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Los Alamos National Laboratory, TA-15

NA--LASO-LANL-FIRNGHELAB-2009-0022 -

Management Concern: Large-Bore Powder Gun

Failure Results in Significant Facility Structural Damage

– (Significance Category 2)

On December 16, 2009, Shock and Detonation Physics Group researchers heard a loud unusual noise from Technical Area 15, Building 562 after firing a shot from a large-bore powder gun (LBPG). The audible report indicated that a system breach had occurred. The researchers were located in an adjacent bunker and they immediately placed all systems in a safe configuration. About twenty minutes later, the researchers conducted surveillances outside TA-15-562 and observed that two doors had been blown off the facility and concrete shielding blocks on the west and east side of the building were separated from the wall. The LBPG flanges were found on the asphalt outside of the TA-15-562 bunker. Power was isolated to the facility and access to the facility was restricted pending the completion of a structural review. No personnel injuries resulted from this event. A critique was held.

NA--LASO-LANL-FIRNGHELAB-2009-0022

NOTIFICATION

Occurrence Report

After 2003 Redesign

Firing Sites and HE Lab.

(Name of Facility)

Explosive

(Facility Function)

Los Alamos National Laboratory

(Site)

Los Alamos National Laboratory

(Contractor)

Name: Raeanna Sharp-Geiger

Title: WFO Facility Operations Director

Telephone No.: (505) 665-0138

(Facility Manager/Designee)

Name: YAZZIE, ALVA M

Title: OCCURRENCE INVESTIGATOR

Telephone No.: (505) 664-0666

(Originator/Transmitter)

Name: Linda Collier

Date: 12/17/2009

(Authorized Classifier (AC))

1. Occurrence Report Number: NA-LASO-LANL-FIRNGHELAB-2009-0022

Management Concern: Large Bore Powder Gun Failure Results in Significant Facility Structural Damage

2. Report Type and Date: NOTIFICATION

| | Date | Time |
|------------------------|------------|-------------|
| Notification: | 12/17/2009 | 19:59 (ETZ) |
| Initial Update: | | (ETZ) |
| Latest Update: | | (ETZ) |
| Final: | | (ETZ) |

3. Significance Category: 2

4. Division or Project: Dynamic and Energetic Materials Division

5. Secretarial Office: NA - National Nuclear Security Administration

6. System, Bldg., or Equipment: Large Bore Powder Gun

7. UCNI?: No

8. Plant Area: TA-15-562

9. Date and Time Discovered: 12/16/2009 15:10 (MTZ)

10. Date and Time Categorized: 12/16/2009 18:15 (MTZ)

11. DOE HQ OC Notification:

| Date | Time | Person Notified | Organization |
|------|------|-----------------|--------------|
| NA | NA | NA | NA |

12. Other Notifications:

| Date | Time | Person Notified | Organization |
|------------|-------------|-------------------|--------------|
| 12/17/2009 | 11:50 (MTZ) | Ed Christie | NNSA |
| 12/16/2009 | 18:30 (MTZ) | Notification Line | NNSA |
| 12/17/2009 | 11:50 (MTZ) | Dave Stewart | NNSA |

13. Subject or Title of Occurrence:

Management Concern: Large Bore Powder Gun Failure Results in Significant Facility Structural Damage

14. Reporting Criteria:

10(2) - An event, condition, or series of events that does not meet any of the other reporting criteria, but is determined by the Facility Manager or line management to be of safety significance or of concern to other facilities or activities in the DOE complex. One of the four significance categories should be assigned to the occurrence, based on an evaluation of the potential risks and the corrective actions taken. (1 of 4 criteria - This is a SC 2 occurrence)

15. Description of Occurrence:

MANAGEMENT SYNOPSIS: On December 16, 2009, at approximately 1510, after a shot from a large bore powder gun was fired from Technical Area 15, Building 562, the Shock and Detonation Physics Group (DE-9) researchers heard a loud unusual noise. The audible report indicated that a system breach had occurred. The researchers were located in an adjacent bunker (TA-15-306) and immediately placed all systems in a safe configuration. About twenty minutes later, the researchers conducted surveillances outside TA-15-562 and observed two doors had propelled off the facility and concrete shielding blocks on the west and east side of the building were separated from the wall. The LBPG flanges were found on the asphalt outside of the TA-15-562 bunker. The researchers did not re-enter TA-15-562. At 1630, the researchers made notifications to the DE-9 responsible line manager, the Weapons Facility Operations (WFO) duty office, and the access control center. At 1600, the WFO duty officer and the electrical safety officer arrived on site. They isolated the power to the facility and cordoned and secured the facility and immediate area. No personnel injuries resulted from this event.

