORM

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