

# Occurrence Report

## After 2003 Redesign

National Synchrotron Light Source

(Name of Facility)

Accelerators

(Facility Function)

Brookhaven National Laboratory

Brookhaven National Laboratory

(Site)

(Contractor)

**Name:** ACKERMAN, ANDREW

**Title:** NSLS ESH/Q MANAGER

**Telephone No.:** (631) 344-5431

(Facility Manager/Designee)

**Name:** SIERRA, EDWARD A

**Title:** LLL/ORPS COORDINATOR

**Telephone No.:** (631) 344-4080

(Originator/Transmitter)

**Name:**

**Date:**

(Authorized Classifier (AC))

**1. Occurrence Report Number:** SC--BHSO-BNL-NSLS-2009-0002

Violation of Two Person Rule

**2. Report Type and Date:** FINAL

	Date	Time
<b>Notification:</b>	11/09/2009	16:25 (ETZ)
<b>Initial Update:</b>	12/10/2009	07:29 (ETZ)
<b>Latest Update:</b>	12/10/2009	07:29 (ETZ)
<b>Final:</b>	12/10/2009	07:29 (ETZ)

**3. Significance Category:** 3

**4. Division or Project:** National Synchrotron Light Source

**5. Secretarial Office:** SC - Science

**6. System, Bldg., or Equipment:** Source Development Laboratory

7. UCNI?: No

8. Plant Area: Building 729

9. Date and Time Discovered: 11/04/2009 14:15 (ETZ)

10. Date and Time Categorized: 11/04/2009 16:40 (ETZ)

11. DOE HQ OC Notification:

Date	Time	Person Notified	Organization
11/05/2009	12:15 (ETZ)	DOE Watch Officer	DOE/HQ

12. Other Notifications:

Date	Time	Person Notified	Organization
11/04/2009	16:40 (ETZ)	A. Ackerman	BNL
11/04/2009	16:40 (ETZ)	K. Sullivan	BNL
11/04/2009	16:40 (ETZ)	A. Janczewski	DOE/BHSO

13. Subject or Title of Occurrence:

Violation of Two Person Rule

14. Reporting Criteria:

4B(6) - A facility or operations shutdown (i.e., a change of operational mode or curtailment of work or processes) directed by management for safety reasons.

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)

15. Description of Occurrence:

At Brookhaven National Laboratory (BNL) on November 4, 2009, the "two person rule" at the Source Development Laboratory (SDL) was violated. The SDL Manager discovered the facility operating with just one person present. The "two person rule" is included in the SDL Accelerator Safety Envelope, which requires two persons within the SDL building whenever the accelerator is operating. As a result of the violation, the Source Development Laboratory was shutdown.

The violation lasted for just 90 seconds. There was no injury or equipment damage. The act of the second person leaving the building did not increase the risk of injury to others. The rule was established as a contingency measure to prevent a "working alone" situation.

16. Is Subcontractor Involved? No

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**17. Operating Conditions of Facility at Time of Occurrence:**

Normal Operations

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**18. Activity Category:**

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

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**19. Immediate Actions Taken and Results:**

As a result of the violation, the Source Development Laboratory was shutdown.

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**20. ISM:**

3) Develop and Implement Hazard Controls

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**21. Cause Code(s):**

A3B1C03 - Human Performance Less Than Adequate (LTA); Skill Based Errors; Incorrect performance due to mental lapse

-->couplet - A4B1C03 - Management Problem; Management Methods Less Than Adequate (LTA); Management direction created insufficient awareness of the impact of actions on safety / reliability

A5B4C02 - Communications Less Than Adequate (LTA); Verbal Communications LTA; Shift communications LTA

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**22. Description of Cause:**

A3B1C03 - Incorrect performance due to mental lapse

The Laser Scientist indicated that he left the building to go to the National Synchrotron Light Source (NSLS) stockroom. He thought there were two people in the Source Development Laboratory SDL, but did not check before leaving. When he saw the SDL Manager outside the building, it occurred to him that maybe there were not two people, so he went back to check. The Accelerator Operator indicated that he was unaware that the Laser Operator had left the building. He thought the Laser Operator was in the laser room and did not know if he was left alone at any time.

The requirement for two persons in the building during operations is well known and often reinforced. Scheduling of the facility includes careful consideration of this rule. The facility typically operates for one, eight hour shift in any twenty hour day. Some experiments require two people present for efficient data collection. Some experiments require only the Accelerator Operator for data collection. A Laser Scientist is always needed for some portion of any given run. His or her involvement level depends on the operating conditions. There are nine people with sufficient training to work at the SDL. Accelerator Operator training includes requirement for the Operator to read the Operator Aids. One of these aids includes the two person requirement.

A4B1C03 - Management direction created insufficient awareness of the impact of actions on safety / reliability

A5B4C02 - Shift communications LTA

The two person rule is a department choice and is considered a necessary contingency measure to prevent a, "working alone" situation. It appears that the Laser Scientist knew the two person requirement, but did not appreciate the consequences of breaking this rule. Communications between the Laser Scientist and the Accelerator Operator were

inadequate. The Laser Scientist choice to leave the Accelerator Operator alone was unacceptable, unreasonable, and unwise, but not malicious. If one of the two people working at the SDL must leave, machine operation can be stopped or another individual can be called to cover the requirement.

### 23. Evaluation (by Facility Manager/Designee):

Violation of the Accelerator Safety Envelope resulted in a shutdown of SDL operation for over twenty four hours. SDL shutdown along with the actions taken below has sent a strong message to the staff that rule violations are not tolerated and have significant consequence.

### 24. Is Further Evaluation Required?: No

### 25. Corrective Actions

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

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|----|---|------------------------------------|-----------------------------|
| 1. | A meeting will be held with the SDL staff and attended by the Acting NSLS Chairperson, the SDL Manager, and the NSLS ESH&Q Manager to discuss the event, review the "Two Person Occupancy Rule," review the "New E-Logging Rule for SDL Operation," reinforce the importance of strict adherence to requirements, and review the "Corrective Action Plan."  | Target Completion Date: 11/12/2009 | Completion Date: 11/12/2009 |
| 2. | Implement a Conduct of Operations requirement for entry to the electronic operator log such that the identity of the two persons responsible for attendance at the facility is documented.  | Target Completion Date: 11/12/2009 | Completion Date: 11/12/2009 |
| 3. | Affix the following signage at four egress points in SDL: Two Person Occupancy Rule is in Effect During SDL Operation Two persons must be E-logged into the SDL E-Log System during operations and they must E-Log out prior to exiting Building 729. If You are One of the Two Persons then Prior to exiting Building 729 You Must Either: 1) Safely Cease Electron Beam Operation at the Facility or 2) Establish a Replacement Person who must E-log into the SDL E-Log System. In both cases the departing person must E-log out of the SDL E-Log System. | Target Completion Date: 12/04/2009 | Completion Date: 12/04/2009 |
| 4. | Complete an eight day Safety Stand Down at SDL.   | Target Completion Date: 11/12/2009 | Completion Date: 11/12/2009 |
| 5. | Add a reminder of the "Two Person Occupancy Rule" and reflect the New E-Logging Rule on the SDL Control Computer Startup Banner.  | Target Completion Date: 11/12/2009 | Completion Date: 11/12/2009 |
| 6. | Enter a letter of reprimand in the file of the Laser Scientist and discuss the contents of the letter with the Scientist.   | Target Completion Date: 11/30/2009 | Completion Date: 11/30/2009 |

### 26. Lessons Learned:

Requirement compliance is mandatory and failure can have significant ESH and programmatic consequence. Personnel must adhere to established rules.

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**27. Similar Occurrence Report Numbers:**

DP-RL--WHC-PFP-1994-0049  
EM-SR--WSRC-FGEN-1999-0015  
EM-SR--WSRC-FGEN-2002-0009

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**28. User-defined Field #1:****29. User-defined Field #2:**

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**30. HQ Keyword(s):**

01C--Inadequate Conduct of Operations - Violation of Authorization Basis Elements  
01E--Inadequate Conduct of Operations - Operations Procedure Noncompliance  
01G--Inadequate Conduct of Operations - Inadequate Procedure  
01I--Inadequate Conduct of Operations - Safety System Actuation/Evacuation  
12A--EH Categories - Authorization Basis  
14D--Quality Assurance - Documents and Records Deficiency  
14E--Quality Assurance - Work Process Deficiency

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**31. HQ Summary:**

On November 4, 2009, at Brookhaven National Laboratory, the "two man rule" at the Source Development Laboratory (SDL) was violated. The SDL Manager discovered the facility operating with just one person present. The "two man rule" is included in the SDL Accelerator Safety Envelope, which requires two persons within the SDL building whenever the accelerator is operating. As a result of the violation, the Source Development Laboratory was shutdown. The violation lasted for just 90 seconds. There was no injury or equipment damage. The act of the second man leaving the building did not increase the risk of injury to others. The rule was established as a contingency measure to prevent a "working alone" situation.

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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:** ACKERMAN, ANDREW, Facility Manager/Designee

**Date:** 12/10/2009

**Telephone No.:** (631) 344-5431

