NA--SS-SNL-2000-2009-0007
FINAL

Occurrence Report
After 2003 Redesign

SNL Division 2000

(Name of Facility)

Laboratory - Research & Development

(Facility Function)

Sandia National Laboratories - SS — Sandia National Laboratories

(Site) (Contractor)

Name: Robert Burkhart
Title: Center 2700 ES&H Project Leader **Telephone No.:** (505) 844-6497

(Facility Manager/Designee)

Name: LUCERO, JEWELEE A
Title: REPORTING ADMINISTRATOR **Telephone No.:** (505) 845-4727

(Originator/Transmitter)

Name: Alan Parker **Date:** 12/01/2009

(Authorized Classifier (AC))

1. Occurrence Report Number: NA--SS-SNL-2000-2009-0007

Interlocks Defeated on Laser Welder in Bldg. 700

2. Report Type and Date: FINAL

	Date	Time
Notification:	10/22/2009	10:19 (ETZ)
Initial Update:	12/02/2009	17:05 (ETZ)
Latest Update:	12/02/2009	17:05 (ETZ)
Final:	12/02/2009	17:05 (ETZ)

3. Significance Category: 3

4. Division or Project: 2000/Responsive Neutron Generator Deployment Ctr

5. Secretarial Office: NA - National Nuclear Security Administration

6. System, Bldg., or Equipment: Rofin Laser Welder/Bldg. 700, Rm. 1052

7. UCNI?: No

8. Plant Area: Tech Area I

9. Date and Time Discovered: 10/20/2009 14:45 (MTZ)

10. Date and Time Categorized: 10/21/2009 09:00 (MTZ)

11. DOE HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

12. Other Notifications:

Date	Time	Person Notified	Organization
10/20/2009	15:30 (MTZ)	EOC	4136
10/20/2009	15:29 (MTZ)	Mendy Brown	4127
10/20/2009	14:45 (MTZ)	Melecita Archuleta	2734
10/20/2009	14:45 (MTZ)	Neil Lapentina	2732
10/20/2009	15:29 (MTZ)	Robert Burkhart	2733
10/20/2009	15:35 (MTZ)	Gary Schmidtke, FR	DOE/SSO

13. Subject or Title of Occurrence:

Interlocks Defeated on Laser Welder in Bldg. 700

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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 3 occurrence)

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15. Description of Occurrence:

On 10/20/09, at approximately 1445, a laser welder was being reviewed by a Lean Six Sigma team as the location of a previous occurrence when it was discovered that the interlocks had again been defeated with tape placed over the sensors. Attempts to contact the subcontractor the same afternoon were unsuccessful, so the event could not be properly categorized until the following morning.

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16. Is Subcontractor Involved? Yes

Name: Rofin-Baasel

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17. Operating Conditions of Facility at Time of Occurrence:

18. Activity Category:

03 - Normal Operations (other than Activities specifically listed in this Category)

19. Immediate Actions Taken and Results:

The laser welder was removed from service. All available personnel and management were interviewed to determine the source of the taping. Pictures were taken. Notifications were made. A critique was held. There were no injuries, exposures, or equipment damage as a result of this event.

20. ISM:

2) Analyze the Hazards
3) Develop and Implement Hazard Controls
4) Perform Work Within Controls

21. Cause Code(s):

A4B1C01 - Management Problem; Management Methods Less Than Adequate (LTA); Management policy guidance / expectations not well-defined, understood or enforced
A2B3C01 - Equipment/ material problem; Inspection/ testing LTA; Startup testing LTA
A5B4C01 - Communications Less Than Adequate (LTA); Verbal Communications LTA; Communication between work groups LTA
A2B3C02 - Equipment/ material problem; Inspection/ testing LTA; Inspection/ testing LTA
A4B1C09 - Management Problem; Management Methods Less Than Adequate (LTA); Corrective action for previously identified problem or event was not adequate to prevent recurrence
A2B3C03 - Equipment/ material problem; Inspection/ testing LTA; Post-maintenance/Post-modification testing LTA

22. Description of Cause:

Critique/Fact Finding Performed 10/20/09

Methodology: Combination of Systemic Factors and Events and Causal Factors Analysis

The laser welder was operated with an interlock defeated without approval because the interlock was taped over and tape was not discovered prior to use.

The interlock was left taped over by the Rofin-Baasel service rep following servicing three weeks earlier. The tape was not discovered because the service rep did not communicate its presence to the escort (A5B4C01) or the user and the user did not perform a thorough check of the interlocks prior to use (A2B3C01, A2B3C02) and following maintenance (A2B3C03).

Communication did not occur because of lack of requirements (A4B1C01) and routine interlock checks did not detect the blockage because the procedure was not clear and the user did not expect a problem after the earlier incident (A4B1C09).

23. Evaluation (by Facility Manager/Designee):

The investigation revealed that the local manufacturer's representative (from Rofin-Baasel) actually put the tape over the sensors (as a routine part of their repair activities) and forgot to remove it when they were finished. The tape was not noticed by the SNL escort (from Calibration and Maintenance, Department 2542-1) or the equipment operator (from Department 2734), and the welder was used twice with the tape in place before it was discovered. A formal root cause analysis of this event will be scheduled immediately.

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24. Is Further Evaluation Required?: No

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25. Corrective Actions

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

1.	Department 2733 - Extend Center 2700 policy and procedures for equipment servicing to include communication of scope and status of work to equipment owners, identification of intent to disable interlocks or other safety features during servicing, and verification of reset of any safety features disabled prior to restart. (A4B1C01, A5B4C01)	
	Target Completion Date: 01/31/2010	**Completion Date:** 01/29/2010
2.	Department 2541-1 - Interface with equipment vendor (Rofin-Baasel) to identify their policies on interlock bypass during servicing and establish and implement local controls when they perform service on Center 2700 equipment as required. (A2B3C01, A2B3C02, A2B3C03)	
	Target Completion Date: 12/15/2009	**Completion Date:** 11/25/2009
3.	Department 2730 - Reinforce policy that safety comes before schedule pressure to all Center 2700 employees and matrixed personnel. (A4B1C01)	
	Target Completion Date: 01/31/2010	**Completion Date:** 01/25/2010
4.	Department 2732 - Clarify operating procedure (OP) instructions on interlock testing of laser welders in Center 2700. (A4B1C09, A2B3C01, A2B3C02, A2B3C03)	
	Target Completion Date: 12/15/2009	**Completion Date:** 11/15/2009
5.	Department 2730 - Determine whether any other equipment besides laser welders should also be placed under key control and implement this policy as appropriate. (A4B1C01, A5B4C01)	
	Target Completion Date: 12/15/2009	**Completion Date:** 12/15/2009
6.	Department 2733 - Establish and communicate Center policy encouraging the use of operator aids at equipment use points as a way to help ensure that important steps like interlock checks are performed as required. (A4B1C01, A4B1C09, A2B3C01, A2B3C02, A2B3C03)	
	Target Completion Date: 01/31/2010	**Completion Date:** 01/29/2010

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26. Lessons Learned:

Title:
Incomplete verification of operational status following equipment servicing could result in potential for worker exposure to unexpected hazards

Lesson Learned Statement:
It is important to ensure that all equipment is thoroughly inspected prior to each use and especially during restarts after

maintenance or calibration. It is equally important to flag whenever safety features are disabled so that their timely reinstatement can be ensured.

Discussion of Activities:
Interlocks bypassed during vendor servicing of a laser welder were not reset at job completion. The equipment owner was not aware that the interlocks had been disabled and did not perform a thorough startup inspection. Although no injuries or equipment damage resulted in this case, the equipment was operated in a potentially hazardous configuration.

Analysis:
The laser welder was operated with an interlock defeated without approval because the interlock was taped over and tape was not discovered prior to use. The interlock was left taped over by the Rofin-Baasel service rep following servicing three weeks earlier. The tape was not discovered because the service rep did not communicate its presence to the escort or the user and the user did not perform a thorough check of the interlocks prior to use. Communication did not occur because of lack of requirements and routine interlock checks did not detect the blockage because the procedure was not clear and the user did not expect to find another problem after an earlier incident.

Recommended Actions:
1) Ensure that all equipment is thoroughly inspected prior to each use and especially during restarts after maintenance or calibration. 2) Set up flags in maintenance procedures to indicate the disabling of safety features so that these can be reset properly before normal operations resume.

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27. Similar Occurrence Report Numbers:

NA--SS-SNL-2000-2009-0005
NA--SS-SNL-2000-2009-0004

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28. User-defined Field #1:

29. User-defined Field #2:

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30. HQ Keyword(s):

01A--Inadequate Conduct of Operations - Inadequate Conduct of Operations (miscellaneous)
01E--Inadequate Conduct of Operations - Operations Procedure Noncompliance
01G--Inadequate Conduct of Operations - Inadequate Procedure
01O--Inadequate Conduct of Operations - Inadequate Maintenance
01P--Inadequate Conduct of Operations - Inadequate Oral Communication
08C--OSHA Reportable/Industrial Hygiene - Industrial Hygiene Exposure
11G--Other - Subcontractor
12B--EH Categories - Conduct of Operations
14D--Quality Assurance - Documents and Records Deficiency
14E--Quality Assurance - Work Process Deficiency
14G--Quality Assurance - Procurement Deficiency
14H--Quality Assurance - Inspection and Acceptance Testing Deficiency

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31. HQ Summary:

On October 10, 2009, a laser welder was discovered with the interlocks defeated by tape placed over the sensors. This unit is the same laser welder that was previously reported as having defeated interlocks. The investigation revealed that the local manufacturer's representative actually put the tape over the sensors (as a routine part of their repair activities)

and forgot to remove it when finished. The tape was not noticed by the Lab escort or the laser welder operator. The laser welder was used twice with the tape in place before it was discovered. The laser welder was removed from service. Management notifications were made. A formal root cause analysis of this event will be scheduled immediately. There were no injuries associated with this event.

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32. DOE Facility Representative Input:

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33. DOE Program Manager Input:

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34. Approvals:

Approved by: Robert Burkhart, Facility Manager/Designee
Date: 12/02/2009
Telephone No.: (505) 844-6497