



OFFICE OF INSPECTOR GENERAL  
U.S. Department of Energy

# INSPECTION REPORT

DOE-OIG-18-20

February 2018

**LOS ALAMOS NATIONAL LABORATORY  
CHRONIC BERYLLIUM DISEASE  
PREVENTION PROGRAM**



**Department of Energy**  
Washington, DC 20585

February 20, 2018

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

*Michelle Anderson*

FROM: Michelle Anderson  
Deputy Inspector General  
for Audits and Inspections  
Office of Inspector General

SUBJECT: INFORMATION: Inspection Report on “Los Alamos National  
Laboratory Chronic Beryllium Disease Prevention Program”

BACKGROUND

In December 1999, the Department of Energy established a Chronic Beryllium Disease Prevention Program to reduce worker exposure to beryllium at facilities managed by the Department and its contractors. According to the Department, exposure to beryllium can cause sensitization or chronic beryllium disease, an often debilitating and sometimes fatal lung condition. At the National Nuclear Security Administration’s (NNSA) Los Alamos National Laboratory (Los Alamos), beryllium is a metal used in materials research, defense systems work and testing conducted in support of stockpile stewardship.

Title 10, Code of Federal Regulations, Part 850, *Chronic Beryllium Disease Prevention Program* (10 CFR 850), requires Department contractors including Los Alamos to manage and control worker exposure to beryllium. To meet 10 CFR 850, Los Alamos implemented a Federally-approved Procedure 101-21 *Chronic Beryllium Disease Prevention Program* (Prevention Program) which defines the requirements for working with beryllium. The Los Alamos Field Office is responsible for approving significant changes to the Prevention Program and conducting program oversight.

From 2009 to 2015, several internal and external entities assessed Los Alamos' compliance with its Prevention Program citing concerns with the beryllium inventory completeness and hazard assessment documentation. The inventory documents the locations of beryllium operations and potential beryllium contamination. The hazard assessment describes the operation and identifies exposure hazards. Due to the significant risk to the work force of beryllium exposure, we initiated this inspection to determine whether Los Alamos implemented an effective Prevention Program.

RESULTS OF INSPECTION

We found that Los Alamos did not fully implement an effective Prevention Program. Although Los Alamos closed a number of corrective actions designed to address deficiencies identified in

previous assessments, our work revealed that many of the deficiencies continued to exist in its Prevention Program. For example, Los Alamos did not always:

- Maintain an accurate inventory of the locations of beryllium operations and potential beryllium contamination;
- Complete hazard assessment forms with sampling plans for each beryllium inventory location or operation; and
- Develop and approve sampling plans to demonstrate that beryllium areas<sup>1</sup> were statistically sampled and evaluated prior to releasing them for other purposes.

Los Alamos developed and implemented the Prevention Program to describe the procedures of its Chronic Beryllium Disease Prevention Program and meet the requirement of 10 CFR 850. The Regulation mandated Federal approval for all significant changes to the Prevention Program prior to implementation. The Field Office served as the sole authority for approving any significant changes to it and approved the Prevention Program in 2010. The Prevention Program requirements included updating the beryllium inventory for changes and identifying new beryllium operations; conducting beryllium hazard assessments; developing sampling plans; and performing initial and routine workplace air and surface monitoring. 10 CFR 850 states that by maintaining an accurate up-to-date inventory of the locations of beryllium operations and locations of potential beryllium contamination, contractors can accomplish the critical function of minimizing worker exposure to beryllium.

These issues occurred because in 2016 Los Alamos followed a new procedure, OSH-ISH-OP-001, *Interim Operational Procedure Beryllium Protection Program Review*, which had not been approved by the Field Office instead of following its approved Prevention Program. In response to an Occupational Safety and Health Division 2015 assessment<sup>2</sup> finding, Los Alamos implemented the Interim Operational Procedure (IOP) which reduced or eliminated many of the controls required by the Prevention Program. Even though the IOP was implemented in 2016, it was not the valid requirement for managing and controlling worker exposure to beryllium because it was not approved for use by the Field Office. Furthermore, a Field Office representative told us that Los Alamos' IOP included significant changes that conflicted with the Prevention Program, and was not submitted for review and approval as required by 10 CFR 850. As a result, Los Alamos did not fully implement the requirements of its Federally-approved Prevention Program.

## **Beryllium Inventory**

Our work revealed that the Los Alamos 2016 beryllium inventory spreadsheet contained inaccuracies. The 2016 beryllium inventory listed 512 records that documented the locations of beryllium operations and locations of other potential beryllium contamination such as containers.

---

<sup>1</sup> Note: Temporary beryllium areas which are areas established for less than a month may not require statistical sampling.

<sup>2</sup> 2015 assessment title: *Effectiveness Evaluation of Previous Findings and Corrective Actions for the LANL Chronic Beryllium Disease Prevention Program and Management Assessment of the Implementation of the LANL Chronic Beryllium Disease Prevention Program as required by 10 CFR 850 (2015 assessment)*.

We conducted a site visit to verify locations documented as transportable containers on the 2016 inventory and identified inaccuracies in four locations. For example, two of the locations documented as transportable containers were actually buildings. Another inventory location documented a transportable container as “not found;” however, we located the transportable container and it was being used to store beryllium-contaminated equipment. Also, a transportable container listed on the inventory did not exist at its documented location, and as of August 2017, Los Alamos personnel were still unable to locate it. On a subsequent site visit, we identified three additional inaccuracies. Specifically, we observed three beryllium locations documented on the inventory as “former storage of beryllium.” However, Los Alamos personnel told us those locations were still being used to store beryllium. In the Prevention Program, “former” means that the beryllium operation is no longer performed in that location. According to the Prevention Program, these three locations should have been designated as “active” because beryllium material was stored there.

Los Alamos could neither ensure the accuracy of the inventory nor substantiate inventory changes contrary to Prevention Program requirements. A form previously required to be completed at least annually to document the inventory changes was not used, since the IOP implemented in 2016 no longer required the use of the form. The Prevention Program requires Form 2175, *Beryllium Inventory Update Form*, to be completed at least annually to ensure the accuracy of the inventory. A corrective action for the 2015 assessment required Los Alamos to complete the inventory update form for all existing beryllium inventory entries. Despite approving the closure of the corrective action, Los Alamos officials told us the 2016 inventory update forms were not completed.

Without the inventory update form to document changes, Los Alamos could not substantiate updates to the beryllium inventory from 2015 to 2016. For example, we compared the 2016 inventory spreadsheet to the 2015 inventory spreadsheet and identified 68 new records, 57 modified records and 22 omitted records without the required documentation contrary to Prevention Program requirements. Los Alamos personnel made changes directly on the 2016 inventory spreadsheet, instead of completing the inventory update form which should document the reason for the updates; therefore, we could not evaluate any of the inventory changes.

## **Hazard Assessments**

Los Alamos did not complete hazard assessments with sampling plans for each 2016 beryllium inventory record as required by the Prevention Program. Form 2061, *Beryllium Hazard Assessment*, is required for all beryllium operations, areas or locations where beryllium was present. The hazard assessment form describes the operation performed, area where beryllium was present, beryllium exposure hazards and specifies sampling requirements. Of the 512 inventory records contained in the 2016 inventory spreadsheet, only 229 (45 percent) had a completed hazard assessment form. Furthermore, of the 229 records with completed hazard assessments, 156 (68 percent) had surface sampling requirements that differed from those documented on the beryllium inventory; therefore, we could not determine which was accurate. For example, the hazard assessment form for one inventory record specified that a surface sample was required to be performed each time a beryllium operation takes place; however, the corresponding record on the 2016 beryllium inventory specified that surface sampling was not required.

Instead of completing hazard assessments for all beryllium areas, Los Alamos' corrective action only required hazard assessments for specific areas. Further, a Qualified Industrial Hygienist told us that Los Alamos modified the corrective action to further reduce the number of areas to only those with active operations in order to meet the timeline requirements of the corrective action due date. Los Alamos beryllium program management acknowledged that only performing hazard assessments for specific areas was a violation of their Prevention Program.

### **Released Areas**

Los Alamos released potentially contaminated beryllium areas for other purposes without a formal evaluation to ensure that any residual contamination was within the acceptable threshold for release. The Prevention Program requires a formal process prior to releasing potentially contaminated areas for other purposes. Occupational Safety and Health Division and Industrial Safety and Hygiene group are required to assist in the development and approval of a sampling plan that utilizes statistical sampling in order to release beryllium areas. The statistical sampling results must demonstrate that beryllium contamination is below an acceptable level. Despite this requirement, Los Alamos could not demonstrate whether observed Candidates for Release were below the acceptable level for release. Los Alamos officials told us they were not aware of any released beryllium areas. However, the 2016 inventory spreadsheet included area descriptions as "rooms released," "now an office," and "building demolished." Each of these records was identified as a Candidate for Release.

Los Alamos introduced an undefined status, Candidate for Release, and Los Alamos personnel re-categorized 163 of 512 records (32 percent) of the 2016 inventory as Candidates for Release. A Los Alamos official stated the 2016 inventory records needed to be clarified with respect to the meaning of the phrase "Candidate for Release." Another Los Alamos official told us that the Candidate for Release category identified areas that it had planned to release from beryllium controls. We sampled 36 of the 163 Candidates for Release and identified 12 inventory locations described as areas being used for other purposes. We observed the 12 locations and found 4 were demolished buildings, 5 were occupied as offices, and 3 were in the construction phase.

The Prevention Program requires Los Alamos to statistically sample and evaluate beryllium areas prior to releasing them for other purposes to ensure that any residual contamination was within the acceptable threshold for release. Further, Occupational Safety and Health Division and Industrial Safety and Hygiene group are required to assist Qualified Industrial Hygienists with the development and approval of a sampling plan that statistically demonstrates with a 95 percent confidence that beryllium contamination is below the release threshold. However, Los Alamos could not provide evaluation documentation or evidence that it had conducted statistically significant sampling for any of the demolished buildings, occupied offices, and areas under construction. According to Los Alamos, its Qualified Industrial Hygienists evaluated each of the 12 areas based on their professional judgement and sampling results; however, the evaluations did not demonstrate the Prevention Program requirement of statistically significant sampling with 95 percent confidence prior to their release.

### **Beryllium Controls and Oversight**

These issues occurred because in 2016 Los Alamos followed the IOP rather than the approved Prevention Program. The IOP reduced or eliminated many of the controls required by the

Prevention Program and introduced the undefined beryllium area status, “Candidates for Release.” Los Alamos introduced the IOP as a corrective action to address findings in the 2015 assessment which identified the failure to maintain and document the beryllium inventory and hazard assessments with sampling plans. However, the IOP eliminated the use of forms to document beryllium inventory updates and hazard assessments with sampling plans. Instead, Qualified Industrial Hygienists made inventory updates directly on the 2016 beryllium inventory spreadsheet which no longer recorded historical change information with management review and approval. Therefore, Los Alamos could no longer meet the Prevention Program requirement to retain records of all beryllium inventory information for 75 years. Also, there were no access controls to prevent users from making inventory updates to records for areas outside of their responsibility.

Los Alamos did not conduct statistically significant sampling. Instead, a Los Alamos official stated that Qualified Industrial Hygienists performed evaluations and sampling based upon professional judgement to release former and designated beryllium areas. This process did not meet the Prevention Program release criteria.

During our fieldwork, Los Alamos’ Occupational Safety and Health Division conducted a limited assessment (2016 assessment) of the Prevention Program from August 15 through August 26, 2016. The assessment identified issues similar to our review. For example, the assessment identified the lack of beryllium inventory update forms being submitted and the IOP which did not fully align with existing Prevention Program requirements. However, the Los Alamos assessment did not cover all of the areas we reviewed or identify all of our findings.

In October 2016, we met with Los Alamos officials to discuss the impact the IOP had on the 2016 inventory. A Los Alamos official acknowledged that the IOP constituted a significant change made without required Field Office approval. To its credit, as a result of our fieldwork and the 2016 assessment, Los Alamos rescinded the IOP reverting to its approved Prevention Program requirements. In addition, Los Alamos rescinded the 2016 inventory spreadsheet and reverted to its 2015 beryllium inventory spreadsheet. However, as previously noted, the 2015 assessment team concluded that the 2015 inventory lacked quality and completeness. Thus, Los Alamos’ inventory challenges remain unresolved.

A February 2016 Audit Report, *Issues Management at the Los Alamos National Laboratory* (DOE-OIG-16-07), identified that the Laboratory’s corrective action program did not always adequately address the issues or consistently identify systemic problems. Similarly, the 2015 assessment corrective actions did not address the problems identified or were closed before completion. For example, the 2015 assessment found the inventory was not updated or maintained. Los Alamos introduced the IOP as a corrective action to address this finding by eliminating the forms necessary to ensure the inventory is being updated which did not address the identified problem. Also, 2015 assessment corrective actions to complete beryllium inventory update forms and hazard assessments with sampling plans were closed prior to actually completing any of the required forms. Even Los Alamos’ 2015 assessment noted concerns with the effectiveness of Prevention Program corrective actions. The 2015 assessment determined that a 2009 corrective action addressing the beryllium inventory deficiency was ineffective because the corrective action was not sustained.

Finally, a Field Office official acknowledged that the Prevention Program lacked sufficient oversight. Although the Field Office participated in assessments and reviews of the Prevention Program, a Field Office representative acknowledged that oversight was insufficient due to the lack of personnel and the volume of safety and health programs. In addition, the representative told us that Los Alamos' new IOP included major changes, conflicted with a policy document, and was not submitted to the Field Office for review and approval as required by 10 CFR 850.

### **Beryllium Exposure**

There may have been an increased risk that workers were inappropriately exposed to beryllium contamination in locations used for other purposes. According to 10 CFR 850, the Department recognizes that even the best Prevention Program will not adequately protect workers if it is not followed at the site. These requirements are designed to prevent chronic beryllium disease by reducing the number of workers exposed to beryllium and to ensure that workplace controls are sufficiently protective. An accurate beryllium inventory is essential for determining beryllium locations, conducting work planning and establishing procedures that result in adequate worker protection from beryllium hazards. Without an accurate beryllium inventory, Los Alamos may not monitor and apply beryllium controls where needed. According to Los Alamos, its Qualified Industrial Hygienists performed evaluations based on professional judgement and limited sampling data for beryllium areas prior to releasing them for other purposes. Therefore, Los Alamos could not provide statistically significant assurance that residual beryllium contamination did not exceed the acceptable limit according to its Prevention Program criteria.

### **RECOMMENDATIONS**

In order to ensure Los Alamos fully implements a Chronic Beryllium Disease Prevention Program that minimizes workers' exposure to beryllium, we recommend the Manager, Los Alamos Field Office, ensure that:

1. Los Alamos documents beryllium inventory updates, hazard assessments and sampling plans as required by its Federally-approved Chronic Beryllium Disease Prevention Program;
2. Los Alamos reviews and updates the beryllium inventory to ensure its accuracy and completeness;
3. The Field Office reviews and approves, as appropriate, significant revisions to the Los Alamos Chronic Beryllium Disease Prevention Program; and
4. Los Alamos, in coordination with the Field Office, should assess the risk associated with the repurposed beryllium areas and make a risk based judgement on the level of residual contamination and potential of beryllium exposure.