At 1815, the WFO Facility Operations Director declared a management concern due to the significant facility structural damage incurred resultant of the shot. On December 17, 2009, at 1100, a critique was held. Based on the information collected, the WFO FOD retained the same event categorization pending receipt of cost

estimates for facility and equipment damages. If the cost estimates exceed the threshold amount, the event categorization will be re-assessed.

BACKGROUND: The researchers were located in the TA-15-306 bunker which is adjacent to TA-15-562 during the experiment. From there, they were able to monitor the shot from cameras located in TA-15-562. A Level A clearance was in place at the site during the experiment.

16. Is Subcontractor Involved? No

17. Operating Conditions of Facility at Time of Occurrence:

Normal Operations

18. Activity Category:

12 - Research

19. Immediate Actions Taken and Results:

1. The researchers placed the all the equipment in a safe configuration.
2. The WFO duty officer and the WFO electrical safety officer isolated the power to the facility via a lockout/tagout.
3. The facility was cordoned off and secured. The firing site leader turned over the facility keys to the WFO duty officer. The area will be posted with access control requirements.
4. The WFO access control personnel communicated to emergency response personnel via an electronic message not to enter this facility until further notice.
5. The WFO health and safety personnel will develop a facility re-entry plan to further assess damages and to mitigate any other hazards identified.
6. The WFO FOD will issue a standing order addressing facility access control requirements which will be communicated to WFO FOD personnel and tenant management.
7. In conjunction with DE-9 personnel, the WFO FOD personnel are obtaining cost estimates for damages to the facility and the equipment.
8. The Structural Engineering personnel will conduct a structural review of the facility.

20. ISM:

21. Cause Code(s):

22. Description of Cause:

23. Evaluation (by Facility Manager/Designee):

Access to the facility is restricted pending the completion of a structural review.

24. Is Further Evaluation Required?: Yes

If YES - Before Further Operation? Yes

By whom? WFO-DO, DE-9 & CAO-PF

By when? 01/29/2010

25. Corrective Actions

(* = Date added/revised since final report was approved.)

26. Lessons Learned:

27. Similar Occurrence Report Numbers:

28. User-defined Field #1:

amy

29. User-defined Field #2:

LIMITS Reference No. 2009-5681-LANL

30. HQ Keyword(s):

03D--Fire Protection and Explosives Safety - Explosives Safety Issue
03F--Fire Protection and Explosives Safety - Explosion
05D--Mechanical/Structural - Mechanical Equipment Failure/Damage
05E--Mechanical/Structural - Structural Deficiency/Failure
12F--EH Categories - Fire Protection
13A--Management Concerns - HQ Significant (High-lighted for Management attention)
14L--Quality Assurance - No QA Deficiency

31. HQ Summary:

On December 16, 2009, Shock and Detonation Physics Group researchers heard a loud unusual noise from Technical Area 15, Building 562 after firing a shot from a large-bore powder gun (LBPG). The audible report indicated that a system breach had occurred. The researchers were located in an adjacent bunker and they immediately placed all systems in a safe configuration. About twenty minutes later, the researchers conducted surveillances outside of TA-15-562 and observed that two doors had been blown off the facility and concrete

shielding blocks on the west and east side of the building were separated from the wall. The LBPG flanges were found on the asphalt outside of the TA-15-562 bunker. Power was isolated to the facility and access to the facility was restricted pending the completion of a structural review. No personnel injuries resulted from this event. A critique was held.

32. DOE Facility Representative Input:

33. DOE Program Manager Input: