



## Department of Energy

Washington, DC 20585

October 29, 2010

Dr. George H. Miller, President  
Lawrence Livermore National Security, LLC  
Lawrence Livermore National Laboratory  
7000 East Avenue  
Livermore, California 94551-0808

WCO-2010-01

Dear Dr. Miller:

This letter refers to the Office of Health, Safety and Security, Office of Enforcement investigation into deficiencies associated with the Lawrence Livermore National Laboratory (LLNL) Chronic Beryllium Disease Prevention Program (CBDPP) and related work planning and control processes. The results of the investigation were provided to Lawrence Livermore National Security, LLC (LLNS) in an Investigation Report dated July 7, 2009. An enforcement conference was held on August 3, 2009, with you and members of your staff to discuss the report's findings and LLNS's corrective action plan.

Pursuant to section 234c of the Atomic Energy Act, as amended, 42 U.S.C. § 2282c, and regulations established at 10 C.F.R. Part 851, *Worker Safety and Health Program*, the National Nuclear Security Administration (NNSA) and the U.S. Department of Energy (DOE) have decided to settle these matters through the issuance of a Consent Order to LLNS. This settlement reflects the exercise of enforcement discretion by DOE and NNSA in light of the corrective actions undertaken by LLNS to address the beryllium hazards that existed at the time of contract transition and LLNS improvements in the implementation of the LLNL CBDPP. Under this Consent Order, LLNS agrees to remit a \$200,000 monetary remedy payable to the Treasurer of the United States, in accordance with the directions in the enclosed Order, and to the terms and conditions contained therein.

Enclosed are two signed copies of the Consent Order. Please sign both, keep one for your records, and return the other to the Office of Enforcement within one week from the date of receipt of this Order.

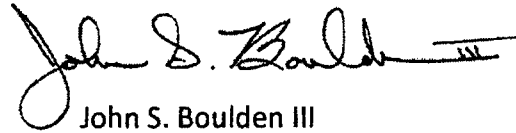


Other than remittance of the settlement amount and a signed copy of the Consent Order, no written response to this letter is required.

Sincerely,



Thomas P. D'Agostino  
Administrator  
National Nuclear Security Administration



John S. Boulden III  
Acting Director  
Office of Enforcement  
Office of Health, Safety and Security

Enclosures

cc: Constance DeGrange, LLNS  
Alice Williams, LSO



contaminated facility, building 321C. The employee did not wear respiratory protection while handling cables in the sub-floor area (non-routinely accessible) of the facility. The hazard assessment for this activity required respiratory protection for all dust producing activities and when accessing internal surfaces of items and equipment.

On October 3, 2008, in building 298, room 192, a subcontractor employee removed a beryllium contaminated ventilation grill and, without the appropriate work authorization and reviews, installed a pre-fabricated vent blocking plate where the grill had been removed. Although the individual wore gloves to minimize exposure during handling of the beryllium contaminated grill, the worker was not beryllium trained as required for this task. Initial personal and air monitoring was warranted to assess the exposure of this employee, but such monitoring was not performed. Surface sampling conducted concurrent with the grill removal activity confirmed that the grill was contaminated.

The above events revealed deficiencies in the LLNL Chronic Beryllium Disease Prevention Program (CBDPP) and its implementation regarding legacy beryllium contamination hazard identification, assessment, and control. LLNS conducted investigations, critiques, and causal analyses in response to the various events. LLNS developed and implemented corrective actions for the individual events and issues including interim hazard controls for workers and activities that may have the potential for worker exposure to beryllium contamination.

Consistent with NNSA expectations, LLNS completed an overarching causal analysis of beryllium related events and planned to conduct an effectiveness review of the LLNL CBDPP in calendar year 2009. However, based on concerns with the potential risk of ongoing beryllium related work activities, NNSA requested that LLNS perform an effectiveness review prior to the end of fiscal year 2008. LLNS completed the overarching causal analysis in July 2008 and the effectiveness review of the implementation of the CBDPP in August 2008. The LLNS effectiveness review concluded that the LLNL CBDPP was compliant with regulatory requirements, no additional corrective actions were needed, and that an NNSA independent review was unnecessary.

In October 2008, NNSA completed an Independent Review of the LLNL CBDPP in order to: (1) assess the adequacy of the LLNL CBDPP; (2) ensure that workers were adequately protected from beryllium hazards; and (3) evaluate the adequacy of the LLNS causal analysis and effectiveness review noted above as a benchmark on the effectiveness of the LLNS contractor assurance system.

The NNSA Independent Review determined that the LLNS individual event causal analyses and subsequent corrective actions appeared to have identified the major causes and the appropriate corrective actions for these events. However, NNSA concluded that LLNS had not:

- performed an adequate effectiveness review that was planned, scoped, and performed consistently with LLNL's review guidance;
- comprehensively analyzed causal factors of beryllium events that considered the underlying human performance and safety culture issues contributing to CBDPP implementation problems;

- ensured that the LLNL CBDPP adequately addressed the requirements of 10 C.F.R. Part 850 in the areas of baseline inventory, hazard assessment, medical surveillance, and feedback and improvement; or
- identified corrective actions for the institutional weaknesses from the overarching causal analysis that are adversely impacting the overall performance objective of the CBDPP to minimize the numbers of workers potentially exposed to beryllium hazards.

In 2009, the DOE Office of Enforcement, exercising its investigation authority under 10 C.F.R. § 851.5, examined the aforementioned events and underlying deficiencies and identified potential violations of 10 C.F.R. Parts 850 and 851 requirements by LLNS. DOE documented and transmitted to LLNS the results of the investigation in an Investigation Report dated July 7, 2009. DOE's investigation determined that LLNS did not adequately:

- identify and inventory beryllium contamination at LLNL facilities to control worker exposures to legacy beryllium;
- perform hazard assessments for buildings identified in the beryllium baseline inventory;
- implement proper hazard control and prevention measures to eliminate or abate the hazards associated with potential worker exposure to beryllium;
- ensure that potential airborne beryllium exposures were accurately measured;
- control materials and equipment located in beryllium contaminated work areas to ensure that they were not moved to non-beryllium work areas;
- evaluate cases of beryllium sensitization and the increasing trend of beryllium sensitization to identify workgroups at increased risk for chronic beryllium disease; and
- effectively train employees to perform work within beryllium contaminated areas.

### III

LLNS voluntarily reported the aforementioned events and related CBDPP noncompliances with 10 C.F.R. Part 850 to DOE's Noncompliance Tracking System (NTS) within the expected timeframes as follows:

- *Unexpected Beryllium Contamination Found in Building 298 Beryllium Work Area* (NTS--LSO-LLNL-LLNL-2009-0005).
- *Building 298 Yard Bead Blaster Unit Footprint Contamination* (NTS--LSO-LLNL-LLNL-2009-0004).
- *Beryllium and Lead Found in Bulk Samples From Building 298 Yard Bead Blaster Unit* (NTS--LSO-LLNL-LLNL-2009-0003).
- *The NNSA Independent Review of the CBDPP stated that the LLNL CBDPP did not Adequately Address Certain Requirements of 10 CFR 850* (NTS--LSO-LLNL-LLNL2008-0020).
- *The Implementation of the CBDPP is Inadequate-Uncontrolled Beryllium Work Performed* (NTS--LSO-LLNL-LLNL-2008-0005).

- *Unexpected Beryllium Contamination and Associated Ducting, Building 695* (NTS--LSO-LLNL-LLNL-2008-0002).
- *Medical Surveillance and Removal of the Chronic Beryllium Disease Prevention Program is LTA* (NTS--LSO-LLNL-LLNL-2007-0022).

In December 2007, LLNS formed a Beryllium Management Team (BMT) to coordinate activities involving the implementation of the LLNS CBDPP. In January 2008, LLNS formed a Beryllium Advisory Group (BAG) to provide an integrated, cross-functional focus on resolving potential and actual beryllium issues at the site.