### **MANAGEMENT RESPONSE**

Management concurred with the report's recommendations and indicated that corrective actions had been initiated or were planned to address the issues identified in the report. To address our recommendations, management stated that: a) Los Alamos National Security (LANS) reviewed

its processes and validated completeness of its beryllium inventory updates, hazard assessments and sampling plans; b) the Los Alamos Field Office will review and approve the LANS Chronic Beryllium Disease Prevention Program, to include the process for updates to the beryllium inventory, hazard assessments and sampling plans; c) the NNSA Office of Safety, in conjunction with the Department of Energy's Office of Environment, Safety and Health Assessments will conduct an assessment of the LANS Chronic Beryllium Disease Prevention Program which will include policies, implementation, and associated Field Office oversight activities to be completed by December 31, 2018; and d) LANS will bench mark practices at other NNSA sites and develop an approach for releasing areas that may have legacy beryllium concerns which an estimated date for drafting the approach is June 30, 2018 followed by an estimated date for completing Field Office review and approval by September 30, 2018. Management comments are included in Attachment 3.

### INSPECTOR COMMENTS

Management's comments and proposed actions are responsive to our finding and recommendations.

Attachment

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



## OBJECTIVE, SCOPE, AND METHODOLOGY

### OBJECTIVE

The objective of this inspection was to determine if Los Alamos National Laboratory (Los Alamos) implemented an effective Chronic Beryllium Disease Prevention Program.

### SCOPE

We conducted our inspection of Los Alamos' 2016 beryllium inventory from May 2016 through February 2018 at the Department of Energy's Los Alamos National Laboratory in Los Alamos, New Mexico. This inspection was conducted under Office of Inspector General project number S16IS011.

### METHODOLOGY

To accomplish our objective, we:

- Evaluated the Los Alamos 2016 beryllium inventory, hazard assessments, and sampling;
- Reviewed prior Office of Inspector General reports, internal and external assessments, and associated corrective actions;
- Reviewed Title 10 of the Code of Federal Regulations, Part 850 *Chronic Beryllium Disease Prevention Program*, Los Alamos Procedure 101-21, *Chronic Beryllium Disease Prevention Program*, the Los Alamos *Industrial Hygiene and Safety Manual Chapter 29 Beryllium*, and OSH-ISH-OP-001, *Interim Operational Procedure Beryllium Protection Program Review*;
- Interviewed Department of Energy, Los Alamos Field Office and Los Alamos officials;
- Compared the 2015 and 2016 beryllium inventories and identified changes;
- Physically observed a judgmental sample of beryllium inventory record locations; and
- Gathered and analyzed documentation related to the Los Alamos Chronic Beryllium Disease Prevention Program.

We conducted this performance-based inspection in accordance with the Council of the Inspectors General on Integrity and Efficiency's *Quality Standards for Inspection and Evaluation*. Those standards require that we plan and perform the inspection to obtain sufficient, appropriate evidence to provide a reasonable basis for our conclusions and observations based on our inspection objective. We believe the evidence obtained provided a reasonable basis for our conclusions and observations based on our inspection objective. 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 implementation of

the GPRA Modernization Act of 2010 and found the Department had established performance measures related to the Los Alamos Chronic Beryllium Disease Prevention Program. 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 obtained computer-processed data for the 2016 beryllium inventory to satisfy the inspection objective; however, we determined it to be not sufficiently reliable. We validated our conclusions regarding the inventory by confirming the weaknesses disclosed as appropriate and by conducting interviews, observations and reviewing source documents.

Management waived an exit conference on January 22, 2018.