NNSA has determined that LLNS senior management, through the BAG, BMT, and assignment of a senior project manager, has come to recognize and begun to comprehensively address the deficiencies in the implementation of the LLNL CBDPP and improve the way LLNS is currently managing legacy beryllium contamination to minimize worker exposures to beryllium.

LLNS developed a consolidated comprehensive corrective action plan, integrating ongoing and outstanding actions from the prior reviews with the findings of the NNSA Independent Review. NNSA conditionally approved the plan on February 27, 2009, with final approval on March 20, 2009. This corrective action plan included 97 actions to address CBDPP deficiencies in various program elements including baseline inventory, hazard identification and abatement, exposure monitoring, medical surveillance, training, and performance feedback.

NNSA recognizes that initial efforts by LLNS to effectively manage activities with beryllium hazards were impacted by the transition from nearly 40 years of the prior contractor's management of the laboratory and the occurrence of several events immediately following the October 1, 2007, contractor change-over. LLNS assumed operating responsibility for LLNL facilities with legacy beryllium contamination in areas not well controlled, characterized, or properly abated at the time of transition. The CBDPP that LLNS accepted at contract changeover had significant deficiencies including failures to adequately complete baseline inventories with concomitant inputs and integration with hazard assessment and abatement processes.

NNSA has concluded that the above referenced LLNS comprehensive corrective action plan should adequately address the deficiencies and noncompliances associated with the LLNL CBDPP and its implementation. DOE, including NNSA, has determined that these measures, coupled with the condition of the LLNL CBDPP and LLNL facilities at the time of contract transition, warrant the exercise of enforcement discretion at this time. NNSA will validate the effectiveness of the corrective actions in addressing the 10 C.F.R. Parts 850 and 851 noncompliances to prevent recurrence and minimize further worker exposures to beryllium in an evaluation that will be performed collaboratively with the DOE Office of Enforcement.

#### IV

Subsequent to these events and the development and initial implementation of corrective actions in response to the events and conditions described above, on February 11, 2010, an LLNL

machinist unknowingly performed machining on a classified, beryllium part that resulted in likely exposure to the machinist and localized contamination of the work area in building 321A. LLNS' incident analysis determined that the LLNL hazard identification and control processes were not implemented to ensure that legacy parts with an undefined pedigree were adequately characterized prior to the start of work. LLNS submitted NTS report NTS--LSO-LLNL-LLNL-2010-0003 to notify DOE of the 10 C.F.R. Part 850 noncompliances related to this event.

## V

DOE, NNSA, and LLNS have reached agreement on this matter, under which all parties have agreed to issuance of this Consent Order in lieu of enforcement proceedings, including the potential for the issuance of a Notice of Violation with the imposition of a civil penalty.

## VI

NNSA and LLNS agree that the sum paid by LLNS to resolve this matter shall not be considered a reimbursable cost. Pursuant to 41 U.S.C. § 256(k) and the implementing provisions of 48 C.F.R. § 31.205-47, Federal Acquisition Regulation, NNSA and LLNS further agree that all costs incurred by, for, or on behalf of LLNS relating to the DOE Office of Enforcement's investigation of the matters covered by this Consent Order shall be treated as unallowable under Contract No. DE-AC52-07NA27344 between NNSA and LLNS.

## VII

This Consent Order is issued pursuant to Section 234C of the Atomic Energy Act of 1954, as amended (42 U.S.C. § 2282c), and the implementing provisions of 10 C.F.R. § 851.41. LLNS agrees to pay to the Treasurer of the United States (Account Number 891099) an amount of \$200,000 reflecting an agreed amount in lieu of a possible Notice of Violation.

## VIII

NNSA agrees to not pursue an enforcement action or contract fee reduction for any potential worker safety and health violations pertaining to the matters referenced in sections II and III. However, NNSA reserves the right to comment on CBDPP implementation in NNSA's annual performance evaluation of LLNS. This Consent Order does not preclude further investigation by DOE or the pursuit of an enforcement action by NNSA: (1) if it later becomes known that any of the facts or information provided regarding the matters described in this agreement are false or inaccurate in any material way, (2) for incidents or conditions other than those described in the above referenced NTS reports, or (3) for failure to timely and effectively complete the corrective actions, as outlined in the referenced NTS reports and consolidated corrective action plan.

## IX

ACCORDINGLY, the terms of this settlement are as follows:

- (1) Within one week from the date of receipt, LLNS agrees to return a signed copy of this Consent Order to the address provided in item (5) below.
- (2) Within 30 days of receipt of this Consent Order, LLNS agrees to evaluate the potential violations identified in the DOE Office of Enforcement's Investigation Report issued on July 7, 2009, to ensure that all of the deficiencies have been addressed by the consolidated corrective action plan or justify in writing to NNSA why any of the potential violations do not warrant corrective action.
- (3) LLNS agrees to provide NNSA with written updates on the status of corrective action implementation not less than once per calendar quarter until all corrective actions taken in response to the eight NTS reports identified above and the final effectiveness reviews are completed. LLNS shall demonstrate to NNSA in the effectiveness review that LLNL CBDPP elements are implemented in activities with the potential for worker exposure to beryllium, integrated into LLNL work planning and control processes, and that CBDPP assessment processes continually validate compliance with 10 C.F.R. Part 850 requirements.
- (4) Within 120 days of the receipt of this Consent Order, LLNS agrees that NNSA and the DOE Office of Enforcement will conduct an evaluation of the adequacy of the corrective actions taken to date by LLNS to address the potential violations identified in the July 9, 2009, Investigation Report and the noncompliances described in the eight NTS reports submitted by LLNS. The evaluation will validate that LLNS has established a CBDPP that meets applicable 10 C.F.R. Part 850 requirements and minimizes potential worker exposures to legacy beryllium hazards in LLNL buildings, including those that were previously not well characterized, controlled, or properly abated at the time of transition. LLNS agrees to take corrective action on any findings in a written evaluation report that will be provided by NNSA.
- (5) LLNS agrees to remit \$200,000 by check, draft, or money order payable to the Treasurer of the United States (Account Number 891099) within 30 days of signing this Consent Order. Payment shall be sent by overnight carrier to the Director, Office of Enforcement, at the following address:

Director, Office of Enforcement  
Attention: Office of the Docketing Clerk HS-40  
U.S. Department of Energy  
19901 Germantown Road  
Germantown, MD 20874-1290
- (6) Upon completion and verification of all corrective actions to the satisfaction of NNSA, the payment made to the Treasury under this Consent Order shall completely resolve and



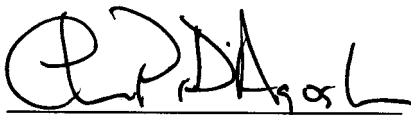
serve as a full and final settlement of any and all potential enforcement actions taken pursuant to 10 C.F.R. Part 851 arising from the matters identified in DOE's July 9, 2009, Investigation Report.

- (7) This Consent Order shall become a Final Order upon receipt of said amount referenced in Item (5) above.
- (8) LLNS waives any and all rights to appeal or otherwise seek judicial review of this Consent Order. However, NNSA and LLNS retain the right to enforce judicially the provisions herein by all legal means.

On behalf of my respective organization, I hereby agree to and accept the terms of the foregoing Consent Order.

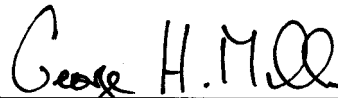
FOR National Nuclear Security Administration

FOR Lawrence Livermore National Security, LLC



Thomas P. D'Agostino  
Administrator

10/20/10  
Date



George H. Miller, Ph.D.  
Director

11/5/10  
Date

Lawrence Livermore National Laboratory

FOR DOE Office of Enforcement



John S. Boulden III  
Acting Director

8/19/10  
Date