## PRIOR REPORTS

- Audit report on [Followup Audit on Chronic Beryllium Disease Prevention Programs at Oak Ridge Sites](#) (OAI-L-16-15, September 2016). The audit did not identify any material weaknesses with the Chronic Beryllium Disease Prevention Programs at Oak Ridge sites, and noted that implementation of some corrective actions from previous reports were either initially ineffective or incomplete. Additionally, two Oak Ridge sites had lapses in required periodic beryllium training.
- Audit report on [Issues Management at the Los Alamos National Laboratory](#) (DOE/OIG-16-07, February 2016). The audit found significant weaknesses in Los Alamos National Laboratory's implementation of an effective issues management program. These problems adversely affected the usefulness of the corrective action program and the differing professional opinions process. The report noted that the employee concerns program was generally effective; however, due to the complexity of some concerns, Los Alamos National Laboratory did not always meet its internal goal for resolving concerns within 90 days. Overall, the audit found Los Alamos National Laboratory's corrective action program did not always adequately address issues, did not effectively prevent their recurrence, and did not consistently identify systemic problems. Department Order 226.1B requires contractors to establish a formal issues management program that captures program and performance deficiencies, categorizes the significance of findings based on risk, and maintains documentation of corrective actions taken.
- Audit report on [Implementation of Beryllium Controls at Lawrence Livermore National Laboratory](#) (DOE/IG-0851, June 2011). The audit found that Lawrence Livermore National Laboratory expended significant effort and had completed a number of corrective actions designed to improve its Chronic Beryllium Disease Prevention Program. However, in certain instances, all actions necessary to completely resolve previously observed weaknesses had not been completed. Specifically, Lawrence Livermore National Laboratory had not always: identified the presence of beryllium and provided adequate notice to workers through the consistent use of facility maps, signs and labels; utilized and documented reviews of historical records and interviews with employees to identify the presence of beryllium when completing the baseline inventory of beryllium contamination; and tested equipment to determine whether it was contaminated when beryllium was detected at a specific location in a facility.
- Audit report on [Beryllium Surface Contamination at the Y-12 National Security Complex](#) (DOE/IG-0783, December 2007). The audit found that BWXT Y-12, LLC had not consistently implemented key controls in non-beryllium areas as required by its Chronic Beryllium Disease Prevention Program. Specifically, BWXT Y-12, LLC had not always posted signs alerting workers to the potential for beryllium surface contamination. Also BWXT Y-12, LLC had not always performed or documented hazard assessments for beryllium contamination, although documented assessments were vital to identifying potential exposure risks.

- Audit report on [\*Beryllium Controls at the Oak Ridge National Laboratory\*](#) (DOE/IG-0737, September 2006). The audit found that the Oak Ridge National Laboratory did not properly manage activities related to beryllium contaminated equipment in building 9201-2, which is located at the Y-12 National Security Complex. In particular, beryllium contaminated equipment was transferred to non-beryllium areas; employees working with contaminated equipment were not fully identified and notified; transferred equipment was not labeled appropriately; and the building was not posted as a potential contamination area.

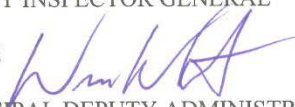
## MANAGEMENT COMMENTS



**Department of Energy**  
**National Nuclear Security Administration**  
Washington DC 20585  
January 10, 2018

OFFICE OF THE ADMINISTRATOR

MEMORANDUM FOR APRIL STEPHENSON  
PRINCIPAL DEPUTY INSPECTOR GENERAL

FROM: WILLIAM I. WHITE   
CHIEF OF STAFF  
ASSOCIATE PRINCIPAL DEPUTY ADMINISTRATOR

SUBJECT: Comments on the Office of Inspector General Draft Report *Los Alamos National Laboratory Chronic Beryllium Disease Prevention Program* (S16IS011/NNSA-2017-002752)

Thank you for the opportunity to review and comment on the subject draft report. The National Nuclear Security Administration (NNSA) is committed to assuring that workers are afforded appropriate safety controls that protect them from recognized hazards such as beryllium. NNSA appreciates the inspectors' objective review, and concurs with the Office of Inspector General's recommendations focused on further strengthening beryllium program inventory, risk assessment, and documentation processes. Although the weaknesses noted by the IG did not result in any known exposures to beryllium, NNSA is committed to strengthening worker protection programs including beryllium safety.

The attachment to this memorandum details the specific actions taken and planned to address the report's recommendations, as well as estimated timelines for completion. If you have any questions regarding this response, please contact Mr. Dean Childs, Director, Audits and Internal Affairs, at (301) 903-1341.

Attachment



Printed with soy ink on recycled paper

Attachment

**NATIONAL NUCLEAR SECURITY ADMINISTRATION**  
**Response to Report Recommendations**

Los Alamos National Laboratory Chronic Beryllium  
Disease Prevention Program (S16IS011)

The Office of Inspector General (OIG) recommends that the Administrator, National Nuclear Security Administration (NNSA) ensure that:

**Recommendation 1:** Los Alamos National Security (LANS) documents beryllium inventory updates, hazard assessments, and sampling plans as required by its federally-approved Chronic Beryllium Disease Prevention Program.

**Management Response:** Concur – LANS is committed to improvement of its beryllium inventory, including updates, hazard assessments, and sampling plans. LANS reviewed its processes and validated the completeness of its beryllium inventory updates, hazard assessments, and sampling plans. The Los Alamos Field Office (NA-LA) will verify the completeness of these corrective actions by September 30, 2018, via the NA-LA’s oversight process.

**Recommendation 2:** LANS reviews and updates the beryllium inventory to ensure its accuracy and completeness.

**Management Response:** Concur – LANS reviewed its processes and validated the completeness of its beryllium inventory updates, hazard assessments, and sampling plans. NA-LA will verify the completeness of these corrective actions by September 30, 2018, via the NA-LA’s oversight process.

**Recommendation 3:** NA-LA reviews and approves, as appropriate, significant revisions to the LANS Chronic Beryllium Disease Prevention Program.

**Management Response:** Concur – NA-LA will review and approve the LANS Chronic Beryllium Disease Prevention Program, to include the process for updates to the beryllium inventory, hazard assessments, and sampling plans. The estimated completion date for the review is September 30, 2018.

The NNSA Office of Safety, in conjunction with the Department of Energy’s (DOE) Office of Environment, Safety and Health Assessments, will conduct an assessment of the LANS Chronic Beryllium Disease Prevention Program. This review will include policies, implementation, and associated NA-LA oversight activities. The completion for the assessment is December 31, 2018, to allow sufficient time to demonstrate the effectiveness of any process or control changes.

Attachment

**Recommendation 4:** LANS, in coordination with NA-LA, should assess the risk associated with the repurposed beryllium areas and make a final risk based judgement on the level of residual contamination and potential of beryllium exposure.

**Management Response:** Concur – The current DOE Beryllium Rule (10 CFR 850) does not provide direction for determining risk associated with repurposed beryllium areas (e.g., “free release” criteria). A pending revision to the rule is expected to address the associated risk.

In the interim, LANS will bench mark practices at other NNSA sites and develop an approach for releasing areas that may have legacy beryllium concerns. The resulting approach will include, at a minimum, best practice criteria to address use of background soil data and analytical markers to confirm or deny the presence of beryllium. The estimated date for drafting the approach is June 30, 2018. The estimated date for completing NA-LA review and approval is September 30, 2018.

## **FEEDBACK**

The Office of Inspector General has a continuing interest in improving the usefulness of its products. We aim to make our reports as responsive as possible and ask you to consider sharing your thoughts with us.

Please send your comments, suggestions, and feedback to [OIG.Reports@hq.doe.gov](mailto:OIG.Reports@hq.doe.gov) and include your name, contact information, and the report number. You may also mail comments to us:

Office of Inspector General (IG-12)  
Department of Energy  
Washington, DC 20585

If you want to discuss this report or your comments with a member of the Office of Inspector General staff, please contact our office at (202) 253-2162.